

**TPC Benchmark™ C**  
**Full Disclosure Report**  
**for**  
**IBM Netfinity 6000R**  
**using**  
**Microsoft SQL Server 2000 Enterprise Edition**  
**and**  
**Windows 2000 Advanced Server**

**Submitted for Review**  
**December 11, 2000**



## **First Edition - December 2000**

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

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

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

© Copyright International Business Machines Corporation 2000. All rights reserved.

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

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

### ***Trademarks***

IBM is a registered trademark and Netfinity is a trademark of International Business Machines Corporation.

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

### ***Notes***

<sup>1</sup> MHz only measures microprocessor internal clock speed, not application performance. Many factors affect application performance.

<sup>2</sup> When referring to hard disk capacity, GB, or gigabyte, means one thousand million bytes. Total user-accessible capacity depends on operating environment.

---

# Abstract

IBM Corporation conducted the TPC Benchmark™ C on the IBM Netfinity\* 6000R configured as a client/server system. This report documents the full disclosure information required by the TPC Benchmark™ C Standard Specification, Revision 3.5, including the methodology used to achieve the reported results. All testing fully complied with this revision level.

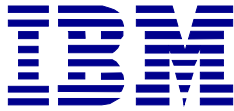
The software used on the IBM Netfinity 6000r system includes Microsoft\*\* Windows\*\* 2000 Advanced Server operating system and Microsoft SQL Server 2000 Enterprise Edition database.

Two standard metrics, transactions per minute-C (tpmC) and price per tpmC (\$/tpmC), are reported as required by the TPC Benchmark C Standard Specification.

The benchmark results are summarized in the following table.

| <b>Hardware</b>            | <b>Software</b>  | <b>Total System Cost</b> | <b>tpmC</b>      | <b>\$/tpmC</b> | <b>Total Solution Availability Date</b> |
|----------------------------|--|--------------------------|------------------|----------------|---|
| <b>IBM Netfinity 6000R</b> | <b>Microsoft SQL Server 2000 Enterprise Edition</b><br><b>Microsoft Windows 2000 Advanced Server</b> | <b>\$483,092</b>         | <b>34,264.90</b> | <b>\$14.10</b> | <b>Dec. 11, 2000</b>                    |

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



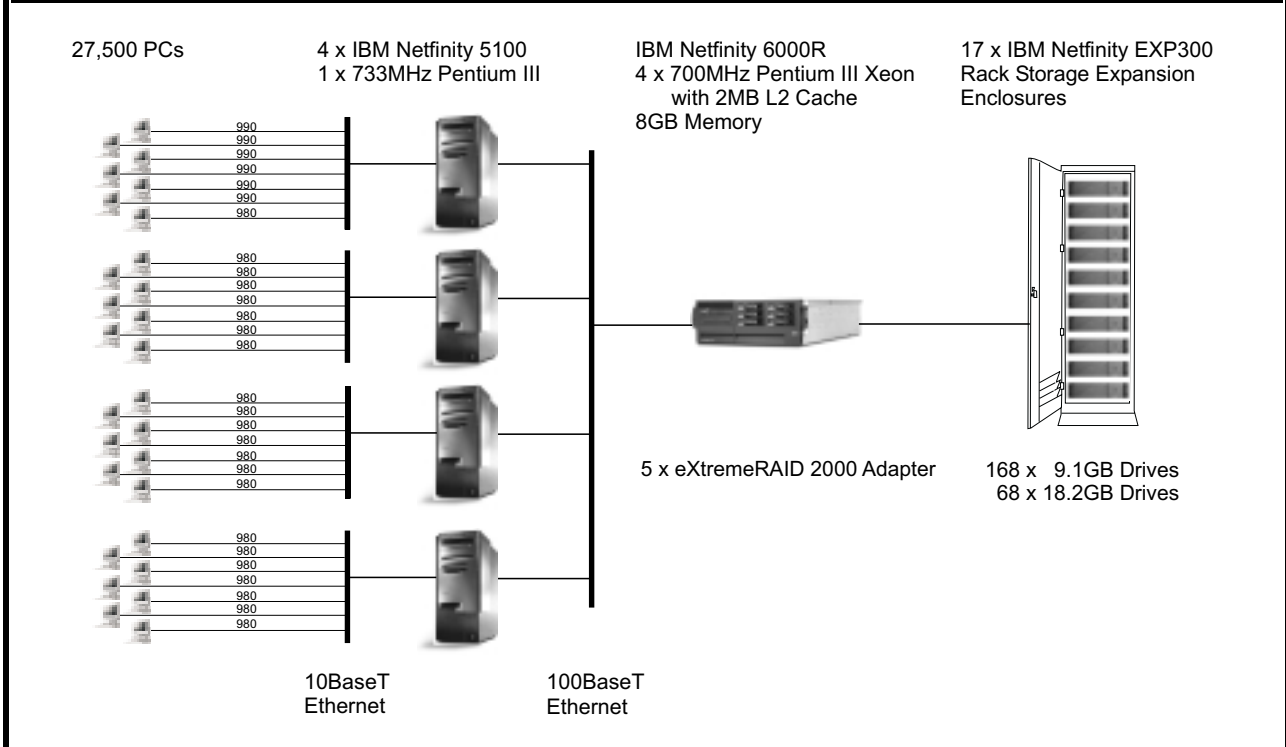
# IBM Netfinity 6000R c/s

TPC-C Rev 3.5

Report Date: Dec. 11, 2000

|                   |                       |                      |                      |
|-------------------|-----------------------|----------------------|----------------------|
| Total System Cost | TPC-C Throughput      | Price/Performance    | Availability Date    |
| <b>\$483,092</b>  | <b>34,264.90 tpmC</b> | <b>\$14.10 /tpmC</b> | <b>Dec. 11, 2000</b> |

|   |   |   |  |                 |
|---|---|---|--|-----------------|
| Processors  | Database Manager                                    | Operating System                              | Other Software                                       | Number of Users |
| <b>4 Intel Pentium III Xeon 700MHz 2MB L2 Cache</b> | <b>Microsoft SQL Server 2000 Enterprise Edition</b> | <b>Microsoft Windows 2000 Advanced Server</b> | <b>Microsoft Visual C++ 6.0 Win32 Microsoft COM+</b> | <b>27,500</b>   |



| System Component | Qty | Server                  | Qty | Each of Four Clients  |
|------------------|-----|-------------------------|-----|-----------------------|
| Processors       | 4   | 700MHz Pentium III      | 1   | 733MHz Pentium III    |
| Cache            |     | Xeon w/2MB L2 Cache     |     | w/256KB L2 Cache      |
| Memory           | 16  | 512MB                   | 1   | 128MB                 |
|                  |     |                         | 1   | 256MB                 |
| Disk Controllers | 5   | Mylex eXtremeRAID 2000  | 1   | Ultra160 SCSI Onboard |
| Disk Drives      | 168 | 9.1GB (15000 rpm)       | 1   | 9.1GB Hard Disk       |
|                  | 68  | 18.2GB (15000 rpm)      |     |                       |
|                  | 1   | 9.1GB (10000rpm)        |     |                       |
| Total Storage    |     | 2775.5GB                |     |                       |
| Tape Drive       | 1   | 10/20GB SCSI Tape Drive |     |                       |

| IBM Corporation   |              | Netfinity 6000r c/s |         | TPC-C Revision 3.5                  |       |                 |                           |
|---|--------------|---------------------|---------|-------------------------------------|-------|-----------------|---------------------------|
|   |              |                     |         | Report Date: Dec. 11, 2000          |       |                 |                           |
| Description   | Order Number | Third-Party Brand   | Pricing | Unit Price                          | Qty   | Ext. Price      | 5-Yr. Maint.*             |
| <b>Server Hardware</b>  |              |                     |         |                                     |       |                 |                           |
| Netfinity 6000R 700MHz/2MB Pentium III Xeon*  | 86822RY      |                     | 1       | \$6,555                             | 1     | \$6,555         | \$5,695                   |
| 700MHz/2MB L2 Cache Processor Upgrade   | 00N7944      |                     | 1       | 3,745                               | 3     | 11,235          | 0                         |
| 512MB ECC SDRAM RDIMM Memory Kit  | 33L3117      |                     | 1       | 1,429                               | 15    | 21,435          | 0                         |
| Netfinity 9.1GB 10K Ultra160 SCSI Drive   | 33L7204      |                     | 1       | 319                                 | 1     | 319             | 0                         |
| Mylex eXtremeRAID 2000 Adapter**  | E2000-4-32NB | Mylex               | 3       | 1,872                               | 7     | 13,104          | 0                         |
| Netfinity 4.2M Ultra2 SCSI Cable  | 03K9311      |                     | 1       | 99                                  | 18    | 1,782           | 0                         |
| Netfinity 10/100 Ethernet Adapter 2   | 34L1501      |                     | 1       | 89                                  | 1     | 89              | 0                         |
| E54 14" (13.8" Viewable) Color Monitor*   | 6331B2N      |                     | 1       | 169                                 | 1     | 169             | 270                       |
| 10/20GB Internal SCSI Tape Drive  | 09N4042      |                     | 5       | 439                                 | 1     | 439             | 0                         |
| Netfinity Rack*   | 9306900      |                     | 1       | 1,565                               | 2     | 3,130           | 2,520                     |
| Side Panel Kit  | 94G6669      |                     | 1       | 219                                 | 1     | 219             | 0                         |
| <b>Storage Hardware</b>   |              |                     |         |                                     |       |                 |                           |
| Netfinity EXP300 Rack Storage Enclosure*  | 35311RU      |                     | 1       | 2,890                               | 17    | 49,130          | 12,886                    |
| 9.1GB 15K Ultra160 SCSI Drive   | 19K0655      |                     | 1       | 539                                 | 168   | 90,552          | 0                         |
| 18.2GB 15K Ultra160 SCSI Drive  | 19K0656      |                     | 1       | 720                                 | 68    | 48,960          | 0                         |
|   |              |                     |         |                                     |       | <b>Subtotal</b> | <b>\$247,118 \$21,371</b> |
| <b>Server Software</b>  |              |                     |         |                                     |       |                 |                           |
| Microsoft SQL Server 2000 Enterprise Edition  | 810-00846    | Microsoft           | 2       | 16,541                              | 4     | \$66,164        | \$0                       |
| Microsoft Windows 2000 Advanced Server  | C10-00475    | Microsoft           | 2       | 2,399                               | 1     | 2,399           | 0                         |
| Five-Year Maintenance for Software  |              | Microsoft           | 2       | 10,475                              | 1     |                 | 10,475                    |
|   |              |                     |         |                                     |       | <b>Subtotal</b> | <b>\$68,563 \$10,475</b>  |
| <b>Client Hardware</b>  |              |                     |         |                                     |       |                 |                           |
| IBM Netfinity 5100 / 733MHz/256KB Pentium III*  | 86582RY      |                     | 1       | 2,050                               | 4     | \$8,200         | \$22,780                  |
| 9.1GB 10K Ultra160 SCSI Drive   | 37L7204      |                     | 1       | 319                                 | 4     | 1,276           | 0                         |
| 256MB 133MHz ECC SDRAM RDIMM  | 33L3125      |                     | 1       | 539                                 | 4     | 2,156           | 0                         |
| Netfinity 10/100 Ethernet PCI Adapter   | 34L1501      |                     | 1       | 89                                  | 4     | 356             | 0                         |
| E54 15" (13.8" Viewable) Color Monitor*   | 6331B2N      |                     | 1       | 169                                 | 4     | 676             | 1,080                     |
|   |              |                     |         |                                     |       | <b>Subtotal</b> | <b>\$12,664 \$23,860</b>  |
| <b>Client Software</b>  |              |                     |         |                                     |       |                 |                           |
| Microsoft Windows 2000 Server with COM+   | C11-00821    | Microsoft           | 2       | 738                                 | 4     | 2,952           | 0                         |
| Microsoft Visual C++ Professional 6.0 Win32   | 048-00317    | Microsoft           | 2       | 549                                 | 1     | 549             | 0                         |
|   |              |                     |         |                                     |       | <b>Subtotal</b> | <b>\$3,501 \$0</b>        |
| <b>User Connectivity</b>  |              |                     |         |                                     |       |                 |                           |
| 8-Port 10Mbps Hub***  | DEH2924      | Generic             | 1       | 25                                  | 3,795 | 94,875          | 0                         |
| 8-Port 10/100Mbps Nway Fast Ethernet Switch***  | NX-H8TX      | NETLUX              | 4       | 95                                  | 7     | 665             | 0                         |
|   |              |                     |         |                                     |       | <b>Subtotal</b> | <b>\$95,540 \$0</b>       |
|   |              |                     |         |                                     |       | <b>Total</b>    | <b>\$427,386 \$55,706</b> |
| Notes: * The standard 3-year and extended warranties on IBM hardware is for 7x24, 4-hour response time coverage. ** Five-year warranty. *** 10% or minimum 2 spares are added in place of on-site service (products have a 5-year return-to-vendor-warranty)<br>Pricing: 1 - Software House International; 2 - Microsoft Corp.; 3 - Mylex ; 4 - NETLUX; 5 - IBM Corp.   |              |                     |         | <b>Five-Year Cost of Ownership:</b> |       | \$483,092       |                           |
|   |              |                     |         | <b>tpmC Rating:</b>                 |       | 34264.90        |                           |
|   |              |                     |         | <b>\$ / tpmC:</b>                   |       | \$14.10         |                           |
| Audited by Bradley J. Askins of InfoSizing, Inc.  |              |                     |         |                                     |       |                 |                           |
| 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 specification. If you find that stated prices are not available according to these terms, please inform the TPC at pricing@tpc.org. Thank you. |              |                     |         |                                     |       |                 |                           |

| <b>Numerical Quantities Summary</b>   |                      |                          |                          |
|---|----------------------|--------------------------|--------------------------|
| MQTh, Computed Maximum Qualified Throughput:<br>% throughput difference, reported and reproducibility runs: |                      |                          | 34,264.90 tpmC<br>0.064% |
| <b>Response Times<br/>(in seconds)</b>  | <b>Average</b>       | <b>Maximum</b>           | <b>90 %-tile</b>         |
| New-Order   | 0.47                 | 21.29                    | 0.82                     |
| Payment   | 0.40                 | 27.84                    | 0.75                     |
| Delivery  | 0.13                 | 7.21                     | 0.16                     |
| Stock Level   | 1.20                 | 11.88                    | 1.75                     |
| Order Status  | 0.41                 | 6.04                     | 0.75                     |
| Delivery (Deferred)   | 0.21                 | 0.89                     | 0.35                     |
| Menu  | 0.13                 | 13.46                    | 0.17                     |
| <b>Transaction Mix (in percent of total transactions)</b>   |                      | <b>Total Occurrences</b> | <b>Percent</b>           |
| New-Order   |                      | 685,298                  | 44.89                    |
| Payment   |                      | 656,525                  | 43.01                    |
| Delivery  |                      | 61,504                   | 4.03                     |
| Stock-Level   |                      | 61,582                   | 4.03                     |
| Order Status  |                      | 61,643                   | 4.04                     |
| <b>Emulation Delay (in seconds)</b>   | <b>Response Time</b> |                          | <b>Menu</b>              |
| New-Order   | 0.1                  |                          | 0.1                      |
| Payment   | 0.1                  |                          | 0.1                      |
| Delivery  | 0.1                  |                          | 0.1                      |
| Stock-Level   | 0.1                  |                          | 0.1                      |
| Order Status  | 0.1                  |                          | 0.1                      |
| <b>Keying/Think Times<br/>(in seconds)</b>  | <b>Average</b>       | <b>Minimum</b>           | <b>Maximum</b>           |
| New Order   | 18.01 / 12.05        | 18.00 / 0.00             | 18.03 / 120.51           |
| Payment   | 3.02 / 12.04         | 3.00 / 0.00              | 3.03 / 120.50            |
| Delivery  | 2.01 / 5.06          | 2.00 / 0.00              | 2.03 / 50.50             |
| Stock Level   | 2.01 / 5.03          | 2.00 / 0.00              | 2.03 / 48.61             |
| Order Status  | 2.02 / 10.06         | 2.00 / 0.00              | 2.03 / 100.50            |
| <b>Test Duration</b>  |                      |                          |                          |
| Ramp-up time  |                      |                          | 21 minutes               |
| Measurement interval  |                      |                          | 20 minutes               |
| Number of transactions (all types) completed in measurement interval  |                      |                          | 1,588,062                |
| Ramp-down time  |                      |                          | 22 minutes               |
| Number of checkpoints in measurement interval   |                      |                          | 1                        |
| Checkpoint interval   |                      |                          | 20 minutes               |

## Table of Contents

|   |    |
|---|----|
| <b>Abstract</b> .....   | 3  |
| <b>Numerical Quantities Summary</b> .....   | 5  |
| <b>Preface</b> .....  | 11 |
| <b>General Items</b> .....  | 12 |
| Application Code Disclosure and Definition Statements .....   | 12 |
| Benchmark Sponsor .....   | 12 |
| Parameter Settings .....  | 12 |
| Configuration Diagrams .....  | 12 |
| <i>IBM Netfinity 6000R Measured Configuration</i> .....   | 13 |
| <i>IBM Netfinity 6000R Priced Configuration</i> .....   | 14 |
| <i>Drives and Storage Substitutions</i> .....   | 14 |
| <b>Clause 1: Logical Database Design Related Items</b> .....  | 14 |
| Table Definitions .....   | 15 |
| Physical Organization of the Database .....   | 15 |
| Insert and Delete Operations .....  | 15 |
| Horizontal or Vertical Partitioning .....   | 15 |
| Replication .....   | 15 |
| Table Attributes .....  | 15 |
| <b>Clause 2: Transaction and Terminal Profiles Related Items</b> .....                                    | 15 |
| Random Number Generation .....  | 16 |
| Screen Layout .....   | 16 |
| Terminal Verification .....   | 16 |
| Intelligent Terminals .....   | 16 |
| Transaction Profiles .....  | 16 |
| Deferred Delivery Mechanism .....   | 17 |
| <b>Clause 3: Transaction and System Properties Related Items</b> .....                                    | 18 |
| Atomicity Requirements .....  | 18 |
| <i>Completed Transactions</i> .....   | 18 |
| <i>Aborted Transactions</i> .....   | 18 |
| Consistency Requirements .....  | 18 |
| Isolation Requirements .....  | 19 |
| Durability Requirements .....   | 19 |
| <i>Loss of Data Test</i> .....  | 19 |
| <i>Combined Loss of Log and Loss of System Test (Instantaneous Interruption and Loss of Memory)</i> ..... | 20 |
| <b>Clause 4: Scaling and Database Population Related Items</b> .....                                      | 21 |
| Cardinality of Tables .....   | 21 |
| Distribution of Tables and Logs .....   | 22 |
| Database Model Implemented .....  | 22 |
| Partitions/Replications Mapping .....   | 22 |
| 180-Day Space Requirement .....   | 22 |
| <b>Clause 5: Performance Metrics and Response Time Related Items</b> .....                                | 23 |
| Measured tpmC .....   | 23 |
| Response Times .....  | 23 |
| Keying/Think Times .....  | 23 |
| Response Time Frequency Distribution Curves .....   | 24 |
| Performance Curve for Response Time vs. Throughput .....  | 26 |
| Throughput vs. Elapsed Time .....   | 27 |
| Steady State Methodology .....  | 28 |
| Work Performed during Steady State .....  | 28 |
| <i>Transaction Flow</i> .....   | 28 |
| Checkpoints .....   | 28 |
| Reproducibility Methodology .....   | 28 |

|   |           |
|---|-----------|
| Measurement Interval  | 28        |
| Transaction Mix   | 29        |
| Percentage of Total Mix   | 29        |
| Number of Checkpoints   | 29        |
| <b>Clause 6: SUT, Driver and Communication Definition Related Items</b> | <b>30</b> |
| Description of RTE  | 30        |
| Emulated Components   | 30        |
| Benchmarked and Targeted System Configuration Diagrams                  | 30        |
| Network Configuration   | 30        |
| Network Bandwidth   | 30        |
| Operator Intervention   | 30        |
| <b>Clause 7: Pricing Related Items</b>                                  | <b>31</b> |
| Hardware and Software Components  | 31        |
| Availability Date   | 31        |
| Measured tpmC   | 31        |
| Country-Specific Pricing  | 31        |
| Usage Pricing   | 31        |
| System Pricing  | 32        |
| <b>Clause 9: Audit Related Items</b>                                    | <b>33</b> |
| Auditor   | 33        |
| Availability of the Full Disclosure Report                              | 33        |
| <i>Attestation letter</i>   | 34        |
| <b>Appendix A: Source Code</b>  | <b>36</b> |
| <i>_delivery.h</i>  | 36        |
| <i>_neworder.h</i>  | 37        |
| <i>_orderstatus.h</i>   | 38        |
| <i>_payment.h</i>   | 39        |
| <i>_stocklevel.h</i>  | 40        |
| <i>clientutils.c</i>  | 41        |
| <i>clientutils.h</i>  | 43        |
| <i>databuf.h</i>  | 44        |
| <i>databuf.h.new</i>  | 48        |
| <i>db_dblib_dll.dsp</i>   | 50        |
| <i>delivery.h</i>   | 51        |
| <i>dlldata.c</i>  | 52        |
| <i>error.h</i>  | 53        |
| <i>install.C</i>  | 55        |
| <i>install.dsp</i>  | 65        |
| <i>install.h</i>  | 66        |
| <i>install.rc</i>   | 67        |
| <i>install_com.cpp</i>  | 70        |
| <i>isapi_dll_resource.h</i>   | 74        |
| <i>isapi_dll.dsp</i>  | 74        |
| <i>methods.h</i>  | 76        |
| <i>mon_client.c</i>   | 78        |
| <i>mon_client.h</i>   | 82        |
| <i>neworder.h</i>   | 83        |
| <i>orderstatus.h</i>  | 84        |
| <i>payment.h</i>  | 85        |
| <i>readregistry.cpp</i>   | 86        |
| <i>readregistry.h</i>   | 87        |
| <i>resource.h</i>   | 87        |
| <i>stocklevel.h</i>   | 88        |
| <i>rtetime.h</i>  | 89        |
| <i>spinlock.h</i>   | 89        |



|                                    |     |
|------------------------------------|-----|
| <i>tm_com_dll.dsp</i>              | 90  |
| <i>tpcc.cpp</i>                    | 92  |
| <i>tpcc.def</i>                    | 117 |
| <i>tpcc.h</i>                      | 118 |
| <i>tpcc.rc</i>                     | 120 |
| <i>tpcc_com.cpp</i>                | 121 |
| <i>tpcc_com.h</i>                  | 123 |
| <i>tpcc_com_all.cpp</i>            | 125 |
| <i>tpcc_com_all.def</i>            | 130 |
| <i>tpcc_com_all.dsp</i>            | 130 |
| <i>tpcc_com_all.h</i>              | 132 |
| <i>tpcc_com_all.idl</i>            | 134 |
| <i>tpcc_com_all.rc</i>             | 135 |
| <i>tpcc_com_all_resource.h</i>     | 136 |
| <i>tpcc_type.h</i>                 | 136 |
| <i>tpcc_com_all.rgs</i>            | 137 |
| <i>tpcc_com_all_i.c</i>            | 137 |
| <i>tpcc_com_no.rgs</i>             | 139 |
| <i>tpcc_com_os.rgs</i>             | 139 |
| <i>tpcc_com_pay.rgs</i>            | 140 |
| <i>tpcc_com_ps.def</i>             | 140 |
| <i>tpcc_com_ps.dsp</i>             | 140 |
| <i>tpcc_com_ps.h</i>               | 142 |
| <i>tpcc_com_ps.idl</i>             | 145 |
| <i>tpcc_com_ps_i.c</i>             | 146 |
| <i>tpcc_com_ps_p.c</i>             | 147 |
| <i>tpcc_com_sl.rgs</i>             | 158 |
| <i>tpcc_dblib.cpp</i>              | 158 |
| <i>tpcc_dblib.h</i>                | 169 |
| <i>trans.h</i>                     | 171 |
| <i>txnlog.h</i>                    | 174 |
| <i>txn_base.h</i>                  | 177 |
| <i>webclnt.dsp</i>                 | 177 |
| <i>webclnt.dsw</i>                 | 178 |
| Stored Procedures                  | 180 |
| <i>neword.sql</i>                  | 180 |
| <i>payment.sql</i>                 | 180 |
| <i>ordstat.sql</i>                 | 180 |
| <i>delivery.sql</i>                | 180 |
| <i>stocklev.sql</i>                | 180 |
| <i>version.sql</i>                 | 180 |
| <b>Appendix B: Database Design</b> | 182 |
| <i>backup.sql</i>                  | 182 |
| <i>backupdev.sql</i>               | 182 |
| <i>createdb.sql</i>                | 182 |
| <i>dbopt1.sql</i>                  | 183 |
| <i>dbopt2.sql</i>                  | 183 |
| <i>runcfg80.sql</i>                | 185 |
| <i>sqlshutdown.sql</i>             | 185 |
| <i>verify_msg.sql</i>              | 185 |
| <i>verify_sort.sql</i>             | 185 |
| <i>verify_TpccLoad.sql</i>         | 185 |
| <i>tables.sql</i>                  | 187 |
| <i>idxcusnc.sql</i>                | 188 |
| <i>IDXCUSCL.SQL</i>                | 189 |

|  |     |
|--|-----|
| <i>idxdiscl.sql</i>  | 189 |
| <i>idxitmcl.sql</i>  | 189 |
| <i>idxnodcl.sql</i>  | 190 |
| <i>idxodlcl.sql</i>  | 190 |
| <i>idxordnc.sql</i>  | 190 |
| <i>idxordcl.sql</i>  | 191 |
| <i>idxstkcl.sql</i>  | 191 |
| <i>idxwarcl.sql</i>  | 191 |
| Loader Source Code   | 191 |
| <i>getargs.c</i>   | 192 |
| <i>strings.c</i>   | 196 |
| <i>tpcc.h</i>  | 199 |
| <i>tpccldr.c</i>   | 200 |
| <i>time.c</i>  | 229 |
| <i>random.c</i>  | 229 |
| <i>tpccldr.dsp</i>   | 231 |
| <i>tpccldr.dsw</i>   | 233 |
| <i>tpccldr.mak</i>   | 233 |
| <b>Appendix C: Tunable Parameters</b>                                  | 237 |
| Microsoft Windows 2000 Advanced Server Configuration Parameters        | 237 |
| <i>SQL Server 2000 Stack Size</i>                                      | 237 |
| <i>Boot.ini</i>  | 237 |
| <i>Microsoft SQL Server 2000 Configuration Parameters</i>              | 237 |
| <i>Microsoft SQL Server 2000 Startup Parameters</i>                    | 238 |
| <i>Microsoft Windows 2000 Advanced Server Configuration Parameters</i> | 238 |
| Microsoft Windows 2000 Advanced Server Services                        | 265 |
| Microsoft Windows 2000 Advanced Server Registry Parameters             | 267 |
| Disk Controller Configuration Parameters                               | 267 |
| <i>Mylex eXtremeRAID Adapter 0</i>                                     | 267 |
| <i>Mylex eXtremeRAID Adapter 1</i>                                     | 272 |
| <i>Mylex eXtremeRAID Adapter 2</i>                                     | 276 |
| <i>Mylex eXtremeRAID Adapter 3</i>                                     | 280 |
| <i>Mylex eXtremeRAID Adapter 4</i>                                     | 285 |
| Client Configuration Parameters  | 286 |
| <i>Microsoft Windows 2000 Server Configuration Parameters</i>          | 286 |
| <i>COM+ Settings</i>   | 313 |
| <i>TPCC Application Registry Parameters</i>                            | 313 |
| <i>Microsoft Internet Information Service Registry Parameters</i>      | 313 |
| <i>Worldwide Web Service Registry Parameters</i>                       | 314 |
| RTE Input Parameters   | 314 |
| <b>Appendix D: 180-Day Space</b>                                       | 323 |
| <b>Appendix E: Third-Party Quotations</b>                              | 324 |

---

## Preface

The TPC Benchmark™ C was developed by the Transaction Processing Performance Council (TPC). The TPC was founded to define transaction processing benchmarks and to disseminate objective, verifiable performance data to the industry. This full disclosure report is based on the TPC Benchmark C Standard Specification Version 3.5, released October 25, 1999.

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

TPC Benchmark C is an On Line Transaction Processing (OLTP) workload. It is a mixture of read-only and update-intensive transactions that simulate the activities found in complex OLTP application environments. It does so by exercising a breadth of system components associated with environments, which are characterized by:

- v The simultaneous execution of multiple transaction types that span a breadth of complexity
- v On-line and deferred transaction execution modes
- v Multiple on-line terminal sessions
- v Moderate system and application execution time
- v Significant disk input/output
- v Transaction integrity (ACID properties)
- v Non-uniform distribution of data access through primary and secondary keys
- v Databases consisting of many tables with a wide variety of sizes, attributes and relationships
- v Contention on data access and update

The performance metric reported by TPC-C is a “business throughput” measuring the number of orders processed per minute. Multiple transactions are used to simulate the business activity of processing an order, and each transaction is subject to a response time constraint. The performance metric for this benchmark is expressed in transactions-per-minute-C (tpmC). To be compliant with the TPC-C standard, all references to tpmC results must include the tpmC rate, the associated price-per-tpmC, and the availability date of the priced configuration.

Despite the fact that this benchmark offers a rich environment that emulates many OLTP applications, this benchmark does not reflect the entire range of OLTP requirements. In addition, the extent to which a customer can achieve the results reported by a vendor is highly dependent on how closely TPC-C approximates the customer application. The relative performance of systems derived from this benchmark does not necessarily hold for other workloads or environments. Extrapolations to any other environment are not recommended.

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

---

## General Items

### Benchmark Sponsor

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

This benchmark was sponsored by International Business Machines Corporation.

### Application Code Disclosure and Definition Statements

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

Appendix A contains all source code implemented in this benchmark.

### Parameter Settings

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

- v Database tuning options*
- v Recovery/commit options*
- v Consistency/locking options*
- v Operating system and application configuration parameters.*
- v Compilation and linkage options and run-time optimizations used to create/install applications, OS, and/or databases.*

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

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

### Configuration Diagrams

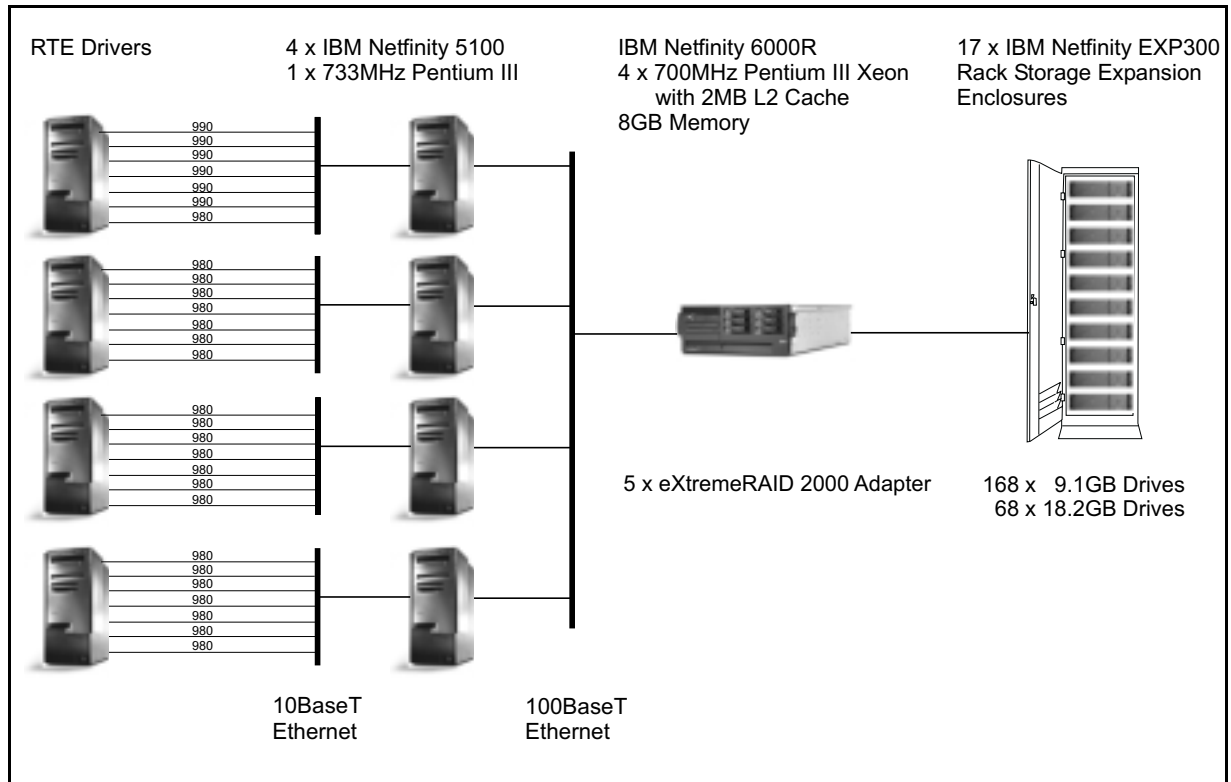
*Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences.*

The configuration diagrams for the tested and priced systems are provided on the following pages.

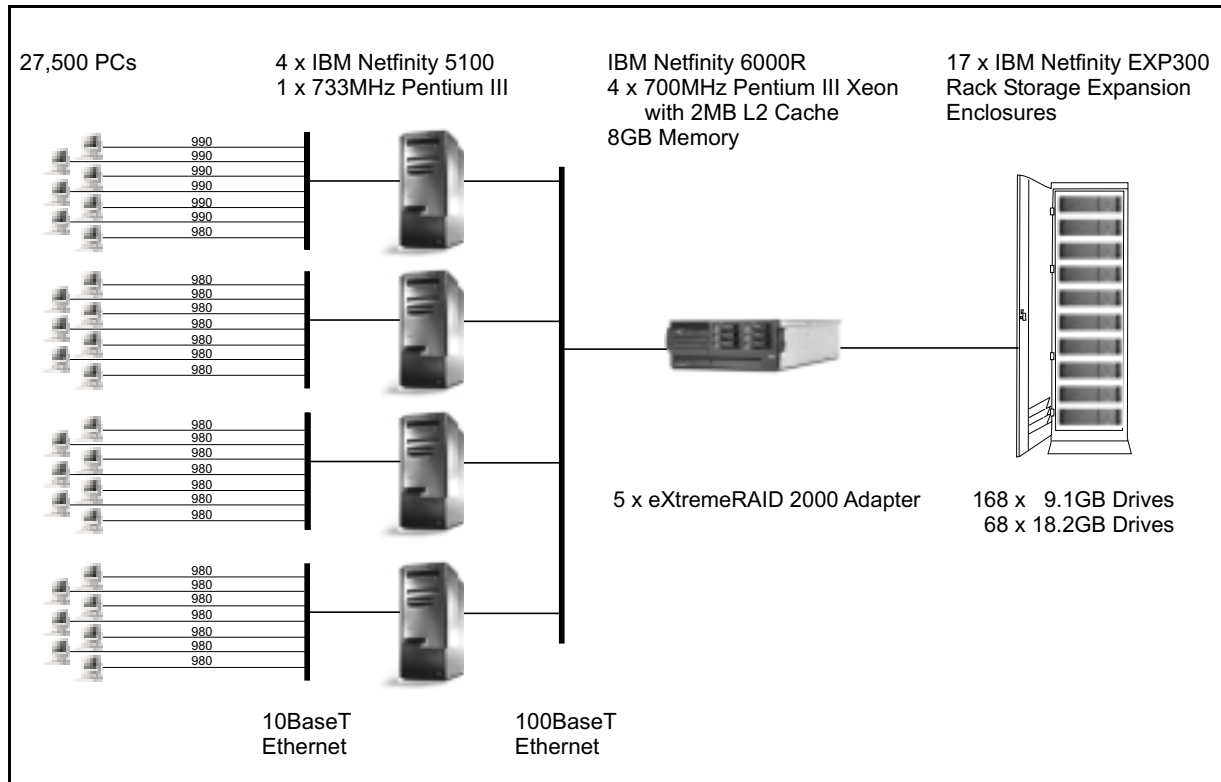
The Remote Terminal Emulator (RTE) used for these TPC Benchmark C tests is the Microsoft BenchCraft RTE. The components of the configuration being emulated by the RTE are the workstations and the Ethernet hubs. Appendix C contains a listing of the RTE scripts and inputs used in the benchmark testing.

The benchmarked configuration used IBM Netfinity 5100 systems as clients, which executed the terminal I/O and submitted transactions to COM+ servers, which are also running on the clients. These COM+ servers forwarded the transaction requests to the server, and returned the results to the RTE. Microsoft SQL Server 2000 Enterprise Edition is the DBMS executing on the server

## IBM Netfinity 6000R Measured Configuration



## IBM Netfinity 6000R Priced Configuration



---

## Clause 1: Logical Database Design Related Items

### Table Definitions

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

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

### Physical Organization of the Database

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

Physical space was allocated to Microsoft SQL Server on the server disks as detailed in Figure 4-2.

### Insert and Delete Operations

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

All insert and delete functions were fully operational during the running of the benchmark. The space required for an additional 5 percent of the initial table cardinality was allocated to Microsoft SQL Server 2000 and priced as static space.

### Horizontal or Vertical Partitioning

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

Partitioning was not used in this benchmark.

### Replication

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

Replication was not used in this benchmark.

### Table Attributes

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

No additional attributes were used in this benchmark.

---

## Clause 2: Transaction and Terminal Profiles Related Items

### Random Number Generation

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

The seeds and offsets for the random number generator were collected and verified to be different for each driver. The auditor selected samples of the generated numbers from the database. The samples were verified to have no discernible patterns.

### Screen Layout

*The actual layouts of the terminal input/out screens must be disclosed.*

All screen layouts followed the TPC Benchmark C Standard Specification.

### Terminal Verification

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

The auditor verified terminal features by direct experimentation. The benchmarked configuration uses Microsoft Internet Explorer 5.0 and HTML scripts as the terminal interface.

### Intelligent Terminals

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

The terminals emulated in the priced configuration are IBM PC desktop computer systems. All processing of the input/output screens was handled by the IBM Netfinity 5100 clients. The screen input/output was managed via HTML strings that comply with the HTML Version 2.0 specification. A listing of the code used to implement the intelligent terminals is provided in Appendix A. All data manipulation was handled by the IBM Netfinity 6000r.

### Transaction Profiles

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

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

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

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

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

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

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



**Table 2-1. Transaction Statistics**

| <b>New Order</b>                       | <b>Value (%)</b> |
|--|------------------|
| Home warehouse order lines             | 99.00            |
| Remote warehouse order lines           | 1.00             |
| Rolled back transactions               | 1.01             |
| Average number of items per order      | 10.00            |
| <b>Payment</b>                         |                  |
| Home warehouse payment transactions    | 85.04            |
| Remote warehouse payment transactions  | 14.96            |
| <b>Non-Primary Key Access</b>          |                  |
| Payment transactions using C_LAST      | 60.03            |
| Order-Status transactions using C_LAST | 60.26            |
| <b>Delivery</b>                        |                  |
| Delivery transactions skipped          | 0                |
| <b>Transaction Mix</b>                 |                  |
| New-Order                              | 44.89            |
| Payment                                | 43.01            |
| Delivery                               | 4.03             |
| Stock Level                            | 4.03             |
| Order Status                           | 4.04             |

## Deferred Delivery Mechanism

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

The deferred delivery operation is queued by making an entry in an array within the application process (tpcc.dll) running on the client. Background threads within the application asynchronously process the queued delivery transactions.

The source code is listed in Appendix A.

---

## Clause 3: Transaction and System Properties Related Items

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

### **Atomicity Requirements**

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

All ACID tests were conducted according to specification.

### **Completed Transactions**

The following steps were performed to verify the Atomicity of completed transactions.

1. The balance was retrieved from the CUSTOMER table for a random Customer, District and Warehouse, giving BALANCE\_1.
2. The Payment transaction was executed for the Customer, District and Warehouse used in step 1.
3. The balance was retrieved again for the Customer used in step 1 and step 2, giving BALANCE\_2. It was verified that BALANCE\_1 was greater than BALANCE\_2 by AMT.

### **Aborted Transactions**

The following steps were performed to verify the Atomicity of the aborted Payment transaction:

1. The Payment application code was changed to execute a rollback of the transaction instead of performing the commit.
2. Using the balance, BALANCE\_2, from the CUSTOMER table retrieved for the completed transaction, the Payment transaction was executed for the Customer, District and Warehouse used in step 1 of section 3.1.1. The transaction rolled back due to the change in the application code from step 1.
3. The balance was retrieved again for the Customer used for step 2, giving BALANCE\_3. It was verified that BALANCE\_2 was equal to BALANCE\_3.

### **Consistency Requirements**

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

Consistency conditions one through four were tested using a shell script to issue queries to the database. The results of the queries demonstrated that the database was consistent for all four tests.

## Isolation Requirements

*Sufficient conditions must be enabled at either the system or the application level to ensure that the required isolation defined in Clause 3.4.1 is obtained.*

Isolation tests one through seven were run using 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 and placed in files. The auditor reviewed the results and verified that the isolation requirements had been met.

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

Case A was followed for Isolation test seven.

## Durability Requirements

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

- ✓ Permanent irrecoverable failure of any single durable medium containing TPC-C database tables or recovery log data (this test includes failure of all or part of memory)*
- ✓ Instantaneous interruption (system crash/system hang) in processing that requires system reboot to recover*
- ✓ Failure of all or part of memory (loss of contents)*

## Loss of Data Test

The following steps were successfully performed to pass the Durability test of failure of a disk unit with database tables:

1. The contents of the database were backed up to several database dump devices during the initial database load. There were no dump devices on the disk array from which a drive was removed as part of this test.
2. The current count of the total number of orders was determined by the sum of D\_NEXT\_O\_ID for all rows in the district table giving SUM1.
3. A test was started with 150 users submitting transactions.
4. A disk containing a portion of each of the tables in the tpcc database was removed causing SQL Server to report errors accessing that device.
5. The run was aborted and SQL Server was restarted. Upon restart, the database tpcc reported numerous errors relating to the failed database device.
6. The transaction log was dumped to disk and the failed disk was replaced with a spare disk and was recovered.
7. The database was recovered and restored from the backup dump devices. Afterwards, the transaction log was applied to the database.
8. Step 2 was repeated to obtain the current count of the total number of orders giving SUM2.
9. It was verified that the sum of D\_NEXT\_O\_ID after the database is recovered is greater than or equal to the sum of D\_NEXT\_O\_ID before the run, plus all new order transactions completed during the run minus any rollback transactions.
10. Consistency Condition 3 was verified.

### ***Combined Loss of Log and Loss of System Test (Instantaneous Interruption and Loss of Memory)***

1. The current count of the total number of orders was determined by the sum of D\_NEXT\_O\_ID for all rows in the district table giving SUM1.
2. A test was started under full load with all users submitting transactions.
3. One disk from the log array was removed. Since the disk was RAID-1 mirrored, SQL Server continued to process transactions without interruption.
4. The test continued under full load with all users submitting transactions. A checkpoint was issued, and the system continued to run for another 5 minutes.
5. The server under test was powered off, which removed power from the system and the memory.
6. The server was powered on again.
7. SQL Server was started to initiate automatic recovery from its log.
8. Step 1 was repeated to obtain the current count of the total number of orders giving SUM2.
9. It was verified that the sum of D\_NEXT\_O\_ID after the database is recovered is greater than or equal to the sum of D\_NEXT\_O\_ID before the run, plus all new order transactions completed during the run minus any rollback transactions.

---

## Clause 4: Scaling and Database Population Related Items

### Cardinality of Tables

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

The database was originally built with 2,750 warehouses, and the audited run used all 2,750 warehouses.

**Table 4-1. Initial Cardinality of Tables**

| Table Name          | Rows        |
|---------------------|-------------|
| Warehouse           | 2,750       |
| District            | 27,500      |
| Item                | 100,000     |
| New Order           | 24,750,000  |
| History             | 82,500,000  |
| Orders              | 82,500,000  |
| Customer            | 82,500,000  |
| Order Line          | 824,994,449 |
| Stock               | 275,000,000 |
| Inactive Warehouses | 0           |

## Distribution of Tables and Logs

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

Figure 4-2 depicts the database configuration of the tested system to meet the 8-hour steady state requirement.

**Figure 4-2. Data Distribution for the Benchmarked Configuration**

| Controller | Drives      | Partition    | Size                                | Use                                  |
|------------|-------------|--------------|-------------------------------------|--------------------------------------|
| 1          | 56 - 18.2GB | E:<br>F:     | 39320MB<br>18250MB                  | Customer and Stock<br>Misc.          |
| 2          | 56 - 9.1GB  | G:<br>H:     | 39320MB<br>18250MB                  | Customer and Stock<br>Misc.          |
| 3          | 56 - 9.1GB  | I:<br>J:, Y: | 39320MB<br>18250MB, 120000MB (NTFS) | Customer and Stock<br>Misc., backup1 |
| 4          | 56 - 9.1GB  | K:<br>L:, Z: | 39320MB<br>18250MB, 120000MB (NTFS) | Customer and Stock<br>Misc., backup2 |
| 5          | 12 - 18.2GB | O:           | 86000MB                             | Log file                             |

## Database Model Implemented

*A statement must be provided that describes:*

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

Microsoft SQL Server 2000 Enterprise Edition is a relational database. The interface used was Microsoft SQL Server stored procedures accessed with Remote Procedure Calls embedded in C code using the Microsoft DBLIB interface.

## Partitions/Replications Mapping

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

The database was neither partitioned nor replicated.

## 180-Day Space Requirement

*Details of the 180-day space computations, along with proof that the database is configured to sustain 8 hours of growth for the dynamic tables (Order, Order-Line, and History) must be disclosed (see Clause 4.2.3). (8.1.5.5)*

See Appendix D for details about how the 180-day space requirements were calculated.

---

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

### Measured tpmC

*Measured tpmC must be reported. (8.1.6.1)*

Measured tpmC: 34,264.90 tpmC

Price per tpmC: \$14.10 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. (8.1.6.2)*

The TPC-C requirements for the average response time and the 90th percentile were met. Table 5-1 provides the response times for each of the transaction types and the menu for the measured system.

**Table 5-1. Response Times in Seconds**

| Transaction Type    | Average | Maximum | 90 %-tile |
|---------------------|---------|---------|-----------|
| New-Order           | 0.47    | 21.29   | 0.82      |
| Payment             | 0.40    | 27.84   | 0.75      |
| Delivery            | 0.13    | 7.21    | 0.16      |
| Stock Level         | 1.20    | 11.88   | 1.75      |
| Order Status        | 0.41    | 6.04    | 0.75      |
| Delivery (Deferred) | 0.21    | 0.89    | 0.35      |
| Menu                | 0.13    | 13.46   | 0.17      |

### Keying/Think Times

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

Table 5-2 lists the keying/think times for the measured system.

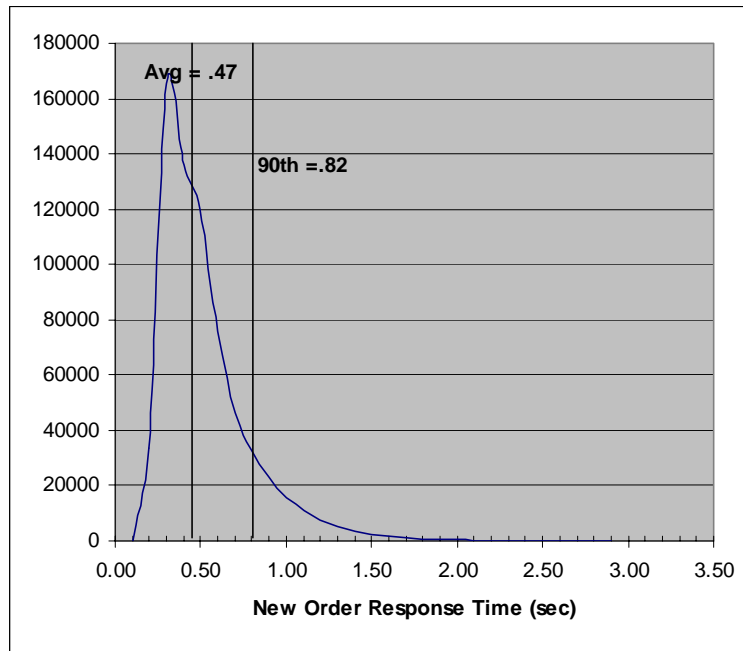
**Table 5-2. Keying/Think Times**

| Transaction Type | Average       | Minimum      | Maximum        |
|------------------|---------------|--------------|----------------|
| New-Order        | 18.01 / 12.05 | 18.00 / 0.00 | 18.03 / 120.51 |
| Payment          | 3.02 / 12.04  | 3.00 / 0.00  | 3.03 / 120.50  |
| Delivery         | 2.01 / 5.06   | 2.00 / 0.00  | 2.03 / 50.50   |
| Stock Level      | 2.01 / 5.03   | 2.00 / 0.00  | 2.03 / 48.61   |
| Order Status     | 2.02 / 10.06  | 2.00 / 0.00  | 2.03 / 100.50  |

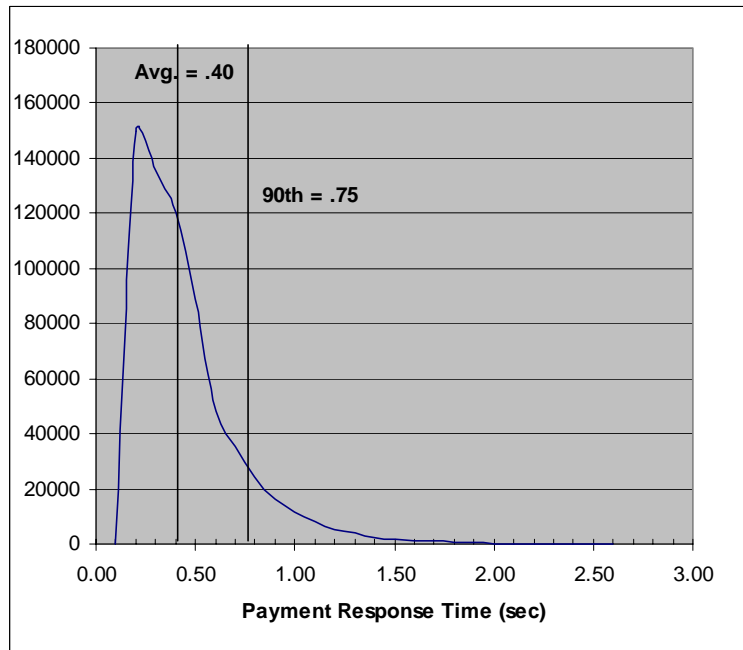
## Response Time Frequency Distribution Curves

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

**Figure 5-1. New-Order Transaction - Response Time Frequency Distribution**

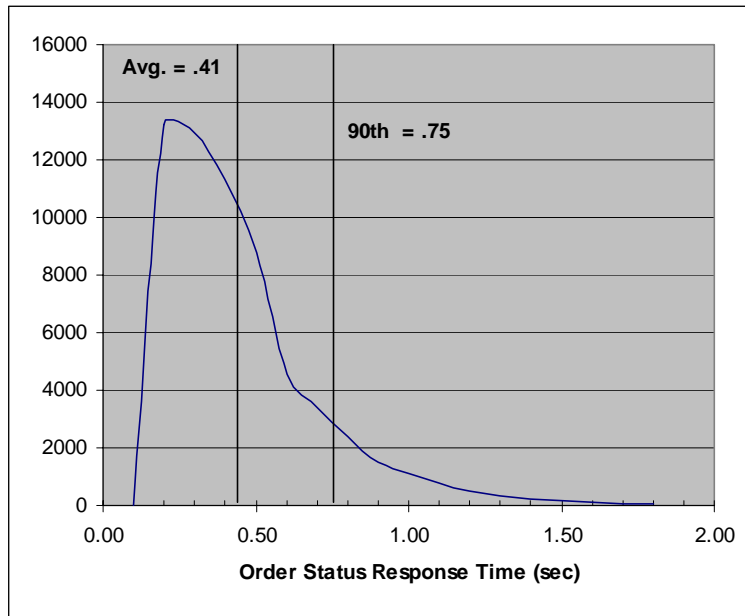


**Figure 5-2. Payment Transaction - Response Time Frequency Distribution**

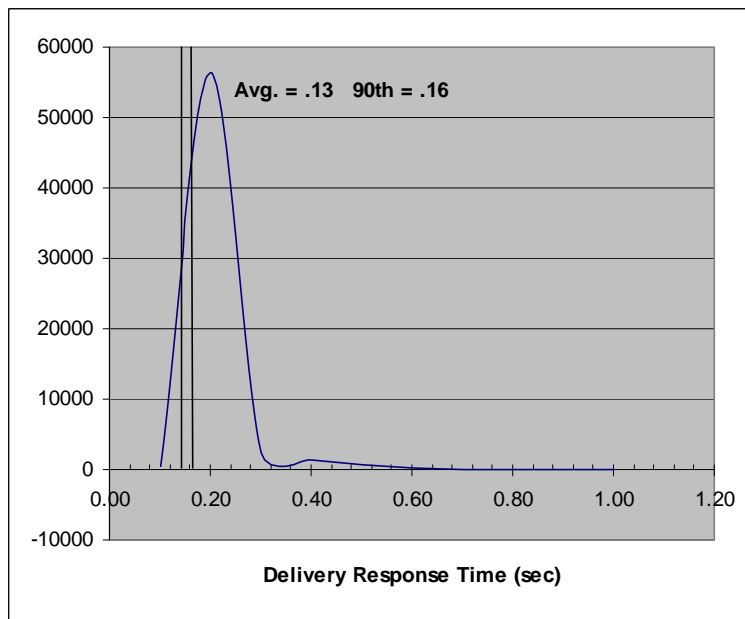




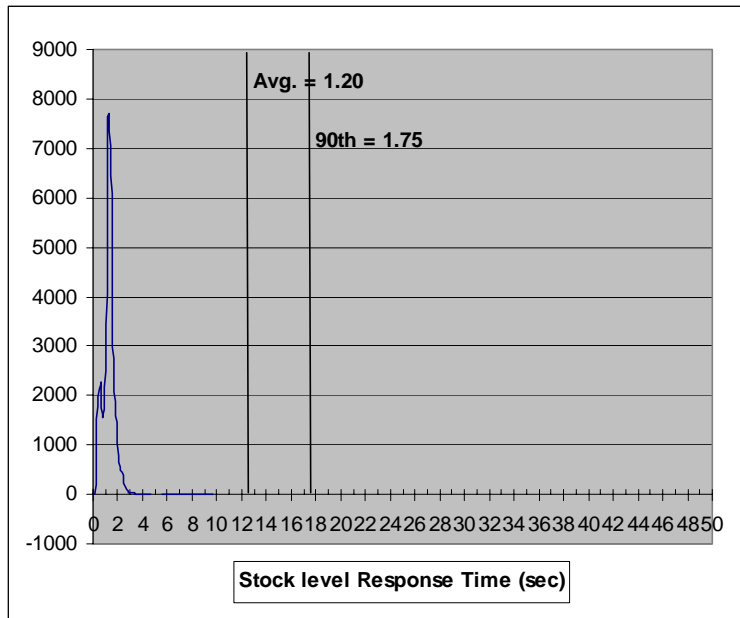
**Figure 5-3. Order-Status Transaction - Response Time Frequency Distribution**



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



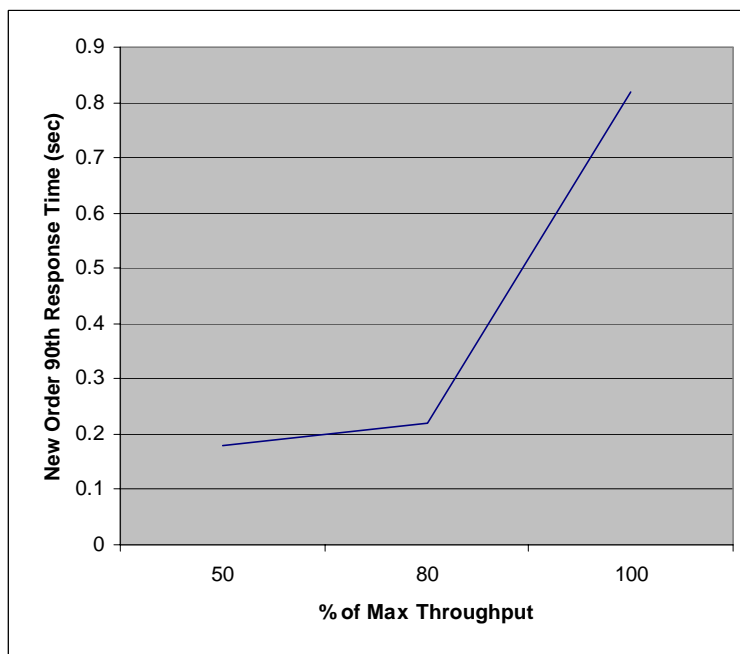
**Figure 5-5. Stock-Level Transaction - Response Time Frequency Distribution**



### Performance Curve for Response Time vs. Throughput

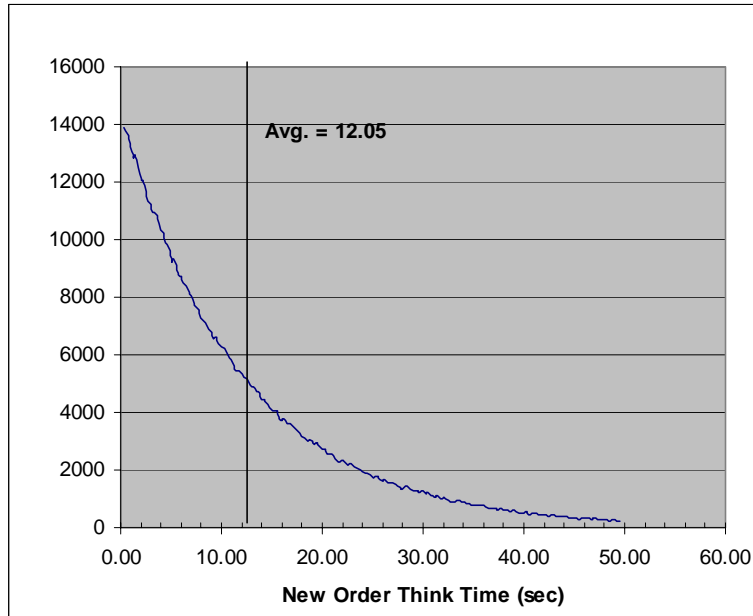
*The performance curve for response time vs. throughput (see Clause 5.6.2) must be reported for the New-Order transaction. (8.1.6.5)*

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



## New Order Think Time Distribution

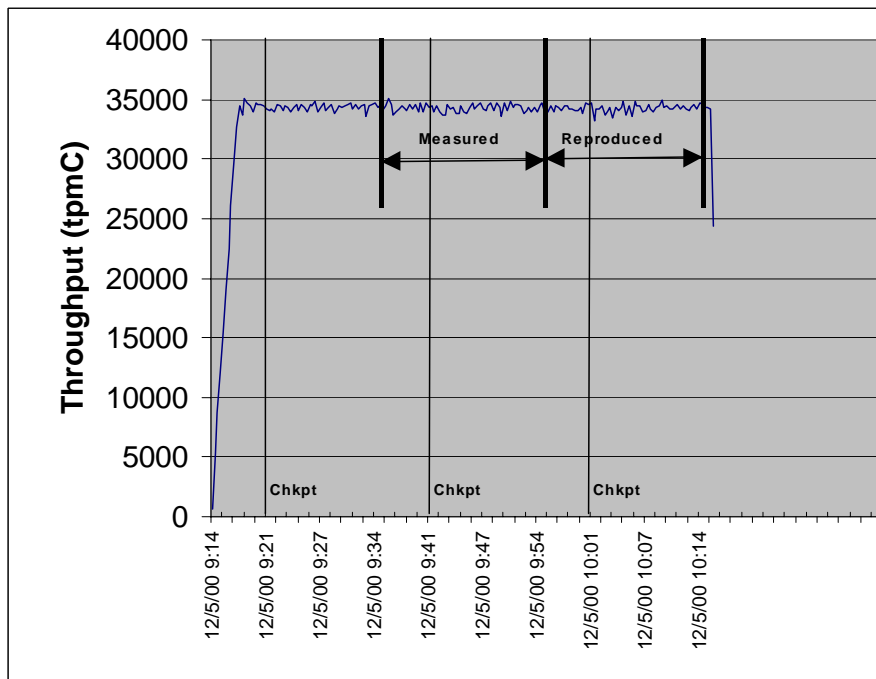
Figure 5-7. New-Order Think Time Distribution



## Throughput vs. Elapsed Time

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

Figure 5-8. New-Order Throughput vs. Elapsed Time



## Steady State Methodology

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

Figure 5-8 shows that the system was in steady state at the beginning of the measurement interval.

## Work Performed during Steady State

*A description of how the work normally performed during a sustained test (e.g., checkpointing, writing redo/undo log records) actually occurred during the measurement interval must be reported. (8.1.6.10)*

### Transaction Flow

The RTE generated the required input data to choose a transaction from the menu. This data was time-stamped. The response for the requested transaction was verified and time-stamped in the RTE log files.

The RTE generated the required input data for the chosen transaction. It waited to complete the minimum required key time before transmitting the input screen. The transmission was time-stamped. The return of the screen with the required response data was time-stamped. The difference between these two time-stamps was the response time for that transaction and was logged in the RTE log.

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

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

## Checkpoints

Checkpoints were executed on the server during the ramp-up phase and at 20-minute intervals. Each measured run contained one checkpoint. SQL Server was started with trace flag 3502, which caused it to log the occurrence of the checkpoint. This information was used to verify that the checkpoints occurred at the appropriate times during the test run.

During a checkpoint, SQL Server flushes all dirty pages from its cache to disk. It places a record in the database transaction log indicating that the checkpoint has completed and that all transactions, which were committed prior to the checkpoint have been written to disk.

## Reproducibility Methodology

*A description of the method used to determine the reproducibility of the measurement results must be reported. (8.1.6.11)*

A repeatability measurement was taken on the IBM Netfinity 6000R for the same length of time as the measured run. The repeatability measurement was 34,242.90 tpmC.

## Measurement Interval

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

The measurement interval was 20 minutes.

## Transaction Mix

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

See Table 5-3.

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

## Percentage of Total Mix

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

See Table 5-3.

**Table 5-3. Transaction Statistics and Transaction Mix**

| <b>New Order</b>                       | <b>Value (%)</b> |
|--|------------------|
| Home warehouse order lines             | 99.00            |
| Remote warehouse order lines           | 1.00             |
| Rolled back transactions               | 1.01             |
| Average number of items per order      | 10.00            |
| <b>Payment</b>                         |                  |
| Home warehouse payment transactions    | 85.04            |
| Remote warehouse payment transactions  | 14.96            |
| <b>Non-Primary Key Access</b>          |                  |
| Payment transactions using C_LAST      | 60.03            |
| Order-Status transactions using C_LAST | 60.26            |
| <b>Delivery</b>                        |                  |
| Delivery transactions skipped          | 0                |
| <b>Transaction Mix</b>                 |                  |
| New-Order                              | 44.89            |
| Payment                                | 43.01            |
| Delivery                               | 4.03             |
| Stock Level                            | 4.03             |
| Order-Status                           | 4.04             |

## Number of Checkpoints

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

Checkpoints were performed during the ramp-up period and during each measured run interval. The measured interval checkpoint started 6 minutes and 53 seconds after the start of the measurement interval. The checkpoint in the measured interval lasted 9 minutes.

The checkpoints were verified to be clear of the protected zones around the beginning and end of the measurement intervals. The checkpoint interval was 20 minutes.

---

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

### Description of RTE

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

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

### Emulated Components

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

No components were emulated.

### Benchmarked and Targeted System Configuration Diagrams

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

The driver RTE generated the transaction input data and transmitted it to the client in HTML format. The driver RTE received the output from the System under Test, time-stamped it, and forwarded it to the Master RTE for post-test processing. No other functionality was included on the driver RTE.

Detailed diagrams of the benchmarked and priced configurations are provided in the section called “General Items” at the beginning of this document.

### Network Configuration

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

See the measured and priced configuration diagrams (pages 13 and 14) for details about the network configuration.

### Network Bandwidth

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

The Ethernet used in the LAN complies with the IEEE.802.3 standard. The LANs that connected the driver RTEs to the clients had a bandwidth of 10Mbps. The LAN that connected the clients to the server had a bandwidth of 100Mbps.

### Operator Intervention

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

The configuration did not require any operator intervention to sustain the reported throughput during the eight-hour period.

---

## Clause 7: Pricing Related Items

### Hardware and Software Components

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

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

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

A detailed list of all hardware and software, including the 5-year price, is provided in the Executive Summary at the front of this report. All third-party quotations are included in Appendix E at the end of this document.

### Availability Date

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

All hardware and software used in this benchmark are currently available.

### Measured tpmC

*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. (8.1.8.4)*

|                                 |                  |
|---------------------------------|------------------|
| { Maximum Qualified Throughput: | 34,264.90 tpmC   |
| { Price per tpmC:               | \$14.10 per tpmC |
| { Five-year cost of ownership:  | \$483,092        |

### Country-Specific Pricing

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

The configuration is priced for the United States of America.

### Usage Pricing

*For any usage pricing, the sponsor must disclose:*

- v Usage level at which the component was priced.*
- v A statement of the company policy allowing such pricing. (8.1.8.6)*

The component pricing based on usage is shown below:

- v 4 Microsoft Windows 2000 Server*
- v 1 Microsoft Windows 2000 Advanced Server*
- v 4 Microsoft SQL Server 2000 Enterprise Edition (based on per-processor price)*

- v 5-year support for hardware components (except for components for which 10 percent spares are provided)

## **System Pricing**

*System pricing should include subtotals for the following components: Server Hardware, Server Software, Client Hardware, Client Software, and Network Components used for terminal connection (see Clause 7.2.2.3). (8.1.8.7)*  
*System pricing must include line item indication where non-sponsoring companies' brands are used. System pricing must also include line item indication of third-party pricing. (8.1.8.8)*

A detailed list of all hardware and software, including the 5-year price, is provided in the Executive Summary at the front of this report. All third-party quotations are included in Appendix E at the end of this document.



---

## Clause 9: Audit Related Items

### Auditor

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

This implementation of the TPC-C benchmark was audited by Bradley J. Askins of InfoSizing, Inc. The auditor's attestation letter is provided in this section.

### Availability of the Full Disclosure Report

*The Full Disclosure Report must be readily available to the public at a reasonable charge, similar to the charges for similar documents by the test sponsor. The report must be made available when results are made public. In order to use the phrase "TPC Benchmark<sup>TM</sup>C," the Full Disclosure Report must have been submitted to the TPC Administrator as well as written permission obtained to distribute same. (8.2)*

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

TPC  
404 Balboa Street  
San Francisco, CA 94118

Benchmark Sponsor: William D. Hall  
 Mgr., Server Performance  
 Analysis  
 IBM Personal Systems Group  
 3039 Cornwallis Road  
 Research Triangle Park, NC27709

December 11, 2000

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

Platform: **IBM Netfinity 6000R**  
 Operating system: **Microsoft Windows 2000 Advanced Server**  
 Database Manager: **Microsoft SQL Server 2000 Enterprise Edition**  
 Transaction Manager: **Microsoft COM+**

The results were:

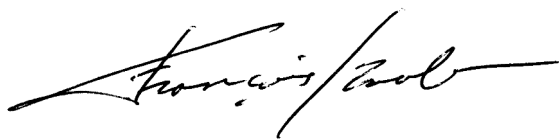
| CPU's Speed   | Memory                                    | Disks                        | NewOrder 90% Response Time | tpmC            |
|---|---|------------------------------|----------------------------|-----------------|
| <b>Server: IBM Netfinity 6000R</b>                        |   |                              |                            |                 |
| 4 x Pentium III Xeon (700 MHz)                            | 8 GB Main (2MB L2 Cache per processor)    | 68 x 18.2 GB<br>169 x 9.1 GB | 0.82 Seconds               | <b>34264.90</b> |
| Four (4) Clients: Netfinity 5100 (Specification for each) |   |                              |                            |                 |
| 1 x Pentium III (733 MHz)                                 | 384MB Main (256KB L2 Cache per processor) | 1 x 9.1 GB                   | n/a                        | n/a             |

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

- The database records were the proper size

- The database was properly scaled and populated
- The required ACID properties were met
- The transactions were correctly implemented
- Input data was generated according to the specified percentages
- The transaction cycle times included the required keying and think times
- The reported response times were correctly measured.
- All 90% response times were under the specified maximums
- At least 90% of all delivery transactions met the 80 Second completion time limit
- The reported measurement interval was 20 minutes (1200 seconds)
- The reported measurement interval was representative of steady state conditions
- One checkpoint was taken during the reported measurement interval
- The repeatability of the measured performance was verified
- The 180 day storage requirement was correctly computed
- The system pricing was verified for major components and maintenance

Respectfully Yours,



François Raab, President



Bradley J. Askins, Auditor

## Appendix A: Source Code

### \_delivery.h

```
/* Generated by IDL compiler version DECDCE 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_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_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 */
```

```
#ifndef __neworder_v1_0_included
#define __neworder_v1_0_included
#ifdef 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__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_ulong_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
);
```

```
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
);
```

```

#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
);
} _neworder_v1_0_epv_t;
extern rpc_if_handle_t _neworder_v1_0_c_ifspec;
extern rpc_if_handle_t _neworder_v1_0_s_ifspec;
#ifdef __VMS) && (defined(__DECC) || defined(__cplusplus))
#pragma extern_model __restore
#endif

#ifdef __cplusplus
}

#else
#endif
#endif

```

## **\_\_orderstatus.h**

```

/* Generated by IDL compiler version DECDCE V2.0.0-6 */
#ifdef _orderstatus_v1_0_included
#define _orderstatus_v1_0_included
#endif 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

#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_orderstatus_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_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
}
#else
#endif
#endif

```

## **\_\_payment.h**

```

/* Generated by IDL compiler version DECDCE 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 DECDCCE V2.0.0-6 */
#ifndef __stocklevel_v1_0_included
#define __stocklevel_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 __stocklevel_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_impTPCCStockLevel(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [in] */ idl_ulong_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;
#ifdef __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_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 *_impTPCCStockLevel)(
#ifdef IDL_PROTOTYPES
/* [in] */ handle_t trpc_h,
/* [in] */ idl_ulong_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;
#ifdef __VMS && (defined(__DECC) || defined(__cplusplus))
#pragma extern_model __restore
#endif

```

```

#ifdef __cplusplus
}

```

```

#else
#endif
#endif

```

## clientutils.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_timet;
    char time_str[30];
    char line_prefix[50];
    va_list ap;

    va_start(ap, format);

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

    get_prefix(line_prefix);

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

    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 miliseconds 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);
}

```

## **clientutils.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\_marshall 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_DTA_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\_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__ */

```

## 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 /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 ntdll.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 /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo

```

```

# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /pdbtype:sept
# ADD LINK32 ntwdblib.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 /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 ntwdblib.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 ntwdblib.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

delivery.h

#ifndef TRANSARC_delivery_h
#define TRANSARC_delivery_h

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

#include <encina/c_prologue.h>

#if defined(BUILDDLL)
#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_CALLINGimpTPCCDelivery (
#ifdef IDL_PROTOTYPES

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

#endif
);

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

void ENCINA_CALLINGmon_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_CALLINGmon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES

```

```

        mon_handle_t handle,
        trpc_tranInfo_t *tranInfoP,
        trpc_ifSpec_t *ifSpecP
#endif
);

void ENCINA_CALLINGmon_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 */

```

## dllldata.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
 */

#pragma once

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

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

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

```

```

#define ERR_FATAL_LEVEL          1
#define ERR_WARNING_LEVEL      2
#define ERR_INFORMATION_LEVEL   3

#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 //error from COM component

class CBaseErr
{
public:
    char    *m_szApp;
    char    *m_szMsg;
    char    *m_szLoc;// code location where the error occurred
    int     m_idMsg;

    CBaseErr(void)
    {
        m_idMsg        = 0;
        m_szMsg        = new char[m_szMsg_size];
        m_szApp        = new char[m_szApp_size];
        m_szLoc        = NULL;

        m_szMsg[0]     = 0;
        m_szApp[0]     = 0;

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

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

    CBaseErr(int idMsg)
    {
        m_idMsg        = idMsg;
        m_szApp        = new char[m_szApp_size];
        m_szMsg        = new char[m_szMsg_size];
        m_szLoc        = NULL;

        GetModuleFileName(GetModuleHandle(NULL),m_szApp, m_szApp_size);
        LoadString(GetModuleHandle(NULL),idMsg, m_szMsg, m_szMsg_size);
    }

    CBaseErr(LPCTSTR szMsg)
    {
        m_idMsg        = 0;
        m_szApp        = new char[m_szApp_size];

```

20

```

        m_szMsg        = new char[m_szMsg_size];
        m_szLoc        = NULL;

        GetModuleFileName(GetModuleHandle(NULL),m_szApp, m_szApp_size);
        strcpy(m_szMsg, szMsg);
    }

    void SetError(char *szMsg, LPCTSTR szLocation)
    {
        if (szMsg != NULL)
            strcpy(m_szMsg, szMsg);
        else
            m_szMsg[0] = 0;

        if (szLocation != NULL)
        {
            delete [] m_szLoc;
            m_szLoc = new char[strlen(szLocation)+1];
            strcpy(m_szLoc, szLocation);
        }
        else
        {
            delete [] m_szLoc;
            m_szLoc = NULL;
        }
    }

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

        if (szStr)
            j = sprintf(szTmp, "%s\n",szStr);
        if (m_szLoc)
            j += sprintf(szTmp+j, "Location=%s\n",m_szLoc);
        if (m_szMsg)
            j += sprintf(szTmp+j, "%s\n", m_szMsg);

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

    char *GetApp(void) { return m_szApp; }
    char *GetMsg(void) { return m_szMsg; }
    char *GetLocation(void) { return m_szLoc; }

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

```

```

};

class CSocketErr : public CBaseErr
{
public:
    enum Action
    {
        eNone,
        eSend,
        eSocket,
        eConnect
    };

    CSocketErr(Action eAction, LPCTSTR szLocation);
    CSocketErr(int iError) { m_errId = iError; };
    int m_errId;
    Action m_eAction;

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

class CSystemErr : public CBaseErr
{
public:
    enum Action
    {
        eNone,
        eTransactNamedPipe,
        eWaitNamedPipe,
        eSetNamedPipeHandleState,
        eCreateFile,
        eCreateProcess,
        eCallNamedPipe,
        eCreateEvent,
        eCreateThread,
        eVirtualAlloc,
        eReadFile,
        eWriteFile,
        eMapViewOfFile,
        eCreateFileMapping,
        eInitializeSecurityDescriptor,
        eSetSecurityDescriptorDacl,
        eCreateNamedPipe,
        eConnectNamedPipe,
    };
};

```

```

CSystemErr(Action eAction, LPCTSTR szLocation);

void Draw(HWND hwnd, LPCTSTR szStr = NULL);

int m_errId;
Action m_eAction;

int ErrorType() { return ERR_TYPE_OS;};
int ErrorNum() { return m_errId;};
char *ErrorText() { return "";} // TODO: need to code error text
};

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

    int ErrorType() { return ERR_TYPE_MEMORY;};
    int ErrorNum() { return 0;};
    char *ErrorText() { return "";} // TODO: need to code error text
};

```

### ***install.c***

```

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

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

#include "resource.h"

```

```

#define WM_INITTEXT WM_USER+100

HICON hIcon;
HINSTANCE hInst;

DWORD versionExeMS;
DWORD versionExeLS;
DWORD versionExeMM;
DWORD versionDllMS;
DWORD versionDllS;

// 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 CheckWWWWebService(void);
static BOOL StartWWWWebService(void);
static BOOL StopWWWWebService(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, 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);

            wsprintf(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:
            CheckDlgButton(hwnd, IDC_TM_TUXEDO, 1);
            break;
        case ENCINA:
            CheckDlgButton(hwnd, IDC_TM_ENCINA, 1);
            break;
        case COM:
            CheckDlgButton(hwnd, IDC_TM_MTS, 1);
            break;
        }

        return TRUE;
    case WM_PAINT:
        if ( IsIconic(hwnd) )
        {
            BeginPaint(hwnd, &ps);
            DrawIcon(ps.hdc, 0, 0, hIcon);
            EndPaint(hwnd, &ps);
            return TRUE;
        }
        break;
    case WM_COMMAND:
        if ( HIWORD(wParam) == BN_CLICKED )
        {
            switch( LOWORD(wParam) )
            {
                case IDC_DBLIB:
                    return TRUE;
                case IDC_ODBC:
                    return TRUE;
                case IDOK:
                    ProcessOK(hwnd, szDllPath);
                    return TRUE;
                case IDCANCEL:
                    EndDialog(hwnd, FALSE);
                    return TRUE;
                default:
                    return FALSE;
            }
        }
        break;
    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\\Parameters", 0, KEY_READ, &hKey) ==
ERROR_SUCCESS )
    {
        size = sizeof(iPoolThreadLimit);
        if ( RegQueryValueEx(hKey, "PoolThreadLimit", 0, &type, (char
*)&iPoolThreadLimit, &size) == ERROR_SUCCESS )
            if ( !iPoolThreadLimit )
                iPoolThreadLimit = iMaxPhysicalMemory * 2;

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

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

        RegCloseKey(hKey);
    }

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

```

```

    {
        size = sizeof(iAcceptExOutstanding);
        if ( RegQueryValueEx(hKey, "AcceptExOutstanding", 0, &type, (char
*)&iAcceptExOutstanding, &size) == ERROR_SUCCESS )
            if ( !iAcceptExOutstanding )
                iAcceptExOutstanding = 40;

        RegCloseKey(hKey);
    }
}

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

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

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

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

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

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

```

```

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

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

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

        RegFlushKey(hKey);
        RegCloseKey(hKey);
    }

    return;
}

BOOL CALLBACK CopyDlgProc(HWND hwnd, UINT uMsg, WPARAM wParam, LPARAM lParam)
{
    if ( uMsg == WM_INITDIALOG)
    {
        SendDlgItemMessage(hwnd, IDC_PROGRESS1, PBM_SETRANGE, 0,
MAKELPARAM(0, 15));
        SendDlgItemMessage(hwnd, IDC_PROGRESS1, PBM_SETSTEP, (WPARAM)1,
0);

```

```

        return TRUE;
    }
    return FALSE;
}

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

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

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

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

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

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

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

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

```

```

        CloseHandle(hFile);

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

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

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

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

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

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

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

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

```

```

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

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

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

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

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

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

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

return 1;
}

```

```

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

    szDllPath[0] = 0;
    bRc = TRUE;
    if ( RegOpenKeyEx(HKEY_LOCAL_MACHINE,
"SYSTEM\\CurrentControlSet\\Services\\W3SVC\\Parameters\\Virtual Roots", 0, KEY_ALL_ACCESS,
&hKey) == ERROR_SUCCESS )
    {
        sv = sizeof(szData);
        iRc = RegQueryValueEx(hKey, "/", NULL, NULL, szData, &sv ); // used by IIS
3.0
        if (iRc == ERROR_FILE_NOT_FOUND)
            iRc = RegQueryValueEx(hKey, "/", NULL, NULL, szData, &sv ); //
used by IIS 4.0
        if (iRc == ERROR_SUCCESS)
        {
            bRc = FALSE;
            strcpy(szDllPath, szData);
            if ( (ptr = strchr(szDllPath, ',')) )
                *ptr = 0;

            len = strlen(szDllPath);
            if ( szDllPath[len-1] != '\\' )
            {
                szDllPath[len] = '\\';
                szDllPath[len+1] = 0;
            }
        }

        RegCloseKey(hKey);
    }

    return bRc;
}

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

```

```

char *ptr;
VS_FIXEDFILEINFO*vs;

versionDIIMS = 0;
versionDIILS = 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);
        versionDIIMS = vs->dwProductVersionMS;
        versionDIILS = 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 StartWWWebService(void)
{
    SC_HANDLE          schSCManager;
    SC_HANDLE          schService;
    SERVICE_STATUS     ssStatus;
    DWORD              dwOldCheckPoint;

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

    if ( !StartService(schService, 0, NULL) )
        goto StartWWWebErr;
    //start Service pending, Check the status until the service is running.
    if ( !QueryServiceStatus(schService, &ssStatus) )
        goto StartWWWebErr;
    while( ssStatus.dwCurrentState != SERVICE_RUNNING)
    {
        dwOldCheckPoint = ssStatus.dwCheckPoint;           //Save
the current checkpoint.
        Sleep(ssStatus.dwWaitHint);
        //Wait for the specified interval.
        if ( !QueryServiceStatus(schService, &ssStatus) ) //Check the status again.
            break;
        if (dwOldCheckPoint >= ssStatus.dwCheckPoint) //Break if the
checkpoint has not been incremented.
            break;
    }

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

```

```

    CloseServiceHandle(schService);
    return TRUE;

StartWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

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

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

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

    if ( !ControlService(schService, SERVICE_CONTROL_STOP, &ssStatus) )
        goto StopWWWebErr;
    //start Service pending, Check the status until the service is running.
    if ( !QueryServiceStatus(schService, &ssStatus) )
        goto StopWWWebErr;
    while( ssStatus.dwCurrentState == SERVICE_RUNNING)
    {
        dwOldCheckPoint = ssStatus.dwCheckPoint;           //Save
the current checkpoint.
        Sleep(ssStatus.dwWaitHint);
        //Wait for the specified interval.
        if ( !QueryServiceStatus(schService, &ssStatus) ) //Check the status again.
            break;
        if (dwOldCheckPoint >= ssStatus.dwCheckPoint) //Break if the
checkpoint has not been incremented.
            break;
    }

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

    CloseServiceHandle(schService);
    return TRUE;
}

```



```

StopWWWebErr:
    CloseServiceHandle(schService);
    return FALSE;
}

static void UpdateDialog(HWND hDlg)
{
    MSG msg;

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

```

## install.dsp

```

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

```

```

# TARGETTYPE "Win32 (x86) Application" 0x0101

```

```

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

```

```

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""
# PROP Scc_LocalPath ""

```

```

CPP=cl.exe
MTL=midl.exe
RSC=rc.exe

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

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

!ENDIF

# Begin Target

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

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

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

SOURCE=.\src\install.rc
# ADD BASE RSC /I 0x409 /i "src"
# ADD RSC /I 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 TEXTINCLUDE2 resource.
//
#include "afxres.h"

//
```

```
#undef APSTUDIO_READONLY_SYMBOLS

// English (U.S.) resources

#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_RTLREADING
    EDITTEXT    ED_MAXDELIVERIES,164,59,34,12,ES_RIGHT | ES_NUMBER,
                WS_EX_RTLREADING
    EDITTEXT    ED_MAXCONNECTION,164,73,34,12,ES_RIGHT | ES_NUMBER,
                WS_EX_RTLREADING
    CONTROL     "None",IDC_TM_NONE,"Button",BS_AUTORADIOBUTTON|
                WS_GROUP | WS_TABSTOP,43,100,33,10
    CONTROL     "COM",IDC_TM_MTS,"Button",BS_AUTORADIOBUTTON|
                WS_TABSTOP,43,113,32,10
    CONTROL     "TUXEDO",IDC_TM_TUXEDO,"Button",BS_AUTORADIOBUTTON|
                WS_TABSTOP,106,100,46,10
    CONTROL     "ENCINA",IDC_TM_ENCINA,"Button",BS_AUTORADIOBUTTON|
                WS_DISABLED | WS_TABSTOP,106,113,43,10
    EDITTEXT    ED_DB_SERVER,131,152,67,12,ES_AUTOHSCROLL
    EDITTEXT    ED_DB_USER_ID,131,165,67,12,ES_AUTOHSCROLL
    EDITTEXT    ED_DB_PASSWORD,131,178,67,12,ES_AUTOHSCROLL
    EDITTEXT    ED_DB_NAME,131,191,67,12,ES_AUTOHSCROLL
    CONTROL     "DBLIB",IDC_DBLIB,"Button",BS_AUTORADIOBUTTON | WS_GROUP |
                WS_TABSTOP,45,219,39,12
    CONTROL     "ODBC",IDC_ODBC,"Button",BS_AUTORADIOBUTTON | WS_TABSTOP,
                91,219,39,12
    EDITTEXT    ED_IIS_MAX_THREAD_POOL_LIMIT,164,263,34,12,ES_RIGHT |
                ES_NUMBER,WS_EX_RTLREADING
    EDITTEXT    ED_WEB_SERVICE_BACKLOG_QUEUE_SIZE,164,277,34,12,ES_RIGHT |
                ES_NUMBER,WS_EX_RTLREADING
    EDITTEXT    ED_IIS_THREAD_TIMEOUT,164,291,34,12,ES_RIGHT | ES_NUMBER,
```

```

WS_EX_RTLEADING
EDITTEXT  ED_IIS_LISTEN_BACKLOG,164,305,34,12,ES_RIGHT| ES_NUMBER,
WS_EX_RTLEADING
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 DIALOG EX 0, 0, 117, 62
STYLE DS_SETFOREGROUND | DS_3DLOOK | DS_CENTER | WS_POPUP | WS_BORDER
EXSTYLE WS_EX_STATICEDGE
FONT 12, "MS Sans Serif", 0, 0, 0x1
BEGIN
  DEFPUSHBUTTON  "OK",IDOK,33,45,50,9
  CTEXT          "HTML TPC-C Installation Successful",IDC_RESULTS,7,22,
102,18,0,WS_EX_CLIENTEDGE
  ICON           IDI_ICON2,IDC_STATIC,50,7,18,20,SS_REALSIZEIMAGE,
WS_EX_TRANSPARENT
END

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

```

```

IDD_DIALOG4 DIALOG DISCARDABLE 0, 0, 291, 202
STYLE DS_MODALFRAME | DS_CENTER | WS_POPUP | WS_CAPTION | WS_SYSMENU
CAPTION "Client End User License"
FONT 8, "MS Sans Serif"
BEGIN
  EDITTEXT      IDC_LICENSE,7,7,271,167,ES_MULTILINE| ES_AUTOVSCROLL|
ES_AUTOHSCROLL | ES_READONLY | WS_VSCROLL | WS_HSCROLL
  DEFPUSHBUTTON  "I & Agree",IDOK,87,181,50,14
  PUSHBUTTON    "&Cancel",IDCANCEL,153,181,50,14
END

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

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

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

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

  IDD_DIALOG4, DIALOG
  BEGIN

```

```

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

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

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

2 TEXTINCLUDE DISCARDABLE
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"

////////////////////////////////////
//
// TPCDLL
//

```

```

IDR_TPCDLL     TPCDLL DISCARDABLE "..\..\isapi_dll\bin\tpcc.dll"

#ifdef _MAC
////////////////////////////////////
//
// Version
//

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

////////////////////////////////////
//
// LICENSE

```

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

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

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

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

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

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

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

////////////////////////////////////
//
// COM_ALL_DLL
```

```
//
IDR_COMALL_DLL    COM_ALL_DLL DISCARDABLE "..\..\tpcc_com_all\bin\tpcc_com_all.dll"
#endif // English (U.S.) resources
////////////////////////////////////

#ifndef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//

////////////////////////////////////
#endif // not APSTUDIO_INVOKED

install_com.cpp

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

#define _WIN32_WINNT 0x0500

#include <comdef.h>
#include <comadmin.h>
#include <stdio.h>
#include <tchar.h>

extern "C"
{
    BOOL install_com(char *szDllPath);
}

BOOL install_com(char *szDllPath)
```

```

{
    ICOMAdminCatalog*      pCOMAdminCat = NULL;
    ICatalogCollection*    pCatalogCollectionApp = NULL;
    ICatalogCollection*    pCatalogCollectionCo = NULL;
    ICatalogCollection*    pCatalogCollectionItf = NULL;
    ICatalogCollection*    pCatalogCollectionMethod = NULL;

    ICatalogObject*        pCatalogObjectApp = NULL;
    ICatalogObject*        pCatalogObjectCo = NULL;
    ICatalogObject*        pCatalogObjectItf = NULL;
    ICatalogObject*        pCatalogObjectMethod = NULL;

    _bstr_t                 bstrTemp, bstrTemp2, bstrTemp3, bstrTemp4;
    _bstr_t                 bstrDllPath = szDllPath;
    _variant_t              vTmp, vKey;
    long                   lActProp, lCount, lCountCo, lCountItf,
ICountMethod;
    bool                   bTmp;

    CoInitializeEx(NULL, COINIT_MULTITHREADED);

    HRESULT hr = CoCreateInstance(CLSID_COMAdminCatalog,
                                NULL,
                                CLSCTX_INPROC_SERVER,
                                IID_ICOMAdminCatalog,
                                (void**) &pCOMAdminCat);

    if (!SUCCEEDED(hr)) goto Error;

    bstrTemp = "Applications";

    // Attempt to connect to "Applications" in the Catalog
    hr = pCOMAdminCat->GetCollection(bstrTemp,
    (IDispatch**) &pCatalogCollectionApp);
    if (!SUCCEEDED(hr)) goto Error;

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

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

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

```

```

while (lCount > 0)
{
    hr = pCatalogCollectionApp->get_Item(lCount - 1, (IDispatch**)
&pCatalogObjectApp);
    if (!SUCCEEDED(hr)) goto Error;

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

    if (wcsncmp(vTmp.bstrVal, L"TPC-C"))
    {
        lCount--;
        continue;
    }
    else
    {
        hr = pCatalogCollectionApp->Remove(lCount - 1);
        if (!SUCCEEDED(hr)) goto Error;
        break;
    }
}

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

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

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

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

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

```

```

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

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

pCatalogObjectApp->Release();
pCatalogObjectApp = NULL;

bstrTemp = "TPC-C"; // app name
bstrTemp2 = bstrDllPath + "tpcc_com_all.dll"; // DLL
bstrTemp3 = ""; // 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(ICountItf - 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 (ICountMethod > 0)
    {
        hr = pCatalogCollectionMethod->get_Item(ICountMethod - 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;

        ICountMethod--;
    }

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

    pCatalogObjectItf->Release();
    pCatalogObjectItf = NULL;

    ICountItf--;
}

pCatalogObjectCo->Release();
pCatalogObjectCo = NULL;

ICountCo--;
}

// 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);
        // _tprintf(__T("Error adding components. HRESULT: 0x%x\n%s"), hr, lpBuf);
        return TRUE;
    }
    else
        return FALSE;
}

```

## isapi\_dll\_resource.h

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

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

## isapi\_dll.dsp

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

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

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

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

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /MD /W3 /GX /O2 /D "NDEBUG" /D "WIN32" /D "_WINDOWS" /YX /FD /c
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /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 odbccp32.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 odbccp32.lib /nologo /subsystem:windows /dll /machine:I386 /out:".bin\tpcc.dll"

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

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

```

# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D "_WINDOWS"
/YX /FD /c
# ADD CPP /nologo /MDd /W3 /GX /Zi /Od /D "_DEBUG" /D "WIN32" /D "_WINDOWS" /FR /YX /FD
/c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbccp32.lib /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 odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386 /out:".\bin\tpcc.dll"
/pdbtype:sept
# SUBTRACT LINK32 /profile /pdb:none

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

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

```

```

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbccp32.lib /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 odbccp32.lib /nologo /subsystem:windows /dll /debug /machine:I386 /out:".\bin\tpcc.dll"
/pdbtype:sept
# SUBTRACT LINK32 /profile /pdb:none /map

!ENDIF

# Begin Target

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

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

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

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

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

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

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

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

SOURCE=.\src\tpcc.h

```

```

# End Source File
# Begin Source File

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

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

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

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

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

```

## methods.h

```

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

```

```

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

```

```

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

    CCOMPONENT_ERR(COMPONENT_ERROR Err, char *szTextDetail, DWORD
dwSystemErr)
    {
        m_Error = Err;
        m_szTextDetail = new char[strlen(szTextDetail)+1];
        strcpy( m_szTextDetail, szTextDetail );
        m_SystemErr = dwSystemErr;
        m_szErrorText = NULL;
    };

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

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

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

static void WriteMessageToEventLog(LPTSTR lpszMsg);

/////////////////////////////////////////////////////////////////
// CTPCC_Common
class CTPCC_Common :
    public ITPCC,
    public IObjectControl,

```

```

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

        CTPCC_Common();
        ~CTPCC_Common();

    // ITPCC
    public:
        HRESULT __stdcall NewOrder(          int* iSize, UCHAR** txn);
        HRESULT __stdcall Payment(          int* iSize, UCHAR** txn);
        HRESULT __stdcall Delivery(         int* iSize, UCHAR** txn) {return E_NOTIMPL;}
        HRESULT __stdcall StockLevel(int* iSize, UCHAR** txn);
        HRESULT __stdcall OrderStatus(      int* iSize, UCHAR** txn);

        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(          int* iSize, UCHAR** txn) {return E_NOTIMPL;}
        HRESULT __stdcall Payment(          int* iSize, UCHAR** txn) {return E_NOTIMPL;}
        HRESULT __stdcall StockLevel(int* iSize, UCHAR** txn) {return E_NOTIMPL;}
        HRESULT __stdcall OrderStatus(      int* iSize, UCHAR** txn) {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(        int* iSize, UCHAR** txn) {return E_NOTIMPL;}
    HRESULT __stdcall Payment(        int* iSize, UCHAR** txn) {return E_NOTIMPL;}
    HRESULT __stdcall StockLevel(int* iSize, UCHAR** txn) {return E_NOTIMPL;}
//    HRESULT __stdcall OrderStatus(    int* iSize, UCHAR** txn) {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(        int* iSize, UCHAR** txn) {return E_NOTIMPL;}
//    HRESULT __stdcall Payment(        int* iSize, UCHAR** txn) {return E_NOTIMPL;}
    HRESULT __stdcall StockLevel(int* iSize, UCHAR** txn) {return E_NOTIMPL;}
    HRESULT __stdcall OrderStatus(    int* iSize, UCHAR** txn) {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(        int* iSize, UCHAR** txn) {return E_NOTIMPL;}
    HRESULT __stdcall Payment(        int* iSize, UCHAR** txn) {return E_NOTIMPL;}
//    HRESULT __stdcall StockLevel(int* iSize, UCHAR** txn) {return E_NOTIMPL;}
    HRESULT __stdcall OrderStatus(    int* iSize, UCHAR** txn) {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 *perfCntDataInit();
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,trpcStatusP); \
    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_sec, start_time.tv_usec,
           end_time.tv_sec, end_time.tv_usec,
           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_sec, start_time.tv_usec,
           end_time.tv_sec, end_time.tv_usec,
           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 CTPCC_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, ERROUT_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_RetrieveEnable(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(clientName,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,client_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\\TxTpc";
    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 ERROUT errtpcc

/*initialization status */
#define INIT_SUCCESS 0
#define INIT_FAILED 1
#define CELL_NAME_UNAVAILABLE2
#define MON_RETRIEVEENABLE_FAILED3
#define MON_INITCLIENT_FAILED4
#define MON_SECURITYSET_FAILED5
#define MON_SETREFRESHINTERVAL_FAILED6
#define NOINFO_TRPC_ERROR 7
#define ENROLL_CLIENT_EXCEPTION8
#define ERROUT_FILE_NOT_FOUND9
#define LOG_FILE_NOT_FOUND10
#define TPCC_KEY_NOT_FOUND11
#define TERM_ALLOC_FAILED12

```

```

/*
 * 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 BUILDDDL
#define DLLEXPORT __declspec( dllexport )
#else
#define DLLEXPORT extern
#endif

#ifndef 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

```

```

        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_CALLINGimpTPCCNewOrder(
#ifdef IDL_PROTOTYPES
        idl_long_int length,
        idl_char *dataP,
        data_header *headerP,
        trpc_status_t *trpcStatus
#endif
);

DLLEXPORT void ENCINA_STUB_CALLINGimpTPCCNOInfo(
#ifdef IDL_PROTOTYPES
        dbInfo_data_t *dataP,
        trpc_status_t *trpcStatus
#endif
);

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

void ENCINA_CALLINGmon_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_CALLINGmon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t    handle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP
#endif
);

void      ENCINA_CALLINGmon_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

```

#ifndef TRANSARC_orderstatus_h
#define TRANSARC_orderstatus_h

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

#include <encina/c_prologue.h>

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

#ifndef ENCINA_STUB_CALLING
#define ENCINA_STUB_CALLINGENCINA_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) (
#ifdef IDL_PROTOTYPES

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

} orderstatus_v1_0_epv_t;

DLLEXPORT void ENCINA_STUB_CALLINGimpTPCCOrderStatus (
#ifdef IDL_PROTOTYPES

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

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

void      ENCINA_CALLINGmon_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_CALLINGmon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t    handle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP
#endif
);

```

```

void      ENCINA_CALLINGmon_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>

#ifdef BUILDDDL
#define DLLEXPORT __declspec( dllexport )
#else
#define DLLEXPORT extern
#endif

#ifdef ENCINA_STUB_CALLING
#define ENCINA_STUB_CALLINGENCINA_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_CALLINGimpTPCCPayment (
#ifdef IDL_PROTOTYPES
    idl_long_int length,
    idl_char *dataP,
    data_header *headerP,
    trpc_status_t *trpcStatus
#endif
);

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

void      ENCINA_CALLINGmon_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_CALLINGmon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t     handle,
    trpc_tranInfo_t  *tranInfoP,
    trpc_ifSpec_t    *ifSpecP
#endif
);

void      ENCINA_CALLINGmon_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 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 129
#define _APS_NEXT_COMMAND_VALUE 40001
#define _APS_NEXT_CONTROL_VALUE 1024
#define _APS_NEXT_SYMED_VALUE 101
#endif
#endif

```

## **stocklevel.h**

```

#ifndef TRANSARC_stocklevel_h
#define TRANSARC_stocklevel_h

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

#include <encina/c_prologue.h>

#ifdef BUILDDDL
#define DLLEXPORT __declspec( dllexport )
#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_CALLINGimpTPCCStockLevel(
#ifdef IDL_PROTOTYPES

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

#endif
);

trpc_handle_t ENCINA_CALLINGmon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
        mon_handle_t handle,
        trpc_tranInfo_t *tranInfoP,
        trpc_ifSpec_t *ifSpecP

```



```

#endif
    );

void ENCINA_CALLINGmon_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_CALLINGmon_handle_t_tranBind(
#ifdef IDL_PROTOTYPES
    mon_handle_t handle,
    trpc_tranInfo_t *tranInfoP,
    trpc_ifSpec_t *ifSpecP
#endif
    );

void ENCINA_CALLINGmon_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 */

```

## rtetime.h

```

/* FILE: rtetime.h : header file
 * Copyright 1997 Microsoft Corp., All rights reserved.
 *
 * Authors: Charles Levine, Philip Durr
 *          Microsoft Corp.
 */

#define MAX_JULIAN_TIME 0x7FFFFFFF
#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.
 *
 * Authors: Mike Parkes, Charles Levine, Philip Durr
 *          Microsoft Corp.
 */

#ifdef _INC_Spinlock

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

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

```

```

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

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

public:
    // Public functions.

    Spinlock( void );

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

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

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

inline BOOL Spinlock::ClaimSpinlock( volatile LONG *Spinlock )
{
#ifdef _DEBUG
    InterlockedIncrement( (LPLONG) & TotalLocks );
#endif

```

```

        return ( (*Spinlock) == LockOpen ) && ( InterlockedExchange( (LPLONG)Spinlock,
LockClosed ) == LockOpen );
    }

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

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

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

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

#define _INC_Spinlock

#endif

tm_com_dll.dsp

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

```

```

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

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

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

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

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

# 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 odbcc32.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 odbcc32.lib odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /out:".bin\tpcc_com.dll" /pdptype:sept

!ENDIF

# Begin Target

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

SOURCE=.\src\tpcc_com.cpp

```

```

# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.lib odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.lib odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
/out:".bin\tpcc_com.dll"

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D "_WINDOWS"
/YX /FD /c
# ADD CPP /nologo /MDd /W3 /Gm /GX /ZI /Od /D "WIN32" /D "_DEBUG" /D "_WINDOWS" /YX /FD
/c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbcc32.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 odbcc32.lib odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /out:".bin\tpcc_com.dll" /pdptype:sept

!ENDIF

# Begin Target

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

SOURCE=.\src\tpcc_com.cpp

```

```
# End Source File
# Begin Source File
```

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

## tpcc.cpp

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

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

#include <sqltypes.h>

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

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

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

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

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

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

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

#define LEN_ERR_STRING 256

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

char szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

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

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

static CRITICAL_SECTION TermCriticalSection;

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

TYPE_CTPCC_DBLIB *pCTPCC_DBLIB_new;
TYPE_CTPCC_ODBC *pCTPCC_ODBC_new;
TYPE_CTPCC_TUXEDO *pCTPCC_TUXEDO_new;
```

```

TYPE_CTPCC_ENCINA *pCTPCC_ENCINA_new;
TYPE_CTPCC_ENCINA *pCTPCC_ENCINA_post_init;
TYPE_CTPCC_COM *pCTPCC_COM_new;

// For deferred Delivery txns:

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

HANDLE hWorkerSemaphore =
INVALID_HANDLE_VALUE;
HANDLE hDoneEvent =
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
* DWORD ul_reason_for_call reason for call
* LPVOID lpReserved reserved for future
use
*
* RETURNS: BOOL FALSE errors occurred in
initialization
* TRUE
DLL successfully initialized

```

```

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

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

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

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

                TermInit();

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

                    // get function pointer to wrapper for class
                    constructor
                }
            }
        }
    }
}

```

```

        pCTPCC_TUXEDO_new =
(TYPE_CTPCC_TUXEDO*) GetProcAddress(hLibInstanceTm,"CTPCC_TUXEDO_new");
        if (pCTPCC_TUXEDO_new == NULL)
            throw new CWEBCLNT_ERR(
ERR_GETPROCADDR_FAILED,szDllName, GetLastError());
    }
    else if (Reg.eTxnMon == ENCINA)
    {
        strcpy( szDllName, Reg.szPath );
        strcat( szDllName, "tpcc_encina.dll");
        hLibInstanceTm = LoadLibrary( szDllName );
        if (hLibInstanceTm == NULL)
            throw new CWEBCLNT_ERR(
ERR_LOADDLL_FAILED,szDllName, GetLastError());
        // get function pointer to wrapper for class
        constructor
        pCTPCC_ENCINA_new =
(TYPE_CTPCC_ENCINA*) GetProcAddress(hLibInstanceTm,"CTPCC_ENCINA_new");
        pCTPCC_ENCINA_post_init =
(TYPE_CTPCC_ENCINA*) GetProcAddress(hLibInstanceTm,"CTPCC_ENCINA_post_init");
        if (pCTPCC_ENCINA_new == NULL)
            throw new CWEBCLNT_ERR(
ERR_GETPROCADDR_FAILED,szDllName, GetLastError());
    }
    else if (Reg.eTxnMon == COM)
    {
        strcpy( szDllName, Reg.szPath );
        strcat( szDllName, "tpcc_com.dll");
        hLibInstanceTm = LoadLibrary( szDllName );
        if (hLibInstanceTm == NULL)
            throw new CWEBCLNT_ERR(
ERR_LOADDLL_FAILED,szDllName, GetLastError());
        // get function pointer to wrapper for class
        constructor
        pCTPCC_COM_new = (TYPE_CTPCC_COM*)
GetProcAddress(hLibInstanceTm,"CTPCC_COM_new");
        if (pCTPCC_COM_new == NULL)
            throw new CWEBCLNT_ERR(
ERR_GETPROCADDR_FAILED,szDllName, GetLastError());
    }

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

```

```

        hLibInstanceDb = LoadLibrary(
szDllName );
        if (hLibInstanceDb == NULL)
            throw new
CWEBCLNT_ERR( ERR_LOADDLL_FAILED,szDllName, GetLastError());

        // get function pointer to wrapper for
class constructor
        pCTPCC_DBLIB_new =
(TYPE_CTPCC_DBLIB*) GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new");
        if (pCTPCC_DBLIB_new == NULL)
            throw new
CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED,szDllName, GetLastError());
    }
    else if (Reg.eDB_Protocol == ODBC)
    {
        strcpy( szDllName, Reg.szPath );
        strcat( szDllName, "tpcc_odbc.dll");
        hLibInstanceDb = LoadLibrary(
szDllName );
        if (hLibInstanceDb == NULL)
            throw new
CWEBCLNT_ERR( ERR_LOADDLL_FAILED,szDllName, GetLastError());

        // get function pointer to wrapper for
class constructor
        pCTPCC_ODBC_new =
(TYPE_CTPCC_ODBC*) GetProcAddress(hLibInstanceDb,"CTPCC_ODBC_new");
        if (pCTPCC_ODBC_new == NULL)
            throw new
CWEBCLNT_ERR( ERR_GETPROCADDR_FAILED,szDllName, GetLastError());
    }
}

if (dwNumDeliveryThreads)
{
    // for deferred delivery txns:
    hDoneEvent = CreateEvent( NULL, TRUE /*
manual reset */, FALSE /* initially not signalled */, NULL );
    InitializeCriticalSection(&DelBuffCriticalSection);
    hWorkerSemaphore = CreateSemaphore( NULL, 0,
dwDelBuffSize, NULL );
    dwDelBuffFreeCount = dwDelBuffSize;

    InitJulianTime(NULL);

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

```

```

        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(&DelBuffCriticalSection);
            }
            DeleteCriticalSection(&TermCriticalSection);

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

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

            Sleep(500);
            break;

            default:
                /* nothing */;
        }
    }
    catch (CBaseErr *e)
    {
        WriteMessageToEventLog(e->ErrorText());
        delete e;
        TerminateExtension(0);
        return FALSE;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandledexception. 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];
                sprintf( szTmp, "Invalid term ID; TermId = %d", TermId );
                WriteMessageToEventLog( szTmp );

                throw new CWEBCLNT_ERR( ERR_INVALID_TERMID);
            }

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

```



```

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

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

#ifdef ICECAP
    StopCAP();
#endif

lpbSize = strlen(szBuffer);

```

```

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

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

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

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

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

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

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

        (VOID) DeregisterEventSource(hEventSource);
    }
}

/* FUNCTION: DeliveryWorkerThread
*
* PURPOSE: This function processes deferred delivery txns. There are typically several

```

```

*
* entry
*
* semaphore.
*
* processing
*
* execution
*
*/

/*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;

                handles[0] = hDoneEvent;
                handles[1] = hWorkerSemaphore;
                index = WaitForMultipleObjects( 2, &handles[0], FALSE,
                INFINITE );

                if (index == WAIT_OBJECT_0)
                    goto ErrorExit;

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

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

                EnterCriticalSection(&DelBuffCriticalSection);
                delivery = *(pDelBuff+dwDelBuffBusyIndex);
                dwDelBuffFreeCount++;
                dwDelBuffBusyIndex++;
                if (dwDelBuffBusyIndex == dwDelBuffSize) //
                wrap-around if at end of buffer

                    dwDelBuffBusyIndex = 0;

                LeaveCriticalSection(&DelBuffCriticalSection);

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

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

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

```

```

//log txn
txnDeliRec.TxnStatus = ERR_SUCCESS;
for (int i=0; i<10; i++)
    txnDeliRec.o_id[i] = pDeliveryData->o_id[i];
txnDeliRec.DeltaT4 = (int)(Get64BitTime(&trans_end) -
txnDeliRec.TxnStartT0);
txnDeliRec.DeltaTxnExec = (int)(Get64BitTime(&trans_end)
- Get64BitTime(&trans_start));

if (txnDelilog != NULL)
    txnDelilog->WriteToLog(&txnDeliRec);
}
}
catch (CBaseErr *e)
{
    char szTmp[1024];
    wsprintf( szTmp, "Error in Delivery Txn thread. %s", e->ErrorText());
    WriteMessageToEventLog(szTmp);

    // log the error txn
    txnDeliRec.TxnStatus = e->ErrorType();
    if (txnDelilog != NULL)
        txnDelilog->WriteToLog(&txnDeliRec);

    delete e;
}
catch (...)
{
    // unhandled exception; shouldn't happen; not much we can do...
    WriteMessageToEventLog(TEXT("Unhandled exception caught in
DeliveryWorkerThread.));
}
}

ErrorExit:
    delete pTxn;
    _endthread();
}

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

```

```

{
    BOOL bError;

    EnterCriticalSection(&DelBuffCriticalSection);
    if (dwDelBuffFreeCount > 0)
    {
        bError = FALSE;
        (pDelBuff+dwDelBuffFreeIndex)->w_id          = w_id;
        (pDelBuff+dwDelBuffFreeIndex)->o_carrier_id   = o_carrier_id;
        GetLocalTime(&(pDelBuff+dwDelBuffFreeIndex)->queue);

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

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

    return bError;
}

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

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

```

```

int i;

//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-CWeb
Client</TITLE></HEAD><BODY>"
Client (ver 4.20)</BIG></B> <BR> <BR>"
" <B><BIG>Microsoft TPC-C Web
" <font face="Courier New" ><PRE>"
"Compiled: "__DATE__", "__TIME__"
" <BR>"
"Source: "__FILE__"
" </PRE></font>"
" <FORM ACTION="tpcc.dll"
" <INPUT TYPE="hidden"
" <INPUT TYPE="hidden"
" <INPUT TYPE="hidden"
" <INPUT TYPE="hidden"
" <INPUT TYPE="hidden"
" <INPUT TYPE="hidden"
" <INPUT TYPE="hidden"
" <INPUT TYPE="hidden"
NAME="STATUSID" VALUE="0">"
NAME="ERROR" VALUE="0">"
NAME="FORMID" VALUE="1">"
NAME="TERMID" VALUE="0">"
NAME="SYNCID" VALUE="0">"
NAME="VERSION" VALUE="" WEBCLIENT_VERSION">"
);
printf( szTmp, "Configuration Settings: <BR><font face="Courier New"
color="blue" ><PRE>"
"Txn Monitor = <B>%s</B><BR>"
"Database protocol = <B>%s</B><BR>"
"Max Connections = <B>%d</B><BR>"
"# of Delivery Threads = <B>%d</B><BR>"
"Max Pending Deliveries = <B>%d</B><BR>"
, szTxnMonNames[Reg.eTxnMon], szDBNames[Reg.eDB_Protocol],
Reg.dwMaxConnections, dwNumDeliveryThreads, dwDelBuffSize );
strcat( szBuffer, szTmp);
if (Reg.eTxnMon == COM)
{
printf( 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
printf( szTmp, "Please enter your database options for this connection:<BR>"

```

```

" <font face="Courier New"
color="blue" ><PRE>"
NAME="db_server" SIZE=20 VALUE="%s" ><BR>"
"DB Server = <INPUT
NAME="db_user" SIZE=20 VALUE="%s" ><BR>"
"DB User ID = <INPUT
NAME="db_passwd" SIZE=20 VALUE="%s" ><BR>"
"DB Password = <INPUT
NAME="db_name" SIZE=20 VALUE="%s" ><BR>"
"DB Name = <INPUT
" </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 =
"DB User ID =
"DB Password =
"DB Name =
" </PRE></font>"
, Reg.szDbServer, Reg.szDbUser, Reg.szDbPassword,
Reg.szDbName );
strcat( szBuffer, szTmp);
printf( 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 };
    char        szUser[32]      = "sa";
    char        szPassword[32]  = { 0 };
    char        szDatabase[32]  = "tpcc";

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

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

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

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

    iNewTerm = TermAdd();

```

```

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

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

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

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

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

    EnterCriticalSection(&TermCriticalSection);

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

```

```

LeaveCriticalSection(&TermCriticalSection);

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

char *CWEBCLNT_ERR::ErrorText()
{
    static SERRORMSG errorMsgs[] =
    {
        { ERR_COMMAND_UNDEFINED,
        "Command undefined."
        },
        { ERR_D_ID_INVALID,
        "Invalid District ID Must be 1 to 10."
        },
        { ERR_DELIVERY_CARRIER_ID_RANGE,
        "Delivery Carrier ID out of range must be 1 - 10."
        },
        { ERR_DELIVERY_CARRIER_INVALID,
        "Delivery Carrier ID invalid must be numeric 1 - 10."
        },
        { ERR_DELIVERY_MISSING_OCD_KEY,
        "Delivery missing Carrier ID key \"OCD*\"."
        },
        { ERR_DELIVERY_THREAD_FAILED,
        "Could not start delivery worker thread."
        },
        { ERR_GETPROCADDR_FAILED,
        "Could not map proc in DLL. GetProcAddr error. DLL="
        },
        { ERR_HTML_ILL_FORMED,
        "Required key field is missing from HTML string."
        },
        { ERR_INVALID_SYNC_CONNECTION,
        "Invalid Terminal Sync ID."
        },
        { ERR_INVALID_TERMID,
        "Invalid Terminal ID."
        },
        { ERR_LOADDLL_FAILED,
        "Load of DLL failed. DLL="
        },
        { ERR_MAX_CONNECTIONS_EXCEEDED,
        "No connections available. Max Connections is probably too low."
        },
        { ERR_MISSING_REGISTRY_ENTRIES,
        "Required registry entries are missing. Rerun INSTALL to correct."
        },
    },
}

```

```

{ ERR_NEWORDER_CUSTOMER_INVALID,
    "New Order customer id invalid data type, range = 1 to 3000."
},
{ ERR_NEWORDER_CUSTOMER_KEY,
    "New Order missing Customer key \"CID*\"."
},
{ ERR_NEWORDER_DISTRICT_INVALID,
    "New Order District ID Invalid range 1 - 10."
},
{ ERR_NEWORDER_FORM_MISSING_DID,
    "New Order missing District key \"DID*\"."
},
{ ERR_NEWORDER_ITEMID_INVALID,
    "New Order Item Id is wrong data type, must be numeric."
},
{ ERR_NEWORDER_ITEMID_RANGE,
    "New Order Item Id is out of range. Range = 1 to 999999."
},
{ ERR_NEWORDER_ITEMID_WITHOUT_SUPPW,
    "New Order Item_Id field entered without a corresponding Supp_W."
},
{ ERR_NEWORDER_MISSING_IID_KEY,
    "New Order missing Item Id key \"IID*\"."
},
{ ERR_NEWORDER_MISSING_QTY_KEY,
    "New Order Missing Qty key \"Qty##*\"."
},
{ ERR_NEWORDER_MISSING_SUPPW_KEY,
    "New Order missing Supp_W key \"SP##*\"."
},
{ ERR_NEWORDER_NOITEMS_ENTERED,
    "New Order No order lines entered."
},
{ ERR_NEWORDER_QTY_INVALID,
    "New Order Qty invalid must be numeric range 1 - 99."
},
{ ERR_NEWORDER_QTY_RANGE,
    "New Order Qty is out of range. Range = 1 to 99."
},
{ ERR_NEWORDER_QTY_WITHOUT_SUPPW,
    "New Order Qty field entered without a corresponding Supp_W."
},
{ ERR_NEWORDER_SUPPW_INVALID,
    "New Order Supp_W invalid data type must be numeric."
},
{ ERR_NO_SERVER_SPECIFIED,
    "No Server name specified."
},
{ ERR_ORDERSTATUS_CID_AND_CLT,
    "Order Status Only Customer ID or Last Name may be entered, not both."
},
{ ERR_ORDERSTATUS_CID_INVALID,
    "Order Status Customer ID invalid, range must be numeric 1 - 3000."
},
{ ERR_ORDERSTATUS_CLT_RANGE,
    "Order Status Customer last name longer than 16 characters."
},
{ ERR_ORDERSTATUS_DID_INVALID,
    "Order Status District invalid, value must be numeric 1 - 10."
},
}

```

|   |   |  |
|---|---|--|
| <pre>                 { ERR_ORDERSTATUS_MISSING_CID_CLT, Status Either Customer ID or Last Name must be entered."                 },                 { ERR_ORDERSTATUS_MISSING_CID_KEY, Status missing Customer key \"CID*\"."                 },                 { ERR_ORDERSTATUS_MISSING_CLT_KEY, Status missing Customer Last Name key \"CLT*\"."                 },                 { ERR_ORDERSTATUS_MISSING_DID_KEY, Status missing District key \"DID*\"."                 }, </pre>  | <pre> "Order "Order "Order "Order </pre>  | <pre>                 { ERR_VERSION_MISMATCH, "Invalid version field. RTE and Web Client are probably out of sync." },                 { ERR_W_ID_INVALID, "Invalid Warehouse ID."                 },                 { 0, ""                 }, </pre>  |
| <pre>                 { 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."                 }, </pre> | <pre>                 },                 },                 },                 },                 },                 },                 },                 },                 }, </pre> | <pre> };  char szTmp[256]; int i = 0; while (TRUE) {     if (errorMsgs[i].szMsg[0] == 0)     {         strcpy( szTmp, "Unknowm error number." );         break;     }     if (m_Error == errorMsgs[i].iError)     {         strcpy( szTmp, errorMsgs[i].szMsg );         break;     }     i++; } </pre>                    |
| <pre>                 { 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*\"."                 }, </pre>  | <pre>                 },                 },                 },                 },                 },                 },                 },                 }, </pre>                    | <pre> 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; } </pre>   |
| <pre>                 { ERR_STOCKLEVEL_MISSING_THRESHOLD_KEY, Level; missing Threshold key \"TT*\"."                 },                 { ERR_STOCKLEVEL_THRESHOLD_INVALID, Level; Threshold value must be in the range = 1 - 99."                 },                 { ERR_STOCKLEVEL_THRESHOLD_RANGE, "Stock Level Threshold out of range, range must be 1 - 99."                 }, </pre>   | <pre> "Stock "Stock "Stock </pre>   | <pre> /* FUNCTION: GetKeyValue * * PURPOSE: This function parses a http formatted string for specific key values. * * ARGUMENTS: char *pQueryString http string from client               browser               char *pKey               char *pValue               character array into which to place key's value </pre> |



```

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

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

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

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

    *pQueryString = ptr;
    return;

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

/* FUNCTION: GetIntKeyValue
*

```

```

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

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

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

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

    // make sure we stopped scanning for the right reason
    if ((ptr0 == ptr) || (*ptr && *ptr != '&'))

```

```

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

    *pQueryString = ptr;
    return atoi(ptr0);

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

/* FUNCTION: TermInit
 *
 * PURPOSE:      This function initializes the client terminal structure; it is called when the TPCC.DLL
 *               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-CError</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=\"TERMIID\" VALUE=\"%d\">"
"<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
"<BOLD>An Error Occurred</BOLD><BR><BR>"
"%s"
"<BR><BR><HR>"
"<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..NewOrder..\">"
"<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
"<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
"<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-Status..\">"
"<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-Level..\">"
"<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
"</FORM></BODY></HTML>"
, iType, iErrorNum, MAIN_MENU_FORM, iTermId, iSyncId, szErrorText);
}

/* FUNCTION: MakeMainMenuForm
*/

void MakeMainMenuForm(int iTermId, int iSyncId, char *szForm)
{
    wsprintf(szForm,
"<HTML><HEAD><TITLE>TPC-C Main Menu</TITLE></HEAD><BODY>"
"Select Desired Transaction.<BR><HR>"
"<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"

```

```

    "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">"
    "<INPUT TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"0\">"
    "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
    "<INPUT TYPE=\"hidden\" NAME=\"TERMINID\" VALUE=\"%d\">"
    "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
    "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..NewOrder..\">"
    "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
    "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
    "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Order-Status..\">"
    "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Stock-Level..\">"
    "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
    "</FORM></BODY></HTML>"
    , MAIN_MENU_FORM, iTermId, iSyncId);
}

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

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

    c = sprintf(szForm,
"        <HTML><HEAD><TITLE>TPC-CStock Level</TITLE></HEAD><FORM
ACTION=\"tpcc.dll\" METHOD=\"GET\">"
"        <INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">"
"        <INPUT TYPE=\"hidden\" NAME=\"ERROR\" VALUE=\"0\">"
"        <INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
"        <INPUT TYPE=\"hidden\" NAME=\"TERMINID\" VALUE=\"%d\">"
"        <INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
"        <PRE><font face=\"Courier\">                Stock-Level<BR>"
"        Warehouse: %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: <INPUTNAME=\"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></PRE><HR>"
"        <INPUT TYPE=\"submit\" NAME=\"CMD\""
VALUE=\"..NewOrder..\">"
"        <INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Payment..\">"
"        <INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Delivery..\">"
"        <INPUT TYPE=\"submit\" NAME=\"CMD\""
VALUE=\"..Order-Status..\">"
"        <INPUT TYPE=\"submit\" NAME=\"CMD\""
VALUE=\"..Stock-Level..\">"
"        <INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"..Exit..\">"
"        </FORM></HTML>"
, pStockLevelData->threshold, pStockLevelData->low_stock);
    }
}

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

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

    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-CNew Order</TITLE></HEAD><BODY>"
"        <FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"

```

```

" <INPUT TYPE=\\"hidden\\" NAME=\\"STATUSID\\" VALUE=\\"%d\\">"
" <INPUT TYPE=\\"hidden\\" NAME=\\"ERROR\\" VALUE=\\"0\\">"
" <INPUT TYPE=\\"hidden\\" NAME=\\"FORMID\\" VALUE=\\"%d\\">"
" <INPUT TYPE=\\"hidden\\" NAME=\\"TERMINID\\" VALUE=\\"%d\\">"
" <INPUT TYPE=\\"hidden\\" NAME=\\"SYNCID\\" VALUE=\\"%d\\">"
" <PRE><font face=\\"Courier\\">                New Order<BR>"
, bValid ? 0 : ERR_BAD_ITEM_ID, NEW_ORDER_FORM, iTermId,
Term.pClientData[iTermId].iSyncId);

    if ( bInput )
    {
        c += sprintf(szForm+c, "Warehouse: %4.4d ", Term.pClientData[iTermId].w_id );
        strcpy( szForm+c,
                "District: <INPUT NAME=\\"DID*" SIZE=1>                Date:<BR>"
                "Customer: <INPUT NAME=\\"CID*" SIZE=4> Name:
Credit: %Disc:<BR>"
                "Order Number:      Number of Lines:      W_tax:      D_tax:<BR>"
<BR>"
                " Supp_W Item_Id Item Name      Qty Stock B/G Price
Amount<BR>"
                " <INPUT NAME=\\"SP00*" SIZE=4> <INPUT NAME=\\"IID00*"
SIZE=6> <INPUT NAME=\\"Qty00*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP01*" SIZE=4> <INPUT NAME=\\"IID01*"
SIZE=6> <INPUT NAME=\\"Qty01*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP02*" SIZE=4> <INPUT NAME=\\"IID02*"
SIZE=6> <INPUT NAME=\\"Qty02*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP03*" SIZE=4> <INPUT NAME=\\"IID03*"
SIZE=6> <INPUT NAME=\\"Qty03*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP04*" SIZE=4> <INPUT NAME=\\"IID04*"
SIZE=6> <INPUT NAME=\\"Qty04*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP05*" SIZE=4> <INPUT NAME=\\"IID05*"
SIZE=6> <INPUT NAME=\\"Qty05*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP06*" SIZE=4> <INPUT NAME=\\"IID06*"
SIZE=6> <INPUT NAME=\\"Qty06*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP07*" SIZE=4> <INPUT NAME=\\"IID07*"
SIZE=6> <INPUT NAME=\\"Qty07*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP08*" SIZE=4> <INPUT NAME=\\"IID08*"
SIZE=6> <INPUT NAME=\\"Qty08*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP09*" SIZE=4> <INPUT NAME=\\"IID09*"
SIZE=6> <INPUT NAME=\\"Qty09*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP10*" SIZE=4> <INPUT NAME=\\"IID10*"
SIZE=6> <INPUT NAME=\\"Qty10*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP11*" SIZE=4> <INPUT NAME=\\"IID11*"
SIZE=6> <INPUT NAME=\\"Qty11*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP12*" SIZE=4> <INPUT NAME=\\"IID12*"
SIZE=6> <INPUT NAME=\\"Qty12*" SIZE=1><BR>"
                " <INPUT NAME=\\"SP13*" SIZE=4> <INPUT NAME=\\"IID13*"
SIZE=6> <INPUT NAME=\\"Qty13*" SIZE=1><BR>"

```

```

" <INPUT NAME=\\"SP14*" SIZE=4> <INPUT NAME=\\"IID14*"
SIZE=6> <INPUT NAME=\\"Qty14*" SIZE=1><BR>"
                "Execution Status:                Total:<BR>"
                "</font></PRE><HR>"
                " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\" VALUE=\\"Process\\">"
                " <INPUT TYPE=\\"submit\\" NAME=\\"CMD\\" VALUE=\\"Menu\\">"
                "</FORM></HTML>"
        );
    }
    else
    {
        c += sprintf(szForm+c, "Warehouse: %4.4d District: %2.2d                Date:
",
                pNewOrderData->w_id,
                pNewOrderData->d_id);
        if ( bValid )
        {
            c += sprintf(szForm+c, "%2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d",
                pNewOrderData->o_entry_d.day,
                pNewOrderData->o_entry_d.month,
                pNewOrderData->o_entry_d.year,
                pNewOrderData->o_entry_d.hour,
                pNewOrderData->o_entry_d.minute,
                pNewOrderData->o_entry_d.second);
        }
        c += sprintf(szForm+c, "<BR>Customer: %4.4d Name: %-16s Credit: %-2s ",
                pNewOrderData->c_id, pNewOrderData->c_last,
                pNewOrderData->c_credit);
        if ( bValid )
        {
            c += sprintf(szForm+c,
                "%5.2f                <BR>"
                "Order Number: %8.8d Number of
Lines: %2.2d      W_tax: %5.2f D_tax: %5.2f <BR> <BR>"
                " Supp_W Item_Id Item Name
Qty Stock B/G Price Amount<BR>",
                100.0 * pNewOrderData->c_discount,
                pNewOrderData->o_id,
                pNewOrderData->o_ol_cnt,
                100.0 * pNewOrderData->w_tax,
                100.0 * pNewOrderData->d_tax);
            for(i=0; i<pNewOrderData->o_ol_cnt; i++)
            {
                c += sprintf(szForm+c, " %4.4d %6.6d %-24s %2.2d
%3.3d %1.1s $%6.2f $%7.2f <BR>",

```

```

                pNewOrderData->OL[i].ol_supply_w_id,
                pNewOrderData->OL[i].ol_i_id,
                pNewOrderData->OL[i].ol_i_name,
                pNewOrderData->OL[i].ol_quantity,
                pNewOrderData->OL[i].ol_stock,
                pNewOrderData->OL[i].ol_brand_generic,
                pNewOrderData->OL[i].ol_i_price,
                pNewOrderData->OL[i].ol_amount );
            }
        }
    else
    {
        c += sprintf(szForm+c,
                    "%Disc:<BR>"
                    "Order Number: %8.8d Number of Lines:      W_tax:
                    " Supp_W Item_Id Item Name          Qty Stock B/G
                    , pNewOrderData->o_id);

        i = 0;
    }

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

    if ( bValid )
        c += sprintf(szForm+c, "Execution Status: Transaction committed.
        pNewOrderData->total_amount);
    else
        c += sprintf(szForm+c, "Execution Status: Item number is not valid.

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

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

    if ( bInput )
    {
        c += sprintf(szForm+c,
                    "<BR> <BR> Warehouse: %4.4d"
                    "                District: <INPUT NAME=\"DID*\" SIZE=1><BR>
                    <BR> <BR> <BR> <BR>
                    "Customer: <INPUT NAME=\"CID*\" SIZE=4>"
                    "Cust-Warehouse: <INPUT NAME=\"CWI*\" SIZE=4> "
                    "Cust-District: <INPUT NAME=\"CDI*\" SIZE=1><BR>"
                    "Name:                <INPUT NAME=\"CLT*\" SIZE=16>
                    Since:<BR>"
                    "                Credit:<BR>"
                    "                Disc:<BR>"
                    "                Phone:<BR> <BR>"
                    );
    }
}

```

```

"Amount Paid:      $<INPUT NAME=\"HAM*\" SIZE=7> New
Cust-Balance:<BR>"
"Credit Limit:<BR> <BR>Cust-Data: <BR> <BR> <BR> <BR>
<BR></font></PRE><HR>"
" <INPUT TYPE=\"submit\" NAME=\"CMD\"
VALUE=\"Process\"><INPUTTYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">
" </BODY></FORM></HTML>"
, Term.pClientData[iTermId].w_id);
}
else
{
c += sprintf(szForm+c,
"<BR> <BR>Warehouse: %4.4d District: %2.2d<BR>"
"%-20s %-20s<BR>"
"%-20s %-20s<BR>"
"%-20s %-2s %5.5s-%4.4s %-20s %-2s %5.5s-%4.4s<BR> <BR>"
"Customer: %4.4d Cust-Warehouse: %4.4d Cust-District: %2.2d<BR>"
"Name: %-16s %-2s %-16s Since: %2.2d-%2.2d-%4.4d<BR>"
" %-20s Credit: %-2s<BR>"
, Term.pClientData[iTermId].w_id, pPaymentData->d_id
, pPaymentData->w_street_1, pPaymentData->d_street_1
, pPaymentData->w_street_2, pPaymentData->d_street_2
, pPaymentData->w_city, pPaymentData->w_state,
pPaymentData->w_zip, pPaymentData->w_zip+5
, pPaymentData->d_city, pPaymentData->d_state, pPaymentData->d_zip,
pPaymentData->d_zip+5
, pPaymentData->c_id, pPaymentData->c_w_id,
pPaymentData->c_d_id
, pPaymentData->c_first, pPaymentData->c_middle,
pPaymentData->c_last
, pPaymentData->c_since.day, pPaymentData->c_since.month,
pPaymentData->c_since.year
, pPaymentData->c_street_1, pPaymentData->c_credit
);
c += sprintf(szForm+c,
" %-20s %%Disc: %5.2f<BR>",
pPaymentData->c_street_2, 100.0*pPaymentData->c_discount);
c += sprintf(szForm+c,
" %-20s %-2s %5.5s-%4.4s Phone:
%6.6s-%3.3s-%3.3s-%4.4s<BR> <BR>",
pPaymentData->c_city, pPaymentData->c_state, pPaymentData->c_zip,
pPaymentData->c_zip+5,
pPaymentData->c_phone, pPaymentData->c_phone+6,
pPaymentData->c_phone+9, pPaymentData->c_phone+12 );
c += sprintf(szForm+c,

```

```

"Amount Paid:      $%7.2f New Cust-Balance: $%14.2f<BR>"
"Credit Limit: $%13.2f<BR> <BR>"
, pPaymentData->h_amount, pPaymentData->c_balance
, pPaymentData->c_credit_lim
);
if ( pPaymentData->c_credit[0] == 'B' && pPaymentData->c_credit[1] == 'C' )
c += sprintf(szForm+c,
"Cust-Data: %-50.50s<BR> %-50.50s<BR>"
"%-50.50s<BR> %-50.50s<BR>",
pPaymentData->c_data,
pPaymentData->c_data+50, pPaymentData->c_data+100, pPaymentData->c_data+150 );
else
strcpy(szForm+c, "Cust-Data: <BR> <BR> <BR> <BR>");
strcat(szForm, " <BR></font></PRE><HR>"
" <INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..NewOrder..\">"
" <INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Payment..\">"
" <INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Delivery..\">"
" <INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Order-Status..\">"
" <INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Stock-Level..\">"
" <INPUT TYPE=\"submit\"
NAME=\"CMD\" VALUE=\"..Exit..\">"
" </BODY></FORM></HTML>");
}
}
/* FUNCTION: MakeOrderStatusForm
*
* COMMENTS: The internal client buffer is created when the terminal id is assigned and should not
* be freed except when the client terminal id is no longer
needed.
*/
void MakeOrderStatusForm(int iTermId, ORDER_STATUS_DATA *pOrderStatusData, BOOL bInput,
char *szForm)
{
int i, c;
static char szBR[] = " <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR> <BR>";
c = sprintf(szForm,
"<HTML><HEAD><TITLE>TPC-C Order-Status</TITLE></HEAD><BODY>"

```

```

"<FORM ACTION=\\tpcc.dll\\ METHOD=\\GET\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\STATUSID\\ VALUE=\\0\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\ERROR\\ VALUE=\\0\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\FORMID\\ VALUE=\\%d\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\TERMINID\\ VALUE=\\%d\\>"
"<INPUT TYPE=\\hidden\\ NAME=\\SYNCD\\ VALUE=\\%d\\>"
"<PRE><font face=\\Courier\\>                Order-Status<BR>"
    Warehouse: %4.4d ",
    ORDER_STATUS_FORM, iTermId, Term.pClientData[iTermId].iSynclid,
Term.pClientData[iTermId].w_id);

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

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

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

```

```

            pOrderStatusData->o_entry_d.second,
            pOrderStatusData->o_carrier_id);

        for(i=0; i< pOrderStatusData->o_ol_cnt; i++)
        {
            c += sprintf(szForm+c, " %4.4d %6.6d %2.2d $%8.2f
%2.2d-%2.2d-%4.4d<BR>",
                pOrderStatusData->OL[i].ol_supply_w_id,
                pOrderStatusData->OL[i].ol_i_id,
                pOrderStatusData->OL[i].ol_quantity,
                pOrderStatusData->OL[i].ol_amount,
                pOrderStatusData->OL[i].ol_delivery_d.day,
                pOrderStatusData->OL[i].ol_delivery_d.month,
                pOrderStatusData->OL[i].ol_delivery_d.year);
        }

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

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

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

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

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

```



```

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

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

```

```

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

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

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

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

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

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

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

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

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

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

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

```

```

}

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

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

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

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

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

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

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

    PDELIVERY_DATA pDelivery;

```

```

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

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

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

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

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

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

    PSTOCK_LEVEL_DATA    pStockLevel;

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

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

```

```

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

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

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

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

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

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

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

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

```

```

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

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

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

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

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

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

```

```

        pNewOrderData->o_ol_cnt = items;
    }

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

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

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

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

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

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

```

```

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

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

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

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

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

```

```

        throw new CWEBCLNT_ERR(
ERR_ORDERSTATUS_MISSING_CID_CLT);

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

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

//
// 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", "Microsoft0"
            VALUE "FileDescription", "TPC-C HTML DLL Server (DBLIB)0"
            VALUE "FileVersion", "0, 4, 0, 00"
            VALUE "InternalName", "tpcc0"
```



```

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
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
END
#endif // APSTUDIO_INVOKED

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

#endifdef APSTUDIO_INVOKED
////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//

////////////////////////////////////
#endif // not APSTUDIO_INVOKED

tpcc_com.cpp

/* FILE: TPCC_COM.CPP
* Microsoft TPC-C Kit Ver. 4.20.000
* Copyright Microsoft, 1999
* All Rights Reserved
*

```

```

*                               not yet audited
*
*   PURPOSE:      Source file for TPC-C COM+ class implementation.
*   Contact:     Charles Levine (clevine@microsoft.com)
*
*   Change history:
*               4.20.000 - first version
*/

// needed for CoinitializeEx
#define _WIN32_WINNT 0x0400

#include <windows.h>

// need to declare functions for export
#define DllDecl __declspec( dllexport )

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

#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\tpcc_com_all\src\tpcc_com_all_i.c"

// wrapper routine for class constructor
__declspec(dllexport) CTPCC_COM* CTPCC_COM_new(BOOL bSinglePool)
{
    return new CTPCC_COM(bSinglePool);
}

CTPCC_COM::CTPCC_COM(BOOL bSinglePool)
{
    HRESULT hr = NULL;
    long lRet = 0;

    m_bSinglePool = bSinglePool;

    m_pNewOrder      = NULL;
    m_pPayment        = NULL;
    m_pStockLevel    = NULL;
    m_pOrderStatus   = NULL;

    m_pTxn = (COM_DATA*)CoTaskMemAlloc(sizeof(COM_DATA));
    if (!m_pTxn)
        throw new CCOMERR( E_FAIL );

    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)
        CoTaskMemFree(m_pTxn);

    ReleaseInterface(m_pNewOrder);
    if (!m_bSinglePool)
    {
        ReleaseInterface(m_pPayment);
        ReleaseInterface(m_pStockLevel);
        ReleaseInterface(m_pOrderStatus);
    }
    CoUninitialize();
}

void CTPCC_COM::NewOrder()
{
    int iSize = sizeof(COM_DATA);

    HRESULT hr = m_pNewOrder->NewOrder(&iSize, (unsigned char*)&m_pTxn);
    if (FAILED(hr))
        throw new CCOMERR( hr );

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType, m_pTxn->error );
}

void CTPCC_COM::Payment()
{
    int iSize = sizeof(COM_DATA);

    HRESULT hr = m_pPayment->Payment(&iSize, (unsigned char*)&m_pTxn);
    if (FAILED(hr))
        throw new CCOMERR( hr );
}

```

```

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType, m_pTxn->error );
}

void CTPCC_COM::StockLevel()
{
    int iSize = sizeof(COM_DATA);

    HRESULT hr = m_pStockLevel->StockLevel(&iSize, (unsigned char*)&m_pTxn);
    if (FAILED(hr))
        throw new CCOMERR( hr );

    if ( m_pTxn->ErrorType != ERR_SUCCESS )
        throw new CCOMERR( m_pTxn->ErrorType, m_pTxn->error );
}

void CTPCC_COM::OrderStatus()
{
    int iSize = sizeof(COM_DATA);

    HRESULT hr = m_pOrderStatus->OrderStatus(&iSize, (unsigned char*)&m_pTxn);
    if (FAILED(hr))
        throw new CCOMERR( hr );

    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 = 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;
        } u;
    } *m_pTxn;

public:
    CTPCC_COM(BOOL bSinglePool);
    ~CTPCC_COM(void);

    inline PNEW_ORDER_DATA BuffAddr_NewOrder()
    { return &m_pTxn->u.NewOrder; };
    inline PPAYMENT_DATA BuffAddr_Payment() {
    return &m_pTxn->u.Payment; };
    inline PDELIVERY_DATA BuffAddr_Delivery() {
    return &m_pTxn->u.Delivery; };
    inline PSTOCK_LEVEL_DATA BuffAddr_StockLevel() { return
&m_pTxn->u.StockLevel; };
    inline PORDER_STATUS_DATA BuffAddr_OrderStatus() {
    return &m_pTxn->u.OrderStatus; };

    void NewOrder ();

```

```

        void Payment                ();
        void StockLevel             ();
        void OrderStatus            ();
        void Delivery                () { throw new CCOMERR(E_NOTIMPL); } // not supported
};

inline void ReleaseInterface(IUnknown *pUnk)
{
    if (pUnk)
    {
        pUnk->Release();
        pUnk = NULL;
    }
}

// wrapper routine for class constructor
extern "C" __declspec(dllexport) CTPCC_COM* CTPCC_COM_new(BOOL);

typedef CTPCC_COM* (TYPE_CTPCC_COM)(BOOL);

tpcc_com_all.cpp

/*      FILE:          TPCC_COM_ALL.CPP
 *          Microsoft TPC-C Kit Ver. 4.20.000
 *          Copyright Microsoft, 1999
 *
 *      All Rights Reserved
 *
 *          Version 4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
 *
 *      PURPOSE:      Implementation for TPC-C Tuxedo class.
 *      Contact:    Charles Levine (clevine@microsoft.com)
 *
 *      Change history:
 *      4.20.000 - updated rev number to match kit
 */

#define STRICT
#define _WIN32_WINNT 0x0400
#define _ATL_APARTMENT_THREADED

#include <stdio.h>
#include <atbase.h>
//You may derive a class from CComModule and use it if you want to override

//something, but do not change the name of _Module
extern CComModule _Module;

#include <atlcom.h>
#include <initguid.h>
#include <transact.h>
#include <atimpl.cpp>
#include <comsvcs.h>

#include <sqltypes.h>
#include <sql.h>
#include <sqlext.h>

#include "tpcc_com_ps.h"
#include "..\..\common\src\trans.h" //tpckit
transaction header contains definitions of structures specific to TPC-C
#include "..\..\common\src\txn_base.h"
#include "..\..\common\src\error.h"
#include "..\..\common\src\ReadRegistry.h"
#include "..\..\db_dblib_dll\src\tpcc_dblib.h" // DBLIB implementation of TPC-C
txns
#include "..\..\db_odbc_dll\src\tpcc_odbc.h" // ODBC implementation of TPC-C txns

#include "resource.h"
#include "tpcc_com_all.h"
#include "tpcc_com_all_i.c"
#include "Methods.h"
#include "..\..\tpcc_com_ps\src\tpcc_com_ps_i.c"
#include "..\..\common\src\ReadRegistry.cpp"

CComModule _Module;

BEGIN_OBJECT_MAP(ObjectMap)
    OBJECT_ENTRY(CLSID_TPCC, CTPCC)
    OBJECT_ENTRY(CLSID_NewOrder, CNewOrder)
    OBJECT_ENTRY(CLSID_OrderStatus, COrderStatus)
    OBJECT_ENTRY(CLSID_Payment, CPayment)
    OBJECT_ENTRY(CLSID_StockLevel, CStockLevel)
END_OBJECT_MAP()

// configuration settings from registry
TPCCREGISTRYDATA Reg;
char
szMyComputerName[MAX_COMPUTERNAME_LENGTH+1];

static HINSTANCE hLibInstanceDb = NULL;

```

```

TYPE_CTPCC_DBLIB      *pCTPCC_DBLIB_new;
TYPE_CTPCC_ODBC      *pCTPCC_ODBC_new;

////////////////////////////////////
// DLL Entry Point

extern "C"
BOOL WINAPI DllMain(HINSTANCE hInstance, DWORD dwReason, LPVOID /*lpReserved*/)
{
    char szDllName[128];

    try
    {
        if (dwReason == DLL_PROCESS_ATTACH)
        {
            _Module.Init(ObjectMap, hInstance);
            DisableThreadLibraryCalls(hInstance);

            DWORD dwSize = MAX_COMPUTERNAME_LENGTH+1;
            GetComputerName(szMyComputerName, &dwSize);
            szMyComputerName[dwSize] = 0;

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

            if (Reg.eDB_Protocol == DBLIB)
            {
                strcpy( szDllName, Reg.szPath );
                strcat( szDllName, "tpcc_dblib.dll");
                hLibInstanceDb = LoadLibrary( szDllName );
                if (hLibInstanceDb == NULL)
                    throw new CCOMPONENT_ERR(
ERR_LOADDLL_FAILED,szDllName, GetLastError());

                // get function pointer to wrapper for class constructor
                pCTPCC_DBLIB_new = (TYPE_CTPCC_DBLIB*)
GetProcAddress(hLibInstanceDb,"CTPCC_DBLIB_new");
                if (pCTPCC_DBLIB_new == NULL)
                    throw new CCOMPONENT_ERR(
ERR_GETPROCADDR_FAILED,szDllName, GetLastError());
            }
            else if (Reg.eDB_Protocol == ODBC)
            {
                strcpy( szDllName, Reg.szPath );
                strcat( szDllName, "tpcc_odbc.dll");
                hLibInstanceDb = LoadLibrary( szDllName );
                if (hLibInstanceDb == NULL)

```

```

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

                // get function pointer to wrapper for class constructor
                pCTPCC_ODBC_new = (TYPE_CTPCC_ODBC*)
GetProcAddress(hLibInstanceDb,"CTPCC_ODBC_new");
                if (pCTPCC_ODBC_new == NULL)
                    throw new CCOMPONENT_ERR(
ERR_GETPROCADDR_FAILED,szDllName, GetLastError());
            }
            else
                throw new CCOMPONENT_ERR(
ERR_UNKNOWN_DB_PROTOCOL);
        }
        else if (dwReason == DLL_PROCESS_DETACH)
            _Module.Term();
    }
    catch (CBaseErr *e)
    {
        WriteMessageToEventLog(e->ErrorText());
        delete e;
        return FALSE;
    }
    catch (...)
    {
        WriteMessageToEventLog(TEXT("Unhandled exception in object DllMain"));
        return FALSE;
    }

    return TRUE;        // OK
}

////////////////////////////////////
// Used to determine whether the DLL can be unloaded by OLE

STDAPI DllCanUnloadNow(void)
{
    return (_Module.GetLockCount()==0) ? S_OK : S_FALSE;
}

////////////////////////////////////
// Returns a class factory to create an object of the requested type

STDAPI DllGetClassObject(REFCLSID rclsid, REFIID riid, LPVOID* ppv)
{
    return _Module.GetClassObject(rclsid, riid, ppv);
}

```

```

////////////////////////////////////
// DllRegisterServer - Adds entries to the system registry

STDAPI DllRegisterServer(void)
{
    // registers object, typelib and all interfaces in typelib
    return _Module.RegisterServer(TRUE);
}

////////////////////////////////////
// DllUnregisterServer - Removes entries from the system registry

STDAPI DllUnregisterServer(void)
{
    _Module.UnregisterServer();
    return S_OK;
}

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

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

    _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.
GetProcAddr error. DLL=" },
        { ERR_UNKNOWN_DB_PROTOCOL, "Unknown database protocol
specified in registry." },
        { 0, "" }
    };

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

    if (m_szTextDetail)
        strcat( szTmp, m_szTextDetail );
}

```

```

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

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

CTPCC_Common::CTPCC_Common()
{
    m_pTxn = NULL;
    m_bCanBePooled = TRUE;
}

CTPCC_Common::~CTPCC_Common()
{
    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(int* iSize, UCHAR **txn)
{
    PNEW_ORDER_DATA    pNewOrder;
    COM_DATA            *pData;

    try
    {
        pData = (COM_DATA *)*txn;
        pNewOrder = m_pTxn->BuffAddr_NewOrder();

        memcpy(pNewOrder, &pData->u.NewOrder, sizeof(NEW_ORDER_DATA));
        m_pTxn->NewOrder();
        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(int* iSize, UCHAR** txn)
{
    PPAYMENT_DATA pPayment;
    COM_DATA      *pData;

    try
    {
        pData = (COM_DATA*)*txn;
        pPayment = m_pTxn->BuffAddr_Payment();

        memcpy(pPayment, &pData->u.Payment, sizeof(PAYMENT_DATA));
        m_pTxn->Payment();
        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(int* iSize, UCHAR** txn)
{
    PSTOCK_LEVEL_DATA    pStockLevel;
    COM_DATA              *pData;

    try
    {
        pData = (COM_DATA*)*txn;
        pStockLevel = m_pTxn->BuffAddr_StockLevel();

        memcpy(pStockLevel, &pData->u.StockLevel, sizeof(STOCK_LEVEL_DATA));
        m_pTxn->StockLevel();
        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(int* iSize, UCHAR** txn)
{
    PORDER_STATUS_DATA    pOrderStatus;

```

```

COM_DATA          *pData;

try
{
    pData = (COM_DATA*)*txn;
    pOrderStatus = m_pTxn->BuffAddr_OrderStatus();

    memcpy(pOrderStatus, &pData->u.OrderStatus, sizeof(ORDER_STATUS_DATA)
);

    m_pTxn->OrderStatus();
    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 /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:windows /dll /machine:I386
# ADD LINK32 ..\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 /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:windows /dll /debug
/machine:I386 /pdctype: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 /pdctype:sept

!ENDIF

# Begin Target

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

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

SOURCE=.\src\tpcc_com_all.cpp
# SUBTRACT CPP /YX
# End Source File
# Begin Source File

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

SOURCE=.\src\tpcc_com_all.idl

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step
InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
        midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c" ".\src\tpcc_com_all.idl" /out ".\src"
"\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

"\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

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

# PROP Ignore_Default_Tool 1
# Begin Custom Build - Performing MIDL step

```

```

InputPath=.\src\tpcc_com_all.idl

BuildCmds= \
    midl /Oicf /h "tpcc_com_all.h" /iid "tpcc_com_all_i.c"   ".\src\tpcc_com_all.idl" /out ".\src"

".\src\tpcc_com_all.tlb" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

".\src\tpcc_com_all.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)

".\src\tpcc_com_all_i.c" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
$(BuildCmds)
# End Custom Build

!ENDIF

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

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

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

SOURCE=.\src\resource.h
# End Source File
# End Group
# Begin Source File

SOURCE=.\src\tpcc_com_all.rc
# End Source File
# End Target
# End Project

```

## **tpcc\_com\_all.h**

```
#pragma warning( disable: 4049 ) /* more than 64k source lines */
```

```
/* this ALWAYS GENERATED file contains the definitions for the interfaces */
```

```
/* File created by MIDL compiler version 5.03.0280 */
```

```
/* at Mon Jan 24 20:00:20 2000
```

```

*/
/* Compiler settings for .\src\tpcc_com_all.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

/* verify that the <rpcndr.h> version is high enough to compile this file*/
#ifndef __REQUIRED_RPCNDR_H_VERSION__
#define __REQUIRED_RPCNDR_H_VERSION__ 440
#endif

#include "rpc.h"
#include "rpcndr.h"

#ifndef __tpcc_com_all_h__
#define __tpcc_com_all_h__

/* Forward Declarations */

#ifndef __TPCC_FWD_DEFINED__
#define __TPCC_FWD_DEFINED__

#ifdef __cplusplus
typedef class TPCC TPCC;
#else
typedef struct TPCC TPCC;
#endif /* __cplusplus */

#endif /* __TPCC_FWD_DEFINED__ */

#ifndef __NewOrder_FWD_DEFINED__
#define __NewOrder_FWD_DEFINED__

#ifdef __cplusplus
typedef class NewOrder NewOrder;
#else
typedef struct NewOrder NewOrder;
#endif /* __cplusplus */

#endif /* __NewOrder_FWD_DEFINED__ */

#ifndef __OrderStatus_FWD_DEFINED__

```

```

#define __OrderStatus_FWD_DEFINED__

#ifdef __cplusplus
typedef class OrderStatus OrderStatus;
#else
typedef struct OrderStatus OrderStatus;
#endif /* __cplusplus */

#endif /* __OrderStatus_FWD_DEFINED__ */

#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 TEXTINCLUDE2 resource.
//
#include "winres.h"

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

#ifndef 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

#ifdef APSTUDIO_INVOKED

#ifdef _MAC
//
// Version
//

VS_VERSION_INFO VERSIONINFO
FILEVERSION 1,0,0,1
PRODUCTVERSION 1,0,0,1
FILEFLAGSMASK 0x3fL
#ifdef _DEBUG
FILEFLAGS 0x1L
#else
FILEFLAGS 0x0L
#endif
FILEOS 0x4L
FILETYPE 0x2L
FILESUBTYPE 0x0L
BEGIN
    BLOCK "StringFileInfo"
    BEGIN
        BLOCK "040904B0"
        BEGIN
            VALUE "CompanyName", "\0"
            VALUE "FileDescription", "tpcc_com_all Module\0"
            VALUE "FileVersion", "1, 0, 0, 1\0"
            VALUE "InternalName", "TPCCNEWORDER\0"
            VALUE "LegalCopyright", "Copyright 1997\0"
            VALUE "OriginalFilename", "tpcc_com_all.DLL\0"
            VALUE "ProductName", "tpcc_com_all Module\0"
            VALUE "ProductVersion", "1, 0, 0, 1\0"
            VALUE "OLESelfRegister", "\0"
        END
    END
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
/////////////////////////////////////////////////////////////////

#ifndef APSTUDIO_INVOKED
/////////////////////////////////////////////////////////////////
//
// Generated from the TEXTINCLUDE 3 resource.
//
1 TYPELIB "tpcc_com_all.tlb"

/////////////////////////////////////////////////////////////////
#endif // not APSTUDIO_INVOKED

tpcc_com_all_resource.h

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

```

```

//
#define IDS_PROJNAME      100
#define IDR_TPCC          101
#define IDR_NEWORDER     102
#define IDR_ORDERSTATUS  103
#define IDR_PAYMENT      104
#define IDR_STOCKLEVEL   105

// Next default values for new objects
//
#ifdef APSTUDIO_INVOKED
#ifndef APSTUDIO_READONLY_SYMBOLS
#define _APS_NEXT_RESOURCE_VALUE  202
#define _APS_NEXT_COMMAND_VALUE   32768
#define _APS_NEXT_CONTROL_VALUE   201
#define _APS_NEXT_SYMED_VALUE     106
#endif
#endif

tpcc_type.h

/* Generated by IDL compiler version DECDCCE V2.0.0-6 */
#ifndef tpcc_types_v1_0_included
#define tpcc_types_v1_0_included
#endif
#ifndef 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

```

## **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 IID and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.03.0280 */
/* at Mon Jan 24 20:00:20 2000
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#ifdef !defined(_M_IA64) && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifdef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>

```

```

#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char  c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCCLib,0x122A3117,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

```

```

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64)*/

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.03.0280 */
/* at Mon Jan 24 20:00:20 2000
*/
/* Compiler settings for .\src\tpcc_com_all.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext, robust
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#ifdef _M_IA64 || defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>

```

```

#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
LIBID_TPCLlib,0x122A3117,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_TPCC,0x122A3128,0x2520,0x11D3,0xBA,0x71,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_NewOrder,0x975BAABF,0x84A7,0x11D2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_OrderStatus,0x266836AD,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

```

```

MIDL_DEFINE_GUID(CLSID,
CLSID_Payment,0xCD02F7EF,0xA4FA,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

MIDL_DEFINE_GUID(CLSID,
CLSID_StockLevel,0x2668369E,0xA50D,0x11D2,0xBA,0x4E,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* defined(_M_IA64) || defined(_M_AXP64)*/

tpcc_com_no.rgs

HKCR
{
    TPCC.NewOrder.1 = s 'NewOrder Class'
    {
        CLSID = s '{975BAABF-84A7-11D2-BA47-00C04FBFE08B}'
    }
    TPCC.NewOrder = s 'NewOrder Class'
    {
        CurVer = s 'TPCC.NewOrder.1'
    }
    NoRemove CLSID
    {
        ForceRemove {975BAABF-84A7-11D2-BA47-00C04FBFE08B} = s 'NewOrder
Class'
        {
            ProgID = s 'TPCC.NewOrder.1'
            VersionIndependentProgID = s 'TPCC.NewOrder'
            InprocServer32 = s '%MODULE%'
            {
                val ThreadingModel = s 'Both'
            }
        }
    }
}

tpcc_com_os.rgs

HKCR
{

```

```

TPCC.OrderStatus.1 = s 'OrderStatus Class'
{
    CLSID = s '{266836AD-A50D-11D2-BA4E-00C04FBFE08B}'
}
TPCC.OrderStatus = s 'OrderStatus Class'
{
    CurVer = s 'TPCC.OrderStatus.1'
}
NoRemove CLSID
{
    ForceRemove {266836AD-A50D-11D2-BA4E-00C04FBFE08B} = s 'OrderStatus
Class'
    {
        ProgID = s 'TPCC.OrderStatus.1'
        VersionIndependentProgID = s 'TPCC.OrderStatus'
        InprocServer32 = s '%MODULE%'
        {
            val ThreadingModel = s 'Both'
        }
    }
}
}

```

### **tpcc\_com\_pay.rgs**

```

HKCR
{
    TPCC.Payment.1 = s 'Payment Class'
    {
        CLSID = s '{CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B}'
    }
    TPCC.Payment = s 'Payment Class'
    {
        CurVer = s 'TPCC.Payment.1'
    }
    NoRemove CLSID
    {
        ForceRemove {CD02F7EF-A4FA-11D2-BA4E-00C04FBFE08B} = s 'Payment
Class'
        {
            ProgID = s 'TPCC.Payment.1'
            VersionIndependentProgID = s 'TPCC.Payment'
            InprocServer32 = s '%MODULE%'
            {
                val ThreadingModel = s 'Both'
            }
        }
    }
}

```

```

}
}

```

### **tpcc\_com\_ps.def**

```
LIBRARY "tpcc_com_ps"
```

```
DESCRIPTION 'Proxy/Stub DLL'
```

```
EXPORTS
```

```

    DllGetClassObject @1 PRIVATE
    DllCanUnloadNow @2 PRIVATE
    GetProxyDllInfo @3 PRIVATE
    DllRegisterServer @4 PRIVATE
    DllUnregisterServer @5 PRIVATE

```

### **tpcc\_com\_ps.dsp**

```

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

```

```
# TARGETTYPE "Win32 (x86) Application" 0x0101
```

```
CFG=tpcc_com_ps - Win32 Debug
```

```
!MESSAGE This is not a valid makefile. To build this project using NMAKE,
```

```
!MESSAGE use the Export Makefile command and run
```

```
!MESSAGE
```

```
!MESSAGE NMAKE /f "tpcc_com_ps.mak".
```

```
!MESSAGE
```

```
!MESSAGE You can specify a configuration when running NMAKE
```

```
!MESSAGE by defining the macro CFG on the command line. For example:
```

```
!MESSAGE
```

```
!MESSAGE NMAKE /f "tpcc_com_ps.mak" CFG="tpcc_com_ps - Win32 Debug"
```

```
!MESSAGE
```

```
!MESSAGE Possible choices for configuration are:
```

```
!MESSAGE
```

```
!MESSAGE "tpcc_com_ps - Win32 Release" (based on "Win32 (x86) Application")
```

```
!MESSAGE "tpcc_com_ps - Win32 Debug" (based on "Win32 (x86) Application")
```

```
!MESSAGE
```

```
# Begin Project
```

```
# PROP AllowPerConfigDependencies 0
```

```
# PROP Scc_ProjName ""
```

```
# PROP Scc_LocalPath ""
```

```

CPP=cl.exe
MTL=midl.exe
RSC=rc.exe

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "Release"
# PROP BASE Intermediate_Dir "Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS" /YX /FD /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WIN32_WINNT=0x0400" /D
"REGISTER_PROXY_DLL" /FD /c
# SUBTRACT CPP /YX
# ADD BASE MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "NDEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbccp32.lib /nologo /subsystem:windows /machine:I386
# ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib rpert4.lib oleaut32.lib uuid.lib /nologo /entry:"DllMain"
/subsystem:windows /dll /pdb:none /machine:I386 /def:".\src\tpcc_com_ps.def"
# Begin Custom Build - Copying tpcc_com_ps.h
InputPath=.\bin\tpcc_com_ps.dll
SOURCE="$(InputPath)"

"..\tpcc_com_all\src\tpcc_com_ps.h" : $(SOURCE) "$(INTDIR)" "$(OUTDIR)"
copy .\src\tpcc_com_ps.h ..\tpcc_com_all\src\

# End Custom Build

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""

```

```

# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\obj"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D "_WINDOWS" /YX /FD
/c
# ADD CPP /nologo /ZI /Od /D "WIN32" /D "_DEBUG" /D "_WIN32_WINNT=0x0400" /D
"REGISTER_PROXY_DLL" /FD /c
# ADD BASE MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD MTL /nologo /D "_DEBUG" /mktyplib203 /o "NUL" /win32
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbccp32.lib /nologo /subsystem:windows /debug /machine:I386
/pdbtype:sept
# ADD LINK32 kernel32.lib rpcndr.lib rpcns4.lib rpert4.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 Mon Jan 24 20:00:07 2000
```

```
*/
```

```
/* Compiler settings for .\src\tpcc_com_ps.idl:
```

```
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
```

```
error checks: allocation ref bounds_check enum stub_data
```

```
VC __declspec() decoration level:
```

```
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
```

```
DECLSPEC_UUID(), MIDL_INTERFACE()
```

```
*/
```

```
//@@MIDL_FILE_HEADING( )
```

```
/* verify that the <rpcndr.h> version is high enough to compile this file*/
```

```
#ifndef __REQUIRED_RPCNDR_H_VERSION__
```

```
#define __REQUIRED_RPCNDR_H_VERSION__ 440
```

```
#endif
```

```
#include "rpc.h"
```

```
#include "rpcndr.h"
```

```
#ifndef __RPCNDR_H_VERSION__
```

```
#error this stub requires an updated version of <rpcndr.h>
```

```
#endif // __RPCNDR_H_VERSION__
```

```

#ifndef COM_NO_WINDOWS_H
#include "windows.h"
#include "ole2.h"
#endif /*COM_NO_WINDOWS_H*/

#ifndef __tpcc_com_ps_h__
#define __tpcc_com_ps_h__

/* Forward Declarations */

#ifndef __ITPCC_FWD_DEFINED__
#define __ITPCC_FWD_DEFINED__
typedef interface ITPCC ITPCC;
#endif /* __ITPCC_FWD_DEFINED__ */

/* header files for imported files */
#include "oaidl.h"
#include "ocidl.h"

#ifdef __cplusplus
extern "C" {
#endif

void __RPC_FAR * __RPC_USER MIDL_user_allocate(size_t);
void __RPC_USER MIDL_user_free(void __RPC_FAR *);

#ifndef __ITPCC_INTERFACE_DEFINED__
#define __ITPCC_INTERFACE_DEFINED__

/* interface ITPCC */
/* [unique][helpstring][uuid][object] */

EXTERN_C const IID IID_ITPCC;

#if defined(__cplusplus) && !defined(CINTERFACE)

MIDL_INTERFACE("FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B")
ITPCC : public IUnknown
{
public:
virtual HRESULT __stdcall NewOrder(
/* [out][in] */ int __RPC_FAR *iSize,
/* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn) = 0;

virtual HRESULT __stdcall Payment(
/* [out][in] */ int __RPC_FAR *iSize,

```

```

/* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn) = 0;

virtual HRESULT __stdcall Delivery(
/* [in] */ int __RPC_FAR *iSize,
/* [size_is][size_is][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn) = 0;

virtual HRESULT __stdcall StockLevel(
/* [out][in] */ int __RPC_FAR *iSize,
/* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn) = 0;

virtual HRESULT __stdcall OrderStatus(
/* [out][in] */ int __RPC_FAR *iSize,
/* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn) = 0;

virtual HRESULT __stdcall CallSetComplete( void) = 0;

};

#else /* C style interface */

typedef struct ITPCCVtbl
{
BEGIN_INTERFACE

HRESULT ( STDMETHODCALLTYPE __RPC_FAR *QueryInterface )(
ITPCC __RPC_FAR * This,
/* [in] */ REFIID riid,
/* [iid_is][out] */ void __RPC_FAR * __RPC_FAR *ppvObject);

ULONG ( STDMETHODCALLTYPE __RPC_FAR *AddRef )(
ITPCC __RPC_FAR * This);

ULONG ( STDMETHODCALLTYPE __RPC_FAR *Release )(
ITPCC __RPC_FAR * This);

HRESULT ( __stdcall __RPC_FAR *NewOrder )(
ITPCC __RPC_FAR * This,
/* [out][in] */ int __RPC_FAR *iSize,
/* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn);

HRESULT ( __stdcall __RPC_FAR *Payment )(
ITPCC __RPC_FAR * This,
/* [out][in] */ int __RPC_FAR *iSize,
/* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn);

HRESULT ( __stdcall __RPC_FAR *Delivery )(
ITPCC __RPC_FAR * This,
/* [in] */ int __RPC_FAR *iSize,
/* [size_is][size_is][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn);

```

```

HRESULT ( __stdcall __RPC_FAR *StockLevel)(
    ITPCC __RPC_FAR * This,
    /* [out][in] */ int __RPC_FAR *iSize,
    /* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn);

HRESULT ( __stdcall __RPC_FAR *OrderStatus )(
    ITPCC __RPC_FAR * This,
    /* [out][in] */ int __RPC_FAR *iSize,
    /* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn);

HRESULT ( __stdcall __RPC_FAR *CallSetComplete )(
    ITPCC __RPC_FAR * This);

    END_INTERFACE
} ITPCCVtbl;

interface ITPCC
{
    CONST_VTBL struct ITPCCVtbl __RPC_FAR *lpVtbl;
};

#ifdef COBJMACROS

#define ITPCC_QueryInterface(This,riid,ppvObject) \
    (This)->lpVtbl->QueryInterface(This,riid,ppvObject)

#define ITPCC_AddRef(This) \
    (This)->lpVtbl->AddRef(This)

#define ITPCC_Release(This) \
    (This)->lpVtbl->Release(This)

#define ITPCC_NewOrder(This,iSize,txn) \
    (This)->lpVtbl->NewOrder(This,iSize,txn)

#define ITPCC_Payment(This,iSize,txn) \
    (This)->lpVtbl->Payment(This,iSize,txn)

#define ITPCC_Delivery(This,iSize,txn) \
    (This)->lpVtbl->Delivery(This,iSize,txn)

#define ITPCC_StockLevel(This,iSize,txn) \
    (This)->lpVtbl->StockLevel(This,iSize,txn)

#define ITPCC_OrderStatus(This,iSize,txn) \
    (This)->lpVtbl->OrderStatus(This,iSize,txn)

```

```

#define ITPCC_CallSetComplete(This) \
    (This)->lpVtbl->CallSetComplete(This)

#endif /* COBJMACROS */

#endif /* C style interface */

HRESULT __stdcall ITPCC_NewOrder_Proxy(
    ITPCC __RPC_FAR * This,
    /* [out][in] */ int __RPC_FAR *iSize,
    /* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn);

void __RPC_STUB ITPCC_NewOrder_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_Payment_Proxy(
    ITPCC __RPC_FAR * This,
    /* [out][in] */ int __RPC_FAR *iSize,
    /* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn);

void __RPC_STUB ITPCC_Payment_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_Delivery_Proxy(
    ITPCC __RPC_FAR * This,
    /* [in] */ int __RPC_FAR *iSize,
    /* [size_is][size_is][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn);

void __RPC_STUB ITPCC_Delivery_Stub(
    IRpcStubBuffer *This,
    IRpcChannelBuffer *_pRpcChannelBuffer,
    PRPC_MESSAGE _pRpcMessage,
    DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_StockLevel_Proxy(
    ITPCC __RPC_FAR * This,
    /* [out][in] */ int __RPC_FAR *iSize,
    /* [size_is][size_is][out][in] */ unsigned char __RPC_FAR * __RPC_FAR *txn);

void __RPC_STUB ITPCC_StockLevel_Stub(

```



```

IRpcStubBuffer *This,
IRpcChannelBuffer *pRpcChannelBuffer,
PRPC_MESSAGE_pRpcMessage,
DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_OrderStatus_Proxy(
ITPCC__RPC_FAR * This,
/* [out][in] */ int __RPC_FAR *iSize,
/* [size_is][size_is][out][in] */ unsigned char __RPC_FAR *__RPC_FAR *txn);

void __RPC_STUB ITPCC_OrderStatus_Stub(
IRpcStubBuffer *This,
IRpcChannelBuffer *pRpcChannelBuffer,
PRPC_MESSAGE_pRpcMessage,
DWORD *_pdwStubPhase);

HRESULT __stdcall ITPCC_CallSetComplete_Proxy(
ITPCC__RPC_FAR * This);

void __RPC_STUB ITPCC_CallSetComplete_Stub(
IRpcStubBuffer *This,
IRpcChannelBuffer *pRpcChannelBuffer,
PRPC_MESSAGE_pRpcMessage,
DWORD *_pdwStubPhase);

#endif /* __ITPCC_INTERFACE_DEFINED__ */

/* Additional Prototypes for ALL interfaces */

/* end of Additional Prototypes */

#ifdef __cplusplus
}
#endif

#endif

tpcc_com_ps.idl

/* FILE: ITPCC.IDL
* Microsoft TPC-C Kit Ver. 4.20.000
* Copyright Microsoft, 1999
* All Rights Reserved
*
* not yet audited
*
*/

```

```

* PURPOSE: Defines the interface used by TPCC. This interface can be implemented
by C++ components.
*
* Change history:
* 4.20.000 - first version
*/

// Forward declare all types defined
//interface ITPCC;
import "oaidl.idl";
import "ocidl.idl";

[
    object,
    uuid(FEEE6AA2-84B1-11d2-BA47-00C04FBFE08B),
    helpstring("ITPCC Interface"),
    pointer_default(unique)
]
interface ITPCC : IUnknown
{
    HRESULT __stdcall NewOrder
        (
        [in, out] int* iSize,
        [in, out, size_is(, *iSize)] char** txn
        );

    HRESULT __stdcall Payment
        (
        [in, out] int* iSize,
        [in, out, size_is(, *iSize)] char** txn
        );

    HRESULT __stdcall Delivery
        (
        [in] int* iSize,
        [in, size_is(, *iSize)] char** txn
        );

    HRESULT __stdcall StockLevel
        (
        [in, out] int* iSize,
        [in, out, size_is(, *iSize)] char** txn
        );

    HRESULT __stdcall OrderStatus
        (
        [in, out] int* iSize,
        [in, out, size_is(, *iSize)] char** txn
        );
}

```

```

);

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 Mon Jan 24 20:00:07 2000
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@MIDL_FILE_HEADING( )

#if !defined(_M_IA64) && !defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifdef 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__

#ifdef CLSID_DEFINED
#define CLSID_DEFINED
typedef IID CLSID;
#endif // CLSID_DEFINED

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8) \
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* !defined(_M_IA64) && !defined(_M_AXP64) */

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the IIDs and CLSIDs */

/* link this file in with the server and any clients */

/* File created by MIDL compiler version 5.03.0280 */
/* at Mon Jan 24 20:00:07 2000

```

```

*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
   Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run,appending), ms_ext, c_ext, robust
   error checks: allocation ref bounds_check enum stub_data
   VC __declspec() decoration level:
       __declspec(uuid()), __declspec(selectany), __declspec(novtable)
       DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#if defined(_M_IA64) || defined(_M_AXP64)

#ifdef __cplusplus
extern "C"{
#endif

#include <rpc.h>
#include <rpcndr.h>

#ifdef _MIDL_USE_GUIDDEF_

#ifndef INITGUID
#define INITGUID
#include <guiddef.h>
#undef INITGUID
#else
#include <guiddef.h>
#endif

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)\
    DEFINE_GUID(name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)

#else // !_MIDL_USE_GUIDDEF_

#ifndef __IID_DEFINED__
#define __IID_DEFINED__

typedef struct _IID
{
    unsigned long x;
    unsigned short s1;
    unsigned short s2;
    unsigned char c[8];
} IID;

#endif // __IID_DEFINED__

#ifndef CLSID_DEFINED
#define CLSID_DEFINED

```

```

typedef IID CLSID;
#endif // CLSID_DEFINED

#define MIDL_DEFINE_GUID(type,name,l,w1,w2,b1,b2,b3,b4,b5,b6,b7,b8)\
    const type name = {l,w1,w2,{b1,b2,b3,b4,b5,b6,b7,b8}}

#endif !_MIDL_USE_GUIDDEF_

MIDL_DEFINE_GUID(IID,
IID_ITPCC,0xFEEE6AA2,0x84B1,0x11d2,0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B);

#undef MIDL_DEFINE_GUID

#ifdef __cplusplus
}
#endif

#endif /* defined(_M_IA64) || defined(_M_AXP64)*/

tpcc_com_ps_p.c

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the proxy stub code */

/* File created by MIDL compiler version 5.03.0280 */
/* at Mon Jan 24 20:00:07 2000
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
   Oicf (OptLev=i2), W1, Zp8, env=Win32 (32b run), ms_ext, c_ext
   error checks: allocation ref bounds_check enum stub_data
   VC __declspec() decoration level:
       __declspec(uuid()), __declspec(selectany), __declspec(novtable)
       DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#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__ 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 33
#define PROC_FORMAT_STRING_SIZE 193
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 0

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;

/* Object interface: IUnknown, ver. 0.0,
   GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0x46}} */

/* Object interface: ITPCC, ver. 0.0,
   GUID={0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg(".orpc")
static const unsigned short ITPCC_FormatStringOffsetTable[] =
{
    0,
    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

```

```

};

static const MIDL_STUB_DESC Object_StubDesc =
{
    0,
    NdrOleAllocate,
    NdrOleFree,
    0,
    0,
    0,
    0,
    0,
    0,
    0,
    __MIDL_TypeFormatString.Format,
    1, /* -error bounds_check flag */
    0x20000, /* Ndr library version */
    0,
    0x5030118, /* MIDL Version 5.3.280 */
    0,
    0,
    0, /* notify & notify_flag routine table */
    0x1, /* MIDL flag */
    0, /* Reserved3 */
    0, /* Reserved4 */
    0 /* Reserved5 */
};

#pragma data_seg(".rdata")

#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.
#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 =
{
    {
        /* Procedure NewOrder */

        0x33, /* FC_AUTO_HANDLE */

```

```

        0x6c, /* Old Flags: object, Oi2 */
/* 2 */ NdrFcLong( 0x0 ), /* 0 */
/* 6 */ NdrFcShort( 0x3 ), /* 3 */
#ifdef _ALPHA_
/* 8 */ NdrFcShort( 0x10 ), /* x86, MIPS, PPC Stack size/offset = 16 */
#else
/* 10 */ NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
#endif
/* 10 */ NdrFcShort( 0x8 ), /* 8 */
/* 12 */ NdrFcShort( 0x10 ), /* 16 */
/* 14 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has return, */
/* 3 */ 0x3, /* 3 */

/* Parameter iSize */

/* 16 */ NdrFcShort( 0x158 ), /* Flags: in, out, base type, simple ref, */
#ifdef _ALPHA_
/* 18 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset = 4 */
#else
/* 20 */ NdrFcShort( 0x8 ), /* Alpha Stack size/offset = 8 */
#endif
/* 20 */ 0x8, /* FC_LONG */
/* 0 */ 0x0, /* 0 */

/* Parameter txn */

/* 22 */ NdrFcShort( 0x201b ), /* Flags: must size, must free, in, out, srv alloc size=8 */
#ifdef _ALPHA_
/* 24 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset = 8 */
#else
/* 26 */ NdrFcShort( 0x10 ), /* Alpha Stack size/offset = 16 */
#endif
/* 26 */ NdrFcShort( 0x6 ), /* Type Offset=6 */

/* Return value */

/* 28 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 30 */ NdrFcShort( 0xc ), /* x86, MIPS, PPC Stack size/offset = 12 */
#else
/* 32 */ NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#endif
/* 32 */ 0x8, /* FC_LONG */
/* 0 */ 0x0, /* 0 */

/* Procedure Payment */

/* 34 */ 0x33, /* FC_AUTO_HANDLE */
/* 0 */ 0x6c, /* Old Flags: object, Oi2 */

```

```

/* 36 */ NdrFcLong( 0x0 ), /* 0 */
/* 40 */ NdrFcShort( 0x4 ), /* 4 */
#ifdef _ALPHA_
/* 42 */ NdrFcShort( 0x10 ), /* x86, MIPS, PPC Stack size/offset = 16 */
#else
NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
#endif
/* 44 */ NdrFcShort( 0x8 ), /* 8 */
/* 46 */ NdrFcShort( 0x10 ), /* 16 */
/* 48 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has return, */
/* 3 */
/* Parameter iSize */
/* 50 */ NdrFcShort( 0x158 ), /* Flags: in, out, base type, simple ref, */
#ifdef _ALPHA_
/* 52 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* Alpha Stack size/offset = 8 */
#endif
/* 54 */ 0x8, /* FC_LONG */
/* 0 */
/* Parameter txn */
/* 56 */ NdrFcShort( 0x201b ), /* Flags: must size, must free, in, out, srv alloc size=8 */
#ifdef _ALPHA_
/* 58 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset = 8 */
#else
NdrFcShort( 0x10 ), /* Alpha Stack size/offset = 16 */
#endif
/* 60 */ NdrFcShort( 0x6 ), /* Type Offset=6 */
/* Return value */
/* 62 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 64 */ NdrFcShort( 0xc ), /* x86, MIPS, PPC Stack size/offset = 12 */
#else
NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#endif
/* 66 */ 0x8, /* FC_LONG */
/* 0 */
/* Procedure Delivery */
/* 68 */ 0x33, /* FC_AUTO_HANDLE */
/* 0x6c, /* Old Flags: object, Oi2 */
/* 70 */ NdrFcLong( 0x0 ), /* 0 */

```

```

/* 74 */ NdrFcShort( 0x5 ), /* 5 */
#ifdef _ALPHA_
/* 76 */ NdrFcShort( 0x10 ), /* x86, MIPS, PPC Stack size/offset = 16 */
#else
NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
#endif
/* 78 */ NdrFcShort( 0x8 ), /* 8 */
/* 80 */ NdrFcShort( 0x8 ), /* 8 */
/* 82 */ 0x6, /* Oi2 Flags: clt must size, has return, */
/* 3 */
/* Parameter iSize */
/* 84 */ NdrFcShort( 0x148 ), /* Flags: in, base type, simple ref, */
#ifdef _ALPHA_
/* 86 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* Alpha Stack size/offset = 8 */
#endif
/* 88 */ 0x8, /* FC_LONG */
/* 0 */
/* Parameter txn */
/* 90 */ NdrFcShort( 0x200b ), /* Flags: must size, must free, in, srv alloc size=8 */
#ifdef _ALPHA_
/* 92 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset = 8 */
#else
NdrFcShort( 0x10 ), /* Alpha Stack size/offset = 16 */
#endif
/* 94 */ NdrFcShort( 0x18 ), /* Type Offset=24 */
/* Return value */
/* 96 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 98 */ NdrFcShort( 0xc ), /* x86, MIPS, PPC Stack size/offset = 12 */
#else
NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#endif
/* 100 */ 0x8, /* FC_LONG */
/* 0 */
/* Procedure StockLevel */
/* 102 */ 0x33, /* FC_AUTO_HANDLE */
/* 0x6c, /* Old Flags: object, Oi2 */
/* 104 */ NdrFcLong( 0x0 ), /* 0 */
/* 108 */ NdrFcShort( 0x6 ), /* 6 */

```

```

#ifdef _ALPHA_
/* 110 */ NdrFcShort( 0x10 ), /* x86, MIPS, PPC Stack size/offset = 16 */
#else
NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
#endif
/* 112 */ NdrFcShort( 0x8 ), /* 8 */
/* 114 */ NdrFcShort( 0x10 ), /* 16 */
/* 116 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has return, */
/* 0x3, /* 3 */

/* Parameter iSize */

/* 118 */ NdrFcShort( 0x158 ), /* Flags: in, out, base type, simple ref, */
#ifdef _ALPHA_
/* 120 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* Alpha Stack size/offset = 8 */
#endif
/* 122 */ 0x8, /* FC_LONG */
/* 0x0, /* 0 */

/* Parameter txn */

/* 124 */ NdrFcShort( 0x201b ), /* Flags: must size, must free, in, out, srv alloc size=8 */
#ifdef _ALPHA_
/* 126 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset = 8 */
#else
NdrFcShort( 0x10 ), /* Alpha Stack size/offset = 16 */
#endif
/* 128 */ NdrFcShort( 0x6 ), /* Type Offset=6 */

/* Return value */

/* 130 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 132 */ NdrFcShort( 0xc ), /* x86, MIPS, PPC Stack size/offset = 12 */
#else
NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#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_

```

```

/* 144 */ NdrFcShort( 0x10 ), /* x86, MIPS, PPC Stack size/offset = 16 */
#else
NdrFcShort( 0x20 ), /* Alpha Stack size/offset = 32 */
#endif
/* 146 */ NdrFcShort( 0x8 ), /* 8 */
/* 148 */ NdrFcShort( 0x10 ), /* 16 */
/* 150 */ 0x7, /* Oi2 Flags: srv must size, clt must size, has return, */
/* 0x3, /* 3 */

/* Parameter iSize */

/* 152 */ NdrFcShort( 0x158 ), /* Flags: in, out, base type, simple ref, */
#ifdef _ALPHA_
/* 154 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset = 4 */
#else
NdrFcShort( 0x8 ), /* Alpha Stack size/offset = 8 */
#endif
/* 156 */ 0x8, /* FC_LONG */
/* 0x0, /* 0 */

/* Parameter txn */

/* 158 */ NdrFcShort( 0x201b ), /* Flags: must size, must free, in, out, srv alloc size=8 */
#ifdef _ALPHA_
/* 160 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset = 8 */
#else
NdrFcShort( 0x10 ), /* Alpha Stack size/offset = 16 */
#endif
/* 162 */ NdrFcShort( 0x6 ), /* Type Offset=6 */

/* Return value */

/* 164 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
#ifdef _ALPHA_
/* 166 */ NdrFcShort( 0xc ), /* x86, MIPS, PPC Stack size/offset = 12 */
#else
NdrFcShort( 0x18 ), /* Alpha Stack size/offset = 24 */
#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 */
#ifdef _ALPHA_
/* 178 */ NdrFcShort( 0x8 ), /* x86, MIPS, PPC Stack size/offset = 8 */

```

```

#else
    NdrFcShort( 0x10 ), /* Alpha Stack size/offset = 16 */
#endif
/* 180 */ NdrFcShort( 0x0 ), /* 0 */
/* 182 */ NdrFcShort( 0x8 ), /* 8 */
/* 184 */ 0x4, /* Oi2 Flags: has return, */
                /* 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 */
                /* 0 */

    0x0

}
};

static const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString =
{
    0,
    {
        NdrFcShort( 0x0 ), /* 0 */

/* 2 */

        0x11, 0x8, /* FC_RP [simple_pointer] */
/* 4 */ 0x8, /* FC_LONG */
                0x5c, /* FC_PAD */

/* 6 */

        0x11, 0x14, /* FC_RP [allocated_on_stack] [pointer_deref] */
/* 8 */ NdrFcShort( 0x2 ), /* Offset= 2 (10) */
/* 10 */

        0x13, 0x0, /* FC_OP */
/* 12 */ NdrFcShort( 0x2 ), /* Offset= 2 (14) */
/* 14 */

        0x1b, /* FC_CARRAY */
        0x0, /* 0 */

/* 16 */ NdrFcShort( 0x1 ), /* 1 */
/* 18 */ 0x28, /* Corr desc: parameter, FC_LONG */
                0x54, /* FC_DEREFERENCE */

#ifndef _ALPHA_
/* 20 */ NdrFcShort( 0x4 ), /* x86, MIPS, PPC Stack size/offset = 4 */
#else
    NdrFcShort( 0x8 ), /* Alpha Stack size/offset = 8 */
#endif
#endif

/* 22 */ 0x2, /* FC_CHAR */
                0x5b, /* FC_END */

/* 24 */

        0x11, 0x14, /* FC_RP [allocated_on_stack] [pointer_deref] */
/* 26 */ NdrFcShort( 0x2 ), /* Offset= 2 (28) */
/* 28 */

        0x12, 0x0, /* FC_UP */
/* 30 */ NdrFcShort( 0xfffff0 ), /* Offset= -16 (14) */

        0x0

    }
};

const CInterfaceProxyVtbl * _tpcc_com_ps_ProxyVtblList[] =
{
    ( CInterfaceProxyVtbl *) &_ITPCCProxyVtbl,
    0
};

const CInterfaceStubVtbl * _tpcc_com_ps_StubVtblList[] =
{
    ( CInterfaceStubVtbl *) &_ITPCCStubVtbl,
    0
};

PCInterfaceName const _tpcc_com_ps_InterfaceNamesList[] =
{
    "ITPCC",
    0
};

#define _tpcc_com_ps_CHECK_IID(n) IID_GENERIC_CHECK_IID(_tpcc_com_ps, pIID, n)

int __stdcall _tpcc_com_ps_IID_Lookup( const IID * pIID, int * pIndex )
{
    if(!_tpcc_com_ps_CHECK_IID(0))
    {
        *pIndex = 0;
        return 1;
    }

    return 0;
}

const ExtendedProxyFileInfo tpcc_com_ps_ProxyFileInfo =
{
    (PCInterfaceProxyVtblList *) & _tpcc_com_ps_ProxyVtblList,

```



```

(PCInterfaceStubVtblList *) & _tpcc_com_ps_StubVtblList,
(const PCInterfaceName *) & _tpcc_com_ps_InterfaceNamesList,
0, // no delegation
& _tpcc_com_ps_IID_Lookup,
1,
2,
0, /* table of [async_uuid] interfaces */
0, /* Filler1 */
0, /* Filler2 */
0 /* Filler3 */
};

#endif /* !defined(_M_IA64) && !defined(_M_AXP64)*/

#pragma warning( disable: 4049 ) /* more than 64k source lines */

/* this ALWAYS GENERATED file contains the proxy stub code */

/* File created by MIDL compiler version 5.03.0280 */
/* at Mon Jan 24 20:00:07 2000
*/
/* Compiler settings for .\src\tpcc_com_ps.idl:
Oicf (OptLev=i2), W1, Zp8, env=Win64 (32b run.appending), ms_ext, c_ext, robust
error checks: allocation ref bounds_check enum stub_data
VC __declspec() decoration level:
__declspec(uuid()), __declspec(selectany), __declspec(novtable)
DECLSPEC_UUID(), MIDL_INTERFACE()
*/
//@@@MIDL_FILE_HEADING( )

#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 35
#define PROC_FORMAT_STRING_SIZE 253
#define TRANSMIT_AS_TABLE_SIZE 0
#define WIRE_MARSHAL_TABLE_SIZE 0

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;

/* Object interface: IUnknown, ver. 0.0,
GUID={0x00000000,0x0000,0x0000,{0xC0,0x00,0x00,0x00,0x00,0x00,0x00,0x46}} */

/* Object interface: ITPCC, ver. 0.0,
GUID={0xFEEE6AA2,0x84B1,0x11d2,{0xBA,0x47,0x00,0xC0,0x4F,0xBF,0xE0,0x8B}} */

extern const MIDL_STUB_DESC Object_StubDesc;

extern const MIDL_SERVER_INFO ITPCC_ServerInfo;

#pragma code_seg(".orpc")
static const unsigned short ITPCC_FormatStringOffsetTable[] =
{
    0,
    44,
    88,
    132,
    176,
    220
};

static const MIDL_SERVER_INFO ITPCC_ServerInfo =

```

```

{
&Object_StubDesc,
0,
__MIDL_ProcFormatString.Format,
&ITPCC_FormatStringOffsetTable[-3],
0,
0,
0,
0
};

```

```

static const MIDL_STUBLESS_PROXY_INFOITPCC_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
};

```

```

static const MIDL_STUB_DESC Object_StubDesc =
{
0,

```

```

NdrOleAllocate,
NdrOleFree,
0,
0,
0,
0,
0,
0,
__MIDL_TypeFormatString.Format,
1, /* -error bounds_check flag */
0x50002, /* Ndr library version */
0,
0x5030118, /* MIDL Version 5.3.280 */
0,
0,
0, /* notify & notify_flag routine table */
0x1, /* MIDL flag */
0, /* Reserved3 */
0, /* Reserved4 */
0 /* Reserved5 */
};

```

```
#pragma data_seg(".rdata")
```

```

#if !defined(__RPC_WIN64__)
#error Invalid build platform for this stub.
#endif

```

```

static const MIDL_PROC_FORMAT_STRING __MIDL_ProcFormatString =
{
0,
{

```

```

/* Procedure NewOrder */
0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object, Oi2 */
/* 2 */ NdrFcLong( 0x0 ), /* 0 */
/* 6 */ NdrFcShort( 0x3 ), /* 3 */
/* 8 */ NdrFcShort( 0x20 ), /* ia64, xpp64 Stack size/offset = 32 */
/* 10 */ NdrFcShort( 0x8 ), /* 8 */
/* 12 */ NdrFcShort( 0x10 ), /* 16 */
/* 14 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has return, has ext, */
0x3, /* 3 */
/* 16 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr desc, clt corr check, srv corr
check, */
/* 18 */ NdrFcShort( 0x1 ), /* 1 */
/* 20 */ NdrFcShort( 0x1 ), /* 1 */
/* 22 */ NdrFcShort( 0x0 ), /* 0 */

```

```

/* 24 */ NdrFcShort( 0x0 ), /* 0 */
/* Parameter iSize */

/* 26 */ NdrFcShort( 0x158 ), /* Flags: in, out, base type, simple ref, */
/* 28 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 30 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Parameter txn */

/* 32 */ NdrFcShort( 0x201b ), /* Flags: must size, must free, in, out, srv alloc size=8 */
/* 34 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack size/offset = 16 */
/* 36 */ NdrFcShort( 0x6 ), /* Type Offset=6 */

/* Return value */

/* 38 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
/* 40 */ NdrFcShort( 0x18 ), /* ia64, axp64 Stack size/offset = 24 */
/* 42 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Payment */

/* 44 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object, Oi2 */
/* 46 */ NdrFcLong( 0x0 ), /* 0 */
/* 50 */ NdrFcShort( 0x4 ), /* 4 */
/* 52 */ NdrFcShort( 0x20 ), /* ia64, axp64 Stack size/offset = 32 */
/* 54 */ NdrFcShort( 0x8 ), /* 8 */
/* 56 */ NdrFcShort( 0x10 ), /* 16 */
/* 58 */ 0x47, /* Oi2 Flags: srv must size, clt must size, has return, has ext, */
0x3, /* 3 */
/* 60 */ 0xa, /* 10 */
0x7, /* Ext Flags: new corr desc, clt corr check, srv corr
check, */
/* 62 */ NdrFcShort( 0x1 ), /* 1 */
/* 64 */ NdrFcShort( 0x1 ), /* 1 */
/* 66 */ NdrFcShort( 0x0 ), /* 0 */
/* 68 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter iSize */

/* 70 */ NdrFcShort( 0x158 ), /* Flags: in, out, base type, simple ref, */
/* 72 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 74 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Parameter txn */

/* 76 */ NdrFcShort( 0x201b ), /* Flags: must size, must free, in, out, srv alloc size=8 */
/* 78 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack size/offset = 16 */
/* 80 */ NdrFcShort( 0x6 ), /* Type Offset=6 */

/* Return value */

/* 82 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
/* 84 */ NdrFcShort( 0x18 ), /* ia64, axp64 Stack size/offset = 24 */
/* 86 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Procedure Delivery */

/* 88 */ 0x33, /* FC_AUTO_HANDLE */
0x6c, /* Old Flags: object, Oi2 */
/* 90 */ NdrFcLong( 0x0 ), /* 0 */
/* 94 */ NdrFcShort( 0x5 ), /* 5 */
/* 96 */ NdrFcShort( 0x20 ), /* ia64, axp64 Stack size/offset = 32 */
/* 98 */ NdrFcShort( 0x8 ), /* 8 */
/* 100 */ NdrFcShort( 0x8 ), /* 8 */
/* 102 */ 0x46, /* Oi2 Flags: clt must size, has return, has ext, */
0x3, /* 3 */
/* 104 */ 0xa, /* 10 */
0x5, /* Ext Flags: new corr desc, srv corr check, */
/* 106 */ NdrFcShort( 0x0 ), /* 0 */
/* 108 */ NdrFcShort( 0x1 ), /* 1 */
/* 110 */ NdrFcShort( 0x0 ), /* 0 */
/* 112 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter iSize */

/* 114 */ NdrFcShort( 0x148 ), /* Flags: in, base type, simple ref, */
/* 116 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 118 */ 0x8, /* FC_LONG */
0x0, /* 0 */

/* Parameter txn */

/* 120 */ NdrFcShort( 0x200b ), /* Flags: must size, must free, in, srv alloc size=8 */
/* 122 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack size/offset = 16 */
/* 124 */ NdrFcShort( 0x1a ), /* Type Offset=26 */

/* Return value */

/* 126 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
/* 128 */ NdrFcShort( 0x18 ), /* ia64, axp64 Stack size/offset = 24 */
/* 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 */
/* 140 */ NdrFcShort( 0x20 ), /* ia64, axp64 Stack size/offset = 32 */
/* 142 */ NdrFcShort( 0x8 ), /* 8 */
/* 144 */ NdrFcShort( 0x10 ), /* 16 */
/* 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( 0x1 ), /* 1 */
/* 152 */ NdrFcShort( 0x1 ), /* 1 */
/* 154 */ NdrFcShort( 0x0 ), /* 0 */
/* 156 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter iSize */
/* 158 */ NdrFcShort( 0x158 ), /* Flags: in, out, base type, simple ref, */
/* 160 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 162 */ 0x8, /* FC_LONG */
          0x0, /* 0 */

/* Parameter txn */
/* 164 */ NdrFcShort( 0x201b ), /* Flags: must size, must free, in, out, srv alloc size=8 */
/* 166 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack size/offset = 16 */
/* 168 */ NdrFcShort( 0x6 ), /* Type Offset=6 */

/* Return value */
/* 170 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
/* 172 */ NdrFcShort( 0x18 ), /* ia64, axp64 Stack size/offset = 24 */
/* 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 */
/* 184 */ NdrFcShort( 0x20 ), /* ia64, axp64 Stack size/offset = 32 */
/* 186 */ NdrFcShort( 0x8 ), /* 8 */
/* 188 */ NdrFcShort( 0x10 ), /* 16 */

/* 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( 0x1 ), /* 1 */
/* 196 */ NdrFcShort( 0x1 ), /* 1 */
/* 198 */ NdrFcShort( 0x0 ), /* 0 */
/* 200 */ NdrFcShort( 0x0 ), /* 0 */

/* Parameter iSize */
/* 202 */ NdrFcShort( 0x158 ), /* Flags: in, out, base type, simple ref, */
/* 204 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 206 */ 0x8, /* FC_LONG */
          0x0, /* 0 */

/* Parameter txn */
/* 208 */ NdrFcShort( 0x201b ), /* Flags: must size, must free, in, out, srv alloc size=8 */
/* 210 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack size/offset = 16 */
/* 212 */ NdrFcShort( 0x6 ), /* Type Offset=6 */

/* Return value */
/* 214 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
/* 216 */ NdrFcShort( 0x18 ), /* ia64, axp64 Stack size/offset = 24 */
/* 218 */ 0x8, /* FC_LONG */
          0x0, /* 0 */

/* Procedure CallSetComplete */
/* 220 */ 0x33, /* FC_AUTO_HANDLE */
          0x6c, /* Old Flags: object, Oi2 */
/* 222 */ NdrFcLong( 0x0 ), /* 0 */
/* 226 */ NdrFcShort( 0x8 ), /* 8 */
/* 228 */ NdrFcShort( 0x10 ), /* ia64, axp64 Stack size/offset = 16 */
/* 230 */ NdrFcShort( 0x0 ), /* 0 */
/* 232 */ NdrFcShort( 0x8 ), /* 8 */
/* 234 */ 0x44, /* Oi2 Flags: has return, has ext, */
          0x1, /* 1 */
/* 236 */ 0xa, /* 10 */
          0x1, /* Ext Flags: new corr desc, */
/* 238 */ NdrFcShort( 0x0 ), /* 0 */
/* 240 */ NdrFcShort( 0x0 ), /* 0 */
/* 242 */ NdrFcShort( 0x0 ), /* 0 */
/* 244 */ NdrFcShort( 0x0 ), /* 0 */

/* Return value */

```

```

/* 246 */ NdrFcShort( 0x70 ), /* Flags: out, return, base type, */
/* 248 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 250 */ 0x8, /* FC_LONG */
/* 0x0, /* 0 */
0x0
}
};

static const MIDL_TYPE_FORMAT_STRING __MIDL_TypeFormatString =
{
0,
{
NdrFcShort( 0x0 ), /* 0 */
/* 2 */
0x11, 0x8, /* FC_RP [simple_pointer] */
/* 4 */ 0x8, /* FC_LONG */
0x5c, /* FC_PAD */
/* 6 */
0x11, 0x14, /* FC_RP [allocated_on_stack] [pointer_deref] */
/* 8 */ NdrFcShort( 0x2 ), /* Offset= 2 (10) */
/* 10 */
0x13, 0x0, /* FC_OP */
/* 12 */ NdrFcShort( 0x2 ), /* Offset= 2 (14) */
/* 14 */
0x1b, /* FC_CARRAY */
0x0, /* 0 */
/* 16 */ NdrFcShort( 0x1 ), /* 1 */
/* 18 */ 0x28, /* Corr desc: parameter, FC_LONG */
0x54, /* FC_DEREFERENCE */
/* 20 */ NdrFcShort( 0x8 ), /* ia64, axp64 Stack size/offset = 8 */
/* 22 */ NdrFcShort( 0x1 ), /* Corr flags: early, */
/* 24 */ 0x2, /* FC_CHAR */
0x5b, /* FC_END */
/* 26 */
0x11, 0x14, /* FC_RP [allocated_on_stack] [pointer_deref] */
/* 28 */ NdrFcShort( 0x2 ), /* Offset= 2 (30) */
/* 30 */
0x12, 0x0, /* FC_UP */
/* 32 */ NdrFcShort( 0xfffffee ), /* Offset= -18 (14) */
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
#defineDllDecl __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 int 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 WINAPI 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              msgno
message number
*              int                 msgstate
message state
*              int                 severity
message severity
*              char                *msgtext
printable message description
*
* RETURNS:     int                 INT_CONTINUE
continue if error is SQLETIME else INT_CANCEL action
*              INT_CANCEL
cancel operation
*
* COMMENTS:    This function also sets the dead lock dbproc variable if necessary.
*
*/

// typedef INT (SQLAPI *DBMSGHANDLE_PROC)(PDBPROCESS, DBINT, INT, INT, LPCSTR,
LPCSTR, LPCSTR, DBUSMALLINT);

int msg_handler(DBPROCESS *dbproc, DBINT msgno, int msgstate, int severity,
                LPCSTR msgtext, LPCSTR srvname, LPCSTR procname,
                DBUSMALLINT line)

```

```

{
    CTPCC_DBLIB          *pConn;

    assert(dbproc != NULL);
    pConn = (CTPCC_DBLIB*)dbgetuserdata(dbproc);

    if (pConn != NULL)
    {
        pConn->SetSqlError( msgno, msgstate, severity, msgtext );
    }

    return 0;
}

/* FUNCTION: void UtilStrCpy(char * pDest, char * pSrc, int n)
*
* PURPOSE:      This function copies n characters from string pSrc to pDst and places a
null character at the end of the destination string.
*
* ARGUMENTS:   char                *pDest  destination string pointer
char                *pSrc  source string
pointer
*              int                 n
number of characters to copy
*
* RETURNS:     None
*
* COMMENTS:    Unlike strncpy this function ensures that the result string is
always null terminated.
*/

inline static void UtilStrCpy(char * pDest, const BYTE * pSrc, int n)
{
    strncpy(pDest, (char *)pSrc, n);
    pDest[n] = '\0';

    return;
}

/* FUNCTION: CTPCC_DBLIB_ERR::ErrorText
*
*/

char* CTPCC_DBLIB_ERR::ErrorText(void)
{
    int i;

    static SERRORMSG errorMsgs[] =

```

```

    {
        { ERR_WRONG_SP_VERSION,          "Wrong version of stored
procs on database server" },
        { ERR_INVALID_CUST,             "Invalid Customer id,name."
    },
        { ERR_NO_SUCH_ORDER,            "No orders found for customer."
    },
        { ERR_RETRIED_TRANS,            "Retries before transaction succeeded."
    },
        { 0,                             ""
    }
};

static char szNotFound[] = "Unknown error number.";

for(i=0; errorMsgs[i].szMsg[0]; i++)
{
    if ( m_erno == errorMsgs[i].iError )
        break;
}
if ( !errorMsgs[i].szMsg[0] )
    return szNotFound;
else
    return errorMsgs[i].szMsg;
}

// wrapper routine for class constructor
__declspec(dllexport) CTPCC_DBLIB* CTPCC_DBLIB_new(
    LPCSTR szServer,          // name of SQL server
    LPCSTR szUser,           // user name for login
    LPCSTR szPassword,       // password for login
    LPCSTR szHost,           // workstation name; shows up in sp_who; max 30
chars, only first 10 kept by SQL Server
    LPCSTR szDatabase )     // name of database to use
{
    return new CTPCC_DBLIB( szServer, szUser, szPassword, szHost, szDatabase );
}

CTPCC_DBLIB::CTPCC_DBLIB(
    LPCSTR szServer,          // name of SQL server
    LPCSTR szUser,           // user name for login
    LPCSTR szPassword,       // password for login
    LPCSTR szHost,           // workstation name; shows up in sp_who; max 30
chars, only first 10 kept by SQL Server
    LPCSTR szDatabase )     // name of database to use
{
    LOGINREC      *login;

```

```

const BYTE      *pData;

// initialization
m_dbproc = NULL;
m_DbLibErr = (CDBLIBERR*)NULL;
m_SqlErr = (CSQLERR*)NULL;

m_MaxRetries = 10;          // how many retries on deadlock

// increase max number of connections if getting close
if ( dbgetmaxprocs() < (iConnectionCount+5) )
{
    if ( dbsetmaxprocs(iConnectionCount+10) == FAIL )
        ThrowError(CDBLIBERR::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)DEFCLPACKSIZE);
DBSETLVERSION(login, DBVER60);          // use dblib ver 6.0 client behavior

// set time to wait for login
if (dbsetlogintime(60) == FAIL)
    ThrowError(CDBLIBERR::eDbSet);

// set time to wait for statement execution
if (dbsettime(180) == FAIL)
    ThrowError(CDBLIBERR::eDbSet);

m_dbproc = dbopen(login, szServer);

// deallocate login structure before checking for success
dbfreelogin( login );

```



```

if (m_dbproc == NULL)
    ThrowError(CDBLIBERR::eDbOpen);

// save address of class instance so that the message and error handler
// can get to data.
dbsetuserdata(m_dbproc, (LPVOID)this);

// Use the the right database
if (dbuse(m_dbproc, szDatabase) == FAIL)
    ThrowError(CDBLIBERR::eDbUse);

dbcmd(m_dbproc, "set nocount on"); // do not return row counts
dbcmd(m_dbproc, "set XACT_ABORT ON"); // rollback transaction on
abort

if (dbsqlexec(m_dbproc) == FAIL)
    ThrowError(CDBLIBERR::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, dbdatlen(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
    dbcloses(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); // @w_id smallint
        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 ||
            (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::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) != SUCCEEDED)
            ThrowError(CDBLIBERR::eDbResults);

        if (dbnumcols(m_dbproc) != 5)
            ThrowError(CDBLIBERR::eWrongNumCols);

        if (dbnextrow(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_generic, pData, dbdatlen(m_dbproc, 3));
            if(pData=dbdata(m_dbproc, 4))
                dbconvert(m_dbproc, SQLNUMERIC,
(LPCBYTE)pData, dbdatlen(m_dbproc,4),
SQLFLT8, (BYTE
*)&m_txn.NewOrder.OL[i].ol_i_price, 8);

            if(pData=dbdata(m_dbproc, 5))

                dbconvert(m_dbproc, SQLNUMERIC,
(LPCBYTE)pData, dbdatlen(m_dbproc,5),
SQLFLT8, (BYTE
*)&m_txn.NewOrder.OL[i].ol_amount, 8);

            m_txn.NewOrder.total_amount =
m_txn.NewOrder.total_amount + m_txn.NewOrder.OL[i].ol_amount;

            DiscardNextRows(0);
    }

```

```

        // get remaining values for w_tax, d_tax, o_id, c_last, c_discount,
c_credit, o_entry_d, commit_flag
        if (dbresults(m_dbproc) != 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))

            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;
    DBDATEREC     daterec;

    int            iTryCount = 0;
    const BYTE    *pData;

    ResetError();

    while (TRUE)
    {
        try
        {
            dbrpcinit(m_dbproc, "tpcc_payment", 0);

```

```

            &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, SQLINT2, -1, -1, (BYTE *)
            &m_txn.Payment.h_amount);
            dbrpcparam(m_dbproc, NULL, 0, SQLFLT8, -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, SQLINT1, -1, -1, (BYTE *)
            &m_txn.Payment.c_id);
            dbrpcparam(m_dbproc, NULL, 0, SQLINT4, -1, -1, (BYTE *)

            // 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))
            UtilStrCpy(m_txn.Payment.c_street_2, pData,
dbdatlen(m_dbproc, 17));
        if (pData=dbdata(m_dbproc, 18))
            UtilStrCpy(m_txn.Payment.c_city, pData, dbdatlen(m_dbproc,
18));
        if (pData=dbdata(m_dbproc, 19))
            UtilStrCpy(m_txn.Payment.c_state, pData,
dbdatlen(m_dbproc, 19));
        if (pData=dbdata(m_dbproc, 20))
            UtilStrCpy(m_txn.Payment.c_zip, pData, dbdatlen(m_dbproc,
20));
        if (pData=dbdata(m_dbproc, 21))

```

```

            UtilStrCpy(m_txn.Payment.c_phone, pData,
dbdatlen(m_dbproc, 21));
        if (pData=dbdata(m_dbproc, 22))
        {
            datetime = *((DBDATETIME *) pData);
            dbdatecrack(m_dbproc, &daterec, &datetime);
            m_txn.Payment.c_since.year = daterec.year;
            m_txn.Payment.c_since.month = daterec.month;
            m_txn.Payment.c_since.day = daterec.day;
            m_txn.Payment.c_since.hour = daterec.hour;
            m_txn.Payment.c_since.minute = daterec.minute;
            m_txn.Payment.c_since.second = daterec.second;
        }
        if(pData=dbdata(m_dbproc, 23))
            UtilStrCpy(m_txn.Payment.c_credit, pData,
dbdatlen(m_dbproc, 23));
        if(pData=dbdata(m_dbproc, 24))
            dbconvert(m_dbproc, SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,24), SQLFLT8, (BYTE *)&m_txn.Payment.c_credit_lim, 8);
        if(pData=dbdata(m_dbproc, 25))
            dbconvert(m_dbproc, SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,25), SQLFLT8, (BYTE *)&m_txn.Payment.c_discount, 8);
        if(pData=dbdata(m_dbproc, 26))
            dbconvert(m_dbproc, SQLNUMERIC, (LPCBYTE)pData,
dbdatlen(m_dbproc,26), SQLFLT8, (BYTE *)&m_txn.Payment.c_balance, 8);
        if(pData=dbdata(m_dbproc, 27))
            UtilStrCpy(m_txn.Payment.c_data, pData,
dbdatlen(m_dbproc, 27));

        DiscardNextRows(0);
        DiscardNextResults(0);

        if (m_txn.Payment.c_id == 0)
            throw new CTPCC_DBLIB_ERR(
CTPCC_DBLIB_ERR::ERR_INVALID_CUST);
        else
            m_txn.Payment.exec_status_code = eOK;

        return;
    }
    catch (CSQLERR *e)
    {
        if ((e->m_msgno == 1205 ||
(e->m_msgno == iErrOleDbProvider &&
strstr(e->m_msgtext, sErrTimeoutExpired) != NULL)) &&
(++iTryCount <= iMaxRetries))
        {
            // hit deadlock; backoff for increasingly longer period

```

```

                delete e;
                Sleep(10 * iTryCount);
            }
            else
                throw;
        }
    } // while (TRUE)

// if (iTryCount)
// throw new CTPCC_DBLIB_ERR(CTPCC_DBLIB_ERR::ERR_RETRIED_TRANS,
iTryCount);
}

void CTPCC_DBLIB::OrderStatus()
{
    int                i;
    DBDATETIME        datetime;
    DBDATEREC         daterec;

    int                iTryCount = 0;
    RETCODE            rc;
    const BYTE         *pData;

    ResetError();

    while (TRUE)
    {
        try
        {
            dbrpcinit(m_dbproc, "tpcc_orderstatus", 0);

            dbrpcparam(m_dbproc, NULL, 0, SQLINT2, -1, -1, (BYTE *)
&m_txn.OrderStatus.w_id);
            dbrpcparam(m_dbproc, NULL, 0, SQLINT1, -1, -1, (BYTE *)
&m_txn.OrderStatus.d_id);
            dbrpcparam(m_dbproc, NULL, 0, SQLINT4, -1, -1, (BYTE *)
&m_txn.OrderStatus.c_id);

            // if customer id is zero, then order status is by name
            if (m_txn.OrderStatus.c_id == 0)
                dbrpcparam(m_dbproc, NULL, 0, SQLCHAR, -1,
strlen(m_txn.OrderStatus.c_last), (unsigned char *)m_txn.OrderStatus.c_last);

            if (dbrpcexec(m_dbproc) == FAIL)
                ThrowError(CDBLIBERR::eDbRpcExec);
        }
    }
}

```

```

// Get order lines
if (dbresults(m_dbproc) != SUCCEED)
{
    if ((m_DbLibErr == NULL) && (m_SqlErr == NULL))
        throw new CTPCC_DBLIB_ERR(
CTPCC_DBLIB_ERR::ERR_NO_SUCH_ORDER);
    else
        ThrowError(CDBLIBERR::eDbResults);
}

if (dbnumcols(m_dbproc) != 5)
    ThrowError(CDBLIBERR::eWrongNumCols);

i = 0;
while (TRUE)
{
    rc = dbnextrow(m_dbproc);
    if (rc == NO_MORE_ROWS)
        break;
    if (rc != REG_ROW)
        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,
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 =
m_txn.OrderStatus.OL[i].ol_delivery_d.month =
m_txn.OrderStatus.OL[i].ol_delivery_d.day =
m_txn.OrderStatus.OL[i].ol_delivery_d.hour =
daterec.year;
daterec.month;
daterec.day;
daterec.hour;
    }
}

```

```

                m_txn.OrderStatus.OL[i].ol_delivery_d.minute =
daterec.minute;
                m_txn.OrderStatus.OL[i].ol_delivery_d.second =
daterec.second;
            }
            i++;
        }
        m_txn.OrderStatus.o_ol_cnt = i;

        if (dbresults(m_dbproc) != 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))
            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) != SUCCEED)
            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 &&
             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::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: TPCC_DBLIB.H
 * Microsoft TPC-C Kit Ver. 4.20.000
 * Copyright Microsoft, 1999
 *
 * All Rights Reserved
 *
 * Version 4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
 *
 * PURPOSE: Header file for TPC-C txn class implementation.
 *
 * Change history:
 * 4.20.000 - updated rev number to match kit
 */
#pragma once

#ifndef PDBPROCESS
#define DBPROCESS void // dbprocess structure type
typedef DBPROCESS * PDBPROCESS;
#endif

// need to declare functions for import, unless define has already been created
// by the DLL's .cpp module for export.
#ifndef DllDecl

```

```
#define DllDecl __declspec( dllimport )
#endif
```

```
class CSQLERR : public CBaseErr
{
```

```
public:
```

```
CSQLERR(void)
```

```
{
    m_msgno = 0;
    m_msgstate = 0;
    m_severity = 0;
    m_msgtext = NULL;
};
```

```
~CSQLERR()
```

```
{
    delete [] m_msgtext;
};
```

```
int          m_msgno;
int          m_msgstate;
int          m_severity;
char *m_msgtext;
```

```
int ErrorType() {return ERR_TYPE_SQL;};
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
    eDbNextRow, // error from dbnextrow
    eWrongRowCount, // more or less rows returned than
    eWrongNumCols, // more or less columns returned than
};
```

```
dbset* routines
```

```
expected
```

```
expected
```

```

eDbResults, // error from dbresults
eDbRpcExec, // error from dbrpcexec
eDbSetMaxProcs, // error from dbsetmaxprocs
eDbProcHandler // error from either dbproccrhandle or
dbprocmshandle
};

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_erno = iErr; m_iTryCount = 0; };
CTPCC_DBLIB_ERR( int iErr, int iTryCount ) { m_erno = iErr; m_iTryCount =
iTryCount; };

int m_erno;
int m_iTryCount;

int ErrorType() {return ERR_TYPE_TPCC_DBLIB;};
int ErrorNum() {return m_erno;};

char *ErrorText();
};

class DllDecl CTPCC_DBLIB : public CTPCC_BASE
{
private:
// declare variables and private functions here...
PDBPROCESS m_dbproc;
CDBLIBERR *m_DbLibErr; // not allocated until needed
(maybe never)
CSQLERR *m_SqlErr; // not allocated
until needed (maybe never)
int m_MaxRetries; // retry count on
deadlock

void DiscardNextRows(int iExpectedCount);
void DiscardNextResults(int iExpectedCount);
void ThrowError( CDBLIBERR::ACTIONeAction );
void ResetError();

union
{
NEW_ORDER_DATA NewOrder;
PAYMENT_DATA Payment;
DELIVERY_DATA Delivery;
STOCK_LEVEL_DATA StockLevel;
ORDER_STATUS_DATA OrderStatus;
} m_txn;

public:
CTPCC_DBLIB(LPCSTR szServer, LPCSTR szUser, LPCSTR szPassword,
LPCSTR szHost, LPCSTR szDatabase );
~CTPCC_DBLIB(void);

```

```

inline PNEW_ORDER_DATA BuffAddr_NewOrder()
{ return &m_txn.NewOrder; };
inline PPAYMENT_DATA BuffAddr_Payment() {
return &m_txn.Payment; };
inline PDELIVERY_DATA BuffAddr_Delivery() {
return &m_txn.Delivery; };
inline PSTOCK_LEVEL_DATA BuffAddr_StockLevel() { return
&m_txn.StockLevel; };
inline PORDER_STATUS_DATA BuffAddr_OrderStatus() {
return &m_txn.OrderStatus; };

void NewOrder ();
void Payment ();
void Delivery ();
void StockLevel ();
void OrderStatus ();

// these are public because they must be called from the dblib err_handler and
msg_hangler // outside of the class
void SetDbLibError(int severity, int dberr, int oserr, LPCSTR dberrstr, LPCSTR
oserrstr);
void SetSqlError( int msgno, int msgstate, int severity, LPCSTR msgtext );
};

extern "C" DllDecl CTPCC_DBLIB* CTPCC_DBLIB_new
( LPCSTR szServer, LPCSTR szUser, LPCSTR szPassword, LPCSTR szHost, LPCSTR
szDatabase );

typedef CTPCC_DBLIB* (TYPE_CTPCC_DBLIB)(LPCSTR, LPCSTR, LPCSTR, LPCSTR, LPCSTR);

trans.h
/* FILE: TRANS.H
* Microsoft TPC-C Kit Ver. 4.20.000
* Copyright Microsoft, 1999
* All Rights Reserved
* Version 4.10.000 audited by Richard Gimarc, Performance
Metrics, 3/17/99
*
* PURPOSE: Header file for TPC-C structure templates.
*
* Change history:
* 4.20.000 - updated rev number to match kit

```

```

*/
#pragma once

// String length constants
#define SERVER_NAME_LEN      20
#define DATABASE_NAME_LEN   20
#define USER_NAME_LEN       20
#define PASSWORD_LEN        20
#define TABLE_NAME_LEN     20
#define I_DATA_LEN          50
#define I_NAME_LEN          24
#define BRAND_LEN           1
#define LAST_NAME_LEN       16
#define W_NAME_LEN          10
#define ADDRESS_LEN         20
#define STATE_LEN           2
#define ZIP_LEN              9
#define S_DIST_LEN          24
#define S_DATA_LEN          50
#define D_NAME_LEN          10
#define FIRST_NAME_LEN      16
#define MIDDLE_NAME_LEN     2
#define PHONE_LEN           16
#define DATETIME_LEN        30
#define CREDIT_LEN          2
#define C_DATA_LEN          250
#define H_DATA_LEN          24
#define DIST_INFO_LEN       24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN          25
#define OL_DIST_INFO_LEN    24

// TIMESTAMP_STRUCT is provided by the ODBC header file sqltypes.h, but is not available
// when compiling with 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.
#ifndef __SQLTYPES
    typedef struct
    {
        short                /* SQLSMALLINT */ year;
        unsigned short       /* SQLUSMALLINT */ month;
        unsigned short       /* SQLUSMALLINT */ day;
        unsigned short       /* SQLUSMALLINT */ hour;
        unsigned short       /* SQLUSMALLINT */ minute;
        unsigned short       /* SQLUSMALLINT */ second;
        unsigned long        /* SQLINTEGER */ fraction;
    } 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;      //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;

```

## txnlog.h

```
/*      FILE:          TXNLOG.H
 *
 *          Microsoft TPC-C Kit Ver. 4.10.000
 *
 *          NOTE: this file is RTE specific and should not be included
 *          in Full Disclosure Reports.
 *
 *          Copyright Microsoft, 1999
 *
 *      PURPOSE:      Structure definitions for logging delivery txn completion stats.
 *      Contact:     Charles Levine (clevine@microsoft.com)
 */

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
} 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

    WORD    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)
    WORD    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    1

```

```

#define    TXN_DATA_START    4096    // offset in log file where log records
start
#define    TXN_LOG_EYE_CATCHER    "BC"    // signature bytes at the start of log file

////////////////////////////////////
// The transaction log has a header as the first 4K block.
//
typedef struct _TXN_LOG_HEADER
{
    char    EyeCatcher[2];        // signature bytes; should
always be "BC"
    int    LogVersion;           // set
to TXN_LOG_VERSION
    JULIAN_TIME    BeginTxnTS;    // timestamp of
first (lowest) txn start
    JULIAN_TIME    EndTxnTS;      // timestamp of
last (highest) txn completion time
    int    iRecCount;           //
number of records in log file
    BOOL    bLogSorted;         //
    int    iFileSize;           // file size in bytes

    // the record map provides a fast way to get close to a particular timestamp in a
sorted log file.
    struct
    {
        JULIAN_TIME    TS;           //
timestamp of record
        int    iPos;           // byte
position in file
    }    RecMap[RecMapSize];
#define    RecMapSize    200

} TXN_LOG_HEADER, *PTXN_LOG_HEADER;

#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_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.
    int        iNextRec;             //when
reading, ordinal value of next record

    // A "save point" is remembered each time GetNextRecord is called with a start time
    // The next time it is called, if start time is after the save point, we start scanning
    // save point. This is particularly useful in FindBestInterval, where the log is scanned
    // repeatedly.
    JULIAN_TIME SavePtTime;
    int          iSavePtFilePointer;
    int          iSavePtNextRec;

    JULIAN_TIME lastTS;             //when
writing sorted output, used to verify records are sorted
    BOOL        bWrite;
//writing log file

    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

    int Write(BYTE *ptr, DWORD Size);
    static void LogFileIO(CTxnLog *);

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, LPTSTR lpStr, DWORD dwLen);

    void CloseTransactionLogFile(void);

    PTXN_RECORD_HEADER GetNextRecord(BOOL bSkipCtrlRecs = FALSE);
    PTXN_RECORD_HEADER GetNextRecord(JULIAN_TIME SeekTimeT0, BOOL
bSkipCtrlRecs = FALSE);

    int Sort(void);
    PTXN_RECORD_HEADER GetSortedRecord(int index);

    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 CTPCC_DBLIB_ERRS
        {
            ERR_BAD_FILE_FORMAT= 1,          // "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 ) { m_errno = iErr; };

        int          m_errno;

        int ErrorType() {return ERR_TYPE_TXNLOG;};
        int ErrorNum() {return m_errno;};

        // TODO: need to complete...
        char *ErrorText() {return "";};
};

```

## 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" /mktyplib203 /win32
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:windows /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.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" /mktyplib203 /win32

```

```

# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:windows /debug /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.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>
{{{
}}}

#####

Stored Procedures

neword.sql

payment.sql

ordstat.sql

delivery.sql

stocklev.sql

version.sql

```



## Appendix B: Database Design

### *backup.sql*

```
-- File:  BACKUP.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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 tpccback1, tpccback2, tpccback3, tpccback4 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:  BACKUPDEV.B.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.21
--      Copyright Microsoft, 1999, 2000
-- Purpose: Creates tpcc database Backup Devices

use master
go

-- create backup devices

exec sp_addumpdevice 'disk','tpccback1','Y:\tpccback1.dmp'
go
exec sp_addumpdevice 'disk','tpccback2','Y:\tpccback2.dmp'
go
exec sp_addumpdevice 'disk','tpccback3','Z:\tpccback3.dmp'
go
exec sp_addumpdevice 'disk','tpccback4','Z:\tpccback4.dmp'
go
```

### *createdb.sql*

```
-- File:  CREATEDB.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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          = MSSQL70_tpcc_root,
    FILENAME      = "C:\MSSQL70_tpcc_root.mdf",
    SIZE          = 8MB,
    FILEGROWTH    = 0),
FILEGROUP MSSQL70_misc_fg
(
    NAME          = MSSQL70_misc1,
    FILENAME      = "F:",
    SIZE          = 18000MB,
    FILEGROWTH    = 0),
(
    NAME          = MSSQL70_misc2,
    FILENAME      = "H:",
    SIZE          = 18000MB,
```

```

        FILEGROWTH      = 0),
(
    NAME                = MSSQL70_misc3,
    FILENAME            = "J:",
    SIZE                = 18000MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL70_misc4,
    FILENAME            = "L:",
    SIZE                = 18000MB,
    FILEGROWTH          = 0),
FILEGROUP      MSSQL70_cs_fg
(
    NAME                = MSSQL70_cs1,
    FILENAME            = "E:",
    SIZE                = 38700MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL70_cs2,
    FILENAME            = "G:",
    SIZE                = 38700MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL70_cs3,
    FILENAME            = "I:",
    SIZE                = 38700MB,
    FILEGROWTH          = 0),
(
    NAME                = MSSQL70_cs4,
    FILENAME            = "K:",
    SIZE                = 38700MB,
    FILEGROWTH          = 0)
LOG ON
(
    NAME                =MSSQL70_tpcc_log,
    FILENAME            ="O:",
    SIZE                =85000MB,
    FILEGROWTH          =0)

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. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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. 4.21
--      Copyright Microsoft, 1999, 2000
-- Purpose: Resets database options after data load

```

```

sp_dboption tpcc,'select into/bulkcopy',FALSE
GO

sp_dboption tpcc,'trunc. log on chkpt.',FALSE
GO

USE tpcc
GO

CHECKPOINT
GO

sp_configure 'allow updates',1
GO

RECONFIGURE WITH OVERRIDE
GO

```

```

DECLARE      @msg          varchar(50)

IF (SELECT (SUBSTRING((SELECT @@version),1,25))) = 'Microsoft SQL Server 2000'
    BEGIN
        --          --
        --  OPTIONS FOR SQL SERVER 8.0  --
        -- Set option values for user-defined indexes --
        --          --

        SET      @msg      = ''
        PRINT    @msg      --
        SET      @msg      = 'Setting SQL Server 8.0 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

    END
ELSE
    BEGIN
        --          --
        --  OPTIONS FOR SQL SERVER 7.0  --
        -- Set option values for user-defined indexes --
        --          --

        SET      @msg      = ''
        PRINT    @msg      --
        SET      @msg      = 'Setting SQL Server 7.0 indexoptions'
        PRINT    @msg
        SET      @msg      = ''
        PRINT    @msg      --

        EXEC sp_indexoption      'customer', 'AllowPageLocks', FALSE
        EXEC sp_indexoption      'district', 'AllowPageLocks', FALSE
        EXEC sp_indexoption      'warehouse', 'AllowPageLocks',

FALSE
        EXEC sp_indexoption      'stock', 'AllowPageLocks', FALSE
        EXEC sp_indexoption      'order_line', 'AllowRowLocks',

FALSE
        EXEC sp_indexoption      'orders', 'AllowRowLocks', FALSE

```

```

FALSE      EXEC sp_indexoption      'new_order', 'AllowRowLocks',
FALSE      EXEC sp_indexoption      'item', 'AllowRowLocks',
FALSE      EXEC sp_indexoption      'item', 'AllowPageLocks',

    END
GO

Print ''
Print '*****'
Print 'Pre-specified Locking Hierarchy:'
Print '    Lockflag = 0 ==> No pre-specified hierarchy'
Print '    Lockflag = 1 ==> Lock at Page-level then Table-level'
Print '    Lockflag = 2 ==> Lock at Row-level then Table-level'
Print '    Lockflag = 3 ==> Lock at Table-level'
Print ''

SELECT name,lockflags
FROM sysindexes
WHERE object_id('warehouse') = id OR
      object_id('district') = id OR
      object_id('customer') = id OR
      object_id('stock') = id OR
      object_id('orders') = id OR
      object_id('order_line') = id OR
      object_id('history') = id OR
      object_id('new_order') = id OR
      object_id('item') = id

ORDER BY lockflags asc
GO

sp_configure 'allow updates',0
GO

RECONFIGURE WITH OVERRIDE
GO

EXEC sp_dboption tpcc, 'auto update statistics', FALSE
EXEC sp_dboption tpcc, 'auto create statistics', FALSE
GO

EXEC sp_tableoption 'district', 'pintable',true
EXEC sp_tableoption 'warehouse', 'pintable',true
EXEC sp_tableoption 'new_order', 'pintable',true
EXEC sp_tableoption 'item', 'pintable',true
GO

```



## **runcfg80.sql**

```
/* TPC-C Benchmark Kit */
/* */
/* RUNCFG80.SQL */
/* */
/* 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**

```
use tpcc
go
checkpoint
go
shutdown
go
```

## **verify\_msg.sql**

```
exec sp_dropmessage 50003
exec sp_addmessage 50003, 1,"Incorrect Sort Order - Please re-install SQL Server with the Binary Sort Order"
```

## **verify\_sort.sql**

```
-- File: VERIFY_SORT.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.21
-- Copyright Microsoft, 1999, 2000
-- Purpose: Verifies the Sort Order
```

```
if exists (select name from sysobjects where name = "ms_verify_sort" )
drop procedure ms_verify_sort
```

```
go
```

```
create proc ms_verify_sort
```

```
as
```

```
declare @sort_order int
```

```
-- get the sort order
select @sort_order = (select value from sysconfigures where config = '1123')
```

```
if (select @sort_order) <> 50
RAISERROR (50003,11,1)
```

```
go
```

## **verify\_TpccLoad.sql**

```
-- File: VERIFYTPCCLOAD.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.21
-- Copyright Microsoft, 1999, 2000
-- 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 '*****IndexCheck*****'

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

```

## **tables.sql**

```

-- File:  TABLES.SQL
--       Microsoft TPC-C Benchmark Kit Ver. 4.21
--       Copyright Microsoft, 1999, 2000
-- 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 MSSQL70_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 MSSQL70_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 MSSQL70_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 MSSQL70_misc_fg
go

create table new_order
(
    no_o_id                int,
    no_d_id                tinyint,
    no_w_id                smallint
) on MSSQL70_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 MSSQL70_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 MSSQL70_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 MSSQL70_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            smallint,
    s_remote_cnt           smallint,
    s_data                 char(50)
) on MSSQL70_cs_fg
go

```

***idxcusnc.sql***

```
-- File:  IDXCUSNC.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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 MSSQL70_cs_fg
```

```
select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)
```

```
go
```

### ***idxcuscl.sql***

```
-- File:  IDXCUSCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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 MSSQL70_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. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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 MSSQL70_misc_fg
```

```
select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)
```

```
go
```

### ***idxitmcl.sql***

```
-- File:  IDXITMCL.SQL
--      Microsoft TPC-C Benchmark Kit Ver. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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 MSSQL70_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. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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 MSSQL70_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. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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 MSSQL70_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. 4.21
--      Copyright Microsoft, 1999, 2000
-- 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 MSSQL70_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. 4.21
--        Copyright Microsoft, 1999, 2000
-- 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 MSSQL70_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. 4.21
--        Copyright Microsoft, 1999, 2000
-- Purpose: Creates clustered index on stock table

```

```

use tpcc
go

```

```

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

```

```

if exists ( select name from sysindexes where name = 'stock_c1' )
            drop index stock.stock_c1

```

```

create unique clustered index stock_c1 on stock(s_i_id, s_w_id)
on MSSQL70_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. 4.21
--        Copyright Microsoft, 1999, 2000
-- Purpose: Creates clustered index on warehouse table

```

```

use tpcc
go

```

```

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

```

```

if exists ( select name from sysindexes where name = 'warehouse_c1' )
            drop index warehouse.warehouse_c1

```

```

create unique clustered index warehouse_c1 on warehouse(w_id)
with fillfactor=100 on MSSQL70_misc_fg

```

```

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate, @enddate)

```

```
go
```

## **Loader Source Code**

## getargs.c

```
//      File:          GETARGS.C
//
//      Microsoft TPC-C Kit Ver. 4.21
//
//      Copyright Microsoft, 1996, 1997, 1998, 1999,
//      2000
//
//      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->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 'h': /* Fall throught */
    case 'H':
                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':
        {

```

```

TRUE;
    pargs->tables_all = FALSE;
    if (strcmp(ptr+2,"item") == 0)
        pargs->table_item = TRUE;
    else if (strcmp(ptr+2,"warehouse") == 0)
        pargs->table_warehouse =
    else if (strcmp(ptr+2,"customer") == 0)
        pargs->table_customer = TRUE;
    else if (strcmp(ptr+2,"orders") == 0)
        pargs->table_orders = TRUE;
    else
    {
    printf("\nUnrecognized command");
    GetArgsLoaderUsage();
    exit(1);
    }
    break;
}

case 'f':
    pargs->loader_res_file = ptr+2;
    break;

case '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)
DEFLDPACKSIZE);
    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);
}

```

## strings.c

```

// File: STRINGS.C
// Microsoft TPC-C Kit Ver. 4.21
// Copyright Microsoft, 1996, 1997, 1998, 1999, 2000
// 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("[%ld]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("[%ld]DBG: LastName: num = [%d] ==> [%d][%d][%d]\n",
           (int) GetCurrentThreadId(), num, num/100, (num/10)%10, num%10);
    printf("[%ld]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[] =
"0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz";
        static int chArrayMax = 61;

#ifdef DEBUG
    printf("[%ld]DBG: Entering MakeAlphaString()\n", (int) GetCurrentThreadId());
#endif

    len= RandomNumber(x, y);

    for (i=0; i<len; i++)
    {
        cc = chArray[RandomNumber(0, chArrayMax)];
        str[i] = cc;
    }
    if ( len < z )
        memset(str+len, '\0', z - len);
    str[len] = 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("[%ld]DBG: Entering MakeOriginalAlphaString()\n", (int) GetCurrentThreadId());
#endif

    // verify percentage is valid
    if ((percent < 0) || (percent > 100))
    {
        printf("MakeOriginalAlphaString: Invalid percentage: %d\n", percent);
        exit(-1);
    }
}

```

```

// verify string is at least 8 chars in length
if ((x + y) <= 8)
{
    printf("MakeOriginalAlphaString: string length must be >= 8\n");
    exit(-1);
}

// Make Alpha String
len = MakeAlphaString(x,y, z, str);

val = RandomNumber(1,100);
if (val <= percent)
{
    start = RandomNumber(0, len - 8);
    strncpy(str + start, "ORIGINAL", 8);
}

#ifdef DEBUG
    printf("[%ld]DBG: MakeOriginalAlphaString: : %s\n",
           (int) GetCurrentThreadId(), str);
#endif

return strlen(str);
}

//=====
//
// Function name: MakeNumberString
//
//=====
int MakeNumberString(int x, int y, int z, char *str)
{
    char tmp[16];

    //MakeNumberString is always called MakeZipNumberString(16, 16, 16, string)

    memset(str, '0', 16);
    itoa(RandomNumber(0, 99999999), tmp, 10);
    memcpy(str, tmp, strlen(tmp));

    itoa(RandomNumber(0, 99999999), tmp, 10);
    memcpy(str+8, tmp, strlen(tmp));

    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;
}

tpcc.h
// File:          TPCC.H
//                Microsoft TPC-C Kit Ver. 4.21
//                Copyright Microsoft, 1996, 1997, 1998, 1999, 2000
// Purpose:  Header file for TPC-C database loader

// Build number of TPC Benchmark Kit
#define TPCKIT_VER        "4.21"

// 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      "logs\\load.out"
#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                *synch_servername;
        long                case_sensitivity;
        long                starting_warehouse;
        long                build_index;
        long                index_order;
        long                scale_down;
        char                *index_script_path;
} TPCCLDR_ARGS;

// String length constants
#define SERVER_NAME_LEN    20
#define DATABASE_NAME_LEN  20
#define USER_NAME_LEN     20
#define PASSWORD_LEN      20
#define TABLE_NAME_LEN   20
#define I_DATA_LEN        50
#define I_NAME_LEN        24
#define BRAND_LEN         1
#define LAST_NAME_LEN     16
#define W_NAME_LEN        10
#define ADDRESS_LEN       20
#define STATE_LEN         2
#define ZIP_LEN           9
#define S_DIST_LEN        24
#define S_DATA_LEN        50
#define D_NAME_LEN        10
#define FIRST_NAME_LEN    16
#define MIDDLE_NAME_LEN   2
#define PHONE_LEN         16
#define CREDIT_LEN        2
#define C_DATA_LEN        500
#define H_DATA_LEN        24
#define DIST_INFO_LEN     24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN        25

        #define OL_DIST_INFO_LEN    24
        #define C_SINCE_LEN         23
        #define H_DATE_LEN          23
        #define OL_DELIVERY_D_LEN   23
        #define O_ENTRY_D_LEN       23

// Functions in random.c
void    seed();
long    irand();
double  drand();
void    WUCreate();
short   WURand();
long    RandomNumber(long lower, long upper);

// Functions in getargs.c;
void    GetArgsLoader();
void    GetArgsLoaderUsage();

// Functions in time.c
long    TimeNow();

// Functions in strings.c
void    MakeAddress();
void    LastName();
int     MakeAlphaString();
int     MakeOriginalAlphaString();
int     MakeNumberString();
int     MakeZipNumberString();
void    InitString();
void    InitAddress();
void    PaddString();

tpccldr.c

//      File:                TPCCLDR.C
//                                  Microsoft TPC-C Kit Ver. 4.21
//                                  Copyright Microsoft, 1996, 1997, 1998, 1999, 2000
//      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 CheckSQL();
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 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;

TPCCLDR_ARGS    *aptr, args;

//=====
//
// Function name: main
//
//=====

int main(int    argc, char    **argv)
{
    DWORD        dwThreadID[MAX_MAIN_THREADS];
    HANDLE        hThread[MAX_MAIN_THREADS];
    FILE        *fLoader;
    char        buffer[255];
    int                    i;

    for (i=0; i<MAX_MAIN_THREADS; i++)
        hThread[i] = NULL;

    printf("\n*****");
    printf("\n*                *");
    printf("\n* Microsoft SQL Server                *");
    printf("\n*                *");
    printf("\n* TPC-C BENCHMARK KIT: Database loader                *");
    printf("\n* Version %s                *, 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          bcphint[128];
    // 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("idxitmcl");
    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);

```

```

if (rc != SUCCEED)
    HandleErrorDBC(i_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (i_id), ROWS_PER_BATCH = 100000");
    rc = bcp_control(i_hdbc1, BCPHINTS, (void*) bcphint);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);
}

rc = bcp_bind(i_hdbc1, (BYTE *) &i_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
if (rc != SUCCEED)
    HandleErrorDBC(i_hdbc1);

2);
rc = bcp_bind(i_hdbc1, (BYTE *) &i_im_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4,
if (rc != SUCCEED)
    HandleErrorDBC(i_hdbc1);

rc = bcp_bind(i_hdbc1, (BYTE *) i_name, 0, I_NAME_LEN, NULL, 0, 0, 3);
if (rc != SUCCEED)
    HandleErrorDBC(i_hdbc1);

4);
rc = bcp_bind(i_hdbc1, (BYTE *) &i_price, 0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8,
if (rc != SUCCEED)
    HandleErrorDBC(i_hdbc1);

rc = bcp_bind(i_hdbc1, (BYTE *) i_data, 0, I_DATA_LEN, NULL, 0, 0, 5);
if (rc != SUCCEED)
    HandleErrorDBC(i_hdbc1);

time_start = (TimeNow() / MILLI);

item_rows_loaded = 0;

for (i_id = 1; i_id <= max_items; i_id++)
{
    i_im_id = RandomNumber(1L, 10000L);

    MakeAlphaString(14, 24, I_NAME_LEN, i_name);

    i_price = ((float) RandomNumber(100L, 10000L))/100.0;

    MakeOriginalAlphaString(26, 50, I_DATA_LEN, i_data, 10);

    rc = bcp_sendrow(i_hdbc1);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

        item_rows_loaded++;
        CheckForCommit(i_hdbc1, i_hstmt1, item_rows_loaded, "item", &time_start);
}

rcint = bcp_done(i_hdbc1);
if (rcint < 0)
    HandleErrorDBC(i_hdbc1);

printf("Finished loading item table.\n");

SQLFreeStmt(i_hstmt1, SQL_DROP);
SQLDisconnect(i_hdbc1);
SQLFreeConnect(i_hdbc1);

// if build index after load
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("idxitm1");
}

//=====
//
// 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];

```

```

// 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("idxwarcl");

InitString(w_name, W_NAME_LEN+1);
InitAddress(w_street_1, w_street_2, w_city, w_state, w_zip);

sprintf(name, "%s.%s", aptr->database, "warehouse");

rc = bcp_init(w_hdbc1, name, NULL, "logs\\whouse.err", DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (w_id), ROWS_PER_BATCH = %d",
aptr->num_warehouses);
    rc = bcp_control(w_hdbc1, BCPHINTS, (void*) bcphint);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);
}

rc = bcp_bind(w_hdbc1, (BYTE *) &w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) w_name, 0, W_NAME_LEN, NULL, 0, 0, 2);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) w_street_1, 0, ADDRESS_LEN, NULL, 0, 0, 3);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) w_street_2, 0, ADDRESS_LEN, NULL, 0, 0, 4);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) w_city, 0, ADDRESS_LEN, NULL, 0, 0, 5);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

```

```

rc = bcp_bind(w_hdbc1, (BYTE *) w_state, 0, STATE_LEN, NULL, 0, 0, 6);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) w_zip, 0, ZIP_LEN, NULL, 0, 0, 7);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &w_tax, 0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8,
8);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &w_ytd, 0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8,
9);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

time_start = (TimeNow() / MILLI);

warehouse_rows_loaded = 0;

for (w_id = (short)aptr->starting_warehouse; w_id <= aptr->num_warehouses; w_id++)
{
    MakeAlphaString(6,10, W_NAME_LEN, w_name);

    MakeAddress(w_street_1, w_street_2, w_city, w_state, w_zip);

    w_tax = ((float) RandomNumber(0L,2000L))/10000.00;

    w_ytd = 300000.00;

    rc = bcp_sendrow(w_hdbc1);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    warehouse_rows_loaded++;
    CheckForCommit(w_hdbc1, i_hstmt1, warehouse_rows_loaded, "warehouse",
&time_start);
}

rcint = bcp_done(w_hdbc1);
if (rcint < 0)
    HandleErrorDBC(w_hdbc1);

printf("Finished loading warehouse table.\n");

// if build index after load...
if ((aptr->build_index == 1) && (aptr->index_order == 0))

```

```

        BuildIndex("idxwarcl");

stock_rows_loaded = 0;
district_rows_loaded = 0;

District();
Stock();
}

//=====
//
// Function : District
//
//=====

void District()
{
    short  d_id;
    short  d_w_id;
    char   d_name[D_NAME_LEN+1];
    char   d_street_1[ADDRESS_LEN+1];
    char   d_street_2[ADDRESS_LEN+1];
    char   d_city[ADDRESS_LEN+1];
    char   d_state[STATE_LEN+1];
    char   d_zip[ZIP_LEN+1];
    double d_tax;
    double d_ytd;
    char   name[20];
    long   d_next_o_id;
    long   time_start;
    int     w_id;
    RETCODE rc;
    DBINT  rcint;
    char   bcphint[128];

    // Seed with unique number
    seed(4);

    printf("Loading district table...\n");

    // build index before load
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxdiscl");

    InitString(d_name, D_NAME_LEN+1);
    InitAddress(d_street_1, d_street_2, d_city, d_state, d_zip);
    sprintf(name, "%s..%s", aptr->database, "district");

```

```

rc = bcp_init(w_hdbc1, name, NULL, "logs\\district.err", DB_IN);
if (rc != SUCCEEDED)
    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 != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);
}

rc = bcp_bind(w_hdbc1, (BYTE *) &d_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 1);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &d_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2,
2);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_name, 0, D_NAME_LEN, NULL, 0, 0, 3);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_street_1, 0, ADDRESS_LEN, NULL, 0, 0, 4);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_street_2, 0, ADDRESS_LEN, NULL, 0, 0, 5);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_city, 0, ADDRESS_LEN, NULL, 0, 0, 6);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_state, 0, STATE_LEN, NULL, 0, 0, 7);
if (rc != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) d_zip, 0, ZIP_LEN, NULL, 0, 0, 8);
if (rc != SUCCEEDED)
    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 = apr->starting_warehouse; w_id <= apr->num_warehouses; w_id++)
    {
        d_w_id = w_id;

        for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE; d_id++)
        {
            MakeAlphaString(6,10,D_NAME_LEN, d_name);

            MakeAddress(d_street_1, d_street_2, d_city, d_state, d_zip);

            d_tax = ((float) RandomNumber(0L,2000L))/10000.00;

            rc = bcp_sendrow(w_hdbc1);
            if (rc != SUCCEED)
                HandleErrorDBC(w_hdbc1);

            district_rows_loaded++;
            CheckForCommit(w_hdbc1, w_hstmt1, district_rows_loaded, "district",
&time_start);
        }
    }

    rcint = bcp_done(w_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(w_hdbc1);

    printf("Finished loading district table.\n");

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order == 0))

```

```

        BuildIndex("idxdiscl");

    return;
}

//=====
//
// Function : Stock
//
//=====

void Stock()
{
    long   s_i_id;
    short  s_w_id;
    short  s_quantity;
    char   s_dist_01[S_DIST_LEN+1];
    char   s_dist_02[S_DIST_LEN+1];
    char   s_dist_03[S_DIST_LEN+1];
    char   s_dist_04[S_DIST_LEN+1];
    char   s_dist_05[S_DIST_LEN+1];
    char   s_dist_06[S_DIST_LEN+1];
    char   s_dist_07[S_DIST_LEN+1];
    char   s_dist_08[S_DIST_LEN+1];
    char   s_dist_09[S_DIST_LEN+1];
    char   s_dist_10[S_DIST_LEN+1];
    long   s_ytd;
    short  s_order_cnt;
    short  s_remote_cnt;
    char   s_data[S_DATA_LEN+1];
    short  len;
    char   name[20];
    long   time_start;
    RETCODE rc;
    DBINT  rcint;
    char   bcphint[128];

    // Seed with unique number
    seed(3);

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxstkcl");

    sprintf(name, "%s.%s", apr->database, "stock");

    rc = bcp_init(w_hdbc1, name, NULL, "logs\\stock.err", DB_IN);
    if (rc != SUCCEED)

```



```

        HandleErrorDBC(w_hdbc1);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcphint, "tablock, order (s_i_id, s_w_id), ROWS_PER_BATCH = %u",
(aptr->num_warehouses * 100000));
        rc = bcp_control(w_hdbc1, BCPHINTS, (void*) bcphint);
        if (rc != 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 != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_order_cnt, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 15);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &s_remote_cnt, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 16);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) s_data, 0, S_DATA_LEN, NULL, 0, 0, 17);
    if (rc != SUCCEEDED)
        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 history_time_start;
    short w_id;

short d_id;
    DWORD dwThreadID[MAX_CUSTOMER_THREADS];
    HANDLE hThread[MAX_CUSTOMER_THREADS];
    char name[20];
    RETCODE rc;
    DBINT rcint;
    char bcphint[128];
    char cmd[256];
    char rc_1;
    // SQLRETURN rcnum, MsgLen;
    // SQLSMALLINT 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");

    // Initialize bulk copy
    sprintf(name, "%s..%s", aptr->database, "customer");

    rc = bcp_init(c_hdbc1, name, NULL, "logs\\customer.err", 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);
    if (rc != SUCCEED)
        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");

// 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, "isql -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",
        aptr->server,
        aptr->user,
        aptr->password,
        aptr->database,
        LOADER_NURAND_C);

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);

rc = bcp_bind(c_hdbc1, (BYTE *) c_data, 0, 500, NULL, 0, 0, 21);
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 != SUCCEEDED)
        HandleErrorDBC(c_hdbc1);

    customer_rows_loaded++;
    CheckForCommit(c_hdbc1, c_hstmt1, customer_rows_loaded, "customer",
&customer_time_start->time_start);
}

}

//=====
//
// Function : LoadHistoryTable

```

```

//
//=====
void LoadHistoryTable(LOADER_TIME_STRUCT*history_time_start)
{
    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 != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_d_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 4);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 5);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &h_date, 0, H_DATE_LEN, NULL, 0, SQLCHARACTER,
6);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &h_amount, 0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 7);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) h_data, 0, H_DATA_LEN, NULL, 0, 0, 8);
    if (rc != SUCCEEDED)
        HandleErrorDBC(c_hdbc2);

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

```

```

        c_id = customer_buf[i].c_id;
        c_d_id = customer_buf[i].c_d_id;
        c_w_id = customer_buf[i].c_w_id;
        h_amount = customer_buf[i].h_amount;
        strcpy(h_data, customer_buf[i].h_data);

        FormatDate(&h_date);

        // send to server
        rc = bcp_sendrow(c_hdbc2);
        if (rc != SUCCEEDED)
            HandleErrorDBC(c_hdbc2);

        history_rows_loaded++;
        CheckForCommit(c_hdbc2, c_hstmt2, history_rows_loaded, "history",
&history_time_start->time_start);
    }
}

```

```

//=====
=
//
// Function : LoadOrders
//
//=====
=

```

```

void LoadOrders()
{
    LOADER_TIME_STRUCT  orders_time_start;
    LOADER_TIME_STRUCT  new_order_time_start;
    LOADER_TIME_STRUCT  order_line_time_start;
    short                w_id;

    short                d_id;

    DWORD                dwThreadID[MAX_ORDER_THREADS];
    HANDLE                hThread[MAX_ORDER_THREADS];
    char                  name[20];

    RETCODE                rc;
    char                  bcphint[128];

    // seed with unique number
    seed(6);

    printf("Loading orders...\n");

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))

```

```

    {
        BuildIndex("idxordcl");
        BuildIndex("idxnodcl");
        BuildIndex("idxodlcl");
    }

    // initialize bulk copy
    sprintf(name, "%s.%s", aptr->database, "orders");

    rc = bcp_init(o_hdbc1, name, NULL, "logs\\orders.err", DB_IN);
    if (rc != SUCCEEDED)
        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 != SUCCEEDED)
            HandleErrorDBC(o_hdbc1);
    }

    sprintf(name, "%s.%s", aptr->database, "new_order");

    rc = bcp_init(o_hdbc2, name, NULL, "logs\\neword.err", DB_IN);
    if (rc != SUCCEEDED)
        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 != SUCCEEDED)
            HandleErrorDBC(o_hdbc2);
    }

    sprintf(name, "%s.%s", aptr->database, "order_line");

    rc = bcp_init(o_hdbc3, name, NULL, "logs\\ordline.err", DB_IN);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    if ((aptr->build_index == 1) && (aptr->index_order == 1))
    {
        sprintf(bcphint, "tablock, order (ol_w_id, ol_d_id, ol_o_id, ol_number),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 300000));
        rc = bcp_control(o_hdbc3, BCPHINTS, (void*) bcphint);
        if (rc != SUCCEEDED)

```



|   |  |
|---|--|
| <pre>                 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-&gt;starting_warehouse; w_id &lt;= aptr-&gt;num_warehouses; w_id++) {     for (d_id = 1; d_id &lt;= DISTRICT_PER_WAREHOUSE; d_id++)     {         OrdersBufLoad(d_id, w_id);          // start parallel loading threads here...          // start Orders table thread          printf("...Loading Order Table for: d_id = %d, w_id = %d\n", d_id, w_id);          hThread[0] = CreateThread(NULL,                                 0, (LPTHREAD_START_ROUTINE)LoadOrdersTable, &amp;orders_time_start,                                 0, &amp;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); </pre> | <pre>         hThread[1] = CreateThread(NULL,                                 0, (LPTHREAD_START_ROUTINE)LoadNewOrderTable, &amp;new_order_time_start,                                 0, &amp;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, &amp;order_line_time_start,                                 0, &amp;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());         } </pre> |
|---|--|

```

        if (CloseHandle(hThread[1]) == FALSE)
        {
            printf("Error, failed in closing NewOrder thread handle with
errno: %d\n", GetLastError());
        }

        if (CloseHandle(hThread[2]) == FALSE)
        {
            printf("Error, failed in closing OrderLine thread handle with
errno: %d\n", GetLastError());
        }
    }

    printf("Finished loading orders.\n");

return;
}

//=====
//
// Function : OrdersBufInit
//
// Clears shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
//=====

void OrdersBufInit()
{
    int i;
    int j;

    for (i=0;i<orders_per_district;i++)
    {
        orders_buf[i].o_id = 0;
        orders_buf[i].o_d_id = 0;
        orders_buf[i].o_w_id = 0;
        orders_buf[i].o_c_id = 0;
        orders_buf[i].o_carrier_id = 0;
        orders_buf[i].o_ol_cnt = 0;
        orders_buf[i].o_all_local = 0;

        for (j=0;j<=14;j++)
        {
            orders_buf[i].o_ol[j].ol = 0;
            orders_buf[i].o_ol[j].ol_i_id = 0;

```

```

            orders_buf[i].o_ol[j].ol_supply_w_id = 0;
            orders_buf[i].o_ol[j].ol_quantity = 0;
            orders_buf[i].o_ol[j].ol_amount = 0;
            strcpy(orders_buf[i].o_ol[j].ol_dist_info,"");
        }
    }

//=====
//
// Function : OrdersBufLoad
//
// Fills shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
//=====

void OrdersBufLoad(int d_id, int w_id)
{
    int cust[ORDERS_PER_DISTRICT+1];
    long o_id;
    short ol;

    printf("...Loading Order Buffer for: d_id = %d, w_id = %d\n",
d_id, w_id);

    GetPermutation(cust, orders_per_district);

    for (o_id=0;o_id<orders_per_district;o_id++)
    {
        // Generate ORDER and NEW-ORDER data

        orders_buf[o_id].o_d_id = d_id;
        orders_buf[o_id].o_w_id = w_id;
        orders_buf[o_id].o_id = o_id+1;
        orders_buf[o_id].o_c_id = cust[o_id+1];
        orders_buf[o_id].o_ol_cnt = (short)RandomNumber(5L, 15L);

        if (o_id < first_new_order)
        {
            orders_buf[o_id].o_carrier_id = (short)RandomNumber(1L, 10L);
            orders_buf[o_id].o_all_local = 1;
        }
        else
        {

```

```

        orders_buf[o_id].o_carrier_id = 0;
        orders_buf[o_id].o_all_local = 1;
    }

    for (ol=0; ol<orders_buf[o_id].o_ol_cnt; ol++)
    {

        orders_buf[o_id].o_ol[ol].ol = ol+1;
        orders_buf[o_id].o_ol[ol].ol_i_id = RandomNumber(1L, max_items);
        orders_buf[o_id].o_ol[ol].ol_supply_w_id = w_id;
        orders_buf[o_id].o_ol[ol].ol_quantity = 5;
        MakeAlphaString(24, 24, OL_DIST_INFO_LEN,
&orders_buf[o_id].o_ol[ol].ol_dist_info);

        // Generate ORDER-LINE data
        if (o_id < first_new_order)
        {
            orders_buf[o_id].o_ol[ol].ol_amount = 0;
            // Added to insure ol_delivery_d set properly during load

            FormatDate(&orders_buf[o_id].o_ol[ol].ol_delivery_d);

        }
        else
        {
            orders_buf[o_id].o_ol[ol].ol_amount =
RandomNumber(1,999999)/100.0;

            // Added to insure ol_delivery_d set properly during load

            // odbc datetime format
            strcpy(orders_buf[o_id].o_ol[ol].ol_delivery_d,"1899-12-31
00:00:00.000");

        }
    }

}

//=====
//
// Function : LoadOrdersTable
//
//=====

void LoadOrdersTable(LOADER_TIME_STRUCT*orders_time_start)
{
    int    i;

```

```

long    o_id;
short   o_d_id;
short   o_w_id;

long    o_c_id;
short   o_carrier_id;
short   o_ol_cnt;
short   o_all_local;
char     o_entry_d[O_ENTRY_D_LEN+1];
RETCODE rc;
DBINT   rcint;

// bind ORDER data
rc = bcp_bind(o_hdbc1, (BYTE *) &o_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_c_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, 4);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_entry_d, 0, O_ENTRY_D_LEN, NULL, 0,
SQLCHARACTER, 5);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_carrier_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 6);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_ol_cnt, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 7);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

rc = bcp_bind(o_hdbc1, (BYTE *) &o_all_local, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 8);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

for (i = 0; i < orders_per_district; i++)
{
    o_id    = orders_buf[i].o_id;
    o_d_id  = orders_buf[i].o_d_id;

```

```

o_w_id   = orders_buf[i].o_w_id;
o_c_id   = orders_buf[i].o_c_id;
o_carrier_id = orders_buf[i].o_carrier_id;
o_ol_cnt = orders_buf[i].o_ol_cnt;
o_all_local = orders_buf[i].o_all_local;

FormatDate(&o_entry_d);

// send data to server
rc = bcp_sendrow(o_hdbc1);
if (rc != SUCCEEDED)
    HandleErrorDBC(o_hdbc1);

orders_rows_loaded++;
CheckForCommit(o_hdbc1, o_hstmt1, orders_rows_loaded, "orders",
&orders_time_start->time_start);
}

// rcint = bcp_batch(o_hdbc1);
// if (rcint < 0)
//     HandleErrorDBC(o_hdbc1);

if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
{
    rcint = bcp_done(o_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(o_hdbc1);

    SQLFreeStmt(o_hstmt1, SQL_DROP);
    SQLDisconnect(o_hdbc1);
    SQLFreeConnect(o_hdbc1);

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order == 0))
        BuildIndex("idxordcl");

    // build non-clustered index
    if (aptr->build_index == 1)
        BuildIndex("idxordnc");
}

}

//=====
//
// Function : LoadNewOrderTable
//
//=====

```

```

void LoadNewOrderTable(LOADER_TIME_STRUCT*new_order_time_start)
{
    int     i;
    long    o_id;
    short   o_d_id;
    short   o_w_id;
    RETCODE rc;
    DBINT   rcint;

    // Bind NEW-ORDER data

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, 1);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc2);

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc2);

    rc = bcp_bind(o_hdbc2, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc2);

    for (i = first_new_order; i < last_new_order; i++)
    {
        o_id   = orders_buf[i].o_id;
        o_d_id = orders_buf[i].o_d_id;
        o_w_id = orders_buf[i].o_w_id;

        rc = bcp_sendrow(o_hdbc2);
        if (rc != SUCCEEDED)
            HandleErrorDBC(o_hdbc2);

        new_order_rows_loaded++;
        CheckForCommit(o_hdbc2, o_hstmt2, new_order_rows_loaded, "new_order",
&new_order_time_start->time_start);
    }

    // rcint = bcp_batch(o_hdbc2);
    // if (rcint < 0)
    //     HandleErrorDBC(o_hdbc2);

    if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
    {
        rcint = bcp_done(o_hdbc2);
        if (rcint < 0)
            HandleErrorDBC(o_hdbc2);
    }
}

```

```

SQLFreeStmt(o_hstmt2, SQL_DROP);
SQLDisconnect(o_hdbc2);
SQLFreeConnect(o_hdbc2);

// if build index after load...
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("idxnodcl");
}

}

//=====
//
// Function : LoadOrderLineTable
//
//=====

void LoadOrderLineTable(LOADER_TIME_STRUCT*order_line_time_start)
{
    int    ij;
    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 != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 2);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 3);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, 4);

```

```

    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_i_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT4, 5);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_supply_w_id, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 6);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_delivery_d, 0, OL_DELIVERY_D_LEN, NULL, 0, SQLCHARACTER, 7);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_quantity, 0, SQL_VARLEN_DATA, NULL, 0, SQLINT2, 8);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_amount, 0, SQL_VARLEN_DATA, NULL, 0, SQLFLT8, 9);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) ol_dist_info, 0, DIST_INFO_LEN, NULL, 0, 0, 10);
    if (rc != SUCCEEDED)
        HandleErrorDBC(o_hdbc3);

    for (i = 0; i < orders_per_district; i++)
    {
        o_id = orders_buf[i].o_id;
        o_d_id = orders_buf[i].o_d_id;
        o_w_id = orders_buf[i].o_w_id;

        for (j=0; j < orders_buf[i].o_ol_cnt; j++)
        {
            ol = orders_buf[i].o_ol[j].ol;
            ol_i_id = orders_buf[i].o_ol[j].ol_i_id;
            ol_supply_w_id = orders_buf[i].o_ol[j].ol_supply_w_id;
            ol_quantity = orders_buf[i].o_ol[j].ol_quantity;
            ol_amount = orders_buf[i].o_ol[j].ol_amount;
            strcpy(ol_delivery_d, orders_buf[i].o_ol[j].ol_delivery_d);

            strcpy(ol_dist_info, orders_buf[i].o_ol[j].ol_dist_info);

            rc = bcp_sendrow(o_hdbc3);
            if (rc != SUCCEEDED)
                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("idxodcl1");

}

}

//=====
//
// 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 , &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(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 != SUCCEEDED)
    HandleErrorDBC(i_hdbc1);

rc = SQLDriverConnect ( i_hdbc1,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT);

if (rc != SUCCEEDED)
    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 != SUCCEEDED)
    HandleErrorDBC(w_hdbc1);

rc = SQLDriverConnect ( w_hdbc1,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0],
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT);
if (rc != SUCCEEDED)
    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);

```



```

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, "isql -S%s -U%s -P%s -e -i%s\\%s.sql > logs\\%s.log",
                                aptr->server,
                                aptr->user,

```

```

                                aptr->password,
                                aptr->index_script_path,
                                index_script,
                                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];
    FILE    *fp1;

    i = 1;
    while (( rc2 = SQLGetDiagRec(SQL_HANDLE_DBC, hdbc1, i, SqlState , &NativeError,
                                Msg, sizeof(Msg) , &MsgLen )) != SQL_NO_DATA )
    {
        printf( szLastError , "%s" , Msg );

        _strtime(timebuf);
        _strdate(datebuf);

        printf( "[%s : %s] %s\n" , datebuf, timebuf, szLastError);

        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];
    FILE                *fp1;

    i = 1;
    while ((rc2 = SQLGetDiagRec(SQL_HANDLE_STMT, hstmt1, i, SqlState, &NativeError,
                               Msg, sizeof(Msg), &MsgLen)) != SQL_NO_DATA)
    {

        sprintf( szLastError, "%s", Msg);

        _strtime(timebuf);
        _strdate(datebuf);

        printf( "[%s : %s] %s\n", datebuf, timebuf, szLastError);

        fp1 = fopen("logs\\tpccldr.err", "w");
        if (fp1 == NULL)
            printf("ERROR: Unable to open errorlog file.\n");
        else
        {
            fprintf(fp1, "[%s : %s] %s\n", datebuf, timebuf, szLastError);
            fclose(fp1);
        }

        i++;
    }
}

void FormatDate ( char* szTimeCOutput )
{
    struct tm when;
    time_t now;

    time( &now );
    when = *localtime( &now );

    mktime( &when );

    // odbc datetime format

```

```

        strftime( szTimeCOutput, 30, "%Y-%m-%d %H:%M:%S.000", &when );

        return;
    }

//=====
//
// Function : CheckDataBase
//
//=====

void CheckDataBase()
{
    RETCODE rc;

    char                szDriverString[300];
    char                szDriverStringOut[1024];
    char                TablesBitMap[9] = {"000000000"};
    int                i, ExitFlag;

    SQLSMALLINT                cbDriverStringOut;
    SQLCHAR                TabName[10];
    SQLINTEGER                TabNameInd, TabCount, TabCountInd;

    ExitFlag = 0;

    SQLAllocHandle(SQL_HANDLE_ENV, SQL_NULL_HANDLE, &henv );

    SQLSetEnvAttr(henv, SQL_ATTR_ODBC_VERSION, (void*)SQL_OV_ODBC3, 0);

    SQLAllocHandle(SQL_HANDLE_DBC, henv, &v_hdbc);

    SQLSetConnectAttr(v_hdbc, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER);

    // Open connection to SQL Server

    sprintf( szDriverString, "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s",
                                aptr->server,
                                aptr->user,
                                aptr->password,
                                aptr->database );

    rc = SQLSetConnectAttr( v_hdbc, SQL_ATTR_PACKET_SIZE,
(SQLPOINTER)aptr->pack_size, SQL_IS_UINTEGER);

```

```

if (rc != SQL_SUCCESS)
    HandleErrorDBC(v_hdbc);

rc = SQLDriverConnect ( v_hdbc,
                        NULL,
                        (SQLCHAR*)&szDriverString[0],
                        SQL_NTS,
                        (SQLCHAR*)&szDriverStringOut[0],
                        sizeof(szDriverStringOut),
                        &cbDriverStringOut,
                        SQL_DRIVER_NOPROMPT );

// if the rc is SQL_ERROR, the the TPCC database probably does not exist
if (rc == SQL_ERROR)
{
    printf("The database TPCC does not appear to exist!\n");
    printf("\nCheck LOGS\\ directory for database creation errors.\n");

    // cleanup database connections and handles
    SQLFreeHandle(SQL_HANDLE_STMT,v_hstmt);
    SQLDisconnect(v_hdbc);
    SQLFreeHandle(SQL_HANDLE_DBC,v_hdbc);

    // since there is not a database, exit back to SETUP.CMD
    exit(1);
}

if ( SQLAllocHandle(SQL_HANDLE_STMT,v_hdbc , &v_hstmt) != SQL_SUCCESS )
    HandleErrorDBC(v_hdbc);

if ( SQLBindCol(v_hstmt, 1, SQL_C_ULONG, &TabCount, 0, &TabCountInd) !=
SQL_SUCCESS )
    HandleErrorSTMT(v_hstmt);

// count the number of user tables from sysobjects
rc = SQLExecDirect(v_hstmt, "select count(*) from sysobjects where xtype = '\U'", SQL_NTS);
if ((rc != SQL_SUCCESS) && (rc != SQL_SUCCESS_WITH_INFO))
    HandleErrorSTMT(v_hstmt);

if ( SQLFetch(v_hstmt) != SQL_SUCCESS )
    HandleErrorSTMT(v_hstmt);

// if the number of tables is less than 9, select all the user tables in TPCC
if (TabCount != 9)
{
    SQLFreeHandle(SQL_HANDLE_STMT,v_hstmt);

    SQLAllocHandle(SQL_HANDLE_STMT,v_hdbc , &v_hstmt);

```

```

if ( SQLBindCol(v_hstmt, 1, SQL_C_CHAR, &TabName, sizeof(TabName),
&TabNameInd) != SQL_SUCCESS )
    HandleErrorSTMT(v_hstmt);

// select the list of user tables into a result set
rc = SQLExecDirect(v_hstmt, "select * from sysobjects where xtype = '\U'",
SQL_NTS);

if ((rc != SQL_SUCCESS) && (rc != SQL_SUCCESS_WITH_INFO))
    HandleErrorSTMT(v_hstmt);

// go through the result set and set the bitmap for each found table
// set the bitmap to '1' if the table name is found

while ((rc = SQLFetch(v_hstmt)) != SQL_NO_DATA)
{
    switch( TabName[0] )
    {
        case 'w':
            TablesBitMap[0] = '1';
            break;
        case 'd':
            TablesBitMap[1] = '1';
            break;
        case 'c':
            TablesBitMap[2] = '1';
            break;
        case 'h':
            TablesBitMap[3] = '1';
            break;
        case 'n':
            TablesBitMap[4] = '1';
            break;
        case 'o':
            if (TabName[5] = 's')
                TablesBitMap[5] = '1';
            if (TabName[5] = '_')
                TablesBitMap[6] = '1';
            break;
        case '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;
}

```

## time.c

```

//      File:          TIME.C
//
//      Microsoft TPC-C Kit Ver. 4.21
//      Copyright Microsoft, 1996, 1997, 1998, 1999, 2000
//      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 e_l_time;

#ifdef DEBUG
    printf("[%ld]DBG: Entering TimeNow()\n", (int) GetCurrentThreadId());
#endif

    _ftime(&e_l_time);

    time_now = ((e_l_time.time - start_sec) * 1000) + e_l_time.millitm;

    return time_now;
}

```

## random.c

```

//      File:          RANDOM.C
//
//      Microsoft TPC-C Kit Ver. 4.21

```

```

//
//      Copyright Microsoft, 1996, 1997, 1998, 1999, 2000
//      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("[%d]DBG: Entering irand()...\n", (int) GetCurrentThreadId());
#endif

    s = Seed;
    hi = s / Q;
    lo = s % Q;

    test = A * lo - R * hi;
    if ( test > 0 )
        Seed = test;
    else
        Seed = test + M;

    return( Seed );
}

/*****
*
* drand - returns a double pseudo random number between 0.0 and 1.0.
* See irand.
*****/

```

```

*****/
double drand()
{
#ifdef DEBUG
    printf("[%d]DBG: Entering drand()...\n", (int) GetCurrentThreadId());
#endif

    return( (double)irand() / 2147483647.0);
}

=====
// Function : RandomNumber
//
// Description:
//=====
long RandomNumber(long lower, long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%d]DBG: Entering RandomNumber()...\n", (int) GetCurrentThreadId());
#endif

    if ( upper == lower ) /* pgd 08-13-96 perf enhancement */
        return lower;

    upper++;

    if ( upper <= lower )
        rand_num = upper;
    else
        rand_num = lower + irand() % (upper - lower); /* pgd 08-13-96 perf enhancement */

#ifdef DEBUG
    printf("[%d]DBG: RandomNumber between %ld & %ld ==> %ld\n",
           (int) GetCurrentThreadId(), lower, upper, rand_num);
#endif

    return rand_num;
}

#if 0
//Original code pgd 08/13/96

```

```

long RandomNumber(long lower,
                  long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%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;
}

```

## tpccldr.dsp

```

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

# TARGETTYPE "Win32 (x86) Console Application" 0x0103

CFG=tpccldr - 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 "tpccldr.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 "tpccldr.mak" CFG="tpccldr - Win32 Release"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tpccldr - Win32 Release" (based on "Win32 (x86) Console Application")
!MESSAGE "tpccldr - Win32 Debug" (based on "Win32 (x86) Console Application")
!MESSAGE

# Begin Project
# PROP AllowPerConfigDependencies 0
# PROP Scc_ProjName ""$/mstpc.400/setup/loader/mssql170", QROAAAAA"
# PROP Scc_LocalPath "."
CPP=cl.exe
RSC=rc.exe

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir ".\Release"
# PROP BASE Intermediate_Dir ".\Release"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\objects"

```

```

# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE" /YX /c
# ADD CPP /nologo /MT /W3 /GX /O2 /D "NDEBUG" /D "WIN32" /D "_CONSOLE" /D "DBNTWIN32"
/ /FD /c
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console /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 odbcbcp.lib /nologo /subsystem:console /pdb:none
/machine:I386

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir ".\Debug"
# PROP BASE Intermediate_Dir ".\Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir ".\bin"
# PROP Intermediate_Dir ".\objects"
# PROP Ignore_Export_Lib 0
# PROP Target_Dir ""
# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D "_CONSOLE" /YX /c
# ADD CPP /nologo /MTd /W3 /Gm /GX /ZI /Od /D "_DEBUG" /D "WIN32" /D "_CONSOLE" /D
"DBNTWIN32" /FR /FD /c
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console /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 odbccp32.lib odbcbcp.lib /nologo /subsystem:console /pdb:none
/debug /machine:I386

!ENDIF

# Begin Target

```

```

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

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

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

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

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

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

SOURCE=. \src\tpccldr.c
# End Source File
# End Group
# Begin Group "Header Files"

# PROP Default_Filter "h;hpp;hxx;hm;inl;fi;fd"
# Begin Source File

SOURCE="..\..\..\Program Files\Microsoft Visual Studio\VC98\Include\BASSETSD.H"
# End Source File
# Begin Source File

SOURCE="C:\Program Files\Microsoft SQL Server\80\Tools\DevTools\Include\odbcss.h"
# End Source File
# Begin Source File

SOURCE=. \src\tpcc.h
# End Source File
# End Group
# Begin Group "Resource Files"

# PROP Default_Filter "ico;cur;bmp;dlg;rc2;rct;bin;cnt;rtf;gif;jpg;jpeg;jpe"
# End Group
# End Target
# End Project

```



### **tpccldr.dsw**

Microsoft Developer Studio Workspace File, Format Version 6.00  
# WARNING: DO NOT EDIT OR DELETE THIS WORKSPACE FILE!

#####

Project: "tpccldr"=.\\tpccldr.dsp - Package Owner=<4>

Package=<5>

```
{ { {  
  begin source code control  
  "$\\Backup\\setup\\loader", ZGABAAAA  
  .  
  end source code control  
} } }
```

Package=<4>

```
{ { {  
} } }
```

#####

Global:

Package=<5>

```
{ { {  
} } }
```

Package=<3>

```
{ { {  
} } }
```

#####

### **tpccldr.mak**

# Microsoft Developer Studio Generated NMAKE File, Format Version 4.10  
# \*\* DO NOT EDIT \*\*

# TARGETTYPE "Win32 (x86) Console Application" 0x0103

```
!IF "$(CFG)" == ""  
CFG=tpccldr - Win32 Debug  
!MESSAGE No configuration specified. Defaulting to tpccldr - Win32 Debug.  
!ENDIF
```

```
!IF "$(CFG)" != "tpccldr - Win32 Release" && "$(CFG)" !=\
```

```
"tpccldr - Win32 Debug"  
!MESSAGE Invalid configuration "$(CFG)" specified.  
!MESSAGE You can specify a configuration when running NMAKE on this makefile  
!MESSAGE by defining the macro CFG on the command line. For example:  
!MESSAGE  
!MESSAGE NMAKE /f "tpccldr.mak" CFG="tpccldr - Win32 Debug"  
!MESSAGE  
!MESSAGE Possible choices for configuration are:  
!MESSAGE  
!MESSAGE "tpccldr - Win32 Release" (based on "Win32 (x86) Console Application")  
!MESSAGE "tpccldr - Win32 Debug" (based on "Win32 (x86) Console Application")  
!MESSAGE  
!ERROR An invalid configuration is specified.  
!ENDIF
```

```
!IF "$(OS)" == "Windows_NT"
```

```
NULL=  
!ELSE  
NULL=nul  
!ENDIF
```

#####

```
# Begin Project  
# PROP Target_Last_Scanned "tpccldr - Win32 Debug"  
RSC=rc.exe  
CPP=cl.exe
```

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

```
# PROP BASE Use_MFC 0  
# PROP BASE Use_Debug_Libraries 0  
# PROP BASE Output_Dir "Release"  
# PROP BASE Intermediate_Dir "Release"  
# PROP BASE Target_Dir ""  
# PROP Use_MFC 0  
# PROP Use_Debug_Libraries 0  
# PROP Output_Dir "bin"  
# PROP Intermediate_Dir "objects"  
# PROP Target_Dir ""  
OUTDIR=.\\bin  
INTDIR=.\\objects
```

```
ALL : "$(OUTDIR)\\tpccldr.exe"
```

```
CLEAN :
```

```
-@erase "$(INTDIR)\\getargs.obj"  
-@erase "$(INTDIR)\\random.obj"  
-@erase "$(INTDIR)\\strings.obj"  
-@erase "$(INTDIR)\\time.obj"  
-@erase "$(INTDIR)\\tpccldr.obj"
```

```

-@erase "$(OUTDIR)\tpcldr.exe"

"$ (OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$ (INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE" /YX /c
# ADD CPP /nologo /MT /W3 /GX /O2 /I "c:\mssql\dblib\include" /D "NDEBUG" /D "WIN32" /D
"_CONSOLE" /D "DBNTWIN32" /c
# SUBTRACT CPP /YX
CPP_PROJ=/nologo /MT /W3 /GX /O2 /I "c:\mssql\dblib\include" /D "NDEBUG" /D\
"WIN32" /D "_CONSOLE" /D "DBNTWIN32" /Fo"$ (INTDIR)"/ /c
CPP_OBJS=. \objects\
CPP_SBRS=. \.
# ADD BASE RSC /I 0x409 /d "NDEBUG"
# ADD RSC /I 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$ (OUTDIR)/tpcldr.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console /machine:I386
# ADD LINK32 c:\mssql\dblib\lib\ntwdblib.lib kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console
/pdb:none /machine:I386
LINK32_FLAGS=c:\mssql\dblib\lib\ntwdblib.lib kernel32.lib user32.lib gdi32.lib\
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib\
uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console /pdb:none\
/machine:I386 /out:"$ (OUTDIR)/tpcldr.exe"
LINK32_OBJS= \
    "$(INTDIR)\getargs.obj" \
    "$(INTDIR)\random.obj" \
    "$(INTDIR)\strings.obj" \
    "$(INTDIR)\time.obj" \
    "$(INTDIR)\tpcldr.obj"

"$ (OUTDIR)\tpcldr.exe" : "$ (OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
    $(LINK32_FLAGS) $(LINK32_OBJS)
<<

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

# PROP BASE Use_MFC 0

```

```

# PROP BASE Use_Debug_Libraries 1
# PROP BASE Output_Dir "Debug"
# PROP BASE Intermediate_Dir "Debug"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 1
# PROP Output_Dir "bin"
# PROP Intermediate_Dir "objects"
# PROP Target_Dir ""
OUTDIR=. \bin
INTDIR=. \objects

ALL : "$ (OUTDIR)\tpcldr.exe"

CLEAN :
    -@erase "$(INTDIR)\getargs.obj"
    -@erase "$(INTDIR)\random.obj"
    -@erase "$(INTDIR)\strings.obj"
    -@erase "$(INTDIR)\time.obj"
    -@erase "$(INTDIR)\tpcldr.obj"
    -@erase "$(INTDIR)\vc40.idb"
    -@erase "$(INTDIR)\vc40.pdb"
    -@erase "$(OUTDIR)\tpcldr.exe"

"$ (OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

"$ (INTDIR)" :
    if not exist "$(INTDIR)/$(NULL)" mkdir "$(INTDIR)"

# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D "_CONSOLE" /YX /c
# ADD CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /I "c:\mssql\dblib\include" /D "_DEBUG" /D "WIN32"
/D "_CONSOLE" /D "DBNTWIN32" /c
# SUBTRACT CPP /YX
CPP_PROJ=/nologo /MTd /W3 /Gm /GX /Zi /Od /I "c:\mssql\dblib\include" /D\
"_DEBUG" /D "WIN32" /D "_CONSOLE" /D "DBNTWIN32" /Fo"$ (INTDIR)"/ /c
CPP_OBJS=. \objects\
CPP_SBRS=. \.
# ADD BASE RSC /I 0x409 /d "_DEBUG"
# ADD RSC /I 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$ (OUTDIR)/tpcldr.bsc"
BSC32_SBRS= \

LINK32=link.exe

```

```

# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib advapi32.lib shell32.lib
ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console /debug /machine:I386
# ADD LINK32 c:\mssql\dblib\lib\ntwdblib.lib kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console
/pdb:none /debug /machine:I386
LINK32_FLAGS=c:\mssql\dblib\lib\ntwdblib.lib kernel32.lib user32.lib gdi32.lib\
winspool.lib comdlg32.lib advapi32.lib shell32.lib ole32.lib oleaut32.lib\
uuid.lib odbc32.lib odbccp32.lib /nologo /subsystem:console /pdb:none /debug\
/machine:I386 /out:"$(OUTDIR)\tpccldr.exe"
LINK32_OBJS=\
    "$(INTDIR)\getargs.obj"\
    "$(INTDIR)\random.obj"\
    "$(INTDIR)\strings.obj"\
    "$(INTDIR)\time.obj"\
    "$(INTDIR)\tpccldr.obj"

"$(OUTDIR)\tpccldr.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
    $(LINK32_FLAGS)$(LINK32_OBJS)
<<

!ENDIF

.c{$(CPP_OBJS)}.obj:
    $(CPP) $(CPP_PROJ) $<

.cpp{$(CPP_OBJS)}.obj:
    $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_OBJS)}.obj:
    $(CPP) $(CPP_PROJ) $<

.c{$(CPP_SBRs)}.sbr:
    $(CPP) $(CPP_PROJ) $<

.cpp{$(CPP_SBRs)}.sbr:
    $(CPP) $(CPP_PROJ) $<

.cxx{$(CPP_SBRs)}.sbr:
    $(CPP) $(CPP_PROJ) $<

#####
# Begin Target

# Name "tpccldr - Win32 Release"
# Name "tpccldr - Win32 Debug"

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

```

```

!ELSEIF "$(CFG)" == "tpccldr - Win32 Debug"
!ENDIF

#####
# Begin Source File

SOURCE=. \src\random.c
DEP_CPP_RAND0=\
    ".\src\tpcc.h"\
    "\mssql\dblib\include\sqldb.h"\
    "\mssql\dblib\include\sqlfront.h"

"$(INTDIR)\random.obj" : $(SOURCE) $(DEP_CPP_RAND0) "$(INTDIR)"
    $(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
#####
# Begin Source File

SOURCE=. \src\strings.c
DEP_CPP_STRIN=\
    ".\src\tpcc.h"\
    "\mssql\dblib\include\sqldb.h"\
    "\mssql\dblib\include\sqlfront.h"

"$(INTDIR)\strings.obj" : $(SOURCE) $(DEP_CPP_STRIN) "$(INTDIR)"
    $(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File
#####
# Begin Source File

SOURCE=. \src\time.c
DEP_CPP_TIME_=\
    ".\src\tpcc.h"\
    "\mssql\dblib\include\sqldb.h"\
    "\mssql\dblib\include\sqlfront.h"

"$(INTDIR)\time.obj" : $(SOURCE) $(DEP_CPP_TIME_) "$(INTDIR)"
    $(CPP) $(CPP_PROJ) $(SOURCE)

# End Source File

```

```
#####  
# Begin Source File  
  
SOURCE=.\src\tpccldr.c  
DEP_CPP_TPCCL=\  
    ".\src\tpcc.h\  
    "\mssql\dblib\include\sqldb.h\  
    "\mssql\dblib\include\sqlfront.h\  
  
"$ (INTDIR)\tpccldr.obj" : $(SOURCE) $(DEP_CPP_TPCCL) "$ (INTDIR)"  
    $(CPP) $(CPP_PROJ) $(SOURCE)  
  
# End Source File  
#####  
# Begin Source File  
  
SOURCE=.\src\getargs.c  
DEP_CPP_GETAR=\  
    ".\src\tpcc.h\  
    "\mssql\dblib\include\sqldb.h\  
    "\mssql\dblib\include\sqlfront.h\  
  
"$ (INTDIR)\getargs.obj" : $(SOURCE) $(DEP_CPP_GETAR) "$ (INTDIR)"  
    $(CPP) $(CPP_PROJ) $(SOURCE)  
  
# End Source File  
# End Target  
# End Project  
#####
```

## Appendix C: Tunable Parameters

### Microsoft Windows 2000 Advanced Server Configuration Parameters

#### SQL Server 2000 Stack Size

The default stack size for Microsoft SQL Server 2000 Enterprise Edition (8.00.194) was changed using the EDITBIN utility. The EDITBIN utility ships with Microsoft Visual C++ V6.0. The command used to change the stack size is:

```
editbin / Stack:131072
```

This command is fully documented as an article in the Microsoft Knowledge Base on the Microsoft Web site at [www.microsoft.com/support](http://www.microsoft.com/support).

#### Boot.ini

```
[Boot Loader]
Timeout=5
Default=
[Operating Systems]
multi(0)disk(0)rdisk(0)partition(1)\WINNT="Microsoft Windows 2000 Advanced Server" /fastdetect /3gb
/pae
```

#### Microsoft SQL Server 2000 Configuration Parameters

```
1> 2> 3> 4> 5> 6> 7> 8> 9> 10> 11>
-- File:      VERSION.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.21
--           Copyright Microsoft, 1999, 2000
-- Purpose:   Returns SQL Server version string
```

```
print " "
select convert(char(30), getdate(),9)
print " "
```

```
-----
Nov 27 2000  9:28:52:047AM
```

```
(1 row affected)
```

```
1> 2> 3>
select @@version
```

```
-----
-----
-----
Microsoft SQL Server 2000 - 8.00.194 (Intel X86)
Aug  6 2000 00:57:48
Cop
yright (c) 1988-2000 Microsoft Corporation
Enterprise Edition on Windo
ws NT 5.0 (Build 2195: )
```

```
(1 row affected)
```

```
1> 2>
1> 2> 3> 4> 5> 6> 7> 8> 9> 10>
-- File:      CONFIG.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.21
--           Copyright Microsoft, 1999, 2000
-- Purpose:   Collects SQL Server configuration parameters
```

```
print " "
select convert(char(30), getdate(),9)
print " "
```

```
-----
Nov 27 2000  9:28:52:873AM
```

```
(1 row affected)
```

```
1> 2> 3> DBCC execution completed. If DBCC printed error messages,
contact your system administrator.
Configuration option 'show advanced options' changed from 1 to 1. Run
the RECONFIGURE statement to install.
```

```
sp_configure "show advanced",1
1> 2> reconfigure with override
1> 2> sp_configure
name
minimum      maximum      config_value run_value
```

|                                |            |            |            |  |
|--------------------------------|------------|------------|------------|--|
| -----                          |            |            |            |  |
| affinity mask                  |            |            |            |  |
| 0                              | 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          |  |
| cursor threshold               |            |            |            |  |
| -1                             | 2147483647 | -1         | -1         |  |
| default full-text language     |            |            |            |  |
| 0                              | 2147483647 | 1033       | 1033       |  |
| default language               |            |            |            |  |
| 0                              | 9999       | 0          | 0          |  |
| fill factor (%)                |            |            |            |  |
| 0                              | 100        | 0          | 0          |  |
| index create memory (KB)       |            |            |            |  |
| 704                            | 2147483647 | 0          | 0          |  |
| lightweight pooling            |            |            |            |  |
| 0                              | 1          | 1          | 1          |  |
| locks                          |            |            |            |  |
| 5000                           | 2147483647 | 0          | 0          |  |
| max degree of parallelism      |            |            |            |  |
| 0                              | 32         | 1          | 1          |  |
| max server memory (MB)         |            |            |            |  |
| 4                              | 2147483647 | 2147483647 | 2147483647 |  |
| max text repl size (B)         |            |            |            |  |
| 0                              | 2147483647 | 65536      | 65536      |  |
| max worker threads             |            |            |            |  |
| 32                             | 32767      | 182        | 182        |  |
| 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      | 4096       | 4096       |  |
| open objects                   |            |            |            |  |
| 0                              | 2147483647 | 0          | 0          |  |
| priority boost                 |            |            |            |  |
| 0                              | 1          | 1          | 1          |  |
| query governor cost limit      |            |            |            |  |
| 0                              | 2147483647 | 0          | 0          |  |
| query wait (s)                 |            |            |            |  |
| -1                             | 2147483647 | -1         | -1         |  |
| recovery interval (min)        |            |            |            |  |
| 0                              | 32767      | 36         | 36         |  |

|                          |            |      |      |
|--------------------------|------------|------|------|
| 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          | 1    | 1    |
| show advanced options    |            |      |      |
| 0                        | 1          | 1    | 1    |
| two digit year cutoff    |            |      |      |
| 1753                     | 9999       | 2049 | 2049 |
| user connections         |            |      |      |
| 0                        | 32767      | 0    | 0    |
| user options             |            |      |      |
| 0                        | 32767      | 0    | 0    |

1>

## Microsoft SQL Server 2000 Startup Parameters

c:\sqlservr -c -x -T3502 -g100

Where:

- V -c Start SQL Server independently of the Service Control Manager
- V -x Disables the keeping of CPU time and cache hit ratio statistics
- V -T3502 Writes a message to the SQL Server Errorlog showing the beginning and ending time of each checkpoint
- V -g100 Specifies the amount of memory that is set aside for allocations not from the buffer pool

## Microsoft Windows 2000 Advanced Server Configuration Parameters

System Information report written at: 11/27/2000 11:22:38 AM

[System Information]

[ Following are sub-categories of this main category ]

[System Summary]

Item Value

OS Name Microsoft Windows 2000 Advanced Server  
 Version 5.0.2195 Build 2195  
 OS Manufacturer Microsoft Corporation  
 System Name IBMSERV3  
 System Manufacturer IBM  
 System Model Netfinity 6000R -[8682]-  
 System Type X86-based PC  
 Processor x86 Family 6 Model 10 Stepping 1 GenuineIntel ~702 Mhz  
 Processor x86 Family 6 Model 10 Stepping 1 GenuineIntel ~702 Mhz  
 Processor x86 Family 6 Model 10 Stepping 1 GenuineIntel ~702 Mhz  
 Processor x86 Family 6 Model 10 Stepping 1 GenuineIntel ~702 Mhz  
 BIOS Version IBM BIOS Ver 5.0  
 Windows Directory C:\WINNT  
 System Directory C:\WINNT\System32  
 Boot Device \Device\Harddisk0\Partition1  
 Locale United States  
 User Name IBMSERV3\Administrator  
 Time Zone Eastern Standard Time  
 Total Physical Memory 7,847,228 KB  
 Available Physical Memory 69,460 KB  
 Total Virtual Memory 17,651,336 KB  
 Available Virtual Memory 2,208,056 KB  
 Page File Space 9,804,108 KB  
 Page File C:\pagefile.sys

[Hardware Resources]

[ Following are sub-categories of this main category ]

[Conflicts/Sharing]

| Resource | Device                                    |
|----------|---|
| IRQ 18   | S3 Inc. Savage4                           |
| IRQ 18   | Adaptec AIC-7899 Ultra160/m PCI SCSI Card |

[DMA]

| Channel | Device                          | Status |
|---------|---------------------------------|--------|
| 2       | Standard floppy disk controller | OK     |
| 4       | Direct memory access controller | OK     |

[Forced Hardware]

| Device             | PNP Device ID |
|--------------------|---------------|
| No Forced Hardware |               |

[I/O]

| Address Range | Device | Status |
|---------------|--------|--------|
|---------------|--------|--------|

|               |   |    |
|---------------|---|----|
| 0x0000-0x3FFF | PCI bus   | OK |
| 0x0000-0x3FFF | Direct memory access controller                         | OK |
| 0x2200-0x223F | IBM Netfinity 10/100 Ethernet Adapter                   | OK |
| 0x2240-0x225F | IBM 10/100 NetFinity Fault Tolerant Adapter             | OK |
| 0x03B0-0x03BB | S3 Inc. Savage4   | OK |
| 0x03C0-0x03DF | S3 Inc. Savage4   | OK |
| 0x0A79-0x0A79 | ISAPNP Read Data Port                                   | OK |
| 0x0279-0x0279 | ISAPNP Read Data Port                                   | OK |
| 0x02F4-0x02F7 | ISAPNP Read Data Port                                   | OK |
| 0x002E-0x002F | Motherboard resources                                   | OK |
| 0x0438-0x0439 | Motherboard resources                                   | OK |
| 0x0430-0x0437 | Motherboard resources                                   | OK |
| 0x0060-0x0060 | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard | OK |
| 0x0064-0x0064 | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard | OK |
| 0x03F0-0x03F5 | Standard floppy disk controller                         | OK |
| 0x03F7-0x03F7 | Standard floppy disk controller                         | OK |
| 0x0378-0x037F | Printer Port (LPT1)                                     | OK |
| 0x03F8-0x03FF | Communications Port (COM2)                              | OK |
| 0x02F8-0x02FF | Communications Port (COM1)                              | OK |
| 0x00E8-0x00E9 | Not Available   | OK |
| 0x0020-0x0021 | Advanced programmable interrupt controller              | OK |
| 0x00A0-0x00A1 | Advanced programmable interrupt controller              | OK |
| 0x0080-0x008F | Direct memory access controller                         | OK |
| 0x00C0-0x00DF | Direct memory access controller                         | OK |
| 0x0040-0x0043 | System timer  | OK |
| 0x0070-0x0073 | System CMOS/real time clock                             | OK |
| 0x0061-0x0061 | System speaker  | OK |
| 0x00F0-0x00FF | Numeric data processor                                  | OK |
| 0x0600-0x0600 | Motherboard resources                                   | OK |
| 0x0900-0x090F | Motherboard resources                                   | OK |
| 0x0374-0x0375 | Motherboard resources                                   | OK |
| 0x0377-0x0377 | Motherboard resources                                   | OK |
| 0x0F50-0x0F58 | Motherboard resources                                   | OK |
| 0x0700-0x070F | Standard Dual Channel PCI IDE Controller                | OK |
| 0x01F0-0x01F7 | Primary IDE Channel                                     | OK |
| 0x03F6-0x03F6 | Primary IDE Channel                                     | OK |
| 0x0170-0x0177 | Secondary IDE Channel                                   | OK |
| 0x0376-0x0376 | Secondary IDE Channel                                   | OK |
| 0x4000-0x6FFF | PCI bus   | OK |
| 0x4000-0x6FFF | DEC 21154 PCI to PCI bridge                             | OK |
| 0x4000-0x6FFF | Mylex eXtremeRAID 2000 Disk Array Controller            | OK |
| 0x6000-0x60FF | Adaptec AIC-7899 Ultra160/m PCI SCSI Card               | OK |
| 0x6100-0x61FF | Adaptec AIC-7899 Ultra160/m PCI SCSI Card               | OK |
| 0x5000-0x5FFF | DEC 21154 PCI to PCI bridge                             | OK |
| 0x5000-0x5FFF | Mylex eXtremeRAID 2000 Disk Array Controller            | OK |
| 0x7000-0xFFFF | PCI bus   | OK |
| 0x7000-0xFFFF | DEC 21154 PCI to PCI bridge                             | OK |
| 0x7000-0xFFFF | Mylex eXtremeRAID 2000 Disk Array Controller            | OK |
| 0x9000-0x9FFF | DEC 21154 PCI to PCI bridge                             | OK |

|               |  |    |
|---------------|--|----|
| 0x9000-0x9FFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0x8000-0x8FFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0x8000-0x8FFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |

[IRQs]

| IRQ Number | Device  |
|------------|---|
| 9          | Microsoft ACPI-Compliant System                         |
| 20         | IBM Netfinity 10/100 Ethernet Adapter                   |
| 16         | IBM 10/100 NetFinity Fault Tolerant Adapter             |
| 18         | S3 Inc. Savage4   |
| 18         | Adaptec AIC-7899 Ultra160/m PCI SCSI Card               |
| 1          | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |
| 12         | PS/2 Compatible Mouse                                   |
| 6          | Standard floppy disk controller                         |
| 4          | Communications Port (COM2)                              |
| 3          | Communications Port (COM1)                              |
| 5          | Not Available   |
| 8          | System CMOS/real time clock                             |
| 13         | Numeric data processor                                  |
| 14         | Primary IDE Channel                                     |
| 19         | Standard OpenHCD USB Host Controller                    |
| 17         | Adaptec AIC-7899 Ultra160/m PCI SCSI Card               |
| 24         | Mylex eXtremeRAID 2000 Disk Array Controller            |
| 25         | Mylex eXtremeRAID 2000 Disk Array Controller            |
| 21         | Mylex eXtremeRAID 2000 Disk Array Controller            |
| 22         | Mylex eXtremeRAID 2000 Disk Array Controller            |
| 23         | Mylex eXtremeRAID 2000 Disk Array Controller            |

[Memory]

| Range                 | Device                                       | Status |
|-----------------------|--|--------|
| 0xA0000-0xBFFFF       | PCI bus                                      | OK     |
| 0xA0000-0xBFFFF       | S3 Inc. Savage4                              | OK     |
| 0xEFC00000-0xF85FFFFF | PCI bus                                      | OK     |
| 0xF8600000-0xFFFFFFFF | PCI bus                                      | OK     |
| 0xFEBFF000-0xFEBFFFFF | IBM Netfinity 10/100 Ethernet Adapter        | OK     |
| 0xFEAA0000-0xFEAFFFFF | IBM Netfinity 10/100 Ethernet Adapter        | OK     |
| 0xFEBFEC00-0xFEBFEC1F | IBM 10/100 NetFinity Fault Tolerant Adapter  | OK     |
| 0xFEB00000-0xFEB7FFFF | S3 Inc. Savage4                              | OK     |
| 0xF0000000-0xF7FFFFFF | S3 Inc. Savage4                              | OK     |
| 0xFEBFD000-0xFEBFDFFF | Standard OpenHCD USB Host Controller         | OK     |
| 0xE9000000-0xEA7FFFFF | PCI bus                                      | OK     |
| 0xEA800000-0xEF7FFFFF | PCI bus                                      | OK     |
| 0xEFBF000-0xEFBF7FFF  | Adaptec AIC-7899 Ultra160/m PCI SCSI Card    | OK     |
| 0xEFBF000-0xEFBF7FFF  | Adaptec AIC-7899 Ultra160/m PCI SCSI Card    | OK     |
| 0xEC000000-0xED7FFFFF | DEC 21154 PCI to PCI bridge                  | OK     |
| 0xE9800000-0xE99FFFFF | DEC 21154 PCI to PCI bridge                  | OK     |
| 0xE9800000-0xE99FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK     |

|                       |  |    |
|-----------------------|--|----|
| 0xED000000-0xED7FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xEE000000-0xEF7FFFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xEA000000-0xEA7FFFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xEA000000-0xEA7FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xEF000000-0xEF7FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xDF400000-0xE6BFFFFF | PCI bus                                      | OK |
| 0xE6C00000-0xE87FFFFF | PCI bus                                      | OK |
| 0xE1000000-0xE27FFFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xE7800000-0xE77FFFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xE7800000-0xE77FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xE2000000-0xE27FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xE3000000-0xE47FFFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xE8000000-0xE87FFFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xE8000000-0xE87FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xE4000000-0xE47FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xE5000000-0xE67FFFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xE8800000-0xE87FFFFF | DEC 21154 PCI to PCI bridge                  | OK |
| 0xE8800000-0xE87FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |
| 0xE6000000-0xE67FFFFF | Mylex eXtremeRAID 2000 Disk Array Controller | OK |

[Components]

[ Following are sub-categories of this main category ]

[Multimedia]

[ Following are sub-categories of this main category ]

[Audio Codecs]

| Codec                          | Manufacturer          | Description | Status | File                      | Version | Size       |
|--------------------------------|-----------------------|-------------|--------|---------------------------|---------|------------|
| Creation Date                  |                       |             |        |                           |         |            |
| c:\winnt\system32\imaadp32.acm | Microsoft Corporation |             |        |                           |         | OK         |
| C:\WINNT\System32\IMAADP32.ACM | 5.00.2134.1           |             |        | 16.27 KB (16,656 bytes)   |         |            |
| 12/7/1999 6:00:00 AM           |                       |             |        |                           |         |            |
| c:\winnt\system32\msg711.acm   | Microsoft Corporation |             |        |                           |         | OK         |
| C:\WINNT\System32\MSG711.ACM   | 5.00.2134.1           |             |        | 10.27 KB (10,512 bytes)   |         |            |
| 12/7/1999 6:00:00 AM           |                       |             |        |                           |         |            |
| c:\winnt\system32\msgsm32.acm  | Microsoft Corporation |             |        |                           |         | OK         |
| C:\WINNT\System32\MSGSM32.ACM  | 5.00.2134.1           |             |        | 22.27 KB (22,800 bytes)   |         |            |
| 12/7/1999 6:00:00 AM           |                       |             |        |                           |         |            |
| c:\winnt\system32\msg723.acm   | Microsoft Corporation |             |        |                           |         | OK         |
| C:\WINNT\System32\MSG723.ACM   | 4.4.3385              |             |        | 106.77 KB (109,328 bytes) |         | 11/11/2000 |
| 11:17:20 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 6:00:00 AM           |                       |             |        |                           |         |            |



```

c:\winnt\system32\iac25_32.ax Intel Corporation Indeo® audio software OK
C:\WINNT\System32\IAC25_32.AX 2.05.53 195.00 KB (199,680 bytes) 12/7/1999
6:00:00 AM
c:\winnt\system32\lhacm.acm Microsoft Corporation OK
C:\WINNT\System32\LHACM.ACM 4.4.3385 33.27 KB (34,064 bytes) 11/11/2000
11:17:21 AM
c:\winnt\system32\tssoft32.acm DSP GROUP, INC. OK
C:\WINNT\System32\TSSOFT32.ACM 1.01 9.27 KB (9,488 bytes)12/7/1999 6:00:00 AM

```

[Video Codecs]

| Codec                          | Manufacturer          | Description               | Status | File                      | Version | Size       |
|--------------------------------|-----------------------|---------------------------|--------|---------------------------|---------|------------|
| Creation Date                  |                       |                           |        |                           |         |            |
| c:\winnt\system32\ir50_32.dll  | Intel Corporation     | Indeo® video 5.10         | OK     |                           |         |            |
| C:\WINNT\System32\IR50_32.DLL  | R.5.10.15.2.55        |                           |        | 737.50 KB (755,200 bytes) |         |            |
| 12/7/1999 6:00:00 AM           |                       |                           |        |                           |         |            |
| c:\winnt\system32\msh261.drv   | Microsoft Corporation |                           | OK     |                           |         |            |
| C:\WINNT\System32\MSH261.DRV   | 4.4.3385              | 163.77 KB (167,696 bytes) |        |                           |         | 11/11/2000 |
| 11:17:21 AM                    |                       |                           |        |                           |         |            |
| c:\winnt\system32\msh263.drv   | Microsoft Corporation |                           | OK     |                           |         |            |
| C:\WINNT\System32\MSH263.DRV   | 4.4.3385              | 252.27 KB (258,320 bytes) |        |                           |         | 11/11/2000 |
| 11:16:46 AM                    |                       |                           |        |                           |         |            |
| 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 6:00:00 AM           |                       |                           |        |                           |         |            |
| c:\winnt\system32\msrle32.dll  | Microsoft Corporation |                           | OK     |                           |         |            |
| C:\WINNT\System32\MSRLE32.DLL  | 5.00.2134.1           |                           |        | 10.77 KB (11,024 bytes)   |         |            |
| 12/7/1999 6:00:00 AM           |                       |                           |        |                           |         |            |
| c:\winnt\system32\ir32_32.dll  | Intel(R) Corporation  |                           | OK     |                           |         |            |
| C:\WINNT\System32\IR32_32.DLL  | Not Available         |                           |        | 194.50 KB (199,168 bytes) |         |            |
| 12/7/1999 6:00:00 AM           |                       |                           |        |                           |         |            |
| c:\winnt\system32\iccvld.dll   | Radius Inc.           |                           | OK     |                           |         |            |
| C:\WINNT\System32\ICCVLD.DLL   | 1.10.0.6              | 108.00 KB (110,592 bytes) |        |                           |         | 12/7/1999  |
| 6:00:00 AM                     |                       |                           |        |                           |         |            |

[CD-ROM]

```

Item      Value
Drive     D:
Description      CD-ROM Drive
Media Loaded     False
Media Type       CD-ROM
Name            LITEON CD-ROM LTN403
Manufacturer     (Standard CD-ROM drives)
Status          OK
Transfer Rate    Not Available
SCSI Target ID  0
PNP Device ID
IDE(CDROMLITEON_CD-ROM_LTN403_____DU26____)\5&326853DD&0&0.0.0

```

[Sound Device]

```

Item      Value
No sound devices

```

[Display]

```

Item      Value
Name      S3 Inc. Savage4
PNP Device ID
PCI\VEN_5333&DEV_8A22&SUBSYS_01C51014&REV_04\3&267A616A&0&30
Adapter Type      S3 Savage4, S3 compatible
Adapter Description S3 Inc. Savage4
Adapter RAM       8.00 MB (8,388,608 bytes)
Installed Drivers  s3sav4.dll
Driver Version    5.01.840.0001
INF File          s3sav4.inf (S3Inc section)
Color Planes     1
Color Table Entries 65536
Resolution 800 x 600 x 60 hertz
Bits/Pixel 16

```

[Infrared]

```

Item      Value
No infrared devices

```

[Input]

[ Following are sub-categories of this main category ]

[Keyboard]

```

Item      Value
Description      Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
Name            Enhanced (101- or 102-key)
Layout          00000409
PNP Device ID    ACPI\PNP0303\4&F0B8F99&0
NumberOfFunctionKeys 12

```

[Pointing Device]

```

Item      Value
Hardware Type    PS/2 Compatible Mouse
Number of Buttons 3

```

Status OK  
PNP Device ID ACPI\PNP0F13\4&F0B8F99&0  
Power Management Supported False  
Double Click Threshold 6  
Handedness Right Handed Operation

[Modem]

Item Value  
No modems

[Network]

[ Following are sub-categories of this main category ]

[Adapter]

Item Value  
Name [00000000] IBM 10/100 NetFinity Fault Tolerant Adapter  
Adapter Type Ethernet 802.3  
Product Name IBM 10/100 NetFinity Fault Tolerant Adapter  
Installed True  
PNP Device ID PCI\VEN\_1022&DEV\_2000&SUBSYS\_20001014&REV\_43\3&267A616A&0&28  
Last Reset 11/27/2000 5:40:17 AM  
Index 0  
Service Name PCnet  
IP Address 9.67.179.220  
IP Subnet 255.255.255.192  
Default IP Gateway 9.67.179.193  
DHCP Enabled False  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 00:06:29:F6:02:BD  
Service Name PCnet  
IRQ Number 16  
I/O Port 0x2240-0x225F  
Driver c:\winnt\system32\drivers\pcentn5m.sys (33811, 4.23.00)

Name [00000001] IBM Netfinity 10/100 Ethernet Adapter  
Adapter Type Ethernet 802.3  
Product Name IBM Netfinity 10/100 Ethernet Adapter  
Installed True  
PNP Device ID PCI\VEN\_8086&DEV\_1229&SUBSYS\_105C1014&REV\_08\3&267A616A&0&08  
Last Reset 11/27/2000 5:40:17 AM  
Index 1  
Service Name IBMFE

IP Address 192.168.125.254  
IP Subnet 255.255.255.0  
Default IP Gateway Not Available  
DHCP Enabled False  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address 00:06:29:6F:8F:FC  
Service Name IBMFE  
IRQ Number 20  
I/O Port 0x2200-0x223F  
Driver c:\winnt\system32\drivers\ibmfent5.sys (80656, 4.01.75.0000)

Name [00000002] RAS Async Adapter  
Adapter Type Not Available  
Product Name RAS Async Adapter  
Installed True  
PNP Device ID Not Available  
Last Reset 11/27/2000 5:40:17 AM  
Index 2  
Service Name AsyncMac  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled False  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Service Name Not Available

Name [00000003] WAN Miniport (L2TP)  
Adapter Type Not Available  
Product Name WAN Miniport (L2TP)  
Installed True  
PNP Device ID ROOT\MS\_L2TPMINIPOINT\0000  
Last Reset 11/27/2000 5:40:17 AM  
Index 3  
Service Name Rasl2tp  
IP Address Not Available  
IP Subnet Not Available  
Default IP Gateway Not Available  
DHCP Enabled False  
DHCP Server Not Available  
DHCP Lease Expires Not Available  
DHCP Lease Obtained Not Available  
MAC Address Not Available  
Service Name Rasl2tp  
Driver c:\winnt\system32\drivers\rasl2tp.sys (50800, 5.00.2179.1)

Name [00000004] WAN Miniport (PPTP)  
 Adapter Type Wide Area Network (WAN)  
 Product Name WAN Miniport (PPTP)  
 Installed True  
 PNP Device ID ROOT\MS\_PPTPMINIPOINT\0000  
 Last Reset 11/27/2000 5:40:17 AM  
 Index 4  
 Service Name PptpMiniport  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 50:50:54:50:30:30  
 Service Name PptpMiniport  
 Driver c:\winnt\system32\drivers\raspppt.sys (47856, 5.00.2160.1)

Name [00000005] Direct Parallel  
 Adapter Type Not Available  
 Product Name Direct Parallel  
 Installed True  
 PNP Device ID ROOT\MS\_PTMINIPOINT\0000  
 Last Reset 11/27/2000 5:40:17 AM  
 Index 5  
 Service Name Raspti  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Raspti  
 Driver c:\winnt\system32\drivers\raspti.sys (16880, 5.00.2146.1)

Name [00000006] WAN Miniport (IP)  
 Adapter Type Not Available  
 Product Name WAN Miniport (IP)  
 Installed True  
 PNP Device ID ROOT\MS\_NDISWANIP\0000  
 Last Reset 11/27/2000 5:40:17 AM  
 Index 6  
 Service Name NdisWan  
 IP Address Not Available  
 IP Subnet Not Available

Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name NdisWan  
 Driver c:\winnt\system32\drivers\ndiswan.sys (90768, 5.00.2184.1)

[Protocol]

Item Value  
 Name MSAFD Tcip [TCP/IP]  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 16 bytes  
 MaximumMessageSize 0 bytes  
 MessageOriented False  
 MinimumAddressSize 16 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData True  
 SupportsGracefulClosing True  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD Tcip [UDP/IP]  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 16 bytes  
 MaximumMessageSize 65467 bytes  
 MessageOriented True  
 MinimumAddressSize 16 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting True

Name RSVP UDP Service Provider  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 16 bytes  
 MaximumMessageSize 65467 bytes  
 MessageOriented True  
 MinimumAddressSize 16 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption True  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting True

Name RSVP TCP Service Provider  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 16 bytes  
 MaximumMessageSize 0 bytes  
 MessageOriented False  
 MinimumAddressSize 16 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption True  
 SupportsExpeditedData True  
 SupportsGracefulClosing True  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{B1D8F20D-6ACF-456A-BA9B-9F1E8F640427}]  
 SEQPACKET 0  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False

SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{B1D8F20D-6ACF-456A-BA9B-9F1E8F640427}]  
 DATAGRAM 0  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{59EFE692-FDBA-4E4E-BF99-9BACB8A7A8F0}]  
 SEQPACKET 1  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{59EFE692-FDBA-4E4E-BF99-9BACB8A7A8F0}]  
 DATAGRAM 1  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False

MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{5361725E-E64D-41CF-8C7F-C49E4994CA9A}]  
 SEQPACKET 2

ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{5361725E-E64D-41CF-8C7F-C49E4994CA9A}]  
 DATAGRAM 2

ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False

SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{6F9AA8C4-A0D3-41E1-BAD0-42C67E9585CF}]  
 SEQPACKET 3

ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{6F9AA8C4-A0D3-41E1-BAD0-42C67E9585CF}]  
 DATAGRAM 3

ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

[WinSock]

| Item    | Value                         |
|---------|-------------------------------|
| File    | c:\winnt\system32\winsock.dll |
| Version | 3.10                          |
| Size    | 2.80 KB (2,864 bytes)         |

File c:\winnt\system32\wsock32.dll  
 Version 5.00.2152.1  
 Size 21.27 KB (21,776 bytes)

[Ports]

[ Following are sub-categories of this main category ]

[Serial]

| Item                        | Value          |
|-----------------------------|----------------|
| Name                        | COM2           |
| Status                      | OK             |
| PNP Device ID               | ACPI\PNP0501\1 |
| Maximum Input Buffer Size   | 0              |
| Maximum Output Buffer Size  | False          |
| Settable Baud Rate          | True           |
| Settable Data Bits          | True           |
| Settable Flow Control       | True           |
| Settable Parity             | True           |
| Settable Parity Check       | True           |
| Settable Stop Bits          | True           |
| Settable RLSD               | True           |
| Supports RLSD               | True           |
| Supports 16 Bit Mode        | False          |
| Supports Special Characters | False          |
| Baud Rate                   | 9600           |
| Bits/Byte                   | 8              |
| Stop Bits                   | 1              |
| Parity                      | None           |
| Busy                        | 0              |
| Abort Read/Write on Error   | 0              |
| Binary Mode Enabled-1       |                |
| Continue XMit on XOff       | 0              |
| CTS Outflow Control         | 0              |
| Discard NULL Bytes          | 0              |
| DSR Outflow Control         | 0              |
| DSR Sensitivity             | 0              |
| DTR Flow Control Type       | Enable         |
| EOF Character               | 0              |
| Error Replace Character     | 0              |
| Error Replacement Enabled   | 0              |
| Event Character             | 0              |
| Parity Check Enabled        | 0              |
| RTS Flow Control Type       | Enable         |
| XOff Character              | 19             |
| XOffXMit Threshold          | 512            |
| XOn Character               | 17             |

|                         |   |
|-------------------------|---|
| XOnXMit Threshold       | 2048  |
| XOnXOff InFlow Control  | 0   |
| XOnXOff OutFlow Control | 0   |
| IRQ Number              | 4   |
| I/O Port                | 0x03F8-0x03FF   |
| Driver                  | c:\winnt\system32\drivers\serial.sys (62448, 5.00.2134.1) |

|                             |                |
|-----------------------------|----------------|
| Name                        | COM1           |
| Status                      | OK             |
| PNP Device ID               | ACPI\PNP0501\2 |
| Maximum Input Buffer Size   | 0              |
| Maximum Output Buffer Size  | False          |
| Settable Baud Rate          | True           |
| Settable Data Bits          | True           |
| Settable Flow Control       | True           |
| Settable Parity             | True           |
| Settable Parity Check       | True           |
| Settable Stop Bits          | True           |
| Settable RLSD               | True           |
| Supports RLSD               | True           |
| Supports 16 Bit Mode        | False          |
| Supports Special Characters | False          |
| Baud Rate                   | 9600           |
| Bits/Byte                   | 8              |
| Stop Bits                   | 1              |
| Parity                      | None           |
| Busy                        | 0              |
| Abort Read/Write on Error   | 0              |
| Binary Mode Enabled-1       |                |
| Continue XMit on XOff       | 0              |
| CTS Outflow Control         | 0              |
| Discard NULL Bytes          | 0              |
| DSR Outflow Control         | 0              |
| DSR Sensitivity             | 0              |
| DTR Flow Control Type       | Enable         |
| EOF Character               | 0              |
| Error Replace Character     | 0              |
| Error Replacement Enabled   | 0              |
| Event Character             | 0              |
| Parity Check Enabled        | 0              |
| RTS Flow Control Type       | Enable         |
| XOff Character              | 19             |
| XOffXMit Threshold          | 512            |
| XOn Character               | 17             |
| XOnXMit Threshold           | 2048           |
| XOnXOff InFlow Control      | 0              |
| XOnXOff OutFlow Control     | 0              |
| IRQ Number                  | 3              |
| I/O Port                    | 0x02F8-0x02FF  |

Driver c:\winnt\system32\drivers\serial.sys (62448, 5.00.2134.1)

[Parallel]

| Item          | Value          |
|---------------|----------------|
| Name          | LPT1           |
| PNP Device ID | ACPI\PNP0400\1 |

[Storage]

[ Following are sub-categories of this main category ]

[Drives]

| Item        | Value                   |
|-------------|-------------------------|
| Drive A:    |                         |
| Description | 3 1/2 Inch Floppy Drive |

|                                 |                                       |
|---------------------------------|---------------------------------------|
| Drive C:                        |                                       |
| Description                     | Local Fixed Disk                      |
| Compressed                      | False                                 |
| File System                     | NTFS                                  |
| Size                            | 8.46 GB (9,088,901,120 bytes)         |
| Free Space                      | 4.59 GB (4,926,988,288 bytes)         |
| Volume Name                     |                                       |
| Volume Serial Number            | 18FF945A                              |
| Partition Disk #0, Partition #0 |                                       |
| Partition Size                  | 8.46 GB (9,088,902,144 bytes)         |
| Starting Offset                 | 32256 bytes                           |
| Drive Description               | Disk drive                            |
| Drive Manufacturer              | (Standard disk drives)                |
| Drive Model                     | IBM-PSG ST39204LC !# SCSI Disk Device |
| Drive BytesPerSector            | 512                                   |
| Drive MediaLoaded               | True                                  |
| Drive MediaType                 | Fixed hard disk media                 |
| Drive Partitions                | 1                                     |
| Drive SCSIbus                   | 0                                     |
| Drive SCSILogicalUnit           | 0                                     |
| Drive SCSIPort                  | 3                                     |
| Drive SCSTargetId               | 2                                     |
| Drive SectorsPerTrack           | 63                                    |
| Drive Size                      | 9097159680 bytes                      |
| Drive TotalCylinders            | 1106                                  |
| Drive TotalSectors              | 17767890                              |
| Drive TotalTracks               | 282030                                |
| Drive TracksPerCylinder         | 255                                   |

|                                 |                                 |
|---------------------------------|---------------------------------|
| 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                   |
| Partition Disk #2, Partition #0 |                                 |
| Partition Size                  | 37.81 GB (40,599,949,824 bytes) |
| Starting Offset                 | 32256 bytes                     |
| Drive Description               | \\.\PHYSICALDRIVE2              |
| Drive Manufacturer              | Not Available                   |
| Drive Model                     | Not Available                   |
| Drive BytesPerSector            | 512                             |
| Drive MediaLoaded               | True                            |
| Drive MediaType                 | Fixed hard disk media           |
| Drive Partitions                | 2                               |
| Drive SCSIbus                   | 4                               |
| Drive SCSILogicalUnit           | 0                               |
| Drive SCSIPort                  | 5                               |
| Drive SCSTargetId               | 0                               |
| Drive SectorsPerTrack           | 63                              |
| Drive Size                      | 471974791680 bytes              |
| Drive TotalCylinders            | 57381                           |
| Drive TotalSectors              | 921825765                       |
| Drive TotalTracks               | 14632155                        |
| Drive TracksPerCylinder         | 255                             |

|                                 |                                 |
|---------------------------------|---------------------------------|
| 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                   |
| Partition Disk #2, Partition #1 |                                 |
| Partition Size                  | 17.63 GB (18,926,369,280 bytes) |
| Starting Offset                 | Not Available                   |
| Drive Description               | \\.\PHYSICALDRIVE2              |
| Drive Manufacturer              | Not Available                   |
| Drive Model                     | Not Available                   |
| Drive BytesPerSector            | 512                             |
| Drive MediaLoaded               | True                            |
| Drive MediaType                 | Fixed hard disk media           |
| Drive Partitions                | 2                               |
| Drive SCSIbus                   | 4                               |
| Drive SCSILogicalUnit           | 0                               |

Drive SCSIPort 5  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 471974791680 bytes  
 Drive TotalCylinders 57381  
 Drive TotalSectors 921825765  
 Drive TotalTracks 14632155  
 Drive TracksPerCylinder 255

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

Partition Disk #3, Partition #0  
 Partition Size 37.81 GB (40,599,949,824 bytes)  
 Starting Offset 32256 bytes  
 Drive Description \\.\PHYSICALDRIVE3  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 2  
 Drive SCSIBus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 6  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 471974791680 bytes  
 Drive TotalCylinders 57381  
 Drive TotalSectors 921825765  
 Drive TotalTracks 14632155  
 Drive TracksPerCylinder 255

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  
 Partition Disk #3, Partition #1  
 Partition Size 17.63 GB (18,926,369,280 bytes)  
 Starting Offset Not Available

Drive Description \\.\PHYSICALDRIVE3  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 2  
 Drive SCSIBus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 6  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 471974791680 bytes  
 Drive TotalCylinders 57381  
 Drive TotalSectors 921825765  
 Drive TotalTracks 14632155  
 Drive TracksPerCylinder 255

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  
 Partition Disk #4, Partition #0  
 Partition Size 37.81 GB (40,599,949,824 bytes)  
 Starting Offset 32256 bytes  
 Drive Description \\.\PHYSICALDRIVE4  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIBus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 7  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 471974791680 bytes  
 Drive TotalCylinders 57381  
 Drive TotalSectors 921825765  
 Drive TotalTracks 14632155  
 Drive TracksPerCylinder 255

Drive J:  
 Description Local Fixed Disk



Compressed Not Available  
File System Not Available  
Size Not Available  
Free SpaceNot Available  
Volume Name Not Available  
Volume Serial Number Not Available  
Partition Disk #4, Partition #1  
Partition Size 17.63 GB (18,926,369,280 bytes)  
Starting Offset Not Available  
Drive Description \\.\PHYSICALDRIVE4  
Drive Manufacturer Not Available  
Drive Model Not Available  
Drive BytesPerSector 512  
Drive MediaLoaded True  
Drive MediaType Fixed hard disk media  
Drive Partitions 3  
Drive SCSIbus 4  
Drive SCSILogicalUnit 0  
Drive SCSIPort 7  
Drive SCSTargetId 0  
Drive SectorsPerTrack 63  
Drive Size 471974791680 bytes  
Drive TotalCylinders 57381  
Drive TotalSectors 921825765  
Drive TotalTracks 14632155  
Drive TracksPerCylinder 255

Drive K:  
Description Local Fixed Disk  
Compressed Not Available  
File System Not Available  
Size Not Available  
Free SpaceNot Available  
Volume Name Not Available  
Volume Serial Number Not Available  
Partition Disk #5, Partition #0  
Partition Size 37.81 GB (40,599,949,824 bytes)  
Starting Offset 32256 bytes  
Drive Description \\.\PHYSICALDRIVE5  
Drive Manufacturer Not Available  
Drive Model Not Available  
Drive BytesPerSector 512  
Drive MediaLoaded True  
Drive MediaType Fixed hard disk media  
Drive Partitions 3  
Drive SCSIbus 4  
Drive SCSILogicalUnit 0  
Drive SCSIPort 8  
Drive SCSTargetId 0

Drive SectorsPerTrack 63  
Drive Size 945257402880 bytes  
Drive TotalCylinders 114921  
Drive TotalSectors 1846205865  
Drive TotalTracks 29304855  
Drive TracksPerCylinder 255

Drive L:  
Description Local Fixed Disk  
Compressed Not Available  
File System Not Available  
Size Not Available  
Free SpaceNot Available  
Volume Name Not Available  
Volume Serial Number Not Available  
Partition Disk #5, Partition #1  
Partition Size 17.63 GB (18,926,369,280 bytes)  
Starting Offset Not Available  
Drive Description \\.\PHYSICALDRIVE5  
Drive Manufacturer Not Available  
Drive Model Not Available  
Drive BytesPerSector 512  
Drive MediaLoaded True  
Drive MediaType Fixed hard disk media  
Drive Partitions 3  
Drive SCSIbus 4  
Drive SCSILogicalUnit 0  
Drive SCSIPort 8  
Drive SCSTargetId 0  
Drive SectorsPerTrack 63  
Drive Size 945257402880 bytes  
Drive TotalCylinders 114921  
Drive TotalSectors 1846205865  
Drive TotalTracks 29304855  
Drive TracksPerCylinder 255

Drive O:  
Description Local Fixed Disk  
Compressed Not Available  
File System Not Available  
Size Not Available  
Free SpaceNot Available  
Volume Name Not Available  
Volume Serial Number Not Available  
Partition Disk #1, Partition #0  
Partition Size 83.01 GB (89,129,101,824 bytes)  
Starting Offset 32256 bytes  
Drive Description \\.\PHYSICALDRIVE1  
Drive Manufacturer Not Available

Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 1  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 4  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 109067212800 bytes  
 Drive TotalCylinders 13260  
 Drive TotalSectors 213021900  
 Drive TotalTracks 3381300  
 Drive TracksPerCylinder 255

Drive Y:  
 Description Local Fixed Disk  
 Compressed False  
 File System NTFS  
 Size 117.19 GB (125,830,332,416 bytes)  
 Free Space 17.35 GB (18,630,217,728 bytes)  
 Volume Name Backup1&2  
 Volume Serial Number 4CBDE553  
 Partition Disk #4, Partition #2  
 Partition Size 117.19 GB (125,830,333,440 bytes)  
 Starting Offset Not Available  
 Drive Description \\.\PHYSICALDRIVE4  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 7  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 471974791680 bytes  
 Drive TotalCylinders 57381  
 Drive TotalSectors 921825765  
 Drive TotalTracks 14632155  
 Drive TracksPerCylinder 255

Drive Z:  
 Description Local Fixed Disk  
 Compressed False  
 File System NTFS

Size 117.19 GB (125,830,332,416 bytes)  
 Free Space 17.33 GB (18,613,080,064 bytes)  
 Volume Name Backup3&4  
 Volume Serial Number ACD729B8  
 Partition Disk #5, Partition #2  
 Partition Size 117.19 GB (125,830,333,440 bytes)  
 Starting Offset Not Available  
 Drive Description \\.\PHYSICALDRIVE5  
 Drive Manufacturer Not Available  
 Drive Model Not Available  
 Drive BytesPerSector 512  
 Drive MediaLoaded True  
 Drive MediaType Fixed hard disk media  
 Drive Partitions 3  
 Drive SCSIbus 4  
 Drive SCSILogicalUnit 0  
 Drive SCSIPort 8  
 Drive SCSTargetId 0  
 Drive SectorsPerTrack 63  
 Drive Size 945257402880 bytes  
 Drive TotalCylinders 114921  
 Drive TotalSectors 1846205865  
 Drive TotalTracks 29304855  
 Drive TracksPerCylinder 255

[SCSI]

| Item                  | Value   |
|-----------------------|---|
| Name                  | Adaptec AIC-7899 Ultra160/m PCI SCSI Card                   |
| Caption               | Adaptec AIC-7899 Ultra160/m PCI SCSI Card                   |
| Driver                | adpu160m  |
| Status                | OK  |
| PNP Device ID         | PCI\VEN_9005&DEV_00CF&SUBSYS_00CF9005&REV_01\3&1070020&0&08 |
| Device ID             | PCI\VEN_9005&DEV_00CF&SUBSYS_00CF9005&REV_01\3&1070020&0&08 |
| Device Map            | Not Available   |
| Index                 | Not Available   |
| Max Number Controlled | Not Available   |
| IRQ Number            | 17  |
| I/O Port              | 0x6000-0x60FF   |
| Driver                | c:\winnt\system32\drivers\adpu160m.sys (64432, v3.10a)      |
| Name                  | Adaptec AIC-7899 Ultra160/m PCI SCSI Card                   |
| Caption               | Adaptec AIC-7899 Ultra160/m PCI SCSI Card                   |
| Driver                | adpu160m  |
| Status                | OK  |
| PNP Device ID         | PCI\VEN_9005&DEV_00CF&SUBSYS_00CF9005&REV_01\3&1070020&0&09 |
| Device ID             | PCI\VEN_9005&DEV_00CF&SUBSYS_00CF9005&REV_01\3&1070020&0&09 |
| Device Map            | Not Available   |

Index Not Available  
Max Number Controlled Not Available  
IRQ Number 18  
I/O Port 0x6100-0x61FF  
Driver c:\winnt\system32\drivers\adpu160m.sys (64432, v3.10a)

Name Mylex eXtremeRAID 2000 Disk Array Controller  
Caption Mylex eXtremeRAID 2000 Disk Array Controller  
Driver dac2w2k  
Status OK  
PNP Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&375C4928&0&4028  
Device ID PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&375C4928&0&4028  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 24  
I/O Port 0x5000-0x5FFF  
Driver c:\winnt\system32\drivers\dac2w2k.sys (185520, 9.00-03)

Name Mylex eXtremeRAID 2000 Disk Array Controller  
Caption Mylex eXtremeRAID 2000 Disk Array Controller  
Driver dac2w2k  
Status OK  
PNP Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&18534677&0&4030  
Device ID PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&18534677&0&4030  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 25  
I/O Port 0x4000-0x6FFF  
Driver c:\winnt\system32\drivers\dac2w2k.sys (185520, 9.00-03)

Name Mylex eXtremeRAID 2000 Disk Array Controller  
Caption Mylex eXtremeRAID 2000 Disk Array Controller  
Driver dac2w2k  
Status OK  
PNP Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&372A30F3&0&4010  
Device ID PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&372A30F3&0&4010  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 21  
I/O Port 0x9000-0x9FFF  
Driver c:\winnt\system32\drivers\dac2w2k.sys (185520, 9.00-03)

Name Mylex eXtremeRAID 2000 Disk Array Controller

Caption Mylex eXtremeRAID 2000 Disk Array Controller  
Driver dac2w2k  
Status OK  
PNP Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&8928022&0&4018  
Device ID PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&8928022&0&4018  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 22  
I/O Port 0x8000-0x8FFF  
Driver c:\winnt\system32\drivers\dac2w2k.sys (185520, 9.00-03)

Name Mylex eXtremeRAID 2000 Disk Array Controller  
Caption Mylex eXtremeRAID 2000 Disk Array Controller  
Driver dac2w2k  
Status OK  
PNP Device ID  
PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&279B82D3&0&4020  
Device ID PCI\VEN\_1069&DEV\_BA56&SUBSYS\_00401069&REV\_00\4&279B82D3&0&4020  
Device Map Not Available  
Index Not Available  
Max Number Controlled Not Available  
IRQ Number 23  
I/O Port 0x7000-0xFFFF  
Driver c:\winnt\system32\drivers\dac2w2k.sys (185520, 9.00-03)

#### [Printing]

Name Port Name Server Name  
No printing information

#### [Problem Devices]

| Device        | PNP Device ID               | Error Code |
|---------------|-----------------------------|------------|
| Not Available | ACPI\IBM37D0\4&F0B8F99&0 28 |            |
| Not Available | ACPI\IBM37C0\4&F0B8F99&0 28 |            |

#### [USB]

| Device   | PNP Device ID             |
|--|---------------------------|
| Standard OpenHCD USB Host Controller                         |                           |
| PCI\VEN_1166&DEV_0220&SUBSYS_02201166&REV_04\3&267A616A&0&7A |                           |
| USB Root Hub   | USB\ROOT_HUB\4&372644EA&0 |

#### [Software Environment]

[ Following are sub-categories of this main category ]

| Name          | Description                            | File                                   | Type                                  | Started | Start Mode | State   | Status             |
|---------------|--|--|---------------------------------------|---------|------------|---------|--------------------|
| [Drivers]     |  |  |                                       |         |            |         |                    |
| Error Control | Accept Pause                           |  | Accept Stop                           |         |            |         |                    |
| abiosdsk      | Abiosdsk                               | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Ignore        | False                                  | False                                  |                                       |         |            |         |                    |
| abp480n5      | abp480n5                               | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| acpi          | Microsoft ACPI Driver                  |  | c:\winnt\system32\drivers\acpi.sys    |         |            |         | Kernel Driver      |
| True          | Boot                                   | Running                                | OK                                    | Normal  | False      | True    |                    |
| acpiec        | ACPIEC                                 | c:\winnt\system32\drivers\acpiec.sys   |                                       |         |            |         | Kernel Driver      |
| Disabled      | Stopped                                | OK                                     | Normal                                | False   | False      |         |                    |
| adpu160m      | adpu160m                               | c:\winnt\system32\drivers\adpu160m.sys |                                       |         |            |         | Kernel Driver      |
| Running       | OK                                     | Normal                                 | False                                 | True    |            |         | Boot               |
| afd           | AFD Networking Support Environment     |  | c:\winnt\system32\drivers\afd.sys     |         |            |         | Kernel Driver      |
| True          | Auto                                   | Running                                | OK                                    | Normal  | False      | True    |                    |
| aha154x       | Aha154x                                | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| aic116x       | aic116x                                | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| aic78u2       | aic78u2                                | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| aic78xx       | aic78xx                                | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| ami0nt        | ami0nt                                 | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| amsint        | amsint                                 | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| asc           | asc                                    | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| asc3350p      | asc3350p                               | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| asc3550       | asc3550                                | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| asynmac       | RAS Asynchronous Media Driver          |  | c:\winnt\system32\drivers\asynmac.sys |         |            |         | Kernel             |
| Driver        | False                                  | Manual                                 | Stopped                               | OK      | Normal     | False   | False              |
| atapi         | Standard IDE/ESDI Hard Disk Controller |  | c:\winnt\system32\drivers\atapi.sys   |         |            |         | Kernel             |
| Driver        | True                                   | Boot                                   | Running                               | OK      | Normal     | False   | True               |
| atdisk        | Atdisk                                 | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Ignore        | False                                  | False                                  |                                       |         |            |         |                    |
| atmarpc       | ATM ARP Client Protocol                |  | c:\winnt\system32\drivers\atmarpc.sys |         |            |         | Kernel Driver      |
| False         | Manual                                 | Stopped                                | OK                                    | Normal  | False      | False   |                    |
| audstub       | Audio Stub Driver                      |  | c:\winnt\system32\drivers\audstub.sys |         |            |         | Kernel Driver      |
| Manual        | Running                                | OK                                     | Normal                                | False   | True       |         | True               |
| beep          | Beep                                   | c:\winnt\system32\drivers\beep.sys     |                                       |         |            |         | Kernel Driver      |
| Running       | OK                                     | Normal                                 | False                                 | True    |            |         | True               |
| buslogic      | BusLogic                               | Not Available                          | Kernel Driver                         | False   | Disabled   | Stopped | OK                 |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| cd20xrnt      | cd20xrnt                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         |                    |
| cdaudio       | Cdaudio                                | c:\winnt\system32\drivers\cdaudio.sys  |                                       |         |            |         | Kernel Driver      |
| Stopped       | OK                                     | Ignore                                 | False                                 | False   |            |         | False              |
| cdfs          | Cdfs                                   | c:\winnt\system32\drivers\cdfs.sys     |                                       |         |            |         | File System Driver |
| Disabled      | Running                                | OK                                     | Normal                                | False   | True       |         | True               |
| cdrom         | CD-ROM Driver                          |  | c:\winnt\system32\drivers\cdrom.sys   |         |            |         | Kernel Driver      |
| System        | Running                                | OK                                     | Normal                                | False   | True       |         | True               |
| changer       | Changer                                | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Ignore        | False                                  | False                                  |                                       |         |            |         | False              |
| cpqarray      | Cpqarray                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         | False              |
| cpqarry2      | cpqarry2                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         | False              |
| cpqfcalm      | cpqfcalm                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         | False              |
| cpqfws2e      | cpqfws2e                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         | False              |
| dac2w2k       | dac2w2k                                | c:\winnt\system32\drivers\dac2w2k.sys  |                                       |         |            |         | Kernel Driver      |
| Running       | OK                                     | Normal                                 | False                                 | True    |            |         | True               |
| dac960nt      | dac960nt                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         | False              |
| deckzpsx      | deckzpsx                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         | False              |
| dfsdriver     | DfsDriver                              |  | c:\winnt\system32\drivers\dfs.sys     |         |            |         | File System Driver |
| Running       | OK                                     | Normal                                 | False                                 | True    |            |         | True               |
| disk          | Disk Driver                            |  | c:\winnt\system32\drivers\disk.sys    |         |            |         | Kernel Driver      |
| Boot          | Running                                | OK                                     | Normal                                | False   | True       |         | True               |
| diskperf      | Diskperf                               | c:\winnt\system32\drivers\diskperf.sys |                                       |         |            |         | Kernel Driver      |
| Disabled      | Stopped                                | OK                                     | Normal                                | False   | False      |         | False              |
| dmbboot       | dmbboot                                | c:\winnt\system32\drivers\dmbboot.sys  |                                       |         |            |         | Kernel Driver      |
| Disabled      | Stopped                                | OK                                     | Normal                                | False   | False      |         | False              |
| dmio          | Logical Disk Manager Driver            |  | c:\winnt\system32\drivers\dmio.sys    |         |            |         | Kernel Driver      |
| True          | Boot                                   | Running                                | OK                                    | Normal  | False      | True    |                    |
| dmload        | dmload                                 | c:\winnt\system32\drivers\dmload.sys   |                                       |         |            |         | Kernel Driver      |
| Running       | OK                                     | Normal                                 | False                                 | True    |            |         | True               |
| efs           | EFS                                    | c:\winnt\system32\drivers\efs.sys      |                                       |         |            |         | File System Driver |
| Running       | OK                                     | Normal                                 | False                                 | True    |            |         | True               |
| fastfat       | Fastfat                                | c:\winnt\system32\drivers\fastfat.sys  |                                       |         |            |         | File System Driver |
| Disabled      | Running                                | OK                                     | Normal                                | False   | True       |         | True               |
| fd16_700      | Fd16_700                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         | False              |
| fdc           | Floppy Disk Controller Driver          |  | c:\winnt\system32\drivers\fdc.sys     |         |            |         | Kernel Driver      |
| Manual        | Running                                | OK                                     | Normal                                | False   | True       |         | True               |
| fireport      | fireport                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         | False              |
| flashpnt      | flashpnt                               | Not Available                          |                                       |         |            |         | Kernel Driver      |
| Normal        | False                                  | False                                  |                                       |         |            |         | False              |





|         |                             |                                      |               |       |        |                     |               |             |                            |                         |               |            |
|---------|-----------------------------|--------------------------------------|---------------|-------|--------|---------------------|---------------|-------------|----------------------------|-------------------------|---------------|------------|
| vgasave | VgaSave                     | c:\winnt\system32\drivers\vga.sys    | Kernel Driver | True  | System | system idle process | Not Available | 0           | 0                          | Not Available           | Not Available |            |
|         | Running OK                  | Ignore                               | False         | True  |        | Not Available       | Unknown       | Unknown     | Unknown                    |                         |               |            |
| wanarp  | Remote Access IP ARP Driver | c:\winnt\system32\drivers\wanarp.sys | Kernel Driver |       |        | system              | Not Available | 8           | 8                          | 0                       | 1413120       |            |
| True    | Manual                      | Running OK                           | Normal        | False | True   | Unknown             | Unknown       | Unknown     |                            |                         | Not Available |            |
| wdica   | WDICA                       | Not Available                        | Kernel Driver | False | Manual | Stopped             | OK            | smss.exe    | c:\winnt\system32\smss.exe | 168                     | 11            | 204800     |
| Ignore  | False                       | False                                |               |       |        |                     |               | 10:40:53 AM | 5.00.2170.1                | 44.27 KB (45,328 bytes) | 1413120       | 11/27/2000 |

[Environment Variables]

| Variable               | Value  | User Name              |
|------------------------|--|------------------------|
| ComSpec                | %SystemRoot%\system32\cmd.exe  | <SYSTEM>               |
| NUMBER_OF_PROCESSORS   | 4  | <SYSTEM>               |
| OS                     | Windows_NT   | <SYSTEM>               |
| Os2LibPath             | %SystemRoot%\system32\os2\dll;   | <SYSTEM>               |
| Path                   | %SystemRoot%\system32;%SystemRoot%;%SystemRoot%\System32\Wbem;C:\Program Files\Microsoft SQL Server\80\Tools\BINN;C:\Program Files\Microsoft SQL Server\MSSQL\BINN | <SYSTEM>               |
| PATHEXT                | .COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH   | <SYSTEM>               |
| PROCESSOR_ARCHITECTURE | x86  | <SYSTEM>               |
| PROCESSOR_IDENTIFIER   | x86 Family 6 Model 10 Stepping 1, GenuineIntel   | <SYSTEM>               |
| PROCESSOR_LEVEL        | 6  | <SYSTEM>               |
| PROCESSOR_REVISION     | 0a01   | <SYSTEM>               |
| TEMP                   | %SystemRoot%\TEMP  | <SYSTEM>               |
| TMP                    | %SystemRoot%\TEMP  | <SYSTEM>               |
| windir                 | %SystemRoot%   | <SYSTEM>               |
| TEMP                   | %USERPROFILE%\Local Settings\Temp  | IBMSERV3\Administrator |
| TMP                    | %USERPROFILE%\Local Settings\Temp  | IBMSERV3\Administrator |

[Jobs]

[ Following are sub-categories of this main category ]

[Print]

| Document     | Size          | Owner   | Notify   | Status     | Time Submitted | Start Time | Until Time |
|--------------|---------------|---------|----------|------------|----------------|------------|------------|
| Elapsed Time | Pages Printed | Job ID  | Priority | Parameters | Driver Name    | Print      |            |
| Unknown      | Unknown       | Unknown | Unknown  | Unknown    | Unknown        | Unknown    | Unknown    |
| Unknown      | Unknown       | Unknown | Unknown  | Unknown    | Unknown        | Unknown    | Unknown    |

[Network Connections]

| Local Name | Remote Name        | Type | Status | User Name |
|------------|--------------------|------|--------|-----------|
| M:         | \\9.37.221.197\c\$ | Disk | Error  |           |

[Running Tasks]

| Name    | Path | Process ID | Priority | Min Working Set | Max Working Set | Start Time |
|---------|------|------------|----------|-----------------|-----------------|------------|
| Version | Size | File Date  |          |                 |                 |            |

|                        |   |                           |                        |               |                           |
|------------------------|---|---------------------------|------------------------|---------------|---------------------------|
| system idle process    | Not Available   | 0                         | 0                      | Not Available | Not Available             |
| Not Available          | Unknown   | Unknown                   | Unknown                |               |                           |
| system                 | Not Available   | 8                         | 8                      | 0             | 1413120                   |
| Unknown                | Unknown   | Unknown                   |                        |               | Not Available             |
| smss.exe               | c:\winnt\system32\smss.exe  | 168                       | 11                     | 204800        | 1413120                   |
| 10:40:53 AM            | 5.00.2170.1   | 44.27 KB (45,328 bytes)   |                        |               | 12/7/1999 6:00:00 AM      |
| csrss.exe              | Not Available   | 196                       | 13                     | Not Available | Not Available             |
| 11/27/2000 10:40:58 AM | Unknown   | Unknown                   | Unknown                |               |                           |
| winlogon.exe           | c:\winnt\system32\winlogon.exe                                      | 216                       | 13                     | 204800        | 1413120                   |
| 11/27/2000 10:41:00 AM | 5.00.2182.1   | 173.27 KB (177,424 bytes) |                        |               | 12/7/1999                 |
| 6:00:00 AM             |   |                           |                        |               |                           |
| services.exe           | c:\winnt\system32\services.exe                                      | 244                       | 9                      | 204800        | 1413120                   |
| 11/27/2000 10:41:01 AM | 5.00.2134.1   | 86.77 KB (88,848 bytes)   |                        |               | 12/7/1999                 |
| 6:00:00 AM             |   |                           |                        |               |                           |
| lsass.exe              | c:\winnt\system32\lsass.exe   | 256                       | 13                     | 204800        | 1413120                   |
| 10:41:01 AM            | 5.00.2184.1   | 32.77 KB (33,552 bytes)   |                        |               | 12/7/1999 6:00:00 AM      |
| svchost.exe            | c:\winnt\system32\svchost.exe                                       | 384                       | 8                      | 204800        | 1413120                   |
| 11/27/2000 10:41:04 AM | 5.00.2134.1   | 7.77 KB (7,952 bytes)     |                        |               | 12/7/1999 6:00:00 AM      |
| msdtc.exe              | c:\winnt\system32\msdtc.exe   | 408                       | 8                      | 204800        | 1413120                   |
| 10:41:05 AM            | 1999.9.3421.3   | 6.77 KB (6,928 bytes)     |                        |               | 11/11/2000 6:11:27 AM     |
| tcpsvcs.exe            | c:\winnt\system32\tcpsvcs.exe                                       | 612                       | 8                      | 204800        | 1413120                   |
| 11/27/2000 10:41:07 AM | 5.00.2134.1   | 24.77 KB (25,360 bytes)   |                        |               | 12/7/1999                 |
| 6:00:00 AM             |   |                           |                        |               |                           |
| winmgmt.exe            | c:\winnt\system32\wbem\winmgmt.exe                                  | 632                       | 8                      | 204800        |                           |
| 1413120                | 11/27/2000 10:41:07 AM  | 1.50.1085.0001            |                        |               | 188.05 KB (192,567 bytes) |
| 12/7/1999 6:00:00 AM   |   |                           |                        |               |                           |
| svchost.exe            | c:\winnt\system32\svchost.exe                                       | 596                       | 8                      | 204800        | 1413120                   |
| 11/27/2000 10:48:01 AM | 5.00.2134.1   | 7.77 KB (7,952 bytes)     |                        |               | 12/7/1999 6:00:00 AM      |
| explorer.exe           | c:\winnt\explorer.exe   | 884                       | 8                      | 204800        | 1413120                   |
| 10:48:01 AM            | 5.00.2920.0000  | 232.77 KB (238,352 bytes) |                        |               | 12/7/1999 6:00:00 AM      |
| ibmmon.exe             | c:\winnt\system32\ibmmon.exe  | 964                       | 8                      | 204800        | 1413120                   |
| 11/27/2000 10:48:03 AM | 1.11  | 28.50 KB (29,184 bytes)   |                        |               | 11/12/2000 8:29:48 AM     |
| sqlmangr.exe           | c:\program files\microsoft sql server\80\tools\bin\sqlmangr.exe     | 948                       | 8                      |               |                           |
| 204800                 | 1413120   | 11/27/2000 10:48:04 AM    |                        |               | 2000.080.0194.00          |
| 11/12/2000 8:48:51 AM  |   |                           |                        |               | 68.00 KB (69,632 bytes)   |
| cmd.exe                | c:\winnt\system32\cmd.exe   | 908                       | 8                      | 204800        | 1413120                   |
| 10:48:10 AM            | 5.00.2144.1   | 230.77 KB (236,304 bytes) |                        |               | 12/7/1999 6:00:00 AM      |
| cmd.exe                | c:\winnt\system32\cmd.exe   | 396                       | 8                      | 204800        | 1413120                   |
| 11:05:55 AM            | 5.00.2144.1   | 230.77 KB (236,304 bytes) |                        |               | 12/7/1999 6:00:00 AM      |
| sqlservr_194_s2        | c:\program files\microsoft sql server\mssql\bin\sqlservr_194_s2.exe |                           |                        |               | 968                       |
| 13                     | 204800  | 1413120                   | 11/27/2000 11:11:55 AM |               | 2000.080.0194.00          |
| (7,442,493 bytes)      |   |                           | 11/12/2000 9:02:16 AM  |               | 7.10 MB                   |
| gamscm.exe             | c:\winnt\system32\gamscm.exe  | 1000                      | 8                      | 204800        |                           |
| 1413120                | 11/27/2000 11:13:51 AM  | Not Available             |                        |               | 119.28 KB (122,144 bytes) |
| 11/12/2000 9:13:29 AM  |   |                           |                        |               |                           |
| gamscv.exe             | c:\winnt\system32\gamscv.exe  | 1012                      | 13                     | 204800        |                           |
| 1413120                | 11/27/2000 11:13:51 AM  | Not Available             |                        |               | 128.70 KB (131,793 bytes) |
| 11/12/2000 9:13:29 AM  |   |                           |                        |               |                           |

|                       |   |                           |                           |                           |                    |
|-----------------------|---|---------------------------|---------------------------|---------------------------|--------------------|
| gamevent.exe          | c:\winnt\system32\gamserv\gamevent.exe                        | 1020                      | 13                        | 204800                    |                    |
| 1413120               | 11/27/2000 11:13:51 AM  | Not Available             | 88.71 KB (90,834 bytes)   |                           |                    |
| 11/12/2000 9:13:29 AM |   |                           |                           |                           |                    |
| gamevlog.exe          | c:\winnt\system32\gamserv\gamevlog.exe                        | 1028                      | 13                        | 204800                    |                    |
| 1413120               | 11/27/2000 11:13:51 AM  | Not Available             | 187.35 KB (191,842 bytes) |                           |                    |
| 11/12/2000 9:13:29 AM |   |                           |                           |                           |                    |
| isqlw.exe             | c:\program files\microsoft sql server\80\tools\binn\isqlw.exe | 832                       | 8                         |                           |                    |
| 204800                | 1413120   | 11/27/2000 11:18:16 AM    | 2000.080.0194.00          | 344.06 KB (352,319 bytes) |                    |
| 11/12/2000 8:48:34 AM |   |                           |                           |                           |                    |
| mmc.exe               | c:\winnt\system32\mmc.exe                                     | 1080                      | 8                         | 204800                    | 1413120 11/27/2000 |
| 11:20:21 AM           | 5.00.2153.1   | 589.27 KB (603,408 bytes) | 12/7/1999 6:00:00 AM      |                           |                    |
| rsvp.exe              | c:\winnt\system32\rsvp.exe                                    | 1232                      | 8                         | 204800                    | 1413120 11/27/2000 |
| 11:21:45 AM           | 5.00.2167.1   | 172.77 KB (176,912 bytes) | 12/7/1999 6:00:00 AM      |                           |                    |
| mdm.exe               | c:\winnt\system32\mdm.exe                                     | 1152                      | 8                         | 204800                    | 1413120 11/27/2000 |
| 11:22:00 AM           | 6.00.8424   | 121.29 KB (124,200 bytes) | 11/11/2000 6:14:31 AM     |                           |                    |

[Loaded Modules]

| Name         | Version        | Size                      | File Date              | Manufacturer          | Path   |
|--------------|----------------|---------------------------|------------------------|-----------------------|--|
| mdm.exe      | 6.00.8424      | 121.29 KB (124,200 bytes) | 11/11/2000 6:14:31 AM  | Microsoft Corporation | c:\winnt\system32\mdm.exe  |
| traffic.dll  | 5.00.2139.1    | 30.77 KB (31,504 bytes)   | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\traffic.dll                                      |
| rsvp.exe     | 5.00.2167.1    | 172.77 KB (176,912 bytes) | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\rsvp.exe   |
| wbemprox.dll | 1.50.1085.0001 | 40.05 KB (41,016 bytes)   | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\wbem\wbemprox.dll                                |
| rassapi.dll  | 5.00.2188.1    | 14.27 KB (14,608 bytes)   | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\rassapi.dll                                      |
| adsnt.dll    | 5.00.2191.1    | 194.27 KB (198,928 bytes) | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\adsnt.dll  |
| dbghelp.dll  | 5.00.2195.1    | 159.27 KB (163,088 bytes) | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\dbghelp.dll                                      |
| localsec.dll | 5.00.2134.1    | 227.27 KB (232,720 bytes) | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\localsec.dll                                     |
| devmgr.dll   | 5.00.2166.1    | 215.77 KB (220,944 bytes) | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\devmgr.dll                                       |
| filemgmt.dll | 5.00.2134.1    | 287.27 KB (294,160 bytes) | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\filemgmt.dll                                     |
| pdh.dll      | 5.00.2174.1    | 143.27 KB (146,704 bytes) | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\pdh.dll  |
| smlogcfg.dll | 5.00.2163.1    | 273.27 KB (279,824 bytes) | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\smlogcfg.dll                                     |
| cabinet.dll  | 5.00.2147.1    | 54.77 KB (56,080 bytes)   | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\cabinet.dll                                      |
| msinfo32.dll | 5.00.2177.1    | 312.27 KB (319,760 bytes) | 11/11/2000 11:17:16 AM | Microsoft Corporation | c:\program files\common files\microsoft shared\msinfo\msinfo32.dll |
| riched20.dll | 5.30.23.1200   | 421.27 KB (431,376 bytes) | 12/7/1999 6:00:00 AM   | Microsoft Corporation | c:\winnt\system32\riched20.dll                                     |

|              |                  |                           |                       |  |   |
|--------------|------------------|---------------------------|-----------------------|--|---|
| riched32.dll | 5.00.2134.1      | 3.77 KB (3,856 bytes)     | 12/7/1999 6:00:00 AM  | Microsoft Corporation                              | c:\winnt\system32\riched32.dll  |
| els.dll      | 5.00.2175.1      | 151.27 KB (154,896 bytes) | 12/7/1999 6:00:00 AM  | Microsoft Corporation                              | c:\winnt\system32\els.dll   |
| ntmsmgr.dll  | 1,0,0,1          | 427.77 KB (438,032 bytes) | 12/7/1999 6:00:00 AM  | Microsoft Corporation and HighGround Systems, Inc. | c:\winnt\system32\ntmsmgr.dll   |
| mmfutil.dll  | 1.50.1085.0000   | 32.06 KB (32,829 bytes)   | 12/7/1999 6:00:00 AM  | Microsoft Corporation                              | c:\winnt\system32\mmfutil.dll   |
| logdrive.dll | 1.50.1085.0000   | 200.06 KB (204,863 bytes) | 12/7/1999 6:00:00 AM  | Microsoft Corporation                              | c:\winnt\system32\logdrive.dll  |
| dfrgres.dll  | 5.00.2150.1      | 27.50 KB (28,160 bytes)   | 12/7/1999 6:00:00 AM  | Executive Software International, Inc.             | c:\winnt\system32\dfrgres.dll   |
| dfrgsnap.dll | 5.00.2150.1      | 41.77 KB (42,768 bytes)   | 12/7/1999 6:00:00 AM  | Executive Software International, Inc.             | c:\winnt\system32\dfrgsnap.dll  |
| dmskres.dll  | 2191.1.296.2     | 119.00 KB (121,856 bytes) | 12/7/1999 6:00:00 AM  | Microsoft Corp., VERITAS Software                  | c:\winnt\system32\dmskres.dll   |
| dmutil.dll   | 2191.1.296.2     | 41.77 KB (42,768 bytes)   | 12/7/1999 6:00:00 AM  | VERITAS Software Corp.                             | c:\winnt\system32\dmutil.dll  |
| ntmsapi.dll  | 5.00.1948.1      | 50.27 KB (51,472 bytes)   | 12/7/1999 6:00:00 AM  | Microsoft Corporation                              | c:\winnt\system32\ntmsapi.dll   |
| dmskmgm.dll  | 2191.1.296.2     | 158.77 KB (162,576 bytes) | 12/7/1999 6:00:00 AM  | Microsoft Corp., VERITAS Software                  | c:\winnt\system32\dmskmgm.dll   |
| mycomput.dll | 5.00.2134.1      | 107.77 KB (110,352 bytes) | 12/7/1999 6:00:00 AM  | Microsoft Corporation                              | c:\winnt\system32\mycomput.dll  |
| mmcmdmgr.dll | 5.00.2178.1      | 815.27 KB (834,832 bytes) | 12/7/1999 6:00:00 AM  | Microsoft Corporation                              | c:\winnt\system32\mmcmdmgr.dll  |
| mmc.exe      | 5.00.2153.1      | 589.27 KB (603,408 bytes) | 12/7/1999 6:00:00 AM  | Microsoft Corporation                              | c:\winnt\system32\mmc.exe   |
| dbmslpn.dll  | 2000.080.0194.00 | 28.06 KB (28,734 bytes)   | 11/12/2000 8:48:08 AM | Microsoft Corporation                              | c:\winnt\system32\dbmslpn.dll   |
| dbnetlib.dll | 2000.080.0194.00 | 84.06 KB (86,082 bytes)   | 11/12/2000 8:47:27 AM | Microsoft Corporation                              | c:\winnt\system32\dbnetlib.dll  |
| sqllex.dll   | 2000.080.0194.00 | 148.06 KB (151,616 bytes) | 11/12/2000 8:48:50 AM | Microsoft Corporation                              | c:\program files\microsoft sql server\80\tools\binn\sqllex.dll                |
| objmgr.rll   | 2000.080.0194.00 | 56.00 KB (57,344 bytes)   | 11/12/2000 8:48:35 AM | Microsoft Corporation                              | c:\program files\microsoft sql server\80\tools\binn/resources\1033\objmgr.rll |
| objmgr.dll   | 2000.080.0194.00 | 308.06 KB (315,456 bytes) | 11/12/2000 8:48:35 AM | Microsoft Corporation                              | c:\program files\microsoft sql server\80\tools\binn/resources\1033\objmgr.dll |
| odbc32.dll   | 3.520.6526.0     | 100.27 KB (102,672 bytes) | 11/12/2000 8:47:23 AM | Microsoft Corporation                              | c:\winnt\system32\odbc32.dll  |
| sqlsrv32.rll | 2000.080.0194.00 | 88.00 KB (90,112 bytes)   | 11/12/2000 8:47:28 AM | Microsoft Corporation                              | c:\winnt\system32\sqlsrv32.rll  |
| sqlsrv32.dll | 2000.080.0194.00 | 460.08 KB (471,119 bytes) | 11/12/2000 8:47:28 AM | Microsoft Corporation                              | c:\winnt\system32\sqlsrv32.dll  |
| isqlw.rll    | 2000.080.0194.00 | 240.00 KB (245,760 bytes) | 11/12/2000 8:48:35 AM | Microsoft Corporation                              | c:\program files\microsoft sql server\80\tools\binn/resources\1033\isqlw.rll  |



|                       |  |                           |                       |
|-----------------------|--|---------------------------|-----------------------|
| sqlqry.rll            | 2000.080.0194.00   | 180.00 KB (184,320 bytes) | 11/12/2000 8:48:35 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\resources\1033\sqlqry.rll   |                           |                       |
| pfutil80.rll          | 2000.080.0194.00   | 144.00 KB (147,456 bytes) | 11/12/2000 8:48:50 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\resources\1033\pfutil80.rll |                           |                       |
| pfclnt80.rll          | 2000.080.0194.00   | 28.00 KB (28,672 bytes)   | 11/12/2000 8:48:48 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\resources\1033\pfclnt80.rll |                           |                       |
| semsfc.rll            | 2000.080.0194.00   | 24.00 KB (24,576 bytes)   | 11/12/2000 8:48:50 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\resources\1033\semsfc.rll   |                           |                       |
| sqlgui.rll            | 2000.080.0194.00   | 56.00 KB (57,344 bytes)   | 11/12/2000 8:48:50 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\resources\1033\sqlgui.rll   |                           |                       |
| pfclnt80.dll          | 2000.080.0194.00   | 404.06 KB (413,762 bytes) | 11/12/2000 8:48:48 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\pfclnt80.dll                |                           |                       |
| semsfc.dll            | 2000.080.0194.00   | 224.06 KB (229,440 bytes) | 11/12/2000 8:48:48 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\semsfc.dll                  |                           |                       |
| pfutil80.dll          | 2000.080.0194.00   | 268.06 KB (274,498 bytes) | 11/12/2000 8:48:50 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\pfutil80.dll                |                           |                       |
| sqlqry.dll            | 2000.080.0194.00   | 392.06 KB (401,472 bytes) | 11/12/2000 8:48:35 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\sqlqry.dll                  |                           |                       |
| imm32.dll             | 5.00.2180.1  | 93.77 KB (96,016 bytes)   | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\imm32.dll  |                           |                       |
| sqlgui.dll            | 2000.080.0194.00   | 444.06 KB (454,720 bytes) | 11/12/2000 8:48:48 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\sqlgui.dll                  |                           |                       |
| isqlw.exe             | 2000.080.0194.00   | 344.06 KB (352,319 bytes) | 11/12/2000 8:48:34 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\isqlw.exe                   |                           |                       |
| gamevlog.exe          | Not Available  | 187.35 KB (191,842 bytes) | 11/12/2000 9:13:29 AM |
| Not Available         | c:\winnt\system32\gamserv\gamevlog.exe   |                           |                       |
| gamevent.exe          | Not Available  | 88.71 KB (90,834 bytes)   | 11/12/2000 9:13:29 AM |
| Not Available         | c:\winnt\system32\gamserv\gamevent.exe   |                           |                       |
| gamserv.exe           | Not Available  | 128.70 KB (131,793 bytes) | 11/12/2000 9:13:29 AM |
| Not Available         | c:\winnt\system32\gamserv\gamserv.exe  |                           |                       |
| gamscm.exe            | Not Available  | 119.28 KB (122,144 bytes) | 11/12/2000 9:13:29 AM |
| Not Available         | c:\winnt\system32\gamserv\gamscm.exe   |                           |                       |
| oledb32r.dll          | 2.60.6526.0  | 68.27 KB (69,904 bytes)   | 11/12/2000 8:47:24 AM |
| Microsoft Corporation | c:\program files\common files\system\ole db\oledb32r.dll                       |                           |                       |
| oledb32.dll           | 2.60.6526.0  | 448.27 KB (459,024 bytes) | 11/12/2000 8:47:24 AM |
| Microsoft Corporation | c:\program files\common files\system\ole db\oledb32.dll                        |                           |                       |
| msdatl3.dll           | 2.60.6526.0  | 92.27 KB (94,480 bytes)   | 11/12/2000 8:47:22 AM |
| Microsoft Corporation | c:\program files\common files\system\ole db\msdatl3.dll                        |                           |                       |
| msdart.dll            | 2.60.6526.0  | 144.27 KB (147,728 bytes) | 11/12/2000 8:47:22 AM |
| Microsoft Corporation | c:\winnt\system32\msdart.dll   |                           |                       |
| sqloledb.dll          | 2000.080.0194  | 480.06 KB (491,584 bytes) | 11/12/2000 8:47:29 AM |
| Microsoft Corporation | c:\program files\common files\system\ole db\sqloledb.dll                       |                           |                       |
| sqlftqry.dll          | 2000.080.0194.00   | 108.07 KB (110,668 bytes) | 11/12/2000 8:48:21 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\mssql\bin\sqlftqry.dll                   |                           |                       |

|                       |  |                           |                       |
|-----------------------|--|---------------------------|-----------------------|
| ssmslpcn.dll          | 2000.080.0194.00   | 28.06 KB (28,734 bytes)   | 11/12/2000 8:48:07 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\mssql\bin\ssmslpcn.dll                   |                           |                       |
| security.dll          | 5.00.2154.1  | 5.77 KB (5,904 bytes)     | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\security.dll   |                           |                       |
| ssnmpn70.dll          | 2000.080.0194.00   | 24.06 KB (24,638 bytes)   | 11/12/2000 8:48:07 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\mssql\bin\ssnmpn70.dll                   |                           |                       |
| ssnetlib.dll          | 2000.080.0194.00   | 84.06 KB (86,078 bytes)   | 11/12/2000 8:48:07 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\mssql\bin\ssnetlib.dll                   |                           |                       |
| sqllevn70.rll         | 2000.080.0194.00   | 28.00 KB (28,672 bytes)   | 11/12/2000 8:48:08 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\mssql\bin\resources\1033\sqllevn70.rll   |                           |                       |
| msvcirt.dll           | 6.10.8637.0  | 76.05 KB (77,878 bytes)   | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\msvcirt.dll  |                           |                       |
| sqlsort.dll           | 2000.080.0194.00   | 576.06 KB (589,885 bytes) | 11/12/2000 8:48:07 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\mssql\bin\sqlsort.dll                    |                           |                       |
| ums.dll               | 2000.080.0194.00   | 48.06 KB (49,210 bytes)   | 11/12/2000 8:48:07 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\mssql\bin\ums.dll                        |                           |                       |
| opends60.dll          | 2000.080.0194.00   | 24.06 KB (24,639 bytes)   | 11/12/2000 8:48:07 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\mssql\bin\opends60.dll                   |                           |                       |
| sqlservr_194_s2.exe   | 2000.080.0194.00   | 7.10 MB (7,442,493 bytes) | 11/12/2000 9:02:16 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\mssql\bin\sqlservr_194_s2.exe            |                           |                       |
| cmd.exe               | 5.00.2144.1  | 230.77 KB (236,304 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\cmd.exe  |                           |                       |
| sqlmangr.rll          | 2000.080.0194.00   | 96.00 KB (98,304 bytes)   | 11/12/2000 8:48:51 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\resources\1033\sqlmangr.rll |                           |                       |
| sqlsvc.rll            | 2000.080.0194.00   | 24.00 KB (24,576 bytes)   | 11/12/2000 8:48:48 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\resources\1033\sqlsvc.rll   |                           |                       |
| odbcint.dll           | 3.520.6526.0   | 88.00 KB (90,112 bytes)   | 11/12/2000 8:47:24 AM |
| Microsoft Corporation | c:\winnt\system32\odbcint.dll  |                           |                       |
| sqlresld.dll          | 2000.080.0194.00   | 28.06 KB (28,738 bytes)   | 11/12/2000 8:48:48 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\sqlresld.dll                |                           |                       |
| odbcbcpl.dll          | 2000.080.0194.00   | 28.07 KB (28,742 bytes)   | 11/12/2000 8:47:28 AM |
| Microsoft Corporation | c:\winnt\system32\odbcbcpl.dll   |                           |                       |
| sqlsvc.dll            | 2000.080.0194.00   | 92.06 KB (94,272 bytes)   | 11/12/2000 8:48:48 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\sqlsvc.dll                  |                           |                       |
| sqlunirl.dll          | 2000.080.0194.00   | 176.06 KB (180,290 bytes) | 8/6/2000 2:51:56 AM   |
| Microsoft Corporation | c:\winnt\system32\sqlunirl.dll   |                           |                       |
| odbc32.dll            | 3.520.6526.0   | 216.27 KB (221,456 bytes) | 11/12/2000 8:47:23 AM |
| Microsoft Corporation | c:\winnt\system32\odbc32.dll   |                           |                       |
| w95scm.dll            | 2000.080.0194.00   | 48.06 KB (49,216 bytes)   | 11/12/2000 8:48:48 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\w95scm.dll                  |                           |                       |
| sqlmangr.exe          | 2000.080.0194.00   | 68.00 KB (69,632 bytes)   | 11/12/2000 8:48:51 AM |
| Microsoft Corporation | c:\program files\microsoft sql server\80\tools\bin\sqlmangr.exe                |                           |                       |
| ibmmon.exe            | 1.11   | 28.50 KB (29,184 bytes)   | 11/12/2000 8:29:48 AM |
| IBM Corporation       | c:\winnt\system32\ibmmon.exe   |                           |                       |
| usp10.dll             | 1.0325.2180.1  | 307.77 KB (315,152 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\usp10.dll  |                           |                       |

|                       |                                |                           |                       |           |
|-----------------------|--------------------------------|---------------------------|-----------------------|-----------|
| thumbvw.dll           | 5.00.2920.0000                 | 183.27 KB (187,664 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\thumbvw.dll  |                           |                       |           |
| mshtml.dll            | 5.00.2920.0000                 | 230.27 KB (235,792 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\mshtml.dll   |                           |                       |           |
| webvw.dll             | 5.00.2920.0000                 | 1.06 MB (1,115,408 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\webvw.dll    |                           |                       |           |
| msls31.dll            | 3.10.337.0                     | 145.27 KB (148,752 bytes) | 12/7/1999 6:00:00 AM  | Microsoft |
| Corporation           | c:\winnt\system32\msls31.dll   |                           |                       |           |
| msdbg.dll             | 6.00.8424                      | 67.50 KB (69,120 bytes)   | 11/11/2000 6:14:32 AM | Microsoft |
| Corporation           | c:\winnt\system32\msdbg.dll    |                           |                       |           |
| pdm.dll               | 6.00.8424                      | 179.27 KB (183,574 bytes) | 11/11/2000 6:14:32 AM | Microsoft |
| Corporation           | c:\winnt\system32\pdm.dll      |                           |                       |           |
| mshtml.dll            | 5.00.2920.0000                 | 2.25 MB (2,357,008 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\mshtml.dll   |                           |                       |           |
| mlang.dll             | 5.00.2920.0000                 | 510.77 KB (523,024 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\mlang.dll    |                           |                       |           |
| urlmon.dll            | 5.00.2920.0000                 | 426.77 KB (437,008 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\urlmon.dll   |                           |                       |           |
| browseui.dll          | 5.00.2920.0000                 | 34.50 KB (35,328 bytes)   | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\browseui.dll |                           |                       |           |
| shdoclc.dll           | 5.00.2920.0000                 | 324.50 KB (332,288 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\shdoclc.dll  |                           |                       |           |
| wininet.dll           | 5.00.2920.0000                 | 456.77 KB (467,728 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\wininet.dll  |                           |                       |           |
| faxshell.dll          | 5.00.2134.1                    | 8.27 KB (8,464 bytes)     | 12/7/1999 6:00:00 AM  | Microsoft |
| Corporation           | c:\winnt\system32\faxshell.dll |                           |                       |           |
| msacm32.dll           | 5.00.2134.1                    | 65.27 KB (66,832 bytes)   | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\msacm32.dll  |                           |                       |           |
| avifil32.dll          | 5.00.2134.1                    | 76.27 KB (78,096 bytes)   | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\avifil32.dll |                           |                       |           |
| msvfw32.dll           | 5.00.2134.1                    | 113.77 KB (116,496 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\msvfw32.dll  |                           |                       |           |
| docprop2.dll          | 5.00.2178.1                    | 297.77 KB (304,912 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\docprop2.dll |                           |                       |           |
| linkinfo.dll          | 5.00.2134.1                    | 15.77 KB (16,144 bytes)   | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\linkinfo.dll |                           |                       |           |
| powrprof.dll          | 5.00.2920.0000                 | 13.27 KB (13,584 bytes)   | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\powrprof.dll |                           |                       |           |
| batmeter.dll          | 5.00.2920.0000                 | 20.27 KB (20,752 bytes)   | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\batmeter.dll |                           |                       |           |
| stobject.dll          | 5.00.2144.1                    | 81.77 KB (83,728 bytes)   | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\stobject.dll |                           |                       |           |
| msi.dll               | 1.10.1029.0                    | 1.71 MB (1,794,320 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\msi.dll      |                           |                       |           |
| webcheck.dll          | 5.00.2920.0000                 | 251.77 KB (257,808 bytes) | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\webcheck.dll |                           |                       |           |
| ntshui.dll            | 5.00.2134.1                    | 46.77 KB (47,888 bytes)   | 12/7/1999 6:00:00 AM  |           |
| Microsoft Corporation | c:\winnt\system32\ntshui.dll   |                           |                       |           |

|                       |                                     |                           |                        |           |
|-----------------------|-------------------------------------|---------------------------|------------------------|-----------|
| mydocs.dll            | 5.00.2920.0000                      | 55.77 KB (57,104 bytes)   | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\mydocs.dll        |                           |                        |           |
| browseui.dll          | 5.00.2920.0000                      | 793.27 KB (812,304 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\browseui.dll      |                           |                        |           |
| shdocvw.dll           | 5.00.2920.0000                      | 1.05 MB (1,104,144 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\shdocvw.dll       |                           |                        |           |
| explorer.exe          | 5.00.2920.0000                      | 232.77 KB (238,352 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\explorer.exe               |                           |                        |           |
| netshell.dll          | 5.00.2176.1                         | 456.77 KB (467,728 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\netshell.dll      |                           |                        |           |
| netman.dll            | 5.00.2175.1                         | 88.77 KB (90,896 bytes)   | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\netman.dll        |                           |                        |           |
| es.dll                | 1999.9.3422.21                      | 231.77 KB (237,328 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\es.dll            |                           |                        |           |
| wshnetbs.dll          | 5.00.2134.1                         | 7.77 KB (7,952 bytes)     | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wshnetbs.dll      |                           |                        |           |
| rapilib.dll           | 5.00.2167.1                         | 25.27 KB (25,872 bytes)   | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\rapilib.dll       |                           |                        |           |
| rsvsp.dll             | 5.00.2167.1                         | 74.77 KB (76,560 bytes)   | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\rsvsp.dll         |                           |                        |           |
| ntmarta.dll           | 5.00.2158.1                         | 98.77 KB (101,136 bytes)  | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\ntmarta.dll       |                           |                        |           |
| provthrd.dll          | 1.50.1085.0000                      | 68.07 KB (69,708 bytes)   | 11/11/2000 11:17:06 AM |           |
| Microsoft Corporation | c:\winnt\system32\wbem\provthrd.dll |                           |                        |           |
| ntevt.dll             | 1.50.1085.0000                      | 192.06 KB (196,669 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wbem\ntevt.dll    |                           |                        |           |
| perfos.dll            | 5.00.2155.1                         | 21.27 KB (21,776 bytes)   | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\perfos.dll        |                           |                        |           |
| wmi.dll               | 5.00.2191.1                         | 6.27 KB (6,416 bytes)     | 12/7/1999 6:00:00 AM   | Microsoft |
| Corporation           | c:\winnt\system32\wmi.dll           |                           |                        |           |
| psapi.dll             | 5.00.2134.1                         | 28.27 KB (28,944 bytes)   | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\psapi.dll         |                           |                        |           |
| framedyn.dll          | 1.50.1085.0000                      | 164.05 KB (167,992 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wbem\framedyn.dll |                           |                        |           |
| cimwin32.dll          | 1.50.1085.0000                      | 1.03 MB (1,077,306 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wbem\cimwin32.dll |                           |                        |           |
| wbemsvc.dll           | 1.50.1085.0000                      | 140.07 KB (143,430 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wbem\wbemsvc.dll  |                           |                        |           |
| wbemess.dll           | 1.50.1085.0001                      | 352.05 KB (360,503 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wbem\wbemess.dll  |                           |                        |           |
| fastprox.dll          | 1.50.1085.0001                      | 144.08 KB (147,534 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wbem\fastprox.dll |                           |                        |           |
| wbemcore.dll          | 1.50.1085.0001                      | 632.05 KB (647,224 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wbem\wbemcore.dll |                           |                        |           |
| wbemcomn.dll          | 1.50.1085.0001                      | 684.05 KB (700,472 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wbem\wbemcomn.dll |                           |                        |           |
| winmgmt.exe           | 1.50.1085.0001                      | 188.05 KB (192,567 bytes) | 12/7/1999 6:00:00 AM   |           |
| Microsoft Corporation | c:\winnt\system32\wbem\winmgmt.exe  |                           |                        |           |

|                       |                                |                           |                       |
|-----------------------|--------------------------------|---------------------------|-----------------------|
| simptcp.dll           | 5.00.2134.1                    | 19.27 KB (19,728 bytes)   | 11/11/2000 6:11:20 AM |
| Microsoft Corporation | c:\winnt\system32\simptcp.dll  |                           |                       |
| tcpsvcs.exe           | 5.00.2134.1                    | 24.77 KB (25,360 bytes)   | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\tcpsvcs.exe  |                           |                       |
| mtxoci.dll            | 1999.9.3421.3                  | 109.27 KB (111,888 bytes) | 11/11/2000 6:11:28 AM |
| Microsoft Corporation | c:\winnt\system32\mtxoci.dll   |                           |                       |
| resutils.dll          | 5.00.2191.1                    | 39.77 KB (40,720 bytes)   | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\resutils.dll |                           |                       |
| clusapi.dll           | 5.00.2179.1                    | 50.27 KB (51,472 bytes)   | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\clusapi.dll  |                           |                       |
| msvcp50.dll           | 5.00.7051                      | 552.50 KB (565,760 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\msvcp50.dll  |                           |                       |
| xolehlp.dll           | 1999.9.3421.3                  | 17.27 KB (17,680 bytes)   | 11/11/2000 6:11:27 AM |
| Microsoft Corporation | c:\winnt\system32\xolehlp.dll  |                           |                       |
| msdtclog.dll          | 1999.9.3421.3                  | 89.77 KB (91,920 bytes)   | 11/11/2000 6:11:27 AM |
| Microsoft Corporation | c:\winnt\system32\msdtclog.dll |                           |                       |
| mtxclu.dll            | 1999.9.3421.3                  | 50.27 KB (51,472 bytes)   | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\mtxclu.dll   |                           |                       |
| msdtcprx.dll          | 1999.9.3422.10                 | 619.27 KB (634,128 bytes) | 11/11/2000 6:11:28 AM |
| Microsoft Corporation | c:\winnt\system32\msdtcprx.dll |                           |                       |
| txfaux.dll            | 1999.9.3422.24                 | 341.27 KB (349,456 bytes) | 11/11/2000 6:11:27 AM |
| Microsoft Corporation | c:\winnt\system32\txfaux.dll   |                           |                       |
| msdtctm.dll           | 1999.9.3422.12                 | 1.02 MB (1,070,864 bytes) | 11/11/2000 6:11:27 AM |
| Microsoft Corporation | c:\winnt\system32\msdtctm.dll  |                           |                       |
| msdtc.exe             | 1999.9.3421.3                  | 6.77 KB (6,928 bytes)     | 11/11/2000 6:11:27 AM |
| Microsoft Corporation | c:\winnt\system32\msdtc.exe    |                           |                       |
| rpess.dll             | 5.00.2181.1                    | 229.27 KB (234,768 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\rpess.dll    |                           |                       |
| svchost.exe           | 5.00.2134.1                    | 7.77 KB (7,952 bytes)     | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\svchost.exe  |                           |                       |
| dssbase.dll           | 5.00.2150.1                    | 140.77 KB (144,144 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\dssbase.dll  |                           |                       |
| oakley.dll            | 5.00.2174.1                    | 420.27 KB (430,352 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\oakley.dll   |                           |                       |
| mfc42u.dll            | 6.00.8665.0                    | 972.05 KB (995,384 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\mfc42u.dll   |                           |                       |
| polagent.dll          | 5.00.2183.1                    | 108.27 KB (110,864 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\polagent.dll |                           |                       |
| scecli.dll            | 5.00.2191.1                    | 105.27 KB (107,792 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\scecli.dll   |                           |                       |
| atl.dll               | 3.00.8449                      | 57.56 KB (58,938 bytes)   | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\atl.dll      |                           |                       |
| certcli.dll           | 5.00.2175.1                    | 132.27 KB (135,440 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\certcli.dll  |                           |                       |
| esent.dll             | 6.0.3939.6                     | 1.07 MB (1,120,016 bytes) | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\esent.dll    |                           |                       |
| ntdsatq.dll           | 5.00.2181.1                    | 31.27 KB (32,016 bytes)   | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\ntdsatq.dll  |                           |                       |

|                       |                                |                             |                      |
|-----------------------|--------------------------------|-----------------------------|----------------------|
| ntdsa.dll             | 5.00.2195.1                    | 993.27 KB (1,017,104 bytes) | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\ntdsa.dll    |                             |                      |
| kdcsvcs.dll           | 5.00.2181.1                    | 133.77 KB (136,976 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\kdcsvcs.dll  |                             |                      |
| sfmapi.dll            | 5.00.2134.1                    | 38.77 KB (39,696 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\sfmapi.dll   |                             |                      |
| rassfm.dll            | 5.00.2168.1                    | 21.27 KB (21,776 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\rassfm.dll   |                             |                      |
| schannel.dll          | 5.00.2170.1                    | 139.77 KB (143,120 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\schannel.dll |                             |                      |
| netlogon.dll          | 5.00.2182.1                    | 347.77 KB (356,112 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\netlogon.dll |                             |                      |
| kerberos.dll          | 5.00.2181.1                    | 196.77 KB (201,488 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\kerberos.dll |                             |                      |
| msprivs.dll           | 5.00.2154.1                    | 41.50 KB (42,496 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\msprivs.dll  |                             |                      |
| samsrv.dll            | 5.00.2192.1                    | 357.77 KB (366,352 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\samsrv.dll   |                             |                      |
| lsasrv.dll            | 5.00.2184.1                    | 487.77 KB (499,472 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\lsasrv.dll   |                             |                      |
| lsass.exe             | 5.00.2184.1                    | 32.77 KB (33,552 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\lsass.exe    |                             |                      |
| ntlsapi.dll           | 5.00.2134.1                    | 6.77 KB (6,928 bytes)       | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\ntlsapi.dll  |                             |                      |
| wmicore.dll           | 5.00.2178.1                    | 70.77 KB (72,464 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\wmicore.dll  |                             |                      |
| rasadhlp.dll          | 5.00.2168.1                    | 7.27 KB (7,440 bytes)       | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\rasadhlp.dll |                             |                      |
| winnr.dll             | 5.00.2160.1                    | 18.77 KB (19,216 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\winnr.dll    |                             |                      |
| dhcpcsvc.dll          | 5.00.2153.1                    | 88.77 KB (90,896 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\dhcpcsvc.dll |                             |                      |
| tapi32.dll            | 5.00.2182.1                    | 123.27 KB (126,224 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\tapi32.dll   |                             |                      |
| rasman.dll            | 5.00.2188.1                    | 54.77 KB (56,080 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\rasman.dll   |                             |                      |
| rasapi32.dll          | 5.00.2188.1                    | 189.77 KB (194,320 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\rasapi32.dll |                             |                      |
| rtutils.dll           | 5.00.2168.1                    | 43.77 KB (44,816 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\rtutils.dll  |                             |                      |
| adslldpc.dll          | 5.00.2172.1                    | 127.77 KB (130,832 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\adslldpc.dll |                             |                      |
| activeds.dll          | 5.00.2172.1                    | 172.77 KB (176,912 bytes)   | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\activeds.dll |                             |                      |
| mprapi.dll            | 5.00.2181.1                    | 79.27 KB (81,168 bytes)     | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\mprapi.dll   |                             |                      |
| icmp.dll              | 5.00.2134.1                    | 7.27 KB (7,440 bytes)       | 12/7/1999 6:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\icmp.dll     |                             |                      |

|                        |                |                                |                       |
|------------------------|----------------|--------------------------------|-----------------------|
| iphlpapi.dll           | 5.00.2173.2    | 67.77 KB (69,392 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\iphlpapi.dll |                       |
| rn20.dll               | 5.00.2152.1    | 35.77 KB (36,624 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\rn20.dll     |                       |
| wshtcpip.dll           | 5.00.2134.1    | 17.27 KB (17,680 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\wshtcpip.dll |                       |
| msafd.dll              | 5.00.2153.1    | 54.27 KB (55,568 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\msafd.dll    |                       |
| mswsock.dll            | 5.00.2152.1    | 62.27 KB (63,760 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\mswsock.dll  |                       |
| msgsvc.dll             | 5.00.2181.1    | 33.77 KB (34,576 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\msgsvc.dll   |                       |
| browser.dll            | 5.00.2142.1    | 48.27 KB (49,424 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\browser.dll  |                       |
| alrsvc.dll             | 5.00.2134.1    | 17.77 KB (18,192 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\alrsvc.dll   |                       |
| psbase.dll             | 5.00.2146.1    | 111.77 KB (114,448 bytes)      | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\psbase.dll   |                       |
| seclogon.dll           | 5.00.2135.1    | 15.77 KB (16,144 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\seclogon.dll |                       |
| cryptsvc.dll           | 5.00.2181.1    | 61.77 KB (63,248 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\cryptsvc.dll |                       |
| cryptdll.dll           | 5.00.2135.1    | 41.27 KB (42,256 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\cryptdll.dll |                       |
| wkssvc.dll             | 5.00.2181.1    | 95.27 KB (97,552 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\wkssvc.dll   |                       |
| srsvcs.dll             | 5.00.2178.1    | 79.27 KB (81,168 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\srsvcs.dll   |                       |
| cfgmgr32.dll           | 5.00.2134.1    | 16.77 KB (17,168 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\cfgmgr32.dll |                       |
| dmserver.dll           | 2191.1.296.2   | 11.77 KB (12,048 bytes)        | 12/7/1999 6:00:00 AM  |
| VERITAS Software Corp. |                | c:\winnt\system32\dmserver.dll |                       |
| winsta.dll             | 5.00.2134.1    | 36.27 KB (37,136 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\winsta.dll   |                       |
| eventlog.dll           | 5.00.2178.1    | 43.77 KB (44,816 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\eventlog.dll |                       |
| ntdsapi.dll            | 5.00.2160.1    | 56.27 KB (57,616 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\ntdsapi.dll  |                       |
| scesrv.dll             | 5.00.2188.1    | 225.77 KB (231,184 bytes)      | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\scesrv.dll   |                       |
| umpnpgm.dll            | 5.00.2182.1    | 86.27 KB (88,336 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\umpnpgm.dll  |                       |
| services.exe           | 5.00.2134.1    | 86.77 KB (88,848 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\services.exe |                       |
| msv1_0.dll             | 5.00.2164.1    | 94.77 KB (97,040 bytes)        | 12/7/1999 6:00:00 AM  |
| Microsoft Corporation  |                | c:\winnt\system32\msv1_0.dll   |                       |
| clbcatq.dll            | 1999.9.3422.14 | 479.27 KB (490,768 bytes)      | 11/11/2000 6:11:20 AM |
| Microsoft Corporation  |                | c:\winnt\system32\clbcatq.dll  |                       |

|                       |                |                                |                      |
|-----------------------|----------------|--------------------------------|----------------------|
| oleaut32.dll          | 2.40.4512      | 600.27 KB (614,672 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\oleaut32.dll |                      |
| netmsg.dll            | 5.00.2137.1    | 152.50 KB (156,160 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\netmsg.dll   |                      |
| comdlg32.dll          | 5.00.2920.0000 | 236.77 KB (242,448 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\comdlg32.dll |                      |
| netui2.dll            | 5.00.2134.1    | 280.27 KB (286,992 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\netui2.dll   |                      |
| mprui.dll             | 5.00.2134.1    | 54.77 KB (56,080 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\mprui.dll    |                      |
| netui1.dll            | 5.00.2134.1    | 210.27 KB (215,312 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\netui1.dll   |                      |
| netui0.dll            | 5.00.2134.1    | 70.27 KB (71,952 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\netui0.dll   |                      |
| ntlanman.dll          | 5.00.2157.1    | 35.27 KB (36,112 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\ntlanman.dll |                      |
| mpr.dll               | 5.00.2146.1    | 53.27 KB (54,544 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\mpr.dll      |                      |
| cscur.dll             | 5.00.2172.1    | 227.27 KB (232,720 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\cscur.dll    |                      |
| winspool.drv          | 5.00.2167.1    | 109.77 KB (112,400 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\winspool.drv |                      |
| winscard.dll          | 5.00.2134.1    | 77.27 KB (79,120 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\wincard.dll  |                      |
| wlnotify.dll          | 5.00.2164.1    | 53.27 KB (54,544 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\wlnotify.dll |                      |
| csd.dll               | 5.00.2189.1    | 98.27 KB (100,624 bytes)       | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\csd.dll      |                      |
| lz32.dll              | 5.00.2134.1    | 9.77 KB (10,000 bytes)         | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\lz32.dll     |                      |
| version.dll           | 5.00.2134.1    | 15.77 KB (16,144 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\version.dll  |                      |
| rsabase.dll           | 5.00.2150.1    | 128.77 KB (131,856 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\rsabase.dll  |                      |
| mscat32.dll           | 5.131.2134.1   | 7.77 KB (7,952 bytes)          | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\mscat32.dll  |                      |
| ole32.dll             | 5.00.2181.1    | 966.27 KB (989,456 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\ole32.dll    |                      |
| imagehlp.dll          | 5.00.2195.1    | 125.27 KB (128,272 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\imagehlp.dll |                      |
| msasn1.dll            | 5.00.2134.1    | 51.27 KB (52,496 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\msasn1.dll   |                      |
| crypt32.dll           | 5.131.2173.1   | 465.77 KB (476,944 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\crypt32.dll  |                      |
| wintrust.dll          | 5.131.2143.1   | 162.27 KB (166,160 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\wintrust.dll |                      |
| setupapi.dll          | 5.00.2183.1    | 554.27 KB (567,568 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\setupapi.dll |                      |

|                       |                |                                |                      |
|-----------------------|----------------|--------------------------------|----------------------|
| winmm.dll             | 5.00.2161.1    | 184.77 KB (189,200 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\winmm.dll    |                      |
| comctl32.dll          | 5.81           | 540.27 KB (553,232 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\comctl32.dll |                      |
| shlwapi.dll           | 5.00.2920.0000 | 282.77 KB (289,552 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\shlwapi.dll  |                      |
| shell32.dll           | 5.00.2920.0000 | 2.24 MB (2,352,400 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\shell32.dll  |                      |
| msgina.dll            | 5.00.2191.1    | 309.77 KB (317,200 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\msgina.dll   |                      |
| wsock32.dll           | 5.00.2152.1    | 21.27 KB (21,776 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\wsock32.dll  |                      |
| dnsapi.dll            | 5.00.2181.1    | 129.77 KB (132,880 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\dnsapi.dll   |                      |
| wldap32.dll           | 5.00.2168.1    | 155.77 KB (159,504 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\wldap32.dll  |                      |
| ws2help.dll           | 5.00.2134.1    | 17.77 KB (18,192 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\ws2help.dll  |                      |
| ws_32.dll             | 5.00.2134.1    | 69.77 KB (71,440 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\ws_32.dll    |                      |
| samlib.dll            | 5.00.2160.1    | 46.27 KB (47,376 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\samlib.dll   |                      |
| netrap.dll            | 5.00.2134.1    | 11.27 KB (11,536 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\netrap.dll   |                      |
| netapi32.dll          | 5.00.2194.1    | 302.77 KB (310,032 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\netapi32.dll |                      |
| profmap.dll           | 5.00.2181.1    | 29.27 KB (29,968 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\profmap.dll  |                      |
| secur32.dll           | 5.00.2154.1    | 46.77 KB (47,888 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\secur32.dll  |                      |
| sfc.dll               | 5.00.2164.1    | 84.27 KB (86,288 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\sfc.dll      |                      |
| nddeapi.dll           | 5.00.2137.1    | 15.27 KB (15,632 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\nddeapi.dll  |                      |
| userenv.dll           | 5.00.2185.1    | 361.27 KB (369,936 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\userenv.dll  |                      |
| user32.dll            | 5.00.2180.1    | 393.27 KB (402,704 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\user32.dll   |                      |
| gdi32.dll             | 5.00.2180.1    | 228.77 KB (234,256 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\gdi32.dll    |                      |
| rpert4.dll            | 5.00.2193.1    | 434.27 KB (444,688 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\rpert4.dll   |                      |
| advapi32.dll          | 5.00.2191.1    | 349.27 KB (357,648 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\advapi32.dll |                      |
| kernel32.dll          | 5.00.2191.1    | 715.27 KB (732,432 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\kernel32.dll |                      |
| msvcrt.dll            | 6.10.8637.0    | 288.09 KB (295,000 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\msvcrt.dll   |                      |

|                       |             |                                |                      |
|-----------------------|-------------|--------------------------------|----------------------|
| winlogon.exe          | 5.00.2182.1 | 173.27 KB (177,424 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\winlogon.exe |                      |
| sfefiles.dll          | 5.00.2195.1 | 973.27 KB (996,624 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\sfefiles.dll |                      |
| ntdll.dll             | 5.00.2163.1 | 469.77 KB (481,040 bytes)      | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\ntdll.dll    |                      |
| smss.exe              | 5.00.2170.1 | 44.27 KB (45,328 bytes)        | 12/7/1999 6:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\smss.exe     |                      |

[Services]

| Display Name                                | Name        | State       | Start Mode  | Service Type  | Path                           | Error |
|---|-------------|-------------|-------------|---------------|--------------------------------|-------|
| Control                                     | Start Name  | Tag ID      |             |               |                                |       |
| Alerter                                     | Alerter     | Running     | Auto        | Share Process | c:\winnt\system32\services.exe |       |
| Normal                                      | LocalSystem | 0           |             |               |                                |       |
| Application Management                      | AppMgmt     | Stopped     | Manual      | Share Process |                                |       |
| c:\winnt\system32\services.exe              | Normal      | LocalSystem | 0           |               |                                |       |
| Computer Browser                            | Browser     | Running     | Auto        | Share Process |                                |       |
| c:\winnt\system32\services.exe              | Normal      | LocalSystem | 0           |               |                                |       |
| Indexing Service                            | cisvc       | Stopped     | Manual      | Share Process | c:\winnt\system32\cisvc.exe    |       |
| Normal                                      | LocalSystem | 0           |             |               |                                |       |
| ClipBook                                    | ClipSrv     | Stopped     | Manual      | Own Process   | c:\winnt\system32\clipsrv.exe  |       |
| Normal                                      | LocalSystem | 0           |             |               |                                |       |
| Distributed File System                     | Dfs         | Stopped     | Manual      | Own Process   |                                |       |
| c:\winnt\system32\dfssvc.exe                | Normal      | LocalSystem | 0           |               |                                |       |
| DHCP Client                                 | Dhcp        | Stopped     | Manual      | 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           |             |               |                                |       |
| Mylex Global Array Manager                  | Server      | gamscm      | Running     | Manual        | Own Process                    |       |
| c:\winnt\system32\gamserv\gamscm.exe        | Normal      | LocalSystem | 0           |               |                                |       |
| Internet Authentication Service             | IAS         | Stopped     | Manual      | Share Process |                                |       |
| c:\winnt\system32\svchost.exe               | -k netsvcs  | Normal      | LocalSystem | 0             |                                |       |
| IIS Admin Service                           | IISADMIN    | Stopped     | Manual      | 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           |               |                                |       |



|  |                                |             |             |             |
|--|--------------------------------|-------------|-------------|-------------|
| 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      |
| 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\Accessibility             | All Users:Accessories\Accessibility              | All Users              |     |
| Accessories\Communications            | All Users:Accessories\Communications             | All Users              |     |
| Accessories\Entertainment             | All Users:Accessories\Entertainment              | All Users              |     |
| Accessories\Games                     | All Users:Accessories\Games                      | All Users              |     |
| Accessories\Microsoft Script Debugger | All Users:Accessories\Microsoft Script Debugger  | All Users              | All |
| 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              |     |
| Microsoft SQL Server - Switch         | All Users:Microsoft SQL Server - Switch          | All Users              |     |
| Startup                               | All Users:Startup                                | All Users              |     |
| Accessories                           | IBMSERV3\Administrator:Accessories               | IBMSERV3\Administrator |     |
| Accessories\Accessibility             | IBMSERV3\Administrator:Accessories\Accessibility |                        |     |
| IBMSERV3\Administrator                |  |                        |     |
| Accessories\Entertainment             | IBMSERV3\Administrator:Accessories\Entertainment |                        |     |
| IBMSERV3\Administrator                |  |                        |     |
| Accessories\System Tools              | IBMSERV3\Administrator:Accessories\System Tools  |                        |     |
| IBMSERV3\Administrator                |  |                        |     |
| Startup                               | IBMSERV3\Administrator:Startup                   | IBMSERV3\Administrator |     |

[Startup Programs]

| Program  | Command  | User Name | Location       |
|--|--|-----------|----------------|
| Service Manager                                    | c:\progra~1\micros~3\80\tools\binn\sqlmangr.exe /n | All Users | Common Startup |
| lbmmon.exe   | lbmmon.exe   | All Users |                |
| HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run |  |           |                |

[OLE Registration]

| Object        | Local Server     |
|---------------|------------------|
| Sound (OLE2)  | sndrec32.exe     |
| Media Clip    | mplay32.exe      |
| Video Clip    | mplay32.exe /avi |
| MIDI Sequence | mplay32.exe /mid |
| Sound         | Not Available    |

|   |   |
|---|---|
| Media Clip                                | Not Available                                       |
| Image Document                            | C:\PROGRA~1\WINDOW~1\ACCESS~1\ImageVue\kodaking.exe |
| WordPad Document                          | "%ProgramFiles%\Windows NT\Accessories\WORDPAD.EXE" |
| Windows Media Services DRM Storage object | Not Available                                       |
| Bitmap Image                              | mspaint.exe   |

[Internet Explorer 5]

[ Following are sub-categories of this main category ]

[Summary]

| Item             | Value                              |
|------------------|------------------------------------|
| Version          | 5.00.2920.0000                     |
| Build            | 52920                              |
| Product ID       | 51879-270-9401932-05426            |
| Application Path | C:\Program Files\Internet Explorer |
| Language         | English (United States)            |
| Active Printer   | Not Available                      |
| Cipher Strength  | 56-bit                             |
| Content Advisor  | Disabled                           |
| IEAK Install     | No                                 |

[File Versions]

| File                  | Version        | Size          | Date          | Path          | Company                            |
|-----------------------|----------------|---------------|---------------|---------------|------------------------------------|
| advapi32.dll          | 5.0.2191.1     | 349 KB        | 12/7/1999     | 6:00:00 AM    | C:\WINNT\system32                  |
| Microsoft Corporation |                |               |               |               |                                    |
| advpack.dll           | 5.0.2920.0     | 87 KB         | 12/7/1999     | 6:00:00 AM    | C:\WINNT\system32                  |
| Microsoft Corporation |                |               |               |               |                                    |
| browsecl.dll          | 5.0.2920.0     | 35 KB         | 12/7/1999     | 6:00:00 AM    | C:\WINNT\system32                  |
| Microsoft Corporation |                |               |               |               |                                    |
| browseui.dll          | 5.0.2920.0     | 793 KB        | 12/7/1999     | 6:00:00 AM    | C:\WINNT\system32                  |
| Microsoft Corporation |                |               |               |               |                                    |
| ckcnv.exe             | 5.0.2189.1     | 9 KB          | 12/7/1999     | 6:00:00 AM    | C:\WINNT\system32                  |
| Microsoft Corporation |                |               |               |               |                                    |
| comctl32.dll          | 5.81.2920.0    | 540 KB        | 12/7/1999     | 6:00:00 AM    | C:\WINNT\system32                  |
| Microsoft Corporation |                |               |               |               |                                    |
| crypt32.dll           | 5.131.2173.1   | 466 KB        | 12/7/1999     | 6:00:00 AM    | C:\WINNT\system32                  |
| Microsoft Corporation |                |               |               |               |                                    |
| enhsig.dll            | <File Missing> | Not Available | Not Available | Not Available | Not Available                      |
| Available             |                |               |               |               |                                    |
| iemigrat.dll          | <File Missing> | Not Available | Not Available | Not Available | Not Available                      |
| Not Available         |                |               |               |               |                                    |
| iesetup.dll           | 5.0.2920.0     | 57 KB         | 12/7/1999     | 6:00:00 AM    | C:\WINNT\system32                  |
| Microsoft Corporation |                |               |               |               |                                    |
| ieexplore.exe         | 5.0.2920.0     | 59 KB         | 12/7/1999     | 6:00:00 AM    | C:\Program Files\Internet Explorer |
| Microsoft Corporation |                |               |               |               |                                    |

|                       |                |         |                      |                   |                       |                |        |                      |                   |                       |
|-----------------------|----------------|---------|----------------------|-------------------|-----------------------|----------------|--------|----------------------|-------------------|-----------------------|
| imagehlp.dll          | 5.0.2195.1     | 125 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | url.dll               | 5.0.2920.0     | 82 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| Microsoft Corporation |                |         |                      |                   | urlmon.dll            | 5.0.2920.0     | 427 KB | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| imghelp.dll           | <File Missing> |         | Not Available        | Not Available     | Not Available         |                |        |                      |                   |                       |
| Not Available         |                |         |                      |                   | vbscript.dll          | 5.1.0.4615     | 428 KB | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| inseng.dll            | 5.0.2920.0     | 72 KB   | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   | webcheck.dll          | 5.0.2920.0     | 252 KB | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| jobexec.dll           | 5.0.0.1        | 47 KB   | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   | win.com               | 5.0.2134.1     | 24 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| jscript.dll           | 5.1.0.4615     | 476 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   | wininet.dll           | 5.0.2920.0     | 457 KB | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| jsproxy.dll           | 5.0.2920.0     | 13 KB   | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   | winsock.dll           | 3.10.0.103     | 3 KB   | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| msaahtml.dll          | <File Missing> |         | Not Available        | Not Available     | Not Available         |                |        |                      |                   |                       |
| Not Available         |                |         |                      |                   | wintrust.dll          | 5.131.2143.1   | 162 KB | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| mshtml.dll            | 5.0.2920.0     | 2302 KB | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   | wsock.vxd             | <File Missing> |        | Not Available        | Not Available     | Not Available         |
| msjava.dll            | 5.0.3234.0     | 918 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   | Not Available         |
| Corporation           |                |         |                      |                   | Available             |                |        |                      |                   |                       |
| msoss.dll             | <File Missing> |         | Not Available        | Not Available     | Not Available         |                |        |                      |                   |                       |
| Available             |                |         |                      |                   | wsock32.dll           | 5.0.2152.1     | 21 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| msxml.dll             | 5.0.2920.0     | 521 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   | wsock32n.dll          | <File Missing> |        | Not Available        | Not Available     | Not Available         |
| occache.dll           | 5.0.2920.0     | 86 KB   | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Microsoft Corporation |                |         |                      |                   |                       |                |        |                      |                   |                       |
| ole32.dll             | 5.0.2181.1     | 966 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   |                       |                |        |                      |                   |                       |
| oleaut32.dll          | 2.40.4512.1    | 600 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| C:\WINNT\system32     |                |         |                      |                   |                       |                |        |                      |                   |                       |
| olepro32.dll          | 5.0.4512.1     | 160 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Microsoft Corporation |                |         |                      |                   |                       |                |        |                      |                   |                       |
| rsabase.dll           | 5.0.2150.1     | 129 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   |                       |                |        |                      |                   |                       |
| rsaenh.dll            | <File Missing> |         | Not Available        | Not Available     | Not Available         |                |        |                      |                   |                       |
| Available             |                |         |                      |                   |                       |                |        |                      |                   |                       |
| rsapi32.dll           | <File Missing> |         | Not Available        | Not Available     | Not Available         |                |        |                      |                   |                       |
| Available             |                |         |                      |                   |                       |                |        |                      |                   |                       |
| rsasig.dll            | <File Missing> |         | Not Available        | Not Available     | Not Available         |                |        |                      |                   |                       |
| Available             |                |         |                      |                   |                       |                |        |                      |                   |                       |
| schannel.dll          | 5.0.2170.0     | 140 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Microsoft Corporation |                |         |                      |                   |                       |                |        |                      |                   |                       |
| shdoc401.dll          | <File Missing> |         | Not Available        | Not Available     | Not Available         |                |        |                      |                   |                       |
| Not Available         |                |         |                      |                   |                       |                |        |                      |                   |                       |
| shdocvw.dll           | 5.0.2920.0     | 1078 KB | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Microsoft Corporation |                |         |                      |                   |                       |                |        |                      |                   |                       |
| shell32.dll           | 5.0.2920.0     | 2297 KB | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   |                       |                |        |                      |                   |                       |
| shlwapi.dll           | 5.0.2920.0     | 283 KB  | 12/7/1999 6:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |                |        |                      |                   |                       |
| Corporation           |                |         |                      |                   |                       |                |        |                      |                   |                       |

[Connectivity]

| Item                  | Value      |
|-----------------------|------------|
| Connection Preference | Never dial |
| EnableHttp1.1         | 1          |
| ProxyHttp1.1          | 0          |

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\Administrator\Local Settings\Temporary Internet Files |



Total Disk Space 8667 MB  
 Available Disk Space 4698 MB  
 Maximum Cache Size 270 MB  
 Available Cache Size 271 MB

[List of Objects]

Program File Status CodeBase  
 No cached object information available

[Content]

[ Following are sub-categories of this main category ]

[Summary]

| Item            | Value    |
|-----------------|----------|
| Content Advisor | Disabled |

[Personal Certificates]

| Issued To     | Issued By     | Validity                 | Signature Algorithm |
|---------------|---------------|--------------------------|---------------------|
| Administrator | Administrator | 11/12/2000 to 10/19/2100 | sha1RSA             |

[Other People Certificates]

| Issued To   | Issued By | Validity | Signature Algorithm |
|---|-----------|----------|---------------------|
| No other people certificate information available |           |          |                     |

[Publishers]

| Name                               |
|------------------------------------|
| No publisher information available |

[Security]

| Zone             | Security Level |
|------------------|----------------|
| Local intranet   | Medium-low     |
| Trusted sites    | Low            |
| Internet         | Medium         |
| Restricted sites | High           |

## Microsoft Windows 2000 Advanced Server Services

| Name    | Description   | Status            | Startup Type | Log On As   |
|---------|---|-------------------|--------------|-------------|
| Alerter | Notifies selected users and computers of administrative alerts. | Started Automatic |              | LocalSystem |

Application Management Provides software installation services such as Assign, Publish, and Remove. Started Manual LocalSystem

ClipBook Supports ClipBook Viewer, which allows pages to be seen by remote ClipBooks. Manual LocalSystem

COM+ Event System Provides automatic distribution of events to subscribing COM components. Started Manual LocalSystem

Computer Browser Maintains an up-to-date list of computers on your network and supplies the list to programs that request it. Started Automatic LocalSystem

DHCP Client Manages network configuration by registering and updating IP addresses and DNS names. Started Automatic LocalSystem

Distributed File System Manages logical volumes distributed across a local or wide area network. Started Automatic LocalSystem

Distributed Link Tracking Client Sends notifications of files moving between NTFS volumes in a network domain. Started Automatic LocalSystem

Distributed Link Tracking Server Stores information so that files moved between volumes can be tracked for each volume in the domain. Manual LocalSystem

Distributed Transaction Coordinator Coordinates transactions that are distributed across two or more databases, message queues, file systems, or other transaction protected resource managers. Started Automatic LocalSystem

DNS Client Resolves and caches Domain Name System (DNS) names. Manual LocalSystem

Event Log Logs event messages issued by programs and Windows. Event Log reports contain information that can be useful in diagnosing problems. Reports are viewed in Event Viewer. Started Automatic LocalSystem

Fax Service Helps you send and receive faxes Manual LocalSystem

File Replication Maintains file synchronization of file directory contents among multiple servers. Manual LocalSystem

FTP Publishing Service Provides FTP connectivity and administration through the Internet Information Services snap-in. Manual LocalSystem

IIS Admin Service Allows administration of Web and FTP services through the Internet Information Services snap-in. Manual LocalSystem

Indexing Service Indexes contents and properties of files on local and remote computers; provides rapid access to files through flexible querying language. Manual LocalSystem

Internet Authentication Service Enables authentication, authorization and accounting of dial-up and VPN users. IAS supports the RADIUS protocol. Manual LocalSystem

Internet Connection Sharing Provides network address translation, addressing, and name resolution services for all computers on your home network through a dial-up connection. Manual LocalSystem

Intersite Messaging Allows sending and receiving messages between Windows Advanced Server sites. Disabled LocalSystem

IPSEC Policy Agent Manages IP security policy and starts the ISAKMP/Oakley (IKE) and the IP security driver. Started Automatic LocalSystem

|  |  |           |             |
|--|--|-----------|-------------|
| Kerberos Key Distribution Center                     | Generates session keys and grants service tickets for mutual client/server authentication.   | Disabled  | LocalSystem |
| License Logging Service                              |  | Manual    | LocalSystem |
| Logical Disk Manager                                 | Logical Disk Manager Watchdog Service  | Started   | Automatic   |
| Logical Disk Manager Administrative Service          | Administrative service for disk management requests  | Manual    | LocalSystem |
| Messenger  | Sends and receives messages transmitted by administrators or by the Alerter service.   | Started   | Automatic   |
| Microsoft Search                                     | Creates full-text indexes on content and properties of structured and semi-structured data to allow fast linguistic searches on this data  | Started   | Automatic   |
| MSSQLSERVER  |  | Manual    | LocalSystem |
| MSSQLServerADHelper                                  |  | Manual    | LocalSystem |
| Mylex Global Array Manager Server                    |  | Manual    | LocalSystem |
| Net Logon  | Supports pass-through authentication of account logon events for computers in a domain.  | Manual    | LocalSystem |
| NetMeeting Remote Desktop Sharing                    | Allows authorized people to remotely access your Windows desktop using NetMeeting.   | Manual    | LocalSystem |
| Network Connections                                  | Manages objects in the Network and Dial-Up Connections folder, in which you can view both local area network and remote connections.   | Started   | Manual      |
| Network DDE  | Provides network transport and security for dynamic data exchange (DDE).   | Manual    | LocalSystem |
| Network DDE DSDM                                     | Manages shared dynamic data exchange and is used by Network DDE  | Manual    | LocalSystem |
| NT LM Security Support Provider                      | Provides security to remote procedure call (RPC) programs that use transports other than named pipes.  | Started   | Manual      |
| Performance Logs and Alerts                          | Configures performance logs and alerts.  | Manual    | LocalSystem |
| Plug and Play  | Manages device installation and configuration and notifies programs of device changes.   | Started   | Automatic   |
| Print Spooler  | Loads files to memory for later printing.  | Manual    | LocalSystem |
| Protected Storage                                    | Provides protected storage for sensitive data, such as private keys, to prevent access by unauthorized services, processes, or users.  | Started   | Automatic   |
| QoS Admission Control (RSVP)                         | Provides network signaling and local traffic control setup functionality for QoS-aware programs and control applets.   | Automatic | LocalSystem |
| Remote Access Auto Connection Manager                | Creates a connection to a remote network whenever a program references a remote DNS or NetBIOS name or address.  | Manual    | LocalSystem |
| Remote Access Connection Manager                     | Creates a network connection.  | Manual    | LocalSystem |
| Remote Procedure Call (RPC)                          | Provides the endpoint mapper and other miscellaneous RPC services.   | Started   | Automatic   |
| Remote Procedure Call (RPC) Locator                  | Manages the RPC name service database.   | Manual    | LocalSystem |
| Remote Registry Service                              | Allows remote registry manipulation.   | Started   | Automatic   |
| Removable Storage                                    | Manages removable media, drives, and libraries.  | Started   | Automatic   |
| Routing and Remote Access                            | Offers routing services to businesses in local area and wide area network environments.  | Disabled  | LocalSystem |
| RunAs Service  | Enables starting processes under alternate credentials   | Started   | Automatic   |
| Security Accounts Manager                            | Stores security information for local user accounts.   | Started   | Automatic   |
| Server   | Provides RPC support and file, print, and named pipe sharing.  | Started   | Automatic   |
| Simple TCP/IP Services                               | Supports the following TCP/IP services: Character Generator, Daytime, Discard, Echo, and Quote of the Day.   | Manual    | LocalSystem |
| Smart Card   | Manages and controls access to a smart card inserted into a smart card reader attached to the computer.  | Manual    | LocalSystem |
| Smart Card Helper                                    | Provides support for legacy smart card readers attached to the computer.   | Manual    | LocalSystem |
| SNMP Service   | Includes agents that monitor the activity in network devices and report to the network console workstation.  | Manual    | LocalSystem |
| SNMP Trap Service                                    | Receives trap messages generated by local or remote SNMP agents and forwards the messages to SNMP management programs running on this computer.  | Manual    | LocalSystem |
| SQLSERVERAGENT                                       |  | Manual    | LocalSystem |
| System Event Notification                            | Tracks system events such as Windows logon, network, and power events. Notifies COM+ Event System subscribers of these events.   | Started   | Automatic   |
| Task Scheduler                                       | Enables a program to run at a designated time.   | Started   | Automatic   |
| TCP/IP NetBIOS Helper Service                        | Enables support for NetBIOS over TCP/IP (NetBT) service and NetBIOS name resolution.   | Started   | Automatic   |
| Telephony  | Provides Telephony API (TAPI) support for programs that control telephony devices and IP based voice connections on the local computer and, through the LAN, on servers that are also running the service. | Started   | Manual      |
| Telnet   | Allows a remote user to log on to the system and run console programs using the command line.  | Manual    | LocalSystem |
| Terminal Services                                    | Provides a multisession environment that allows client devices to access a virtual Windows 2000 Professional desktop session and Windows-based programs running on the server.                             | Disabled  | LocalSystem |
| Uninterruptible Power Supply                         | Manages an uninterruptible power supply (UPS) connected to the computer.   | Manual    | LocalSystem |
| Utility Manager                                      | Starts and configures accessibility tools from one window  | Manual    | LocalSystem |
| Windows Installer                                    |  | Manual    | LocalSystem |
| Windows Management Instrumentation                   | Provides system management information.  | Started   | Automatic   |
| Windows Management Instrumentation Driver Extensions | Provides systems management information to and from drivers.   | Started   | Manual      |
| Windows Time   | Sets the computer clock.   | Manual    | LocalSystem |

Workstation Provides network connections and communications.  
 Started Automatic LocalSystem  
 World Wide Web Publishing Service Provides Web connectivity and  
 administration through the Internet Information Services snap-in.  
 Manual LocalSystem

## Microsoft Windows 2000 Advanced Server Registry Parameters

The following registry parameters have been modified:

Key Name:

SYSTEM\CurrentControlSet\Services\dac2w2k\Parameters\Device0

Class Name: <NO CLASS>

Last Write Time: 10/13/2000 - 9:06 AM

Value 0

Name: DriverParameter  
 Type: REG\_SZ  
 Data: ConfigureSIR=24

Key Name: SYSTEM\CurrentControlSet\Control\Session Manager\I/O

System

Class Name: <NO CLASS>

Last Write Time: 10/8/2000 - 1:58 PM

Value 0

Name: CountOperations  
 Type: REG\_DWORD  
 Data: 0

Value 1

Name: LargeIrpStackLocations  
 Type: REG\_DWORD  
 Data: 0x8

Key Name: SYSTEM\CurrentControlSet\Control\Session  
 Manager\Memory Management

Class Name: <NO CLASS>

Last Write Time: 10/8/2000 - 1:58 PM

Value 0

Name: ClearPageFileAtShutdown  
 Type: REG\_DWORD  
 Data: 0

Value 1

Name: DisablePagingExecutive  
 Type: REG\_DWORD  
 Data: 0

Value 2

Name: IoPageLockLimit  
 Type: REG\_DWORD  
 Data: 0

Value 3

Name: LargeSystemCache

Type: REG\_DWORD  
 Data: 0

Value 4

Name: NonPagedPoolQuota  
 Type: REG\_DWORD  
 Data: 0

Value 5

Name: NonPagedPoolSize  
 Type: REG\_DWORD  
 Data: 0

Value 6

Name: PagedPoolQuota  
 Type: REG\_DWORD  
 Data: 0

Value 7

Name: PagedPoolSize  
 Type: REG\_DWORD  
 Data: 0

Value 8

Name: PagingFiles  
 Type: REG\_MULTI\_SZ  
 Data: C:\pagefile.sys 2046 4092

Value 9

Name: PhysicalAddressExtension  
 Type: REG\_DWORD  
 Data: 0x1

Value 10

Name: SecondLevelDataCache  
 Type: REG\_DWORD  
 Data: 0

Value 11

Name: SystemPages  
 Type: REG\_DWORD  
 Data: 0

## Disk Controller Configuration Parameters

### Mylex eXtremeRAID Adapter 0

Begin

BeginGroup

PhysicalDevice0 = Channel=0, Target=0, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice1 = Channel=0, Target=1, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice2 = Channel=0, Target=2, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice3 = Channel=0, Target=3, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice4 = Channel=0, Target=4, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice5 = Channel=0, Target=5, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice6 = Channel=0, Target=6, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice7 = Channel=0, Target=8, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice8 = Channel=0, Target=9, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice9 = Channel=0, Target=10, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice10 = Channel=0, Target=11, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice11 = Channel=0, Target=12, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;

PhysicalDevice12 = Channel=0, Target=13, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice13 = Channel=0, Target=14, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice14 = Channel=1, Target=0, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice15 = Channel=1, Target=1, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice16 = Channel=1, Target=2, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice17 = Channel=1, Target=3, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice18 = Channel=1, Target=4, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice19 = Channel=1, Target=5, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice20 = Channel=1, Target=6, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice21 = Channel=1, Target=8, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice22 = Channel=1, Target=9, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice23 = Channel=1, Target=10, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice24 = Channel=1, Target=11, Size=17340mb, State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice25 = Channel=1, Target=12, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice26 = Channel=1, Target=13, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice27 = Channel=1, Target=14, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice28 = Channel=2, Target=0, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice29 = Channel=2, Target=1, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice30 = Channel=2, Target=2, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice31 = Channel=2, Target=3, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice32 = Channel=2, Target=4, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice33 = Channel=2, Target=5, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice34 = Channel=2, Target=6, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice35 = Channel=2, Target=8, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice36 = Channel=2, Target=9, Size=17340mb, State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice37 = Channel=2, Target=10, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice38 = Channel=2, Target=11, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice39 = Channel=2, Target=12, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice40 = Channel=2, Target=13, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice41 = Channel=2, Target=14, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice42 = Channel=3, Target=0, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice43 = Channel=3, Target=1, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice44 = Channel=3, Target=2, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice45 = Channel=3, Target=3, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice46 = Channel=3, Target=4, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice47 = Channel=3, Target=5, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice48 = Channel=3, Target=6, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;

PhysicalDevice49 = Channel=3, Target=8, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice50 = Channel=3, Target=9, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice51 = Channel=3, Target=10, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice52 = Channel=3, Target=11, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice53 = Channel=3, Target=12, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice54 = Channel=3, Target=13, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice55 = Channel=3, Target=14, Size=17340mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
IntermediateDevice0 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=242704mb,  
(PhysicalDevice0, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice1, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice2, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice3, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice4, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice5, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice6, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice7, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice8, StartAddress=0mb, Size=17336mb),

(PhysicalDevice9, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice10, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice11, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice12, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice13, StartAddress=0mb, Size=17336mb);  
IntermediateDevice1 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=242704mb,  
(PhysicalDevice14, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice15, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice16, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice17, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice18, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice19, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice20, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice21, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice22, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice23, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice24, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice25, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice26, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice27, StartAddress=0mb, Size=17336mb);  
IntermediateDevice2 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=242704mb,  
(PhysicalDevice28, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice29, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice30, StartAddress=0mb, Size=17336mb),  
(PhysicalDevice31, StartAddress=0mb, Size=17336mb),

```

(PhysicalDevice32, StartAddress=0mb, Size=17336mb),
(PhysicalDevice33, StartAddress=0mb, Size=17336mb),
(PhysicalDevice34, StartAddress=0mb, Size=17336mb),
(PhysicalDevice35, StartAddress=0mb, Size=17336mb),
(PhysicalDevice36, StartAddress=0mb, Size=17336mb),
(PhysicalDevice37, StartAddress=0mb, Size=17336mb),
(PhysicalDevice38, StartAddress=0mb, Size=17336mb),
(PhysicalDevice39, StartAddress=0mb, Size=17336mb),
(PhysicalDevice40, StartAddress=0mb, Size=17336mb),
(PhysicalDevice41, StartAddress=0mb, Size=17336mb);
IntermediateDevice3 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=242704mb,
(PhysicalDevice42, StartAddress=0mb, Size=17336mb),
(PhysicalDevice43, StartAddress=0mb, Size=17336mb),
(PhysicalDevice44, StartAddress=0mb, Size=17336mb),
(PhysicalDevice45, StartAddress=0mb, Size=17336mb),
(PhysicalDevice46, StartAddress=0mb, Size=17336mb),
(PhysicalDevice47, StartAddress=0mb, Size=17336mb),
(PhysicalDevice48, StartAddress=0mb, Size=17336mb),
(PhysicalDevice49, StartAddress=0mb, Size=17336mb),
(PhysicalDevice50, StartAddress=0mb, Size=17336mb),
(PhysicalDevice51, StartAddress=0mb, Size=17336mb),
(PhysicalDevice52, StartAddress=0mb, Size=17336mb),
(PhysicalDevice53, StartAddress=0mb, Size=17336mb),
(PhysicalDevice54, StartAddress=0mb, Size=17336mb),
(PhysicalDevice55, StartAddress=0mb, Size=17336mb);
LogicalDevice0 = StripeSize=64kb, Raid=12, WriteThrough=1, Size=970816mb,
BIOSGeometry=8GB,
(IntermediateDevice0, StartAddress=0mb, Size=242704mb),
(IntermediateDevice1, StartAddress=0mb, Size=242704mb),
(IntermediateDevice2, StartAddress=0mb, Size=242704mb),
(IntermediateDevice3, StartAddress=0mb, Size=242704mb);
EndGroup
BeginControllerParameter
ControllerName = eXtremeRAID 2000;
ControllerType = 28;
FirmwareVersion = 5.60;
CacheLineSize = 8KB;
BackgroundTaskRate = 50;
InitiatorID = 7;
DiskStartupMode = AutoSpin;
DevicesPerSpin = 2;
InitialDelay = 6S;
SequentialDelay = 0S;
EnableDriveSizing = 0;
EnableClustering = 0;
EnableBGInit = 1;
EnableReadAhead = 0;
EnableBiosLoadDelay = 0;
EnableForcedUnitAccess = 1;

```

```
DisableBios = 0;
EnableCDROMBoot = 0;
EnableStorageWorks = 0;
EnableSAFTE = 0;
EnableSES = 0;
EnableARM = 0;
EnableOFM = 1;
OEMCode = 0;
StartupOption = 0;
```

EndControllerParameter

End

## ***Mylex eXtremeRAID Adapter 1***

Begin

BeginGroup

```
PhysicalDevice0 = Channel=0, Target=0, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice1 = Channel=0, Target=1, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice2 = Channel=0, Target=2, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice3 = Channel=0, Target=3, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice4 = Channel=0, Target=4, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
```

```
PhysicalDevice5 = Channel=0, Target=5, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice6 = Channel=0, Target=6, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice7 = Channel=0, Target=8, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice8 = Channel=0, Target=9, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice9 = Channel=0, Target=10, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice10 = Channel=0, Target=11, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice11 = Channel=0, Target=12, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice12 = Channel=0, Target=13, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice13 = Channel=0, Target=14, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice14 = Channel=1, Target=0, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice15 = Channel=1, Target=1, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice16 = Channel=1, Target=2, Size=8662mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
```



PhysicalDevice17 = Channel=1, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice18 = Channel=1, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice19 = Channel=1, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice20 = Channel=1, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice21 = Channel=1, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice22 = Channel=1, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice23 = Channel=1, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice24 = Channel=1, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice25 = Channel=1, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice26 = Channel=1, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice27 = Channel=1, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice28 = Channel=2, Target=0, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice29 = Channel=2, Target=1, Size=8662mb, State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice30 = Channel=2, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice31 = Channel=2, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice32 = Channel=2, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice33 = Channel=2, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice34 = Channel=2, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice35 = Channel=2, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice36 = Channel=2, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice37 = Channel=2, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice38 = Channel=2, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice39 = Channel=2, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice40 = Channel=2, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice41 = Channel=2, Target=14, Size=8662mb, State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice42 = Channel=3, Target=0, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice43 = Channel=3, Target=1, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice44 = Channel=3, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice45 = Channel=3, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice46 = Channel=3, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice47 = Channel=3, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice48 = Channel=3, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice49 = Channel=3, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice50 = Channel=3, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice51 = Channel=3, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice52 = Channel=3, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice53 = Channel=3, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;

PhysicalDevice54 = Channel=3, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice55 = Channel=3, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
IntermediateDevice0 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,  
(PhysicalDevice0, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice1, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice2, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice3, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice4, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice5, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice6, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice7, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice8, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice9, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice10, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice11, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice12, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice13, StartAddress=0mb, Size=8656mb);  
IntermediateDevice1 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,  
(PhysicalDevice14, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice15, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice16, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice17, StartAddress=0mb, Size=8656mb),

(PhysicalDevice18, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice19, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice20, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice21, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice22, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice23, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice24, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice25, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice26, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice27, StartAddress=0mb, Size=8656mb);

IntermediateDevice2 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,

(PhysicalDevice28, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice29, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice30, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice31, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice32, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice33, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice34, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice35, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice36, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice37, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice38, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice39, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice40, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice41, StartAddress=0mb, Size=8656mb);

IntermediateDevice3 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,

(PhysicalDevice42, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice43, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice44, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice45, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice46, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice47, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice48, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice49, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice50, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice51, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice52, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice53, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice54, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice55, StartAddress=0mb, Size=8656mb);

LogicalDevice0 = StripeSize=64kb, Raid=12, WriteThrough=1, Size=484736mb,  
BIOSGeometry=8GB,

(IntermediateDevice0, StartAddress=0mb, Size=121184mb),  
(IntermediateDevice1, StartAddress=0mb, Size=121184mb),  
(IntermediateDevice2, StartAddress=0mb, Size=121184mb),  
(IntermediateDevice3, StartAddress=0mb, Size=121184mb);

EndGroup

BeginControllerParameter

ControllerName = eXtremeRAID 2000;

ControllerType = 28;

FirmwareVersion = 5.60;  
CacheLineSize = 8KB;  
BackgroundTaskRate = 50;  
InitiatorID = 7;  
DiskStartupMode = AutoSpin;  
DevicesPerSpin = 2;  
InitialDelay = 6S;  
SequentialDelay = 0S;  
EnableDriveSizing = 0;  
EnableClustering = 0;  
EnableBGInit = 1;  
EnableReadAhead = 0;  
EnableBiosLoadDelay = 0;  
EnableForcedUnitAccess = 1;  
DisableBios = 0;  
EnableCDROMBoot = 0;  
EnableStorageWorks = 0;  
EnableSAFTE = 0;  
EnableSES = 0;  
EnableARM = 0;  
EnableOFM = 1;  
OEMCode = 0;  
StartupOption = 0;  
EndControllerParameter

End

## ***Mylex eXtremeRAID Adapter 2***

Begin

BeginGroup

PhysicalDevice0 = Channel=0, Target=0, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice1 = Channel=0, Target=1, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice2 = Channel=0, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice3 = Channel=0, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice4 = Channel=0, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice5 = Channel=0, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice6 = Channel=0, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice7 = Channel=0, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice8 = Channel=0, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;

PhysicalDevice9 = Channel=0, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice10 = Channel=0, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice11 = Channel=0, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice12 = Channel=0, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice13 = Channel=0, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice14 = Channel=1, Target=0, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice15 = Channel=1, Target=1, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice16 = Channel=1, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice17 = Channel=1, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice18 = Channel=1, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice19 = Channel=1, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice20 = Channel=1, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice21 = Channel=1, Target=8, Size=8662mb, State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice22 = Channel=1, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice23 = Channel=1, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice24 = Channel=1, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice25 = Channel=1, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice26 = Channel=1, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice27 = Channel=1, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice28 = Channel=2, Target=0, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice29 = Channel=2, Target=1, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice30 = Channel=2, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice31 = Channel=2, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice32 = Channel=2, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice33 = Channel=2, Target=5, Size=8662mb, State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice34 = Channel=2, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice35 = Channel=2, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice36 = Channel=2, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice37 = Channel=2, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice38 = Channel=2, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice39 = Channel=2, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice40 = Channel=2, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice41 = Channel=2, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice42 = Channel=3, Target=0, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice43 = Channel=3, Target=1, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice44 = Channel=3, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice45 = Channel=3, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;

PhysicalDevice46 = Channel=3, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice47 = Channel=3, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice48 = Channel=3, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice49 = Channel=3, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice50 = Channel=3, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice51 = Channel=3, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice52 = Channel=3, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice53 = Channel=3, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice54 = Channel=3, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice55 = Channel=3, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
IntermediateDevice0 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,  
(PhysicalDevice0, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice1, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice2, StartAddress=0mb, Size=8656mb),

(PhysicalDevice3, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice4, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice5, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice6, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice7, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice8, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice9, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice10, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice11, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice12, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice13, StartAddress=0mb, Size=8656mb);

IntermediateDevice1 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,

(PhysicalDevice14, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice15, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice16, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice17, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice18, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice19, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice20, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice21, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice22, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice23, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice24, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice25, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice26, StartAddress=0mb, Size=8656mb),

(PhysicalDevice27, StartAddress=0mb, Size=8656mb);

IntermediateDevice2 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,

(PhysicalDevice28, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice29, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice30, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice31, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice32, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice33, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice34, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice35, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice36, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice37, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice38, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice39, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice40, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice41, StartAddress=0mb, Size=8656mb);

IntermediateDevice3 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,

(PhysicalDevice42, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice43, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice44, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice45, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice46, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice47, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice48, StartAddress=0mb, Size=8656mb),

```
(PhysicalDevice49, StartAddress=0mb, Size=8656mb),
(PhysicalDevice50, StartAddress=0mb, Size=8656mb),
(PhysicalDevice51, StartAddress=0mb, Size=8656mb),
(PhysicalDevice52, StartAddress=0mb, Size=8656mb),
(PhysicalDevice53, StartAddress=0mb, Size=8656mb),
(PhysicalDevice54, StartAddress=0mb, Size=8656mb),
(PhysicalDevice55, StartAddress=0mb, Size=8656mb);
```

```
LogicalDevice0 = StripeSize=64kb, Raid=12, WriteThrough=1, Size=484736mb,
BIOSGeometry=8GB,
```

```
(IntermediateDevice0, StartAddress=0mb, Size=121184mb),
(IntermediateDevice1, StartAddress=0mb, Size=121184mb),
(IntermediateDevice2, StartAddress=0mb, Size=121184mb),
(IntermediateDevice3, StartAddress=0mb, Size=121184mb);
```

EndGroup

BeginControllerParameter

```
ControllerName = eXtremeRAID 2000;
ControllerType = 28;
FirmwareVersion = 5.60;
CacheLineSize = 8KB;
BackgroundTaskRate = 50;
InitiatorID = 7;
DiskStartupMode = AutoSpin;
DevicesPerSpin = 2;
InitialDelay = 6S;
SequentialDelay = 0S;
```

```
EnableDriveSizing = 0;
EnableClustering = 0;
EnableBGInit = 1;
EnableReadAhead = 0;
EnableBiosLoadDelay = 0;
EnableForcedUnitAccess = 1;
DisableBios = 0;
EnableCDROMBoot = 0;
EnableStorageWorks = 0;
EnableSAFTE = 0;
EnableSES = 0;
EnableARM = 0;
EnableOFM = 1;
OEMCode = 0;
StartupOption = 0;
```

EndControllerParameter

End

### ***Mylex eXtremeRAID Adapter 3***

Begin

BeginGroup

```
PhysicalDevice0 = Channel=0, Target=0, Size=8662mb, State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice1 = Channel=0, Target=1, Size=8662mb, State=Online,
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
```



PhysicalDevice2 = Channel=0, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice3 = Channel=0, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice4 = Channel=0, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice5 = Channel=0, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice6 = Channel=0, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice7 = Channel=0, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice8 = Channel=0, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice9 = Channel=0, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice10 = Channel=0, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice11 = Channel=0, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice12 = Channel=0, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice13 = Channel=0, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice14 = Channel=1, Target=0, Size=8662mb, State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice15 = Channel=1, Target=1, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice16 = Channel=1, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice17 = Channel=1, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice18 = Channel=1, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice19 = Channel=1, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice20 = Channel=1, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice21 = Channel=1, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice22 = Channel=1, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice23 = Channel=1, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice24 = Channel=1, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice25 = Channel=1, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice26 = Channel=1, Target=13, Size=8662mb, State=Online,

TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice27 = Channel=1, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice28 = Channel=2, Target=0, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice29 = Channel=2, Target=1, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice30 = Channel=2, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice31 = Channel=2, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice32 = Channel=2, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice33 = Channel=2, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice34 = Channel=2, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice35 = Channel=2, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice36 = Channel=2, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice37 = Channel=2, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice38 = Channel=2, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;

PhysicalDevice39 = Channel=2, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice40 = Channel=2, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice41 = Channel=2, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice42 = Channel=3, Target=0, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice43 = Channel=3, Target=1, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice44 = Channel=3, Target=2, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice45 = Channel=3, Target=3, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice46 = Channel=3, Target=4, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice47 = Channel=3, Target=5, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice48 = Channel=3, Target=6, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice49 = Channel=3, Target=8, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice50 = Channel=3, Target=9, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;

PhysicalDevice51 = Channel=3, Target=10, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice52 = Channel=3, Target=11, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice53 = Channel=3, Target=12, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice54 = Channel=3, Target=13, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
PhysicalDevice55 = Channel=3, Target=14, Size=8662mb, State=Online,  
TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;  
IntermediateDevice0 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,  
(PhysicalDevice0, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice1, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice2, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice3, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice4, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice5, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice6, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice7, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice8, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice9, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice10, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice11, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice12, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice13, StartAddress=0mb, Size=8656mb);

IntermediateDevice1 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,  
(PhysicalDevice14, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice15, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice16, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice17, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice18, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice19, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice20, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice21, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice22, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice23, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice24, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice25, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice26, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice27, StartAddress=0mb, Size=8656mb);  
IntermediateDevice2 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,  
(PhysicalDevice28, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice29, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice30, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice31, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice32, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice33, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice34, StartAddress=0mb, Size=8656mb),  
(PhysicalDevice35, StartAddress=0mb, Size=8656mb),

(PhysicalDevice36, StartAddress=0mb, Size=8656mb),

(PhysicalDevice37, StartAddress=0mb, Size=8656mb),

(PhysicalDevice38, StartAddress=0mb, Size=8656mb),

(PhysicalDevice39, StartAddress=0mb, Size=8656mb),

(PhysicalDevice40, StartAddress=0mb, Size=8656mb),

(PhysicalDevice41, StartAddress=0mb, Size=8656mb);

IntermediateDevice3 = StripeSize=64kb, Raid=0, WriteThrough=1, Size=121184mb,

(PhysicalDevice42, StartAddress=0mb, Size=8656mb),

(PhysicalDevice43, StartAddress=0mb, Size=8656mb),

(PhysicalDevice44, StartAddress=0mb, Size=8656mb),

(PhysicalDevice45, StartAddress=0mb, Size=8656mb),

(PhysicalDevice46, StartAddress=0mb, Size=8656mb),

(PhysicalDevice47, StartAddress=0mb, Size=8656mb),

(PhysicalDevice48, StartAddress=0mb, Size=8656mb),

(PhysicalDevice49, StartAddress=0mb, Size=8656mb),

(PhysicalDevice50, StartAddress=0mb, Size=8656mb),

(PhysicalDevice51, StartAddress=0mb, Size=8656mb),

(PhysicalDevice52, StartAddress=0mb, Size=8656mb),

(PhysicalDevice53, StartAddress=0mb, Size=8656mb),

(PhysicalDevice54, StartAddress=0mb, Size=8656mb),

(PhysicalDevice55, StartAddress=0mb, Size=8656mb);

LogicalDevice0 = StripeSize=64kb, Raid=12, WriteThrough=1, Size=484736mb,  
BIOSGeometry=8GB,

(IntermediateDevice0, StartAddress=0mb, Size=121184mb),

(IntermediateDevice1, StartAddress=0mb, Size=121184mb),

(IntermediateDevice2, StartAddress=0mb, Size=121184mb),

(IntermediateDevice3, StartAddress=0mb, Size=121184mb);

EndGroup

BeginControllerParameter

ControllerName = eXtremeRAID 2000;

ControllerType = 28;

FirmwareVersion = 5.60;

CacheLineSize = 8KB;

BackgroundTaskRate = 50;

InitiatorID = 7;

DiskStartupMode = AutoSpin;

DevicesPerSpin = 2;

InitialDelay = 6S;

SequentialDelay = 0S;

EnableDriveSizing = 0;

EnableClustering = 0;

EnableBGInit = 1;

EnableReadAhead = 0;

EnableBiosLoadDelay = 0;

EnableForcedUnitAccess = 0;

DisableBios = 0;

EnableCDROMBoot = 0;

EnableStorageWorks = 0;

EnableSAFTE = 0;

EnableSES = 0;

```
EnableARM = 1;
EnableOFM = 1;
OEMCode = 0;
StartupOption = 0;
EndControllerParameter
End
```

## ***Mylex eXtremeRAID Adapter 4***

```
Begin
BeginGroup
PhysicalDevice0 = Channel=0, Target=0, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice1 = Channel=1, Target=8, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice2 = Channel=0, Target=1, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice3 = Channel=1, Target=9, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice4 = Channel=0, Target=2, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice5 = Channel=1, Target=10, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice6 = Channel=0, Target=3, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
```

```
PhysicalDevice7 = Channel=1, Target=11, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice8 = Channel=0, Target=4, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice9 = Channel=1, Target=12, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice10 = Channel=0, Target=5, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
PhysicalDevice11 = Channel=1, Target=13, Size=17340mb, State=Online,
    TransferSpeed=80MHz, TransferWidth=16Bit, MaxTag=16;
IntermediateDevice0 = StripeSize=64kb, Raid=1, WriteThrough=1, Size=17336mb,
    (PhysicalDevice0, StartAddress=0mb, Size=17336mb),
    (PhysicalDevice1, StartAddress=0mb, Size=17336mb);
IntermediateDevice1 = StripeSize=64kb, Raid=1, WriteThrough=1, Size=17336mb,
    (PhysicalDevice2, StartAddress=0mb, Size=17336mb),
    (PhysicalDevice3, StartAddress=0mb, Size=17336mb);
IntermediateDevice2 = StripeSize=64kb, Raid=1, WriteThrough=1, Size=17336mb,
    (PhysicalDevice4, StartAddress=0mb, Size=17336mb),
    (PhysicalDevice5, StartAddress=0mb, Size=17336mb);
IntermediateDevice3 = StripeSize=64kb, Raid=1, WriteThrough=1, Size=17336mb,
    (PhysicalDevice6, StartAddress=0mb, Size=17336mb),
    (PhysicalDevice7, StartAddress=0mb, Size=17336mb);
IntermediateDevice4 = StripeSize=64kb, Raid=1, WriteThrough=1, Size=17336mb,
    (PhysicalDevice8, StartAddress=0mb, Size=17336mb),
    (PhysicalDevice9, StartAddress=0mb, Size=17336mb);
```

```

IntermediateDevice5 = StripeSize=64kb, Raid=1, WriteThrough=1, Size=17336mb,
    (PhysicalDevice10, StartAddress=0mb, Size=17336mb),
    (PhysicalDevice11, StartAddress=0mb, Size=17336mb);
LogicalDevice0 = StripeSize=64kb, Raid=12, WriteThrough=1, Size=104016mb,
BIOSGeometry=8GB,
    (IntermediateDevice0, StartAddress=0mb, Size=17336mb),
    (IntermediateDevice1, StartAddress=0mb, Size=17336mb),
    (IntermediateDevice2, StartAddress=0mb, Size=17336mb),
    (IntermediateDevice3, StartAddress=0mb, Size=17336mb),
    (IntermediateDevice4, StartAddress=0mb, Size=17336mb),
    (IntermediateDevice5, StartAddress=0mb, Size=17336mb);
EndGroup
BeginControllerParameter
    ControllerName = eXtremeRAID 2000;
    ControllerType = 28;
    FirmwareVersion = 5.60;
    CacheLineSize = 8KB;
    BackgroundTaskRate = 50;
    InitiatorID = 7;
    DiskStartupMode = AutoSpin;
    DevicesPerSpin = 2;
    InitialDelay = 6S;
    SequentialDelay = 0S;
    EnableDriveSizing = 0;
    EnableClustering = 0;

```

```

EnableBGInit = 1;
EnableReadAhead = 0;
EnableBiosLoadDelay = 0;
EnableForcedUnitAccess = 1;
DisableBios = 0;
EnableCDROMBoot = 0;
EnableStorageWorks = 0;
EnableSAFTE = 0;
EnableSES = 0;
EnableARM = 0;
EnableOFM = 1;
OEMCode = 0;
StartupOption = 0;

```

EndControllerParameter

End

## Client Configuration Parameters

### *Microsoft Windows 2000 Server Configuration Parameters*

System Information report written at: 11/27/2000 11:25:33 AM  
[System Information]

[ Following are sub-categories of this main category ]

[System Summary]

| Item            | Value                         |
|-----------------|-------------------------------|
| OS Name         | Microsoft Windows 2000 Server |
| Version         | 5.0.2195 Build 2195           |
| OS Manufacturer | Microsoft Corporation         |

System Name SQLCLIENT10  
System Manufacturer IBM  
System Model -[86582RY]-  
System Type X86-based PC  
Processor x86 Family 6 Model 8 Stepping 3 GenuineIntel ~731 Mhz  
BIOS Version IBM BIOS Ver 6.0  
Windows Directory C:\WINNT  
System Directory C:\WINNT\System32  
Boot Device \Device\Harddisk0\Partition1  
Locale United States  
User Name SQLCLIENT10\Administrator  
Time Zone Eastern Standard Time  
Total Physical Memory 392,728 KB  
Available Physical Memory 297,252 KB  
Total Virtual Memory 1,533,656 KB  
Available Virtual Memory 1,373,664 KB  
Page File Space 1,140,928 KB  
Page File C:\pagefile.sys

[Hardware Resources]

[ Following are sub-categories of this main category ]

[Conflicts/Sharing]

Resource Device  
No conflicted/shared resources

[DMA]

| Channel | Device                          | Status |
|---------|---------------------------------|--------|
| 2       | Standard floppy disk controller | OK     |
| 4       | Direct memory access controller | OK     |

[Forced Hardware]

Device PNP Device ID  
No Forced Hardware

[I/O]

| Address Range | Device                                      | Status |
|---------------|---|--------|
| 0x0000-0x0CF7 | PCI bus                                     | OK     |
| 0x0000-0x0CF7 | Direct memory access controller             | OK     |
| 0x0D00-0x4AEB | PCI bus                                     | OK     |
| 0x82E8-0xFFFF | PCI bus                                     | OK     |
| 0x03B0-0x03BB | S3 Inc. Savage4                             | OK     |
| 0x03C0-0x03DF | S3 Inc. Savage4                             | OK     |
| 0x2000-0x201F | IBM 10/100 NetFinity Fault Tolerant Adapter | OK     |

|               |   |    |
|---------------|---|----|
| 0x0A79-0x0A79 | ISAPNP Read Data Port                                   | OK |
| 0x0279-0x0279 | ISAPNP Read Data Port                                   | OK |
| 0x02F4-0x02F7 | ISAPNP Read Data Port                                   | OK |
| 0x0060-0x0060 | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard | OK |
| 0x0064-0x0064 | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard | OK |
| 0x03F0-0x03F5 | Standard floppy disk controller                         | OK |
| 0x03F7-0x03F7 | Standard floppy disk controller                         | OK |
| 0x0378-0x037F | Printer Port (LPT1)                                     | OK |
| 0x03F8-0x03FF | Communications Port (COM1)                              | OK |
| 0x02F8-0x02FF | Communications Port (COM2)                              | OK |
| 0x0020-0x0021 | Advanced programmable interrupt controller              | OK |
| 0x00A0-0x00A1 | Advanced programmable interrupt controller              | OK |
| 0x04D0-0x04D1 | Advanced programmable interrupt controller              | OK |
| 0x0080-0x008F | Direct memory access controller                         | OK |
| 0x00C0-0x00DF | Direct memory access controller                         | OK |
| 0x0040-0x0043 | System timer  | OK |
| 0x0070-0x0073 | System CMOS/real time clock                             | OK |
| 0x0061-0x0061 | System speaker  | OK |
| 0x00F0-0x00FF | Numeric data processor                                  | OK |
| 0x0F50-0x0F58 | Motherboard resources                                   | OK |
| 0xFD00-0xFD3F | Motherboard resources                                   | OK |
| 0xFE80-0xFEBF | Motherboard resources                                   | OK |
| 0xFEC0-0xFEDF | Motherboard resources                                   | OK |
| 0xEE9B-0xEE9B | Motherboard resources                                   | OK |
| 0x00E8-0x00E9 | Not Available   | OK |
| 0x0840-0x084F | Standard Dual Channel PCI IDE Controller                | OK |
| 0x01F0-0x01F7 | Primary IDE Channel                                     | OK |
| 0x03F6-0x03F6 | Primary IDE Channel                                     | OK |
| 0x0170-0x0177 | Secondary IDE Channel                                   | OK |
| 0x0376-0x0376 | Secondary IDE Channel                                   | OK |
| 0x4AEC-0x82E7 | PCI bus   | OK |
| 0x4B00-0x4BFF | Adaptec AIC-7899 Ultra160/m PCI SCSI Card               | OK |
| 0x4C00-0x4CFF | Adaptec AIC-7899 Ultra160/m PCI SCSI Card               | OK |
| 0x4D00-0x4D1F | IBM 10/100 EtherJet PCI Adapter                         | OK |

[IRQs]

| IRQ Number | Device  |
|------------|---|
| 30         | Microsoft ACPI-Compliant System                         |
| 31         | S3 Inc. Savage4   |
| 27         | IBM 10/100 NetFinity Fault Tolerant Adapter             |
| 1          | Standard 101/102-Key or Microsoft Natural PS/2 Keyboard |
| 12         | PS/2 Compatible Mouse                                   |
| 6          | Standard floppy disk controller                         |
| 4          | Communications Port (COM1)                              |
| 3          | Communications Port (COM2)                              |
| 8          | System CMOS/real time clock                             |
| 13         | Numeric data processor                                  |
| 5          | Not Available   |

14 Primary IDE Channel  
 11 Standard OpenHCD USB Host Controller  
 28 Adaptec AIC-7899 Ultra160/m PCI SCSI Card  
 29 Adaptec AIC-7899 Ultra160/m PCI SCSI Card  
 20 IBM 10/100 EtherJet PCI Adapter

[Memory]

| Range                  | Device                                      | Status |
|------------------------|---|--------|
| 0xC8000-0xCFFFF        | PCI bus                                     | OK     |
| 0xC8000-0xCFFFF        | System board                                | OK     |
| 0xF0000000-0xFEBFFFFFF | PCI bus                                     | OK     |
| 0xF0000000-0xFEBFFFFFF | S3 Inc. Savage4                             | OK     |
| 0xFED00000-0xFEDFFFFFF | PCI bus                                     | OK     |
| 0xFE000000-0xFFDFFFFFF | PCI bus                                     | OK     |
| 0xFEB80000-0xFEBFFFFFF | S3 Inc. Savage4                             | OK     |
| 0xA0000-0xBFFFF        | S3 Inc. Savage4                             | OK     |
| 0xFEB7FC00-0xFEB7FC1F  | IBM 10/100 NetFinity Fault Tolerant Adapter | OK     |
| 0xFEC00000-0xFECFFFFFF | Advanced programmable interrupt controller  | OK     |
| 0xFEE00000-0xFEEFFFFFF | Advanced programmable interrupt controller  | OK     |
| 0xFF700000-0xFF700FFF  | Standard OpenHCD USB Host Controller        | OK     |
| 0xD0000-0xDFFFF        | PCI bus                                     | OK     |
| 0x18000000-0xEFFFFFFF  | PCI bus                                     | OK     |
| 0xEFFFF000-0xEFFFFFFF  | Adaptec AIC-7899 Ultra160/m PCI SCSI Card   | OK     |
| 0xEFFFE000-0xEFFFEFFF  | Adaptec AIC-7899 Ultra160/m PCI SCSI Card   | OK     |
| 0xEFFFD000-0xEFFFDFFF  | IBM 10/100 EtherJet PCI Adapter             | OK     |
| 0xEFE00000-0xEFEFFFFFF | IBM 10/100 EtherJet PCI Adapter             | OK     |
| 0x0000-0x9FFFF         | System board                                | OK     |
| 0x100000-0xFFFFFFFF    | System board                                | OK     |
| 0x1000000-0x17FFFFFF   | System board                                | OK     |
| 0xE0000-0xFFFFF        | System board                                | OK     |
| 0xFFFE0000-0xFFFFFFFF  | System board                                | OK     |
| 0xCC000-0xCFFFF        | System board                                | OK     |

[Components]

[ Following are sub-categories of this main category ]

[Multimedia]

[ Following are sub-categories of this main category ]

[Audio Codecs]

| Codec                         | Manufacturer      | Description               | Status | File | Version | Size                 |
|-------------------------------|-------------------|---------------------------|--------|------|---------|----------------------|
| c:\winnt\system32\iac25_32.ax | Intel Corporation | Indeo® audio software     | OK     |      |         |                      |
| C:\WINNT\System32\IAC25_32.AX | 2.05.53           | 195.00 KB (199,680 bytes) |        |      |         | 12/7/1999 7:00:00 AM |

|                                |                       |                           |  |  |  |                      |
|--------------------------------|-----------------------|---------------------------|--|--|--|----------------------|
| c:\winnt\system32\msg723.acm   | Microsoft Corporation | OK                        |  |  |  |                      |
| C:\WINNT\System32\MSG723.ACM   | 4.4.3385              | 106.77 KB (109,328 bytes) |  |  |  | 10/4/2000 4:32:18 PM |
| c:\winnt\system32\lhacm.acm    | Microsoft Corporation | OK                        |  |  |  |                      |
| C:\WINNT\System32\LHACM.ACM    | 4.4.3385              | 33.27 KB (34,064 bytes)   |  |  |  | 10/4/2000 4:32:19 PM |
| c:\winnt\system32\tsoft32.acm  | DSP GROUP, INC.       | OK                        |  |  |  |                      |
| C:\WINNT\System32\TSSOFT32.ACM | 1.01                  | 9.27 KB (9,488 bytes)     |  |  |  | 12/7/1999 7:00:00 AM |
| c:\winnt\system32\msgsm32.acm  | Microsoft Corporation | OK                        |  |  |  |                      |
| C:\WINNT\System32\MSGSM32.ACM  | 5.00.2134.1           | 22.27 KB (22,800 bytes)   |  |  |  | 12/7/1999 7:00:00 AM |
| c:\winnt\system32\msg711.acm   | Microsoft Corporation | OK                        |  |  |  |                      |
| C:\WINNT\System32\MSG711.ACM   | 5.00.2134.1           | 10.27 KB (10,512 bytes)   |  |  |  | 12/7/1999 7:00:00 AM |
| c:\winnt\system32\msadp32.acm  | Microsoft Corporation | OK                        |  |  |  |                      |
| C:\WINNT\System32\MSADP32.ACM  | 5.00.2134.1           | 14.77 KB (15,120 bytes)   |  |  |  | 12/7/1999 7:00:00 AM |
| c:\winnt\system32\imaadp32.acm | Microsoft Corporation | OK                        |  |  |  |                      |
| C:\WINNT\System32\IMAADP32.ACM | 5.00.2134.1           | 16.27 KB (16,656 bytes)   |  |  |  | 12/7/1999 7:00:00 AM |

[Video Codecs]

| Codec                          | Manufacturer          | Description               | Status | File | Version | Size                 |
|--------------------------------|-----------------------|---------------------------|--------|------|---------|----------------------|
| c:\winnt\system32\ir50_32.dll  | Intel Corporation     | Indeo® video 5.10         | OK     |      |         |                      |
| C:\WINNT\System32\IR50_32.DLL  | R.5.10.15.2.55        | 737.50 KB (755,200 bytes) |        |      |         | 12/7/1999 7:00:00 AM |
| c:\winnt\system32\msh261.drv   | Microsoft Corporation |                           | OK     |      |         |                      |
| C:\WINNT\System32\MSH261.DRV   | 4.4.3385              | 163.77 KB (167,696 bytes) |        |      |         | 10/4/2000 4:32:19 PM |
| c:\winnt\system32\msh263.drv   | Microsoft Corporation |                           | OK     |      |         |                      |
| C:\WINNT\System32\MSH263.DRV   | 4.4.3385              | 252.27 KB (258,320 bytes) |        |      |         | 10/4/2000 4:31:49 PM |
| c:\winnt\system32\msvidc32.dll | Microsoft Corporation |                           | OK     |      |         |                      |
| C:\WINNT\System32\MSVIDC32.DLL | 5.00.2134.1           | 27.27 KB (27,920 bytes)   |        |      |         | 12/7/1999 7:00:00 AM |
| c:\winnt\system32\ir32_32.dll  | Intel(R) Corporation  |                           | OK     |      |         |                      |
| C:\WINNT\System32\IR32_32.DLL  | Not Available         | 194.50 KB (199,168 bytes) |        |      |         | 12/7/1999 7:00:00 AM |
| c:\winnt\system32\iccvld.dll   | Radius Inc.           |                           | OK     |      |         |                      |
| C:\WINNT\System32\ICCVLD.DLL   | 1.10.0.6              | 108.00 KB (110,592 bytes) |        |      |         | 12/7/1999 7:00:00 AM |
| c:\winnt\system32\msrle32.dll  | Microsoft Corporation |                           | OK     |      |         |                      |
| C:\WINNT\System32\MSRLE32.DLL  | 5.00.2134.1           | 10.77 KB (11,024 bytes)   |        |      |         | 12/7/1999 7:00:00 AM |

[CD-ROM]



Item Value  
 Drive D:  
 Description CD-ROM Drive  
 Media Loaded False  
 Media Type CD-ROM  
 Name LG CD-ROM CRD-8481B  
 Manufacturer (Standard CD-ROM drives)  
 Status OK  
 Transfer Rate Not Available  
 SCSI Target ID 0  
 PNP Device ID  
 IDE\CDROMLG\_CD-ROM\_CRD-8481B\_\_\_\_\_1.01\_\_\_\_\30323030302F2F32393220  
 2020202020202020

[Sound Device]

Item Value  
 No sound devices

[Display]

Item Value  
 Name S3 Inc. Savage4  
 PNP Device ID  
 PCI\VEN\_5333&DEV\_8A22&SUBSYS\_01C51014&REV\_04\3&267A616A&0&08  
 Adapter Type S3 Savage4, S3 compatible  
 Adapter Description S3 Inc. Savage4  
 Adapter RAM 8.00 MB (8,388,608 bytes)  
 Installed Drivers s3sav4.dll  
 Driver Version 5.01.840.0001  
 INF File s3sav4.inf (S3Inc section)  
 Color Planes 1  
 Color Table Entries 65536  
 Resolution 800 x 600 x 60 hertz  
 Bits/Pixel 16

[Infrared]

Item Value  
 No infrared devices

[Input]

[ Following are sub-categories of this main category ]

[Keyboard]

Item Value  
 Description Standard 101/102-Key or Microsoft Natural PS/2 Keyboard  
 Name Enhanced (101- or 102-key)  
 Layout 00000409  
 PNP Device ID ACPI\PNP0303\4&F0B8F99&0  
 NumberOfFunctionKeys 12

[Pointing Device]

Item Value  
 Hardware Type PS/2 Compatible Mouse  
 Number of Buttons 3  
 Status OK  
 PNP Device ID ACPI\PNP0F13\4&F0B8F99&0  
 Power Management Supported False  
 Double Click Threshold 6  
 Handedness Right Handed Operation

[Modem]

Item Value  
 No modems

[Network]

[ Following are sub-categories of this main category ]

[Adapter]

Item Value  
 Name [00000000] IBM 10/100 NetFinity Fault Tolerant Adapter  
 Adapter Type Ethernet 802.3  
 Product Name IBM 10/100 NetFinity Fault Tolerant Adapter  
 Installed True  
 PNP Device ID PCI\VEN\_1022&DEV\_2000&SUBSYS\_20001014&REV\_44\3&267A616A&0&10  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 0  
 Service Name PCnet  
 IP Address 192.168.125.10  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:06:29:D5:7C:E9  
 Service Name PCnet

IRQ Number 27  
 I/O Port 0x2000-0x201F  
 Driver c:\winnt\system32\drivers\pcntn5m.sys (33811, 4.23.00)

Name [00000001] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Not Available  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 1  
 Service Name E100B  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled True  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Not Available

Name [00000002] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Not Available  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 2  
 Service Name E100B  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled True  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Not Available

Name [00000003] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Not Available  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 3  
 Service Name E100B  
 IP Address 192.168.125.10

IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled True  
 DHCP Server  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:06:29:D5:7C:E9  
 Service Name Not Available

Name [00000004] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Not Available  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 4  
 Service Name E100B  
 IP Address 192.168.10.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled True  
 DHCP Server  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:04:AC:36:44:EC  
 Service Name Not Available

Name [00000005] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Not Available  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 5  
 Service Name E100B  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled True  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Not Available

Name [00000006] Intel(R) PRO/100+ Dual Port Server Adapter  
 Adapter Type Not Available  
 Product Name Intel(R) PRO/100+ Dual Port Server Adapter  
 Installed True

PNP Device ID Not Available  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 6  
 Service Name E100B  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Not Available

Name [00000007] RAS Async Adapter  
 Adapter Type Not Available  
 Product Name RAS Async Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 7  
 Service Name AsyncMac  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Not Available

Name [00000008] WAN Miniport (L2TP)  
 Adapter Type Not Available  
 Product Name WAN Miniport (L2TP)  
 Installed True  
 PNP Device ID ROOT\MS\_L2TPMINIPOINT\0000  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 8  
 Service Name Rasl2tp  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Rasl2tp

Driver c:\winnt\system32\drivers\rasl2tp.sys (50800, 5.00.2179.1)

Name [00000009] WAN Miniport (PPTP)  
 Adapter Type Wide Area Network (WAN)  
 Product Name WAN Miniport (PPTP)  
 Installed True  
 PNP Device ID ROOT\MS\_PPTPMINIPOINT\0000  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 9

Service Name PptpMiniport  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 50:50:54:50:30:30  
 Service Name PptpMiniport  
 Driver c:\winnt\system32\drivers\rasptp.sys (47856, 5.00.2160.1)

Name [00000010] Direct Parallel  
 Adapter Type Not Available  
 Product Name Direct Parallel  
 Installed True  
 PNP Device ID ROOT\MS\_PTMINIPOINT\0000  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 10

Service Name Raspti  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Raspti  
 Driver c:\winnt\system32\drivers\raspti.sys (16880, 5.00.2146.1)

Name [00000011] WAN Miniport (IP)  
 Adapter Type Not Available  
 Product Name WAN Miniport (IP)  
 Installed True  
 PNP Device ID ROOT\MS\_NDISWANIP\0000  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 11  
 Service Name NdisWan  
 IP Address Not Available

IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name NdisWan  
 Driver c:\winnt\system32\drivers\ndiswan.sys (90768, 5.00.2184.1)

Name [00000012] IBM 10/100 EtherJet PCI Adapter  
 Adapter Type Ethernet 802.3  
 Product Name IBM 10/100 EtherJet PCI Adapter  
 Installed True  
 PNP Device ID  
 PCI\VEN\_8086&DEV\_1229&SUBSYS\_005C1014&REV\_05\3&13C0B0C5&0&28  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 12  
 Service Name IBMFE  
 IP Address 192.168.10.99  
 IP Subnet 255.255.255.0  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address 00:04:AC:36:44:EC  
 Service Name IBMFE  
 IRQ Number 20  
 I/O Port 0x4D00-0x4D1F  
 Driver c:\winnt\system32\drivers\ibmfent5.sys (80656, 4.01.75.0000)

Name [00000013] IBM 10/100 EtherJet PCI Adapter  
 Adapter Type Not Available  
 Product Name IBM 10/100 EtherJet PCI Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 13  
 Service Name IBMFE  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Not Available

Name [00000014] IBM 10/100 EtherJet PCI Adapter  
 Adapter Type Not Available  
 Product Name IBM 10/100 EtherJet PCI Adapter  
 Installed True  
 PNP Device ID Not Available  
 Last Reset 11/27/2000 6:21:10 AM  
 Index 14  
 Service Name IBMFE  
 IP Address Not Available  
 IP Subnet Not Available  
 Default IP Gateway Not Available  
 DHCP Enabled False  
 DHCP Server Not Available  
 DHCP Lease Expires Not Available  
 DHCP Lease Obtained Not Available  
 MAC Address Not Available  
 Service Name Not Available

[Protocol]

| Item                        | Value               |
|-----------------------------|---------------------|
| Name                        | MSAFD Tcpi [TCP/IP] |
| ConnectionlessService       | False               |
| GuaranteesDelivery          | True                |
| GuaranteesSequencing        | True                |
| MaximumAddressSize          | 16 bytes            |
| MaximumMessageSize          | 0 bytes             |
| MessageOriented             | False               |
| MinimumAddressSize          | 16 bytes            |
| PseudoStreamOriented        | False               |
| SupportsBroadcasting        | False               |
| SupportsConnectData         | False               |
| SupportsDisconnectData      | False               |
| SupportsEncryption          | False               |
| SupportsExpeditedData       | True                |
| SupportsGracefulClosing     | True                |
| SupportsGuaranteedBandwidth | False               |
| SupportsMulticasting        | False               |

|                       |                     |
|-----------------------|---------------------|
| Name                  | MSAFD Tcpi [UDP/IP] |
| ConnectionlessService | True                |
| GuaranteesDelivery    | False               |
| GuaranteesSequencing  | False               |
| MaximumAddressSize    | 16 bytes            |
| MaximumMessageSize    | 65467 bytes         |
| MessageOriented       | True                |
| MinimumAddressSize    | 16 bytes            |

PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting True

Name RSVP UDP Service Provider  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 16 bytes  
 MaximumMessageSize 65467 bytes  
 MessageOriented True  
 MinimumAddressSize 16 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption True  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting True

Name RSVP TCP Service Provider  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 16 bytes  
 MaximumMessageSize 0 bytes  
 MessageOriented False  
 MinimumAddressSize 16 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption True  
 SupportsExpeditedData True  
 SupportsGracefulClosing True  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{519DF164-C2E2-4B95-ADCA-A5FE91C070D0}]  
 SEQPACKET 11  
 ConnectionlessService False

GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{519DF164-C2E2-4B95-ADCA-A5FE91C070D0}]  
 DATAGRAM 11  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{C04567B4-9B0B-4A29-8279-471F5F20794E}]  
 SEQPACKET 10  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False

SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{C04567B4-9B0B-4A29-8279-471F5F20794E}]

DATAGRAM 10

ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{10FE3B77-2ED7-4549-B020-0F3082ED2016}]

SEQPACKET 9

ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{10FE3B77-2ED7-4549-B020-0F3082ED2016}]

DATAGRAM 9

ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes

MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{D074967D-9B75-4E93-8CEA-7349F1DB5580}]

SEQPACKET 0

ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{D074967D-9B75-4E93-8CEA-7349F1DB5580}]

DATAGRAM 0

ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False

SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{B42D6592-9A44-4456-9C18-C04769F97685}]

SEQPACKET 1

ConnectionlessService False  
GuaranteesDelivery True  
GuaranteesSequencing True  
MaximumAddressSize 20 bytes  
MaximumMessageSize 64000 bytes  
MessageOriented True  
MinimumAddressSize 20 bytes  
PseudoStreamOriented False  
SupportsBroadcasting False  
SupportsConnectData False  
SupportsDisconnectData False  
SupportsEncryption False  
SupportsExpeditedData False  
SupportsGracefulClosing False  
SupportsGuaranteedBandwidth False  
SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{B42D6592-9A44-4456-9C18-C04769F97685}]

DATAGRAM 1

ConnectionlessService True  
GuaranteesDelivery False  
GuaranteesSequencing False  
MaximumAddressSize 20 bytes  
MaximumMessageSize 64000 bytes  
MessageOriented True  
MinimumAddressSize 20 bytes  
PseudoStreamOriented False  
SupportsBroadcasting True  
SupportsConnectData False  
SupportsDisconnectData False  
SupportsEncryption False  
SupportsExpeditedData False  
SupportsGracefulClosing False  
SupportsGuaranteedBandwidth False  
SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{77DB4B13-E43C-40D8-B180-7447B4352EF1}]

SEQPACKET 2

ConnectionlessService False  
GuaranteesDelivery True  
GuaranteesSequencing True  
MaximumAddressSize 20 bytes  
MaximumMessageSize 64000 bytes  
MessageOriented True  
MinimumAddressSize 20 bytes

PseudoStreamOriented False

SupportsBroadcasting False  
SupportsConnectData False  
SupportsDisconnectData False  
SupportsEncryption False  
SupportsExpeditedData False  
SupportsGracefulClosing False  
SupportsGuaranteedBandwidth False  
SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{77DB4B13-E43C-40D8-B180-7447B4352EF1}]

DATAGRAM 2

ConnectionlessService True  
GuaranteesDelivery False  
GuaranteesSequencing False  
MaximumAddressSize 20 bytes  
MaximumMessageSize 64000 bytes  
MessageOriented True  
MinimumAddressSize 20 bytes  
PseudoStreamOriented False  
SupportsBroadcasting True  
SupportsConnectData False  
SupportsDisconnectData False  
SupportsEncryption False  
SupportsExpeditedData False  
SupportsGracefulClosing False  
SupportsGuaranteedBandwidth False  
SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{7359D11B-7E1A-411C-A883-53C42F37D3D3}]

SEQPACKET 3

ConnectionlessService False  
GuaranteesDelivery True  
GuaranteesSequencing True  
MaximumAddressSize 20 bytes  
MaximumMessageSize 64000 bytes  
MessageOriented True  
MinimumAddressSize 20 bytes  
PseudoStreamOriented False  
SupportsBroadcasting False  
SupportsConnectData False  
SupportsDisconnectData False  
SupportsEncryption False  
SupportsExpeditedData False  
SupportsGracefulClosing False  
SupportsGuaranteedBandwidth False  
SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{7359D11B-7E1A-411C-A883-53C42F37D3D3}]  
 DATAGRAM 3  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{5463FFD7-5102-466B-B730-BE6C592F2580}]  
 SEQPACKET 4  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{5463FFD7-5102-466B-B730-BE6C592F2580}]  
 DATAGRAM 4  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True

SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{F9202C21-9BBB-489B-B286-1D59C7ACC80C}]  
 SEQPACKET 5  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{F9202C21-9BBB-489B-B286-1D59C7ACC80C}]  
 DATAGRAM 5  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{B1137635-649F-4AF6-8588-EAD18CD35523}]  
 SEQPACKET 6  
 ConnectionlessService False



GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{B1137635-649F-4AF6-8588-EAD18CD35523}]  
 DATAGRAM 6  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{F422FA62-9410-46F2-B308-66433B4E0553}]  
 SEQPACKET 7  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False

SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{F422FA62-9410-46F2-B308-66433B4E0553}]  
 DATAGRAM 7  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{99DC9EBE-437C-4834-8841-32B09B811C94}]  
 SEQPACKET 8  
 ConnectionlessService False  
 GuaranteesDelivery True  
 GuaranteesSequencing True  
 MaximumAddressSize 20 bytes  
 MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting False  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

Name MSAFD NetBIOS [\Device\NetBT\_Tcpip\_{99DC9EBE-437C-4834-8841-32B09B811C94}]  
 DATAGRAM 8  
 ConnectionlessService True  
 GuaranteesDelivery False  
 GuaranteesSequencing False  
 MaximumAddressSize 20 bytes

MaximumMessageSize 64000 bytes  
 MessageOriented True  
 MinimumAddressSize 20 bytes  
 PseudoStreamOriented False  
 SupportsBroadcasting True  
 SupportsConnectData False  
 SupportsDisconnectData False  
 SupportsEncryption False  
 SupportsExpeditedData False  
 SupportsGracefulClosing False  
 SupportsGuaranteedBandwidth False  
 SupportsMulticasting False

[WinSock]

Item Value  
 File c:\winnt\system32\winsock.dll  
 Version 3.10  
 Size 2.80 KB (2,864 bytes)

File c:\winnt\system32\wsock32.dll  
 Version 5.00.2152.1  
 Size 21.27 KB (21,776 bytes)

[Ports]

[ Following are sub-categories of this main category ]

[Serial]

Item Value  
 Name COM1  
 Status OK  
 PNP Device ID ACPI\PNP0501\1  
 Maximum Input Buffer Size 0  
 Maximum Output Buffer Size False  
 Settable Baud Rate True  
 Settable Data Bits True  
 Settable Flow Control True  
 Settable Parity True  
 Settable Parity Check True  
 Settable Stop Bits True  
 Settable RLSD True  
 Supports RLSD True  
 Supports 16 Bit Mode False  
 Supports Special Characters False  
 Baud Rate 9600

Bits/Byte 8  
 Stop Bits 1  
 Parity None  
 Busy 0  
 Abort Read/Write on Error 0  
 Binary Mode Enabled-1  
 Continue XMit on XOff 0  
 CTS Outflow Control 0  
 Discard NULL Bytes 0  
 DSR Outflow Control 0  
 DSR Sensitivity 0  
 DTR Flow Control Type Enable  
 EOF Character 0  
 Error Replace Character 0  
 Error Replacement Enabled 0  
 Event Character 0  
 Parity Check Enabled 0  
 RTS Flow Control Type Enable  
 XOff Character 19  
 XOffXMit Threshold 512  
 XOn Character 17  
 XOnXMit Threshold 2048  
 XOnXOff InFlow Control 0  
 XOnXOff OutFlow Control 0  
 IRQ Number 4  
 I/O Port 0x03F8-0x03FF  
 Driver c:\winnt\system32\drivers\serial.sys (62448, 5.00.2134.1)

Name COM2  
 Status OK  
 PNP Device ID ACPI\PNP0501\2  
 Maximum Input Buffer Size 0  
 Maximum Output Buffer Size False  
 Settable Baud Rate True  
 Settable Data Bits True  
 Settable Flow Control True  
 Settable Parity True  
 Settable Parity Check True  
 Settable Stop Bits True  
 Settable RLSD True  
 Supports RLSD True  
 Supports 16 Bit Mode False  
 Supports Special Characters False  
 Baud Rate 9600  
 Bits/Byte 8  
 Stop Bits 1  
 Parity None  
 Busy 0  
 Abort Read/Write on Error 0

```

Binary Mode Enabled-1
Continue XMit on XOff      0
CTS Outflow Control 0
Discard NULL Bytes 0
DSR Outflow Control 0
DSR Sensitivity 0
DTR Flow Control Type      Enable
EOF Character 0
Error Replace Character      0
Error Replacement Enabled  0
Event Character 0
Parity Check Enabled 0
RTS Flow Control Type      Enable
XOff Character 19
XOffXMit Threshold 512
XOn Character 17
XOnXMit Threshold 2048
XOnXOff InFlow Control      0
XOnXOff OutFlow Control     0
IRQ Number 3
I/O Port 0x02F8-0x02FF
Driver c:\winnt\system32\drivers\serial.sys (62448, 5.00.2134.1)

```

[Parallel]

```

Item      Value
Name      LPT1
PNP Device ID  ACPI\PNP0400\1

```

[Storage]

[ Following are sub-categories of this main category ]

[Drives]

```

Item      Value
Drive     A:
Description 3 1/2 Inch Floppy Drive

Drive     C:
Description Local Fixed Disk
Compressed False
File System NTFS
Size      8.46 GB (9,088,901,120 bytes)
Free Space 6.89 GB (7,395,287,040 bytes)
Volume Name
Volume Serial Number E4DE2F60

```

```

Partition Disk #0, Partition #0
Partition Size 8.46 GB (9,088,902,144 bytes)
Starting Offset 32256 bytes
Drive Description Disk drive
Drive Manufacturer (Standard disk drives)
Drive Model IBM-PSG ST39103LC !# SCSI Disk Device
Drive BytesPerSector 512
Drive MediaLoaded True
Drive MediaType Fixed hard disk media
Drive Partitions 1
Drive SCSIbus 0
Drive SCSILogicalUnit 0
Drive SCSIPort 2
Drive SCSTargetId 0
Drive SectorsPerTrack 63
Drive Size 9097159680 bytes
Drive TotalCylinders 1106
Drive TotalSectors 17767890
Drive TotalTracks 282030
Drive TracksPerCylinder 255

```

[SCSI]

```

Item      Value
Name      Adaptec AIC-7899 Ultra160/m PCI SCSI Card
Caption   Adaptec AIC-7899 Ultra160/m PCI SCSI Card
Driver    adpu160m
Status    OK
PNP Device ID
PCI\VEN_9005&DEV_00CF&SUBSYS_019D1014&REV_01\3&13C0B0C5&0&18
Device ID PCI\VEN_9005&DEV_00CF&SUBSYS_019D1014&REV_01\3&13C0B0C5&0&18
Device Map Not Available
Index     Not Available
Max Number Controlled Not Available
IRQ Number 28
I/O Port 0x4B00-0x4BFF
Driver    c:\winnt\system32\drivers\adpu160m.sys (64432, v3.10a)

Name      Adaptec AIC-7899 Ultra160/m PCI SCSI Card
Caption   Adaptec AIC-7899 Ultra160/m PCI SCSI Card
Driver    adpu160m
Status    OK
PNP Device ID
PCI\VEN_9005&DEV_00CF&SUBSYS_019D1014&REV_01\3&13C0B0C5&0&19
Device ID PCI\VEN_9005&DEV_00CF&SUBSYS_019D1014&REV_01\3&13C0B0C5&0&19
Device Map Not Available
Index     Not Available
Max Number Controlled Not Available

```

IRQ Number 29  
 I/O Port 0x4C00-0x4CFF  
 Driver c:\winnt\system32\drivers\adpu160m.sys (64432, v3.10a)

[Printing]

Name Port Name Server Name  
 No printing information

[Problem Devices]

Device PNP Device ID Error Code  
 Not Available ACPI\IBM37C0\4&F0B8F99&0 28

[USB]

Device PNP Device ID  
 Standard OpenHCD USB Host Controller  
 PCI\VEN\_1166&DEV\_0220&SUBSYS\_02201166&REV\_04\3&267A616A&0&7A  
 USB Root Hub USB\ROOT\_HUB\4&372644EA&0

[Software Environment]

[ Following are sub-categories of this main category ]

[Drivers]

| Name          | Description                        | File                                   | Type          | Started | Start Mode | State   | Status |
|---------------|------------------------------------|--|---------------|---------|------------|---------|--------|
| Error Control | Accept Pause                       |  | Accept Stop   |         |            |         |        |
| abiosdsk      | Abiosdsk                           | Not Available                          | Kernel Driver | False   | Disabled   | Stopped | OK     |
| Ignore        | False                              | False                                  |               |         |            |         |        |
| abp480n5      | abp480n5                           | Not Available                          | Kernel Driver | False   | Disabled   | Stopped | OK     |
| Normal        | False                              | False                                  |               |         |            |         |        |
| acpi          | Microsoft ACPI Driver              | c:\winnt\system32\drivers\acpi.sys     | Kernel Driver |         |            |         |        |
| True          | Boot                               | Running                                | OK            | Normal  | False      | True    |        |
| acpiec        | ACPIEC                             | c:\winnt\system32\drivers\acpiec.sys   | Kernel Driver | False   |            |         |        |
| Disabled      | Stopped                            | OK                                     | Normal        | False   | False      |         |        |
| adpu160m      | adpu160m                           | c:\winnt\system32\drivers\adpu160m.sys | Kernel Driver | True    |            | Boot    |        |
| Running       | OK                                 | Normal                                 | False         | True    |            |         |        |
| afd           | AFD Networking Support Environment | c:\winnt\system32\drivers\afd.sys      | Kernel Driver |         |            |         |        |
| True          | Auto                               | Running                                | OK            | Normal  | False      | True    |        |
| aha154x       | Aha154x                            | Not Available                          | Kernel Driver | False   | Disabled   | Stopped | OK     |
| Normal        | False                              | False                                  |               |         |            |         |        |
| aic116x       | aic116x                            | Not Available                          | Kernel Driver | False   | Disabled   | Stopped | OK     |
| Normal        | False                              | False                                  |               |         |            |         |        |
| aic78u2       | aic78u2                            | Not Available                          | Kernel Driver | False   | Disabled   | Stopped | OK     |
| Normal        | False                              | False                                  |               |         |            |         |        |

|          |  |                                       |  |               |          |         |        |
|----------|--|---------------------------------------|--|---------------|----------|---------|--------|
| aic78xx  | aic78xx                                | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| ami0nt   | ami0nt                                 | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| amsint   | amsint                                 | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| asc      | asc                                    | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| asc3350p | asc3350p                               | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| asc3550  | asc3550                                | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| asynctac | RAS Asynchronous Media Driver          |                                       | c:\winnt\system32\drivers\asynctac.sys | Kernel        |          |         |        |
| Driver   | False                                  | Manual                                | Stopped                                | OK            | Normal   | False   | False  |
| atapi    | Standard IDE/ESDI Hard Disk Controller |                                       | c:\winnt\system32\drivers\atapi.sys    | Kernel        |          |         |        |
| Driver   | True                                   | Boot                                  | Running                                | OK            | Normal   | False   | True   |
| atdisk   | Atdisk                                 | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Ignore   | False                                  | False                                 |  |               |          |         |        |
| atmarpc  | ATM ARP Client Protocol                |                                       | c:\winnt\system32\drivers\atmarpc.sys  | Kernel Driver |          |         |        |
| False    | Manual                                 | Stopped                               | OK                                     | Normal        | False    | False   |        |
| audstvb  | Audio Stub Driver                      |                                       | c:\winnt\system32\drivers\audstvb.sys  | Kernel Driver |          | True    |        |
| Manual   | Running                                | OK                                    | Normal                                 | False         | True     |         |        |
| beep     | Beep                                   | c:\winnt\system32\drivers\beep.sys    |  | Kernel Driver |          | True    | System |
| Running  | OK                                     | Normal                                | False                                  | True          |          |         |        |
| buslogic | BusLogic                               | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| cd20xrnt | cd20xrnt                               | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| cdaudio  | Cdaudio                                | c:\winnt\system32\drivers\cdaudio.sys | Kernel Driver                          | False         | System   |         |        |
| Stopped  | OK                                     | Ignore                                | False                                  | False         |          |         |        |
| cdfs     | Cdfs                                   | c:\winnt\system32\drivers\cdfs.sys    | File System Driver                     | True          |          |         |        |
| Disabled | Running                                | OK                                    | Normal                                 | False         | True     |         |        |
| cdrom    | CD-ROM Driver                          |                                       | c:\winnt\system32\drivers\cdrom.sys    | Kernel Driver |          | True    |        |
| System   | Running                                | OK                                    | Normal                                 | False         | True     |         |        |
| changer  | Changer                                | Not Available                         | Kernel Driver                          | False         | System   | Stopped | OK     |
| Ignore   | False                                  | False                                 |  |               |          |         |        |
| cpqarray | Cpqarray                               | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| cpqarry2 | cpqarry2                               | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| cpqfcalm | cpqfcalm                               | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| cpqfws2e | cpqfws2e                               | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| dac960nt | dac960nt                               | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |
| deckzpsx | deckzpsx                               | Not Available                         | Kernel Driver                          | False         | Disabled | Stopped | OK     |
| Normal   | False                                  | False                                 |  |               |          |         |        |

|                |   |  |                    |        |                    |       |          |         |    |               |   |  |  |          |          |         |                    |
|----------------|---|--|--------------------|--------|--------------------|-------|----------|---------|----|---------------|---|--|--|----------|----------|---------|--------------------|
| dfsdriver      | DfsDriver                                 | c:\winnt\system32\drivers\dfs.sys      | File System Driver | True   | Boot               |       |          |         |    | ipsraidn      | ipsraidn                                  | Not Available                          | Kernel Driver                          | False    | Disabled | Stopped | OK                 |
| Running        | OK  | Normal                                 | False              | True   |                    |       |          |         |    | Normal        | False                                     | False                                  |  |          |          |         |                    |
| disk           | Disk Driver                               | c:\winnt\system32\drivers\disk.sys     |                    |        | Kernel Driver      | True  |          |         |    | isapnp        | PnP ISA/EISA Bus Driver                   |  | c:\winnt\system32\drivers\isapnp.sys   |          |          |         | Kernel Driver      |
| Boot           | Running                                   | OK                                     | Normal             | False  | True               |       |          |         |    | True          | Boot                                      | Running                                | OK                                     | Critical | False    | True    |                    |
| diskperf       | Diskperf                                  | c:\winnt\system32\drivers\diskperf.sys |                    |        | Kernel Driver      | True  | Boot     |         |    | kbdclass      | Keyboard Class Driver                     |  | c:\winnt\system32\drivers\kbdclass.sys |          |          |         | Kernel Driver      |
| Running        | OK  | Normal                                 | False              | True   |                    |       |          |         |    | True          | System                                    | Running                                | OK                                     | Normal   | False    | True    |                    |
| dmboot         | dmboot                                    | c:\winnt\system32\drivers\dmboot.sys   |                    |        | Kernel Driver      | False |          |         |    | ksecdd        | KSecDD                                    | c:\winnt\system32\drivers\ksecdd.sys   |  |          |          |         | Kernel Driver      |
| Disabled       | Stopped                                   | OK                                     | Normal             | False  | False              |       |          |         |    | Running       | OK  | Normal                                 | False                                  | True     |          |         | True               |
| dmio           | Logical Disk Manager Driver               | c:\winnt\system32\drivers\dmio.sys     |                    |        | Kernel Driver      |       |          |         |    | lbrtfdc       | lbrtfdc                                   | Not Available                          | Kernel Driver                          | False    | System   | Stopped | OK                 |
| True           | Boot                                      | Running                                | OK                 | Normal | False              | True  |          |         |    | Ignore        | False                                     | False                                  |  |          |          |         |                    |
| dmload         | dmload                                    | c:\winnt\system32\drivers\dmload.sys   |                    |        | Kernel Driver      | True  | Boot     |         |    | lp6nds35      | lp6nds35                                  | Not Available                          | Kernel Driver                          | False    | Disabled | Stopped | OK                 |
| Running        | OK  | Normal                                 | False              | True   |                    |       |          |         |    | Normal        | False                                     | False                                  |  |          |          |         |                    |
| e100b          | Intel PRO Adapter Driver                  | c:\winnt\system32\drivers\e100bnt5.sys |                    |        | Kernel Driver      |       |          |         |    | mnmdd         | mnmdd                                     | c:\winnt\system32\drivers\mnmdd.sys    |  |          |          |         | Kernel Driver      |
| False          | Manual                                    | Stopped                                | OK                 | Normal | False              | False |          |         |    | Running       | OK  | Ignore                                 | False                                  | True     |          |         | True               |
| efs            | EFS                                       | c:\winnt\system32\drivers\efs.sys      | File System Driver | True   | Disabled           |       |          |         |    | modem         | Modem                                     | c:\winnt\system32\drivers\modem.sys    |  |          |          |         | Kernel Driver      |
| Running        | OK  | Normal                                 | False              | True   |                    |       |          |         |    | Manual        | Stopped                                   | OK                                     | Ignore                                 | False    | False    |         | False              |
| fastfat        | Fastfat                                   | c:\winnt\system32\drivers\fastfat.sys  |                    |        | File System Driver | True  |          |         |    | mouclass      | Mouse Class Driver                        | c:\winnt\system32\drivers\mouclass.sys |  |          |          |         | Kernel Driver      |
| Disabled       | Running                                   | OK                                     | Normal             | False  | True               |       |          |         |    | System        | Running                                   | OK                                     | Normal                                 | False    | True     |         | True               |
| fd16_700       | Fd16_700                                  | Not Available                          |                    |        | Kernel Driver      | False | Disabled | Stopped | OK | mountmgr      | MountMgr                                  | c:\winnt\system32\drivers\mountmgr.sys |  |          |          |         | Kernel Driver      |
| Normal         | False                                     | False                                  |                    |        |                    |       |          |         |    | Running       | OK  | Normal                                 | False                                  | True     |          |         | True               |
| fdc            | Floppy Disk Controller Driver             | c:\winnt\system32\drivers\fdc.sys      |                    |        | Kernel Driver      | True  |          |         |    | mraid35x      | mraid35x                                  | Not Available                          | Kernel Driver                          | False    | Disabled | Stopped | OK                 |
| Manual         | Running                                   | OK                                     | Normal             | False  | True               |       |          |         |    | Normal        | False                                     | False                                  |  |          |          |         |                    |
| fireport       | fireport                                  | Not Available                          |                    |        | Kernel Driver      | False | Disabled | Stopped | OK | mrx smb       | MRXSMB                                    | c:\winnt\system32\drivers\mrx smb.sys  |  |          |          |         | File System Driver |
| Normal         | False                                     | False                                  |                    |        |                    |       |          |         |    | Running       | OK  | Normal                                 | False                                  | True     |          |         | True               |
| flashpnt       | flashpnt                                  | Not Available                          |                    |        | Kernel Driver      | False | Disabled | Stopped | OK | msfs          | Msfs                                      | c:\winnt\system32\drivers\msfs.sys     |  |          |          |         | File System Driver |
| Normal         | False                                     | False                                  |                    |        |                    |       |          |         |    | Running       | OK  | Normal                                 | False                                  | True     |          |         | True               |
| flpydisk       | Floppy Disk Driver                        | c:\winnt\system32\drivers\flpydisk.sys |                    |        | Kernel Driver      | True  |          |         |    | mks ssv       | Microsoft Streaming Service Proxy         |  | c:\winnt\system32\drivers\mks ssv.sys  |          |          |         | Kernel             |
| Manual         | Running                                   | OK                                     | Normal             | False  | True               |       |          |         |    | Driver        | False                                     | Manual                                 | Stopped                                | OK       | Normal   | False   | False              |
| ftdisk         | Volume Manager Driver                     | c:\winnt\system32\drivers\ftdisk.sys   |                    |        | Kernel Driver      |       |          |         |    | mspclock      | Microsoft Streaming Clock Proxy           |  | c:\winnt\system32\drivers\mspclock.sys |          |          |         | Kernel             |
| True           | Boot                                      | Running                                | OK                 | Normal | False              | True  |          |         |    | Driver        | False                                     | Manual                                 | Stopped                                | OK       | Normal   | False   | False              |
| gpc            | Generic Packet Classifier                 | c:\winnt\system32\drivers\msgpc.sys    |                    |        | Kernel Driver      |       |          |         |    | m spqm        | Microsoft Streaming Quality Manager Proxy |  | c:\winnt\system32\drivers\m spqm.sys   |          |          |         | Kernel Driver      |
| True           | Manual                                    | Running                                | OK                 | Normal | False              | True  |          |         |    | Kernel Driver | False                                     | Manual                                 | Stopped                                | OK       | Normal   | False   | False              |
| i8042prt       | i8042 Keyboard and PS/2 Mouse Port Driver | c:\winnt\system32\drivers\i8042prt.sys |                    |        | Kernel Driver      | True  | System   | Running | OK | mup           | Mup                                       | c:\winnt\system32\drivers\mup.sys      |  |          |          |         | File System Driver |
| Kernel Driver  | True                                      | System                                 | Running            | OK     | Normal             | False | True     |         |    | Running       | OK  | Normal                                 | False                                  | True     |          |         | True               |
| ibmfe          | IBM 10/100 Ethernet PCI Adapter Driver    | c:\winnt\system32\drivers\ibmfent5.sys |                    |        | Kernel             |       |          |         |    | ncrc710       | Ncrc710                                   | Not Available                          | Kernel Driver                          | False    | Disabled | Stopped | OK                 |
| Driver         | True                                      | Manual                                 | Running            | OK     | Normal             | False | True     |         |    | Normal        | False                                     | False                                  |  |          |          |         |                    |
| ini910u        | ini910u                                   | Not Available                          |                    |        | Kernel Driver      | False | Disabled | Stopped | OK | ndis          | NDIS System Driver                        | c:\winnt\system32\drivers\ndis.sys     |  |          |          |         | Kernel Driver      |
| Normal         | False                                     | False                                  |                    |        |                    |       |          |         |    | Boot          | Running                                   | OK                                     | Normal                                 | False    | True     |         | True               |
| intellide      | IntelIde                                  | Not Available                          |                    |        | Kernel Driver      | False | Disabled | Stopped | OK | ndistapi      | Remote Access NDIS TAPI Driver            |  | c:\winnt\system32\drivers\ndistapi.sys |          |          |         | Kernel             |
| Normal         | False                                     | False                                  |                    |        |                    |       |          |         |    | Driver        | True                                      | Manual                                 | Running                                | OK       | Normal   | False   | True               |
| ipfilterdriver | IP Traffic Filter Driver                  | c:\winnt\system32\drivers\ipfltdrv.sys |                    |        | Kernel             |       |          |         |    | ndiswan       | Remote Access NDIS WAN Driver             |  | c:\winnt\system32\drivers\ndiswan.sys  |          |          |         | Kernel             |
| Driver         | False                                     | Manual                                 | Stopped            | OK     | Normal             | False | False    |         |    | Driver        | True                                      | Manual                                 | Running                                | OK       | Normal   | False   | True               |
| ipinip         | IP in IP Tunnel Driver                    | c:\winnt\system32\drivers\ipinip.sys   |                    |        | Kernel Driver      | False |          |         |    | ndproxy       | NDIS Proxy                                |  | c:\winnt\system32\drivers\ndproxy.sys  |          |          |         | Kernel Driver      |
| Manual         | Stopped                                   | OK                                     | Normal             | False  | False              |       |          |         |    | Manual        | Running                                   | OK                                     | Normal                                 | False    | True     |         | True               |
| ipnat          | IP Network Address Translator             | c:\winnt\system32\drivers\ipnat.sys    |                    |        | Kernel Driver      |       |          |         |    | netbios       | NetBIOS Interface                         |  | c:\winnt\system32\drivers\netbios.sys  |          |          |         | File System Driver |
| False          | Manual                                    | Stopped                                | OK                 | Normal | False              | False |          |         |    | System        | Running                                   | OK                                     | Normal                                 | False    | True     |         | True               |
| ipsec          | IPSEC driver                              | c:\winnt\system32\drivers\ipsec.sys    |                    |        | Kernel Driver      | True  |          |         |    | netbt         | NetBios over Tcpip                        |  | c:\winnt\system32\drivers\netbt.sys    |          |          |         | Kernel Driver      |
| Manual         | Running                                   | OK                                     | Normal             | False  | True               |       |          |         |    | System        | Running                                   | OK                                     | Normal                                 | False    | True     |         | True               |

|              |   |  |                    |        |          |         |  |                                       |                    |          |          |         |       |
|--------------|---|--|--------------------|--------|----------|---------|--|---------------------------------------|--------------------|----------|----------|---------|-------|
| netdetect    | NetDetect                                 | c:\winnt\system32\drivers\netdect.sys  | Kernel Driver      | False  | q11240   | q11240  | Not Available                                  | Kernel Driver                         | False              | Disabled | Stopped  | OK      |       |
| Manual       | Stopped                                   | OK                                     | Normal             | False  | False    | False   | False  | False                                 | False              | Disabled | Stopped  | OK      |       |
| npfs         | Npfs                                      | c:\winnt\system32\drivers\npfs.sys     | File System Driver | True   | System   | q12100  | q12100   | Not Available                         | Kernel Driver      | False    | Disabled | Stopped | OK    |
|              | Running                                   | OK                                     | Normal             | False  | True     | Normal  | False  | False                                 | False              | False    | Stopped  | OK      |       |
| ntfs         | Ntfs                                      | c:\winnt\system32\drivers\ntfs.sys     | File System Driver | True   |          | rasacd  | Remote Access Auto Connection Driver           | c:\winnt\system32\drivers\rasacd.sys  | Kernel             |          |          |         |       |
| Disabled     | Running                                   | OK                                     | Normal             | False  | True     | Driver  | True   | System                                | Running            | OK       | Normal   | False   | True  |
| null         | Null                                      | c:\winnt\system32\drivers\null.sys     | Kernel Driver      | True   | System   | rasl2tp | WAN Miniport (L2TP)                            | c:\winnt\system32\drivers\rasl2tp.sys | Kernel Driver      |          |          |         |       |
|              | Running                                   | OK                                     | Normal             | False  | True     | True    | Manual   | Running                               | OK                 | Normal   | False    | True    |       |
| nwlkflt      | IPX Traffic Filter Driver                 | c:\winnt\system32\drivers\nwlkflt.sys  | Kernel Driver      |        |          | raspti  | Direct Parallel                                | c:\winnt\system32\drivers\raspti.sys  | Kernel Driver      | True     |          |         |       |
| False        | Manual                                    | Stopped                                | OK                 | Normal | False    | Manual  | Running  | OK                                    | Normal             | False    | True     |         |       |
| nwlkfwd      | IPX Traffic Forwarder Driver              | c:\winnt\system32\drivers\nwlkfwd.sys  | Kernel Driver      |        |          | rca     | Microsoft Streaming Network Raw Channel Access | c:\winnt\system32\drivers\rca.sys     | Kernel             |          |          |         |       |
| False        | Manual                                    | Stopped                                | OK                 | Normal | False    | Driver  | False  | Manual                                | Stopped            | OK       | Normal   | False   | False |
| openhci      | Microsoft USB Open Host Controller Driver | c:\winnt\system32\drivers\openhci.sys  | Kernel             |        |          | rdbss   | Rdbss  | c:\winnt\system32\drivers\rdbss.sys   | File System Driver | True     | System   |         |       |
| Driver       | True                                      | Manual                                 | Running            | OK     | Normal   | False   | True   | Running                               | OK                 | Normal   | False    | True    |       |
| parallel     | Parallel class driver                     | c:\winnt\system32\drivers\parallel.sys | Kernel Driver      | True   |          | rdpwd   | RDPWD  | c:\winnt\system32\drivers\rdpwd.sys   | Kernel Driver      | False    |          |         |       |
| Manual       | Running                                   | OK                                     | Normal             | False  | True     | Manual  | Stopped  | OK                                    | Ignore             | False    | False    |         |       |
| parport      | Parallel port driver                      | c:\winnt\system32\drivers\parport.sys  | Kernel Driver      | True   |          | redbook | Digital CD Audio Playback Filter Driver        | c:\winnt\system32\drivers\redbook.sys | Kernel             |          |          |         |       |
| System       | Running                                   | OK                                     | Ignore             | False  | True     | Driver  | False  | System                                | Stopped            | OK       | Normal   | False   | False |
| partmgr      | PartMgr                                   | c:\winnt\system32\drivers\partmgr.sys  | Kernel Driver      | True   | Boot     | s3inc   | S3Inc  | c:\winnt\system32\drivers\s3sav4m.sys | Kernel Driver      | True     |          |         |       |
| Running      | OK  | Normal                                 | False              | True   |          | Manual  | Running  | OK                                    | Ignore             | False    | True     |         |       |
| parvdm       | ParVdm                                    | c:\winnt\system32\drivers\parvdm.sys   | Kernel Driver      | True   | Auto     | serenum | Serenum Filter Driver                          | c:\winnt\system32\drivers\serenum.sys | Kernel Driver      | True     |          |         |       |
| Running      | OK  | Ignore                                 | False              | True   |          | Manual  | Running  | OK                                    | Normal             | False    | True     |         |       |
| pci          | PCI Bus Driver                            | c:\winnt\system32\drivers\pci.sys      | Kernel Driver      | True   | Boot     | serial  | Serial port driver                             | c:\winnt\system32\drivers\serial.sys  | Kernel Driver      | True     |          |         |       |
| Running      | OK  | Critical                               | False              | True   |          | System  | Running  | OK                                    | Ignore             | False    | True     |         |       |
| pcidump      | PCIDump                                   | Not Available                          | Kernel Driver      | False  | System   | sfloppy | Sfloppy  | c:\winnt\system32\drivers\sfloppy.sys | Kernel Driver      | False    | System   |         |       |
| Ignore       | False                                     | False                                  |                    |        |          | Stopped | OK   | Ignore                                | False              | False    |          |         |       |
| pciide       | PCIIde                                    | c:\winnt\system32\drivers\pciide.sys   | Kernel Driver      | True   | Boot     | sglfb   | sglfb  | Not Available                         | Kernel Driver      | False    | System   | Stopped | OK    |
| Running      | OK  | Normal                                 | False              | True   |          | Normal  | False  | False                                 |                    |          |          |         |       |
| pcmcia       | Pcmcia                                    | c:\winnt\system32\drivers\pcmcia.sys   | Kernel Driver      | False  |          | simbad  | Simbad   | Not Available                         | Kernel Driver      | False    | Disabled | Stopped | OK    |
| Disabled     | Stopped                                   | OK                                     | Normal             | False  | False    | Normal  | False  | False                                 |                    |          |          |         |       |
| pcnet        | PCNET Adapter Driver                      | c:\winnt\system32\drivers\pcntn5m.sys  | Kernel Driver      |        |          | sparrow | Sparrow  | Not Available                         | Kernel Driver      | False    | Disabled | Stopped | OK    |
| True         | Manual                                    | Running                                | OK                 | Normal | False    | Normal  | False  | False                                 |                    |          |          |         |       |
| pdcomp       | PDCOMP                                    | Not Available                          | Kernel Driver      | False  | Manual   | spud    | Special Purpose Utility Driver                 | c:\winnt\system32\drivers\spud.sys    | Kernel Driver      |          |          |         |       |
| Ignore       | False                                     | False                                  |                    |        |          | True    | Manual   | Running                               | OK                 | Normal   | False    | True    |       |
| pdframe      | PDFRAME                                   | Not Available                          | Kernel Driver      | False  | Manual   | srv     | Srv  | c:\winnt\system32\drivers\srv.sys     | File System Driver | True     | Manual   |         |       |
| Stopped      | OK  | Ignore                                 | False              | False  |          | Running | OK   | Normal                                | False              | True     |          |         |       |
| pdreli       | PDRELI                                    | Not Available                          | Kernel Driver      | False  | Manual   | swenum  | Software Bus Driver                            | c:\winnt\system32\drivers\swenum.sys  | Kernel Driver      | True     |          |         |       |
| Ignore       | False                                     | False                                  |                    |        |          | Manual  | Running  | OK                                    | Normal             | False    | True     |         |       |
| pdrframe     | PDRFRAME                                  | Not Available                          | Kernel Driver      | False  | Manual   | symc810 | symc810  | Not Available                         | Kernel Driver      | False    | Disabled | Stopped | OK    |
| Stopped      | OK  | Ignore                                 | False              | False  |          | Normal  | False  | False                                 |                    |          |          |         |       |
| pptpminiport | WAN Miniport (PPTP)                       | c:\winnt\system32\drivers\rasptp.sys   | Kernel             |        |          | symc8xx | symc8xx  | Not Available                         | Kernel Driver      | False    | Disabled | Stopped | OK    |
| Driver       | True                                      | Manual                                 | Running            | OK     | Normal   | False   | True   | False                                 |                    |          |          |         |       |
| ptilink      | Direct Parallel Link Driver               | c:\winnt\system32\drivers\ptilink.sys  | Kernel Driver      |        |          | sym_hi  | sym_hi   | Not Available                         | Kernel Driver      | False    | Disabled | Stopped | OK    |
| True         | Manual                                    | Running                                | OK                 | Normal | False    | Normal  | False  | False                                 |                    |          |          |         |       |
| q11080       | q11080                                    | Not Available                          | Kernel Driver      | False  | Disabled | tcpip   | TCP/IP Protocol Driver                         | c:\winnt\system32\drivers\tcpip.sys   | Kernel Driver      |          |          |         |       |
| Normal       | False                                     | False                                  |                    |        |          | True    | System   | Running                               | OK                 | Normal   | False    | True    |       |
| q110wnt      | Q110wnt                                   | Not Available                          | Kernel Driver      | False  | Disabled | tdasync | TDASync  | c:\winnt\system32\drivers\tdasync.sys | Kernel Driver      | False    |          |         |       |
| Normal       | False                                     | False                                  |                    |        |          | Manual  | Stopped  | OK                                    | Ignore             | False    | False    |         |       |

|          |                                   |                                      |                    |        |          |         |      |  |  |
|----------|-----------------------------------|--------------------------------------|--------------------|--------|----------|---------|------|--|--|
| tdipx    | TDIPX                             | c:\winnt\system32\drivers\tdipx.sys  | Kernel Driver      | False  |          |         |      |  |  |
| Manual   | Stopped                           | OK                                   | Ignore             | False  | False    |         |      |  |  |
| tdnetb   | TDNETB                            | c:\winnt\system32\drivers\tdnetb.sys | Kernel Driver      | False  |          |         |      |  |  |
| Manual   | Stopped                           | OK                                   | Ignore             | False  | False    |         |      |  |  |
| tdpipe   | TDPIPE                            | c:\winnt\system32\drivers\tdpipe.sys | Kernel Driver      | False  |          |         |      |  |  |
| Manual   | Stopped                           | OK                                   | Ignore             | False  | False    |         |      |  |  |
| tdspx    | TDSPX                             | c:\winnt\system32\drivers\tdspx.sys  | Kernel Driver      | False  |          |         |      |  |  |
| Manual   | Stopped                           | OK                                   | Ignore             | False  | False    |         |      |  |  |
| tdtcp    | TDTCP                             | c:\winnt\system32\drivers\tdtcp.sys  | Kernel Driver      | False  |          |         |      |  |  |
| Manual   | Stopped                           | OK                                   | Ignore             | False  | False    |         |      |  |  |
| termdd   | Terminal Device Driver            | c:\winnt\system32\drivers\termdd.sys | Kernel Driver      |        |          |         |      |  |  |
| False    | Disabled                          | Stopped                              | OK                 | Normal | False    | False   |      |  |  |
| tga      | tga                               | Not Available                        | Kernel Driver      | False  | System   | Stopped | OK   |  |  |
| Ignore   | False                             | False                                |                    |        |          |         |      |  |  |
| udfs     | Udfs                              | c:\winnt\system32\drivers\udfs.sys   | File System Driver | False  |          |         |      |  |  |
| Disabled | Stopped                           | OK                                   | Normal             | False  | False    |         |      |  |  |
| ultra66  | ultra66                           | Not Available                        | Kernel Driver      | False  | Disabled | Stopped | OK   |  |  |
| Normal   | False                             | False                                |                    |        |          |         |      |  |  |
| update   | Microcode Update Driver           | c:\winnt\system32\drivers\update.sys | Kernel Driver      |        |          |         |      |  |  |
| True     | Manual                            | Running                              | OK                 | Normal | False    | True    |      |  |  |
| usbhub   | Microsoft USB Standard Hub Driver | c:\winnt\system32\drivers\usbhub.sys | Kernel             |        |          |         |      |  |  |
| Driver   | True                              | Manual                               | Running            | OK     | Normal   | False   | True |  |  |
| vgasave  | VgaSave                           | c:\winnt\system32\drivers\vga.sys    | Kernel Driver      | True   | System   |         |      |  |  |
|          | Running                           | OK                                   | Ignore             | False  | True     |         |      |  |  |
| wanarp   | Remote Access IP ARP Driver       | c:\winnt\system32\drivers\wanarp.sys | Kernel Driver      |        |          |         |      |  |  |
| True     | Manual                            | Running                              | OK                 | Normal | False    | True    |      |  |  |
| wdica    | WDICA                             | Not Available                        | Kernel Driver      | False  | Manual   | Stopped | OK   |  |  |
| Ignore   | False                             | False                                |                    |        |          |         |      |  |  |

[Environment Variables]

| Variable               | Value   | User Name                 |
|------------------------|---|---------------------------|
| ComSpec                | %SystemRoot%\system32\cmd.exe   | <SYSTEM>                  |
| Os2LibPath             | %SystemRoot%\system32\os2\dll;  | <SYSTEM>                  |
| Path                   | %SystemRoot%\system32;%SystemRoot%;%SystemRoot%\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        | 6   | <SYSTEM>                  |
| PROCESSOR_IDENTIFIER   | x86 Family 6 Model 8 Stepping 3, GenuineIntel   | <SYSTEM>                  |
| PROCESSOR_REVISION     | 0803  | <SYSTEM>                  |
| NUMBER_OF_PROCESSORS   | 1   | <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   | SQLCLIENT10\Administrator |
| TMP                    | %USERPROFILE%\Local Settings\Temp   | SQLCLIENT10\Administrator |

[Jobs]

[ Following are sub-categories of this main category ]

[Print]

| Document Size | Owner            | Notify    | Status   | Time Submitted | Start Time  | Until Time |
|---------------|------------------|-----------|----------|----------------|-------------|------------|
| Elapsed Time  | Pages Printed    | Job ID    | Priority | Parameters     | Driver Name | Print      |
| Processor     | Host Print Queue | Data Type | Name     |                |             |            |
| No print jobs |                  |           |          |                |             |            |

[Network Connections]

| Local Name                         | Remote Name | Type | Status | User Name |
|------------------------------------|-------------|------|--------|-----------|
| No network connections information |             |      |        |           |

[Running Tasks]

| Name                   | Path                           | Process ID                | Priority | Min Working Set | Max Working Set | Start Time            |
|------------------------|--------------------------------|---------------------------|----------|-----------------|-----------------|-----------------------|
| Version                | Size                           | File Date                 |          |                 |                 |                       |
| system idle process    |                                | Not Available             | 0        | 0               | Not Available   | Not Available         |
| Not Available          |                                | Unknown                   | Unknown  | Unknown         |                 |                       |
| system                 | Not Available                  | 8                         | 8        | 0               | 1413120         | Not Available         |
| Unknown                | Unknown                        | Unknown                   |          |                 |                 |                       |
| smss.exe               | c:\winnt\system32\smss.exe     | 160                       | 11       | 204800          | 1413120         | 11/27/2000            |
| 11:21:31 AM            | 5.00.2170.1                    | 44.27 KB (45,328 bytes)   |          |                 |                 | 12/7/1999 7:00:00 AM  |
| csrss.exe              | Not Available                  | 184                       | 13       | Not Available   | Not Available   |                       |
| 11/27/2000 11:21:35 AM | Unknown                        | Unknown                   | Unknown  |                 |                 |                       |
| winlogon.exe           | c:\winnt\system32\winlogon.exe | 204                       | 13       | 204800          | 1413120         |                       |
| 11/27/2000 11:21:36 AM | 5.00.2182.1                    | 173.27 KB (177,424 bytes) |          |                 |                 | 12/7/1999             |
| 7:00:00 AM             |                                |                           |          |                 |                 |                       |
| services.exe           | c:\winnt\system32\services.exe | 232                       | 9        | 204800          | 1413120         |                       |
| 11/27/2000 11:21:37 AM | 5.00.2134.1                    | 86.77 KB (88,848 bytes)   |          |                 |                 | 12/7/1999             |
| 7:00:00 AM             |                                |                           |          |                 |                 |                       |
| lsass.exe              | c:\winnt\system32\lsass.exe    | 244                       | 13       | 204800          | 1413120         | 11/27/2000            |
| 11:21:37 AM            | 5.00.2184.1                    | 32.77 KB (33,552 bytes)   |          |                 |                 | 12/7/1999 7:00:00 AM  |
| svchost.exe            | c:\winnt\system32\svchost.exe  | 416                       | 8        | 204800          | 1413120         |                       |
| 11/27/2000 11:21:41 AM | 5.00.2134.1                    | 7.77 KB (7,952 bytes)     |          |                 |                 | 12/7/1999 7:00:00 AM  |
| spoolsv.exe            | c:\winnt\system32\spoolsv.exe  | 444                       | 8        | 204800          | 1413120         |                       |
| 11/27/2000 11:21:41 AM | 5.00.2161.1                    | 43.77 KB (44,816 bytes)   |          |                 |                 | 10/4/2000             |
| 12:10:53 PM            |                                |                           |          |                 |                 |                       |
| msdtc.exe              | c:\winnt\system32\msdtc.exe    | 472                       | 8        | 204800          | 1413120         | 11/27/2000            |
| 11:21:41 AM            | 1999.9.3421.3                  | 6.77 KB (6,928 bytes)     |          |                 |                 | 10/4/2000 12:27:00 PM |
| svchost.exe            | c:\winnt\system32\svchost.exe  | 580                       | 8        | 204800          | 1413120         |                       |
| 11/27/2000 11:21:43 AM | 5.00.2134.1                    | 7.77 KB (7,952 bytes)     |          |                 |                 | 12/7/1999 7:00:00 AM  |
| llssrv.exe             | c:\winnt\system32\llssrv.exe   | 608                       | 9        | 204800          | 1413120         | 11/27/2000            |
| 11:21:44 AM            | 5.00.2167.1                    | 114.27 KB (117,008 bytes) |          |                 |                 | 12/7/1999 7:00:00 AM  |

|              |                                       |      |   |        |         |            |             |                |                           |                       |
|--------------|---------------------------------------|------|---|--------|---------|------------|-------------|----------------|---------------------------|-----------------------|
| regsvc.exe   | c:\winnt\system32\regsvc.exe          | 664  | 8 | 204800 | 1413120 | 11/27/2000 | 11:21:44 AM | 5.00.2155.1    | 65.27 KB (66,832 bytes)   | 12/7/1999 7:00:00 AM  |
| rsvp.exe     | c:\winnt\system32\rsvp.exe            | 696  | 8 | 204800 | 1413120 | 11/27/2000 | 11:21:45 AM | 5.00.2167.1    | 172.77 KB (176,912 bytes) | 12/7/1999 7:00:00 AM  |
| mstask.exec  | c:\winnt\system32\mstask.exe          | 712  | 8 | 204800 | 1413120 | 11/27/2000 | 11:21:45 AM | 4.71.2137.1    | 115.27 KB (118,032 bytes) | 10/4/2000 4:32:07 PM  |
| tcpsvcs.exe  | c:\winnt\system32\tcpsvcs.exe         | 824  | 8 | 204800 | 1413120 | 11/27/2000 | 11:21:52 AM | 5.00.2134.1    | 24.77 KB (25,360 bytes)   | 12/7/1999 7:00:00 AM  |
| winmgmt.exe  | c:\winnt\system32\wbem\winmgmt.exe    | 848  | 8 | 204800 | 1413120 | 11/27/2000 | 11:21:52 AM | 1.50.1085.0001 | 188.05 KB (192,567 bytes) | 12/7/1999 7:00:00 AM  |
| inetinfo.exe | c:\winnt\system32\inetrv\inetinfo.exe | 888  | 8 | 204800 | 1413120 | 11/27/2000 | 11:21:53 AM | 5.00.0984      | 14.27 KB (14,608 bytes)   | 10/4/2000 12:27:41 PM |
| dfssvc.exe   | c:\winnt\system32\dfssvc.exe          | 900  | 8 | 204800 | 1413120 | 11/27/2000 | 11:21:53 AM | 5.00.2191.1    | 85.27 KB (87,312 bytes)   | 12/7/1999 7:00:00 AM  |
| svchost.exe  | c:\winnt\system32\svchost.exe         | 1132 | 8 | 204800 | 1413120 | 11/27/2000 | 11:22:14 AM | 5.00.2134.1    | 7.77 KB (7,952 bytes)     | 12/7/1999 7:00:00 AM  |
| explorer.exe | c:\winnt\explorer.exe                 | 740  | 8 | 204800 | 1413120 | 11/27/2000 | 11:22:39 AM | 5.00.2920.0000 | 232.77 KB (238,352 bytes) | 12/7/1999 7:00:00 AM  |
| ibmmon.exe   | c:\winnt\system32\ibmmon.exe          | 1168 | 8 | 204800 | 1413120 | 11/27/2000 | 11:22:41 AM | 1.11           | 28.50 KB (29,184 bytes)   | 10/6/2000 3:15:41 PM  |
| mmc.exe      | c:\winnt\system32\mmc.exe             | 872  | 8 | 204800 | 1413120 | 11/27/2000 | 11:24:30 AM | 5.00.2153.1    | 589.27 KB (603,408 bytes) | 12/7/1999 7:00:00 AM  |

[Loaded Modules]

| Name                  | Version        | Size                      | File Date                           | Manufacturer          | Path                 |
|-----------------------|----------------|---------------------------|-------------------------------------|-----------------------|----------------------|
| wbemprox.dll          | 1.50.1085.0001 | 40.05 KB (41,016 bytes)   |                                     |                       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\wbem\wbemprox.dll |                       |                      |
| faxshell.dll          | 5.00.2134.1    | 8.27 KB (8,464 bytes)     |                                     | Microsoft Corporation | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\faxshell.dll      |                       |                      |
| msacm32.dll           | 5.00.2134.1    | 65.27 KB (66,832 bytes)   |                                     |                       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\msacm32.dll       |                       |                      |
| avifil32.dll          | 5.00.2134.1    | 76.27 KB (78,096 bytes)   |                                     |                       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\avifil32.dll      |                       |                      |
| msvfw32.dll           | 5.00.2134.1    | 113.77 KB (116,496 bytes) |                                     |                       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\msvfw32.dll       |                       |                      |
| docprop2.dll          | 5.00.2178.1    | 297.77 KB (304,912 bytes) |                                     |                       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\docprop2.dll      |                       |                      |
| mlang.dll             | 5.00.2920.0000 | 510.77 KB (523,024 bytes) |                                     |                       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\mlang.dll         |                       |                      |
| rassapi.dll           | 5.00.2188.1    | 14.27 KB (14,608 bytes)   |                                     |                       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\rassapi.dll       |                       |                      |
| adsnt.dll             | 5.00.2191.1    | 194.27 KB (198,928 bytes) |                                     |                       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\adsnt.dll         |                       |                      |
| dbghelp.dll           | 5.00.2195.1    | 159.27 KB (163,088 bytes) |                                     |                       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                |                           | c:\winnt\system32\dbghelp.dll       |                       |                      |

|  |                |                           |  |  |                      |
|--|----------------|---------------------------|--|--|----------------------|
| localsec.dll                                       | 5.00.2134.1    | 227.27 KB (232,720 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\localsec.dll                                     |  |                      |
| devmgr.dll   | 5.00.2166.1    | 215.77 KB (220,944 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\devmgr.dll                                       |  |                      |
| filemgmt.dll                                       | 5.00.2134.1    | 287.27 KB (294,160 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\filemgmt.dll                                     |  |                      |
| pdh.dll  | 5.00.2174.1    | 143.27 KB (146,704 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\pdh.dll  |  |                      |
| smlogcfg.dll                                       | 5.00.2163.1    | 273.27 KB (279,824 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\smlogcfg.dll                                     |  |                      |
| cabinet.dll  | 5.00.2147.1    | 54.77 KB (56,080 bytes)   |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\cabinet.dll                                      |  |                      |
| msinfo32.dll                                       | 5.00.2177.1    | 312.27 KB (319,760 bytes) |  |  | 10/4/2000 4:32:15 PM |
| Microsoft Corporation                              |                |                           | c:\program files\common files\microsoft shared\msinfo\msinfo32.dll |  |                      |
| riched20.dll                                       | 5.30.23.1200   | 421.27 KB (431,376 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\riched20.dll                                     |  |                      |
| riched32.dll                                       | 5.00.2134.1    | 3.77 KB (3,856 bytes)     |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\riched32.dll                                     |  |                      |
| els.dll  | 5.00.2175.1    | 151.27 KB (154,896 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\els.dll  |  |                      |
| ntsmgr.dll   | 1,0,0,1        | 427.77 KB (438,032 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation and HighGround Systems, Inc. |                |                           | c:\winnt\system32\ntsmgr.dll                                       |  |                      |
| mmfutil.dll  | 1.50.1085.0000 | 32.06 KB (32,829 bytes)   |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\mmfutil.dll                                      |  |                      |
| logdrive.dll                                       | 1.50.1085.0000 | 200.06 KB (204,863 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\logdrive.dll                                     |  |                      |
| dfrgres.dll  | 5.00.2150.1    | 27.50 KB (28,160 bytes)   |  |  | 12/7/1999 7:00:00 AM |
| Executive Software International, Inc.             |                |                           | c:\winnt\system32\dfrgres.dll                                      |  |                      |
| dfrgsnap.dll                                       | 5.00.2150.1    | 41.77 KB (42,768 bytes)   |  |  | 12/7/1999 7:00:00 AM |
| Executive Software International, Inc.             |                |                           | c:\winnt\system32\dfrgsnap.dll                                     |  |                      |
| dmdskres.dll                                       | 2191.1.296.2   | 119.00 KB (121,856 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corp., VERITAS Software                  |                |                           | c:\winnt\system32\dmdskres.dll                                     |  |                      |
| dmutil.dll   | 2191.1.296.2   | 41.77 KB (42,768 bytes)   |  |  | 12/7/1999 7:00:00 AM |
| VERITAS Software Corp.                             |                |                           | c:\winnt\system32\dmutil.dll                                       |  |                      |
| ntmsapi.dll  | 5.00.1948.1    | 50.27 KB (51,472 bytes)   |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\ntmsapi.dll                                      |  |                      |
| dmdskmgr.dll                                       | 2191.1.296.2   | 158.77 KB (162,576 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corp., VERITAS Software                  |                |                           | c:\winnt\system32\dmdskmgr.dll                                     |  |                      |
| mycomput.dll                                       | 5.00.2134.1    | 107.77 KB (110,352 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\mycomput.dll                                     |  |                      |
| mmcmdmgr.dll                                       | 5.00.2178.1    | 815.27 KB (834,832 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\mmcmdmgr.dll                                     |  |                      |
| mmc.exe  | 5.00.2153.1    | 589.27 KB (603,408 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\mmc.exe  |  |                      |
| ibmmon.exe   | 1.11           | 28.50 KB (29,184 bytes)   |  |  | 10/6/2000 3:15:41 PM |
| Corporation  |                |                           | c:\winnt\system32\ibmmon.exe                                       |  | IBM                  |
| wininet.dll  | 5.00.2920.0000 | 456.77 KB (467,728 bytes) |  |  | 12/7/1999 7:00:00 AM |
| Microsoft Corporation                              |                |                           | c:\winnt\system32\wininet.dll                                      |  |                      |



|                       |                |  |                       |                       |              |             |  |                       |                       |
|-----------------------|----------------|--|-----------------------|-----------------------|--------------|-------------|--|-----------------------|-----------------------|
| linkinfo.dll          | 5.00.2134.1    | 15.77 KB (16,144 bytes)  | 12/7/1999 7:00:00 AM  |                       | inetsloc.dll | 5.00.0984   | 20.27 KB (20,752 bytes)                | 10/4/2000 12:27:43 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\linkinfo.dll   |                       |                       | Corporation  |             | c:\winnt\system32\inetsloc.dll         |                       |                       |
| msi.dll               | 1.10.1029.0    | 1.71 MB (1,794,320 bytes)  | 12/7/1999 7:00:00 AM  |                       | iisfecnv.dll | 5.00.0984   | 7.27 KB (7,440 bytes)                  | 10/4/2000 12:27:41 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\msi.dll  |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\iisfecnv.dll |                       |                       |
| powrprof.dll          | 5.00.2920.0000 | 13.27 KB (13,584 bytes)  | 12/7/1999 7:00:00 AM  |                       | isatq.dll    | 5.00.0984   | 61.27 KB (62,736 bytes)                | 10/4/2000 12:27:43 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\powrprof.dll   |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\isatq.dll    |                       |                       |
| batmeter.dll          | 5.00.2920.0000 | 20.27 KB (20,752 bytes)  | 12/7/1999 7:00:00 AM  |                       | infocomm.dll | 5.00.0984   | 234.27 KB (239,888 bytes)              | 10/4/2000 12:27:41 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\batmeter.dll   |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\infocomm.dll |                       |                       |
| stobject.dll          | 5.00.2144.1    | 81.77 KB (83,728 bytes)  | 12/7/1999 7:00:00 AM  |                       | w3svc.dll    | 5.00.0984   | 347.27 KB (355,600 bytes)              | 10/4/2000 12:27:48 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\stobject.dll   |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\w3svc.dll    |                       |                       |
| webcheck.dll          | 5.00.2920.0000 | 251.77 KB (257,808 bytes)  | 12/7/1999 7:00:00 AM  |                       | security.dll | 5.00.2154.1 | 5.77 KB (5,904 bytes)                  | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\webcheck.dll   |                       |                       | Corporation  |             | c:\winnt\system32\security.dll         |                       |                       |
| ntshrui.dll           | 5.00.2134.1    | 46.77 KB (47,888 bytes)  | 12/7/1999 7:00:00 AM  |                       | svcxext.dll  | 5.00.0984   | 39.77 KB (40,720 bytes)                | 10/4/2000 12:27:42 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\ntshrui.dll  |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\svcxext.dll  |                       |                       |
| mydocs.dll            | 5.00.2920.0000 | 55.77 KB (57,104 bytes)  | 12/7/1999 7:00:00 AM  |                       | admexs.dll   | 5.00.0984   | 27.77 KB (28,432 bytes)                | 10/4/2000 12:27:41 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\mydocs.dll   |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\admexs.dll   |                       |                       |
| browseui.dll          | 5.00.2920.0000 | 793.27 KB (812,304 bytes)  | 12/7/1999 7:00:00 AM  |                       | wamreg.dll   | 5.00.0984   | 46.27 KB (47,376 bytes)                | 10/4/2000 12:27:48 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\browseui.dll   |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\wamreg.dll   |                       |                       |
| shdocvw.dll           | 5.00.2920.0000 | 1.05 MB (1,104,144 bytes)  | 12/7/1999 7:00:00 AM  |                       | metadata.dll | 5.00.0984   | 70.77 KB (72,464 bytes)                | 10/4/2000 12:27:42 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\shdocvw.dll  |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\metadata.dll |                       |                       |
| explorer.exe          | 5.00.2920.0000 | 232.77 KB (238,352 bytes)  | 12/7/1999 7:00:00 AM  |                       | iismap.dll   | 5.00.0984   | 56.27 KB (57,616 bytes)                | 10/4/2000 12:27:43 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\explorer.exe  |                       |                       | Corporation  |             | c:\winnt\system32\iismap.dll           |                       |                       |
| tapisrv.dll           | 5.00.2186.1    | 168.77 KB (172,816 bytes)  | 12/7/1999 7:00:00 AM  |                       | nsepm.dll    | 5.00.0984   | 43.27 KB (44,304 bytes)                | 10/4/2000 12:27:42 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\tapisrv.dll  |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\nsepm.dll    |                       |                       |
| dfssvc.exe            | 5.00.2191.1    | 85.27 KB (87,312 bytes)  | 12/7/1999 7:00:00 AM  |                       | coadmin.dll  | 5.00.0984   | 39.77 KB (40,720 bytes)                | 10/4/2000 12:27:43 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\dfssvc.exe   |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\coadmin.dll  |                       |                       |
| iislog.dll            | 5.00.0984      | 76.27 KB (78,096 bytes)  | 10/4/2000 12:27:41 PM | Microsoft Corporation | iisadmin.dll | 5.00.0984   | 14.77 KB (15,120 bytes)                | 10/4/2000 12:27:41 PM | Microsoft Corporation |
| Corporation           |                | c:\winnt\system32\inetsrv\iislog.dll   |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\iisadmin.dll |                       |                       |
| ntlsapi.dll           | 5.00.2134.1    | 6.77 KB (6,928 bytes)  | 12/7/1999 7:00:00 AM  | Microsoft Corporation | rpref.dll    | 5.00.0984   | 4.27 KB (4,368 bytes)                  | 10/4/2000 12:27:42 PM | Microsoft Corporation |
| Corporation           |                | c:\winnt\system32\ntlsapi.dll  |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\rpref.dll    |                       |                       |
| httpext.dll           | 0.9.3939.9     | 418.27 KB (428,304 bytes)  | 10/4/2000 12:27:41 PM | Microsoft Corporation | iisrtl.dll   | 5.00.0984   | 120.77 KB (123,664 bytes)              | 10/4/2000 12:27:42 PM | Microsoft Corporation |
| Corporation           |                | c:\winnt\system32\inetsrv\httpext.dll  |                       |                       | Corporation  |             | c:\winnt\system32\iisrtl.dll           |                       |                       |
| rpcproxy.dll          | 5.00.2176.1    | 16.27 KB (16,656 bytes)  | 10/4/2000 12:26:54 PM | Microsoft Corporation | inetinfo.exe | 5.00.0984   | 14.27 KB (14,608 bytes)                | 10/4/2000 12:27:41 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\rpcproxy\rpcproxy.dll  |                       |                       | Corporation  |             | c:\winnt\system32\inetsrv\inetinfo.exe |                       |                       |
| fpexedll.dll          | 4.0.2.3406     | 20.06 KB (20,541 bytes)  | 10/4/2000 12:29:43 PM | Microsoft Corporation | netui1.dll   | 5.00.2134.1 | 210.27 KB (215,312 bytes)              | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Microsoft Corporation |                | c:\program files\common files\microsoft shared\web server extensions\40\bin\fpexedll.dll |                       |                       | Corporation  |             | c:\winnt\system32\netui1.dll           |                       |                       |
| md5filt.dll           | 5.00.0984      | 32.77 KB (33,552 bytes)  | 10/4/2000 12:27:47 PM | Microsoft Corporation | netui0.dll   | 5.00.2134.1 | 70.27 KB (71,952 bytes)                | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Corporation           |                | c:\winnt\system32\inetsrv\md5filt.dll  |                       |                       | Corporation  |             | c:\winnt\system32\netui0.dll           |                       |                       |
| gzip.dll              | 5.00.0984      | 30.27 KB (30,992 bytes)  | 10/4/2000 12:27:46 PM | Microsoft Corporation | ntlanman.dll | 5.00.2157.1 | 35.27 KB (36,112 bytes)                | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Corporation           |                | c:\winnt\system32\inetsrv\gzip.dll   |                       |                       | Corporation  |             | c:\winnt\system32\ntlanman.dll         |                       |                       |
| compfilt.dll          | 5.00.0984      | 22.27 KB (22,800 bytes)  | 10/4/2000 12:27:46 PM | Microsoft Corporation | wshnetbs.dll | 5.00.2134.1 | 7.77 KB (7,952 bytes)                  | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\inetsrv\compfilt.dll   |                       |                       | Corporation  |             | c:\winnt\system32\wshnetbs.dll         |                       |                       |
| sspifilt.dll          | 5.00.0984      | 43.27 KB (44,304 bytes)  | 10/4/2000 12:27:48 PM | Microsoft Corporation | rapilib.dll  | 5.00.2167.1 | 25.27 KB (25,872 bytes)                | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Corporation           |                | c:\winnt\system32\inetsrv\sspifilt.dll   |                       |                       | Corporation  |             | c:\winnt\system32\rapilib.dll          |                       |                       |
| iscomlog.dll          | 5.00.0984      | 24.77 KB (25,360 bytes)  | 10/4/2000 12:27:41 PM | Microsoft Corporation | rsvsp.dll    | 5.00.2167.1 | 74.77 KB (76,560 bytes)                | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\inetsrv\iscomlog.dll   |                       |                       | Corporation  |             | c:\winnt\system32\rsvsp.dll            |                       |                       |
| lonsint.dll           | 5.00.0984      | 11.77 KB (12,048 bytes)  | 10/4/2000 12:27:42 PM | Microsoft Corporation | ntmarta.dll  | 5.00.2158.1 | 98.77 KB (101,136 bytes)               | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Corporation           |                | c:\winnt\system32\inetsrv\lonsint.dll  |                       |                       | Corporation  |             | c:\winnt\system32\ntmarta.dll          |                       |                       |

|                       |                                     |                           |                       |
|-----------------------|-------------------------------------|---------------------------|-----------------------|
| provthrd.dll          | 1.50.1085.0000                      | 68.07 KB (69,708 bytes)   | 10/4/2000 4:32:07 PM  |
| Microsoft Corporation | c:\winnt\system32\wbem\provthrd.dll |                           |                       |
| ntevt.dll             | 1.50.1085.0000                      | 192.06 KB (196,669 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\wbem\ntevt.dll    |                           |                       |
| perfos.dll            | 5.00.2155.1                         | 21.27 KB (21,776 bytes)   | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\perfos.dll        |                           |                       |
| psapi.dll             | 5.00.2134.1                         | 28.27 KB (28,944 bytes)   | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\psapi.dll         |                           |                       |
| framedyn.dll          | 1.50.1085.0000                      | 164.05 KB (167,992 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\wbem\framedyn.dll |                           |                       |
| cimwin32.dll          | 1.50.1085.0000                      | 1.03 MB (1,077,306 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\wbem\cimwin32.dll |                           |                       |
| wbemsvc.dll           | 1.50.1085.0000                      | 140.07 KB (143,430 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\wbem\wbemsvc.dll  |                           |                       |
| wbemess.dll           | 1.50.1085.0001                      | 352.05 KB (360,503 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\wbem\wbemess.dll  |                           |                       |
| fastprox.dll          | 1.50.1085.0001                      | 144.08 KB (147,534 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\wbem\fastprox.dll |                           |                       |
| wbemcore.dll          | 1.50.1085.0001                      | 632.05 KB (647,224 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\wbem\wbemcore.dll |                           |                       |
| wbemcomn.dll          | 1.50.1085.0001                      | 684.05 KB (700,472 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\wbem\wbemcomn.dll |                           |                       |
| winmgmt.exe           | 1.50.1085.0001                      | 188.05 KB (192,567 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\wbem\winmgmt.exe  |                           |                       |
| simptcp.dll           | 5.00.2134.1                         | 19.27 KB (19,728 bytes)   | 10/4/2000 12:26:54 PM |
| Microsoft Corporation | c:\winnt\system32\simptcp.dll       |                           |                       |
| tcpvcs.exe            | 5.00.2134.1                         | 24.77 KB (25,360 bytes)   | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\tcpvcs.exe        |                           |                       |
| msidle.dll            | 5.00.2920.0000                      | 6.27 KB (6,416 bytes)     | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\msidle.dll        |                           |                       |
| mstask.exe            | 4.71.2137.1                         | 115.27 KB (118,032 bytes) | 10/4/2000 4:32:07 PM  |
| Microsoft Corporation | c:\winnt\system32\mstask.exe        |                           |                       |
| traffic.dll           | 5.00.2139.1                         | 30.77 KB (31,504 bytes)   | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\traffic.dll       |                           |                       |
| rsvp.exe              | 5.00.2167.1                         | 172.77 KB (176,912 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\rsvp.exe          |                           |                       |
| regsvc.exe            | 5.00.2155.1                         | 65.27 KB (66,832 bytes)   | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\regsvc.exe        |                           |                       |
| llsrpc.dll            | 5.00.2149.1                         | 45.77 KB (46,864 bytes)   | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\llsrpc.dll        |                           |                       |
| llssrv.exe            | 5.00.2167.1                         | 114.27 KB (117,008 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\llssrv.exe        |                           |                       |
| netshell.dll          | 5.00.2176.1                         | 456.77 KB (467,728 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\netshell.dll      |                           |                       |
| netman.dll            | 5.00.2175.1                         | 88.77 KB (90,896 bytes)   | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\netman.dll        |                           |                       |
| ntmsdba.dll           | 5.00.2187.1                         | 167.77 KB (171,792 bytes) | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation | c:\winnt\system32\ntmsdba.dll       |                           |                       |

|                       |  |                           |                      |
|-----------------------|--|---------------------------|----------------------|
| rasdlg.dll            | 5.00.2194.1  | 514.27 KB (526,608 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\rasdlg.dll                             |                           |                      |
| netcfgx.dll           | 5.00.2175.1  | 533.77 KB (546,576 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\netcfgx.dll                            |                           |                      |
| rasmans.dll           | 5.00.2188.1  | 146.77 KB (150,288 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\rasmans.dll                            |                           |                      |
| sens.dll              | 5.00.2163.1  | 36.77 KB (37,648 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\sens.dll                               |                           |                      |
| iashlpr.dll           | 5.00.2184.1  | 33.27 KB (34,064 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\iashlpr.dll                            |                           |                      |
| iasacct.dll           | 5.00.2134.1  | 28.27 KB (28,944 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\iasacct.dll                            |                           |                      |
| iasuserr.dll          | 5.00.2134.1  | 25.77 KB (26,384 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\iasuserr.dll                           |                           |                      |
| iasnap.dll            | 5.00.2134.1  | 58.77 KB (60,176 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\iasnap.dll                             |                           |                      |
| iaspipe.dll           | 5.00.2134.1  | 41.77 KB (42,768 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\iaspipe.dll                            |                           |                      |
| expsrv.dll            | 6.0.8540   | 370.27 KB (379,152 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\expsrv.dll                             |                           |                      |
| vbajet32.dll          | 6.1.8268   | 30.27 KB (30,992 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\vbajet32.dll                           |                           |                      |
| msjtes40.dll          | 4.00.2927.8  | 232.27 KB (237,840 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\msjtes40.dll                           |                           |                      |
| oledb32r.dll          | 2.60.6526.0  | 68.27 KB (69,904 bytes)   | 10/5/2000 2:55:17 PM |
| Microsoft Corporation | c:\program files\common files\system\ole db\oledb32r.dll |                           |                      |
| comdlg32.dll          | 5.00.2920.0000   | 236.77 KB (242,448 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\comdlg32.dll                           |                           |                      |
| msdart.dll            | 2.60.6526.0  | 144.27 KB (147,728 bytes) | 10/5/2000 2:55:16 PM |
| Microsoft Corporation | c:\winnt\system32\msdart.dll                             |                           |                      |
| oledb32.dll           | 2.60.6526.0  | 448.27 KB (459,024 bytes) | 10/5/2000 2:55:17 PM |
| Microsoft Corporation | c:\program files\common files\system\ole db\oledb32.dll  |                           |                      |
| msjint40.dll          | 4.00.2927.2  | 148.27 KB (151,824 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\msjint40.dll                           |                           |                      |
| msjter40.dll          | 4.00.2927.2  | 52.27 KB (53,520 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\msjter40.dll                           |                           |                      |
| mswstr10.dll          | 4.00.2927.10   | 600.27 KB (614,672 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\mswstr10.dll                           |                           |                      |
| msjet40.dll           | 4.00.2927.4  | 1.43 MB (1,495,312 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\msjet40.dll                            |                           |                      |
| msjetoledb40.dll      | 4.00.2927.2  | 340.27 KB (348,432 bytes) | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\msjetoledb40.dll                       |                           |                      |
| iasrad.dll            | 5.00.2139.1  | 94.27 KB (96,528 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\iasrad.dll                             |                           |                      |
| iasass.dll            | 5.00.2160.1  | 96.27 KB (98,576 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\iasass.dll                             |                           |                      |
| iasads.dll            | 5.00.2134.1  | 73.77 KB (75,536 bytes)   | 12/7/1999 7:00:00 AM |
| Microsoft Corporation | c:\winnt\system32\iasads.dll                             |                           |                      |

|                       |                |                                 |                       |                       |
|-----------------------|----------------|---------------------------------|-----------------------|-----------------------|
| ntmssvc.dll           | 5.00.2187.1    | 390.77 KB (400,144 bytes)       | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\ntmssvc.dll   |                       |                       |
| iaspolicy.dll         | 5.00.2134.1    | 25.27 KB (25,872 bytes)         | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\iaspolicy.dll |                       |                       |
| iassvcs.dll           | 5.00.2160.1    | 58.77 KB (60,176 bytes)         | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\iassvcs.dll   |                       |                       |
| iassto.dll            | 5.00.2157.1    | 262.27 KB (268,560 bytes)       | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\iassto.dll    |                       |                       |
| ias.dll               | 5.00.2134.1    | 7.27 KB (7,440 bytes)           | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\ias.dll       |                       |                       |
| es.dll                | 1999.9.3422.21 | 231.77 KB (237,328 bytes)       | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\es.dll        |                       |                       |
| mtxoci.dll            | 1999.9.3421.3  | 109.27 KB (111,888 bytes)       | 10/4/2000 12:27:01 PM |                       |
| Microsoft Corporation |                | c:\winnt\system32\mtxoci.dll    |                       |                       |
| resutils.dll          | 5.00.2191.1    | 39.77 KB (40,720 bytes)         | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\resutils.dll  |                       |                       |
| clusapi.dll           | 5.00.2179.1    | 50.27 KB (51,472 bytes)         | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\clusapi.dll   |                       |                       |
| msvcp50.dll           | 5.00.7051      | 552.50 KB (565,760 bytes)       | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\msvcp50.dll   |                       |                       |
| xolehlp.dll           | 1999.9.3421.3  | 17.27 KB (17,680 bytes)         | 10/4/2000 12:27:00 PM |                       |
| Microsoft Corporation |                | c:\winnt\system32\xolehlp.dll   |                       |                       |
| msdtclog.dll          | 1999.9.3421.3  | 89.77 KB (91,920 bytes)         | 10/4/2000 12:27:00 PM |                       |
| Microsoft Corporation |                | c:\winnt\system32\msdtclog.dll  |                       |                       |
| mtxclu.dll            | 1999.9.3421.3  | 50.27 KB (51,472 bytes)         | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\mtxclu.dll    |                       |                       |
| msdtcprx.dll          | 1999.9.3422.10 | 619.27 KB (634,128 bytes)       | 10/4/2000 12:27:01 PM |                       |
| Microsoft Corporation |                | c:\winnt\system32\msdtcprx.dll  |                       |                       |
| txfaux.dll            | 1999.9.3422.24 | 341.27 KB (349,456 bytes)       | 10/4/2000 12:27:00 PM |                       |
| Microsoft Corporation |                | c:\winnt\system32\txfaux.dll    |                       |                       |
| msdtctm.dll           | 1999.9.3422.12 | 1.02 MB (1,070,864 bytes)       | 10/4/2000 12:27:01 PM |                       |
| Microsoft Corporation |                | c:\winnt\system32\msdtctm.dll   |                       |                       |
| msdtc.exe             | 1999.9.3421.3  | 6.77 KB (6,928 bytes)           | 10/4/2000 12:27:00 PM | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\msdtc.exe     |                       |                       |
| wmi.dll               | 5.00.2191.1    | 6.27 KB (6,416 bytes)           | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Microsoft Corporation |                | c:\winnt\system32\wmi.dll       |                       |                       |
| admwprox.dll          | 5.00.0984      | 31.77 KB (32,528 bytes)         | 10/4/2000 12:27:42 PM |                       |
| Microsoft Corporation |                | c:\winnt\system32\admwprox.dll  |                       |                       |
| inetpp.dll            | 5.00.2161.1    | 63.27 KB (64,784 bytes)         | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\inetpp.dll    |                       |                       |
| win32spl.dll          | 5.00.2162.1    | 92.27 KB (94,480 bytes)         | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\win32spl.dll  |                       |                       |
| usbmon.dll            | 5.00.2165.1    | 11.27 KB (11,536 bytes)         | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\usbmon.dll    |                       |                       |
| tcpmon.dll            | 5.00.2165.1    | 40.77 KB (41,744 bytes)         | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |                | c:\winnt\system32\tcpmon.dll    |                       |                       |
| pjimon.dll            | 5.00.2165.1    | 12.77 KB (13,072 bytes)         | 11/30/1999 6:39:36 PM |                       |
| Microsoft Corporation |                | c:\winnt\system32\pjimon.dll    |                       |                       |

|                       |             |                                |                       |                       |
|-----------------------|-------------|--------------------------------|-----------------------|-----------------------|
| cnbjmon.dll           | 5.00.2134.1 | 43.77 KB (44,816 bytes)        | 11/30/1999 6:38:48 PM |                       |
| Microsoft Corporation |             | c:\winnt\system32\cnbjmon.dll  |                       |                       |
| localspl.dll          | 5.00.2191.1 | 244.77 KB (250,640 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\localspl.dll |                       |                       |
| spoolss.dll           | 5.00.2161.1 | 61.77 KB (63,248 bytes)        | 10/4/2000 12:10:53 PM |                       |
| Microsoft Corporation |             | c:\winnt\system32\spoolss.dll  |                       |                       |
| spoolsv.exe           | 5.00.2161.1 | 43.77 KB (44,816 bytes)        | 10/4/2000 12:10:53 PM |                       |
| Microsoft Corporation |             | c:\winnt\system32\spoolsv.exe  |                       |                       |
| rpss.dll              | 5.00.2181.1 | 229.27 KB (234,768 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\rpss.dll     |                       |                       |
| svchost.exe           | 5.00.2134.1 | 7.77 KB (7,952 bytes)          | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\svchost.exe  |                       |                       |
| dssbase.dll           | 5.00.2150.1 | 140.77 KB (144,144 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\dssbase.dll  |                       |                       |
| oakley.dll            | 5.00.2174.1 | 420.27 KB (430,352 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\oakley.dll   |                       |                       |
| mfc42u.dll            | 6.00.8665.0 | 972.05 KB (995,384 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\mfc42u.dll   |                       |                       |
| polagent.dll          | 5.00.2183.1 | 108.27 KB (110,864 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\polagent.dll |                       |                       |
| scecli.dll            | 5.00.2191.1 | 105.27 KB (107,792 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\scecli.dll   |                       |                       |
| atl.dll               | 3.00.8449   | 57.56 KB (58,938 bytes)        | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Microsoft Corporation |             | c:\winnt\system32\atl.dll      |                       |                       |
| certcli.dll           | 5.00.2175.1 | 132.27 KB (135,440 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\certcli.dll  |                       |                       |
| esent.dll             | 6.0.3939.6  | 1.07 MB (1,120,016 bytes)      | 12/7/1999 7:00:00 AM  | Microsoft Corporation |
| Microsoft Corporation |             | c:\winnt\system32\esent.dll    |                       |                       |
| ntdsatq.dll           | 5.00.2181.1 | 31.27 KB (32,016 bytes)        | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\ntdsatq.dll  |                       |                       |
| ntdsa.dll             | 5.00.2195.1 | 993.27 KB (1,017,104 bytes)    | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\ntdsa.dll    |                       |                       |
| kdcsvc.dll            | 5.00.2181.1 | 133.77 KB (136,976 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\kdcsvc.dll   |                       |                       |
| sfmapi.dll            | 5.00.2134.1 | 38.77 KB (39,696 bytes)        | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\sfmapi.dll   |                       |                       |
| rassfm.dll            | 5.00.2168.1 | 21.27 KB (21,776 bytes)        | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\rassfm.dll   |                       |                       |
| mpr.dll               | 5.00.2146.1 | 53.27 KB (54,544 bytes)        | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\mpr.dll      |                       |                       |
| schannel.dll          | 5.00.2170.1 | 139.77 KB (143,120 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\schannel.dll |                       |                       |
| netlogon.dll          | 5.00.2182.1 | 347.77 KB (356,112 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\netlogon.dll |                       |                       |
| msv1_0.dll            | 5.00.2164.1 | 94.77 KB (97,040 bytes)        | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\msv1_0.dll   |                       |                       |
| kerberos.dll          | 5.00.2181.1 | 196.77 KB (201,488 bytes)      | 12/7/1999 7:00:00 AM  |                       |
| Microsoft Corporation |             | c:\winnt\system32\kerberos.dll |                       |                       |

|                        |              |                                |                      |
|------------------------|--------------|--------------------------------|----------------------|
| msprivs.dll            | 5.00.2154.1  | 41.50 KB (42,496 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\msprivs.dll  |                      |
| samsrv.dll             | 5.00.2192.1  | 357.77 KB (366,352 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\samsrv.dll   |                      |
| lsasrv.dll             | 5.00.2184.1  | 487.77 KB (499,472 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\lsasrv.dll   |                      |
| lsass.exe              | 5.00.2184.1  | 32.77 KB (33,552 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\lsass.exe    |                      |
| xactsrv.dll            | 5.00.2134.1  | 90.27 KB (92,432 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\xactsrv.dll  |                      |
| wmicore.dll            | 5.00.2178.1  | 70.77 KB (72,464 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\wmicore.dll  |                      |
| rasadhlp.dll           | 5.00.2168.1  | 7.27 KB (7,440 bytes)          | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\rasadhlp.dll |                      |
| winnr.dll              | 5.00.2160.1  | 18.77 KB (19,216 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\winnr.dll    |                      |
| rnr20.dll              | 5.00.2152.1  | 35.77 KB (36,624 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\rnr20.dll    |                      |
| wshtcpip.dll           | 5.00.2134.1  | 17.27 KB (17,680 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\wshtcpip.dll |                      |
| msafd.dll              | 5.00.2153.1  | 54.27 KB (55,568 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\msafd.dll    |                      |
| mswsock.dll            | 5.00.2152.1  | 62.27 KB (63,760 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\mswsock.dll  |                      |
| msgsvc.dll             | 5.00.2181.1  | 33.77 KB (34,576 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\msgsvc.dll   |                      |
| browser.dll            | 5.00.2142.1  | 48.27 KB (49,424 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\browser.dll  |                      |
| alrsvc.dll             | 5.00.2134.1  | 17.77 KB (18,192 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\alrsvc.dll   |                      |
| trkws.dll              | 5.00.2166.1  | 88.77 KB (90,896 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\trkws.dll    |                      |
| seclogon.dll           | 5.00.2135.1  | 15.77 KB (16,144 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\seclogon.dll |                      |
| psbase.dll             | 5.00.2146.1  | 111.77 KB (114,448 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\psbase.dll   |                      |
| cryptsvc.dll           | 5.00.2181.1  | 61.77 KB (63,248 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\cryptsvc.dll |                      |
| cryptdll.dll           | 5.00.2135.1  | 41.27 KB (42,256 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\cryptdll.dll |                      |
| wkssvc.dll             | 5.00.2181.1  | 95.27 KB (97,552 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\wkssvc.dll   |                      |
| srsvsvc.dll            | 5.00.2178.1  | 79.27 KB (81,168 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\srsvsvc.dll  |                      |
| cfgmgr32.dll           | 5.00.2134.1  | 16.77 KB (17,168 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation  |              | c:\winnt\system32\cfgmgr32.dll |                      |
| dmserver.dll           | 2191.1.296.2 | 11.77 KB (12,048 bytes)        | 12/7/1999 7:00:00 AM |
| VERITAS Software Corp. |              | c:\winnt\system32\dmserver.dll |                      |

|                       |                |                                |                       |
|-----------------------|----------------|--------------------------------|-----------------------|
| winsta.dll            | 5.00.2134.1    | 36.27 KB (37,136 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\winsta.dll   |                       |
| lmhsvc.dll            | 5.00.2134.1    | 9.27 KB (9,488 bytes)          | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\lmhsvc.dll   |                       |
| dnsrslvr.dll          | 5.00.2181.1    | 88.27 KB (90,384 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\dnsrslvr.dll |                       |
| tapi32.dll            | 5.00.2182.1    | 123.27 KB (126,224 bytes)      | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\tapi32.dll   |                       |
| rasman.dll            | 5.00.2188.1    | 54.77 KB (56,080 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\rasman.dll   |                       |
| rasapi32.dll          | 5.00.2188.1    | 189.77 KB (194,320 bytes)      | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\rasapi32.dll |                       |
| rtutils.dll           | 5.00.2168.1    | 43.77 KB (44,816 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\rtutils.dll  |                       |
| adslldpc.dll          | 5.00.2172.1    | 127.77 KB (130,832 bytes)      | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\adslldpc.dll |                       |
| activeds.dll          | 5.00.2172.1    | 172.77 KB (176,912 bytes)      | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\activeds.dll |                       |
| mprapi.dll            | 5.00.2181.1    | 79.27 KB (81,168 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\mprapi.dll   |                       |
| iphlpapi.dll          | 5.00.2173.2    | 67.77 KB (69,392 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\iphlpapi.dll |                       |
| icmp.dll              | 5.00.2134.1    | 7.27 KB (7,440 bytes)          | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\icmp.dll     |                       |
| dhcpcsvc.dll          | 5.00.2153.1    | 88.77 KB (90,896 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\dhcpcsvc.dll |                       |
| eventlog.dll          | 5.00.2178.1    | 43.77 KB (44,816 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\eventlog.dll |                       |
| ntdsapi.dll           | 5.00.2160.1    | 56.27 KB (57,616 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\ntdsapi.dll  |                       |
| scesrv.dll            | 5.00.2188.1    | 225.77 KB (231,184 bytes)      | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\scesrv.dll   |                       |
| umpnpgm.dll           | 5.00.2182.1    | 86.27 KB (88,336 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\umpnpgm.dll  |                       |
| services.exe          | 5.00.2134.1    | 86.77 KB (88,848 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\services.exe |                       |
| clbcatq.dll           | 1999.9.3422.14 | 479.27 KB (490,768 bytes)      | 10/4/2000 12:26:54 PM |
| Microsoft Corporation |                | c:\winnt\system32\clbcatq.dll  |                       |
| oleaut32.dll          | 2.40.4512      | 600.27 KB (614,672 bytes)      | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\oleaut32.dll |                       |
| csoui.dll             | 5.00.2172.1    | 227.27 KB (232,720 bytes)      | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\csoui.dll    |                       |
| winspool.drv          | 5.00.2167.1    | 109.77 KB (112,400 bytes)      | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\winspool.drv |                       |
| winscard.dll          | 5.00.2134.1    | 77.27 KB (79,120 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\winscard.dll |                       |
| wlnotify.dll          | 5.00.2164.1    | 53.27 KB (54,544 bytes)        | 12/7/1999 7:00:00 AM  |
| Microsoft Corporation |                | c:\winnt\system32\wlnotify.dll |                       |

|                       |                |                                |                      |
|-----------------------|----------------|--------------------------------|----------------------|
| cscdll.dll            | 5.00.2189.1    | 98.27 KB (100,624 bytes)       | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\cscdll.dll   |                      |
| lz32.dll              | 5.00.2134.1    | 9.77 KB (10,000 bytes)         | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\lz32.dll     |                      |
| version.dll           | 5.00.2134.1    | 15.77 KB (16,144 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\version.dll  |                      |
| rsabase.dll           | 5.00.2150.1    | 128.77 KB (131,856 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\rsabase.dll  |                      |
| mscat32.dll           | 5.131.2134.1   | 7.77 KB (7,952 bytes)          | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\mscat32.dll  |                      |
| ole32.dll             | 5.00.2181.1    | 966.27 KB (989,456 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\ole32.dll    |                      |
| imagehlp.dll          | 5.00.2195.1    | 125.27 KB (128,272 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\imagehlp.dll |                      |
| msasn1.dll            | 5.00.2134.1    | 51.27 KB (52,496 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\msasn1.dll   |                      |
| crypt32.dll           | 5.131.2173.1   | 465.77 KB (476,944 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\crypt32.dll  |                      |
| wintrust.dll          | 5.131.2143.1   | 162.27 KB (166,160 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\wintrust.dll |                      |
| setupapi.dll          | 5.00.2183.1    | 554.27 KB (567,568 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\setupapi.dll |                      |
| winmm.dll             | 5.00.2161.1    | 184.77 KB (189,200 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\winmm.dll    |                      |
| comctl32.dll          | 5.81           | 540.27 KB (553,232 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\comctl32.dll |                      |
| shlwapi.dll           | 5.00.2920.0000 | 282.77 KB (289,552 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\shlwapi.dll  |                      |
| shell32.dll           | 5.00.2920.0000 | 2.24 MB (2,352,400 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\shell32.dll  |                      |
| msgina.dll            | 5.00.2191.1    | 309.77 KB (317,200 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\msgina.dll   |                      |
| wsock32.dll           | 5.00.2152.1    | 21.27 KB (21,776 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\wsock32.dll  |                      |
| dnsapi.dll            | 5.00.2181.1    | 129.77 KB (132,880 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\dnsapi.dll   |                      |
| wldap32.dll           | 5.00.2168.1    | 155.77 KB (159,504 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\wldap32.dll  |                      |
| ws2help.dll           | 5.00.2134.1    | 17.77 KB (18,192 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\ws2help.dll  |                      |
| ws2_32.dll            | 5.00.2134.1    | 69.77 KB (71,440 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\ws2_32.dll   |                      |
| samlib.dll            | 5.00.2160.1    | 46.27 KB (47,376 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\samlib.dll   |                      |
| netrap.dll            | 5.00.2134.1    | 11.27 KB (11,536 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\netrap.dll   |                      |
| netapi32.dll          | 5.00.2194.1    | 302.77 KB (310,032 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |                | c:\winnt\system32\netapi32.dll |                      |

|                       |             |                                |                      |
|-----------------------|-------------|--------------------------------|----------------------|
| profmap.dll           | 5.00.2181.1 | 29.27 KB (29,968 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\profmap.dll  |                      |
| secur32.dll           | 5.00.2154.1 | 46.77 KB (47,888 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\secur32.dll  |                      |
| sfc.dll               | 5.00.2164.1 | 84.27 KB (86,288 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\sfc.dll      |                      |
| nddeapi.dll           | 5.00.2137.1 | 15.27 KB (15,632 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\nddeapi.dll  |                      |
| userenv.dll           | 5.00.2185.1 | 361.27 KB (369,936 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\userenv.dll  |                      |
| user32.dll            | 5.00.2180.1 | 393.27 KB (402,704 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\user32.dll   |                      |
| gdi32.dll             | 5.00.2180.1 | 228.77 KB (234,256 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\gdi32.dll    |                      |
| rpert4.dll            | 5.00.2193.1 | 434.27 KB (444,688 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\rpert4.dll   |                      |
| advapi32.dll          | 5.00.2191.1 | 349.27 KB (357,648 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\advapi32.dll |                      |
| kernel32.dll          | 5.00.2191.1 | 715.27 KB (732,432 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\kernel32.dll |                      |
| msvcrt.dll            | 6.10.8637.0 | 288.09 KB (295,000 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\msvcrt.dll   |                      |
| winlogon.exe          | 5.00.2182.1 | 173.27 KB (177,424 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\winlogon.exe |                      |
| sfcfiles.dll          | 5.00.2195.1 | 973.27 KB (996,624 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\sfcfiles.dll |                      |
| ntdll.dll             | 5.00.2163.1 | 469.77 KB (481,040 bytes)      | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\ntdll.dll    |                      |
| smss.exe              | 5.00.2170.1 | 44.27 KB (45,328 bytes)        | 12/7/1999 7:00:00 AM |
| Microsoft Corporation |             | c:\winnt\system32\smss.exe     |                      |

[Services]

| Display Name                   | Name        | State       | Start Mode | Service Type  | Path                           | Error |
|--------------------------------|-------------|-------------|------------|---------------|--------------------------------|-------|
| Control                        | Start Name  | Tag ID      |            |               |                                |       |
| Alerter                        | Alerter     | Running     | Auto       | Share Process | c:\winnt\system32\services.exe |       |
| Normal                         | LocalSystem | 0           |            |               |                                |       |
| Application Management         | AppMgmt     | Stopped     | Manual     | Share Process |                                |       |
| c:\winnt\system32\services.exe | Normal      | LocalSystem | 0          |               |                                |       |
| Computer Browser               | Browser     | Running     | Auto       | Share Process |                                |       |
| c:\winnt\system32\services.exe | Normal      | LocalSystem | 0          |               |                                |       |
| Indexing Service               | cisvc       | Stopped     | Manual     | Share Process | c:\winnt\system32\cisvc.exe    |       |
| Normal                         | LocalSystem | 0           |            |               |                                |       |
| ClipBook                       | ClipSrv     | Stopped     | Manual     | Own Process   | c:\winnt\system32\clipsrv.exe  |       |
| Normal                         | LocalSystem | 0           |            |               |                                |       |
| Distributed File System        | Dfs         | Running     | Auto       | Own Process   |                                |       |
| c:\winnt\system32\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 |  |  |  |  |  | Removable Storage                        | NtmsSvc          | Running     | Auto          | Share Process |  |  |  |  |  |
| c:\winnt\system32\dmadmin.exe /com          | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\svchost.exe -k netsvcs | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Logical Disk Manager                        | dmserver          | Running     | Auto     | Share Process |  |  |  |  |  | Plug and Play                            | PlugPlay         | Running     | Auto          | Share Process |  |  |  |  |  |
| c:\winnt\system32\services.exe              | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\services.exe           | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| DNS Client                                  | Dnscache          | Running     | Auto     | Share Process |  |  |  |  |  | IPSEC Policy Agent                       | PolicyAgent      | Running     | Auto          | Share Process |  |  |  |  |  |
| c:\winnt\system32\services.exe              | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\lsass.exe              | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Event Log                                   | Eventlog          | Running     | Auto     | Share Process |  |  |  |  |  | Protected Storage                        | ProtectedStorage | Running     | Auto          | Share Process |  |  |  |  |  |
| Normal                                      | LocalSystem       | 0           |          |               |  |  |  |  |  | c:\winnt\system32\services.exe           | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| COM+ Event System                           | EventSystem       | Running     | Manual   | Share Process |  |  |  |  |  | Remote Access Auto Connection Manager    | RasAuto          | Stopped     | Manual        | Share Process |  |  |  |  |  |
| c:\winnt\system32\svchost.exe -k netsvcs    | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\svchost.exe -k netsvcs | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Fax Service                                 | Fax               | Stopped     | Manual   | Own Process   |  |  |  |  |  | Remote Access Connection Manager         | RasMan           | Stopped     | Manual        | Share Process |  |  |  |  |  |
| Normal                                      | LocalSystem       | 0           |          |               |  |  |  |  |  | c:\winnt\system32\svchost.exe -k netsvcs | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Internet Authentication Service             | IAS               | Running     | Auto     | Share Process |  |  |  |  |  | Routing and Remote Access                | RemoteAccess     | Stopped     | Disabled      | Share Process |  |  |  |  |  |
| c:\winnt\system32\svchost.exe -k netsvcs    | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\svchost.exe -k netsvcs | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| IIS Admin Service                           | IISADMIN          | Running     | Auto     | Share Process |  |  |  |  |  | Remote Registry Service                  | RemoteRegistry   | Running     | Auto          | Own Process   |  |  |  |  |  |
| c:\winnt\system32\inetrv\inetinfo.exe       | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\regsvcs.exe            | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Intersite Messaging                         | IsmServ           | Stopped     | Disabled | Own Process   |  |  |  |  |  | Remote Procedure Call (RPC) Locator      | RpcLocator       | Stopped     | Manual        | Own Process   |  |  |  |  |  |
| c:\winnt\system32\ismserver.exe             | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\locator.exe            | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Kerberos Key Distribution Center            | kdc               | Stopped     | Disabled | Share Process |  |  |  |  |  | Remote Procedure Call (RPC)              | RpcSs            | Running     | Auto          | Share Process |  |  |  |  |  |
| c:\winnt\system32\lsass.exe                 | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\svchost -k rpsvc       | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Server                                      | lanmanserver      | Running     | Auto     | Share Process |  |  |  |  |  | QoS Admission Control (RSVP)             | RSVP             | Running     | Auto          | Own Process   |  |  |  |  |  |
| c:\winnt\system32\services.exe              | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\rsrv.exe -s            | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Workstation                                 | lanmanworkstation | Running     | Auto     | Share Process |  |  |  |  |  | Security Accounts Manager                | SamSs            | Running     | Auto          | Share Process |  |  |  |  |  |
| c:\winnt\system32\services.exe              | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\lsass.exe              | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| License Logging Service                     | LicenseService    | Running     | Auto     | Own Process   |  |  |  |  |  | Smart Card Helper                        | SCardDrv         | Stopped     | Manual        | Share Process |  |  |  |  |  |
| c:\winnt\system32\llssrv.exe                | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\scardsvr.exe           | Ignore           | LocalSystem | 0             |               |  |  |  |  |  |
| TCP/IP NetBIOS Helper Service               | LmHosts           | Running     | Auto     | Share Process |  |  |  |  |  | Smart Card                               | SCardSvr         | Stopped     | Manual        | Share Process |  |  |  |  |  |
| c:\winnt\system32\services.exe              | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\scardsvr.exe           | Ignore           | LocalSystem | 0             |               |  |  |  |  |  |
| Messenger                                   | Messenger         | Running     | Auto     | Share Process |  |  |  |  |  | Task Scheduler                           | Schedule         | Running     | Auto          | Share Process |  |  |  |  |  |
| Normal                                      | LocalSystem       | 0           |          |               |  |  |  |  |  | c:\winnt\system32\mstask.exe             | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| NetMeeting Remote Desktop Sharing           | mnmsrvc           | Stopped     | Manual   | Own Process   |  |  |  |  |  | RunAs Service                            | seclogon         | Running     | Auto          | Share Process |  |  |  |  |  |
| c:\winnt\system32\mnmsrvc.exe               | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\services.exe           | Ignore           | LocalSystem | 0             |               |  |  |  |  |  |
| Distributed Transaction Coordinator         | MSDTC             | Running     | Auto     | Own Process   |  |  |  |  |  | System Event Notification                | SENS             | Running     | Auto          | Share Process |  |  |  |  |  |
| c:\winnt\system32\msdtc.exe                 | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\svchost.exe -k netsvcs | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Windows Installer                           | MSIServer         | Stopped     | Manual   | Share Process |  |  |  |  |  | Internet Connection Sharing              | SharedAccess     | Stopped     | Manual        | Share Process |  |  |  |  |  |
| c:\winnt\system32\msiexec.exe /v            | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\svchost.exe -k netsvcs | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Network DDE                                 | NetDDE            | Stopped     | Manual   | Share Process |  |  |  |  |  | Simple TCP/IP Services                   | SimpTcp          | Running     | Auto          | Share Process |  |  |  |  |  |
| Normal                                      | LocalSystem       | 0           |          |               |  |  |  |  |  | c:\winnt\system32\tcpvcs.exe             | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Network DDE DSDM                            | NetDDEdsdm        | Stopped     | Manual   | Share Process |  |  |  |  |  | Print Spooler                            | Spooler          | Running     | Auto          | Own Process   |  |  |  |  |  |
| c:\winnt\system32\netdde.exe                | Normal            | LocalSystem | 0        |               |  |  |  |  |  | c:\winnt\system32\spoolsv.exe            | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Net Logon                                   | Netlogon          | Stopped     | Manual   | Share Process |  |  |  |  |  | Performance Logs and Alerts              | SysmonLog        | Stopped     | Manual        | Own Process   |  |  |  |  |  |
| Normal                                      | LocalSystem       | 0           |          |               |  |  |  |  |  | c:\winnt\system32\smlogsvcs.exe          | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| Network Connections                         | Netman            | Running     | Manual   | Share Process |  |  |  |  |  | Telephony TapiSrv                        | Running          | Manual      | Share Process |               |  |  |  |  |  |
| c:\winnt\system32\svchost.exe -k netsvcs    | Normal            | LocalSystem | 0        |               |  |  |  |  |  | Normal                                   | LocalSystem      | 0           |               |               |  |  |  |  |  |
| File Replication                            | NtFrs             | Stopped     | Manual   | Own Process   |  |  |  |  |  | Terminal Services                        | TermService      | Stopped     | Disabled      | Own Process   |  |  |  |  |  |
| Ignore                                      | LocalSystem       | 0           |          |               |  |  |  |  |  | c:\winnt\system32\termsrv.exe            | Normal           | LocalSystem | 0             |               |  |  |  |  |  |
| NT LM Security Support Provider             | NtLmSsp           | Stopped     | Manual   | Share Process |  |  |  |  |  | Telnet                                   | TlntSvr          | Stopped     | Manual        | Own Process   |  |  |  |  |  |
| c:\winnt\system32\lsass.exe                 | Normal            | LocalSystem | 0        |               |  |  |  |  |  | Normal                                   | LocalSystem      | 0           |               |               |  |  |  |  |  |

|  |         |             |               |               |       |  |
|--|---------|-------------|---------------|---------------|-------|--|
| Distributed Link Tracking ServerTrkSvr               | 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\inetrv\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\Accessibility             | All Users:Accessories\Accessibility                 | All Users                 |  |  |
| Accessories\Communications            | All Users:Accessories\Communications                | All Users                 |  |  |
| Accessories\Entertainment             | All Users:Accessories\Entertainment                 | All Users                 |  |  |
| Accessories\Games                     | All Users:Accessories\Games                         | All Users                 |  |  |
| Accessories\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                 |  |  |
| Accessories                           | SQLCLIENT10\Administrator:Accessories               | SQLCLIENT10\Administrator |  |  |
| Accessories\Accessibility             | SQLCLIENT10\Administrator:Accessories\Accessibility | SQLCLIENT10\Administrator |  |  |
| Accessories\Entertainment             | SQLCLIENT10\Administrator:Accessories\Entertainment | SQLCLIENT10\Administrator |  |  |
| Accessories\System Tools              | SQLCLIENT10\Administrator:Accessories\System Tools  | SQLCLIENT10\Administrator |  |  |
| Administrative Tools                  | SQLCLIENT10\Administrator:Administrative Tools      | SQLCLIENT10\Administrator |  |  |
| Startup                               | SQLCLIENT10\Administrator:Startup                   | SQLCLIENT10\Administrator |  |  |

[Startup Programs]

| Program  | Command   | User Name | Location             |                   |                       |
|--|---|-----------|----------------------|-------------------|-----------------------|
| ibmmon.exe   | ibmmon.exe  | All Users |                      |                   |                       |
| HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\Run     |   |           |                      |                   |                       |
| [OLE Registration]                                     |   |           |                      |                   |                       |
| Object   | Local Server  |           |                      |                   |                       |
| Sound (OLE2)   | sndrec32.exe  |           |                      |                   |                       |
| Media Clip   | mplay32.exe   |           |                      |                   |                       |
| Video Clip   | mplay32.exe /avi  |           |                      |                   |                       |
| MIDI Sequence  | mplay32.exe /mid  |           |                      |                   |                       |
| Sound  | Not Available   |           |                      |                   |                       |
| Media Clip   | Not Available   |           |                      |                   |                       |
| Image Document   | "C:\Program Files\Windows NT\Accessories\ImageVue\KodakImg.exe" |           |                      |                   |                       |
| WordPad Document                                       | "%ProgramFiles%\Windows NT\Accessories\WORDPAD.EXE"             |           |                      |                   |                       |
| Windows Media Services DRM Storage object              | Not Available   |           |                      |                   |                       |
| Bitmap Image   | mspaint.exe   |           |                      |                   |                       |
| [Internet Explorer 5]                                  |   |           |                      |                   |                       |
| [ Following are sub-categories of this main category ] |   |           |                      |                   |                       |
| [Summary]  |   |           |                      |                   |                       |
| Item   | Value   |           |                      |                   |                       |
| Version  | 5.00.2920.0000  |           |                      |                   |                       |
| Build  | 52920   |           |                      |                   |                       |
| Product ID   | 51876-270-6758736-05321   |           |                      |                   |                       |
| Application Path                                       | C:\Program Files\Internet Explorer                              |           |                      |                   |                       |
| Language   | English (United States)   |           |                      |                   |                       |
| Active Printer   | Not Available   |           |                      |                   |                       |
| Cipher Strength  | 56-bit  |           |                      |                   |                       |
| Content Advisor  | Disabled  |           |                      |                   |                       |
| IEAK Install   | No  |           |                      |                   |                       |
| [File Versions]  |   |           |                      |                   |                       |
| File   | Version   | Size      | Date                 | Path              | Company               |
| advapi32.dll   | 5.0.2191.1  | 349 KB    | 12/7/1999 7:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| advpack.dll  | 5.0.2920.0  | 87 KB     | 12/7/1999 7:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| browselc.dll   | 5.0.2920.0  | 35 KB     | 12/7/1999 7:00:00 AM | C:\WINNT\system32 | Microsoft Corporation |
| browseui.dll   | 5.0.2920.0  | 793 KB    | 12/7/1999 7:00:00 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          | 5.81.2920.0           | 540 KB        | 12/7/1999 7:00:00 AM |                           |
| C:\WINNT\system32     | Microsoft Corporation |               |                      |                           |
| crypt32.dll           | 5.131.2173.1          | 466 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| enhsg.dll             | <File Missing>        | Not Available | Not Available        | Not Available             |
| Not Available         |                       |               |                      |                           |
| iemigrat.dll          | <File Missing>        | Not Available | Not Available        | Not Available             |
| Not Available         |                       |               |                      |                           |
| iesetup.dll           | 5.0.2920.0            | 57 KB         | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| iexplore.exe          | 5.0.2920.0            | 59 KB         | 12/7/1999 7:00:00 AM | C:\Program Files\Internet |
| Explorer              | Microsoft Corporation |               |                      |                           |
| imagehlp.dll          | 5.0.2195.1            | 125 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| imghelp.dll           | <File Missing>        | Not Available | Not Available        | Not Available             |
| Not Available         |                       |               |                      |                           |
| inseng.dll            | 5.0.2920.0            | 72 KB         | 12/7/1999 7:00:00 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           | 5.1.0.4615            | 476 KB        | 12/7/1999 7:00:00 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 |                       |               |                      |                           |
| msaahtml.dll          | <File Missing>        | Not Available | Not Available        | Not Available             |
| Not Available         |                       |               |                      |                           |
| mshtml.dll            | 5.0.2920.0            | 2302 KB       | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| msjava.dll            | 5.0.3234.0            | 918 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| msoss.dll             | <File Missing>        | Not Available | Not Available        | Not Available             |
| Not Available         |                       |               |                      |                           |
| msxml.dll             | 5.0.2920.0            | 521 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| occache.dll           | 5.0.2920.0            | 86 KB         | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| ole32.dll             | 5.0.2181.1            | 966 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| oleaut32.dll          | 2.40.4512.1           | 600 KB        | 12/7/1999 7:00:00 AM |                           |
| C:\WINNT\system32     | Microsoft Corporation |               |                      |                           |
| olepro32.dll          | 5.0.4512.1            | 160 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| rsabase.dll           | 5.0.2150.1            | 129 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32         |
| Microsoft Corporation |                       |               |                      |                           |
| rsaenh.dll            | <File Missing>        | Not Available | Not Available        | Not Available             |
| Not Available         |                       |               |                      |                           |
| rsapi32.dll           | <File Missing>        | Not Available | Not Available        | Not Available             |
| Not Available         |                       |               |                      |                           |

|                       |                       |               |                      |                   |               |
|-----------------------|-----------------------|---------------|----------------------|-------------------|---------------|
| rsasig.dll            | <File Missing>        | Not Available | Not Available        | Not Available     | Not Available |
| Available             |                       |               |                      |                   |               |
| schannel.dll          | 5.0.2170.0            | 140 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32 |               |
| Microsoft Corporation |                       |               |                      |                   |               |
| shdoc401.dll          | <File Missing>        | Not Available | Not Available        | Not Available     | Not Available |
| Not Available         |                       |               |                      |                   |               |
| shdocvw.dll           | 5.0.2920.0            | 1078 KB       | 12/7/1999 7:00:00 AM | C:\WINNT\system32 |               |
| Microsoft Corporation |                       |               |                      |                   |               |
| shell32.dll           | 5.0.2920.0            | 2297 KB       | 12/7/1999 7:00:00 AM | C:\WINNT\system32 | Microsoft     |
| Corporation           |                       |               |                      |                   |               |
| shlwapi.dll           | 5.0.2920.0            | 283 KB        | 12/7/1999 7:00:00 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            | 5.0.2920.0            | 427 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32 | Microsoft     |
| Corporation           |                       |               |                      |                   |               |
| vbscript.dll          | 5.1.0.4615            | 428 KB        | 12/7/1999 7:00:00 AM | C:\WINNT\system32 |               |
| Microsoft Corporation |                       |               |                      |                   |               |
| webcheck.dll          | 5.0.2920.0            | 252 KB        | 12/7/1999 7:00:00 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           | 5.0.2920.0            | 457 KB        | 12/7/1999 7:00:00 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          | 5.131.2143.1          | 162 KB        | 12/7/1999 7:00:00 AM |                   |               |
| C:\WINNT\system32     | Microsoft Corporation |               |                      |                   |               |
| wsock.vxd             | <File Missing>        | Not Available | Not Available        | Not Available     | Not Available |
| Not Available         |                       |               |                      |                   |               |
| wsock32.dll           | 5.0.2152.1            | 21 KB         | 12/7/1999 7:00:00 AM | C:\WINNT\system32 |               |
| Microsoft Corporation |                       |               |                      |                   |               |
| wsock32n.dll          | <File Missing>        | Not Available | Not Available        | Not Available     | Not Available |
| Not Available         |                       |               |                      |                   |               |

[Connectivity]

| Item                  | Value      |
|-----------------------|------------|
| Connection Preference | Never dial |
| EnableHttp1.1         | 1          |
| ProxyHttp1.1          | 0          |

LAN Settings

|                     |             |
|---------------------|-------------|
| AutoConfigProxy     | wininet.dll |
| AutoProxyDetectMode | 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\Administrator\Local Settings\Temporary Internet Files |
| Total Disk Space                | 8667 MB   |
| Available Disk Space            | 7052 MB   |
| Maximum Cache Size              | 270 MB  |
| Available Cache Size            | 271 MB  |

[List of Objects]

|  |        |          |
|--|--------|----------|
| Program File                           | Status | CodeBase |
| No cached object information available |        |          |

[Content]

[ Following are sub-categories of this main category ]

[Summary]

|                 |          |
|-----------------|----------|
| Item            | Value    |
| Content Advisor | Disabled |

[Personal Certificates]

|               |               |                        |                     |
|---------------|---------------|------------------------|---------------------|
| Issued To     | Issued By     | Validity               | Signature Algorithm |
| Administrator | Administrator | 10/4/2000 to 9/10/2100 | sha1RSA             |

[Other People Certificates]

|   |           |          |                     |
|---|-----------|----------|---------------------|
| Issued To   | Issued By | Validity | Signature Algorithm |
| No other people certificate information available |           |          |                     |

[Publishers]

|                                    |
|------------------------------------|
| Name                               |
| No publisher information available |

[Security]

|      |                |
|------|----------------|
| Zone | Security Level |
|------|----------------|

|                  |            |
|------------------|------------|
| Local intranet   | Medium-low |
| Trusted sites    | Low        |
| Internet         | Medium     |
| Restricted sites | High       |

## COM+ Settings

TPCC.AllTxns:

Activation:

- Enable Object Pooling selected
- Minimum Pool Size: 37
- Maximum Pool Size: 37
- Creating Timeout: 60,000
- Enable Object Construction
- Enable Just in Time Activation

Concurrency:

- Concurrency Required

## TPCC Application Registry Parameters

```
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\TPCC]
"Path"="c:\inetpub\wwwroot\"
"NumberOfDeliveryThreads"=dword:00000004
"MaxConnections"=dword:00001b58
"MaxPendingDeliveries"=dword:000003e8
"DB_Protocol"="DBLIB"
"TxnMonitor"="COM"
"DbServer"="ibmserv3"
"DbName"="tpcc"
"DbUser"="sa"
"DbPassword"=""
"COM_SinglePool"="YES"
```

## Microsoft Internet Information Service Registry Parameters

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo]

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Parameters]
"ListenBackLog"=dword:00000019
"DispatchEntries"=hex(7):4c,00,44,00,41,00,50,00,53,00,56,00,43,00,00,00,00,00
"PoolThreadLimit"=dword:000000be
"ThreadTimeout"=dword:00015180
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\InetInfo\Performance]
"Library"="infectrs.dll"
```

"Open"="OpenINFOPerformanceData"  
"Close"="CloseINFOPerformanceData"  
"Collect"="CollectINFOPerformanceData"  
"Last Counter"=dword:00000842  
"Last Help"=dword:00000843  
"First Counter"=dword:00000802

## Worldwide Web Service Registry Parameters

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC]  
"Type"=dword:00000020  
"Start"=dword:00000002  
"ErrorControl"=dword:00000001  
"ImagePath"=hex(2):43,00,3a,00,5c,00,57,00,49,00,4e,00,4e,00,54,00,5c,00,53,00,\  
79,00,73,00,74,00,65,00,6d,00,33,00,32,00,5c,00,69,00,6e,00,65,00,74,00,73,\  
00,72,00,76,00,5c,00,69,00,6e,00,65,00,74,00,69,00,6e,00,66,00,6f,00,2e,00,\  
65,00,78,00,65,00,00,00  
"DisplayName"="World Wide Web Publishing Service"  
"DependOnService"=hex(7):49,00,49,00,53,00,41,00,44,00,4d,00,49,00,4e,00,00,00,\  
00,00  
"DependOnGroup"=hex(7):00,00  
"ObjectName"="LocalSystem"  
"Description"="Provides Web connectivity and administration through the Internet Information Services  
snap-in."

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\ASP]  
"NOTE"="This is for backward compatibility only."

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\ASP\Parameters]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters]  
"MajorVersion"=dword:00000005  
"MinorVersion"=dword:00000000  
"InstallPath"="C:\\WINNT\\System32\\inetsrv"  
"CertMapList"="C:\\WINNT\\System32\\inetsrv\\iisrcmap.dll"  
"AccessDeniedMessage"="Error: Access is Denied."  
"Filter DLLs"=""  
"LogFileDirectory"="C:\\WINNT\\System32\\LogFiles"  
"AcceptExOutstanding"=dword:00000028

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\AdvancedDataFactory]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\ADCLaunch\RDSServer.DataFactory]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Script Map]

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots]  
"/"="c:\\inetpub\\wwwroot,,205"  
"/Scripts"="c:\\inetpub\\scripts,,1"  
"/IISAdmin"="C:\\WINNT\\System32\\inetsrv\\iisadmin,,1"  
"/IISSamples"="c:\\inetpub\\iissamples,,1"  
"/MSADC"="c:\\program files\\common files\\system\\msadc,,1"  
"/IISHelp"="c:\\winnt\\help\\iishelp,,1"  
"/\_vti\_bin"="C:\\Program Files\\Common Files\\Microsoft Shared\\Web Server Extensions\\40\\isapi,,1"  
"/Rpc"="C:\\WINNT\\System32\\RpcProxy,,1"  
"/Printers"="C:\\WINNT\\web\\printers,,201"

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Performance]

"Library"="w3ctrs.dll"  
"Open"="OpenW3PerformanceData"  
"Close"="CloseW3PerformanceData"  
"Collect"="CollectW3PerformanceData"  
"Last Counter"=dword:000008f2  
"Last Help"=dword:000008f3  
"First Counter"=dword:00000850  
"First Help"=dword:00000851

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Security]

"Security"=hex:01,00,14,80,a0,00,00,00,ac,00,00,00,14,00,00,00,30,00,00,02,\  
00,1c,00,01,00,00,00,02,80,14,00,ff,01,0f,00,01,01,00,00,00,00,01,00,00,\  
00,00,02,00,70,00,04,00,00,00,00,18,00,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,\  
00,00,05,0b,00,00,00,20,02,00,00,00,1c,00,fd,01,02,00,01,02,00,00,00,\  
00,05,20,00,00,00,23,02,00,00,72,00,73,00,01,01,00,00,00,00,05,12,00,00,\  
00,01,01,00,00,00,00,05,12,00,00,00

[HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\W3SVC\Enum]

"0"="Root\LEGACY\_W3SVC\0000"  
"Count"=dword:00000001  
"NextInstance"=dword:00000001

## RTE Input Parameters

Profile: 2750wh-28segments  
File Path: C:\benchrf\2750wh-28segments.pro  
Version: 1.0.1

Number of Engines: 28

Name: DRIVER1  
Description: rte11\_toclient

Directory: c:\benchcrf\logs\driver1.log  
Machine: rte10  
Parameter Set: PARAM2  
Index: 0  
Seed: 28630  
Configured Users: 990  
Pipe Name: DRIVER11594390  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER10  
Description: rte23\_toclient  
Directory: c:\benchcrf\logs\driver10.log  
Machine: rte20  
Parameter Set: PARAM2  
Index: 900000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER101942843  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER11  
Description: rte24\_toclient  
Directory: c:\benchcrf\logs\river11.log  
Machine: rte20  
Parameter Set: PARAM2  
Index: 1000000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER111969046  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER12  
Description: rte25\_toclient  
Directory: c:\benchcrf\logs\driver12.log  
Machine: rte20  
Parameter Set: PARAM2  
Index: 1100000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER121997234

Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER13  
Description: rte26\_toclient  
Directory: c:\benchcrf\logs\driver13.log  
Machine: rte20  
Parameter Set: PARAM2  
Index: 1200000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER132028921  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER14  
Description: rte27\_toclient  
Directory: c:\benchcrf\logs\driver14.log  
Machine: rte20  
Parameter Set: PARAM2  
Index: 1300000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER142053484  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER15  
Description: rte31\_toclient  
Directory: c:\benchcrf\logs\driver15.log  
Machine: rte30  
Parameter Set: PARAM2  
Index: 1400000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER152082187  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER16  
Description: rte32\_toclient

Directory: c:\benchcrf\logs\driver16.log  
Machine: rte30  
Parameter Set: PARAM2  
Index: 1500000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER162114078  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER17  
Description: rte33\_toclient  
Directory: c:\benchcrf\logs\driver17.log  
Machine: rte30  
Parameter Set: PARAM2  
Index: 1600000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER172146265  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER18  
Description: rte34\_toclient  
Directory: c:\benchcrf\logs\driver18.log  
Machine: rte30  
Parameter Set: PARAM2  
Index: 1700000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER182173968  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER19  
Description: rte35\_toclient  
Directory: c:\benchcrf\logs\driver19.log  
Machine: rte30  
Parameter Set: PARAM2  
Index: 1800000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER192201718

Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER2  
Description: rte12\_toclient  
Directory: c:\benchcrf\logs\driver2.log  
Machine: rte10  
Parameter Set: PARAM2  
Index: 1000000000  
Seed: 28630  
Configured Users: 990  
Pipe Name: DRIVER21672640  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER20  
Description: rte36\_toclient  
Directory: c:\benchcrf\logs\driver20.log  
Machine: rte30  
Parameter Set: PARAM2  
Index: 1900000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER202229015  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER21  
Description: rte37\_toclient  
Directory: c:\benchcrf\logs\driver21.log  
Machine: rte30  
Parameter Set: PARAM2  
Index: 2000000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER212261093  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER22  
Description: rte41\_toclient

Directory: c:\benchcrf\logs\driver22.log  
Machine: rte40  
Parameter Set: PARAM2  
Index: 2100000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER222287671  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER23  
Description: rte42\_toclient  
Directory: c:\benchcrf\logs\driver23.log  
Machine: rte40  
Parameter Set: PARAM2  
Index: 80000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER232312734  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER24  
Description: rte43\_toclient  
Directory: c:\benchcrf\logs\driver24.log  
Machine: rte40  
Parameter Set: PARAM2  
Index: 70000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER242405515  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER25  
Description: rte44\_toclient  
Directory: c:\benchcrf\logs\driver25.log  
Machine: rte40  
Parameter Set: PARAM2  
Index: 60000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER252459453

Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER26  
Description: rte45\_toclient  
Directory: c:\benchcrf\logs\driver26.log  
Machine: rte40  
Parameter Set: PARAM2  
Index: 50000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER262492625  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER27  
Description: rte46\_toclient  
Directory: c:\benchcrf\logs\driver27.log  
Machine: rte40  
Parameter Set: PARAM2  
Index: 40000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER272532578  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER28  
Description: rte47\_toclient  
Directory: c:\benchcrf\logs\driver28.log  
Machine: rte40  
Parameter Set: PARAM2  
Index: 30000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER282567687  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER3  
Description: rte13\_toclient

Directory: c:\benchcrf\logs\driver3.log  
Machine: rte10  
Parameter Set: PARAM2  
Index: 200000000  
Seed: 28630  
Configured Users: 990  
Pipe Name: DRIVER31704859  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER4  
Description: rte14\_toclient  
Directory: c:\benchcrf\logs\driver4.log  
Machine: rte10  
Parameter Set: PARAM2  
Index: 300000000  
Seed: 28630  
Configured Users: 990  
Pipe Name: DRIVER41739734  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER5  
Description: rte15\_toclient  
Directory: c:\benchcrf\logs\driver5.log  
Machine: rte10  
Parameter Set: PARAM2  
Index: 400000000  
Seed: 28630  
Configured Users: 990  
Pipe Name: DRIVER51768187  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER6  
Description: rte16\_toclient  
Directory: c:\benchcrf\logs\driver6.log  
Machine: rte10  
Parameter Set: PARAM2  
Index: 500000000  
Seed: 28630  
Configured Users: 990  
Pipe Name: DRIVER61803546

Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER7  
Description: rte17\_toclient  
Directory: c:\benchcrf\logs\driver7.log  
Machine: rte10  
Parameter Set: PARAM2  
Index: 600000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER71838546  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Name: DRIVER8  
Description: rte21\_toclient  
Directory: c:\benchcrf\logs\driver8.log  
Machine: rte20  
Parameter Set: PARAM2  
Index: 700000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER81865281  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 1

Name: DRIVER9  
Description: rte22\_toclient  
Directory: c:\benchcrf\logs\driver9.log  
Machine: rte20  
Parameter Set: PARAM2  
Index: 800000000  
Seed: 28630  
Configured Users: 980  
Pipe Name: DRIVER91899625  
Connect Rate: 500  
Start Rate: 0  
CLIENT\_NURAND: 208  
CPU: 0

Number of User groups: 28

Driver Engine: DRIVER1  
IIS Server: client10\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1 - 99  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 990  
District id: 1  
Scale Down: No

Driver Engine: DRIVER9  
IIS Server: client20\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 791 - 888  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER11  
IIS Server: client20\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 987 - 1084  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER21  
IIS Server: client30\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1967 - 2064  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER12

IIS Server: client20\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1085 - 1182  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER13  
IIS Server: client20\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1183 - 1280  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER15  
IIS Server: client30\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1379 - 1476  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER25  
IIS Server: client40\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 2359 - 2456  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER16  
IIS Server: client30\_torte

SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1477 - 1574  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER17  
IIS Server: client30\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1575 - 1672  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER19  
IIS Server: client30\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1771 - 1868  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER28  
IIS Server: client40\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 2653 - 2750  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER2  
IIS Server: client10\_torte  
SQL Server: ibmserv3

User: sa  
Protocol: Html  
w\_id Range: 100 - 198  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 990  
District id: 1  
Scale Down: No

Driver Engine: DRIVER20  
IIS Server: client30\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1869 - 1966  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER22  
IIS Server: client40\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 2065 - 2162  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER6  
IIS Server: client10\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 496 - 594  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 990  
District id: 1  
Scale Down: No

Driver Engine: DRIVER23  
IIS Server: client40\_torte  
SQL Server: ibmserv3  
User: sa



Protocol: Html  
w\_id Range: 2163 - 2260  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER24  
IIS Server: client40\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 2261 - 2358  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER26  
IIS Server: client40\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 2457 - 2554  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER10  
IIS Server: client20\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 889 - 986  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER27  
IIS Server: client40\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html

w\_id Range: 2555 - 2652  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER3  
IIS Server: client10\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 199 - 297  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 990  
District id: 1  
Scale Down: No

Driver Engine: DRIVER14  
IIS Server: client20\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 1281 - 1378  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 980  
District id: 1  
Scale Down: No

Driver Engine: DRIVER4  
IIS Server: client10\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 298 - 396  
w\_id Max Warehouse: 2750  
Scale: Normal  
User Count: 990  
District id: 1  
Scale Down: No

Driver Engine: DRIVER5  
IIS Server: client10\_torte  
SQL Server: ibmserv3  
User: sa  
Protocol: Html  
w\_id Range: 397 - 495

w\_id Max Warehouse: 2750  
 Scale: Normal  
 User Count: 990  
 District id: 1  
 Scale Down: No

Driver Engine: DRIVER7  
 IIS Server: client10\_torte  
 SQL Server: ibmserv3  
 User: sa  
 Protocol: Html  
 w\_id Range: 595 - 692  
 w\_id Max Warehouse: 2750  
 Scale: Normal  
 User Count: 980  
 District id: 1  
 Scale Down: No

Driver Engine: DRIVER18  
 IIS Server: client30\_torte  
 SQL Server: ibmserv3  
 User: sa  
 Protocol: Html  
 w\_id Range: 1673 - 1770  
 w\_id Max Warehouse: 2750  
 Scale: Normal  
 User Count: 980  
 District id: 1  
 Scale Down: No

Driver Engine: DRIVER8  
 IIS Server: client20\_torte  
 SQL Server: ibmserv3  
 User: sa  
 Protocol: Html  
 w\_id Range: 693 - 790  
 w\_id Max Warehouse: 2750  
 Scale: Normal  
 User Count: 980  
 District id: 1  
 Scale Down: No

Number of Parameter Sets: 2

~Default

Default Parameter Set

| Txn    | Think | Key  | RT    | RT    | Menu  |
|--------|-------|------|-------|-------|-------|
| Weight | Time  | Time | Delay | Fence | Delay |

|              |       |       |       |       |       |      |      |
|--------------|-------|-------|-------|-------|-------|------|------|
| New Order    | 10.00 |       | 12.05 | 18.01 | 0.10  | 5.00 | 0.10 |
| Payment      | 10.00 | 12.05 | 3.01  | 0.10  | 5.00  | 0.10 |      |
| Delivery     | 1.00  | 5.05  | 2.01  | 0.10  | 5.00  | 0.10 |      |
| Stock Level  | 1.00  | 5.05  | 2.01  | 0.10  | 20.00 | 0.10 |      |
| Order Status | 1.00  | 10.05 | 2.01  | 0.10  | 5.00  | 0.10 |      |

PARAM2

first try

| Txn          | Think | Key   | RT    | RT    | Menu  |      |      |
|--------------|-------|-------|-------|-------|-------|------|------|
| Weight       | Time  | Time  | Delay | Fence | Delay |      |      |
| New Order    | 44.84 |       | 12.05 | 18.01 | 0.10  | 5.00 | 0.10 |
| Payment      | 43.04 | 12.05 | 3.01  | 0.10  | 5.00  | 0.10 |      |
| Delivery     | 4.04  | 5.05  | 2.01  | 0.10  | 5.00  | 0.10 |      |
| Stock Level  | 4.04  | 5.05  | 2.01  | 0.10  | 20.00 | 0.10 |      |
| Order Status | 4.04  | 10.05 | 2.01  | 0.10  | 5.00  | 0.10 |      |

# Appendix D: 180-Day Space

| TPC-C 180-Day Space Requirements |                    |  |                     |                    |                       |                       |
|----------------------------------|--------------------|--|---------------------|--------------------|-----------------------|-----------------------|
| Warehouses                       | 2,750              |  |                     |                    | tpmC                  | 34264.90              |
| <b>Table</b>                     | <b>Rows</b>        | <b>Data KB</b>   | <b>Index KB</b>     | <b>Extra 5% KB</b> | <b>8HR Space</b>      | <b>Total Space KB</b> |
| Warehouse                        | 2,750              | 296  | 40                  | 17                 |                       | 353                   |
| District                         | 27,500             | 3,056  | 40                  | 146                |                       | 3,251                 |
| Item                             | 100,000            | 9,528  | 56                  | 479                |                       | 10,063                |
| New-Order                        | 24,750,000         | 391,312  | 920                 |                    | 220,000               | 612,232               |
| History                          | 82,500,000         | 4,583,344  | 64                  |                    | 913,748               | 5,497,156             |
| Orders                           | 82,500,000         | 2,528,736  | 1,149,928           |                    | 733,378               | 4,412,042             |
| Customer                         | 82,500,000         | 60,000,000   | 3,577,784           | 3,178,889          |                       | 66,756,673            |
| Order-Line                       | 824,994,449        | 51,562,160   | 109,152             |                    | 10,301,193            | 61,972,505            |
| Stock                            | 275,000,000        | 88,000,000   | 164,520             | 4,408,226          |                       | 92,572,746            |
| <b>Totals</b>                    |                    | <b>207,078,432</b>   | <b>5,002,504</b>    | <b>7,587,766</b>   | <b>12,168,319</b>     | <b>231,837,021</b>    |
| <b>Segment</b>                   | <b>LogDev Cnt.</b> | <b>Segment Size</b>  | <b>Needed</b>       | <b>Overhead</b>    |                       | <b>Not Needed</b>     |
| misc                             | 4                  | 74,547,200   | 72,507,602          | 725,076            |                       | 1,314,522             |
| cs                               | 4                  | 160,972,800  | 159,329,419         | 1,593,294          |                       | 50,087                |
| master, msdb,model               | 1                  | 13,312   | 13,312              |                    |                       | 0                     |
| tpcc_root                        | 1                  | 8,192  | 8,192               |                    |                       | 0                     |
| tempdb                           | 1                  | 8,704  | 8,704               |                    |                       | 0                     |
| <b>Totals</b>                    |                    | <b>235,550,208</b>   | <b>231,867,229</b>  | <b>2,318,370</b>   |                       | <b>1,364,608</b>      |
| Dynamic Space                    | 58,674,240         | Sum of Data for Order, Order-Line and History                  |                     |                    |                       |                       |
| Static Space                     | 163,312,832        | Data + Index + 5% Space + Overhead - Dynamic Space             |                     |                    |                       |                       |
| Free Space                       | 12,198,527         | Total Segment Size - Dynamic Space - Static Space - Not needed |                     |                    |                       |                       |
| Daily Growth                     | 11,697,296         | (Dynamic Space/W * 62.5)* tpmC                                 |                     |                    |                       |                       |
| Daily Spread                     | (5,347,417)        | Free Space - 1.5 * Daily Growth (Zero If Negative)             |                     |                    |                       |                       |
| 180-Day Space (KB)               | 2,268,826,200      | Static Space + 180 (Daily Growth + Daily Spread)               |                     |                    |                       |                       |
| 180-Day Space (GB)               | 2,163.72           | 180-Day Space in GB (Excludes OS,Paging and RDBMS Logs)        |                     |                    |                       |                       |
| Log size (MB)                    | 85,000             | Total Size of Log File   |                     |                    |                       |                       |
| % log used                       | 11.6981            | % of Log File Used During Entire Run                           |                     |                    |                       |                       |
| Total N-O Txn                    | 2,044,848          | Total Count of New-Order Transactions during Entire Run        |                     |                    |                       |                       |
| Log / N-O Txn                    | 4.9794             | KB of Log per New-Order Transaction                            |                     |                    |                       |                       |
| 8 Hour log (GB)                  | 78.10              | 8 Hours of Log in GB (Excluding Space for Redundancy)          |                     |                    |                       |                       |
| Disk Capacity                    | MB                 | GB   |                     |                    |                       |                       |
| 9.1GB                            | 8,655.9            | 8.45   |                     |                    |                       |                       |
| 18.2GB                           | 17,336             | 16.93  |                     |                    |                       |                       |
| <b>Space Usage</b>               | <b>GB Needed</b>   | <b>Disks Measured</b>  | <b>Disks Priced</b> | <b>Disk Size</b>   | <b>Formatted Size</b> |                       |
| 180-Day Space DB                 | 2,044.02           | 168  | 168                 | 9.1GB              | 1,420.11              |                       |
|                                  |                    | 56   | 56                  | 18.2GB             | 948.06                |                       |
| Extra Disks                      |                    | 0  | 0                   |                    | 0                     |                       |
| <b>Total DB</b>                  | <b>2,044.02</b>    | <b>224</b>   | <b>224</b>          |                    | <b>2,368.17</b>       |                       |
| 8hr Log + Mirror                 | 73.81              | 12   | 12                  | 18.2GB             | 101.58                |                       |
| OS, SQL Server                   | 4.00               | 1  | 1                   | 9.1GB              | 8.45                  |                       |
| <b>Total Space</b>               | <b>2,121.83</b>    | <b>237</b>   | <b>237</b>          |                    | <b>2,478.2</b>        |                       |

---

## Appendix E: Third-Party Quotations



Software House International  
 2880 Zanker Blvd. #103  
 San Jose, CA 95134  
 Matthew Martin  
 National Account Executive  
 1-800-766-6357

| Description                                      | Part Number | Unit Price   | Qty   | Extended Price   |
|--|-------------|--------------|-------|------------------|
| IBM Netfinity 6000R                              | 86822ry     | 6,555        | 1     | \$6,555          |
| 700MHz / 2MB Processor Upgrade                   | 00N7944     | 3,745        | 3     | 11,235           |
| 512MB ECC SDRAM RDIMM Memory Upgrade Kit         | 33L3117     | 1,429        | 15    | 21,435           |
| Netfinity 4.2M Ultra2 SCSI Cable                 | 03K9311     | 99           | 18    | 1,782            |
| Netfinity Rack                                   | 9306900     | 1,565        | 2     | 3,130            |
| Side Panel Kit                                   | 94G6669     | 219          | 1     | 219              |
| IBM Netfinity EXP300 Rack Storage Exp. Enclosure | 35311RU     | 2,890        | 17    | 49,130           |
| Netfinity 9.1GB 15K Ultra160 SCSI Drive          | 19K0655     | 539          | 168   | 90,552           |
| Netfinity 18.2GB 15K Ultra160 SCSI Drive         | 19K0656     | 720          | 68    | 48,960           |
| IBM Netfinity 5100 / 733MHz/256KB Pentium III    | 86582RY     | 2,050        | 4     | 8,200            |
| 256MB 133MHz ECC SDRAM RDIMM                     | 33L3125     | 539          | 4     | 2,156            |
| 9.1GB 10K rpm Wide Ultra Drive                   | 37L7204     | 319          | 5     | 1,595            |
| Netfinity 10/100 Ethernet PCI Adapter            | 34L1501     | 89           | 5     | 445              |
| E54 154" (13.8" Viewable) Color Monitor          | 6331B2N     | 169          | 5     | 845              |
| 8-Port 10Mbps Hub                                | DEH2924     | 25           | 3,795 | 94,875           |
|  |             | <b>Total</b> |       | <b>\$341,114</b> |

Prices are valid for 90 days from November 29, 2000

Microsoft Corporation  
One Microsoft Way  
Redmond, WA 98052-6399

Tel 425 882 8080  
Fax 425 936 7329  
<http://www.microsoft.com/>

**Microsoft**

December 5, 2000

IBM Corp.  
Chris King  
IBM Corporation  
3039 Cornwallis Road  
Research Triangle Park, NC 27709

Chris:

Here is the information you requested regarding pricing for several Microsoft products to be used in conjunction with your TPC-C benchmark testing.

All pricing shown is in US Dollars (\$).

| Part Number | Description  | Unit Price | Quantity | Price     |
|-------------|--|------------|----------|-----------|
| 810-00846   | <b>SQL Server 2000 Enterprise Edition</b><br><i>Per processor licensing</i><br><i>Discount schedule: Open Program Level C</i>    | \$ 16,541  | 4        | \$ 66,164 |
| C11-00821   | <b>Windows 2000 Server</b><br><i>Server license only - No CALs</i><br><i>Discount schedule: Open Program - No Level</i>          | \$ 738     | 1        | \$ 738    |
| C10-00475   | <b>Windows 2000 Advanced Server</b><br><i>Server license only - No CALs</i><br><i>Discount schedule: Open Program - No Level</i> | \$ 2,399   | 1        | \$ 2,399  |
| 048-00317   | <b>Visual C++ Professional 6.0 Win32</b>   | \$ 549     | 1        | \$ 549    |
|             | <b>5-year maintenance for above software</b>   | \$ 2,095   | 1        | \$ 10,475 |

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](mailto:jamiere@microsoft.com).

Reference ID: Pdqp0005129267

Please include this Reference ID in any correspondence regarding this price quote.

---

—

## Mylex/IBM Extreme RAID 2000 Quotation

---

—

Ms. Chris King,  
IBM Netfinity Performance Group

December 5, 2000

Dear Ms. King,

Mylex is pleased to submit the following quotation for ExtremeRAID 2000 controller.

=====

| <b>Mylex P/N :</b> | <b>Description</b>                                |
|--------------------|---|
| E2000-4-32NB       | (4 external +2 internal chnl, 32MB cache, no BBU) |

**Suggested Retail Price: \$1,872.00 ea**

*Notes:* Above price is based on FOB, ex factory, Fremont, California and firm for 90 days.

Lead time: 45 Days ARO

Product is covered by 5 year warranty.

Failed product will be repaired or replaced within 7 days.

Regards,

Robert Kelly - Director, Strategic Sales

Cc: Steve Page - Director PCI Marketing





**NETLUX**

14180 Live Oak Ave., Unit E  
Baldwin Park, Ca. 91760

**1-800-789-1780**  
Phone#626-851-9737  
Fax #626-851-9837

December 11, 2000

Chris King  
IBM Corp.  
(919) 254-9267

## Quotation

---

| Quantity | Part No. | Description                            | Unit Price | Total     |
|----------|----------|--|------------|-----------|
| 7        | NX-DSS8  | 8-port 10/100Mbps FAST Ethernet Switch | \$95.00    | \$ 665.00 |

Terms and Conditions:  
FOB Origin  
Quote Valid for 90 days  
5 Year Warranty

Sincerely,  
Martin Parry  
NETLUX