



**TPC Benchmark™ C
Full Disclosure
Report**

**Unisys Corporation
Enterprise Systems**

Aquanta QS/2 Server

using

**Microsoft NT Server Enterprise Edition 4.0
and**

Microsoft SQL Server Enterprise Edition 7.0

**First Edition
November 9th 1998**

Unisys Part Number 4494 8891-000

First Edition – November 1998

Unisys Corporation believes that the information in this document is accurate as of the publication date. The information in this document is subject to change without notice. Unisys Corporation assumes no responsibility for any errors that may appear in this document.

The pricing information in this document is believed to accurately reflect the current prices as of the publication date. However, Unisys Corporation and Microsoft Corporation provide no warranty on the pricing information in this document.

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 Benchmark C should not be used as a substitute for a specific customer application benchmark when critical capacity planning and/or product evaluation decisions are contemplated.

All performance data contained in this report was obtained in a rigorously controlled environment, and therefore results obtained in other operating environments may vary significantly. Unisys Corporation and Microsoft Corporation do not warrant or represent that a user can or will achieve similar performance expressed in transactions per minute (tpmC) or normalized price/performance (\$/tpmC). No warranty of system performance or price/performance is expressed or implied in this report.

Copyright © 1998 Unisys Corporation.

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

Printed in USA, November 1998.

Unisys Corporation Part Number: 4494 8891-000

Unisys and Aquanta are registered trademarks of Unisys Corporation.

Intel, Pentium and Pentium II and Xeon are registered trademarks of Intel Corporation.

Microsoft Windows NT and SQL Server are registered trademarks of Microsoft Corporation.

BEA and Tuxedo are registered trademarks of BEA Systems, Inc.

TPC Benchmark, TPC-C and tpmC are trademarks of the Transaction Processing Performance Council.

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

| Page | Issue |
|-------------------|--------------|
| i through xii | -000 |
| 0-1 through 0-3 | -000 |
| 0-4 | Blank |
| 1-1 through 1-1 | -000 |
| 1-2 | Blank |
| 2-1 through 2-2 | -000 |
| 3-1 through 3-3 | -000 |
| 3-4 | Blank |
| 4-1 through 4-8 | -000 |
| 5-1 through 5-8 | -000 |
| 6-1 through 6-2 | -000 |
| 7-1 through 7-2 | -000 |
| 8-1 through 8-1 | -000 |
| 8-2 | Blank |
| 9-1 through 9-3 | -000 |
| 9-4 | Blank |
| A-1 through A-53 | -000 |
| A-54 | Blank |
| B-1 through B-43 | -000 |
| B-44 | Blank |
| C-1 through C-152 | -000 |
| D-1 through D-2 | -000 |
| E-1 through E-2 | -000 |
| F-1 through F-8 | -000 |

Unisys uses an 11-digit document numbering system. The suffix of the document number (1234 5678-xyz) indicates the document level. The first digit of the suffix (x) designates a revision level; the second digit (y) designates an update level. For example, the first release of a document has a suffix of -100. A suffix of -130 designates the third update to revision 1. The third digit (z) is used to indicate an errata for a particular level and is not reflected in the page status summary.

Overview

This report documents the methodology and results of the TPC Benchmark C (TPC-C) conducted on the Unisys Corporation Aquanta QS/2 server. The operating system on the server was Microsoft Windows NT Server Enterprise Edition 4.0. The DBMS used was Microsoft SQL Server Enterprise Edition 7.0. The operating system on the clients was Microsoft Windows NT Server 4.0. The clients ran Microsoft's Internet Information Server 3.0 and Tuxedo 6.3 CFS for NT.

TPC Benchmark Metrics

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

Executive Summary

The following pages contain the executive summary results of the benchmark.

Auditor

The benchmark configuration, environment, and methodology used to produce and validate the test results, along with the pricing model used to calculate the cost per ipmC, were audited by Richard Gimarc of Performance Metrics, Inc. to verify compliance with the relevant TPC specification.

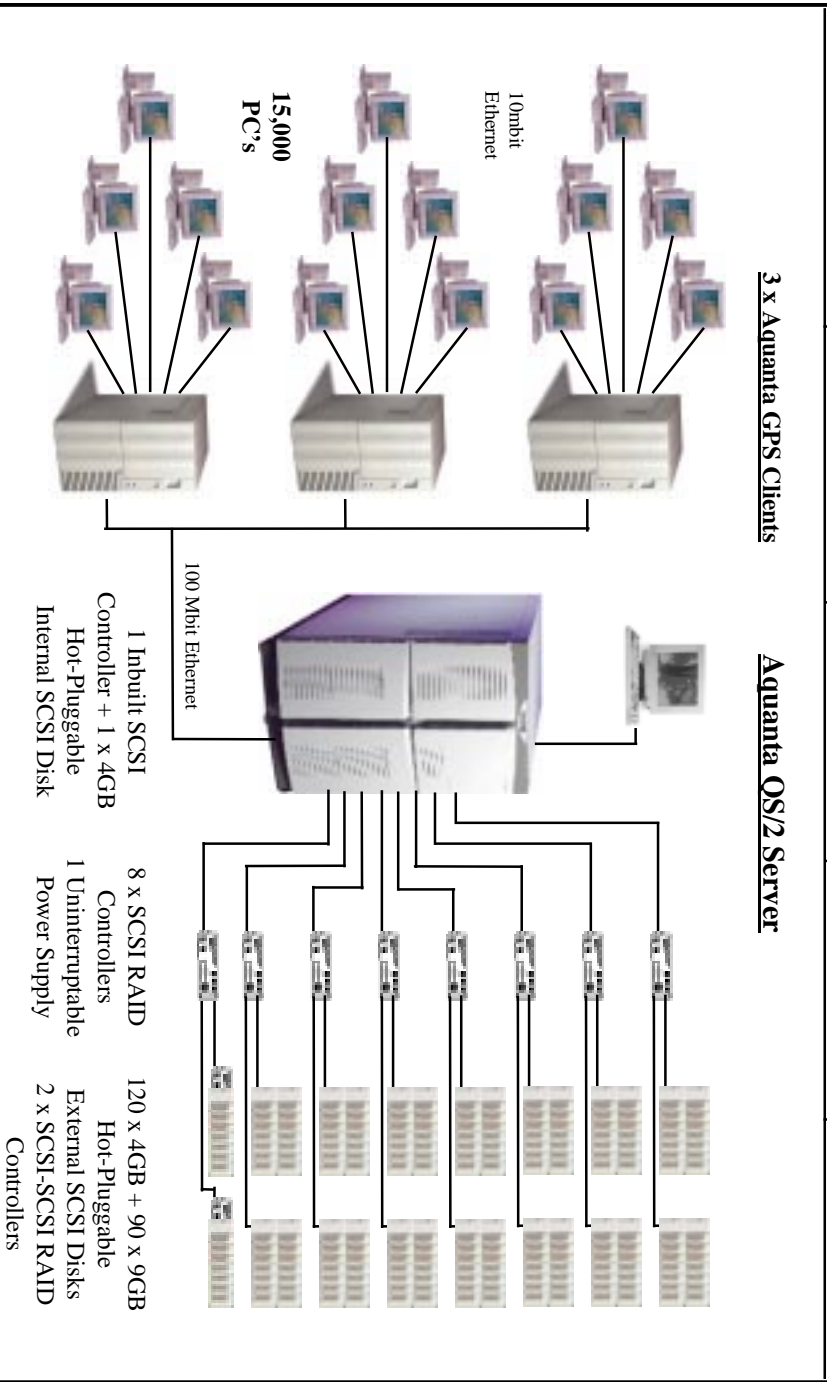
UNISYS

Aquanta QS/2 Server C/S

TPC-C Rev. 3.4

Report Date:
9-Nov-1998

| | | | |
|---|---|--|-------------------------------------|
| Total System Cost | TPC-C Throughput | Price/Performance | Availability Date |
| \$466,883 | 18,707.70 tpmC | \$24.96 per tpmC | 29-Dec-1998 |
| Processors | Database Manager | Operating System | Other Software |
| 4 Pentium® II Xeon 400 MHz 1MB L2 cache | Microsoft SQL Server Enterprise Edition 7.0 | Microsoft NT Server 4.0 Enterprise Edition | Microsoft IIS 3.0 Tuxedo 6.3 CFS |
| | | | 15,000 |
| | | | Number of Users |



| System Components | Server | | Clients | |
|-------------------|----------------|--|----------|--|
| | Quantity | Type | Quantity | Type |
| Processors | 4 | 400 MHz Pentium® II Xeon with 1MB Level 2 Cache | 3 | 2 x 300MHz Pentium® II with 512KB Level 2 Cache |
| Memory | 1 | 4096MB | 3 | 256MB |
| Disk Controllers | 8 + 2 | SCSI RAID Inbuilt SCSI | 3 | Inbuilt SCSI |
| Disk Drives | 120 90 1 | 4.24 GB 8.48 GB 4.23 GB | 3 | 2.02 GB |
| Total Storage | | 1275.87 GB | | 6.06 GB |
| CD-ROM / Tape | 1 | CD-ROM Drive | 3 | CD-ROM Drive |

| Unisys Corporation | | Aquantia QS/2 Server | | | TFC-C Rev 3.4 | | |
|--|-----------------|----------------------|---------------|------------------------------------|---------------|-------------------|-----------------|
| | | C/S | | 9-Nov-1998 | | | |
| Description | Style | Third Party | Brand Pricing | Unit Price | Qty. | Extended Price | 5 Years Maint. |
| Server Hardware | | | | | | | |
| SYS: Aquantia QS/2, w/ CDR om., 0 Proc, 0MB Mem | QS2000111-BAS | | | \$7,815 | 1 | \$7,815 | \$2,016 |
| PROOC: 1x400MHz Pentium II /1MB Cache | XEO2400-1MB | | | \$3,955 | 4 | \$15,820 | \$3,552 |
| ACC: Voltage Regulator Module, Processor | XEO24001-VRM | | | \$46 | 6 | \$276 | |
| MEM: ECC Memory Board, 0MB Mem | MEM241-MBD | | | \$470 | 1 | \$470 | \$72 |
| MEM: 128 MB Memory Upgrade | DM65072-128 | | | \$786 | 32 | \$25,152 | \$6,144 |
| DISK: 4GB Drive, Ultra SCSI SCA | HDS417-CX1 | | | \$746 | 1 | \$746 | \$192 |
| ETHERNET: 100Mbit/sec, PCI 32-bit | ETH10100051-PCI | | | \$117 | 1 | \$117 | |
| CDROM: 14-32x Speed, SCSI | CDR 1432-SI | | | \$161 | 1 | \$161 | \$48 |
| MONITOR: 15-inch Color | EVG2100-E | | | \$272 | 1 | \$272 | |
| KEYBD: 104 Key Spacesaver | PCK104-SKB | | | \$31 | 1 | \$31 | |
| MOUSE: 2 Button PS2 | PWM1-PS2 | | | \$23 | 1 | \$23 | |
| CTRL: RAID 3-Ch PCI w/ 32MB Mem & Bat BU + 10% spares | Mytek | | | \$2,838 | 2 | \$28,380 | \$500 |
| CBL: SCSI 68-pin HD Conn. | CBL2210-OSM | | | \$90 | 16 | \$1,440 | |
| DISK: 4GB Drive, 10K, SCA + 10% spares | OSP4203-W45 | | | \$625 | 132 | \$82,500 | |
| DISK: 9GB Drive, 10K, SCA + 10% spares | OSP9203-W45 | | | \$930 | 99 | \$92,070 | spared |
| CAB: Disk, 7 SCA w/ 050 I/F & Car-Chl, 0 Disks, 3U | OSM310050-U05 | | | \$1,345 | 14 | \$18,830 | \$7,728 |
| CAB: Disk, 7 SCA w/ 057 I/F, 0 Disks, 3U | OSM310057-U05 | | | \$1,350 | 14 | \$18,900 | \$7,728 |
| CAB: Disk, 7 SCA w/ 100 I/F, 0MB, 0 Disks, 3U | OSM310100-U05 | | | \$2,727 | 2 | \$5,454 | \$2,448 |
| MEM: 32MB OSM cache | OSM1000-C32 | | | \$150 | 2 | \$300 | \$144 |
| CAB: Rackmount Kit for Disk Cages | OSM3000-RMK | | | \$84 | 30 | \$2,520 | |
| PWR: 2nd Power Supply Upgrade, OSM Cabinet | OSM3000-APM | | | \$261 | 2 | \$522 | \$192 |
| PWR: 3000 VA UPS, 3U | UPD30001-SXR | | | \$2,239 | 1 | \$2,239 | \$648 |
| CAB: Rack Cabinet, w/ fill pnls, 36U | CAB361-SXR | | | \$1,384 | 3 | \$4,152 | |
| CAB: Link kit for 36U cabinets | LNK361-SXR | | | \$231 | 2 | \$462 | |
| CAB: Bezel kit 36U | BEZ3611-CAB | | | \$206 | 3 | \$618 | |
| CAB: Stabilizer kit 0U | WGJT39581-SXR | | | \$110 | 3 | \$330 | |
| PNL: L&R side panels 36U | PAN3621-SXR | | | \$192 | 1 | \$192 | |
| Subtotal | | | | | 1 | \$309,792 | \$31,412 |
| Server Software | | | | | | | |
| Microsoft NT Server Enterprise Edition 4.0, incl 25 CALS | Microsoft | | | \$3,999 | 1 | \$3,999 | \$0 |
| Microsoft SQL Server Enterprise Edition 7.0, unlimited user license | Microsoft | | | \$28,999 | 1 | \$28,999 | \$10,475 |
| Subtotal | | | | | 2 | \$32,998 | \$10,475 |
| Client Hardware | | | | | | | |
| SYS: Aquantia GPS, 0 Proc, 0MB Mem | GPS600071-BAS | | | \$945 | 3 | \$2,835 | \$936 |
| PROOC: 1x300MHz Pentium II/512KB Cache | GPS2300-512 | | | \$683 | 6 | \$5,178 | \$1,152 |
| UPGRD: GPS P-II 2nd CPU Supl. | GPS600071-P2U | | | \$32 | 3 | \$96 | \$144 |
| MEM: 128 MB Memory Upgrade | DM6672-128 | | | \$741 | 6 | \$4,446 | \$1,008 |
| DISK: 2GB Ultra SCSI 3.5 Internal | HDS2000-SW7 | | | \$573 | 3 | \$1,719 | \$864 |
| CDROM: 14-32x Speed, SCSI | CDR 1432-SI | | | \$161 | 3 | \$483 | \$144 |
| ETHERNET: 100Mbit/sec, PCI 32-bit | ETH1010007-PCI | | | \$101 | 6 | \$606 | |
| ETHERNET: 100Mbit/sec, PCI 32-bit, Quad | SF1001-ET4 | | | \$1,212 | 3 | \$3,636 | \$720 |
| MONITOR: 15-inch Color | EVG2100-E | | | \$272 | 3 | \$816 | |
| KEYBD: 104 Key Spacesaver | PCK104-SKB | | | \$31 | 1 | \$93 | |
| MOUSE: 2 Button PS2 | PWM1-PS2 | | | \$23 | 3 | \$69 | |
| Subtotal | | | | | 3 | \$19,977 | \$4,968 |
| Client Software | | | | | | | |
| Microsoft Windows NT Server 4.0, incl 5 CALS | Microsoft | | | \$809 | 3 | \$2,427 | \$0 |
| Microsoft Visual C++ Professional 5.0 | Microsoft | | | \$499 | 1 | \$499 | \$0 |
| TUXEDO Core Functional Services 6.3 for NT | BEA | | | \$3,000 | 3 | \$9,000 | \$6,750 |
| Subtotal | | | | | 7 | \$11,926 | \$6,750 |
| User Connectivity | | | | | | | |
| Ethernet Hub, 8-Port 100TX TrueFast + 10% spares | NX-H8TXD | Netlux | | \$215 | 5 | \$645 | spared |
| Ethernet Hub, 8-Port 10Base-T + 1-Port BNC + 10% spares | DEH2924 | DataComm | | \$33 | 2063 | \$68,079 | spared |
| Subtotal | | | | | 2068 | \$68,724 | |
| Total | | | | | 1 | \$443,417 | \$53,605 |
| Notes: | | | | | | (\$30,139) | |
| <p>1. HW Maintenance - 1st 36 months included in Unisys product costs. The next 24 months are at the level, Standard Performance-Gold.</p> <p>2. All Microsoft maintenance is covered by the maintenance cost of Microsoft SQL Server.</p> <p>3. 10% or minimum 2 spares are added in place of onsite service (products have a five year return-to-vendor warranty)</p> <p>4. Pricing: 1 = Western Micro, 2 = Mytek, 3 = Microsoft, 4 = BEA, 5 = Netlux, 6 = DataComm/Whse</p> | | | | | | | |
| The benchmark results and test methodology were audited by Richard Gimarc of Performance Metrics, Inc. | | | | | | | |
| Prices used in TFC 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 assumption 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 TFC benchmarks specifications. If you find that the stated prices are not available according to these terms, please inform the TFC at pricing@tpc.org. Thank You. | | | | | | | |
| | | | | Five Year Cost of Ownership | | | |
| | | | | TPC-C Throughput | | \$466,883 | |
| | | | | \$/mpmc | | 18,707.70 | |
| | | | | | | \$24.96 | |

NUMERICAL QUANTITIES SUMMARY

Unisys Aquanta QR/2 Server
Microsoft SQL Server Enterprise Edition 7.0

MQT_H, Computed Maximum Qualified Throughput: **18707.70**
 % throughput difference, reported & reproducibility runs: 0.03%

Transaction Mix

| | |
|--------------|--------|
| New Order | 44.81% |
| Payment | 43.10% |
| Delivery | 4.00% |
| Stock-Level | 4.03% |
| Order-Status | 4.05% |

Response Times

| Transaction | Average | Maximum | 90th %ile |
|---------------------|---------|---------|-----------|
| New-Order | 0.43 | 5.36 | 0.62 |
| Payment | 0.29 | 5.38 | 0.46 |
| Delivery | 0.13 | 0.74 | 0.15 |
| Stock-Level | 2.14 | 3.73 | 2.56 |
| Order Status | 0.33 | 1.32 | 0.50 |
| Menu | 0.12 | 3.52 | 0.13 |
| Delivery (Deferred) | 0.48 | 2.47 | 0.70 |

Response time delay added for emulated components (seconds)

| | |
|--------------------|-----|
| RT Response time | 0.1 |
| Menu Response time | 0.1 |

Keying/Think Time Times (seconds)

| Transaction | Minimum | Average | Maximum |
|--------------|---------|-------------|--------------|
| New-Order | 18.00/0 | 18.01/12.06 | 18.07/120.31 |
| Payment | 3.00/0 | 3/12.04 | 3.06/120.31 |
| Delivery | 2.00/0 | 2/5.06 | 2.05/50.6 |
| Stock-Level | 2.00/0 | 2/5.03 | 2.03/50.6 |
| Order-Status | 2.00/0 | 2/10.12 | 2.04/100.71 |

Test Duration

| | |
|--|------------|
| Ramp up time | 42 minutes |
| Measurement interval (M) | 30 minutes |
| Transactions (all types) completed during measurement interval | 1252510 |
| Ramp-down time | 82 minutes |

Checkpointing:

| | |
|-----------------------|------------|
| Number of checkpoints | 1 |
| Checkpoint interval | 30 minutes |

Table of Contents

| | |
|---|------------|
| Abstract | iv |
| Table of Contents | viii |
| Preface | xii |
| 0. General Items..... | 0-1 |
| 0.1. Order and Titles..... | 0-1 |
| 0.2. Executive Summary Statement..... | 0-1 |
| 0.3. Numerical Quantities Summary..... | 0-1 |
| 0.4. Application Code Disclosure..... | 0-1 |
| 0.5. Benchmark Sponsor | 0-2 |
| 0.6. Parameter Settings..... | 0-2 |
| 0.7. Configuration Diagrams | 0-2 |
| 1. Clause 1: Logical Database Design | 1-1 |
| 1.1. Table Definitions..... | 1-1 |
| 1.2. Physical Organization of the Database | 1-1 |
| 1.3. Insert and/or Delete Operations..... | 1-1 |
| 1.4. Partitioning..... | 1-1 |
| 1.5. Replication, Duplication or Additions..... | 1-1 |
| 2. Clause 2: Transaction & Terminal Profiles | 2-1 |
| 2.1. Random Number Generation..... | 2-1 |
| 2.2. Input/Output Screen Layout | 2-1 |
| 2.3. Priced Terminal Feature Verification | 2-1 |
| 2.4. Presentation Managers or Intelligent Terminal | 2-1 |
| 2.5. Transaction Statistics..... | 2-1 |
| 2.6. Queuing Mechanism of Delivery..... | 2-2 |
| 3. Clause 3: Transaction & System Properties | 3-1 |
| 3.1. Transaction System Properties (ACID)..... | 3-1 |
| 3.2. Atomicity..... | 3-1 |
| 3.2.1. Completed Transaction..... | 3-1 |
| 3.2.2. Aborted Transactions | 3-1 |
| 3.3. Consistency | 3-1 |
| 3.4. Isolation..... | 3-2 |

| | | |
|--------|--|------------|
| 3.5. | Durability | 3-2 |
| 3.5.1. | Loss of Log Disk and Loss of Data Disk..... | 3-2 |
| 3.5.2. | Instantaneous Interruption and Loss of Memory | 3-3 |
| 4. | Clause 4: Scaling & Database Population | 4-1 |
| 4.1. | Initial Cardinality of Tables | 4-1 |
| 4.2. | Constant Values..... | 4-1 |
| 4.3. | Database Layout..... | 4-2 |
| 4.4. | DBMS: Data Model and DBMS Interface/Access Language..... | 4-2 |
| 4.5. | DBMS Partitions/Replications | 4-2 |
| 4.6. | DBMS Space Requirements..... | 4-2 |
| 5. | Clause 5: Performance Metrics & Response Time..... | 5-1 |
| 5.1. | Measured Throughput (tpmC)..... | 5-1 |
| 5.2. | Response Times | 5-1 |
| 5.3. | Keying and Think Times..... | 5-1 |
| 5.4. | Response Time-Frequency Distribution Curves..... | 5-2 |
| 5.5. | New Order Think Time-Frequency Distribution Curve..... | 5-4 |
| 5.6. | Response Time versus Throughput Performance Curve | 5-5 |
| 5.7. | New-Order Throughput vs. Time | 5-5 |
| 5.8. | Determination of “Steady State” | 5-6 |
| 5.9. | Work Performed During Steady State | 5-6 |
| 5.10. | Reproducibility | 5-7 |
| 5.11. | Measurement Interval Duration..... | 5-7 |
| 5.12. | Regulation of Transaction Mix..... | 5-7 |
| 5.13. | Transaction Statistics..... | 5-7 |
| 5.14. | Checkpoint Statistics | 5-8 |
| 6. | Clause 6: SUT, Driver & Communications Definition | 6-1 |
| 6.1. | Remote Terminal Emulator (RTE) Description | 6-1 |
| 6.2. | Emulated Components | 6-1 |
| 6.3. | Functional Diagrams | 6-1 |
| 6.4. | Network Configuration..... | 6-1 |
| 6.5. | Network Bandwidth | 6-1 |
| 6.6. | Operator Intervention | 6-2 |
| 7. | Clause 7: Pricing..... | 7-1 |
| 7.1. | Pricing..... | 7-1 |
| 7.1.1. | System Pricing..... | 7-1 |
| 7.1.2. | Maintenance Pricing..... | 7-1 |
| 7.1.3. | Discounts..... | 7-1 |
| 7.2. | Availability..... | 7-2 |
| 7.3. | Measured tpmC, Price/Performance, and Availability Date | 7-2 |

| | |
|---|-----|
| 7.4. Country-Specific Pricing..... | 7-2 |
| 7.5. Usage Pricing | 7-2 |
| 8. Clause 8 : Full Disclosure Availability..... | 8-1 |
| 8.1. Availability..... | 8-1 |
| 9. Clause 9 : Audit | 9-1 |
| 9.1. Auditor's Report..... | 9-1 |
| Appendix A - Client/Server Source | A-1 |
| Appendix B - Database Design..... | B-1 |
| Appendix C - Tunable Parameters | C-1 |
| Appendix D - RTE Code..... | D-1 |
| Appendix E - Disk Storage..... | E-1 |
| Appendix F - Third-Party Price Quotations | F-1 |

Figures

| | |
|---|-----|
| Figure 0.1: Benchmarked Configuration | 0-3 |
| Figure 0.2: Priced Configuration | 0-3 |
| Figure 5.1: New Order Response Time Distribution | 5-2 |
| Figure 5.2: Payment Response Time Distribution | 5-2 |
| Figure 5.3: Order Status Response Time Distribution | 5-3 |
| Figure 5.4: Delivery Response Time Distribution | 5-3 |
| Figure 5.5: Stock Level Response Time Distribution | 5-4 |
| Figure 5.6: New Order Think Time Distribution | 5-4 |
| Figure 5.7: Response Time versus Throughput | 5-5 |
| Figure 5.8: Throughput (rpmC) versus Time | 5-5 |

Tables

| | |
|--|-----|
| Table 4.1: Initial Cardinality of Database Table | 4-1 |
| Table 4.2: Constant C for NURand | 4-1 |
| Table 4.3: Disk Cage Configuration | 4-3 |
| Table 4.4: RAID Adapter Disk Configuration | 4-5 |
| Table 4.5: Disk Administrator Configuration | 4-8 |
| Table 5.1: Response Time Data | 5-1 |
| Table 5.2: Keying Times | 5-1 |
| Table 5.3: Think Times | 5-1 |
| Table 5.4: Transaction Statistics | 5-8 |

Document Structure

The TPC Benchmark C Standard Specification requires test sponsors to publish, submit to the TPC, and make available to the public, a full disclosure report for any result to be considered compliant with the specification. The required contents of the full disclosure report are specified in Clause 8.

This report is submitted to satisfy the specification's requirement for full disclosure. It documents the compliance of the benchmark implementation and execution reported for the Unisys Corporation Aquanta QS2 Server using Microsoft Windows NT 4.0 Enterprise Edition and Microsoft SQL Server Enterprise Edition 7.0.

TPC Benchmark C Overview

The TPC Benchmark™ C Standard Specification Revision 3.4 was developed by the Transaction Processing Council (TPC). It is the intent of the TPC to develop a suite of benchmarks to measure the performance of computer systems executing a wide range of applications. Unisys and Microsoft Corporations are active participants in the TPC to define and develop such a suite of benchmarks.

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

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

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

Despite the fact that this benchmark offers a rich environment that emulates many OLTP environments, 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.

0.1. Order and Titles

The order and titles of sections in the Test Sponsor's Full Disclosure report must correspond with the order and titles of sections from the TPC-C standard specification (i.e., this document). The intent is to make it as easy as possible for readers to compare and contrast material in different Full Disclosure reports.

The order and titles of the sections in this report correspond with those from the TPC-C standard specification.

0.2. Executive Summary Statement

The TPC Executive Summary Statement must be included near the beginning of the Full Disclosure report.

The TPC Executive Summary Statement is included near the beginning of this report.

0.3. Numerical Quantities Summary

The numerical quantities listed below must be summarized near the beginning of the Full Disclosure report :

- *measurement interval in minutes,*
- *number of checkpoints in the measurement interval,*
- *checkpoint interval in minutes,*
- *number of transactions (all types) completed within the measurement interval,*
- *computed Maximum Qualified Throughput in tpmC,*
- *percentage difference between reported throughput and throughput obtained in reproducibility run,*
- *ninetieth percentile, average and maximum response times for the New-Order, Payment, Order-Status, Stock-Level, Delivery (deferred and interactive) and Menu transactions,*
- *time in seconds added to response time to compensate for delays associated with emulated components,*
- *percentage of transaction mix for each transaction type.*

These numerical quantities are summarized near the beginning of this report.

0.4. Application Code Disclosure

The applicable 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 the client application code used in this TPC-C benchmark. Appendix B contains the SQL stored procedures which implement the TPC-C transactions.

0.5. Benchmark Sponsor

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

This TPC benchmark C was sponsored by Unisys Corporation. The benchmark test was developed by Microsoft and Unisys. The benchmark was conducted at Unisys, Mission Viejo, California.

0.6. Parameter Settings

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

- *Data Base tuning options*
- *Recovery/commit options*
- *Consistency/locking options*
- *Operating system and application configuration parameters*

Appendix C contains the configuration and system parameters used in running these TPC-C tests. It also contains all the client and server OS, and SQL Server tunable parameters.

0.7. Configuration Diagrams

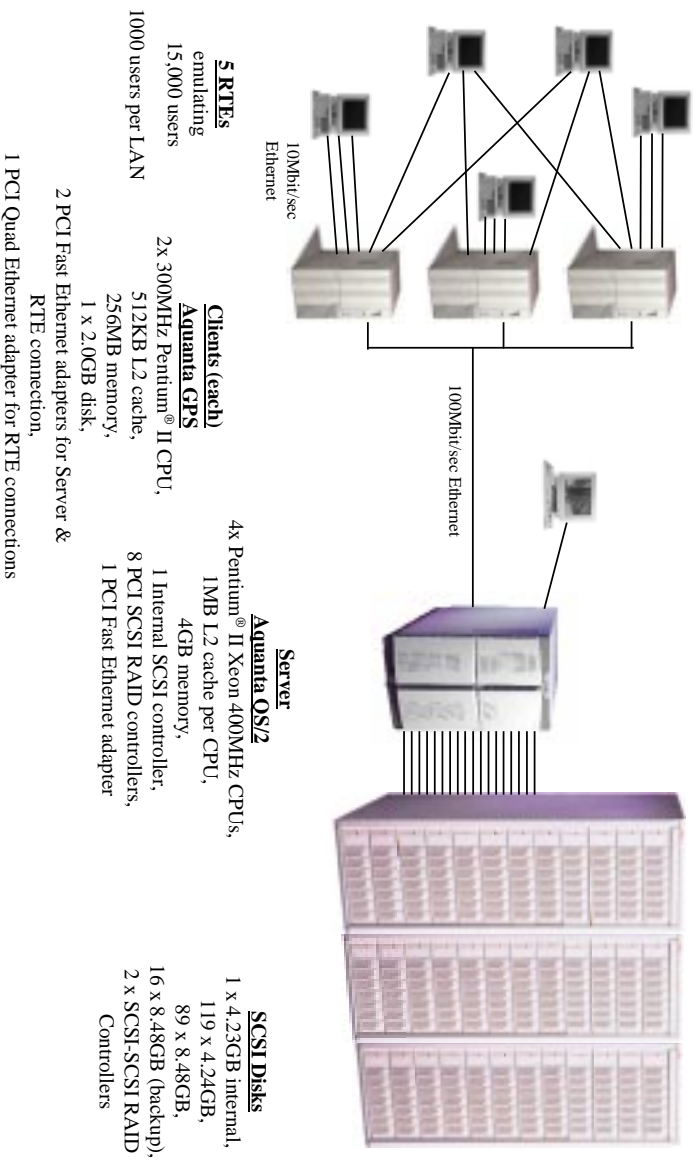
Diagrams of both measured and priced configurations must be provided, accompanied by a description of the differences. This includes, but is not limited to:

- *Number and type of processors.*
- *Size of allocated memory, and any specific mapping/partitioning of memory unique to the test.*
- *Number and type of disk units (and controllers, if applicable).*
- *Number of channels or bus connections to disk units, including their protocol type.*
- *Number of LAN (e.g., Ethernet) connections, including routers, workstations, terminals, etc., that were physically used in the test or are incorporated into the pricing structure (see Clause 8.1.8).*
- *Type and the run-time execution location of software components (e.g., DBMS, client processes, transaction monitors, software drivers, etc.).*

The Remote Terminal Emulator (RTE) software used for these TPC-C tests is proprietary to Unisys. The benchmarked configuration of the RTE and Aquanta QS/2 server is illustrated in Figure 0.1. Tables 4.3, 4.4 and 4.5 contain a detailed explanation of the disk configuration.

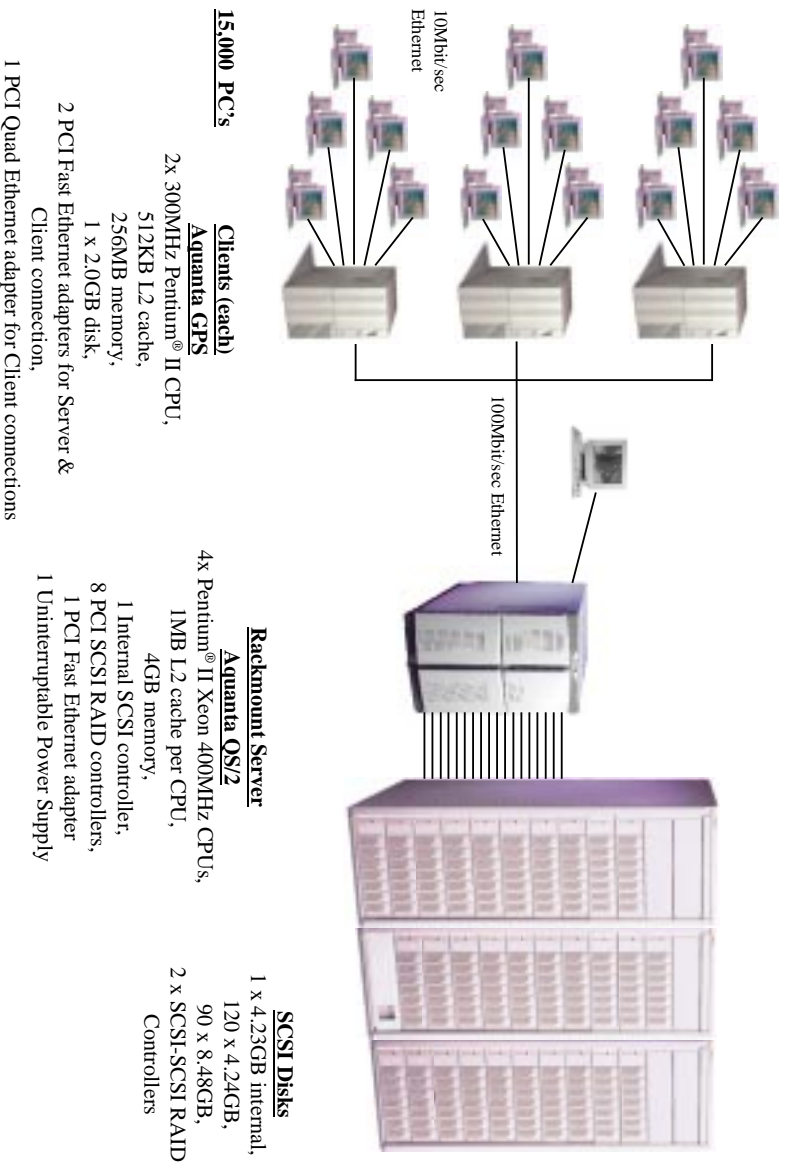
The priced configuration for the Aquanta QS/2 server is shown in Figure 0.2.

Figure 0.1: Benchmarked Configuration



Aquanata OS/2 Server - Benchmarked Configuration

Figure 0.2: Priced Configuration



Aquanata OS/2 Server - Priced Configuration

1.

Clause 1: Logical Database Design

1.1. Table Definitions

Listings must be provided for all table definition statements and all other statements used to setup the data base.

Appendix B contains the SQL definitions of all the required database files, filegroups, tables, indexes and stored procedures, plus a listing of the program used to load the database and establish the required initial populations of each table.

1.2. Physical Organization of the Database

The physical organization of tables and indices, within the data base, must be disclosed.

The disk space was allocated to SQL Server according to the data in Table 4.4. The SQL definitions are contained in Appendix B.

1.3. Insert and/or 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 data base 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.

There were no restrictions on insert and/or delete operations to any of the tables.

1.4. Partitioning

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

Partitioning was not used for any table in this implementation.

1.5. Replication, Duplication or Additions

Replication of tables, if used, must be disclosed.

Additional and/or duplicate attributes in any table must be disclosed along with a statement on the impact on performance.

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

2. Clause 2: Transaction & Terminal Profiles

2.1. Random Number Generation

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

The drivers used the Unisys RTE program, which was independently audited. The initial population of the database was performed by the loader program from V4.01 of the Microsoft TPC-C toolkit, which was also independently audited. Furthermore, the auditor sampled various initial and runtime distributions produced by this implementation to verify correctness.

2.2. Input/Output Screen Layout

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

The screen layouts are based on those in Clauses 2.4.3, 2.5.3, 2.6.3, 2.7.3, and 2.8.3 of the TPC Benchmark C Standard Specification. There are some minor differences in appearance due to the use of a web client implementation.

2.3. Priced Terminal Feature Verification

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

This was verified by the auditor.

2.4. Presentation Managers or Intelligent Terminal

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

Application code running on the client implemented the TPC-C user interface. A listing of this code is included in Appendix A. No presentation manager was used on the client, as screen manipulation and data input/output was handled for each user by the Microsoft Internet Explorer web browser running on each user PC.

2.5. Transaction Statistics

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

The number of items per order entered by New-Order transactions must be disclosed.

The percentage of home and remote Payment transactions must be disclosed.

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

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

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

Table 5.4 in Section 5 contains all these statistics.

2.6. Queuing Mechanism of Delivery

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

Tuxedo provides the queue for delivery servers. The client application process posts delivery transactions to the delivery queue using a Tuxedo asynchronous call with the TPNORReply option. Upon return from this call, the client application provides a 'delivery queued' response to the user. Delivery servers independently retrieve messages from their queue, submit them to the data base for processing, and log the result to a file upon completion. The source code for this delivery process is included in Appendix A.

3. Clause 3: Transaction & System Properties

3.1. Transaction System Properties (ACID)

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

The TPC Benchmark C Standard Specification defines a set of transaction processing system properties that a system under test (SUT) must support during the execution of the benchmark. Those properties are Atomicity, Consistency, Isolation, and Durability (ACID).

This section defines each of these properties, describes the steps taken to ensure that they were present during the test and describes a series of tests done to demonstrate compliance with the specification. All ACID property tests were executed successfully.

3.2. Atomicity

The system under test must guarantee that data base 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.

3.2.1. Completed Transaction

Perform the Payment transaction for a randomly selected warehouse, district, and customer (by customer number) and verify that the records in the CUSTOMER, DISTRICT, and WAREHOUSE tables have been changed appropriately.

The balances from a randomly selected warehouse, district, and customer row were retrieved by customer number from a script. A Payment transaction was submitted with the same warehouse, district and customer identifiers for a known amount. After completion of the Payment transaction, the balances of the selected warehouse, district, and customer were again retrieved to verify that the changes had been made correctly.

3.2.2. Aborted Transactions

Perform the Payment transaction for a randomly selected warehouse, district, and customer (by customer number) and substitute a ROLLBACK of the transaction for the COMMIT of the transaction. Verify that the records in the CUSTOMER, DISTRICT, and WAREHOUSE tables have NOT been changed.

The balances from a randomly selected warehouse, district, and customer row were retrieved by customer number from a script. A Payment transaction was submitted with the same warehouse, district and customer identifiers that issued a ROLLBACK command rather than a COMMIT. After the transaction completed, the balances of the selected warehouse, district, and customer were again retrieved to verify that no changes had been made to the database.

3.3. Consistency

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

The benchmark specification requires explicit demonstration of the following four consistency conditions:

1. The sum of the district balances in a warehouse is equal to the warehouse balance;
 2. For each district, the next order id minus one is equal to maximum order id in the ORDER table and equal to the maximum new order id in the NEW ORDER table;
 3. For each district, the maximum order id minus minimum order id in the ORDER table plus one equals the number of rows in the NEW-ORDER table for that district;
 4. For each district, the sum of the order line counts in the ORDER table equals the number of rows in the ORDER-LINE table for that district;
- In order to demonstrate this consistency, the following steps were taken:
1. Prior to the start of a benchmark run, the consistency of the database was verified by testing successfully conditions 1-4 described above with a script.
 2. A run under full user load was executed for over 10 minutes with a checkpoint during the run.
 3. After completion of that test, the consistency of the database was again verified by successfully testing using the same consistency script as in step 1.

3.4. Isolation

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

The benchmark specification defines seven required tests to be performed to demonstrate that required levels of transaction isolation are met. These tests, described in Clauses 3.4.2.1 - 3.4.2.7, were all performed from a script and verified by the auditor. In Isolation Test 7, Case A was observed. In addition, the phantom tests and stock level tests were executed and verified to be successful.

3.5. Durability

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

Three durability tests were executed to satisfy the requirements of the specification. The test for loss of memory and instantaneous interruption was combined and performed with a fully scaled database with 15,000 emulated users. The loss of log and loss of data tests were performed on the same system, using a ten warehouse database with 100 emulated users. To the best of our knowledge, these tests prove that the fully scaled configuration used for the throughput test would also meet all durability tests.

3.5.1. Loss of Log Disk and Loss of Data Disk

The following steps were taken (using a ten warehouse database on the same system) to demonstrate durability in the case of loss of a log disk and of data disk. The same log disks and controllers were used for the log as for the fully scaled database. Two separate data disks were on each of two existing controllers.

1. The database was backed up to extra disks on a dump device.
2. The D_NEXT_O_ID fields for all rows in the district table were summed up to determine the initial count of orders present in the database.
3. The RTE was started with 100 users. On the driver systems, committed and rolled back New-Order transactions were recorded in a “success” file.
4. After ten minutes of running at steady state, a hot-pluggable log disk was removed from the disk cabinet, with no effect on NT or SQL server.

5. After 5 additional minutes of operation, a hot-pluggable data disk was removed from the disk cabinet.
6. NT and SQL Server encountered IO errors due to the missing disk and recorded these errors in the NT event log and SQL Server error log, respectively. Two RTEs also recorded errors.
7. First, the RTEs and clients were stopped, then SQL Server was used to take a dump of the transaction log to the dump device.
8. Next, SQL server was shutdown, then restarted, and scripts were executed to drop the database and all its devices. Then, SQL Server was shutdown again and the SUT shutdown.
9. A data disk was inserted in the disk cabinet to replace the one removed. The RAID controller was used to recreate the stripe set containing the new data disk. (The missing log drive was not replaced.)
10. The SUT was restarted, and Disk Administrator was used to assign the proper drive letter to the new volume. SQL Server was then restarted and a new (empty) database created as part of the restore database process. That process loaded the initial database into the new database, but did not perform any recovery. Next the transaction log was restored, followed by transaction recovery. The latter step restored all committed transactions to the database.
11. Consistency condition 3 of Clause 3.3.2.3 was executed to verify database consistency.
12. Step 2 was repeated to determine the total number of orders. This number was subtracted from the count obtained previously in Step 2 to determine the number of additional orders added to the database.
13. The contents of the “success” files on the drivers were sampled to verify that the records in the “success” file for committed New-Order transactions had corresponding records in the ORDER table and no entries existed for rolled back transactions. Moreover, the counts were matched with those obtained in step 12.

3.5.2. Instantaneous Interruption and Loss of Memory

Instantaneous interruption and loss of memory tests were combined because the loss of power erased the contents of memory. This failure was induced by removing the primary power to the System Under Test while the benchmark was executing.

1. The D_NEXT_O_ID fields for all rows in the district table were summed up to determine the initial count of orders present in the database (count1).
2. On the driver systems, committed and rolled back New-Order transaction were recorded in a “success” file.
3. The benchmark was executed at full load with 15,000 emulated users for a minimum of 10 minutes.
4. Shortly after execution of a checkpoint completed, the system’s primary power was turned off.
5. After transaction failures were noted by the RTEs, the RTEs and clients were shutdown.
6. Power was restored to the SUT, the system rebooted, SQL Server was restarted, and automatic database recovery was performed. The database recovery used the transaction log to reapply all committed transactions and rollback any (in progress) uncommitted transactions, so that the database disks were correct.
7. After recovery finished, Consistency Condition of Clause 3.3.2.3 (no gaps in NO_O_ID) was executed to verify that the database was consistent..
8. Next, samples of the contents of the “success” file on the driver were compared against corresponding rows of the ORDER table to verify that records in the “success” file for committed New-Order transactions had corresponding records in the ORDER table and no entries existed for rolled back transactions.
9. Finally, step 1 was repeated to determine the total number of orders (count2). Count2 minus count1 was not less than the number of committed New-Order records in the “success” file.

4.

Clause 4: Scaling & Database Population

4.1. Initial Cardinality of Tables

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

The TPC-C database for this test was configured with 1,545 warehouses. The cardinality of each table in the database is listed in Table 4.1

Table 4.1: Initial Cardinality of Database Table

| Table | Occurrences |
|------------|-------------|
| Warehouse | 1,545 |
| District | 15,450 |
| Customer | 46,350,000 |
| History | 46,350,000 |
| Order | 46,350,000 |
| New-Order | 13,905,000 |
| Order Line | 463,501,689 |
| Stock | 154,500,000 |
| Item | 100,000 |

45 rows were deleted from the warehouse table before executing the measurement runs.

4.2. Constant Values

The following values were used as the constant C input values to the NURand function during Build and Run time for this implementation.

Table 4.2: Constant C for NURand

| Function | Value |
|----------------|-------|
| C_LAST (Build) | 123 |
| C_LAST (Run) | 208 |

4.3. Database Layout

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

Tables 4.3, 4.4 and 4.5 list the distribution of the database over 196 disks and the transaction log over six mirrored pairs of disks for the benchmark configuration. In addition, there was one disk containing Windows NT Enterprise Edition and SQL Server Enterprise Edition code and the Master database plus the paging file. Database backup used an extra 16 disks. These 16 backup disks were unused during in the benchmark and were excluded from the priced configuration.

4.4. DBMS: Data Model and DBMS Interface/Access Language

A statement must be provided that describes:

1. *The data model implemented by the DBMS used (e.g., relational, network, hierarchical).*
2. *The database interface (e.g., embedded, call level) and access language (e.g., SQL, DLI, 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 Enterprise Edition 7.0 is a relational DBMS.

The client software interfaced to SQL Server through Stored Procedures invoked through Remote Procedure Calls embedded in the C application code. Specifically, DBLIB and TCP/IP sockets were used.

4.5. DBMS Partitions/Replications

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

No table partitioning or replication was done.

4.6. DBMS Space Requirements

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

Appendix E lists the space requirements for the 180-day space as well as the logical log space for eight hours.

Table 4.3: Disk Cage Configuration

| Disk Cage Configuration | | | | | | | | | | | |
|-------------------------|---------|-----|-----|-----|-----|-----|-----|-----|-----|--------|-----|
| Adapter | Channel | Id | Id | Id | Id | Id | Id | Id | Id | Rack # | |
| 2 | 0 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 1 | |
| | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | 4GB |
| | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | | 2 |
| | | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | 9GB |
| | | 1 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | | 3 |
| | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | |
| | 9GB | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | 4 | |
| | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | |
| | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | 4 | |
| | | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | |
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 3 | |
| | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | 5 | | | |
| 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | | |
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 7 | | | |
| 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | | | |
| 4GB | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | 8 | | |
| | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | |
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 4 | | |
| | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | | |
| | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | | 9 | |
| | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | 9GB | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 5 | | | |
| 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | | | |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | | 10 | | |
| 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | 4GB | | |
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | | 11 | | |
| 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | | | |
| 9GB | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 12 | | |
| | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | | |
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | | 13 | |
| | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | | |
| | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | | | 14 |
| | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | 14 | | | |
| 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | | 15 | | |
| 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | | | |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | | | 16 | |
| 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | | | |
| 4GB | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | | 17 | |
| | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | | |
| | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 14 | 18 | | |
| | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | | | |
| | 9GB | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 6 | | 18 |
| | | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | |

Disk Cage Configuration

| Adapter | Channel | Id | Id | Id | Id | Id | Id | Id | Id | Id | Rack # | |
|---------|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|--------|----|
| 6 | 0 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 19 |
| | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | | |
| | | 4GB | 4GB | 4GB | 4GB | 9GB | 9GB | 9GB | 9GB | | | |
| | | 1 | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 20 |
| | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | | |
| | 4GB | 4GB | 4GB | 9GB | 9GB | 9GB | 9GB | | | | | |
| | 7 | 0 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| | | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 23 |
| | | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | |
| | | | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| | | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 24 |
| 8 | | | 9 | 10 | 11 | 12 | 13 | 14 | | | | |
| 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 25 | | | |
| 8 | 0 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 27 | |
| | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | | |
| | | 4GB | 4GB | 4GB | 4GB | 9GB | 9GB | 9GB | 9GB | | | |
| | | 1 | 1 | 2 | 3 | 4 | 5 | 6 | | | | |
| | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 28 | |
| | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | | |
| | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 29 | | |
| | 7 | 1 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| | | | 4GB | 4GB | 4GB | 9GB | 9GB | 9GB | 9GB | 9GB | | |
| | | | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | | |
| | | | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | 9GB | | |
| | | | 1 | 1 | 2 | 3 | 4 | 5 | 6 | | | |
| | | | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 4GB | 30 |
| 8 | | | 9 | 10 | 11 | 12 | 13 | 14 | | | | |

Table 4.4: RAID Adapter Disk Configuration

| RAID Adapter Disk Configuration | | | | | | |
|---------------------------------|----|-----------|-----------|-----------|-------------------------------|---------------|
| Adapter | ID | Channel 0 | Channel 1 | Channel 2 | RAID Configuration | Drive Letters |
| 2 | 0 | A0 | A1 | | Arrange Packs A - D as RAID 0 | E: and S: |
| | 1 | A2 | A3 | | | |
| | 2 | A4 | A5 | | | |
| | 3 | A6 | B0 | | | |
| | 4 | B1 | B2 | | | |
| | 5 | B3 | B4 | | | |
| | 6 | B5 | B6 | | | |
| | 8 | C0 | C1 | | | |
| | 9 | C2 | C3 | | | |
| | 10 | C4 | C5 | | | |
| | 11 | C6 | D0 | | | |
| | 12 | D1 | D2 | | | |
| | 13 | D3 | D4 | | | |
| | 14 | D5 | D6 | | | |
| 3 | 0 | A0 | A1 | E0 | Arrange Packs A - D as RAID 0 | F: and R: |
| | 1 | A2 | A3 | E1 | | |
| | 2 | A4 | A5 | E2 | | |
| | 3 | A6 | B0 | E3 | | |
| | 4 | B1 | B2 | E4 | | |
| | 5 | B3 | B4 | E5 | | |
| | 6 | B5 | B6 | E6 | | |
| | 8 | C0 | C1 | E7 | | |
| | 9 | C2 | C3 | | | |
| | 10 | C4 | C5 | | | |
| | 11 | C6 | D0 | | | |
| | 12 | D1 | D2 | | | |
| | 13 | D3 | D4 | | | |
| | 14 | D5 | D6 | | | |
| 4 | 0 | A0 | A1 | E0 | Arrange Packs A - D as RAID 0 | G: and Q: |
| | 1 | A2 | A3 | E1 | | |
| | 2 | A4 | A5 | E2 | | |
| | 3 | A6 | B0 | E3 | | |
| | 4 | B1 | B2 | E4 | | |
| | 5 | B3 | B4 | E5 | | |
| | 6 | B5 | B6 | E6 | | |
| | 8 | C0 | C1 | E7 | | |
| | 9 | C2 | C3 | | | |
| | 10 | C4 | C5 | | | |
| | 11 | C6 | D0 | | | |
| | 12 | D1 | D2 | | | |
| | 13 | D3 | D4 | | | |
| | 14 | D5 | D6 | | | |

RAID Adapter Disk Configuration

| Adapter | ID | Channel 0 | Channel 1 | Channel 2 | RAID Configuration | Drive Letters |
|---------|----|-----------|-----------|-----------|-------------------------------|---------------|
| 5 | 0 | A0 | A1 | | Arrange Packs A - D as RAID 0 | H: and P: |
| | 1 | A2 | A3 | | | |
| | 2 | A4 | A5 | | | |
| | 3 | A6 | B0 | | | |
| | 4 | B1 | B2 | | | |
| | 5 | B3 | B4 | | | |
| | 6 | B5 | B6 | | | |
| | 8 | C0 | C1 | | | |
| | 9 | C2 | C3 | | | |
| | 10 | C4 | C5 | | | |
| | 11 | C6 | D0 | | | |
| | 12 | D1 | D2 | | | |
| | 13 | D3 | D4 | | | |
| | 14 | D5 | D6 | | | |
| 6 | 0 | A0 | A1 | | Arrange Packs A - D as RAID 0 | I: and O: |
| | 1 | A2 | A3 | | | |
| | 2 | A4 | A5 | | | |
| | 3 | A6 | B0 | | | |
| | 4 | B1 | B2 | | | |
| | 5 | B3 | B4 | | | |
| | 6 | B5 | B6 | | | |
| | 8 | C0 | C1 | | | |
| | 9 | C2 | C3 | | | |
| | 10 | C4 | C5 | | | |
| | 11 | C6 | D0 | | | |
| | 12 | D1 | D2 | | | |
| | 13 | D3 | D4 | | | |
| | 14 | D5 | D6 | | | |
| 7 | 0 | A0 | A1 | | Arrange Packs A - D as RAID 0 | J: and N: |
| | 1 | A2 | A3 | | | |
| | 2 | A4 | A5 | | | |
| | 3 | A6 | B0 | | | |
| | 4 | B1 | B2 | | | |
| | 5 | B3 | B4 | | | |
| | 6 | B5 | B6 | | | |
| | 8 | C0 | C1 | | | |
| | 9 | C2 | C3 | | | |
| | 10 | C4 | C5 | | | |
| | 11 | C6 | D0 | | | |
| | 12 | D1 | D2 | | | |
| | 13 | D3 | D4 | | | |
| | 14 | D5 | D6 | | | |

RAID Adapter Disk Configuration

| Adapter | ID | Channel 0 | Channel 1 | Channel 2 | RAID Configuration | Drive Letters |
|---------|----|-----------|-----------|-----------|-------------------------------|---------------|
| 8 | 0 | A0 | A1 | | Arrange Packs A - D as RAID 0 | K: and M: |
| | 1 | A2 | A3 | | | |
| | 2 | A4 | A5 | | | |
| | 3 | A6 | B0 | | | |
| | 4 | B1 | B2 | | | |
| | 5 | B3 | B4 | | | |
| | 6 | B5 | B6 | | | |
| | 8 | C0 | C1 | | | |
| | 9 | C2 | C3 | | | |
| | 10 | C4 | C5 | | | |
| | 11 | C6 | D0 | | | |
| | 12 | D1 | D2 | | | |
| | 13 | D3 | D4 | | | |
| | 14 | D5 | D6 | | | |
| | 1 | 0 | A0 | A1 |  |  |  | Arrange Pack A as RAID 1 (log) | L: |
| | 1 | | | | | |
| | 2 | | | | | |
| | 3 | | | | | |
| | 4 | | | | | |
| | 5 | | | | | |
| | 6 | | | | | |

Table 4.5: Disk Administrator Configuration

| Disk Administrator Configuration | | | |
|----------------------------------|---------------------------|--------------------------|---------------------|
| Disk 0 4338 MB | C: SYSTEM FAT | Z: testfiles NTFS | unused 0 MB |
| Disk 1 52097 MB | L: unknown 50000 MB | | unused 2097 MB |
| Disk 2 182308 MB | E: unknown 13500 MB | S: unknown 6500 MB | unused 162308 MB |
| Disk 3 151900 MB | F: unknown 13500 MB | R: unknown 6500 MB | unused 131900 MB |
| Disk 4 60781 MB | T: BACK1 NTFS | | unused 0 MB |
| Disk 5 182308 MB | G: unknown 13500 MB | Q: unknown 6500 MB | unused 162308 MB |
| Disk 6 60781 MB | U: BACK2 NTFS | | unused 0 MB |
| Disk 7 182308 MB | H: unknown 13500 MB | P: unknown 6500 MB | unused 162308 MB |
| Disk 8 151900 MB | I: unknown 13500 MB | O: unknown 6500 MB | unused 131900 MB |
| Disk 9 182308 MB | J: unknown 13500 MB | N: unknown 6500 MB | unused 162308 MB |
| Disk 10 151900 MB | K: unknown 13500 MB | M: unknown 6500 MB | unused 131900 MB |

5. Clause 5: Performance Metrics & Response Time

5.1. Measured Throughput (tpmC)

Measured tpmC must be reported.

The measured tpmC was 18,707.70.

5.2. Response Times

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

Table 5.1: Response Time Data

| Transaction | Average | Maximum | 90th %ile |
|---------------------|---------|---------|-----------|
| New-Order | 0.43 | 5.36 | 0.62 |
| Payment | 0.29 | 5.38 | 0.46 |
| Delivery | 0.13 | 0.74 | 0.15 |
| Stock-Level | 2.14 | 3.73 | 2.56 |
| Order Status | 0.33 | 1.32 | 0.50 |
| Menu | 0.12 | 3.52 | 0.13 |
| Delivery (Deferred) | 0.48 | 2.47 | 0.70 |

5.3. Keying and Think Times

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

Table 5.2: Keying Times

| Transaction | Minimum | Average | Maximum |
|--------------|---------|---------|---------|
| New-Order | 18.00 | 18.01 | 18.07 |
| Payment | 3.00 | 3.00 | 3.06 |
| Delivery | 2.00 | 2.00 | 2.05 |
| Stock-Level | 2.00 | 2.00 | 2.03 |
| Order Status | 2.00 | 2.00 | 2.04 |

Table 5.3: Think Times

| Transaction | Minimum | Average | Maximum |
|--------------|---------|---------|---------|
| New-Order | 0.00 | 12.06 | 120.31 |
| Payment | 0.00 | 12.04 | 120.31 |
| Delivery | 0.00 | 5.06 | 50.60 |
| Stock-Level | 0.00 | 5.03 | 50.60 |
| Order Status | 0.00 | 10.12 | 100.71 |

5.4. Response Time Frequency Distribution Curves

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

Figure 5.1: New Order Response Time Distribution

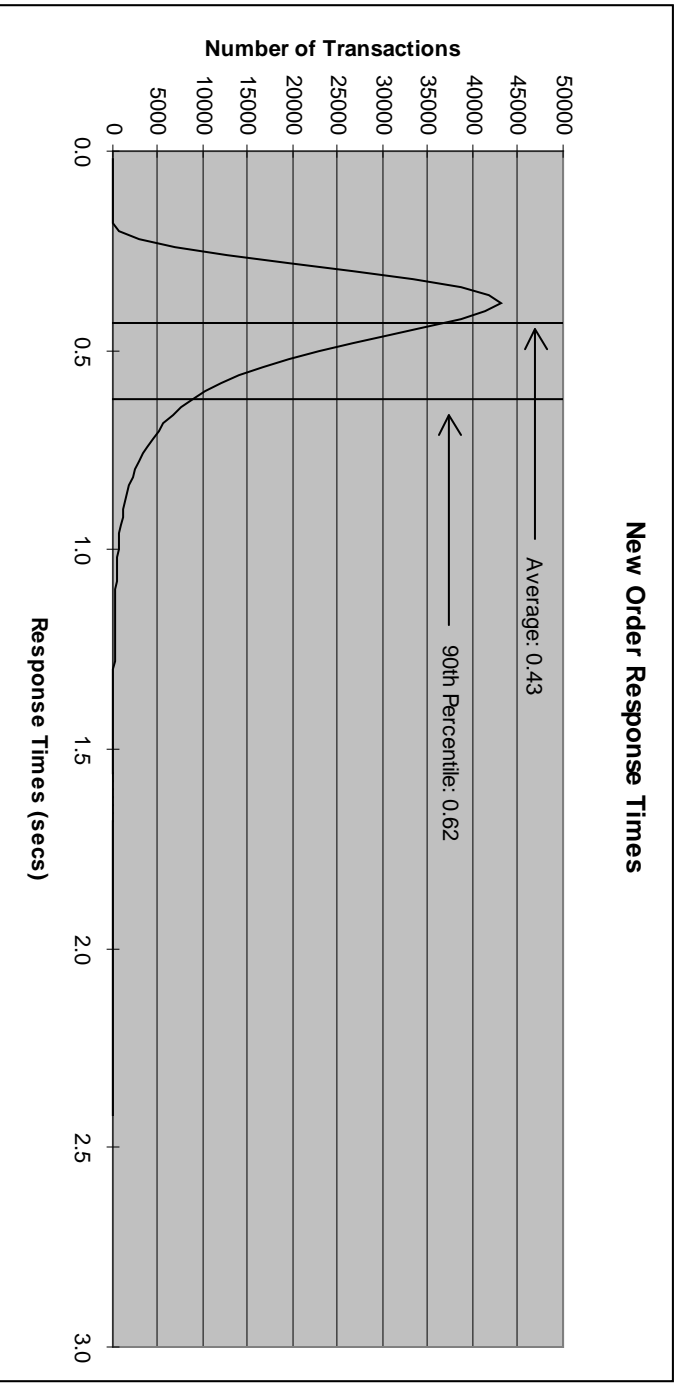


Figure 5.2: Payment Response Time Distribution

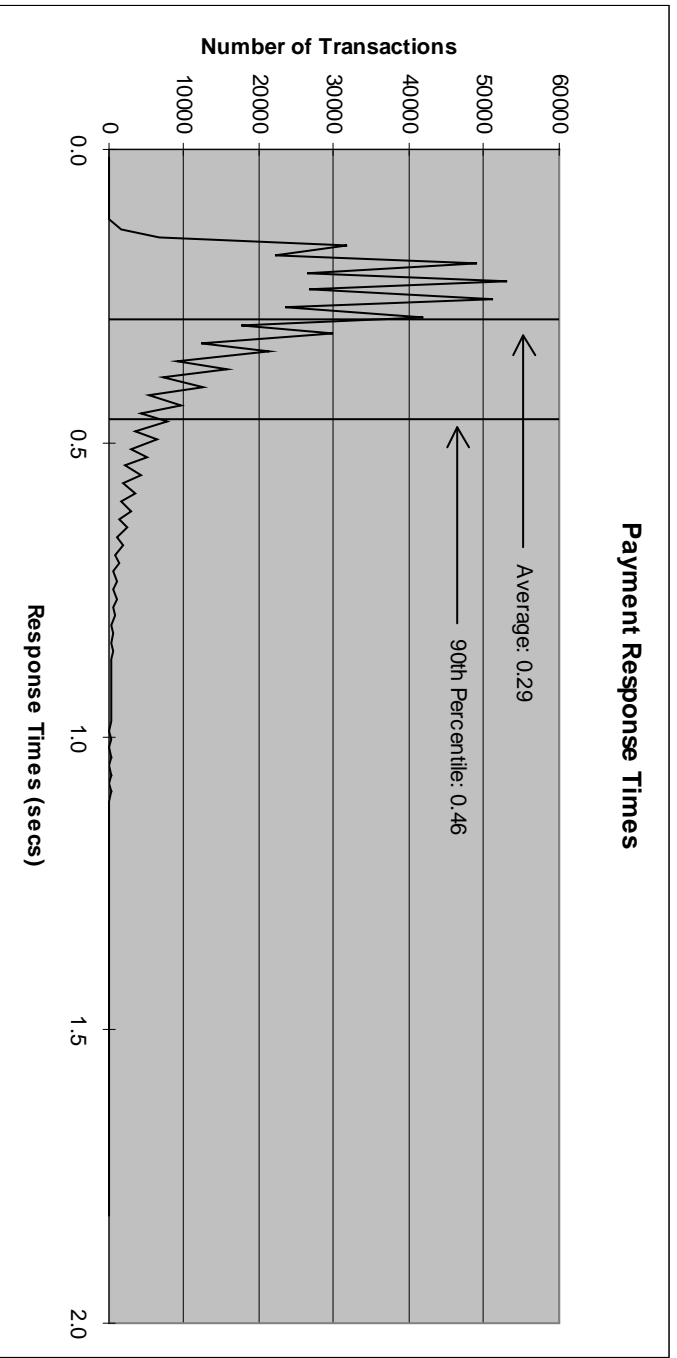


Figure 5.3: Order Status Response Time Distribution

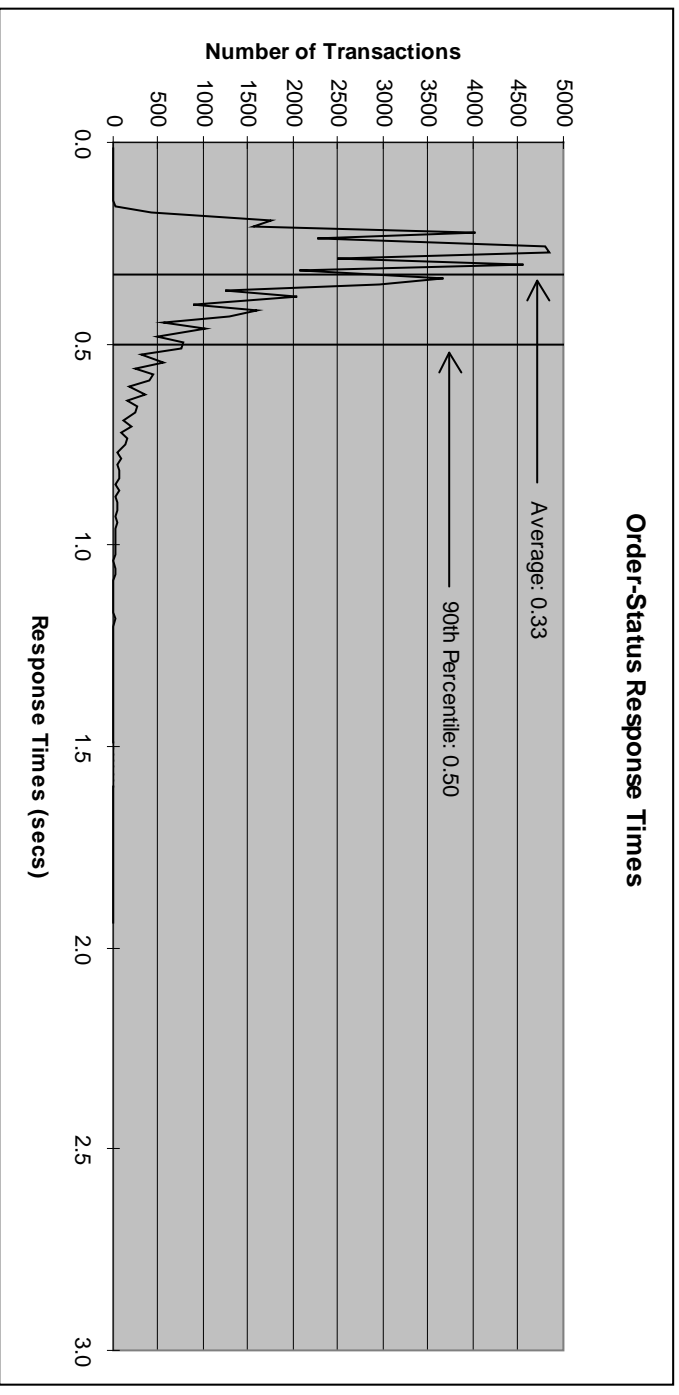


Figure 5.4: Delivery Response Time Distribution

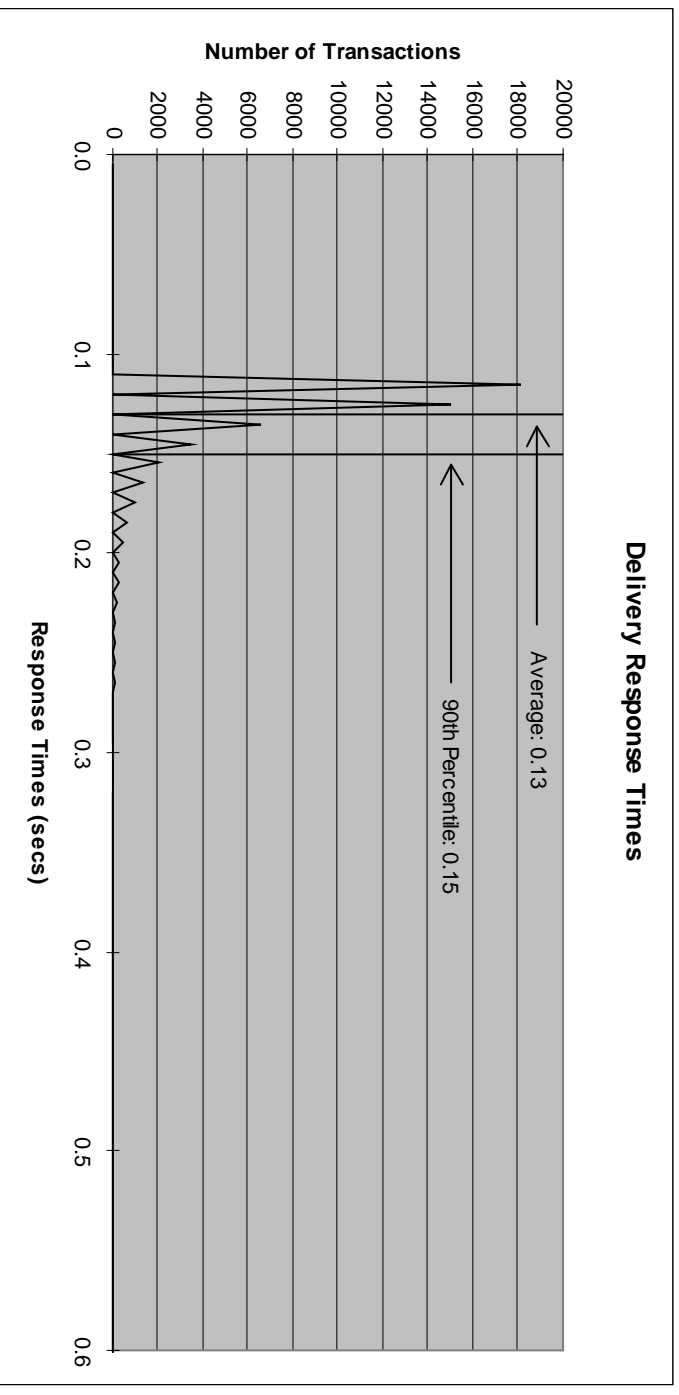
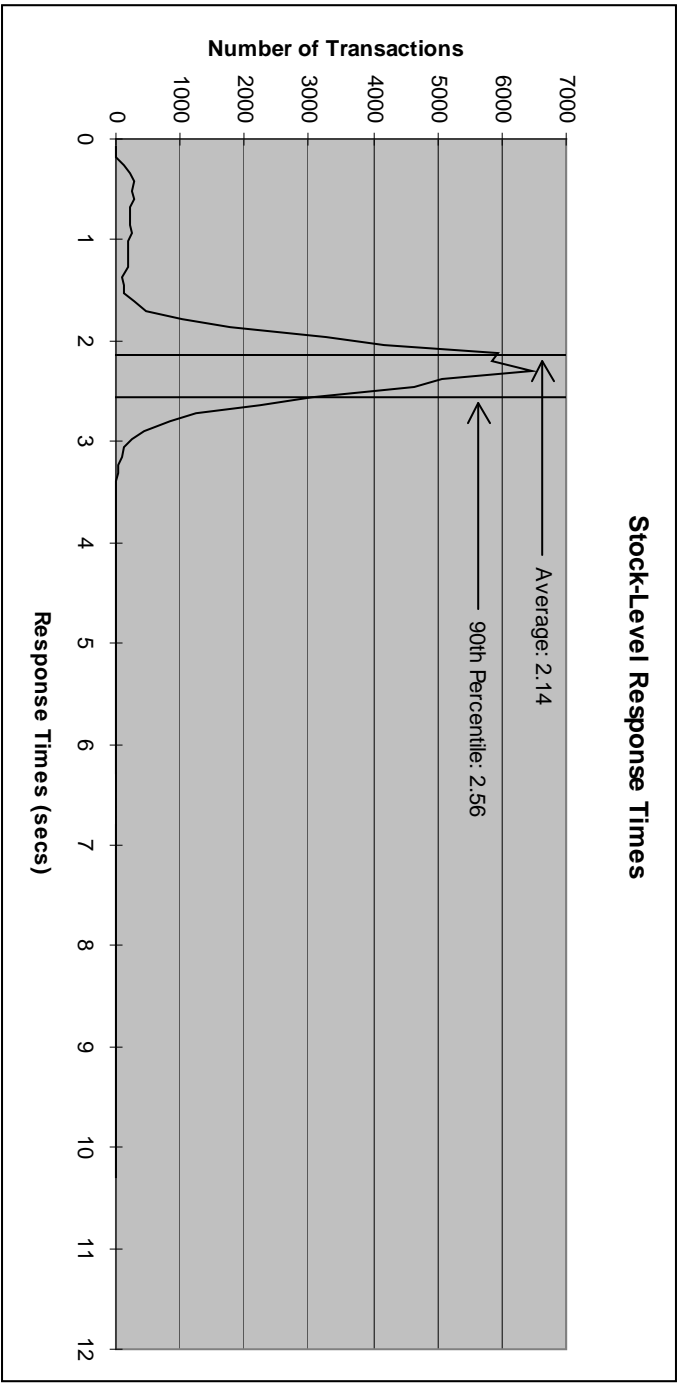


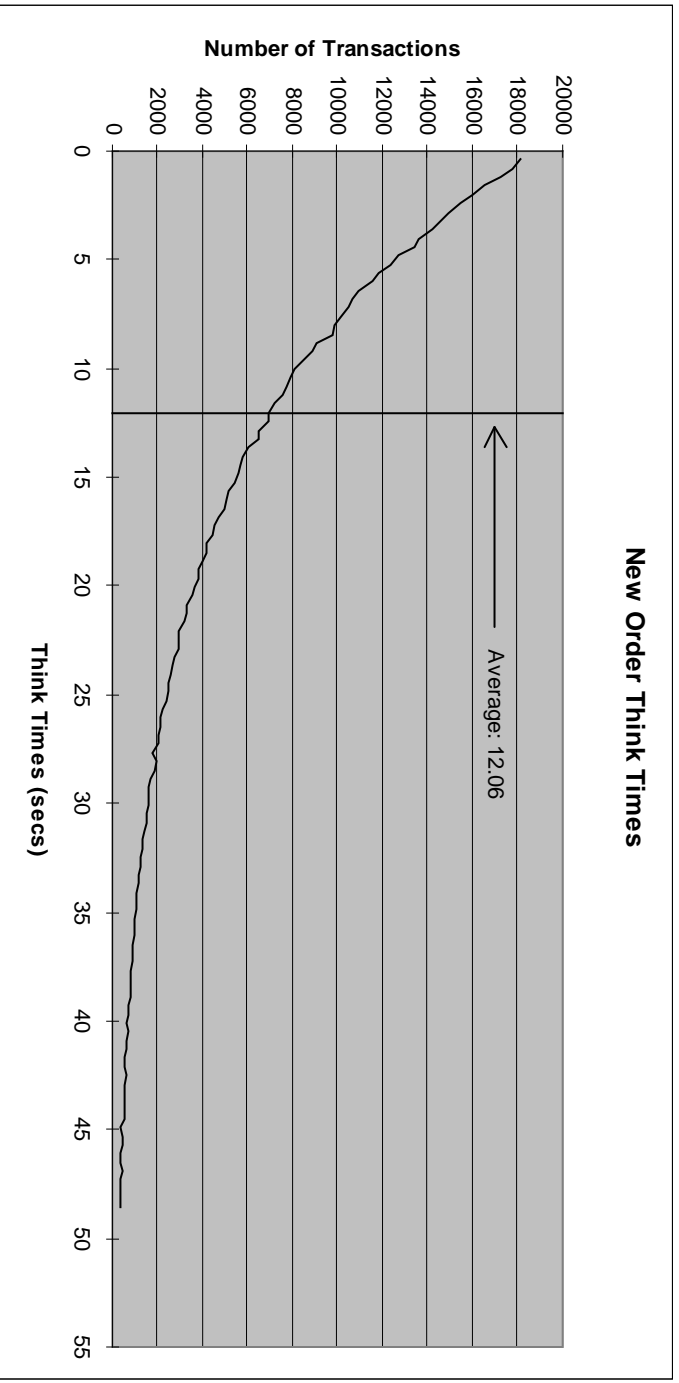
Figure 5.5: Stock Level Response Time Distribution



5.5. New Order Think Time Frequency Distribution Curve

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

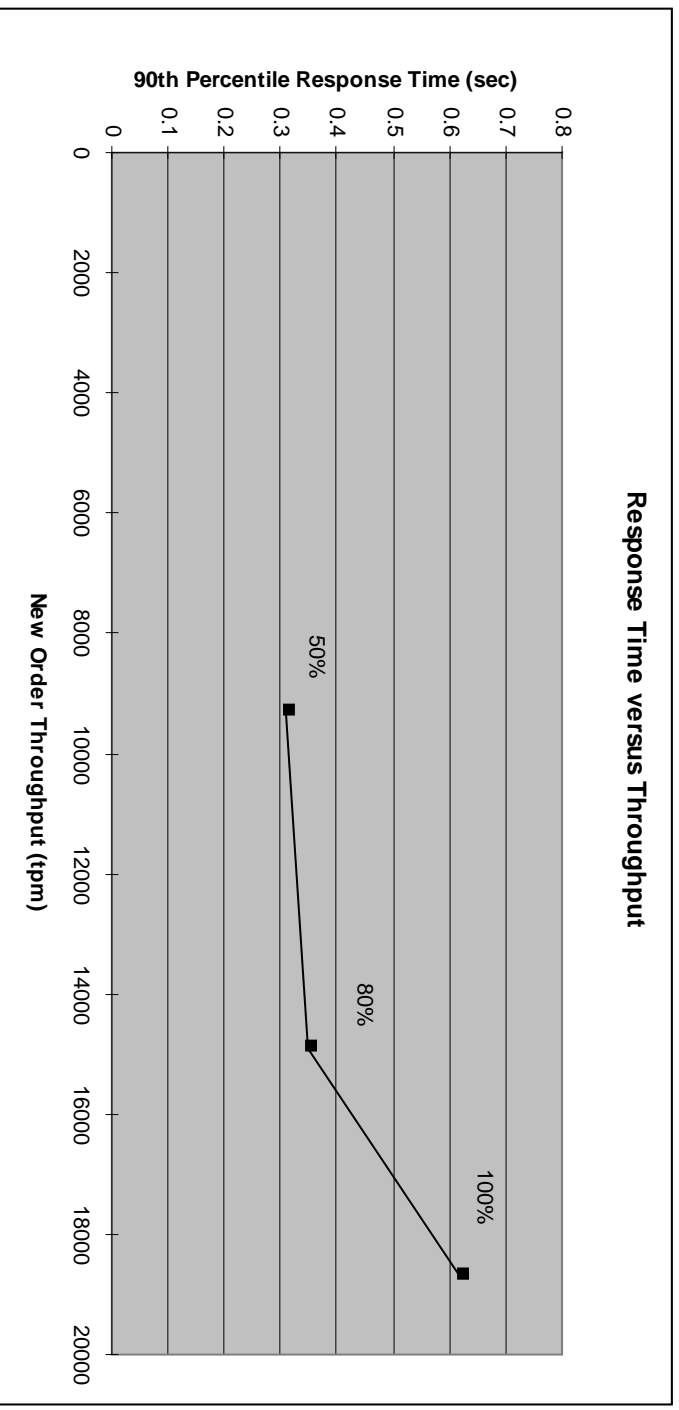
Figure 5.6: New Order Think Time Distribution



5.6. Response Time versus Throughput Performance Curve

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

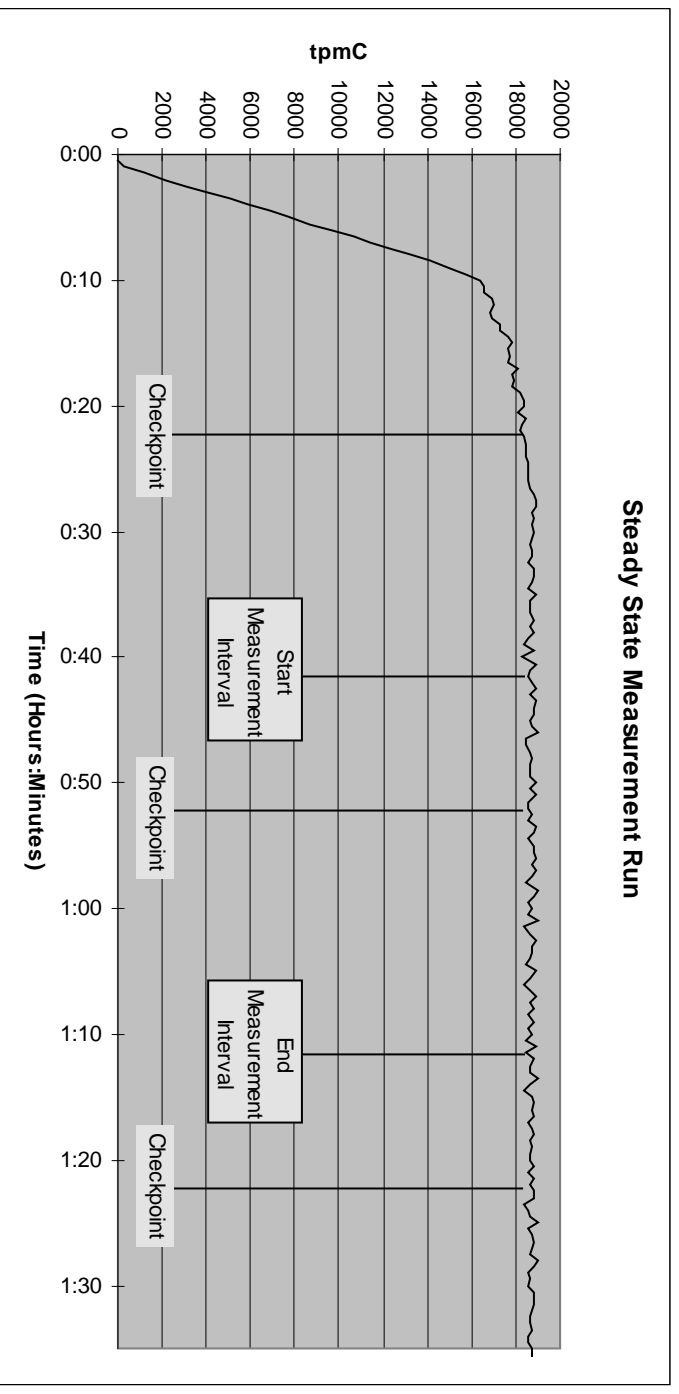
Figure 5.7: Response Time versus Throughput



5.7. New-Order Throughput vs. Time

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

Figure 5.8: Throughput (tpmC) versus Time



5.8. Determination of ‘Steady State’

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.

The transaction throughput rate (tpmC) and response time were relatively constant after the initial ‘ramp up’ period. The throughput and response time behavior were determined by examining data reported for each 30-second interval over the duration of the benchmark. Ramp-up, steady state, and ramp-down regions are discernible in the graph presented in Figure 5.8.

5.9. Work Performed During Steady State

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

The RTE selects a transaction type from the menu and prepares to request the appropriate blank form. A timestamp is taken before the form request is sent and after the response is returned. The difference between the two is saved off as the menu response time. The RTE then generates input data for the transaction to create a completed form and waits the appropriate key time. A timestamp is taken before the completed form is sent and after the response is returned. The difference between these two is saved off as the transaction response time. Both response times are padded with a 0.1 second delay per spec to account for the web browser delay. The appropriate transaction data and response times are logged and the RTE waits the required think time interval before repeating the process. Each RTE driver maintains its own log file. Log file contents are consolidated for the reports.

The RTE emulates web browsers (not terminals) in this client-server implementation. The RTE sends and receives HTML formatted data using HTTP through Ethernet LANs to a client application running on the client machine. The client application processes the request, sends the transaction to a Tuxedo TPC-C application server queue, waits for the transaction response (except for delivery), and returns an appropriately formatted HTML form back to the (emulated) web browser (RTE). The Tuxedo TPC-C application server retrieves a message from its queue, invokes request processing via a stored procedure on the database server using Microsoft SQL Server DDLIB and RPC through sockets over another Ethernet LAN, accepts the response, and returns a result to the client application (via Tuxedo). For delivery transactions, the client application does not wait for the Tuxedo TPC-C delivery server to respond. Each delivery server logs its results to its own file. The delivery report files are consolidated for reports.

To perform checkpoints at specific intervals, SQL Server’s checkpoint interval was set to the maximum allowable value and a utility was written to schedule checkpoints at 30 minute intervals and record the start and end time of each checkpoint. The checkpoint script was started manually on one of the client machines after the RTE had all users logged in and sending transactions and a steady state had been achieved. Using this information, the positioning of the checkpoint within the measurement interval was verified to be clear of the guard zones.

At each checkpoint, SQL Server wrote to disk all database pages in memory that had been updated but not yet physically written to the disk. Upon completion of the checkpoint, SQL Server also wrote records to the transaction log indicating that a checkpoint had completed.

5.10. Reproducibility

A description of the method used to determine the reproducibility of the measurement results must be reported.

In a repeat test, carried out in the same manner as the primary test, a throughput of 18,701.37 tpmC was achieved on the same database during a 30-minute, steady state run. All required transaction statistics were met. See the Auditor's attestation letter for details.

5.11. Measurement Interval Duration

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

The measurement interval was 30 minutes.

5.12. Regulation of Transaction Mix

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

The RTE was given a weighed random distribution which could not be adjusted during the run.

5.13. Transaction Statistics

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

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

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

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

The percentage of remote Payment transactions must be disclosed.

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

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

Table 5.4 shows this information.

Table 5.4: Transaction Statistics

| Transaction Type | Statistics | Value |
|------------------|---------------------------------------|--------|
| New Order | Rollback transactions | 1.01% |
| | Home warehouse | 99.00% |
| | Remote warehouse | 1.00% |
| | Average Items per Order | 10.00 |
| Payment | Home warehouse | 84.95% |
| | Remote warehouse | 15.05% |
| | Non-primary key access | 59.94% |
| Order Status | Non-primary key access | 59.98% |
| Delivery | Skipped transactions (Interactive) | 0 |
| | Skipped transaction counts (Deferred) | 0 |
| Transaction Mix | Skipped District counts (Deferred) | 0 |
| | New Order | 44.81% |
| | Payment | 43.10% |
| | Delivery | 4.00% |
| | Stock-Level | 4.03% |
| | Order-Status | 4.05% |

5.14. Checkpoint Statistics

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.

There is one checkpoint in the measurement interval. The checkpoint starts 638 seconds into the measurement interval. The checkpoint interval is 30 minutes (from the start of one to the start of the next) and a checkpoint lasts approximately 5 minutes. In conformance with Clause 5.2.2 there is no checkpoint within a span of 7.5 minutes before or after the beginning or end of the measurement interval.

6. Clause 6: SUT, Driver & Communications Definition

6.1. Remote Terminal Emulator (RTE) Description

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

The RTE used is proprietary to Unisys. Appendix D contains the profile used as input to this RTE.

6.2. 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.

There were no emulated components in the benchmark configuration other than the emulated web browsers on the users' PCs.

6.3. Functional Diagrams

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

Section 0.7 describes and shows functional diagrams of the benchmarked and priced systems.

6.4. Network Configuration

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

Figures 0.1 and 0.2 in Section 0.7 also diagram the network configurations of the benchmark and configured systems and represent the RTEs connected via LAN replacing the user PCs that are directly connected via LAN.

6.5. Network Bandwidth

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

Ethernet local area networks (LAN) are used in the priced and tested configurations. The database server (SUT) contains a single 10/100 megabit per second LAN adapter connecting it to the client systems. This LAN segment is run at 100 megabits per second in both the priced and tested configuration.

Each client contains two 10/100 megabit per second LAN adapters and one quad LAN adapter that supports four 10/100 megabit per second LAN segments. One 10/100 megabit per second LAN adapter connects to a LAN segment that communicates with the SUT at 100 megabits per second in both the priced and tested configuration. All other

LAN adapters are connected to LAN segments running at 10 megabits per second in both the priced and tested configurations.

In the priced configuration, each client is connected to workstations (PCs running web browsers) spread over five 10 megabit per second LAN segments.

In the tested configuration, each client is connected to RTE driver systems emulating web browsers spread over five 10 megabit per second LAN segments.

6.6. Operator Intervention

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

No operator intervention was required to sustain eight hours of operation at the reported throughput.

7.

Clause 7: Pricing

7.1. Pricing

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

The total 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.

System pricing should include subtotals for the following components: Server Hardware, Server Software, Client Hardware, Client Software, and Network Components used for terminal connection (see Clause 7.2.2.3). Clause 6.1 describes the Server and Client components.

System pricing must include line item indication where non-sponsoring companies' brands are used. System pricing must also include line item indication of third party pricing.

A detailed list of hardware and software components along with their part numbers and prices are given in the Executive Summary near the beginning of this document.

7.1.1. System Pricing

Each priced configuration consists of an integrated system package, additional options, and components. Prices for all products are US list prices. A three year warranty is standard with this class of Unisys server products.

7.1.2. Maintenance Pricing

The five year support pricing for Unisys Corporation Open Business Server products is based on a 36-month warranty on hardware and 24 months of monthly support. Microsoft and BEA support pricing is based on 60 months of monthly support costs.

Unisys Corporation Standard Performance-Gold Support: four hour maximum response, onsite support for hardware provides service from 8:00 A.M. to 5:00 P.M., Monday through Friday. Service requests made as late as 5:00 P.M. will receive a response the same day.

Netlux and Data Comm Warehouse provide return-to-factory replacement within seven days. Server disks are covered by Western Micro's seven day return-to-factory warranty. Appropriate spares are included in the priced configuration.

7.1.3. Discounts

Western Micro provides a standard dollar-volume discount to the client, server and storage components of the priced configuration.

7.2. Availability

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

The hardware, software and support/maintenance products priced in this benchmark are detailed on page vi.

Microsoft SQL Server Enterprise Edition 7.0 will be available by December 29, 1998. All other components are available.

7.3. Measured tpmC, Price/Performance, and Availability Date

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.

Unisys Corporation Aquanta QS/2 Server, with Microsoft Windows NT Server Enterprise Edition 4.0 and SQL Server Enterprise Edition 7.0, achieved 18,707.70 tpmC at \$24.96 per tpmC. All components will be available by December 29, 1998.

7.4. 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.

None.

7.5. Usage Pricing

For any usage pricing, the sponsor must disclose:

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

The component pricing based on usage is shown below:

- One (1) Microsoft Windows NT Server Enterprise Edition 4.0 license
- One (1) Microsoft SQL 7.0 Server Enterprise Edition license
- Three (3) Microsoft Windows NT Server 4.0 Licenses
- One (1) Microsoft Visual C++ Professional 5.0
- Three (3) BEA Tuxedo 6.3 CFS for NT licenses

Microsoft SQL Server & Internet Information Server and BEA Tuxedo were priced for an unlimited number of users.

8.

Clause 8 : Full Disclosure Availability

8.1. Availability

The Full Disclosure Report must be readily available to the public at a reasonable charge, similar to charges for similar documents by that test sponsor.

Copies of this Full Disclosure Report may be obtained by contacting:

TPC Benchmark Administrator
Systems Analysis, Modeling & Measurement Group
Unisys Corporation, M/S 262
25725 Jeronimo Road
Mission Viejo, CA 92691
USA

9.

Clause 9 : Audit

9.1. Auditor's Report

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

This implementation of the TPC Benchmark C on the Unisys Aquanta QS/2 Server was audited by Richard Gimarc, a TPC certified auditor of:

Performance Metrics Inc.,
2229 Benita Drive, Suite 101,
Rancho Cordova, CA 95670.

(916) 635-2822 Fax: (916) 858-0109
e-mail: Richard@PerfMetrics.com

The attestation letter is shown on the next page.

PERFORMANCE METRICS INC.
TPC Certified Auditors

November 4, 1998

Jerrold Buggert
Director of Modeling and Measurement
Unisys Corporation
25725 Jeronimo Road
Mission Viejo, CA 92691

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

Platform: Unisys Aquanta QS/2 Server
Database Manager: Microsoft SQL Server Enterprise Edition 7.0
Operating System: Microsoft Windows NT Server Enterprise Edition 4.0 (SP4)
Transaction Manager: BEA TUXEDO CFS 6.3 for NT

| CPUs | Memory | Disks | New-Order Response Time @ 90% | tpmC |
|------------------------------------|----------------------------------|--------------------------------|-------------------------------------|-----------|
| Server: Unisys Aquanta QS/2 Server | | | | |
| 4 Pentium II Xeon @ 400 MHz | Main: 4 GB L2 Cache: 1 MB | 120 @ 4.23 GB 105 @ 8.48 GB | 0.62 sec. | 18,707.70 |
| 3 Clients: Unisys Aquanta GPS | | | | |
| 2 Pentium II @ 300 MHz | Main: 256 MB L2 Cache: 512 KB | 1 @ 2.02 GB | n/a | n/a |

In my opinion, these performance results were produced in compliance with the TPC requirements for the benchmark.

The following attributes of the benchmark were given special attention:

- The transactions were correctly implemented.
- The database was properly sized and populated.
- The database was properly scaled with 1,545 warehouses. Only 1,500 warehouses were used during measurement.
- The ACID properties were met.
- The durability data loss and log loss tests were performed on a 10-warehouse database.

2229 Benita Drive, Suite 101, Rancho Cordova, CA 95670
(916) 635-2822 Fax: (916) 858-0109 e-mail: Richard@PerfMetrics.com

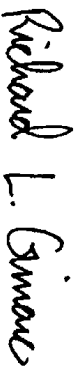
Page 1

PERFORMANCE METRICS INC.
TPC Certified Auditors

- Input data was generated according to the specified percentages.
- Eight hours of mirrored log space was configured on the priced system.
- Eight hours of dynamic table growth space was configured on the measured system.
- The following server disks contained backup and other data and were not active during measurement: sixteen 8.48 GB disks. These 16 disks were not included in the priced configuration.
- The 180-day space calculation was verified. One 4.23 GB disk and one 8.48 GB disk were added to the priced configuration to satisfy this requirement.
- Measurement cycle times included a 0.1 second menu and a 0.1 second response time delay for an emulated Web browser.
- The steady state portion of the test was 30 minutes.
- One checkpoint was taken during the steady state portion of the test.
- Checkpoints were verified to be clear of the guard zones.
- There were 15,000 user contexts present on the system.
- Each emulated user started with a different random number seed.
- The NURand constants used for database load and at run time were verified.
- System pricing was checked for major components and maintenance.

Additional Audit Notes: (none)

Regards,



Richard L. Gimarc
Auditor

2229 Benita Drive, Suite 101, Rancho Cordova, CA 95670
(916) 635-2822 Fax: (916) 858-0109 e-mail: Richard@PerfMetrics.com

Page 2

Appendix A - Client/Server Source

CLIENT MAKEFILE

```
# Microsoft Developer Studio Generated NMAKE File, Format Version 4.20
# ** DO NOT EDIT **
```

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

```
!IF "$(CFG)" == ""
CFG=tpcc - Win32 Debug
!MESSAGE No configuration specified. Defaulting to tpcc - Win32 Debug.
!ENDIF
```

```
!IF "$(CFG)" != "tpcc - Win32 Release" && "$(CFG)" != "tpcc - 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 "tpcc.mak" CFG="tpcc - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "tpcc - Win32 Release" (based on "Win32 (x86) Dynamic-Link
Library")
!MESSAGE "tpcc - Win32 Debug" (based on "Win32 (x86) Dynamic-Link
Library")
!MESSAGE
!ERROR An invalid configuration is specified.
!ENDIF
```

```
!IF "$(OS)" == "Windows_NT"
```

```
NULL=
!ELSE
NULL=nul
!ENDIF
```

```
#####
```

```
#####
# Begin Project
# PROP Target_Last_Scanned "tpcc - Win32 Release"
CPP=cl.exe
RSC=rc.exe
MTL=mktyplib.exe
```

```
!IF "$(CFG)" == "tpcc - 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 ""
OUTDIR=.\Release
INTDIR=.\Release

ALL : "$(OUTDIR)\tpcc.dll"

CLEAN :
    -@erase "$(INTDIR)\diagio.obj"
    -@erase "$(INTDIR)\term.obj"
    -@erase "$(INTDIR)\timesupp.obj"
    -@erase "$(INTDIR)\tmon.obj"
    -@erase "$(INTDIR)\TPCC.OBJ"
    -@erase "$(INTDIR)\tpcchandler.obj"
    -@erase "$(OUTDIR)\tpcc.dll"
    -@erase "$(OUTDIR)\tpcc.exp"
    -@erase "$(OUTDIR)\tpcc.lib"

"$$(OUTDIR)" :
    if not exist "$$(OUTDIR)/$(NULL)" mkdir "$$(OUTDIR)"

# ADD BASE CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D
"_WINDOWS" /YX /c
# ADD CPP /nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS" /YX
/c
CPP_PROJ=/nologo /MT /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_WINDOWS" \
/Fp"$$(INTDIR)/tpcc.pch" /YX /Fo"$$(INTDIR)/" /c
CPP_OBJS=.\Release/
CPP_SBRS=.\.
# ADD BASE MTL /nologo /D "NDEBUG" /win32
# ADD MTL /nologo /D "NDEBUG" /win32
MTL_PROJ=/nologo /D "NDEBUG" /win32
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$$(OUTDIR)/tpcc.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:windows /dll /machine:I386
# ADD LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib libtux.lib libbuft.lib libtux2.lib libfml.lib libfml32.lib
libgp.lib /nologo /subsystem:windows /dll /machine:I386
# SUBTRACT LINK32 /verbose /nodefaultlib
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib \
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib \
odbccp32.lib libtux.lib libbuft.lib libtux2.lib libfml.lib libfml32.lib \
libgp.lib /nologo /subsystem:windows /dll /incremental:no \
/pdb:"$(OUTDIR)/tpcc.pdb" /machine:I386 /def:". \tpcc.def" \
/out:"$(OUTDIR)/tpcc.dll" /implib:"$(OUTDIR)/tpcc.lib"
DEF_FILE= \
```

```

    ".\tpcc.def"
LINK32_OBJS= \
    "$ (INTDIR)\diagio.obj" \
    "$ (INTDIR)\term.obj" \
    "$ (INTDIR)\timesupp.obj" \
    "$ (INTDIR)\tmon.obj" \
    "$ (INTDIR)\TPCC.OBJ" \
    "$ (INTDIR)\tpcchandler.obj"

"$ (OUTDIR)\tpcc.dll" : "$ (OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
    $(LINK32) @<<
    $(LINK32_FLAGS) $(LINK32_OBJS)
<<

!ELSEIF "$(CFG)" == "tpcc - 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 ""
OUTDIR=.\Debug
INTDIR=.\Debug

ALL : "$ (OUTDIR)\tpcc.dll"

CLEAN :
-@erase "$(INTDIR)\diagio.obj"
-@erase "$(INTDIR)\term.obj"
-@erase "$(INTDIR)\timesupp.obj"
-@erase "$(INTDIR)\tmon.obj"
-@erase "$(INTDIR)\TPCC.OBJ"
-@erase "$(INTDIR)\tpcchandler.obj"
-@erase "$(INTDIR)\vc40.idb"
-@erase "$(INTDIR)\vc40.pdb"
-@erase "$(OUTDIR)\tpcc.dll"
-@erase "$(OUTDIR)\tpcc.exp"
-@erase "$(OUTDIR)\tpcc.ilk"
-@erase "$(OUTDIR)\tpcc.lib"
-@erase "$(OUTDIR)\tpcc.pdb"

"$ (OUTDIR)" :
    if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

# ADD BASE CPP /nologo /MTd /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
" _WINDOWS" /YX /c
# ADD CPP /nologo /MT /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
" _WINDOWS" /YX /c
CPP_PROJ=/nologo /MT /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
" _WINDOWS" \
    /Fp"$ (INTDIR)\tpcc.pch" /YX /Fo"$ (INTDIR)\" /Fd"$ (INTDIR)\" /c
CPP_OBJS=.\Debug\
CPP_SBRS=.\.
# ADD BASE MTL /nologo /D "_DEBUG" /win32
# ADD MTL /nologo /D "_DEBUG" /win32
MTL_PROJ=/nologo /D "_DEBUG" /win32

```

```

# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$ (OUTDIR)\tpcc.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:windows /dll /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 libtux.lib libbuft.lib libtux2.lib libfml.lib libfml32.lib
libgp.lib /nologo /subsystem:windows /dll /debug /machine:I386
# SUBTRACT LINK32 /verbose /nodefaultlib
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib comdlg32.lib\
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib\
odbccp32.lib libtux.lib libbuft.lib libtux2.lib libfml.lib libfml32.lib\
libgp.lib /nologo /subsystem:windows /dll /incremental:yes\
/pdb:"$ (OUTDIR)\tpcc.pdb" /debug /machine:I386 /def:".\tpcc.def" \
/out:"$ (OUTDIR)\tpcc.dll" /implib:"$ (OUTDIR)\tpcc.lib"
DEF_FILE= \
    ".\tpcc.def"
LINK32_OBJS= \
    "$ (INTDIR)\diagio.obj" \
    "$ (INTDIR)\term.obj" \
    "$ (INTDIR)\timesupp.obj" \
    "$ (INTDIR)\tmon.obj" \
    "$ (INTDIR)\TPCC.OBJ" \
    "$ (INTDIR)\tpcchandler.obj"

"$ (OUTDIR)\tpcc.dll" : "$ (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 "tpcc - Win32 Release"
# Name "tpcc - Win32 Debug"

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

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

!ENDIF

#####
#####
# Begin Source File

SOURCE=.\term.c
DEP_CPP_TERM=\
    ".\diagio.h"\
    ".\term.h"\
    ".\timesupp.h"\

"$(INTDIR)\term.obj" : $(SOURCE) $(DEP_CPP_TERM) "$(INTDIR)"

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

SOURCE=.\timesupp.c
DEP_CPP_TIMES=\
    ".\timesupp.h"\

"$(INTDIR)\timesupp.obj" : $(SOURCE) $(DEP_CPP_TIMES) "$(INTDIR)"

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

SOURCE=.\TPCC.C
DEP_CPP_TPCC=\
    ".\diagio.h"\
    ".\term.h"\
    ".\tmon.h"\
    ".\tpcc.h"\
    ".\tpcchandler.h"\

"$(INTDIR)\TPCC.OBJ" : $(SOURCE) $(DEP_CPP_TPCC) "$(INTDIR)"

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

SOURCE=.\tpcchandler.c

```

```

DEP_CPP_TPCCCH=\
    ".\diagio.h"\
    ".\term.h"\
    ".\tmon.h"\
    ".\tpcc.h"\
    ".\tpcchandler.h"\

"$(INTDIR)\tpcchandler.obj" : $(SOURCE) $(DEP_CPP_TPCCCH) "$(INTDIR)"

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

SOURCE=.\tpcc.def

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

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

!ENDIF

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

SOURCE=.\tmon.c
DEP_CPP_TMON=\
    ".\tmon.h"\
    {$ (INCLUDE) }\atmi.h\
    {$ (INCLUDE) }\sys\types.h\
    {$ (INCLUDE) }\tmenv.h\

"$(INTDIR)\tmon.obj" : $(SOURCE) $(DEP_CPP_TMON) "$(INTDIR)"

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

SOURCE=.\diagio.c
DEP_CPP_DIAGI=\
    ".\diagio.h"\

"$(INTDIR)\diagio.obj" : $(SOURCE) $(DEP_CPP_DIAGI) "$(INTDIR)"

# End Source File
# End Target
# End Project
#####
#####

```

tpcc.def

```
EXPORTS
  GetExtensionVersion
  HttpExtensionProc
```

tpcc.h

```
// tpcc.h

#include <time.h>

// TPCCHandler return codes
#define TPCCSEND 1
#define TPCCSENDEND 2
#define TPCCENDNOW 3

// TPCC Service return codes
#define SVC_BADITEMID 1
#define SVC_NOERROR 0
#define SVCERR_DEADLOCK -1
#define SVCERR_NOCUSTOMER -2
#define SVCERR_NOORDERS -3
#define SVCERR_DBLIB -4

// Min/Max transaction data definitions
#define MIN_DID 1
#define MAX_DID 10
#define MIN_OL 5
#define MAX_OL 15
#define MIN_QUANTITY 1
#define MAX_QUANTITY 10
#define MIN_ITEM_ID 1
#define MAX_ITEM_ID 10000
#define MIN_CUST_ID 1
#define MAX_CUST_ID 3000
#define MIN_CARRIER 1
#define MAX_CARRIER 10
#define MIN_THRESHOLD 10
#define MAX_THRESHOLD 20

// pTPCC->iStatusId codes
#define INVALID_IID 1
#define STATUS_OK 0
#define ERR_CMD_UNKNOWN -10
#define ERRTXT_CMD_UNKNOWN "Unrecognized Command"
#define ERR_ALREADY_LOGGEDIN -11
#define ERRTXT_ALREADY_LOGGEDIN "Already Logged In"
#define ERR_TERMID -12
#define ERRTXT_TERMID "TermId or SyncId in Error"
#define ERR_FORM_UNKNOWN -13
#define ERRTXT_FORM_UNKNOWN "Unrecognized FormId"
#define ERR_WID_INVALID -14
#define ERR_DID_INVALID -15
#define ERR_MISSING_KEY -16
#define ERR_NOT_NUMERIC -17
#define ERR_THRESHOLD_RANGE -18
#define ERR_EMBEDDED_EMPTY_OL -19
#define ERR_QUANTITY_INVALID -20
#define ERR_OL_INVALID -21
```

```
#define ERR_OL_COUNT -22
#define ERR_TM_INTERFACE -23
#define ERR_SERVICE_RSLT -24
#define ERR_INPUT_TOOLONG -25
#define ERR_IDANDNAME_EMPTY -26
#define ERR_IDANDNAME_ENTERED -27
#define ERR_AMOUNT_BADFORM -28
#define ERR_AMOUNT_INVALID -29
#define ERR_CARRIER_INVALID -30
#define ERR_TERM_ALLOC -31

#define STATUS_LEN 200
#define NAME_LEN 16
#define ADDR_LEN 20
#define STATE_LEN 2
#define ZIP_LEN 9

#define MAX_MSG_SZ 5000
#define CTEXT "Content-length: "
#define HTTPHdr "Connection: keep-alive\r\nContent-type: text/html\r\n" \
               "Content-length: \r\n\r\n"

typedef struct
{
  int year;
  int quarter;
  int month;
  int dayofyear;
  int day;
  int week;
  int weekday;
  int hour;
  int minute;
  int second;
  int millisecond;
} DBDATEREC;

typedef struct
{
  short ol_supply_w_id;
  long ol_i_id;
  char ol_i_name[25];
  short ol_quantity;
  char ol_brand_generic[2];
  double ol_i_price;
  double ol_amount;
  short ol_stock;
} OL_NEW_ORDER_DATA;

typedef struct
{
  short w_id;
  short d_id;
  long c_id;
  short o_ol_cnt;
  char c_last[NAME_LEN + 1];
  char c_credit[3];
  double c_discount;
  double w_tax;
  double d_tax;
  long o_id;
```

```

short o_commit_flag;
DBDATEREC o_entry_d;
short o_all_local;
double total_amount;
char execution_status[STATUS_LEN];
OL_NEW_ORDER_DATA Ol[MAX_OL];
} NEW_ORDER_DATA;

```

```
typedef struct
```

```

{
short w_id;
short d_id;
long c_id;
short c_d_id;
short c_w_id;
double h_amount;
DBDATEREC h_date;
char w_street_1[ADDR_LEN + 1];
char w_street_2[ADDR_LEN + 1];
char w_city[ADDR_LEN + 1];
char w_state[STATE_LEN + 1];
char w_zip[ZIP_LEN + 1];
char d_street_1[ADDR_LEN + 1];
char d_street_2[ADDR_LEN + 1];
char d_city[ADDR_LEN + 1];
char d_state[STATE_LEN + 1];
char d_zip[ZIP_LEN + 1];
char c_first[NAME_LEN + 1];
char c_middle[3];
char c_last[NAME_LEN + 1];
char c_street_1[ADDR_LEN + 1];
char c_street_2[ADDR_LEN + 1];
char c_city[ADDR_LEN + 1];
char c_state[STATE_LEN + 1];
char c_zip[ZIP_LEN + 1];
char c_phone[16];
DBDATEREC c_since;
char c_credit[3];
double c_credit_lim;
double c_discount;
double c_balance;
char c_data[200+1];
char execution_status[STATUS_LEN];
} PAYMENT_DATA;

```

```
typedef struct
```

```

{
long ol_i_id;
short ol_supply_w_id;
short ol_quantity;
double ol_amount;
DBDATEREC ol_delivery_d;
} OL_ORDER_STATUS_DATA;

```

```
typedef struct
```

```

{
short w_id;
short d_id;
long c_id;
char c_first[NAME_LEN + 1];
char c_middle[3];

```

```

char c_last[NAME_LEN + 1];
double c_balance;
long o_id;
DBDATEREC o_entry_d;
short o_carrier_id;
OL_ORDER_STATUS_DATA OlOrderStatusData[MAX_OL];
short o_ol_cnt;
char execution_status[STATUS_LEN];
} ORDER_STATUS_DATA;

```

```
typedef struct
```

```

{
short w_id;
short o_carrier_id;
long o_id[10];
int iComplete;
SYSTEMTIME QTime; // time delivery was queued
SYSTEMTIME EndTime; // time delivery completed
char execution_status[STATUS_LEN];
} DELIVERY_DATA;

```

```
typedef struct
```

```

{
short w_id;
short d_id;
short thresh_hold;
long low_stock;
char execution_status[STATUS_LEN];
} STOCK_LEVEL_DATA;

```

```
typedef struct
```

```

{
LPVOID ConnID; // Active Connection Id
SHORT sWId; // TPCC Warehouse Id
SHORT sDId; // TPCC District Id
INT iSyncId; // TPCC Sync Id
INT iTermId; // TPCC Term Id
UINT uFormId; // TPCC Form Id
INT iStatusId; // TPCC Status Id
CHAR ErrTxt[500]; // Error text
CHAR szWork[200]; // Thread work area
CHAR szHeader[100]; // HTTP work area
CHAR * RecvMsg; // HTML message from ECB
CHAR SendMsg[MAX_MSG_SZ]; // HTML work area
TMON_STATE tsTMon; // TMon Interface
} TPCC_STATE;

```

tpcc.c

```

// tpcc.c
//
// Copyright Unisys, 1997
//
#include <windows.h>
#include <stdio.h>
#include <malloc.h>
#include <stdlib.h>
#include <string.h>
#include <winreg.h>
#include <httplib.h>

```

```

#include "tmon.h"
#include "diagio.h"
#include "term.h"
#include "tpcchandler.h"

#define EXTN_VERSION MAKELONG(HSE_VERSION_MINOR,HSE_VERSION_MAJOR)
#define TLS_NULL 0xFFFFFFFF
DWORD dwTlsInx;
CHAR * pTitle = "IIS TPCC DLL";
CRITICAL_SECTION csDllMain;

// Diagnostic logging settings
BOOL bEventLog = TRUE;
BOOL bConsole = FALSE;
UINT uDiagLevel = DIAG_INFO;

// TMon Interface Settings
INT iTMMaxMsg = 0;

// Term Interface Settings
INT iMaxTerms = 3000;

static CHAR * szTPCCError =
    HTTPHdr "<HTML>"
    "<HEAD><TITLE>Welcome To TPC-C</TITLE></HEAD><BODY>"
    "<B>TPCC Extension Error (TPCC Array Not Allocated)</B><BR>"
    "</BODY></HTML>";

static CHAR * szTMinError =
    HTTPHdr "<HTML>"
    "<HEAD><TITLE>Welcome To TPC-C</TITLE></HEAD><BODY>"
    "<B>TPCC Extension Error (TMinInit Failed)</B><BR>"
    "</BODY></HTML>";
INT ihHdrLen = 0;
INT icTextLen = 0;

BOOL ThreadAttach(TPCC_STATE * pTPCC,CHAR * pDiag);
VOID ThreadDetach(TPCC_STATE * pTPCC);
VOID SendResponse(EXTENSION_CONTROL_BLOCK * pECB,CHAR * pMsg,CHAR *
pWork);
BOOL ReadRegistry(VOID);

//=====
//
// Function name: DllMain
//
//=====
BOOL APIENTRY DllMain(HANDLE hInst, ULONG ul_reason_for_call,
LPVOID lpReserved)
{
    TPCC_STATE * pTPCC = NULL;
    CHAR szDiag[MAX_DIAG_SZ];
    UINT iTMMaxSz = 0;
    switch(ul_reason_for_call)
    {
        case DLL_PROCESS_ATTACH:
            // Process initialization

            InitializeCriticalSection(&csDllMain);
            ReadRegistry();

```

```

DiagIoInit(pTitle,bConsole,bEventLog,uDiagLevel);
sprintf(szDiag,
    "EventLog = %d, Console = %d, DiagLevel = %d\n"
    "MaxTerms = %d\n",
    bEventLog,bConsole,uDiagLevel,iMaxTerms);
DiagIoWrite(szDiag,DIAG_FORCE);
dwTlsInx = TlsAlloc();
if (dwTlsInx == TLS_NULL)
{
    sprintf(szDiag,"PAttach(%ld): Tls Alloc Failed (%ld)\n",
        GetCurrentThreadId(),GetLastError());
    DiagIoWrite(szDiag,DIAG_ERROR);
    return(FALSE);
};
if (TermInit(iMaxTerms))
    return(FALSE);
iTMMMaxSz = max(iTMMMaxSz,sizeof(NEW_ORDER_DATA));
iTMMMaxSz = max(iTMMMaxSz,sizeof(PAYMENT_DATA));
iTMMMaxSz = max(iTMMMaxSz,sizeof(ORDER_STATUS_DATA));
iTMMMaxSz = max(iTMMMaxSz,sizeof(DELIVERY_DATA));
iTMMMaxSz = max(iTMMMaxSz,sizeof(STOCK_LEVEL_DATA));
iTMMMaxSz += 10;
TMonInit(iTMMMaxSz);
ihHdrLen = strlen(HTTPHdr);
icTextLen = strlen(CTEXT);
break;
case DLL_THREAD_ATTACH:
    // Move ThreadAttach call to HttpExt since the DllMain call
    // for Thread Attach did not reliably come before the first
    // call to HttpExtProc.
    break;
    case DLL_THREAD_DETACH:
        ThreadDetach(pTPCC);
        break;
    case DLL_PROCESS_DETACH:
        ThreadDetach(pTPCC);
        DeleteCriticalSection(&csDllMain);
        TMonTerm();
        TermTerm();
        TlsFree(dwTlsInx);
        dwTlsInx = TLS_NULL;
        DiagIoTerm();
        break;
};
return TRUE;
}; // DllMain

//=====
//
// Function name: ThreadAttach
//
// Result:
// FALSE Thread state structure initialized
// TRUE Thread state structure initialization failure
//
//=====
BOOL ThreadAttach(TPCC_STATE * pTPCC,CHAR * pDiag)
{
    BOOL bRslt;
    UINT uLabelNoOp;
    EnterCriticalSection(&csDllMain);

```



```

try
{
    pTPCC = (TPCC_STATE *) calloc(1, sizeof(TPCC_STATE));
    if (pTPCC == NULL)
    {
        sprintf(pDiag, "ThrAtt(%ld): pTPCC Alloc Failed (%ld)\n",
            GetCurrentThreadId(), GetLastError());
        DiagIoWrite(pDiag, DIAG_ERROR);
        bRslt = TRUE;
        goto TAttachXit;
    };
    TlsSetValue(dwTlsInx, pTPCC);
    pTPCC->tsTMon.pTMDData = NULL;
    pTPCC->tsTMon.pszErrTxt = pTPCC->ErrTxt;
    if (TMinInit(&pTPCC->tsTMon))
    {
        sprintf(pDiag, "ThrAtt(%ld): TMinInit %s\n",
            GetCurrentThreadId(), pTPCC->ErrTxt);
        DiagIoWrite(pDiag, DIAG_ERROR);
        bRslt = TRUE;
        goto TAttachXit;
    };
    bRslt = FALSE;
TAttachXit:
    uLabelNoOp = 0;
}
finally
{
    LeaveCriticalSection(&csDllMain);
};

return(bRslt);
}; // ThreadAttach

//=====
//
// Function name: ThreadDetach
//
//=====
VOID ThreadDetach(TPCC_STATE * pTPCC)
{
    EnterCriticalSection(&csDllMain);
    try
    {
        pTPCC = TlsGetValue(dwTlsInx);
        if (pTPCC != NULL)
        {
            TMDone(&pTPCC->tsTMon);
            free(pTPCC);
            pTPCC = NULL;
            TlsSetValue(dwTlsInx, pTPCC);
        };
    }
    finally
    {
        LeaveCriticalSection(&csDllMain);
    };
}; // ThreadDetach

//=====

```

```

//
// Function name: GetExtensionVersion
//
//=====
BOOL WINAPI GetExtensionVersion(HSE_VERSION_INFO *pVersion)
{
    pVersion->dwExtensionVersion = EXTN_VERSION;
    strncpy(pVersion->lpszExtensionDesc, pTitle, HSE_MAX_EXT_DLL_NAME_LEN);
    return TRUE;
}; // GetExtensionVersion

//=====
//
// Function name: HttpExtensionProc
//
// Returns:
// HSE_STATUS_SUCCESS          send msg, drop connection
// HSE_STATUS_SUCCESS_AND_KEEP_CONN  send msg, keep connection
//
//=====
DWORD WINAPI HttpExtensionProc(EXTENSION_CONTROL_BLOCK * pECB)
{
    TPCC_STATE * pTPCC;
    DWORD dwRslt = HSE_STATUS_SUCCESS;
    UINT uRslt;

    pTPCC = TlsGetValue(dwTlsInx);
    if (pTPCC == NULL)
    {
        CHAR szWork[200];
        ThreadAttach(pTPCC, szWork);
        pTPCC = TlsGetValue(dwTlsInx);
        if (pTPCC == NULL)
        {
            SendResponse(pECB, szTPCCError, szWork);
            goto HttpXit;
        };
    };
    if (pTPCC->tsTMon.pTMDData == NULL)
        SendResponse(pECB, szTMinInitError, pTPCC->szHeader);
    TPCCclear(pTPCC);
    pTPCC->ConnID = pECB->ConnID;
    pTPCC->RecvMsg = pECB->lpszQueryString;
    uRslt = TPCCHandler(pTPCC);
    switch (uRslt)
    {
        case TPCCSEND:
            SendResponse(pECB, pTPCC->SendMsg, pTPCC->szHeader);
            dwRslt = HSE_STATUS_SUCCESS_AND_KEEP_CONN;
            break;
        case TPCCSENDEND:
            SendResponse(pECB, pTPCC->SendMsg, pTPCC->szHeader);
            break;
        case TPCCENDNOW:
            default:
                break;
    }; // switch (TPCCHandler result)

HttpXit:

```

```

        return(dwRslt);
}; // HttpExtensionProc

//=====
//
// Function name: SendResponse
//
//=====
VOID SendResponse(EXTENSION_CONTROL_BLOCK * pECB, CHAR * pMsg, CHAR * pWork)
{
    DWORD dwMsgBytes;
    CHAR * pCL;
    dwMsgBytes = strlen(pMsg);
    pCL=strstr(pMsg, CTEXT);
    dwMsgBytes -= iHHdrLen;
    sprintf(pWork, "%4ld", dwMsgBytes);
    pCL += iCTextLen;
    strncpy(pCL, pWork, 4);
    (*pECB->ServerSupportFunction)
        (pECB->ConnID,
         HSE_REQ_SEND_RESPONSE_HEADER,
         NULL,
         &dwMsgBytes,
         (LPDWORD)pMsg);
}; // SendResponse

//=====
//
// Function name: ReadRegistry
//
// Sets global operational parameters from registry if they exist.
// Otherwise, compiled in defaults apply.
//
// Result:
// FALSE Registry entry found
// TRUE Registry entry does not exist
//
//=====
BOOL ReadRegistry(VOID)
{
    HKEY hkTPCC;
    DWORD dwMax;
    DWORD dwRT;
    INT i;
    CHAR szValue[100];
    if (RegOpenKeyEx(HKEY_LOCAL_MACHINE, "SOFTWARE\\Unisys\\TPCC", 0,
        KEY_READ, &hkTPCC) != ERROR_SUCCESS )
        return(TRUE);
    dwMax = sizeof(szValue);
    if (RegQueryValueEx(hkTPCC, "EVENTLOG", 0, &dwRT, szValue, &dwMax)
        == ERROR_SUCCESS)
    {
        if (abs(atoi(szValue) == 0))
            bEventLog = FALSE;
        else
            bEventLog = TRUE;
    };
    dwMax = sizeof(szValue);
    if (RegQueryValueEx(hkTPCC, "CONSOLE", 0, &dwRT, szValue, &dwMax)
        == ERROR_SUCCESS )

```

```

    {
        if (abs(atoi(szValue) == 0))
            bConsole = FALSE;
        else
            bConsole = TRUE;
    };
    dwMax = sizeof(szValue);
    if (RegQueryValueEx(hkTPCC, "DIAGLEVEL", 0, &dwRT, szValue, &dwMax)
        == ERROR_SUCCESS )
    {
        i = atoi(szValue);
        if (i < DIAG_FORCE)
            i = DIAG_FORCE;
        else
            if (i > DIAG_INFO)
                i = DIAG_INFO;
        uDiagLevel = i;
    };
    dwMax = sizeof(szValue);
    if (RegQueryValueEx(hkTPCC, "MAXTERMS", 0, &dwRT, szValue, &dwMax)
        == ERROR_SUCCESS )
    {
        iMaxTerms = abs(atoi(szValue));
    };
    RegCloseKey(hkTPCC);
    return(FALSE);
}; // ReadRegistry

```

tpcchandler.h

```

// tpcchandler.h

#include "tpcc.h"

BOOL TPCCclear(TPCC_STATE * pTPCC);
UINT TPCCHandler(TPCC_STATE * pTPCC);

```

tpcchandler.c

```

// tpcchandler.c
//
// Copyright Unisys, 1997
//
#include <windows.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

#include "tmon.h"
#include "diagio.h"
#include "tpcchandler.h"
#include "term.h"

// pTPCC->iFormId - TPCC forms enumeration.
#define FORM_NULL 0
#define FORM_LOGON 1
#define FORM_MENU 2
#define FORM_NEWORDER 3

```

```

#define FORM_PAYMENT      4
#define FORM_DELIVERY    5
#define FORM_ORDERSTATUS 6
#define FORM_STOCKLEVEL  7
#define FORM_EXIT        8
#define FORM_MAX         9

```

```

// CMD= HTML Command Enumeration and Name
#define CMD_NULL          0
#define CMD_PROCESS      1
#define CMD_NEWORDER_FORM 2
#define CMD_PAYMENT_FORM 3
#define CMD_DELIVERY_FORM 4
#define CMD_ORDERSTATUS_FORM 5
#define CMD_STOCKLEVEL_FORM 6
#define CMD_EXIT         7
#define CMD_SUBMIT       8
#define CMD_MENU_FORM    9
#define CMD_MAX          10

```

```

static CHAR * szCmds[] =
{
    "Unknown",
    "Process",
    "..NewOrder..",
    "..Payment..",
    "..Delivery..",
    "..Order-Status..",
    "..Stock-Level..",
    "..Exit..",
    "Submit",
    "Menu"
};

```

```

static CHAR * szFormLogin =
HTTPHdr "<HTML>"
"<HEAD><TITLE>Welcome To TPC-C</TITLE></HEAD><BODY>"
"Please Identify your Warehouse and District for this session.<BR>"
"<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
"<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">"
"<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"1\">"
"<INPUT TYPE=\"hidden\" NAME=\"TERMIN\" VALUE=\"-2\">"
"<INPUT TYPE=\"hidden\" NAME=\"SYCID\" VALUE=\"0\">"
"Warehouse ID <INPUT NAME=\"w_id\" SIZE=4><BR>"
"District ID <INPUT NAME=\"d_id\" SIZE=2><BR>"
"<HR>"
"<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Submit\">"
"</FORM>";

```

```

static CHAR * szMenuList =
"<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..\">";

```

```

static CHAR * HTMLTrailer =
"</BODY></HTML>";

```

```

static CHAR * TERMINDTOKEN = "TERMIN=";

```

```

static CHAR * SYNCIDTOKEN = "SYCID=";
static CHAR * FORMIDTOKEN = "FORMID=";
static CHAR * STATUSIDTOKEN = "STATUSID=";
static CHAR * CMDTOKEN = "CMD=";
static CHAR * NEWORDER_SERVICE = "NEWORDER";
static CHAR * PAYMENT_SERVICE = "PAYMENT";
static CHAR * ORDERSTATUS_SERVICE = "ORDERSTS";
static CHAR * DELIVERY_SERVICE = "DELIVERY";
static CHAR * STOCKLEVEL_SERVICE = "STOCKLVL";
static CHAR * ZIPPIC = "XXXXX-XXXX";

```

```

BOOL ProcessLogin(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC);
BOOL ProcessForm(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC);
BOOL ProcessNewOrder(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC);
BOOL ProcessPayment(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC);
BOOL ProcessDelivery(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC);
BOOL ProcessOrderStatus(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC);
BOOL ProcessStockLevel(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC);
VOID FormatLogin(CHAR * pMsg, CHAR * pAddText);
BOOL GetHidden(CHAR * pMsg, UINT * uFormId, INT * iSyncId, INT * iTermId);
BOOL GetCmd(CHAR * pMsg, CHAR * pWork, UINT uLen);
BOOL GetLongKey(LONG * lRslt, CHAR * pHTML, CHAR * pKey, TPCC_STATE * pTPCC);
BOOL GetIntKey(INT * iRslt, CHAR * pHTML, CHAR * pKey, TPCC_STATE * pTPCC);
BOOL GetShortKey(SHORT * sRslt, CHAR * pHTML, CHAR * pKey, TPCC_STATE * pTPCC);
BOOL GetStringKey(CHAR * szRslt, CHAR * pHTML, CHAR * pKey,
                  TPCC_STATE * pTPCC, UINT uMax);
BOOL GetAmountKey(DOUBLE * dRslt, CHAR * pHTML, CHAR * pKey,
                  TPCC_STATE * pTPCC);
BOOL GetKeyValue(CHAR * pHTML, CHAR * pKey, CHAR * pValue, UINT uMax);
VOID FormatLogin(CHAR * pOut, CHAR * pAddText);
VOID FormatMenu(CHAR * pOut, TPCC_STATE * pTPCC);
VOID FormatNewOrder(CHAR * pOut, TPCC_STATE * pTPCC);
VOID FormatPayment(CHAR * pOut, TPCC_STATE * pTPCC);
VOID FormatDelivery(CHAR * pOut, TPCC_STATE * pTPCC);
VOID FormatOrderStatus(CHAR * pOut, TPCC_STATE * pTPCC);
VOID FormatStockLevel(CHAR * pOut, TPCC_STATE * pTPCC);
VOID FormatFormHdr(CHAR * pOut, CHAR * pTitle, TPCC_STATE * pTPCC);
VOID FormatRespHdr(CHAR * pOut, CHAR * pTitle, TPCC_STATE * pTPCC);
VOID FormatHTMLString(CHAR * pOut, CHAR * pIn, UINT uLen);
VOID FormatString(CHAR * pOut, CHAR * pPic, CHAR * pIn);
VOID UtilStrCpy(CHAR * pDest, CHAR * pSrc, INT n);
BOOL CheckNumeric(CHAR * pNum);

```

```

//=====
//
// Function name: TPCCclear
//
//=====
BOOL TPCCclear(TPCC_STATE * pTPCC)
{
    pTPCC->ConnID = 0;
    pTPCC->sWid = 0;
    pTPCC->sDId = 0;
    pTPCC->iSyncId = 0;
    pTPCC->iTermId = -2;
    pTPCC->uFormId = FORM_NULL;
    pTPCC->iStatusId = 0;
    pTPCC->tsTMon.lTMDDataLen = 0;
    strcpy(pTPCC->ErrTxt, "");
    return (FALSE);
}

```

```

}; // TPCCClear

//=====
//
// Function name: TPCCHandler
//
//=====
UINT TPCCHandler(TPCC_STATE * pTPCC)
{
    INT iSyncId;
    INT iTermId;
    UINT uCmdId;
    UINT uRslt = TPCCSENDEND; // default error handling
    TERM_STATE * pTerm;

    pTPCC->iStatusId = STATUS_OK;
    if (GetHidden(pTPCC->RecvMsg, &pTPCC->uFormId, &iSyncId, &iTermId))
    {
        uRslt = TPCCSEND;
        FormatLogin(pTPCC->SendMsg, pTPCC->ErrTxt);
        goto HdlrXit;
    };
    if (iTermId > 0)
    {
        pTerm = TermGet(iTermId);
        if (pTerm == NULL)
        {
            uRslt = TPCCSEND;
            strcpy(pTPCC->ErrTxt, "Invalid Term Id");
            FormatLogin(pTPCC->SendMsg, pTPCC->ErrTxt);
            goto HdlrXit;
        };
        if (pTerm->ConnID != pTPCC->ConnID)
        {
            uRslt = TPCCSEND;
            strcpy(pTPCC->ErrTxt, "TermId vs ConnId Mismatch");
            FormatLogin(pTPCC->SendMsg, pTPCC->ErrTxt);
            goto HdlrXit;
        };
        pTPCC->sWid = pTerm->sWid;
        pTPCC->sDId = pTerm->sDId;
        pTPCC->iSyncId = pTerm->iSyncId;
        pTPCC->iTermId = pTerm->iTermId;
    };
    uCmdId = GetCmd(pTPCC->RecvMsg, pTPCC->szWork, sizeof(pTPCC->szWork));
    // Except for Submit(log in), sWid must already be set
    if (pTPCC->sWid == 0 && uCmdId != CMD_SUBMIT)
    {
        strcpy(pTPCC->ErrTxt, "Must log in first!");
        FormatLogin(pTPCC->SendMsg, pTPCC->ErrTxt);
        uRslt = TPCCSEND;
        goto HdlrXit;
    };
    // Check for multiple log in attempts
    if (pTPCC->sWid != 0 && uCmdId == CMD_SUBMIT)
    {
        strcpy(pTPCC->ErrTxt, ERRTXT_ALREADY_LOGGEDIN);
        pTPCC->iStatusId = ERR_ALREADY_LOGGEDIN;
        FormatMenu(pTPCC->SendMsg, pTPCC);
        uRslt = TPCCSEND;
        goto HdlrXit;
    };
}

```

```

};
// If not logging in, validate hidden fields
if (uCmdId != CMD_SUBMIT)
{
    if (iTermId != pTPCC->iTermId || iTermId != iSyncId)
    {
        sprintf(pTPCC->ErrTxt, "%s: Received %ld, %ld (%ld)",
            ERRTXT_TERMID, iTermId, iSyncId, pTPCC->iTermId);
        pTPCC->iStatusId = ERR_TERMID;
        FormatMenu(pTPCC->SendMsg, pTPCC);
        goto HdlrXit;
    };
};
// Process the command
switch (uCmdId)
{
    case CMD_SUBMIT:
        ProcessLogin(pTPCC->RecvMsg, pTPCC->SendMsg, pTPCC);
        break;
    case CMD_MENU_FORM:
        FormatMenu(pTPCC->SendMsg, pTPCC);
        break;
    case CMD_PROCESS:
        ProcessForm(pTPCC->RecvMsg, pTPCC->SendMsg, pTPCC);
        break;
    case CMD_NEWORDER_FORM:
        FormatNewOrder(pTPCC->SendMsg, pTPCC);
        break;
    case CMD_PAYMENT_FORM:
        FormatPayment(pTPCC->SendMsg, pTPCC);
        break;
    case CMD_DELIVERY_FORM:
        FormatDelivery(pTPCC->SendMsg, pTPCC);
        break;
    case CMD_ORDERSTATUS_FORM:
        FormatOrderStatus(pTPCC->SendMsg, pTPCC);
        break;
    case CMD_STOCKLEVEL_FORM:
        FormatStockLevel(pTPCC->SendMsg, pTPCC);
        break;
    case CMD_EXIT:
        TermFree(pTPCC->iTermId);
        strcpy(pTPCC->ErrTxt, "Logged Off");
        FormatLogin(pTPCC->SendMsg, pTPCC->ErrTxt);
        goto HdlrXit;
    default:
        strcpy(pTPCC->ErrTxt, ERRTXT_CMD_UNKNOWN);
        pTPCC->iStatusId = ERR_CMD_UNKNOWN;
        if (pTPCC->sWid == 0)
            FormatLogin(pTPCC->SendMsg, pTPCC->ErrTxt);
        else
            FormatMenu(pTPCC->SendMsg, pTPCC);
        break;
}; // switch (uCmdId)

uRslt = TPCCSEND;

HdlrXit:

return(uRslt);

```

```

}; // TPCCHandler
//=====
//
// Function name: ProcessLogin
//
// ProcessLogin extracts WId and DId from the incoming form. Assumes
// log in has not previously completed (sWId == 0 already verified).
//
// Result:
// FALSE - log in successful, sWId and sDId set in pTPCC,
//         pOut contains menu.
// TRUE - log in failed, pOut contains log in form with
//        error message.
//
//=====
BOOL ProcessLogin(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC)
{
    SHORT sWId;
    SHORT sDId;
    TERM_STATE * pTerm;

    if (GetShortKey(&sWId, pIn, "w_id", pTPCC))
    {
        FormatLogin(pOut, pTPCC->ErrTxt);
        return(TRUE);
    };
    if (sWId < 1)
    {
        sprintf(pTPCC->ErrTxt, "Warehouse Id (%d) Invalid", sWId);
        pTPCC->iStatusId = ERR_WID_INVALID;
        FormatLogin(pOut, pTPCC->ErrTxt);
        return(TRUE);
    };
    if (GetShortKey(&sDId, pIn, "d_id", pTPCC))
    {
        FormatLogin(pOut, pTPCC->ErrTxt);
        return(TRUE);
    };
    if (sDId < MIN_DId || sDId > MAX_DId)
    {
        sprintf(pTPCC->ErrTxt, "DId Out of Range(%ld,%ld) - %ld",
            MIN_DId, MAX_DId, sDId);
        pTPCC->iStatusId = ERR_DID_INVALID;
        FormatLogin(pOut, pTPCC->ErrTxt);
        return(TRUE);
    };
    pTerm = TermAlloc();
    if (pTerm == NULL)
    {
        sprintf(pTPCC->ErrTxt, "Unable to Allocate Terminal Entry");
        pTPCC->iStatusId = ERR_TERM_ALLOC;
        FormatLogin(pOut, pTPCC->ErrTxt);
        return(TRUE);
    };
    pTerm->ConnID = pTPCC->ConnID;
    pTerm->iSyncId = pTerm->iTermId;
    pTerm->sWId = abs(sWId);
    pTerm->sDId = abs(sDId);
    pTPCC->iTermId = pTerm->iTermId;
    pTPCC->iSyncId = pTerm->iSyncId;

```

```

    pTPCC->sWId = pTerm->sWId;
    pTPCC->sDId = pTerm->sDId;
    FormatMenu(pOut, pTPCC);
    return(FALSE);
}; // ProcessLogin
//=====
//
// Function name: ProcessForm
//
// ProcessForm uses pTPCC->uFormId to determine which form input is
// present and ready for processing. Actual processing is done by
// the form specific routine.
//
// Result:
// FALSE - form processed, pOut contains response.
// TRUE - error processing form input, pOut contains reason.
//
//=====
BOOL ProcessForm(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC)
{
    switch (pTPCC->uFormId )
    {
        case FORM_NEWORDER:
            return(ProcessNewOrder(pIn, pOut, pTPCC));
        case FORM_PAYMENT:
            return(ProcessPayment(pIn, pOut, pTPCC));
        case FORM_DELIVERY:
            return(ProcessDelivery(pIn, pOut, pTPCC));
        case FORM_ORDERSTATUS:
            return(ProcessOrderStatus(pIn, pOut, pTPCC));
        case FORM_STOCKLEVEL:
            return(ProcessStockLevel(pIn, pOut, pTPCC));
        default:
            sprintf(pTPCC->ErrTxt, "%s (%ld)",
                ERRTXT_FORM_UNKNOWN, pTPCC->uFormId);
            pTPCC->iStatusId = ERR_FORM_UNKNOWN;
            FormatMenu(pOut, pTPCC);
            break;
    }
    return(TRUE);
}; // ProcessForm
//=====
//
// Function name: ProcessNewOrder
//
// ProcessNewOrder extracts the input data fields from pIn, processes
// the data, and returns a response in pOut.
//
// Result:
// FALSE - NewOrder processed successfully.
// TRUE - NewOrder processing failed.
//
//=====
BOOL ProcessNewOrder(CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC)
{
    NEW_ORDER_DATA * pnod;
    TMON_STATE * pTMon;
    CHAR szKey[20];
    CHAR szCredit[14];

```

```

CHAR * ptr;
UINT u;
BOOL bDone = FALSE;
BOOL bTMRslt;
BOOL bTPRslt;
INT iTPRslt;

pTMon = &pTPCC->tsTMon;
pTMon->lTMDDataLen = sizeof(NEW_ORDER_DATA);
memset(pTMon->pTMDData, 0, pTMon->lTMDDataLen);
pnod = (NEW_ORDER_DATA *) pTMon->pTMDData;
pnod->w_id = pTPCC->sWid;
if (GetShortKey(&pnod->d_id, pIn, "DID*", pTPCC))
{
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
if (pnod->d_id < MIN_Did || pnod->d_id > MAX_Did)
{
    sprintf(pTPCC->ErrTxt, "DID Out of Range(%ld,%ld) - %ld",
        MIN_Did, MAX_Did, pnod->d_id);
    pTPCC->iStatusId = ERR_DID_INVALID;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
if (GetLongKey(&pnod->c_id, pIn, "CID*", pTPCC))
{
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
pnod->o_ol_cnt = 0;
ptr = pIn;
for(u=0; u < MAX_OL; u++)
{
    sprintf(szKey, "SP%2.2d*", u);
    ptr = strstr(ptr, szKey);
    if (GetShortKey(&pnod->Ol[u].ol_supply_w_id, ptr, szKey, pTPCC))
    {
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    sprintf(szKey, "IID%2.2d*", u);
    if (GetLongKey(&pnod->Ol[u].ol_i_id, ptr, szKey, pTPCC))
    {
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    sprintf(szKey, "Qty%2.2d*", u);
    if (GetShortKey(&pnod->Ol[u].ol_quantity, ptr, szKey, pTPCC))
    {
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    if (pnod->Ol[u].ol_i_id != 0)
    {
        // Check for prior blank lines
        if (bDone)
        {
            strcat(pTPCC->ErrTxt, "Embedded Empty Order Lines");
            pTPCC->iStatusId = ERR_EMBEDDED_EMPTY_OL;
            FormatMenu(pOut, pTPCC);
        }
    }
}

```

```

        return(TRUE);
    };
    if (pnod->Ol[u].ol_supply_w_id < 1)
    {
        sprintf(pTPCC->ErrTxt,
            "Order Line %ld Contains Invalid Wid %d",
            u, pnod->Ol[u].ol_supply_w_id);
        pTPCC->iStatusId = ERR_WID_INVALID;
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    if (pnod->Ol[u].ol_quantity < MIN_QUANTITY ||
        pnod->Ol[u].ol_quantity > MAX_QUANTITY)
    {
        sprintf(pTPCC->ErrTxt,
            "Order Line %ld Contains Invalid Qty %d",
            u, pnod->Ol[u].ol_quantity);
        pTPCC->iStatusId = ERR_QUANTITY_INVALID;
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    pnod->o_ol_cnt++;
} // if (ol_i_id !=0)
else
{
    if (pnod->Ol[u].ol_supply_w_id != 0)
    {
        sprintf(pTPCC->ErrTxt,
            "Order Line %ld WID Supplied with No Item", u);
        pTPCC->iStatusId = ERR_OL_INVALID;
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    if (pnod->Ol[u].ol_quantity != 0)
    {
        sprintf(pTPCC->ErrTxt,
            "Order Line %ld Qty Supplied with No Item", u);
        pTPCC->iStatusId = ERR_OL_INVALID;
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    bDone = TRUE;
}; // empty order line
}; // for (u < MAX_OL)

if (pnod->o_ol_cnt < MIN_OL)
{
    sprintf(pTPCC->ErrTxt, "Too Few Order Lines %d", pnod->o_ol_cnt);
    pTPCC->iStatusId = ERR_OL_COUNT;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
bTMRslt = TMTran(NEWORDER_SERVICE, pTMon, &bTPRslt, &iTPRslt);
pnod = (NEW_ORDER_DATA *) pTMon->pTMDData;
if (bTMRslt)
{
    pTPCC->iStatusId = ERR_TM_INTERFACE;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
// Exclude invalid item id case

```

```

if (bTPRslt && iTPRslt < SVC_NOERROR)
{
    sprintf(pTPCC->ErrTxt,
        "New Order Service Returned Error(%ld): %s",
        iTPRslt,pnod->execution_status);
    pTPCC->iStatusId = ERR_SERVICE_RSLT;
    FormatMenu(pOut,pTPCC);
    return(TRUE);
};
if (iTPRslt == SVC_BADITEMID)
    pTPCC->iStatusId = INVALID_IID;

FormatRespHdr(pOut,"TPC-C New Order",pTPCC);
sprintf(pOut + strlen(pOut),
    "<PRE>                New Order<BR>"
    "Warehouse: %4.4d  District: %2.2d                ",
    pnod->w_id,pnod->d_id);
if (!bTPRslt)
{
    sprintf(pOut + strlen(pOut),
        "Date: %2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d <BR>",
        pnod->o_entry_d.day,pnod->o_entry_d.month,
        pnod->o_entry_d.year,pnod->o_entry_d.hour,
        pnod->o_entry_d.minute,pnod->o_entry_d.second);
}
else
{
    sprintf(pOut + strlen(pOut), "Date:<BR>");
};
FormatHTMLString(pTPCC->szWork,pnod->c_last,NAME_LEN);
FormatHTMLString(szCredit,pnod->c_credit,2);
sprintf(pOut + strlen(pOut),
    "Customer: %4.4d  Name: %s  Credit: %s  ",
    pnod->c_id,pTPCC->szWork,szCredit);
if (!bTPRslt)
{
    sprintf(pOut + strlen(pOut),
        "%Disc: %5.2f          <BR>",pnod->c_discount * 100);
    sprintf(pOut + strlen(pOut),
        "Order Number: %8.8d  Number of Lines: %2.2d          W_tax: %5.2f
D_tax: %5.2f  <BR><BR>",
        pnod->o_id,pnod->o_ol_cnt,pnod->w_tax * 100,pnod->d_tax * 100);
    strcat(pOut," Supp_W  Item_Id  Item Name          Qty  Stock
B/G Price  Amount<BR>");
    for (u = 0; u < (UINT) pnod->o_ol_cnt; u++)
    {
        FormatHTMLString(pTPCC->szWork,pnod->Ol[u].ol_i_name,24);
        sprintf(pOut + strlen(pOut),
            " %4.4d %6.6d %s %2.2d %3.3d %1.1s  %6.2f
%7.2f  <BR>",
            pnod->Ol[u].ol_supply_w_id,pnod->Ol[u].ol_i_id,
            pTPCC->szWork,pnod->Ol[u].ol_quantity,pnod->Ol[u].ol_stock,
            pnod->Ol[u].ol_brand_generic,pnod->Ol[u].ol_i_price,
            pnod->Ol[u].ol_amount );
    }
} // if (!bTPRslt)
else
{
    strcat(pOut,"%Disc:<BR>");
    sprintf(pOut + strlen(pOut),

```

```

        "Order Number: %8.8d  Number of Lines:          W_tax:
D_tax:<BR><BR>",
        pnod->o_id);
    strcat(pOut,
        " Supp_W  Item_Id  Item Name          Qty  Stock  B/G
Price  Amount<BR>");
    u = 0;
};
for(; u < MAX_OL; u++)
    strcat(pOut,"<BR>");
if (!bTPRslt)
{
    sprintf(pOut + strlen(pOut),
        "Execution Status: %24.24s          Total: %8.2f  ",
        pnod->execution_status,pnod->total_amount);
}
else
{
    sprintf(pOut + strlen(pOut),
        "Execution Status: %24.24s          Total:",
        pnod->execution_status);
};
sprintf(pOut + strlen(pOut),
    "</PRE><HR><BR>%s</FORM>%s",szMenuList,HTMLTrailer);

return(FALSE);
}; // ProcessNewOrder

//=====
//
// Function name: ProcessPayment
//
// ProcessPayment extracts the input data fields from pIn, processes
// the data, and returns a response in pOut.
//
// Result:
// FALSE - Payment processed successfully.
// TRUE - Payment processing failed.
//=====
BOOL ProcessPayment(CHAR * pIn,CHAR * pOut,TPCC_STATE * pTPCC)
{
    PAYMENT_DATA * ppd;
    TMON_STATE * pTMon;
    BOOL bTMRslt;
    BOOL bTPRslt;
    INT iTPRslt;
    CHAR * pCredit;
    INT icDLines;
    CHAR szWork2[60];
    CHAR szWork3[60];
    CHAR szWork4[60];
    CHAR szZip1[20];
    CHAR szZip2[20];
    INT i;

    pTMon = &pTPCC->tsTMon;
    pTMon->lTMDDataLen = sizeof(PAYMENT_DATA);
    memset(pTMon->pTMDData,0,pTMon->lTMDDataLen);
    ppd = (PAYMENT_DATA *) pTMon->pTMDData;

```

```

ppd->w_id = pTPCC->SWid;
// Get and validate DID
if (GetShortKey(&ppd->d_id,pIn, "DID*", pTPCC)
{
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
if (ppd->d_id < MIN_DID || ppd->d_id > MAX_DID)
{
    sprintf(pTPCC->ErrTxt, "DID Out of Range(%ld,%ld) - %ld",
        MIN_DID, MAX_DID, ppd->d_id);
    pTPCC->iStatusId = ERR_DID_INVALID;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
// Get and validate customer Id and name
if (GetLongKey(&ppd->c_id,pIn, "CID*", pTPCC)
{
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
if (GetStringKey(ppd->c_last,pIn, "CLT*", pTPCC, NAME_LEN)
{
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
if (ppd->c_id == 0 && ppd->c_last[0] == 0)
{
    strcpy(pTPCC->ErrTxt, "Error - Customer Id and Name Empty");
    pTPCC->iStatusId = ERR_IDANDNAME_EMPTY;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
if (ppd->c_id != 0 && ppd->c_last[0] != 0)
{
    strcpy(pTPCC->ErrTxt,
        "Error - Specify Customer Id or Name, not Both");
    pTPCC->iStatusId = ERR_IDANDNAME_ENTERED;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
// Get and validate customer DID
if (GetShortKey(&ppd->c_d_id,pIn, "CDI*", pTPCC)
{
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
if (ppd->c_d_id < MIN_DID || ppd->c_d_id > MAX_DID)
{
    sprintf(pTPCC->ErrTxt, "Cust DID Out of Range(%ld,%ld) - %ld",
        MIN_DID, MAX_DID, ppd->d_id);
    pTPCC->iStatusId = ERR_DID_INVALID;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
// Get and validate customer WId
if (GetShortKey(&ppd->c_w_id,pIn, "CWI*", pTPCC)
{
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};

```

```

if (ppd->c_w_id < 1)
{
    sprintf(pTPCC->ErrTxt,
        "Payment Contains Invalid Customer WId %d",
        ppd->c_w_id);
    pTPCC->iStatusId = ERR_WID_INVALID;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
// Get and validate amount
if (GetAmountKey(&ppd->h_amount,pIn, "HAM*", pTPCC)
{
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
if (ppd->h_amount <= 0)
{
    sprintf(pTPCC->ErrTxt,
        "Payment Amount Negative or Missing");
    pTPCC->iStatusId = ERR_AMOUNT_INVALID;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
bTMRslt = TMTran(PAYMENT_SERVICE, pTMon, &bTPRslt, &iTPRslt);
ppd = (PAYMENT_DATA *) pTMon->pTMDData;
if (bTMRslt)
{
    pTPCC->iStatusId = ERR_TM_INTERFACE;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
if (bTPRslt)
{
    sprintf(pTPCC->ErrTxt,
        "Payment Service Returned Error(%ld): %s",
        iTPrslt, ppd->execution_status);
    pTPCC->iStatusId = ERR_SERVICE_RSLT;
    FormatMenu(pOut, pTPCC);
    return(TRUE);
};
FormatRespHdr(pOut, "TPC-C Payment", pTPCC);
sprintf(pOut + strlen(pOut),
    "<PRE>
    Date: %2.2d-%2.2d-%4.4d %2.2d:%2.2d:%2.2d <BR><BR>"
    "Warehouse: %4.4d
    District: %2.2d<BR>",
    ppd->h_date.day, ppd->h_date.month,
    ppd->h_date.year, ppd->h_date.hour,
    ppd->h_date.minute, ppd->h_date.second,
    ppd->w_id, ppd->d_id);
FormatHTMLString(szWork2, ppd->w_street_1, ADDR_LEN);
FormatHTMLString(szWork3, ppd->d_street_1, ADDR_LEN);
sprintf(pOut + strlen(pOut),
    "%s
    %s<BR>", szWork2, szWork3);
FormatHTMLString(szWork2, ppd->w_street_2, ADDR_LEN);
FormatHTMLString(szWork3, ppd->d_street_2, ADDR_LEN);
sprintf(pOut + strlen(pOut),
    "%s
    %s<BR>", szWork2, szWork3);
FormatHTMLString(pTPCC->szWork, ppd->w_city, ADDR_LEN);
FormatHTMLString(szWork2, ppd->d_city, ADDR_LEN);

```



```

//=====
//
// Function name: ProcessOrderStatus
//
// ProcessOrderStatus extracts the input data fields from pIn,
// processes the data, and returns a response in pOut.
//
// Result:
// FALSE - OrderStatus processed successfully.
// TRUE - OrderStatus processing failed.
//=====
BOOL ProcessOrderStatus(CHAR * pIn,CHAR * pOut,TPCC_STATE * pTPCC)
{
    ORDER_STATUS_DATA * posd;
    TMON_STATE * pTMon;
    INT i;
    CHAR szWork2[50];
    CHAR szWork3[50];
    BOOL bTMRslt;
    BOOL bTPRslt;
    INT iTPrslt;

    pTMon = &pTPCC->tsTMon;
    pTMon->lTMDDataLen = sizeof(ORDER_STATUS_DATA);
    memset(pTMon->pTMDData,0,pTMon->lTMDDataLen);
    posd = (ORDER_STATUS_DATA *) pTMon->pTMDData;
    posd->w_id = pTPCC->sWId;
    if (GetShortKey(&posd->d_id,pIn,"DID*",pTPCC))
    {
        FormatMenu(pOut,pTPCC);
        return(TRUE);
    };
    if (posd->d_id < MIN_DID || posd->d_id > MAX_DID)
    {
        sprintf(pTPCC->ErrTxt,"DID Out of Range(%ld,%ld) - %ld",
            MIN_DID,MAX_DID,posd->d_id);
        pTPCC->iStatusId = ERR_DID_INVALID;
        FormatMenu(pOut,pTPCC);
        return(TRUE);
    };
    if (GetLongKey(&posd->c_id,pIn,"CID*",pTPCC))
    {
        FormatMenu(pOut,pTPCC);
        return(TRUE);
    };
    if (GetStringKey(posd->c_last,pIn,"CLT*",pTPCC,NAME_LEN))
    {
        FormatMenu(pOut,pTPCC);
        return(TRUE);
    };
    if (posd->c_id == 0 && posd->c_last[0] == 0)
    {
        strcpy(pTPCC->ErrTxt,"Error - Customer Id and Name Empty");
        pTPCC->iStatusId = ERR_IDANDNAME_EMPTY;
        FormatMenu(pOut,pTPCC);
        return(TRUE);
    };
    if (posd->c_id != 0 && posd->c_last[0] != 0)
    {

```

```

        strcpy(pTPCC->ErrTxt,
            "Error - Specify Customer Id or Name, not Both");
        pTPCC->iStatusId = ERR_IDANDNAME_ENTERED;
        FormatMenu(pOut,pTPCC);
        return(TRUE);
    };
    bTMRslt = TMTran(ORDERSTATUS_SERVICE,pTMon,&bTPRslt,&iTPrslt);
    posd = (ORDER_STATUS_DATA *) pTMon->pTMDData;
    if (bTMRslt)
    {
        pTPCC->iStatusId = ERR_TM_INTERFACE;
        FormatMenu(pOut,pTPCC);
        return(TRUE);
    };
    if (bTPRslt)
    {
        sprintf(pTPCC->ErrTxt,
            "Order Status Service Returned Error(%ld): %s",
            iTPrslt,posd->execution_status);
        pTPCC->iStatusId = ERR_SERVICE_RSLT;
        FormatMenu(pOut,pTPCC);
        return(TRUE);
    };
    FormatRespHdr(pOut,"TPC-C Order-Status",pTPCC);
    sprintf(pOut + strlen(pOut),
        "<PRE>                                Order-Status<BR>"
        "Warehouse: %4.4d  District: %2.2d<BR>",
        posd->w_id,posd->d_id);
    FormatHTMLString(pTPCC->szWork,posd->c_first,NAME_LEN);
    FormatHTMLString(szWork2,posd->c_middle,2);
    FormatHTMLString(szWork3,posd->c_last,NAME_LEN);
    sprintf(pOut + strlen(pOut),
        "Customer: %4.4d  Name: %s %s %s<BR>"
        "Cust-Balance: $%9.2f<BR><BR>",
        posd->c_id,pTPCC->szWork,szWork2,szWork3,posd->c_balance);
    sprintf(pOut + strlen(pOut),
        "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>",
        posd->o_id,posd->o_entry_d.day,posd->o_entry_d.month,
        posd->o_entry_d.year,posd->o_entry_d.hour,
        posd->o_entry_d.minute,posd->o_entry_d.second,
        posd->o_carrier_id);
    for(i = 0; i < posd->o_ol_cnt; i++)
    {
        sprintf(pOut + strlen(pOut),
            " %4.4d      %6.6d      %2.2d      %$8.2f      %2.2d-%2.2d-
%4.4d<BR>",
            posd->OlOrderStatusData[i].ol_supply_w_id,
            posd->OlOrderStatusData[i].ol_i_id,
            posd->OlOrderStatusData[i].ol_quantity,
            posd->OlOrderStatusData[i].ol_amount,
            posd->OlOrderStatusData[i].ol_delivery_d.day,
            posd->OlOrderStatusData[i].ol_delivery_d.month,
            posd->OlOrderStatusData[i].ol_delivery_d.year);
    };
    sprintf(pOut + strlen(pOut),
        "<BR></PRE><HR><BR>%s</FORM>%s",szMenuList,HTMLTrailer);

    return(FALSE);

```

```

}; // ProcessOrderStatus

//=====
//
// Function name: ProcessStockLevel
//
// ProcessStockLevel extracts the input data fields from pIn,
// processes the data, and returns a response in pOut.
//
// Result:
// FALSE - StockLevel processed successfully.
// TRUE - StockLevel processing failed.
//
//=====
BOOL ProcessStockLevel (CHAR * pIn, CHAR * pOut, TPCC_STATE * pTPCC)
{
    STOCK_LEVEL_DATA * psld;
    TMON_STATE * pTMon;
    BOOL bTMRslt;
    BOOL bTPRslt;
    INT iTPRslt;

    pTMon = &pTPCC->tsTMon;
    pTMon->lTMDDataLen = sizeof(STOCK_LEVEL_DATA);
    memset(pTMon->pTMDData, 0, pTMon->lTMDDataLen);
    psld = (STOCK_LEVEL_DATA *) pTMon->pTMDData;
    psld->w_id = pTPCC->sWId;
    psld->d_id = pTPCC->sDId;
    psld->low_stock = 0;
    psld->execution_status[0] = 0;
    if (GetShortKey(&psld->thresh_hold, pIn, "TT*", pTPCC))
    {
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    if (psld->thresh_hold < MIN_THRESHOLD ||
        psld->thresh_hold > MAX_THRESHOLD)
    {
        sprintf(pTPCC->ErrTxt, "Threshold Out of Range(%ld,%ld) - %ld",
            MIN_THRESHOLD, MAX_THRESHOLD, psld->thresh_hold);
        pTPCC->iStatusId = ERR_THRESHOLD_RANGE;
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    bTMRslt = TMTran(STOCKLEVEL_SERVICE, pTMon, &bTPRslt, &iTPRslt);
    psld = (STOCK_LEVEL_DATA *) pTMon->pTMDData;
    if (bTMRslt)
    {
        pTPCC->iStatusId = ERR_TM_INTERFACE;
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
    if (bTPRslt)
    {
        sprintf(pTPCC->ErrTxt,
            "Stock Level Service Returned Error(%ld): %s",
            iTPRslt, psld->execution_status);
        pTPCC->iStatusId = ERR_SERVICE_RSLT;
        FormatMenu(pOut, pTPCC);
        return(TRUE);
    };
};

```

```

};

FormatRespHdr(pOut, "TPC-C Stock Level", pTPCC);
sprintf(pOut + strlen(pOut),
    "<PRE>
    Stock-Level<BR><BR>"
    "Warehouse: %4.4d District: %2.2d<BR><BR>"
    "Stock Level Threshold: %2.2d<BR><BR>"
    "low stock: %3.3ld</PRE><BR><HR>"
    "%s</FORM>%s",
    pTPCC->sWId, pTPCC->sDId, psld->thresh_hold, psld->low_stock,
    szMenuList, HTMLTrailer);

return(FALSE);
}; // ProcessStockLevel

//=====
//
// Function name: GetHidden
//
//=====
BOOL GetHidden(CHAR * pMsg, UINT * uFormId, INT * iSyncId, INT * iTermId)
{
    CHAR * pPtr;
    BOOL bRslt = TRUE;

    // Extract TERMID
    pPtr = strstr(pMsg, TERMIDTOKEN);
    if (pPtr == NULL)
        goto xit;
    pPtr += strlen(TERMIDTOKEN);
    *iTermId = atoi(pPtr);

    // Extract SYNCID
    pPtr = strstr(pMsg, SYNCIDTOKEN);
    if (pPtr == NULL)
        goto xit;
    pPtr += strlen(SYNCIDTOKEN);
    *iSyncId = atoi(pPtr);

    // Extract FORMID
    pPtr = strstr(pMsg, FORMIDTOKEN);
    if (pPtr == NULL)
        goto xit;
    pPtr += strlen(FORMIDTOKEN);
    *uFormId = abs(atoi(pPtr));

    bRslt = FALSE;

xit:
    return(bRslt);
}; // GetHidden

//=====
//
// Function name: GetCmd
//
//=====
BOOL GetCmd(CHAR * pMsg, CHAR * pWork, UINT uLen)

```

```

{
  UINT u;
  CHAR * ptr;
  CHAR * pUpd;

  // Check for CMD key
  if (!(ptr = strstr(pMsg,CMDTOKEN)))
    return(CMD_NULL);
  ptr += sizeof(CMDTOKEN);
  pUpd = pWork;
  while (*ptr && *ptr != '&')
    *pUpd++ = *ptr++;
  *pUpd = 0;

  // Convert command name into command index
  for(u=0; u < CMD_MAX; u++)
  {
    if (!strcmp(szCmds[u],pWork))
      return(u);
  };

  // Command string not found
  return(CMD_NULL);
}; // GetCmd

//=====
//
// Function name: GetLongKey
//
//=====
BOOL GetLongKey(LONG * lRslt,CHAR * pHTML,CHAR * pKey,TPCC_STATE * pTPCC)
{
  if (GetKeyValue(pHTML,pKey,pTPCC->szWork,sizeof(pTPCC->szWork)))
  {
    sprintf(pTPCC->ErrTxt,"Error - Missing %s Key",pKey);
    pTPCC->iStatusId = ERR_MISSING_KEY;
    return(TRUE);
  };
  if (pTPCC->szWork[0] != 0 )
  {
    if (CheckNumeric(pTPCC->szWork))
    {
      sprintf(pTPCC->ErrTxt,"Error - %s Value Not Numeric",pKey);
      pTPCC->iStatusId = ERR_NOT_NUMERIC;
      return(TRUE);
    };
  };
  *lRslt = atol(pTPCC->szWork);
  return(FALSE);
}; // GetLongKey

//=====
//
// Function name: GetIntKey
//
//=====
BOOL GetIntKey(INT * iRslt,CHAR * pHTML,CHAR * pKey,TPCC_STATE * pTPCC)
{
  if (GetKeyValue(pHTML,pKey,pTPCC->szWork,sizeof(pTPCC->szWork)))
  {

```

```

    sprintf(pTPCC->ErrTxt,"Error - Missing %s Key",pKey);
    pTPCC->iStatusId = ERR_MISSING_KEY;
    return(TRUE);
  };
  if (pTPCC->szWork[0] != 0 )
  {
    if (CheckNumeric(pTPCC->szWork))
    {
      sprintf(pTPCC->ErrTxt,"Error - %s Value Not Numeric",pKey);
      pTPCC->iStatusId = ERR_NOT_NUMERIC;
      return(TRUE);
    };
  };
  *iRslt = atoi(pTPCC->szWork);
  return(FALSE);
}; // GetIntKey

//=====
//
// Function name: GetShortKey
//
//=====
BOOL GetShortKey(SHORT * sRslt,CHAR * pHTML,CHAR * pKey,TPCC_STATE *
pTPCC)
{
  if (GetKeyValue(pHTML,pKey,pTPCC->szWork,sizeof(pTPCC->szWork)))
  {
    sprintf(pTPCC->ErrTxt,"Error - Missing %s Key",pKey);
    pTPCC->iStatusId = ERR_MISSING_KEY;
    return(TRUE);
  };
  if (pTPCC->szWork[0] != 0 )
  {
    if (CheckNumeric(pTPCC->szWork))
    {
      sprintf(pTPCC->ErrTxt,"Error - %s Value Not Numeric",pKey);
      pTPCC->iStatusId = ERR_NOT_NUMERIC;
      return(TRUE);
    };
  };
  *sRslt = (SHORT) atoi(pTPCC->szWork);
  return(FALSE);
}; // GetShortKey

//=====
//
// Function name: GetStringKey
//
//=====
BOOL GetStringKey(CHAR * szRslt,CHAR * pHTML,CHAR * pKey,
TPCC_STATE * pTPCC,UINT uMax)
{
  UINT uLen;
  if (GetKeyValue(pHTML,pKey,pTPCC->szWork,sizeof(pTPCC->szWork)))
  {
    sprintf(pTPCC->ErrTxt,"Error - Missing %s Key",pKey);
    pTPCC->iStatusId = ERR_MISSING_KEY;
    return(TRUE);
  };
  uLen = strlen(pTPCC->szWork);
  if (uLen > uMax)

```

```

{
    sprintf(pTPCC->ErrTxt,
        "Error - %s Key Input (%ld) Too Long (%ld)"
        ,pKey,uLen,uMax);
    pTPCC->iStatusId = ERR_INPUT_TOOLONG;
    return(TRUE);
};
_strupr(pTPCC->szWork);
strcpy(szRslt,pTPCC->szWork);
return(FALSE);
}; // GetStringKey

//=====
//
// Function name: GetAmountKey
//
//=====
BOOL GetAmountKey(DOUBLE * dRslt,CHAR * pHTML,CHAR * pKey,
                  TPCC_STATE * pTPCC)
{
    CHAR * ptr;
    BOOL bInvalid = FALSE;

    if (GetKeyValue(pHTML,pKey,pTPCC->szWork,sizeof(pTPCC->szWork)))
    {
        sprintf(pTPCC->ErrTxt,"Error - Missing %s Key",pKey);
        pTPCC->iStatusId = ERR_MISSING_KEY;
        return(TRUE);
    };
    ptr = pTPCC->szWork;
    while(*ptr)
    {
        if (*ptr == '.')
        {
            ptr++;
            if (!*ptr)
                break;
            if (*ptr < '0' || *ptr > '9')
            {
                bInvalid = TRUE;
                break;
            };
            ptr++;
            if (!*ptr)
                break;
            if (*ptr < '0' || *ptr > '9')
            {
                bInvalid = TRUE;
                break;
            };
            ptr++;
            if (*ptr)
            {
                bInvalid = TRUE;
                break;
            };
            break;
        }
        else
            if (*ptr < '0' || *ptr > '9')
            {

```

```

                bInvalid = TRUE;
                break;
            };
            ptr++;
        }; // while(!*ptr)

    if (!bInvalid)
        *dRslt = atof(pTPCC->szWork);
    else
    {
        sprintf(pTPCC->ErrTxt,
            "Error - Invalid Amount Format (%s)",pTPCC->szWork);
        pTPCC->iStatusId = ERR_AMOUNT_BADFORM;
    };

    return(bInvalid);
}; // GetAmountKey

//=====
//
// Function name: GetKeyValue
// This function parses an HTTP formatted string for specific key
// values. HTTP keys terminate with '='. HTTP values terminate
// with an '&' or '\0'.
//
// Result:
// FALSE - Key found, string value return in pValue
// TRUE - Key not found
//
//=====
BOOL GetKeyValue(CHAR * pHTML,CHAR * pKey,CHAR * pValue,UINT uMax)
{
    CHAR * ptr;
    if (!(ptr=strstr(pHTML,pKey)))
        return(TRUE);
    if (!(ptr=strchr(ptr,'=')))
        return(TRUE);
    ptr++;
    uMax--;
    while (*ptr && *ptr != '&' && uMax)
    {
        *pValue++ = *ptr++;
        uMax--;
    };
    *pValue = 0;
    return(FALSE);
}; // GetKeyValue

//=====
//
// Function name: FormatLogin
//
//=====
VOID FormatLogin(CHAR * pOut,CHAR * pAddText)
{
    sprintf(pOut,"%s<BR>%s<BR>%s",szFormLogin,pAddText,HTMLTrailer);
}; // FormatLogin

//=====
//

```

```

// Function name: FormatMenu
//
//=====
VOID FormatMenu(CHAR * pOut,TPCC_STATE * pTPCC)
{
    sprintf(pOut,
        "%s<HTML><HEAD><TITLE>TPC-C MainMenu</TITLE></HEAD><BODY>"
        "Select Desired Transaction.<BR><HR>"
        "<FORM ACTION=\"tpcc.dll\"METHOD=\"GET\">"
        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"TERMIN\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
        "%s</FORM><BR>%s",
        HTTPHdr,pTPCC->iStatusId,pTPCC->iTermId,pTPCC->iSyncId,FORM_MENU,
        szMenuList,pTPCC->ErrTxt,HTMLTrailer);
}; // FormatMenu

//=====
//
// Function name: FormatNewOrder
//
//=====
VOID FormatNewOrder(CHAR * pOut,TPCC_STATE * pTPCC)
{
    pTPCC->uFormId = FORM_NEWORDER;
    FormatFormHdr(pOut,"TPC-C New Order",pTPCC);
    sprintf(pOut + strlen(pOut),
        "<PRE>
        New Order<BR>"
        "Warehouse: %4.4d 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><HR>"
        "<INPUT TYPE=\"submit\"NAME=\"CMD\" VALUE=\"Process\">"
        "<INPUT TYPE=\"submit\"NAME=\"CMD\" VALUE=\"Menu\">"
        "</FORM>%s",
        pTPCC->sWId,HTMLTrailer);
}; // FormatNewOrder

//=====
//
// Function name: FormatPayment
//
//=====
VOID FormatPayment(CHAR * pOut,TPCC_STATE * pTPCC)
{
    pTPCC->uFormId = FORM_PAYMENT;
    FormatFormHdr(pOut,"TPC-C Payment",pTPCC);
    sprintf(pOut + strlen(pOut),
        "<PRE>
        Payment<BR>"
        "Date:<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></PRE><HR>"
        "<INPUT TYPE=\"submit\"NAME=\"CMD\" VALUE=\"Process\">"
        "<INPUT TYPE=\"submit\"NAME=\"CMD\" VALUE=\"Menu\">"
        "</FORM>%s",
        pTPCC->sWId,HTMLTrailer);
}; // FormatPayment

//=====
//
// Function name: FormatDelivery
//
//=====
VOID FormatDelivery(CHAR * pOut,TPCC_STATE * pTPCC)
{
    pTPCC->uFormId = FORM_DELIVERY;
    FormatFormHdr(pOut,"TPC-C Delivery",pTPCC);
    sprintf(pOut + strlen(pOut),
        "<PRE>
        Delivery<BR>"
        "Warehouse: %4.4d<BR><BR>"
        "Carrier Number: <INPUT NAME=\"OCD*\" SIZE=1><BR><BR>"
        "Execution Status:<BR></PRE><HR>"
        "<INPUT TYPE=\"submit\"NAME=\"CMD\" VALUE=\"Process\">"

```

```

        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
        "</FORM>%s",
        pTPCC->sWId,HTMLTrailer);
}; // FormatDelivery

//=====
//
// Function name: FormatOrderStatus
//
//=====
VOID FormatOrderStatus (CHAR * pOut,TPCC_STATE * pTPCC)
{
    pTPCC->uFormId = FORM_ORDERSTATUS;
    FormatFormHdr (pOut,"TPC-C Order-Status",pTPCC);
    sprintf (pOut + strlen (pOut),
        "<PRE>
        Warehouse: %4.4d
        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></PRE><HR>"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Process\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
        "</FORM>%s",
        pTPCC->sWId,HTMLTrailer);
}; // FormatOrderStatus

//=====
//
// Function name: FormatStockLevel
//
//=====
VOID FormatStockLevel (CHAR * pOut,TPCC_STATE * pTPCC)
{
    pTPCC->uFormId = FORM_STOCKLEVEL;
    FormatFormHdr (pOut,"TPC-C Stock Level",pTPCC);
    sprintf (pOut + strlen (pOut),
        "<PRE>
        Warehouse: %4.4d District: %2.2d<BR><BR>"
        "Stock Level Threshold: <INPUT NAME=\"TT*\" SIZE=2><BR><BR>"
        "low stock: <BR><HR>"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Process\">"
        "<INPUT TYPE=\"submit\" NAME=\"CMD\" VALUE=\"Menu\">"
        "</FORM>%s",
        pTPCC->sWId,pTPCC->sDId,HTMLTrailer);
}; // FormatStockLevel

//=====
//
// Function name: FormatFormHdr
//
//=====
VOID FormatFormHdr (CHAR * pOut,CHAR * pTitle,TPCC_STATE * pTPCC)
{
    sprintf (pOut,
        "%s<HTML><HEAD><TITLE>%s</TITLE></HEAD>"
        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"

```

```

        "<INPUT TYPE=\"hidden\" NAME=\"PI*\" VALUE=\"\">"
        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"0\">"
        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"TERMIN\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">",
        HTTPHdr,pTitle,pTPCC->uFormId,pTPCC->iTermId,pTPCC->iSyncId);
}; // FormatFormHdr

//=====
//
// Function name: FormatRespHdr
//
//=====
VOID FormatRespHdr (CHAR * pOut,CHAR * pTitle,TPCC_STATE * pTPCC)
{
    sprintf (pOut,
        "%s<HTML><HEAD><TITLE>%s</TITLE></HEAD>"
        "<FORM ACTION=\"tpcc.dll\" METHOD=\"GET\">"
        "<INPUT TYPE=\"hidden\" NAME=\"STATUSID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"FORMID\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"TERMIN\" VALUE=\"%d\">"
        "<INPUT TYPE=\"hidden\" NAME=\"SYNCID\" VALUE=\"%d\">",
        HTTPHdr,pTitle,pTPCC->iStatusId,pTPCC->uFormId,
        pTPCC->iTermId,pTPCC->iSyncId);
}; // FormatRespHdr

//=====
//
// Function name: FormatHTMLString
//
// Encodes HTML special characters. If necessary, space fills
// to pOut to total uLen characters.
//
//=====
VOID FormatHTMLString (CHAR * pOut,CHAR * pIn,UINT uLen)
{
    while (uLen && *pIn)
    {
        *pOut++ = *pIn++;
        uLen--;
    }; // while (uLen && *pIn)
    while (uLen-- > 0)
        *pOut++ = ' ';
}; // FormatHTMLString

//=====
//
// Function name: FormatString
//
// Encodes formatted string for HTML transmission.
//
//=====
VOID FormatString (CHAR * pOut,CHAR * pPic,CHAR * pIn)
{
    while (*pPic)
    {
        if (*pPic == 'X' )
        {
            if (*pIn)
                *pOut++ = *pIn++;

```

```

        else
            *pOut++ = ' ';
    }
    else
        *pOut++ = *pPic;
        pPic++;
    };
    *pOut = 0;
}; // FormatString

//=====
// FUNCTION: UtilStrCpy
//
// Copies n characters from string pSrc to pDst and places a null
// null character at the end of the destination string. Unlike
// strncpy this function ensures that the result string is always
// null terminated.
//
//=====
VOID UtilStrCpy(CHAR * pDest,CHAR * pSrc,INT n)
{
    strncpy(pDest,pSrc,n);
    pDest[n] = '\0';
    return;
}; // UtilStrCpy

//=====
//
// Function name: CheckNumeric
//
// Result
// FALSE - string is all numeric
// TRUE - sting contains non-numeric characters
//
//=====
BOOL CheckNumeric(CHAR * pNum)
{
    if (*pNum == 0 )
        return(TRUE);
    while (*pNum && isdigit(*pNum))
        pNum++;
    return(*pNum);
}; // CheckNumeric

```

term.h

```

// term.h

#include <sys\timeb.h>

#define TMILLI_TIMEOUT 3600000 // One hour

typedef struct
{
    BOOL bInUse; // In use flag
    INT iTermId; // TermId
    LPVOID ConnID; // Connection Id
    INT iSyncId; // Sync Id

```

```

    SHORT sWId; // TPC WareHouse Id
    SHORT sDId; // TPC District Id
    struct _timeb tbLastAccess; // Last activity timestamp
} TERM_STATE;

BOOL TermInit(INT iSetMaxTerm);
VOID TermTerm(VOID);
TERM_STATE * TermAlloc(VOID);
TERM_STATE * TermGet(INT iTermId);
BOOL TermFree(INT iTermId);

```

term.c

```

// term.c
//
// Copyright Unisys, 1997
//
#include <windows.h>
#include <stdio.h>
#include "diagio.h"
#include "timesupp.h"
#include "term.h"

TERM_STATE * pTArray;
INT iNextTerm = 0;
INT iMaxTerm = 0;
CRITICAL_SECTION csTerm;

VOID TermMaint(VOID);

//=====
//
// Function name: TermInit
// Creates and initializes the first TERMINITIAL TArray entries.
// Initializes critical section to control access to TArray. Assumes
// access to function is single threaded, no other threads will start
// until this function completes and that function is called once
// (DLL_PROCESS_ATTACH).
//
// Returns:
// FALSE TArray allocated and initialized
// TRUE TArray allocation failure
//
//=====
BOOL TermInit(INT iSetMaxTerm)
{
    INT iTermId;
    CHAR szDiag[MAX_DIAG_SZ];
    if (pTArray != NULL)
    {
        sprintf(szDiag,"TermInit(%ld): TArray Already Initialized\n",
            GetCurrentThreadId());
        DiagIoWrite(szDiag,DIAG_ERROR);
        return(TRUE);
    };
    InitializeCriticalSection(&csTerm);
    iMaxTerm = iSetMaxTerm;
    pTArray = (TERM_STATE *) malloc(sizeof(TERM_STATE) * (iMaxTerm + 1));
    if (pTArray == NULL)
    {

```



```

    sprintf(szDiag,"TermInit(%ld): malloc failed (%ld)\n",
        GetCurrentThreadId(),GetLastError());
    DiagIoWrite(szDiag,DIAG_ERROR);
    return(TRUE);
}
for (iTermId = 1; iTermId <= iMaxTerm; iTermId++)
    TermFree(iTermId);
iNextTerm = 1;
return(FALSE);
}; // TermInit

//=====
//
// Function name: TermTerm
// Frees TArray and deletes csTerm critical section. Assumes access
// to function is single threaded and no other threads are actively
// accessing TArray entries (DLL_PROCESS_DETACH).
//
//=====
VOID TermTerm(VOID)
{
    DeleteCriticalSection(&csTerm);
    if (pTArray != NULL)
        free(pTArray);
    iNextTerm = 0;
    iMaxTerm = 0;
}; // TermTerm

//=====
//
// Function name: TermAlloc
// Allocates empty TArray. Uses iNextTerm to start search.
//
// Returns:
// > 0 TArray entry index (iTermId)
// < 0 Empty TArray entry not available
//
//=====
TERM_STATE * TermAlloc(VOID)
{
    INT iTermId = -1;
    if (pTArray == NULL)
    {
        CHAR szDiag[MAX_DIAG_SZ];
        sprintf(szDiag,"TermAlloc(%ld): Term Array Not Allocated\n",
            GetCurrentThreadId());
        DiagIoWrite(szDiag,DIAG_ERROR);
        return(NULL);
    };
    EnterCriticalSection(&csTerm);
    _try
    {
        while(iNextTerm <= iMaxTerm)
        {
            if (!pTArray[iNextTerm].bInUse)
            {
                pTArray[iNextTerm].bInUse = TRUE;
                _ftime(&pTArray[iNextTerm].tbLastAccess);
                iTermId = iNextTerm;
                iNextTerm++;
                break;
            }
        }
    }
};

```

```

};
iNextTerm++;
}; // while(iNextTerm <= iMaxTerm) (1st Try)
if (iTermId <= 0)
{
    // No entry found. Perform maint and try again
    TermMaint();
    iNextTerm = 1;
    while(iNextTerm <= iMaxTerm)
    {
        if (!pTArray[iNextTerm].bInUse)
        {
            pTArray[iNextTerm].bInUse = TRUE;
            _ftime(&pTArray[iNextTerm].tbLastAccess);
            iTermId = iNextTerm;
            iNextTerm++;
            break;
        }
        iNextTerm++;
    }; // while(iNextTerm <= iMaxTerm) (2nd Try)
}; // if (iTermId <= 0)
if (iTermId <= 0)
    iNextTerm = 1;
}
finally
{
    LeaveCriticalSection(&csTerm);
};

if (iTermId > 0)
    return(&pTArray[iTermId]);
else
    return(NULL);
}; // TermAlloc

//=====
//
// Function name: TermMaint
// Clears entries whose last access time exceeds TMILLI_TIMEOUT.
// Assumes caller has entered csTerm.
//
//=====
VOID TermMaint(VOID)
{
    INT iTermId;
    TMILLI tmElapsed;
    // Free entries that have timed out
    for (iTermId = 1; iTermId <= iMaxTerm; iTermId++)
    {
        if (pTArray[iTermId].bInUse)
        {
            tmElapsed = TimebElapsed(&pTArray[iTermId].tbLastAccess);
            if (tmElapsed > TMILLI_TIMEOUT)
                TermFree(iTermId);
        }
    };
}; // TermMaint

//=====

```

```

//
// Function name: TermGet
// Returns pointer to TArray slot at iTermId.
//
// Returns:
// FALSE TArray entry made available
// TRUE iTermId invalid.
//
//=====
TERM_STATE * TermGet(INT iTermId)
{
    TERM_STATE * pTerm;
    TMILLI tmElapsed;
    if (iTermId <= 0 || iTermId > iMaxTerm)
    {
        CHAR szDiag[MAX_DIAG_SZ];
        sprintf(szDiag, "TermGet(%ld): Invalid TermId (%ld)\n",
            GetCurrentThreadId(), iTermId);
        DiagIoWrite(szDiag, DIAG_ERROR);
        return(NULL);
    };
    pTerm = &pTArray[iTermId];
    if (!pTerm->bInUse)
        return(NULL);
    tmElapsed = TimebElapsed(&pTerm->tbLastAccess);
    if (tmElapsed > TMILLI_TIMEOUT)
        return(NULL); // Entry destined to be freed by maint
    _ftime(&pTArray[iTermId].tbLastAccess);
    return(&pTArray[iTermId]);
}; // TermGet

//=====
//
// Function name: TermFree
// Initializes contents of TArray slot at iTermId.
//
// Returns:
// FALSE TArray entry made available
// TRUE iTermId invalid.
//
//=====
BOOL TermFree(INT iTermId)
{
    TERM_STATE * pTerm;
    if (iTermId <= 0 || iTermId > iMaxTerm)
    {
        CHAR szDiag[MAX_DIAG_SZ];
        sprintf(szDiag, "TermFree(%ld): Invalid TermId (%ld)\n",
            GetCurrentThreadId(), iTermId);
        DiagIoWrite(szDiag, DIAG_ERROR);
        return(TRUE);
    };
    pTerm = &pTArray[iTermId];
    pTerm->ConnID = 0;
    pTerm->SWID = 0;
    pTerm->SDID = 0;
    pTerm->iSyncId = 0;
    pTerm->iTermId = iTermId;
    TimebClear(&pTerm->tbLastAccess);
    pTerm->bInUse = FALSE;
}; // TermFree

```

tmon.h

```

// tmon.h
typedef struct
{
    CHAR * pszErrTxt; // Error text
    CHAR * pTMData; // TM buffer area
    LONG lTMDataLen; // TM buffer len
} TMON_STATE;

VOID TMonInit(INT iSetMaxMsg);
VOID TMonTerm(VOID);
BOOL TMinInit(TMON_STATE * pTMon);
VOID TMDone(TMON_STATE * pTMon);
BOOL TMTran(CHAR * pService, TMON_STATE * pTMon,
            BOOL * bTPRslt, INT * iTPRslt);
BOOL TMPost(CHAR * pService, TMON_STATE * pTMon);

```

tmon.c

```

// tmon.c
//
// Copyright Unisys, 1997
//
#include <windows.h>
#include <stdio.h>
#include <atmi.h>
#include "tmon.h"

INT iTMMaxSz;

//=====
//
// Function name: TMonInit
//
//=====
VOID TMonInit(INT iSetMaxMsg)
{
    iTMMaxSz = iSetMaxMsg;
}; // TMonInit

//=====
//
// Function name: TMonTerm
//
//=====
VOID TMonTerm(VOID)
{
}; // TMonTerm

//=====
//
// Function name: TMinInit
//
// Result:
// FALSE Initialization completed successfully
// TRUE Initialization failed
//

```

```

//=====
BOOL TMinit(TMON_STATE * pTMon)
{
    BOOL bRslt = FALSE;
    TPINIT * tpinfo;

    // Must have ErrTxt message area set before init
    if (pTMon->pszErrTxt == NULL)
        return(TRUE);
    tpinfo = (TPINIT *) tmalloc("TPINIT",NULL,TPINITNEED(20));
    memset(tpinfo,0,sizeof(TPINIT));
    tpinfo->flags=TPMULTICONTEXTS;
    sprintf(tpinfo->cltname,"tpcc%d",GetCurrentThreadId());

    if (tpinit(tpinfo) == -1)
    {
        sprintf(pTMon->pszErrTxt,"TPInit Failed(%ld)",tperrno);
        bRslt = TRUE;
    }
    else
    {
        pTMon->pTMDData = tmalloc("CARRAY",NULL,iTMMMaxSz);
        if (pTMon->pTMDData == NULL)
        {
            sprintf(pTMon->pszErrTxt,"TPAlloc Failed(%ld)",tperrno);
            bRslt = TRUE;
        };
    };

    return(bRslt);
}; // TMinit

//=====
//
// Function name: TMDone
//
//=====
VOID TMDone(TMON_STATE * pTMon)
{
    tfree(pTMon->pTMDData);
    tpterm();
}; // TMDone

//=====
//
// Function name: TMTran
//
// Result:
// FALSE    call completed. bTPRslt contains outcome (FALSE tran
//           success). iTPRslt contains application returned
//           result code.
// TRUE     TM interface error, ErrTxt has diagnostic.
//
//=====
BOOL TMTran(CHAR * pService,TMON_STATE * pTMon,
            BOOL * bTPRslt,INT * iTPRslt)
{
    BOOL bRslt = FALSE;
    INT iGRply;

```

```

    iGRply = tpcall(pService,pTMon->pTMDData,iTMMMaxSz,
        &pTMon->pTMDData,&pTMon->lTMDDataLen,TPNOTIME | TPSIGRSTRT);
    if (iGRply != -1)
    {
        *iTPRslt = tpurcode;
        *bTPRslt = FALSE;
    }
    else
    if (tperrno == TPESVCFAIL)
    {
        *iTPRslt = tpurcode;
        *bTPRslt = TRUE;
    }
    else
    {
        sprintf(pTMon->pszErrTxt,"TPCall Failed (%ld)",tperrno);
        bRslt = TRUE;
    };
    return(bRslt);
}; // TMTran

//=====
//
// Function name: TMPost
//
// Result:
// FALSE    transaction submitted with no response expected
// TRUE     tpacall failed, ErrTxt has diagnostic
//
//=====
BOOL TMPost(CHAR * pService,TMON_STATE * pTMon)
{
    BOOL bRslt = FALSE;
    INT iCD;

    iCD = tpacall(pService,pTMon->pTMDData,iTMMMaxSz,TPNOREPLY);
    if (iCD == -1)
    {
        sprintf(pTMon->pszErrTxt,"TPACall Failed (%ld)",tperrno);
        bRslt = TRUE;
    };
    return(bRslt);
}; // TMPost

```

timesupp.h

```

// timesupp.h
#include <windows.h>
#include <time.h>
#include <sys\timeb.h>

#define TIMEBSEED_MOD 10000
#define TIMEBSEED_SHIFT 1000
#define TIMEB_STRING_SZ 23
#define TIMEB_STRING_DATESZ 10
#define TIMEB_STRING_TIMEOFFSET 11
#define TIMEB_STRING_TIMESZ 12

typedef ULONG TMILLI;

```

```

TMILLI TimebDiff(struct _timeb * p_tb1, struct _timeb * p_tb2);
VOID TimebCopy(struct _timeb * p_tbDest, struct _timeb * p_tbSource);
TMILLI TimebElapsed(struct _timeb * p_tb1);
VOID TimebClear(struct _timeb * p_tb1);
CHAR * TimebToString(struct _timeb * p_tb1, CHAR * psz, BOOL bMillis);
BOOL TimebFromString(struct _timeb * p_tb1, CHAR * psz);
VOID TimebAddSecs(struct _timeb * p_tb1, INT iSeconds);
ULONG TimebSeed(VOID);

```

timesupp.c

```

// timesupp.c
//
// Copyright Unisys, 1997
//

#include <stdio.h>
#include "timesupp.h"

//=====
//
// Function name: TimebCopy
// Structure contents copy of _timeb source to _timeb dest.
//
//=====
VOID TimebCopy(struct _timeb * p_tbDest, struct _timeb * p_tbSource)
{
    p_tbDest->time = p_tbSource->time;
    p_tbDest->millitm = p_tbSource->millitm;
    p_tbDest->dstflag = p_tbSource->dstflag;
    p_tbDest->timezone = p_tbSource->timezone;
}; // TimebCopy

//=====
//
// Function name: TimebDiff
// Time difference in milliseconds between _timeb_t1 and _timeb_t2.
//
//=====
TMILLI TimebDiff(struct _timeb * p_tb1, struct _timeb * p_tb2)
{
    LONG lRslt;
    lRslt = ((p_tb2->time - p_tb1->time) * 1000) +
            (p_tb2->millitm - p_tb1->millitm);
    if (lRslt < 0)
        return(0);
    else
        return((TMILLI) lRslt);
}; // TimebDiff

//=====
//
// Function name: TimebElapsed
//
//=====
TMILLI TimebElapsed(struct _timeb * p_tb1)
{

```

```

    struct _timeb _tb2;
    _ftime(&_tb2);
    return (TimebDiff(p_tb1, &_tb2));
}; // TimebElapsed

//=====
//
// Function name: TimebClear
//
//=====
VOID TimebClear(struct _timeb * p_tb1)
{
    p_tb1->time = 0;
    p_tb1->millitm = 0;
}; // TimebClear

//=====
//
// Function name: TimebToString
// Converts timeb to yyyy:mm:dd,hh:mm:ss.sss format
//
//=====
CHAR * TimebToString(struct _timeb * p_tb1, CHAR * psz, BOOL bMillis)
{
    struct tm * ptm;
    ptm = localtime(&p_tb1->time);
    sprintf(psz, "%4.4d/%2.2d/%2.2d,%2.2d:%2.2d:%2.2d",
            ptm->tm_year + 1900, ptm->tm_mon + 1, ptm->tm_mday,
            ptm->tm_hour, ptm->tm_min, ptm->tm_sec);
    if (bMillis)
        sprintf(psz + strlen(psz), ".%3.3d", p_tb1->millitm);
    return(psz);
}; // TimebToString

//=====
//
// Function name: TimebFromString
// Converts yyyy:mm:dd,hh:mm:ss.sss (TimebToString) format to timeb
//
//=====
BOOL TimebFromString(struct _timeb * p_tb1, CHAR * psz)
{
    struct tm tmTime;
    struct tm * ptm;
    UINT uLen;

    ptm = &tmTime;
    uLen = strlen(psz);
    if (uLen < (TIMEB_STRING_SZ - 4)) // millis are optional
    {
        p_tb1->time = 0;
        p_tb1->millitm = 0;
        return (TRUE);
    };
    // Clear fields that won't be set
    ptm->tm_wday = 0;
    ptm->tm_yday = 0;
    ptm->tm_isdst = -1;
    // Set tm struct fields from string

```

```

ptm->tm_year = (atoi(psz)) - 1900;
psz += 5;
ptm->tm_mon = (atoi(psz)) - 1;
psz += 3;
ptm->tm_mday = atoi(psz);
psz += 3;
ptm->tm_hour = atoi(psz);
psz += 3;
ptm->tm_min = atoi(psz);
psz +=3;
ptm->tm_sec = atoi(psz);
if (uLen >= TIMEB_STRING_SZ) // Millis present
{
    psz += 3;
    p_tbl->millitm = atoi(psz);
};
p_tbl->time = mktime(ptm);
return (FALSE);
}; // TimebFromString

//=====
//
// Function name: TimebAddSecs
//
//=====
VOID TimebAddSecs(struct _timeb * p_tbl,INT iSeconds)
{
    p_tbl->time += iSeconds;
}; // TimebAddSecs

```

diagio.h

```

// diagio.h

// Environment variable defaults
#define DEFAULTDIAGLEVEL DIAG_INFO
#define DEFAULTTEVENTLOG 0

#define DIAGNOSTICS TRUE
#define MAX_DIAG_SZ 2000

// Severity level of diagnostic report
#define DIAG_FORCE 1
#define DIAG_ERROR 2
#define DIAG_STATE 3
#define DIAG_INFO 4

VOID DiagIoInit (CHAR * pDiagId,BOOL bConsole,BOOL bEvent,UINT uLevel);
VOID DiagIoTerm (VOID);
VOID DiagIoWrite (CHAR * pDiagBuffer, UINT uSeverity);

```

diagio.c

```

// diagio.c
//
// Copyright Unisys, 1997
//
#include <windows.h>
#include <stdio.h>

```

```

#include "diagio.h"

CRITICAL_SECTION csDiagIo;
HANDLE hEventLog = NULL;
UINT uDiagLevel;
BOOL bEventLog;
BOOL bConsoleLog;
CHAR * pDiagHdr;
CHAR * pEventHost;
CHAR * pErrHdr =
    {"*** ERROR *** ERROR *** ERROR *** ERROR *** ERROR ***"};

INT WriteEventLog (CHAR * pDMsgs[],UINT uMsgCnt,UINT uSeverity);

//=====
//
// Function name: DiagIoInit
//
//=====
VOID DiagIoInit (CHAR * pDiagId,BOOL bConsole,BOOL bEvent,UINT uLevel)
{
    if (DIAGNOSTICS)
    {
        InitializeCriticalSection (&csDiagIo);

        uDiagLevel = uLevel;
        bEventLog = bEvent;
        bConsoleLog = bConsole;
        pEventHost = (CHAR *) malloc (10);
        strcpy (pEventHost,""); // local host
        pDiagHdr = (CHAR *) malloc (strlen (pDiagId) + 1);
        strcpy (pDiagHdr,pDiagId);
        if (bEventLog)
        {
            hEventLog = RegisterEventSource (pEventHost,pDiagId);
            if (hEventLog == NULL)
            {
                bEventLog = FALSE;
                if (bConsoleLog)
                    fprintf (stdout,
                        "%s: Event Log Register Failed (%ld)\n"
                        "Event Log Will NOT be Used\n",
                        pDiagHdr,GetLastError ());
            }
            else
            {
                if (bConsoleLog)
                    fprintf (stdout,"%s: Event Logging to LocalHost as %s\n",
                        pDiagHdr,pDiagHdr);
            }
        }; // if bEventLog
    }; // if Diagnostics
}; // DiagIoInit

//=====
//
// Function name: DiagIoTerm
//
//=====
VOID DiagIoTerm (VOID)

```

```

{
    if (DIAGNOSTICS)
    {
        DeleteCriticalSection(&csDiagIo);
        if (hEventLog != NULL)
            DeregisterEventSource(hEventLog);
        free(pDiagHdr);
        free(pEventHost);
    };
}; // DiagIoTerm

//=====
//
// Function name: DiagIoWrite
//
//=====
VOID DiagIoWrite(CHAR * pDiagBuffer, UINT uSeverity)
{
    CHAR * pDMsgs[3];
    UINT uMsgCnt = 0;
    INT iERslt = 0;
    if (DIAGNOSTICS)
    {
        if (uDiagLevel >= uSeverity)
        {
            EnterCriticalSection(&csDiagIo);
            try
            {
                if (uSeverity == DIAG_ERROR)
                {
                    pDMsgs[0] = pDiagHdr;
                    pDMsgs[1] = pErrHdr;
                    pDMsgs[2] = pDiagBuffer;
                    uMsgCnt = 3;
                }
                else
                {
                    pDMsgs[0] = pDiagHdr;
                    pDMsgs[1] = pDiagBuffer;
                    uMsgCnt = 2;
                };
                if (bEventLog)
                    iERslt = WriteEventLog(pDMsgs, uMsgCnt, uSeverity);
                if (bConsoleLog)
                {
                    if (uMsgCnt == 3)
                        fprintf(stdout, "\n%s:
%s\n%s", pDMsgs[0], pDMsgs[1], pDMsgs[2]);
                    else
                        fprintf(stdout, "\n%s: %s", pDMsgs[0], pDMsgs[1]);
                    if (iERslt != 0)
                        fprintf(stdout,
                            "EventLog Write Failed (%ld), No Longer in Use\n",
                            iERslt);
                };
            }
            finally
            {
                LeaveCriticalSection(&csDiagIo);
            };
        }; // if uDiagLevel >= uSeverity
    }
};

```

```

}; // if Diagnostics
}; // DiagIoWrite

INT WriteEventLog(CHAR * pDMsgs[], UINT uMsgCnt, UINT uSeverity)
{
    WORD wType;
    WORD wCount;
    wCount = uMsgCnt;
    switch (uSeverity)
    {
        case DIAG_ERROR:
            wType = EVENTLOG_ERROR_TYPE;
            break;
        default:
            wType = EVENTLOG_INFORMATION_TYPE;
            break;
    };
    if (wType != 0)
    {
        if (!ReportEvent(hEventLog, // event log handle
                        wType, // event type
                        0, // category zero
                        uSeverity, // no event identifier
                        NULL, // no user security identifier
                        wCount, // # of substitution strings
                        0, // no binary data
                        (LPCTSTR *) pDMsgs, // address of string array
                        NULL)) // address of binary
        {
            DeregisterEventSource(hEventLog);
            hEventLog = NULL;
            bEventLog = FALSE;
            return(GetLastError());
        }; // ReportEvent failed
    }; // if wType != 0
    return(0);
}; // WriteEventLog

```

SERVER MAKEFILES

```

SVR = tpccsvr
SRC = \webrte\tpcctux\tpccsvr.c
DBG = /f "/Zi"
$(SVR).exe: $(SRC)
    erase $(SVR).exe
    $(TUXDIR)\bin\buildserver /f "$(SRC)" /o $(SVR).exe /s
NEWORDER:NEWORDER /s PAYMENT:PAYMENT /s ORDERSTS:ORDERSTS /s
STOCKLVL:STOCKLVL -l i:\mssql7\devtools\lib\ntwdblib.lib
    copy $(SVR).exe $(APPDIR)

```

```

SVR = tpccdelv
SRC = \webrte\tpcctux\tpccdelv.c
DBG = /f "/Zi"
$(SVR).exe: $(SRC)
    erase $(SVR).exe
    $(TUXDIR)\bin\buildserver /f "$(SRC)" /o $(SVR).exe /s
DELIVERY:DELIVERY -l i:\mssql7\devtools\lib\ntwdblib.lib

```

```
copy $(SVR).exe $(APPDIR)
```

tpccsvr.h

```
// tpccsvr.h
//
// Copyright Unisys, 1997
// Copyright Microsoft, 1996
```

```
#include "tpcc.h"
```

```
#define DEFCLPACKSIZE      2000
#define DEADLOCKWAIT      10
#define LOGFILE_NAME      "delilog"
```

```
// 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
```

tpcc.h

```
// tpcc.h
```

```
#include <time.h>
#define DBNTWIN32
#include <sqlfront.h>
#include <sqldb.h>
```

```
// TPCCHandler return codes
```

```
#define TPCCSEND 1
#define TPCCSENDEND 2
#define TPCCENDNOW 3
```

```
// TPC Service return codes
```

```
#define SVC_BADITEMID 1
#define SVC_NOERROR 0
#define SVCERR_DEADLOCK -1
#define SVCERR_NOCUSTOMER -2
#define SVCERR_NOORDERS -3
#define SVCERR_DBLIB -4
```

```
// Min/Max transaction data definitions
```

```
#define MIN_DID 1
#define MAX_DID 10
#define MIN_OL 5
#define MAX_OL 15
#define MIN_QUANTITY 1
#define MAX_QUANTITY 10
#define MIN_ITEM_ID 1
#define MAX_ITEM_ID 100000
#define MIN_CUST_ID 1
#define MAX_CUST_ID 3000
#define MIN_CARRIER 1
#define MAX_CARRIER 10
#define MIN_THRESHOLD 10
```

```
#define MAX_THRESHOLD 20
```

```
// pTPCC->iStatusId codes
```

```
#define INVALID_IID      1
#define STATUS_OK       0
#define ERR_CMD_UNKNOWN -10
#define ERRRTXT_CMD_UNKNOWN "Unrecognized Command"
#define ERR_ALREADY_LOGGEDIN -11
#define ERRRTXT_ALREADY_LOGGEDIN "Already Logged In"
#define ERR_TERMID      -12
#define ERRRTXT_TERMID "TermId or SyncId in Error"
#define ERR_FORM_UNKNOWN -13
#define ERRRTXT_FORM_UNKNOWN "Unrecognized FormId"
#define ERR_WID_INVALID -14
#define ERR_DID_INVALID -15
#define ERR_MISSING_KEY -16
#define ERR_NOT_NUMERIC -17
#define ERR_THRESHOLD_RANGE -18
#define ERR_EMBEDDED_EMPTY_OL -19
#define ERR_QUANTITY_INVALID -20
#define ERR_OL_INVALID -21
#define ERR_OL_COUNT -22
#define ERR_TM_INTERFACE -23
#define ERR_SERVICE_RSLT -24
#define ERR_INPUT_TOOLONG -25
#define ERR_IDANDNAME_EMPTY -26
#define ERR_IDANDNAME_ENTERED -27
#define ERR_AMOUNT_BADFORM -28
#define ERR_AMOUNT_INVALID -29
#define ERR_CARRIER_INVALID -30
#define ERR_TERM_ALLOC -31
```

```
#define STATUS_LEN 200
#define NAME_LEN 16
#define ADDR_LEN 20
#define STATE_LEN 2
#define ZIP_LEN 9
```

```
#define MAX_MSG_SZ 5000
```

```
typedef struct
```

```
{
    short ol_supply_w_id;
    long ol_i_id;
    char ol_i_name[25];
    short ol_quantity;
    char ol_brand_generic[2];
    double ol_i_price;
    double ol_amount;
    short ol_stock;
} OL_NEW_ORDER_DATA;
```

```
typedef struct
```

```
{
    short w_id;
    short d_id;
    long c_id;
    short o_ol_cnt;
    char c_last[NAME_LEN + 1];
    char c_credit[3];
    double c_discount;
```

```

double w_tax;
double d_tax;
long o_id;
short o_commit_flag;
DBDATEREC o_entry_d;
short o_all_local;
double total_amount;
char execution_status[STATUS_LEN];
OL_NEW_ORDER_DATA Ol[MAX_OL];
} NEW_ORDER_DATA;

```

```
typedef struct
```

```

{
    short w_id;
    short d_id;
    long c_id;
    short c_d_id;
    short c_w_id;
    double h_amount;
    DBDATEREC h_date;
    char w_street_1[ADDR_LEN + 1];
    char w_street_2[ADDR_LEN + 1];
    char w_city[ADDR_LEN + 1];
    char w_state[STATE_LEN + 1];
    char w_zip[ZIP_LEN + 1];
    char d_street_1[ADDR_LEN + 1];
    char d_street_2[ADDR_LEN + 1];
    char d_city[ADDR_LEN + 1];
    char d_state[STATE_LEN + 1];
    char d_zip[ZIP_LEN + 1];
    char c_first[NAME_LEN + 1];
    char c_middle[3];
    char c_last[NAME_LEN + 1];
    char c_street_1[ADDR_LEN + 1];
    char c_street_2[ADDR_LEN + 1];
    char c_city[ADDR_LEN + 1];
    char c_state[STATE_LEN + 1];
    char c_zip[ZIP_LEN + 1];
    char c_phone[16];
    DBDATEREC c_since;
    char c_credit[3];
    double c_credit_lim;
    double c_discount;
    double c_balance;
    char c_data[200+1];
    char execution_status[STATUS_LEN];
} PAYMENT_DATA;

```

```
typedef struct
```

```

{
    long ol_i_id;
    short ol_supply_w_id;
    short ol_quantity;
    double ol_amount;
    DBDATEREC ol_delivery_d;
} OL_ORDER_STATUS_DATA;

```

```
typedef struct
```

```

{
    short w_id;
    short d_id;

```

```

long c_id;
char c_first[NAME_LEN + 1];
char c_middle[3];
char c_last[NAME_LEN + 1];
double c_balance;
long o_id;
DBDATEREC o_entry_d;
short o_carrier_id;
OL_ORDER_STATUS_DATA OlOrderStatusData[MAX_OL];
short o_ol_cnt;
char execution_status[STATUS_LEN];
} ORDER_STATUS_DATA;

```

```
typedef struct
```

```

{
    short w_id;
    short o_carrier_id;
    long o_id[10];
    int iComplete;
    SYSTEMTIME QTime; // time delivery was queued
    SYSTEMTIME EndTime; // time delivery completed
    char execution_status[STATUS_LEN];
} DELIVERY_DATA;

```

```
typedef struct
```

```

{
    short w_id;
    short d_id;
    short thresh_hold;
    long low_stock;
    char execution_status[STATUS_LEN];
} STOCK_LEVEL_DATA;

```

tpccsvr.c

```
// tpccsvr.c
```

```
//
```

```
// Copyright Unisys, 1997
```

```
// Copyright Microsoft, 1996
```

```

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

```

```

#include <atmi.h>
#include <userlog.h>

#include "tpccsvr.h"

```

```

char    szServer[32]    = "tpccserver";
char    szUser[32]      = { 0 };
char    szPassword[32] = { 0 };
char    szDatabase[32] = "tpcc";
char    szService[16]  = "tpccsvr";
char    szWork[200];

```



```

PDBPROCESS    dbproc;
int    spid;                // spid assigned from dblib
BOOL    bFailed;
BOOL    bDeadlock;
short    DeadlockRetry    = (short)3;

int    err_handler(DBPROCESS *dbproc, int severity, int dberr, int oserr,
char *dberrstr, char *oserrstr);
int    msg_handler(DBPROCESS *dbproc, DBINT msgno, int msgstate, int
severity, char *msgtext);
int    SQLStockLevel(STOCK_LEVEL_DATA *psld);
int    SQLNewOrder(NEW_ORDER_DATA * pnod);
int    SQLPayment(PAYMENT_DATA *ppd);
int    SQLOrderStatus(ORDER_STATUS_DATA * pOrderStatus);
void    UtilStrCpy(char * pDest, char * pSrc, int n);
VOID    GetArgs(INT argc, CHAR **argv);

//=====
//
// Function name: tpsvrinit
//
//=====
tpsvrinit(int argc, char *argv[])
{
    GetArgs(argc, argv);
    sprintf(szWork, "%s Started, DBServer=%s, DB=%s",
        szService, szServer, szDatabase);
    userlog(szWork);
    if (SQLInit(szServer, szDatabase, szUser, szPassword))
        return(-1);
    userlog("Database open, initialization complete");
    return(0);
}; // tpsvrinit

//=====
//
// Function name: tpsvrdone
//
//=====
void tpsvrdone()
{
    userlog("Shutdown request for tpcctux server");
    dbclose(dbproc);
    dbexit();
}; // tpsvrdone

//=====
//
// Function name: NEWORDER
//
// Entry point called by tuxedo for NEWORDER service requests.
//
//=====
void NEWORDER(TPSVCINFO * svcinfo)
{
    int iRslt;
    NEW_ORDER_DATA * pnod;

    pnod = (NEW_ORDER_DATA *) svcinfo->data;
    iRslt = SQLNewOrder(pnod);

```

```

// Check for DBLib termination error
if (bFailed)
{
    strcpy(pnod->execution_status, szWork);
    tpreturn(TPFAIL, SVCERR_DBLIB, svcinfo->data, svcinfo->len, 0);
}
else
if (iRslt == 0)
    tpreturn(TPSUCCESS, 0, svcinfo->data, svcinfo->len, 0);
else
    tpreturn(TPFAIL, iRslt, svcinfo->data, svcinfo->len, 0);
}; // NEWORDER

//=====
//
// Function name: PAYMENT
//
// Entry point called by tuxedo for PAYMENT service requests.
//
//=====
void PAYMENT(TPSVCINFO * svcinfo)
{
    int iRslt;
    PAYMENT_DATA * ppd;

    ppd = (PAYMENT_DATA *) svcinfo->data;

    iRslt = SQLPayment(ppd);

    if (bFailed)
    {
        strcpy(ppd->execution_status, szWork);
        tpreturn(TPFAIL, SVCERR_DBLIB, svcinfo->data, svcinfo->len, 0);
    }
    else
    if (iRslt == 0)
        tpreturn(TPSUCCESS, 0, svcinfo->data, svcinfo->len, 0);
    else
        tpreturn(TPFAIL, iRslt, svcinfo->data, svcinfo->len, 0);
}; // PAYMENT

//=====
//
// Function name: ORDERSTS
//
// Entry point called by tuxedo for ORDERSTS service requests.
//
//=====
void ORDERSTS(TPSVCINFO * svcinfo)
{
    int iRslt;
    ORDER_STATUS_DATA * posd;

    posd = (ORDER_STATUS_DATA *) svcinfo->data;
    iRslt = SQLOrderStatus(posd);

    // Check for DBLib termination error
    if (bFailed)
    {
        strcpy(posd->execution_status, szWork);
        tpreturn(TPFAIL, SVCERR_DBLIB, svcinfo->data, svcinfo->len, 0);
    }

```

```

}
else
if (iRslt == 0)
    tpreturn(TPSUCCESS,0,svcinfn->data,svcinfn->len,0);
else
    tpreturn(TPFAIL,iRslt,svcinfn->data,svcinfn->len,0);
}; // ORDERSTS

//=====
//
// Function name: STOCKLVL
//
// Entry point called by tuxedo for STOCKLVL service requests.
//
//=====
void STOCKLVL(TPSVCINFO * svcinfn)
{
    int iRslt;
    STOCK_LEVEL_DATA * psld;

    psld = (STOCK_LEVEL_DATA *) svcinfn->data;
    iRslt = SQLStockLevel(psld);

    // Check for DBLib termination error
    if (bFailed)
    {
        strcpy(psld->execution_status,szWork);
        tpreturn(TPFAIL,SVCERR_DBLIB,svcinfn->data,svcinfn->len,0);
    }
    else
    if (iRslt == 0)
        tpreturn(TPSUCCESS,0,svcinfn->data,svcinfn->len,0);
    else
        tpreturn(TPFAIL,iRslt,svcinfn->data,svcinfn->len,0);
}; // STOCKLVL

//=====
//
// Function name: SQLInit
//
// Set global dbproc and spid.
//
// Result:
// FALSE - database open, dbproc valid
// TRUE - database open failed
//
//=====
BOOL SQLInit(CHAR * pSvr,CHAR * pDB,CHAR * pUsr,CHAR * pPW,CHAR * pSvc)
{
    char szApp[32];
    char server[256];
    char database[256];
    char user[256];
    char password[256];
    LOGINREC *login;

    dbinit();
    // install error and message handlers
    dbmsghandle((DBMSGHANDLE_PROC)msg_handler);
    dberrhandle((DBERRHANDLE_PROC)err_handler);

```

```

dbproc = NULL;
strcpy(server,pSvr);
strcpy(database,pDB);
strcpy(user,pUsr);
strcpy(password,pPW);
sprintf(szApp,"%s%d",pSvc,_getpid());

login = dblogin();
if (!*user)
    DBSETLUSER(login,"sa");
else
    DBSETLUSER(login,user);
DBSETLPWD(login,password);
DBSETLHOST(login,szApp);
DBSETLVERSION(login,DBVER60);
// DBSETLPACKET(login,(unsigned short)DEFCLPACKSIZE);

if ((dbproc = dbopen(login,server)) == NULL)
{
    userlog("dbopen failed");
    return TRUE;
};
// Use the the right database
dbuse(dbproc,database);
dbcmd(dbproc,"select @@spid");
dbsqlxexec(dbproc);
while (dbresults(dbproc) != NO_MORE_RESULTS)
{
    dbbind(dbproc,1,SMALLBIND,(DBINT) 0,(BYTE *) spid);
    while (dbnextrow(dbproc) != NO_MORE_ROWS)
        ;
};

dbcmd(dbproc,"set nocount on");
dbsqlxexec(dbproc);
while (dbresults(dbproc) != NO_MORE_RESULTS)
{
    while (dbnextrow(dbproc) != NO_MORE_ROWS)
        ;
};

//rollback transaction on abort
dbcmd(dbproc,"set XACT_ABORT ON");
dbsqlxexec(dbproc);
while (dbresults(dbproc) != NO_MORE_RESULTS)
{
    while (dbnextrow(dbproc) != NO_MORE_ROWS)
        ;
};

return(FALSE);
}; // SQLInit

//=====
// FUNCTION: err_handler
//
// Handles DB-Library errors
//
// ARGUMENTS:

```

```

// DBPROCESS *dbproc DBPROCESS id pointer
// int severity severity of error
// int dberr error id
// int oserr operating system specific error code
// char *dberrstr printable error description of dberr
// char *oserrstr printable error description of oserr
//
// RETURNS:
// int INT_CANCEL
//
// COMMENTS: None
//
//=====
int err_handler(DBPROCESS *dbproc, int severity, int dberr, int oserr,
char *dberrstr, char *oserrstr)
{
    if ((dbproc == NULL) || (DBDEAD(dbproc)))
    {
        userlog("ErrorHandler: DBPROC is invalid");
        return INT_CANCEL;
    };
    if (bFailed)
        return INT_CANCEL;
    if (oserr != DBNOERR)
    {
        sprintf(szWork, "ErrorHandler: OSErr(%ld) - %s", oserr, oserrstr);
        userlog(szWork);
        bFailed = TRUE;
    };

    return INT_CANCEL;
}; // err_handler

//=====
// FUNCTION: msg_handler
//
// 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 operation
// INT_CANCEL cancel operation
//
// COMMENTS: This function also sets the dead lock dbproc
// variable if necessary.
//
//=====
int msg_handler(DBPROCESS *dbproc, DBINT msgno, int msgstate, int
severity, char *msgtext)
{
    if ((msgno == 5701) || (msgno == 2528) ||
        (msgno == 5703) || (msgno == 6006))
        return INT_CONTINUE;

```

```

// deadlock message
if (msgno == 1205)
{
    // set the deadlock indicator
    bDeadlock = TRUE;
    return INT_CONTINUE;
};

if (bFailed)
    return INT_CANCEL;

if (msgno == 0)
    return INT_CONTINUE;
else
{
    sprintf(szWork, "MsgHandler: MsgNo(%ld) - %s", msgno, msgtext);
    userlog(szWork);
    bFailed = TRUE;
};

return INT_CANCEL;
}; // msg_handler

//=====
// FUNCTION: SQLStockLevel
//
// Handles the stock level transaction.
//
// ARGUMENTS:
// STOCK_LEVEL_DATA StockLevel input / output data structure
// dbdata (global)
// bDeadlock (global)
//
// RETURNS:
// SVC_NOERROR success
// !SVC_NOERROR failure
//
// COMMENTS: None
//
//=====
int SQLStockLevel(STOCK_LEVEL_DATA * pslid)
{
    int tryit;
    short num_deadlocks = 0;
    RETCODE rc;
    BYTE * pData;

    bFailed = FALSE;
    bDeadlock = FALSE;

    for (tryit=0; tryit < DeadlockRetry; tryit++)
    {
        if (dbrpcinit(dbproc, "tpcc_stocklevel", 0) == SUCCEED)
        {
            dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1,
                (BYTE *) &psld->w_id);
            dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1,
                (BYTE *) &psld->d_id);
            dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1,
                (BYTE *) &psld->thresh_hold);

```

```

if (dbrpcexec(dbproc) == SUCCEEDED)
{
    while (((rc = dbresults(dbproc)) != NO_MORE_RESULTS) &&
           (rc != FAIL))
    {
        if (DBROWS(dbproc))
        {
            while (((rc = dbnextrow(dbproc)) != NO_MORE_ROWS) &&
                   (rc != FAIL))
            {
                if(pData=dbdata(dbproc,1))
                    psld->low_stock = *((long *) pData);
            };
        }; // if (DBROWS(dbproc))
    }; // while (dbresults)
}; // if (dbrpcexec)
}; // if (dbrpcinit)
if (bDeadlock)
{
    num_deadlocks++;
    bDeadlock = FALSE;
    userlog("StockLevel Deadlock Retry (%d)",num_deadlocks);
    Sleep(10 * tryit);
}
else
{
    strcpy(psld->execution_status,"Transaction committed.");
    return(SVC_NOERROR);
};
}; // for (tryit)

// If we reached here, it means we quit after MAX_RETRY deadlocks
strcpy(psld->execution_status,"Hit deadlock max.");
userlog("StockLevel Deadlock Failure (%d)",num_deadlocks);
return(SVCERR_DEADLOCK);
}; // SQLStockLevel

//=====
// FUNCTION: SQLNewOrder
//
// Handles the new order transaction.
//
// ARGUMENTS:
// NEW_ORDER_DATA    NewOrder structure for input/output data
// dbdata (global)
// bDeadlock (global)
//
// RETURNS:
// SVC_NOERROR success
// !SVC_NOERROR failure
//
// COMMENTS: None
//
//=====
int SQLNewOrder(NEW_ORDER_DATA * pnod)
{
    RETCODE rc;
    int i;
    DBINT commit_flag;

```

```

short num_deadlocks = 0;
int tryit;
DBDATETIME datetime;
BYTE * pData;

bFailed = FALSE;
bDeadlock = FALSE;

for (tryit=0; tryit < DeadlockRetry; tryit++)
{
    if (dbrpcinit(dbproc,"tpcc_neworder",0) == SUCCEEDED)
    {
        dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1,
                   (BYTE *) &pnod->w_id);
        dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1,
                   (BYTE *) &pnod->d_id);
        dbrpcparam(dbproc, NULL, 0, SQLINT4, -1, -1,
                   (BYTE *) &pnod->c_id);
        dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1,
                   (BYTE *) &pnod->o_ol_cnt);

        pnod->o_all_local = 1;
        for (i = 0; i < pnod->o_ol_cnt; i++)
        {
            if (pnod->o_all_local &&
                pnod->Ol[i].ol_supply_w_id != pnod->w_id )
                pnod->o_all_local = 0;
        };
        dbrpcparam(dbproc, NULL, 0, SQLINT1, -1, -1,
                   (BYTE *) &pnod->o_all_local);

        for (i = 0; i < pnod->o_ol_cnt; i++)
        {
            dbrpcparam(dbproc, NULL, 0, SQLINT4, -1, -1,
                       (BYTE *) &pnod->Ol[i].ol_i_id);
            dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1,
                       (BYTE *) &pnod->Ol[i].ol_supply_w_id);
            dbrpcparam(dbproc, NULL, 0, SQLINT2, -1, -1,
                       (BYTE *) &pnod->Ol[i].ol_quantity);
        };

        if (dbrpcexec(dbproc) == SUCCEEDED)
        {
            pnod->total_amount=0;
            // Get results from order line
            for (i = 0; i<pnod->o_ol_cnt; i++)
            {
                if (((rc = dbresults(dbproc)) != NO_MORE_RESULTS) &&
                    (rc != FAIL))
                {
                    if (DBROWS(dbproc) && (dbnumcols(dbproc) == 5))
                    {
                        while (dbnextrow(dbproc) != NO_MORE_ROWS)
                        {
                            if(pData=dbdata(dbproc, 1))
                                UtilStrCpy(pnod->Ol[i].ol_i_name,pData,dbdatlen(dbproc, 1));
                            if(pData=dbdata(dbproc, 2))
                                pnod->Ol[i].ol_stock = *(DBSMALLINT *) pData);
                            if(pData=dbdata(dbproc, 3))

```

```

        UtilStrCpy(pnod-
>Ol[i].ol_brand_generic,pData,dbdatlen(dbproc, 3));
        if(pData=dbdata(dbproc, 4))
dbconvert (dbproc,SQLNUMERIC,pData,sizeof(DBNUMERIC),
        SQLFLTNT,(CHAR *) &pnod->Ol[i].ol_i_price,8);
        if(pData=dbdata(dbproc, 5))
dbconvert (dbproc,SQLNUMERIC,pData,sizeof(DBNUMERIC),
        SQLFLTNT,(CHAR *) &pnod->Ol[i].ol_amount,8);
        pnod->total_amount = pnod->total_amount + pnod-
>Ol[i].ol_amount;
    }; // while (dbnextrow)
}; // if (DBROWS && dbnumcols)
}; // if (dbresults)
}; // for (o_ol_cnt)
while ((rc = dbresults(dbproc)) != NO_MORE_RESULTS) &&
    (rc != FAIL)
{
    if (DBROWS(dbproc) && (dbnumcols(dbproc) == 8))
    {
        while ((rc = dbnextrow(dbproc)) != NO_MORE_ROWS) &&
            (rc != FAIL)
        {
            if(pData=dbdata(dbproc, 1))
            dbconvert (dbproc,SQLNUMERIC,pData,sizeof(DBNUMERIC),
                SQLFLTNT,(CHAR *) &pnod->w_tax,8);
            if(pData=dbdata(dbproc, 2))
            dbconvert (dbproc,SQLNUMERIC,pData,sizeof(DBNUMERIC),
                SQLFLTNT,(CHAR *) &pnod->d_tax,8);
            if(pData=dbdata(dbproc, 3))
                pnod->o_id = (*(DBINT *) pData);
            if(pData=dbdata(dbproc, 4))
                UtilStrCpy(pnod->c_last,pData,dbdatlen(dbproc,4));
            if(pData=dbdata(dbproc, 5))
            dbconvert (dbproc,SQLNUMERIC,pData,sizeof(DBNUMERIC),
                SQLFLTNT,(CHAR *) &pnod->c_discount,8);
            if(pData=dbdata(dbproc, 6))
                UtilStrCpy(pnod-
>c_credit,pData,dbdatlen(dbproc,6));
            if(pData=dbdata(dbproc, 7))
            {
                datetime = *((DBDATETIME *) pData);
                dbdatecrack(dbproc,&pnod->o_entry_d,&datetime);
            };
            if(pData=dbdata(dbproc, 8))
                commit_flag = (*(DBTINYINT *) pData);
        }; // while (dbnextrow)
    }; // if (DBROWS && dbnumcols)
}; // while (dbresults)
}; // if (dbrcpexec)
}; // if (dbrcpinit)
if (bDeadlock)
{
    num_deadlocks++;
    bDeadlock = FALSE;
    userlog("NewOrder Deadlock Retry (%d)",num_deadlocks);
    Sleep(10 * tryit);
}
else
{

```

```

        if (commit_flag == 1)
        {
            pnod->total_amount = pnod->total_amount *
                ((1 + pnod->w_tax + pnod->d_tax) * (1 - pnod->c_discount));
            strcpy(pnod->execution_status,"Transaction committed.");
            return(SVC_NOERROR);
        }
        else
        {
            strcpy(pnod->execution_status,"Item number is not valid.");
            return(SVC_BADITEMID);
        }
    }; // !bDeadlock
}; // for (tryit)

// If we reached here, it means we quit after MAX_RETRY deadlocks
strcpy(pnod->execution_status,"Hit deadlock max.");
userlog("NewOrder Deadlock Failure (%d)",num_deadlocks);
return(SVCERR_DEADLOCK);
}; // SQLNewOrder

//=====
// FUNCTION: SQLPayment
//
// Handles the payment transaction.
//
// ARGUMENTS:
// PAYMENT_DATA Payment input/output data structure
// dbdata (global)
// bDeadlock (global)
//
// RETURNS:
// SVC_NOERROR success
// !SVC_NOERROR failure
//
// COMMENTS: None
//
//=====
int SQLPayment(PAYMENT_DATA *ppd)
{
    RETCODE rc;
    int tryit;
    short num_deadlocks = 0;
    DBDATETIME datetime;
    BYTE * pData;

    bFailed = FALSE;
    bDeadlock = FALSE;

    for (tryit=0; tryit < DeadlockRetry; tryit++)
    {
        if (dbrcpinit(dbproc,"tpcc_payment",0) == SUCCEED)
        {
            dbrcpparam(dbproc,NULL,0,SQLINT2,-1,-1,(BYTE *) &ppd->w_id);
            dbrcpparam(dbproc,NULL,0,SQLINT2,-1,-1,(BYTE *) &ppd->c_w_id);
            dbrcpparam(dbproc,NULL,0,SQLFLT8,-1,-1,(BYTE *) &ppd->h_amount);
            dbrcpparam(dbproc,NULL,0,SQLINT1,-1,-1,(BYTE *) &ppd->d_id);
            dbrcpparam(dbproc,NULL,0,SQLINT1,-1,-1,(BYTE *) &ppd->c_d_id);
            dbrcpparam(dbproc,NULL,0,SQLINT4,-1,-1,(BYTE *) &ppd->c_id);
            if (ppd->c_id == 0)

```

```

    {
        dbrpcparam(dbproc, NULL, 0, SQLCHAR, -1, strlen(ppd->c_last), ppd-
>c_last);
    };
};
if (dbrpcexec(dbproc) == SUCCEED)
{
    while ((rc = dbresults(dbproc)) != NO_MORE_RESULTS) && (rc !=
FAIL))
    {
        if (DBROWS(dbproc) && (dbnumcols(dbproc) == 27))
        {
            while ((rc = dbnextrow(dbproc)) != NO_MORE_ROWS) && (rc !=
FAIL))
            {
                if (pData=dbdata(dbproc, 1))
                    ppd->c_id = *((DBINT *) pData);
                if (pData=dbdata(dbproc, 2))
                    UtilStrCpy(ppd->c_last, pData, dbdatlen(dbproc, 2));
                if (pData=dbdata(dbproc, 3))
                {
                    datetime = *((DBDATETIME *) pData);
                    dbdatecrack(dbproc, &ppd->h_date, &datetime);
                };
                if (pData=dbdata(dbproc, 4))
                    UtilStrCpy(ppd->w_street_1, pData, dbdatlen(dbproc, 4));
                if (pData=dbdata(dbproc, 5))
                    UtilStrCpy(ppd->w_street_2, pData, dbdatlen(dbproc, 5));
                if (pData=dbdata(dbproc, 6))
                    UtilStrCpy(ppd->w_city, pData, dbdatlen(dbproc, 6));
                if (pData=dbdata(dbproc, 7))
                    UtilStrCpy(ppd->w_state, pData, dbdatlen(dbproc, 7));
                if (pData=dbdata(dbproc, 8))
                    UtilStrCpy(ppd->w_zip, pData, dbdatlen(dbproc, 8));
                if (pData=dbdata(dbproc, 9))
                    UtilStrCpy(ppd->d_street_1, pData, dbdatlen(dbproc, 9));
                if (pData=dbdata(dbproc, 10))
                    UtilStrCpy(ppd-
>d_street_2, pData, dbdatlen(dbproc, 10));
                if (pData=dbdata(dbproc, 11))
                    UtilStrCpy(ppd->d_city, pData, dbdatlen(dbproc, 11));
                if (pData=dbdata(dbproc, 12))
                    UtilStrCpy(ppd->d_state, pData, dbdatlen(dbproc, 12));
                if (pData=dbdata(dbproc, 13))
                    UtilStrCpy(ppd->d_zip, pData, dbdatlen(dbproc, 13));
                if (pData=dbdata(dbproc, 14))
                    UtilStrCpy(ppd->c_first, pData, dbdatlen(dbproc, 14));
                if (pData=dbdata(dbproc, 15))
                    UtilStrCpy(ppd->c_middle, pData, dbdatlen(dbproc, 15));
                if (pData=dbdata(dbproc, 16))
                    UtilStrCpy(ppd-
>c_street_1, pData, dbdatlen(dbproc, 16));
                if (pData=dbdata(dbproc, 17))
                    UtilStrCpy(ppd-
>c_street_2, pData, dbdatlen(dbproc, 17));
                if (pData=dbdata(dbproc, 18))
                    UtilStrCpy(ppd->c_city, pData, dbdatlen(dbproc, 18));
                if (pData=dbdata(dbproc, 19))
                    UtilStrCpy(ppd->c_state, pData, dbdatlen(dbproc, 19));
                if (pData=dbdata(dbproc, 20))
                    UtilStrCpy(ppd->c_zip, pData, dbdatlen(dbproc, 20));

```

```

                if (pData=dbdata(dbproc, 21))
                    UtilStrCpy(ppd->c_phone, pData, dbdatlen(dbproc, 21));
                if (pData=dbdata(dbproc, 22))
                {
                    datetime = *((DBDATETIME *) pData);
                    dbdatecrack(dbproc, &ppd->c_since, &datetime);
                };
                if (pData=dbdata(dbproc, 23))
                    UtilStrCpy(ppd->c_credit, pData, dbdatlen(dbproc, 23));
                if (pData=dbdata(dbproc, 24))
                    dbconvert(dbproc, SQLNUMERIC, pData, sizeof(DBNUMERIC),
SQLFLTN, (CHAR *) &ppd->c_credit_lim, 8);
                if (pData=dbdata(dbproc, 25))
                    dbconvert(dbproc, SQLNUMERIC, pData, sizeof(DBNUMERIC),
SQLFLTN, (CHAR *) &ppd->c_discount, 8);
                if (pData=dbdata(dbproc, 26))
                    dbconvert(dbproc, SQLNUMERIC, pData, sizeof(DBNUMERIC),
SQLFLTN, (CHAR *) &ppd->c_balance, 8);
                if (pData=dbdata(dbproc, 27))
                    UtilStrCpy(ppd->c_data, pData, dbdatlen(dbproc, 27));
            }; // while (dbnextrow)
        }; // if (DBROWS && dbnumcols)
    }; // while (dbresults)
}; // if (dbrpcexe)
if (bDeadlock)
{
    num_deadlocks++;
    bDeadlock = FALSE;
    userlog("Payment Deadlock Retry (%d)", num_deadlocks);
    Sleep(10 * tryit);
}
else
{
    if (ppd->c_id == 0)
    {
        strcpy(ppd->execution_status, "Invalid Customer id, name.");
        return(SVCERR_NOCUSTOMER);
    }
    else
        strcpy(ppd->execution_status, "Transaction committed.");
    return(SVC_NOERROR);
}; // !bDeadlock
}; // for (tryit)

// If we reached here, it means we quit after MAX_RETRY deadlocks
strcpy(ppd->execution_status, "Hit deadlock max.");
userlog("Payment Deadlock Failure (%d)", num_deadlocks);
return(SVCERR_DEADLOCK);
}; // SQLPayment

//=====
// FUNCTION: SQLOrderStatus
//
// Handles the Order Status transaction.
//
// ARGUMENTS:
// ORDER_STATUS_DATA      Payment input/output data structure
// dbdata (global)
// bDeadlock (global)
//

```

```

// RETURNS:
//   SVC_NOERROR success
//   !SVC_NOERROR failure
//
// COMMENTS:   None
//
//=====
int SQLOrderStatus(ORDER_STATUS_DATA * posd)
{
    RETCODE rc;
    int tryit;
    short num_deadlocks = 0;
    int i;
    DBDATETIME datetime;
    BYTE * pData;

    bFailed = FALSE;
    bDeadlock = FALSE;

    for (tryit=0; tryit < DeadlockRetry; tryit++)
    {
        if (dbrpcinit(dbproc,"tpcc_orderstatus", 0) == SUCCEED)
        {
            dbrpcparam(dbproc,NULL,0,SQLINT2,-1,-1,(BYTE *) &posd->w_id;
            dbrpcparam(dbproc,NULL,0,SQLINT1,-1,-1,(BYTE *) &posd->d_id;
            dbrpcparam(dbproc,NULL,0,SQLINT4,-1,-1,(BYTE *) &posd->c_id;
            if (posd->c_id == 0)
            {
                dbrpcparam(dbproc,NULL,0,SQLCHAR,-1,strlen(posd->c_last),posd-
                >c_last);
            };
        };
        if (dbrpcexec(dbproc) == SUCCEED)
        {
            while (((rc = dbresults(dbproc)) != NO_MORE_RESULTS) && (rc !=
            FAIL))
            {
                if (DBROWS(dbproc) && (dbnumcols(dbproc) == 5))
                {
                    i = 0;
                    while (((rc = dbnextrow(dbproc)) != NO_MORE_ROWS) && (rc !=
                    FAIL))
                    {
                        if(pData=dbdata(dbproc,1))
                            posd->OlOrderStatusData[i].ol_supply_w_id =
                            (*DBSMALLINT *) pData);
                        if(pData=dbdata(dbproc,2))
                            posd->OlOrderStatusData[i].ol_i_id = (*DBINT *)
                            pData);
                        if(pData=dbdata(dbproc,3))
                            posd->OlOrderStatusData[i].ol_quantity =
                            (*DBSMALLINT *) pData);
                        if(pData=dbdata(dbproc,4))
                            dbconvert(dbproc,SQLNUMERIC,pData,sizeof(DBNUMERIC),
                            SQLFLTN,(CHAR *) &posd-
                            >OlOrderStatusData[i].ol_amount,8);
                        if(pData=dbdata(dbproc,5))
                        {
                            datetime = *((DBDATETIME *) pData);
                            dbdatecrack(dbproc,&posd-
                            >OlOrderStatusData[i].ol_delivery_d,&datetime);

```

```

};
        i++;
    }; // while (dbnextrow)
    posd->o_ol_cnt = i;
} // if (DBROWS && dbnumcols == 5)
else
if (DBROWS(dbproc) && (dbnumcols(dbproc) == 8))
{
    while (((rc = dbnextrow(dbproc)) != NO_MORE_ROWS) && (rc !=
    FAIL))
    {
        if(pData=dbdata(dbproc,1))
            posd->c_id = (*(DBINT *) pData);
        if(pData=dbdata(dbproc,2))
            UtilStrCpy(posd->c_last,pData,dbdatlen(dbproc,2));
        if(pData=dbdata(dbproc,3))
            UtilStrCpy(posd->c_first,pData,dbdatlen(dbproc,3));
        if(pData=dbdata(dbproc,4))
            UtilStrCpy(posd->c_middle,pData,dbdatlen(dbproc,4));
        if(pData=dbdata(dbproc,5))
        {
            datetime = *((DBDATETIME *) pData);
            dbdatecrack(dbproc,&posd->o_entry_d,&datetime);
        };
        if(pData=dbdata(dbproc,6))
            posd->o_carrier_id = (*(DBSMALLINT *) pData);
        if(pData=dbdata(dbproc,7))
            dbconvert(dbproc,SQLNUMERIC,pData,sizeof(DBNUMERIC),
            SQLFLTN,(CHAR *) &posd->c_balance,8);
        if(pData=dbdata(dbproc,8))
            posd->o_id = (*(DBINT *) pData);
    }; // while (dbnextrow)
}; // if (DBROWS && dbnumcols == 8)
if (i==0)
    return(SVCERR_NOORDERS); // "No orders found for customer"
}; // while (dbresults)
}; // if (dbrpcexec)
if (bDeadlock)
{
    num_deadlocks++;
    bDeadlock = FALSE;
    userlog("OrderStatus Deadlock Retry (%d)",num_deadlocks);
    Sleep(10 * tryit);
}
else
{
    if (posd->c_id == 0 && posd->c_last[0] == 0)
    {
        strcpy(posd->execution_status,"Invalid Customer id,name.");
        return(SVCERR_NOCUSTOMER);
    }
    else
        strcpy(posd->execution_status,"Transaction committed.");
    return(SVC_NOERROR);
}; // !bDeadlock
}; // for (tryit)

// If we reached here, it means we quit after MAX_RETRY deadlocks
strcpy(posd->execution_status,"Hit deadlock max.");
userlog("OrderStatus Deadlock Failure (%d)",num_deadlocks);
return(SVCERR_DEADLOCK);

```

```

}; // SQLOrderStatus

//=====
// FUNCTION: UtilStrCpy
//
// Copies n characters from string pSrc to pDst and places a null
// null character at the end of the destination string. Unlike
// strncpy this function ensures that the result string is always
// null terminated.
//
//=====
void UtilStrCpy(char * pDest, char * pSrc, int n)
{
    strncpy(pDest, pSrc, n);
    pDest[n] = '\0';
    return;
}; // UtilStrCpy

//=====
//
// Function name: GetArgs
//
//=====
VOID GetArgs(INT argc, CHAR **argv)
{
    INT j;
    CHAR * ptr;
    BOOL bRslt = TRUE;

    for (j = 1; j < argc; ++j)
    {
        ptr = argv[j];
        switch (ptr[1])
        {
            case 's':
            case 'S':
                strcpy(szServer,ptr+2);
                break;

            case 'd':
            case 'D':
                strcpy(szDatabase,ptr+2);
                break;

        }; // switch(ptr[1])
    }; // for (j = 1; j < argc; ++j)
}; // GetArgs

```

tpccdelv.c

```

// tpccdelv.// tpccdelv.c
//
// Copyright Unisys, 1997
// Copyright Microsoft, 1996

#include <windows.h>
#include <malloc.h>
#include <stdarg.h>
#include <stdio.h>

```

```

#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <sys\timeb.h>

#include <atmi.h>
#include <userlog.h>

#include "tpccsvr.h"

int    iServerNo = 0;
char    szServer[32]    = "tpccdelv";
char    szUser[32]      = { 0 };
char    szPassword[32] = { 0 };
char    szDatabase[32] = "tpcc";
char    szService[16]  = "tpccdelv";
char    szWork[200];

PDBPROCESS    dbproc;
int    spid; // spid assigned from dblib
BOOL    bFailed;
BOOL    bDeadlock;
short    DeadlockRetry = (short)10;

FILE *fpLog;
char    szLogTitle[32];
BOOL    bFlush = FALSE; // flush after every write

int    err_handler(DBPROCESS *dbproc,int severity,int dberr,int oserr,
                    char *dberrstr, char *oserrstr);
int    msg_handler(DBPROCESS *dbproc,DBINT msgno,int msgstate,
                    int severity,char *msgtext);
void    WriteLog(DELIVERY_DATA * pdd);
BOOL    OpenLogFile(void);
void    CalculateElapsed(int * pElapsed,LPSYSTEMTIME lpBegin,
                        LPSYSTEMTIME lpEnd);
void    UtilStrCpy(char * pDest, char * pSrc, int n);
void    GetArgs(INT argc, CHAR **argv);

//=====
//
// Function name: tpsvrrinit
//
//=====
tpsvrrinit(int argc, char *argv[])
{
    GetArgs(argc,argv);
    iServerNo = _getpid();
    sprintf(szWork,"%s%d Started, DBServer=%s, DB=%s",
            szService,iServerNo,szServer,szDatabase);
    userlog(szWork);
    if (OpenLogFile())
        return(-1);
    if (SQLInit(szServer,szDatabase,szUser,szPassword))
        return(-1);
    userlog("Database open, initialization complete");
    return(0);
}; // tpsvrrinit

//=====
//

```



```

// Function name: tpsvrdone
//
//=====
void tpsvrdone()
{
    userlog("Shutdown request for tpccdelv server");
    if ( fpLog )
        fclose(fpLog);
    dbclose(dbproc);
    dbexit();
}; // tpsvrdone

//=====
//
// Function name: DELIVERY
//
// Entry point called by tuxedo for DELIVERY service requests.
//
//=====
void DELIVERY(TPSVCINFO * svcinfo)
{
    int iRslt;
    DELIVERY_DATA * pdd;

    pdd = (DELIVERY_DATA *) svcinfo->data;
    iRslt = SQLDelivery(pdd);
    WriteLog(pdd);

    // Check for DBLib termination error
    if (bFailed)
    {
        strcpy(pdd->execution_status,szWork);
        userlog(szWork);
        tpreturn(TPFAIL,SVCERR_DBLIB,svcinfo->data,svcinfo->len,0);
    }
    else
    if (iRslt == 0)
        tpreturn(TPSUCCESS,0,svcinfo->data,svcinfo->len,0);
    else
        tpreturn(TPFAIL,iRslt,svcinfo->data,svcinfo->len,0);
}; // DELIVERY

//=====
//
// Function name: SQLInit
//
// Set global dbproc and spid.
//
// Result:
// FALSE - database open, dbproc valid
// TRUE - database open failed
//
//=====
BOOL SQLInit(CHAR * pSvr,CHAR * pDB,CHAR * pUsr,CHAR * pPW,CHAR * pSvc)
{
    char szApp[32];
    char server[256];
    char database[256];
    char user[256];
    char password[256];

```

```

LOGINREC *login;

dbinit();
// install error and message handlers
dbmsghandle((DBMSGHANDLE_PROC)msg_handler);
dberrhandle((DBERRHANDLE_PROC)err_handler);

dbproc = NULL;
strcpy(server,pSvr);
strcpy(database,pDB);
strcpy(user,pUsr);
strcpy(password,pPW);
sprintf(szApp,"%s%d",pSvc,_getpid());

login = dblogin();
if (!*user )
    DBSETLUSER(login,"sa");
else
    DBSETLUSER(login,user);
DBSETLPWD(login,password);
DBSETLHOST(login,szApp);
DBSETLVERSION(login, DBVER60);
// DBSETLPACKET(login,(unsigned short)DEFCLPACKSIZE);

if ((dbproc = dbopen(login,server)) == NULL)
{
    userlog("dbopen failed");
    return TRUE;
};
// Use the the right database
dbuse(dbproc,database);
dbcmd(dbproc,"select @@spid");
dbsqlxec(dbproc);
while (dbresults(dbproc) != NO_MORE_RESULTS)
{
    dbbind(dbproc,1,SMALLBIND,(DBINT) 0,(BYTE *) spid);
    while (dbnextrow(dbproc) != NO_MORE_ROWS)
        ;
};

dbcmd(dbproc,"set nocount on");
dbsqlxec(dbproc);
while (dbresults(dbproc) != NO_MORE_RESULTS)
{
    while (dbnextrow(dbproc) != NO_MORE_ROWS)
        ;
};

//rollback transaction on abort
dbcmd(dbproc,"set XACT_ABORT ON");
dbsqlxec(dbproc);
while (dbresults(dbproc) != NO_MORE_RESULTS)
{
    while (dbnextrow(dbproc) != NO_MORE_ROWS)
        ;
};

return(FALSE);
}; // SQLInit

```

```

//=====
// FUNCTION: err_handler
//
//   Handles DB-Library errors
//
// ARGUMENTS:
//   DBPROCESS *dbproc   DBPROCESS id pointer
//   int        severity severity of error
//   int        dberr     error id
//   int        oserr     operating system specific error code
//   char       *dberrstr printable error description of dberr
//   char       *oserrstr printable error description of oserr
//
// RETURNS:
//   int        INT_CANCEL
//
// COMMENTS:   None
//=====
int err_handler(DBPROCESS *dbproc, int severity, int dberr, int oserr,
char *dberrstr, char *oserrstr)
{
    if ((dbproc == NULL) || (DBDEAD(dbproc)))
    {
        userlog("ErrHandler: DBPROC is invalid");
        return INT_CANCEL;
    };
    if (bFailed)
        return INT_CANCEL;
    if (oserr != DBNOERR)
    {
        sprintf(szWork,"ErrHandler: OSErr(%ld) - %s",oserr,oserrstr);
        userlog(szWork);
        bFailed = TRUE;
    };

    return INT_CANCEL;
}; // err_handler

//=====
// FUNCTION: msg_handler
//
//   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 operation
//           INT_CANCEL      cancel operation
//
// COMMENTS:   This function also sets the dead lock dbproc
//             variable if necessary.
//=====
int msg_handler(DBPROCESS *dbproc, DBINT msgno, int msgstate, int
severity, char *msgtext)
{
    if ((msgno == 5701) || (msgno == 2528) ||
        (msgno == 5703) || (msgno == 6006))
        return INT_CONTINUE;

    // deadlock message
    if (msgno == 1205)
    {
        // set the deadlock indicator
        bDeadlock = TRUE;
        return INT_CONTINUE;
    };

    if (bFailed)
        return INT_CANCEL;

    if (msgno == 0)
        return INT_CONTINUE;
    else
    {
        sprintf(szWork,"MsgHandler: MsgNo(%ld) - %s",msgno,msgtext);
        userlog(szWork);
        bFailed = TRUE;
    };

    return INT_CANCEL;
}; // msg_handler

//=====
// FUNCTION: SQLDelivery
//
// ARGUMENTS:
//   pdd      delivery transaction structure
//   dbdata   (global)
//   bDeadlock (global)
//
// RETURNS:
//   SVC_NOERROR success
//   !SVC_NOERROR failure
//
// COMMENTS:   None
//=====
int SQLDelivery(DELIVERY_DATA * pdd)
{
    RETCODE rc;
    int i;
    short num_deadlocks = 0;
    int tryit;
    DBDATETIME datetime;
    BYTE * pData;

    bFailed = FALSE;
    bDeadlock = FALSE;
    pdd->iComplete = 0;

    for (tryit=0; tryit < DeadlockRetry; tryit++)
    {
        if (dbrpcinit(dbproc,"tpcc_delivery",0) == SUCCEEDED)

```



```

//
// COMMENTS:
// None
//
//=====
void CalculateElapsed(int * pElapsed,LPSYSTEMTIME lpBegin,
                    LPSYSTEMTIME lpEnd)
{
    int tmBegin;
    int tmEnd;

    tmBegin = (lpBegin->wHour * 3600000) + (lpBegin->wMinute * 60000) +
              (lpBegin->wSecond * 1000) + lpBegin->wMilliseconds;
    tmEnd = (lpEnd->wHour * 3600000) + (lpEnd->wMinute * 60000) +
           (lpEnd->wSecond * 1000) + lpEnd->wMilliseconds;
    *pElapsed = tmEnd - tmBegin;

    // Check for day boundry, this will function for 24 hour period but
    // will fail over a 48 hours period.
    if (*pElapsed < 0)
        *pElapsed = *pElapsed + (24 * 60 * 60 * 1000);
    return;
}; // CalculateElapsed

//=====
// FUNCTION: UtilStrCpy
//
// Copies n characters from string pSrc to pDst and places a null
// 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 strcpy this function ensures that the result string is
// always null terminated.
//
//=====
void UtilStrCpy(char * pDest, char * pSrc, int n)
{
    strcpy(pDest, pSrc, n);
    pDest[n] = '\0';
    return;
}; // UtilStrCpy

//=====
// Function name: GetArgs
//
//=====
void GetArgs(INT argc, CHAR **argv)
{
    INT j;
    CHAR * ptr;
    BOOL bRslt = TRUE;

    for (j = 1; j < argc; ++j)

```

```

{
    ptr = argv[j];
    switch (ptr[1])
    {
        case 's':
        case 'S':
            strcpy(szServer,ptr+2);
            break;

        case 'd':
        case 'D':
            strcpy(szDatabase,ptr+2);
            break;

        case 'F':
        case 'f':
            bFlush = TRUE; //turn on delilog flush when written.
            break;
    }; // switch(ptr[1])
}; // for (j = 1; j < argc; ++j)
}; // GetArgs

```

DELIVERY REPORT MAKEFILE

```

# Microsoft Developer Studio Generated NMAKE File, Format Version 4.20
# ** DO NOT EDIT **

# TARGETTYPE "Win32 (x86) Console Application" 0x0103

!IF "$(CFG)" == ""
CFG=delirpt - Win32 Debug
!MESSAGE No configuration specified. Defaulting to delirpt - Win32 Debug.
!ENDIF

!IF "$(CFG)" != "delirpt - Win32 Release" && "$(CFG)" !=\
"delirpt - 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 "delirpt.mak" CFG="delirpt - Win32 Debug"
!MESSAGE
!MESSAGE Possible choices for configuration are:
!MESSAGE
!MESSAGE "delirpt - Win32 Release" (based on "Win32 (x86) Console
Application")
!MESSAGE "delirpt - 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
CPP=cl.exe
RSC=rc.exe

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

# PROP BASE Use_MFC 0
# PROP BASE Use_Debug_Libraries 0
# PROP BASE Output_Dir "delirpt_"
# PROP BASE Intermediate_Dir "delirpt_"
# PROP BASE Target_Dir ""
# PROP Use_MFC 0
# PROP Use_Debug_Libraries 0
# PROP Output_Dir "delirpt_"
# PROP Intermediate_Dir "delirpt_"
# PROP Target_Dir ""
OUTDIR=.\delirpt_
INTDIR=.\delirpt_

ALL : "$(OUTDIR)\delirpt.exe"

CLEAN :
-@erase "$(INTDIR)\DELIRPT.OBJ"
-@erase "$(OUTDIR)\delirpt.exe"

"$(OUTDIR)" :
if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

# ADD BASE CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE"
/YX /c
# ADD CPP /nologo /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE" /YX /c
CPP_PROJ=/nologo /ML /W3 /GX /O2 /D "WIN32" /D "NDEBUG" /D "_CONSOLE" \
/Fp"$(INTDIR)/delirpt.pch" /YX /Fo"$(INTDIR)/" /c
CPP_OBJS=.\delirpt_
CPP_SBRS=.\
# ADD BASE RSC /l 0x409 /d "NDEBUG"
# ADD RSC /l 0x409 /d "NDEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)/delirpt.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
cmdlg32.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 cmdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:console /machine:I386
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib cmdlg32.lib \
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib \
odbccp32.lib /nologo /subsystem:console /incremental:no \
/pdb:"$(OUTDIR)/delirpt.pdb" /machine:I386 /out:"$(OUTDIR)/delirpt.exe"
LINK32_OBJS= \
"$(INTDIR)\DELIRPT.OBJ"

"$(OUTDIR)\delirpt.exe" : "$(OUTDIR)" $(DEF_FILE) $(LINK32_OBJS)
$(LINK32) @<<
```

```
$(LINK32_FLAGS) $(LINK32_OBJS)
<<
!ELSEIF "$(CFG)" == "delirpt - 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 ""
OUTDIR=.\Debug
INTDIR=.\Debug

ALL : "$(OUTDIR)\delirpt.exe"

CLEAN :
-@erase "$(INTDIR)\DELIRPT.OBJ"
-@erase "$(INTDIR)\vc40.idb"
-@erase "$(INTDIR)\vc40.pdb"
-@erase "$(OUTDIR)\delirpt.exe"
-@erase "$(OUTDIR)\delirpt.ilc"
-@erase "$(OUTDIR)\delirpt.pdb"

"$(OUTDIR)" :
if not exist "$(OUTDIR)/$(NULL)" mkdir "$(OUTDIR)"

# ADD BASE CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" /YX /c
# ADD CPP /nologo /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D "_CONSOLE"
/YX /c
CPP_PROJ=/nologo /MLd /W3 /Gm /GX /Zi /Od /D "WIN32" /D "_DEBUG" /D
"_CONSOLE" \
/Fp"$(INTDIR)/delirpt.pch" /YX /Fo"$(INTDIR)/" /Fd"$(INTDIR)/" /c
CPP_OBJS=.\Debug\
CPP_SBRS=.\
# ADD BASE RSC /l 0x409 /d "_DEBUG"
# ADD RSC /l 0x409 /d "_DEBUG"
BSC32=bscmake.exe
# ADD BASE BSC32 /nologo
# ADD BSC32 /nologo
BSC32_FLAGS=/nologo /o"$(OUTDIR)/delirpt.bsc"
BSC32_SBRS= \

LINK32=link.exe
# ADD BASE LINK32 kernel32.lib user32.lib gdi32.lib winspool.lib
cmdlg32.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 cmdlg32.lib
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib
odbccp32.lib /nologo /subsystem:console /debug /machine:I386
LINK32_FLAGS=kernel32.lib user32.lib gdi32.lib winspool.lib cmdlg32.lib \
advapi32.lib shell32.lib ole32.lib oleaut32.lib uuid.lib odbc32.lib \
odbccp32.lib /nologo /subsystem:console /incremental:yes \
/pdb:"$(OUTDIR)/delirpt.pdb" /debug /machine:I386
/out:"$(OUTDIR)/delirpt.exe"
LINK32_OBJS= \
```

```

"$(INTDIR)\DELIRPT.OBJ"

$(OUTDIR)\delirpt.exe" : "$(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 "delirpt - Win32 Release"
# Name "delirpt - Win32 Debug"

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

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

!ENDIF

#####
#####
# Begin Source File

SOURCE=.\DELIRPT.C

"$(INTDIR)\DELIRPT.OBJ" : $(SOURCE) "$(INTDIR)"

# End Source File
# End Target
# End Project
#####
#####

delirpt.c

/* FILE: DELIRPT.C
* Microsoft TPC-C Kit Ver. 3.00.000
*

```

```

* Copyright Microsoft, 1996
*
* PURPOSE: Delivery report processing application
* Author: Philip Durr
* philipdu@Microsoft.com
*/

#include <windows.h>
#include <stdio.h>
#include <stdlib.h>

#define LOGFILE_READ_EOF 0
//check log file flag return current state
#define LOGFILE_CLEAR_EOF 1
//clear end of log file flag
#define LOGFILE_SET_EOF 2
//set flag end of log file reached

#define INTERVAL .01
//90th percentile calculation bucket

interval

#define ERR_SUCCESS 1000
//success no error
#define ERR_READING_LOGFILE 1001
//io errors occured reading delivery log file
#define ERR_INSUFFICIENT_MEMORY 1002
//insufficient memory to process 90th percentile report
#define ERR_CANNOT_OPEN_RESULTS_FILE 1005
//Cannot open delivery results file delilog.

typedef struct _RPTLINE
{
    SYSTEMTIME start; //delilog report line start time
    SYSTEMTIME end; //delilog report line end time
    int response; //delilog report line time delivery
    int w_id; //delilog report line warehouse id
    int o_carrier_id; //delilog report line carier id for delivery
    int items[10]; //delilog report line delivery line
} RPTLINE, *PRPTLINE;

//error message structure used in ErrorMessage API
typedef struct _SERRORMSG
{
    int iError; //error id of message
    char szMsg[80]; //message to sent to browser
} SERRORMSG;

int versionMS = 4;
//delirpt version
int versionMM = 0;
int versionLS = 0;

```

```

int             iReport;
                //delirpt report to process
int             iStartTime;
                //begin times to accept for report
int             iEndTime;
                //end times to accept for report
FILE            *fpLog;
                //log file stream
CHAR szLogFileTitle[100];
#define DEFAULTLOGTITLE "delilog."

//Local function prototypes
void            main(int argc, char *argv[]);
static int      Init(void);
static void     Restore(void);
static int      DoReport(void);
int             AverageResponse(void);
int             SkippedDelivery(void);
int             Percentile90th(void);
BOOL            CheckTimes(PRPTLINE pRptLine);
static int      OpenLogFile(void);
static void     CloseLogFile(void);
static void     ResetLogFile(void);
static BOOL     LogEOF(int iOperation);
static BOOL     ReadReportLine(char *szBuffer, PRPTLINE pRptLine);
static BOOL     ParseReportLine(char *szLine, PRPTLINE pRptLine);
static BOOL     ParseDate(char *szDate, LPSYSTEMTIME pTime);
static BOOL     ParseTime(char *szTime, LPSYSTEMTIME pTime);
static void     ErrorMessage(int iError);
static BOOL     GetParameters(int argc, char *argv[]);
static void     PrintParameters(void);
static void     PrintHeader(void);
static void     cls(void);
static BOOL     IsNumeric(char *ptr);

/* FUNCTION: int main(int argc, char *argv[])
 *
 * PURPOSE:      This function is the beginning execution point for the
delivery executable.
 *
 * ARGUMENTS:   int          argc    number of command line arguments
passed to delivery
 *              char        *argv[] array of command line
argument pointers
 *
 * RETURNS:      None
 *
 * COMMENTS:    None
 */

void main(int argc, char *argv[])
{
    int iError;

    PrintHeader();

    if ( GetParameters(argc, argv) )
    {
        PrintParameters();

```

```

                return;
            }

    if ( (iError=Init()) != ERR_SUCCESS )
    {
        ErrorMessage(iError);
        Restore();
        return;
    }

    if ( (iError = DoReport()) != ERR_SUCCESS )
        ErrorMessage(iError);

    Restore();

    return;
}

/* FUNCTION: static int Init(void)
 *
 * PURPOSE:      This function initializes the delirtp application.
 *
 * ARGUMENTS:    None
 *
 * RETURNS:      None
 *
 * COMMENTS:     None
 */
static int Init(void)
{
    int iError;

    if ( (iError = OpenLogFile()) )
        return iError;

    return TRUE;
}

/* FUNCTION: static void Restore(void)
 *
 * PURPOSE:      This function cleans up the delirtp application before
termination.
 *
 * ARGUMENTS:    None
 *
 * RETURNS:      None
 *
 * COMMENTS:     None
 */
static void Restore(void)
{
    CloseLogFile();
    return;
}

/* FUNCTION: static int DoReport(void)
 *
 * PURPOSE:      This function dispatches the requested report.

```

```

*
* ARGUMENTS:  None
*
* RETURNS:    ERR_SUCCESS if successfull or error code if an
error occurs.
*
* COMMENTS:   None
*
*/

static int DoReport(void)
{
    int iRc;

    switch(iReport)
    {
        case 1:
            iRc = AverageResponse();
            break;
        case 2:
            iRc = Percentile90th();
            break;
        case 3:
            iRc = SkippedDelivery();
            break;
        case 4:
            if ( (iRc = AverageResponse()) != ERR_SUCCESS )
                break;
            if ( (iRc = Percentile90th()) != ERR_SUCCESS )
                break;
            if ( (iRc = SkippedDelivery()) != ERR_SUCCESS )
                break;
            break;
    }
    return iRc;
}

/* FUNCTION: int AverageResponse(void)
*
* PURPOSE:    This function processes the AverageResponse report.
*
* ARGUMENTS:  None
*
* RETURNS:    ERR_SUCCESS if successfull or error code if an
error occurs.
*
* COMMENTS:   None
*
*/

int AverageResponse(void)
{
    RPTLINE reportLine;
    int      iTotResponse;
    int      iLines;
    double  fAverage;
    char    szDelivery[128];

    ResetLogFile();

    iTotResponse = 0;

```

```

iLines = 0;
printf("\n\n***** Average Response Time Report *****\n");
while ( !LogEOF(LOGFILE_READ_EOF) )
{
    if ( ReadReportLine(szDelivery, &reportLine) )
        return ERR_READING_LOGFILE;
    if ( !LogEOF(LOGFILE_READ_EOF) )
    {
        if ( CheckTimes(&reportLine) )
            continue;
        iLines++;
        iTotResponse += reportLine.response;

        if ( iLines % 10 == 0 )
            printf("Reading Report Line:\t%d\r",
iLines);
    }
}
printf("                                \r");
if ( iLines == 0 )
{
    printf("No deliveries found.\n");
}
else
{
    fAverage = ((double)iTotResponse /
(double)iLines)/(double)1000;
    printf("Total Deliveries:          %10.0f\n", (float)iLines);
    printf("Total Response Times:          %10.3f\n",
((float)iTotResponse/(float)1000));
    printf("Average Response Time: %10.3f\n", fAverage);
}

return ERR_SUCCESS;
}

/* FUNCTION: int Percentile90th(void)
*
* PURPOSE:    This function processes the 90th percentile report.
*
* ARGUMENTS:  None
*
* RETURNS:    ERR_SUCCESS if successfull or error code if an
error occurs.
*
* COMMENTS:   This function requires enough space to allocate needed
buckets which will be 2 * max response time
in
*
*              deci-seconds.
*
*/

int Percentile90th(void)
{
    RPTLINE reportLine;
    int      iBucketSize;
    int      i;
    int      iResponseSeconds;
    int      iMaxSeconds;
    int      iTotBuckets;
    double  iTot;

```



```

double i90thPercent;
short *psBuckets;
char szDelivery[128];

printf("\n\n***** 90th Percentile *****\n");
printf("Calculating Max Response Seconds...\n");

ResetLogFile();

iMaxSeconds = -1;
while ( !LogEOF(LOGFILE_READ_EOF) )
{
    if ( ReadReportLine(szDelivery, &reportLine) )
        return ERR_READING_LOGFILE;
    if ( szDelivery[0] == '*' )
        continue;
    if ( !LogEOF(LOGFILE_READ_EOF) )
    {
        if ( iMaxSeconds < reportLine.response )
            iMaxSeconds = reportLine.response;
    }
}

iTotalBuckets = iMaxSeconds + 1;

printf("Allocating Buckets...\n");

iBucketSize = iTotalBuckets * sizeof(short);

if ( !(psBuckets = (short *)malloc(iBucketSize)) )
    return ERR_INSUFFICIENT_MEMORY;

ZeroMemory(psBuckets, iBucketSize);

iTotal = 0;

ResetLogFile();
printf("Calculating Distribution...\n");

iMaxSeconds = -1;
while ( !LogEOF(LOGFILE_READ_EOF) )
{
    if ( ReadReportLine(szDelivery, &reportLine) )
        return ERR_READING_LOGFILE;
    if ( szDelivery[0] == '*' )
        continue;
    if ( !LogEOF(LOGFILE_READ_EOF) )
    {
        if ( CheckTimes(&reportLine) )
            continue;
        psBuckets[reportLine.response]++;
        iTotal++;
        if ( iMaxSeconds < reportLine.response )
            iMaxSeconds = reportLine.response;
    }
}

printf("Max Response Time = %d.%d\n",
(iMaxSeconds / 1000), (iMaxSeconds % 1000));

i90thPercent = iTotal * .9;

```

```

        for(i=0, iTotal = 0.0; iTotal < i90thPercent; iTotal +=
(double)psBuckets[i] )
            i++;

        printf("90th Percentile = %d.%d\n", i/1000, (i % 1000));

        free(psBuckets);

        return ERR_SUCCESS;
}

/* FUNCTION: int SkippedDelivery(void)
 *
 * PURPOSE:          This function processes the Skipped Deliveries
report.
 *
 * ARGUMENTS:       None
 *
 * RETURNS:         ERR_SUCCESS if successfull or error code if an
error occurs.
 *
 * COMMENTS:        None
 *
 */

int SkippedDelivery(void)
{
    RPTLINE reportLine;
    char szDelivery[128];
    int i;
    int items[10];

    ResetLogFile();

    printf("\n\n***** Skipped Delivery Report *****\n");
    memset(items, 0, sizeof(items));
    printf("Reading Delivery Log File...");

    while ( !LogEOF(LOGFILE_READ_EOF) )
    {
        if ( ReadReportLine(szDelivery, &reportLine) )
            return ERR_READING_LOGFILE;
        if ( !LogEOF(LOGFILE_READ_EOF) )
        {
            if ( CheckTimes(&reportLine) )
                continue;
            for(i=0; i<10; i++)
            {
                if ( !reportLine.items[i] )
                    items[i]++;
            }
        }
    }
    printf("\n");
    printf("Skipped delivery table.\n");
    printf(" 1   2   3   4   5   6   7   8   9   10 \n");
    printf("-----\n");
    for(i=0; i<10; i++)
        printf("%4.4d ", items[i]);
    printf("\n");
}

```

```

        return ERR_SUCCESS;
    }

/* FUNCTION: BOOL CheckTimes(PRPTLINE pRptLine)
 *
 * PURPOSE: This function checks to see if the delilog record falls
 *           within the
 *           begin and end time from the command line.
 *
 * ARGUMENTS: PRPTLINE pRptLine delilog processed report
 *           line.
 *
 * RETURNS: BOOL FALSE if report line is not within the
 *           requested
 *           start and end times.
 *           TRUE if the report line is
 *           within the
 *           requested
 *           start and end times.
 *
 * COMMENTS: If startTime and endTime are both 0 then the user requested
 *           the default behavior which is all records in
 *           delilog are
 *           valid.
 */

BOOL CheckTimes(PRPTLINE pRptLine)
{
    int iRptEndTime;
    int iRptStartTime;

    iRptStartTime = (pRptLine->start.wHour * 3600000) + (pRptLine->start.wMinute * 60000) + (pRptLine->start.wSecond * 1000) + pRptLine->start.wMilliseconds;
    iRptEndTime = (pRptLine->end.wHour * 3600000) + (pRptLine->end.wMinute * 60000) + (pRptLine->end.wSecond * 1000) + pRptLine->end.wMilliseconds;

    if ( iStartTime == 0 && iEndTime == 0 )
        return FALSE;

    if ( iStartTime <= iRptStartTime && iEndTime >= iRptEndTime )
        return FALSE;

    return TRUE;
}

/* FUNCTION: int OpenLogFile(void)
 *
 * PURPOSE: This function opens the delivery log file for use.
 *
 * ARGUMENTS: None
 *
 * RETURNS: int ERR_CANNOT_OPEN_RESULTS_FILE Cannot create
 *           results log file.
 *           ERR_SUCCESS
 *           Log file successfully opened
 *
 * COMMENTS: None

```

```

 *
 */
static int OpenLogFile(void)
{
    fpLog = fopen(szLogFileTitle, "rb");

    if ( !fpLog )
        return ERR_CANNOT_OPEN_RESULTS_FILE;

    return ERR_SUCCESS;
}

/* FUNCTION: int CloseLogFile(void)
 *
 * PURPOSE: This function closes the delivery log file.
 *
 * ARGUMENTS: None
 *
 * RETURNS: None
 *
 * COMMENTS: None
 */

static void CloseLogFile(void)
{
    if ( fpLog )
        fclose(fpLog);

    return;
}

/* FUNCTION: static void ResetLogFile(void)
 *
 * PURPOSE: This function prepares the delilog. file for reading
 *
 * ARGUMENTS: None
 *
 * RETURNS: None
 *
 * COMMENTS: None
 */

static void ResetLogFile(void)
{
    fseek(fpLog, 0L, SEEK_SET);
    LogEOF(LOGFILE_CLEAR_EOF);

    return;
}

/* FUNCTION: static BOOL LogEOF(int iOperation)
 *
 * PURPOSE: This function tracks and reports the end of file condition
 *           on the delilog file.
 *
 * ARGUMENTS: int iOperation requested operation this can be:

```

```

*
* LOGFILE_READ_EOF      check log file flag return current state
*
* LOGFILE_CLEAR_EOF    clear end of log file flag
*
* LOGFILE_SET_EOF      set flag end of log file reached
*
*
* RETURNS:              None
*
* COMMENTS:            None
*
*/

static BOOL LogEOF(int iOperation)
{
    static BOOL bEOF;

    switch(iOperation)
    {
        case LOGFILE_READ_EOF:
            return bEOF;
            break;
        case LOGFILE_CLEAR_EOF:
            bEOF = FALSE;
            break;
        case LOGFILE_SET_EOF:
            bEOF = TRUE;
            break;
    }
    return FALSE;
}

/* FUNCTION: static BOOL ReadReportLine(char *szBuffer, PRPTLINE pRptLine)
*
* PURPOSE:      This function reads a text line from the delilog file.
*               on the delilog file.
*
* ARGUMENTS:   char          *szBuffer      buffer to placed read delilog
file line into.
*               PRPTLINE     pRptLine      returned
structure containing parsed delilog
*
*               report line.
*
* RETURNS:     FALSE  if successfull or TRUE if an error occurs.
*
* COMMENTS:    None
*
*/

static BOOL ReadReportLine(char *szBuffer, PRPTLINE pRptLine)
{
    int i = 0;
    int ch;
    int iEof;

    while( i < 128 )
    {
        ch = fgetc(fpLog);
        if ( iEof = feof(fpLog) )

```

```

        break;
        if ( ch == '\r' )
        {
            if ( i )
                break;
            continue;
        }
        if ( ch == '\n' )
            continue;
        szBuffer[i++] = ch;
    }

    //delivery item format is to long cannot be a valid delivery item
    if ( i >= 128 )
        return TRUE;

    szBuffer[i] = 0;
    if ( iEof )
    {
        LogEOF(LOGFILE_SET_EOF);
        if ( i == 0 )
            return FALSE;
    }
    return ParseReportLine(szBuffer, pRptLine);
}

/* FUNCTION: static BOOL ParseReportLine(char *szLine, PRPTLINE pRptLine)
*
* PURPOSE:      This function reads a text line from the delilog file.
*               on the delilog file.
*
* ARGUMENTS:   char          *szLine      buffer containing the delilog
file line to be parsed.
*               PRPTLINE     pRptLine      returned
structure containing parsed delilog
*
*               report line values.
*
* RETURNS:     FALSE  if successfull or TRUE if an error occurs.
*
* COMMENTS:    None
*
*/

static BOOL ParseReportLine(char *szLine, PRPTLINE pRptLine)
{
    int i;

    if ( ParseDate(szLine, &pRptLine->start) )
        return TRUE;

    pRptLine->end.wYear = pRptLine->start.wYear;
    pRptLine->end.wMonth = pRptLine->start.wMonth;
    pRptLine->end.wDay = pRptLine->start.wDay;

    if ( !(szLine = strchr(szLine, ',')) )
        return TRUE;
    szLine++;

    if ( ParseTime(szLine, &pRptLine->start) )

```

```

        return TRUE;

    if ( !(szLine = strchr(szLine, ',')) )
        return TRUE;
    szLine++;

    if ( ParseTime(szLine, &pRptLine->end) )
        return TRUE;

    if ( !(szLine = strchr(szLine, ',')) )
        return TRUE;
    szLine++;

    if ( !IsNumeric(szLine) )
        return TRUE;
    pRptLine->response = atoi(szLine);

    if ( !(szLine = strchr(szLine, ',')) )
        return TRUE;
    szLine++;

    if ( !IsNumeric(szLine) )
        return TRUE;
    pRptLine->w_id = atoi(szLine);

    if ( !(szLine = strchr(szLine, ',')) )
        return TRUE;
    szLine++;

    if ( !IsNumeric(szLine) )
        return TRUE;
    pRptLine->o_carrier_id = atoi(szLine);

    if ( !(szLine = strchr(szLine, ',')) )
        return TRUE;
    szLine++;

    for(i=0; i<10; i++)
    {
        if ( !IsNumeric(szLine) )
            return TRUE;
        pRptLine->items[i] = atoi(szLine);

        if ( i<9 && !(szLine = strchr(szLine, ',')) )
            return TRUE;
        szLine++;
    }

    return FALSE;
}

/* FUNCTION: static BOOL ParseDate(char *szDate, LPSYSTEMTIME pTime)
 *
 * PURPOSE: This function validates and extracts a date string in the
 format
 *          yy/mm/dd into an SYSTEMTIME structure.
 *
 * ARGUMENTS: char          *szDate      buffer containing the
 date to be parsed.
 *
 *          LPSYSTEMTIME    pTime        system time
 structure where date will be placed.
 *
 * RETURNS: FALSE if successfull or TRUE if an error occurs.
 *
 * COMMENTS: None
 */

```

```

 *
 * RETURNS: FALSE if successfull or TRUE if an error occurs.
 *
 * COMMENTS: None
 *
 */

static BOOL ParseDate(char *szDate, LPSYSTEMTIME pTime)
{
    if ( !isdigit(*szDate) || !isdigit(*(szDate+1)) || *(szDate+2) !=
 '/' ||
        !isdigit(*(szDate+3)) || !isdigit(*(szDate+4)) ||
 *(szDate+5) != '/' ||
        !isdigit(*(szDate+6)) || !isdigit(*(szDate+7)) )
        return TRUE;

    pTime->wYear = atoi(szDate);

    pTime->wMonth = atoi(szDate+3);

    pTime->wDay = atoi(szDate+6);

    if ( pTime->wMonth > 12 || pTime->wMonth < 0 || pTime->wDay > 31
 || pTime->wDay < 0 )
        return TRUE;

    return FALSE;
}

/* FUNCTION: static BOOL ParseTime(char *szTime, LPSYSTEMTIME pTime)
 *
 * PURPOSE: This function validates and extracts a time string in the
 format
 *          hh:mm:ss:mmm into an SYSTEMTIME structure.
 *
 * ARGUMENTS: char          *szTime      buffer containing the
 time to be parsed.
 *
 *          LPSYSTEMTIME    pTime        system time
 structure where date will be placed.
 *
 * RETURNS: FALSE if successfull or TRUE if an error occurs.
 *
 * COMMENTS: None
 */

static BOOL ParseTime(char *szTime, LPSYSTEMTIME pTime)
{
    if ( !isdigit(*szTime) || !isdigit(*(szTime+1)) || *(szTime+2) !=
 ':' ||
        !isdigit(*(szTime+3)) || !isdigit(*(szTime+4)) ||
 *(szTime+5) != ':' ||
        !isdigit(*(szTime+6)) || !isdigit(*(szTime+7)) ||
 *(szTime+8) != ':' ||
        !isdigit(*(szTime+9)) || !isdigit(*(szTime+10)) ||
 !isdigit(*(szTime+11)) )
        return TRUE;

    pTime->wHour = atoi(szTime);
    pTime->wMinute = atoi(szTime+3);
    pTime->wSecond = atoi(szTime+6);
}

```

```

pTime->wMilliseconds = atoi(szTime+9);

if ( pTime->wHour > 23 || pTime->wHour < 0 ||
    pTime->wMinute > 59 || pTime->wMinute < 0 ||
    pTime->wSecond > 59 || pTime->wSecond < 0 ||
    pTime->wMilliseconds < 0 )
    return TRUE;

if ( pTime->wMilliseconds > 999 )
{
    pTime->wSecond += (pTime->wMilliseconds/1000);
    pTime->wMilliseconds = pTime->wMilliseconds % 1000;
}

return FALSE;
}

/* FUNCTION: void ErrorMessage(int iError)
 *
 * PURPOSE: This function displays an error message in the delivery
 * executable's console window.
 *
 * ARGUMENTS: int iError error id to be displayed
 *
 * RETURNS: None
 *
 * COMMENTS: None
 */

static void ErrorMessage(int iError)
{
    int i;

    static SERRORMSG errorMsgs[] =
    {
        { ERR_SUCCESS,
          "Success, no error."
        },
        { ERR_CANNOT_OPEN_RESULTS_FILE,
          "Cannot open delivery results log file."
        },
        { ERR_READING_LOGFILE,
          "Reading delivery log file, Delivery item format incorrect."
        },
        { ERR_INSUFFICIENT_MEMORY,
          "insufficient memory to process 90th percentile report."
        },
        { 0, ""
        }
    };

    for(i=0; errorMsgs[i].szMsg[0]; i++)
    {
        if ( iError == errorMsgs[i].iError )
        {
            printf("\nError(%d): %s\n", iError,
                errorMsgs[i].szMsg);
            return;
        }
    }
}

```

```

}
}
printf("Error(%d): %s", errorMsgs[0].szMsg);
return;
}

/* FUNCTION: BOOL GetParameters(int argc, char *argv[])
 *
 * PURPOSE: This function parses the command line passed in to the
 * delivery executable, initializing
 * and filling in global variable parameters.
 *
 * ARGUMENTS: int argc number of command line arguments
 * passed to delivery char *argv[] array of command line
 * argument pointers
 *
 * RETURNS: BOOL FALSE parameter read successfull
 * TRUE user has requested
 * parameter information screen be displayed.
 *
 * COMMENTS: None
 */

static BOOL GetParameters(int argc, char *argv[])
{
    int i;
    SYSTEMTIME startTime;
    SYSTEMTIME endTime;
    UINT uLogTitleLen;

    iStartTime = 0;
    iEndTime = 0;
    iReport = 4;
    strcpy(szLogFileTitle, DEFAULTLOGTITLE);

    for(i=0; i<argc; i++)
    {
        if ( argv[i][0] == '-' || argv[i][0] == '/' )
        {
            switch(argv[i][1])
            {
                case 'S':
                case 's':
                    if ( ParseTime(argv[i]+2,
                        &startTime) )
                        return TRUE;
                    iStartTime = (startTime.wHour *
                        3600000) + (startTime.wMinute * 60000) + (startTime.wSecond * 1000) +
                        startTime.wMilliseconds;
                    break;
                case 'E':
                case 'e':
                    if ( ParseTime(argv[i]+2, &endTime) )
                        return TRUE;
                    iEndTime = (endTime.wHour * 3600000)
                        + (endTime.wMinute * 60000) + (endTime.wSecond * 1000) +
                        endTime.wMilliseconds;
                    break;
            }
        }
    }
}

```

```

        case 'R':
        case 'r':
            iReport = atoi(argv[i]+2);
            if ( iReport > 4 || iReport < 1 )
                iReport = 4;
            break;
        case 'F':
        case 'f':
            uLogTitleLen = strlen(argv[i] - 2);
            if (uLogTitleLen > 0 && uLogTitleLen <
sizeof(szLogFileTitle))
            {
                strcpy(szLogFileTitle,argv[i]+2);
                printf("Log File Title set to %s",szLogFileTitle);
            };
            break;
        case '?':
            return TRUE;
    }
}
return FALSE;
}

/* FUNCTION: void PrintParameters(void)
*
* PURPOSE: This function displays the supported command line flags.
*
* ARGUMENTS: None
*
* RETURNS: None
*
* COMMENTS: None
*/

static void PrintParameters(void)
{
    PrintHeader();
    printf("DELIRPT:\n\n");
    printf("Parameter
Default\n");
    printf("-----\n");
    printf("-S Start Time HH:MM:SS:MMM
\n");
    printf("-E End Time HH:MM:SS:MMM
\n");
    printf("-R 1)Average Response, 2)90th 3) Skipped 4) All
\n");
    printf("-? This help screen\n\n");
    printf("Note: Command line switches are NOT case sensitive.\n");

    return;
}

/* FUNCTION: void PrintHeader(void)
*
* PURPOSE: This function displays the delivery report applications
banner information.
*/

```

```

* ARGUMENTS: None
*
* RETURNS: None
*
* COMMENTS: None
*/

static void PrintHeader(void)
{
    //cls();

    printf("*****\n");
    printf("*\n");
    printf("** Microsoft SQL Server 7.0\n");
    printf("**\n");
    printf("** HTML TPC-C BENCHMARK KIT: Delivery Report\n");
    printf("** Version %d.%2.2d.%3.3d\n");
    printf("*\n");
    printf("*****\n\n");

    return;
}

/* FUNCTION: void cls(void)
*
* PURPOSE: This function clears the console window
*
* ARGUMENTS: None
*
* RETURNS: None
*
* COMMENTS: None
*/

static void cls(void)
{
    HANDLE hConsole;
    COORD coordScreen = { 0, 0 }; //here's where
we'll home the cursor
    DWORD cCharsWritten;
    CONSOLE_SCREEN_BUFFER_INFO csbi; //to get buffer info
    DWORD dwConSize; //number of character cells in the current buffer

    hConsole = GetStdHandle(STD_OUTPUT_HANDLE);

    //get the number of character cells in the current buffer

    GetConsoleScreenBufferInfo( hConsole, &csbi );
    dwConSize = csbi.dwSize.X * csbi.dwSize.Y;

    //fill the entire screen with blanks
    FillConsoleOutputCharacter( hConsole, (TCHAR) ' ', dwConSize,
coordScreen, &cCharsWritten );
    GetConsoleScreenBufferInfo( hConsole, &csbi );

    //now set the buffer's attributes accordingly

```

```

    FillConsoleOutputAttribute( hConsole, csbi.wAttributes,dwConSize,
coordScreen, &cCharsWritten );

    //put the cursor at (0, 0)
    SetConsoleCursorPosition( hConsole, coordScreen );

    return;
}

/* FUNCTION: BOOL IsNumeric(char *ptr)
*
* PURPOSE:    This function determines if a string is numeric. It fails
if any characters other
*            than numeric and null terminator are present.
*
* ARGUMENTS: char          *ptr    pointer to string to check.
*
* RETURNS:    BOOL    FALSE  if string is not all numeric
*            TRUE    if string contains
only numeric characters i.e. '0' - '9'
*
* COMMENTS:   A comma is counted as a valid delimiter.
*
*/

static BOOL IsNumeric(char *ptr)
{
    if ( *ptr == 0 )
        return FALSE;

    while( *ptr && isdigit(*ptr) )
        ptr++;
    if ( !*ptr || *ptr == ',' )
        return TRUE;
    else
        return FALSE;
}

```


Appendix B - Database Design

Build Scripts

BACKUP.SQL

```
-- File:      BACKUP.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Creates backup of tpcc database

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

backup database tpcc to tpccback1, tpccback2 with init, stats = 5

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go
```

CREATEDB.SQL

```
-- File:      CREATEDB.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Creates tpcc database and backup files
--           for 1545 warehouses.

use master
go

-- remove any existing database and backup files

exec sp_dbremove tpcc, dropdev
exec sp_dropdevice 'tpccback1', delfile
exec sp_dropdevice 'tpccback2', delfile
go

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

-- create main database files

create database tpcc on
    (name="MSSQL70_tpcc_root",filename="C:\MSSQL7\Data\tpcc_root.mdf",
size=10MB, FILEGROWTH=0)
log on
    (name="MSSQL70_tpcc_log",filename="L:",size=49990MB, FILEGROWTH=0)
```

```
-- create filegroups

alter database tpcc add filegroup MSSQL70_misc_fg
alter database tpcc add filegroup MSSQL70_cs_fg

-- add files to filegroups

alter database tpcc add file
    (name="MSSQL70_misc1",filename="M:",size=6490MB, FILEGROWTH=0),
    (name="MSSQL70_misc2",filename="N:",size=6490MB, FILEGROWTH=0),
    (name="MSSQL70_misc3",filename="O:",size=6490MB, FILEGROWTH=0),
    (name="MSSQL70_misc4",filename="P:",size=6490MB, FILEGROWTH=0),
    (name="MSSQL70_misc5",filename="Q:",size=6490MB, FILEGROWTH=0),
    (name="MSSQL70_misc6",filename="R:",size=6490MB, FILEGROWTH=0),
    (name="MSSQL70_misc7",filename="S:",size=6490MB, FILEGROWTH=0)
to filegroup MSSQL70_misc_fg

alter database tpcc add file
    (name="MSSQL70_cs1",filename="E:",size=13490MB, FILEGROWTH=0),
    (name="MSSQL70_cs2",filename="F:",size=13490MB, FILEGROWTH=0),
    (name="MSSQL70_cs3",filename="G:",size=13490MB, FILEGROWTH=0),
    (name="MSSQL70_cs4",filename="H:",size=13490MB, FILEGROWTH=0),
    (name="MSSQL70_cs5",filename="I:",size=13490MB, FILEGROWTH=0),
    (name="MSSQL70_cs6",filename="J:",size=13490MB, FILEGROWTH=0),
    (name="MSSQL70_cs7",filename="K:",size=13490MB, FILEGROWTH=0)
to filegroup MSSQL70_cs_fg

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go

-- create backup devices

exec sp_addumpdevice 'disk','tpccback1','T:\tpccback1.dmp'
exec sp_addumpdevice 'disk','tpccback2','U:\tpccback2.dmp'

go
```

DBOPT1.SQL

```
-- File:      DBOPT1.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- 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
go
```

```

use tpcc
go

checkpoint
go

```

DBOPT2.SQL

```

-- File:      DBOPT2.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Resets database options after data load

```

```

use master
go

```

```

sp_dboption tpcc,'select ',false
go

```

```

sp_dboption tpcc,'trunc. ',false
go

```

```

use tpcc
go

```

```

checkpoint
go

```

```

sp_configure allow,1
go

```

```

reconfigure with override
go

```

```

/*          */
/* Set option values for user-defined indexes */
/*          */

```

```

sp_indexoption 'customer','AllowPageLocks',FALSE
go
sp_indexoption 'district','AllowPageLocks',FALSE
go
sp_indexoption 'warehouse','AllowPageLocks',FALSE
go
sp_indexoption 'stock','AllowPageLocks',FALSE
go
sp_indexoption 'order_line','AllowPageLocks',FALSE
go
sp_indexoption 'orders','AllowPageLocks',FALSE
go
sp_indexoption 'new_order','AllowRowLocks',FALSE
go
sp_indexoption 'item','AllowRowLocks',FALSE
go
sp_indexoption 'item','AllowPageLocks',FALSE
go

```

```

Print ' '
Print '*****'
Print 'Pre-specified Locking Hierarchy:'
Print '  Lockflag = 0 ==> No pre-specified hierarchy'
Print '  Lockflag = 1 ==> Lock at Page-level then Table-level'
Print '  Lockflag = 2 ==> Lock at Row-level then Table-level'
Print '  Lockflag = 3 ==> Lock at Table-level'
Print ' '

```

```

select name,lockflags
from sysindexes
where object_id("warehouse")=id or
      object_id("district")=id or
      object_id("customer")=id or
      object_id("stock")=id or
      object_id("orders")=id or
      object_id("order_line")=id or
      object_id("history")=id or
      object_id("new_order")=id or
      object_id("item")=id
order by lockflags asc
go

```

```

sp_configure allow,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

```

IDXCUSCL.SQL

```

-- File:      IDXCUSCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- 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

```

IDXCUSNC.SQL

```

-- File:      IDXCUSNC.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- 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

```

IDXDISCL.SQL

```

-- File:      IDXDISCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- 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)
    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. 4.00
--           Copyright Microsoft, 1996
-- 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. 4.00
--           Copyright Microsoft, 1996
-- 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. 4.00
--           Copyright Microsoft, 1996
-- 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

```

IDXORDCL.SQL

```

-- File:      IDXORDCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- 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

```

IDXORDNC.SQL

```

-- File:      IDXORDNC.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- 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 unique nonclustered 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

```

IDXSTKCL.SQL

```

-- File:      IDXSTKCL.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Creates clustered index on stock table

```

```

use tpcc
go

```

```

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. 4.00
--           Copyright Microsoft, 1996
-- 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)
    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

```

RESTORE.SQL

```

-- File:      RESTORE.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996

```

```

-- Purpose:   Loads database backup from backup files

declare @startdate datetime
declare @enddate datetime
select @startdate = getdate()
select "Start date:", convert(varchar(30),@startdate,9)

restore database tpcc from tpccback1, tpccback2 with replace, stats = 5

select @enddate = getdate()
select "End date: ", convert(varchar(30),@enddate,9)
select "Elapsed time (in seconds): ", datediff(second, @startdate,
@enddate)

go

```

TABLES.SQL

```

-- File:      TABLES.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Creates TPC-C tables

```

```

use tpcc
go

if exists ( select name from sysobjects where name = 'warehouse' )
    drop table warehouse
go
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

if exists ( select name from sysobjects where name = 'district' )
    drop table district
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

if exists ( select name from sysobjects where name = 'customer' )
    drop table customer
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

if exists ( select name from sysobjects where name = 'history' )
    drop table history
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

if exists ( select name from sysobjects where name = 'new_order' )
    drop table new_order
go
create table new_order
(
    no_o_id                int,
    no_d_id                tinyint,
    no_w_id                smallint
) on MSSQL70_misc_fg
go

if exists ( select name from sysobjects where name = 'orders' )

```

```

    drop table orders
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

if exists ( select name from sysobjects where name = 'order_line' )
    drop table order_line
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

if exists ( select name from sysobjects where name = 'item' )
    drop table item
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

if exists ( select name from sysobjects where name = 'stock' )
    drop table stock
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

```

VERIFYTPCCLOAD

```

use tpcc
print 'WAREHOUSE'
select rows from sysindexes where id=object_id("warehouse")
print 'DISTRICT = (10 * No of warehouses)'
select rows from sysindexes where id=object_id("district")
print 'ITEM = 100,000'
select rows from sysindexes where id=object_id("item")
print 'CUSTOMER = (30,000 * No of warehouses)'
select rows from sysindexes where id=object_id("customer")
print 'ORDERS = (30,000 * No of warehouses)'
select rows from sysindexes where id=object_id("orders")
print 'HISTORY = (30,000 * No of warehouses)'
select rows from sysindexes where id=object_id("history")
print 'STOCK = (100,000 * No of warehouses)'
select rows from sysindexes where id=object_id("stock")
print 'ORDER LINE = (300,000 * No of warehouses + some change)'
select rows from sysindexes where id=object_id("order_line")
print 'NEW_ORDER = (9000 * No of warehouses)'
select rows from sysindexes where id=object_id("new_order")
print '*****Index Check*****'
use tpcc
go
sp_helpindex customer
go
sp_helpindex stock
go
sp_helpindex district
go
sp_helpindex item
go
sp_helpindex new_order
go
sp_helpindex orders
go
sp_helpindex order_line
go
sp_helpindex warehouse
go

```

Stored Procedures

DELIVERY.SQL

```
-- File: DELIVERY.SQL
```

```

--          Microsoft TPC-C Benchmark Kit Ver. 4.00
--          Copyright Microsoft, 1996
-- Purpose:  Creates delivery transaction stored procedure

use tpcc
go

if exists (select name from sysobjects where name = "tpcc_delivery" )
drop procedure tpcc_delivery
go

create proc tpcc_delivery      @w_id          smallint,
                               @o_carrier_id  smallint
as

declare @d_id tinyint,
        @o_id int,
        @c_id int,
        @total numeric(12,2),
        @oid1 int,
        @oid2 int,
        @oid3 int,
        @oid4 int,
        @oid5 int,
        @oid6 int,
        @oid7 int,
        @oid8 int,
        @oid9 int,
        @oid10 int

select @d_id = 0

begin tran d

    while (@d_id < 10)
    begin

        select @d_id = @d_id + 1,
               @total = 0,
               @o_id = 0

        select top 1 @o_id = no_o_id
        from new_order (serializable uplock)
        where no_w_id = @w_id and
              no_d_id = @d_id
        order by no_o_id asc

        if (@@rowcount <> 0)
        begin

-- claim the order for this district

            delete new_order
            where no_w_id = @w_id and
                  no_d_id = @d_id and
                  no_o_id = @o_id

-- set carrier_id on this order (and get customer id)

```

```

update orders
  set o_carrier_id = @o_carrier_id,
      @c_id        = o_c_id
where o_w_id = @w_id and
      o_d_id = @d_id and
      o_id    = @o_id

-- set date in all lineitems for this order (and sum amounts)

update order_line
  set ol_delivery_d = getdate(),
      @total        = @total + ol_amount
where ol_w_id = @w_id and
      ol_d_id = @d_id and
      ol_o_id = @o_id

-- accumulate lineitem amounts for this order into customer

update customer
  set c_balance      = c_balance + @total,
      c_delivery_cnt = c_delivery_cnt + 1

where c_w_id = @w_id and
      c_d_id = @d_id and
      c_id   = @c_id

end

select @oid1 = case @d_id when 1 then @o_id else @oid1 end,
       @oid2 = case @d_id when 2 then @o_id else @oid2 end,
       @oid3 = case @d_id when 3 then @o_id else @oid3 end,
       @oid4 = case @d_id when 4 then @o_id else @oid4 end,
       @oid5 = case @d_id when 5 then @o_id else @oid5 end,
       @oid6 = case @d_id when 6 then @o_id else @oid6 end,
       @oid7 = case @d_id when 7 then @o_id else @oid7 end,
       @oid8 = case @d_id when 8 then @o_id else @oid8 end,
       @oid9 = case @d_id when 9 then @o_id else @oid9 end,
       @oid10 = case @d_id when 10 then @o_id else @oid10 end

end

commit tran d

-- return delivery data to client

select @oid1,
       @oid2,
       @oid3,
       @oid4,
       @oid5,
       @oid6,
       @oid7,
       @oid8,
       @oid9,
       @oid10

go

```

NEWORD.SQL

```

-- File:      NEWORD.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Creates new order transaction stored procedure
--
-- Modified 9/21/98 - Jamie Reding - Microsoft Corporation
--           Reordered @rowcount check so that invalid supply warehouse
id,
--           as well as invalid item id, is detected and causes explicit
--           transaction rollback.
--
use tpcc
go

if exists ( select name from sysobjects where name = "tpcc_neworder" )
drop procedure tpcc_neworder
go

create proc tpcc_neworder
    @w_id          smallint,
    @d_id          tinyint,
    @c_id          int,
    @o_ol_cnt      tinyint,
    @o_all_local   tinyint,
    @i_id1         int = 0, @s_w_id1 smallint =
    @i_id2         int = 0, @s_w_id2 smallint =
    @i_id3         int = 0, @s_w_id3 smallint =
    @i_id4         int = 0, @s_w_id4 smallint =
    @i_id5         int = 0, @s_w_id5 smallint =
    @i_id6         int = 0, @s_w_id6 smallint =
    @i_id7         int = 0, @s_w_id7 smallint =
    @i_id8         int = 0, @s_w_id8 smallint =
    @i_id9         int = 0, @s_w_id9 smallint =
    @i_id10        int = 0, @s_w_id10 smallint
    @i_id11        int = 0, @s_w_id11 smallint
    @i_id12        int = 0, @s_w_id12 smallint
    @i_id13        int = 0, @s_w_id13 smallint
    @i_id14        int = 0, @s_w_id14 smallint
    @i_id15        int = 0, @s_w_id15 smallint

    0, @ol_qty1 smallint = 0,
    0, @ol_qty2 smallint = 0,
    0, @ol_qty3 smallint = 0,
    0, @ol_qty4 smallint = 0,
    0, @ol_qty5 smallint = 0,
    0, @ol_qty6 smallint = 0,
    0, @ol_qty7 smallint = 0,
    0, @ol_qty8 smallint = 0,
    0, @ol_qty9 smallint = 0,
    = 0, @ol_qty10 smallint = 0,
    = 0, @ol_qty11 smallint = 0,
    = 0, @ol_qty12 smallint = 0,
    = 0, @ol_qty13 smallint = 0,
    = 0, @ol_qty14 smallint = 0,
    = 0, @ol_qty15 smallint = 0

as

```



```

declare @w_tax          numeric(4,4),
        @d_tax          numeric(4,4),
        @c_last         char(16),
        @c_credit       char(2),
        @c_discount     numeric(4,4),
        @i_price        numeric(5,2),
        @i_name         char(24),
        @i_data         char(50),
        @o_entry_d      datetime,
        @remote_flag    int,
        @s_quantity     smallint,
        @s_data         char(50),
        @s_dist         char(24),
        @li_no          int,
        @o_id           int,
        @commit_flag    tinyint,
        @li_id         int,
        @li_s_w_id     smallint,
        @li_qty        smallint,
        @ol_number      int,
        @c_id_local     int

begin

begin transaction n

-- get district tax and next available order id and update
-- plus initialize local variables

update district
set      @d_tax          = d_tax,
        @o_id          = d_next_o_id,
        d_next_o_id    = d_next_o_id + 1,
        @o_entry_d     = getdate(),
        @li_no         = 0,
        @commit_flag   = 1
where    d_w_id         = @w_id and
        d_id           = @d_id

-- process orderlines

while (@li_no < @o_ol_cnt)
begin

select @li_no = @li_no + 1

-- set i_id, s_w_id, and qty for this lineitem

select @li_id = case @li_no
        when 1 then @i_id1
        when 2 then @i_id2
        when 3 then @i_id3
        when 4 then @i_id4
        when 5 then @i_id5
        when 6 then @i_id6
        when 7 then @i_id7
        when 8 then @i_id8
        when 9 then @i_id9
        when 10 then @i_id10
        when 11 then @i_id11
        when 12 then @i_id12

```

```

        when 13 then @i_id13
        when 14 then @i_id14
        when 15 then @i_id15
end,

@li_s_w_id = case @li_no
when 1 then @s_w_id1
when 2 then @s_w_id2
when 3 then @s_w_id3
when 4 then @s_w_id4
when 5 then @s_w_id5
when 6 then @s_w_id6
when 7 then @s_w_id7
when 8 then @s_w_id8
when 9 then @s_w_id9
when 10 then @s_w_id10
when 11 then @s_w_id11
when 12 then @s_w_id12
when 13 then @s_w_id13
when 14 then @s_w_id14
when 15 then @s_w_id15
end,

@li_qty = case @li_no
when 1 then @ol_qty1
when 2 then @ol_qty2
when 3 then @ol_qty3
when 4 then @ol_qty4
when 5 then @ol_qty5
when 6 then @ol_qty6
when 7 then @ol_qty7
when 8 then @ol_qty8
when 9 then @ol_qty9
when 10 then @ol_qty10
when 11 then @ol_qty11
when 12 then @ol_qty12
when 13 then @ol_qty13
when 14 then @ol_qty14
when 15 then @ol_qty15
end

-- get item data (no one updates item)

select @i_price = i_price,
        @i_name  = i_name,
        @i_data  = i_data
from    item (tablock repeatableread)
where   i_id = @li_id

-- update stock values

update stock
set      s_ytd          = s_ytd + @li_qty,
        @s_quantity    = s_quantity -
@li_qty +
        case when (s_quantity - @li_qty < 10) then 91 else
s_order_cnt = s_order_cnt + 1,
s_remote_cnt = s_remote_cnt +

```

```

when (@li_s_w_id = @w_id) then 0 else 1 end,
    @s_data      = s_data,
    @s_dist      = case @d_id
                    when 1 then
s_dist_01
                    when 2 then s_dist_02
                    when 3 then s_dist_03
                    when 4 then s_dist_04
                    when 5 then s_dist_05
                    when 6 then s_dist_06
                    when 7 then s_dist_07
                    when 8 then s_dist_08
                    when 9 then s_dist_09
                    when 10 then s_dist_10
                end
where   s_i_id      = @li_id and
       s_w_id      = @li_s_w_id
-- if there actually is a stock (and item) with these ids, go to work
if (@@rowcount > 0)
begin
-- insert order_line data (using data from item and stock)
insert into order_line values (@o_id,
                               @d_id,
                               @w_id,
                               @li_no,
                               @li_id,
                               @li_s_w_id,
                               "dec 31, 1899",
                               @li_qty,
                               @i_price * @li_qty,
                               @s_dist)
-- send line-item data to client
select @i_name,
       @s_quantity,
       b_g = case when (
(patindex("%ORIGINAL%",@i_data) > 0) and
(patindex("%ORIGINAL%",@s_data) > 0) )
       then "B" else "G"
end,
       @i_price,
       @i_price * @li_qty
end

```

```

case
else
begin
-- no item (or stock) found - triggers rollback condition
select "",0,"",0,0
select @commit_flag = 0
end
end
-- get customer last name, discount, and credit rating
select   @c_last      = c_last,
         @c_discount = c_discount,
         @c_credit   = c_credit,
         @c_id_local = c_id
from     customer (repeatableread)
where    c_id        = @c_id and
         c_w_id      = @w_id and
         c_d_id      = @d_id
-- insert fresh row into orders table
insert into orders values (@o_id,
                          @d_id,
                          @w_id,
                          @c_id_local,
                          @o_entry_d,
                          0,
                          @o_ol_cnt,
                          @o_all_local)
-- insert corresponding row into new-order table
insert into new_order values (@o_id,
                              @d_id,
                              @w_id)
-- select warehouse tax
select @w_tax = w_tax
from   warehouse (repeatableread)
where  w_id    = @w_id
if (@commit_flag = 1)
commit transaction n
else
-- all that work for nuthin!!!
rollback transaction n
-- return order data to client
select @w_tax,
       @d_tax,
       @o_id,
       @c_last,
       @c_discount,

```

```

        @c_credit,
        @o_entry_d,
        @commit_flag
end
go

                                ORDSTAT.SQL

-- File:      ORDSTAT.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Creates order status transaction stored procedure

use tpcc
go

if exists ( select name from sysobjects where name = "tpcc_orderstatus" )
    drop procedure    tpcc_orderstatus
go

create proc tpcc_orderstatus @w_id          smallint,
                           @d_id          tinyint,
                           @c_id          int,
                           @c_last       char(16) = ""
as

declare @c_balance         numeric(12,2),
        @c_first          char(16),
        @c_middle         char(2),
        @o_id             int,
        @o_entry_d        datetime,
        @o_carrier_id     smallint,
        @cnt              smallint

begin tran o

    if (@c_id = 0)
        begin

-- get customer id and info using last name

            select @cnt = (count(*)+1)/2
            from customer (repeatableread)
            where c_last = @c_last and
                  c_w_id = @w_id and
                  c_d_id = @d_id

            set rowcount @cnt

            select @c_id = c_id,
                   @c_balance = c_balance,
                   @c_first  = c_first,
                   @c_last   = c_last,
                   @c_middle = c_middle

```

```

        from customer (repeatableread)
        where c_last = @c_last and
              c_w_id = @w_id and
              c_d_id = @d_id
        order by c_w_id, c_d_id, c_last, c_first

        set rowcount 0
        end

    else
        begin

-- get customer info if by id

            select @c_balance = c_balance,
                   @c_first  = c_first,
                   @c_middle = c_middle,
                   @c_last   = c_last
            from customer (repeatableread)
            where c_id = @c_id and
                  c_d_id = @d_id and
                  c_w_id = @w_id

            select @cnt = @@rowcount

        end

-- if no such customer

        if (@cnt = 0)
            begin
                raiserror("Customer not found",18,1)
                goto custnotfound
            end

-- get order info

            select @o_id = o_id,
                   @o_entry_d = o_entry_d,
                   @o_carrier_id = o_carrier_id
            from orders (serializable)
            where o_c_id = @c_id and
                  o_d_id = @d_id and
                  o_w_id = @w_id
            order by o_id asc

-- select order lines for the current order

            select ol_supply_w_id,
                   ol_i_id,
                   ol_quantity,
                   ol_amount,
                   ol_delivery_d
            from order_line (repeatableread)
            where ol_o_id = @o_id and
                  ol_d_id = @d_id and
                  ol_w_id = @w_id

custnotfound:
commit tran o

```

```
-- return data to client
```

```
select @c_id,  
       @c_last,  
       @c_first,  
       @c_middle,  
       @o_entry_d,  
       @o_carrier_id,  
       @c_balance,  
       @o_id
```

```
go
```

PAYMENTS.SQL

```
-- File:      PAYMENT.SQL  
--           Microsoft TPC-C Benchmark Kit Ver. 4.00  
--           Copyright Microsoft, 1996  
-- Purpose:   Creates payment transaction stored procedure
```

```
use tpcc  
go
```

```
if exists (select name from sysobjects where name = "tpcc_payment" )  
    drop procedure tpcc_payment  
go
```

```
create proc tpcc_payment @w_id          smallint,  
                        @c_w_id        smallint,  
                        @h_amount      numeric(6,2),  
                        @d_id          tinyint,  
                        @c_d_id        tinyint,  
                        @c_id          int,  
                        @c_last       char(16) =  
""
```

```
as  
declare @w_street_1 char(20),  
        @w_street_2 char(20),  
        @w_city     char(20),  
        @w_state    char(2),  
        @w_zip      char(9),  
        @w_name     char(10),  
        @d_street_1 char(20),  
        @d_street_2 char(20),  
        @d_city     char(20),  
        @d_state    char(2),  
        @d_zip      char(9),  
        @d_name     char(10),  
        @c_first    char(16),  
        @c_middle   char(2),  
        @c_street_1 char(20),  
        @c_street_2 char(20),  
        @c_city     char(20),  
        @c_state    char(2),  
        @c_zip      char(9),
```

```
@c_phone      char(16),  
@c_since      datetime,  
@c_credit     char(2),  
@c_credit_lim numeric(12,2),  
@c_balance    numeric(12,2),  
@c_discount   numeric(4,4),  
@data        char(500),  
@c_data      char(500),  
@datetime    datetime,  
@w_ytd       numeric(12,2),  
@d_ytd       numeric(12,2),  
@cnt         smallint,  
@val         smallint,  
@screen_data char(200),  
            @d_id_local tinyint,  
            @w_id_local smallint,  
            @c_id_local int
```

```
select @screen_data = ""
```

```
begin tran p
```

```
-- get payment date
```

```
select @datetime = getdate()
```

```
if (@c_id = 0)  
begin
```

```
-- get customer id and info using last name
```

```
select @cnt = count(*)  
from customer (repeatableread)  
where c_last = @c_last and  
      c_w_id = @c_w_id and  
      c_d_id = @c_d_id
```

```
select @val = (@cnt + 1) / 2  
set rowcount @val
```

```
select @c_id = c_id  
from customer (repeatableread)  
where c_last = @c_last and  
      c_w_id = @c_w_id and  
      c_d_id = @c_d_id  
order by c_last, c_first
```

```
set rowcount 0
```

```
end
```

```
-- get customer info and update balances
```

```
update customer set  
    @c_balance = c_balance - @h_amount,  
    c_payment_cnt = c_payment_cnt + 1,  
    c_ytd_payment = c_ytd_payment + @h_amount,  
    @c_first = c_first,  
    @c_middle = c_middle,  
    @c_last = c_last,  
    @c_street_1 = c_street_1,
```

```

        @c_street_2 = c_street_2,
        @c_city     = c_city,
        @c_state    = c_state,
        @c_zip      = c_zip,
        @c_phone    = c_phone,
        @c_credit   = c_credit,
        @c_credit_lim = c_credit_lim,
        @c_discount = c_discount,
        @c_since    = c_since,
        @data       = c_data,
        @c_id_local = c_id
where c_id = @c_id and
      c_w_id = @c_w_id and
      c_d_id = @c_d_id

-- if customer has bad credit get some more info

if (@c_credit = "BC")
begin

-- compute new info

        select @c_data = convert(char(5),@c_id) +
                   convert(char(4),@c_d_id) +
                   convert(char(5),@c_w_id) +
                   convert(char(4),@d_id) +
                   convert(char(5),@w_id) +
                   convert(char(19),@h_amount) +
                   substring(@data, 1, 458)

-- update customer info

        update customer set
           c_data = @c_data
        where c_id = @c_id and
              c_w_id = @c_w_id and
              c_d_id = @c_d_id

        select @screen_data = substring (@c_data,1,200)
end

-- get district data and update year-to-date

update district
set d_ytd = d_ytd + @h_amount,
    @d_street_1 = d_street_1,
    @d_street_2 = d_street_2,
    @d_city = d_city,
    @d_state = d_state,
    @d_zip = d_zip,
    @d_name = d_name,
    @d_id_local = d_id
where d_w_id = @w_id and
      d_id = @d_id

-- get warehouse data and update year-to-date

update warehouse
set w_ytd = w_ytd + @h_amount,
    @w_street_1 = w_street_1,
    @w_street_2 = w_street_2,

```

```

        @w_city = w_city,
        @w_state = w_state,
        @w_zip = w_zip,
        @w_name = w_name,
        @w_id_local = w_id
where w_id = @w_id

-- create history record

insert into history values (@c_id_local,
                           @c_d_id,
                           @c_w_id,
                           @d_id_local,
                           @w_id_local,
                           @datetime,
                           @h_amount,
                           @w_name + "
" + @d_name)

commit tran p

-- return data to client

select @c_id,
       @c_last,
       @datetime,
       @w_street_1,
       @w_street_2,
       @w_city,
       @w_state,
       @w_zip,
       @d_street_1,
       @d_street_2,
       @d_city,
       @d_state,
       @d_zip,
       @c_first,
       @c_middle,
       @c_street_1,
       @c_street_2,
       @c_city,
       @c_state,
       @c_zip,
       @c_phone,
       @c_since,
       @c_credit,
       @c_credit_lim,
       @c_discount,
       @c_balance,
       @screen_data

go

-- File: STOCKLEV.SQL
-- Microsoft TPC-C Benchmark Kit Ver. 4.00
-- Copyright Microsoft, 1996
-- Purpose: Creates stock level transaction stored procedure

```

```

use tpcc
go

if exists (select name from sysobjects where name = "tpcc_stocklevel" )
    drop procedure tpcc_stocklevel
go

create proc tpcc_stocklevel    @w_id          smallint,
                              @d_id          tinyint,
                              @threshold    smallint
as

    declare @o_id_low int,
            @o_id_high int

    select @o_id_low = (d_next_o_id - 20),
           @o_id_high = (d_next_o_id - 1)
    from district
    where d_w_id = @w_id and
           d_id   = @d_id

    select count(distinct(s_i_id))
           from stock, order_line
    where ol_w_id = @w_id and
           ol_d_id = @d_id and
           ol_o_id between @o_id_low and @o_id_high and
           s_w_id = ol_w_id and
           s_i_id = ol_i_id and
           s_quantity < @threshold

go

```

Loader Source

GETARGS.C

```

//      File:          GETARGS.C
//      Microsoft TPC-C Kit Ver. 4.00
//      Copyright Microsoft, 1996, 1997, 1998
//      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':
    {
        pargs->tables_all = FALSE;
        if (strcmp(ptr+2,"item") == 0)
            pargs->table_item = TRUE;
        else if (strcmp(ptr+2,"warehouse")
== 0)
            pargs->table_warehouse =
TRUE;
        else if (strcmp(ptr+2,"customer") ==
0)
            pargs->table_customer = TRUE;
        else if (strcmp(ptr+2,"orders") ==
0)
            pargs->table_orders = TRUE;
        else
        {
            printf("\nUnrecognized command");
            GetArgsLoaderUsage();
            exit(1);
        }
        break;
    }

case 'f':
    pargs->loader_res_file = ptr+2;
    break;

case '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);
}

```

RANDOM.C

```

// File:          RANDOM.C
//               Microsoft TPC-C Kit Ver. 4.00
//               Copyright Microsoft, 1996, 1997, 1998
// Purpose:       Random number generation routines for database
loader

// Includes
#include "tpcc.h"
#include "math.h"

// Defines
#define A        16807
#define M        2147483647
#define Q        127773      /* M div A */
#define R        2836        /* M mod A */
#define Thread   __declspec(thread)

// Globals
long Thread Seed = 0;      /* thread local seed */

/*****
 *
 * random -
 *
 * Implements a GOOD pseudo random number generator. This generator
 *
 */

```

```

 * will/should? run the complete period before repeating.
 *
 *
 * Copied from:
 *
 * Random Numbers Generators: Good Ones Are Hard to Find.
 *
 * Communications of the ACM - October 1988 Volume 31 Number 10
 *
 *
 * Machine Dependencies:
 *
 * long must be 2 ^ 31 - 1 or greater.
 *
 *
 ****/
/*****
 * seed - load the Seed value used in irand and drand. Should be used
before *
 * first call to irand or drand.
 *
 ****/
void seed(long val)
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering seed()...\n", (int) GetCurrentThreadId());
    printf("Old Seed %ld New Seed %ld\n",Seed, val);
#endif

    if ( val < 0 )
        val = abs(val);

    Seed = val;
}

/*****
 *
 *
 * irand - returns a 32 bit integer pseudo random number with a period of
 *
 * 1 to 2 ^ 32 - 1.
 *
 *
 * parameters:
 *
 * none.
 *
 */

```



```

*
*
* returns:
*
*     32 bit integer - defined as long ( see above ).
*
*
*
* side effects:
*
*     seed get recomputed.
*
*****
***/
long irand()
{
    register long    s;        /* copy of seed */
    register long    test;     /* test flag */
    register long    hi;       /* tmp value for speed */
    register long    lo;       /* tmp value for speed */

#ifdef DEBUG
    printf("[%ld]DBG: Entering irand()...\n", (int) GetCurrentThreadId());
#endif

    s = Seed;
    hi = s / Q;
    lo = s % Q;

    test = A * lo - R * hi;
    if ( test > 0 )
        Seed = test;
    else
        Seed = test + M;

    return( Seed );
}

/*****
*
*
* drand - returns a double pseudo random number between 0.0 and 1.0.
*
*     See irand.
*
*****
***/
double drand()
{
#ifdef DEBUG
    printf("[%ld]DBG: Entering drand()...\n", (int) GetCurrentThreadId());
#endif

    return( (double)irand() / 2147483647.0);
}

```

```

//=====
// Function   : RandomNumber
//
// Description:
//=====
long RandomNumber(long lower, long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering RandomNumber()...\n", (int)
GetCurrentThreadId());
#endif

    if ( upper == lower ) /* pgd 08-13-96 perf enhancement */
        return lower;

    upper++;

    if ( upper <= lower )
        rand_num = upper;
    else
        rand_num = lower + irand() % (upper - lower); /* pgd 08-13-
96 perf enhancement */

#ifdef DEBUG
    printf("[%ld]DBG: RandomNumber between %ld & %ld ==> %ld\n",
(int) GetCurrentThreadId(), lower, upper,
rand_num);
#endif

    return rand_num;
}

#if 0
//Original code pgd 08/13/96
long RandomNumber(long lower,
                  long upper)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering RandomNumber()...\n", (int)
GetCurrentThreadId());
#endif

    upper++;

    if ((upper <= lower))
        rand_num = upper;
    else
        rand_num = lower + irand() % ((upper > lower) ? upper -
lower : upper);

#ifdef DEBUG

```

```

        printf("[%ld]DBG: RandomNumber between %ld & %ld ==> %ld\n",
               (int) GetCurrentThreadId(), lower, upper,
               rand_num);
    #endif

    return rand_num;
}
#endif

//=====
// Function   : NURand
//
// Description:
//=====
long NURand(int iConst,
            long x,
            long y,
            long C)
{
    long rand_num;

#ifdef DEBUG
    printf("[%ld]DBG: Entering NURand()...\n", (int)
           GetCurrentThreadId());
#endif

    rand_num = (((RandomNumber(0,iConst) | RandomNumber(x,y)) + C) % (y-
x+1))+x;

#ifdef DEBUG
    printf("[%ld]DBG: NURand: num = %d\n", (int) GetCurrentThreadId(),
           rand_num);
#endif

    return rand_num;
}

```

STRINGS.C

```

//      File:          STRINGS.C
//      Microsoft TPC-C Kit Ver. 4.00
//      Copyright Microsoft, 1996, 1997, 1998
//      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;
    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++)
        str[i] = chArray[RandomNumber(0, chArrayMax)];

```

```

    if ( len < z )
        memset(str+len, ' ', 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;
}

TIME.C

// File: TIME.C
// Microsoft TPC-C Kit Ver. 4.00
// Copyright Microsoft, 1996, 1997, 1998
// Purpose: Source file for time functions

// Includes
#include "tpcc.h"

```

```

// Globals
static long start_sec;

//=====
//
// Function name: TimeNow
//=====
long TimeNow()
{
    long    time_now;
    struct  _timeb el_time;

#ifdef DEBUG
    printf("[%ld]DBG: Entering TimeNow()\n", (int) GetCurrentThreadId());
#endif

    _ftime(&el_time);

    time_now = ((el_time.time - start_sec) * 1000) + el_time.millitm;

    return time_now;
}

```

TPCC.H

```

// File:          TPC.H
//               Microsoft TPC-C Kit Ver. 4.00
//               Copyright Microsoft, 1996, 1997, 1998
// Purpose:       Header file for TPC-C database loader

// Build number of TPC Benchmark Kit
#define TPCKIT_VER    "4.00"

// 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 ORDERS_PER_DIST      3000
#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;
} TPCCCLR_ARGS;

// String length constants
#define SERVER_NAME_LEN      20
#define DATABASE_NAME_LEN   20
#define USER_NAME_LEN       20

```

```

#define PASSWORD_LEN          20
#define TABLE_NAME_LEN      20
#define I_DATA_LEN           50
#define I_NAME_LEN           24
#define BRAND_LEN            1
#define LAST_NAME_LEN        16
#define W_NAME_LEN           10
#define ADDRESS_LEN          20
#define STATE_LEN            2
#define ZIP_LEN              9
#define S_DIST_LEN           24
#define S_DATA_LEN           50
#define D_NAME_LEN           10
#define FIRST_NAME_LEN       16
#define MIDDLE_NAME_LEN      2
#define PHONE_LEN            16
#define CREDIT_LEN           2
#define C_DATA_LEN           500
#define H_DATA_LEN           24
#define DIST_INFO_LEN        24
#define MAX_OL_NEW_ORDER_ITEMS 15
#define MAX_OL_ORDER_STATUS_ITEMS 15
#define STATUS_LEN           25
#define OL_DIST_INFO_LEN     24
#define C_SINCE_LEN          23
#define H_DATE_LEN           23
#define OL_DELIVERY_D_LEN    23
#define O_ENTRY_D_LEN        23

// Functions in random.c
void seed();
long irand();
double drand();
void WUCreate();
short WURand();
long RandomNumber(long lower, long upper);

// Functions in getargs.c;
void GetArgsLoader();
void GetArgsLoaderUsage();

// Functions in time.c
long TimeNow();

// Functions in strings.c
void MakeAddress();
void LastName();
int MakeAlphaString();
int MakeOriginalAlphaString();
int MakeNumberString();
int MakeZipNumberString();
void InitString();
void InitAddress();
void PaddString();

// File:          TPCCLDR.C
//              Microsoft TPC-C Kit Ver. 4.00

```

TPCCLDR.C

```

//              Copyright Microsoft, 1996, 1997, 1998
//              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);

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     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    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);

    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);

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_im_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 2);
    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);

    rc = bcp_bind(i_hdbc1, (BYTE *) &i_price, 0, SQL_VARLEN_DATA,
NULL, 0, SQLFLT8, 4);
    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("idxitmcl");
}

//=====
//
// 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 != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) w_city, 0, ADDRESS_LEN, NULL, 0,
0, 5);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) w_state, 0, STATE_LEN, NULL, 0, 0,
6);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) w_zip, 0, ZIP_LEN, NULL, 0, 0, 7);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &w_tax, 0, SQL_VARLEN_DATA, NULL,
0, SQLFLT8, 8);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &w_ytd, 0, SQL_VARLEN_DATA, NULL,
0, SQLFLT8, 9);
    if (rc != SUCCEEDED)
        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 != SUCCEEDED)
            HandleErrorDBC(w_hdbc1);

        warehouse_rows_loaded++;
        CheckForCommit(w_hdbc1, i_hstmt1, warehouse_rows_loaded,
"warehouse", &time_start);
    }

    rcint = bcp_done(w_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(w_hdbc1);

    printf("Finished loading warehouse table.\n");

```

```

// if build index after load...
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("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*) bcp hint);
        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 != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &d_ytd, 0, SQL_VARLEN_DATA, NULL,
0, SQLFLT8, 10);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    rc = bcp_bind(w_hdbc1, (BYTE *) &d_next_o_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT4, 11);
    if (rc != SUCCEEDED)
        HandleErrorDBC(w_hdbc1);

    d_ytd = 30000.0;

```

```

        d_next_o_id = orders_per_district+1;
        time_start = (TimeNow() / MILLI);

        for (w_id = aptr->starting_warehouse; w_id <= aptr-
>num_warehouses; w_id++)
        {
            d_w_id = w_id;

            for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE; d_id++)
            {
                MakeAlphaString(6,10,D_NAME_LEN, d_name);

                MakeAddress(d_street_1, d_street_2, d_city,
d_state, d_zip);

                d_tax = ((float) RandomNumber(0L,2000L))/10000.00;

                rc = bcp_sendrow(w_hdbc1);
                if (rc != SUCCEEDED)
                    HandleErrorDBC(w_hdbc1);

                district_rows_loaded++;
                CheckForCommit(w_hdbc1, w_hstmt1,
district_rows_loaded, "district", &time_start);
            }
        }

        rcint = bcp_done(w_hdbc1);
        if (rcint < 0)
            HandleErrorDBC(w_hdbc1);

        printf("Finished loading district table.\n");

        // if build index after load...
        if ((aptr->build_index == 1) && (aptr->index_order == 0))
            BuildIndex("idxdiscl");

    return;
}

//=====
//
// Function   : Stock
//
//=====

void Stock()
{
    long      s_i_id;
    short     s_w_id;
    short     s_quantity;
    char      s_dist_01[S_DIST_LEN+1];
    char      s_dist_02[S_DIST_LEN+1];
    char      s_dist_03[S_DIST_LEN+1];
    char      s_dist_04[S_DIST_LEN+1];
    char      s_dist_05[S_DIST_LEN+1];
    char      s_dist_06[S_DIST_LEN+1];
    char      s_dist_07[S_DIST_LEN+1];
    char      s_dist_08[S_DIST_LEN+1];

```

```

char      s_dist_09[S_DIST_LEN+1];
char      s_dist_10[S_DIST_LEN+1];
long      s_ytd;
short     s_order_cnt;
short     s_remote_cnt;
char      s_data[S_DATA_LEN+1];
short     len;
char      name[20];
long      time_start;
RETCODE rc;
DBINT     rcint;
char      bcphint[128];

// 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", aptr->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 != SUCCEED)
        HandleErrorDBC(w_hdbc1);
}

rc = bcp_bind(w_hdbc1, (BYTE *) &s_i_id, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT4, 1);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

bcp_bind(w_hdbc1, (BYTE *) &s_w_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 2);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &s_quantity, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 3);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

0, 4); rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_01, 0, S_DIST_LEN, NULL, 0,
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

0, 5); rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_02, 0, S_DIST_LEN, NULL, 0,
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

```

```

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_03, 0, S_DIST_LEN, NULL, 0,
0, 6);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_04, 0, S_DIST_LEN, NULL, 0,
0, 7);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_05, 0, S_DIST_LEN, NULL, 0,
0, 8);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_06, 0, S_DIST_LEN, NULL, 0,
0, 9);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_07, 0, S_DIST_LEN, NULL, 0,
0, 10);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_08, 0, S_DIST_LEN, NULL, 0,
0, 11);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_09, 0, S_DIST_LEN, NULL, 0,
0, 12);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) s_dist_10, 0, S_DIST_LEN, NULL, 0,
0, 13);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &s_ytd, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT4, 14);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &s_order_cnt, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 15);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

rc = bcp_bind(w_hdbc1, (BYTE *) &s_remote_cnt, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 16);
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

17); rc = bcp_bind(w_hdbc1, (BYTE *) s_data, 0, S_DATA_LEN, NULL, 0, 0,
if (rc != SUCCEED)
    HandleErrorDBC(w_hdbc1);

s_ytd = s_order_cnt = s_remote_cnt = 0;

```

```

time_start = (TimeNow() / MILLI);

printf("...Loading stock table\n");

for (s_i_id=1; s_i_id <= max_items; s_i_id++)
{
    for (s_w_id = (short)aptr->starting_warehouse; s_w_id <=
aptr->num_warehouses; s_w_id++)
    {
        s_quantity = (short)RandomNumber(10L,100L);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_01);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_02);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_03);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_04);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_05);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_06);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_07);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_08);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_09);
        len = MakeAlphaString(24,24,S_DIST_LEN, s_dist_10);

        len = MakeOriginalAlphaString(26,50, S_DATA_LEN,
s_data,10);

        rc = bcp_sendrow(w_hdbc1);
        if (rc != SUCCEED)
            HandleErrorDBC(w_hdbc1);

        stock_rows_loaded++;
        CheckForCommit(w_hdbc1, w_hstmt1,
stock_rows_loaded, "stock", &time_start);
    }
}

rcint = bcp_done(w_hdbc1);
if (rcint < 0)
    HandleErrorDBC(w_hdbc1);

printf("Finished loading stock table.\n");

SQLFreeStmt(w_hstmt1, SQL_DROP);
SQLDisconnect(w_hdbc1);
SQLFreeConnect(w_hdbc1);

// if build index after load...
if ((aptr->build_index == 1) && (aptr->index_order == 0))
    BuildIndex("idxstkcl");

return;
}

//=====
//
// Function   : LoadCustomer
//
//=====

```

```

void LoadCustomer()
{
    LOADER_TIME_STRUCT    customer_time_start;
    LOADER_TIME_STRUCT    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];
    // SQLRETURN             rc_1;
    // SQLSMALLINT           recnum, MsgLen;
    // SQLCHAR               SqlState[6],
Msg[SQL_MAX_MESSAGE_LENGTH];
    // SQLINTEGER            NativeError;

    // Seed with unique number
    seed(5);

    printf("Loading customer and history tables...\n");

    // if build index before load...
    if ((aptr->build_index == 1) && (aptr->index_order == 1))
        BuildIndex("idxcuscl");

    // 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 != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    customer_rows_loaded = 0;
    history_rows_loaded = 0;

    CustomerBufInit();
}

```

```

customer_time_start.time_start = (TimeNow() / MILLI);
history_time_start.time_start = (TimeNow() / MILLI);

for (w_id = (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(500, 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 != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &c_w_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &h_date, 0, H_DATE_LEN, NULL, 0,
SQLCHARACTER, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) &h_amount, 0, SQL_VARLEN_DATA, NULL,
0, SQLFLT8, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    rc = bcp_bind(c_hdbc2, (BYTE *) h_data, 0, H_DATA_LEN, NULL, 0, 0, 8);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc2);

    for (i = 0; i < customers_per_district; i++)
    {
        c_id = customer_buf[i].c_id;
        c_d_id = customer_buf[i].c_d_id;
        c_w_id = customer_buf[i].c_w_id;
        h_amount = customer_buf[i].h_amount;
        strcpy(h_data, customer_buf[i].h_data);

        FormatDate(&h_date);

        // send to server
        rc = bcp_sendrow(c_hdbc2);
        if (rc != SUCCEED)
            HandleErrorDBC(c_hdbc2);

        history_rows_loaded++;
        CheckForCommit(c_hdbc2, c_hstmt2, history_rows_loaded,
"history", &history_time_start->time_start);
    }
}

//=====
//
// Function   : LoadOrders
//
//=====

void LoadOrders()
{
    LOADER_TIME_STRUCT    orders_time_start;
    LOADER_TIME_STRUCT    new_order_time_start;
    LOADER_TIME_STRUCT    order_line_time_start;
    short                 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("idxordc1");
    BuildIndex("idxnodc1");
    BuildIndex("idxodlc1");
}

// initialize bulk copy
sprintf(name, "%s..%s", aptr->database, "orders");

rc = bcp_init(o_hdbc1, name, NULL, "logs\\orders.err", DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc1);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (o_w_id, o_d_id, o_id),
ROWS_PER_BATCH = %u", (aptr->num_warehouses * 30000));
    rc = bcp_control(o_hdbc1, BCPHINTS, (void*) bcphint);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);
}

sprintf(name, "%s..%s", aptr->database, "new_order");

rc = bcp_init(o_hdbc2, name, NULL, "logs\\neword.err", DB_IN);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc2);

if ((aptr->build_index == 1) && (aptr->index_order == 1))
{
    sprintf(bcphint, "tablock, order (no_w_id, no_d_id,
no_o_id), ROWS_PER_BATCH = %u", (aptr->num_warehouses * 9000));
    rc = bcp_control(o_hdbc2, BCPHINTS, (void*) bcphint);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);
}

sprintf(name, "%s..%s", aptr->database, "order_line");

rc = bcp_init(o_hdbc3, name, NULL, "logs\\ordline.err", DB_IN);
if (rc != SUCCEED)
    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)
            HandleErrorDBC(o_hdbc3);
    }

    orders_rows_loaded      = 0;
    new_order_rows_loaded   = 0;
    order_line_rows_loaded  = 0;

    OrdersBufInit();

    orders_time_start.time_start = (TimeNow() / MILLI);
    new_order_time_start.time_start = (TimeNow() / MILLI);
    order_line_time_start.time_start = (TimeNow() / MILLI);

    for (w_id = (short)aptr->starting_warehouse; w_id <= aptr->num_warehouses; w_id++)
    {
        for (d_id = 1; d_id <= DISTRICT_PER_WAREHOUSE; d_id++)
        {
            OrdersBufLoad(d_id, w_id);

            // start parallel loading threads here...

            // start Orders table thread
            printf("...Loading Order Table for: d_id = %d, w_id
= %d\n", d_id, w_id);

            hThread[0] = CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadOrdersTable,
&orders_time_start,
0,
&dwThreadID[0]);

            if (hThread[0] == NULL)
            {
                printf("Error, failed in creating creating
thread = 0.\n");
                exit(-1);
            }

            // start NewOrder table thread

            printf("...Loading New-Order Table for: d_id = %d,
w_id = %d\n", d_id, w_id);

            hThread[1] = CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadNewOrderTable,
&new_order_time_start,
0,
&dwThreadID[1]);

```

```

        if (hThread[1] == NULL)
        {
            printf("Error, failed in creating creating
thread = 1.\n");
            exit(-1);
        }

        // start Order-Line table thread

        printf("...Loading Order-Line Table for: d_id = %d,
w_id = %d\n", d_id, w_id);

        hThread[2] = CreateThread(NULL,
0,
(LPTHREAD_START_ROUTINE) LoadOrderLineTable,
&order_line_time_start,
0,
&dwThreadID[2]);

        if (hThread[2] == NULL)
        {
            printf("Error, failed in creating creating
thread = 2.\n");
            exit(-1);
        }

        WaitForSingleObject( hThread[0], INFINITE );
        WaitForSingleObject( hThread[1], INFINITE );
        WaitForSingleObject( hThread[2], INFINITE );

        if (CloseHandle(hThread[0]) == FALSE)
        {
            printf("Error, failed in closing Orders
thread handle with errno: %d\n", GetLastError());
        }

        if (CloseHandle(hThread[1]) == FALSE)
        {
            printf("Error, failed in closing NewOrder
thread handle with errno: %d\n", GetLastError());
        }

        if (CloseHandle(hThread[2]) == FALSE)
        {
            printf("Error, failed in closing OrderLine
thread handle with errno: %d\n", GetLastError());
        }
    }

    printf("Finished loading orders.\n");

    return;
}

```

```

//=====
//
// Function   : OrdersBufInit
//
// Clears shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
//=====
void OrdersBufInit()
{
    int    i;
    int    j;

    for (i=0;i<orders_per_district;i++)
    {
        orders_buf[i].o_id = 0;
        orders_buf[i].o_d_id = 0;
        orders_buf[i].o_w_id = 0;
        orders_buf[i].o_c_id = 0;
        orders_buf[i].o_carrier_id = 0;
        orders_buf[i].o_ol_cnt = 0;
        orders_buf[i].o_all_local = 0;

        for (j=0;j<=14;j++)
        {
            orders_buf[i].o_ol[j].ol = 0;
            orders_buf[i].o_ol[j].ol_i_id = 0;
            orders_buf[i].o_ol[j].ol_supply_w_id = 0;
            orders_buf[i].o_ol[j].ol_quantity = 0;
            orders_buf[i].o_ol[j].ol_amount = 0;
            strcpy(orders_buf[i].o_ol[j].ol_dist_info,"");
        }
    }
}

//=====
//
// Function   : OrdersBufLoad
//
// Fills shared buffer for ORDERS, NEWORDER, and ORDERLINE
//
//=====
void OrdersBufLoad(int d_id, int w_id)
{
    int    cust[ORDERS_PER_DIST+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_DIST);

    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
12:00:00.000");
    }
}
}

//=====

```

```

//
// Function   : LoadOrdersTable
//
//=====
void LoadOrdersTable(LOADER_TIME_STRUCT *orders_time_start)
{
    int          i;
    long         o_id;
    short        o_d_id;
    short        o_w_id;
    long         o_c_id;
    short        o_carrier_id;
    short        o_ol_cnt;
    short        o_all_local;
    char         o_entry_d[O_ENTRY_D_LEN+1];
    RETCODE      rc;
    DBINT        rcint;

    // bind ORDER data
    rc = bcp_bind(o_hdbc1, (BYTE *) &o_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_c_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT4, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_entry_d, 0, O_ENTRY_D_LEN,
NULL, 0, SQLCHARACTER, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_carrier_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_ol_cnt, 0, SQL_VARLEN_DATA, NULL,
0, SQLINT2, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    rc = bcp_bind(o_hdbc1, (BYTE *) &o_all_local, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 8);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    for (i = 0; i < orders_per_district; i++)

```

```

{
    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 != SUCCEED)
        HandleErrorDBC(o_hdbc1);

    orders_rows_loaded++;
    CheckForCommit(o_hdbc1, o_hstmt1, orders_rows_loaded,
"orders", &orders_time_start->time_start);
}

// rcint = bcp_batch(o_hdbc1);
// if (rcint < 0)
//     HandleErrorDBC(o_hdbc1);

if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
{
    rcint = bcp_done(o_hdbc1);
    if (rcint < 0)
        HandleErrorDBC(o_hdbc1);

    SQLFreeStmt(o_hstmt1, SQL_DROP);
    SQLDisconnect(o_hdbc1);
    SQLFreeConnect(o_hdbc1);

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order == 0))
        BuildIndex("idxordc1");

    // build non-clustered index
    if (aptr->build_index == 1)
        BuildIndex("idxordnc");
}
}

//=====
//
// Function   : LoadNewOrderTable
//
//=====
void LoadNewOrderTable(LOADER_TIME_STRUCT *new_order_time_start)
{
    int          i;
    long         o_id;
    short        o_d_id;
    short        o_w_id;
    RETCODE      rc;
    DBINT        rcint;

```

```

// Bind NEW-ORDER data
rc = bcp_bind(o_hdbc2, (BYTE *) &o_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT4, 1);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc2);

rc = bcp_bind(o_hdbc2, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 2);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc2);

rc = bcp_bind(o_hdbc2, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 3);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc2);

for (i = first_new_order; i < last_new_order; i++)
{
    o_id = orders_buf[i].o_id;
    o_d_id = orders_buf[i].o_d_id;
    o_w_id = orders_buf[i].o_w_id;

    rc = bcp_sendrow(o_hdbc2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc2);

    new_order_rows_loaded++;
    CheckForCommit(o_hdbc2, o_hstmt2, new_order_rows_loaded,
"new_order", &new_order_time_start->time_start);
}

// rcint = bcp_batch(o_hdbc2);
// if (rcint < 0)
//     HandleErrorDBC(o_hdbc2);

if ((o_w_id == aptr->num_warehouses) && (o_d_id == 10))
{
    rcint = bcp_done(o_hdbc2);
    if (rcint < 0)
        HandleErrorDBC(o_hdbc2);

    SQLFreeStmt(o_hstmt2, SQL_DROP);
    SQLDisconnect(o_hdbc2);
    SQLFreeConnect(o_hdbc2);

    // if build index after load...
    if ((aptr->build_index == 1) && (aptr->index_order == 0))
        BuildIndex("idxnodcl");
}
}

//=====
//
// Function : LoadOrderLineTable
//
//=====

```

```

void LoadOrderLineTable(LOADER_TIME_STRUCT *order_line_time_start)
{
    int i,j;
    long o_id;
    short o_d_id;
    short o_w_id;
    long ol;
    long ol_i_id;
    short ol_supply_w_id;
    short ol_quantity;
    double ol_amount;
    char ol_dist_info[DIST_INFO_LEN+1];
    char ol_delivery_d[OL_DELIVERY_D_LEN+1];
    RETCODE rc;
    DBINT rcint;

    // bind ORDER-LINE data
    rc = bcp_bind(o_hdbc3, (BYTE *) &o_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT4, 1);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &o_d_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 2);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &o_w_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT2, 3);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT4, 4);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_i_id, 0, SQL_VARLEN_DATA, NULL, 0,
SQLINT4, 5);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_supply_w_id, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 6);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_delivery_d, 0,
OL_DELIVERY_D_LEN, NULL, 0, SQLCHARACTER, 7);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_quantity, 0, SQL_VARLEN_DATA,
NULL, 0, SQLINT2, 8);
    if (rc != SUCCEED)
        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) &ol_amount, 0, SQL_VARLEN_DATA, NULL,
0, SQLFLT8, 9);
    if (rc != SUCCEED)

```

```

        HandleErrorDBC(o_hdbc3);

    rc = bcp_bind(o_hdbc3, (BYTE *) ol_dist_info, 0, DIST_INFO_LEN, NULL,
0, 0, 10);
    if (rc != 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("idxodlcl");
    }
}

```

```

//=====
//
// Function    : GetPermutation
//
//=====
void GetPermutation(int perm[], int n)
{
    int i, r, t;

    for (i=1;i<=n;i++)
        perm[i] = i;

    for (i=1;i<=n;i++)
    {
        r = RandomNumber(i,n);
        t = perm[i];
        perm[i] = perm[r];
        perm[r] = t;
    }
}

//=====
//
// Function    : CheckForCommit
//
//=====
void CheckForCommit(HDBC hdbc,
                    HSTMT hstmt,
                    int rows_loaded,
                    char *table_name,
                    long *time_start)
{
    long          time_end, time_diff;
    // DBINT      rcint;

    if ( !(rows_loaded % aptr->batch) )
    {
        // rcint = bcp_batch(hdbc);
        // if (rcint < 0)
        //     HandleErrorDBC(hdbc);

        time_end = (TimeNow() / MILLI);
        time_diff = time_end - *time_start;

        printf("-> Loaded %ld rows into %s in %ld sec - Total = %d
(%%.2f rps)\n",
                aptr->batch,
                table_name,
                time_diff,
                rows_loaded,
                (float) aptr->batch / (time_diff ? time_diff
: 1L));

        *time_start = time_end;
    }
}

```



```

    }
    return;
}

//=====
//
// Function : OpenConnections
//
//=====

void OpenConnections()
{
    RETCODE          rc;

    char             szDriverString[300];
    char             szDriverStringOut[1024];
    SQLSMALLINT      cbDriverStringOut;

    SQLAllocHandle(SQL_HANDLE_ENV, SQL_NULL_HANDLE, &henv );

    SQLSetEnvAttr(henv, SQL_ATTR_ODBC_VERSION, (void*)SQL_OV_ODBC3, 0
);

    SQLAllocHandle(SQL_HANDLE_DBC, henv , &i_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv , &w_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv , &c_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv , &c_hdbc2);
    SQLAllocHandle(SQL_HANDLE_DBC, henv , &o_hdbc1);
    SQLAllocHandle(SQL_HANDLE_DBC, henv , &o_hdbc2);
    SQLAllocHandle(SQL_HANDLE_DBC, henv , &o_hdbc3);

    SQLSetConnectAttr(i_hdbc1, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
    SQLSetConnectAttr(w_hdbc1, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
    SQLSetConnectAttr(c_hdbc1, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
    SQLSetConnectAttr(c_hdbc2, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
    SQLSetConnectAttr(o_hdbc1, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
    SQLSetConnectAttr(o_hdbc2, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );
    SQLSetConnectAttr(o_hdbc3, SQL_COPT_SS_BCP, (void *)SQL_BCP_ON,
SQL_IS_INTEGER );

    // Open connections to SQL Server

    // Connection 1

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,
aptr->user,
aptr->password,
aptr->database );

```

```

    rc = SQLSetConnectOption (i_hdbc1, SQL_PACKET_SIZE, aptr-
>pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    rc = SQLDriverConnect ( i_hdbc1,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0] ,
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT );

    if (rc != SUCCEED)
        HandleErrorDBC(i_hdbc1);

    // Connection 2

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,
aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (w_hdbc1, SQL_PACKET_SIZE, aptr-
>pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    rc = SQLDriverConnect ( w_hdbc1,
NULL,
(SQLCHAR*)&szDriverString[0] ,
SQL_NTS,
(SQLCHAR*)&szDriverStringOut[0] ,
sizeof(szDriverStringOut),
&cbDriverStringOut,
SQL_DRIVER_NOPROMPT
);

    if (rc != SUCCEED)
        HandleErrorDBC(w_hdbc1);

    // Connection 3

    sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
aptr->server,
aptr->user,
aptr->password,
aptr->database );

    rc = SQLSetConnectOption (c_hdbc1, SQL_PACKET_SIZE, aptr-
>pack_size);
    if (rc != SUCCEED)
        HandleErrorDBC(c_hdbc1);

```

```

rc = SQLDriverConnect ( c_hdbc1,
                        NULL,
                        (SQLCHAR*)&szDriverString[0] ,
                        SQL_NTS,
                        (SQLCHAR*)&szDriverStringOut[0],
                        sizeof(szDriverStringOut),
                        &cbDriverStringOut,
                        SQL_DRIVER_NOPROMPT
);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc1);

// Connection 4

sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
        aptr->server,
        aptr->user,
        aptr->password,
        aptr->database );

rc = SQLSetConnectOption (c_hdbc2, SQL_PACKET_SIZE, aptr-
>pack_size);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

rc = SQLDriverConnect ( c_hdbc2,
                        NULL,
                        (SQLCHAR*)&szDriverString[0] ,
                        SQL_NTS,
                        (SQLCHAR*)&szDriverStringOut[0],
                        sizeof(szDriverStringOut),
                        &cbDriverStringOut,
                        SQL_DRIVER_NOPROMPT
);
if (rc != SUCCEED)
    HandleErrorDBC(c_hdbc2);

// Connection 5

sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
        aptr->server,
        aptr->user,
        aptr->password,
        aptr->database );

rc = SQLSetConnectOption (o_hdbc1, SQL_PACKET_SIZE, aptr-
>pack_size);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc1);

rc = SQLDriverConnect ( o_hdbc1,
                        NULL,

```

```

                        (SQLCHAR*)&szDriverString[0] ,
                        SQL_NTS,
                        (SQLCHAR*)&szDriverStringOut[0],
                        sizeof(szDriverStringOut),
                        &cbDriverStringOut,
                        SQL_DRIVER_NOPROMPT
);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc1);

// Connection 6

sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
        aptr->server,
        aptr->user,
        aptr->password,
        aptr->database );

rc = SQLSetConnectOption (o_hdbc2, SQL_PACKET_SIZE, aptr-
>pack_size);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc2);

rc = SQLDriverConnect ( o_hdbc2,
                        NULL,
                        (SQLCHAR*)&szDriverString[0] ,
                        SQL_NTS,
                        (SQLCHAR*)&szDriverStringOut[0],
                        sizeof(szDriverStringOut),
                        &cbDriverStringOut,
                        SQL_DRIVER_NOPROMPT
);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc2);

// Connection 7

sprintf( szDriverString , "DRIVER={SQL
Server};SERVER=%s;UID=%s;PWD=%s;DATABASE=%s" ,
        aptr->server,
        aptr->user,
        aptr->password,
        aptr->database );

rc = SQLSetConnectOption (o_hdbc3, SQL_PACKET_SIZE, aptr-
>pack_size);
if (rc != SUCCEED)
    HandleErrorDBC(o_hdbc3);

rc = SQLDriverConnect ( o_hdbc3,
                        NULL,
                        (SQLCHAR*)&szDriverString[0] ,
                        SQL_NTS,

```

```

        (SQLCHAR*)&szDriverStringOut[0],
        sizeof(szDriverStringOut),
        &cbDriverStringOut,
        SQL_DRIVER_NOPROMPT
    );
    if (rc != SUCCEEDED)
        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 )
    {
        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;
}

```


Appendix C - Tunable Parameters

Microsoft SQL Server Startup Parameters

```
C:\MSSQL\BINN\SQLSERVR.EXE -c -x -t3502
```

Where:

- -c Start SQL Server independently of the Service Control Manager
- -x Disables the keeping of CPU time and cache hit ratio statistics
- -t3502 Writes a message to the SQL Server Errorlog showing the beginning and ending time of each checkpoint

SQL Server Stack Size

The default stack size for Microsoft SQL Server 7.0 was changed using the EDITBIN utility. The EDITBIN utility ships with Microsoft Visual C++ V4.0. The command used to change the stack size is:

```
editbin /S: 131072 sqlservr.exe
```

This command is fully documented as an article in the Microsoft Knowledge Base on the Microsoft Web Site at www.microsoft.com/support.

BOOT.INI

The /3gb switch was added to the boot.ini file to cause Windows NT Enterprise Edition to allow 3GB of user and 1GB of kernel virtual address space, rather than the usual 2GB of virtual address space for each.

Microsoft SQL Server Configuration Parameters

```
1> 2> 3> 4> 5> 6> 7> 8> 9> 10> 11>
-- File:      VERSION.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Returns SQL Server version string
```

```
print " "
select convert(char(30), getdate(),9)
print " "
```

```
-----
Oct  9 1998  7:39:29:357AM
```

```
(1 row affected)
```

```
1> 2> 3>
select @@version
```

```
-----
-----
-----
-----
Microsoft SQL Server  7.00 - 7.00.549 (Intel X86)
Aug 18 1998 15:05:22
Cop
yright (c) 1988-1998 Microsoft Corporation
Enterprise Edition on Windo
ws NT 4.0 (Build 1381: Service Pack 4, RC 1.99)
```

```
(1 row affected)
```

```
1> 2>
1> 2> 3> 4> 5> 6> 7> 8> 9> 10>
-- File:      CONFIG.SQL
--           Microsoft TPC-C Benchmark Kit Ver. 4.00
--           Copyright Microsoft, 1996
-- Purpose:   Collects SQL Server configuration parameters
```

```
print " "
select convert(char(30), getdate(),9)
print " "
```

```
-----
Oct  9 1998  7:39:31:233AM
```

```
(1 row affected)
```

```
1> 2> 3> DBCC execution completed. If DBCC printed error messages, contact
your system administrator.
```

Configuration option changed. 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 |
| cost threshold for parallelism | | | | |
| 0 32767 | | 5 | | 5 |
| cursor threshold | | | | |
| -1 2147483647 | | -1 | | -1 |
| default language | | | | |
| 0 9999 | | 0 | | 0 |
| default sortorder id | | | | |
| 0 255 | | 50 | | 50 |
| extended memory size (MB) | | | | |
| 0 2147483647 | | 0 | | 0 |
| fill factor (%) | | | | |
| 0 100 | | 0 | | 0 |
| index create memory (KB) | | | | |
| 704 1600000 | | 0 | | 0 |
| language in cache | | | | |
| 3 100 | | 3 | | 3 |
| lightweight pooling | | | | |
| 0 1 | | 1 | | 1 |
| locks | | | | |
| 5000 2147483647 | | 0 | | 0 |
| max async IO | | | | |
| 1 255 | | 255 | | 255 |
| max degree of parallelism | | | | |
| 0 32 | | 1 | | 1 |
| max server memory (MB) | | | | |
| 4 2147483647 2147483647 | | 2147483647 | | 2147483647 |
| max text repl size (B) | | | | |
| 0 2147483647 | | 65536 | | 65536 |
| max worker threads | | | | |
| 10 1024 | | 225 | | 225 |
| media retention | | | | |
| 0 365 | | 0 | | 0 |
| min memory per query (KB) | | | | |
| 512 2147483647 | | 512 | | 512 |
| min server memory (MB) | | | | |
| 0 2147483647 | | 2560 | | 2560 |
| nested triggers | | | | |
| 0 1 | | 0 | | 0 |
| network packet size (B) | | | | |
| 512 65535 | | 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 | |
| recovery interval (min) | | | |
| 0 32767 | | 32767 | |
| remote access | | | |
| 0 1 | | 0 | |
| remote login timeout (s) | | | |
| 0 2147483647 | | 30 | |
| remote proc trans | | | |
| 0 1 | | 0 | |
| remote query timeout (s) | | | |
| 0 2147483647 | | 0 | |
| resource timeout (s) | | | |
| 5 2147483647 | | 10 | |
| scan for startup procs | | | |
| 0 1 | | 0 | |
| set working set size | | | |
| 0 1 | | 0 | |
| show advanced options | | | |
| 0 1 | | 1 | |
| spin counter | | | |
| 1 2147483647 | | 10000 | |
| time slice (ms) | | | |
| 50 1000 | | 100 | |
| Unicode comparison style | | | |
| 0 2147483647 | | 0 | |
| Unicode locale id | | | |
| 0 2147483647 | | 33280 | |
| user connections | | | |
| 0 32767 | | 300 | |
| user options | | | |
| 0 4095 | | 0 | |

1>

Internal RAID Configuration Parameters

```
*****
*           MYLEX Disk Array Controller - Configuration Utility
*
*           Version 4.76
*
*****

CONFIGURATION INFORMATION OF :
=====

3 Channel - 15 Target  DAC1164P  #1  Firmware version 5.06

PHYSICAL PACK INFORMATION :
=====

Number of Packs = 4

Pack 0 : [0:0] [1:0] [0:1] [1:1] [0:2] [1:2] [0:3]
```

Pack 1 : [1:3] [0:4] [1:4] [0:5] [1:5] [0:6] [1:6]
Pack 2 : [0:8] [1:8] [0:9] [1:9] [0:10] [1:10] [0:11]
Pack 3 : [1:11] [0:12] [1:12] [0:13] [1:13] [0:14] [1:14]

SYSTEM DRIVE INFORMATION :
=====

Number of System Drives = 1

| Sys Drv # | Phy. Size | Raid Level | Eff. Size | Write Policy |
|-----------|-----------|------------|-----------|--------------|
| 0 | 182308 MB | 0 | 182308 MB | Write Thru |

* MYLEX Disk Array Controller - Configuration Utility
*
* Version 4.76
*

CONFIGURATION INFORMATION OF :
=====

3 Channel - 15 Target DAC1164P #2 Firmware version 5.06

PHYSICAL PACK INFORMATION :
=====

Number of Packs = 4

Pack 0 : [0:0] [1:0] [0:1] [1:1] [0:2] [1:2] [0:3]
Pack 1 : [1:3] [0:4] [1:4] [0:5] [1:5] [0:6] [1:6]
Pack 2 : [0:8] [1:8] [0:9] [1:9] [0:10] [1:10] [0:11]
Pack 3 : [1:11] [0:12] [1:12] [0:13] [1:13] [0:14] [1:14]
Pack 4 : [2:0] [2:1] [2:2] [2:3] [2:4] [2:5] [2:6] [2:8]

SYSTEM DRIVE INFORMATION :
=====

Number of System Drives = 1

| Sys Drv # | Phy. Size | Raid Level | Eff. Size | Write Policy |
|-----------|-----------|------------|-----------|--------------|
| 0 | 151900 MB | 0 | 151900 MB | Write Thru |
| 1 | 69464 MB | 5 | 60781 MB | Write Back |

* MYLEX Disk Array Controller - Configuration Utility
*
* Version 4.76
*

CONFIGURATION INFORMATION OF :
=====

3 Channel - 15 Target DAC1164P #3 Firmware version 5.06

PHYSICAL PACK INFORMATION :
=====

Number of Packs = 4

Pack 0 : [0:0] [1:0] [0:1] [1:1] [0:2] [1:2] [0:3]
Pack 1 : [1:3] [0:4] [1:4] [0:5] [1:5] [0:6] [1:6]
Pack 2 : [0:8] [1:8] [0:9] [1:9] [0:10] [1:10] [0:11]
Pack 3 : [1:11] [0:12] [1:12] [0:13] [1:13] [0:14] [1:14]
Pack 4 : [2:0] [2:1] [2:2] [2:3] [2:4] [2:5] [2:6] [2:8]

SYSTEM DRIVE INFORMATION :
=====

Number of System Drives = 1

| Sys Drv # | Phy. Size | Raid Level | Eff. Size | Write Policy |
|-----------|-----------|------------|-----------|--------------|
| 0 | 182308 MB | 0 | 182308 MB | Write Thru |
| 1 | 69464 MB | 5 | 60781 MB | Write Back |

* MYLEX Disk Array Controller - Configuration Utility
*
* Version 4.76
*

CONFIGURATION INFORMATION OF :
=====

3 Channel - 15 Target DAC1164P #4 Firmware version 5.06

PHYSICAL PACK INFORMATION :
=====

Number of Packs = 1

Pack 0 : [0:0] [1:0]

SYSTEM DRIVE INFORMATION :
=====

Number of System Drives = 1

| Sys Drv # | Phy. Size | Raid Level | Eff. Size | Write Policy |
|-----------|-----------|------------|-----------|--------------|
| 0 | 104194 MB | 1 | 52097 MB | Write Thru |

```

*****
*           MYLEX Disk Array Controller - Configuration Utility
*
*                               Version 4.76
*
*****

```

CONFIGURATION INFORMATION OF :
=====

3 Channel - 15 Target DAC1164P #5 Firmware version 5.06

PHYSICAL PACK INFORMATION :
=====

Number of Packs = 4

```

Pack 0 : [0:0] [1:0] [0:1] [1:1] [0:2] [1:2] [0:3]
Pack 1 : [1:3] [0:4] [1:4] [0:5] [1:5] [0:6] [1:6]
Pack 2 : [0:8] [1:8] [0:9] [1:9] [0:10] [1:10] [0:11]
Pack 3 : [1:11] [0:12] [1:12] [0:13] [1:13] [0:14] [1:14]

```

SYSTEM DRIVE INFORMATION :
=====

Number of System Drives = 1

| Sys Drv # | Phy. Size | Raid Level | Eff. Size | Write Policy |
|-----------|-----------|------------|-----------|--------------|
| 0 | 182308 MB | 0 | 182308 MB | Write Thru |

```

*****
*           MYLEX Disk Array Controller - Configuration Utility
*
*                               Version 4.76
*
*****

```

CONFIGURATION INFORMATION OF :
=====

3 Channel - 15 Target DAC1164P #6 Firmware version 5.06

PHYSICAL PACK INFORMATION :
=====

Number of Packs = 4

```

Pack 0 : [0:0] [1:0] [0:1] [1:1] [0:2] [1:2] [0:3]
Pack 1 : [1:3] [0:4] [1:4] [0:5] [1:5] [0:6] [1:6]

```

```

Pack 2 : [0:8] [1:8] [0:9] [1:9] [0:10] [1:10] [0:11]
Pack 3 : [1:11] [0:12] [1:12] [0:13] [1:13] [0:14] [1:14]

```

SYSTEM DRIVE INFORMATION :
=====

Number of System Drives = 1

| Sys Drv # | Phy. Size | Raid Level | Eff. Size | Write Policy |
|-----------|-----------|------------|-----------|--------------|
| 0 | 151900 MB | 0 | 151900 MB | Write Thru |

```

*****
*           MYLEX Disk Array Controller - Configuration Utility
*
*                               Version 4.76
*
*****

```

CONFIGURATION INFORMATION OF :
=====

3 Channel - 15 Target DAC1164P #7 Firmware version 5.06

PHYSICAL PACK INFORMATION :
=====

Number of Packs = 4

```

Pack 0 : [0:0] [1:0] [0:1] [1:1] [0:2] [1:2] [0:3]
Pack 1 : [1:3] [0:4] [1:4] [0:5] [1:5] [0:6] [1:6]
Pack 2 : [0:8] [1:8] [0:9] [1:9] [0:10] [1:10] [0:11]
Pack 3 : [1:11] [0:12] [1:12] [0:13] [1:13] [0:14] [1:14]

```

SYSTEM DRIVE INFORMATION :
=====

Number of System Drives = 1

| Sys Drv # | Phy. Size | Raid Level | Eff. Size | Write Policy |
|-----------|-----------|------------|-----------|--------------|
| 0 | 182308 MB | 0 | 182308 MB | Write Thru |

```

*****
*           MYLEX Disk Array Controller - Configuration Utility
*
*                               Version 4.76
*
*****

```

CONFIGURATION INFORMATION OF :
=====

3 Channel - 15 Target DAC1164P #8 Firmware version 5.06

PHYSICAL PACK INFORMATION :

=====

Number of Packs = 4

Pack 0 : [0:0] [1:0] [0:1] [1:1] [0:2] [1:2] [0:3]
Pack 1 : [1:3] [0:4] [1:4] [0:5] [1:5] [0:6] [1:6]
Pack 2 : [0:8] [1:8] [0:9] [1:9] [0:10] [1:10] [0:11]
Pack 3 : [1:11] [0:12] [1:12] [0:13] [1:13] [0:14] [1:14]

SYSTEM DRIVE INFORMATION :

=====

Number of System Drives = 1

| Sys Drv # | Phy. Size | Raid Level | Eff. Size | Write Policy |
|-----------|-----------|------------|-----------|--------------|
| 0 | 182308 MB | 0 | 182308 MB | Write Thru |

External RAID Configuration Parameters

* Unisys Ultra-Wide RAID Controller OSM1000-C32

CPU type: 5x86-133 (WB)

Firmware version 1.31G
Bootcode version 1.12B

Total cache: 32 MB

- Cache Write Back: enabled
optimization: sequential (128K stripe size)

- Raid Rebuild Priority: low
Write Priority on Initialization: disabled
on Rebuild: disabled
on Normal: disabled

Logical Volume Partition table

| Volume | ID1 | Capacity | RAID | # drives |
|--------|-----|----------|------|----------|
| 52098 | MB | RAID 0 | 6 | |

Host LUN Assignment

| SCSI Chl | LUN | LVIDx | PortIdx | Capacity |
|----------|-----|-------|---------|----------|
| 0 | 0 | 0 | 0 | 52098 MB |

Physical Drives

| Id | Slot | Chl | Id | Capacity | Status | XferRate | Vendor/Product |
|---------------|------|-----|----|----------|--------|----------|----------------|
| 00640ST19101W | 8B04 | 0 | 0 | 8683 MB | online | 41.7 MB | UNISYS |
| 00640ST19101W | 8B04 | 0 | 1 | 8683 MB | online | 41.7 MB | UNISYS |
| 00640ST19101W | 8B04 | 0 | 2 | 8683 MB | online | 41.7 MB | UNISYS |
| 00640ST19101W | 8B04 | 0 | 3 | 8683 MB | online | 41.7 MB | UNISYS |
| 00640ST19101W | 8B04 | 0 | 4 | 8683 MB | online | 41.7 MB | UNISYS |
| 00640ST19101W | 8B04 | 0 | 5 | 8683 MB | online | 41.7 MB | UNISYS |

Configuration of Log Drives

A single Mylex DAC1164P RAID controller was used in the SUT for the mirrored log drives. Half of the drives were in one disk cage connected to one channel of the controller and half were in a second disk cage connected to a second channel of the controller. The controller implemented the RAID 1 mirroring across the two channels. Write caching was disabled on both the controller and on all the physical drives themselves.

One OSM1000-100 SCSI-to-SCSI RAID controller was used in each of the two log disk cages. Each of these controllers implemented RAID 0 striping on the six 9GB drives that were in each disk cage, so that the Mylex controller in the SUT saw just two large 'disks'. Each of the IFT controllers had a 32MB cache. Configuration options were set for Write Back caching and Optimized for Sequential IO. The IFT controllers used an algorithm that ensured that cached write data was held for no more than a fraction of a minute before being written to the physical drives.

For the priced configuration, each of the disk cages contained two redundant power supplies. Only one was required to be functional to keep the ITF controller and disk drives operational. A UPS was priced to provide power to one power supply in each disk cage. The second power supply in each disk cage was connected to normal wall power. Thus neither interruption of power or failure of the UPS would affect the two log disk cages (or their IFT controllers and disks). Since the two disk cages were completely independent of each other, this configuration ensured that there was no single point of failure in writing to the log.

NT Server Configuration Information

Microsoft Diagnostics Report For \\AVALON4

OS Version Report

Microsoft (R) Windows NT (TM) Server
Version 4.0 (Build 1381: Service Pack 4, RC 1.99) x86 Multiprocessor Free
Registered Owner: SAM&M, Unisys Corporation
Product Number: 70234-810-6895975-67328

System Report

System: AT/AT COMPATIBLE
Hardware Abstraction Layer: MPS 1.4 - APIC platform
BIOS Date: 09/29/98
BIOS Version: AD450NX - PhoenixBIOS 4.0 Releas

Processor list:

0: x86 Family 6 Model 5 Stepping 2 GenuineIntel ~400 Mhz
1: x86 Family 6 Model 5 Stepping 2 GenuineIntel ~400 Mhz
2: x86 Family 6 Model 5 Stepping 2 GenuineIntel ~400 Mhz
3: x86 Family 6 Model 5 Stepping 2 GenuineIntel ~400 Mhz

Video Display Report

BIOS Date: 05/22/96
BIOS Version: CL-GD5436/46 PCI VGA BIOS Version 1.25

Adapter:

Setting: 1024 x 768 x 65536
75 Hz
Type: cirrus compatible display adapter
String: Cirrus Logic Compatible
Memory: 2 MB
Chip Type: Cirrus Logic 5446
DAC Type: Integrated RAMDAC

Driver:

Vendor: Microsoft Corporation
File(s): cirrus.sys, vga.dll, cirrus.dll, vga256.dll, vga64K.dll
Version: 4.00, 4.0.0

Drives Report

C:\ (Local - FAT) SYSTEM Total: 2,096,160KB, Free: 1,043,264KB
Serial Number: F035 - 8AA4
Bytes per cluster: 512
Sectors per cluster: 64
Filename length: 255

T:\ (Local - NTFS) BACK1 Total: 62,239,724KB, Free: 2,061,612KB
Serial Number: 8463 - 2E33
Bytes per cluster: 512
Sectors per cluster: 8
Filename length: 255
U:\ (Local - NTFS) BACK2 Total: 62,239,724KB, Free: 1,981,804KB
Serial Number: FC70 - 54DE
Bytes per cluster: 512
Sectors per cluster: 8
Filename length: 255
Z:\ (Local - NTFS) testfiles Total: 2,345,488KB, Free: 904,572KB
Serial Number: B0C5 - 33C8
Bytes per cluster: 512
Sectors per cluster: 8
Filename length: 255

Memory Report

Handles: 2,391
Threads: 104
Processes: 15

Physical Memory (K)

Total: 3,767,720
Available: 3,586,116
File Cache: 12,596

Kernel Memory (K)

Total: 13,276
Paged: 8,164
Nonpaged: 5,112

Commit Charge (K)

Total: 71,380
Limit: 3,893,528
Peak: 199,684

Pagefile Space (K)

Total: 273,408
Total in use: 448
Peak: 448

C:\pagefile.sys

Total: 273,408
Total in use: 448
Peak: 448

Services Report

| | | |
|-----------------------------------|---------|----------|
| Alerter | Stopped | (Manual) |
| C:\WINNT\System32\services.exe | | |
| Service Account Name: LocalSystem | | |
| Error Severity: Normal | | |
| Service Flags: Shared Process | | |
| Service Dependencies: | | |
| LanmanWorkstation | | |
| Computer Browser | Stopped | (Manual) |

| | | | | | |
|-----------------------------------|---------|-------------|---|---------|-------------|
| C:\WINNT\System32\services.exe | | | NetworkProvider | | |
| Service Account Name: LocalSystem | | | Messenger | Stopped | (Manual) |
| Error Severity: Normal | | | C:\WINNT\System32\services.exe | | |
| Service Flags: Shared Process | | | Service Account Name: LocalSystem | | |
| Service Dependencies: | | | Error Severity: Normal | | |
| LanmanWorkstation | | | Service Flags: Shared Process | | |
| LanmanServer | | | Service Dependencies: | | |
| LmHosts | | | LanmanWorkstation | | |
| ClipBook Server | Stopped | (Manual) | NetBios | | |
| C:\WINNT\system32\clipsrv.exe | | | MSDTC (MS Transactions) | Stopped | (Manual) |
| Service Account Name: LocalSystem | | | C:\WINNT\System32\msdtc.exe | | |
| Error Severity: Normal | | | Service Account Name: LocalSystem | | |
| Service Flags: Own Process | | | Error Severity: Normal | | |
| Service Dependencies: | | | Service Flags: Own Process | | |
| NetDDE | | | Service Dependencies: | | |
| PCI Hot Plug Service | Stopped | (Disabled) | RPCSS | | |
| C:\WINNT\System32\cpqphps.exe | | | NTLMSSP | | |
| Service Account Name: LocalSystem | | | MSSQLServer | Stopped | (Manual) |
| Error Severity: Normal | | | C:\MSSQL7\binn\sqlservr.exe | | |
| Service Flags: Own Process | | | Service Account Name: LocalSystem | | |
| DHCP Client (TDI) | Stopped | (Disabled) | Error Severity: Normal | | |
| C:\WINNT\System32\services.exe | | | Service Flags: Own Process | | |
| Service Account Name: LocalSystem | | | Network DDE (NetDDEGroup) | Stopped | (Manual) |
| Error Severity: Normal | | | C:\WINNT\system32\netdde.exe | | |
| Service Flags: Shared Process | | | Service Account Name: LocalSystem | | |
| Service Dependencies: | | | Error Severity: Normal | | |
| Tcpip | | | Service Flags: Shared Process | | |
| Afd | | | Service Dependencies: | | |
| NetBT | | | NetDDESDM | | |
| EventLog (Event log) | Running | (Automatic) | Network DDE DSDM | Stopped | (Manual) |
| C:\WINNT\system32\services.exe | | | C:\WINNT\System32\netdde.exe | | |
| Service Account Name: LocalSystem | | | Service Account Name: LocalSystem | | |
| Error Severity: Normal | | | Error Severity: Normal | | |
| Service Flags: Shared Process | | | Service Flags: Shared Process | | |
| Server | Running | (Automatic) | Net Logon (RemoteValidation) | Stopped | (Manual) |
| C:\WINNT\System32\services.exe | | | C:\WINNT\System32\lsass.exe | | |
| Service Account Name: LocalSystem | | | Service Account Name: LocalSystem | | |
| Error Severity: Normal | | | Error Severity: Normal | | |
| Service Flags: Shared Process | | | Service Flags: Shared Process | | |
| Group Dependencies: | | | Service Dependencies: | | |
| TDI | | | LanmanWorkstation | | |
| Workstation (NetworkProvider) | Running | (Automatic) | LmHosts | | |
| C:\WINNT\System32\services.exe | | | NT LM Security Support Provider | Running | (Manual) |
| Service Account Name: LocalSystem | | | C:\WINNT\System32\SERVICES.EXE | | |
| Error Severity: Normal | | | Service Account Name: LocalSystem | | |
| Service Flags: Shared Process | | | Error Severity: Normal | | |
| Group Dependencies: | | | Service Flags: Shared Process | | |
| TDI | | | Plug and Play (PlugPlay) | Stopped | (Manual) |
| License Logging Service | Stopped | (Manual) | C:\WINNT\system32\services.exe | | |
| C:\WINNT\System32\llssrv.exe | | | Service Account Name: LocalSystem | | |
| Service Account Name: LocalSystem | | | Error Severity: Normal | | |
| Error Severity: Normal | | | Service Flags: Shared Process | | |
| Service Flags: Own Process | | | Protected Storage | Running | (Automatic) |
| TCP/IP NetBIOS Helper | Stopped | (Manual) | C:\WINNT\System32\pstores.exe | | |
| C:\WINNT\System32\services.exe | | | Service Account Name: LocalSystem | | |
| Service Account Name: LocalSystem | | | Error Severity: Normal | | |
| Error Severity: Normal | | | Service Flags: Own Process, Interactive | | |
| Service Flags: Shared Process | | | Service Dependencies: | | |
| Group Dependencies: | | | RpcSs | | |

Directory Replicator Stopped (Manual)
 C:\WINNT\System32\lmrepl.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process
 Service Dependencies:
 LanmanWorkstation
 LanmanServer

Remote Procedure Call (RPC) Locator Stopped (Manual)
 C:\WINNT\System32\LOCATOR.EXE
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process
 Service Dependencies:
 LanmanWorkstation

Remote Procedure Call (RPC) Service Running (Automatic)
 C:\WINNT\system32\RpcSs.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process

Schedule Stopped (Manual)
 C:\WINNT\System32\AtSvc.Exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process

SNMP Stopped (Disabled)
 C:\WINNT\System32\snmp.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process
 Service Dependencies:
 Tcpip
 EventLog

SNMP Trap Service Stopped (Disabled)
 C:\WINNT\System32\snmptrap.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process
 Service Dependencies:
 Tcpip
 EventLog

Spooler (SpoolerGroup) Stopped (Manual)
 C:\WINNT\system32\spoolss.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process, Interactive

SQLServerAgent Stopped (Manual)
 C:\MSSQL7\binn\sqlagent.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process
 Service Dependencies:
 MSSQLServer

Telephony Service Stopped (Manual)
 C:\WINNT\system32\tapisrv.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process

UPS Stopped (Manual)
 C:\WINNT\System32\ups.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process

Drivers Report

Abiosdsk (Primary disk) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process

AFD Networking Support Environment (TDI) Running (Automatic)
 C:\WINNT\System32\drivers\afd.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

Aha154x (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

Aha174x (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

aic78xx (SCSI miniport) Running (Boot)
 C:\WINNT\System32\DRIVERS\aic78xx.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

Always (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

ami0nt (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

amsint (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

Arrow (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

atapi (SCSI miniport) Running (Boot)
 C:\WINNT\System32\DRIVERS\atapi.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

Atdisk (Primary disk) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process

ati (Video) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process

Beep (Base) Running (System)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

BusLogic (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process

Busmouse (Pointer Port) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process

Cdaudio (Filter) Stopped (System)

Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Cdifs (File system) Running (Disabled)
Error Severity: Normal
Service Flags: File System Driver, Shared Process
Group Dependencies:
SCSI CDROM Class
Cdrom (SCSI CDROM Class) Running (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Group Dependencies:
SCSI miniport
Changer (Filter) Stopped (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
cirrus (Video) Running (System)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Cpqarray (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
cpqfw2e (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
dac960nt (SCSI miniport) Running (Boot)
C:\WINNT\System32\drivers\dac960nt.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
dce376nt (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Delldsa (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Dell_DGX (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Disk (SCSI Class) Running (Boot)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Group Dependencies:
SCSI miniport
Diskperf (Filter) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
DptScsi (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
dte329x (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Intel(R) PRO NDIS Driver (NDIS) Running (Automatic)
C:\WINNT\System32\drivers\E100BNT.SYS
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
em (Base) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
et4000 (Video) Stopped (Disabled)

Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Fastfat (Boot file system) Running (Disabled)
Error Severity: Normal
Service Flags: File System Driver, Shared Process
Fd16_700 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Fd7000ex (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Fd8xx (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
flashpnt (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Floppy (Primary disk) Running (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Ftdisk (Filter) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
PCI Hot Plug Driver Stopped (Disabled)
System32\DRIVERS\hotplug.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
i8042 Keyboard and PS/2 Mouse Port Driver (Keyboard Port) Running (System)
System32\DRIVERS\i8042prt.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Inport (Pointer Port) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Jazzg300 (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Jazzg364 (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Jzvx1484 (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Keyboard Class Driver (Keyboard Class) Running (System)
System32\DRIVERS\kbdclass.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
KSecDD (Base) Running (System)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
macdisk (Filter) Running (Boot)
C:\WINNT\System32\drivers\macdisk.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
megaraid (SCSI Miniport) Stopped (Disabled)
C:\WINNT\System32\drivers\megaraid.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process

```

mga (Video)                               Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
mga_mil (Video)                             Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
mitsumi (SCSI miniport)                    Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
mkecr5xx (SCSI miniport)                   Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Modem (Extended base)                      Stopped (Manual)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
Mouse Class Driver (Pointer Class)         Running (System)
  System32\DRIVERS\mouclass.sys
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
mraid35x (Primary disk)                    Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
Msfs (File system)                         Running (System)
  Error Severity: Normal
  Service Flags: File System Driver, Shared Process
Mup (Network)                              Running (Manual)
  C:\WINNT\System32\drivers\mup.sys
  Error Severity: Normal
  Service Flags: File System Driver, Shared Process
NetBEUI Protocol (PNP_TDI)                 Running (Automatic)
  C:\WINNT\System32\drivers\nbf.sys
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Ncr53c9x (SCSI miniport)                   Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
ncr77c22 (Video)                           Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
Ncr700 (SCSI miniport)                     Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Ncr710 (SCSI miniport)                     Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Microsoft NDIS System Driver (NDIS)       Running (System)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
NetBIOS Interface (NetBIOSGroup)          Stopped (Manual)
  C:\WINNT\System32\drivers\netbios.sys
  Error Severity: Normal
  Service Flags: File System Driver, Shared Process
  Group Dependencies:
    TDI
WINS Client (TCP/IP) (PNP_TDI)             Stopped (Automatic)
  C:\WINNT\System32\drivers\netbt.sys
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
  Service Dependencies:

```

```

  Tcpip
NetDetect                                  Stopped (Manual)
  C:\WINNT\system32\drivers\netdect.sys
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Npfs (File system)                         Running (System)
  Error Severity: Normal
  Service Flags: File System Driver, Shared Process
Ntfs (File system)                         Running (Disabled)
  Error Severity: Normal
  Service Flags: File System Driver, Shared Process
Null (Base)                                Running (System)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Oliscsi (SCSI miniport)                   Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Parallel (Extended base)                   Running (Automatic)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
  Service Dependencies:
    Parport
  Group Dependencies:
    Parallel arbitrator
Parport (Parallel arbitrator)              Running (Automatic)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
ParVdm (Extended base)                     Running (Automatic)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
  Service Dependencies:
    Parport
  Group Dependencies:
    Parallel arbitrator
PCIDump (PCI Configuration)                Stopped (System)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
Pcmcia (System Bus Extender)               Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
PnP ISA Enabler Driver (Base)              Stopped (System)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
PortFltr (port)                            Stopped (Manual)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
  Group Dependencies:
    SCSI miniport
psidisp (Video)                            Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
Ql10wnt (SCSI miniport)                    Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
qv (Video)                                  Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
Rdr (Network)                              Running (Manual)
  C:\WINNT\System32\drivers\rdr.sys

```

```

Error Severity: Normal
Service Flags: File System Driver, Shared Process
s3 (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Scsiprnt (Extended base) Stopped (Automatic)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Group Dependencies:
SCSI miniport
Scsiscan (SCSI Class) Running (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Group Dependencies:
SCSI miniport
Serial (Extended base) Running (Automatic)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Sermouse (Pointer Port) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Sfloppy (Primary disk) Stopped (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Group Dependencies:
SCSI miniport
Simbad (Filter) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
slcd32 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Sparrow (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Spock (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Srv (Network) Running (Manual)
C:\WINNT\System32\drivers\srv.sys
Error Severity: Normal
Service Flags: File System Driver, Shared Process
symc810 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Sysdrv (Extended Base) Running (Automatic)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
T128 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
T13B (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
TCP/IP Service (PNP TDI) Running (Automatic)
C:\WINNT\System32\drivers\tcpip.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
tga (Video) Stopped (Disabled)

```

```

Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
tmv1 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Ultra124 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Ultra14f (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Ultra24f (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
update (Base) Stopped (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
v7vram (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
VgaSave (Video Save) Stopped (System)
C:\WINNT\System32\drivers\vga.sys
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
VgaStart (Video Init) Stopped (System)
C:\WINNT\System32\drivers\vga.sys
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Wd33c93 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
wd90c24a (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
wdvga (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
weitekp9 (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Xga (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process

```

IRQ and Port Report

| Devices | Vector | Level | Affinity |
|-------------------------|--------|-------|------------|
| MPS 1.4 - APIC platform | 8 | 8 | 0x0000000f |
| MPS 1.4 - APIC platform | 0 | 0 | 0x0000000f |
| MPS 1.4 - APIC platform | 1 | 1 | 0x0000000f |
| MPS 1.4 - APIC platform | 2 | 2 | 0x0000000f |
| MPS 1.4 - APIC platform | 3 | 3 | 0x0000000f |
| MPS 1.4 - APIC platform | 4 | 4 | 0x0000000f |
| MPS 1.4 - APIC platform | 5 | 5 | 0x0000000f |
| MPS 1.4 - APIC platform | 6 | 6 | 0x0000000f |
| MPS 1.4 - APIC platform | 7 | 7 | 0x0000000f |

| | | | |
|-------------------------|-----|-----|--------------|
| MPS 1.4 - APIC platform | 8 | 8 | 0x0000000f |
| MPS 1.4 - APIC platform | 9 | 9 | 0x0000000f |
| MPS 1.4 - APIC platform | 10 | 10 | 0x0000000f |
| MPS 1.4 - APIC platform | 11 | 11 | 0x0000000f |
| MPS 1.4 - APIC platform | 12 | 12 | 0x0000000f |
| MPS 1.4 - APIC platform | 13 | 13 | 0x0000000f |
| MPS 1.4 - APIC platform | 14 | 14 | 0x0000000f |
| MPS 1.4 - APIC platform | 15 | 15 | 0x0000000f |
| MPS 1.4 - APIC platform | 16 | 16 | 0x0000000f |
| MPS 1.4 - APIC platform | 17 | 17 | 0x0000000f |
| MPS 1.4 - APIC platform | 18 | 18 | 0x0000000f |
| MPS 1.4 - APIC platform | 19 | 19 | 0x0000000f |
| MPS 1.4 - APIC platform | 20 | 20 | 0x0000000f |
| MPS 1.4 - APIC platform | 21 | 21 | 0x0000000f |
| MPS 1.4 - APIC platform | 22 | 22 | 0x0000000f |
| MPS 1.4 - APIC platform | 23 | 23 | 0x0000000f |
| MPS 1.4 - APIC platform | 24 | 24 | 0x0000000f |
| MPS 1.4 - APIC platform | 25 | 25 | 0x0000000f |
| MPS 1.4 - APIC platform | 26 | 26 | 0x0000000f |
| MPS 1.4 - APIC platform | 27 | 27 | 0x0000000f |
| MPS 1.4 - APIC platform | 28 | 28 | 0x0000000f |
| MPS 1.4 - APIC platform | 29 | 29 | 0x0000000f |
| MPS 1.4 - APIC platform | 30 | 30 | 0x0000000f |
| MPS 1.4 - APIC platform | 31 | 31 | 0x0000000f |
| MPS 1.4 - APIC platform | 32 | 32 | 0x0000000f |
| MPS 1.4 - APIC platform | 33 | 33 | 0x0000000f |
| MPS 1.4 - APIC platform | 34 | 34 | 0x0000000f |
| MPS 1.4 - APIC platform | 35 | 35 | 0x0000000f |
| MPS 1.4 - APIC platform | 36 | 36 | 0x0000000f |
| MPS 1.4 - APIC platform | 37 | 37 | 0x0000000f |
| MPS 1.4 - APIC platform | 38 | 38 | 0x0000000f |
| MPS 1.4 - APIC platform | 39 | 39 | 0x0000000f |
| MPS 1.4 - APIC platform | 40 | 40 | 0x0000000f |
| MPS 1.4 - APIC platform | 41 | 41 | 0x0000000f |
| MPS 1.4 - APIC platform | 42 | 42 | 0x0000000f |
| MPS 1.4 - APIC platform | 43 | 43 | 0x0000000f |
| MPS 1.4 - APIC platform | 44 | 44 | 0x0000000f |
| MPS 1.4 - APIC platform | 45 | 45 | 0x0000000f |
| MPS 1.4 - APIC platform | 46 | 46 | 0x0000000f |
| MPS 1.4 - APIC platform | 47 | 47 | 0x0000000f |
| MPS 1.4 - APIC platform | 61 | 61 | 0x0000000f |
| MPS 1.4 - APIC platform | 65 | 65 | 0x0000000f |
| MPS 1.4 - APIC platform | 80 | 80 | 0x0000000f |
| MPS 1.4 - APIC platform | 193 | 193 | 0x0000000f |
| MPS 1.4 - APIC platform | 225 | 225 | 0x0000000f |
| MPS 1.4 - APIC platform | 253 | 253 | 0x0000000f |
| MPS 1.4 - APIC platform | 254 | 254 | 0x0000000f |
| MPS 1.4 - APIC platform | 255 | 255 | 0x0000000f |
| i8042prt | 1 | 1 | 0xffffffffff |
| i8042prt | 12 | 12 | 0xffffffffff |
| Serial | 4 | 4 | 0x00000000 |
| Serial | 3 | 3 | 0x00000000 |
| E100B | 28 | 28 | 0x6db6db6d |
| Floppy | 6 | 6 | 0x00000000 |
| aic78xx | 40 | 40 | 0x00000000 |
| atapi | 0 | 14 | 0x00000000 |
| dac960nt | 32 | 32 | 0x00000000 |
| dac960nt | 32 | 32 | 0x00000000 |
| dac960nt | 32 | 32 | 0x00000000 |

| | | | |
|----------|----|----|------------|
| dac960nt | 32 | 32 | 0x00000000 |
| dac960nt | 32 | 32 | 0x00000000 |
| dac960nt | 32 | 32 | 0x00000000 |
| dac960nt | 32 | 32 | 0x00000000 |
| dac960nt | 32 | 32 | 0x00000000 |

```

-----
Devices                               Physical Address  Length
-----
MPS 1.4 - APIC platform                0x00000000      0x000000010
MPS 1.4 - APIC platform                0x00000020      0x000000002
MPS 1.4 - APIC platform                0x00000040      0x000000004
MPS 1.4 - APIC platform                0x00000048      0x000000004
MPS 1.4 - APIC platform                0x00000061      0x000000001
MPS 1.4 - APIC platform                0x00000070      0x000000002
MPS 1.4 - APIC platform                0x00000080      0x000000010
MPS 1.4 - APIC platform                0x00000092      0x000000001
MPS 1.4 - APIC platform                0x000000a0      0x000000002
MPS 1.4 - APIC platform                0x000000c0      0x000000010
MPS 1.4 - APIC platform                0x000000f0      0x000000010
i8042prt                                0x00000060      0x000000001
i8042prt                                0x00000064      0x000000001
Parport                                  0x000000378     0x000000003
Serial                                   0x0000003f8     0x000000007
Serial                                   0x0000002f8     0x000000007
Floppy                                    0x0000003f0     0x000000006
Floppy                                    0x0000003f7     0x000000001
aic78xx                                  0x00000200      0x000000100
atapi                                     0x000001f0      0x000000008
atapi                                     0x0000003f6     0x000000001
dac960nt                                 0x00000300      0x000000080
dac960nt                                 0x00000400      0x000000080
dac960nt                                 0x00000600      0x000000080
dac960nt                                 0x00000700      0x000000080
dac960nt                                 0x00000800      0x000000080
dac960nt                                 0x00000900      0x000000080
dac960nt                                 0x00000a00      0x000000080
dac960nt                                 0x00000b00      0x000000080
cirrus                                    0x000003b0      0x00000000c
cirrus                                    0x0000003c0     0x000000020

```

DMA and Memory Report

```

-----
Devices                               Channel    Port
-----
Floppy                                  2         0
-----

```

```

-----
Devices                               Physical Address  Length
-----
MPS 1.4 - APIC platform                0xfec10000      0x00000400
MPS 1.4 - APIC platform                0xfec00000      0x00000400
E100B                                    0xef200000      0x0000001e
aic78xx                                  0xe6000000      0x00001000
dac960nt                                 0xe6110000      0x00000080
dac960nt                                 0xea000000      0x02000000
dac960nt                                 0xe6210000      0x00000080
dac960nt                                 0xec000000      0x02000000
dac960nt                                 0xee110000      0x00000080

```



```

dac960nt      0xf0000000  0x02000000
dac960nt      0xee210000  0x00000080
dac960nt      0xf2000000  0x02000000
dac960nt      0xf4010000  0x00000080
dac960nt      0xf6000000  0x02000000
dac960nt      0xf4110000  0x00000080
dac960nt      0xf8000000  0x02000000
dac960nt      0xf4210000  0x00000080
dac960nt      0xfa000000  0x02000000
dac960nt      0xf4310000  0x00000080
dac960nt      0xfc000000  0x02000000
cirrus        0x000a0000  0x00020000
cirrus        0xe8000000  0x01000000

```

Environment Report

System Environment Variables

```

ComSpec=C:\WINNT\system32\cmd.exe
HOME=C:/
NTRESKIT=Z:\NTRESKIT
NUMBER_OF_PROCESSORS=4
OS=Windows_NT
Os2LibPath=C:\WINNT\system32\os2\dll;

Path=C:\MKS\mksnt;C:\WINNT\system32;C:\WINNT;Z:\NTRESKIT;Z:\NTRESKIT\Perl;
z:\emon\bin;C:\MSSQL7\BINN
PROCESSOR_ARCHITECTURE=x86
PROCESSOR_IDENTIFIER=x86 Family 6 Model 5 Stepping 2, GenuineIntel
PROCESSOR_LEVEL=6
PROCESSOR_REVISION=0502
ROOTDIR=C:/MKS
SHELL=C:/MKS/mksnt/sh.exe
TMPDIR=C:/TEMP
windir=C:\WINNT

```

Environment Variables for Current User

```

TEMP=C:\TEMP
TMP=C:\TEMP

```

Network Report

```

Your Access Level: Admin & Local
Workgroup or Domain: WORKGROUP
Network Version: 4.0
LanRoot: WORKGROUP
Logged On Users: 1
Current User (1): Administrator
  Logon Domain: AVALON4
  Logon Server: AVALON4

```

```

Transport: Nbf_E100B1, 00-A0-C9-C5-45-C4, VC's: 0, Wan: Wan

```

```

Character Wait: 3,600
Collection Time: 250
Maximum Collection Count: 16
Keep Connection: 600
Maximum Commands: 5
Session Time Out: 45
Character Buffer Size: 512
Maximum Threads: 17
Lock Quota: 6,144
Lock Increment: 10
Maximum Locks: 500
Pipe Increment: 10
Maximum Pipes: 500
Cache Time Out: 40
Dormant File Limit: 45
Read Ahead Throughput: 4,294,967,295
Mailslot Buffers: 3
Server Announce Buffers: 20
Illegal Datagrams: 5
Datagram Reset Frequency: 60
Log Election Packets: False
Use Opportunistic Locking: True
Use Unlock Behind: True
Use Close Behind: True
Buffer Pipes: True
Use Lock, Read, Unlock: True
Use NT Caching: True
Use Raw Read: True
Use Raw Write: True
Use Write Raw Data: True
Use Encryption: True
Buffer Deny Write Files: True
Buffer Read Only Files: True
Force Core Creation: True
512 Byte Max Transfer: False
Bytes Received: 1,075
SMB's Received: 11
Paged Read Bytes Requested: 0
Non Paged Read Bytes Requested: 0
Cache Read Bytes Requested: 0
Network Read Bytes Requested: 0
Bytes Transmitted: 1,435
SMB's Transmitted: 11
Paged Read Bytes Requested: 0
Non Paged Read Bytes Requested: 0
Cache Read Bytes Requested: 0
Network Read Bytes Requested: 0
Initially Failed Operations: 0
Failed Completion Operations: 0
Read Operations: 0
Random Read Operations: 0
Read SMB's: 0
Large Read SMB's: 0
Small Read SMB's: 0
Write Operations: 0
Random Write Operations: 0
Write SMB's: 0

```

Large Write SMB's: 0
 Small Write SMB's: 0
 Raw Reads Denied: 0
 Raw Writes Denied: 0
 Network Errors: 0
 Sessions: 3
 Failed Sessions: 0
 Reconnects: 0
 Core Connects: 0
 LM 2.0 Connects: 0
 LM 2.x Connects: 0
 Windows NT Connects: 2
 Server Disconnects: 1
 Hung Sessions: 0
 Use Count: 3
 Failed Use Count: 0
 Current Commands: 0
 Server File Opens: 0
 Server Device Opens: 0
 Server Jobs Queued: 0
 Server Session Opens: 0
 Server Sessions Timed Out: 0
 Server Sessions Errored Out: 0
 Server Password Errors: 0
 Server Permission Errors: 0
 Server System Errors: 0
 Server Bytes Sent: 269
 Server Bytes Received: 485
 Server Average Response Time: 0
 Server Request Buffers Needed: 0
 Server Big Buffers Needed: 0

NT Server Registry Information

Software\Microsoft

Key Name: SOFTWARE\Microsoft\MMC
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 11:42 AM

Key Name: SOFTWARE\Microsoft\MMC\NodeTypes
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 11:42 AM

Key Name: SOFTWARE\Microsoft\MMC\Settings
 Class Name: <NO CLASS>
 Last Write Time: 9/4/98 - 8:39 AM
 Value 0
 Name: Help File Index
 Type: REG_DWORD
 Data: 0x2

Key Name: SOFTWARE\Microsoft\MMC\SnapIns
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 11:42 AM

11d0- Key Name: SOFTWARE\Microsoft\MMC\SnapIns\{00100100-1816-8EF5-00AA0062C58F}
 Class Name: <NO CLASS>
 Last Write Time: 9/2/98 - 3:13 PM
 Value 0
 Name: About
 Type: REG_SZ
 Data: {00100101-1816-11d0-8EF5-00AA0062C58F}

Value 1
 Name: NameString
 Type: REG_SZ
 Data: Microsoft SQL Enterprise Manager

11d0- Key Name: SOFTWARE\Microsoft\MMC\SnapIns\{00100100-1816-8EF5-00AA0062C58F}\About
 Class Name: <NO CLASS>
 Last Write Time: 9/2/98 - 3:13 PM
 Value 0
 Name: <NO NAME>
 Type: REG_SZ
 Data: {00100101-1816-11d0-8EF5-00AA0062C58F}

11d0- Key Name: SOFTWARE\Microsoft\MMC\SnapIns\{00100100-1816-8EF5-00AA0062C58F}\NameString
 Class Name: <NO CLASS>
 Last Write Time: 9/2/98 - 3:13 PM
 Value 0
 Name: <NO NAME>
 Type: REG_SZ
 Data: Microsoft SQL Enterprise Manager

11d0- Key Name: SOFTWARE\Microsoft\MMC\SnapIns\{00100100-1816-8EF5-00AA0062C58F}\NodeTypes
 Class Name: <NO CLASS>
 Last Write Time: 9/2/98 - 3:13 PM

11d0- Key Name: SOFTWARE\Microsoft\MMC\SnapIns\{00100100-1816-8EF5-00AA0062C58F}\NodeTypes\{00100200-1816-F5-00AA0062C58F}
 Class Name: <NO CLASS>
 Last Write Time: 9/2/98 - 3:13 PM

11d0- Key Name: SOFTWARE\Microsoft\MMC\SnapIns\{00100100-1816-8EF5-00AA0062C58F}\Standalone

Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:13 PM

Key Name: SOFTWARE\Microsoft\MSDTC
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:13 PM
Value 0
Name: MaxLogSize
Type: REG_DWORD
Data: 0x200

Key Name: SOFTWARE\Microsoft\MSDTC\Setup
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:13 PM
Value 0
Name: InstallCode
Type: REG_DWORD
Data: 0

Value 1
Name: InstallState
Type: REG_DWORD
Data: 0x1

Value 2
Name: MajorVersion
Type: REG_DWORD
Data: 0x20000

Value 3
Name: MinorVersion
Type: REG_DWORD
Data: 0x2f8

Key Name: SOFTWARE\Microsoft\MSDTC\Setup\ExitStatus
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:13 PM
Value 0
Name: CompletionComment
Type: REG_SZ
Data: Source = DtcComplete, ExitType = Success,

Successfu
1 Install

Value 1
Name: ErrorCode
Type: REG_DWORD
Data: 0

Value 2
Name: ExitCode
Type: REG_DWORD
Data: 0

Value 3

Name: Source
Type: REG_DWORD
Data: 0x1

Key Name: SOFTWARE\Microsoft\MSSQLServer
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM

Key Name: SOFTWARE\Microsoft\MSSQLServer\Client
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:13 PM

Key Name: SOFTWARE\Microsoft\MSSQLServer\Client\ConnectTo
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:57 PM
Value 0
Name: DSQUERY
Type: REG_SZ
Data: DBMSSOCN

Key Name: SOFTWARE\Microsoft\MSSQLServer\Client\DB-Lib
Class Name: <NO CLASS>
Last Write Time: 9/21/98 - 3:37 PM
Value 0
Name: AutoAnsiToOem
Type: REG_SZ
Data: on

Key Name: SOFTWARE\Microsoft\MSSQLServer\Client\TDS
Class Name: <NO CLASS>
Last Write Time: 9/4/98 - 4:50 PM
Value 0
Name: <NO NAME>
Type: REG_SZ
Data: 7.0

Value 1
Name: .
Type: REG_SZ
Data: 7.0

Value 2
Name: Avalon4
Type: REG_SZ
Data: 7.0

Key Name: SOFTWARE\Microsoft\MSSQLServer\ClientSetup
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: SQLPath
Type: REG_SZ
Data: C:\MSSQL7

```

Key Name: SOFTWARE\Microsoft\MicrosoftSQLServer\MicrosoftSQLServer
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
  Name: AuditLevel
  Type: REG_DWORD
  Data: 0
Value 1
  Name: BackupDirectory
  Type: REG_SZ
  Data: C:\MSSQL7\BACKUP
Value 2
  Name: DefaultCompStyle
  Type: REG_SZ
  Data: 0
Value 3
  Name: DefaultDomain
  Type: REG_SZ
  Data: AVALON4
Value 4
  Name: DefaultLocaleID
  Type: REG_SZ
  Data: 8200
Value 5
  Name: DefaultLogin
  Type: REG_SZ
  Data: guest
Value 6
  Name: DefaultSortID
  Type: REG_SZ
  Data: 50
Value 7
  Name: ListenOn
  Type: REG_MULTI_SZ
  Data: SSNMPN70,\\.\pipe\sql\query
  SSMSO70,1433
Value 8
  Name: LoginMode
  Type: REG_DWORD
  Data: 0
Value 9
  Name: Map#
  Type: REG_SZ
  Data: -
Value 10
  Name: Map$
  Type: REG_SZ

```

```

Data:
Value 11
  Name: Map_
  Type: REG_SZ
  Data: \
Value 12
  Name: ResourceMgrID
  Type: REG_SZ
  Data: {4002167A-42B2-11D2-B9ED-00A0C9C545C4}
Value 13
  Name: RWSListenAddress
  Type: REG_SZ
  Data:
Value 14
  Name: SetHostName
  Type: REG_DWORD
  Data: 0
Value 15
  Name: Tapeloadwaittime
  Type: REG_DWORD
  Data: 0xffffffff

Key Name: SOFTWARE\Microsoft\MicrosoftSQLServer\MicrosoftSQLServer\CurrentVersion
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:13 PM
Value 0
  Name: checksum
  Type: REG_BINARY
  Data:
00000000 36 35 32 32 63 31 35 63 - 32 37 64 65 64 62 32 38
6522c15c
27dedb28
00000010 61 61 30 33 34 34 64 64 - 31 31 36 38 65 32 66 38
aa0344dd
1168e2f8
00000020 35 31 39 35 62 34 30 62 - 65 39 34 31 62 31 32 35
5195b40b
e941b125
00000030 62 37 66 32 64 36 39 36 - 36 36 34 62 64 63 63 32
b7f2d696
664bdcc2
00000040 31 31 30 62 36 36 65 30 - 34 31 38 61 31 63 33 39
110b66e0
418a1c39
00000050 38 30 65 33 61 34 66 63 - 63 36 65 34 38 64 38 38
80e3a4fc
c6e48d88
00000060 37 32 35 32 32 66 31 38 - 63 63 31 34 34 35 38 61
72522f18
cc14458a

```

```

00000070 62 31 65 34 37 36 39 63 - 36 66 33 32 66 65 32 38
ble4769c
6f32fe28
00000080 31 64 65 36 00 1de6.

Value 1
Name: CurrentVersion
Type: REG_SZ
Data: 7.00.549

Value 2
Name: RegisteredOwner
Type: REG_SZ
Data: SAM&M

Value 3
Name: SerialNumber
Type: REG_DWORD
Data: 0x81530040

Key Name:
SOFTWARE\Microsoft\MSSQLServer\MSSQLServer\Parameters
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:13 PM
Value 0
Name: SQLArg0
Type: REG_SZ
Data: -dC:\MSSQL7\data\master.mdf

Value 1
Name: SQLArg1
Type: REG_SZ
Data: -eC:\MSSQL7\log\ERRORLOG

Value 2
Name: SQLArg2
Type: REG_SZ
Data: -lC:\MSSQL7\data\mastlog.ldf

Key Name:
SOFTWARE\Microsoft\MSSQLServer\MSSQLServer\RPCNetLib
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:13 PM
Value 0
Name: Security
Type: REG_SZ
Data:

Key Name: SOFTWARE\Microsoft\MSSQLServer\Providers
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess
Type: REG_DWORD

```

```

Data: 0x1

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Providers\ADSDSOObject
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess
Type: REG_DWORD
Data: 0x1

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Providers\DTSPackage
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess
Type: REG_DWORD
Data: 0x1

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Providers\Microsoft
Class Name: Jet.OLEDB.4.0
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess
Type: REG_DWORD
Data: 0x1

Key Name: SOFTWARE\Microsoft\MSSQLServer\Providers\MSDAORA
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess
Type: REG_DWORD
Data: 0x1

Key Name: SOFTWARE\Microsoft\MSSQLServer\Providers\MSDASQL
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess
Type: REG_DWORD
Data: 0x1

Key Name: SOFTWARE\Microsoft\MSSQLServer\Providers\MSIDXS
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess

```

Type: REG_DWORD
Data: 0x1

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Providers\MSQLImpPro

Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess
Type: REG_DWORD
Data: 0x1

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Providers\MSSEARCHSQL

Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess
Type: REG_DWORD
Data: 0x1

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Providers\SQLOLEDB

Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: AllowInProcess
Type: REG_DWORD
Data: 0x1

Key Name: SOFTWARE\Microsoft\MSSQLServer\Replication
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Replication\MergeReplicationProvider

Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Replication\MergeReplicationProvider\7.0

Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM

Key Name:
SOFTWARE\Microsoft\MSSQLServer\Replication\MergeReplicationProvider\7.0\MsJet

Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:20 PM
Value 0
Name: <NO NAME>

Type: REG_SZ
Data: {f159cf30-0db4-11d1-b272-00aa00b8de95}

Key Name: SOFTWARE\Microsoft\MSSQLServer\Setup
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:13 PM
Value 0
Name: SourcePath
Type: REG_SZ
Data: Z:\Sql70549.03p\x86\Data

Value 1
Name: SQLDataRoot
Type: REG_SZ
Data: C:\MSSQL7

Value 2
Name: SQLPath
Type: REG_SZ
Data: C:\MSSQL7

Key Name: SOFTWARE\Microsoft\MSSQLServer\SQL Service Manager
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0
Name: Action Verify
Type: REG_DWORD
Data: 0

Value 1
Name: DefaultSvc
Type: REG_SZ
Data: MSSQLServer

Value 2
Name: Remote
Type: REG_DWORD
Data: 0x1

Value 3
Name: Services
Type: REG_MULTI_SZ
Data: MSSQLServer
SQLServerAgent
MSDTC

Key Name: SOFTWARE\Microsoft\MSSQLServer\SQLEW
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM

Key Name: SOFTWARE\Microsoft\MSSQLServer\SQLEW\Replication
Class Name: <NO CLASS>
Last Write Time: 9/2/98 - 3:16 PM
Value 0

Name: PerfmonFile
 Type: REG_SZ
 Data: C:\MSSQL7\BINN\REPLMON.PCM

Key Name: SOFTWARE\Microsoft\MSSQLServer\SQLLEW\Wizards
 Class Name: <NO CLASS>
 Last Write Time: 9/2/98 - 3:16 PM

Value 0
 Name: Web Assistant
 Type: REG_SZ
 Data: C:\MSSQL7\BINN\semwebwz.DLL^WebWizardEntry

Key Name: SOFTWARE\Microsoft\MSSQLServer\SQLServerAgent
 Class Name: <NO CLASS>
 Last Write Time: 9/2/98 - 3:16 PM

Value 0
 Name: DownloadedMaxRows
 Type: REG_DWORD
 Data: 0x64

Value 1
 Name: ErrorLogFile
 Type: REG_SZ
 Data: C:\MSSQL7\LOG\SQLAGENT.OUT

Value 2
 Name: ErrorLoggingLevel
 Type: REG_DWORD
 Data: 0x3

Value 3
 Name: JobHistoryMaxRows
 Type: REG_DWORD
 Data: 0x3e8

Value 4
 Name: JobHistoryMaxRowsPerJob
 Type: REG_DWORD
 Data: 0x64

Value 5
 Name: MailAutoStart
 Type: REG_DWORD
 Data: 0x1

Value 6
 Name: MSXServerName
 Type: REG_SZ
 Data:

Value 7
 Name: NonAlertableErrors
 Type: REG_SZ
 Data: 1204,4002

Value 8
 Name: RestartSQLServer

Type: REG_DWORD
 Data: 0x1

Value 9
 Name: ServerHost
 Type: REG_SZ
 Data:

Value 10
 Name: WorkingDirectory
 Type: REG_SZ
 Data: C:\MSSQL7\JOBS

Key Name: SOFTWARE\Microsoft\MSSQLServer\SQLServerAgent\Subsy
 stems
 Class Name: <NO CLASS>
 Last Write Time: 9/2/98 - 3:16 PM

Value 0
 Name: ActiveScripting
 Type: REG_SZ
 Data: C:\MSSQL7\BINN\SQLATXSS.DLL,NULL,ActiveScriptStart,ActiveScriptEvent,ActiveScriptStop,10

Value 1
 Name: CmdExec
 Type: REG_SZ
 Data: C:\MSSQL7\BINN\SQLCMDSS.DLL,NULL,CmdExecStart,CmdEvent,CmdExecStop,10

Value 2
 Name: Distribution
 Type: REG_SZ
 Data: C:\MSSQL7\BINN\SQLREPSS.DLL,C:\MSSQL7\BINN\DISTRIB.EXE,ReplStart,ReplEvent,ReplStop,100

Value 3
 Name: LogReader
 Type: REG_SZ
 Data: C:\MSSQL7\BINN\SQLREPSS.DLL,C:\MSSQL7\BINN\LOGREAD.EXE,ReplStart,ReplEvent,ReplStop,25

Value 4
 Name: Merge
 Type: REG_SZ
 Data: C:\MSSQL7\BINN\SQLREPSS.DLL,C:\MSSQL7\BINN\REPLMERG.EXE,ReplStart,ReplEvent,ReplStop,100

Value 5
 Name: Snapshot
 Type: REG_SZ
 Data: C:\MSSQL7\BINN\SQLREPSS.DLL,C:\MSSQL7\BINN\SNAPSHOT

.EXE, ReplStart, ReplEvent, ReplStop, 100

Software\ODBC

Key Name: SOFTWARE\ODBC
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 11:39 AM

Key Name: SOFTWARE\ODBC\ODBC.INI
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:01 PM

Key Name: SOFTWARE\ODBC\ODBC.INI\LocalServer
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:01 PM

Value 0
Name: Description
Type: REG_SZ
Data:

Value 1
Name: Server
Type: REG_SZ
Data: (local)

Value 2
Name: Trusted_Connection
Type: REG_SZ
Data:

Value 3
Name: UseProcForPrepare
Type: REG_SZ
Data: Yes

Key Name: SOFTWARE\ODBC\ODBCINST.INI
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 11:39 AM

Driver Key Name: SOFTWARE\ODBC\ODBCINST.INI\Microsoft Access
(*.mdb)
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM

Value 0
Name: APILevel
Type: REG_SZ
Data: 1

Value 1
Name: ConnectFunctions
Type: REG_SZ
Data: YYN

Value 2

Name: Driver
Type: REG_SZ
Data: C:\WINNT\System32\odbcjt32.dll

Value 3
Name: DriverODBCVer
Type: REG_SZ
Data: 02.50

Value 4
Name: FileExtns
Type: REG_SZ
Data: *.mdb

Value 5
Name: FileUsage
Type: REG_SZ
Data: 2

Value 6
Name: Setup
Type: REG_SZ
Data: C:\WINNT\System32\odbcjt32.dll

Value 7
Name: SQLLevel
Type: REG_SZ
Data: 0

Value 8
Name: UsageCount
Type: REG_DWORD
Data: 0x3

Driver Key Name: SOFTWARE\ODBC\ODBCINST.INI\Microsoft dBase
(*.dbf)
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM

Value 0
Name: APILevel
Type: REG_SZ
Data: 1

Value 1
Name: ConnectFunctions
Type: REG_SZ
Data: YYN

Value 2
Name: Driver
Type: REG_SZ
Data: C:\WINNT\System32\odbcjt32.dll

Value 3
Name: DriverODBCVer
Type: REG_SZ
Data: 02.50

Value 4
 Name: FileExtns
 Type: REG_SZ
 Data: *.dbf,*.ndx,*.mdx

Value 5
 Name: FileUsage
 Type: REG_SZ
 Data: 1

Value 6
 Name: Setup
 Type: REG_SZ
 Data: C:\WINNT\System32\oddbse32.dll

Value 7
 Name: SQLLevel
 Type: REG_SZ
 Data: 0

Value 8
 Name: UsageCount
 Type: REG_DWORD
 Data: 0x3

Driver Key Name: SOFTWARE\ODBC\ODBCINST.INI\Microsoft Excel
 (*.xls)
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:00 PM

Value 0
 Name: APILevel
 Type: REG_SZ
 Data: 1

Value 1
 Name: ConnectFunctions
 Type: REG_SZ
 Data: YYN

Value 2
 Name: Driver
 Type: REG_SZ
 Data: C:\WINNT\System32\odbcjt32.dll

Value 3
 Name: DriverODBCVer
 Type: REG_SZ
 Data: 02.50

Value 4
 Name: FileExtns
 Type: REG_SZ
 Data: *.xls

Value 5
 Name: FileUsage
 Type: REG_SZ
 Data: 1

Data: 1

Value 6
 Name: Setup
 Type: REG_SZ
 Data: C:\WINNT\System32\odexl32.dll

Value 7
 Name: SQLLevel
 Type: REG_SZ
 Data: 0

Value 8
 Name: UsageCount
 Type: REG_DWORD
 Data: 0x3

Driver Key Name: SOFTWARE\ODBC\ODBCINST.INI\Microsoft FoxPro
 (*.dbf)
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:00 PM

Value 0
 Name: APILevel
 Type: REG_SZ
 Data: 1

Value 1
 Name: ConnectFunctions
 Type: REG_SZ
 Data: YYN

Value 2
 Name: Driver
 Type: REG_SZ
 Data: C:\WINNT\System32\odbcjt32.dll

Value 3
 Name: DriverODBCVer
 Type: REG_SZ
 Data: 02.50

Value 4
 Name: FileExtns
 Type: REG_SZ
 Data: *.dbf,*.cdx,*.idx,*.fpt

Value 5
 Name: FileUsage
 Type: REG_SZ
 Data: 1

Value 6
 Name: Setup
 Type: REG_SZ
 Data: C:\WINNT\System32\odfox32.dll

Value 7

Name: SQLLevel
 Type: REG_SZ
 Data: 0

Value 8
 Name: UsageCount
 Type: REG_DWORD
 Data: 0x3

Oracle Key Name: SOFTWARE\ODBC\ODBCINST.INI\Microsoft ODBC for
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:00 PM

Value 0
 Name: APILevel
 Type: REG_SZ
 Data: 2

Value 1
 Name: ConnectFunctions
 Type: REG_SZ
 Data: YYY

Value 2
 Name: CPTimeout
 Type: REG_SZ
 Data: 60

Value 3
 Name: Driver
 Type: REG_SZ
 Data: C:\WINNT\System32\msorcl32.dll

Value 4
 Name: DriverODBCVer
 Type: REG_SZ
 Data: 02.50

Value 5
 Name: FileUsage
 Type: REG_SZ
 Data: 0

Value 6
 Name: Setup
 Type: REG_SZ
 Data: C:\WINNT\System32\msorcl32.dll

Value 7
 Name: SQLLevel
 Type: REG_SZ
 Data: 1

Value 8
 Name: UsageCount
 Type: REG_DWORD
 Data: 0x3

Driver Key Name: SOFTWARE\ODBC\ODBCINST.INI\Microsoft Paradox
 (*.db)
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:00 PM

Value 0
 Name: APILevel
 Type: REG_SZ
 Data: 1

Value 1
 Name: ConnectFunctions
 Type: REG_SZ
 Data: YYN

Value 2
 Name: Driver
 Type: REG_SZ
 Data: C:\WINNT\System32\odbcjt32.dll

Value 3
 Name: DriverODBCVer
 Type: REG_SZ
 Data: 02.50

Value 4
 Name: FileExtns
 Type: REG_SZ
 Data: *.db

Value 5
 Name: FileUsage
 Type: REG_SZ
 Data: 1

Value 6
 Name: Setup
 Type: REG_SZ
 Data: C:\WINNT\System32\odpdx32.dll

Value 7
 Name: SQLLevel
 Type: REG_SZ
 Data: 0

Value 8
 Name: UsageCount
 Type: REG_DWORD
 Data: 0x3

Key Name: SOFTWARE\ODBC\ODBCINST.INI\Microsoft Text Driver
 (*.txt; *.csv)
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:00 PM

Value 0
 Name: APILevel

Type: REG_SZ
Data: 1

Value 1
Name: ConnectFunctions
Type: REG_SZ
Data: YYN

Value 2
Name: Driver
Type: REG_SZ
Data: C:\WINNT\System32\odbcjt32.dll

Value 3
Name: DriverODBCVer
Type: REG_SZ
Data: 02.50

Value 4
Name: FileExtns
Type: REG_SZ
Data: *.*.asc,*.csv,*.tab,*.txt,*.csv

Value 5
Name: FileUsage
Type: REG_SZ
Data: 1

Value 6
Name: Setup
Type: REG_SZ
Data: C:\WINNT\System32\odtext32.dll

Value 7
Name: SQLLevel
Type: REG_SZ
Data: 0

Value 8
Name: UsageCount
Type: REG_DWORD
Data: 0x3

Key Name: SOFTWARE\ODBC\ODBCINST.INI\Microsoft Visual
FoxPro Driver
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM

Value 0
Name: APILevel
Type: REG_SZ
Data: 0

Value 1
Name: ConnectFunctions
Type: REG_SZ
Data: YYN

Value 2

Name: Driver
Type: REG_SZ
Data: C:\WINNT\System32\vfpodbc.dll

Value 3
Name: DriverODBCVer
Type: REG_SZ
Data: 02.50

Value 4
Name: FileExtns
Type: REG_SZ
Data: *.dbc,*.dbf,*.cdx,*.idx,*.fpt

Value 5
Name: FileUsage
Type: REG_SZ
Data: 1

Value 6
Name: Setup
Type: REG_SZ
Data: C:\WINNT\System32\vfpodbc.dll

Value 7
Name: SQLLevel
Type: REG_SZ
Data: 0

Value 8
Name: UsageCount
Type: REG_DWORD
Data: 0x3

Key Name: SOFTWARE\ODBC\ODBCINST.INI\MS Code Page
Translator
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM

Value 0
Name: Setup
Type: REG_SZ
Data: C:\WINNT\System32\MSCPXL32.DLL

Value 1
Name: Translator
Type: REG_SZ
Data: C:\WINNT\System32\MSCPXL32.DLL

Value 2
Name: UsageCount
Type: REG_DWORD
Data: 0x3

Key Name: SOFTWARE\ODBC\ODBCINST.INI\ODBC Core
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM

Value 0

Name: UsageCount
 Type: REG_DWORD
 Data: 0x6

Key Name: SOFTWARE\ODBC\ODBCINST.INI\ODBC Drivers
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:00 PM

Value 0
 Name: Microsoft Access Driver (*.mdb)
 Type: REG_SZ
 Data: Installed

Value 1
 Name: Microsoft dBase Driver (*.dbf)
 Type: REG_SZ
 Data: Installed

Value 2
 Name: Microsoft Excel Driver (*.xls)
 Type: REG_SZ
 Data: Installed

Value 3
 Name: Microsoft FoxPro Driver (*.dbf)
 Type: REG_SZ
 Data: Installed

Value 4
 Name: Microsoft ODBC for Oracle
 Type: REG_SZ
 Data: Installed

Value 5
 Name: Microsoft Paradox Driver (*.db)
 Type: REG_SZ
 Data: Installed

Value 6
 Name: Microsoft Text Driver (*.txt; *.csv)
 Type: REG_SZ
 Data: Installed

Value 7
 Name: Microsoft Visual FoxPro Driver
 Type: REG_SZ
 Data: Installed

Value 8
 Name: SQL Server
 Type: REG_SZ
 Data: Installed

Key Name: SOFTWARE\ODBC\ODBCINST.INI\ODBC Translators
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:00 PM

Value 0
 Name: MS Code Page Translator

Type: REG_SZ
 Data: Installed

Key Name: SOFTWARE\ODBC\ODBCINST.INI\SQL Server
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:00 PM

Value 0
 Name: APILevel
 Type: REG_SZ
 Data: 2

Value 1
 Name: ConnectFunctions
 Type: REG_SZ
 Data: YYY

Value 2
 Name: CPTimeout
 Type: REG_SZ
 Data: 60

Value 3
 Name: Driver
 Type: REG_SZ
 Data: C:\WINNT\System32\sqlsrv32.dll

Value 4
 Name: DriverODBCVer
 Type: REG_SZ
 Data: 03.50

Value 5
 Name: FileUsage
 Type: REG_SZ
 Data: 0

Value 6
 Name: Setup
 Type: REG_SZ
 Data: C:\WINNT\System32\sqlsrv32.dll

Value 7
 Name: SQLLevel
 Type: REG_SZ
 Data: 1

Value 8
 Name: UsageCount
 Type: REG_DWORD
 Data: 0x3

Software\Intel\E100B
 Key Name: SYSTEM\CurrentControlSet\Services\E100B

```

Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM
Value 0
  Name: DisplayName
  Type: REG_SZ
  Data: Intel(R) PRO NDIS Driver

Value 1
  Name: ErrorControl
  Type: REG_DWORD
  Data: 0x1

Value 2
  Name: Group
  Type: REG_SZ
  Data: NDIS

Value 3
  Name: ImagePath
  Type: REG_EXPAND_SZ
  Data: \SystemRoot\System32\drivers\E100BNT.SYS

Value 4
  Name: RequestedSystemResources
  Type: REG_RESOURCE_REQUIREMENTS_LIST
  Data:
    Interface Type: Internal
    Bus Number: 0
    Slot Number: 0
    List 0
      Descriptor 0
        Resource: Interrupt
        Option: 0x00000000
        Disposition: Shared
        Type: Level Sensitive
        Minimum Vector: 0x1c
        Maximum Vector: 0x1c

      Descriptor 1
        Resource: Memory
        Option: 0x00000001
        Disposition: Device Exclusive
        Type: Write Only
        Length: 0x1000
        Alignment: 0x1000
        Minimum Address: 0xfe404000
        Maximum Address: 0xfe404fff

      Descriptor 2
        Resource: Memory
        Option: 0x00000009
        Disposition: Device Exclusive
        Type: Write Only
        Length: 0x1000
        Alignment: 0x1000
        Minimum Address: 0xfe404000
        Maximum Address: 0xfe404fff

      Descriptor 3

```

```

Resource: Memory
Option: 0x00000008
Disposition: Device Exclusive
Type: Write Only
Length: 0x1000
Alignment: 0x1000
Minimum Address: 0xfe000000
Maximum Address: 0xfe0fffff

Descriptor 4
  Resource: Port
  Option: 0x00000001
  Disposition: Device Exclusive
  Type: Port
  Length: 0x20
  Alignment: 0x20
  Minimum Address: 0x00003800
  Maximum Address: 0x0000381f

Descriptor 5
  Resource: Port
  Option: 0x00000008
  Disposition: Device Exclusive
  Type: Port
  Length: 0x20
  Alignment: 0x20
  Minimum Address: 0x00003800
  Maximum Address: 0x0000381f

Descriptor 6
  Resource: Memory
  Option: 0x00000001
  Disposition: Device Exclusive
  Type: Read / Write
  Length: 0x100000
  Alignment: 0x100000
  Minimum Address: 0xfe000000
  Maximum Address: 0xfe0fffff

Descriptor 7
  Resource: Memory
  Option: 0x00000008
  Disposition: Device Exclusive
  Type: Read / Write
  Length: 0x100000
  Alignment: 0x100000
  Minimum Address: 0xfe000000
  Maximum Address: 0xfe0fffff

```

```

Value 5
  Name: Start
  Type: REG_DWORD
  Data: 0x2

Value 6
  Name: Type
  Type: REG_DWORD

```

```

Data:          0x1

Key Name:      SYSTEM\CurrentControlSet\Services\E100B\Enum
Class Name:    <NO CLASS>
Last Write Time: 9/21/98 - 1:53 PM
Value 0
  Name:        0
  Type:        REG_SZ
  Data:        Root\LEGACY_E100B\0000

Value 1
  Name:        Count
  Type:        REG_DWORD
  Data:        0x1

Value 2
  Name:        NextInstance
  Type:        REG_DWORD
  Data:        0x1

Key Name:      SYSTEM\CurrentControlSet\Services\E100B\Linkage
Class Name:    GenericClass
Last Write Time: 9/21/98 - 1:49 PM
Value 0
  Name:        Bind
  Type:        REG_MULTI_SZ
  Data:        \Device\E100B1

Value 1
  Name:        Export
  Type:        REG_MULTI_SZ
  Data:        \Device\E100B1

Value 2
  Name:        Route
  Type:        REG_MULTI_SZ
  Data:        "E100B1"

Key Name:      SYSTEM\CurrentControlSet\Services\E100B\Linkage\Dis
                abled
Class Name:    GenericClass
Last Write Time: 9/21/98 - 1:49 PM
Value 0
  Name:        Bind
  Type:        REG_MULTI_SZ
  Data:

Value 1
  Name:        Export
  Type:        REG_MULTI_SZ
  Data:

```

```

Value 2
  Name:        Route
  Type:        REG_MULTI_SZ
  Data:

Key Name:      SYSTEM\CurrentControlSet\Services\E100B\Parameters
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:01 AM

Key Name:      SYSTEM\CurrentControlSet\Services\E100B\Security
Class Name:    <NO CLASS>
Last Write Time: 6/10/98 - 4:01 AM
Value 0
  Name:        Security
  Type:        REG_BINARY
  Data:
00000000  01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010  34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
00000020  ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030  20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
00000040  8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050  73 00 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
s.....
00000060  00 00 00 05 20 00 00 00 - 23 02 00 00 00 00 b6 80 ....
...
#.....
00000070  00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080  20 00 00 00 20 02 00 00 - 00 00 b6 80 00 00 1c 00 ...
...
00000090  ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
...
000000a0  25 02 00 00 00 00 b6 80 - 00 00 18 00 fd 01 02 00
%.....
.....
000000b0  01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
...%...
000000c0  01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0  00 00 00 05 12 00 00 00 -
.....

```

Software\Intel\E100B1

Key Name: SYSTEM\CurrentControlSet\Services\E100B1
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:01 AM
Value 0
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Value 1
Name: Start
Type: REG_DWORD
Data: 0x3

Value 2
Name: Type
Type: REG_DWORD
Data: 0x4

Key Name: SYSTEM\CurrentControlSet\Services\E100B1\Linkage
Class Name: GenericClass
Last Write Time: 9/21/98 - 1:55 PM
Value 0
Name: Bind
Type: REG_MULTI_SZ
Data: \Device\E100B1

Value 1
Name: Export
Type: REG_MULTI_SZ
Data: \Device\E100B1

Value 2
Name: Route
Type: REG_MULTI_SZ
Data: "E100B1"

Key Name: SYSTEM\CurrentControlSet\Services\E100B1\Linkage\Di
sabled
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:01 AM

Key Name: SYSTEM\CurrentControlSet\Services\E100B1\Parameters
Class Name: GenericClass
Last Write Time: 9/21/98 - 1:49 PM
Value 0
Name: Adaptive_IFS

Type: REG_DWORD
Data: 0x1

Value 1
Name: BoardHasBridge
Type: REG_DWORD
Data: 0

Value 2
Name: BusNumber
Type: REG_DWORD
Data: 0x3

Value 3
Name: BusType
Type: REG_DWORD
Data: 0x5

Value 4
Name: BusTypeLocal
Type: REG_DWORD
Data: 0x5

Value 5
Name: Coalesce
Type: REG_DWORD
Data: 0

Value 6
Name: CPUSaver
Type: REG_DWORD
Data: 0x10

Value 7
Name: ForceDpx
Type: REG_DWORD
Data: 0

Value 8
Name: MediaType
Type: REG_DWORD
Data: 0x1

Value 9
Name: MWIEnable
Type: REG_DWORD
Data: 0

Value 10
Name: NumCoalesce
Type: REG_DWORD
Data: 0x10

Value 11
Name: NumRfd
Type: REG_DWORD
Data: 0x60

Value 12

Name: NumTbdPerTcb
 Type: REG_DWORD
 Data: 0xc

 Value 13
 Name: NumTcb
 Type: REG_DWORD
 Data: 0x40

 Value 14
 Name: RxDmaCount
 Type: REG_DWORD
 Data: 0

 Value 15
 Name: RxFifo
 Type: REG_DWORD
 Data: 0x8

 Value 16
 Name: SlotNumber
 Type: REG_DWORD
 Data: 0x7

 Value 17
 Name: Speed
 Type: REG_DWORD
 Data: 0

 Value 18
 Name: Threshold
 Type: REG_DWORD
 Data: 0x10

 Value 19
 Name: TxDmaCount
 Type: REG_DWORD
 Data: 0

 Value 20
 Name: TxFifo
 Type: REG_DWORD
 Data: 0x8

 Value 21
 Name: Txmitwait
 Type: REG_DWORD
 Data: 0x1

 Value 22
 Name: UcodeSW
 Type: REG_DWORD
 Data: 0x1

 Value 23
 Name: UnderrunRetry
 Type: REG_DWORD
 Data: 0x1

Value 24
 Name: UseIo
 Type: REG_DWORD
 Data: 0

 Value 25
 Name: UseManualPCIAssign
 Type: REG_DWORD
 Data: 0x1

 Value 26
 Name: VlanMode
 Type: REG_DWORD
 Data: 0

Key Name:
 SYSTEM\CurrentControlSet\Services\E100B1\Parameters

\Tcpip
 Class Name: GenericClass
 Last Write Time: 9/21/98 - 1:55 PM
 Value 0
 Name: DefaultGateway
 Type: REG_MULTI_SZ
 Data:

Value 1
 Name: EnableDHCP
 Type: REG_DWORD
 Data: 0

Value 2
 Name: IPAddress
 Type: REG_MULTI_SZ
 Data: 192.168.91.214

Value 3
 Name: IPInterfaceContext
 Type: REG_DWORD
 Data: 0x1

Value 4
 Name: IPInterfaceContextMax
 Type: REG_DWORD
 Data: 0x1

Value 5
 Name: LLInterface
 Type: REG_SZ
 Data:

Value 6
 Name: PPTPFiltering
 Type: REG_DWORD
 Data: 0

Value 7

Name: RawIPAllowedProtocols
Type: REG_MULTI_SZ
Data: 0

Value 8
Name: SubnetMask
Type: REG_MULTI_SZ
Data: 255.255.255.0

Value 9
Name: TCPAllowedPorts
Type: REG_MULTI_SZ
Data: 0

Value 10
Name: UDPAllowedPorts
Type: REG_MULTI_SZ
Data: 0

Value 11
Name: UseZeroBroadcast
Type: REG_DWORD
Data: 0

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi
Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params
Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params\Adaptive_IFS
Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM

Value 0
Name: Base
Type: REG_SZ
Data: 10

Value 1
Name: Default
Type: REG_SZ
Data: 1

Value 2
Name: Max
Type: REG_SZ
Data: 255

Value 3
Name: Min
Type: REG_SZ
Data: 0

Value 4
Name: MiniHelp
Type: REG_SZ
Data:

Value 5
Name: ParamDesc
Type: REG_SZ
Data: Adaptive Inter-Frame Spacing

Value 6
Name: Scale
Type: REG_SZ
Data: 1

Value 7
Name: Step
Type: REG_SZ
Data: 1

Value 8
Name: Type
Type: REG_SZ
Data: int

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params\Coalesce
Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM

Value 0
Name: Default
Type: REG_SZ
Data: 0

Value 1
Name: MiniHelp
Type: REG_SZ
Data:

Value 2
Name: ParamDesc
Type: REG_SZ
Data: PCI Bus Efficiency

Value 3
Name: Type
Type: REG_SZ
Data: enum

Key Name:
 SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
 Params\Coalesce\Enum
 Class Name: <NO CLASS>
 Last Write Time: 9/17/98 - 9:52 AM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Disabled

Value 1
 Name: 1
 Type: REG_SZ
 Data: Enabled

Key Name:
 SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
 Params\CPUSaver
 Class Name: <NO CLASS>
 Last Write Time: 9/18/98 - 1:55 PM

Value 0
 Name: Default
 Type: REG_SZ
 Data: 8

Value 1
 Name: LeftLabel
 Type: REG_SZ
 Data: Min

Value 2
 Name: MiniHelp
 Type: REG_SZ
 Data: Description: Set the number of packets processed

pe
 r interrupt.

Value 3
 Name: ParamDesc
 Type: REG_SZ
 Data: Adaptive Performance Tuning

Value 4
 Name: RightLabel
 Type: REG_SZ
 Data: Max

Value 5
 Name: Type
 Type: REG_SZ
 Data: slider

Key Name:
 SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
 Params\CPUSaver\Values
 Class Name: <NO CLASS>
 Last Write Time: 9/17/98 - 11:36 AM

Value 0
 Name: 0
 Type: REG_SZ
 Data: 0

Value 1
 Name: 1
 Type: REG_SZ
 Data: 2

Value 2
 Name: 10
 Type: REG_SZ
 Data: 2048

Value 3
 Name: 11
 Type: REG_SZ
 Data: 4096

Value 4
 Name: 2
 Type: REG_SZ
 Data: 4

Value 5
 Name: 3
 Type: REG_SZ
 Data: 8

Value 6
 Name: 4
 Type: REG_SZ
 Data: 16

Value 7
 Name: 5
 Type: REG_SZ
 Data: 32

Value 8
 Name: 6
 Type: REG_SZ
 Data: 64

Value 9
 Name: 7
 Type: REG_SZ
 Data: 128

Value 10
 Name: 8
 Type: REG_SZ
 Data: 256

Value 11
 Name: 9
 Type: REG_SZ
 Data: 1024

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params\ForceDpx
Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM

Value 0
Name: Default
Type: REG_SZ
Data: 0

Value 1
Name: MiniHelp
Type: REG_SZ
Data:

Value 2
Name: ParamDesc
Type: REG_SZ
Data: Duplex

Value 3
Name: Type
Type: REG_SZ
Data: enum

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params\ForceDpx\Enum
Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM

Value 0
Name: 0
Type: REG_SZ
Data: Auto Detect

Value 1
Name: 1
Type: REG_SZ
Data: Half-Duplex

Value 2
Name: 2
Type: REG_SZ
Data: Full-Duplex

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params\NetworkAddress
Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM

Value 0
Name: Default
Type: REG_SZ
Data:

Value 1
Name: MiniHelp
Type: REG_SZ
Data:

Value 2
Name: ParamDesc
Type: REG_SZ
Data: Locally Administrated Address

Value 3
Name: Type
Type: REG_SZ
Data: edit

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params\NumCoalesce
Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM

Value 0
Name: Base
Type: REG_SZ
Data: 10

Value 1
Name: Default
Type: REG_SZ
Data: 8

Value 2
Name: Max
Type: REG_SZ
Data: 32

Value 3
Name: Min
Type: REG_SZ
Data: 1

Value 4
Name: MiniHelp
Type: REG_SZ
Data:

Value 5
Name: ParamDesc
Type: REG_SZ
Data: Coalesce Buffers

Value 6
Name: Scale
Type: REG_SZ
Data: 1

Value 7
Name: Step
Type: REG_SZ

Data: 1
Value 8
Name: Type
Type: REG_SZ
Data: int

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params\NumRfd

Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM
Value 0
Name: Base
Type: REG_SZ
Data: 10

Value 1
Name: Default
Type: REG_SZ
Data: 48

Value 2
Name: Max
Type: REG_SZ
Data: 1024

Value 3
Name: Min
Type: REG_SZ
Data: 1

Value 4
Name: MiniHelp
Type: REG_SZ
Data:

Value 5
Name: ParamDesc
Type: REG_SZ
Data: Receive Buffers

Value 6
Name: Scale
Type: REG_SZ
Data: 1

Value 7
Name: Step
Type: REG_SZ
Data: 1

Value 8
Name: Type
Type: REG_SZ
Data: int

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params\NumTcb

Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM
Value 0
Name: Base
Type: REG_SZ
Data: 10

Value 1
Name: Default
Type: REG_SZ
Data: 32

Value 2
Name: Max
Type: REG_SZ
Data: 80

Value 3
Name: Min
Type: REG_SZ
Data: 1

Value 4
Name: MiniHelp
Type: REG_SZ
Data:

Value 5
Name: ParamDesc
Type: REG_SZ
Data: Transmit Control Blocks

Value 6
Name: Scale
Type: REG_SZ
Data: 1

Value 7
Name: Step
Type: REG_SZ
Data: 1

Value 8
Name: Type
Type: REG_SZ
Data: int

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
Params\Speed

Class Name: <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM
Value 0
Name: Default
Type: REG_SZ

```

Data:          0
Value 1
Name:          MiniHelp
Type:          REG_SZ
Data:
Value 2
Name:          ParamDesc
Type:          REG_SZ
Data:          Speed
Value 3
Name:          Type
Type:          REG_SZ
Data:          enum
Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
  Params\Speed\Enum
Class Name:    <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM
Value 0
Name:          0
Type:          REG_SZ
Data:          Auto Detect
Value 1
Name:          10
Type:          REG_SZ
Data:          10 Mbps
Value 2
Name:          100
Type:          REG_SZ
Data:          100 Mbps
Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
  Params\Threshold
Class Name:    <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM
Value 0
Name:          Base
Type:          REG_SZ
Data:          10
Value 1
Name:          Default
Type:          REG_SZ
Data:          16
Value 2
Name:          Max
Type:          REG_SZ
Data:          200

```

```

Value 3
Name:          Min
Type:          REG_SZ
Data:          0
Value 4
Name:          MiniHelp
Type:          REG_SZ
Data:
Value 5
Name:          ParamDesc
Type:          REG_SZ
Data:          Adaptive Transmit Threshold
Value 6
Name:          Scale
Type:          REG_SZ
Data:          1
Value 7
Name:          Step
Type:          REG_SZ
Data:          1
Value 8
Name:          Type
Type:          REG_SZ
Data:          int
Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\
  Params\UcodeSW
Class Name:    <NO CLASS>
Last Write Time: 9/17/98 - 9:52 AM
Value 0
Name:          Default
Type:          REG_SZ
Data:          1
Value 1
Name:          MiniHelp
Type:          REG_SZ
Data:
Value 2
Name:          ParamDesc
Type:          REG_SZ
Data:          Adaptive Technology
Value 3
Name:          Type
Type:          REG_SZ
Data:          enum
Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\ProsetNdi\

```

Params\UcodeSW\Enum
 Class Name: <NO CLASS>
 Last Write Time: 9/17/98 - 9:52 AM
 Value 0
 Name: 0
 Type: REG_SZ
 Data: Off
 Value 1
 Name: 1
 Type: REG_SZ
 Data: On

Software/PROSet

Key Name: SYSTEM\CurrentControlSet\Services\PROSet
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:01 AM

Key Name: SYSTEM\CurrentControlSet\Services\PROSet\Adapters
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:01 AM
 Value 0
 Name: EPRO100
 Type: REG_SZ
 Data: Intel EtherExpress PRO Adapter

Key Name: SYSTEM\CurrentControlSet\Services\PROSet\EPRO100
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:01 AM
 Value 0
 Name: AdapterDescription
 Type: REG_SZ
 Data: EPRO100_GetAdapterDescription

Value 1
 Name: Configure
 Type: REG_SZ
 Data: EPRO100_Configure

Value 2
 Name: Detect
 Type: REG_SZ
 Data: EPRO100_Detect

Value 3
 Name: DeviceExist
 Type: REG_SZ
 Data: EPRO100_DeviceExist

Value 4
 Name: Diagnose
 Type: REG_SZ
 Data: EPRO100_Diagnose

Value 5
 Name: DLL
 Type: REG_SZ
 Data: EPRO100.DLL

Value 6
 Name: GetExtendedFeatures
 Type: REG_SZ
 Data: EPRO100_GetExtendedFeatures

Value 7
 Name: Help
 Type: REG_SZ
 Data: E100SET.HLP

Value 8
 Name: InstallAnyway
 Type: REG_SZ
 Data: EPRO100_InstallAnyway

Value 9
 Name: RegistryKey
 Type: REG_SZ
 Data: EPRO100_GetRegistryKey

Value 10
 Name: Summary
 Type: REG_SZ
 Data: EPRO100_Resource_Summary

Key Name: SYSTEM\CurrentControlSet\Services\PROSet\EPRO100\Parameters
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:01 AM
 Value 0
 Name: Adaptive_IFS
 Type: REG_SZ
 Data: 1,7,Adaptive Inter-Frame Spacing,0,2,1,0,255,1
 Value 1
 Name: BusNumber
 Type: REG_SZ
 Data: 0,7,BusNumber,0,2,0,0,16,1
 Value 2
 Name: BusType
 Type: REG_SZ
 Data: 0,7,BusType,0,2,5,2,5,1
 Value 3
 Name: BusTypeLocal
 Type: REG_SZ
 Data: 0,7,BusTypeLocal,0,2,5,2,5,1
 Value 4
 Name: Eid

Type: REG_SZ
Data: 0,7,Eid,0,2,0,0,4294967295,1

Value 5
Name: Fifo
Type: REG_SZ
Data: 0,3,Fifo Depth,0,2,12,0,15,1

Value 6
Name: ForceDpx
Type: REG_SZ
Data: 1,4,Duplex Mode,0,1,Auto,Auto,Half,Full

Value 7
Name: MapRegisters
Type: REG_SZ
Data:

Value 8
Name: MediaType
Type: REG_SZ
Data: 0,7,MediaType,0,2,1,1,1,1

Value 9
Name: MsPciScan
Type: REG_SZ
Data: 0,4,MsPciScan,0,2,1,0,1,1

Value 10
Name: NetworkAddress
Type: REG_SZ
Data: 1,7,Locally Administered Address,0,5,0,0,1,1

Value 11
Name: NumCoalesce
Type: REG_SZ
Data: 1,7,Coalesce Buffers,0,2,8,1,32,1

Value 12
Name: NumRfd
Type: REG_SZ
Data: 1,7,Receive Buffers,0,2,32,1,1024,1

Value 13
Name: NumTbd
Type: REG_SZ
Data: 0,3,Transmit Buffer Descriptors,0,2,64,1,65535,1

Value 14
Name: NumTbdPerTcb
Type: REG_SZ
Data: 0,4,Transmit Buffers per Frame,0,2,12,1,16,1

Value 15
Name: NumTcb
Type: REG_SZ
Data: 1,7,Transmit Control Blocks,0,2,16,1,80,1

Value 16

Name: Off
Type: REG_SZ
Data: 1,3,Off Timer,0,2,2,1,65535,1

Value 17
Name: On
Type: REG_SZ
Data: 1,3,On Timer,0,2,32768,1,65535,1

Value 18
Name: PerfOptims
Type: REG_SZ
Data: 0,4,PerfOptims,0,2,0,0,65535,1

Value 19
Name: RxDmaCount
Type: REG_SZ
Data: 0,4,RxDmaCount,0,2,0,0,63,1

Value 20
Name: RxFifo
Type: REG_SZ
Data: 0,4,Receive Fifo Depth,0,2,8,0,15,1

Value 21
Name: Slot
Type: REG_SZ
Data:

Value 22
Name: Speed
Type: REG_SZ
Data: 1,7,Network Speed,0,4,Auto,Auto,0,10Mbps,10,100Mbps,100

Value 23
Name: Threshold
Type: REG_SZ
Data: 0,7,Transmit Threshold,0,2,16,0,200,1

Value 24
Name: TxDmaCount
Type: REG_SZ
Data: 0,4,TxDmaCount,0,2,0,0,63,1

Value 25
Name: TxFifo
Type: REG_SZ
Data: 0,4,Transmit Fifo Depth,0,2,8,0,15,1

Value 26
Name: Txmitwait
Type: REG_SZ
Data: 0,7,Txmitwait,0,2,1,0,255,1

Value 27
Name: UcodeSW
Type: REG_SZ

Data: 0,7,UcodeSW,0,2,1,0,1,1
Value 28
Name: UnderrunRetry
Type: REG_SZ
Data: 0,4,UnderrunRetry,0,2,1,0,3,1

Services

Key Name: SYSTEM\CurrentControlSet\Services
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Key Name: SYSTEM\CurrentControlSet\Services\Abiosdsk
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Value 0
Name: ErrorControl
Type: REG_DWORD
Data: 0

Value 1
Name: Group
Type: REG_SZ
Data: Primary disk

Value 2
Name: Start
Type: REG_DWORD
Data: 0x4

Value 3
Name: Tag
Type: REG_DWORD
Data: 0x3

Value 4
Name: Type
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Afd
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM

Value 0
Name: DependOnGroup
Type: REG_MULTI_SZ
Data:

Value 1
Name: DisplayName
Type: REG_SZ
Data: AFD Networking Support Environment

Value 2
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Value 3
Name: Group
Type: REG_SZ
Data: TDI

Value 4
Name: ImagePath
Type: REG_EXPAND_SZ
Data: \SystemRoot\System32\drivers\afd.sys

Value 5
Name: Start
Type: REG_DWORD
Data: 0x2

Value 6
Name: Type
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Afd\Enum
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM

Value 0
Name: 0
Type: REG_SZ
Data: Root\LEGACY_AFD\0000

Value 1
Name: Count
Type: REG_DWORD
Data: 0x1

Value 2
Name: NextInstance
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Afd\Linkage
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\Afd\Linkage\Disab
led
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\Afd\Parameters
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM


```

Key Name:          SYSTEM\CurrentControlSet\Services\Afd\Security
Class Name:        <NO CLASS>
Last Write Time:   6/10/98 - 4:05 AM
Value 0
  Name:            Security
  Type:            REG_BINARY
  Data:
00000000  01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010  34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
00000020  ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030  20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
00000040  8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050  70 00 69 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
p.i.....
00000060  00 00 00 05 20 00 00 00 - 23 02 00 00 70 00 00 00 ....
...
#...p...
00000070  00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080  20 00 00 00 20 02 00 00 - 70 00 00 00 00 00 1c 00 ...
...
p.....
00000090  ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
000000a0  25 02 00 00 70 00 00 00 - 00 00 18 00 fd 01 02 00
%...p...
000000b0  01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
....%...
000000c0  01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0  00 00 00 05 12 00 00 00 -
.....

Key Name:          SYSTEM\CurrentControlSet\Services\AFTRegistration
Class Name:        GenericClass
Last Write Time:   6/10/98 - 4:01 AM
Value 0
  Name:            Compatible1
  Type:            REG_SZ
  Data:            Intel,E100B,iAFT,32902,32634

```

```

Key Name:          SYSTEM\CurrentControlSet\Services\Aha154x
Class Name:        <NO CLASS>
Last Write Time:   10/10/96 - 1:09 AM
Value 0
  Name:            ErrorControl
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Group
  Type:            REG_SZ
  Data:            SCSI miniport

Value 2
  Name:            Start
  Type:            REG_DWORD
  Data:            0x4

Value 3
  Name:            Tag
  Type:            REG_DWORD
  Data:            0x6

Value 4
  Name:            Type
  Type:            REG_DWORD
  Data:            0x1

Key Name:          SYSTEM\CurrentControlSet\Services\Aha174x
Class Name:        <NO CLASS>
Last Write Time:   10/10/96 - 1:09 AM
Value 0
  Name:            ErrorControl
  Type:            REG_DWORD
  Data:            0x1

Value 1
  Name:            Group
  Type:            REG_SZ
  Data:            SCSI miniport

Value 2
  Name:            Start
  Type:            REG_DWORD
  Data:            0x4

Value 3
  Name:            Tag
  Type:            REG_DWORD
  Data:            0x8

Value 4
  Name:            Type
  Type:            REG_DWORD
  Data:            0x1

```

Key Name: SYSTEM\CurrentControlSet\Services\aic78xx
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:47 PM

Value 0
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0x1

Value 1
 Name: Group
 Type: REG_SZ
 Data: SCSI miniport

Value 2
 Name: ImagePath
 Type: REG_EXPAND_SZ
 Data: System32\DRIVERS\aic78xx.sys

Value 3
 Name: PlugPlayServiceType
 Type: REG_DWORD
 Data: 0x1

Value 4
 Name: RequestedSystemResources
 Type: REG_RESOURCE_REQUIREMENTS_LIST
 Data:

Interface Type: Internal
 Bus Number: 0
 Slot Number: 0
 List 0

Descriptor 0
 Resource: Interrupt
 Option: 0x00000000
 Disposition: Shared
 Type: Level Sensitive
 Minimum Vector: 0x28
 Maximum Vector: 0x28

Descriptor 1
 Resource: Port
 Option: 0x00000001
 Disposition: Device Exclusive
 Type: Port
 Length: 0x100
 Alignment: 0x100
 Minimum Address: 0x00002000
 Maximum Address: 0x000020ff

Descriptor 2
 Resource: Port
 Option: 0x00000008
 Disposition: Device Exclusive
 Type: Port
 Length: 0x100
 Alignment: 0x100
 Minimum Address: 0x00002000
 Maximum Address: 0x000020ff

Descriptor 3
 Resource: Memory
 Option: 0x00000001
 Disposition: Device Exclusive
 Type: Read / Write
 Length: 0x1000
 Alignment: 0x1000
 Minimum Address: 0xfc000000
 Maximum Address: 0xfc000fff

Descriptor 4
 Resource: Memory
 Option: 0x00000008
 Disposition: Device Exclusive
 Type: Read / Write
 Length: 0x1000
 Alignment: 0x1000
 Minimum Address: 0xfc000000
 Maximum Address: 0xfc000fff

Value 5
 Name: Start
 Type: REG_DWORD
 Data: 0

Value 6
 Name: Tag
 Type: REG_DWORD
 Data: 0x1e

Value 7
 Name: Type
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\aic78xx\Enum
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:46 PM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_AIC78XX\0000

Value 1
 Name: Count
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\atapi
 Class Name: <NO CLASS>

Last Write Time: 6/10/98 - 3:56 AM

Value 0
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0x1

Value 1
 Name: Group
 Type: REG_SZ
 Data: SCSI miniport

Value 2
 Name: ImagePath
 Type: REG_EXPAND_SZ
 Data: System32\DRIVERS\atapi.sys

Value 3
 Name: PlugPlayServiceType
 Type: REG_DWORD
 Data: 0x1

Value 4
 Name: Start
 Type: REG_DWORD
 Data: 0

Value 5
 Name: Tag
 Type: REG_DWORD
 Data: 0x19

Value 6
 Name: Type
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\atapi\Enum
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:46 PM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_ATAPI\0000

Value 1
 Name: Count
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Atdisk
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 3:52 AM

Value 0
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0

Value 1
 Name: Group
 Type: REG_SZ
 Data: Primary disk

Value 2
 Name: Start
 Type: REG_DWORD
 Data: 0x4

Value 3
 Name: Tag
 Type: REG_DWORD
 Data: 0x1

Value 4
 Name: Type
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\ati
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 11:09 AM

Value 0
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0

Value 1
 Name: Group
 Type: REG_SZ
 Data: Video

Value 2
 Name: Start
 Type: REG_DWORD
 Data: 0x4

Value 3
 Name: Type
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\ati\Device0
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 3:56 AM

Value 0
 Name: BiosClaimSize
 Type: REG_BINARY
 Data: 00000000 02 00 00 00

....

```

Value 1
Name:      InstalledDisplayDrivers
Type:      REG_MULTI_SZ
Data:      ati
           8514a

Value 2
Name:      VgaCompatible
Type:      REG_DWORD
Data:      0

Key Name:   SYSTEM\CurrentControlSet\Services\Browser
Class Name: <NO CLASS>
Last Write Time: 6/13/98 - 3:53 PM
Value 0
Name:      DependOnGroup
Type:      REG_MULTI_SZ
Data:

Value 1
Name:      DependOnService
Type:      REG_MULTI_SZ
Data:      LanmanWorkstation
           LanmanServer
           LmHosts

Value 2
Name:      DisplayName
Type:      REG_SZ
Data:      Computer Browser

Value 3
Name:      ErrorControl
Type:      REG_DWORD
Data:      0x1

Value 4
Name:      ImagePath
Type:      REG_EXPAND_SZ
Data:      %SystemRoot%\System32\services.exe

Value 5
Name:      ObjectName
Type:      REG_SZ
Data:      LocalSystem

Value 6
Name:      Start
Type:      REG_DWORD
Data:      0x3

Value 7
Name:      Type
Type:      REG_DWORD
Data:      0x20

```

```

Key Name:   SYSTEM\CurrentControlSet\Services\Browser\Enum
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM
Value 0
Name:      0
Type:      REG_SZ
Data:      Root\LEGACY_BROWSER\0000

Value 1
Name:      Count
Type:      REG_DWORD
Data:      0x1

Value 2
Name:      NextInstance
Type:      REG_DWORD
Data:      0x1

Key Name:   SYSTEM\CurrentControlSet\Services\Browser\Linkage
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:   SYSTEM\CurrentControlSet\Services\Browser\Linkage\Dis
           isabled
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:   SYSTEM\CurrentControlSet\Services\Browser\Parameters
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name:      IsDomainMaster
Type:      REG_SZ
Data:      FALSE

Value 1
Name:      MaintainServerList
Type:      REG_SZ
Data:      Auto

Key Name:   SYSTEM\CurrentControlSet\Services\Browser\Security
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name:      Security
Type:      REG_BINARY
Data:      00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
           .....
           00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....

```

```

.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
.....
00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
.....
00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
.....
00000050 01 01 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
.....
.....
00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 00 00 00 05 ....
...
#.....
00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
.....
00000080 20 00 00 00 20 02 00 00 - 00 00 00 05 00 00 1c 00 ...
...
.....
00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
.....
000000a0 25 02 00 00 00 00 00 05 - 00 00 18 00 fd 01 02 00
%.....
.....
000000b0 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
.....%...
000000c0 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
.....
000000d0 00 00 00 05 12 00 00 00 -
.....

```

```

Key Name: SYSTEM\CurrentControlSet\Services\Busmouse
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: ErrorControl
Type: REG_DWORD
Data: 0
Value 1
Name: Group
Type: REG_SZ
Data: Pointer Port
Value 2
Name: Start
Type: REG_DWORD
Data: 0x4
Value 3
Name: Tag
Type: REG_DWORD

```

```

Data: 0x3
Value 4
Name: Type
Type: REG_DWORD
Data: 0x1
Key Name:
SYSTEM\CurrentControlSet\Services\Busmouse\Paramete
rs
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: MouseDataQueueSize
Type: REG_DWORD
Data: 0x64
Value 1
Name: NumberOfButtons
Type: REG_DWORD
Data: 0x2
Value 2
Name: PointerDeviceBaseName
Type: REG_SZ
Data: PointerPort
Value 3
Name: SampleRate
Type: REG_DWORD
Data: 0x32
Key Name: SYSTEM\CurrentControlSet\Services\Cdfs
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: DependOnGroup
Type: REG_MULTI_SZ
Data: SCSI CDROM Class
Value 1
Name: ErrorControl
Type: REG_DWORD
Data: 0x1
Value 2
Name: Group
Type: REG_SZ
Data: File system
Value 3
Name: Start
Type: REG_DWORD
Data: 0x4
Value 4

```

Name: Type
Type: REG_DWORD
Data: 0x2

Key Name: SYSTEM\CurrentControlSet\Services\Cdfs\Enum
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM
Value
Name: 0
Type: REG_SZ
Data: Root\LEGACY_CDFS\0000

Value 1
Name: Count
Type: REG_DWORD
Data: 0x1

Value 2
Name: NextInstance
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Cdrom
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Autorun
Type: REG_DWORD
Data: 0x1

Value 1
Name: DependOnGroup
Type: REG_MULTI_SZ
Data: SCSI miniport

Value 2
Name: ErrorControl
Type: REG_DWORD
Data: 0

Value 3
Name: Group
Type: REG_SZ
Data: SCSI CDROM Class

Value 4
Name: Start
Type: REG_DWORD
Data: 0x1

Value 5
Name: Tag
Type: REG_DWORD
Data: 0x2

Value 6

Name: Type
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Cdrom\Enum
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM
Value 0
Name: 0
Type: REG_SZ
Data: Root\LEGACY_CDROM\0000

Value 1
Name: Count
Type: REG_DWORD
Data: 0x1

Value 2
Name: NextInstance
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\dac960nt
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:48 PM
Value 0
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Value 1
Name: Group
Type: REG_SZ
Data: SCSI miniport

Value 2
Name: ImagePath
Type: REG_EXPAND_SZ
Data: System32\drivers\dac960nt.sys

Value 3
Name: PlugPlayServiceType
Type: REG_DWORD
Data: 0x1

Value 4
Name: RequestedSystemResources
Type: REG_RESOURCE_REQUIREMENTS_LIST
Data:
Interface Type: Internal
Bus Number: 0
Slot Number: 0
List 0
Descriptor 0
Resource: Interrupt
Option: 0x00000000
Disposition: Shared

Type: Level Sensitive
Minimum Vector: 0x20
Maximum Vector: 0x20

Descriptor 1
Resource: Memory
Option: 0x00000001
Disposition: Device Exclusive
Type: Write Only
Length: 0x2000
Alignment: 0x2000
Minimum Address: 0xfe606000
Maximum Address: 0xfe607fff

Descriptor 2
Resource: Memory
Option: 0x00000009
Disposition: Device Exclusive
Type: Write Only
Length: 0x2000
Alignment: 0x2000
Minimum Address: 0xfe606000
Maximum Address: 0xfe607fff

Value 5
Name: Start
Type: REG_DWORD
Data: 0

Value 6
Name: Tag
Type: REG_DWORD
Data: 0x63

Value 7
Name: Type
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\dac960nt\Enum
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM

Value 0
Name: 0
Type: REG_SZ
Data: Root\SCSIADAPTER\OEM1.INF&DAC960NT

Value 1
Name: Count
Type: REG_DWORD
Data: 0x1

Value 2
Name: NextInstance
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\dce376nt
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Value 0
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Value 1
Name: Group
Type: REG_SZ
Data: SCSI miniport

Value 2
Name: Start
Type: REG_DWORD
Data: 0x4

Value 3
Name: Tag
Type: REG_DWORD
Data: 0x16

Value 4
Name: Type
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\DHCP
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:07 AM

Value 0
Name: DependOnGroup
Type: REG_MULTI_SZ
Data:

Value 1
Name: DependOnService
Type: REG_MULTI_SZ
Data: Tcpip
Afd
NetBT

Value 2
Name: DisplayName
Type: REG_SZ
Data: DHCP Client

Value 3
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Value 4
Name: Group

Type: REG_SZ
Data: TDI

Value 5
Name: ImagePath
Type: REG_EXPAND_SZ
Data: %SystemRoot%\System32\services.exe

Value 6
Name: ObjectName
Type: REG_SZ
Data: LocalSystem

Value 7
Name: Start
Type: REG_DWORD
Data: 0x4

Value 8
Name: Type
Type: REG_DWORD
Data: 0x20

Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Linkage
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Linkage\Disabled
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Parameters
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Parameters\Options
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Parameters\Options\1
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Value 0
Name: KeyType
Type: REG_DWORD
Data: 0x7

Value 1
Name: RegLocation
Type: REG_SZ

Data: System\CurrentControlSet\Services\?\Parameters\Tcpip\DhcpSubnetMaskOpt

Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Parameters\Options\15
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Value 0
Name: KeyType
Type: REG_DWORD
Data: 0x1

Value 1
Name: RegLocation
Type: REG_SZ
Data: System\CurrentControlSet\Services\Tcpip\Parameters\DhcpDomain

Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Parameters\Options\3
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Value 0
Name: KeyType
Type: REG_DWORD
Data: 0x7

Value 1
Name: RegLocation
Type: REG_SZ
Data: System\CurrentControlSet\Services\?\Parameters\Tcpip\DhcpDefaultGateway

Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Parameters\Options\44
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Value 0
Name: KeyType
Type: REG_DWORD
Data: 0x1

Value 1
Name: RegLocation
Type: REG_SZ
Data: System\CurrentControlSet\Services\NetBT\Adapters\?\DhcpNameServer

| | |
|---|--|
| <pre> Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Parameters\Options\46 Class Name: GenericClass Last Write Time: 6/10/98 - 4:05 AM Value 0 Name: KeyType Type: REG_DWORD Data: 0x4 Value 1 Name: RegLocation Type: REG_SZ Data: System\CurrentControlSet\Services\NetBT\Parameters\DhcpNodeType Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Parameters\Options\47 Class Name: GenericClass Last Write Time: 6/10/98 - 4:05 AM Value 0 Name: KeyType Type: REG_DWORD Data: 0x1 Value 1 Name: RegLocation Type: REG_SZ Data: System\CurrentControlSet\Services\NetBT\Parameters\DhcpScopeID Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Parameters\Options\6 Class Name: GenericClass Last Write Time: 6/10/98 - 4:05 AM Value 0 Name: KeyType Type: REG_DWORD Data: 0x1 Value 1 Name: RegLocation Type: REG_SZ Data: System\CurrentControlSet\Services\Tcpip\Parameters\DhcpNameServer Key Name: SYSTEM\CurrentControlSet\Services\DHCP\Security Class Name: <NO CLASS> Last Write Time: 6/10/98 - 4:05 AM Value 0 Name: Security </pre> | <pre> Type: REG_BINARY Data: 00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00 00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00 4..... 00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00 00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00 00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00 00000050 20 02 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00 00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 c8 00 14 00 #..... 00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 05 00000080 20 00 00 00 20 02 00 00 - c8 00 14 00 00 00 1c 00 00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00 000000a0 25 02 00 00 c8 00 14 00 - 00 00 18 00 fd 01 02 00 %..... 000000b0 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00%... 000000c0 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00 000000d0 00 00 00 05 12 00 00 00 - Key Name: SYSTEM\CurrentControlSet\Services\Disk Class Name: <NO CLASS> Last Write Time: 10/10/96 - 1:09 AM Value 0 Name: DependOnGroup Type: REG_MULTI_SZ Data: SCSI miniport Value 1 Name: ErrorControl Type: REG_DWORD Data: 0 </pre> |
|---|--|

Value 2
 Name: Group
 Type: REG_SZ
 Data: SCSI Class

Value 3
 Name: Start
 Type: REG_DWORD
 Data: 0

Value 4
 Name: Tag
 Type: REG_DWORD
 Data: 0x2

Value 5
 Name: Type
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Disk\Enum
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:46 PM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_DISK\0000

Value 1
 Name: Count
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Diskperf
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 1:34 PM

Value 0
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0x1

Value 1
 Name: Group
 Type: REG_SZ
 Data: Filter

Value 2
 Name: Start
 Type: REG_DWORD
 Data: 0x4

Value 3

Name: Tag
 Type: REG_DWORD
 Data: 0x4

Value 4
 Name: Type
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Diskperf\Enum
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:46 PM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_DISKPERF\0000

Value 1
 Name: Count
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\E100B
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:48 PM

Value 0
 Name: DisplayName
 Type: REG_SZ
 Data: Intel EtherExpress PRO Adapter

Value 1
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: Group
 Type: REG_SZ
 Data: NDIS

Value 3
 Name: ImagePath
 Type: REG_EXPAND_SZ
 Data: \SystemRoot\System32\drivers\e100bnt.sys

Value 4
 Name: RequestedSystemResources
 Type: REG_RESOURCE_REQUIREMENTS_LIST
 Data: Interface Type: Internal
 Bus Number: 0
 Slot Number: 0

```

List 0
Descriptor 0
Resource:      Interrupt
Option:       0x00000000
Disposition:  Shared
Type:        Level Sensitive
Minimum Vector: 0x1c
Maximum Vector: 0x1c

Descriptor 1
Resource:      Memory
Option:       0x00000001
Disposition:  Device Exclusive
Type:        Write Only
Length:       0x1000
Alignment:    0x1000
Minimum Address: 0xfe306000
Maximum Address: 0xfe306fff

Descriptor 2
Resource:      Memory
Option:       0x00000009
Disposition:  Device Exclusive
Type:        Write Only
Length:       0x1000
Alignment:    0x1000
Minimum Address: 0xfe306000
Maximum Address: 0xfe306fff

Descriptor 3
Resource:      Memory
Option:       0x00000008
Disposition:  Device Exclusive
Type:        Write Only
Length:       0x1000
Alignment:    0x1000
Minimum Address: 0xfe000000
Maximum Address: 0xfe0fffff

Descriptor 4
Resource:      Port
Option:       0x00000001
Disposition:  Device Exclusive
Type:        Port
Length:       0x20
Alignment:    0x20
Minimum Address: 0x00003000
Maximum Address: 0x0000301f

Descriptor 5
Resource:      Port
Option:       0x00000008
Disposition:  Device Exclusive
Type:        Port
Length:       0x20
Alignment:    0x20
Minimum Address: 0x00003000
Maximum Address: 0x0000301f

```

```

Descriptor 6
Resource:      Memory
Option:       0x00000001
Disposition:  Device Exclusive
Type:        Read / Write
Length:       0x100000
Alignment:    0x100000
Minimum Address: 0xfe000000
Maximum Address: 0xfe0fffff

Descriptor 7
Resource:      Memory
Option:       0x00000008
Disposition:  Device Exclusive
Type:        Read / Write
Length:       0x100000
Alignment:    0x100000
Minimum Address: 0xfe000000
Maximum Address: 0xfe0fffff

```

```

Value 5
Name:      Start
Type:     REG_DWORD
Data:     0x2

Value 6
Name:      Type
Type:     REG_DWORD
Data:     0x1

Key Name:  SYSTEM\CurrentControlSet\Services\E100B\Enum
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM
Value 0
Name:      0
Type:     REG_SZ
Data:     Root\LEGACY_E100B\0000

Value 1
Name:      Count
Type:     REG_DWORD
Data:     0x1

Value 2
Name:      NextInstance
Type:     REG_DWORD
Data:     0x1

Key Name:  SYSTEM\CurrentControlSet\Services\E100B\Linkage
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name:      Bind
Type:     REG_MULTI_SZ
Data:     \Device\E100B1

```

Value 1
 Name: Export
 Type: REG_MULTI_SZ
 Data: \Device\E100B1

Value 2
 Name: Route
 Type: REG_MULTI_SZ
 Data: "E100B1"

Key Name:
 SYSTEM\CurrentControlSet\Services\E100B\Linkage\Dis
 abled
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:07 AM
 Value 0
 Name: Bind
 Type: REG_MULTI_SZ
 Data:

Value 1
 Name: Export
 Type: REG_MULTI_SZ
 Data:

Value 2
 Name: Route
 Type: REG_MULTI_SZ
 Data:

Key Name:
 SYSTEM\CurrentControlSet\Services\E100B\Parameters
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:01 AM

Key Name: SYSTEM\CurrentControlSet\Services\E100B\Security
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 4:01 AM
 Value 0
 Name: Security
 Type: REG_BINARY
 Data:

```

00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....

```

```

.....
00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050 73 00 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
s.....
00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 00 00 b6 80 ....
...
#.....
00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080 20 00 00 00 20 02 00 00 - 00 00 b6 80 00 00 1c 00 ...
...
00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
000000a0 25 02 00 00 00 00 b6 80 - 00 00 18 00 fd 01 02 00
%.....
000000b0 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
...%...
000000c0 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0 00 00 00 05 12 00 00 00 -
.....

```

Key Name: SYSTEM\CurrentControlSet\Services\E100B1
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:01 AM
 Value 0
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0x1

Value 1
 Name: Start
 Type: REG_DWORD
 Data: 0x3

Value 2
 Name: Type
 Type: REG_DWORD
 Data: 0x4

Key Name: SYSTEM\CurrentControlSet\Services\E100B1\Linkage
 Class Name: GenericClass
 Last Write Time: 6/17/98 - 6:48 PM
 Value 0
 Name: Bind
 Type: REG_MULTI_SZ
 Data: \Device\E100B1

Value 1
 Name: Export
 Type: REG_MULTI_SZ
 Data: \Device\E100B1

Value 2
 Name: Route
 Type: REG_MULTI_SZ
 Data: "E100B1"

Key Name:
 SYSTEM\CurrentControlSet\Services\E100B1\Linkage\Di
 sabled
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:01 AM

Key Name:
 SYSTEM\CurrentControlSet\Services\E100B1\Parameters
 Class Name: GenericClass
 Last Write Time: 6/12/98 - 11:46 AM

Value 0
 Name: Adaptive_IFS
 Type: REG_DWORD
 Data: 0x1

Value 1
 Name: BusNumber
 Type: REG_DWORD
 Data: 0x3

Value 2
 Name: BusType
 Type: REG_DWORD
 Data: 0x5

Value 3
 Name: BusTypeLocal
 Type: REG_DWORD
 Data: 0x5

Value 4
 Name: Eid
 Type: REG_DWORD
 Data: 0xc9c545c4

Value 5
 Name: ForceDpx
 Type: REG_DWORD
 Data: 0x1

Value 6
 Name: MapRegisters
 Type: REG_DWORD
 Data: 0x40

Value 7

Name: MediaType
 Type: REG_DWORD
 Data: 0x1

Value 8
 Name: MsPciScan
 Type: REG_DWORD
 Data: 0x1

Value 9
 Name: NetworkAddress
 Type: REG_SZ
 Data: 0

Value 10
 Name: NumCoalesce
 Type: REG_DWORD
 Data: 0x10

Value 11
 Name: NumRfd
 Type: REG_DWORD
 Data: 0x40

Value 12
 Name: NumTbdPerTcb
 Type: REG_DWORD
 Data: 0xc

Value 13
 Name: NumTcb
 Type: REG_DWORD
 Data: 0x20

Value 14
 Name: PerfOptims
 Type: REG_DWORD
 Data: 0x2

Value 15
 Name: ProposeIAFTAddress
 Type: REG_SZ
 Data: 00A0C9C545C4

Value 16
 Name: RxDmaCount
 Type: REG_DWORD
 Data: 0

Value 17
 Name: RxFifo
 Type: REG_DWORD
 Data: 0x8

Value 18
 Name: SlotNumber
 Type: REG_DWORD
 Data: 0x7

Value 19
Name: Speed
Type: REG_DWORD
Data: 0x64

Value 20
Name: Threshold
Type: REG_DWORD
Data: 0x10

Value 21
Name: TxDmaCount
Type: REG_DWORD
Data: 0

Value 22
Name: TxFifo
Type: REG_DWORD
Data: 0x8

Value 23
Name: Txmitwait
Type: REG_DWORD
Data: 0x1

Value 24
Name: UcodeSW
Type: REG_DWORD
Data: 0x1

Value 25
Name: UnderrunRetry
Type: REG_DWORD
Data: 0x1

Key Name:
SYSTEM\CurrentControlSet\Services\E100B1\Parameters

Class Name: \Tcpip
GenericClass
Last Write Time: 6/17/98 - 6:48 PM

Value 0
Name: DefaultGateway
Type: REG_MULTI_SZ
Data:

Value 1
Name: EnableDHCP
Type: REG_DWORD
Data: 0

Value 2
Name: IPAddress
Type: REG_MULTI_SZ
Data: 192.168.91.214

Value 3

Name: IPInterfaceContext
Type: REG_DWORD
Data: 0x1

Value 4
Name: IPInterfaceContextMax
Type: REG_DWORD
Data: 0x1

Value 5
Name: LLInterface
Type: REG_SZ
Data:

Value 6
Name: PPTPFiltering
Type: REG_DWORD
Data: 0

Value 7
Name: RawIPAllowedProtocols
Type: REG_MULTI_SZ
Data: 0

Value 8
Name: SubnetMask
Type: REG_MULTI_SZ
Data: 255.255.255.0

Value 9
Name: TCPAllowedPorts
Type: REG_MULTI_SZ
Data: 0

Value 10
Name: UDPAllowedPorts
Type: REG_MULTI_SZ
Data: 0

Value 11
Name: UseZeroBroadcast
Type: REG_DWORD
Data: 0

Key Name: SYSTEM\CurrentControlSet\Services\Floppy
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Value 0
Name: ErrorControl
Type: REG_DWORD
Data: 0

Value 1
 Name: Group
 Type: REG_SZ
 Data: Primary disk

Value 2
 Name: Start
 Type: REG_DWORD
 Data: 0x1

Value 3
 Name: Tag
 Type: REG_DWORD
 Data: 0x2

Value 4
 Name: Type
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Floppy\Enum
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:46 PM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_FLOPPY\0000

Value 1
 Name: Count
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Ftdisk
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 8:57 AM

Value 0
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0x1

Value 1
 Name: Group
 Type: REG_SZ
 Data: Filter

Value 2
 Name: Start
 Type: REG_DWORD
 Data: 0

Value 3

Name: Tag
 Type: REG_DWORD
 Data: 0x3

Value 4
 Name: Type
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\Ftdisk\Enum
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:46 PM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_FTDISK\0000

Value 1
 Name: Count
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\LanmanServer
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 4:07 AM

Value 0
 Name: DependOnGroup
 Type: REG_MULTI_SZ
 Data: TDI

Value 1
 Name: DependOnService
 Type: REG_MULTI_SZ
 Data:

Value 2
 Name: DisplayName
 Type: REG_SZ
 Data: Server

Value 3
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0x1

Value 4
 Name: ImagePath
 Type: REG_EXPAND_SZ
 Data: %SystemRoot%\System32\services.exe

Value 5

```

Name:      ObjectName
Type:     REG_SZ
Data:     LocalSystem

Value 6
Name:     Start
Type:     REG_DWORD
Data:     0x2

Value 7
Name:     Type
Type:     REG_DWORD
Data:     0x20

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanServer\Auto
tunedParameters
Class Name:  GenericClass
Last Write Time:  6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanServer\Enum
Class Name:  <NO CLASS>
Last Write Time:  6/17/98 - 6:46 PM
Value 0
Name:      0
Type:     REG_SZ
Data:     Root\LEGACY_LANMANSERVER\0000

Value 1
Name:     Count
Type:     REG_DWORD
Data:     0x1

Value 2
Name:     NextInstance
Type:     REG_DWORD
Data:     0x1

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanServer\Link
age
Class Name:  GenericClass
Last Write Time:  6/10/98 - 4:07 AM
Value 0
Name:      Bind
Type:     REG_MULTI_SZ
Data:     \Device\Nbf_E100B1

Value 1
Name:     Export
Type:     REG_MULTI_SZ
Data:     \Device\LanmanServer\Nbf_E100B1

Value 2

```

```

Name:      Route
Type:     REG_MULTI_SZ
Data:     "Nbf" "E100B" "E100B1"

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanServer\Link
age\Disabled
Class Name:  GenericClass
Last Write Time:  6/10/98 - 4:07 AM
Value 0
Name:      Bind
Type:     REG_MULTI_SZ
Data:     \Device\NetBT_E100B1

Value 1
Name:     Export
Type:     REG_MULTI_SZ
Data:     \Device\LanmanServer\NetBT_E100B1

Value 2
Name:     Route
Type:     REG_MULTI_SZ
Data:     "NetBT" "E100B" "E100B1"

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanServer\Para
meters
Class Name:  GenericClass
Last Write Time:  6/10/98 - 1:04 PM
Value 0
Name:      Lmannounce
Type:     REG_DWORD
Data:     0

Value 1
Name:     NullSessionPipes
Type:     REG_MULTI_SZ
Data:     COMNAP
COMNODE
SQL\QUERY
SPOOLSS
LLSRPC
EPMAPPER
LOCATOR

Value 2
Name:     NullSessionShares
Type:     REG_MULTI_SZ
Data:     COMCFG
DFS$

```


Value 3
Name:
Type: REG_DWORD
Data: 0x3

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanServer\Secu
rity
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name: Security
Type: REG_BINARY
Data:
00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050 20 02 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
.....
00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 54 00 00 00
... #...T...
00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080 20 00 00 00 20 02 00 00 - 54 00 00 00 00 00 1c 00 ...
... T.....
00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
000000a0 25 02 00 00 54 00 00 00 - 00 00 18 00 fd 01 02 00
%...T...
000000b0 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
000000c0 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0 00 00 00 05 12 00 00 00 -

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanServer\Shar
es
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanServer\Shar
es\Security
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 11:14 AM

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanWorkstation
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name: DependOnGroup
Type: REG_MULTI_SZ
Data: TDI

Value 1
Name: DependOnService
Type: REG_MULTI_SZ
Data:

Value 2
Name: DisplayName
Type: REG_SZ
Data: Workstation

Value 3
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Value 4
Name: Group
Type: REG_SZ
Data: NetworkProvider

Value 5
Name: ImagePath
Type: REG_EXPAND_SZ
Data: %SystemRoot%\System32\services.exe

Value 6
Name: ObjectName
Type: REG_SZ
Data: LocalSystem

Value 7
Name: Start
Type: REG_DWORD
Data: 0x2

Value 8
Name: Type

```

Type:          REG_DWORD
Data:          0x20

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanWorkstation
\Enum
Class Name:    <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM
Value 0
Name:          0
Type:          REG_SZ
Data:          Root\LEGACY_LANMANWORKSTATION\0000

Value 1
Name:          Count
Type:          REG_DWORD
Data:          0x1

Value 2
Name:          NextInstance
Type:          REG_DWORD
Data:          0x1

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanWorkstation
\Linkage
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name:          Bind
Type:          REG_MULTI_SZ
Data:          \Device\Nbf_E100B1

Value 1
Name:          Export
Type:          REG_MULTI_SZ
Data:          \Device\LanmanWorkstation\Nbf_E100B1

Value 2
Name:          Route
Type:          REG_MULTI_SZ
Data:          "Nbf" "E100B" "E100B1"

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanWorkstation
\Linkage\Disabled
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name:          Bind
Type:          REG_MULTI_SZ
Data:          \Device\NetBT_E100B1

```

```

Value 1
Name:          Export
Type:          REG_MULTI_SZ
Data:          \Device\LanmanWorkstation\NetBT_E100B1

Value 2
Name:          Route
Type:          REG_MULTI_SZ
Data:          "NetBT" "E100B" "E100B1"

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanWorkstation
\networkprovider
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name:          Devicename
Type:          REG_SZ
Data:          \Device\LanmanRedirector

Value 1
Name:          Name
Type:          REG_SZ
Data:          Microsoft Windows Network

Value 2
Name:          ProviderPath
Type:          REG_EXPAND_SZ
Data:          %SystemRoot%\System32\ntlanman.dll

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanWorkstation
\Parameters
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\LanmanWorkstation
\Security
Class Name:    <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name:          Security
Type:          REG_BINARY
Data:          00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
.....

```

```

00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050 00 01 08 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
.....
00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 dc d2 14 00 ....
...
#.....
00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080 20 00 00 00 20 02 00 00 - dc d2 14 00 00 00 1c 00 ...
...
00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
000000a0 25 02 00 00 dc d2 14 00 - 00 00 18 00 fd 01 02 00
%.....
000000b0 01 01 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
%...
000000c0 01 01 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0 00 00 00 05 12 00 00 00 -
.....

```

```

Key Name: SYSTEM\CurrentControlSet\Services\LmHosts
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM

```

```

Value 0
Name: DependOnGroup
Type: REG_MULTI_SZ
Data: NetworkProvider

```

```

Value 1
Name: DependOnService
Type: REG_MULTI_SZ
Data:

```

```

Value 2
Name: DisplayName
Type: REG_SZ
Data: TCP/IP NetBIOS Helper

```

```

Value 3
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

```

```

Value 4

```

```

Name: ImagePath
Type: REG_EXPAND_SZ
Data: %SystemRoot%\System32\services.exe

```

```

Value 5
Name: ObjectName
Type: REG_SZ
Data: LocalSystem

```

```

Value 6
Name: Start
Type: REG_DWORD
Data: 0x2

```

```

Value 7
Name: Type
Type: REG_DWORD
Data: 0x20

```

```

Key Name: SYSTEM\CurrentControlSet\Services\LmHosts\Enum
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM

```

```

Value 0
Name: 0
Type: REG_SZ
Data: Root\LEGACY_LMHOSTS\0000

```

```

Value 1
Name: Count
Type: REG_DWORD
Data: 0x1

```

```

Value 2
Name: NextInstance
Type: REG_DWORD
Data: 0x1

```

```

Key Name: SYSTEM\CurrentControlSet\Services\LmHosts\Linkage
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

```

```

Key Name: SYSTEM\CurrentControlSet\Services\LmHosts\Linkage\Dis
abled
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

```

```

Key Name: SYSTEM\CurrentControlSet\Services\LmHosts\Parameters
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

```

```

Key Name: SYSTEM\CurrentControlSet\Services\LmHosts\Security
Class Name: <NO CLASS>

```

```

Last Write Time: 6/10/98 - 4:05 AM
Value 0
  Name: Security
  Type: REG_BINARY
  Data:
00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050 00 00 73 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
..S....
00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 c8 00 14 00 ....
...
#.....
00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080 20 00 00 00 20 02 00 00 - c8 00 14 00 00 00 1c 00 ...
...
00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
000000a0 25 02 00 00 c8 00 14 00 - 00 00 18 00 fd 01 02 00
%.....
000000b0 01 01 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
000000c0 01 01 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0 00 00 00 05 12 00 00 00 -
.....

```

```

Key Name: SYSTEM\CurrentControlSet\Services\macdisk
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 11:57 AM
Value 0
  Name: ErrorControl
  Type: REG_DWORD
  Data: 0x1
Value 1
  Name: Group
  Type: REG_SZ

```

```

Data: Filter
Value 2
  Name: ImagePath
  Type: REG_EXPAND_SZ
  Data: System32\drivers\macdisk.sys
Value 3
  Name: PlugPlayServiceType
  Type: REG_DWORD
  Data: 0x1
Value 4
  Name: Start
  Type: REG_DWORD
  Data: 0
Value 5
  Name: Tag
  Type: REG_DWORD
  Data: 0x1
Value 6
  Name: Type
  Type: REG_DWORD
  Data: 0x1
Key Name: SYSTEM\CurrentControlSet\Services\macdisk\Enum
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM
Value 0
  Name: 0
  Type: REG_SZ
  Data: Root\SCSIADAPTER\OEM2.INF&MACDISK
Value 1
  Name: Count
  Type: REG_DWORD
  Data: 0x1
Value 2
  Name: NextInstance
  Type: REG_DWORD
  Data: 0x1
Key Name: SYSTEM\CurrentControlSet\Services\macdisk\Security
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 11:57 AM
Value 0
  Name: Security
  Type: REG_BINARY
  Data:
00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
.....

```

```

00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050 46 00 69 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
F.i.....
.....
00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 6c 00 74 00 ....
...
#...l.t.
00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080 20 00 00 00 20 02 00 00 - 6c 00 74 00 00 00 1c 00 ...
...
l.t.....
00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
000000a0 25 02 00 00 6c 00 74 00 - 00 00 18 00 fd 01 02 00
%...l.t.
.....
000000b0 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
...%...
000000c0 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0 00 00 00 05 12 00 00 00 -
.....

```

```

Key Name: SYSTEM\CurrentControlSet\Services\MSDTC\Security
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM
Value 0
Name: Security
Type: REG_BINARY
Data:
00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....

```

```

00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
.....

```

```

00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
.....
00000050 00 00 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
.....
00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 00 00 00 00 ....
...
#.....
00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080 20 00 00 00 20 02 00 00 - 00 00 00 00 00 00 1c 00 ...
...
00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
000000a0 25 02 00 00 00 00 00 00 - 00 00 18 00 fd 01 02 00
%.....
000000b0 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
...%...
000000c0 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0 00 00 00 05 12 00 00 00 -
.....

```

```

Key Name: SYSTEM\CurrentControlSet\Services\Msfs
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

```

```

Value 1
Name: Group
Type: REG_SZ
Data: File system

```

```

Value 2
Name: Start
Type: REG_DWORD
Data: 0x1

```

```

Value 3
Name: Type
Type: REG_DWORD
Data: 0x2

```

```

Key Name: SYSTEM\CurrentControlSet\Services\Msfs\Enum
Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM
Value 0

```

Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_MSFS\0000

Value 1
 Name: Count
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\MSSQLServer
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:01 PM

Value 0
 Name: DisplayName
 Type: REG_SZ
 Data: MSSQLServer

Value 1
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: ImagePath
 Type: REG_EXPAND_SZ
 Data: C:\MSSQL7\bin\sqlservr.exe

Value 3
 Name: ObjectName
 Type: REG_SZ
 Data: LocalSystem

Value 4
 Name: Start
 Type: REG_DWORD
 Data: 0x3

Value 5
 Name: Type
 Type: REG_DWORD
 Data: 0x10

Key Name: SYSTEM\CurrentControlSet\Services\MSSQLServer\Enum
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:46 PM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_MSSQLSERVER\0000

Value 1

Name: Count
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\MSSQLServer\Performance
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 1:01 PM

Value 0
 Name: Close
 Type: REG_SZ
 Data: CloseSQLPerformanceData

Value 1
 Name: Collect
 Type: REG_SZ
 Data: CollectSQLPerformanceData

Value 2
 Name: First Counter
 Type: REG_DWORD
 Data: 0x738

Value 3
 Name: First Help
 Type: REG_DWORD
 Data: 0x739

Value 4
 Name: Last Counter
 Type: REG_DWORD
 Data: 0x80a

Value 5
 Name: Last Help
 Type: REG_DWORD
 Data: 0x80b

Value 6
 Name: Library
 Type: REG_SZ
 Data: SQLCTR70.DLL

Value 7
 Name: Open
 Type: REG_SZ
 Data: OpenSQLPerformanceData

Key Name: SYSTEM\CurrentControlSet\Services\MSSQLServer\Security

```

Class Name:      <NO CLASS>
Last Write Time: 6/10/98 - 1:00 PM
Value
  Name:          Security
  Type:          REG_BINARY
  Data:
00000000  01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010  34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
.....
00000020  ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
.....
00000030  20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
.....
00000040  8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
.....
00000050  4e 00 54 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
N.T.....
.....
00000060  00 00 00 05 20 00 00 00 - 23 02 00 00 5c 00 73 00 ....
...
#...\s.
00000070  00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
.....
00000080  20 00 00 00 20 02 00 00 - 5c 00 73 00 00 00 1c 00 ...
...
\s.....
00000090  ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
.....
000000a0  25 02 00 00 5c 00 73 00 - 00 00 18 00 fd 01 02 00
%\s.
.....
000000b0  01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
.....%...
000000c0  01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
.....
000000d0  00 00 00 05 12 00 00 00 -
.....

```

```

Key Name:      SYSTEM\CurrentControlSet\Services\Nbf
Class Name:    <NO CLASS>
Last Write Time: 6/10/98 - 4:06 AM
Value 0
  Name:        DisplayName
  Type:        REG_SZ
  Data:        NetBEUI Protocol

Value 1
  Name:        ErrorControl

```

```

Type:          REG_DWORD
Data:          0x1

Value 2
  Name:        Group
  Type:        REG_SZ
  Data:        PNP_TDI

Value 3
  Name:        ImagePath
  Type:        REG_EXPAND_SZ
  Data:        \SystemRoot\System32\drivers\nbf.sys

Value 4
  Name:        Start
  Type:        REG_DWORD
  Data:        0x2

Value 5
  Name:        Type
  Type:        REG_DWORD
  Data:        0x1

Key Name:      SYSTEM\CurrentControlSet\Services\Nbf\Enum
Class Name:    <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM
Value 0
  Name:        0
  Type:        REG_SZ
  Data:        Root\LEGACY_NBF\0000

Value 1
  Name:        Count
  Type:        REG_DWORD
  Data:        0x1

Value 2
  Name:        NextInstance
  Type:        REG_DWORD
  Data:        0x1

Key Name:      SYSTEM\CurrentControlSet\Services\Nbf\Linkage
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
  Name:        Bind
  Type:        REG_MULTI_SZ
  Data:        \Device\E100B1

Value 1
  Name:        Export
  Type:        REG_MULTI_SZ
  Data:        \Device\Nbf_E100B1

Value 2

```

Name: Route
 Type: REG_MULTI_SZ
 Data: "E100B" "E100B1"

Key Name:
 SYSTEM\CurrentControlSet\Services\Nbf\Linkage\Disab
 led

Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:07 AM

Value 0
 Name: Bind
 Type: REG_MULTI_SZ
 Data:

Value 1
 Name: Export
 Type: REG_MULTI_SZ
 Data:

Value 2
 Name: Route
 Type: REG_MULTI_SZ
 Data:

Key Name: SYSTEM\CurrentControlSet\Services\Nbf\Parameters
 Class Name: GenericClass
 Last Write Time: 6/17/98 - 6:48 PM

Value 0
 Name: AddNameQueryRetries
 Type: REG_DWORD
 Data: 0x3

Value 1
 Name: AddNameQueryTimeout
 Type: REG_DWORD
 Data: 0x4c4b40

Value 2
 Name: AllRoutesNameRecognized
 Type: REG_DWORD
 Data: 0

Value 3
 Name: DefaultT1Timeout
 Type: REG_DWORD
 Data: 0x5b8d80

Value 4
 Name: DefaultT2Timeout
 Type: REG_DWORD
 Data: 0x16e360

Value 5
 Name: DefaultTiTimeout
 Type: REG_DWORD
 Data: 0x11e1a300

Value 6
 Name: GeneralRetries
 Type: REG_DWORD
 Data: 0x3

Value 7
 Name: GeneralTimeout
 Type: REG_DWORD
 Data: 0x4c4b40

Value 8
 Name: LlcMaxWindowSize
 Type: REG_DWORD
 Data: 0xa

Value 9
 Name: LlcRetries
 Type: REG_DWORD
 Data: 0x8

Value 10
 Name: MaxAddresses
 Type: REG_DWORD
 Data: 0

Value 11
 Name: MaxAddressFiles
 Type: REG_DWORD
 Data: 0

Value 12
 Name: MaxConnections
 Type: REG_DWORD
 Data: 0

Value 13
 Name: MaximumIncomingFrames
 Type: REG_DWORD
 Data: 0x4

Value 14
 Name: MaxLinks
 Type: REG_DWORD
 Data: 0

Value 15
 Name: MaxRequests
 Type: REG_DWORD
 Data: 0

Value 16
 Name: NameQueryRetries
 Type: REG_DWORD
 Data: 0x3

Value 17
 Name: NameQueryTimeout
 Type: REG_DWORD
 Data: 0x4c4b40

| | | | |
|---|--|----------|---|
| Value 18 | Name: NbProvider | 00000020 | ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00 |
| | Type: REG_SZ | ..... |  |
| | Data: _nb | 00000030 | 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00 |
| Value 19 | Name: QueryWithoutSourceRouting | 00000040 | 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00 |
| | Type: REG_DWORD | ..... |  |
| | Data: 0 | 00000050 | 74 00 42 00 00 00 1c 00 - fd 01 02 00 01 02 00 00 |
| Value 20 | Name: UseDixOverEthernet | t.B..... | |
| | Type: REG_DWORD | 00000060 | 00 00 00 05 20 00 00 00 - 23 02 00 00 54 00 00 00 |
| | Data: 0 | ... | ... |
| Value 21 | Name: WanNameQueryRetries | #...T... | |
| | Type: REG_DWORD | 00000070 | 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05 |
| | Data: 0x5 | 00000080 | 20 00 00 00 20 02 00 00 - 54 00 00 00 00 00 1c 00 |
| | | ... | ... |
| Key Name: | | T..... | |
| SYSTEM\CurrentControlSet\Services\Nbf\Performance | | 00000090 | ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00 |
| Class Name: GenericClass |  | ..... |  |
| Last Write Time: 6/10/98 - 4:05 AM | | 000000a0 | 25 02 00 00 54 00 00 00 - 00 00 18 00 fd 01 02 00 |
| Value 0 | Name: Close | %...T... | |
| | Type: REG_SZ | 000000b0 | 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00 |
| | Data: CloseNbfPerformanceData | ..... |  |
| Value 1 | Name: Collect | ...%... | |
| | Type: REG_SZ | 000000c0 | 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00 |
| | Data: CollectNbfPerformanceData | ..... |  |
| Value 2 | Name: Library | 000000d0 | 00 00 00 05 12 00 00 00 - |
| | Type: REG_SZ | ..... |  |
| | Data: Perfctrs.dll | | |
| Value 3 | Name: Open | | |
| | Type: REG_SZ | | |
| | Data: OpenNbfPerformanceData | | |
| Key Name: | SYSTEM\CurrentControlSet\Services\Nbf\Security | | |
| Class Name: | <NO CLASS> | | |
| Last Write Time: | 6/10/98 - 4:05 AM | | |
| Value 0 | Name: Security | | |
| | Type: REG_BINARY | | |
| | Data: | 00000000 | 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00 |
| | | | |
| | | 00000010 | 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00 |
| 4..... | | | |

| | |
|------------------|--|
| Key Name: | SYSTEM\CurrentControlSet\Services\NDIS |
| Class Name: | <NO CLASS> |
| Last Write Time: | 10/10/96 - 1:09 AM |
| Value 0 | Name: DisplayName |
| | Type: REG_SZ |
| | Data: Microsoft NDIS System Driver |
| Value 1 | Name: ErrorControl |
| | Type: REG_DWORD |
| | Data: 0x1 |
| Value 2 | Name: Group |
| | Type: REG_SZ |
| | Data: NDIS |
| Value 3 | Name: Start |
| | Type: REG_DWORD |

```

Data:                0x1
Value 4
Name:                Type
Type:                REG_DWORD
Data:                0x1

Key Name:            SYSTEM\CurrentControlSet\Services\NDIS\Enum
Class Name:          <NO CLASS>
Last Write Time:    6/17/98 - 6:46 PM
Value 0
Name:                0
Type:                REG_SZ
Data:                Root\LEGACY_NDIS\0000

Value 1
Name:                Count
Type:                REG_DWORD
Data:                0x1

Value 2
Name:                NextInstance
Type:                REG_DWORD
Data:                0x1

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\MediaTypes
Class Name:          <NO CLASS>
Last Write Time:    10/10/96 - 1:09 AM

Key Name:            SYSTEM\CurrentControlSet\Services\NDIS\NetDetect
Class Name:          <NO CLASS>
Last Write Time:    10/10/96 - 1:09 AM

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA
Class Name:          <NO CLASS>
Last Write Time:    10/10/96 - 1:09 AM

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\3C592
Class Name:          <NO CLASS>
Last Write Time:    6/10/98 - 3:56 AM
Value 0
Name:                Id
Type:                REG_DWORD
Data:                0x20596d50

Value 1
Name:                Mask
Type:                REG_DWORD
Data:                0xf0ffffff

Value 2
Name:                token

```

```

Type:                REG_SZ
Data:                3C592

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\3C597
Class Name:          <NO CLASS>
Last Write Time:    6/10/98 - 3:56 AM
Value 0
Name:                Id
Type:                REG_DWORD
Data:                0x70596d50

Value 1
Name:                Mask
Type:                REG_DWORD
Data:                0xf0ffffff

Value 2
Name:                token
Type:                REG_SZ
Data:                3C597

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\BONSAI
Class Name:          <NO CLASS>
Last Write Time:    10/10/96 - 1:09 AM
Value 0
Name:                Id
Type:                REG_DWORD
Data:                0x62110e

Value 1
Name:                Mask
Type:                REG_DWORD
Data:                0xffffffff

Value 2
Name:                token
Type:                REG_SZ
Data:                BONSAI

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\C320TNT
Class Name:          <NO CLASS>
Last Write Time:    6/10/98 - 3:56 AM
Value 0
Name:                Id
Type:                REG_DWORD
Data:                0x32530e

Value 1
Name:                Mask
Type:                REG_DWORD

```

```

Data:          0xffffffff

Value 2
Name:         token
Type:        REG_SZ
Data:        C320TNT

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\DE425
Class Name:   <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name:        Id
Type:        REG_DWORD
Data:        0x5042a310

Value 1
Name:        Mask
Type:        REG_DWORD
Data:        0xf0ffffff

Value 2
Name:        token
Type:        REG_SZ
Data:        DE425

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\DEC300
Class Name:   <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name:        Id
Type:        REG_DWORD
Data:        0x230a310

Value 1
Name:        Mask
Type:        REG_DWORD
Data:        0xffffffff

Value 2
Name:        token
Type:        REG_SZ
Data:        DEC300

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\DEC422
Class Name:   <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name:        Id
Type:        REG_DWORD
Data:        0x2042a310

```

```

Value 1
Name:        Mask
Type:        REG_DWORD
Data:        0xf0ffffff

Value 2
Name:        token
Type:        REG_SZ
Data:        DEC422

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\DURANGO
Class Name:   <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name:        Id
Type:        REG_DWORD
Data:        0x260110e

Value 1
Name:        Mask
Type:        REG_DWORD
Data:        0xffffffff

Value 2
Name:        token
Type:        REG_SZ
Data:        DURANGO

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\ELNK3EISA
Class Name:   <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name:        Id
Type:        REG_DWORD
Data:        0x90506d50

Value 1
Name:        Mask
Type:        REG_DWORD
Data:        0xf0ffffff

Value 2
Name:        token
Type:        REG_SZ
Data:        ELNK3EISA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\ES3210
Class Name:   <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

```

Value 0
Name: Id
Type: REG_DWORD
Data: 0x12949

Value 1
Name: Mask
Type: REG_DWORD
Data: 0xffffffff

Value 2
Name: token
Type: REG_SZ
Data: ES3210

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI

Class Name: SA\F70XX
<NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x6690e

Value 1
Name: Mask
Type: REG_DWORD
Data: 0xffffffff

Value 2
Name: token
Type: REG_SZ
Data: F70XX

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI

Class Name: SA\FL32
<NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x1010d425

Value 1
Name: Mask
Type: REG_DWORD
Data: 0xffffffff

Value 2
Name: token
Type: REG_SZ
Data: FL32

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
Class Name: SA\FLNK
<NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x776d50

Value 1
Name: Mask
Type: REG_DWORD
Data: 0xffffffff

Value 2
Name: token
Type: REG_SZ
Data: FLNK

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI

Class Name: SA\J2577A
<NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x4019f022

Value 1
Name: Mask
Type: REG_DWORD
Data: 0xf0ffffff

Value 2
Name: token
Type: REG_SZ
Data: J2577A

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI

Class Name: SA\MAPLE
<NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x160110e

Value 1
Name: Mask
Type: REG_DWORD
Data: 0xffffffff

Value 2
Name: token

```

Type:          REG_SZ
Data:          MAPLE

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\NE3200
Class Name:    <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name:          Id
Type:          REG_DWORD
Data:          0x7cc3a

Value 1
Name:          Mask
Type:          REG_DWORD
Data:          0xffffffff

Value 2
Name:          token
Type:          REG_SZ
Data:          NE3200

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\NETFLEX3
Class Name:    <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name:          Id
Type:          REG_DWORD
Data:          0x20f1110e

Value 1
Name:          Mask
Type:          REG_DWORD
Data:          0xf0ffffff

Value 2
Name:          token
Type:          REG_SZ
Data:          NETFLEX3

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\NETFLEX3.1
Class Name:    <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name:          Id
Type:          REG_DWORD
Data:          0x40f1110e

Value 1
Name:          Mask
Type:          REG_DWORD

```

```

Data:          0xf0ffffff

Value 2
Name:          token
Type:          REG_SZ
Data:          NETFLEX3

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\NETFLX
Class Name:    <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name:          Id
Type:          REG_DWORD
Data:          0x61110e

Value 1
Name:          Mask
Type:          REG_DWORD
Data:          0xffffffff

Value 2
Name:          token
Type:          REG_SZ
Data:          NETFLX

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\NF3500
Class Name:    <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name:          Id
Type:          REG_DWORD
Data:          0x84633a

Value 1
Name:          Mask
Type:          REG_DWORD
Data:          0xffffffff

Value 2
Name:          token
Type:          REG_SZ
Data:          NF3500

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\NPEISA.1
Class Name:    <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name:          id
Type:          REG_DWORD
Data:          0x2093a

```

```

Value 1
  Name:      Mask
  Type:      REG_DWORD
  Data:      0xffffffff

Value 2
  Name:      token
  Type:      REG_SZ
  Data:      NPEISA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
  Class Name:      SA\NPEISA.2
  Last Write Time: 10/10/96 - 1:09 AM
Value 0
  Name:      id
  Type:      REG_DWORD
  Data:      0x3093a

Value 1
  Name:      Mask
  Type:      REG_DWORD
  Data:      0xffffffff

Value 2
  Name:      token
  Type:      REG_SZ
  Data:      NPEISA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
  Class Name:      SA\P1990
  Last Write Time: 10/10/96 - 1:09 AM
Value 0
  Name:      Id
  Type:      REG_DWORD
  Data:      0x604f42

Value 1
  Name:      Mask
  Type:      REG_DWORD
  Data:      0xffffffff

Value 2
  Name:      token
  Type:      REG_SZ
  Data:      P1990

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
  Class Name:      SA\RODAN
  Last Write Time: 10/10/96 - 1:09 AM

```

```

Value 0
  Name:      Id
  Type:      REG_DWORD
  Data:      0x63110e

Value 1
  Name:      Mask
  Type:      REG_DWORD
  Data:      0xffffffff

Value 2
  Name:      token
  Type:      REG_SZ
  Data:      RODAN

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
  Class Name:      SA\SKETHNT
  Last Write Time: 6/10/98 - 3:56 AM
Value 0
  Name:      Id
  Type:      REG_DWORD
  Data:      0x2644d

Value 1
  Name:      Mask
  Type:      REG_DWORD
  Data:      0xfffff

Value 2
  Name:      token
  Type:      REG_SZ
  Data:      SKETHNT

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
  Class Name:      SA\SKFENT
  Last Write Time: 6/10/98 - 3:56 AM
Value 0
  Name:      Id
  Type:      REG_DWORD
  Data:      0x1644d

Value 1
  Name:      Mask
  Type:      REG_DWORD
  Data:      0xfffff

Value 2
  Name:      token
  Type:      REG_SZ
  Data:      SKFENT

```

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\SMC8232
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x80a34d
Value 1
Name: Mask
Type: REG_DWORD
Data: 0xfffff
Value 2
Name: token
Type: REG_SZ
Data: SMC8232

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\TLNK3E
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x9c616d50
Value 1
Name: Mask
Type: REG_DWORD
Data: 0xf0ffffff
Value 2
Name: token
Type: REG_SZ
Data: TLNK3E

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\EI
SA\TLNK3EISA
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x90616d50
Value 1
Name: Mask
Type: REG_DWORD
Data: 0xf0ffffff
Value 2
Name: token

Type: REG_SZ
Data: TLNK3EISA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\AT1700
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x6413

Value 1
Name: token
Type: REG_SZ
Data: AT1700

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\EE16MC
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x628b

Value 1
Name: token
Type: REG_SZ
Data: EE16MC

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\E1INK527
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x41

Value 1
Name: token
Type: REG_SZ
Data: E1INK527

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\ELNK3MCA.1
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x627c
Value 1
Name: token
Type: REG_SZ
Data: ELNK3MCA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\ELNK3MCA.2
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x627d
Value 1
Name: token
Type: REG_SZ
Data: ELNK3MCA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\ELNK3MCA.3
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x61db
Value 1
Name: token
Type: REG_SZ
Data: ELNK3MCA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\ELNK3MCA.4
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x62f6
Value 1

Name: token
Type: REG_SZ
Data: ELNK3MCA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\ELNK3MCA.5
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x62f7
Value 1
Name: token
Type: REG_SZ
Data: ELNK3MCA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\ELNKMC
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x6042
Value 1
Name: token
Type: REG_SZ
Data: ELNKMC

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\F30XX
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x70
Value 1
Name: token
Type: REG_SZ
Data: F30XX

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\HPMCA
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0

Name: Id
Type: REG_DWORD
Data: 0x63ca

Value 1
Name: token
Type: REG_SZ
Data: HPMCA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC

Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0xffe0

Value 1
Name: token
Type: REG_SZ
Data: IBMENIIN

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC

Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0xe000

Value 1
Name: token
Type: REG_SZ
Data: IBMTOKA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC

Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0xe001

Value 1
Name: token
Type: REG_SZ
Data: IBMTOKMC

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC

Class Name: A\IRMAtrac.1
<NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x5c1c

Value 1
Name: token
Type: REG_SZ
Data: IRMAtrac

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC

Class Name: A\IRMAtrac.2
<NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x5c1d

Value 1
Name: token
Type: REG_SZ
Data: IRMAtrac

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC

Class Name: A\NCR TOK
<NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x100

Value 1
Name: token
Type: REG_SZ
Data: NCR TOK

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC

Class Name: A\NPMCA
<NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x69

Value 1

```

Name: token
Type: REG_SZ
Data: NPMCA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: A\OCTK16.1
Last Write Time: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xa84

Value 1
Name: token
Type: REG_SZ
Data: OCTK16

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: A\OCTK16.2
Last Write Time: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xa85

Value 1
Name: token
Type: REG_SZ
Data: OCTK16

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: A\OCTK16.3
Last Write Time: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xa86

Value 1
Name: token
Type: REG_SZ
Data: OCTK16

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: A\QUADENET.1
Last Write Time: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0

```

```

Name: Id
Type: REG_DWORD
Data: 0x8f6d

Value 1
Name: token
Type: REG_SZ
Data: QUADENET

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: A\QUADENET.2
Last Write Time: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x8f6a

Value 1
Name: token
Type: REG_SZ
Data: QUADENET

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: A\SKFMNT.1
Last Write Time: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x83

Value 1
Name: token
Type: REG_SZ
Data: SKFMNT

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: A\SKFMNT.2
Last Write Time: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xab

Value 1
Name: token
Type: REG_SZ
Data: SKFMNT

```

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\STREAMER.1
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x8fa0
Value 1
Name: token
Type: REG_SZ
Data: STREAMER

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\STREAMER.2
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x8fa2
Value 1
Name: token
Type: REG_SZ
Data: STREAMER

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\STREAMER.3
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x8fa8
Value 1
Name: token
Type: REG_SZ
Data: STREAMER

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\STREAMER.4
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x8faa
Value 1

Name: token
Type: REG_SZ
Data: STREAMER

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\TC\$4046E
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x51
Value 1
Name: token
Type: REG_SZ
Data: TC\$4046E

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\UBPS
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x7012
Value 1
Name: token
Type: REG_SZ
Data: UBPS

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\WAVELAN_MCA
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x6a14
Value 1
Name: token
Type: REG_SZ
Data: WAVELAN_MCA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
A\WD8003EA
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0

```

Name: Id
Type: REG_DWORD
Data: 0x67c0

Value 1
Name: token
Type: REG_SZ
Data: WD8003EA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x67c2

Value 1
Name: token
Type: REG_SZ
Data: WD8003WA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x61c8

Value 1
Name: token
Type: REG_SZ
Data: WD8013EPA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\MC
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x61c9

Value 1
Name: token
Type: REG_SZ
Data: WD8013WPA

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\3C590
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x590010b7

Value 1
Name: token
Type: REG_SZ
Data: 3C590

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\3C595
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x595010b7

Value 1
Name: token
Type: REG_SZ
Data: 3C595

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\3C905
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x905010b7

Value 1
Name: token
Type: REG_SZ
Data: 3C905

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\ALANE0
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

```

Value 0
Name: Id
Type: REG_DWORD
Data: 0x59009004

Value 1
Name: token
Type: REG_SZ
Data: ALANE0

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\AMDPCI
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x20001022

Value 1
Name: token
Type: REG_SZ
Data: AMDPCI

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\DC21040
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x21011

Value 1
Name: token
Type: REG_SZ
Data: DC21040

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\DC21041
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x141011

Value 1
Name: token
Type: REG_SZ
Data: DC21041

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\DC21140
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM

Value 0
Name: Id
Type: REG_DWORD
Data: 0x91011

Value 1
Name: token
Type: REG_SZ
Data: DC21140

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\DC21142
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x191011

Value 1
Name: token
Type: REG_SZ
Data: DC21142

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\DEFFA
Class Name: <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xf1011

Value 1
Name: token
Type: REG_SZ
Data: DEFFA

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\E100BPCI
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x12298086

Value 1

```

Name: token
Type: REG_SZ
Data: E100BPCI

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\E10PCI
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x12268086

Value 1
Name: token
Type: REG_SZ
Data: E10PCI

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\LEC
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x100110b6

Value 1
Name: token
Type: REG_SZ
Data: LEC

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\NCPF
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x111bc

Value 1
Name: token
Type: REG_SZ
Data: NCPF

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\NETFLEX3.1
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM

```

```

Value 0
Name: Id
Type: REG_DWORD
Data: 0xf1300e11

Value 1
Name: token
Type: REG_SZ
Data: NETFLEX3

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\NETFLEX3.2
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xae320e11

Value 1
Name: token
Type: REG_SZ
Data: NETFLEX3

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\NETFLEX3.3
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xae340e11

Value 1
Name: token
Type: REG_SZ
Data: NETFLEX3

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\NETFLEX3.4
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xae350e11

Value 1
Name: token
Type: REG_SZ
Data: NETFLEX3

```

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\NETFLEX3.5
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xae430e11
Value 1
Name: token
Type: REG_SZ
Data: NETFLEX3

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\NETFLEX3.6
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xae400e11
Value 1
Name: token
Type: REG_SZ
Data: NETFLEX3

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\NETFLEX3.7
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0xf1500e11
Value 1
Name: token
Type: REG_SZ
Data: NETFLEX3

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\O100PCI
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x11108d
Value 1

Name: token
Type: REG_SZ
Data: O100PCI

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\OCE4XMP
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x13108d

Value 1
Name: token
Type: REG_SZ
Data: OCE4XMP

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\OCTK16
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x1108d

Value 1
Name: token
Type: REG_SZ
Data: OCTK16

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\RNSFDDI
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x22001112

Value 1
Name: token
Type: REG_SZ
Data: RNSFDDI

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC
I\RTL8029
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0

Name: Id
Type: REG_DWORD
Data: 0x802910ec

Value 1
Name: token
Type: REG_SZ
Data: RTL8029

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC

Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x40001148

Value 1
Name: token
Type: REG_SZ
Data: SKFPNT

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC

Class Name: I\SKTOKNT_PCI
<NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x42001148

Value 1
Name: token
Type: REG_SZ
Data: SKTOKNT_PCI

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\NetDetect\PC

Class Name: I\STREAMER
<NO CLASS>
Last Write Time: 6/10/98 - 3:56 AM
Value 0
Name: Id
Type: REG_DWORD
Data: 0x181014

Value 1
Name: token
Type: REG_SZ
Data: STREAMER

Key Name:
SYSTEM\CurrentControlSet\Services\NDIS\Parameters

Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 2:17 PM
Value 0
Name: ProcessorAffinityMask
Type: REG_DWORD
Data: 0

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOS

Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name: DependOnGroup
Type: REG_MULTI_SZ
Data: TDI

Value 1
Name: DependOnService
Type: REG_MULTI_SZ
Data:

Value 2
Name: DisplayName
Type: REG_SZ
Data: NetBIOS Interface

Value 3
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Value 4
Name: Group
Type: REG_SZ
Data: NetBIOSGroup

Value 5
Name: ImagePath
Type: REG_EXPAND_SZ
Data: \SystemRoot\System32\drivers\netbios.sys

Value 6
Name: Start
Type: REG_DWORD
Data: 0x3

Value 7
Name: Type
Type: REG_DWORD
Data: 0x2

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOS\Enum

Class Name: <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM

Value 0


```

Name: 0
Type: REG_SZ
Data: Root\LEGACY_NETBIOS\0000

Value 1
Name: Count
Type: REG_DWORD
Data: 0x1

Value 2
Name: NextInstance
Type: REG_DWORD
Data: 0x1

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOS\Linkage
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name: Bind
Type: REG_MULTI_SZ
Data: \Device\Nbf_E100B1

Value 1
Name: Export
Type: REG_MULTI_SZ
Data: \Device\Netbios\Nbf_E100B1

Value 2
Name: LanaMap
Type: REG_BINARY
Data: 00000000 01 01

Value 3
Name: Route
Type: REG_MULTI_SZ
Data: "Nbf" "E100B" "E100B1"

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOS\Linkage\Dis
abled
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name: Bind
Type: REG_MULTI_SZ
Data: \Device\NetBT_E100B1

Value 1
Name: Export
Type: REG_MULTI_SZ
Data: \Device\Netbios\NetBT_E100B1

```

```

Value 2
Name: Route
Type: REG_MULTI_SZ
Data: "NetBT" "E100B" "E100B1"

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOS\Parameters
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOS\Parameters\Winsock
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name: HelperDllName
Type: REG_EXPAND_SZ
Data: %SystemRoot%\system32\wshnetbs.dll

Value 1
Name: Mapping
Type: REG_BINARY
Data: 00000000 02 00 00 00 03 00 00 00 - 11 00 00 00 05 00 00 00
.....
00000010 00 00 00 00 11 00 00 00 - 02 00 00 00 00 00 00 00
.....

Value 2
Name: MaxSockAddrLength
Type: REG_DWORD
Data: 0x14

Value 3
Name: MinSockAddrLength
Type: REG_DWORD
Data: 0x14

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOS\Security
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name: Security
Type: REG_BINARY
Data: 00000000 01 00 14 80 cc 00 00 00 - d8 00 00 00 14 00 00 00
.....

```

```

00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030 20 02 00 00 02 00 98 00 - 06 00 00 00 00 03 18 00
.....
00000040 00 00 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050 00 00 00 00 00 03 18 00 - ff 01 0f 00 01 02 00 00
.....
00000060 00 00 00 05 20 00 00 00 - 20 02 00 00 00 03 18 00 ....
...
00000070 ff 01 0f 00 01 01 00 00 - 00 00 00 05 12 00 00 00
.....
00000080 20 02 00 00 00 03 18 00 - 00 00 02 00 01 02 00 00
.....
00000090 00 00 00 05 20 00 00 00 - 23 02 00 00 00 03 18 00 ....
...
#.....
000000a0 9d 00 00 00 01 01 00 00 - 00 00 00 05 04 00 00 00
.....
000000b0 23 02 00 00 00 03 18 00 - 9d 00 00 00 01 02 00 00
#.....
000000c0 00 00 00 05 20 00 00 00 - 21 02 00 00 01 01 00 00 ....
...
!.....
000000d0 00 00 00 05 12 00 00 00 - 01 01 00 00 00 00 00 05
.....
000000e0 12 00 00 00 .....

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOSInformatio
n
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name: ErrorControl
Type: REG_DWORD
Data: 0x1

Value 1
Name: Start
Type: REG_DWORD
Data: 0x3

Value 2
Name: Type

```

```

Type: REG_DWORD
Data: 0x4

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOSInformatio
n\Linkage
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOSInformatio
n\Linkage\Disabled
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\NetBIOSInformatio
n\Parameters
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name: EnumExport1
Type: REG_DWORD
Data: 0x1

Value 1
Name: EnumExport2
Type: REG_DWORD
Data: 0x1

Value 2
Name: LanaNum1
Type: REG_DWORD
Data: 0

Value 3
Name: LanaNum2
Type: REG_DWORD
Data: 0x1

Value 4
Name: MaxLana
Type: REG_DWORD
Data: 0x1

Value 5
Name: Route
Type: REG_MULTI_SZ
Data: "NetBT" "E100B" "E100B1"
"Nbf" "E100B" "E100B1"

Key Name: SYSTEM\CurrentControlSet\Services\NetBT
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name: DependOnGroup

```

```

Type:          REG_MULTI_SZ
Data:

Value 1
Name:          DependOnService
Type:          REG_MULTI_SZ
Data:          Tcpip

Value 2
Name:          DisplayName
Type:          REG_SZ
Data:          WINS Client (TCP/IP)

Value 3
Name:          ErrorControl
Type:          REG_DWORD
Data:          0x1

Value 4
Name:          Group
Type:          REG_SZ
Data:          PNP_TDI

Value 5
Name:          ImagePath
Type:          REG_EXPAND_SZ
Data:          \SystemRoot\System32\drivers\netbt.sys

Value 6
Name:          Start
Type:          REG_DWORD
Data:          0x2

Value 7
Name:          Type
Type:          REG_DWORD
Data:          0x1

Key Name:      SYSTEM\CurrentControlSet\Services\NetBT\Adapters
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:      SYSTEM\CurrentControlSet\Services\NetBT\Adapters\E1
00B1
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name:          NameServer
Type:          REG_SZ
Data:

Value 1
Name:          NameServerBackup
Type:          REG_SZ
Data:

```

```

Key Name:      SYSTEM\CurrentControlSet\Services\NetBT\Enum
Class Name:    <NO CLASS>
Last Write Time: 6/17/98 - 6:48 PM
Value 0
Name:          Count
Type:          REG_DWORD
Data:          0

Value 1
Name:          NextInstance
Type:          REG_DWORD
Data:          0

Key Name:      SYSTEM\CurrentControlSet\Services\NetBT\Linkage
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name:          Bind
Type:          REG_MULTI_SZ
Data:

Value 1
Name:          Export
Type:          REG_MULTI_SZ
Data:

Value 2
Name:          OtherDependencies
Type:          REG_MULTI_SZ
Data:          Tcpip

Value 3
Name:          Route
Type:          REG_MULTI_SZ
Data:

Key Name:      SYSTEM\CurrentControlSet\Services\NetBT\Linkage\Disabled
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name:          Bind
Type:          REG_MULTI_SZ
Data:          \Device\E100B1

Value 1
Name:          Export
Type:          REG_MULTI_SZ
Data:          \Device\NetBT_E100B1

Value 2
Name:          Route

```

```

Type:          REG_MULTI_SZ
Data:          "E100B" "E100B1"

Key Name:
SYSTEM\CurrentControlSet\Services\NetBT\Parameters
Class Name:   GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
  Name:       BcastNameQueryCount
  Type:      REG_DWORD
  Data:      0x3
Value 1
  Name:       BcastQueryTimeout
  Type:      REG_DWORD
  Data:      0x2ee
Value 2
  Name:       CacheTimeout
  Type:      REG_DWORD
  Data:      0x927c0
Value 3
  Name:       EnableDNS
  Type:      REG_DWORD
  Data:      0
Value 4
  Name:       EnableLMHOSTS
  Type:      REG_DWORD
  Data:      0x1
Value 5
  Name:       EnableProxy
  Type:      REG_DWORD
  Data:      0
Value 6
  Name:       NameServerPort
  Type:      REG_DWORD
  Data:      0x89
Value 7
  Name:       NameSrvQueryCount
  Type:      REG_DWORD
  Data:      0x3
Value 8
  Name:       NameSrvQueryTimeout
  Type:      REG_DWORD
  Data:      0x5dc
Value 9
  Name:       NbProvider
  Type:      REG_SZ
  Data:      _tcp

```

```

Value 10
  Name:       ScopeID
  Type:      REG_SZ
  Data:
Value 11
  Name:       SessionKeepAlive
  Type:      REG_DWORD
  Data:      0x36ee80
Value 12
  Name:       Size/Small/Medium/Large
  Type:      REG_DWORD
  Data:      0x1
Value 13
  Name:       TransportBindName
  Type:      REG_SZ
  Data:      \Device\

Key Name:     SYSTEM\CurrentControlSet\Services\NetBT\Security
Class Name:   <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM
Value 0
  Name:       Security
  Type:      REG_BINARY
  Data:      00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
  .....
  00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
  00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
  .....
  00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
  .....
  00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
  .....
  00000050 01 01 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
  .....
  00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 00 00 05 ....
  ...
#.....
  00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 05
  .....
  00000080 20 00 00 00 20 02 00 00 - 00 00 00 05 00 00 1c 00 ...
  ...
  00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
  .....
  ....

```

```

000000a0 25 02 00 00 00 00 00 05 - 00 00 18 00 fd 01 02 00
%.....
.....
000000b0 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
....%...
000000c0 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
.....
000000d0 00 00 00 05 12 00 00 00 -
.....

```

```

Key Name: SYSTEM\CurrentControlSet\Services\PROSet
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:01 AM

```

```

Key Name: SYSTEM\CurrentControlSet\Services\PROSet\Adapters
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:01 AM
Value 0
Name: EPRO100
Type: REG_SZ
Data: Intel EtherExpress PRO Adapter

```

```

Key Name: SYSTEM\CurrentControlSet\Services\PROSet\EPRO100
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:01 AM
Value 0
Name: AdapterDescription
Type: REG_SZ
Data: EPRO100_GetAdapterDescription

```

```

Value 1
Name: Configure
Type: REG_SZ
Data: EPRO100_Configure

```

```

Value 2
Name: Detect
Type: REG_SZ
Data: EPRO100_Detect

```

```

Value 3
Name: DeviceExist
Type: REG_SZ
Data: EPRO100_DeviceExist

```

```

Value 4
Name: Diagnose
Type: REG_SZ
Data: EPRO100_Diagnose

```

```

Value 5
Name: DLL
Type: REG_SZ
Data: EPRO100.DLL

```

```

Value 6
Name: GetExtendedFeatures
Type: REG_SZ
Data: EPRO100_GetExtendedFeatures

```

```

Value 7
Name: Help
Type: REG_SZ
Data: E100SET.HLP

```

```

Value 8
Name: InstallAnyway
Type: REG_SZ
Data: EPRO100_InstallAnyway

```

```

Value 9
Name: RegistryKey
Type: REG_SZ
Data: EPRO100_GetRegistryKey

```

```

Value 10
Name: Summary
Type: REG_SZ
Data: EPRO100_Resource_Summary

```

```

Key Name: SYSTEM\CurrentControlSet\Services\PROSet\EPRO100\Parameters
Class Name: GenericClass
Last Write Time: 6/10/98 - 4:01 AM

```

```

Value 0
Name: Adaptive_IFS
Type: REG_SZ
Data: 1,7,Adaptive Inter-Frame Spacing,0,2,1,0,255,1

```

```

Value 1
Name: BusNumber
Type: REG_SZ
Data: 0,7,BusNumber,0,2,0,0,16,1

```

```

Value 2
Name: BusType
Type: REG_SZ
Data: 0,7,BusType,0,2,5,2,5,1

```

```

Value 3
Name: BusTypeLocal
Type: REG_SZ
Data: 0,7,BusTypeLocal,0,2,5,2,5,1

```

```

Value 4
Name: Eid
Type: REG_SZ
Data: 0,7,Eid,0,2,0,0,4294967295,1

```

```

Value 5
Name: Fifo

```

Type: REG_SZ
Data: 0,3,Fifo Depth,0,2,12,0,15,1

Value 6
Name: ForceDpx
Type: REG_SZ
Data: 1,4,Duplex Mode,0,1,Auto,Auto,Half,Full

Value 7
Name: MapRegisters
Type: REG_SZ
Data:

Value 8
Name: MediaType
Type: REG_SZ
Data: 0,7,MediaType,0,2,1,1,1,1

Value 9
Name: MsPciScan
Type: REG_SZ
Data: 0,4,MsPciScan,0,2,1,0,1,1

Value 10
Name: NetworkAddress
Type: REG_SZ
Data: 1,7,Locally Administered Address,0,5,0,0,1,1

Value 11
Name: NumCoalesce
Type: REG_SZ
Data: 1,7,Coalesce Buffers,0,2,8,1,32,1

Value 12
Name: NumRfd
Type: REG_SZ
Data: 1,7,Receive Buffers,0,2,32,1,1024,1

Value 13
Name: NumTbd
Type: REG_SZ
Data: 0,3,Transmit Buffer Descriptors,0,2,64,1,65535,1

Value 14
Name: NumTbdPerTcb
Type: REG_SZ
Data: 0,4,Transmit Buffers per Frame,0,2,12,1,16,1

Value 15
Name: NumTcb
Type: REG_SZ
Data: 1,7,Transmit Control Blocks,0,2,16,1,80,1

Value 16
Name: Off
Type: REG_SZ
Data: 1,3,Off Timer,0,2,2,1,65535,1

Value 17

Name: On
Type: REG_SZ
Data: 1,3,On Timer,0,2,32768,1,65535,1

Value 18
Name: PerfOptims
Type: REG_SZ
Data: 0,4,PerfOptims,0,2,0,0,65535,1

Value 19
Name: RxDmaCount
Type: REG_SZ
Data: 0,4,RxDmaCount,0,2,0,0,63,1

Value 20
Name: RxFifo
Type: REG_SZ
Data: 0,4,Receive Fifo Depth,0,2,8,0,15,1

Value 21
Name: Slot
Type: REG_SZ
Data:

Value 22
Name: Speed
Type: REG_SZ
Data: 1,7,Network Speed,0,4,Auto,Auto,0,10Mbps,10,100Mbps,100

Value 23
Name: Threshold
Type: REG_SZ
Data: 0,7,Transmit Threshold,0,2,16,0,200,1

Value 24
Name: TxDmaCount
Type: REG_SZ
Data: 0,4,TxDmaCount,0,2,0,0,63,1

Value 25
Name: TxFifo
Type: REG_SZ
Data: 0,4,Transmit Fifo Depth,0,2,8,0,15,1

Value 26
Name: Txmitwait
Type: REG_SZ
Data: 0,7,Txmitwait,0,2,1,0,255,1

Value 27
Name: UcodeSW
Type: REG_SZ
Data: 0,7,UcodeSW,0,2,1,0,1,1

Value 28
Name: UnderrunRetry
Type: REG_SZ

Data: 0,4,UnderrunRetry,0,2,1,0,3,1

Key Name: SYSTEM\CurrentControlSet\Services\SNMP
 Class Name: <NO CLASS>
 Last Write Time: 6/10/98 - 4:05 AM

Value 0
 Name: DependOnGroup
 Type: REG_MULTI_SZ
 Data:

Value 1
 Name: DependOnService
 Type: REG_MULTI_SZ
 Data: Tcpip
 EventLog

Value 2
 Name: DisplayName
 Type: REG_SZ
 Data: SNMP

Value 3
 Name: ErrorControl
 Type: REG_DWORD
 Data: 0x1

Value 4
 Name: ImagePath
 Type: REG_EXPAND_SZ
 Data: %SystemRoot%\System32\snmp.exe

Value 5
 Name: ObjectName
 Type: REG_SZ
 Data: LocalSystem

Value 6
 Name: Start
 Type: REG_DWORD
 Data: 0x2

Value 7
 Name: Type
 Type: REG_DWORD
 Data: 0x10

Key Name: SYSTEM\CurrentControlSet\Services\SNMP\Enum
 Class Name: <NO CLASS>
 Last Write Time: 6/17/98 - 6:46 PM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_SNMP\0000

Value 1
 Name: Count

Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\SNMP\Linkage
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\SNMP\Linkage\Dis
 abled
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\SNMP\Parameters
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\SNMP\Parameters\E
 nableAuthenticationTraps
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:05 AM

Value 0
 Name: switch
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\SNMP\Parameters\E
 xtensionAgents
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:05 AM

Value 0
 Name: 1
 Type: REG_SZ
 Data: SOFTWARE\Microsoft\LANManagerMIB2Agent\CurrentVersi
 on

Value 1
 Name: 2
 Type: REG_SZ
 Data: SOFTWARE\Microsoft\RFC1156Agent\CurrentVersion

Key Name: SYSTEM\CurrentControlSet\Services\SNMP\Parameters\P
 ermittedManagers
 Class Name: GenericClass
 Last Write Time: 6/10/98 - 4:05 AM

```

Key Name:
SYSTEM\CurrentControlSet\Services\SNMP\Parameters\R
Class Name:      FC1156Agent
GenericClass
Last Write Time: 6/10/98 - 4:06 AM
Value 0
Name:      sysContact
Type:      REG_SZ
Data:      SAM&M

Value 1
Name:      sysLocation
Type:      REG_SZ
Data:      MV Performance Lab

Value 2
Name:      sysServices
Type:      REG_DWORD
Data:      0x4c

Key Name:
SYSTEM\CurrentControlSet\Services\SNMP\Parameters\T
Class Name:      rapConfiguration
GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\SNMP\Parameters\V
Class Name:      alidCommunities
GenericClass
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name:      1
Type:      REG_SZ
Data:      public

Key Name:      SYSTEM\CurrentControlSet\Services\SNMP\Security
Class Name:    <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name:      Security
Type:      REG_BINARY
Data:
00000000  01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010  34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
00000020  ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030  20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
00000040  8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....

.....
00000050  12 00 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
.....
00000060  00 00 00 05 20 00 00 00 - 23 02 00 00 01 01 00 00 ....
...
#.....
00000070  00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080  20 00 00 00 20 02 00 00 - 01 01 00 00 00 00 1c 00 ...
...
00000090  ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
000000a0  25 02 00 00 01 01 00 00 - 00 00 18 00 fd 01 02 00
%.....
000000b0  01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
....%...
000000c0  01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0  00 00 00 05 12 00 00 00 -
.....

Key Name:      SYSTEM\CurrentControlSet\Services\SNMPTRAP
Class Name:    <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name:      DependOnGroup
Type:      REG_MULTI_SZ
Data:

Value 1
Name:      DependOnService
Type:      REG_MULTI_SZ
Data:      Tcpip
EventLog

Value 2
Name:      DisplayName
Type:      REG_SZ
Data:      SNMP Trap Service

Value 3
Name:      ErrorControl
Type:      REG_DWORD
Data:      0x1

Value 4
Name:      ImagePath
Type:      REG_EXPAND_SZ
Data:      %SystemRoot%\System32\snmptrap.exe

```


| | | | |
|------------------|--|------------------|--|
| Type: | REG_MULTI_SZ | 00000030 | 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00 |
| Data: |  | ..... |  |
| Value 1 | | 00000040 | 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00 |
| Name: | DependOnService | ..... |  |
| Type: | REG_MULTI_SZ | 00000050 | 00 00 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00 |
| Data: | MSSQLServer | ..... |  |
| Value 2 | | 00000060 | 00 00 00 05 20 00 00 00 - 23 02 00 00 00 89 ba fd |
| Name: | DisplayName | ... | |
| Type: | REG_SZ | #..... | |
| Data: | SQLServerAgent | 00000070 | 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05 |
| Value 3 | | 00000080 | 20 00 00 00 20 02 00 00 - 00 89 ba fd 00 00 1c 00 ... |
| Name: | ErrorControl | ..... |  |
| Type: | REG_DWORD | ... | |
| Data: | 0x1 | 00000090 | ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00 |
| Value 4 | | 000000a0 | 25 02 00 00 00 89 ba fd - 00 00 18 00 fd 01 02 00 |
| Name: | ImagePath | ..... |  |
| Type: | REG_EXPAND_SZ | %..... | |
| Data: | C:\MSSQL7\bin\sqlagent.exe | 000000b0 | 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00 |
| Value 5 | | 000000c0 | 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00 |
| Name: | ObjectName | ..... |  |
| Type: | REG_SZ | ...%... | |
| Data: | LocalSystem | 000000d0 | 00 00 00 05 12 00 00 00 - |
| Value 6 |  | ..... |  |
| Name: | Start | ..... |  |
| Type: | REG_DWORD | ..... |  |
| Data: | 0x3 | | |
| Value 7 | | | |
| Name: | Type | Key Name: | SYSTEM\CurrentControlSet\Services\Srv |
| Type: | REG_DWORD | Class Name: | <NO CLASS> |
| Data: | 0x10 | Last Write Time: | 6/10/98 - 4:05 AM |
| Key Name: | SYSTEM\CurrentControlSet\Services\SQLServerAgent\Security | Value 0 | |
| Class Name: | <NO CLASS> | Name: | DisplayName |
| Last Write Time: | 6/10/98 - 1:01 PM | Type: | REG_SZ |
| Value 0 | | Data: | Srv |
| Name: | Security | Value 1 | |
| Type: | REG_BINARY | Name: | ErrorControl |
| Data: | 00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00 | Type: | REG_DWORD |
| ..... |  | Data: | 0x1 |
| 00000010 | 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00 | Value 2 | |
| 4..... | | Name: | Group |
| 00000020 | ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00 | Type: | REG_SZ |
| ..... |  | Data: | Network |
| ..... |  | Value 3 | |
| | | Name: | ImagePath |
| | | Type: | REG_EXPAND_SZ |
| | | Data: | \SystemRoot\System32\drivers\srv.sys |
| | | Value 4 | |
| | | Name: | Start |

| | | | |
|--|--|------------------|--|
| Type: | REG_DWORD | 00000030 | 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00 |
| Data: | 0x3 | ..... |  |
| Value 5 | | 00000040 | 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00 |
| Name: | Type | ..... |  |
| Type: | REG_DWORD | 00000050 | 76 00 69 00 00 00 1c 00 - fd 01 02 00 01 02 00 00 |
| Data: | 0x2 | v.i..... | |
| Key Name: | SYSTEM\CurrentControlSet\Services\Srv\Enum | 00000060 | 00 00 00 05 20 00 00 00 - 23 02 00 00 63 00 65 00 |
| Class Name: | <NO CLASS> | ... | |
| Last Write Time: | 6/17/98 - 6:46 PM | #...c.e. | |
| Value 0 | | 00000070 | 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05 |
| Name: | 0 | ..... |  |
| Type: | REG_SZ | 00000080 | 20 00 00 00 20 02 00 00 - 63 00 65 00 00 00 1c 00 ... |
| Data: | Root\LEGACY_SRV\0000 | ... | |
| Value 1 | | c.e..... | |
| Name: | Count | 00000090 | ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00 |
| Type: | REG_DWORD | ..... |  |
| Data: | 0x1 | 000000a0 | 25 02 00 00 63 00 65 00 - 00 00 18 00 fd 01 02 00 |
| Value 2 | | %...c.e. | |
| Name: | NextInstance | 000000b0 | 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00 |
| Type: | REG_DWORD | ..... |  |
| Data: | 0x1 | ...%... | |
| Key Name: | SYSTEM\CurrentControlSet\Services\Srv\Linkage | 000000c0 | 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00 |
| Class Name: | GenericClass | ..... |  |
| Last Write Time: | 6/10/98 - 4:05 AM | 000000d0 | 00 00 00 05 12 00 00 00 - |
| Key Name: | SYSTEM\CurrentControlSet\Services\Srv\Linkage\Disab | ..... |  |
| Class Name: | GenericClass | Key Name: | SYSTEM\CurrentControlSet\Services\Tcpip |
| Last Write Time: | 6/10/98 - 4:05 AM | Class Name: | <NO CLASS> |
| Key Name: | SYSTEM\CurrentControlSet\Services\Srv\Parameters | Last Write Time: | 6/10/98 - 4:06 AM |
| Class Name: | GenericClass | Value 0 | |
| Last Write Time: | 6/10/98 - 4:05 AM | Name: | DisplayName |
| Key Name: | SYSTEM\CurrentControlSet\Services\Srv\Security | Type: | REG_SZ |
| Class Name: | <NO CLASS> | Data: | TCP/IP Service |
| Last Write Time: | 6/10/98 - 4:05 AM | Value 1 | |
| Value 0 | | Name: | ErrorControl |
| Name: | Security | Type: | REG_DWORD |
| Type: | REG_BINARY | Data: | 0x1 |
| Data: | 00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00 | Value 2 | |
| ..... | ..... | Name: | Group |
| 00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00 | ..... | Type: | REG_SZ |
| 4..... | ..... | Data: | PNP_TDI |
| 00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00 | ..... | Value 3 | |
| ..... | ..... | Name: | ImagePath |
| ..... | ..... | Type: | REG_EXPAND_SZ |
| ..... | ..... | Data: | \SystemRoot\System32\drivers\tcpip.sys |
| ..... | ..... | Value 4 | |
| ..... | ..... | Name: | Start |

```

Type:          REG_DWORD
Data:          0x2

Value 5
Name:          Type
Type:          REG_DWORD
Data:          0x1

Key Name:      SYSTEM\CurrentControlSet\Services\Tcpip\Enum
Class Name:    <NO CLASS>
Last Write Time: 6/17/98 - 6:46 PM
Value 0
Name:          0
Type:          REG_SZ
Data:          Root\LEGACY_TCPIP\0000

Value 1
Name:          Count
Type:          REG_DWORD
Data:          0x1

Value 2
Name:          NextInstance
Type:          REG_DWORD
Data:          0x1

Key Name:      SYSTEM\CurrentControlSet\Services\Tcpip\Linkage
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name:          Bind
Type:          REG_MULTI_SZ
Data:          \Device\E100B1

Value 1
Name:          Export
Type:          REG_MULTI_SZ
Data:          \Device\Tcpip\E100B1

Value 2
Name:          Route
Type:          REG_MULTI_SZ
Data:          "E100B" "E100B1"

Key Name:      SYSTEM\CurrentControlSet\Services\Tcpip\Linkage\Dis
                abled
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name:          Bind
Type:          REG_MULTI_SZ
Data:

```

```

Value 1
Name:          Export
Type:          REG_MULTI_SZ
Data:

Value 2
Name:          Route
Type:          REG_MULTI_SZ
Data:

Key Name:      SYSTEM\CurrentControlSet\Services\Tcpip\Parameters
Class Name:    GenericClass
Last Write Time: 6/10/98 - 11:28 AM
Value 0
Name:          DataBasePath
Type:          REG_EXPAND_SZ
Data:          %SystemRoot%\System32\drivers\etc

Value 1
Name:          Domain
Type:          REG_SZ
Data:          mv.unisys.com

Value 2
Name:          EnableSecurityFilters
Type:          REG_DWORD
Data:          0

Value 3
Name:          ForwardBroadcasts
Type:          REG_DWORD
Data:          0

Value 4
Name:          Hostname
Type:          REG_SZ
Data:          avalon4

Value 5
Name:          IPEnableRouter
Type:          REG_DWORD
Data:          0

Value 6
Name:          KeepAliveInterval
Type:          REG_DWORD
Data:          0x2710

Value 7
Name:          NameServer
Type:          REG_SZ
Data:

Value 8
Name:          SearchList
Type:          REG_SZ
Data:

```

```

Value 9
  Name:      TcpAverageRTT
  Type:      REG_DWORD
  Data:      0x3e8

Key Name:
SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\
  PersistentRoutes
  Class Name:      GenericClass
  Last Write Time: 6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\
  Winsock
  Class Name:      GenericClass
  Last Write Time: 6/10/98 - 4:05 AM
Value 0
  Name:      HelperDllName
  Type:      REG_EXPAND_SZ
  Data:      %SystemRoot%\System32\wshtcpip.dll

Value 1
  Name:      Mapping
  Type:      REG_BINARY
  Data:
00000000  0b 00 00 00 03 00 00 00 - 02 00 00 00 01 00 00 00
.....
00000010  06 00 00 00 02 00 00 00 - 01 00 00 00 00 00 00 00
.....
00000020  02 00 00 00 00 00 00 00 - 06 00 00 00 00 00 00 00
.....
00000030  00 00 00 00 06 00 00 00 - 00 00 00 00 01 00 00 00
.....
00000040  06 00 00 00 02 00 00 00 - 02 00 00 00 11 00 00 00
.....
00000050  02 00 00 00 02 00 00 00 - 00 00 00 00 02 00 00 00
.....
00000060  00 00 00 00 11 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000070  11 00 00 00 00 00 00 00 - 02 00 00 00 11 00 00 00
.....
00000080  02 00 00 00 03 00 00 00 - 00 00 00 00
.....
....

Value 2
  Name:      MaxSockAddrLength
  Type:      REG_DWORD
  Data:      0x10

```

```

Value 3
  Name:      MinSockAddrLength
  Type:      REG_DWORD
  Data:      0x10

Key Name:
SYSTEM\CurrentControlSet\Services\Tcpip\Performance
  Class Name:      GenericClass
  Last Write Time: 6/10/98 - 4:05 AM
Value 0
  Name:      Close
  Type:      REG_SZ
  Data:      CloseTcpIpPerformanceData

Value 1
  Name:      Collect
  Type:      REG_SZ
  Data:      CollectTcpIpPerformanceData

Value 2
  Name:      Library
  Type:      REG_SZ
  Data:      Perfctrs.dll

Value 3
  Name:      Open
  Type:      REG_SZ
  Data:      OpenTcpIpPerformanceData

Key Name:
SYSTEM\CurrentControlSet\Services\Tcpip\Security
  Class Name:      <NO CLASS>
  Last Write Time: 6/10/98 - 4:05 AM
Value 0
  Name:      Security
  Type:      REG_BINARY
  Data:
00000000  01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010  34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00
4.....
00000020  ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030  20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
00000040  8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050  6d 00 00 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
m.....
00000060  00 00 00 05 20 00 00 00 - 23 02 00 00 43 00 48 00
...

```

```

#...C.H.
00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080 20 00 00 00 20 02 00 00 - 43 00 48 00 00 00 1c 00  ...
...
C.H.....
00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
.....
000000a0 25 02 00 00 43 00 48 00 - 00 00 18 00 fd 01 02 00
%...C.H.
.....
000000b0 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....
....%...
000000c0 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0 00 00 00 05 12 00 00 00 -
.....

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\Tcpip\ServiceProv
      ider
Class Name:      GenericClass
Last Write Time: 6/10/98 - 4:05 AM
Value 0
  Name:      Class
  Type:      REG_DWORD
  Data:      0x8
Value 1
  Name:      DnsPriority
  Type:      REG_DWORD
  Data:      0x7d0
Value 2
  Name:      HostsPriority
  Type:      REG_DWORD
  Data:      0x1f4
Value 3
  Name:      LocalPriority
  Type:      REG_DWORD
  Data:      0x1f3
Value 4
  Name:      Name
  Type:      REG_SZ
  Data:      TCP/IP
Value 5
  Name:      NetbtPriority
  Type:      REG_DWORD
  Data:      0x7d1
Value 6

```

```

Name:      ProviderPath
Type:      REG_EXPAND_SZ
Data:      %SystemRoot%\System32\sock32.dll

Key Name:      SYSTEM\CurrentControlSet\Services\UPS
Class Name:    <NO CLASS>
Last Write Time: 10/10/96 - 1:09 AM
Value 0
  Name:      ErrorControl
  Type:      REG_DWORD
  Data:      0x1
Value 1
  Name:      ImagePath
  Type:      REG_EXPAND_SZ
  Data:      %SystemRoot%\System32\ups.exe
Value 2
  Name:      ObjectName
  Type:      REG_SZ
  Data:      LocalSystem
Value 3
  Name:      Start
  Type:      REG_DWORD
  Data:      0x3
Value 4
  Name:      Type
  Type:      REG_DWORD
  Data:      0x10

```

```

Key Name:      SYSTEM\CurrentControlSet\Services\WinSock
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:05 AM
Value 0
  Name:      ErrorControl
  Type:      REG_DWORD
  Data:      0x1
Value 1
  Name:      Start
  Type:      REG_DWORD
  Data:      0x3
Value 2
  Name:      Type
  Type:      REG_DWORD
  Data:      0x4

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock\Autodial
Class Name:    <NO CLASS>
Last Write Time: 6/10/98 - 11:59 AM
Value 0
  Name:      AutodialDllName32

```

```

Type:          REG_SZ
Data:          wininet.dll

Value 1
Name:          AutodialFcnName32
Type:          REG_SZ
Data:          InternetAutodialCallback

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock\Linkage
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock\Linkage\D
isabled
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:05 AM

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock\Parameter
s
Class Name:    GenericClass
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name:          Transports
Type:          REG_MULTI_SZ
Data:          Tcpip
               NetBIOS

Mig Key Name:          SYSTEM\CurrentControlSet\Services\WinSock\Setup
Class Name:          <NO CLASS>
Last Write Time:    6/10/98 - 4:07 AM
Value 0
Name:          Known Static Providers
Type:          REG_MULTI_SZ
Data:          Tcpip
               NwlnkIpx
               NwlnkSpX
               AppleTalk
               IsoTp

Value 1
Name:          Provider List
Type:          REG_MULTI_SZ
Data:          Tcpip
               NetBIOS

Value 2
Name:          Setup Version
Type:          REG_DWORD
Data:          0x1009

```

```

Mig Key Name:          SYSTEM\CurrentControlSet\Services\WinSock\Setup
Class Name:          ration\Providers
Last Write Time:    6/10/98 - 4:06 AM

Mig Key Name:          SYSTEM\CurrentControlSet\Services\WinSock\Setup
Class Name:          ration\Providers\NetBIOS
Last Write Time:    6/10/98 - 4:07 AM
Value 0
Name:          WinSock 1.1 Provider Data
Type:          REG_BINARY
Data:
00000000 0e 10 00 00 11 00 00 00 - 14 00 00 00 14 00 00 00
.....
00000010 05 00 00 00 ff ff ff ff - 00 fa 00 00 66 00 00 00
.....
....f...
00000020 09 12 00 00 11 00 00 00 - 14 00 00 00 14 00 00 00
.....
00000030 02 00 00 00 ff ff ff ff - 00 fa 00 00 40 00 00 00
.....
....@...
00000040 5c 00 44 00 65 00 76 00 - 69 00 63 00 65 00 5c 00
\D.e.v.
i.c.e.\.
00000050 4e 00 62 00 66 00 5f 00 - 45 00 31 00 30 00 30 00
N.b.f._.
E.1.0.0.
00000060 42 00 31 00 00 00 5c 00 - 44 00 65 00 76 00 69 00
B.1...\.
D.e.v.i.
00000070 63 00 65 00 5c 00 4e 00 - 62 00 66 00 5f 00 45 00
c.e.\.N.
b.f._.E.
00000080 31 00 30 00 30 00 42 00 - 31 00 00 00
1.0.0.B.
1...

Value 1
Name:          WinSock 2.0 Provider ID
Type:          REG_BINARY
Data:
00000000 30 18 5f 8d 73 c2 cf 11 - 95 c8 00 80 5f 48 a1 92
0._.s...
...._H..

Mig Key Name:          SYSTEM\CurrentControlSet\Services\WinSock\Setup
Class Name:          ration\Providers\Tcpip
Last Write Time:    6/10/98 - 4:06 AM
Value 0

```

```

Name: WinSock 2.0 Provider ID
Type: REG_BINARY
Data:
00000000 a0 1a 0f e7 8b ab cf 11 - 8c a3 00 80 5f 48 a1 92
.....
...._H..

Key Name: SYSTEM\CurrentControlSet\Services\WinSock\Setup
Mig
Class Name: ration\Well Known Guids
Type: <NO CLASS>
Last Write Time: 6/10/98 - 4:06 AM
Value 0
Name: AppleTalk
Type: REG_BINARY
Data:
00000000 a0 17 3b 2c df c6 cf 11 - 95 c8 00 80 5f 48 a1 92
..i.....
...._H..

Value 1
Name: IsoTp
Type: REG_BINARY
Data:
00000000 b0 cb e4 89 c1 b9 cf 11 - 95 c8 00 80 5f 48 a1 92
.....
...._H..

Value 2
Name: McsXns
Type: REG_BINARY
Data:
00000000 b1 cb e4 89 c1 b9 cf 11 - 95 c8 00 80 5f 48 a1 92
.....
...._H..

Key Name: SYSTEM\CurrentControlSet\Services\WinSock2
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:01 AM

Key Name: SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
rs
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:06 AM
Value 0
Name: Current_NameSpace_Catalog
Type: REG_SZ
Data: NameSpace_Catalog5

Value 1
Name: Current_Protocol_Catalog
Type: REG_SZ
Data: Protocol_Catalog9

Value 2
Name: WinSock_Registry_Version

```

```

Type: REG_SZ
Data: 2.0

Key Name: SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
rs\NameSpace_Catalog5
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name: Next_Provider_ID
Type: REG_DWORD
Data: 0x7d0

Value 1
Name: Num_Catalog_Entries
Type: REG_DWORD
Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
rs\NameSpace_Catalog5\Catalog_Entries
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM

Key Name: SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
rs\NameSpace_Catalog5\Catalog_Entries\000000000001
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:05 AM
Value 0
Name: DisplayString
Type: REG_SZ
Data: TCP/IP

Value 1
Name: Enabled
Type: REG_DWORD
Data: 0x1

Value 2
Name: LibraryPath
Type: REG_SZ
Data: %SystemRoot%\System32\rnr20.dll

Value 3
Name: ProviderId
Type: REG_BINARY
Data:
00000000 40 9d 05 22 9e 7e cf 11 - ae 5a 00 aa 00 a7 11 2b
@..".~..
.Z.....+

Value 4
Name: StoresServiceClassInfo
Type: REG_DWORD
Data: 0x5e7

```



```

Value 5
  Name:      SupportedNameSpace
  Type:     REG_DWORD
  Data:     0xc

Value 6
  Name:     Version
  Type:    REG_DWORD
  Data:     0

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
  Class Name:      rs\Protocol_Catalog9
  Last Write Time: 6/10/98 - 4:07 AM
Value 0
  Name:      Next_Catalog_Entry_ID
  Type:     REG_DWORD
  Data:     0x3f2

Value 1
  Name:      Next_Provider_ID
  Type:     REG_DWORD
  Data:     0x1

Value 2
  Name:      Num_Catalog_Entries
  Type:     REG_DWORD
  Data:     0x5

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
  Class Name:      rs\Protocol_Catalog9\Catalog_Entries
  Last Write Time: 6/10/98 - 4:07 AM

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
rs\Protocol_Catalog9\Catalog_Entries\000000000001
  Class Name:      <NO CLASS>
  Last Write Time: 6/10/98 - 4:07 AM
Value 0
  Name:      PackedCatalogItem
  Type:     REG_BINARY
  Data:
00000000 25 53 79 73 74 65 6d 52 - 6f 6f 74 25 5c 73 79 73
%SystemR
oot%\sys
00000010 74 65 6d 33 32 5c 6d 73 - 61 66 64 2e 64 6c 6c 00
tem32\ms
afd.dll.
00000020 61 66 64 2e 64 6c 6c 00 - 76 00 65 00 72 00 20 00
afd.dll.
v.e.r. .

```

```

00000030 6e 00 6f 00 64 00 65 00 - 73 00 2c 00 20 00 66 00
n.o.d.e.
s...f.
00000040 6f 00 72 00 20 00 77 00 - 68 00 69 00 63 00 68 00 o.r.
.w.
h.i.c.h.
00000050 20 00 74 00 68 00 65 00 - 72 00 65 00 20 00 61 00
.t.h.e.
r.e. .a.
00000060 72 00 65 00 20 00 73 00 - 65 00 70 00 61 00 72 00 r.e.
.s.
e.p.a.r.
00000070 61 00 74 00 65 00 20 00 - 69 00 74 00 65 00 6d 00
a.t.e. .
i.t.e.m.
00000080 73 00 20 00 74 00 6f 00 - 20 00 62 00 65 00 0d 00 s.
.t.o.
.b.e...
00000090 0a 00 3b 00 20 00 70 00 - 72 00 65 00 73 00 65 00 .;.
.p.
r.e.s.e.
000000a0 6e 00 74 00 65 00 64 00 - 20 00 74 00 6f 00 20 00
n.t.e.d.
.t.o. .
000000b0 74 00 68 00 65 00 20 00 - 75 00 73 00 65 00 72 00
t.h.e. .
u.s.e.r.
000000c0 2e 00 20 00 20 00 54 00 - 68 00 65 00 73 00 65 00 . . .
.T.
h.e.s.e.
000000d0 20 00 63 00 6f 00 6d 00 - 62 00 69 00 6e 00 61 00
.c.o.m.
b.i.n.a.
000000e0 74 00 69 00 6f 00 6e 00 - 20 00 6e 00 6f 00 64 00
t.i.o.n.
.n.o.d.
000000f0 65 00 73 00 20 00 61 00 - 72 00 65 00 20 00 6f 00 e.s.
.a.
r.e. .o.
00000100 6e 00 6c 00 66 00 02 00 - 00 00 00 00 00 00 00 00
n.l.f...
.....
00000110 00 00 00 00 08 00 00 00 - a0 1a 0f e7 8b ab cf 11
.....
.....
00000120 8c a3 00 80 5f 48 a1 92 - e9 03 00 00 01 00 00 00
...._H..
.....
00000130 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000140 00 00 00 00 00 00 00 00 - 00 00 00 00 02 00 00 00
.....
.....
00000150 02 00 00 00 10 00 00 00 - 10 00 00 00 01 00 00 00
.....
.....
00000160 06 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....

```

```

.....
00000170 00 00 00 00 00 00 00 00 - 4d 00 53 00 41 00 46 00
.....
M.S.A.F.
00000180 44 00 20 00 54 00 63 00 - 70 00 69 00 70 00 20 00 D.
.T.c.
p.i.p.
00000190 5b 00 54 00 43 00 50 00 - 2f 00 49 00 50 00 5d 00
[.T.C.P.
/.I.P.]
000001a0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000001b0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000001c0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000001d0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000001e0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000001f0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000200 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000210 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000220 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000230 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000240 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000250 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000260 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000270 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000280 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000290 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....

```

```

000002a0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002b0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002c0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002d0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002e0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002f0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000300 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000310 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000320 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000330 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000340 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000350 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000360 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000370 00 00 00 00 00 00 00 00 -
.....

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
rs\Protocol_Catalog9\Catalog_Entries\000000000002
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name: PackedCatalogItem
Type: REG_BINARY
Data:
00000000 25 53 79 73 74 65 6d 52 - 6f 6f 74 25 5c 73 79 73
%SystemR
oot%\sys
00000010 74 65 6d 33 32 5c 6d 73 - 61 66 64 2e 64 6c 6c 00
tem32\ms
afd.dll.

```

```

00000020 61 66 64 2e 64 6c 6c 00 - 76 00 65 00 72 00 20 00
afd.dll.
v.e.r. .
00000030 6e 00 6f 00 64 00 65 00 - 73 00 2c 00 20 00 66 00
n.o.d.e.
s.,. .f.
00000040 6f 00 72 00 20 00 77 00 - 68 00 69 00 63 00 68 00 o.r.
.w.
h.i.c.h.
00000050 20 00 74 00 68 00 65 00 - 72 00 65 00 20 00 61 00
.t.h.e.
r.e. .a.
00000060 72 00 65 00 20 00 73 00 - 65 00 70 00 61 00 72 00 r.e.
.s.
e.p.a.r.
00000070 61 00 74 00 65 00 20 00 - 69 00 74 00 65 00 6d 00
a.t.e. .
i.t.e.m.
00000080 73 00 20 00 74 00 6f 00 - 20 00 62 00 65 00 0d 00 s.
.t.o.
.b.e...
00000090 0a 00 3b 00 20 00 70 00 - 72 00 65 00 73 00 65 00 ..;.
.p.
r.e.s.e.
000000a0 6e 00 74 00 65 00 64 00 - 20 00 74 00 6f 00 20 00
n.t.e.d.
.t.o. .
000000b0 74 00 68 00 65 00 20 00 - 75 00 73 00 65 00 72 00
t.h.e. .
u.s.e.r.
000000c0 2e 00 20 00 20 00 54 00 - 68 00 65 00 73 00 65 00 .. .
.T.
h.e.s.e.
000000d0 20 00 63 00 6f 00 6d 00 - 62 00 69 00 6e 00 61 00
.c.o.m.
b.i.n.a.
000000e0 74 00 69 00 6f 00 6e 00 - 20 00 6e 00 6f 00 64 00
t.i.o.n.
.n.o.d.
000000f0 65 00 73 00 20 00 61 00 - 72 00 65 00 20 00 6f 00 e.s.
.a.
r.e. .o.
00000100 6e 00 6c 00 09 06 02 00 - 00 00 00 00 00 00 00 00
n.l.....
.....
00000110 00 00 00 00 08 00 00 00 - a0 1a 0f e7 8b ab cf 11
.....
.....
00000120 8c a3 00 80 5f 48 a1 92 - ea 03 00 00 01 00 00 00
...._H..
.....
00000130 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000140 00 00 00 00 00 00 00 00 - 00 00 00 00 02 00 00 00
.....
.....
00000150 02 00 00 00 10 00 00 00 - 10 00 00 00 02 00 00 00
.....

```

```

.....
00000160 11 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000170 bb ff 00 00 00 00 00 00 - 4d 00 53 00 41 00 46 00
.....
M.S.A.F.
00000180 44 00 20 00 54 00 63 00 - 70 00 69 00 70 00 20 00 D.
.T.c.
p.i.p. .
00000190 5b 00 55 00 44 00 50 00 - 2f 00 49 00 50 00 5d 00
[U.D.P.
/.I.P.].
000001a0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001b0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001c0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001d0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001e0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001f0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000200 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000210 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000220 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000230 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000240 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000250 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000260 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000270 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000280 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
.....

```

```

00000290 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002a0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002b0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002c0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002d0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002e0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002f0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000300 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000310 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000320 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000330 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000340 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000350 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000360 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000370 00 00 00 00 00 00 00 00 00 -
.....

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock2\Parameter
rs\Protocol_Catalog9\Catalog_Entries\000000000003
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name: PackedCatalogItem
Type: REG_BINARY
Data:
00000000 25 53 79 73 74 65 6d 52 - 6f 6f 74 25 5c 73 79 73
%SystemRoot%\system32\sys

```

```

00000010 74 65 6d 33 32 5c 6d 73 - 61 66 64 2e 64 6c 6c 00
tem32\ms
afd.dll.
00000020 61 66 64 2e 64 6c 6c 00 - 76 00 65 00 72 00 20 00
afd.dll.
v.e.r. .
00000030 6e 00 6f 00 64 00 65 00 - 73 00 2c 00 20 00 66 00
n.o.d.e.
s.,. .f.
00000040 6f 00 72 00 20 00 77 00 - 68 00 69 00 63 00 68 00 o.r.
.w.
h.i.c.h.
00000050 20 00 74 00 68 00 65 00 - 72 00 65 00 20 00 61 00
.t.h.e.
r.e. .a.
00000060 72 00 65 00 20 00 73 00 - 65 00 70 00 61 00 72 00 r.e.
.s.
e.p.a.r.
00000070 61 00 74 00 65 00 20 00 - 69 00 74 00 65 00 6d 00
a.t.e. .
i.t.e.m.
00000080 73 00 20 00 74 00 6f 00 - 20 00 62 00 65 00 0d 00 s.
.t.o.
.b.e...
00000090 0a 00 3b 00 20 00 70 00 - 72 00 65 00 73 00 65 00 .;.
.p.
r.e.s.e.
000000a0 6e 00 74 00 65 00 64 00 - 20 00 74 00 6f 00 20 00
n.t.e.d.
.t.o. .
000000b0 74 00 68 00 65 00 20 00 - 75 00 73 00 65 00 72 00
t.h.e. .
u.s.e.r.
000000c0 2e 00 20 00 20 00 54 00 - 68 00 65 00 73 00 65 00 . . .
.T.
h.e.s.e.
000000d0 20 00 63 00 6f 00 6d 00 - 62 00 69 00 6e 00 61 00
.c.o.m.
b.i.n.a.
000000e0 74 00 69 00 6f 00 6e 00 - 20 00 6e 00 6f 00 64 00
t.i.o.n.
.n.o.d.
000000f0 65 00 73 00 20 00 61 00 - 72 00 65 00 20 00 6f 00 e.s.
.a.
r.e. .o.
00000100 6e 00 6c 00 09 06 02 00 - 00 00 00 00 00 00 00 00
n.l.....
.....
00000110 00 00 00 00 0c 00 00 00 - a0 1a 0f e7 8b ab cf 11
.....
.....
00000120 8c a3 00 80 5f 48 a1 92 - eb 03 00 00 01 00 00 00
...._H..
.....
00000130 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000140 00 00 00 00 00 00 00 00 - 00 00 00 00 02 00 00 00
.....

```

```

.....
00000150 02 00 00 00 10 00 00 00 - 10 00 00 00 03 00 00 00
.....
.....
00000160 00 00 00 00 ff 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000170 bb ff 00 00 00 00 00 00 - 4d 00 53 00 41 00 46 00
.....
.....
M.S.A.F.
00000180 44 00 20 00 54 00 63 00 - 70 00 69 00 70 00 20 00 D.
.T.c.
p.i.p.
00000190 5b 00 52 00 41 00 57 00 - 2f 00 49 00 50 00 5d 00
[.R.A.W.
/.I.P.].
000001a0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001b0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001c0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001d0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001e0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001f0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000200 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000210 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000220 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000230 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000240 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000250 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000260 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000270 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....

```

```

..... 00000280 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000290 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002a0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002b0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002c0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002d0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002e0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002f0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000300 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000310 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000320 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000330 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000340 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000350 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000360 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000370 00 00 00 00 00 00 00 00 -
.....

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
rs\Protocol_Catalog9\Catalog_Entries\000000000004
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:07 AM
Value 0
Name: PackedCatalogItem
Type: REG_BINARY
Data:

```

```

00000000 25 53 79 73 74 65 6d 52 - 6f 6f 74 25 5c 73 79 73
%SystemR
  oot%\sys
00000010 74 65 6d 33 32 5c 6d 73 - 61 66 64 2e 64 6c 6c 00
tem32\ms
  afd.dll.
00000020 61 66 64 2e 64 6c 6c 00 - 76 00 65 00 72 00 20 00
afd.dll.
  v.e.r. .
00000030 6e 00 6f 00 64 00 65 00 - 73 00 2c 00 20 00 66 00
n.o.d.e.
  s.,. .f.
00000040 6f 00 72 00 20 00 77 00 - 68 00 69 00 63 00 68 00 o.r.
.w.
  h.i.c.h.
00000050 20 00 74 00 68 00 65 00 - 72 00 65 00 20 00 61 00
.t.h.e.
  r.e. .a.
00000060 72 00 65 00 20 00 73 00 - 65 00 70 00 61 00 72 00 r.e.
.s.
  e.p.a.r.
00000070 61 00 74 00 65 00 20 00 - 69 00 74 00 65 00 6d 00
a.t.e. .
  i.t.e.m.
00000080 73 00 20 00 74 00 6f 00 - 20 00 62 00 65 00 0d 00 s.
.t.o.
  .b.e...
00000090 0a 00 3b 00 20 00 70 00 - 72 00 65 00 73 00 65 00 ..;.
.p.
  r.e.s.e.
000000a0 6e 00 74 00 65 00 64 00 - 20 00 74 00 6f 00 20 00
n.t.e.d.
  .t.o. .
000000b0 74 00 68 00 65 00 20 00 - 75 00 73 00 65 00 72 00
t.h.e. .
  u.s.e.r.
000000c0 2e 00 20 00 20 00 54 00 - 68 00 65 00 73 00 65 00 .. .
.T.
  h.e.s.e.
000000d0 20 00 63 00 6f 00 6d 00 - 62 00 69 00 6e 00 61 00
.c.o.m.
  b.i.n.a.
000000e0 74 00 69 00 6f 00 6e 00 - 20 00 6e 00 6f 00 64 00
t.i.o.n.
  .n.o.d.
000000f0 65 00 73 00 20 00 61 00 - 72 00 65 00 20 00 6f 00 e.s.
.a.
  r.e. .o.
00000100 6e 00 6c 00 0e 00 02 00 - 00 00 00 00 00 00 00 00
n.l.....
.....
00000110 00 00 00 00 00 00 00 00 - 30 18 5f 8d 73 c2 cf 11
.....
  o._s...
00000120 95 c8 00 80 5f 48 a1 92 - f0 03 00 00 01 00 00 00
...._H..
.....
00000130 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....

```

```

.....
00000140 00 00 00 00 00 00 00 00 - 00 00 00 00 02 00 00 00
.....
.....
00000150 11 00 00 00 14 00 00 00 - 14 00 00 00 05 00 00 00
.....
.....
00000160 ff ff ff ff 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000170 00 fa 00 00 00 00 00 00 - 4d 00 53 00 41 00 46 00
.....
.....
M.S.A.F.
00000180 44 00 20 00 4e 00 65 00 - 74 00 42 00 49 00 4f 00 D.
.N.e.
  t.B.I.O.
00000190 53 00 20 00 5b 00 5c 00 - 44 00 65 00 76 00 69 00 S.
.[.\.
  D.e.v.i.
000001a0 63 00 65 00 5c 00 4e 00 - 62 00 66 00 5f 00 45 00
c.e.\.N.
  b.f._.E.
000001b0 31 00 30 00 30 00 42 00 - 31 00 5d 00 20 00 53 00
1.0.0.B.
  1.] .S.
000001c0 45 00 51 00 50 00 41 00 - 43 00 4b 00 45 00 54 00
E.Q.P.A.
  C.K.E.T.
000001d0 20 00 31 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.1.....
.....
000001e0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001f0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000200 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000210 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000220 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000230 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000240 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000250 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000260 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
.....

```

```

00000270 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000280 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000290 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002a0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002b0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002c0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002d0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002e0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
000002f0 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000300 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000310 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000320 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000330 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000340 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000350 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000360 00 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
00000370 00 00 00 00 00 00 00 00 00 -
.....

```

```

Key Name:
SYSTEM\CurrentControlSet\Services\WinSock2\Paramete
rs\Protocol_Catalog9\Catalog_Entries\000000000005
Class Name: <NO CLASS>
Last Write Time: 6/10/98 - 4:07 AM
Value 0

```

```

Name: PackedCatalogItem
Type: REG_BINARY
Data:
00000000 25 53 79 73 74 65 6d 52 - 6f 6f 74 25 5c 73 79 73
%SystemR
oot%\sys
00000010 74 65 6d 33 32 5c 6d 73 - 61 66 64 2e 64 6c 6c 00
tem32\ms
afd.dll.
00000020 61 66 64 2e 64 6c 6c 00 - 76 00 65 00 72 00 20 00
afd.dll.
v.e.r. .
00000030 6e 00 6f 00 64 00 65 00 - 73 00 2c 00 20 00 66 00
n.o.d.e.
s.,. .f.
00000040 6f 00 72 00 20 00 77 00 - 68 00 69 00 63 00 68 00 o.r.
.w.
h.i.c.h.
00000050 20 00 74 00 68 00 65 00 - 72 00 65 00 20 00 61 00
.t.h.e.
r.e. .a.
00000060 72 00 65 00 20 00 73 00 - 65 00 70 00 61 00 72 00 r.e.
.s.
e.p.a.r.
00000070 61 00 74 00 65 00 20 00 - 69 00 74 00 65 00 6d 00
a.t.e. .
i.t.e.m.
00000080 73 00 20 00 74 00 6f 00 - 20 00 62 00 65 00 0d 00 s.
.t.o.
.b.e...
00000090 0a 00 3b 00 20 00 70 00 - 72 00 65 00 73 00 65 00 .;.
.p.
r.e.s.e.
000000a0 6e 00 74 00 65 00 64 00 - 20 00 74 00 6f 00 20 00
n.t.e.d.
.t.o. .
000000b0 74 00 68 00 65 00 20 00 - 75 00 73 00 65 00 72 00
t.h.e. .
u.s.e.r.
000000c0 2e 00 20 00 20 00 54 00 - 68 00 65 00 73 00 65 00 . . .
.T.
h.e.s.e.
000000d0 20 00 63 00 6f 00 6d 00 - 62 00 69 00 6e 00 61 00
.c.o.m.
b.i.n.a.
000000e0 74 00 69 00 6f 00 6e 00 - 20 00 6e 00 6f 00 64 00
t.i.o.n.
.n.o.d.
000000f0 65 00 73 00 20 00 61 00 - 72 00 65 00 20 00 6f 00 e.s.
.a.
r.e. .o.
00000100 6e 00 6c 00 09 02 02 00 - 00 00 00 00 00 00 00 00
n.l.....
.....
00000110 00 00 00 00 00 00 00 00 - 30 18 5f 8d 73 c2 cf 11
.....
0..s...
00000120 95 c8 00 80 5f 48 a1 92 - f1 03 00 00 01 00 00 00
...._H..

```

```

.....
00000130 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000140 00 00 00 00 00 00 00 00 - 00 00 00 00 02 00 00 00
.....
.....
00000150 11 00 00 00 14 00 00 00 - 14 00 00 00 02 00 00 00
.....
.....
00000160 ff ff ff ff 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000170 00 fa 00 00 00 00 00 00 - 4d 00 53 00 41 00 46 00
.....
M.S.A.F.
00000180 44 00 20 00 4e 00 65 00 - 74 00 42 00 49 00 4f 00 D.
.N.e.
t.B.I.O.
00000190 53 00 20 00 5b 00 5c 00 - 44 00 65 00 76 00 69 00 S.
.[.\.
D.e.v.i.
000001a0 63 00 65 00 5c 00 4e 00 - 62 00 66 00 5f 00 45 00
c.e.\.N.
b.f._.E.
000001b0 31 00 30 00 30 00 42 00 - 31 00 5d 00 20 00 44 00
1.0.0.B.
l.] .D.
000001c0 41 00 54 00 41 00 47 00 - 52 00 41 00 4d 00 20 00
A.T.A.G.
R.A.M. .
000001d0 31 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
1.....
.....
000001e0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
000001f0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000200 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000210 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000220 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000230 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000240 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....
00000250 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
.....

```

```

..... 00000260 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000270 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000280 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000290 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002a0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002b0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002c0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002d0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002e0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 000002f0 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000300 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000310 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000320 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000330 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000340 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000350 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000360 00 00 00 00 00 00 00 00 - 00 00 00 00 00 00 00 00
.....
..... 00000370 00 00 00 00 00 00 00 00 -
.....

```


NT Client Configuration Information

Microsoft Diagnostics Report For \\CLIENT1

OS Version Report

Microsoft (R) Windows NT (TM) Server
Version 4.0 (Build 1381: Service Pack 3) x86 Multiprocessor Free
Registered Owner: Unisys, Unisys
Product Number: 31797-OEM-0026695-85788

System Report

System: AT/AT COMPATIBLE
Hardware Abstraction Layer: MPS 1.4 - APIC platform
BIOS Date: 10/13/97
BIOS Version: PhoenixBIOS 4.0 Release 5.10.7

Processor list:

0: x86 Family 6 Model 3 Stepping 4 GenuineIntel ~299 Mhz
1: x86 Family 6 Model 3 Stepping 4 GenuineIntel ~299 Mhz

Video Display Report

BIOS Date: 11/16/95
BIOS Version: CL-GD5440 VGA BIOS Version 1.06

Adapter:

Setting: 800 x 600 x 256
60 Hz
Type: cirrus compatible display adapter
String: Cirrus Logic Compatible
Memory: 2 MB
Chip Type: CL 5430
DAC Type: Integrated RAMDAC

Driver:

Vendor: Microsoft Corporation
File(s): cirrus.sys, vga.dll, cirrus.dll, vga256.dll, vga64K.dll
Version: 4.00, 4.0.0

Drives Report

C:\ (Local - NTFS) Total: 0KB, Free: 0KB
Serial Number: E80B - 4E03
Bytes per cluster: 512
Sectors per cluster: 1
Filename length: 255

Memory Report

Handles: 1,034
Threads: 102

Processes: 14

Physical Memory (K)

Total: 261,552
Available: 222,644
File Cache: 12,488

Kernel Memory (K)

Total: 20,996
Paged: 8,088
Nonpaged: 12,908

Commit Charge (K)

Total: 28,180
Limit: 505,836
Peak: 314,548

Pagefile Space (K)

Total: 262,144
Total in use: 6,096
Peak: 113,020

C:\pagefile.sys

Total: 262,144
Total in use: 6,096
Peak: 113,020

Services Report

| | | |
|-----------------------------------|---------|-------------|
| Alerter | Stopped | (Manual) |
| C:\WINNT\System32\services.exe | | |
| Service Account Name: LocalSystem | | |
| Error Severity: Normal | | |
| Service Flags: Shared Process | | |
| Service Dependencies: | | |
| LanmanWorkstation | | |
| Computer Browser | Running | (Automatic) |
| C:\WINNT\System32\services.exe | | |
| Service Account Name: LocalSystem | | |
| Error Severity: Normal | | |
| Service Flags: Shared Process | | |
| Service Dependencies: | | |
| LanmanWorkstation | | |
| LanmanServer | | |
| LmHosts | | |
| ClipBook Server | Stopped | (Manual) |
| C:\WINNT\system32\clipsrv.exe | | |
| Service Account Name: LocalSystem | | |
| Error Severity: Normal | | |
| Service Flags: Own Process | | |
| Service Dependencies: | | |
| NetDDE | | |
| DHCP Client (TDI) | Stopped | (Disabled) |
| C:\WINNT\System32\services.exe | | |
| Service Account Name: LocalSystem | | |
| Error Severity: Normal | | |
| Service Flags: Shared Process | | |

Service Dependencies:
 Tcpip
 Afd
 NetBT

3Com dRMON SmartAgent PC Software Stopped (Manual)
 C:\WINNT\System32\dirmon\smartagt\smartagt.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process
 Service Dependencies:
 DTA

EventLog (Event log) Running (Automatic)
 C:\WINNT\system32\services.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Shared Process

Adaptec Failover Backup Monitor Stopped (Manual)
 C:\WINNT\System32\forbmon.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process

Server Running (Automatic)
 C:\WINNT\System32\services.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Shared Process
 Group Dependencies:
 TDI

Workstation (NetworkProvider) Running (Automatic)
 C:\WINNT\System32\services.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Shared Process
 Group Dependencies:
 TDI

License Logging Service Stopped (Manual)
 C:\WINNT\System32\llssrv.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process

TCP/IP NetBIOS Helper Running (Automatic)
 C:\WINNT\System32\services.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Shared Process
 Group Dependencies:
 NetworkProvider

Messenger Stopped (Manual)
 C:\WINNT\System32\services.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Shared Process
 Service Dependencies:
 LanmanWorkstation
 NetBios

Network DDE (NetDDEGroup) Stopped (Manual)
 C:\WINNT\system32\netdde.exe
 Service Account Name: LocalSystem
 Error Severity: Normal

Service Flags: Shared Process
 Service Dependencies:
 NetDDEDSDM

Network DDE DSDM Stopped (Manual)
 C:\WINNT\system32\netdde.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Shared Process

Net Logon (RemoteValidation) Stopped (Manual)
 C:\WINNT\System32\lsass.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Shared Process
 Service Dependencies:
 LanmanWorkstation
 LmHosts

NT LM Security Support Provider Running (Manual)
 C:\WINNT\System32\SERVICES.EXE
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Shared Process

OracleClientCache80 Stopped (Manual)
 C:\ORANT\BIN\ONRSD80.EXE
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process

Plug and Play (PlugPlay) Running (Automatic)
 C:\WINNT\system32\services.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Shared Process

Protected Storage Running (Automatic)
 C:\WINNT\System32\pstores.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process, Interactive
 Service Dependencies:
 RpcSs

Directory Replicator Stopped (Manual)
 C:\WINNT\System32\lmrepl.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process
 Service Dependencies:
 LanmanWorkstation
 LanmanServer

Remote Procedure Call (RPC) Locator Stopped (Manual)
 C:\WINNT\System32\LOCATOR.EXE
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process
 Service Dependencies:
 LanmanWorkstation
 Rdr

Remote Procedure Call (RPC) Service Running (Automatic)
 C:\WINNT\system32\RpcSs.exe
 Service Account Name: LocalSystem
 Error Severity: Normal
 Service Flags: Own Process

```

Schedule                               Stopped (Manual)
  C:\WINNT\System32\AtSvc.Exe
  Service Account Name: LocalSystem
  Error Severity: Normal
  Service Flags: Own Process
Spooler (SpoolerGroup)                 Stopped (Manual)
  C:\WINNT\system32\spoolss.exe
  Service Account Name: LocalSystem
  Error Severity: Normal
  Service Flags: Own Process, Interactive
Telephony Service                       Stopped (Manual)
  C:\WINNT\system32\tapisrv.exe
  Service Account Name: LocalSystem
  Error Severity: Normal
  Service Flags: Own Process
TUXEDO IPC Helper                       Stopped (Automatic)
  C:\TUXEDO\bin\tuxipc.exe
  Service Account Name: LocalSystem
  Error Severity: Normal
  Service Flags: Own Process
TListen (Port: 3050)                   Stopped (Manual)
  C:\TUXEDO\bin\slisten.exe
  Service Account Name: LocalSystem
  Error Severity: Normal
  Service Flags: Own Process
UPS                                     Stopped (Manual)
  C:\WINNT\System32\ups.exe
  Service Account Name: LocalSystem
  Error Severity: Normal
  Service Flags: Own Process
World Wide Web Publishing Service       Stopped (Manual)
  C:\WINNT\System32\inetsrv\inetinfo.exe
  Service Account Name: LocalSystem
  Error Severity: Ignore
  Service Flags: Shared Process
  Service Dependencies:
    RPCSS
    NTLMSSP

```

Drivers Report

```

-----
Abiosdsk (Primary disk)                 Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
AFD Networking Support Environment (TDI) Running (Automatic)
  C:\WINNT\System32\drivers\afd.sys
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Ahal154x (SCSI miniport)                Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Ahal174x (SCSI miniport)                Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
aic78xx (SCSI miniport)                 Running (Boot)
  C:\WINNT\System32\DRIVERS\aic78xx.sys
  Error Severity: Normal

```

```

  Service Flags: Kernel Driver, Shared Process
Always (SCSI miniport)                 Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
ami0nt (SCSI miniport)                 Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
amsint (SCSI miniport)                 Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Arrow (SCSI miniport)                  Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
atapi (SCSI miniport)                  Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Atdisk (Primary disk)                  Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
ati (Video)                             Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
Beep (Base)                             Running (System)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
BusLogic (SCSI miniport)               Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Busmouse (Pointer Port)                Stopped (Disabled)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
Cdaudio (Filter)                       Stopped (System)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
Cdfs (File system)                     Running (Disabled)
  Error Severity: Normal
  Service Flags: File System Driver, Shared Process
  Group Dependencies:
    SCSI CDROM Class
Cdrom (SCSI CDROM Class)               Running (System)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
  Group Dependencies:
    SCSI miniport
Changer (Filter)                       Stopped (System)
  Error Severity: Ignore
  Service Flags: Kernel Driver, Shared Process
cirrus (Video)                         Running (System)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
Cpqarray (SCSI miniport)               Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
cpqfw2e (SCSI miniport)                 Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process
dac960nt (SCSI miniport)               Stopped (Disabled)
  Error Severity: Normal
  Service Flags: Kernel Driver, Shared Process

```

dce376nt (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Delldsa (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Dell_DGX (Video) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 Disk (SCSI Class) Running (Boot)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 Group Dependencies:
 SCSI miniport
 Diskperf (Filter) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 DptScsi (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 DTA (TDI) Stopped (Manual)
 C:\WINNT\System32\drivers\dtadrv.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 dtc329x (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 3Com 3C90x Adapter Driver (NDIS) Running (Automatic)
 C:\WINNT\System32\drivers\el90x.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Adaptec EMPCI Adapter Driver (NDIS) Running (Automatic)
 C:\WINNT\System32\drivers\EMPCI.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 et4000 (Video) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 Fastfat (Boot file system) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: File System Driver, Shared Process
 Fdl6_700 (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Fd7000ex (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Fd8xx (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 flashpnt (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Floppy (Primary disk) Running (System)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 Ftdisk (Filter) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process

i8042 Keyboard and PS/2 Mouse Port Driver (Keyboard Port) Running (System)
 System32\DRIVERS\i8042prt.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Inport (Pointer Port) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 Jazzg300 (Video) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 Jazzg364 (Video) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 Jzvx1484 (Video) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 Keyboard Class Driver (Keyboard Class) Running (System)
 System32\DRIVERS\kbdclass.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 KSecDD (Base) Running (System)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 mga (Video) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 mga_mil (Video) Stopped (Disabled)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 mitsumi (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 mkecr5xx (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Modem (Extended base) Stopped (Manual)
 Error Severity: Ignore
 Service Flags: Kernel Driver, Shared Process
 Mouse Class Driver (Pointer Class) Running (System)
 System32\DRIVERS\mouclass.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Msfs (File system) Running (System)
 Error Severity: Normal
 Service Flags: File System Driver, Shared Process
 Mup (Network) Running (Manual)
 C:\WINNT\System32\drivers\mup.sys
 Error Severity: Normal
 Service Flags: File System Driver, Shared Process
 NetBEUI Protocol (PNP TDI) Running (Automatic)
 C:\WINNT\System32\drivers\nbf.sys
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 Ncr53c9x (SCSI miniport) Stopped (Disabled)
 Error Severity: Normal
 Service Flags: Kernel Driver, Shared Process
 ncr77c22 (Video) Stopped (Disabled)
 Error Severity: Ignore

Service Flags: Kernel Driver, Shared Process
Ncrs700 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Ncrs710 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Microsoft NDIS System Driver (NDIS) Running (System)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
NetBIOS Interface (NetBIOSGroup) Stopped (Manual)
C:\WINNT\System32\drivers\netbios.sys
Error Severity: Normal
Service Flags: File System Driver, Shared Process
Group Dependencies:
TDI
WINS Client (TCP/IP) (PNP_TDI) Stopped (Automatic)
C:\WINNT\System32\drivers\netbt.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Service Dependencies:
Tcpiip
NetDetect Stopped (Manual)
C:\WINNT\system32\drivers\netdetect.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Npfs (File system) Running (System)
Error Severity: Normal
Service Flags: File System Driver, Shared Process
Ntfs (File system) Running (Disabled)
Error Severity: Normal
Service Flags: File System Driver, Shared Process
Null (Base) Running (System)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Oliscsi (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Parallel (Extended base) Running (Automatic)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Service Dependencies:
Parport
Group Dependencies:
Parallel arbitrator
Parport (Parallel arbitrator) Running (Automatic)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
ParVdm (Extended base) Running (Automatic)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Service Dependencies:
Parport
Group Dependencies:
Parallel arbitrator
PCIDump (PCI Configuration) Stopped (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Pcmcia (System Bus Extender) Stopped (Disabled)

Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
PnP ISA Enabler Driver (Base) Stopped (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
psidisp (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Ql10wnt (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
qv (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Rdr (Network) Running (Manual)
C:\WINNT\System32\drivers\rdr.sys
Error Severity: Normal
Service Flags: File System Driver, Shared Process
s3 (Video) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Scsiprnt (Extended base) Stopped (Automatic)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Group Dependencies:
SCSI miniport
Scsiscan (SCSI Class) Stopped (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Group Dependencies:
SCSI miniport
Serial (Extended base) Running (Automatic)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Sermouse (Pointer Port) Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Sfloppy (Primary disk) Stopped (System)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Group Dependencies:
SCSI miniport
Simbad (Filter) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
slcd32 (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Sparrow (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Spock (SCSI miniport) Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Srv (Network) Running (Manual)
C:\WINNT\System32\drivers\srv.sys
Error Severity: Normal
Service Flags: File System Driver, Shared Process
symc810 (SCSI miniport) Stopped (Disabled)

```

Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
T128 (SCSI miniport)          Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
T13B (SCSI miniport)          Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
TCP/IP Service (PNP_TDI)      Running (Automatic)
C:\WINNT\System32\drivers\tcpip.sys
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
tga (Video)                   Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
tmv1 (SCSI miniport)          Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Ultra124 (SCSI miniport)      Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Ultra14f (SCSI miniport)      Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
Ultra24f (SCSI miniport)      Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
v7vram (Video)                Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
VgaSave (Video Save)          Stopped (System)
C:\WINNT\System32\drivers\vga.sys
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
VgaStart (Video Init)         Stopped (System)
C:\WINNT\System32\drivers\vga.sys
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Wd33c93 (SCSI miniport)       Stopped (Disabled)
Error Severity: Normal
Service Flags: Kernel Driver, Shared Process
wd90c24a (Video)              Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
wdvga (Video)                 Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
weitek9 (Video)              Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process
Xga (Video)                   Stopped (Disabled)
Error Severity: Ignore
Service Flags: Kernel Driver, Shared Process

```

IRQ and Port Report

| Devices | Vector | Level | Affinity |
|---------|--------|-------|----------|
|---------|--------|-------|----------|

| | | | |
|-------------------------|-----|-----|------------|
| MPS 1.4 - APIC platform | 8 | 8 | 0x00000003 |
| MPS 1.4 - APIC platform | 0 | 0 | 0x00000003 |
| MPS 1.4 - APIC platform | 1 | 1 | 0x00000003 |
| MPS 1.4 - APIC platform | 2 | 2 | 0x00000003 |
| MPS 1.4 - APIC platform | 3 | 3 | 0x00000003 |
| MPS 1.4 - APIC platform | 4 | 4 | 0x00000003 |
| MPS 1.4 - APIC platform | 5 | 5 | 0x00000003 |
| MPS 1.4 - APIC platform | 6 | 6 | 0x00000003 |
| MPS 1.4 - APIC platform | 7 | 7 | 0x00000003 |
| MPS 1.4 - APIC platform | 8 | 8 | 0x00000003 |
| MPS 1.4 - APIC platform | 9 | 9 | 0x00000003 |
| MPS 1.4 - APIC platform | 10 | 10 | 0x00000003 |
| MPS 1.4 - APIC platform | 11 | 11 | 0x00000003 |
| MPS 1.4 - APIC platform | 12 | 12 | 0x00000003 |
| MPS 1.4 - APIC platform | 13 | 13 | 0x00000003 |
| MPS 1.4 - APIC platform | 14 | 14 | 0x00000003 |
| MPS 1.4 - APIC platform | 15 | 15 | 0x00000003 |
| MPS 1.4 - APIC platform | 16 | 16 | 0x00000003 |
| MPS 1.4 - APIC platform | 17 | 17 | 0x00000003 |
| MPS 1.4 - APIC platform | 18 | 18 | 0x00000003 |
| MPS 1.4 - APIC platform | 19 | 19 | 0x00000003 |
| MPS 1.4 - APIC platform | 20 | 20 | 0x00000003 |
| MPS 1.4 - APIC platform | 21 | 21 | 0x00000003 |
| MPS 1.4 - APIC platform | 22 | 22 | 0x00000003 |
| MPS 1.4 - APIC platform | 23 | 23 | 0x00000003 |
| MPS 1.4 - APIC platform | 24 | 24 | 0x00000003 |
| MPS 1.4 - APIC platform | 25 | 25 | 0x00000003 |
| MPS 1.4 - APIC platform | 26 | 26 | 0x00000003 |
| MPS 1.4 - APIC platform | 27 | 27 | 0x00000003 |
| MPS 1.4 - APIC platform | 28 | 28 | 0x00000003 |
| MPS 1.4 - APIC platform | 29 | 29 | 0x00000003 |
| MPS 1.4 - APIC platform | 30 | 30 | 0x00000003 |
| MPS 1.4 - APIC platform | 31 | 31 | 0x00000003 |
| MPS 1.4 - APIC platform | 32 | 32 | 0x00000003 |
| MPS 1.4 - APIC platform | 33 | 33 | 0x00000003 |
| MPS 1.4 - APIC platform | 34 | 34 | 0x00000003 |
| MPS 1.4 - APIC platform | 35 | 35 | 0x00000003 |
| MPS 1.4 - APIC platform | 36 | 36 | 0x00000003 |
| MPS 1.4 - APIC platform | 37 | 37 | 0x00000003 |
| MPS 1.4 - APIC platform | 38 | 38 | 0x00000003 |
| MPS 1.4 - APIC platform | 39 | 39 | 0x00000003 |
| MPS 1.4 - APIC platform | 40 | 40 | 0x00000003 |
| MPS 1.4 - APIC platform | 41 | 41 | 0x00000003 |
| MPS 1.4 - APIC platform | 42 | 42 | 0x00000003 |
| MPS 1.4 - APIC platform | 43 | 43 | 0x00000003 |
| MPS 1.4 - APIC platform | 44 | 44 | 0x00000003 |
| MPS 1.4 - APIC platform | 45 | 45 | 0x00000003 |
| MPS 1.4 - APIC platform | 46 | 46 | 0x00000003 |
| MPS 1.4 - APIC platform | 47 | 47 | 0x00000003 |
| MPS 1.4 - APIC platform | 61 | 61 | 0x00000003 |
| MPS 1.4 - APIC platform | 65 | 65 | 0x00000003 |
| MPS 1.4 - APIC platform | 80 | 80 | 0x00000003 |
| MPS 1.4 - APIC platform | 193 | 193 | 0x00000003 |
| MPS 1.4 - APIC platform | 225 | 225 | 0x00000003 |
| MPS 1.4 - APIC platform | 253 | 253 | 0x00000003 |
| MPS 1.4 - APIC platform | 254 | 254 | 0x00000003 |
| MPS 1.4 - APIC platform | 255 | 255 | 0x00000003 |
| i8042prt | 1 | 1 | 0xffffffff |

```

i8042prt      12    12 0xffffffff
Serial        4     4 0x00000000
Serial        3     3 0x00000000
El90x        10    10 0x00000000
El90x        11    11 0x00000000
EMPCI        5     5 0x00000000
EMPCI        5     5 0x00000000
EMPCI        5     5 0x00000000
EMPCI        5     5 0x00000000
Floppy       6     6 0x00000000
aic78xx      9     9 0x00000000

```

```

-----
Devices          Physical Address  Length
-----
MPS 1.4 - APIC platform 0x00000000 0x0000000010
MPS 1.4 - APIC platform 0x00000020 0x0000000002
MPS 1.4 - APIC platform 0x00000040 0x0000000004
MPS 1.4 - APIC platform 0x00000048 0x0000000004
MPS 1.4 - APIC platform 0x00000061 0x0000000001
MPS 1.4 - APIC platform 0x00000070 0x0000000002
MPS 1.4 - APIC platform 0x00000080 0x0000000010
MPS 1.4 - APIC platform 0x00000092 0x0000000001
MPS 1.4 - APIC platform 0x000000a0 0x0000000002
MPS 1.4 - APIC platform 0x000000c0 0x0000000010
MPS 1.4 - APIC platform 0x000000d0 0x0000000010
MPS 1.4 - APIC platform 0x000000f0 0x0000000010
MPS 1.4 - APIC platform 0x00000400 0x0000000010
MPS 1.4 - APIC platform 0x00000461 0x0000000002
MPS 1.4 - APIC platform 0x00000464 0x0000000002
MPS 1.4 - APIC platform 0x00000480 0x0000000010
MPS 1.4 - APIC platform 0x000004c2 0x000000000e
MPS 1.4 - APIC platform 0x000004d0 0x0000000002
MPS 1.4 - APIC platform 0x000004d4 0x0000000002c
MPS 1.4 - APIC platform 0x00000c84 0x0000000001
i8042prt      0x00000060 0x0000000001
i8042prt      0x00000064 0x0000000001
Parport       0x00000378 0x0000000003
Serial        0x000003f8 0x0000000007
Serial        0x000002f8 0x0000000007
El90x        0x0000fc40 0x0000000040
El90x        0x0000fcc0 0x0000000040
EMPCI        0x0000ec00 0x0000000080
EMPCI        0x0000e880 0x0000000080
EMPCI        0x0000e800 0x0000000080
EMPCI        0x0000e480 0x0000000080
Floppy       0x000003f0 0x0000000006
Floppy       0x000003f7 0x0000000001
aic78xx      0x0000f800 0x0000000100
cirrus       0x000003b0 0x000000000c
cirrus       0x000003c0 0x00000000020

```

DMA and Memory Report

```

-----
Devices          Channel  Port
-----
Floppy           2      0

```

```

-----
Devices          Physical Address  Length
-----
MPS 1.4 - APIC platform 0xfec00000 0x00000400
MPS 1.4 - APIC platform 0xfef00000 0x00000400
aic78xx         0xfedff000 0x00001000
cirrus          0x000a0000 0x00020000
cirrus          0xfd000000 0x01000000

```

Environment Report

System Environment Variables

```

APPDIR=c:\tuxedo\runtime
ComSpec=C:\WINNT\system32\cmd.exe
LIBPATH=c:\tuxedo\lib
NUMBER_OF_PROCESSORS=2
OS=Windows_NT
Os2LibPath=C:\WINNT\system32\os2\dll;

```

Path=C:\WINNT\system32;C:\WINNT;C:\MSSQL7\BINN;C:\TUXEDO\bin;C:\ORANT\BIN

```

PROCESSOR_ARCHITECTURE=x86
PROCESSOR_IDENTIFIER=x86 Family 6 Model 3 Stepping 4, GenuineIntel
PROCESSOR_LEVEL=6
PROCESSOR_REVISION=0304
TMCONTEXTS=1
TUXCONFIG=c:\tuxedo\runtime\tuxconfig
TUXDIR=c:\tuxedo
windir=C:\WINNT

```

Environment Variables for Current User

```

TEMP=C:\TEMP
TMP=C:\TEMP

```

Network Report

```

-----
Your Access Level: Admin & Local
Workgroup or Domain: WORKGROUP
Network Version: 4.0
LanRoot: WORKGROUP
Logged On Users: 1
Current User (1): Administrator
Logon Domain: CLIENT1
Logon Server: CLIENT1

Transport: Nbf_El90x1, 00-10-4B-9D-F5-A7, VC's: 0, Wan: Wan
Transport: Nbf_El90x2, 00-10-4B-9D-F5-B5, VC's: 1, Wan: Wan
Transport: Nbf_EMPCI3, 00-00-92-A7-76-CC, VC's: 1, Wan: Wan
Transport: Nbf_EMPCI4, 00-00-92-A7-76-CD, VC's: 1, Wan: Wan
Transport: Nbf_EMPCI5, 00-00-92-A7-76-CE, VC's: 0, Wan: Wan
Transport: Nbf_EMPCI6, 00-00-92-A7-76-CF, VC's: 1, Wan: Wan

```

Character Wait: 3,600
 Collection Time: 250
 Maximum Collection Count: 16
 Keep Connection: 600
 Maximum Commands: 5
 Session Time Out: 45
 Character Buffer Size: 512
 Maximum Threads: 17
 Lock Quota: 6,144
 Lock Increment: 10
 Maximum Locks: 500
 Pipe Increment: 10
 Maximum Pipes: 500
 Cache Time Out: 40
 Dormant File Limit: 45
 Read Ahead Throughput: 4,294,967,295
 Mailslot Buffers: 3
 Server Announce Buffers: 20
 Illegal Datagrams: 5
 Datagram Reset Frequency: 60
 Log Election Packets: False
 Use Opportunistic Locking: True
 Use Unlock Behind: True
 Use Close Behind: True
 Buffer Pipes: True
 Use Lock, Read, Unlock: True
 Use NT Caching: True
 Use Raw Read: True
 Use Raw Write: True
 Use Write Raw Data: True
 Use Encryption: True
 Buffer Deny Write Files: True
 Buffer Read Only Files: True
 Force Core Creation: True
 512 Byte Max Transfer: False
 Bytes Received: 860,449
 SMB's Received: 9,606
 Paged Read Bytes Requested: 0
 Non Paged Read Bytes Requested: 0
 Cache Read Bytes Requested: 0
 Network Read Bytes Requested: 0
 Bytes Transmitted: 1,044,173
 SMB's Transmitted: 9,606
 Paged Read Bytes Requested: 0
 Non Paged Read Bytes Requested: 0
 Cache Read Bytes Requested: 0
 Network Read Bytes Requested: 0
 Initially Failed Operations: 0
 Failed Completion Operations: 0
 Read Operations: 0
 Random Read Operations: 0
 Read SMB's: 0
 Large Read SMB's: 0
 Small Read SMB's: 0
 Write Operations: 0
 Random Write Operations: 0
 Write SMB's: 0
 Large Write SMB's: 0
 Small Write SMB's: 0

Raw Reads Denied: 0
 Raw Writes Denied: 0
 Network Errors: 0
 Sessions: 1,535
 Failed Sessions: 0
 Reconnects: 0
 Core Connects: 0
 LM 2.0 Connects: 0
 LM 2.x Connects: 0
 Windows NT Connects: 1,520
 Server Disconnects: 11
 Hung Sessions: 0
 Use Count: 3,131
 Failed Use Count: 1
 Current Commands: 0
 Server File Opens: 10,318
 Server Device Opens: 0
 Server Jobs Queued: 0
 Server Session Opens: 1
 Server Sessions Timed Out: 35
 Server Sessions Errored Out: 38
 Server Password Errors: 0
 Server Permission Errors: 0
 Server System Errors: 0
 Server Bytes Sent: 32,118,960
 Server Bytes Received: 4,740,911
 Server Average Response Time: 0
 Server Request Buffers Needed: 0
 Server Big Buffers Needed: 0

Internet Information Server Registry Parameters

| | |
|------------------|---|
| Key Name: | SYSTEM\CurrentControlSet\Services\InetInfo |
| Class Name: | <NO CLASS> |
| Last Write Time: | 5/29/98 - 2:57 AM |
| Key Name: | SYSTEM\CurrentControlSet\Services\InetInfo\Parameters |
| Class Name: | <NO CLASS> |
| Last Write Time: | 9/16/98 - 10:35 AM |
| Value 0 | |
| Name: | BandwidthLevel |
| Type: | REG_DWORD |
| Data: | 0xffffffff |
| Value 1 | |
| Name: | DisableMemoryCache |
| Type: | REG_DWORD |
| Data: | 0x1 |
| Value 2 | |
| Name: | ListenBackLog |
| Type: | REG_DWORD |
| Data: | 0x19 |
| Value 3 | |
| Name: | MemoryCacheSize |
| Type: | REG_DWORD |
| Data: | 0 |

Value 4
 Name: ObjectCacheTTL
 Type: REG_DWORD
 Data: 0xffffffff

Value 5
 Name: PoolThreadLimit
 Type: REG_DWORD
 Data: 0xaa

Key Name:
 SYSTEM\CurrentControlSet\Services\InetInfo\Parameters\Filter
 Class Name: <NO CLASS>
 Last Write Time: 5/29/98 - 2:57 AM

Value 0
 Name: FilterType
 Type: REG_DWORD
 Data: 0

Value 1
 Name: NumDenySites
 Type: REG_DWORD
 Data: 0

Value 2
 Name: NumGrantSites
 Type: REG_DWORD
 Data: 0

Key Name:
 SYSTEM\CurrentControlSet\Services\InetInfo\Parameters\MimeMap
 Class Name: <NO CLASS>
 Last Write Time: 5/29/98 - 2:57 AM

Value 0
 Name: application/envoy, evy, , 5
 Type: REG_SZ
 Data:

Value 1
 Name: application/mac-binhex40, hqx, , 4
 Type: REG_SZ
 Data:

Value 2
 Name: application/msword, doc, , 5
 Type: REG_SZ
 Data:

Value 3
 Name: application/msword, dot, , 5
 Type: REG_SZ
 Data:

Value 4
 Name: application/octet-stream, *, , 5
 Type: REG_SZ

Data:

Value 5
 Name: application/octet-stream, bin, , 5
 Type: REG_SZ
 Data:

Value 6
 Name: application/octet-stream, exe, , 5
 Type: REG_SZ
 Data:

Value 7
 Name: application/oda, oda, , 5
 Type: REG_SZ
 Data:

Value 8
 Name: application/pdf, pdf, , 5
 Type: REG_SZ
 Data:

Value 9
 Name: application/postscript, ai, , 5
 Type: REG_SZ
 Data:

Value 10
 Name: application/postscript, eps, , 5
 Type: REG_SZ
 Data:

Value 11
 Name: application/postscript, ps, , 5
 Type: REG_SZ
 Data:

Value 12
 Name: application/rtf, rtf, , 5
 Type: REG_SZ
 Data:

Value 13
 Name: application/winhelp, hlp, , 5
 Type: REG_SZ
 Data:

Value 14
 Name: application/x-bcpio, bcpio, , 5
 Type: REG_SZ
 Data:

Value 15
 Name: application/x-cpio, cpio, , 5
 Type: REG_SZ
 Data:

Value 16
 Name: application/x-csh, csh, , 5

Type: REG_SZ
Data:

Value 17
Name: application/x-director,dcr,,5
Type: REG_SZ
Data:

Value 18
Name: application/x-director,dir,,5
Type: REG_SZ
Data:

Value 19
Name: application/x-director,dxr,,5
Type: REG_SZ
Data:

Value 20
Name: application/x-dvi,dvi,,5
Type: REG_SZ
Data:

Value 21
Name: application/x-gtar,gtar,,9
Type: REG_SZ
Data:

Value 22
Name: application/x-hdf,hdf,,5
Type: REG_SZ
Data:

Value 23
Name: application/x-latex,latex,,5
Type: REG_SZ
Data:

Value 24
Name: application/x-msaccess,mdb,,5
Type: REG_SZ
Data:

Value 25
Name: application/x-mscardfile,crd,,5
Type: REG_SZ
Data:

Value 26
Name: application/x-msclip,clip,,5
Type: REG_SZ
Data:

Value 27
Name: application/x-msexcel,xla,,5
Type: REG_SZ
Data:

Value 28

Name: application/x-msexcel,xlc,,5
Type: REG_SZ
Data:

Value 29
Name: application/x-msexcel,xlm,,5
Type: REG_SZ
Data:

Value 30
Name: application/x-msexcel,xls,,5
Type: REG_SZ
Data:

Value 31
Name: application/x-msexcel,xlt,,5
Type: REG_SZ
Data:

Value 32
Name: application/x-msexcel,xlw,,5
Type: REG_SZ
Data:

Value 33
Name: application/x-msmediaview,m13,,5
Type: REG_SZ
Data:

Value 34
Name: application/x-msmediaview,m14,,5
Type: REG_SZ
Data:

Value 35
Name: application/x-msmetafile,wmf,,5
Type: REG_SZ
Data:

Value 36
Name: application/x-msmoney,mny,,5
Type: REG_SZ
Data:

Value 37
Name: application/x-mspowerpoint,ppt,,5
Type: REG_SZ
Data:

Value 38
Name: application/x-msproject,mpp,,5
Type: REG_SZ
Data:

Value 39
Name: application/x-mspublisher,pub,,5
Type: REG_SZ
Data:

Value 40
 Name: application/x-msterminal, trm, , 5
 Type: REG_SZ
 Data:

Value 41
 Name: application/x-msworks, wks, , 5
 Type: REG_SZ
 Data:

Value 42
 Name: application/x-mswrite, wri, , 5
 Type: REG_SZ
 Data:

Value 43
 Name: application/x-netcdf, cdf, , 5
 Type: REG_SZ
 Data:

Value 44
 Name: application/x-netcdf, nc, , 5
 Type: REG_SZ
 Data:

Value 45
 Name: application/x-perfmon, pma, , 5
 Type: REG_SZ
 Data:

Value 46
 Name: application/x-perfmon, pmc, , 5
 Type: REG_SZ
 Data:

Value 47
 Name: application/x-perfmon, pml, , 5
 Type: REG_SZ
 Data:

Value 48
 Name: application/x-perfmon, pmr, , 5
 Type: REG_SZ
 Data:

Value 49
 Name: application/x-perfmon, pmw, , 5
 Type: REG_SZ
 Data:

Value 50
 Name: application/x-sh, sh, , 5
 Type: REG_SZ
 Data:

Value 51
 Name: application/x-shar, shar, , 5
 Type: REG_SZ
 Data:

Value 52
 Name: application/x-sv4cpio, sv4cpio, , 5
 Type: REG_SZ
 Data:

Value 53
 Name: application/x-sv4crc, sv4crc, , 5
 Type: REG_SZ
 Data:

Value 54
 Name: application/x-tar, tar, , 5
 Type: REG_SZ
 Data:

Value 55
 Name: application/x-tcl, tcl, , 5
 Type: REG_SZ
 Data:

Value 56
 Name: application/x-tex, tex, , 5
 Type: REG_SZ
 Data:

Value 57
 Name: application/x-texinfo, texi, , 5
 Type: REG_SZ
 Data:

Value 58
 Name: application/x-texinfo, texinfo, , 5
 Type: REG_SZ
 Data:

Value 59
 Name: application/x-troff, roff, , 5
 Type: REG_SZ
 Data:

Value 60
 Name: application/x-troff, t, , 5
 Type: REG_SZ
 Data:

Value 61
 Name: application/x-troff, tr, , 5
 Type: REG_SZ
 Data:

Value 62
 Name: application/x-troff-man, man, , 5
 Type: REG_SZ
 Data:

Value 63
 Name: application/x-troff-me, me, , 5
 Type: REG_SZ
 Data:

Data:

Value 64
 Name: application/x-troff-ms,ms,,5
 Type: REG_SZ
 Data:

Value 65
 Name: application/x-ustar,ustar,,5
 Type: REG_SZ
 Data:

Value 66
 Name: application/x-wais-source,src,,7
 Type: REG_SZ
 Data:

Value 67
 Name: application/zip,zip,,9
 Type: REG_SZ
 Data:

Value 68
 Name: audio/basic,au,,<
 Type: REG_SZ
 Data:

Value 69
 Name: audio/basic,snd,,<
 Type: REG_SZ
 Data:

Value 70
 Name: audio/x-aiff,aif,,<
 Type: REG_SZ
 Data:

Value 71
 Name: audio/x-aiff,aifc,,<
 Type: REG_SZ
 Data:

Value 72
 Name: audio/x-aiff,aiff,,<
 Type: REG_SZ
 Data:

Value 73
 Name: audio/x-pn-realaudio,ram,,<
 Type: REG_SZ
 Data:

Value 74
 Name: audio/x-wav,wav,,<
 Type: REG_SZ
 Data:

Value 75
 Name: image/bmp,bmp,,:

Type: REG_SZ
 Data:

Value 76
 Name: image/cis-cod,cod,,5
 Type: REG_SZ
 Data:

Value 77
 Name: image/gif,gif,,g
 Type: REG_SZ
 Data:

Value 78
 Name: image/ief,ief,,:
 Type: REG_SZ
 Data:

Value 79
 Name: image/jpeg,jpe,,:
 Type: REG_SZ
 Data:

Value 80
 Name: image/jpeg,jpeg,,:
 Type: REG_SZ
 Data:

Value 81
 Name: image/jpeg,jpg,,:
 Type: REG_SZ
 Data:

Value 82
 Name: image/tiff,tif,,:
 Type: REG_SZ
 Data:

Value 83
 Name: image/tiff,tiff,,:
 Type: REG_SZ
 Data:

Value 84
 Name: image/x-cmu-raster,ras,,:
 Type: REG_SZ
 Data:

Value 85
 Name: image/x-cmx,cmx,,5
 Type: REG_SZ
 Data:

Value 86
 Name: image/x-portable-anymap,pnm,,:
 Type: REG_SZ
 Data:

Value 87

Name: image/x-portable-bitmap,pbm,, :
 Type: REG_SZ
 Data:

Value 88
 Name: image/x-portable-graymap,pgm,, :
 Type: REG_SZ
 Data:

Value 89
 Name: image/x-portable-pixmap,ppm,, :
 Type: REG_SZ
 Data:

Value 90
 Name: image/x-rgb,rgb,, :
 Type: REG_SZ
 Data:

Value 91
 Name: image/x-xbitmap,xbm,, :
 Type: REG_SZ
 Data:

Value 92
 Name: image/x-ypixmap,xpm,, :
 Type: REG_SZ
 Data:

Value 93
 Name: image/x-xwindowdump,xwd,, :
 Type: REG_SZ
 Data:

Value 94
 Name: text/html,htm,,h
 Type: REG_SZ
 Data:

Value 95
 Name: text/html,html,,h
 Type: REG_SZ
 Data:

Value 96
 Name: text/html,stm,,h
 Type: REG_SZ
 Data:

Value 97
 Name: text/plain,bas,,0
 Type: REG_SZ
 Data:

Value 98
 Name: text/plain,c,,0
 Type: REG_SZ
 Data:

Value 99
 Name: text/plain,h,,0
 Type: REG_SZ
 Data:

Value 100
 Name: text/plain,txt,,0
 Type: REG_SZ
 Data:

Value 101
 Name: text/richtext,rtx,,0
 Type: REG_SZ
 Data:

Value 102
 Name: text/tab-separated-values,tsv,,0
 Type: REG_SZ
 Data:

Value 103
 Name: text/x-setext,etx,,0
 Type: REG_SZ
 Data:

Value 104
 Name: video/mpeg,mpe,,;
 Type: REG_SZ
 Data:

Value 105
 Name: video/mpeg,mpeg,,;
 Type: REG_SZ
 Data:

Value 106
 Name: video/mpeg,mpg,,;
 Type: REG_SZ
 Data:

Value 107
 Name: video/quicktime,mov,,;
 Type: REG_SZ
 Data:

Value 108
 Name: video/quicktime,qt,,;
 Type: REG_SZ
 Data:

Value 109
 Name: video/x-msvideo,avi,,<
 Type: REG_SZ
 Data:

Value 110
 Name: video/x-sgi-movie,movie,,<
 Type: REG_SZ
 Data:

Value 111
Name: x-world/x-vrml,flr,,5
Type: REG_SZ
Data:

Value 112
Name: x-world/x-vrml,wrl,,5
Type: REG_SZ
Data:

Value 113
Name: x-world/x-vrml,wrz,,5
Type: REG_SZ
Data:

Value 114
Name: x-world/x-vrml,xaf,,5
Type: REG_SZ
Data:

Value 115
Name: x-world/x-vrml,xof,,5
Type: REG_SZ
Data:

Key Name: SYSTEM\CurrentControlSet\Services\InetInfo\Performance
Class Name: <NO CLASS>
Last Write Time: 5/29/98 - 2:57 AM

Value 0
Name: Close
Type: REG_SZ
Data: CloseINFOPerformanceData

Value 1
Name: Collect
Type: REG_SZ
Data: CollectINFOPerformanceData

Value 2
Name: First Counter
Type: REG_DWORD
Data: 0x738

Value 3
Name: First Help
Type: REG_DWORD
Data: 0x739

Value 4
Name: Last Counter
Type: REG_DWORD
Data: 0x756

Value 5
Name: Last Help
Type: REG_DWORD
Data: 0x757

Value 6
Name: Library
Type: REG_SZ
Data: infoctrs.DLL

Value 7
Name: Open
Type: REG_SZ
Data: OpenINFOPerformanceData

World Wide Web Server Registry Parameters

Key Name: SYSTEM\CurrentControlSet\Services\W3SVC
Class Name: <NO CLASS>
Last Write Time: 5/29/98 - 1:18 PM

Value 0
Name: DependOnGroup
Type: REG_MULTI_SZ
Data:

Value 1
Name: DependOnService
Type: REG_MULTI_SZ
Data: RPCSS
NTLMSSP

Value 2
Name: DisplayName
Type: REG_SZ
Data: World Wide Web Publishing Service

Value 3
Name: ErrorControl
Type: REG_DWORD
Data: 0

Value 4
Name: ImagePath
Type: REG_EXPAND_SZ
Data: C:\WINNT\System32\inet_srv\inetinfo.exe

Value 5
Name: ObjectName
Type: REG_SZ
Data: LocalSystem

Value 6
Name: Start
Type: REG_DWORD
Data: 0x3

Value 7
Name: Type
Type: REG_DWORD

Data: 0x20

Key Name: SYSTEM\CurrentControlSet\Services\W3SVC\Enum
 Class Name: <NO CLASS>
 Last Write Time: 10/6/98 - 7:14 AM

Value 0
 Name: 0
 Type: REG_SZ
 Data: Root\LEGACY_W3SVC\0000

Value 1
 Name: Count
 Type: REG_DWORD
 Data: 0x1

Value 2
 Name: NextInstance
 Type: REG_DWORD
 Data: 0x1

Key Name: SYSTEM\CurrentControlSet\Services\W3SVC\Parameters
 Class Name: <NO CLASS>
 Last Write Time: 5/29/98 - 1:38 PM

Value 0
 Name: AccessDeniedMessage
 Type: REG_SZ
 Data: Error: Access is Denied.

Value 1
 Name: AdminEmail
 Type: REG_SZ
 Data: Admin@corp.com

Value 2
 Name: AdminName
 Type: REG_SZ
 Data: Administrator

Value 3
 Name: AnonymousUserName
 Type: REG_SZ
 Data: IUSR_CLIEN4

Value 4
 Name: Authorization
 Type: REG_DWORD
 Data: 0x5

Value 5
 Name: CacheExtensions
 Type: REG_DWORD
 Data: 0x1

Value 6
 Name: CheckForWAISDB
 Type: REG_DWORD
 Data: 0

Value 7
 Name: ConnectionTimeout
 Type: REG_DWORD
 Data: 0x1c20

Value 8
 Name: DebugFlags
 Type: REG_DWORD
 Data: 0x8

Value 9
 Name: Default Load File
 Type: REG_SZ
 Data: Default.htm

Value 10
 Name: Dir Browse Control
 Type: REG_DWORD
 Data: 0x400001e

Value 11
 Name: Filter DLLs
 Type: REG_SZ
 Data: C:\WINNT\System32\inet_srv\sspifilt.dll

Value 12
 Name: GlobalExpire
 Type: REG_DWORD
 Data: 0xffffffff

Value 13
 Name: InstallPath
 Type: REG_SZ
 Data: C:\WINNT\System32\inet_srv

Value 14
 Name: LogFileDirectory
 Type: REG_EXPAND_SZ
 Data: %SystemRoot%\System32\LogFiles

Value 15
 Name: LogFileFormat
 Type: REG_DWORD
 Data: 0

Value 16
 Name: LogFilePeriod
 Type: REG_DWORD
 Data: 0x1

Value 17
 Name: LogFileTruncateSize
 Type: REG_DWORD
 Data: 0x1388000

Value 18
 Name: LogSqlDataSource
 Type: REG_SZ

Data: HTTPLOG

Value 19
 Name: LogSqlPassword
 Type: REG_SZ
 Data: sqllog

Value 20
 Name: LogSqlTableName
 Type: REG_SZ
 Data: Internetlog

Value 21
 Name: LogSqlUserName
 Type: REG_SZ
 Data: InternetAdmin

Value 22
 Name: LogType
 Type: REG_DWORD
 Data: 0

Value 23
 Name: MajorVersion
 Type: REG_DWORD
 Data: 0x2

Value 24
 Name: MaxConnections
 Type: REG_DWORD
 Data: 0x2710

Value 25
 Name: MinorVersion
 Type: REG_DWORD
 Data: 0

Value 26
 Name: NTAuthenticationProviders
 Type: REG_SZ
 Data: NTLM

Value 27
 Name: ScriptTimeout
 Type: REG_DWORD
 Data: 0x384

Value 28
 Name: SecurePort
 Type: REG_DWORD
 Data: 0x1bb

Value 29
 Name: ServerComment
 Type: REG_SZ
 Data:

Value 30
 Name: ServerSideIncludesEnabled

Type: REG_DWORD
 Data: 0x1

Value 31
 Name: ServerSideIncludesExtension
 Type: REG_SZ
 Data: .stm

Key Name:
 SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Script Map
 Class Name: <NO CLASS>
 Last Write Time: 5/29/98 - 2:57 AM

Value 0
 Name: .idc
 Type: REG_SZ
 Data: C:\WINNT\System32\inet_srv\httpodbc.dll

Key Name:
 SYSTEM\CurrentControlSet\Services\W3SVC\Parameters\Virtual Roots
 Class Name: <NO CLASS>
 Last Write Time: 5/29/98 - 1:38 PM

Value 0
 Name: /,
 Type: REG_SZ
 Data: C:\InetPub\wwwroot,,5

Value 1
 Name: /iisadmin,
 Type: REG_SZ
 Data: C:\WINNT\System32\inet_srv\iisadmin,,1

Value 2
 Name: /Scripts,
 Type: REG_SZ
 Data: C:\InetPub\scripts,,4

Key Name:
 SYSTEM\CurrentControlSet\Services\W3SVC\Performance
 Class Name: <NO CLASS>
 Last Write Time: 5/29/98 - 2:57 AM

Value 0
 Name: Close
 Type: REG_SZ
 Data: CloseW3PerformanceData

Value 1
 Name: Collect
 Type: REG_SZ
 Data: CollectW3PerformanceData

Value 2
 Name: First Counter
 Type: REG_DWORD
 Data: 0x758

Value 3
 Name: First Help

Type: REG_DWORD
Data: 0x759

Value 4
Name: Last Counter
Type: REG_DWORD
Data: 0x790

Value 5
Name: Last Help
Type: REG_DWORD
Data: 0x791

Value 6
Name: Library
Type: REG_SZ
Data: w3ctrs.DLL

Value 7
Name: Open
Type: REG_SZ
Data: OpenW3PerformanceData

Key Name: SYSTEM\CurrentControlSet\Services\W3SVC\Security
Class Name: <NO CLASS>
Last Write Time: 5/29/98 - 2:57 AM

Value 0
Name: Security
Type: REG_BINARY
Data:
00000000 01 00 14 80 c0 00 00 00 - cc 00 00 00 14 00 00 00
.....
00000010 34 00 00 00 02 00 20 00 - 01 00 00 00 02 80 18 00 4.....
.....
00000020 ff 01 0f 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000030 20 02 00 00 02 00 8c 00 - 05 00 00 00 00 00 18 00
.....
00000040 8d 01 02 00 01 01 00 00 - 00 00 00 01 00 00 00 00
.....
00000050 00 00 73 00 00 00 1c 00 - fd 01 02 00 01 02 00 00
..S.....
00000060 00 00 00 05 20 00 00 00 - 23 02 00 00 c8 00 14 00
...#.....
00000070 00 00 1c 00 ff 01 0f 00 - 01 02 00 00 00 00 00 05
.....
00000080 20 00 00 00 20 02 00 00 - c8 00 14 00 00 00 1c 00 ...
.....
00000090 ff 01 0f 00 01 02 00 00 - 00 00 00 05 20 00 00 00
...
000000a0 25 02 00 00 c8 00 14 00 - 00 00 18 00 fd 01 02 00
%.....
000000b0 01 01 00 00 00 00 00 05 - 12 00 00 00 25 02 00 00
.....%...
000000c0 01 01 00 00 00 00 00 05 - 12 00 00 00 01 01 00 00
.....
000000d0 00 00 00 05 12 00 00 00 -

Key Name: SOFTWARE\Unisys
Class Name: <NO CLASS>
Last Write Time: 5/29/98 - 1:34 PM

Key Name: SOFTWARE\Unisys\TPCC
Class Name: <NO CLASS>
Last Write Time: 6/1/98 - 4:18 PM

Value 0
Name: MAXTERMS
Type: REG_SZ
Data: 6000

Tuxedo Configuration

Note: this configuration file is repeated on each of the other 2 clients with the exception of the Hostname, "CLIENT1", which is replaced by "CLIENT2" thru "CLIENT3" .

```
*RESOURCES
IPCKEY          133133

MAXACCESSERS   400
MAXSERVERS     210
MAXSERVICES    1100
MODEL          SHM
MASTER         tpcctm
LDBAL          Y
SCANUNIT       60
BLOCKTIME      60
BBLQUERY       60

*MACHINES
DEFAULT:

CLIENT1        LMID=tpcctm
                TUXDIR="c:\tuxedo"
                APPDIR="c:\tuxedo\runtime"
                TUXCONFIG="c:\tuxedo\runtime\tuxconfig"
                ULOGPFX="c:\tuxedo\runtime\ulog\ULOG"
                TYPE="WinNT"
                UID=0
                GID=0

*GROUPS
GRALL          LMID=tpcctm      GRPNO=1      OPENINFO=NONE

GRDEL         LMID=tpcctm      GRPNO=3      OPENINFO=NONE

*SERVERS
DEFAULT:
                CLOPT="-A -- -sAVALON4 -dtpcc"
```

| | | | |
|---------|--|-----------|--|
| tpccsvr | SRVGRP=GRALL SRVID=100 MIN=14 MAX=20 RQADDR=all1q REPLYQ=Y | | SRVID=160 MIN=14 MAX=20 RQADDR=all14q REPLYQ=Y |
| tpccsvr | SRVGRP=GRALL SRVID=120 MIN=14 MAX=20 RQADDR=all12q REPLYQ=Y | tpccsvr | SRVGRP=GRALL SRVID=180 MIN=14 MAX=20 RQADDR=all15q REPLYQ=Y |
| tpccsvr | SRVGRP=GRALL SRVID=140 MIN=14 MAX=20 RQADDR=all13q REPLYQ=Y | tpccdelv | SRVGRP=GRDEL SRVID=300 MIN=8 MAX=10 RQADDR=delq REPLYQ=Y |
| tpccsvr | SRVGRP=GRALL | *SERVICES | |

Appendix D - RTE Code

Admin Environment

```
if '%1'==' ' goto usage
if '%2'==' ' goto usage
if '%3'==' ' goto usage

:paramok

net time \\%1 /SET /Y

if %ERRORLEVEL% NEQ 0 pause

set WEBADMINCFG=web%2.cfg
set WEBMAXDRIVERS=%3
set WEBDIAGLEVEL=4
set WEBEVENTLOG=0
set WEBEVENTHOST=
set WEBCHECKLEVEL=2

webadmin.exe

goto end

:usage
@ECHO You must supply the following parameters:
@ECHO "webnnn.cmd <clock sync host name> <cfg file suffix> <driver count>"
pause

:end
```

Profiles used for Performance Run

Web1500.cfg

```
//
// Common Driver Configuration
//
INITBASEPORT 4300
INITSYNCMAX 4
INITPAUSE 1
INITRSCALE 400
INITTSSCALE 100
INITRWID 1, 1500
INITFIXEDWID 1
INITCCLAST 208
INITCCID 208
INITCITEMID 208
//
// Configuration Driver 1
```

```
//
1 INITIPADDR 192.59.13.228
1 INITIISADDR 192.168.13.1
1 INITIISPORT 80
1 INITBROWSERS 1000
1 INITMYWID 1,100
//
// Configuration Driver 2
//
2 INITIPADDR 192.59.13.229
2 INITIISADDR 192.168.23.2
2 INITIISPORT 80
2 INITBROWSERS 1000
2 INITMYWID 101,200
//
// Configuration Driver 3
//
3 INITIPADDR 192.59.13.230
3 INITIISADDR 192.168.33.3
3 INITIISPORT 80
3 INITBROWSERS 1000
3 INITMYWID 201,300
//
// Configuration Driver 4
//
4 INITIPADDR 192.59.13.230
4 INITIISADDR 192.168.34.3
4 INITIISPORT 80
4 INITBROWSERS 1000
4 INITMYWID 301,400
//
// Configuration Driver 5
//
5 INITIPADDR 192.59.13.229
5 INITIISADDR 192.168.24.2
5 INITIISPORT 80
5 INITBROWSERS 1000
5 INITMYWID 401,500
//
// Configuration Driver 6
//
6 INITIPADDR 192.59.13.228
6 INITIISADDR 192.168.14.1
6 INITIISPORT 80
6 INITBROWSERS 1000
6 INITMYWID 501,600
//
// Configuration Driver 7
//
7 INITIPADDR 192.59.13.228
7 INITIISADDR 192.168.15.1
7 INITIISPORT 80
7 INITBROWSERS 1000
7 INITMYWID 601,700
```

```

//
// Configuration Driver 8
//
8 INITIPADDR 192.59.13.229
8 INITIISADDR 192.168.25.2
8 INITIISPORT 80
8 INITBROWSERS 1000
8 INITMYWID 701,800
//
// Configuration Driver 9
//
9 INITIPADDR 192.59.13.230
9 INITIISADDR 192.168.35.3
9 INITIISPORT 80
9 INITBROWSERS 1000
9 INITMYWID 801,900
//
// Configuration Driver 10
//
10 INITIPADDR 192.59.13.231
10 INITIISADDR 192.168.32.3
10 INITIISPORT 80
10 INITBROWSERS 1000
10 INITMYWID 901,1000
//
// Configuration Driver 11
//
11 INITIPADDR 192.59.13.231
11 INITIISADDR 192.168.22.2
11 INITIISPORT 80
11 INITBROWSERS 1000
11 INITMYWID 1001,1100
//
// Configuration Driver 12
//
12 INITIPADDR 192.59.13.231
12 INITIISADDR 192.168.12.1
12 INITIISPORT 80
12 INITBROWSERS 1000
12 INITMYWID 1101,1200
//
// Configuration Driver 13
//
13 INITIPADDR 192.59.13.223
13 INITIISADDR 192.168.16.1
13 INITIISPORT 80
13 INITBROWSERS 1000
13 INITMYWID 1201,1300
//
// Configuration Driver 14
//
14 INITIPADDR 192.59.13.223
14 INITIISADDR 192.168.26.2
14 INITIISPORT 80
14 INITBROWSERS 1000
14 INITMYWID 1301,1400
//
// Configuration Driver 15
//

```

```

15 INITIPADDR 192.59.13.223
15 INITIISADDR 192.168.36.3
15 INITIISPORT 80
15 INITBROWSERS 1000
15 INITMYWID 1401,1500
//

```

Driver Environment

Note: this configuration file is repeated on each of the other 15 drivers with the exception of WEBDRIVERNO, which is replaced by 2 thru 15.

```

set WEBDRIVERNO=1
set WEBADMBASEPORT=4300
set WEBDIAGLEVEL=2
set WEBEVENTLOG=1
set WEBEVENTHOST=
set WEBLOGLEVEL=1
set WEBSINGLETRAN=0
set WEBTPCCAUDIT=0
set WEBRTFUDGETM=110
set WEBNEWORDERPROB=4484
set WEBPAYMENTPROB=4307
set WEBORDERSTATUSPROB=403
set WEBDELIVERYPROB=403
set WEBSTOCKLEVELPROB=403
set WEBTTNEWORDER=12030
set WEBTTPAYMENT=12030
set WEBTTDELIVERY=5060
set WEBTTORDERSTATUS=10070
set WEBTTSTOCKLEVEL=5060

```

```

webdriver.exe
exit

```

Appendix E - Disk Storage

TPC-C 180-Day Disk Space Requirements

| Warehouses | 1545 | tpmC | 18,707,70 | | | | | |
|---------------------------|---------------------|--|-----------------------|----------------------|-------------------------|--|--|--|
| Table | Initial Rows | Data KB | Index KB | Extra 5% KB | Total With 5% KB | | | |
| Warehouse | 1,545 | 168 | 40 | 10 | 218 | | | |
| District | 15,450 | 1,720 | 64 | 89 | 1,873 | | | |
| Customer | 46,350,000 | 33,709,096 | 2,164,760 | 1,793,693 | 37,667,549 | | | |
| History (D) | 46,350,000 | 2,575,064 | 0 | | 2,575,064 | | | |
| Order (D) | 46,350,000 | 1,420,696 | 784,752 | | 2,205,448 | | | |
| New-Order | 13,905,000 | 219,848 | 640 | 11,024 | 231,512 | | | |
| Order-Line (D) | 463,501,689 | 28,968,856 | 72,192 | | 29,041,048 | | | |
| Item | 100,000 | 9,528 | 88 | 481 | 10,097 | | | |
| Stock | 154,500,000 | 49,440,000 | 110,784 | 2,477,539 | 52,028,323 | | | |
| Totals KB | | 116,344,976 | 3,133,320 | 4,282,837 | 123,761,133 | | | |
| Db/Filegroup | Count | Size MB | MB Allocated | MB Loaded +5% | MB for 8 Hours | | | |
| master, model & msdb | 30 | 30 | 30 | 30 | 30 | | | |
| tempdb | 200 | 200 | 200 | 200 | 200 | | | |
| msql70_tpc_c_root | 1 | 10 | 10 | 10 | 10 | | | |
| msql70_cs_fg | 7 | 13,490 | 94,430 | 87,594 | 87,594 | | | |
| msql70_misc_fg | 7 | 6,490 | 45,430 | 33,267 | 41,017 | | | |
| Total Allocated MB | | 140,100 | 140,100 | 121,100 | 128,850 | | | |
| | | MB | | | | | | |
| Dynamic Space MB | 32,192 | Sum of data for orders, order_line & history | | | | | | |
| Static Space | 88,668 | Sum of data+index+5% - Dynamic Space | | | | | | |
| Free Space | 19,240 | Total allocated space - (Dynamic & Static Spaces) | | | | | | |
| Daily Growth | 6,237 | (Dynamic Space / (W * 62.5)) * tpmC | | | | | | |
| Daily Spread | 9,884 | Free space - 1.5 * Daily growth (zero if negative) | | | | | | |
| | | 0 SQL Server can be configured to eliminate Daily Spread | | | | | | |
| 180 Day Space MB | 1,211,288 | Static Space + 180 * (Daily Growth + Daily Spread) | | | | | | |
| 180 Day Space GB | 1,182.90 | | | | | | | |
| 8 hr log GB | 45.37 | (need double for mirroring) | | | | | | |
| Disk Capacity MB | 4339 | 4,2373 GB | Capacity of 4GB disks | | | | | |
| | 8683 | 8,4795 GB | Capacity of 9GB disks | | | | | |
| Space Usage | GB Needed | Disks Priced | GB Priced | GB drives | | | | |
| 180-day space DB | 1182.90 GB | 120 | 508.48 GB | 4GB drives | | | | |
| Total DB | 198 | 78 | 661.40 GB | 9GB drives | | | | |
| | | | 1169.88 GB | | | | | |
| 8-hr log+mirror | 90.73 GB | 12 | 101.75 GB | 9GB drives | | | | |
| OS, SQL Server | 1.85 GB | 1 | 4.24 GB | 4GB drives | | | | |
| Total space | 1275.48 GB | 211 | 1275.87 GB | | | | | |

| TPC-C 180-Day Dynamic Table Growth Rates | | | | | | 18,707.70 tpmC |
|--|-------------------|-------------------|------------------|----------------|----------------|------------------|
| Tables | Initial (KB) | Final (KB) | Change(KB) | Unused (KB) | KB / New-Order | 8-Hr MB |
| History | 2,575,064 | 3,362,048 | 786,984 | 166,896 | 0.0882 | 3,287.97 |
| Orders | 2,205,448 | 3,449,512 | 1,244,064 | 38,072 | 0.1394 | 3,376.12 |
| Order_line | 29,041,048 | 34,897,272 | 5,856,224 | 18,040 | 0.6562 | 34,114.49 |
| Dynamic | 33,821,560 | 41,708,832 | 7,887,272 | 223,008 | 0.8837 | 40,778.58 |
| New_order | 220,488 | 366,232 | 145,744 | 16,920 | 0.0163 | 358.52 |
| Static | | | | | | |
| Log | 375,037 | 47,283,003 | 46,907,966 | | 5.2559 | 46,456.11 |
| SUM(d_next_o_id) | 46,365,450 | 55,290,340 | 8,924,890 | | | 45.367 |

Appendix F - Third-Party Price Quotations

OCT 30 1998 21:17 FR MICROSOFT RECP #1 425 936 7329 TO 919493805539 P.02/03
One Microsoft Way Fax 425 936 7329
Redmond, WA 98052-6399 http://www.microsoft.com/



October 30, 1998

Mr. Jerrold Buggett
Director, Systems Analysis, Modeling, Measurement
Unisys Corporation
25725 Jeronimo Road
Mission Viejo, CA 92691

via FAX # 949-380-5539

Dear Jerry,

Microsoft has received your request for permission to disclose the results of TPC-C benchmark tests conducted by Unisys with Microsoft SQL Server, Enterprise Edition 7.0 on the following system:

Unisys Aquanta QS/2 Server, 4-processors, Pentium II Xeon, 400 MHz, 1MB L2 cache
Test Results: 18700 ipmC @ \$25/ipmC approximately

Microsoft hereby grants Unisys permission to disclose these results to third parties and acknowledges that Unisys has formally requested permission to do so in accordance with the license agreement for Microsoft SQL Server 7.0 software.

Best regards,



Sid Arora
Product Manager, Microsoft SQL Server
Applications Marketing

OCT 30 1998 21:17 FR MICROSOFT RECP #1 425 936 7329 TO 919493805539

P.03/03

www.microsoft.com
One Microsoft Way
Redmond, WA 98052-6399

TEL 425 936 7329
FAX 425 936 7329
<http://www.microsoft.com/>

Microsoft

October 30, 1998

Mr. Jerrold Buggert
Director, Systems Analysis, Modeling, Measurement
Unisys Corporation
25725 Jeronimo Road
Mission Viejo, CA 92691
via FAX # 949-380-5539

Dear Jerry,

Here is the information you requested regarding pricing of certain Microsoft products:

| | |
|--|---------|
| Microsoft SQL Server, Enterprise Edition 7.0, unlimited user licence | \$28999 |
| Microsoft Windows NT Server, Enterprise Edition 4.0, incl 25 CALs | \$3999 |
| Windows NT Server 4.0 software, incl 5 CALs | \$809 |
| Visual C++ Professional 5.0 | \$499 |
| 5-yr maintenance for above software @ \$2095/yr | \$10475 |

This quote is valid for the next 60 days. Please let me know if I can be of any further assistance.

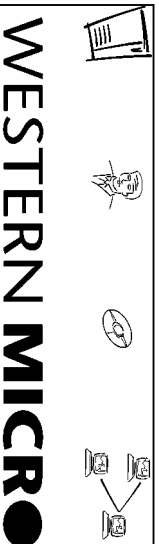
Best regards,



Sid Arora
Product Manager, Microsoft SQL Server
Applications Marketing

Microsoft Corporation is an equal opportunity employer.

** TOTAL PAGE 03 **

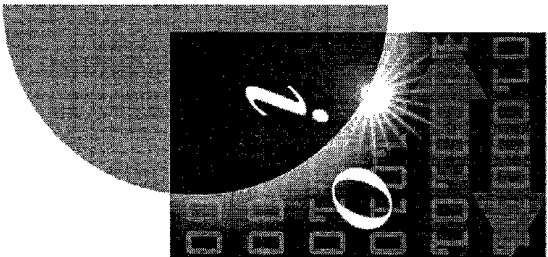


Western Micro Technology
(800)937-8446

11/3/98

Quoted to: Jerry Bugger/Unisys for TPC.org
Prepared by: Tony Jacobs

| Qty. | Description | Style | Price | Extended Price |
|---|---|----------------|---------|-------------------|
| Server Hardware | | | | |
| 1 | SYS: Aquanta QS/2, w/CDRom, 0 Proc, 0MB Mem | QS2000111-BAS | \$7,815 | \$7,815 |
| 4 | PROC: 1x400MHz Pentium II /1MB Cache | XEO2400-1MB | \$3,955 | \$15,820 |
| 6 | ACC: Voltage Regulator Module, Processor | XEO24001-VRM | \$46 | \$276 |
| 1 | MEM/ECC Memory Board, 0MB Mem | MEM241-MBD | \$470 | \$470 |
| 32 | MEM: 128 MB Memory Upgrade | DIM5072-128 | \$786 | \$25,152 |
| 1 | DISK: 4GB Drive, Ultra SCSI, SCA | HDS417-CX1 | \$746 | \$746 |
| 1 | ETHERNET: 100Mbit/sec, PCI 32-bit | ETH1010051-PCI | \$117 | \$117 |
| 1 | CDROM: 14-32x Speed, SCSI | CDR1432-SI | \$161 | \$161 |
| 1 | MONITOR: 15-inch Color | EVG2100-E | \$272 | \$272 |
| 1 | KEYBD: 104 Key Spacesaver | PCK104-SKB | \$31 | \$31 |
| 1 | MOUSE: 2 Button PS2 | PWM1-PS2 | \$23 | \$23 |
| 16 | CBL: SCSI 68-pin HD Conn. | CBL2210-OSM | \$90 | \$1,440 |
| 132 | DISK: 4GB Drive, 10K, SCA + 10% spares | OSD4203-W45 | \$625 | \$82,500 |
| 99 | DISK: 9GB Drive, 10K, SCA + 10% spares | OSD9203-W45 | \$930 | \$92,070 |
| 14 | CAB: 7 SCA Disk Cage w/ 050 I/F & Cat Cbl, 3U | OSM310050-U05 | \$1,345 | \$18,830 |
| 14 | CAB: 7 SCA Disk Cage w/ 057 I/F, 3U | OSM310057-U05 | \$1,350 | \$18,900 |
| 2 | CAB: 7 SCA Disk Cage w/ 100 I/F, 0MB, 3U | OSM310100-U05 | \$2,727 | \$5,454 |
| 2 | MEM: 32MB OSM Cache | OSM1000-C32 | \$150 | \$300 |
| 30 | CAB: Rackmount Kit for Disk Cages | OSM3000-RMK | \$84 | \$2,520 |
| 2 | PWR: OSM 2nd Power Supply | OSM3000-APM | \$261 | \$522 |
| 1 | PWR: 3000 VA UPS, 3U | UPD30001-SXR | \$2,239 | \$2,239 |
| 3 | CAB: Rack Cabinet, w/ fill pnls, 36U | CAB361-SXR | \$1,384 | \$4,152 |
| 2 | CAB: Link kit for 36U cabinets | LNK361-SXR | \$231 | \$462 |
| 3 | CAB: Bezel kit 36U | BEZ3611-SAB | \$206 | \$618 |
| 3 | CAB: Stabilizer kit 0U | WGT39581-SXR | \$110 | \$330 |
| 1 | PNL: L&R side panels 36U | PAN3621-SXR | \$192 | \$192 |
| Server Total | | | | \$281,412 |
| Client Hardware | | | | |
| 3 | SYS: Aquanta GPS, 0 Proc, 0MB Mem | GPS60071-BAS | \$945 | \$2,835 |
| 6 | PROC: 1x300MHz Pentium II/512KB Cache | GPS2300-512 | \$863 | \$5,178 |
| 3 | UPGRD: GPS P-II 2nd CPU Supt. | GPS600071-P2U | \$32 | \$96 |
| 6 | MEM: 128 MB Memory Upgrade | DIM672-128 | \$741 | \$4,446 |
| 3 | DISK: 2GB Ultra SCSI 3.5 Internal | HDS2000-SW7 | \$573 | \$1,719 |
| 3 | CDROM: 14-32x Speed, SCSI | CDR1432-SI | \$161 | \$483 |
| 6 | ETHERNET: 100Mbit/sec, PCI 32-bit | ETH101007-PCI | \$101 | \$606 |
| 3 | ETHERNET: 100Mbit/sec, PCI 32-bit, Quad | SF1001-ET4 | \$1,212 | \$3,636 |
| 3 | MONITOR: 15-inch Color | EVG2100-E | \$272 | \$816 |
| 3 | KEYBD: 104 Key Spacesaver | PCK104-SKB | \$31 | \$93 |
| 3 | MOUSE: 2 Button PS2 | PWM1-PS2 | \$23 | \$69 |
| Client Total | | | | \$19,977 |
| Server and Client Total | | | | \$301,389 |
| Discount based on total dollar volume | | | | (\$30,139) |
| Quote Total | | | | \$271,250 |
| Quote valid for 75 days. | | | | |
| Disks come with return to factory, 5 year warranty, 7 day replenishment | | | | |



Quotation

| | |
|---|-------------------------------|
| To: Glenn Weeks | From: Michael Alam |
| Company: Unisys Corporation - Orange County Operations 25725 Jeronimo Rd Mission Viejo, CA 92531 | Date: October 28, 1998 |
| RE: Mylex ExtremeRAID DAC1164P | Total Pages: 1 |

Dear Mr. Weeks,

Mylex is pleased to submit the following quotation for the ExtremeRAID controller:

| Part # / Description | MSRP |
|--|------------------|
| DAC1164P-3E-32-MY | \$2838 ea |
| <hr/> | |
| <i>PCI RAID Ultra 2 (LVD) DAC1164P 3E/2I CH 32MB w/Battery Back Up</i> | |
| <hr/> | |

Notes:

Above prices are based on FOB, ex-factory, Fremont, California and firm for 90 days.

Lead time: 30 days ARO.

Product is covered by a 3 year warranty, and maintenance cost for additional 2 years is \$50.

Failed product will be repaired or replaced within 7 days.

Best regards,

Michael Alam, Regional Sales Manager

34551 Ardenwood Blvd,
Fremont, CA 94555-3807
Tel: 510.796-6100
Sales Fax: 510.745-8016
www.mylex.com



ENTERPRISE MIDDLEWARE SOLUTIONS

October 6, 1998

Mr. Jerrold Buggert
Director, Systems Analysis, Modeling, Measurement
Unisys Corporation
25725 Jeronimo Road
Mission Viejo, CA 92691
Fax (714) 380-5468

Dear Mr. Buggert:

Per your request I am enclosing the pricing information regarding TUXEDO 6.x that you requested. This pricing applies to Tuxedo 6.1, 6.2, 6.3 and 6.4. Please note that Tuxedo 6.4 is our most recent version of Tuxedo but that all 6.x releases are generally available. Core functionality services pricing is appropriate for your activities. As per the table below, server systems are classified in one of 5 tiers based on CPU type and capacity. The Acquanta GPS systems with 2 CPU capacity are classified as tier 1 systems, those with 4 CPU capacity are tier 2.

Tuxedo Core Functionality Services (CFS) Program Product Pricing and Description

TUX-CFS provides a basic level of middleware support for distributed computing, and is best used by organizations with substantial resources and knowledge for advanced distributed computing implementations.

TUX-CFS prices are server only and are based on the overall performance characteristics of the server and uses the same five tier computer classification as TUXEDO 6.x. Prices range from \$3,000 for Tier 1 to \$250,000 for Tier 5. Under this pricing option EVERY system running TUX-CFS at the user site must have a TUXEDO license installed and pay the appropriate per server license fees.

BEA Tux/CFS Unlimited User License Fees Per Server

| Unlimited User License fees per server | Number of Users | Dollar Amount | Maintenance (5 x 8) per year | Maintenance (7 x 24) per year |
|---|-----------------|---------------|------------------------------|-------------------------------|
| Tier 1 -- PC Servers with 1 or 2 CPUs, entry level RISC Uni-processor workstations and servers (Class 1and Class 2) | Unlimited | \$3,000.00 | \$450.00 | \$660.00 |
| Tier 2 -- PC Servers with 3 or 4 CPUs, Midrange RISC Uni-processor servers and workstations (class 3) | Unlimited | \$12,000.00 | \$1,800.00 | \$2,640.00 |
| Tier 3 -- Midrange Multiprocessors, up to 8 CPUs per system capacity (Class 4 and 5) | Unlimited | \$30,000.00 | \$4,500.00 | \$6,600.00 |

10/06/98

BEA SYSTEMS, INC.

| | | | | |
|--|-----------|--------------|-------------|-------------|
| Tier 4 -- Large (more than 8, less than 32 CPUs) and Mainframe Systems (Class 6) | Unlimited | \$100,000.00 | \$15,000.00 | \$22,000.00 |
| Tier 5 -- Massively Parallel Systems, > 32 processors | Unlimited | \$250,000.00 | \$37,500.00 | \$55,000.00 |

Intel based server tier classifications:

| Platform | Operating System | Tier 1 | Tier 1 | Tier 2 | Tier 3 | Tier 3 |
|-----------------------------------|---|-----------------------------|--|--|--------|--|
| Intel Pentium/ Pentium Pro PCs | Interactive R3.2 ESIX SVR 4.0 SCO UNIX 3.2.2 and 3.2.4 SCO ODT 2.x,3.x Solaris x86 2.X UnixWare, Windows NT 3.5/4.0 | All 386/486 PCs are Class 1 | ALL Pentium and Pentium Pro PCs with 1 or 2 CPUs capacity are Tier 1 | ALL Pentium and Pentium Pro PCs with 3 or 4 CPUs capacity are Tier 2 | | ALL Pentium and Pentium Pro PCs with 5,6,7, or 8 CPUs are Tier 3 |

Very Truly Yours,



Lewis D. Brentano,
Director, Market Planning

SEPTEMBER 22, 1998

RICK FREEMAN
UNISYS CORPORATION
25725 JERONIMO ROAD
MISSION VIEJO, CALIFORNIA, 92691
FAX: 949-380-5539

RICK

HERE IS THE MODIFIED QUOTE AS REQUESTED BY GLEN WEEKS.

| ITEM | QTY. | DESCRIPTION | UNIT | EXTENDED |
|---------|-------|---|----------|--------------|
| DEH2924 | 2000+ | COMPEX TP1008C 8 PORT 10BASE-T HUB WITH BNC UPLINK. LIFETIME WARRANTY. | \$ 33.00 | \$ 66,000.00 |
| DEH2648 | 2000+ | LANTECH LTC WORKGROUP 8 PORT 10BASE-T HUB WITH SWITCH SELECTABLE 8 th PORT AS UPLINK OR DEDICATED 8 th PORT. 5 YEAR WARRANTY. | \$ 34.50 | \$ 69,000.00 |

THIS QUOTE IS VALID FOR 90 DAYS.
THANK YOU FOR YOUR CONSIDERATION

BOB CHENEY
ACCOUNT MANAGER
DATACOMM WAREHOUSE
800-328-2261 EXT. 22878
732-363-4823 OR 732-905-5731 FAX
CHENEYR@NMWHS.COM



NETLUX

14180 Live Oak Ave., Unit E
Baldwin Park, Ca. 91760

1-800-789-1780
Phone#626-851-9737
Fax #626-851-9837

November 5, 1998

Rick Freeman
Unisys Corporation
25725 Jeronimo Road
Mission Viejo, CA 92691
Fax: (949) 380-5539
cc: (949) 380-5344

Quotation

| Quantity | Part No. | Description | Unit Price | Total |
|----------|----------|----------------------------------|------------|-----------|
| 3 | NX-H8TXD | 8-port 100Mbps FAST Ethernet Hub | \$215.00 | \$ 645.00 |

Terms and Conditions:
FOB Origin
Quote Valid for 60 days
5 Year Warranty

Sincerely,
Martin Parry
NETLUX