FUJITSU

and

ORACLE®

TPC Benchmark™C

Full Disclosure Report

Fujitsu
PRIMEQUEST 540 c/s
W/ 51 Front-Ends

running

Oracle Database 10g
Enterprise Edition

November 30,2006

First Edition - November 2006

The benchmark results contained in this document were submitted for compliance with version 5.7 of the TPC Benchmark C Standard Specification. The result of that action is to place these benchmark results into the sixty day “under review” status as of November 2006.

Fujitsu 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. Fujitsu 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, Fujitsu provides no warranty of the pricing information in this document.

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

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

Printed in USA, November 2006.

Preface

The TPC Benchmark C was developed by the Transaction Processing Performance Council (TPC). The TPC was founded to define transaction processing benchmarks and to disseminate objective, verifiable performance data to the industry. This full disclosure report is based on the TPC Benchmark C Standard Specifications Version 5.7.

TPC Benchmark C Overview

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

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

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

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

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

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

Abstract

Overview

This report documents the methodology and results of the TPC Benchmark C test conducted by Fujitsu Ltd. on the Fujitsu PRIMEQUEST 540 w/51 Front-Ends. The operating system and the DBMS used on the server were Red Hat Enterprise Linux 4 AS for Itanium Processor Family and Oracle Database 10g Enterprise Edition.

The operating system on the clients was Red Hat Enterprise Linux 4 ES for x86.

Those clients ran Apache HTTP Server and BEA Tuxedo 8.1 CFS-R.

Two standard metrics, transaction-per-minute-C(tpmC) and price per tpmC($/tpmC) are reported, in accordance with the TPC Benchmark C Standard. The independent auditor's report by Francois Raab appears at the end of this report.

TPC Benchmark C Metrics

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

1,238,579 tpmC
$3.94 USD/tpmC
December 15, 2006

Standard and Executive Summary Statements

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

Auditor

The benchmark configuration, environment and methodology, along with the pricing model used to calculate the cost per tpmC, were audited by Francois Raab of InfoSizing to verify compliance with the relevant TPC specifications.

FUJITSU ORACLE

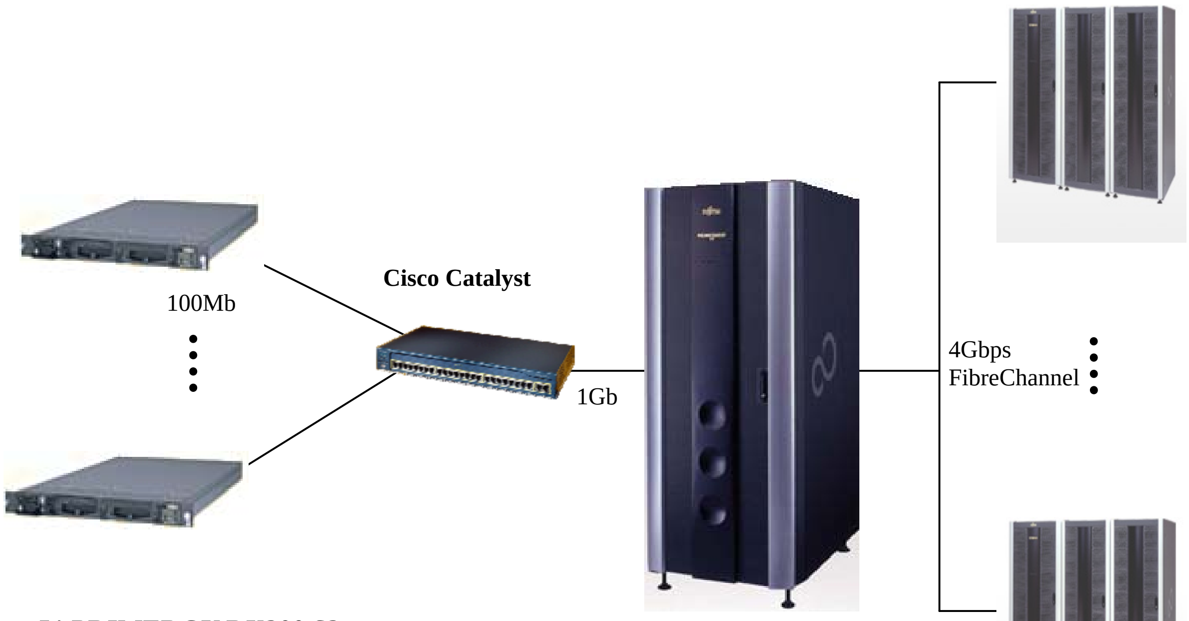
PRIMEQUEST 540 c/s w/51 Front-Ends

TPC-C Rev 5.7

Report Date: November 30, 2006

Total System Cost	TPC-C Throughput	Price/Performance	Availability Date
$4,875,856 USD	**1,238,579 tpmC**	**$3.94 USD/tpmC**	**December 15, 2006**

Database Server Processors/Cores/Threads	Database Manager	Operating system	Other Software	Number of users
16/32/64 Dual-Core Intel Itanium 2 1.6GHz	**Oracle Database 10g Enterprise Edition**	**Red Hat Enterprise Linux 4 AS**	**BEA Tuxedo 8.1**	**989,910**



51 PRIMERGY RX200 S2
2 x 3GHz Xeon
2MB L2 Cache
3GB Memory
73GB SCSI Disk

PRIMEQUEST 540
16 x 1.6GHz Dual-Core Intel Itanium2
with 24MB L3 Cache
1TB Memory
73GB 10K RPM SCSI Drive

5 ETERNUS6000 Model900
2144 36GB 15K RPM Drives

System Component	Qty	Server:	Qty	Each of 51 Clients:
Processors/Cores/ Threads	16/32/ 64	1.6GHz Dual-Core Intel Itanium2	2/2/ 4	3GHz Intel Xeon
Cache Memory		24MB L3 Cache		2MB L2 Cache
Memory	32	32GB (4 x 8GB DDR2-400)	3	1GB (2 x 512MB PC-3200)
Disk Controllers	20	4G bps Fibre Channel (used at 2Gbps)	1	SCSI controller
Disk Drives	1 2144	73GB 10K rpm 36GB 15K rpm	1	73 GB 10K rpm
Total Storage		77,257 GB		4,599 GB

FUJITSU
ORACLE

PRIMEQUEST 540 c/s
w/51 Front-Ends

TPC-C Rev 5.7

Report Date: November 30, 2006

Server Hardware	**Part Number**	**Qty**	**Source**	**Unit Price**	**Ext. Price**	**3 Yr. Maint.**
PRIMEQUEST 540 Base Unit	MC4B0P211U	1	1	14,000.00	14,000.00	20,208.00
System Board	MC-87SB11	4	1	18,000.00	72,000.00	
CPU Module(Dual core Itanium 2 1.6GHz/24MB L3/533MHz FSB)	MC-01EA114	16	1	20,900.00	334,400.00	77,952.00
32GB Memory Module (4x8GB DDR2-400)	MC-02A6114	32	1	32,880.00	1,052,160.00	
I/O Unit	MC-87UX11	4	1	15,000.00	60,000.00	
BMC Module	MC-87BM11	1	1	1,720.00	1,720.00	
Disk Drive Unit (3.5inch, 73GB, 10,000rpm, Ultra320)	MC-03D321	1	1	680.00	680.00	
Gigabit Switch Board (w/ 8 external 1000Base-T ports)	MC-87GE11	2	1	11,850.00	23,700.00	
PCI-Box	MC-07PB21U	1	1	20,700.00	20,700.00	
External I/O Cabinet	MC-87PK11U	1	1	20,850.00	20,850.00	
PCI Unit	MC-07PU21	2	1	5,170.00	10,340.00	
PCI Unit Cable (5m)	MC-07CA11	2	1	890.00	1,780.00	
FibreChannel Card (4Gbps, PCI-X, dual port)	MC-08FC41	20	1	4,270.00	85,400.00	
FibreChannel Cable (15m, LC-LC)	CBL-MLLB15	20	1	330.00	6,600.00	
Flag Panel Display	MC-07FL21	1	1	4,830.00	4,830.00	
USB Keyboard	MC-07KB11	1	1	480.00	480.00	
USB Mouse	MC-07MU11	1	1	80.00	80.00	
				Server Hardware Subtotals	1,709,720.00	98,160.00
Storage						
ETERNUS6000 Model900 Base Unit	E690S01AU	5	1	195,000.00	975,000.00	428,640.00
w/ 2 Controllers, 8 Drive Enclosures, 4 Device Adapters						
Additional Expansion Rack	E600CR3U	10	1	8,000.00	80,000.00	
Additional Controller w/ Power Supply	E600CJ3U	5	1	16,000.00	80,000.00	
Additional Controller w/ Power Supply	E600CJ4U	5	1	16,000.00	80,000.00	
Cache Memory (4x2GB)	E600CM41	5	1	108,600.00	543,000.00	
FibreChannel Host Interface (2Gbps, 2 x dual port)	E600CH14	20	1	12,800.00	256,000.00	
Drive Enclosure Set (4 units) w/ 2 Device Adapters	E690SE22U	10	1	39,400.00	394,000.00	
Drive Enclosure Set (4 units)	E600CE21U	20	1	31,000.00	620,000.00	
Disk Drive Unit (36GB, 15,000rpm)	E600CA2	2144	1	1,000.00	2,144,000.00	
				Strage Subtotals	5,172,000.00	428,640.00
Server Software						
Red Hat Enterprise Linux 4 AS (for Intel Itanium)	MCT0738US	1	1	7,497.00	7,497.00	5,130.00
Oracle Database 10g Enterprise Edition, Per Processor, Unlimited Users, 3 years		16*	2	20,000.00	320,000.00	
Oracle Database Server Support Package for 3 years		3	2	2,000.00		6,000.00
				Server Software Subtotals	327,497.00	11,130.00
Client Hardware						
PRIMERGY RX200 S2 (Xeon 3GHz,1GB mem,2x1000Base-T)	S26361-K942-V211	51	1	1,947.00	99,297.00	34,650.00
CPU Module (Xeon 3GHz)	S26361-F3099-E400	51	1	523.20	26,683.20	
1GB Memory Module (2 x 512MB PC2-3200)	S26361-F3072-E521	102	1	264.00	26,928.00	
Disk Drive Unit (3.5inch, 73GB, 10,000rpm, Ultra320)	S26361-F3121-E173	51	1	237.60	12,117.60	
CD-RW \ DVD ATAPI slimline	S26361-F3123-E1	51	1	100.80	5,140.80	
19inch Rack (24U)	S26361-K826-V102	3	1	1,843.20	5,529.60	
LCD/KB/Pointing Device Unit (1U)	S26361-K1023-V200	3	1	1,821.60	5,464.80	
KVM Switch (8ports, 1U)	S26361-F2293-E801	9	1	708.00	6,372.00	
KVM Cable (1.8m)	S26361-F2293-L20	57	1	10.80	615.60	
				Client Hardware Subtotals	188,148.60	34,650.00
Client Software						
Red Hat Enterprise Linux 4 ES (for x86)	S26361-F2346-E212	51	1	1,331.00	67,881.00	
BEA TUXEDO 8.1 CFS-R (for RHEL4 x86)		51	3	1,140.00	58,140.00	38,556.00
User Connectivity				**Client Software Subtotals**	126,021.00	38,556.00
Cisco Catalyst 2950T-24 Switch		4	4	799.00	3,196.00	
Cisco SMARTnet 24x7x4 Maintenance		4	4			1,308.00
				User Connectivity Subtotals	3,196.00	1,308.00
Oracle Mandatory E-Business Discount			2		(65,200.00)	
Large Configuration Discount and Support Prepayment*			1		(3,066,271.00)	(131,700.00)
				Total	4,395,112.00	480,744.00
				Three-Year Cost of Ownership		**$4,875,856**

Pricing Sources: 1 = Fujitsu , 2 = Oracle , 3 = BEA , 4 = Computer Online
Audited by: Francois Raab, InfoSizing, Inc. (www.sizing.com)
Oracle Corp. pricing contact: Herve Lejeune, herve.lejeune@oracle.com, 650-506-1894
* 16=0.50 x 32. Explanation: For the purposes of counting the number of processors which require licensing, an Intel multicore chip with “n” cores shall be determined by multiplying “n” cores by a factor of 0.50.

Three-Year Cost of Ownership USD	$4,875,856
tpmC	1,238,579
$ USD / tpmC	$3.94

Prices used in TPC benchmarks reflect the actual prices a customer would pay for a one-time purchase of the stated components. Individually negotiated discounts are not permitted. Special prices based on assumptions about past or future purchases are not permitted. All discounts reflect standard pricing policies for the listed components. For complete details, see the pricing sections of the TPC benchmark specifications. If you find that the stated prices are not available according to these items, please inform the TPC at pricing@tpc.org. Thank you.

Numerical Quantities Summary for
PRIMEQUEST 540 c/s w/ 51 Front-Ends
Oracle Database 10g Enterprise Edition

MQTH, Computed Maximum Qualified Throughput	**1,238,579 tpmC**

Response Times (in seconds)	**Average**	**90th %**	**Maximum**
New-Order	0.453	0.913	5.184
Payment	0.441	0.901	5.230
Order-Status	0.449	0.909	4.878
Delivery (interactive portion)	0.103	0.104	0.326
Delivery (deferred portion)	0.346	0.806	4.989
Stock-Level	0.433	0.891	5.080
Menu	0.103	0.104	0.508

Transaction Mix, in percent of total transaction	
New-Order	44.94%
Payment	43.02%
Order-Status	4.01%
Delivery(interactive)	4.02%
Stock-Level	4.01%

Emulation Delay (in seconds)	**Response Time**	**Menu**
New-Order	0.1	0.1
Payment	0.1	0.1
Order-Status	0.1	0.1
Delivery (interactive)	0.1	0.1
Stock-Level	0.1	0.1

Keying/Think Times (in seconds)

	Keying Time			**Think Time**		
	Min	**Avg**	**Max**	**Min**	**Avg**	**Max**
New-Order	18.003	18.012	18.273	0.000	12.015	120.202
Payment	3.004	3.012	3.275	0.000	12.018	120.199
Order-Status	2.004	2.012	2.240	0.000	10.017	100.200
Delivery (interactive)	2.005	2.012	2.243	0.000	5.019	50.191
Stock-Level	2.004	2.012	2.265	0.000	5.022	50.186

Test Duration	
Ramp-up time (seconds)	4,440
Measurement interval (seconds)	7,200
Transactions during measurement interval	330,903,411

Checkpointing	
Number of checkpoints	4
Checkpoint interval (seconds)	1,620

	New Clients (PRIMERGY RX200 S2)						
Client	cl105	cl106	cl107	cl108	cl109	cl110	cl111
tpmC	24235.46	24549.05	24360.06	24580.16	24359.65	24523.80	24448.77
Menu							
average response	0.104	0.103	0.103	0.103	0.103	0.103	0.104
90%ile response	0.104	0.104	0.104	0.104	0.104	0.104	0.104
New Order							
average response	0.491	0.224	0.384	0.188	0.392	0.234	0.303
90%ile response	0.833	0.317	0.719	0.268	0.693	0.342	0.560
average think time	12.015	11.998	12.022	12.009	12.009	12.016	12.022
average keying time	18.012	18.012	18.012	18.012	18.012	18.012	18.012
mixture %	44.94	44.93	44.96	44.93	44.94	44.93	44.96
Payment							
average response	0.480	0.212	0.373	0.177	0.381	0.221	0.292
90%ile response	0.820	0.299	0.706	0.255	0.680	0.324	0.548
average think time	12.034	12.012	12.023	12.010	12.006	12.020	12.027
average keying time	3.012	3.012	3.012	3.012	3.012	3.012	3.012
mixture %	43.03	43.03	42.99	43.03	43.01	43.04	43.01
Order Status							
average response	0.487	0.220	0.380	0.185	0.388	0.229	0.300
90%ile response	0.828	0.310	0.713	0.264	0.689	0.334	0.557
average think time	10.029	10.014	10.036	10.034	10.020	9.997	10.033
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.01	4.01	4.02	4.01	4.02	4.01	4.00
Delivery							
average response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
90%ile response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
average think time	5.031	5.014	5.022	5.028	5.034	5.012	5.011
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.02	4.01	4.01	4.02	4.02	4.00	4.02
Stock Level							
average response	0.470	0.203	0.364	0.168	0.371	0.213	0.283
90%ile response	0.810	0.290	0.698	0.245	0.670	0.315	0.539
average think time	5.014	5.013	5.022	5.022	5.023	5.009	5.015
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.00	4.02	4.02	4.01	4.01	4.02	4.01
# of New Order	6474107	6558922	6505668	6567474	6508417	6552587	6528764

	New Clients (PRIMERGY RX200 S2)						
Client	cl112	cl113	cl114	cl115	cl116	cl117	cl118
tpmC	24440.00	24381.55	24534.99	24470.81	24394.62	24361.30	24551.80
Menu							
average response	0.103	0.103	0.103	0.103	0.103	0.104	0.103
90%ile response	0.104	0.104	0.104	0.104	0.104	0.104	0.104
New Order							
average response	0.315	0.360	0.222	0.286	0.349	0.379	0.211
90%ile response	0.588	0.639	0.327	0.496	0.627	0.681	0.293
average think time	12.015	12.011	12.016	12.013	12.014	12.021	12.009
average keying time	18.012	18.012	18.012	18.012	18.012	18.012	18.012
mixture %	44.94	44.93	44.93	44.95	44.94	44.93	44.93
Payment							
average response	0.304	0.348	0.211	0.275	0.337	0.368	0.200
90%ile response	0.576	0.626	0.312	0.483	0.615	0.669	0.276
average think time	12.007	12.023	12.022	12.021	12.023	12.014	12.020
average keying time	3.012	3.012	3.012	3.012	3.012	3.012	3.012
mixture %	43.01	43.02	43.00	43.02	43.06	43.03	43.03
Order Status							
average response	0.311	0.357	0.218	0.281	0.345	0.376	0.207
90%ile response	0.585	0.636	0.321	0.490	0.622	0.678	0.287
average think time	10.012	10.040	9.991	10.018	10.003	10.044	10.027
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.01	4.01	4.02	4.02	4.00	4.01	4.01
Delivery							
average response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
90%ile response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
average think time	5.019	4.999	5.015	5.016	5.014	5.012	5.016
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.02	4.02	4.03	4.01	4.00	4.01	4.01
Stock Level							
average response	0.295	0.340	0.202	0.266	0.329	0.359	0.191
90%ile response	0.568	0.619	0.303	0.474	0.606	0.660	0.267
average think time	5.021	5.036	5.040	5.019	5.021	5.008	5.004
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.02	4.02	4.02	4.00	4.00	4.02	4.02
# of New Order	6530150	6516221	6556962	6536349	6517715	6509599	6560122

	New Clients (PRIMERGY RX200 S2)						
Client	cl119	cl120	cl121	cl122	cl123	cl124	cl125
tpmC	24452.36	24407.25	24368.35	24532.07	24320.30	24342.95	24176.71
Menu							
average response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
90%ile response	0.104	0.104	0.104	0.104	0.104	0.104	0.104
New Order							
average response	0.303	0.340	0.375	0.226	0.422	0.399	0.553
90%ile response	0.563	0.615	0.665	0.342	0.743	0.721	0.906
average think time	12.022	12.020	12.008	12.002	11.999	12.014	12.026
average keying time	18.012	18.012	18.012	18.012	18.012	18.012	18.012
mixture %	44.95	44.94	44.93	44.93	44.92	44.93	44.95
Payment							
average response	0.291	0.328	0.363	0.215	0.411	0.388	0.542
90%ile response	0.550	0.603	0.652	0.325	0.730	0.709	0.894
average think time	12.016	12.014	12.022	12.025	12.018	12.020	12.010
average keying time	3.012	3.012	3.012	3.012	3.012	3.012	3.012
mixture %	43.01	43.03	43.03	43.03	43.02	43.04	43.02
Order Status							
average response	0.299	0.335	0.370	0.222	0.417	0.396	0.549
90%ile response	0.560	0.610	0.659	0.335	0.737	0.718	0.902
average think time	10.016	9.998	10.001	10.024	10.021	10.001	10.009
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.01	4.01	4.02	4.02	4.03	4.01	4.01
Delivery							
average response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
90%ile response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
average think time	5.026	5.019	5.023	5.018	5.019	4.999	5.034
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.01	4.01	4.02	4.01	4.01	4.01	4.02
Stock Level							
average response	0.282	0.320	0.354	0.207	0.402	0.380	0.534
90%ile response	0.540	0.593	0.641	0.316	0.723	0.701	0.886
average think time	5.032	5.024	5.021	5.027	5.012	5.016	5.018
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.02	4.01	4.00	4.01	4.02	4.01	4.00
# of New Order	6530441	6520830	6512022	6555964	6500469	6503822	6458383

	New Clients (PRIMERGY RX200 S2)						
Client	cl126	cl127	cl128	cl129	cl130	cl131	cl132
tpmC	24507.94	24300.77	24215.27	24029.30	24517.57	24253.95	24206.11
Menu							
average response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
90%ile response	0.104	0.104	0.104	0.104	0.104	0.104	0.104
New Order							
average response	0.246	0.440	0.518	0.686	0.238	0.482	0.523
90%ile response	0.409	0.795	0.895	1.088	0.382	0.860	0.899
average think time	12.017	12.018	12.019	12.014	12.019	12.019	12.029
average keying time	18.012	18.012	18.012	18.012	18.012	18.012	18.012
mixture %	44.92	44.95	44.95	44.93	44.95	44.92	44.96
Payment							
average response	0.234	0.429	0.507	0.674	0.226	0.471	0.512
90%ile response	0.395	0.783	0.883	1.076	0.365	0.847	0.887
average think time	12.015	12.021	12.014	12.033	12.017	12.005	12.027
average keying time	3.012	3.012	3.012	3.012	3.012	3.012	3.012
mixture %	43.04	43.00	43.01	43.02	43.03	43.04	42.99
Order Status							
average response	0.241	0.436	0.515	0.682	0.234	0.477	0.519
90%ile response	0.401	0.789	0.891	1.083	0.375	0.854	0.895
average think time	10.003	10.007	10.009	9.989	10.053	10.011	9.997
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.02	4.02	4.01	4.01	4.01	4.01	4.02
Delivery							
average response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
90%ile response	0.103	0.103	0.103	0.103	0.103	0.103	0.103
average think time	5.030	5.020	5.005	5.019	5.013	5.013	5.011
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.01	4.02	4.01	4.02	3.99	4.01	4.02
Stock Level							
average response	0.226	0.420	0.498	0.666	0.218	0.463	0.503
90%ile response	0.387	0.774	0.873	1.064	0.356	0.839	0.877
average think time	5.024	5.026	5.026	5.022	5.016	5.016	5.018
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.01	4.01	4.02	4.02	4.02	4.02	4.01
# of New Order	6549636	6490655	6469754	6420711	6549976	6481495	6464385

	New Clients (PRIMERGY RX200 S2)							
Client	cl133	cl134	cl135	cl136	cl137	cl138	cl139	cl140
tpmC	24103.20	24506.25	24261.55	24237.50	24093.49	24511.93	24287.10	24231.42
Menu								
average response	0.103	0.103	0.103	0.103	0.103	0.103	0.103	0.103
90%ile response	0.104	0.104	0.104	0.104	0.104	0.104	0.104	0.104
New Order								
average response	0.610	0.251	0.464	0.503	0.620	0.255	0.466	0.487
90%ile response	1.004	0.408	0.818	0.832	0.991	0.428	0.823	0.860
average think time	12.021	12.014	12.017	12.017	12.013	12.014	12.007	12.017
average keying time	18.012	18.012	18.012	18.012	18.012	18.012	18.012	18.012
mixture %	44.92	44.92	44.90	44.95	44.90	44.96	44.96	44.89
Payment								
average response	0.599	0.240	0.452	0.492	0.609	0.243	0.455	0.476
90%ile response	0.992	0.396	0.806	0.820	0.979	0.413	0.811	0.848
average think time	12.017	12.014	12.013	12.014	12.020	12.017	12.012	12.023
average keying time	3.012	3.012	3.012	3.012	3.012	3.012	3.012	3.012
mixture %	43.02	43.03	43.06	42.98	43.03	42.99	42.99	43.03
Order Status								
average response	0.607	0.247	0.459	0.499	0.617	0.250	0.462	0.483
90%ile response	1.002	0.401	0.813	0.827	0.987	0.420	0.818	0.855
average think time	10.068	10.038	10.019	10.014	9.998	10.008	10.003	10.025
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.01	4.03	4.02	4.02	4.03	4.02	4.02	4.03
Delivery								
average response	0.103	0.103	0.103	0.103	0.103	0.103	0.103	0.103
90%ile response	0.103	0.103	0.103	0.103	0.103	0.103	0.103	0.103
average think time	5.026	5.009	5.025	5.032	5.022	5.027	4.998	5.028
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.02	4.01	4.01	4.02	4.01	4.02	4.01	4.02
Stock Level								
average response	0.589	0.231	0.443	0.483	0.600	0.235	0.446	0.466
90%ile response	0.980	0.384	0.795	0.809	0.971	0.405	0.802	0.838
average think time	5.028	5.020	5.028	5.005	5.016	5.029	5.014	5.020
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.03	4.01	4.01	4.03	4.03	4.01	4.02	4.03
# of New Order	6442971	6548061	6487395	6474454	6441896	6545674	6486171	6479753

	Old Clients (PRIMERGY F250)						
Client	cl033	cl034	cl035	cl036	cl037	cl038	cl039
tpmC	24040.56	24316.87	24183.50	24075.55	24422.85	24275.09	24116.91
Menu							
average response	0.104	0.104	0.104	0.104	0.104	0.104	0.104
90%ile response	0.104	0.104	0.104	0.104	0.104	0.104	0.104
New Order							
average response	0.677	0.445	0.550	0.654	0.326	0.462	0.606
90%ile response	1.026	0.781	0.903	1.004	0.675	0.833	1.011
average think time	12.026	12.002	12.008	12.010	12.022	12.018	12.017
average keying time	18.012	18.012	18.012	18.012	18.012	18.012	18.012
mixture %	44.95	44.97	44.94	44.92	44.94	44.94	44.95
Payment							
average response	0.666	0.433	0.539	0.643	0.314	0.451	0.595
90%ile response	1.014	0.769	0.891	0.992	0.660	0.821	0.999
average think time	12.034	12.011	12.011	12.009	12.016	12.013	12.029
average keying time	3.012	3.012	3.012	3.012	3.012	3.012	3.012
mixture %	43.00	43.00	43.03	43.02	43.01	43.02	42.99
Order Status							
average response	0.674	0.441	0.547	0.651	0.322	0.459	0.603
90%ile response	1.024	0.776	0.900	1.001	0.667	0.831	1.006
average think time	10.022	10.004	10.013	10.006	10.013	10.027	10.068
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.01	4.01	4.01	4.01	4.03	4.01	4.02
Delivery							
average response	0.104	0.104	0.104	0.104	0.104	0.104	0.104
90%ile response	0.104	0.104	0.104	0.104	0.104	0.104	0.104
average think time	5.005	5.025	5.026	5.032	5.017	5.014	5.027
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.02	4.00	4.01	4.03	4.01	4.02	4.01
Stock Level							
average response	0.657	0.424	0.531	0.635	0.306	0.441	0.586
90%ile response	1.005	0.760	0.882	0.986	0.651	0.812	0.989
average think time	5.026	5.009	5.016	5.034	5.020	5.026	5.026
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.02	4.02	4.01	4.02	4.01	4.01	4.03
# of New Order	6419055	6491416	6461473	6432348	6524355	6485314	6441175

	Old Clients (PRIMERGY F250)							
Client	cl040	cl041	cl042	cl043	cl044	cl045	cl046	cl047
tpmC	24099.97	24386.60	24218.38	24027.86	23378.78	24297.88	24161.51	23521.76
Menu								
average response	0.104	0.104	0.104	0.104	0.104	0.104	0.104	0.104
90%ile response	0.104	0.104	0.104	0.104	0.104	0.104	0.104	0.104
New Order								
average response	0.637	0.362	0.517	0.694	1.338	0.431	0.564	1.185
90%ile response	1.001	0.785	0.905	1.095	1.743	0.959	0.980	1.601
average think time	12.006	12.018	12.027	12.009	12.009	12.027	12.028	12.001
average keying time	18.012	18.012	18.012	18.012	18.012	18.012	18.012	18.012
mixture %	44.97	44.94	44.96	44.92	44.96	44.93	44.95	44.93
Payment								
average response	0.626	0.350	0.506	0.683	1.327	0.418	0.553	1.174
90%ile response	0.990	0.772	0.893	1.083	1.731	0.944	0.968	1.589
average think time	12.024	12.013	12.021	12.012	12.000	12.018	12.024	12.012
average keying time	3.012	3.012	3.012	3.012	3.012	3.012	3.012	3.012
mixture %	43.00	43.04	42.99	43.02	43.01	43.02	43.03	43.04
Order Status								
average response	0.634	0.358	0.514	0.691	1.334	0.427	0.561	1.182
90%ile response	0.999	0.779	0.903	1.093	1.739	0.954	0.976	1.596
average think time	10.009	10.009	10.003	9.992	10.012	10.021	10.028	10.012
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.00	3.99	4.00	4.02	4.02	4.02	4.00	4.01
Delivery								
average response	0.104	0.104	0.104	0.104	0.104	0.104	0.104	0.104
90%ile response	0.104	0.104	0.104	0.104	0.104	0.104	0.104	0.104
average think time	5.018	5.019	5.025	5.023	5.003	5.036	5.009	5.015
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.02	4.02	4.03	4.03	4.00	4.01	4.02	4.01
Stock Level								
average response	0.616	0.342	0.498	0.675	1.318	0.410	0.544	1.164
90%ile response	0.979	0.760	0.886	1.076	1.723	0.934	0.960	1.579
average think time	5.039	5.031	5.043	5.030	5.035	5.030	5.027	5.021
average keying time	2.012	2.012	2.012	2.012	2.012	2.012	2.012	2.012
mixture %	4.01	4.01	4.02	4.01	4.01	4.02	4.00	4.01
# of New Order	6434254	6514403	6466796	6421368	6242493	6493592	6452064	6285330

Table Of Contents

General Items

Application Code and Definition Statements

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

Appendix A and B contain all source code implemented in this benchmark.

Test Sponsor

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

Fujitsu and Oracle Corp. were joint sponsors of this TPC Benchmark C.

Parameter Settings

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

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

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

Appendix D contains the parameters for the database, the operating system, and the configuration for the transaction monitor.

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/cores/threads.*
- *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 unit, including their protocol type.*
- *Number and 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.).*

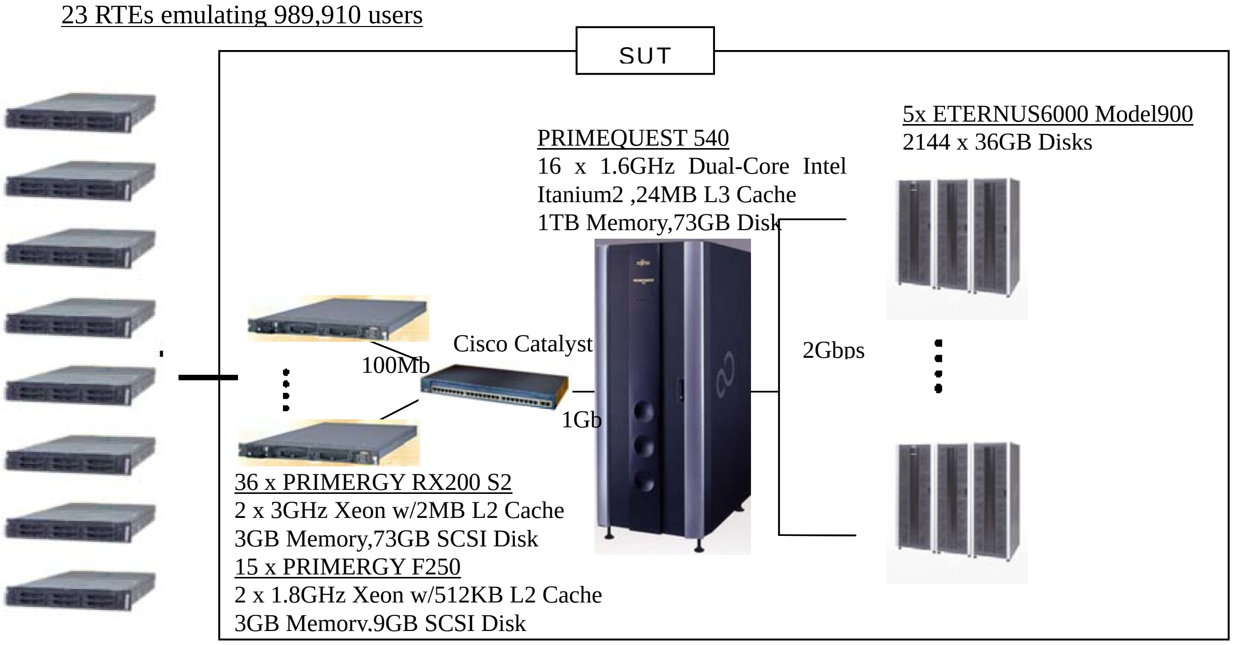
The System Under Test (SUT), a PRIMEQUEST 540 c/s w/ 51 Front-Ends, is depicted in the following diagrams.

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

There were differences between the priced and measured configurations. The differences are:

- A RTE was used in the tested configuration.
- The clients that use Xeon@1.8GHz in the measurement were replaced by those that use Xeon@3.0GHz in the priced configuration.

PRIMEQUEST 540 Tested Configuration



23 RTEs emulating 989,910 users

SUT

PRIMEQUEST 540
16 x 1.6GHz Dual-Core Intel Itanium2 ,24MB L3 Cache
1TB Memory,73GB Disk

5x ETERNUS6000 Model900
2144 x 36GB Disks

Cisco Catalyst

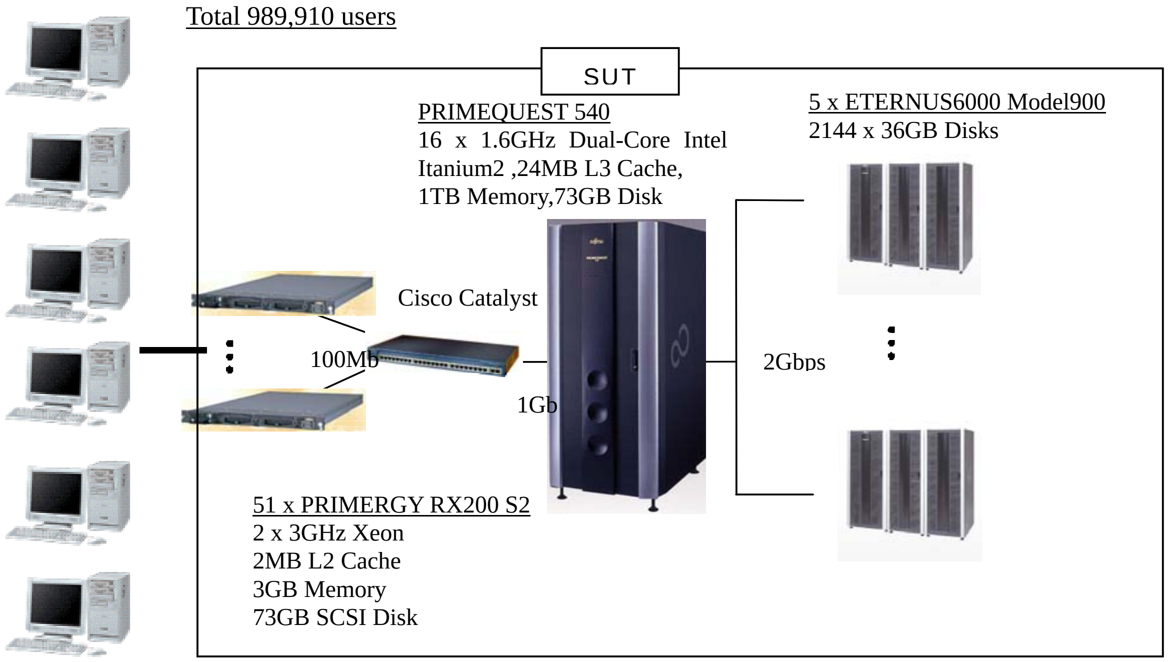
100Mb

1Gb

2Gbps

36 x PRIMERGY RX200 S2
2 x 3GHz Xeon w/2MB L2 Cache
3GB Memory,73GB SCSI Disk
15 x PRIMERGY F250
2 x 1.8GHz Xeon w/512KB L2 Cache
3GB Memory,9GB SCSI Disk

PRIMEQUEST 540 Priced Configuration



Total 989,910 users

SUT

PRIMEQUEST 540
16 x 1.6GHz Dual-Core Intel Itanium2 ,24MB L3 Cache,
1TB Memory,73GB Disk

5 x ETERNUS6000 Model900
2144 x 36GB Disks

Cisco Catalyst

100Mb

1Gb

2Gbps

51 x PRIMERGY RX200 S2
2 x 3GHz Xeon
2MB L2 Cache
3GB Memory
73GB SCSI Disk

Clause 1 Related Items

1.1 Table Definitions

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

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

1.2 Physical Organization of Database

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

Physical space was allocated to Oracle Database 10g Enterprise Edition on the server disks according to the details provided in section 4.2. The size of the space segments on each disk was calculated to provide even distribution of data across the disk drives.

1.3 Insert and Delete Operations

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

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

1.4 Partitioning

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

Partitioning was not used for any of the measurement reported in this full disclosure.

1.5 Replication, Duplication or Additions

Replication of tables, if used, must be disclosed(see Clause 1.4.6). Additional and/or duplicated attributes in any table must be disclosed along with a statement on the impact on performance(see Clause 1.4.7).

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

Clause 2 Related Items

2.1 Random Number Generation

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

The seeds for each user were generated using the terminal id and the unix time of measurement start, which was given by the RTE master process. The terminal id is unique number across all RTE emulated users. Since the seeds were incremented by the same start value, they were also unique across all users.

2.2 Input/Output Screen Layout

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

All screen layouts followed the specification exactly.

2.3 Priced Terminal Feature Verification

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

The terminal attributes were verified by the auditor manually exercising each specification during the onsite audit portion of this benchmark.

2.4 Presentation Manager or Intelligent Terminal

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

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

2.5 Transaction Profiles

The percentage of home and remote order-lines in the New-Order transactions must be disclosed. The percentage of New-Order transactions that were rolled backs as a results of an unused item number must be disclosed.

The number of items per orders 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 2.1 lists the numerical quantities that Clauses 8.1.3.5 to 8.1.3.11 require.

Table 2. 1 Transaction Statistics

Statistic		Value
New Order	Home warehouse order lines	99.00%
	Remote warehouse order lines	1.00%
	Rolled back transactions	1.00%
	Average items per order	10.00
Payment	Home warehouse	85.00%
	Remote warehouse	15.00%
	Accessed by last name	60.00%
Order Status	Accessed by last name	59.99%
Delivery	Skipped transactions	None
Transaction Mix	New Order	44.94%
	Payment	43.02%
	Order status	4.01%
	Delivery	4.02%
	Stock level	4.01%

2.6 Queuing Mechanism

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

Delivery transactions were submitted to servers using the same mechanism that other transactions used, Tuxedo API. The only difference was that tpacall() was used instead of tpcall() to call the server process asynchronously, i.e., control would return to the client thread immediately and the deferred delivery part would complete asynchronously in the server process.

Clause 3 Related Items

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 SUT must support during the execution of the benchmark. Those properties are Atomicity, Consistency, Isolation and Durability (ACID).

This section defines each of those 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.

3.2 Atomicity

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

3.2.1 Completed Transactions

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.

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

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.

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

3.3 Consistency

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

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

- The sum of the district balances in a warehouse is equal to the warehouse balance;
- for each district, the next order id minus one is equal to the maximum order id in the ORDER table and equal to the maximum new order id in the NEW-ORDER table;
- 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;
- 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.

These consistency conditions were tested using a shell script to issue queries to the database. The results of the queries verified that the database was consistent for all four tests.

A performance run was completed including a full 120 minutes of steady state and checkpoints.

The shell script was executed again. The result of the same queries verified that the database remained consistent after the run.

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 nine required tests to be performed to demonstrate that the required levels of transaction isolation are met. These tests, described in Clauses 3.4.2.1 - 3.4.2.9, were all performed and verified as required.

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

For Isolation test seven, case D was followed.

3.5 Durability

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

3.5.1 Loss of Log Disk And Loss of Data Disk

To demonstrate recovery from a permanent failure of durable media containing the Oracle recovery log data and TPC-C tables, the following steps were executed using 98,991 warehouses of the database:

1. The database was backed up to extra disks.
2. The total number of orders was determined by the sum of D_NEXT_O_ID of all rows in the DISTRICT table giving the beginning count.
3. The RTE was started with 989,910 users.
4. The test was allowed to run for a minimum of 5 minutes.
5. One of the log disks was removed from the cabinet to cause a log disk failure. Since the log was configured as RAID0+1, the transactions continued to run without interruption.
6. The test was allowed to run for another 5 minutes and a disk array failure was caused by removing a disk from the disk array cabinet.
7. The RTE was shut down.
8. Oracle was shutdown abort.
9. New disks were returned into the disk cabinet to recover the RAID system.
10. Data from the backup disks was restored.
11. Oracle was restarted and the media recovery utility started.
12. Step 2 was repeated and the difference between the first and second counts was noted.
13. The success file was used to determine the number of NEW_ORDERS successfully returned to the RTE.
14. The counts in step 12 and 13 were compared, verifying that all committed transactions were successfully recovered.
15. Data from the success file was used to query the database to demonstrate that successful transactions had corresponding rows in the ORDER table and that rolled back transactions did not.

3.5.2 Instantaneous Interruption and Loss of Memory

Because loss of power erases the contents of memory, the instantaneous interruption and the loss of memory tests were combined into a single test.
This test was executed on a fully scaled database of 98,991 warehouses under a full load of 989,910 users. The following steps were executed:

1. The total number of orders was determined by the sum of D_NEXT_O_ID of all rows in the DISTRICT table giving the beginning count.
2. The RTE was started with 989,910 users.
3. The test was allowed to run for a minimum of 5 minutes.
4. The primary power to the server was shutdown.
5. Power was restored and the system performed an automatic recovery.
6. Oracle was restarted and performed an automatic recovery.
7. Step 1 was repeated and the difference between the first and second counts was noted.
8. The success file was used to determine the number of NEW-ORDERS successfully returned to the RTE.
9. The counts in step 8 and 9 were compared, verifying that all committed transactions

had been successfully recovered.

10. Data from the success file was used to query the database to demonstrate successful transactions had corresponding rows in the ORDER table, and rolled back transactions did not.

Clause 4 Related Items

4.1 Initial Cardinality of Tables

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

The TPC-C database was initially configured with 112,000 warehouses.

Table 4.1 Number of Rows for Server

Table	Occurrences
Warehouse	112,000
District	1,120,000
Customer	3,360,000,000
History	3,360,000,000
Order	3,360,000,000
New Order	1,008,000,000
Order Line	33,600,946,528
Stock	11,200,000,000
Item	100,000

4.2 Constant Values

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

C_LAST (Build)	**1**
C_LAST (RUN)	**111**

4.3 Database Layout

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

The following table depicts the data base configuration of the system tested.

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_25	raw26	sdaa1	0	16
stok_0_265	raw266	sdaa2		
cust_0_25	raw506	sdaa3		
cust_0_265	raw746	sdaa5		
ordr_0_25	raw986	sdaa6		
hist_0_25	raw1226	sdaa7		
icust2_0_25	raw1466	sdaa8		
temp_0_25	raw1706	sdaa9		
stok_0_26	raw27	sdab1		
stok_0_266	raw267	sdab2		
cust_0_26	raw507	sdab3		
cust_0_266	raw747	sdab5		
ordr_0_26	raw987	sdab6		
hist_0_26	raw1227	sdab7		
icust2_0_26	raw1467	sdab8		
temp_0_26	raw1707	sdab9		
stok_0_27	raw28	sdac1	0	16
stok_0_267	raw268	sdac2		
cust_0_27	raw508	sdac3		
cust_0_267	raw748	sdac5		
ordr_0_27	raw988	sdac6		
hist_0_27	raw1228	sdac7		
icust2_0_27	raw1468	sdac8		
temp_0_27	raw1708	sdac9		
stok_0_28	raw29	sdad1		
stok_0_268	raw269	sdad2		
cust_0_28	raw509	sdad3		
cust_0_268	raw749	sdad5		
ordr_0_28	raw989	sdad6		
hist_0_28	raw1229	sdad7		
icust2_0_28	raw1469	sdad8		
temp_0_28	raw1709	sdad9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_139	raw140	sdgg1	0	16
stok_0_379	raw380	sdgg2		
cust_0_139	raw620	sdgg3		
cust_0_379	raw860	sdgg5		
ordr_0_139	raw1100	sdgg6		
nord_0_19	raw1340	sdgg7		
iordr2_0_19	raw1580	sdgg8		
istok_0_19	raw1820	sdgg9		
stok_0_140	raw141	sdgh1		
stok_0_380	raw381	sdgh2		
cust_0_140	raw621	sdgh3		
cust_0_380	raw861	sdgh5		
ordr_0_140	raw1101	sdgh6		
nord_0_20	raw1341	sdgh7		
iordr2_0_20	raw1581	sdgh8		
istok_0_20	raw1821	sdgh9		
stok_0_141	raw142	sdgi1	0	16
stok_0_381	raw382	sdgi2		
cust_0_141	raw622	sdgi3		
cust_0_381	raw862	sdgi5		
ordr_0_141	raw1102	sdgi6		
nord_0_21	raw1342	sdgi7		
iordr2_0_21	raw1582	sdgi8		
istok_0_21	raw1822	sdgi9		
stok_0_142	raw143	sdgj1		
stok_0_382	raw383	sdgj2		
cust_0_142	raw623	sdgj3		
cust_0_382	raw863	sdgj5		
ordr_0_142	raw1103	sdgj6		
nord_0_22	raw1343	sdgj7		
iordr2_0_22	raw1583	sdgj8		
istok_0_22	raw1823	sdgj9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_29	raw30	sdae1	0	16
stok_0_269	raw270	sdae2		
cust_0_29	raw510	sdae3		
cust_0_269	raw750	sdae5		
ordr_0_29	raw990	sdae6		
hist_0_29	raw1230	sdae7		
icust2_0_29	raw1470	sdae8		
temp_0_29	raw1710	sdae9		
stok_0_30	raw31	sdaf1		
stok_0_270	raw271	sdaf2		
cust_0_30	raw511	sdaf3		
cust_0_270	raw751	sdaf5		
ordr_0_30	raw991	sdaf6		
hist_0_30	raw1231	sdaf7		
icust2_0_30	raw1471	sdaf8		
temp_0_30	raw1711	sdaf9		
stok_0_31	raw32	sdag1	0	16
stok_0_271	raw272	sdag2		
cust_0_31	raw512	sdag3		
cust_0_271	raw752	sdag5		
ordr_0_31	raw992	sdag6		
hist_0_31	raw1232	sdag7		
icust2_0_31	raw1472	sdag8		
temp_0_31	raw1712	sdag9		
stok_0_0	raw1	sdb1		
ware_0_0	raw1921	sdb10		
stok_0_240	raw241	sdb2		
cust_0_0	raw481	sdb3		
cust_0_240	raw721	sdb5		
ordr_0_0	raw961	sdb6		
hist_0_0	raw1201	sdb7		
icust2_0_0	raw1441	sdb8		
temp_0_0	raw1681	sdb9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_143	raw144	sdgk1	0	16
stok_0_383	raw384	sdgk2		
cust_0_143	raw624	sdgk3		
cust_0_383	raw864	sdgk5		
ordr_0_143	raw1104	sdgk6		
nord_0_23	raw1344	sdgk7		
iordr2_0_23	raw1584	sdgk8		
istok_0_23	raw1824	sdgk9		
stok_0_144	raw145	sdgl1		
stok_0_384	raw385	sdgl2		
cust_0_144	raw625	sdgl3		
cust_0_384	raw865	sdgl5		
ordr_0_144	raw1105	sdgl6		
nord_0_24	raw1345	sdgl7		
iordr2_0_24	raw1585	sdgl8		
istok_0_24	raw1825	sdgl9		
stok_0_145	raw146	sdgm1	0	16
stok_0_385	raw386	sdgm2		
cust_0_145	raw626	sdgm3		
cust_0_385	raw866	sdgm5		
ordr_0_145	raw1106	sdgm6		
nord_0_25	raw1346	sdgm7		
iordr2_0_25	raw1586	sdgm8		
istok_0_25	raw1826	sdgm9		
stok_0_146	raw147	sdgn1		
stok_0_386	raw387	sdgn2		
cust_0_146	raw627	sdgn3		
cust_0_386	raw867	sdgn5		
ordr_0_146	raw1107	sdgn6		
nord_0_26	raw1347	sdgn7		
iordr2_0_26	raw1587	sdgn8		
istok_0_26	raw1827	sdgn9		
stok_0_147	raw148	sdgo1		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_32	raw33	sdbf1	0	16
stok_0_272	raw273	sdbf2		
cust_0_32	raw513	sdbf3		
cust_0_272	raw753	sdbf5		
ordr_0_32	raw993	sdbf6		
hist_0_32	raw1233	sdbf7		
icust2_0_32	raw1473	sdbf8		
temp_0_32	raw1713	sdbf9		
stok_0_33	raw34	sdbg1		
stok_0_273	raw274	sdbg2		
cust_0_33	raw514	sdbg3		
cust_0_273	raw754	sdbg5		
ordr_0_33	raw994	sdbg6		
hist_0_33	raw1234	sdbg7		
icust2_0_33	raw1474	sdbg8		
temp_0_33	raw1714	sdbg9		
stok_0_34	raw35	sdbh1	0	16
stok_0_274	raw275	sdbh2		
cust_0_34	raw515	sdbh3		
cust_0_274	raw755	sdbh5		
ordr_0_34	raw995	sdbh6		
hist_0_34	raw1235	sdbh7		
icust2_0_34	raw1475	sdbh8		
temp_0_34	raw1715	sdbh9		
stok_0_35	raw36	sdbi1		
stok_0_275	raw276	sdbi2		
cust_0_35	raw516	sdbi3		
cust_0_275	raw756	sdbi5		
ordr_0_35	raw996	sdbi6		
hist_0_35	raw1236	sdbi7		
icust2_0_35	raw1476	sdbi8		
temp_0_35	raw1716	sdbi9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_387	raw388	sdgo2	0	16
cust_0_147	raw628	sdgo3		
cust_0_387	raw868	sdgo5		
ordr_0_147	raw1108	sdgo6		
nord_0_27	raw1348	sdgo7		
iordr2_0_27	raw1588	sdgo8		
istok_0_27	raw1828	sdgo9		
stok_0_148	raw149	sdgp1		
stok_0_388	raw389	sdgp2		
cust_0_148	raw629	sdgp3		
cust_0_388	raw869	sdgp5		
ordr_0_148	raw1109	sdgp6		
nord_0_28	raw1349	sdgp7		
iordr2_0_28	raw1589	sdgp8		
istok_0_28	raw1829	sdgp9		
stok_0_149	raw150	sdgq1	0	16
stok_0_389	raw390	sdgq2		
cust_0_149	raw630	sdgq3		
cust_0_389	raw870	sdgq5		
ordr_0_149	raw1110	sdgq6		
nord_0_29	raw1350	sdgq7		
iordr2_0_29	raw1590	sdgq8		
istok_0_29	raw1830	sdgq9		
stok_0_150	raw151	sdgr1		
stok_0_390	raw391	sdgr2		
cust_0_150	raw631	sdgr3		
cust_0_390	raw871	sdgr5		
ordr_0_150	raw1111	sdgr6		
nord_0_30	raw1351	sdgr7		
iordr2_0_30	raw1591	sdgr8		
istok_0_30	raw1831	sdgr9		
stok_0_151	raw152	sdgs1		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_36	raw37	sdbj1	0	16
stok_0_276	raw277	sdbj2		
cust_0_36	raw517	sdbj3		
cust_0_276	raw757	sdbj5		
ordr_0_36	raw997	sdbj6		
hist_0_36	raw1237	sdbj7		
icust2_0_36	raw1477	sdbj8		
temp_0_36	raw1717	sdbj9		
stok_0_37	raw38	sdbk1		
stok_0_277	raw278	sdbk2		
cust_0_37	raw518	sdbk3		
cust_0_277	raw758	sdbk5		
ordr_0_37	raw998	sdbk6		
hist_0_37	raw1238	sdbk7		
icust2_0_37	raw1478	sdbk8		
temp_0_37	raw1718	sdbk9		
stok_0_38	raw39	sdbl1	0	16
stok_0_278	raw279	sdbl2		
cust_0_38	raw519	sdbl3		
cust_0_278	raw759	sdbl5		
ordr_0_38	raw999	sdbl6		
hist_0_38	raw1239	sdbl7		
icust2_0_38	raw1479	sdbl8		
temp_0_38	raw1719	sdbl9		
stok_0_39	raw40	sdbm1		
stok_0_279	raw280	sdbm2		
cust_0_39	raw520	sdbm3		
cust_0_279	raw760	sdbm5		
ordr_0_39	raw1000	sdbm6		
hist_0_39	raw1240	sdbm7		
icust2_0_39	raw1480	sdbm8		
temp_0_39	raw1720	sdbm9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_391	raw392	sdgs2	0	16
cust_0_151	raw632	sdgs3		
cust_0_391	raw872	sdgs5		
ordr_0_151	raw1112	sdgs6		
nord_0_31	raw1352	sdgs7		
iordr2_0_31	raw1592	sdgs8		
istok_0_31	raw1832	sdgs9		
stok_0_152	raw153	sdgt1		
stok_0_392	raw393	sdgt2		
cust_0_152	raw633	sdgt3		
cust_0_392	raw873	sdgt5		
ordr_0_152	raw1113	sdgt6		
nord_0_32	raw1353	sdgt7		
iordr2_0_32	raw1593	sdgt8		
istok_0_32	raw1833	sdgt9		
stok_0_153	raw154	sdgu1	0	16
stok_0_393	raw394	sdgu2		
cust_0_153	raw634	sdgu3		
cust_0_393	raw874	sdgu5		
ordr_0_153	raw1114	sdgu6		
nord_0_33	raw1354	sdgu7		
iordr2_0_33	raw1594	sdgu8		
istok_0_33	raw1834	sdgu9		
stok_0_154	raw155	sdgv1		
stok_0_394	raw395	sdgv2		
cust_0_154	raw635	sdgv3		
cust_0_394	raw875	sdgv5		
ordr_0_154	raw1115	sdgv6		
nord_0_34	raw1355	sdgv7		
iordr2_0_34	raw1595	sdgv8		
istok_0_34	raw1835	sdgv9		
stok_0_317	raw318	sdcy2		
stok_0_155	raw156	sdgw1		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_40	raw41	sdbn1	0	16
stok_0_280	raw281	sdbn2		
cust_0_40	raw521	sdbn3		
cust_0_280	raw761	sdbn5		
ordr_0_40	raw1001	sdbn6		
hist_0_40	raw1241	sdbn7		
icust2_0_40	raw1481	sdbn8		
temp_0_40	raw1721	sdbn9		
stok_0_41	raw42	sdbo1		
stok_0_281	raw282	sdbo2		
cust_0_41	raw522	sdbo3		
cust_0_281	raw762	sdbo5		
ordr_0_41	raw1002	sdbo6		
hist_0_41	raw1242	sdbo7		
icust2_0_41	raw1482	sdbo8		
temp_0_41	raw1722	sdbo9		
stok_0_42	raw43	sdbp1	0	16
stok_0_282	raw283	sdbp2		
cust_0_42	raw523	sdbp3		
cust_0_282	raw763	sdbp5		
ordr_0_42	raw1003	sdbp6		
hist_0_42	raw1243	sdbp7		
icust2_0_42	raw1483	sdbp8		
temp_0_42	raw1723	sdbp9		
stok_0_43	raw44	sdbq1		
stok_0_283	raw284	sdbq2		
cust_0_43	raw524	sdbq3		
cust_0_283	raw764	sdbq5		
ordr_0_43	raw1004	sdbq6		
hist_0_43	raw1244	sdbq7		
icust2_0_43	raw1484	sdbq8		
temp_0_43	raw1724	sdbq9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_395	raw396	sdgw2	0	16
cust_0_155	raw636	sdgw3		
cust_0_395	raw876	sdgw5		
ordr_0_155	raw1116	sdgw6		
nord_0_35	raw1356	sdgw7		
iordr2_0_35	raw1596	sdgw8		
istok_0_35	raw1836	sdgw9		
stok_0_156	raw157	sdgx1		
stok_0_396	raw397	sdgx2		
cust_0_156	raw637	sdgx3		
cust_0_396	raw877	sdgx5		
ordr_0_156	raw1117	sdgx6		
nord_0_36	raw1357	sdgx7		
iordr2_0_36	raw1597	sdgx8		
istok_0_36	raw1837	sdgx9		
stok_0_157	raw158	sdgy1	0	16
stok_0_397	raw398	sdgy2		
cust_0_157	raw638	sdgy3		
cust_0_397	raw878	sdgy5		
ordr_0_157	raw1118	sdgy6		
nord_0_37	raw1358	sdgy7		
iordr2_0_37	raw1598	sdgy8		
istok_0_37	raw1838	sdgy9		
stok_0_158	raw159	sdgz1		
stok_0_398	raw399	sdgz2		
cust_0_158	raw639	sdgz3		
cust_0_398	raw879	sdgz5		
ordr_0_158	raw1119	sdgz6		
nord_0_38	raw1359	sdgz7		
iordr2_0_38	raw1599	sdgz8		
istok_0_38	raw1839	sdgz9		
stok_0_6	raw7	sdh1		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_44	raw45	sdbr1	0	16
stok_0_284	raw285	sdbr2		
cust_0_44	raw525	sdbr3		
cust_0_284	raw765	sdbr5		
ordr_0_44	raw1005	sdbr6		
hist_0_44	raw1245	sdbr7		
icust2_0_44	raw1485	sdbr8		
temp_0_44	raw1725	sdbr9		
stok_0_45	raw46	sdbs1		
stok_0_285	raw286	sdbs2		
cust_0_45	raw526	sdbs3		
cust_0_285	raw766	sdbs5		
ordr_0_45	raw1006	sdbs6		
hist_0_45	raw1246	sdbs7		
icust2_0_45	raw1486	sdbs8		
temp_0_45	raw1726	sdbs9		
stok_0_46	raw47	sdbt1	0	16
stok_0_286	raw287	sdbt2		
cust_0_46	raw527	sdbt3		
cust_0_286	raw767	sdbt5		
ordr_0_46	raw1007	sdbt6		
hist_0_46	raw1247	sdbt7		
icust2_0_46	raw1487	sdbt8		
temp_0_46	raw1727	sdbt9		
stok_0_47	raw48	sdbu1		
stok_0_287	raw288	sdbu2		
cust_0_47	raw528	sdbu3		
cust_0_287	raw768	sdbu5		
ordr_0_47	raw1008	sdbu6		
hist_0_47	raw1248	sdbu7		
icust2_0_47	raw1488	sdbu8		
temp_0_47	raw1728	sdbu9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_246	raw247	sdh2	0	16
cust_0_6	raw487	sdh3		
cust_0_246	raw727	sdh5		
ordr_0_6	raw967	sdh6		
hist_0_6	raw1207	sdh7		
icust2_0_6	raw1447	sdh8		
temp_0_6	raw1687	sdh9		
stok_0_159	raw160	sdha1		
stok_0_399	raw400	sdha2		
cust_0_159	raw640	sdha3		
cust_0_399	raw880	sdha5		
ordr_0_159	raw1120	sdha6		
nord_0_39	raw1360	sdha7		
iordr2_0_39	raw1600	sdha8		
istok_0_39	raw1840	sdha9		
stok_0_160	raw161	sdhb1	0	16
stok_0_400	raw401	sdhb2		
cust_0_160	raw641	sdhb3		
cust_0_400	raw881	sdhb5		
ordr_0_160	raw1121	sdhb6		
nord_0_40	raw1361	sdhb7		
iordr2_0_40	raw1601	sdhb8		
istok_0_40	raw1841	sdhb9		
stok_0_161	raw162	sdhc1		
stok_0_401	raw402	sdhc2		
cust_0_161	raw642	sdhc3		
cust_0_401	raw882	sdhc5		
ordr_0_161	raw1122	sdhc6		
nord_0_41	raw1362	sdhc7		
iordr2_0_41	raw1602	sdhc8		
istok_0_41	raw1842	sdhc9		
stok_0_162	raw163	sdhd1		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_48	raw49	sdbv1	0	16
stok_0_288	raw289	sdbv2		
cust_0_48	raw529	sdbv3		
cust_0_288	raw769	sdbv5		
ordr_0_48	raw1009	sdbv6		
hist_0_48	raw1249	sdbv7		
icust2_0_48	raw1489	sdbv8		
temp_0_48	raw1729	sdbv9		
stok_0_49	raw50	sdbw1		
stok_0_289	raw290	sdbw2		
cust_0_49	raw530	sdbw3		
cust_0_289	raw770	sdbw5		
ordr_0_49	raw1010	sdbw6		
hist_0_49	raw1250	sdbw7		
icust2_0_49	raw1490	sdbw8		
temp_0_49	raw1730	sdbw9		
stok_0_50	raw51	sdbx1	0	16
stok_0_290	raw291	sdbx2		
cust_0_50	raw531	sdbx3		
cust_0_290	raw771	sdbx5		
ordr_0_50	raw1011	sdbx6		
hist_0_50	raw1251	sdbx7		
icust2_0_50	raw1491	sdbx8		
temp_0_50	raw1731	sdbx9		
stok_0_51	raw52	sdby1		
stok_0_291	raw292	sdby2		
cust_0_51	raw532	sdby3		
cust_0_291	raw772	sdby5		
ordr_0_51	raw1012	sdby6		
hist_0_51	raw1252	sdby7		
icust2_0_51	raw1492	sdby8		
temp_0_51	raw1732	sdby9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_402	raw403	sdhd2	0	16
cust_0_162	raw643	sdhd3		
cust_0_402	raw883	sdhd5		
ordr_0_162	raw1123	sdhd6		
nord_0_42	raw1363	sdhd7		
iordr2_0_42	raw1603	sdhd8		
istok_0_42	raw1843	sdhd9		
stok_0_163	raw164	sdhe1		
stok_0_403	raw404	sdhe2		
cust_0_163	raw644	sdhe3		
cust_0_403	raw884	sdhe5		
ordr_0_163	raw1124	sdhe6		
nord_0_43	raw1364	sdhe7		
iordr2_0_43	raw1604	sdhe8		
istok_0_43	raw1844	sdhe9		
stok_0_164	raw165	sdhf1	0	16
stok_0_404	raw405	sdhf2		
cust_0_164	raw645	sdhf3		
cust_0_404	raw885	sdhf5		
ordr_0_164	raw1125	sdhf6		
nord_0_44	raw1365	sdhf7		
iordr2_0_44	raw1605	sdhf8		
istok_0_44	raw1845	sdhf9		
stok_0_165	raw166	sdhg1		
stok_0_405	raw406	sdhg2		
cust_0_165	raw646	sdhg3		
cust_0_405	raw886	sdhg5		
ordr_0_165	raw1126	sdhg6		
nord_0_45	raw1366	sdhg7		
iordr2_0_45	raw1606	sdhg8		
istok_0_45	raw1846	sdhg9		
stok_0_166	raw167	sdhh1		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_55	raw56	sdcc1	0	16
stok_0_295	raw296	sdcc2		
cust_0_55	raw536	sdcc3		
cust_0_295	raw776	sdcc5		
ordr_0_55	raw1016	sdcc6		
hist_0_55	raw1256	sdcc7		
icust2_0_55	raw1496	sdcc8		
temp_0_55	raw1736	sdcc9		
stok_0_56	raw57	sdcd1		
stok_0_296	raw297	sdcd2		
cust_0_56	raw537	sdcd3		
cust_0_296	raw777	sdcd5		
ordr_0_56	raw1017	sdcd6		
hist_0_56	raw1257	sdcd7		
icust2_0_56	raw1497	sdcd8		
temp_0_56	raw1737	sdcd9		
stok_0_57	raw58	sdce1	0	16
stok_0_297	raw298	sdce2		
cust_0_57	raw538	sdce3		
cust_0_297	raw778	sdce5		
ordr_0_57	raw1018	sdce6		
hist_0_57	raw1258	sdce7		
icust2_0_57	raw1498	sdce8		
temp_0_57	raw1738	sdce9		
stok_0_58	raw59	sdcf1		
stok_0_298	raw299	sdcf2		
cust_0_58	raw539	sdcf3		
cust_0_298	raw779	sdcf5		
ordr_0_58	raw1019	sdcf6		
hist_0_58	raw1259	sdcf7		
icust2_0_58	raw1499	sdcf8		
temp_0_58	raw1739	sdcf9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_170	raw651	sdhl3	0	16
cust_0_410	raw891	sdhl5		
ordr_0_170	raw1131	sdhl6		
nord_0_50	raw1371	sdhl7		
iordr2_0_50	raw1611	sdhl8		
istok_0_50	raw1851	sdhl9		
stok_0_171	raw172	sdhm1		
stok_0_411	raw412	sdhm2		
cust_0_171	raw652	sdhm3		
cust_0_411	raw892	sdhm5		
ordr_0_171	raw1132	sdhm6		
nord_0_51	raw1372	sdhm7		
iordr2_0_51	raw1612	sdhm8		
istok_0_51	raw1852	sdhm9		
stok_0_172	raw173	sdhn1	0	16
stok_0_412	raw413	sdhn2		
cust_0_172	raw653	sdhn3		
cust_0_412	raw893	sdhn5		
ordr_0_172	raw1133	sdhn6		
nord_0_52	raw1373	sdhn7		
iordr2_0_52	raw1613	sdhn8		
istok_0_52	raw1853	sdhn9		
stok_0_173	raw174	sdho1		
stok_0_413	raw414	sdho2		
cust_0_173	raw654	sdho3		
cust_0_413	raw894	sdho5		
ordr_0_173	raw1134	sdho6		
nord_0_53	raw1374	sdho7		
iordr2_0_53	raw1614	sdho8		
istok_0_53	raw1854	sdho9		
stok_0_174	raw175	sdhp1		
stok_0_414	raw415	sdhp2		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_59	raw60	sdcg1	0	16
stok_0_299	raw300	sdcg2		
cust_0_59	raw540	sdcg3		
cust_0_299	raw780	sdcg5		
ordr_0_59	raw1020	sdcg6		
hist_0_59	raw1260	sdcg7		
icust2_0_59	raw1500	sdcg8		
temp_0_59	raw1740	sdcg9		
stok_0_60	raw61	sdch1		
stok_0_300	raw301	sdch2		
cust_0_60	raw541	sdch3		
cust_0_300	raw781	sdch5		
ordr_0_60	raw1021	sdch6		
hist_0_60	raw1261	sdch7		
icust2_0_60	raw1501	sdch8		
temp_0_60	raw1741	sdch9		
stok_0_61	raw62	sdci1	0	16
stok_0_301	raw302	sdci2		
cust_0_61	raw542	sdci3		
cust_0_301	raw782	sdci5		
ordr_0_61	raw1022	sdci6		
hist_0_61	raw1262	sdci7		
icust2_0_61	raw1502	sdci8		
temp_0_61	raw1742	sdci9		
stok_0_62	raw63	sdcj1		
stok_0_302	raw303	sdcj2		
cust_0_62	raw543	sdcj3		
cust_0_302	raw783	sdcj5		
ordr_0_62	raw1023	sdcj6		
hist_0_62	raw1263	sdcj7		
icust2_0_62	raw1503	sdcj8		
temp_0_62	raw1743	sdcj9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_174	raw655	sdhp3	0	16
cust_0_414	raw895	sdhp5		
ordr_0_174	raw1135	sdhp6		
nord_0_54	raw1375	sdhp7		
iordr2_0_54	raw1615	sdhp8		
istok_0_54	raw1855	sdhp9		
stok_0_175	raw176	sdhq1		
stok_0_415	raw416	sdhq2		
cust_0_175	raw656	sdhq3		
cust_0_415	raw896	sdhq5		
ordr_0_175	raw1136	sdhq6		
nord_0_55	raw1376	sdhq7		
iordr2_0_55	raw1616	sdhq8		
istok_0_55	raw1856	sdhq9		
stok_0_176	raw177	sdhr1	0	16
stok_0_416	raw417	sdhr2		
cust_0_176	raw657	sdhr3		
cust_0_416	raw897	sdhr5		
ordr_0_176	raw1137	sdhr6		
nord_0_56	raw1377	sdhr7		
iordr2_0_56	raw1617	sdhr8		
istok_0_56	raw1857	sdhr9		
stok_0_177	raw178	sdhs1		
stok_0_417	raw418	sdhs2		
cust_0_177	raw658	sdhs3		
cust_0_417	raw898	sdhs5		
ordr_0_177	raw1138	sdhs6		
nord_0_57	raw1378	sdhs7		
iordr2_0_57	raw1618	sdhs8		
istok_0_57	raw1858	sdhs9		
stok_0_178	raw179	sdht1		
stok_0_418	raw419	sdht2		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_63	raw64	sdck1	0	16
stok_0_303	raw304	sdck2		
cust_0_63	raw544	sdck3		
cust_0_303	raw784	sdck5		
ordr_0_63	raw1024	sdck6		
hist_0_63	raw1264	sdck7		
icust2_0_63	raw1504	sdck8		
temp_0_63	raw1744	sdck9		
stok_0_64	raw65	sdcl1		
stok_0_304	raw305	sdcl2		
cust_0_64	raw545	sdcl3		
cust_0_304	raw785	sdcl5		
ordr_0_64	raw1025	sdcl6		
hist_0_64	raw1265	sdcl7		
icust2_0_64	raw1505	sdcl8		
temp_0_64	raw1745	sdcl9		
stok_0_65	raw66	sdcm1	0	16
stok_0_305	raw306	sdcm2		
cust_0_65	raw546	sdcm3		
cust_0_305	raw786	sdcm5		
ordr_0_65	raw1026	sdcm6		
hist_0_65	raw1266	sdcm7		
icust2_0_65	raw1506	sdcm8		
temp_0_65	raw1746	sdcm9		
stok_0_66	raw67	sdcn1		
stok_0_306	raw307	sdcn2		
cust_0_66	raw547	sdcn3		
cust_0_306	raw787	sdcn5		
ordr_0_66	raw1027	sdcn6		
hist_0_66	raw1267	sdcn7		
icust2_0_66	raw1507	sdcn8		
temp_0_66	raw1747	sdcn9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_178	raw659	sdht3	0	16
cust_0_418	raw899	sdht5		
ordr_0_178	raw1139	sdht6		
nord_0_58	raw1379	sdht7		
iordr2_0_58	raw1619	sdht8		
istok_0_58	raw1859	sdht9		
stok_0_179	raw180	sdhu1		
stok_0_419	raw420	sdhu2		
cust_0_179	raw660	sdhu3		
cust_0_419	raw900	sdhu5		
ordr_0_179	raw1140	sdhu6		
nord_0_59	raw1380	sdhu7		
iordr2_0_59	raw1620	sdhu8		
istok_0_59	raw1860	sdhu9		
stok_0_180	raw181	sdhv1	0	16
stok_0_420	raw421	sdhv2		
cust_0_180	raw661	sdhv3		
cust_0_420	raw901	sdhv5		
ordr_0_180	raw1141	sdhv6		
nord_0_60	raw1381	sdhv7		
iordr2_0_60	raw1621	sdhv8		
icust1_0_0	raw1861	sdhv9		
stok_0_181	raw182	sdhw1		
stok_0_421	raw422	sdhw2		
cust_0_181	raw662	sdhw3		
cust_0_421	raw902	sdhw5		
ordr_0_181	raw1142	sdhw6		
nord_0_61	raw1382	sdhw7		
iordr2_0_61	raw1622	sdhw8		
icust1_0_1	raw1862	sdhw9		
stok_0_182	raw183	sdhx1		
stok_0_422	raw423	sdhx2		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_67	raw68	sdco1	0	16
stok_0_307	raw308	sdco2		
cust_0_67	raw548	sdco3		
cust_0_307	raw788	sdco5		
ordr_0_67	raw1028	sdco6		
hist_0_67	raw1268	sdco7		
icust2_0_67	raw1508	sdco8		
temp_0_67	raw1748	sdco9		
stok_0_68	raw69	sdcp1		
stok_0_308	raw309	sdcp2		
cust_0_68	raw549	sdcp3		
cust_0_308	raw789	sdcp5		
ordr_0_68	raw1029	sdcp6		
hist_0_68	raw1269	sdcp7		
icust2_0_68	raw1509	sdcp8		
temp_0_68	raw1749	sdcp9		
stok_0_69	raw70	sdcq1	0	16
stok_0_309	raw310	sdcq2		
cust_0_69	raw550	sdcq3		
cust_0_309	raw790	sdcq5		
ordr_0_69	raw1030	sdcq6		
hist_0_69	raw1270	sdcq7		
icust2_0_69	raw1510	sdcq8		
temp_0_69	raw1750	sdcq9		
stok_0_70	raw71	sdcr1		
stok_0_310	raw311	sdcr2		
cust_0_70	raw551	sdcr3		
cust_0_310	raw791	sdcr5		
ordr_0_70	raw1031	sdcr6		
hist_0_70	raw1271	sdcr7		
icust2_0_70	raw1511	sdcr8		
temp_0_70	raw1751	sdcr9		
cust_0_182	raw663	sdhx3	0	16
cust_0_422	raw903	sdhx5		
ordr_0_182	raw1143	sdhx6		
nord_0_62	raw1383	sdhx7		
iordr2_0_62	raw1623	sdhx8		
icust1_0_2	raw1863	sdhx9		
stok_0_183	raw184	sdhy1		
stok_0_423	raw424	sdhy2		
cust_0_183	raw664	sdhy3		
cust_0_423	raw904	sdhy5		
ordr_0_183	raw1144	sdhy6		
nord_0_63	raw1384	sdhy7		
iordr2_0_63	raw1624	sdhy8		
icust1_0_3	raw1864	sdhy9		
stok_0_184	raw185	sdhz1	0	16
stok_0_424	raw425	sdhz2		
cust_0_184	raw665	sdhz3		
cust_0_424	raw905	sdhz5		
ordr_0_184	raw1145	sdhz6		
nord_0_64	raw1385	sdhz7		
iordr2_0_64	raw1625	sdhz8		
icust1_0_4	raw1865	sdhz9		
stok_0_7	raw8	sdi1		
stok_0_247	raw248	sdi2		
cust_0_7	raw488	sdi3		
cust_0_247	raw728	sdi5		
ordr_0_7	raw968	sdi6		
hist_0_7	raw1208	sdi7		
icust2_0_7	raw1448	sdi8		
temp_0_7	raw1688	sdi9		
stok_0_185	raw186	sdia1		
stok_0_425	raw426	sdia2		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_71	raw72	sdcs1	0	16
stok_0_311	raw312	sdcs2		
cust_0_71	raw552	sdcs3		
cust_0_311	raw792	sdcs5		
ordr_0_71	raw1032	sdcs6		
hist_0_71	raw1272	sdcs7		
icust2_0_71	raw1512	sdcs8		
temp_0_71	raw1752	sdcs9		
stok_0_72	raw73	sdct1		
stok_0_312	raw313	sdct2		
cust_0_72	raw553	sdct3		
cust_0_312	raw793	sdct5		
ordr_0_72	raw1033	sdct6		
hist_0_72	raw1273	sdct7		
icust2_0_72	raw1513	sdct8		
temp_0_72	raw1753	sdct9		
stok_0_73	raw74	sdcu1	0	16
stok_0_313	raw314	sdcu2		
cust_0_73	raw554	sdcu3		
cust_0_313	raw794	sdcu5		
ordr_0_73	raw1034	sdcu6		
hist_0_73	raw1274	sdcu7		
icust2_0_73	raw1514	sdcu8		
temp_0_73	raw1754	sdcu9		
stok_0_74	raw75	sdcv1		
stok_0_314	raw315	sdcv2		
cust_0_74	raw555	sdcv3		
cust_0_314	raw795	sdcv5		
ordr_0_74	raw1035	sdcv6		
hist_0_74	raw1275	sdcv7		
icust2_0_74	raw1515	sdcv8		
temp_0_74	raw1755	sdcv9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_185	raw666	sdia3	0	16
cust_0_425	raw906	sdia5		
ordr_0_185	raw1146	sdia6		
nord_0_65	raw1386	sdia7		
iordr2_0_65	raw1626	sdia8		
icust1_0_5	raw1866	sdia9		
stok_0_186	raw187	sdib1		
stok_0_426	raw427	sdib2		
cust_0_186	raw667	sdib3		
cust_0_426	raw907	sdib5		
ordr_0_186	raw1147	sdib6		
nord_0_66	raw1387	sdib7		
iordr2_0_66	raw1627	sdib8		
icust1_0_6	raw1867	sdib9		
stok_0_187	raw188	sdic1	0	16
stok_0_427	raw428	sdic2		
cust_0_187	raw668	sdic3		
cust_0_427	raw908	sdic5		
ordr_0_187	raw1148	sdic6		
nord_0_67	raw1388	sdic7		
iordr2_0_67	raw1628	sdic8		
icust1_0_7	raw1868	sdic9		
stok_0_188	raw189	sdid1		
stok_0_428	raw429	sdid2		
cust_0_188	raw669	sdid3		
cust_0_428	raw909	sdid5		
ordr_0_188	raw1149	sdid6		
nord_0_68	raw1389	sdid7		
iordr2_0_68	raw1629	sdid8		
icust1_0_8	raw1869	sdid9		
stok_0_189	raw190	sdie1		
stok_0_429	raw430	sdie2		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_75	raw76	sdcw1	0	16
stok_0_315	raw316	sdcw2		
cust_0_75	raw556	sdcw3		
cust_0_315	raw796	sdcw5		
ordr_0_75	raw1036	sdcw6		
hist_0_75	raw1276	sdcw7		
icust2_0_75	raw1516	sdcw8		
temp_0_75	raw1756	sdcw9		
stok_0_76	raw77	sdcx1		
stok_0_316	raw317	sdcx2		
cust_0_76	raw557	sdcx3		
cust_0_316	raw797	sdcx5		
ordr_0_76	raw1037	sdcx6		
hist_0_76	raw1277	sdcx7		
icust2_0_76	raw1517	sdcx8		
temp_0_76	raw1757	sdcx9		
stok_0_77	raw78	sdcy1	0	16
cust_0_77	raw558	sdcy3		
cust_0_317	raw798	sdcy5		
ordr_0_77	raw1038	sdcy6		
hist_0_77	raw1278	sdcy7		
icust2_0_77	raw1518	sdcy8		
temp_0_77	raw1758	sdcy9		
stok_0_78	raw79	sdcz1		
stok_0_318	raw319	sdcz2		
cust_0_78	raw559	sdcz3		
cust_0_318	raw799	sdcz5		
ordr_0_78	raw1039	sdcz6		
hist_0_78	raw1279	sdcz7		
icust2_0_78	raw1519	sdcz8		
temp_0_78	raw1759	sdcz9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_189	raw670	sdie3	0	16
cust_0_429	raw910	sdie5		
ordr_0_189	raw1150	sdie6		
nord_0_69	raw1390	sdie7		
iordr2_0_69	raw1630	sdie8		
icust1_0_9	raw1870	sdie9		
stok_0_190	raw191	sdif1		
stok_0_430	raw431	sdif2		
cust_0_190	raw671	sdif3		
cust_0_430	raw911	sdif5		
ordr_0_190	raw1151	sdif6		
nord_0_70	raw1391	sdif7		
iordr2_0_70	raw1631	sdif8		
icust1_0_10	raw1871	sdif9		
stok_0_191	raw192	sdig1	0	16
stok_0_431	raw432	sdig2		
cust_0_191	raw672	sdig3		
cust_0_431	raw912	sdig5		
ordr_0_191	raw1152	sdig6		
nord_0_71	raw1392	sdig7		
iordr2_0_71	raw1632	sdig8		
icust1_0_11	raw1872	sdig9		
stok_0_192	raw193	sdih1		
stok_0_432	raw433	sdih2		
cust_0_192	raw673	sdih3		
cust_0_432	raw913	sdih5		
ordr_0_192	raw1153	sdih6		
nord_0_72	raw1393	sdih7		
iordr2_0_72	raw1633	sdih8		
icust1_0_12	raw1873	sdih9		
stok_0_193	raw194	sdii1		
stok_0_433	raw434	sdii2		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_2	raw3	sdd1	0	16
stok_0_242	raw243	sdd2		
cust_0_2	raw483	sdd3		
cust_0_242	raw723	sdd5		
ordr_0_2	raw963	sdd6		
hist_0_2	raw1203	sdd7		
icust2_0_2	raw1443	sdd8		
temp_0_2	raw1683	sdd9		
stok_0_79	raw80	sdda1		
stok_0_319	raw320	sdda2		
cust_0_79	raw560	sdda3		
cust_0_319	raw800	sdda5		
ordr_0_79	raw1040	sdda6		
hist_0_79	raw1280	sdda7		
icust2_0_79	raw1520	sdda8		
temp_0_79	raw1760	sdda9		
stok_0_80	raw81	sddz1	0	16
stok_0_320	raw321	sddz2		
cust_0_80	raw561	sddz3		
cust_0_320	raw801	sddz5		
ordr_0_80	raw1041	sddz6		
hist_0_80	raw1281	sddz7		
icust2_0_80	raw1521	sddz8		
temp_0_80	raw1761	sddz9		
stok_0_3	raw4	sde1		
idist_0_0	raw1924	sde10		
stok_0_243	raw244	sde2		
cust_0_3	raw484	sde3		
cust_0_243	raw724	sde5		
ordr_0_3	raw964	sde6		
hist_0_3	raw1204	sde7		
icust2_0_3	raw1444	sde8		
temp_0_3	raw1684	sde9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_193	raw674	sdii3	0	16
cust_0_433	raw914	sdii5		
ordr_0_193	raw1154	sdii6		
nord_0_73	raw1394	sdii7		
iordr2_0_73	raw1634	sdii8		
icust1_0_13	raw1874	sdii9		
stok_0_194	raw195	sdij1		
stok_0_434	raw435	sdij2		
cust_0_194	raw675	sdij3		
cust_0_434	raw915	sdij5		
ordr_0_194	raw1155	sdij6		
nord_0_74	raw1395	sdij7		
iordr2_0_74	raw1635	sdij8		
icust1_0_14	raw1875	sdij9		
stok_0_195	raw196	sdik1	0	16
stok_0_435	raw436	sdik2		
cust_0_195	raw676	sdik3		
cust_0_435	raw916	sdik5		
ordr_0_195	raw1156	sdik6		
nord_0_75	raw1396	sdik7		
iordr2_0_75	raw1636	sdik8		
icust1_0_15	raw1876	sdik9		
stok_0_196	raw197	sdil1		
stok_0_436	raw437	sdil2		
cust_0_196	raw677	sdil3		
cust_0_436	raw917	sdil5		
ordr_0_196	raw1157	sdil6		
nord_0_76	raw1397	sdil7		
iordr2_0_76	raw1637	sdil8		
icust1_0_16	raw1877	sdil9		
stok_0_197	raw198	sdim1		
stok_0_437	raw438	sdim2		
cust_0_197	raw678	sdim3		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_81	raw82	sdea1	0	16
stok_0_321	raw322	sdea2		
cust_0_81	raw562	sdea3		
cust_0_321	raw802	sdea5		
ordr_0_81	raw1042	sdea6		
hist_0_81	raw1282	sdea7		
icust2_0_81	raw1522	sdea8		
temp_0_81	raw1762	sdea9		
stok_0_82	raw83	sdeb1		
stok_0_322	raw323	sdeb2		
cust_0_82	raw563	sdeb3		
cust_0_322	raw803	sdeb5		
ordr_0_82	raw1043	sdeb6		
hist_0_82	raw1283	sdeb7		
icust2_0_82	raw1523	sdeb8		
temp_0_82	raw1763	sdeb9		
stok_0_83	raw84	sdec1	0	16
stok_0_323	raw324	sdec2		
cust_0_83	raw564	sdec3		
cust_0_323	raw804	sdec5		
ordr_0_83	raw1044	sdec6		
hist_0_83	raw1284	sdec7		
icust2_0_83	raw1524	sdec8		
temp_0_83	raw1764	sdec9		
stok_0_84	raw85	sded1		
stok_0_324	raw325	sded2		
cust_0_84	raw565	sded3		
cust_0_324	raw805	sded5		
ordr_0_84	raw1045	sded6		
hist_0_84	raw1285	sded7		
icust2_0_84	raw1525	sded8		
temp_0_84	raw1765	sded9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_437	raw918	sdim5	0	16
ordr_0_197	raw1158	sdim6		
nord_0_77	raw1398	sdim7		
iordr2_0_77	raw1638	sdim8		
icust1_0_17	raw1878	sdim9		
stok_0_198	raw199	sdin1		
stok_0_438	raw439	sdin2		
cust_0_198	raw679	sdin3		
cust_0_438	raw919	sdin5		
ordr_0_198	raw1159	sdin6		
nord_0_78	raw1399	sdin7		
iordr2_0_78	raw1639	sdin8		
icust1_0_18	raw1879	sdin9		
stok_0_199	raw200	sdio1	0	16
stok_0_439	raw440	sdio2		
cust_0_199	raw680	sdio3		
cust_0_439	raw920	sdio5		
ordr_0_199	raw1160	sdio6		
nord_0_79	raw1400	sdio7		
iordr2_0_79	raw1640	sdio8		
icust1_0_19	raw1880	sdio9		
stok_0_200	raw201	sdip1		
stok_0_440	raw441	sdip2		
cust_0_200	raw681	sdip3		
cust_0_440	raw921	sdip5		
ordr_0_200	raw1161	sdip6		
nord_0_80	raw1401	sdip7		
iordr2_0_80	raw1641	sdip8		
icust1_0_20	raw1881	sdip9		
stok_0_201	raw202	sdiq1		
stok_0_441	raw442	sdiq2		
cust_0_201	raw682	sdiq3		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_85	raw86	sdee1	0	16
stok_0_325	raw326	sdee2		
cust_0_85	raw566	sdee3		
cust_0_325	raw806	sdee5		
ordr_0_85	raw1046	sdee6		
hist_0_85	raw1286	sdee7		
icust2_0_85	raw1526	sdee8		
temp_0_85	raw1766	sdee9		
stok_0_86	raw87	sdef1		
stok_0_326	raw327	sdef2		
cust_0_86	raw567	sdef3		
cust_0_326	raw807	sdef5		
ordr_0_86	raw1047	sdef6		
hist_0_86	raw1287	sdef7		
icust2_0_86	raw1527	sdef8		
temp_0_86	raw1767	sdef9		
stok_0_87	raw88	sdeg1	0	16
stok_0_327	raw328	sdeg2		
cust_0_87	raw568	sdeg3		
cust_0_327	raw808	sdeg5		
ordr_0_87	raw1048	sdeg6		
hist_0_87	raw1288	sdeg7		
icust2_0_87	raw1528	sdeg8		
temp_0_87	raw1768	sdeg9		
stok_0_88	raw89	sdeh1		
stok_0_328	raw329	sdeh2		
cust_0_88	raw569	sdeh3		
cust_0_328	raw809	sdeh5		
ordr_0_88	raw1049	sdeh6		
hist_0_88	raw1289	sdeh7		
icust2_0_88	raw1529	sdeh8		
temp_0_88	raw1769	sdeh9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_441	raw922	sdiq5	0	16
ordr_0_201	raw1162	sdiq6		
nord_0_81	raw1402	sdiq7		
iordr2_0_81	raw1642	sdiq8		
icust1_0_21	raw1882	sdiq9		
stok_0_202	raw203	sdir1		
stok_0_442	raw443	sdir2		
cust_0_202	raw683	sdir3		
cust_0_442	raw923	sdir5		
ordr_0_202	raw1163	sdir6		
nord_0_82	raw1403	sdir7		
iordr2_0_82	raw1643	sdir8		
icust1_0_22	raw1883	sdir9		
stok_0_203	raw204	sdis1	0	16
stok_0_443	raw444	sdis2		
cust_0_203	raw684	sdis3		
cust_0_443	raw924	sdis5		
ordr_0_203	raw1164	sdis6		
nord_0_83	raw1404	sdis7		
iordr2_0_83	raw1644	sdis8		
icust1_0_23	raw1884	sdis9		
stok_0_204	raw205	sdit1		
stok_0_444	raw445	sdit2		
cust_0_204	raw685	sdit3		
cust_0_444	raw925	sdit5		
ordr_0_204	raw1165	sdit6		
nord_0_84	raw1405	sdit7		
iordr2_0_84	raw1645	sdit8		
icust1_0_24	raw1885	sdit9		
stok_0_205	raw206	sdiu1		
stok_0_445	raw446	sdiu2		
cust_0_205	raw686	sdiu3		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_89	raw90	sdei1	0	16
stok_0_329	raw330	sdei2		
cust_0_89	raw570	sdei3		
cust_0_329	raw810	sdei5		
ordr_0_89	raw1050	sdei6		
hist_0_89	raw1290	sdei7		
icust2_0_89	raw1530	sdei8		
temp_0_89	raw1770	sdei9		
stok_0_90	raw91	sdej1		
stok_0_330	raw331	sdej2		
cust_0_90	raw571	sdej3		
cust_0_330	raw811	sdej5		
ordr_0_90	raw1051	sdej6		
hist_0_90	raw1291	sdej7		
icust2_0_90	raw1531	sdej8		
temp_0_90	raw1771	sdej9		
stok_0_91	raw92	sdek1	0	16
stok_0_331	raw332	sdek2		
cust_0_91	raw572	sdek3		
cust_0_331	raw812	sdek5		
ordr_0_91	raw1052	sdek6		
hist_0_91	raw1292	sdek7		
icust2_0_91	raw1532	sdek8		
temp_0_91	raw1772	sdek9		
stok_0_92	raw93	sdel1		
stok_0_332	raw333	sdel2		
cust_0_92	raw573	sdel3		
cust_0_332	raw813	sdel5		
ordr_0_92	raw1053	sdel6		
hist_0_92	raw1293	sdel7		
icust2_0_92	raw1533	sdel8		
temp_0_92	raw1773	sdel9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_445	raw926	sdiu5	0	16
ordr_0_205	raw1166	sdiu6		
nord_0_85	raw1406	sdiu7		
iordr2_0_85	raw1646	sdiu8		
icust1_0_25	raw1886	sdiu9		
stok_0_206	raw207	sdiv1		
stok_0_446	raw447	sdiv2		
cust_0_206	raw687	sdiv3		
cust_0_446	raw927	sdiv5		
ordr_0_206	raw1167	sdiv6		
nord_0_86	raw1407	sdiv7		
iordr2_0_86	raw1647	sdiv8		
icust1_0_26	raw1887	sdiv9		
stok_0_207	raw208	sdiw1	0	16
stok_0_447	raw448	sdiw2		
cust_0_207	raw688	sdiw3		
cust_0_447	raw928	sdiw5		
ordr_0_207	raw1168	sdiw6		
nord_0_87	raw1408	sdiw7		
iordr2_0_87	raw1648	sdiw8		
icust1_0_27	raw1888	sdiw9		
stok_0_208	raw209	sdix1		
stok_0_448	raw449	sdix2		
cust_0_208	raw689	sdix3		
cust_0_448	raw929	sdix5		
ordr_0_208	raw1169	sdix6		
nord_0_88	raw1409	sdix7		
iordr2_0_88	raw1649	sdix8		
icust1_0_28	raw1889	sdix9		
stok_0_209	raw210	sdiy1		
stok_0_449	raw450	sdiy2		
cust_0_209	raw690	sdiy3		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_93	raw94	sdem1	0	16
stok_0_333	raw334	sdem2		
cust_0_93	raw574	sdem3		
cust_0_333	raw814	sdem5		
ordr_0_93	raw1054	sdem6		
hist_0_93	raw1294	sdem7		
icust2_0_93	raw1534	sdem8		
temp_0_93	raw1774	sdem9		
stok_0_94	raw95	sden1		
stok_0_334	raw335	sden2		
cust_0_94	raw575	sden3		
cust_0_334	raw815	sden5		
ordr_0_94	raw1055	sden6		
hist_0_94	raw1295	sden7		
icust2_0_94	raw1535	sden8		
temp_0_94	raw1775	sden9		
stok_0_95	raw96	sdeo1	0	16
stok_0_335	raw336	sdeo2		
cust_0_95	raw576	sdeo3		
cust_0_335	raw816	sdeo5		
ordr_0_95	raw1056	sdeo6		
hist_0_95	raw1296	sdeo7		
icust2_0_95	raw1536	sdeo8		
temp_0_95	raw1776	sdeo9		
stok_0_96	raw97	sdep1		
stok_0_336	raw337	sdep2		
cust_0_96	raw577	sdep3		
cust_0_336	raw817	sdep5		
ordr_0_96	raw1057	sdep6		
hist_0_96	raw1297	sdep7		
icust2_0_96	raw1537	sdep8		
temp_0_96	raw1777	sdep9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_449	raw930	sdiy5	0	16
ordr_0_209	raw1170	sdiy6		
nord_0_89	raw1410	sdiy7		
iordr2_0_89	raw1650	sdiy8		
icust1_0_29	raw1890	sdiy9		
stok_0_210	raw211	sdiz1		
stok_0_450	raw451	sdiz2		
cust_0_210	raw691	sdiz3		
cust_0_450	raw931	sdiz5		
ordr_0_210	raw1171	sdiz6		
nord_0_90	raw1411	sdiz7		
iordr2_0_90	raw1651	sdiz8		
icust1_0_30	raw1891	sdiz9		
stok_0_8	raw9	sdj1	0	16
stok_0_248	raw249	sdj2		
cust_0_8	raw489	sdj3		
cust_0_248	raw729	sdj5		
ordr_0_8	raw969	sdj6		
hist_0_8	raw1209	sdj7		
icust2_0_8	raw1449	sdj8		
temp_0_8	raw1689	sdj9		
stok_0_211	raw212	sdja1		
stok_0_451	raw452	sdja2		
cust_0_211	raw692	sdja3		
cust_0_451	raw932	sdja5		
ordr_0_211	raw1172	sdja6		
nord_0_91	raw1412	sdja7		
iordr2_0_91	raw1652	sdja8		
icust1_0_31	raw1892	sdja9		
stok_0_212	raw213	sdjb1		
stok_0_452	raw453	sdjb2		
cust_0_212	raw693	sdjb3		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_97	raw98	sdeq1	0	16
stok_0_337	raw338	sdeq2		
cust_0_97	raw578	sdeq3		
cust_0_337	raw818	sdeq5		
ordr_0_97	raw1058	sdeq6		
hist_0_97	raw1298	sdeq7		
icust2_0_97	raw1538	sdeq8		
temp_0_97	raw1778	sdeq9		
stok_0_98	raw99	sder1		
stok_0_338	raw339	sder2		
cust_0_98	raw579	sder3		
cust_0_338	raw819	sder5		
ordr_0_98	raw1059	sder6		
hist_0_98	raw1299	sder7		
icust2_0_98	raw1539	sder8		
temp_0_98	raw1779	sder9		
stok_0_99	raw100	sdes1	0	16
stok_0_339	raw340	sdes2		
cust_0_99	raw580	sdes3		
cust_0_339	raw820	sdes5		
ordr_0_99	raw1060	sdes6		
hist_0_99	raw1300	sdes7		
icust2_0_99	raw1540	sdes8		
temp_0_99	raw1780	sdes9		
stok_0_100	raw101	sdet1		
stok_0_340	raw341	sdet2		
cust_0_100	raw581	sdet3		
cust_0_340	raw821	sdet5		
ordr_0_100	raw1061	sdet6		
hist_0_100	raw1301	sdet7		
icust2_0_100	raw1541	sdet8		
temp_0_100	raw1781	sdet9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_452	raw933	sdjb5	0	16
ordr_0_212	raw1173	sdjb6		
nord_0_92	raw1413	sdjb7		
iordr2_0_92	raw1653	sdjb8		
icust1_0_32	raw1893	sdjb9		
stok_0_213	raw214	sdjc1		
stok_0_453	raw454	sdjc2		
cust_0_213	raw694	sdjc3		
cust_0_453	raw934	sdjc5		
ordr_0_213	raw1174	sdjc6		
nord_0_93	raw1414	sdjc7		
iordr2_0_93	raw1654	sdjc8		
icust1_0_33	raw1894	sdjc9		
stok_0_214	raw215	sdjd1	0	16
stok_0_454	raw455	sdjd2		
cust_0_214	raw695	sdjd3		
cust_0_454	raw935	sdjd5		
ordr_0_214	raw1175	sdjd6		
nord_0_94	raw1415	sdjd7		
iordr2_0_94	raw1655	sdjd8		
icust1_0_34	raw1895	sdjd9		
stok_0_215	raw216	sdje1		
stok_0_455	raw456	sdje2		
cust_0_215	raw696	sdje3		
cust_0_455	raw936	sdje5		
ordr_0_215	raw1176	sdje6		
nord_0_95	raw1416	sdje7		
iordr2_0_95	raw1656	sdje8		
icust1_0_35	raw1896	sdje9		
stok_0_216	raw217	sdjf1		
stok_0_456	raw457	sdjf2		
cust_0_216	raw697	sdjf3		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_101	raw102	sdeu1	0	16
stok_0_341	raw342	sdeu2		
cust_0_101	raw582	sdeu3		
cust_0_341	raw822	sdeu5		
ordr_0_101	raw1062	sdeu6		
hist_0_101	raw1302	sdeu7		
icust2_0_101	raw1542	sdeu8		
temp_0_101	raw1782	sdeu9		
stok_0_102	raw103	sdev1		
stok_0_342	raw343	sdev2		
cust_0_102	raw583	sdev3		
cust_0_342	raw823	sdev5		
ordr_0_102	raw1063	sdev6		
hist_0_102	raw1303	sdev7		
icust2_0_102	raw1543	sdev8		
temp_0_102	raw1783	sdev9		
stok_0_103	raw104	sdew1	0	16
stok_0_343	raw344	sdew2		
cust_0_103	raw584	sdew3		
cust_0_343	raw824	sdew5		
ordr_0_103	raw1064	sdew6		
hist_0_103	raw1304	sdew7		
icust2_0_103	raw1544	sdew8		
temp_0_103	raw1784	sdew9		
stok_0_104	raw105	sdex1		
stok_0_344	raw345	sdex2		
cust_0_104	raw585	sdex3		
cust_0_344	raw825	sdex5		
ordr_0_104	raw1065	sdex6		
hist_0_104	raw1305	sdex7		
icust2_0_104	raw1545	sdex8		
temp_0_104	raw1785	sdex9		

datafile name	raw name	device name	RAID Level	# of Disk
cust_0_456	raw937	sdjf5	0	16
ordr_0_216	raw1177	sdjf6		
nord_0_96	raw1417	sdjf7		
iordr2_0_96	raw1657	sdjf8		
icust1_0_36	raw1897	sdjf9		
stok_0_217	raw218	sdjg1		
stok_0_457	raw458	sdjg2		
cust_0_217	raw698	sdjg3		
cust_0_457	raw938	sdjg5		
ordr_0_217	raw1178	sdjg6		
nord_0_97	raw1418	sdjg7		
iordr2_0_97	raw1658	sdjg8		
icust1_0_37	raw1898	sdjg9		
stok_0_218	raw219	sdjh1	0	16
stok_0_458	raw459	sdjh2		
cust_0_218	raw699	sdjh3		
cust_0_458	raw939	sdjh5		
ordr_0_218	raw1179	sdjh6		
nord_0_98	raw1419	sdjh7		
iordr2_0_98	raw1659	sdjh8		
icust1_0_38	raw1899	sdjh9		
stok_0_219	raw220	sdji1		
stok_0_459	raw460	sdji2		
cust_0_219	raw700	sdji3		
cust_0_459	raw940	sdji5		
ordr_0_219	raw1180	sdji6		
nord_0_99	raw1420	sdji7		
iordr2_0_99	raw1660	sdji8		
icust1_0_39	raw1900	sdji9		
stok_0_220	raw221	sdjj1		
stok_0_460	raw461	sdjj2		
cust_0_220	raw701	sdjj3		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_105	raw106	sdey1	0	16
stok_0_345	raw346	sdey2		
cust_0_105	raw586	sdey3		
cust_0_345	raw826	sdey5		
ordr_0_105	raw1066	sdey6		
hist_0_105	raw1306	sdey7		
icust2_0_105	raw1546	sdey8		
temp_0_105	raw1786	sdey9		
stok_0_106	raw107	sdez1		
stok_0_346	raw347	sdez2		
cust_0_106	raw587	sdez3		
cust_0_346	raw827	sdez5		
ordr_0_106	raw1067	sdez6		
hist_0_106	raw1307	sdez7		
icust2_0_106	raw1547	sdez8		
temp_0_106	raw1787	sdez9		
stok_0_4	raw5	sdf1	0	16
item_0_0	raw1925	sdf10		
stok_0_244	raw245	sdf2		
cust_0_4	raw485	sdf3		
cust_0_244	raw725	sdf5		
ordr_0_4	raw965	sdf6		
hist_0_4	raw1205	sdf7		
icust2_0_4	raw1445	sdf8		
temp_0_4	raw1685	sdf9		
stok_0_107	raw108	sdfa1		
stok_0_347	raw348	sdfa2		
cust_0_107	raw588	sdfa3		
cust_0_347	raw828	sdfa5		
ordr_0_107	raw1068	sdfa6		
hist_0_107	raw1308	sdfa7		
icust2_0_107	raw1548	sdfa8		
temp_0_107	raw1788	sdfa9		
cust_0_460	raw941	sdjj5	0	16
ordr_0_220	raw1181	sdjj6		
nord_0_100	raw1421	sdjj7		
iordr2_0_100	raw1661	sdjj8		
icust1_0_40	raw1901	sdjj9		
stok_0_221	raw222	sdjk1		
stok_0_461	raw462	sdjk2		
cust_0_221	raw702	sdjk3		
cust_0_461	raw942	sdjk5		
ordr_0_221	raw1182	sdjk6		
nord_0_101	raw1422	sdjk7		
iordr2_0_101	raw1662	sdjk8		
icust1_0_41	raw1902	sdjk9		
stok_0_9	raw10	sdk1	0	16
stok_0_249	raw250	sdk2		
cust_0_9	raw490	sdk3		
cust_0_249	raw730	sdk5		
ordr_0_9	raw970	sdk6		
hist_0_9	raw1210	sdk7		
icust2_0_9	raw1450	sdk8		
temp_0_9	raw1690	sdk9		
stok_0_222	raw223	sdki1		
stok_0_462	raw463	sdki2		
cust_0_222	raw703	sdki3		
cust_0_462	raw943	sdki5		
ordr_0_222	raw1183	sdki6		
nord_0_102	raw1423	sdki7		
iordr2_0_102	raw1663	sdki8		
icust1_0_42	raw1903	sdki9		
stok_0_223	raw224	sdkj1		
stok_0_463	raw464	sdkj2		
cust_0_223	raw704	sdkj3		
cust_0_463	raw944	sdkj5		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_108	raw109	sdfb1	0	16
stok_0_348	raw349	sdfb2		
cust_0_108	raw589	sdfb3		
cust_0_348	raw829	sdfb5		
ordr_0_108	raw1069	sdfb6		
hist_0_108	raw1309	sdfb7		
icust2_0_108	raw1549	sdfb8		
temp_0_108	raw1789	sdfb9		
stok_0_109	raw110	sdfc1		
stok_0_349	raw350	sdfc2		
cust_0_109	raw590	sdfc3		
cust_0_349	raw830	sdfc5		
ordr_0_109	raw1070	sdfc6		
hist_0_109	raw1310	sdfc7		
icust2_0_109	raw1550	sdfc8		
temp_0_109	raw1790	sdfc9		
stok_0_110	raw111	sdfd1	0	16
stok_0_350	raw351	sdfd2		
cust_0_110	raw591	sdfd3		
cust_0_350	raw831	sdfd5		
ordr_0_110	raw1071	sdfd6		
hist_0_110	raw1311	sdfd7		
icust2_0_110	raw1551	sdfd8		
temp_0_110	raw1791	sdfd9		
stok_0_111	raw112	sdfe1		
stok_0_351	raw352	sdfe2		
cust_0_111	raw592	sdfe3		
cust_0_351	raw832	sdfe5		
ordr_0_111	raw1072	sdfe6		
hist_0_111	raw1312	sdfe7		
icust2_0_111	raw1552	sdfe8		
temp_0_111	raw1792	sdfe9		

datafile name	raw name	device name	RAID Level	# of Disk
ordr_0_223	raw1184	sdkj6	0	16
nord_0_103	raw1424	sdkj7		
iordr2_0_103	raw1664	sdkj8		
icust1_0_43	raw1904	sdkj9		
stok_0_224	raw225	sdkk1		
stok_0_464	raw465	sdkk2		
cust_0_224	raw705	sdkk3		
cust_0_464	raw945	sdkk5		
ordr_0_224	raw1185	sdkk6		
nord_0_104	raw1425	sdkk7		
iordr2_0_104	raw1665	sdkk8		
icust1_0_44	raw1905	sdkk9		
stok_0_225	raw226	sdkl1	0	16
stok_0_465	raw466	sdkl2		
cust_0_225	raw706	sdkl3		
cust_0_465	raw946	sdkl5		
ordr_0_225	raw1186	sdkl6		
nord_0_105	raw1426	sdkl7		
iordr2_0_105	raw1666	sdkl8		
icust1_0_45	raw1906	sdkl9		
stok_0_226	raw227	sdkm1		
stok_0_466	raw467	sdkm2		
cust_0_226	raw707	sdkm3		
cust_0_466	raw947	sdkm5		
ordr_0_226	raw1187	sdkm6		
nord_0_106	raw1427	sdkm7		
iordr2_0_106	raw1667	sdkm8		
icust1_0_46	raw1907	sdkm9		
stok_0_227	raw228	sdkn1		
stok_0_467	raw468	sdkn2		
cust_0_227	raw708	sdkn3		
cust_0_467	raw948	sdkn5		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_112	raw113	sdff1	0	16
stok_0_352	raw353	sdff2		
cust_0_112	raw593	sdff3		
cust_0_352	raw833	sdff5		
ordr_0_112	raw1073	sdff6		
hist_0_112	raw1313	sdff7		
icust2_0_112	raw1553	sdff8		
temp_0_112	raw1793	sdff9		
stok_0_113	raw114	sdfg1		
stok_0_353	raw354	sdfg2		
cust_0_113	raw594	sdfg3		
cust_0_353	raw834	sdfg5		
ordr_0_113	raw1074	sdfg6		
hist_0_113	raw1314	sdfg7		
icust2_0_113	raw1554	sdfg8		
temp_0_113	raw1794	sdfg9		
stok_0_114	raw115	sdfh1	0	16
stok_0_354	raw355	sdfh2		
cust_0_114	raw595	sdfh3		
cust_0_354	raw835	sdfh5		
ordr_0_114	raw1075	sdfh6		
hist_0_114	raw1315	sdfh7		
icust2_0_114	raw1555	sdfh8		
temp_0_114	raw1795	sdfh9		
stok_0_115	raw116	sdfi1		
stok_0_355	raw356	sdfi2		
cust_0_115	raw596	sdfi3		
cust_0_355	raw836	sdfi5		
ordr_0_115	raw1076	sdfi6		
hist_0_115	raw1316	sdfi7		
icust2_0_115	raw1556	sdfi8		
temp_0_115	raw1796	sdfi9		

datafile name	raw name	device name	RAID Level	# of Disk
ordr_0_227	raw1188	sdkn6	0	16
nord_0_107	raw1428	sdkn7		
iordr2_0_107	raw1668	sdkn8		
icust1_0_47	raw1908	sdkn9		
stok_0_228	raw229	sdko1		
stok_0_468	raw469	sdko2		
cust_0_228	raw709	sdko3		
cust_0_468	raw949	sdko5		
ordr_0_228	raw1189	sdko6		
nord_0_108	raw1429	sdko7		
iordr2_0_108	raw1669	sdko8		
icust1_0_48	raw1909	sdko9		
stok_0_229	raw230	sdkp1	0	16
stok_0_469	raw470	sdkp2		
cust_0_229	raw710	sdkp3		
cust_0_469	raw950	sdkp5		
ordr_0_229	raw1190	sdkp6		
nord_0_109	raw1430	sdkp7		
iordr2_0_109	raw1670	sdkp8		
icust1_0_49	raw1910	sdkp9		
stok_0_230	raw231	sdkq1		
stok_0_470	raw471	sdkq2		
cust_0_230	raw711	sdkq3		
cust_0_470	raw951	sdkq5		
ordr_0_230	raw1191	sdkq6		
nord_0_110	raw1431	sdkq7		
iordr2_0_110	raw1671	sdkq8		
icust1_0_50	raw1911	sdkq9		
stok_0_231	raw232	sdkr1		
stok_0_471	raw472	sdkr2		
cust_0_231	raw712	sdkr3		
cust_0_471	raw952	sdkr5		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_116	raw117	sdfj1	0	16
stok_0_356	raw357	sdfj2		
cust_0_116	raw597	sdfj3		
cust_0_356	raw837	sdfj5		
ordr_0_116	raw1077	sdfj6		
hist_0_116	raw1317	sdfj7		
icust2_0_116	raw1557	sdfj8		
temp_0_116	raw1797	sdfj9		
stok_0_117	raw118	sdfk1		
stok_0_357	raw358	sdfk2		
cust_0_117	raw598	sdfk3		
cust_0_357	raw838	sdfk5		
ordr_0_117	raw1078	sdfk6		
hist_0_117	raw1318	sdfk7		
icust2_0_117	raw1558	sdfk8		
temp_0_117	raw1798	sdfk9		
stok_0_118	raw119	sdfl1	0	16
stok_0_358	raw359	sdfl2		
cust_0_118	raw599	sdfl3		
cust_0_358	raw839	sdfl5		
ordr_0_118	raw1079	sdfl6		
hist_0_118	raw1319	sdfl7		
icust2_0_118	raw1559	sdfl8		
temp_0_118	raw1799	sdfl9		
stok_0_119	raw120	sdfm1		
stok_0_359	raw360	sdfm2		
cust_0_119	raw600	sdfm3		
cust_0_359	raw840	sdfm5		
ordr_0_119	raw1080	sdfm6		
hist_0_119	raw1320	sdfm7		
icust2_0_119	raw1560	sdfm8		
temp_0_119	raw1800	sdfm9		

datafile name	raw name	device name	RAID Level	# of Disk
ordr_0_231	raw1192	sdkr6	0	16
nord_0_111	raw1432	sdkr7		
iordr2_0_111	raw1672	sdkr8		
icust1_0_51	raw1912	sdkr9		
stok_0_232	raw233	sdks1		
stok_0_472	raw473	sdks2		
cust_0_232	raw713	sdks3		
cust_0_472	raw953	sdks5		
ordr_0_232	raw1193	sdks6		
nord_0_112	raw1433	sdks7		
iordr2_0_112	raw1673	sdks8		
icust1_0_52	raw1913	sdks9		
stok_0_233	raw234	sdkt1	0	16
stok_0_473	raw474	sdkt2		
cust_0_233	raw714	sdkt3		
cust_0_473	raw954	sdkt5		
ordr_0_233	raw1194	sdkt6		
nord_0_113	raw1434	sdkt7		
iordr2_0_113	raw1674	sdkt8		
icust1_0_53	raw1914	sdkt9		
stok_0_234	raw235	sdku1		
stok_0_474	raw475	sdku2		
cust_0_234	raw715	sdku3		
cust_0_474	raw955	sdku5		
ordr_0_234	raw1195	sdku6		
nord_0_114	raw1435	sdku7		
iordr2_0_114	raw1675	sdku8		
icust1_0_54	raw1915	sdku9		
stok_0_235	raw236	sdkv1		
stok_0_475	raw476	sdkv2		
cust_0_235	raw716	sdkv3		
cust_0_475	raw956	sdkv5		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_120	raw121	sdfn1	0	16
stok_0_360	raw361	sdfn2		
cust_0_120	raw601	sdfn3		
cust_0_360	raw841	sdfn5		
ordr_0_120	raw1081	sdfn6		
nord_0_0	raw1321	sdfn7		
iordr2_0_0	raw1561	sdfn8		
istok_0_0	raw1801	sdfn9		
stok_0_121	raw122	sdfo1		
stok_0_361	raw362	sdfo2		
cust_0_121	raw602	sdfo3		
cust_0_361	raw842	sdfo5		
ordr_0_121	raw1082	sdfo6		
nord_0_1	raw1322	sdfo7		
iordr2_0_1	raw1562	sdfo8		
istok_0_1	raw1802	sdfo9		
stok_0_122	raw123	sdfp1	0	16
stok_0_362	raw363	sdfp2		
cust_0_122	raw603	sdfp3		
cust_0_362	raw843	sdfp5		
ordr_0_122	raw1083	sdfp6		
nord_0_2	raw1323	sdfp7		
iordr2_0_2	raw1563	sdfp8		
istok_0_2	raw1803	sdfp9		
stok_0_123	raw124	sdfq1		
stok_0_363	raw364	sdfq2		
cust_0_123	raw604	sdfq3		
cust_0_363	raw844	sdfq5		
ordr_0_123	raw1084	sdfq6		
nord_0_3	raw1324	sdfq7		
iordr2_0_3	raw1564	sdfq8		
istok_0_3	raw1804	sdfq9		

datafile name	raw name	device name	RAID Level	# of Disk
ordr_0_235	raw1196	sdkv6	0	16
nord_0_115	raw1436	sdkv7		
iordr2_0_115	raw1676	sdkv8		
icust1_0_55	raw1916	sdkv9		
stok_0_236	raw237	sdkw1		
stok_0_476	raw477	sdkw2		
cust_0_236	raw717	sdkw3		
cust_0_476	raw957	sdkw5		
ordr_0_236	raw1197	sdkw6		
nord_0_116	raw1437	sdkw7		
iordr2_0_116	raw1677	sdkw8		
icust1_0_56	raw1917	sdkw9		
stok_0_237	raw238	sdkx1	0	16
stok_0_477	raw478	sdkx2		
cust_0_237	raw718	sdkx3		
cust_0_477	raw958	sdkx5		
ordr_0_237	raw1198	sdkx6		
nord_0_117	raw1438	sdkx7		
iordr2_0_117	raw1678	sdkx8		
icust1_0_57	raw1918	sdkx9		
stok_0_238	raw239	sdky1		
stok_0_478	raw479	sdky2		
cust_0_238	raw719	sdky3		
cust_0_478	raw959	sdky5		
ordr_0_238	raw1199	sdky6		
nord_0_118	raw1439	sdky7		
iordr2_0_118	raw1679	sdky8		
icust1_0_58	raw1919	sdky9		
stok_0_239	raw240	sdkz1		
stok_0_479	raw480	sdkz2		
cust_0_239	raw720	sdkz3		
cust_0_479	raw960	sdkz5		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_124	raw125	sdfr1	0	16
stok_0_364	raw365	sdfr2		
cust_0_124	raw605	sdfr3		
cust_0_364	raw845	sdfr5		
ordr_0_124	raw1085	sdfr6		
nord_0_4	raw1325	sdfr7		
iordr2_0_4	raw1565	sdfr8		
istok_0_4	raw1805	sdfr9		
stok_0_125	raw126	sdfs1		
stok_0_365	raw366	sdfs2		
cust_0_125	raw606	sdfs3		
cust_0_365	raw846	sdfs5		
ordr_0_125	raw1086	sdfs6		
nord_0_5	raw1326	sdfs7		
iordr2_0_5	raw1566	sdfs8		
istok_0_5	raw1806	sdfs9		
stok_0_126	raw127	sdft1	0	16
stok_0_366	raw367	sdft2		
cust_0_126	raw607	sdft3		
cust_0_366	raw847	sdft5		
ordr_0_126	raw1087	sdft6		
nord_0_6	raw1327	sdft7		
iordr2_0_6	raw1567	sdft8		
istok_0_6	raw1807	sdft9		
stok_0_127	raw128	sdfu1		
stok_0_367	raw368	sdfu2		
cust_0_127	raw608	sdfu3		
cust_0_367	raw848	sdfu5		
ordr_0_127	raw1088	sdfu6		
nord_0_7	raw1328	sdfu7		
iordr2_0_7	raw1568	sdfu8		
istok_0_7	raw1808	sdfu9		

datafile name	raw name	device name	RAID Level	# of Disk
ordr_0_239	raw1200	sdkz6	0	16
nord_0_119	raw1440	sdkz7		
iordr2_0_119	raw1680	sdkz8		
icust1_0_59	raw1920	sdkz9		
stok_0_10	raw11	sdl1		
stok_0_250	raw251	sdl2		
cust_0_10	raw491	sdl3		
cust_0_250	raw731	sdl5		
ordr_0_10	raw971	sdl6		
hist_0_10	raw1211	sdl7		
icust2_0_10	raw1451	sdl8		
temp_0_10	raw1691	sdl9		
roll1	raw2165	sdla11	0	16
sp_0	raw2168	sdla2		
dist_0_0	raw2161	sdla7		
system_1	raw2162	sdla8		
tpccaux	raw2163	sdla9		
stok_0_11	raw12	sdm1		
stok_0_251	raw252	sdm2		
cust_0_11	raw492	sdm3		
cust_0_251	raw732	sdm5		
ordr_0_11	raw972	sdm6		
hist_0_11	raw1212	sdm7		
icust2_0_11	raw1452	sdm8		
temp_0_11	raw1692	sdm9		
stok_0_12	raw13	sdn1		
stok_0_252	raw253	sdn2		
cust_0_12	raw493	sdn3		
cust_0_252	raw733	sdn5		
ordr_0_12	raw973	sdn6		
hist_0_12	raw1213	sdn7		
icust2_0_12	raw1453	sdn8		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_128	raw129	sdfv1	0	16
stok_0_368	raw369	sdfv2		
cust_0_128	raw609	sdfv3		
cust_0_368	raw849	sdfv5		
ordr_0_128	raw1089	sdfv6		
nord_0_8	raw1329	sdfv7		
iordr2_0_8	raw1569	sdfv8		
istok_0_8	raw1809	sdfv9		
stok_0_129	raw130	sdfw1		
stok_0_369	raw370	sdfw2		
cust_0_129	raw610	sdfw3		
cust_0_369	raw850	sdfw5		
ordr_0_129	raw1090	sdfw6		
nord_0_9	raw1330	sdfw7		
iordr2_0_9	raw1570	sdfw8		
istok_0_9	raw1810	sdfw9		
stok_0_130	raw131	sdfx1	0	16
stok_0_370	raw371	sdfx2		
cust_0_130	raw611	sdfx3		
cust_0_370	raw851	sdfx5		
ordr_0_130	raw1091	sdfx6		
nord_0_10	raw1331	sdfx7		
iordr2_0_10	raw1571	sdfx8		
istok_0_10	raw1811	sdfx9		
stok_0_131	raw132	sdfy1		
stok_0_371	raw372	sdfy2		
cust_0_131	raw612	sdfy3		
cust_0_371	raw852	sdfy5		
ordr_0_131	raw1092	sdfy6		
nord_0_11	raw1332	sdfy7		
iordr2_0_11	raw1572	sdfy8		
istok_0_11	raw1812	sdfy9		

datafile name	raw name	device name	RAID Level	# of Disk
temp_0_12	raw1693	sdn9	0	16
stok_0_13	raw14	sdo1		
stok_0_253	raw254	sdo2		
cust_0_13	raw494	sdo3		
cust_0_253	raw734	sdo5		
ordr_0_13	raw974	sdo6		
hist_0_13	raw1214	sdo7		
icust2_0_13	raw1454	sdo8		
temp_0_13	raw1694	sdo9		
stok_0_14	raw15	sdp1	0	16
stok_0_254	raw255	sdp2		
cust_0_14	raw495	sdp3		
cust_0_254	raw735	sdp5		
ordr_0_14	raw975	sdp6		
hist_0_14	raw1215	sdp7		
icust2_0_14	raw1455	sdp8		
temp_0_14	raw1695	sdp9		
stok_0_15	raw16	sdq1		
stok_0_255	raw256	sdq2		
cust_0_15	raw496	sdq3		
cust_0_255	raw736	sdq5		
ordr_0_15	raw976	sdq6		
hist_0_15	raw1216	sdq7		
icust2_0_15	raw1456	sdq8		
temp_0_15	raw1696	sdq9		
stok_0_16	raw17	sdr1		
stok_0_256	raw257	sdr2		
cust_0_16	raw497	sdr3		
cust_0_256	raw737	sdr5		
ordr_0_16	raw977	sdr6		
hist_0_16	raw1217	sdr7		
icust2_0_16	raw1457	sdr8		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_132	raw133	sdfz1	0	16
stok_0_372	raw373	sdfz2		
cust_0_132	raw613	sdfz3		
cust_0_372	raw853	sdfz5		
ordr_0_132	raw1093	sdfz6		
nord_0_12	raw1333	sdfz7		
iordr2_0_12	raw1573	sdfz8		
istok_0_12	raw1813	sdfz9		
stok_0_5	raw6	sdg1		
iitem_0_0	raw1926	sdg10		
stok_0_245	raw246	sdg2		
cust_0_5	raw486	sdg3		
cust_0_245	raw726	sdg5		
ordr_0_5	raw966	sdg6		
hist_0_5	raw1206	sdg7		
icust2_0_5	raw1446	sdg8		
temp_0_5	raw1686	sdg9		
stok_0_133	raw134	sdga1	0	16
stok_0_373	raw374	sdga2		
cust_0_133	raw614	sdga3		
cust_0_373	raw854	sdga5		
ordr_0_133	raw1094	sdga6		
nord_0_13	raw1334	sdga7		
iordr2_0_13	raw1574	sdga8		
istok_0_13	raw1814	sdga9		
stok_0_134	raw135	sdgb1		
stok_0_374	raw375	sdgb2		
cust_0_134	raw615	sdgb3		
cust_0_374	raw855	sdgb5		
ordr_0_134	raw1095	sdgb6		
nord_0_14	raw1335	sdgb7		
iordr2_0_14	raw1575	sdgb8		
istok_0_14	raw1815	sdgb9		

datafile name	raw name	device name	RAID Level	# of Disk
temp_0_16	raw1697	sdr9	0	16
stok_0_17	raw18	sds1		
stok_0_257	raw258	sds2		
cust_0_17	raw498	sds3		
cust_0_257	raw738	sds5		
ordr_0_17	raw978	sds6		
hist_0_17	raw1218	sds7		
icust2_0_17	raw1458	sds8		
temp_0_17	raw1698	sds9		
stok_0_18	raw19	sdt1	0	16
stok_0_258	raw259	sdt2		
cust_0_18	raw499	sdt3		
cust_0_258	raw739	sdt5		
ordr_0_18	raw979	sdt6		
hist_0_18	raw1219	sdt7		
icust2_0_18	raw1459	sdt8		
temp_0_18	raw1699	sdt9		
stok_0_19	raw20	sdu1		
stok_0_259	raw260	sdu2		
cust_0_19	raw500	sdu3		
cust_0_259	raw740	sdu5		
ordr_0_19	raw980	sdu6		
hist_0_19	raw1220	sdu7		
icust2_0_19	raw1460	sdu8		
temp_0_19	raw1700	sdu9		
stok_0_20	raw21	sdv1	0	16
stok_0_260	raw261	sdv2		
cust_0_20	raw501	sdv3		
cust_0_260	raw741	sdv5		
ordr_0_20	raw981	sdv6		
hist_0_20	raw1221	sdv7		
icust2_0_20	raw1461	sdv8		
temp_0_20	raw1701	sdv9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_135	raw136	sdgc1	0	16
stok_0_375	raw376	sdgc2		
cust_0_135	raw616	sdgc3		
cust_0_375	raw856	sdgc5		
ordr_0_135	raw1096	sdgc6		
nord_0_15	raw1336	sdgc7		
iordr2_0_15	raw1576	sdgc8		
istok_0_15	raw1816	sdgc9		
stok_0_136	raw137	sdgd1		
stok_0_376	raw377	sdgd2		
cust_0_136	raw617	sdgd3		
cust_0_376	raw857	sdgd5		
ordr_0_136	raw1097	sdgd6		
nord_0_16	raw1337	sdgd7		
iordr2_0_16	raw1577	sdgd8		
istok_0_16	raw1817	sdgd9		
stok_0_137	raw138	sdge1	0	16
stok_0_377	raw378	sdge2		
cust_0_137	raw618	sdge3		
cust_0_377	raw858	sdge5		
ordr_0_137	raw1098	sdge6		
nord_0_17	raw1338	sdge7		
iordr2_0_17	raw1578	sdge8		
istok_0_17	raw1818	sdge9		
stok_0_138	raw139	sdgf1		
stok_0_378	raw379	sdgf2		
cust_0_138	raw619	sdgf3		
cust_0_378	raw859	sdgf5		
ordr_0_138	raw1099	sdgf6		
nord_0_18	raw1339	sdgf7		
iordr2_0_18	raw1579	sdgf8		
istok_0_18	raw1819	sdgf9		

datafile name	raw name	device name	RAID Level	# of Disk
stok_0_21	raw22	sdw1		
stok_0_261	raw262	sdw2		
cust_0_21	raw502	sdw3		
cust_0_261	raw742	sdw5		
ordr_0_21	raw982	sdw6		
hist_0_21	raw1222	sdw7		
icust2_0_21	raw1462	sdw8		
temp_0_21	raw1702	sdw9		
stok_0_22	raw23	sdx1	0	16
stok_0_262	raw263	sdx2		
cust_0_22	raw503	sdx3		
cust_0_262	raw743	sdx5		
ordr_0_22	raw983	sdx6		
hist_0_22	raw1223	sdx7		
icust2_0_22	raw1463	sdx8		
temp_0_22	raw1703	sdx9		
stok_0_23	raw24	sdy1		
stok_0_263	raw264	sdy2		
cust_0_23	raw504	sdy3		
cust_0_263	raw744	sdy5		
ordr_0_23	raw984	sdy6		
hist_0_23	raw1224	sdy7		
icust2_0_23	raw1464	sdy8		
temp_0_23	raw1704	sdy9		
stok_0_24	raw25	sdz1	0	16
stok_0_264	raw265	sdz2		
cust_0_24	raw505	sdz3		
cust_0_264	raw745	sdz5		
ordr_0_24	raw985	sdz6		
hist_0_24	raw1225	sdz7		
icust2_0_24	raw1465	sdz8		
temp_0_24	raw1705	sdz9		

Table 4.2 Database Layout

The Database tables were configured with 120 RAID0 volumes. Each RAID0 volume consisted of 16 Fible Channel disks with 36GB capacity and it had either of 2 Logical Unit(LUs) .

The Database logs were configured with 7 RAID0+1 volumes. Each RAID0+1 volume consisted of 32 disks (16 disks + 16 disks mirrored) with 36GB capacity. A log file was configured with 10 LUs (2 LU from each RAID0+1 volume) using Linux mdadm software RAID utility to spread accesses across all 10 volumes.

4.4 Type of Database

A statement must be provided that describes:

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

Oracle is a relational DBMS.

The interface used was Oracle stored procedures accessed using the Oracle Call Interface (OCI) embedded in C code.

4.5 Database Mapping

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

The database was neither partitioned nor replicated.

4.6 60 Day Space

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

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

- The size of the redo log was queried from the Oracle catalog.
- A full performance run was executed.
- The increase in size to the redo logs was divided by the number of transactions, giving bytes used per new order.
- This amount was multiplied by the reported tpm rate times 480 minutes, giving total space needed for 8 hours.

For the dynamic tables the following steps were followed:

1. The database was queried for the size of the dynamic tables.
2. The sum of D_NEXT_O_ID was queried from the DISTRICT table.
3. A full performance run was executed.
4. Steps 1 & 2 were repeated.
5. The change in the size of the dynamic tables was divided by the number of new orders in the run giving growth per new order.
6. The number in the pervious step was multiplied by the reported tpm rate times 480 minutes.
7. The numbers in steps 1 & 5 were added giving space needed for 8 hours.
8. The space allocated was verified to be larger than the space needed.

The 60 day space requirement is shown in Appendix F.

Clause 5 Related Items

5.1 Throughput

Measured tpmC must be reported.

Measured tpmC:	1,238,579 tpmC
Price per tpmC:	$3.94 USD per tpmC

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.

An emulation delay of 0.1 second is included in response time and menu time to compensate for browser delay.

Table 5.1 Response Times in Seconds

Type	Average	90th %	Maximum
New-Order	0.453	0.913	5.184
Payment	0.441	0.901	5.230
Order-Status	0.449	0.909	4.878
Interactive Delivery	0.103	0.104	0.326
Deferred Delivery	0.346	0.806	4.989
Stock-Level	0.433	0.891	5.080
Menu	0.103	0.104	0.508

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

Type	Minimum	Average	Maximum
New-Order	18.003	18.012	18.273
Payment	3.004	3.012	3.275
Order-Status	2.004	2.012	2.240
Interactive Delivery	2.005	2.012	2.243
Stock-Level	2.004	2.012	2.265

Table 5.3 Think Times

Type	Minimum	Average	Maximum
New-Order	0.000	12.015	120.202
Payment	0.000	12.018	120.199
Order-Status	0.000	10.017	100.200
Interactive Delivery	0.000	5.019	50.191
Stock-Level	0.000	5.022	50.186

5.4 Response Time Frequency Distribution Curves and Other Graphs

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

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

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

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

Figure 5.1: New Order Response Time Distribution

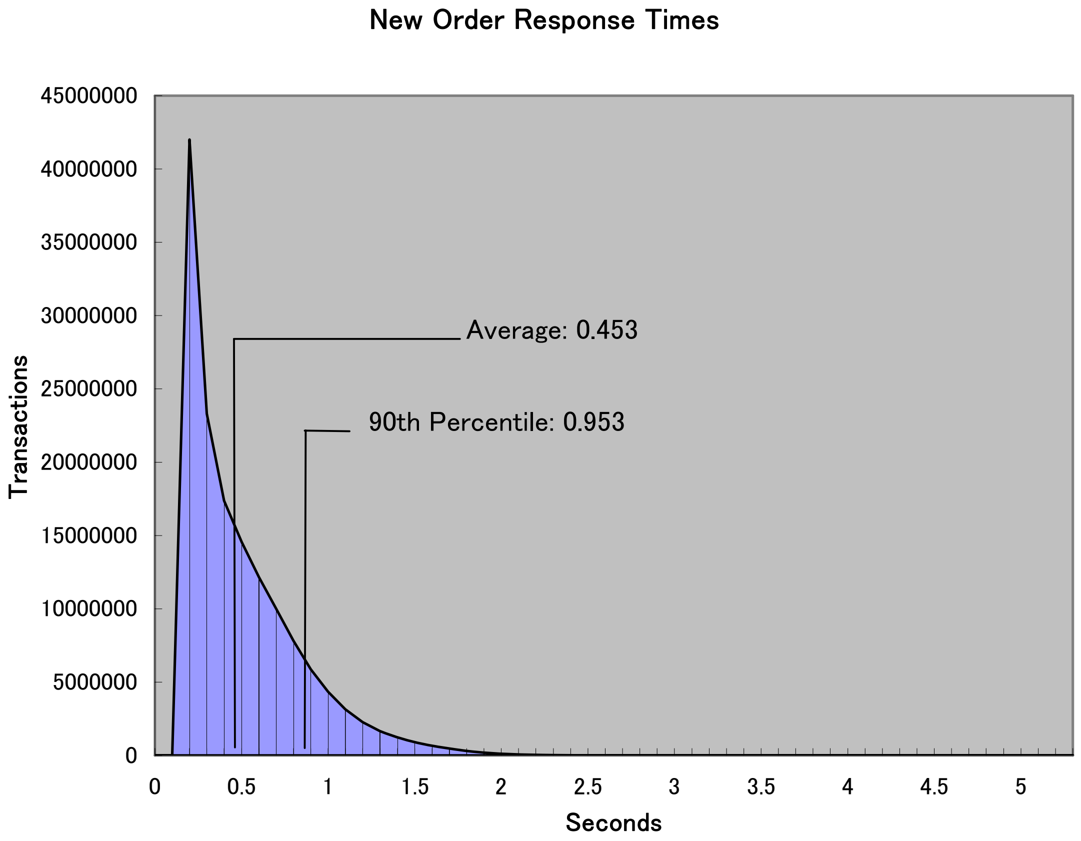


Figure 5.2: Payment Response Time Distribution

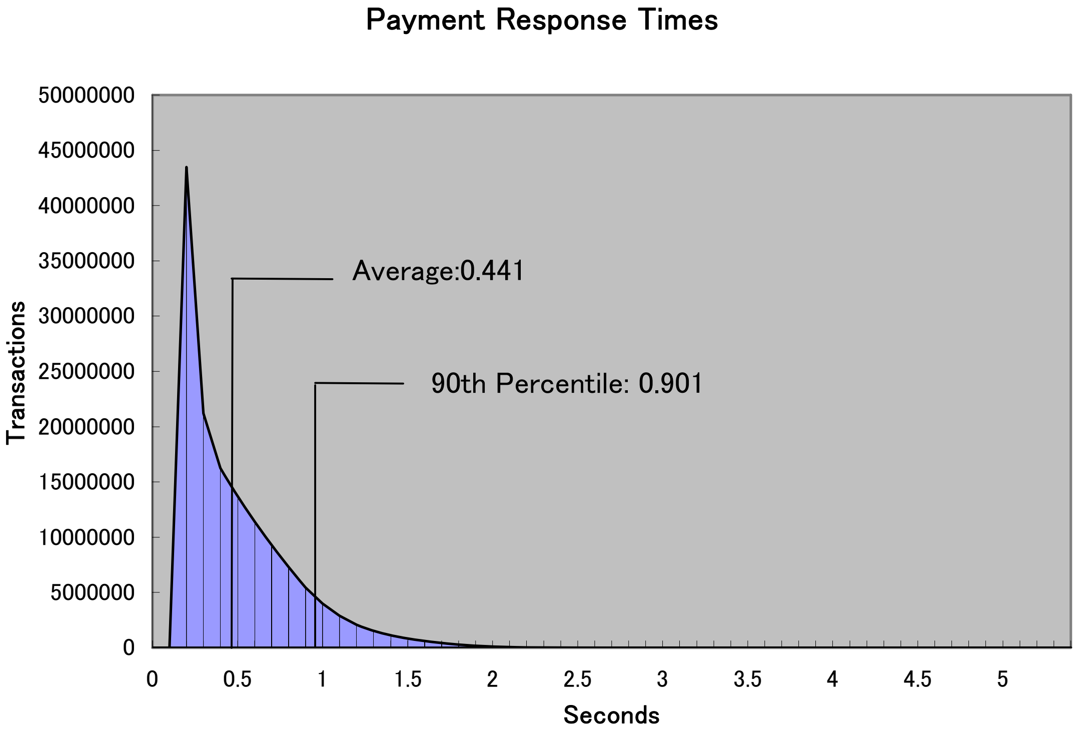


Figure 5.3: Order Status Response Time Distribution

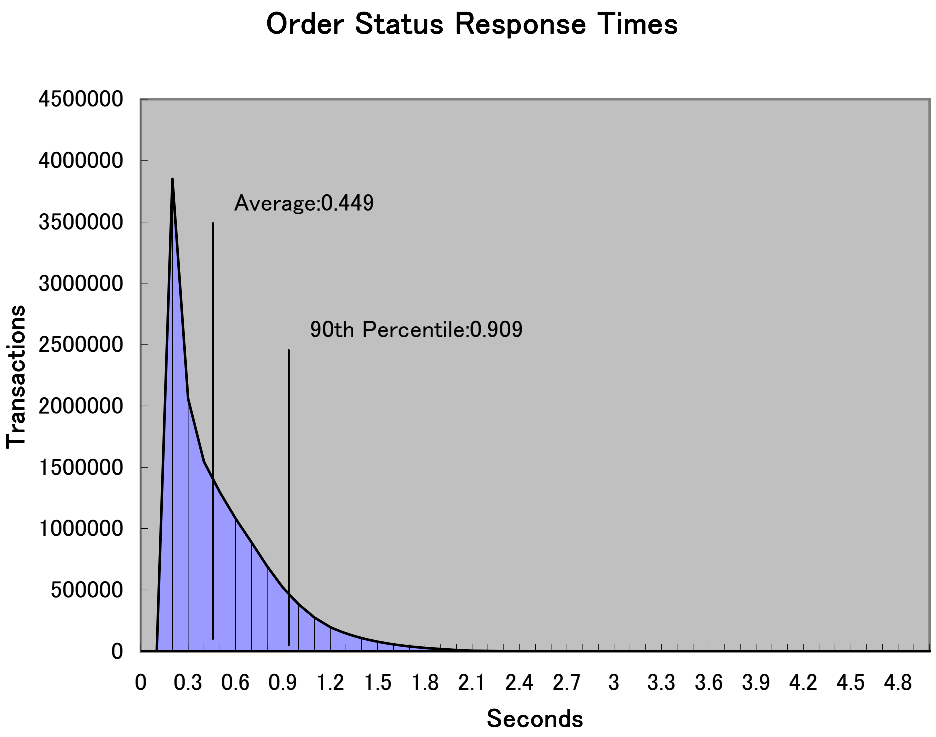


Figure 5.4: Delivery Response Time Distribution

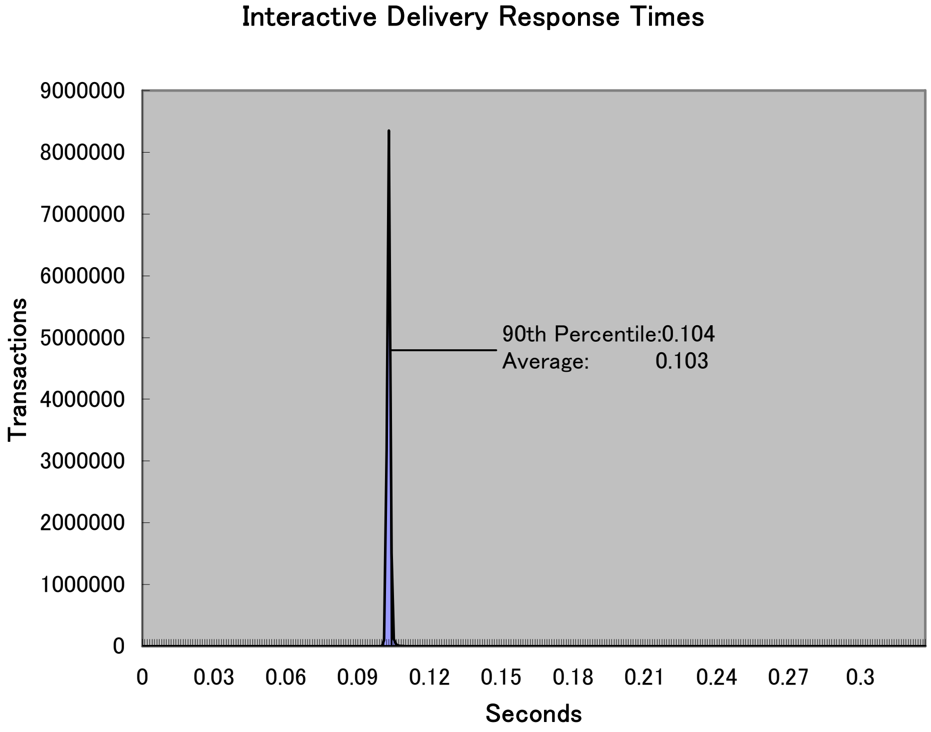


Figure 5.5: Stock Level Response Time Distribution

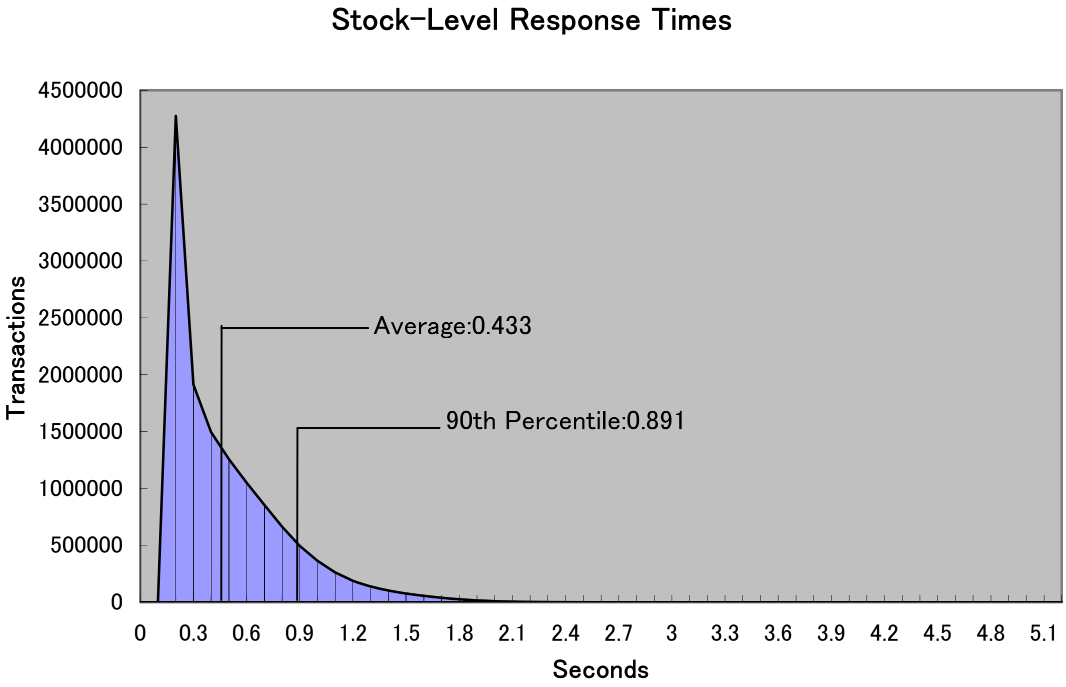


Figure 5.6: New Order Think Time Frequency Distribution

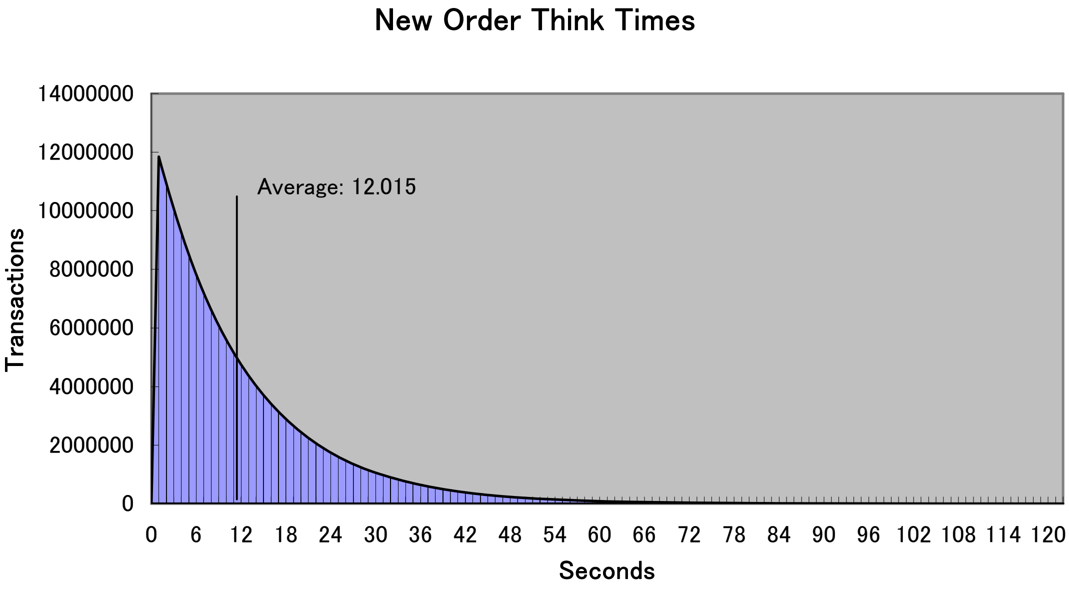


Figure 5.7: New-Order Response time vs. Throughput

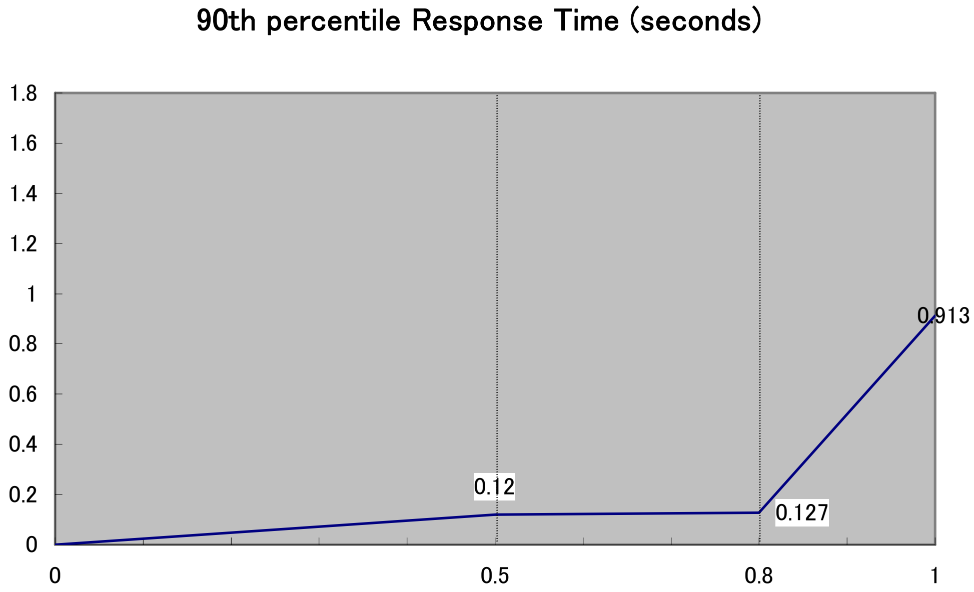
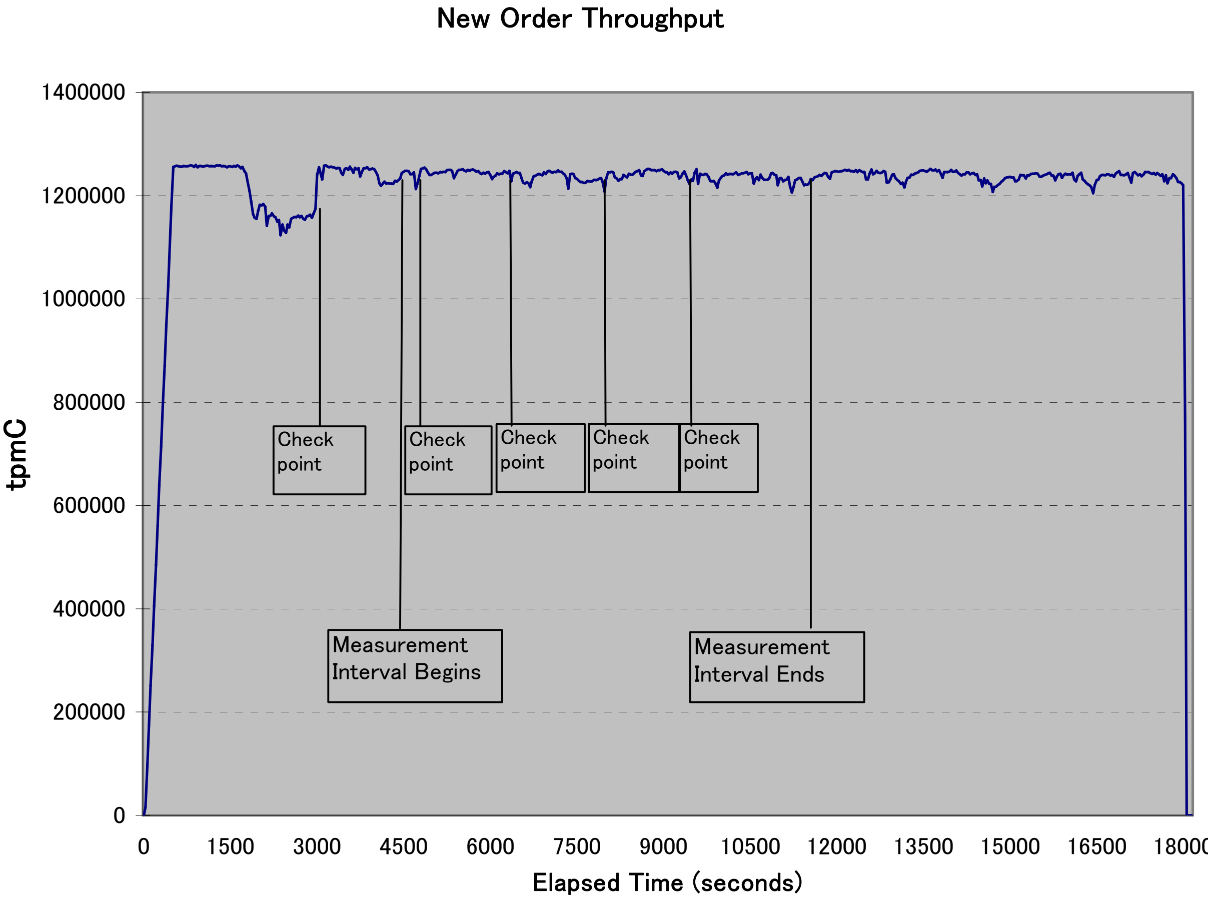


Figure 5.8: New Order Sustained Throughput



5.5 Steady State Determination

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 disclosed.

Steady state was determined by examining data reported for each 30-second interval over the duration of the measured run. Steady state was further confirmed by the throughput data collected during the run and graphed in Figure 5.8.

5.6 Work Performed During Steady State

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

The Oracle logical log is on a RAID0+1 array. When one log file becomes full or a time specified by parameters comes, Oracle Database 10g starts a checkpoint process. Oracle automatically logs all checkpoints to an alert file on the server. We configured log files and parameters so that checkpoints would occur in 30 minutes interval.
Oracle Database 10g performed 4 times of Log file Switches during MI. At each checkpoint, Oracle wrote to disk all buffer pages that had been updated but not yet physically written to disk.

For the priced system, the logical log space for an 8-hour period is priced.

Serializable Transactions:

Oracle supports serializable transaction isolation in full compliance with the SQL92 and TPC-C requirements. This is implemented by extending multiple concurrency control mechanisms long supported by Oracle.
Oracle queries take no read locks and see only data committed as of the beginning of the query’s execution. This means that the readers and writers coexist without blocking one another, providing a high degree of concurrency and consistency. While this mode does prevent reading dirty data, Oracle’s default isolation level also permits a transaction that issues a query twice to see non-repeatable reads and phantoms, as defined in SQL92 and TPC-C.
Beginning with Oracle7 release 7.3, a transaction may request a higher degree of isolation with the command SET TRANSACTION ISOLATION LEVEL SERIALIZABLE as defined in SQL92. This command will prevent read/write and write/write conflicts that would cause serializability failures.
A session can establish this mode as its default mode, so the SET TRANSACTION command need not be issued in each transaction.
Oracle implements SERIALIZABLE mode by extending the scope of read consistency from individual query to the entire transaction itself. ALL reads by serializable transactions are therefore repeatable, as the transaction will access prior versions of data changed (or deleted) by other transactions after the start of serializable transactions.
Thus, a serializable transaction sees a fixed snapshot of the database, established at the beginning of the transaction.
To ensure proper isolation, a serializable transaction cannot modify the rows that that were changed by other transactions after the beginning of a serializable transaction, or an update (or delete) statement will fail with error ORA_08177: “cannot serialize access” and the statement will rollback.
When a serializable transaction fails with this error, the application may either commit the work executed to that point, execute additional statements, or rollback the entire transaction. Repeated attempts to execute the same statement will always fail with the error “can’t serialize access” unless the other transaction has rolled back and released it’s lock. This error and these recovery options are similar to the treatment of deadlocks in systems that use read locks to ensure serializable execution.

In both cases, conflicts between transactions rollback and restarts or commits without re-executing the statement receiving the error.

5.7 Reproducibility

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

No reproducibility run is needed in this revision of the benchmark.

5.8 Measurement Period Duration

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

The reported measured interval was exactly 120 minutes long.

5.9 Regulation of Transaction Mix

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

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

5.10 Transaction Statistics

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

Table 5.4: Transaction Statistics

Statistics		Value
Transaction Mix	New Order Payment Order status Delivery Stock level	44.94% 43.02% 4.01% 4.02% 4.01%
New Order	Home warehouse order lines Remote warehouse order lines Rolled back transactions Average items per order	99.00% 1.00% 1.00% 10.00
Payment	Home warehouse Remote warehouse Accessed by last name	85.00% 15.00% 60.00%
Order Status	Accessed by last name	59.99%
Delivery	Skipped transactions	None

5.11 Checkpoint Count and Location

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

One checkpoint was recorded before the measured window opened and four checkpoints were started inside the measured window.

The start time and duration in seconds of at least the four (4) longest checkpoints during the Measurement Interval must be disclosed (see Clause 5.5.2.2 (2).

	start	end	duration
measurement	15:03:45	17:03:45	120 minutes
	start	End	duration
checkpoint 0	14:41:00	15:08:05	27:05
checkpoint 1	15:08:07	15:35:15	27:08
checkpoint 2	15:35:07	16:02:12	27:05
checkpoint 3	16:02:11	16:29:16	27:05
checkpoint 4	16:29:30	16:56:38	27:08

Clause 6 Related Items

6.1 RTE Descriptions

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

The RTE used is proprietary to Fujitsu. Appendix C contains the profile used as input to this RTE.

6.2 Loss of Terminal Connections

The number of terminal connections lost during the Measurement Interval must be disclosed (see Clause 6.6.2)

No terminal connections were lost.

6.3 Emulated Components

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

There were no emulated components in the benchmark configuration other than the emulated users' workstations.

6.4 Functional Diagrams

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

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

The abstract at the beginning of this report contains detailed diagrams of both the benchmark configuration and the priced configuration, including the driver system.

6.5 Networks

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

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

Four 1Gbps ethernet LAN connections were used between the server and four switches, to which clients were connected by fifty 100Mbps ethernet LAN connections. Fifty 100Mbps ethernet LAN connections were used between the client machines and the switches connected to the emulated users.

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.

This configuration does not require any operator intervention to sustain eight hours of the reported throughput, other than beginning the checkpointing process.

Clause 7 Related Items

7.1 Hardware and Software Components

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

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

A detailed price list is included in the abstract at the beginning of this report.

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 total solution as priced will be available December 15, 2006.

7.3 Throughput, and Price Performance

A statement of the measured tpmC as well as the respective calculations for the 3-year pricing, price/performance (price/tpmC), and the availability date must be included.

Maximum Qualified Throughput :	1,238,579 tpmC
Price per tpmC :	$3.94 per tpmC
Three-year cost of ownership :	$4,875,856 USD

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

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

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:

- 16 Oracle Database 10g Enterprise Edition, Per Processor, Unlimited Users, 3 years
- 1 Red Hat Enterprise Linux AS (Standard)
- 51 Red Hat Enterprise Linux ES (Standard)
- 51 BEA Tuxedo Core Functionality Services(CFS-R)

7.6 System Pricing

System pricing should include subtotals for the following components : Server Hardware, Server Software, Client Hardware, Client Software, and Network Components.
Clause 6.1 describes the Server and Client components.

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

A detailed list of all hardware and software, including the 3-year price, is provided in the Executive Summary at the front of this report. All third-party quotations are included in Appendix E at the end of this document.

Clause 8 Related Items

8.1 Auditor’s Report

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

This implementation of the TPC-C benchmark was audited by Francois Raab of InfoSizing, Inc. The auditor’s attestation letter is provided in this section.

8.2 Availability of the Full Disclosure Report

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

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

Transaction Processing Performance Council
Presidio of San Francisco
Building 572B Ruger St. (surface)
P.O.Box 29920 (mail)
San Francisco, CA 94129-0920
Voice: 415-561-6272
Fax: 415-561-6120
Email: info@tpc.org

Appendix A: Client Source Code

```
:::::::::::::::::::::::::::::::::
 common/forlinux.h
:::::::::::::::::::::::::::::::::

/********************************************************
**********
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                        *
 *   definition for converting Linux.
*
 *                                                    *
 *  CREATE by TSL   2003.05.16
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004  *

********************************************************
*********/
/* forlinux.h */

#include    <limits.h>
#define MAX_PATH  PATH_MAX    /*
Windows:MAX_PATH , Linux:PATH_MAX */
#define Sleep(x)    poll(0, 0, x);  /* sleep unit is a
msec. */


:::::::::::::::::::::::::::::::::
 common/GetPrivateProfileString.c
:::::::::::::::::::::::::::::::::

/********************************************************
*********
 *                                                   *
 *       TPC-C Client Application Program Source
*
 *                                                   *
 *  Entry Functions                                      *
 *   (1) GetPrivateProfileString
*
 *                                                   *
 *  CREATE by TSL   2003.12.18
*
 *                                                   *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004 *

********************************************************
********/

#include <stdio.h>
#include <string.h>

/********************************************************
*****
 * Get data string corresponded key in
cogiguration file.   *
 * Return Value                                     *
 *     Get string length                            *

********************************************************
****/
int GetPrivateProfileString(char*   section_name,
/* Section name                   */
                      char*  key_name,       /* Key
name                 */
                      char*  delault_str,    /* Default
string, if kye nothing  */
                      char*  key_data,       /* Key
data                     */
                      int     buf_size,      /* Buffer
size of key data         */
                      char*  file_name) {    /* File
name                     */

   FILE*   prof_file;
   char    read_buf[256];
   char    search[32];
   char*   get_str;
   char*   key_pos=0;
   int     get_cnt;
   int     i;


   /* Open profile file */
   if ((prof_file = fopen(file_name, "r")) == NULL)
{
       goto DEFALT_STRING;
   }

   /* Make searching section name "[section
name]" */
   search[0] = '[';
   strcpy(&search[1], section_name);
   strcat(search,"]");

   /* Search section name */
   while((get_str = fgets(read_buf,
sizeof(read_buf), prof_file)) != NULL) {

       /* Search section name form to be read one
line */
       if ((char*)strstr(read_buf, search) == NULL)
{
           /* No match section name, next line read
*/
           continue;
       }
       break;
   }
   if (get_str == NULL) {
       /* Found EOF or read error */
       goto DEFALT_STRING_FCLOSE;
   }

   /* Make searching key name "key_name=" */
   strcpy(search, key_name);
   strcat(search,"=");

   /* Search key name in this section */
   while((get_str = fgets(read_buf,
sizeof(read_buf), prof_file)) != NULL) {
       for (i = 0; read_buf[i] == ' ' || read_buf[i] ==
'\t'; i++);
       if (read_buf[i] == '[') {
           /* Other section started, undefined key
name */
           goto DEFALT_STRING_FCLOSE;
       }
       if ((key_pos = (char*)strstr(read_buf,
search)) == NULL) {
           /* No match key name */
           continue;
       }
       break;
   }
   if (get_str == NULL) {
       /* Found EOF or read error */
       goto DEFALT_STRING_FCLOSE;
   }

   fclose(prof_file);

   /* Get key_value, fixed format "key value" */
   for (; *key_pos != ""; key_pos++);
   key_pos++;
   for (get_cnt = 0; *key_pos != ""; key_pos++) {
       /* Get & set key value */
       *key_data = *key_pos;
       key_data++;
       get_cnt++;
       if (get_cnt >= (buf_size -1)) {
           /* Key data buffer full */
           break;
       }
   }
   *key_data = '\0';
   return(get_cnt);

DEFALT_STRING_FCLOSE:
   fclose(prof_file);

DEFALT_STRING:
   strncpy(key_data, delault_str, buf_size-1);
   return(strlen(key_data));
}



:::::::::::::::::::::::::::::::::
 common/log.c
:::::::::::::::::::::::::::::::::

/********************************************************
*********
 *                                                   *
 *       TPC-C Client Application Program Source
*
 *                                                   *
 *  Entry Functions                                      *
 *   Log is outputted to a file.                           *
 *                                                   *
 *  CREATE by TSL   2002.11.29
*
 *                                                   *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002-2004 *

********************************************************
********/
#include "forlinux.h"
#include <stdio.h>
#include <string.h>
#include <time.h>
#include <sys/types.h>
#include <stdarg.h>
#include <unistd.h>
#include <pthread.h>
#include <sys/types.h>
#include <sys/stat.h>
#include "sema.h"

#define LOG_MODULE
#include "log.h"

void TpccUserLog(char* file_name, int line_no,
char* type_name, char* fmtp, ...)
{
   FILE*       fp;
   pid_t       pid;
   pthread_t   tId;
   char*       fname;
```

```
    int        stat;

/* -- BEGIN -- Modified by Hayashi for thread-
safe. 2006/02/13 */
#if 0
!   struct     tm *nowtime;
#else
    struct     tm tt;
    struct     tm *nowtime=&tt;
#endif
/* -- END -- Modified by Hayashi for thread-safe.
2006/02/13 */

    time_t     long_time;
    va_list    va;

    if (strcmp(type_name, "LCK") != 0) {
       /* Lock semaphore */
       stat = LockSem(GLB_LogSemId);
    }
    /* Get current time.  */

    time( &long_time );

/* -- BEGIN -- Modified by Hayashi for thread-
safe. 2006/02/13 */
#if 0
!   nowtime = localtime( &long_time );
#else
    localtime_r( &long_time, nowtime );
#endif
/* -- END  -- Modified by Hayashi for thread-safe.
2006/02/13 */

    /* Get process Id.  */
    pid = getpid();

    /* Get thread Id. */
    tId = pthread_self();

    /* Get just file name from a path.  */
    fname = (char*)strrchr(file_name, (int)'/');
    if (fname == NULL) {
        fname = file_name;
    } else {
        fname = fname + 1;
    }

    va_start(va, fmtp);

    fp = fopen(GLB_LogFilePath, "a");
    fprintf(fp, "%02d:%02d:%02d [%6d:%08x] %-
32s(%4d) :%s: " ,
        nowtime->tm_hour, nowtime->tm_min,
nowtime->tm_sec, pid, (int)tId, fname, line_no,
type_name);
    vfprintf(fp, fmtp, va);

    if (*(fmtp + strlen(fmtp) - 1) != '\n')
        fprintf(fp, "\n");

    va_end(va);

    fclose(fp);

    /* change mode which all users can read and
write. */
    chmod(GLB_LogFilePath,S_IRUSR
|S_IWUSR |S_IRGRP|S_IWGRP| S_IROTH |
S_IWOTH );

    if (strcmp(type_name, "LCK") != 0) {
       // Unlock semaphore
       stat = UnlockSem(GLB_LogSemId);
    }

    return;
}



::::::::::::::::::::::::::::::::
 common/log.h
::::::::::::::::::::::::::::::::

/*********************************************************
*********
 *                                                  *
 *       TPC-C Client Application Program Source
*
 *                                                  *
 *  Entry Functions                                  *
 *   Log is outputted to a file.                       *
 *                                                  *
 *  CREATE by TSL   2002.11.29
*
 *                                                  *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004 *

**********************************************************
********/

void TpccUserLog (char *file_name, int line_no,
char* type_name, char* fmtp, ...);

extern  char    GLB_LogFilePath[MAX_PATH];
extern  int GLB_LogSemId;

#define DEFAULT_SVRAPL_LOG_PATH
"/home/tpc/log/DBDepend_Userlog.log"
#define DEFAULT_TPAPL_LOG_PATH
"/home/tpc/log/userlog.log"


#define LOG_ERR __FILE__, __LINE__, "ERR"
#define LOG_INF __FILE__, __LINE__, "INF"
#define LOG_WRN __FILE__, __LINE__,
"WRN"
#define LOG_LCK __FILE__, __LINE__, "LCK"

#define LOG_FILE_INF    __FILE__, __LINE__,
"INF"
#define LOG_FILE_LINE   __FILE__, __LINE__



::::::::::::::::::::::::::::::::
 common/Makefile
::::::::::::::::::::::::::::::::

#---------------------------------------------------------------
------
#  Makefile : Makefile for common of TPAPL and
SVRAPL.
#
#   Created by TSL 2003.12.17
#
#   All Right Rserverd, Copyright Co, FUJITSU
LIMITED 2003-2004.
#---------------------------------------------------------------
------

# GCC compile configurations
AR  = ar
ARFLAGS = rv
CFLAGS  = -Wall -O2
CC  = gcc

# MACRO  definition
DMACRO  = -DTSL -DPLSQLFLAG=1 -DTUX

# home directory
ORADIR  = /usr/local/oracle
TUXDIR  = /usr/local/BEA/tuxedo8.1
SVRDIR  = /home/tpc/client_apl/svrapl

# include directory
ORA_INC = -I$(ORADIR)/rdbms/demo -
I$(ORADIR)/rdbms/public
COM_INC = -I$(SVRDIR)/common
SVR_INC = -I$(SVRDIR)
TUX_INC = -I$(TUXDIR)/include
INCLUDE = $(COM_INC) $(SVR_INC)
$(ORA_INC) $(TUX_INC)



# target object
COMOBJS = log.o sema.o
GetPrivateProfileString.o shmem.o
COMLIB  = libcom.a

INCFILES = log.h sema.h forlinux.h shmem.h

$(COMLIB) : $(COMOBJS)
    $(AR) $(ARFLAGS) $(COMLIB) $(COMOBJS)

.SUFFIXES: .o .c
.c.o:
    $(CC) -o $@ -c $(CFLAGS) $(INCLUDE)
$(DMACRO) $<

$(COMOBJS) : $(INCFILES)

clean:
    rm  $(COMLIB) $(COMOBJS)




::::::::::::::::::::::::::::::::
 common/MakeShell
::::::::::::::::::::::::::::::::

#! /bin/sh
cd /home/tpc/client_apl/common
make > make_result.txt 2>&1


::::::::::::::::::::::::::::::::
 common/sema.c
::::::::::::::::::::::::::::::::

/*********************************************************
***********
 *                                                  *
 *       TPC-C Client Application Program Source
*
 *                                                  *
 *  Filename :                                        *
 *   sema.c                                           *
 *  Entry Functions :                                   *
 *   There are functions to control semaphore.
*
 *                                                  *
 *  CREATE by TSL   2003.12.18
*
 *                                                  *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004   *
```

```
*********************************************************
**********/

#include "forlinux.h"
#include <stdio.h>
#include <sys/types.h>
#include <sys/ipc.h>
#include <sys/sem.h>
#include <errno.h>
#include "log.h"
#include "sema.h"

/********************************************************
*****
 * Initialize semaphore.                              *
 * Return Value                                        *
 *        > 0 semaphore Id. (always over 0)
*
 *        < 0 fail.                                  *

********************************************************
****/
int InitSem(char *path, int projectId)
{
    int sid;
    union semun{
      int val;
      struct semid_ds *buf;
      ushort *array;
    } c_arg;

    TpccUserLog(LOG_LCK, "InitSem: start
path<%s> projectId=%d\n",
                     path, projectId);

    if ((sid = GetSem(path, projectId)) == -1) {
      TpccUserLog(LOG_LCK, "GetSem() fail,
path<%s> projectId=%d\n",
                   path, projectId);
      return(-1);
     }
     c_arg.val=1;
     if (semctl(sid,0,SETVAL,c_arg)==-1) {
      TpccUserLog(LOG_LCK, "semctl fail,
sid=%d\n",sid);
      return(-1);
     }
     TpccUserLog(LOG_LCK, "InitSem: Get
semid =%d\n",sid);

     return(sid);
}
/********************************************************
*****
 * Get semaphore.                                     *
 * Return Value                                        *
 *        > 0 semaphore Id. (always over 0)
*
 *        < 0 fail.                                  *

********************************************************
****/
int GetSem(char *path, int projectId)
{
   int sid;
   int key;

   if ((key = ftok(path,projectId)) == -1) {
      TpccUserLog(LOG_LCK, "ftok() fail,
path<%s> projectId=%d errno=%d\n",
                   path, projectId, errno);
      return(-1);
   }
   if ((sid=semget(key,1,0666|IPC_CREAT))== -
1){
      TpccUserLog(LOG_LCK, "semget() fail,
key=%d errno=%d \n",key, errno);
      return(-1);
   }

   return(sid);
}
/********************************************************
*****
 * Reuire to lock semaphore.
*
 * Return Value                                        *
 *        1 success.                                  *
 *       -1 fail.                                  *

********************************************************
****/
int LockSem(int sid)
{
   struct sembuf sb;

   sb.sem_num=0;
   sb.sem_op=-1;
   sb.sem_flg=0;
   if(semop(sid,&sb,1)== -1) {
      TpccUserLog(LOG_LCK, "semop() fail,
sid=%d\n",sid);
      return(-1);
   }
   return(1);
}
/********************************************************
*****
 * Reuire to unlock semaphore.
*
 * Return Value                                        *
 *        1 success.                                  *
 *       -1 fail.                                  *

********************************************************
****/
int UnlockSem(int sid)
{
   struct sembuf sb;

   sb.sem_num=0;
   sb.sem_op=1;
   sb.sem_flg=0;
   if(semop(sid,&sb,1)== -1){
      TpccUserLog(LOG_LCK, "semop() fail,
sid=%d\n",sid);
      return(-1);
   }
   return(1);
}


::::::::::::::::::::::::::::::::
 common/sema.h
::::::::::::::::::::::::::::::::

/********************************************************
**********
 *                                                     *
 *       TPC-C Client Application Program Source
*
 *                                                     *
 *  Entry Functions                                     *
 *   Semaphore control.
*
 *                                                     *
 *  CREATE by TSL   2003.12.19
*
 *                                                     *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004  *

********************************************************
*********/

/*== project Id    ===================*/
#define SEM_SVRAPL_PROJID              (int)'S'
#define SEM_TPAPL_PROJID               (int)'T'
#define SEM_SAMPLING_PERFOREMANCE
(int)'P'


/*===================================
====*/
/*    prototype definition              */
/*===================================
====*/
int InitSem(char *path, int projectId);
int GetSem(char *path, int projectId);
int LockSem(int sid);
int UnlockSem(int sid);



::::::::::::::::::::::::::::::::
 common/shmem.c
::::::::::::::::::::::::::::::::

/********************************************************
***********
 *                                                     *
 *       TPC-C Client Application Program Source
*
 *                                                     *
 *  Filename :                                          *
 *   sema.c                                            *
 *  Entry Functions :                                    *
 *   There are functions to control shared
memory.              *
 *                                                     *
 *  CREATE by TSL   2004.01.15
*
 *                                                     *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004   *

********************************************************
**********/

#include "forlinux.h"
#include <stdio.h>
#include <sys/types.h>
#include <sys/ipc.h>
#include <sys/shm.h>
#include <errno.h>
#include "log.h"

/********************************************************
*****
 * Initialize shared memory.                          *
 * Return Value                                        *
 *        > 0 shared memory address. (always over
0)       *
 *        < 0 fail.                                  *

********************************************************
****/
char*  InitShmem(char *path, int projectId, int
size)
{
    int shmid;
    int key;
    char *shmaddr;
```

```
     TpccUserLog(LOG_LCK, "InitShmem: start
path<%s> projectId=%d\n",
                       path, projectId);

    if ((key = ftok(path,projectId)) == -1) {
        TpccUserLog(LOG_LCK, "ftok() fail,
path<%s> projectId=%d errno=%d\n",
                    path, projectId, errno);
        return((char *)-1);
    }
    if
((shmid=shmget(key,size,IPC_CREAT|0666))==
-1){
        TpccUserLog(LOG_LCK, "shmget() fail,
key=%d errno=%d",key, errno);
        return((char *)-1);
    }
    if( (shmaddr = (char *)shmat(shmid, NULL, 0))
== (char*)-1 ) {
        TpccUserLog(LOG_LCK, "shmat() fail,
shmid=%d path<%s> projectId=%d errno=%d\n",
                    shmid, path, projectId, errno);
        return ((char *)-1);
    }

    TpccUserLog(LOG_LCK, "InitShmem: Get
shmid =%d  shmaddr = %08x\n",shmid,
shmaddr);

     return(shmaddr);
}
/*********************************************************
*****
 * Get shared memory.                            *
 * Return Value                             *
 *        > 0 shared memory address. (always over
0)        *
 *        < 0 fail.                           *

*********************************************************
****/
char* GetShmem(char *path, int projectId, int
size)
{
    int shmid;
    int key;
    char *shmaddr;

    if ((key = ftok(path,projectId)) == -1) {
        TpccUserLog(LOG_LCK, "ftok() fail,
path<%s> projectId=%d errno=%d\n",
                    path, projectId,errno);
        return((char *)-1);
    }
    if ((shmid=shmget(key,size, 0))== -1){
        TpccUserLog(LOG_LCK, "shmget() fail,
key=%d errno=%d\n",key,errno);
        return((char *)-1);
    }
    if ((shmaddr = (char *)shmat(shmid, NULL, 0))
== (char*)-1 ) {
        TpccUserLog(LOG_LCK, "shmat() fail,
shmid=%d path<%s> projectId=%d errno=%d\n",
                    shmid, path, projectId, errno);
        return ((char *)-1);
    }

    return(shmaddr);
}


::::::::::::::::::::::::::::::::
 common/shmem.h
::::::::::::::::::::::::::::::::
/*********************************************************
**********
 *                                                *
 *        TPC-C Client Application Program Source
*
 *                                                *
 *  Entry Functions                              *
 *   Shared memory control.
*
 *                                                *
 *  CREATE by TSL   2004.01.15
*
 *                                                *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004  *

*********************************************************
*********/

/*== project Id    ===================*/
#define
SHMEM_SAMPLING_PERFOREMANCE
(int)'P'


/*===================================
====*/
/*    prototype definition              */
/*===================================
====*/
char* InitShmem(char *path, int projectId, int
size);
char* GetShmem(char *path, int projectId, int
size);



::::::::::::::::::::::::::::::::
 tpapl/ClientMonitor.c
::::::::::::::::::::::::::::::::

/*********************************************************
*****
 *                                            *
 *        TPC-C Client Application Program Source
*
 *                                            *
 *  Entry Functions                          *
 *   (1) ClientMonitor                      *
 *   (2) ClientLogCheck                        *
 *   (3) CleantShutdown                         *
 *   (4) ClientInfSample                      *
 *   (5) ClientSampleInit                     *
 *   (6) ClientSampleSelfCsv                       *
 *                                            *
 *  CREATE by TSL   2004.01.18
*
 *                                            *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2004  *

*********************************************************
****/
#include "forlinux.h"
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <unistd.h>
#include "sema.h"
#include "shmem.h"
#include "SampleInfo.h"
#include "log.h"
/* Global area */
extern  char    GLB_TpAplLogPath[];
extern  char    GLB_SvrAplLogPath[];
MAC_SampleGlobalArea;


/*********************************************************
*****
 * Client monitorring function.                       *
 * Return Value                               *
 *      0 : Normal end                        *
 *      !0: Illegal function no.               *
 * Return Information                            *
 *      HTML document                              *

*********************************************************
****/
int ClientMonitor(int func_no, char* html_buf) {

    /* Dispatch function by function no. */
    switch(func_no) {

    /* Client startup function */
    case -1:
        ClientLogCheck(html_buf);
        break;

    /* Client shutdown */
    case -2:
        ClientSetSample(html_buf);
        break;

        /* Client monitor */
    case -3:
        ClientInfSample(html_buf);
        break;

    default:
        /* Error return */
        return -1;
        break;
    }

    return 0;
}

/*********************************************************
*****
 * Check client's log files.                        *
 * Check files are ...                          *
 *    usetlog.log          : TpApl log              *
 *    DBDepend_Userlog.log : SvrApl log
*
 * Return Value                               *
 *      NONE                               *
 * Return Information                            *
 *      HTML document                              *

*********************************************************
****/
void    ClientLogCheck(char* html_buf) {

int     CheckLogFile(char* file_path, char*
key_word);

#define NO_ERROR_LOG    "No error found."
#define CLIENT_LOG_CHECK "\
<HTML><HEAD><TITLE>Client Log
Check</TITLE></HEAD><BODY>\r\n\
<P> \
The %s check log files.\r\n\
Result : %s \r\n\
</P></BODY></HTML>\r\n"

    char    host_name[32];
    /* Get host name */
    host_name[0] = '\0';
    gethostname(host_name, sizeof(host_name));

    /* Check TpApl log file */
    if (CheckLogFile(GLB_TpAplLogPath,
":ERR:") == 0) {
        /* No error */
        sprintf(html_buf, CLIENT_LOG_CHECK,
host_name, NO_ERROR_LOG);
    } else {
        /* Error found */
        sprintf(html_buf, CLIENT_LOG_CHECK,
host_name, "Error in userlog.log");
        return;
    }

    /* Check SvrApl log file */
    if (CheckLogFile(GLB_SvrAplLogPath,
":ERR:") == 0) {
        /* No error */
        sprintf(html_buf, CLIENT_LOG_CHECK,
host_name, NO_ERROR_LOG);
    } else {
        /* Error found */
        sprintf(html_buf, CLIENT_LOG_CHECK,
host_name, "Error in DBDepend_Userlog.log");
    }
}


/**********************************************************
*****
 * Check log files has error key word.
*
 * Return Value                                    *
 *      >0 : found number of keywords
*
 *      -1 : file open error (maybe no exist
*

**********************************************************
****/
int CheckLogFile(char* file_path, char*
key_word) {

    FILE*   log_file;
    char    rd_buff[256];
    int     find_words = 0;

    if ((log_file = fopen(file_path, "r")) == NULL) {
        /* Open error */
        return -1;
    }

    while (fgets(rd_buff, sizeof(rd_buff),
log_file) != NULL) {

        if (strstr(rd_buff, key_word) != NULL) {
            find_words++;
        }
    }
    fclose(log_file);
    return find_words;
}


/**********************************************************
*****
 * Set sampling disable.                            *
 * Return Value                                   *
 *      NONE                                    *
 * Return Information                               *
 *      HTML document                               *

**********************************************************
****/
void    ClientSetSample(char* html_buf) {

#define CLIENT_DIRECT "\
<HTML><HEAD><TITLE>Client sampling
disable</TITLE></HEAD><BODY>\r\n\
<P> \
The %s set sampling disable.\r\n\
Result : No error found.\r\n\
</P></BODY></HTML>\r\n"

    char    host_name[32];


    GLBSMP_shared_mem->DataSampling =
DATASAMPLE_DISABLE;

    host_name[0] = '\0';
    gethostname(host_name, sizeof(host_name));
    sprintf(html_buf, CLIENT_DIRECT,
host_name);
}

/**********************************************************
*****
 * Client performance information Sampling
*
 * Return Value                                    *
 *      NONE                                    *
 * Return Information                               *
 *      HTML document                               *

**********************************************************
****/
void    ClientInfSample(char* html_buf) {

#define CLIENT_SAMPLE "\
<HTML><HEAD><TITLE>Client Sampling
informtion</TITLE></HEAD><BODY>\
<PRE>\
Information of  %s \r\n\
\r\n\
TpApl performance \r\n\
                        New      Pay      Odr      Del
Sto\r\n\
    Num of waiting process  %-7d  %-7d  %-
7d  %-7d  %-7d\r\n\
    Answer to RTE (ms)      %-7d  %-7d  %-
7d  %-7d  %-7d\r\n\
\r\n\
SVrApl performance \r\n\
                        SMAN     MAX      AVR
TRX\r\n\
    New Order Response      %-7d  %-7d  %-
7d  %-7d\r\n\
    Paymant Response        %-7d  %-7d  %-
7d  %-7d\r\n\
    Order Status Response   %-7d  %-7d  %-
7d  %-7d\r\n\
    Derivery Response       %-7d  %-7d  %-7d  %-
7d\r\n\
    Stock Level Response    %-7d  %-7d  %-
7d  %-7d\r\n\
</PRE></BODY></HTML>\r\n"

#define EXT_FUNC3_ERROR "\
<HTML><HEAD><TITLE>Error
information</TITLE></HEAD><BODY>\
<PRE>\
Failure create SvrAPL object(Extended function
= -3)\
</PRE></BODY></HTML>\r\n"

#if 0
#define CLIENT_SAMPLE "\
<HTML><HEAD><TITLE>Client Sampling
informtion</TITLE></HEAD><BODY>\
<PRE>\
Information of  CL001\r\n\
\r\n\
TpApl performance \r\n\
                        New      Pay      Odr      Del
Sto\r\n\
    Num of waiting process  10       20       30
40       50\r\n\
    Answer to RTE (ms)      110      220      330
440      550\r\n\
\r\n\
SVrApl performance \r\n\
                        SMAN     MAX      AVR
TRX\r\n\
    New Order Response      10       11       12
13\r\n\
    Paymant Response        110      111      112
113\r\n\
    Order Status Response   210      211      212
213\r\n\
    Derivery Response       310      311      312
313\r\n\
    Stock Level Response    410      411      412
413\r\n\
</PRE></BODY></HTML>\r\n"
#endif

    char    host_name[32];
    unsigned int    ans_new_avr, ans_pay_avr,
ans_odr_avr, ans_del_avr, ans_sto_avr;
    unsigned int    rsp_new_avr, rsp_pay_avr,
rsp_odr_avr, rsp_del_avr, rsp_sto_avr;

    SAMPLING_DATA   sampling_data;

    /* Get host name, inserting to HTML */
    host_name[0] = '\0';
    gethostname(host_name, sizeof(host_name));

    /* copy sampling information into own area */
    LockSem(GLBSMP_semid);
    memcpy((void*)&sampling_data,
(void*)GLBSMP_shared_mem,
(size_t)sizeof(SAMPLING_DATA));

    /* Clear sampling information for next
sampling interval */
    memset((void*)GLBSMP_shared_mem, 0x00,
(unsigned int)(&((SAMPLING_DATA*)0)-
>MaxRspTimeNewOrder));

    UnlockSem(GLBSMP_semid);

    /* Compute average data */
    ans_new_avr =
sampling_data.NumReqNewOrder != 0?
                sampling_data.AnsNewOrder /
sampling_data.NumReqNewOrder : 0;
    ans_pay_avr =
sampling_data.NumReqPayment != 0?
                sampling_data.AnsPayment /
sampling_data.NumReqPayment : 0;
    ans_odr_avr =
sampling_data.NumReqOrderStatus != 0?
                sampling_data.AnsOrderStatus /
sampling_data.NumReqOrderStatus : 0;
    ans_del_avr =
sampling_data.NumReqDelivery != 0?
                sampling_data.AnsDelivery /
sampling_data.NumReqDelivery : 0;
```

```
    ans_sto_avr =
sampling_data.NumReqStockLevel != 0?
              sampling_data.AnsStockLevel /
sampling_data.NumReqStockLevel : 0;

    rsp_new_avr =
sampling_data.NumNewOrder != 0?
              sampling_data.RspTimeNewOrder /
sampling_data.NumNewOrder : 0;
    rsp_pay_avr =
sampling_data.NumPayment != 0?
              sampling_data.RspTimePayment /
sampling_data.NumPayment : 0;
    rsp_odr_avr =
sampling_data.NumOrderStatus != 0?

sampling_data.RspTimeOrderStatus /
sampling_data.NumOrderStatus : 0;
    rsp_del_avr = sampling_data.NumDelivery !=
0?
              sampling_data.RspTimeDelivery /
sampling_data.NumDelivery : 0;
    rsp_sto_avr =
sampling_data.NumStockLevel != 0?
              sampling_data.RspTimeStockLevel
/ sampling_data.NumStockLevel : 0;

    sprintf(html_buf, CLIENT_SAMPLE ,
        host_name,
        sampling_data.NumQueNewOrder,
        sampling_data.NumQuePayment,
        sampling_data.NumQueOrderStatus,
        sampling_data.NumQueDelivery,
        sampling_data.NumQueStockLevel,
        ans_new_avr, ans_pay_avr, ans_odr_avr,
ans_del_avr, ans_sto_avr,

        sampling_data.SMaxRspTimeNewOrder,
sampling_data.MaxRspTimeNewOrder,
              rsp_new_avr,
sampling_data.NumNewOrder,
        sampling_data.SMaxRspTimePayment,
sampling_data.MaxRspTimePayment,
              rsp_pay_avr,
sampling_data.NumPayment,
        sampling_data.SMaxRspTimeOrderStatus,
sampling_data.MaxRspTimeOrderStatus,
              rsp_odr_avr,
sampling_data.NumOrderStatus,
        sampling_data.SMaxRspTimeDelivery,
sampling_data.MaxRspTimeDelivery,
              rsp_del_avr,
sampling_data.NumDelivery,
        sampling_data.SMaxRspTimeStockLevel,
sampling_data.MaxRspTimeStockLevel,
              rsp_sto_avr,
sampling_data.NumStockLevel);
}

/*********************************************************
*****
 * Initialize sampling                              *
 * Return Value                                     *
 *     NONE                                         *

**********************************************************
****/
void ClientSampleInit() {
#define SAMPLING_CONF_FILE
"/home/tpc/conf/sampling.conf"
#define DEFAULT_CSV_FILE
"/home/tpc/log/sampling.csv"
#define DEFAULT_SAMPLING_INTERVAL   5

    FILE*   conf_file;
```

```
    char    rd_buff[MAX_PATH];
    int     i;

    /* Initialize shared memory */
    MAC_SampleInitParent;

    /* Setup sampling configuration */
    if ((conf_file = fopen(SAMPLING_CONF_FILE,
"r")) == NULL) {
        GLBSMP_shared_mem-
>SelfSamplingOutput =
SELFOUTPUT_DISABLE;
        return;
    }
    GLBSMP_shared_mem->SelfSamplingOutput
= SELFOUTPUT_ENABLE;

    /* CSV file path */
    if (fgets(rd_buff, sizeof(rd_buff), conf_file) ==
NULL) {
        strcpy(GLBSMP_shared_mem-
>CsvFilePath, DEFAULT_CSV_FILE);
        GLBSMP_shared_mem->SamplingInterval
= DEFAULT_SAMPLING_INTERVAL;
        goto FILE_CLOSE;
    }
    for(i = 0; !(rd_buff[i] == '\n' || rd_buff[i] == '\0') ;
i++);
    rd_buff[i] = '\0';
    strcpy(GLBSMP_shared_mem->CsvFilePath,
rd_buff);

    /* Sampling interval */
    if (fgets(rd_buff, sizeof(rd_buff), conf_file) ==
NULL) {
        GLBSMP_shared_mem->SamplingInterval
= DEFAULT_SAMPLING_INTERVAL;
        goto FILE_CLOSE;
    }
    GLBSMP_shared_mem->SamplingInterval =
atoi(rd_buff);

FILE_CLOSE:
    fclose(conf_file);
}


/*********************************************************
*****
 * Self CSV data output                             *
 * Return Value                                     *
 *     NONE                                         *

**********************************************************
****/
void ClientSampleSelfCsv(time_t cur_sec) {

    FILE*   csv_file;

#define TITLE_LINE
"time,num_thread,stay_New,stay_Pay,stay_Odr,
stay_Del,stay_Sto,"\

"resp_New,num_New,resp_Pay,num_Pay,resp_
Odr,num_Odr,resp_Del,num_Del,resp_Sto,num
_Sto,"\

"imax_New,imax_Pay,imax_Odr,imax_Del,imax
_Sto,"\

"max_New,max_Pay,max_Odr,max_Del,max_St
o,"\

"ans_New,nas_Pay,ans_Odr,ans_Del,ans_Sto,c
onnect\n"
```

```
/* -- BEIGN -- Modified by Hayashi for thread-
safe. 2006/02/13 */
#if 0
!   struct          tm *nowtime;
#else
    struct          tm tt;
    struct          tm *nowtime= &tt;
#endif
/* -- END -- Modified by Hayashi for thread-safe.
2006/02/13 */

    unsigned int    ans_new_avr, ans_pay_avr,
ans_odr_avr, ans_del_avr, ans_sto_avr;
    unsigned int    rsp_new_avr, rsp_pay_avr,
rsp_odr_avr, rsp_del_avr, rsp_sto_avr;

    SAMPLING_DATA   sampling_data;


    if (GLBSMP_shared_mem-
>SelfSamplingOutput ==
SELFOUTPUT_DISABLE) {
        /* Output disable */
        return;
    }


    LockSem(GLBSMP_semid);
    if ((cur_sec - GLBSMP_shared_mem-
>CsvOutTime) < GLBSMP_shared_mem-
>SamplingInterval) {
        /* No output timming */
        goto UNLOCK_SEM;
    }

    /* Output CSV data */
    if ((csv_file = fopen(GLBSMP_shared_mem-
>CsvFilePath, "a")) == NULL) {
        goto UNLOCK_SEM;
    }


    if (GLBSMP_shared_mem->CsvOutTime ==
0) {
        /* First time, output header data */
        fprintf(csv_file, TITLE_LINE);
        fclose(csv_file);
        GLBSMP_shared_mem->CsvOutTime =
cur_sec;
        goto UNLOCK_SEM;
    }
    GLBSMP_shared_mem->CsvOutTime =
cur_sec;


    /* copy sampling information into own area */
    memcpy((void*)&sampling_data,
(void*)GLBSMP_shared_mem,
(size_t)sizeof(SAMPLING_DATA));

    /* Clear sampling information for next
sampling interval */
    memset((void*)GLBSMP_shared_mem, 0x00,
(unsigned int)(&((SAMPLING_DATA*)0)-
>MaxRspTimeNewOrder));

    /* Compute average data */
    ans_new_avr =
sampling_data.NumReqNewOrder != 0?
              sampling_data.AnsNewOrder /
sampling_data.NumReqNewOrder : 0;
    ans_pay_avr =
sampling_data.NumReqPayment != 0?
```

```
                sampling_data.AnsPayment /
sampling_data.NumReqPayment : 0;
   ans_odr_avr =
sampling_data.NumReqOrderStatus != 0?
                sampling_data.AnsOrderStatus /
sampling_data.NumReqOrderStatus : 0;
   ans_del_avr =
sampling_data.NumReqDelivery != 0?
                sampling_data.AnsDelivery /
sampling_data.NumReqDelivery : 0;
   ans_sto_avr =
sampling_data.NumReqStockLevel != 0?
                sampling_data.AnsStockLevel /
sampling_data.NumReqStockLevel : 0;

   rsp_new_avr =
sampling_data.NumNewOrder != 0?
                sampling_data.RspTimeNewOrder /
sampling_data.NumNewOrder : 0;
   rsp_pay_avr =
sampling_data.NumPayment != 0?
                sampling_data.RspTimePayment /
sampling_data.NumPayment : 0;
   rsp_odr_avr =
sampling_data.NumOrderStatus != 0?

sampling_data.RspTimeOrderStatus /
sampling_data.NumOrderStatus : 0;
   rsp_del_avr = sampling_data.NumDelivery !=
0?
                sampling_data.RspTimeDelivery /
sampling_data.NumDelivery : 0;
   rsp_sto_avr =
sampling_data.NumStockLevel != 0?
                sampling_data.RspTimeStockLevel
/ sampling_data.NumStockLevel : 0;

   /* Output sampling data */
/* -- BEIGN -- Modified by Hayashi for thread-
safe. 2006/02/13 */
#if 0
!   nowtime = localtime( &cur_sec );
#else
   localtime_r( &cur_sec, nowtime );
#endif
/* -- END -- Modified by Hayashi for thread-safe.
2006/02/13 */

   fprintf(csv_file,
      "%02d-%02d %02d:%02d:%02d,",
      nowtime->tm_mon+1, nowtime->tm_mday,
nowtime->tm_hour, nowtime->tm_min, nowtime-
>tm_sec);

   /* Number of thread (no sampling information)
*/
   fprintf(csv_file, "%d,", 0);

   /* Waiting process queue */
   fprintf(csv_file, "%d,",
sampling_data.NumQueNewOrder);
   fprintf(csv_file, "%d,",
sampling_data.NumQuePayment);
   fprintf(csv_file, "%d,",
sampling_data.NumQueOrderStatus);
   fprintf(csv_file, "%d,",
sampling_data.NumQueDelivery);
   fprintf(csv_file, "%d,",
sampling_data.NumQueStockLevel);

   /* Repsponse time & number of prosessing
trasaction */
   fprintf(csv_file, "%.3f,", (float)rsp_new_avr /
1000.0);
```

```
   fprintf(csv_file, "%d,",
sampling_data.NumNewOrder);
   fprintf(csv_file, "%.3f,", (float)rsp_pay_avr /
1000.0);
   fprintf(csv_file, "%d,",
sampling_data.NumPayment);
   fprintf(csv_file, "%.3f,", (float)rsp_odr_avr /
1000.0);
   fprintf(csv_file, "%d,",
sampling_data.NumOrderStatus);
   fprintf(csv_file, "%.3f,", (float)rsp_del_avr /
1000.0);
   fprintf(csv_file, "%d,",
sampling_data.NumDelivery);
   fprintf(csv_file, "%.3f,", (float)rsp_sto_avr /
1000.0);
   fprintf(csv_file, "%d,",
sampling_data.NumStockLevel);

   /* Max processing time in sampling interval */
   fprintf(csv_file, "%.3f,",
(float)sampling_data.SMaxRspTimeNewOrder /
1000.0);
   fprintf(csv_file, "%.3f,",
(float)sampling_data.SMaxRspTimePayment /
1000.0);
   fprintf(csv_file, "%.3f,",
(float)sampling_data.SMaxRspTimeOrderStatus
/ 1000.0);
   fprintf(csv_file, "%.3f,",
(float)sampling_data.SMaxRspTimeDelivery /
1000.0);
   fprintf(csv_file, "%.3f,",
(float)sampling_data.SMaxRspTimeStockLevel /
1000.0);

   /* Max processing time in all time */
   fprintf(csv_file, "%.3f,",
(float)sampling_data.MaxRspTimeNewOrder /
1000.0);
   fprintf(csv_file, "%.3f,",
(float)sampling_data.MaxRspTimePayment /
1000.0);
   fprintf(csv_file, "%.3f,",
(float)sampling_data.MaxRspTimeOrderStatus /
1000.0);
   fprintf(csv_file, "%.3f,",
(float)sampling_data.MaxRspTimeDelivery /
1000.0);
   fprintf(csv_file, "%.3f,",
(float)sampling_data.MaxRspTimeStockLevel /
1000.0);

   /* Ans time to RTE */
   fprintf(csv_file, "%.3f,",  (float)ans_new_avr /
1000.0);
   fprintf(csv_file, "%.3f,",  (float)ans_pay_avr /
1000.0);
   fprintf(csv_file, "%.3f,",  (float)ans_odr_avr /
1000.0);
   fprintf(csv_file, "%.3f,",  (float)ans_del_avr /
1000.0);
   fprintf(csv_file, "%.3f,",  (float)ans_sto_avr /
1000.0);

   /* Number of connection (no sampling) */
   fprintf(csv_file, "%d", 0);

   fprintf(csv_file, "\n");

   fclose(csv_file);

UNLOCK_SEM:
   UnlockSem(GLBSMP_semid);
   return;
```

```
}


::::::::::::::::::::::::::::::::
 tpapl/ConvInt.c
::::::::::::::::::::::::::::::::

/*********************************************************
*****
 *                                                *
 *       TPC-C Client Application Program Source
*
 *                                                *
 *  Entry Functions                                    *
 *   (1) str2int                                  *
 *   (2) str2short                                  *
 *   (3) str2dbl                                   *
 *                                                *
 *  CREATE by TSL   2002.10.01
*
 *                                                *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

*********************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

#define  numcheck(num) ( 0x30 <= num && num
<= 0x39 ) /* 0 - 9 */
#define  alpcheck(num) ( 0x41 <= num && num
<= 0x5a ) /* A - Z */

/*
   str2int :
   takes a string, makes sure it's not too long,
and ensures that it
   represents an integer.
   If it does, the corresponding int value is
returned.

   -3: there is not string data.
   -2: find not character data.
   -1: string data is too many long
*/
int str2int(char *str, int field_len) {
    int x;

    //for warning
//    if(str == 0 || !(x = strlen(str))) return -3;
    if(str == 0 || (x = strlen(str)) == 0) return -3;

    if(x > field_len){
        if (strchr (str, '%') != 0 )        /* 98.8.3 :---------
------- */
            return -2;
        else
            return -1;
    }
    else{
        for( ; x ; x--){
            if (!numcheck(str[x-1])) {
            return -2;
            }
        }
    }
    return atoi(str);
}

/*
   str2short :
   takes a string, makes sure it's not too long,
and ensures that it
```

```
   represents an integer.
   If it does, the corresponding short value is
returned.

   -3: there is not string data.
   -2: find not character data.
   -1: string data is too many long
*/
short str2short(char *str, int field_len) {
    int x;

    //for warning
//    if(str == 0 || !(x = strlen(str))) return -3;
    if(str == 0 || (x = strlen(str)) == 0) return -3;

    if(x > field_len){
        if (strchr (str, '%') != 0 )        /* 98.8.3 :---------
------- */
            return -2;
        else
            return -1;
    }
    else {
        for( ; x; x--){
            if (!numcheck(str[x-1]))
            return -2;
        }
    }
    x = atoi(str);
    return (short)x;
}

/*
   str2dbl :
   takes a string, makes sure it's not too long,
and makes sure that it
   represents a floating point number.
   If so, delete the decimal point.
   As a result, the value is increased hundredfold.
   this function is returned integer value.

   !! This function use Payment transaction only.

   -3: there is not string data.
   -2: find not character data.
   -1: string data is too many long

 */
int str2dbl(char *str, int field_len) {
    int   x, len, cnt;
/* Replaced T.Kato 03.08.20 Bug Fix --over 5
column integer is memory crush --          */
/*                                total 5+2+1(NULL)bytes
but editting area is 7byts   */
    /* char  NUM[7];*/
    char  NUM[16];
/* Replaced end */

    char  pointf = 0;
    int   fcnt = 2;          /* */


    //for warning
//    if(str == 0 || !(x = strlen(str))) return -3;
    if(str == 0 || (x = strlen(str)) == 0) return -3;

    len = x;

    if(x > field_len){
        if (strchr (str, '%' ) != 0)        /* 98.8.3 :---------
------- */
            return -2;
        else
            return -1;
    }
    else{
        /* check string data */
        for(;x;x--) {
            if(numcheck(str[x-1]));
            else if((str[x-1] == '.') && ((len - x) < 3));
            else if((str[x-1] == '-') && (x == 1));
            else if((str[x-1] == '+') && (x == 1));
            else return -2;
        }
    }

    /* delete the decimal point. As a result,do
hundredfold the value.*/
    for (cnt = 0, x = 0; x < len; x++){

        if ( str[x] == '.') {
            /* find the decimal point. set point flag.*/
            pointf = 1;
        } else {
            /* set character to work buffer.*/
            NUM[cnt] = str[x]; cnt++;

         /* The figure below the decimal point was
detected */
            if ( pointf == 1 ) {fcnt--;}
        }
    }

    if ( pointf == 1 && fcnt > 0 ){
        /*There was no figure below the decimal
point or only one digit was
          found.: ------------------------------------------- */
        for ( ; fcnt > 0 ; fcnt--) {
            NUM[cnt++] = '0';
        }
    }
    else if ( pointf == 0 ) {
        /* There is no decimal point.: ------------------
--- */
        NUM[cnt++] = '0'; NUM[cnt++] = '0';
    }

    NUM[cnt] = 0;

    return (atoi(NUM));
}



::::::::::::::::::::::::::::::::
 tpapl/ConvOther.c
::::::::::::::::::::::::::::::::

/*********************************************************
*****
 *                                                      *
 *       TPC-C Client Application Program Source
*
 *                                                      *
 *  Entry Functions                                     *
 *   (1) para_split                                    *
 *   (2) checkHTMLform                                   *
 *   (3) convert_time                                   *
 *   (4) convert_date                                   *
 *                                                      *
 *  CREATE by TSL   2002.10.01
*
 *                                                      *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

*********************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

#include <time.h>

/*
   para_split :

   ------ (QueryString)--------------------------------------
----------

   ------: --------------------.-----------------NULL-------
---
          --------------------NULL------

   Split divides up a string based on the first
instance of a specified
   delimiter ('sp').  The first instance of 'sp' is
converted to a NULL
   and the address of the first character of the
second half is returned.
   Thus the user has the first half (which he
passed in and still has) and
   the second half (which was returned) with a
NULL between them.  Yay.
   (Yes, strtok does this, sort of, but I can't nest
strtok calls.)
*/
char *para_split(char *para, char delimita) {

    char *point = para;;

    /* The address of the delimitation character is
calculated */
    /* ---------------------------- */
//    if ((point = strchr (para, delimita)) == NULL)
//        return (char *)0;

    for(; !(*point == '\0' || *point == delimita);
point++);
    if (*point ==  '\0')
        return (char *)0;


    /* The delimitation character is replaced with
NULL*/
    *point = '\0';        /* ------------NULL---------- */

    /* The first position of the analyzed variable is
returned.*/
    return (point + 1);   /* ------------------------- */
}

/*
    check HTML form

*/
int checkHTMLform( char *str, char *buffer)
{

    char*   src = str;
    char*   dst = buffer;

    while (*src != '\0'){

        if ( *(src) == '&' ){
            *(dst) = '&'; dst++;
            *(dst) = 'a'; dst++;
            *(dst) = 'm'; dst++;
            *(dst) = 'p'; dst++;
            *(dst) = ';'; dst++;
        }
        else if ( *(src) == '<' ) {
            *(dst) = '&'; dst++;
            *(dst) = 'l'; dst++;
            *(dst) = 't'; dst++;
        *(dst) = ';'; dst++;
    }
    else if ( *(src) == '>' ) {
        *(dst) = '&'; dst++;
        *(dst) = 'g'; dst++;
        *(dst) = 't'; dst++;
        *(dst) = ';'; dst++;
    }
    else if ( *(src) == '"' ) {
        *(dst) = '&'; dst++;
        *(dst) = 'q'; dst++;
        *(dst) = 'u'; dst++;
        *(dst) = 'a'; dst++;
        *(dst) = 't'; dst++;
        *(dst) = ';'; dst++;
    }
    else {
        *(dst) =  *(src);
        dst++;
    }

    src++;
  }

  *(dst) = 0;
  return ( (unsigned long)dst - (unsigned
long)buffer );
}

//
// The date data is converted. (The time data is
not contained.)
// Numeric data is converted into character string
data.
//
void convert_time( char *save_p, double time )
{
/* Replaced T.Kato 20005.01.21 For thread safe
*/
#if 0
!   struct tm* tim;
!   time_t    tt = ( time_t )time;
!
!   tim = localtime( &tt );
#endif
  struct  tm  tm_data;
  struct  tm* tim = &tm_data;
  time_t  tt = ( time_t )time;

  localtime_r( &tt, tim );
/* Replaced end */

  sprintf( save_p, "%02d-%02d-
%04d %02d:%02d:%02d",
      tim->tm_mday, tim->tm_mon+1, tim-
>tm_year + 1900,
      tim->tm_hour, tim->tm_min, tim->tm_sec );
}

//
// The date data is converted. (The time data is
contained.)
// Numeric data is converted into character string
data.
//
void convert_date( char *save_p, double time )
{
/* Replaced T.Kato 2005.01.21 For thread safe */
#if 0
!   struct tm* tim;
!   time_t    tt = ( time_t )time;
!
!   tim = localtime( &tt );
#endif
```

```
  struct  tm  tm_data;
  struct  tm* tim = &tm_data;
  time_t    tt = ( time_t )time;

  tim = localtime_r( &tt, tim );
/* Replaced end */

  sprintf( save_p, "%02d-%02d-%04d",
      tim->tm_mday, tim->tm_mon + 1, tim-
>tm_year + 1900 );
}



::::::::::::::::::::::::::::::::
 tpapl/ConvString.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Entry Functions                                  *
 *   (1) int2str                                  *
 *   (2) int3str                                  *
 *   (3) dec2str                                   *
 *   (4) sigdec2str                                 *
 *   (5) str2str                                  *
 *   (6) alp2str                                   *
 *   (7) date2str                                  *
 *   (8) zip2str                                  *
 *   (9) phone2str                                  *
 *                                              *
 *  CREATE by TSL   2002.10.01
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

*******************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

/*
  int2str : Converts an integer value to a string of
a specified length and
  outputs the string to the memory buffer
supplied.

  field = the destination field
  field_size = number of characters to output
  value = integer to be displayed
*/
void int2str(char *str, int len, int num)
{
   int cnt;

   for (cnt = len - 1; cnt >= 0 ; cnt--){

      str[cnt] = (char)((num % 10) + '0');
      num /= 10;
   }

   for (cnt = 0; cnt < len-1; cnt++){

      if (str[cnt] == '0')
         str[cnt] = ' ';
      else
         return;
   }
}
```

```

/*
  int3str : Converts an integer value to a string of
a specified length and
  outputs the string to the memory buffer
supplied.

  field = the destination field
  field_size = number of characters to output
  value = integer to be displayed
*/
void int3str(char *str, int len, int num)
{
   int cnt;

   for (cnt = len - 1; cnt >= 0 ; cnt--){

      str[cnt] = (char)((num % 10) + '0');
      num /= 10;
   }
}


/*
  dec2str:
  Converts a double precision floating point
value to a string of
  a specified length and outputs the string to the
memory buffer supplied.
  This routine assumes the following restrictions
apply:
  Precision is fixed at 2 places to the right of the
decimal point.
  No string length will be less than 4.

  field = the destination field
  field_size = number of characters to output
  value = floating point number to be displayed
*/
void dec2str(char *str, int len, double num)
{
   int dec, sign, i, cnt;

/* Replaced T.Kato 2005.01.21 For thread safe */
#if 0
!   char *string;
!
!   string = ecvt(num, len-1, &dec, &sign);
#endif

   char    string_buf[17];
   char    *string = string_buf;

   ecvt_r(num, len-1, &dec, &sign, string,
sizeof(string_buf)-1);
/* Replaced end */

   /* dec = ------------,sign = ----0,----1,string=-------
----------------------- */

   if ( dec > 0 ) {
      /* if the integer part is not zero ..
Exsample :mum data is 1234.56 */
      cnt = (len - 3) - dec;

      /* ---------------------------------: "0012" -> "  12"
*/
      /* If the high-order digit is zero , zero is
changed at the blank */
      for (i = 0; i < cnt; i++){
         /* pad with blank in the high part of the
number */
         str[i] = ' ';
      }
```

```
        /* The high-order digit set to the output
area: ----------------------*/
        for (; i < (len - 3); i++){
            str[i] = *(string++);
        }
    }
    else {
        /* If the integer part is zero ... Exsample:
num data is 0.12 */
        cnt = len - 4;

        for (i = 0; i < cnt; i++){
            /* pad with blank in the high part of the
number */
            str[i] = ' ';
        }
        str[i++] = '0';
    }

    str[i++] = '.';

    for (; dec < 0 && i < len; dec++,i++){
        /* pad with 0's in the high part of the fraction
*/
        str[i] = '0';
    }

    for (; i < len; i++){
        /* copy the decimal portion (2 places) */
        str[i] = *(string++);
    }
}

/*
   sigdec2str:
   Converts a double precision floating point
value to a string of
   a specified length and outputs the string to the
supplied buffer.
   If the value is negative, the first character will
be a minus sign (-).

   field = the destination field
   field_size = number of characters to output
   value = floating point number to be displayed
*/
void sigdec2str(char *str, int len, double num)
{
    if (num >= 0.0) {
        str[0] = ' ';
        dec2str (&str[1], len - 1, num);
    } else {
        str[0] = '-';
        dec2str (&str[1], len - 1, -num);
    }
}

/*
   str2str :
   makes sure the string exists and isn't too long.

   -1: string data is too many long
   -2: find not figure data.
    0: there is not string data.
    1: normal end
*/
int str2str(char *str, int field_len) {
    int x;

    //for warning
//  if (str == 0 || !(x = strlen (str))) return 0;
    if (str == 0 || (x = strlen (str)) == 0) return 0;

    if(x > field_len ) {
        if ( strchr (str, '%') != 0)        /* 98.8.3 :---------
------- */
            return -2;
        else
            return -1;
    }
/*
    else {
        for( ; x ; x--){
            if (!alpcheck(str[x-1]))
            return -2;
        }
    }
*/
  return 1;
}

/*
   alp2str : Outputs a string into the memory
space supplied.

   field = the destination field
   field_size = number of characters to output
   string = alpha string to be displayed
*/
void alp2str(char *str, int len, char *alp)
{
    int cnt;

    cnt = strlen (alp);
    strncpy (str, alp, len);    /* copy to destination
area */

    /* len------------------------------*/
    /* If not coming up to the specified length then
set the blank. */
    if ( len - cnt > 0 )
        memset ( &str[cnt], ' ', len - cnt);
}

/*
   date2str : Outputs a date in the supplied buffer
in the following format:
   DD-MM-YYYY

   field = the destination field
   date = date to be converted and displayed
*/
void date2str(char *str, char *time)
{
    int  year, month, day;

#ifdef DBPRT
    fprintf (test_fp, "date2: %s\n", time);
#endif
    sscanf( time, "%d-%d-%d", &day, &month,
&year );

    int3str (str, 2, day);
    str[2] = '-';
    int3str (&str[3], 2, month);
    str[5] = '-';
    int3str (&str[6], 4, year);
}

/*
   zip2str:
   Outputs a zipcode in the supplied buffer in the
following format:
   XXXXX-XXXX

   str = the destination field
   zip = the zipcode to be output
 */
void zip2str (char *str, char *zip)
{
    alp2str (str, 5, zip);
    str[5] = '-';
    alp2str (&str[6], 4, &zip[5]);
}

/*
   phone2str:
   Outputs a phone number in the supplied buffer
in the following format:
   XXXXXX-XXX-XXX-XXXX

   str   = the destination field
   phone = the phone number to be output
*/
void phone2str(char *str, char *phone)
{
    alp2str (str, 6, phone);
    str[6] = '-';

    alp2str (&str[7], 3, &phone[6]);
    str[10] = '-';

    alp2str (&str[11], 3, &phone[9]);
    str[14] = '-';

    alp2str (&str[15], 4, &phone[12]);
}



::::::::::::::::::::::::::::::::
 tpapl/delpage.h
::::::::::::::::::::::::::::::::

/*********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1998.02.23 FJH
*
*********************************/

/* --------------------------------------------------------------
-----------
   delpage.h
   data of delivery transaction result screen
(HTML format)
   --------------------------------------------------------------
---------- */

/* Header data */
#define h_del1 "\
<HTML><HEAD><TITLE>TPC-WINDOW
</TITLE></HEAD><BODY>\n\n\
<CENTER>Delivery<br></CENTER>\
<font size=4>\r\n<PRE>"

/* Screen data*/
#define h_del2 "\
Warehouse:       \r\n\
\r\n\
Carrier Number:   \r\n\
\r\n\
Execution Status:                          \r\n\
\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\
"
/* Tailer data */
#define h_del3 "\
</PRE><FORM ACTION=\"%s\"
METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"New order\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Payment\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Delivery\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Order Status\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Stock Level\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
</FORM></BODY></HTML>\n"

/* Offset to field which should set data */
int  delp[] = { 0xb, 0x23, 0x3b }; /* w_id, carrier
number, status */


::::::::::::::::::::::::::::::::
 tpapl/ErrPage.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Entry Functions                             *
 *   (1) set_errHTML                            *
 *   (2) set_SvrAplErr                          *
 *   (3) set_errpage                            *
 *                                              *
 *  CREATE by TSL   2002.10.01
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

********************************************************
****/
#include "forlinux.h"

#include <stdio.h>
#include <string.h>
#include "tpcweb.h"


#include "tpapl.h"
#include <pthread.h>
#include <atmi.h>
#include "GlobalArea.h"

/*
   set_errHTML :
   this function make error message of
application program.
*/
int set_errHTML (char *page, char *err_inf, int
cookie, char *errname ) {

    sprintf(page, errorpage, errname, err_inf,
SOPATH, cookie );

    return 0;
}

#if 0
!/* "#ifdef symfo"----------Oracle--Symfo--------------
------(set_errHTML)--
!   set_oraerr :
!   this function make error message of the
Oracle application program.
!*/
!int set_oraerr (char *page, char *err_inf, int
cookie ) {
!
!#ifdef Symfo
!    sprintf(page, symfoerr, err_inf, SOPATH,
cookie );
!#else
!    sprintf(page, oraerr, err_inf, SOPATH,
cookie );
!#endif
!
!    return 0;
!}
#endif

/*
   set_tuxerr :
   this function make error message of the TP-
application program.
*/
/* Replaced 03.01.15 */
#if 0
!int set_tuxerr (char *page, char *err_inf, int
cookie) {
#endif
int set_SvrAplErr (char *page, char *err_inf, int
cookie) {
/* Replaced end */

    sprintf(page, tuxerr, err_inf, SOPATH, cookie);

    return 0;
}

/* Error message list : these are notified from
CLINET to RTE */
/* 98.8.3 : -------------------- */
char errstrings[23][166] = {
"The function you selected doesn't exist.\r\n"
"Don't enter URLs manually!\r\n%s",
/* 0 */

"You seem to have responded to a form that
doesn't exist.\r\n"
"Don't enter URLs manually!\r\n%s",
/* 1 */

"The District ID you entered isn't valid.\r\n%s\r\n"
"It must be an integer in the range 1 to 10.\r\n",
/* 2 */

"The threshold value you entered isn't
valid.\r\n%s\r\n"
"It must be an integer in the range 10 to 20.\r\n",
/* 3 */

"The terminal number you entered isn't
valid.\r\n%s\r\n"
"It must be an integer in the range 1 to %d.\r\n",
/* 4 */

"The Carrier ID you entered isn't valid.\r\n%s\r\n"
"It must be an integer in the range 1 to 10.\r\n",
/* 5 */

"The Customer ID you entered isn't
valid.\r\n%s\r\n"
"It must be an integer of 4 or fewer digits.\r\n",
//"It must be an integer in the 1 to 3000.\r\n",
/* 6 */

"The Customer Last Name you entered isn't
valid.\r\n%s\r\n"
"It must be a string shorter than 16
characters.\r\n",          /* 7 */

"The Payment Amount you entered isn't
valid.\r\n%s\r\n"
"It must be a dollar amount, without the dollar
sign,"
" between $1.00 and $5000.00.\r\n",
/* 8 */

"The Customer Warehouse ID you entered isn't
valid.\r\n%s\r\n"
"It must be an integer in the range 1 to %d.\r\n",
/* 9 */

"The Customer District ID you entered isn't
valid.\r\n%s\r\n"
"It must be an integer in the 1 to 10.\r\n",
/* 10 */

"You must enter either a Customer ID or a
Customer Last Name.\r\n"
"You left both fields blank.\r\n%s",
/* 11 */

"The Warehouse ID you entered isn't
valid.\r\n%s\r\n"
"It must be an integer in the range 1 to %d.\r\n",
/* 12 */

"On entry line %d, the data you entered for
the %s field isn't valid.\r\n%s\r\n", /* 13 */

"Supply Warehouse ID",
/* 14 */

"Item ID",                                      /* 15
*/

"Quantity",                                     /* 16
*/
"Your entry was outside the range.",
/* 17 */
"You didn't entry anything for the field.",
/* 18 */
"Your entry contained too many characters.",
/* 19 */
"The input data is wrong data type, must be
numeric.",          /* 20 */
"It must be an integer in the range 1 to %d.",
/* 21 */
"The input data is wrong data type, must be
english capital letter.",    /* 22 */
};

/*
   set_errpage:

   RTE---------------------------------------------------------
-----------


   a generic error page generator. If the user
does anything screwy,
   s/he gets here.  The function generates an
error page based on the
   two errlvl arguments and returns it for the user..

   When err_no is 13 or more, Order Line Data is
Abnormal.
   ( err_no is the error data line number )

   98.8.3 : ----------------------------
 */
int set_errpage (char *buf, int user, int err_no, int
err_inf, int sub_inf, int sub_inf2) {
    char errmsg[1024];
    int  nchar;
    int  length;
    //for warning
    sub_inf;
    nchar;

    if(err_no >= 13) {      /* OrderLIne
Data(Neworder) is Abnormal */
        switch(err_inf) {
        case -5:            /* S_W_ID data is abnormal
*/
            sprintf(errmsg,errstrings[13],err_no-
12,errstrings[14],errstrings[20]);
            sub_inf2 = GLB_Numwh;
            break;
        case -8:            /* S_W_ID data is uninput */
            sprintf(errmsg,errstrings[13],err_no-
12,errstrings[14],errstrings[18]);
            sub_inf2 = GLB_Numwh;
            break;
        case -15:           /* S_W_ID data is outside
range */
            sprintf(errmsg,errstrings[13],err_no-
12,errstrings[14],errstrings[17]);
            sub_inf2 = GLB_Numwh;
            break;

        case -1:            /* I_ID data is uninput */
            sprintf(errmsg,errstrings[13],err_no-
12,errstrings[15],errstrings[18]);
            sub_inf2 = 100000;
            break;
        case -6:            /* I_ID data is abnormal */
            sprintf(errmsg,errstrings[13],err_no-
12,errstrings[15],errstrings[20]);
            sub_inf2 = 100000;
            break;
        case -16:           /* I_ID data is outside range
*/
            sprintf(errmsg,errstrings[13],err_no-
12,errstrings[15],errstrings[17]);
            sub_inf2 = 100000;
            break;

        case -7:            /* Quantity data is abnormal
*/
            sprintf(errmsg,errstrings[13],err_no-
12,errstrings[16],errstrings[20]);
            sub_inf2 = 10;
            break;
        case -2:            /* Quantity data is uninput */
            sprintf(errmsg,errstrings[13],err_no-
12,errstrings[16],errstrings[18]);
            sub_inf2 = 10;
            break;
        case -17:           /* Quantity data is outside
range */
            sprintf(errmsg,errstrings[13],err_no-
12,errstrings[16],errstrings[17]);
            sub_inf2 = 10;
            break;

        default:
            break;
        }

        length = strlen(errmsg);
        sprintf(&errmsg[length], errstrings[21],
sub_inf2);
        sprintf(buf, errhtml, errmsg, SOPATH,
user);

        }
        else if ( err_no == 4 || err_no == 9 || err_no
== 12 ) {
```

```
            switch(err_inf) {
            case -3: /* There is not Input data */
                sprintf(errmsg, errstrings[err_no],
errstrings[18], sub_inf2);
                break;

            case -1: /* too many characters */
                sprintf(errmsg, errstrings[err_no],
errstrings[19], sub_inf2);
                break;

            case -2: /* Not all digits */
                sprintf(errmsg, errstrings[err_no],
errstrings[20], sub_inf2 );
                break;

            case -4: /* nothing sub message */
                sprintf(errmsg, errstrings[err_no], " ",
sub_inf2);
                break;

            default: /* Other error */
                sprintf(errmsg, errstrings[err_no],
errstrings[17], sub_inf2);
                break;
            }

            sprintf(buf, errhtml, errmsg, SOPATH,
user);
//          printf("%s", buf);

        }
        else{
            switch(err_inf) {
            case -3: /* There is not Input data */
                sprintf(errmsg, errstrings[err_no],
errstrings[18]);
                break;

            case -1: /* too many characters */
                sprintf(errmsg, errstrings[err_no],
errstrings[19]);
                break;

            case -2: /* Not all digits */
                if (err_no == 7)
                    sprintf(errmsg, errstrings[err_no],
errstrings[22]);
                else
                    sprintf(errmsg, errstrings[err_no],
errstrings[20]);

                break;

            case -4: /* nothing sub message */
                sprintf(errmsg, errstrings[err_no], " ");
                break;

            default: /* Other error */
                sprintf(errmsg, errstrings[err_no],
errstrings[17]);
                break;
            }

            sprintf(buf, errhtml, errmsg, SOPATH,
user);
//          printf("%s", buf);
        }

//    DBGR(fprintf (test_fp, "This Transaction is
parameter ERROR\n"));
    return 0;
}
```

```
::::::::::::::::::::::::::::::::
 tpapl/GetTerminalInfo.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                *
 *       TPC-C Client Application Program Source
*
 *                                                *
 *  Entry Functions                               *
 *   (1) GetTerminalInfo                            *
 *   (2) GetConfigFileInfo                          *
 *                                                *
 *  CREATE by TSL   2002.12.27
*
 *                                                *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

********************************************************
****/
#include "forlinux.h"
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#include <pthread.h>
#include <atmi.h>

#include "GlobalArea.h"
#include "log.h"
#include "log_level.h"

int GetPrivateProfileString(char* section_name,
char* key_name,
                        char* delault_str, char*
key_data,
                        int buf_size, char* file_name);
int GetConfFileInfo_GetInt(char* section_name,
char* key_name);
int GetConfFileInfo_GetStr(char* section_name,
char* key_name, char* str);

/*******************************************************
*****
 * Get configuration file information.
*
 * Return Value                                   *
 *     None                                       *

********************************************************
****/


void GetConfFileInfo() {

    /* Check INI file exist */
    if (access(GLB_ConfigFilePath, 0x00) != 0) {
        /* INI file no exist, using defalt value */
        TpccUserLog(LOG_LCK, "INI file nothing,
using default value");
        GLB_TermBase            =
DEFAULT_TERMBASE;
        GLB_Numwh               =
DEFAULT_MAXWH;
        GLB_Maxconnect          =
DEFAULT_MAXCONNECT;
        GLB_Maxterm             =
DEFAULT_MAXTERM;
        GLB_C_FLAG              =
DEFAULT_CFLAG;
        strcpy(GLB_TpAplLogPath,
DEFAULT_TPAPL_LOG_PATH);
```

```
        strcpy(GLB_SvrAplLogPath,
DEFAULT_SVRAPL_LOG_PATH);
        strcpy(GLB_LogFilePath,
DEFAULT_SVRAPL_LOG_PATH);
        return;
    }
    TpccUserLog(LOG_LCK, "INI file exist, using
spacified parameter\n");

    /* Get execution informations
*/
    /* If undefined key and illigal value, using
default value  */
    if ((GLB_TermBase =
GetConfFileInfo_GetInt("TPAPL_INFO",
"Term_Base"))  <= 0) {
        GLB_TermBase = DEFAULT_TERMBASE;
    }
    if ((GLB_Numwh =
GetConfFileInfo_GetInt("TPAPL_INFO",
"NumWarehouses"))  <= 0) {
        GLB_Numwh = DEFAULT_MAXWH;
    }
    if ((GLB_Maxconnect =
GetConfFileInfo_GetInt("TPAPL_INFO",
"MaxUsers"))  <= 0) {
        GLB_Maxconnect =
DEFAULT_MAXCONNECT;
    }
    if ((GLB_Maxterm =
GetConfFileInfo_GetInt("TPAPL_INFO",
"MaxTerm of Client"))  <= 0) {
        GLB_Maxterm = DEFAULT_MAXTERM;
    }
    if ((GLB_C_FLAG =
GetConfFileInfo_GetInt("TPAPL_INFO",
"CONTROL_Flag"))  == -1) {
        GLB_C_FLAG = DEFAULT_CFLAG;
    }
    if (GetConfFileInfo_GetStr("TPAPL_INFO",
"LogPath", GLB_TpAplLogPath) != 0) {
        strcpy(GLB_TpAplLogPath,
DEFAULT_TPAPL_LOG_PATH);
    }
    if (GetConfFileInfo_GetStr("SVRAPL_INFO",
"LogPath", GLB_SvrAplLogPath) != 0) {
        strcpy(GLB_SvrAplLogPath,
DEFAULT_SVRAPL_LOG_PATH);
    }

    strcpy(GLB_LogFilePath,
GLB_TpAplLogPath);
}

/*------------------------------------------------------*/
/* Get information in the CONFIG file for integer
value */
/*------------------------------------------------------*/
int GetConfFileInfo_GetInt(char* section_name,
char* key_name) {

    char    value_buf[64];
    int     i;

    for (i = 0; i < 3; i++) {
        GetPrivateProfileString(section_name,
key_name, "*",
                                value_buf, sizeof(value_buf),
GLB_ConfigFilePath);
        if (value_buf[0] == '*') {
            /* if Key is nothing, retry gettiing */
            continue;
        }
        break;
    }
#ifdef PUT_INF_LOG
    TpccUserLog(LOG_LCK, "CONFIG file
information [%s %s]=[%s]", section_name,
key_name, value_buf);
#endif
    if (value_buf[0] == '*') {
        /* Target key was nothing */
        return (-1);
    }
    return(atoi(value_buf));
}

/*------------------------------------------------------*/
/* Get information in the CONFIG file for string
value */
/*------------------------------------------------------*/
int GetConfFileInfo_GetStr(char* section_name,
char* key_name, char* str) {

    int     i;
    char    value_buf[1024];

    for (i = 0; i < 3; i++) {
        GetPrivateProfileString(section_name,
key_name, "*",
                                value_buf, sizeof(value_buf),
GLB_ConfigFilePath);
        if (value_buf[0] == '*') {
            /* if Key is nothing, retry gettiing */
            continue;
        }
        break;
    }
#ifdef PUT_INF_LOG
    TpccUserLog(LOG_LCK, "CONFIG file
information [%s %s]=[%s]", section_name,
key_name, value_buf);
#endif
    if (value_buf[0] == '*') {
        /* Target key was nothing */
        return (-1);
    }
    strcpy(str, value_buf);
    return(strlen(value_buf));
}


::::::::::::::::::::::::::::::::
 tpapl/GlobalArea.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                   *
 *   Global Area definition for common.
*
 *                                                    *
 *  CREATE by TSL   2003.12.15
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*******************************************************
****/
#include "forlinux.h"

#include <pthread.h>
#include <atmi.h>

#ifdef DBPRT            /* for debug */
FILE   *test_fp;
#endif

/* Environment of operation */
int                 GLB_TermBase;
int                 GLB_Numwh;
int                 GLB_Maxconnect;
int                 GLB_Maxterm;
int                 GLB_C_FLAG;
char                GLB_TpAplLogPath[MAX_PATH];
char
GLB_SvrAplLogPath[MAX_PATH];


/* Configuration file path */
char
GLB_ConfigFilePath[MAX_PATH];


/* Thread key */
pthread_key_t       GLB_ThreadKey;

/* Log information */
char                GLB_LogFilePath[MAX_PATH];
int                 GLB_LogSemId;

/* TUXEDO context */
#if 0 /* * 2006.03.29 T.Motoo: Changed the type
of "GLB_TpContext". */
!TPCONTEXT_T            GLB_TpContext = 0;
#endif
TPCONTEXT_T         *GLB_TpContext = NULL;

/*
 * 2006.03.29 T.Motoo: Added.
 */
int                 GLB_ThreadLimit = 1;


::::::::::::::::::::::::::::::::
 tpapl/GlobalArea.h
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                   *
 *   Global Area definition for common.
*
 *                                                    *
 *  CREATE by TSL   2003.12.15
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*******************************************************
****/

#ifndef GLOBALAREA_H
#define GLOBALAREA_H


#ifdef DBPRT            /* for debug */
extern FILE   *test_fp;
#endif


extern int              GLB_TermBase;
#define DEFAULT_TERMBASE            1
extern int              GLB_Numwh;
#define DEFAULT_MAXWH               2000
```

```
extern int                GLB_Maxconnect;
#define DEFAULT_MAXCONNECT         20000
extern int                GLB_Maxterm;
#define DEFAULT_MAXTERM           2000
extern int                GLB_C_FLAG;
#define DEFAULT_CFLAG             0
extern  char
GLB_TpAplLogPath[MAX_PATH];
extern  char
GLB_SvrAplLogPath[MAX_PATH];

/* Configuration file path */
extern  char
GLB_ConfigFilePath[MAX_PATH];


/* Thread key */
extern  pthread_key_t      GLB_ThreadKey;

/* Log information */
extern char
GLB_LogFilePath[MAX_PATH];
extern int                GLB_LogSemId;

/* TUXEDO context */
#if 0 /* * 2006.03.29 T.Motoo: Changed the type
of "GLB_TpContext". */
!extern TPCONTEXT_T        GLB_TpContext;
#endif
extern  TPCONTEXT_T*       GLB_TpContext;

/*
 * 2006.03.29 T.Motoo: "GLB_ThreadLimit" and
"TUXCDPERCTXT" were added.
 */
extern  int               GLB_ThreadLimit;

/*
 * Call descriptors per context (TUXEDO)
 */
#define TUXCDPERCTXT 50

#endif  // GLOBALAREA_H


::::::::::::::::::::::::::::::::
 tpapl/InitThreadEnv.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                 *
 *       TPC-C Client Application Program Source
*
 *                                                 *
 *  Entry Functions                                *
 *   (1) GetThreadKey                              *
 *   (2) CreateTuxEnv                              *
 *   (3) DestroyThread                             *
 *   (4) FreeThreadKey                             *
 *   (5) GetThreadCntl                             *
 *   (6) RegistTuxApl                              *
 *   (7) TermChildProcess                          *
 *   (7) PlainCleanup                              *
 *                                                 *
 *  CREATE by TSL   2003.12.16
*
 *                                                 *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*******************************************************
****/
#include "forlinux.h"
#include <pthread.h>
```

```
#include <atmi.h>
#include <unistd.h>

#include "httpd.h"
#include "http_config.h"
#include "http_protocol.h"
#include "ap_config.h"
#include "ap_compat.h"
#include "ap_mpm.h" /* 2006.03.29 T.Motoo:
Added for ap_mpm_query */

#include "tpccinf.h"
#include "trans.h"
#include "ThreadCntl.h"
#include "GlobalArea.h"
#include "TpAplDBDependPrototype.h"
#include "log.h"
#include "log_level.h"

/*******************************************************
*****
 * Get thread key.                                *
 * Return Value                                   *
 *      0  : Success                              *
 *      !0 : Fail                                 *

*******************************************************
****/
int GetThreadKey() {

    int ret_code;
    void DestroyThread(void* p);

#ifdef PUT_INF_LOG
    TpccUserLog (LOG_INF, "Thread key
creating start [GetThreadKey]\n");
#endif

    /* Create the thread key */
    if ((ret_code =
pthread_key_create(&GLB_ThreadKey,
DestroyThread)) != 0) {
        TpccUserLog (LOG_ERR, "Thread key fail
to creat [error:%d]\n", ret_code);
        return -1;
    }

#ifdef PUT_INF_LOG
    TpccUserLog (LOG_INF, "Thread key
creating end [GetThreadKey= %d]\n",
GLB_ThreadKey);
#endif

    return 0;
}

/*******************************************************
*****
 * Initialize environment for Thread.
*
 * Return Value                                   *
 *      !0 : Success(pointer of
THREAD_CNTL_INFO)          *
 *       0 : Fail                                 *

*******************************************************
****/
/*
 * 2006.03.29 T.Motoo: The argument was
added. "id" is ID of connection managed
 *                   by apache. Unique at any point in
time.
 */
#if 0
!THREAD_CNTL_INFO* CreateThreadEnv() {
```

```
#endif
THREAD_CNTL_INFO* CreateThreadEnv(int id)
{

    THREAD_CNTL_INFO*   ThreadCntlInfo;

    void*              itf_buf;
    char*              resp_buf;
    char*              query_str;
    int                buf_leng;

#define BUF_TYPE    "CARRAY"

    if ((ThreadCntlInfo =
(THREAD_CNTL_INFO*)pthread_getspecific(GL
B_ThreadKey)) == NULL) {

#ifdef PUT_INF_LOG
        TpccUserLog(LOG_INF, "Thread initialize
started \n");
#endif

        /* First execution in this thread */
#ifndef SCRTEST
        /* Regist context */
/*
 * 2006.03.29 T.Motoo: Modified because child
process came to have one or more
 *                   contexts.
 */
#if 0
!       if (tpsetctxt(GLB_TpContext, 0) == -1) {
#endif
        if (tpsetctxt(GLB_TpContext[(id %
GLB_ThreadLimit) /
                            TUXCDPERCTXT], 0) ==
-1) {
            TpccUserLog(LOG_ERR, "tpsetctxt()
failed\n");
            return(0);
        }
#endif

        /* Get query data area */
#ifndef USEPOOL_QUERY
        if ((query_str =
(char*)malloc(QUERY_STR_SIZE)) == NULL) {
            TpccUserLog(LOG_ERR, "malloc() failed
for query string buffer (size=%d)\n",
QUERY_STR_SIZE);
            return(0);
        }
#else
        query_str = NULL;
#endif
        /* Get response editting area */
        if ((resp_buf =
(char*)malloc(RESP_BUF_SIZE)) == NULL) {
            TpccUserLog(LOG_ERR, "malloc() failed
for response editting buffer (size=%d)\n",
RESP_BUF_SIZE);
            return(0);
        }

        /* Get Thread control information area */
        if ((ThreadCntlInfo =
(THREAD_CNTL_INFO*)malloc(sizeof(THREAD
_CNTL_INFO))) == NULL) {
            TpccUserLog(LOG_ERR, "malloc() failed
for THREAD_CNTL_INFO (size=%d)\n",
sizeof(THREAD_CNTL_INFO));
            return(0);
        }

        /* Get the TUXEDO interface data area */
        buf_leng = (GetGenericDataLen() + 16) &
0xfffffff0;

#ifdef CONST_TUX_BUF

#ifndef SCRTEST
        if ((itf_buf = (void *)tpalloc("CARRAY",
NULL, buf_leng)) == NULL ) {
            TpccUserLog(LOG_ERR, "tpalloc() failed
for interface data buffer (size=%d)\n", buf_leng);
            return(0);
        }
#else
        if ((itf_buf = (void *)calloc( buf_leng, 1)) ==
NULL ) {
            TpccUserLog(LOG_ERR, "calloc() failed
for interface data buffer (size=%d)\n", buf_leng);
            return(0);
        }
#endif

#else
        itf_buf = 0;
#endif
        /* Set each pointer */
        ThreadCntlInfo->TrxData      = itf_buf;
        ThreadCntlInfo->TrxDataLeng  = buf_leng;
        ThreadCntlInfo->QueryData    = query_str;
        ThreadCntlInfo->RespBuf      = resp_buf;

        /* Set thread data pointer */
        if (pthread_setspecific(GLB_ThreadKey,
(void*)ThreadCntlInfo) != 0) {
            TpccUserLog(LOG_ERR,
"pthread_setspecific() failed for
THREAD_CNTL_INFO setting \n");
#ifdef CONST_TUX_BUF

#ifndef SCRTEST
            tpfree(itf_buf);
#else
            free(itf_buf);
#endif

#endif
            return(0);
        }

#ifdef PUT_INF_LOG
        TpccUserLog(LOG_INF, "Thread initialize
ended [thread key:%d]\n", GLB_ThreadKey);
#endif
    }

    return(ThreadCntlInfo);
}

/*******************************************************
*****
 * Destroy thread, then free allocate area.
*
 * Return Value                              *
 *     NONE                                  *

********************************************************
****/
void DestroyThread(void* p) {

    THREAD_CNTL_INFO*      ThreadCntlInfo;

#ifdef PUT_INF_LOG
        TpccUserLog(LOG_INF, "Thread
terminated start\n");
#endif
```

```
    if (p != NULL) {
        ThreadCntlInfo =
(THREAD_CNTL_INFO*)p;

        if (ThreadCntlInfo->TrxData != 0)
#ifndef SCRTEST
            tpfree(ThreadCntlInfo->TrxData);
#else
            free(ThreadCntlInfo->TrxData);
#endif

#ifndef USEPOOL_QUERY
        if (ThreadCntlInfo->QueryData != 0)
            free((void*)ThreadCntlInfo->QueryData);
#endif
        if (ThreadCntlInfo->RespBuf != 0)
            free((void*)ThreadCntlInfo->RespBuf);
        free((void*)ThreadCntlInfo);
        ThreadCntlInfo = 0;
        if (pthread_setspecific(GLB_ThreadKey,
(void*)ThreadCntlInfo) != 0) {
            TpccUserLog(LOG_ERR,
"pthread_setspecific() failed for Thread
destroied\n");
        }

    }

#ifdef PUT_INF_LOG
    TpccUserLog(LOG_INF, "Thread terminate
ended [TSD value:%08x]\n", (unsigned long)p);
    return;
#endif
}

/*******************************************************
*****
 * Free thread key.                          *
 * Return Value                              *
 *     NONE                                  *

********************************************************
****/
void FreeThreadKey() {
    int     ret_code;

    if ((ret_code =
pthread_key_delete(GLB_ThreadKey)) != 0) {
        TpccUserLog(LOG_ERR,
"pthread_key_delete() failed [ret_code=%d]\n",
ret_code);
    }
}

/*******************************************************
*****
 * Get Thread_CNTL_INFO pointer in my thread.
*
 * Return Value                              *
 *     !0 : Success(pointer of
THREAD_CNTL_INFO)          *
 *      0 : Fail                             *

********************************************************
****/
THREAD_CNTL_INFO* GetThreadCntl() {
    THREAD_CNTL_INFO*   ThreadCntlInfo;

    if ((ThreadCntlInfo =
(THREAD_CNTL_INFO*)pthread_getspecific(GL
B_ThreadKey)) == NULL) {
        TpccUserLog(LOG_ERR, "Thread cntrol
information is not allocated.\n");
        return 0;
    }
```

```

#ifdef CONST_TUX_BUF
    /* Nothing to do */

#else
#ifndef SCRTEST
    if ((ThreadCntlInfo->TrxData = (char
*)tpalloc("CARRAY", NULL, ThreadCntlInfo-
>TrxDataLeng)) == NULL ) {
        TpccUserLog(LOG_ERR, "tpalloc() failed
for interface data buffer (size=%d)\n",
ThreadCntlInfo->TrxDataLeng);
        return(0);
    }
#else
    if ((ThreadCntlInfo->TrxData = (char
*)calloc( ThreadCntlInfo->TrxDataLeng, 1)) ==
NULL ) {
        TpccUserLog(LOG_ERR, "calloc() failed for
interface data buffer (size=%d)\n",
ThreadCntlInfo->TrxDataLeng);
        return(0);
    }
#endif
#endif

    return ThreadCntlInfo;
}


/*******************************************************
*****
 * Free TUXEDO interface buffer.
*
 * Return Value                              *
 *     NONE                                  *

********************************************************
****/
void FreeTuxBuffer(THREAD_CNTL_INFO*
ThreadCntlInfo) {

#ifdef CONST_TUX_BUF
    /* No free buffer */
#else
    if (ThreadCntlInfo->TrxData != 0) {
#ifndef SCRTEST
        tpfree(ThreadCntlInfo->TrxData);
#else
        free(ThreadCntlInfo->TrxData);
#endif
        ThreadCntlInfo->TrxData = 0;
    }
#endif

    return;
}

/*******************************************************
*****
 * Regist TUXEDO aplication.
*
 * Return Value                              *
 *     !0  : Success                         *
 *      0  : Fail                            *

********************************************************
****/
/*
 * 2006.03.29 T.Motoo: The argument was
added. "p" is pool of apache. Moreover,
 *                some variables were added.
 */
#if 0
!TPCONTEXT_T RegistTuxApl() {
```

```
!
!  TPCONTEXT_T ctx = 0;
#endif
TPCONTEXT_T *RegistTuxApl(void *p) {

   TPCONTEXT_T *ctx = NULL;        /* Contexts
*/
   int         num_of_ctx = 0;    /* Contexts per
child */
   int         thr_per_child = 0; /* Threads per child
*/
   int         i;                 /* Uses as counter */


   static TPINIT    *tpinf = 0;

   if (tpinf == 0) {
      /* Get Initialize information area for tpinit() */
      if ((tpinf = (TPINIT *)tpalloc("TPINIT", NULL,
sizeof(TPINIT))) == NULL) {
         TpccUserLog(LOG_ERR, "tpalloc failed
for tpinit() (%s)\n", tpstrerror(tperrno));
         return 0;
      }

      /* Execute tpinit( ) (Regist TUXEDO
aplication)*/
      memset((void*)tpinf, 0x00, sizeof(TPINIT));
      tpinf->flags|=TPMULTICONTEXTS;

#if 0 /* 2006.03.29 T.Motoo: Changed to get one
or more contexts. */
!      if (tpinit(tpinf) < 0) {
!          /* tpinit( ) abnormal end */
!          TpccUserLog(LOG_ERR, "tpinit() faild
(%s)\n", tpstrerror(tperrno));
!          return 0;
!      }
!  }
!
!  /* Get my context */
!  if (tpgetctxt(&ctx, 0) == -1) {
!      TpccUserLog(LOG_ERR, "Failed to get
Tuxedo context (%s)\n", tpstrerror(tperrno));
!      return 0;
!  }
#endif
      /*
       * Gets "ThreadsPerChild" and
"ThreadLimit".
       */

ap_mpm_query(AP_MPMQ_MAX_THREADS,
&thr_per_child);

ap_mpm_query(AP_MPMQ_HARD_LIMIT_THR
EADS, &GLB_ThreadLimit);

      /*
       * Gets the number of contexts.
       */
      num_of_ctx = ((thr_per_child - 1) /
TUXCDPERCTXT) + 1;

      /*
       * Allocates the memory for contexts in the
pool.
       */
      ctx = (TPCONTEXT_T
*)ap_palloc((apr_pool_t*)p,
                              sizeof(TPCONTEXT_T)
* num_of_ctx);

      if (ctx == NULL) {
         TpccUserLog(LOG_ERR, "ap_palloc
faild for contexts\n");
         return 0;
      }

      for (i = 0; i < num_of_ctx; i++) {
         /*
          * Joins the TUXEDO.
          */
         if (tpinit(tpinf) < 0) {
            /* tpinit( ) abnormal end */
            TpccUserLog(LOG_ERR, "tpinit() faild
(%s)\n",
                        tpstrerror(tperrno));
            return 0;
         }

         /*
          * Gets the context.
          */
         if (tpgetctxt((ctx + i), 0) == -1) {
            TpccUserLog(LOG_ERR, "Failed to
get Tuxedo context (%s)\n",
                        tpstrerror(tperrno));
            return 0;
         }
      }
   }

   return ctx;
}

/*********************************************************
*****
 * Termmnate child process.
*
 * Return Value                              *
 *     Always SUCCESS                             *

*********************************************************
****/
apr_status_t TermChildProcess(void* p) {

#ifdef PUT_INF_LOG
   TpccUserLog(LOG_INF, "Child process
terminated start. \n");
#endif
   /* Leave from TUXEDO aplication */
   if (GLB_TpContext != 0) {
      if (tpterm() == -1) {
         TpccUserLog(LOG_ERR, "tpterm() failed
for Thread destroied\n");
      }
      GLB_TpContext = 0;
   }

   /* Delete TSD key */
   FreeThreadKey();

#ifdef PUT_INF_LOG
   TpccUserLog(LOG_INF, "Child process
terminated end. \n");
#endif

   return(APR_SUCCESS);

}

/*********************************************************
*****
 * Plain cleanup.                            *
 * Return Value                              *
 *     Always SUCCESS                             *

*********************************************************
****/
apr_status_t PlainCleanup(void* p) {

   /* Notheng to do */
   return(APR_SUCCESS);
}


::::::::::::::::::::::::::::::::
 tpapl/log_level.h
::::::::::::::::::::::::::::::::

/*********************************************************
*****
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  CREATE by TSL   2003.02.07
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*********************************************************
****/

//#define   PUT_INF_LOG              //
Information log
//#define   PUT_FNC_ENTRY_LOG          //
Function entry point log
//#define PUT_FNC_EXIT_LOG         // Function
exit log


/* Function entry point log macro */
#ifdef  PUT_FNC_ENTRY_LOG
#define MAC_PutFncEntryLog(func)
TpccUserLog(LOG_INF, ">>>>> "func" start
>>>>>");
#else
#define MAC_PutFncEntryLog(func)    ;
#endif

/* Function exit point log  */
#ifdef  PUT_FNC_EXIT_LOG
#define MAC_PutFncExitLog(func)
TpccUserLog(LOG_INF, "<<<<< "func" end
<<<<<");
#else
#define MAC_PutFncExitLog(func)     ;
#endif


::::::::::::::::::::::::::::::::
 tpapl/Makefile
::::::::::::::::::::::::::::::::


##
##  Makefile -- Build procedure for sample tpapl
Apache module
##  Autogenerated via ``apxs -n tpapl -g''.
##

builddir=.
top_srcdir=/etc/httpd
top_builddir=/etc/httpd
include /usr/lib/httpd/build/special.mk

#   the used tools
APXS=apxs
APACHECTL=apachectl
```

```
#   additional defines, includes and libraries
#DEFS=-Dmy_define=my_value
#INCLUDES=-Imy/include/dir
#LIBS=-Lmy/lib/dir -lmylib

#   the default target
all: local-shared-build

#   install the shared object file into Apache
install: install-modules

#   cleanup
clean:
    -rm -f mod_tpapl.o mod_tpapl.lo
mod_tpapl.slo mod_tpapl.la

#   simple test
test: reload
    lynx -mime_header http://localhost/tpapl

#   install and activate shared object by reloading
Apache to
#   force a reload of the shared object file
reload: install restart

#   the general Apache start/restart/stop
#   procedures
start:
    $(APACHECTL) start
restart:
    $(APACHECTL) restart
stop:
    $(APACHECTL) stop



::::::::::::::::::::::::::::::::
 tpapl/Makefile_lib
::::::::::::::::::::::::::::::::

#-----------------------------------------------------------------
------
#  Makefile : Makefile for TpApl library on Linux.
#
#   Created by TSL 2003.12.22
#
#   All Right Rserverd, Copyright Co, FUJITSU
LIMITED 2003-2004.
#-----------------------------------------------------------------
------

# GCC compile configurations
AR  = ar
ARFLAGS = rv

#CFLAGS note:
#  CONST_TUX_BUF defined   : TUXEDO
interface buffer is created when thread initialize.
#  CONST_TUX_BUF undefined : TUXEDO
interface buffer is created when transaction
processing start,
#                         and freed when transaction
procesing end.
#  USEPOOL_QUERY define    : Use query data
area in apache pool.
#  USEPOOL_QUERY undefined : Allocate the
query data area, and copied query data form
apache pool.
#CFLAGS = -Wall
#CFLAGS = -Wall -DCONST_TUX_BUF
CFLAGS  = -Wall -O2 -DCONST_TUX_BUF -
DUSEPOOL_QUERY
CC  = gcc

# Define macros
DMACRO  =

# home directory.
TOPDIR  = /home/tpc/client_apl
TUXDIR  = /usr/local/BEA/tuxedo8.1
APADIR  = /usr/include/httpd
APA0DIR  = /usr/include/apr-0
APLDIR  = $(TOPDIR)/tpapl

# include directory
COM_INC = -I$(TOPDIR)/common
TUX_INC = -I$(TUXDIR)/include
APA_INC = -I$(APADIR)
APA0_INC = -I$(APA0DIR)
APL_INC = -I$(APLDIR)


# header file directory
HDFDIR = $(APLDIR)
COMDIR = $(TOPDIR)/common

INCLUDE = $(APL_INC) $(COM_INC) -
I$(APA0DIR) $(APA_INC) $(TUX_INC)
INCFILE = $(APLDIR)/delpage.h \
        $(APLDIR)/GlobalArea.h \
        $(APLDIR)/log_level.h \
        $(APLDIR)/menupage.h \
        $(APLDIR)/newpage.h \
        $(APLDIR)/odrpage.h \
        $(APLDIR)/paypage.h \
        $(APLDIR)/stpage.h \
        $(APLDIR)/ThreadCntl.h \
        $(APLDIR)/tpapl.h \
        $(APLDIR)/TpAplDBDependPrototype.h \
        $(APLDIR)/TpAplPrototype.h \
        $(APLDIR)/tpccinf.h \
        $(APLDIR)/tpcinweb.h \
        $(APLDIR)/tpcweb.h \
        $(APLDIR)/trans.h \
        $(APLDIR)/SampleInfo.h \
        $(COMDIR)/log.h \
        $(COMDIR)/sema.h


# target object
OBJS = TpAplHandler.o ClientMonitor.o
ConvInt.o  ConvOther.o  ConvString.o  \
      ErrPage.o  GetTerminalInfo.o GlobalArea.o
InitThreadEnv.o tpaplFunction.o
ARCH_LIB = $(APLDIR)/libtpapl.a


$(ARCH_LIB) : $(OBJS) $(INCFILE)
   $(AR) $(ARFLAGS) $(ARCH_LIB) $(OBJS)

.SUFFIXES: .o .c
.c.o:
   $(CC) -o $@ -c $(CFLAGS) $(INCLUDE)
$(DMACRO)  $<

$(OBJS) : $(INCFILE)

clean:
   rm  $(TIER_ARCH_LIB) $(TIER_OBJS)



::::::::::::::::::::::::::::::::
 tpapl/Makefile_tpapl
::::::::::::::::::::::::::::::::

#-----------------------------------------------------------------
------
#  Makefile : Makefile for TpApl library on Linux.
#
#   Created by TSL 2003.12.18
#
#   All Right Rserverd, Copyright Co, FUJITSU
LIMITED 2003-2004.
#-----------------------------------------------------------------
------

builddir=.
top_srcdir=/etc/httpd
top_builddir=/etc/httpd
include /usr/lib/httpd/build/special.mk

#   the used tools
APXS=apxs
APACHECTL=apachectl

#   additional defines, includes and libraries
#DEFS=-Dmy_define=my_value
#INCLUDES=-Imy/include/dir
#LIBS=-Lmy/lib/dir -lmylib

TPAHOME = /home/tpc/client_apl
TUXHOME = /usr/local/BEA/tuxedo8.1

#LIBS=-L$(TPAHOME)/tpapl -L$(TUXHOME)/lib
\
#    -ltpapl \
#   -ltux -lbuft -lfml -lfml32 -lengine \
#   -ldl -lpthread

LIBS=-L$(TPAHOME)/tpapl -L$(TUXHOME)/lib \
    -ltpapl \
    -ltux

#   the default target
all: local-shared-build

#   install the shared object file into Apache
install: install-modules

#   cleanup
clean:
    -rm -f mod_tpapl.o mod_tpapl.lo
mod_tpapl.slo mod_tpapl.la

#   simple test
test: reload
    lynx -mime_header http://localhost/tpapl

#   install and activate shared object by reloading
Apache to
#   force a reload of the shared object file
reload: install restart

#   the general Apache start/restart/stop
#   procedures
start:
    $(APACHECTL) start
restart:
    $(APACHECTL) restart
stop:
    $(APACHECTL) stop



::::::::::::::::::::::::::::::::
 tpapl/MakeShell_lib
::::::::::::::::::::::::::::::::

#! /bin/sh
cd /home/tpc/client_apl/tpapl
make -f Makefile_lib > make_result.txt 2>&1


::::::::::::::::::::::::::::::::
 tpapl/MakeShell_tpapl
::::::::::::::::::::::::::::::::::

#! /bin/sh

# Output object from library
cd /home/tpc/client_apl/tpapl/trnexe
echo "=="                    > ../make_result.txt
echo "====== Output object"
>> ../make_result.txt
rm *.o                       >> ../make_result.txt
ar -xv libtrnexe_$1.a  ConvTime.o
>> ../make_result.txt
ar -xv libtrnexe_$1.a  CreateTranErrReason.o
>> ../make_result.txt
ar -xv libtrnexe_$1.a  TestFunction.o
>> ../make_result.txt
ar -xv libtrnexe_$1.a  TransactionDataLen.o
>> ../make_result.txt
ar -xv libtrnexe_$1.a  TrxDelivery.o
>> ../make_result.txt
ar -xv libtrnexe_$1.a  TrxNewOrder.o
>> ../make_result.txt
ar -xv libtrnexe_$1.a  TrxOrderStatus.o
>> ../make_result.txt
ar -xv libtrnexe_$1.a  TrxPayment.o
>> ../make_result.txt
ar -xv libtrnexe_$1.a  TrxStockLevel.o
>> ../make_result.txt


# Make library
cd /home/tpc/client_apl/tpapl
echo "=="                    >> make_result.txt
echo "====== Remake library"  >>
make_result.txt
ar -rv libtpapl.a  ./trnexe/ConvTime.o
>> make_result.txt
ar -rv libtpapl.a  ./trnexe/CreateTranErrReason.o
>> make_result.txt
ar -rv libtpapl.a  ./trnexe/TestFunction.o
>> make_result.txt
ar -rv libtpapl.a  ./trnexe/TransactionDataLen.o
>> make_result.txt
ar -rv libtpapl.a  ./trnexe/TrxDelivery.o
>> make_result.txt
ar -rv libtpapl.a  ./trnexe/TrxNewOrder.o
>> make_result.txt
ar -rv libtpapl.a  ./trnexe/TrxOrderStatus.o
>> make_result.txt
ar -rv libtpapl.a  ./trnexe/TrxPayment.o
>> make_result.txt
ar -rv libtpapl.a  ./trnexe/TrxStockLevel.o
>> make_result.txt

ar -rv libtpapl.a  ../common/log.o                    >>
make_result.txt
ar -rv libtpapl.a  ../common/sema.o
>> make_result.txt
ar -rv libtpapl.a  ../common/shmem.o
>> make_result.txt
ar -rv
libtpapl.a  ../common/GetPrivateProfileString.o
>> make_result.txt

# Make TPAPL
echo "=="                        >> make_result.txt
echo "====== Make ====== "      >>
make_result.txt
touch mod_tpapl.c              >> make_result.txt
make -f Makefile_tpapl          >> make_result.txt
2>&1
## Not install ##make -f Makefile_tpapl install
>> make_result.txt 2>&1
```

```
# Check undefined symbol
echo "=="                        >> make_result.txt
echo "====== mod_tpapl.so information ====="
>> make_result.txt
ldd -r ./.libs/mod_tpapl.so     >> make_result.txt
2>&1



::::::::::::::::::::::::::::::::::
 tpapl/menupage.h
::::::::::::::::::::::::::::::::::

/*********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1999.08.19 FJH
*
*********************************/

/* --------------------------------------------------------------
-----------
   menupage.h
   --------------------------------------------------------------
---------- */

/* Transaction select screen data */
#define h_menu "\
<HTML><HEAD><TITLE>TPC-
WINDOW</TITLE></HEAD>\r\n\
<BODY><CENTER>Transaction
Menu<BR></CENTER>\r\n\
<PRE>\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\
\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n</PRE>\
<FORM ACTION=\"%s\" METHOD=\"GET\">\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"New order\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Payment\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Delivery\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Order Status\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Stock Level\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
</FORM></BODY></HTML>\r\n"

/* If client can not connect server then use this
format */
#define noconnt "\
<HTML><HEAD><TITLE>ERROR: Can't
Connect</TITLE></HEAD><BODY>\r\n\
<P>Sorry. all %d database connections are
currently in use. <br>\
Please try again later. terminal number is %d.
</P></BODY></HTML>\r\n"

/* If client can not connect server then use this
format */
#define conntmax "\
<HTML><HEAD><TITLE>ERROR: Can't
Connect</TITLE></HEAD><BODY>\r\n\
<P>The terminal number you entered isn't
valid.<BR>\
It must be an integer in the range 1
to %d.<P>\r\n\
The terminal number which you specified
is %d.</P></BODY></HTML>\r\n"

/* If client can not connect server then use this
format */
```

```
#define badterm "\
<HTML><HEAD><TITLE>ERROR: Can't
Connect</TITLE></HEAD><BODY>\r\n\
<P>The terminal number you entered isn't
valid.<BR>\
This Client process the terminal of %d
to %d.<P>\r\n\
The terminal number which you specified
is %d.</P></BODY></HTML>\r\n"

/* If connect client by WWW browser then use
this format */
/* Terminal verification use olny */
#define loginpage "\
<HTML><HEAD><TITLE>Welcome to TPC-
C : %s</TITLE></HEAD><BODY>\r\n\
<P>Please identify your terminal number for this
session.</P>\r\n\
<FORM ACTION=\"%s\" METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"l\">\r\n\
Your Terminal Number:<INPUT NAME=\"c\"
SIZE=6><BR><HR>\r\n\
<INPUT TYPE=\"submit\">\r\n\
</FORM></BODY></HTML>\r\n"

/* LOGIN ERROR PAGE */
/* If terminal number not find then use this format
*/
#define loginerr2 "\
<HTML><HEAD><TITLE>ERROR :Welcome to
TPC-C</TITLE></HEAD><BODY>\r\n\
<P>Please identify your terminal number for this
session.</P>\r\n\
<FORM ACTION=\"%s\" METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"l\">\r\n\
Your Terminal Number:<INPUT NAME=\"c\"
SIZE=5><BR><HR>\r\n\
<INPUT TYPE=\"submit\">\r\n\
</FORM></BODY></HTML>\r\n"

/*
#define endpage "\
<HTML><HEAD><TITLE>Welcome to TPC-
C</TITLE></HEAD><BODY>\r\n\
<P>Please identify your Warehouse and District
for this session.</P>\r\n\
<FORM ACTION=\"%s\" METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"l\">\r\n\
Your Warehouse ID: <INPUT NAME=\"W\"
SIZE=4><BR>\r\n\
Your District ID:  <INPUT NAME=\"d\"
SIZE=2><BR><HR>\r\n\
<INPUT TYPE=\"submit\">\r\n\
</FORM></BODY></HTML>\r\n"
*/

/* If client can not Initialize then use this format */
#define initerr "\
<HTML><HEAD><TITLE>ERROR: Can't
Initialize</TITLE></HEAD><BODY>\r\n\
<P>Initialization was
failed.</P></BODY></HTML>\r\n"

#define cntlerr "\
<HTML><HEAD><TITLE>ERROR: Can't
execute
transaction</TITLE></HEAD><BODY>\r\n\
<P>Basic control was
failed.</P></BODY></HTML>\r\n"
```

```
::::::::::::::::::::::::::::::::
 tpapl/modules.mk
::::::::::::::::::::::::::::::::

mod_tpapl.la: mod_tpapl.slo
   $(SH_LINK) $(LIBS) -rpath $(libexecdir) -
module -avoid-version  mod_tpapl.lo
DISTCLEAN_TARGETS = modules.mk
shared =  mod_tpapl.la


::::::::::::::::::::::::::::::::
 tpapl/mod_tpapl.c
::::::::::::::::::::::::::::::::

/*********************************************************
*****
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Entry Functions                             *
 *   (1) command_rec (table)                         *
 *   (2) tpapl_register_hooks (function)
*
 *   (3) MODULE_DECLARE_DATA (table)
*
 *                                              *
 *  CREATE by TSL   2003.12.17
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*********************************************************
****/

#include "httpd.h"
#include "http_config.h"
#include "http_protocol.h"
#include "ap_config.h"

/* Prototype for handlers */
int         TpAplHandler(request_rec *r);
const char* GetConfigInfo(cmd_parms* parms,
void* mconfig, char* path);
void       InitNewChildCreate(apr_pool_t* p,
server_rec* s);
void*      CreateTpAplSvrConf(apr_pool_t* p,
server_rec* s);

static command_rec tpapl_cmds[] =
{
   {
      "TpAplConf",                    // Name of
directive
      GetConfigInfo,                  // Directive
handler
      NULL,                           // Offset
      OR_ALL,                         // Scope of
directive
      TAKE1,                          // Form of
argument of directive
      "full path of configuration file"   //
Description
   },
   {NULL}
};

static void tpapl_register_hooks(apr_pool_t *p)
{
   ap_hook_child_init(InitNewChildCreate,  NULL,
NULL, APR_HOOK_MIDDLE);
   ap_hook_handler(TpAplHandler, NULL, NULL,
APR_HOOK_MIDDLE);
}

/* Dispatch list for API hooks */
module AP_MODULE_DECLARE_DATA
tpapl_module = {
   STANDARD20_MODULE_STUFF,
   NULL,                /* create per-dir    config
structures */
   NULL,                /* merge  per-dir    config
structures */
   CreateTpAplSvrConf,    /* create per-server
config structures */
   NULL,                /* merge  per-server config
structures */
   tpapl_cmds,            /* table of config file
commands       */
   tpapl_register_hooks   /* register hooks
*/
};



::::::::::::::::::::::::::::::::
 tpapl/newpage.h
::::::::::::::::::::::::::::::::

/*********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1999.08.19 FJH
*
*********************************/

/* ---------------------------------------------------------------
-----------
   newpage.h
   data of neworder transaction result screen
(HTML form)
   ---------------------------------------------------------------
---------- */

/* Header data */
#define h_new1 "\
<HTML><HEAD><TITLE>TPC-
WINDOW</TITLE></HEAD><BODY>\r\n\
<CENTER>New Order<BR></CENTER>\r\n\
<font size=4>\r\n<PRE>"

/* Screen data*/
#define h_new2 "\
Warehouse:      District:                       Date:
 -  -       :  :  \r\n\
Customer:        Name:
Credit:      %Disc:   .  \r\n\
Order Number:           Number of Lines:
W_tax:   .      D_tax:   .  \r\n\r\n\
Supp-W   Item-Id  Item Name               Qty
Stock  B/G  Price    Amount\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
                                           $   .    $    .
\r\n\
Execution Status:
Total:  $     .  \r\n"

/* Tailer data */
#define h_new3 "\
</PRE>\
<FORM ACTION=\"%s\" METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"New order\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Payment\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Delivery\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Order Status\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Stock Level\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
</FORM></BODY></HTML>"

/* Offset to field which should set data */
int newp[] = {
0xa, 0x1c, 0x3c,
0x5c, 0x69, 0x84, 0x90,
0xa5, 0xc0, 0xd1, 0xe0,
0x138, 0x140, 0x148, 0x163, 0x169, 0x170,
0x175, 0x17e,
0x5f9, 0x62d
};



::::::::::::::::::::::::::::::::
 tpapl/odrpage.h
::::::::::::::::::::::::::::::::

/*********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1999.08.19 FJH
*
*********************************/

/* ---------------------------------------------------------------
-----------
   odrpage.h
   data of OrderStatus transaction result screen
(HTML form)
   ---------------------------------------------------------------
---------- */

/* Header data */
#define h_order1 "\
<HTML><HEAD><TITLE>TPC-
WINDOW</TITLE></HEAD>\r\n\
<BODY><CENTER>Order-
Status<BR></CENTER>\r\n\
<font size=4>\r\n<PRE>"

/* Screen data*/
#define h_order2 "\
Warehouse:       District:   \r\n\
Customer:      Name:                              \r\n\
Cust-Balance: $      .  \r\n\r\n\
Order-Number:           Entry-Date:  - -       :  :
Carrier-Number:   \r\n\
Supply-W    Item-Id   Qty    Amount
Delivery-Date\r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
                        $     .          - -   \r\n\
"

/* Tailer data */
#define h_order3 \
"</PRE>\r\n\
<FORM ACTION=\"%s\" METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"New order\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Payment\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Delivery\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Order Status\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Stock Level\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
</FORM></BODY></HTML>"

/* Offset to field which should set data */
int orderp[] = {
0x0A, 0x1C,
0x2a, 0x37, 0x49, 0x4c,
0x6c,
0x87,  0x9e,  0xc4,
0x105, 0x110,  0x11b, 0x123, 0x131};   /* offset
0x39 */


::::::::::::::::::::::::::::::::
 tpapl/paypage.h
::::::::::::::::::::::::::::::::

/*********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1999.05.25 FJH
*
*********************************/

/* -------------------------------------------------------------
-----------
   paypage.h
   data of Payment transaction result screen
(HTML form)
   ---------------------------------------------------------------
---------- */

/* Header data */
#define h_pay1 "\
<HTML><HEAD><TITLE>TPC-
WINDOW</TITLE></HEAD><BODY>\r\n\
<CENTER>Payment<BR></CENTER><font
size=4>\r\n<PRE>"

/* Screen data*/
#define h_pay2 "\
Date:  - -      :  :   \r\n\
\r\n\
Warehouse:                           District:   \r\n\
"

#define h_pay4 "\
                         -                              -
\r\n\
\r\n\
Customer:      Cust-Warehouse:       Cust-
District:   \r\n\
Name:                                        Since:    - -
\r\n"
/*
                                       Credit:   \r\n\
                                       %%Disc:    .  \r\n\
*/

#define h_pay5 "\
                              -          Phone:       -  -  -
\r\n\
\r\n\
Amount Paid:          $    .        New Cust-Balance:
$           .  \r\n\
Credit Limit:   $          .  \r\n\
\r\n\
Cust-Data: "
/*
Cust-Data:                                          \r\n\
                                                 \r\n\
                                                 \r\n\
                                                 \r\n"
*/

/* Tailer data */
#define h_pay3 "\
</PRE>\
<FORM ACTION=\"%s\" METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"New order\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Payment\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Delivery\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Order Status\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Stock Level\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
</fORM></BODY></HTML>"

/* Offset to field which should set data */
int payp[] = {
0x06,
0x29, 0x51,
0x55, 0x7e,
0x94, 0xbd,
0xd3, 0xe8, 0xeb, 0xf1, 0xfc, 0x111, 0x114,
0x11a,
0x12c, 0x142, 0x157,
0x163, 0x174, 0x177, 0x194, /* 18 - 21 */
0x1a8, 0x1d9,           /* 22, 23 */
0x1e5, 0x216,           /* 24, 25 */
0x225, 0x23a, 0x23d, 0x256,
0x284, 0x2a4,
0x2c5,
0x2e1,             /* offset 0x3e */
0x320,
0x35f,
0x39e};


::::::::::::::::::::::::::::::::
 tpapl/SampleInfo.h
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                               *
 *      TPC-C Client Application Program Source
*
 *                                               *
 *  Entry Functions                              *
 *   Performance information definition
*
 *                                               *
 *  CREATE by TSL   2004.01.18
*
 *                                               *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2004  *

*******************************************************
****/
/* Performans sampling faunctions */
int     ClientMonitor(int func_no, char* html_buf);
void    ClientLogCheck(char* html_buf);
void    ClientSetSample(char* html_buf);
void    ClientInfSample(char* html_buf);
void    ClientSampleInit();
void    ClientSampleSelfCsv(time_t cur_sec);

/* Structure of performance sampling area */
typedef struct _sampling_data {
   // Number of DB server executed transactions
   unsigned int       NumNewOrder;
   unsigned int       NumPayment;
   unsigned int       NumOrderStatus;
   unsigned int       NumDelivery;
   unsigned int       NumStockLevel;

   // Response time (ms) from DB server (total
time in sampling interval)
   unsigned int       RspTimeNewOrder;
   unsigned int       RspTimePayment;
   unsigned int       RspTimeOrderStatus;
   unsigned int       RspTimeDelivery;
   unsigned int       RspTimeStockLevel;

   // Max response time (ms) from DB server
(total time in sampling interval)
   unsigned int       SMaxRspTimeNewOrder;
   unsigned int       SMaxRspTimePayment;
   unsigned int       SMaxRspTimeOrderStatus;
   unsigned int       SMaxRspTimeDelivery;
   unsigned int       SMaxRspTimeStockLevel;

   // Number of request from RTE
   unsigned int       NumReqNewOrder;
   unsigned int       NumReqPayment;
   unsigned int       NumReqOrderStatus;
   unsigned int       NumReqDelivery;
```

```
    unsigned int        NumReqStockLevel;

    // Answer time (ms) to RTE (total time in
sampling interval)
    unsigned int        AnsNewOrder;
    unsigned int        AnsPayment;
    unsigned int        AnsOrderStatus;
    unsigned int        AnsDelivery;
    unsigned int        AnsStockLevel;

    // NOTE : Under the members are not cleared
by sampling interval.
    // Max response time (ms) from DB server (all
of sampling time)
    unsigned int        MaxRspTimeNewOrder;
    unsigned int        MaxRspTimePayment;
    unsigned int        MaxRspTimeOrderStatus;
    unsigned int        MaxRspTimeDelivery;
    unsigned int        MaxRspTimeStockLevel;

    // Number of executing and waiting
transactions
    unsigned int        NumQueNewOrder;
    unsigned int        NumQuePayment;
    unsigned int        NumQueOrderStatus;
    unsigned int        NumQueDelivery;
    unsigned int        NumQueStockLevel;

    // Self sampling information
    char              CsvFilePath[MAX_PATH];
    unsigned int        CsvOutTime;
    unsigned int        SamplingInterval;
    int               SelfSamplingOutput;
#define SELFOUTPUT_ENABLE   1
#define SELFOUTPUT_DISABLE  0
    int               DataSampling;
#define DATASAMPLE_ENABLE   0
#define DATASAMPLE_DISABLE  1

    // wait timer for 2tier.
    unsigned int        WaitTimer;


} SAMPLING_DATA;


/*=========*/
/*  Macros */
/*=========*/
/* Path */
#define SAMPLING_SEMPATH
"/home/tpc/conf"
#define SAMPLING_SHMPATH
"/home/tpc/bin"

/* Sampling informaion */
#define     MAC_SampleGlobalArea \
            int            GLBSMP_semid = 0; \
            SAMPLING_DATA*
GLBSMP_shared_mem = 0;

extern  int            GLBSMP_semid;
extern  SAMPLING_DATA*
GLBSMP_shared_mem;


/* Initialize semafore and shared memory */
#define     MAC_SampleInitParent \
            GLBSMP_semid =
InitSem(SAMPLING_SEMPATH,
SEM_SAMPLING_PERFOREMANCE); \
            GLBSMP_shared_mem =
(SAMPLING_DATA*)InitShmem(SAMPLING_SH
MPATH,
SHMEM_SAMPLING_PERFOREMANCE,
sizeof(SAMPLING_DATA)); \
            memset(GLBSMP_shared_mem, 0x00,
sizeof(SAMPLING_DATA));

#define     MAC_SampleInitChild \
            GLBSMP_semid =
GetSem(SAMPLING_SEMPATH,
SEM_SAMPLING_PERFOREMANCE); \
            GLBSMP_shared_mem =
(SAMPLING_DATA*)GetShmem(SAMPLING_S
HMPATH,
SHMEM_SAMPLING_PERFOREMANCE,
sizeof(SAMPLING_DATA));

#define     MAC_SampleInitPerformance \
            ClientSampleInit();

/* Fanctions work area */
#define     MAC_SampleWork  \
            struct timeval         sample_start_time;
\
            struct timeval         sample_end_time;
\
            unsigned int           el_time;

/* Get start time */
#define     MAC_SampleStartTime \
        if (GLBSMP_shared_mem-
>DataSampling == DATASAMPLE_ENABLE) { \
            gettimeofday(&sample_start_time,
NULL); \
            /*sleep(10);*/ \
        }

/* Transaction queue up/down */
#define     MAC_SampleQueUp(count_area) \
        if (GLBSMP_shared_mem-
>DataSampling == DATASAMPLE_ENABLE) { \
            LockSem(GLBSMP_semid);  \
            GLBSMP_shared_mem-
>count_area++; \
            UnlockSem(GLBSMP_semid); \
            /*sleep(10);*/ \
        }

#define     MAC_SampleQueDown(count_area) \
        if (GLBSMP_shared_mem-
>DataSampling == DATASAMPLE_ENABLE) { \
            LockSem(GLBSMP_semid);  \
            GLBSMP_shared_mem->count_area--
; \
            UnlockSem(GLBSMP_semid); \
        }

/* Compute execution time */
#define     MAC_SampleExecuteTime \
        if (GLBSMP_shared_mem-
>DataSampling == DATASAMPLE_ENABLE) { \
            gettimeofday(&sample_end_time,
NULL); \
            el_time = ((unsigned
int)sample_end_time.tv_sec*1000 + (unsigned
int)sample_end_time.tv_usec/1000) \
                    - ((unsigned
int)sample_start_time.tv_sec*1000 + (unsigned
int)sample_start_time.tv_usec/1000); \
        }


/* SvrApl sampling sequence
 *  (1) MAC_SampleWork
 *  (2) MAC_SampleStartTime
 *  (3) Processing transaction on DB server
 *  (4) Except Delivery MAC_SampleDBSrvResp
 *      Only Delivery
MAC_SampleDBSrvRespDel
 */
#define
MAC_SampleRespMax(max_resp_time,
smp_max_resp_time) \
            if (GLBSMP_shared_mem-
>max_resp_time < el_time) \
                GLBSMP_shared_mem-
>max_resp_time = el_time; \
            if (GLBSMP_shared_mem-
>smp_max_resp_time < el_time) \
                GLBSMP_shared_mem-
>smp_max_resp_time = el_time;

/* For except Delivery */
#define     MAC_SampleDBSrvResp(resp_time,
max_resp_time, smp_max_resp_time,
proc_trans) \
        if (GLBSMP_shared_mem-
>DataSampling == DATASAMPLE_ENABLE) { \
            MAC_SampleExecuteTime; \
            LockSem(GLBSMP_semid);  \
            GLBSMP_shared_mem->resp_time
+= el_time; \

MAC_SampleRespMax(max_resp_time,
smp_max_resp_time); \
            GLBSMP_shared_mem-
>proc_trans++; \
            UnlockSem(GLBSMP_semid); \
        }

/* For onliy Delivery */
#define     MAC_SampleDBSrvRespDel() \
        if (GLBSMP_shared_mem-
>DataSampling == DATASAMPLE_ENABLE) { \
            MAC_SampleExecuteTime; \
            LockSem(GLBSMP_semid);  \
            GLBSMP_shared_mem-
>RspTimeDelivery += el_time; \

MAC_SampleRespMax(MaxRspTimeDelivery,
SMaxRspTimeDelivery); \
            GLBSMP_shared_mem-
>NumDelivery++; \
            GLBSMP_shared_mem-
>NumQueDelivery--; \
            UnlockSem(GLBSMP_semid); \
        }

/* TpApl sampling sequence for except Delivery
 *  (1) MAC_SampleWork
 *  (2) MAC_SampleStartTime
 *  (3) MAC_SampleQueUp
 *  (4) Processing transaction on TUXEDO and
DB server
 *  (5) Except Delivery MAC_SampleTuxResp
 *      Only Delivery   MAC_SampleTuxRespDel
 */
/* For except Delivery */
#define     MAC_SampleTuxResp(ans_time,
proc_trans, trans_que) \
        if (GLBSMP_shared_mem-
>DataSampling == DATASAMPLE_ENABLE) { \
            MAC_SampleExecuteTime; \
            LockSem(GLBSMP_semid);  \
            GLBSMP_shared_mem->ans_time +=
el_time; \
            GLBSMP_shared_mem-
>proc_trans++; \
            GLBSMP_shared_mem->trans_que--;
\
            UnlockSem(GLBSMP_semid); \
        }
```

```
/* For only Delivery */
#define     MAC_SampleTuxRespDel \
        if (GLBSMP_shared_mem-
>DataSampling == DATASAMPLE_ENABLE) { \
            MAC_SampleExecuteTime; \
            LockSem(GLBSMP_semid);  \
            GLBSMP_shared_mem->AnsDelivery
+= el_time; \
            GLBSMP_shared_mem-
>NumReqDelivery++; \
            UnlockSem(GLBSMP_semid); \
        }

/*
 * Output Self pafrotmance log
 */
#define     MAC_SampleOutPutCsvLog \

ClientSampleSelfCsv(sample_end_time.tv_sec)


::::::::::::::::::::::::::::::::
 tpapl/stpage.h
::::::::::::::::::::::::::::::::

/********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1999.08.19 FJH
*
********************************/

/* -------------------------------------------------------------
-----------
   stopage.h
   data of Stock Level transaction result screen
(HTML form)
   -------------------------------------------------------------
---------- */

/* Header data */
#define h_stock1 "\
<HTML><HEAD><TITLE>TPC-
WINDOW</TITLE></HEAD><BODY>\
<CENTER>Stock-Level<BR></CENTER>\
<font size=4>\r\n<PRE>"

/* Screen data*/
#define h_stock2 "\
Warehouse:       District:   \r\n\
\r\n\
Stock Level Threshold:   \r\n\
\r\n\
low stock:    \r\n\
\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n\r\n"

/* Tailer data */
#define h_stock3 "\
</PRE>\
<FORM ACTION=\"%s\" METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"New order\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Payment\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Delivery\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Order Status\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Stock Level\">\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
</FORM></BODY></HTML>\n"
```

```

/* Offset to field which should set data */
int stockp[] = {
0x0A, 0x1C,
0x39,
0x4a};



::::::::::::::::::::::::::::::::
 tpapl/ThreadCntl.h
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                     *
 *   Function definition for TUXEDO control
information.    *
 *                                                    *
 *  CREATE by TSL   2003.12.26
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*******************************************************
****/

typedef struct _THREAD_CNTL_INFO {
    void*   TrxData;
    int     TrxDataLeng;
    char*   QueryData;
    char*   RespBuf;
} THREAD_CNTL_INFO;



::::::::::::::::::::::::::::::::
 tpapl/tpapl.h
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                     *
 *   struct definition.                               *
 *                                                    *
 *  CREATE by TSL   2003.12.22
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*******************************************************
****/

/* Http SO file path */
#define SOPATH  "/tpapl"

/* HTML editting buffer size */
#define WORK_S  2400

/* Flags */
#define OK      1
#define NG      0

/* Make w_id d_id form terminal no. */
#define MAC_w_id(cookie) (cookie - 1)/10 + 1
```

```
#define MAC_d_id(cookie) (cookie - 1)%10 + 1


::::::::::::::::::::::::::::::::
 tpapl/TpAplDBDependPrototype.h
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                     *
 *   Function definition for common.
*
 *                                                    *
 *  CREATE by TSL   2002.10.01
*
 *  GHANGE by TSL   2003.12.15 for COM+ -->
TUXEDO         *
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

*******************************************************
****/

int     str2int(char *str, int field_len);
short   str2short(char *str, int field_len);
int     str2dbl(char *str, int field_len);

void    int2str(char *str, int len, int num);
void    int3str(char *str, int len, int num);
void    dec2str(char *str, int len, double num);
void    sigdec2str(char *str, int len, double num);
int     str2str(char *str, int field_len);
void    alp2str(char *str, int len, char *alp);
void    date2str(char *str, char *time);
void    zip2str (char *str, char *zip);
void    phone2str(char *str, char *phone);

char*   para_split(char *para, char delimita);
int     checkHTMLform( char *str, char *buffer);
void    convert_time( char *save_p, double
time );
void    convert_date( char *save_p, double
time );

void    time2str (char *str, char *time);

int     set_errHTML (char *page, char *err_inf, int
cookie, char *errname );
/*
!int  set_oraerr (char *page, char *err_inf, int
cookie );
*/
/* Replaced 03.01.15 */
#if 0
!int        set_tuxerr (char *page, char *err_inf, int
cookie);
#endif
int     set_SvrAplErr (char *page, char *err_inf, int
cookie);
/* Replaced end */
int     set_errpage (char *buf, int user, int err_no,
int err_inf, int sub_inf, int sub_inf2);

int     NewOrder (char *s_buf,
RTE_INPUT_DATA *in_data, int cookie);
int     Delivery (char *s_buf, RTE_INPUT_DATA
*in_data, int cookie);
int     Payment (char *s_buf, RTE_INPUT_DATA
*in_data, int cookie);
```

```
int     StockLevel (char *s_buf,
RTE_INPUT_DATA *in_data, int cookie);
int     OrderStatus (char *s_buf,
RTE_INPUT_DATA *in_data, int cookie);
long    GetGenericDataLen();

THREAD_CNTL_INFO* GetThreadCntl();
void    FreeTuxBuffer(THREAD_CNTL_INFO*
ThreadCntlInfo);


::::::::::::::::::::::::::::::::
 tpapl/tpaplFunction.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                          *
 *      TPC-C Client Application Program Source
*
 *                                          *
 *  Entry Functions                               *
 *   (1) anly_para                               *
 *   (2) select_trn                              *
 *   (3) fast_menu                               *
 *                                          *
 *  CREATE by TSL   2002.10.01
*
 *                                          *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

********************************************************
****/
#include "forlinux.h"

#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <pthread.h>
#include <sys/time.h>
#include <atmi.h>
#include "trans.h"
#include "log.h"

// HTML-Page Data
#include "tpcweb.h"
#include "tpcinweb.h"
#include "menupage.h"
#include "tpccinf.h"
#include "tpapl.h"
#include "ThreadCntl.h"
#include "GlobalArea.h"
#include "TpAplDBDependPrototype.h"
#include "sema.h"
#include "shmem.h"
#include "SampleInfo.h"

/*
   anly_para :
   QueryString---------------------------
   ---------------------------------------------------------------
-----

   ------: ---------------------------


   Gets the query string and finds every
variable=value pair contained
   within it.  For every pair, it runs the variable
name through a really
   big compound switch statement that matches
for specific variables we
   want to catch.  When we find a known variable
name, we stick a pointer
   to its corresponding value into the appropriate
member of 'ptrs.'

   query - a 1024 byte buffer that contains the
query string.
   ptrs - a raw_form_data structure to hold
pointers.
*/
int anly_para (char *para, RTE_INPUT_DATA
*in_data) {
    char *val, *rest;

    if(!para) return 0;
    if(*para == '\0') return 0;

    while(para) {

        rest = para_split(para, '&'); /* next parameta
point */
        val  = para_split(para, '='); /* now value
point */

        switch(para[0]) {
        case 'c':
            in_data->cookie = val;      break;

        case 'b':
            in_data->button = val;      break;

        case 'f':
            in_data->form = val;        break;

        case 't':
            in_data->threshold = val;   break;

        case 'D':
            in_data->D_ID = val;        break;

        case 'H':
            in_data->H_AMOUNT = val;    break;

        case 'C':
            switch(para[1]) {
            case 'I':
                in_data->C_ID = val;    break;

            case 'W':
                in_data->C_W_ID = val;  break;

            case 'L':
                in_data->C_LAST = val;  break;

            case 'D':
                in_data->C_D_ID = val;  break;
            }
            break;

        case 'O':
            switch(para[1]) {
            case 'C':
                in_data->O_CARRIER_ID = val;
break;

            case 'S':
                switch(para[2]) {
                case '0':
                    if (para[3] >= 0x31 && para[3] <=
0x39 ){
                        //num = (int)(para[3] - 0x30);
                        if (strlen(val) != 0 )
                            in_data-
>OL_SUPPLY_W_ID[(int)(para[3] - 0x30) - 1] =
val;
                    }
                    break;

                case '1':
                    if (para[3] >= 0x30 && para[3] <=
0x35 ){
                        //num = (int)(para[3] - 0x30) + 10;
                        if (strlen(val) != 0 )
                            in_data-
>OL_SUPPLY_W_ID[(int)(para[3] - 0x30) +10 -
1] = val;
                    }
                    break;
                }
                break;

            case 'I':
                switch(para[2]) {
                case '0':
                    if (para[3] >= 0x31 && para[3] <=
0x39 ){
                        //num = (int)(para[3] - 0x30);
                        if (strlen(val) != 0 )
                            in_data->OL_I_ID[(int)(para[3] -
0x30) - 1] = val;
                    }
                    break;

                case '1':
                    if (para[3] >= 0x30 && para[3] <=
0x35 ){
                        //num = (int)(para[3] - 0x30) + 10;
                        if (strlen(val) != 0 )
                            in_data->OL_I_ID[(int)(para[3] -
0x30) + 10 - 1] = val;
                    }
                    break;
                }
                break;

            case 'Q':
                switch(para[2]) {
                case '0':
                    if (para[3] >= 0x31 && para[3] <=
0x39 ){
                        //num = (int)(para[3] - 0x30);
                        if (strlen(val) != 0 )
                            in_data-
>OL_QUANTITY[(int)(para[3] - 0x30) - 1] = val;
                    }
                    break;

                case '1':
                    if (para[3] >= 0x30 && para[3] <=
0x35 ){
                        //num = (int)(para[3] - 0x30) + 10;
                        if (strlen(val) != 0 )
                            in_data-
>OL_QUANTITY[(int)(para[3] - 0x30) +10 - 1] =
val;
                    }
                    break;
                }
                break;
            }
            break;
        }

        para = rest;
    }

    if (in_data->cookie != 0)
        return(atoi (in_data->cookie));
    else
        return(0);
}
```

```
/* --------------------------------------------------------------
-
   select_trn:

   RTE-------------------------------------------------
   ------: --------------------------

   s_buf----------------------------------HTML-------------
-----

   interprets information from the user's input
data to determine which
   page should be displayed back to the user.

   query - the query string that comes back form
ParseFormData
   ptrs  - a pointer to a raw_form_data structure
with pointers
          to values in 'query'.

   -------------------------------------------------------------
  ---------------------------------------------------------------
*/
int select_trn ( RTE_INPUT_DATA *in_data,
char *s_buf, int cookie ) {

    int length = 0;
    int rtn = 0;

    MAC_SampleWork; /* Performance sampleing
work area */

    if (in_data->form && (in_data->form[0] != 'M') )
{

        if (in_data->form[0] == 'I' ){
            /* send the transaction select screen
page */
/* Replaced T,Kato 03.07,28 Speed up */
/*          rtn = fast_menu (s_buf, in_data,
cookie);*/
            sprintf(s_buf, h_menu, SOPATH,
cookie);
/* Replaced end */
            return rtn;
        }
        else{

            MAC_SampleStartTime;

            /* check transaction type */
            switch(in_data->form[0]) {

            case 'N':

MAC_SampleQueUp(NumQueNewOrder);
                rtn = NewOrder (s_buf, in_data,
cookie);
                MAC_SampleTuxResp(AnsNewOrder,
NumReqNewOrder, NumQueNewOrder);
                break;

            case 'D':

MAC_SampleQueUp(NumQueDelivery);
                rtn = Delivery(s_buf, in_data, cookie);
                MAC_SampleTuxRespDel;
                break;

            case 'P':

MAC_SampleQueUp(NumQuePayment);
                rtn = Payment (s_buf, in_data, cookie);
                MAC_SampleTuxResp(AnsPayment,
NumReqPayment, NumQuePayment);
```

```
                break;

            case 'S':

MAC_SampleQueUp(NumQueStockLevel);
                rtn = StockLevel(s_buf, in_data,
cookie);
                MAC_SampleTuxResp(AnsStockLevel,
NumReqStockLevel, NumQueStockLevel);
                break;

            case 'O':

MAC_SampleQueUp(NumQueOrderStatus);
                rtn = OrderStatus (s_buf, in_data,
cookie);

MAC_SampleTuxResp(AnsOrderStatus,
NumReqOrderStatus, NumQueOrderStatus);
                break;

            default:
                /* uninput transaction type */
                set_errpage(s_buf, cookie, 1, -4, 0, 0);
                rtn = 1;
                break;
            }
            /* Output self performance log */
            MAC_SampleOutPutCsvLog;

            return rtn;
        }
    }
    else if(in_data->button) {

        /* send the data input screen page */
        switch(in_data->button[0]) {
        case 'N':
            /*length = sprintf(s_buf, in_newpage,
SOPATH, cookie, srv->m_tcctxt[user_id].w_id);*/
            length = sprintf(s_buf, in_newpage,
SOPATH, cookie, MAC_w_id(cookie));
            strcpy(s_buf+length -1 , in_newpage2);
            break;

        case 'D':
            /*sprintf(s_buf, in_delpage, SOPATH,
cookie, srv->m_tcctxt[user_id].w_id);*/
            sprintf(s_buf, in_delpage, SOPATH,
cookie, MAC_w_id(cookie));
            break;

        case 'P':
            /*sprintf(s_buf, in_paypage, SOPATH,
cookie, srv->m_tcctxt[user_id].w_id);*/
            sprintf(s_buf, in_paypage, SOPATH,
cookie, MAC_w_id(cookie));
            break;

        case 'S':
            /*sprintf(s_buf, in_stkpage, SOPATH,
cookie,
                srv->m_tcctxt[user_id].w_id, srv-
>m_tcctxt[user_id].d_id);*/
            sprintf(s_buf, in_stkpage, SOPATH,
cookie, MAC_w_id(cookie), MAC_d_id(cookie));
            break;

        case 'O':
            /*sprintf(s_buf, in_odrpage, SOPATH,
cookie, srv->m_tcctxt[user_id].w_id);*/
            sprintf(s_buf, in_odrpage, SOPATH,
cookie, MAC_w_id(cookie));
            break;
```

```
        case 'Q':
            sprintf (s_buf, loginpage , VLDATA,
SOPATH);
/* Replaced 03.01.15 Can't LeaveCriticalSection
*/
#if 0
!           return rtn;
#endif
            break;
/* Replaced end */

        default:
        /* uninput transaction type */
            set_errpage(s_buf, cookie, 0, -4, 0, 0);
            break;
        }
        return rtn;
    }
    else {

        /* if there is not parameter then send login
page data.
           this part use WWW browser only */
        sprintf (s_buf, loginpage, VLDATA,
SOPATH);
        return 0;
    }
}

/* Deleted T,Kato 03.07.28 Speed up */
#if 0
!/*
!   fast_menu:
!   This function reads a user's responses to the
login form, sets
!   up the user context, and returns the menu
page.
!*/
!
!int fast_menu ( char *s_buf, RTE_INPUT_DATA
*in_data, int cookie){
!
!   //for warning
!   in_data;
!
!   sprintf(s_buf, h_menu, SOPATH, cookie);
!   return 0;
!}
#endif



::::::::::::::::::::::::::::::::::
 tpapl/TpAplHandler.c
::::::::::::::::::::::::::::::::::

/*********************************************************
*****
 *                                                  *
 *       TPC-C Client Application Program Source
*
 *                                                  *
 *  Entry Functions                                 *
 *   (1) TpAplHandler                               *
 *   (2) OutputResultForm                           *
 *   (3) GetConfigInfo                              *
 *   (4) InitNewChildCreate                         *
 *   (5) CreateTpAplSvrConf                         *
 *                                                  *
 *  CREATE by TSL   2003.12.17
*
 *                                                  *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *
```

```
*********************************************************
****/
#include "forlinux.h"
#include <sys/types.h>
#include <unistd.h>
#include <atmi.h>

#include "stdio.h"
#include "httpd.h"
#include "http_config.h"
#include "http_protocol.h"
#include "ap_config.h"
#include "ap_compat.h"

#include "trans.h"
#include "ThreadCntl.h"
#include "GlobalArea.h"
#include "TpAplPrototype.h"
#include "log_level.h"
#include "log.h"
#include "menupage.h"
#include "sema.h"
#include "shmem.h"
#include "SampleInfo.h"

/*********************************************************
*****
 * TpApl HTTP processing handler
*
 * Return Value                                  *
 *     OK      : Normal end                        *
 *     DECLINED : Abnormal end
*

*********************************************************
****/
int TpAplHandler(request_rec *r)
{

   int              cookie = -1;
   int              rtn;
   char*              S_BUF;

   RTE_INPUT_DATA      in_data_area;
   THREAD_CNTL_INFO*   ThreadCntlInfo;

   void OutputResultForm(request_rec *r, char*
buf_body);


   /* Check handler executing conditions */
      if (strcmp(r->handler, "tpapl")) {
      return DECLINED;
   }

#ifdef PUT_INF_LOG
   TpccUserLog (LOG_INF, "######
TpAplHandler start ######\n");
#endif

   if (r->header_only) {
      /* Request is header only */
      TpccUserLog (LOG_WRN, "Request is http
header only.\n");
      r->content_type = "text/html";
      goto OK_RETURN;
   }

   /* Initialize thread environment */
#if 0 /* 2006.03.29 T.Motoo: Modified because
the argument had been changed. */
!   ThreadCntlInfo = CreateThreadEnv();
#endif
```

```
   ThreadCntlInfo = CreateThreadEnv(r-
>connection->id);

   if (ThreadCntlInfo == 0) {
      TpccUserLog (LOG_ERR, "Can't
Initialize\n");
      /* Initialization failure */
      OutputResultForm(r, initerr);
      goto OK_RETURN;
   }
   S_BUF = (char*)ThreadCntlInfo->RespBuf;

   /* Get Query string in to own area & analize
requested data */
#ifndef USEPOOL_QUERY
   strcpy(ThreadCntlInfo->QueryData, r->args);
#else
   ThreadCntlInfo->QueryData = r->args;
#endif



#ifdef PUT_INF_LOG
   TpccUserLog(LOG_INF, "Recieved request
[%dbytes][%s]\n",
                  strlen(ThreadCntlInfo-
>QueryData), ThreadCntlInfo->QueryData);
#endif

   memset(&in_data_area, 0x00,
sizeof(in_data_area));
   cookie = anly_para ((char *)ThreadCntlInfo-
>QueryData, &in_data_area );

   /* Termimal Number Check
    * If terminal number is not valid then send
error message.
    */
   if ( cookie < GLB_TermBase || cookie >=
(GLB_TermBase + GLB_Maxterm) ){

      if (ClientMonitor(cookie, S_BUF) == 0) {
         if (cookie != -3) /* -3:reruest od
performance sampling */
            TpccUserLog (LOG_INF, "Extended
function  executing [function number:%d]\n",
cookie);
      }
      else {
         sprintf (S_BUF, badterm,
GLB_TermBase, GLB_TermBase +
GLB_Maxterm - 1, cookie);
         TpccUserLog (LOG_ERR, "Terminal
number over the range[Terminal number:%d]\n",
cookie);
      }

      OutputResultForm(r, S_BUF);
      goto OK_RETURN;
   }

   /* Execute the taransaction data */
   rtn = select_trn ( &in_data_area, S_BUF,
cookie );

   /* Response output form */
   OutputResultForm(r, S_BUF);

OK_RETURN:
#ifdef PUT_INF_LOG
   TpccUserLog (LOG_INF, "======
TpAplHandler end ======\n");
#endif
   return OK;
}
```

```
/*********************************************************
*****
 * Output Processing result form.
*
 * Argument                                    *
 *     buf_body :                              *
 *       Output message on screen
*
 * Return Value                                  *
 *     NONE                                    *

*********************************************************
****/
void OutputResultForm(request_rec *r, char*
buf_body) {
//int len=strlen(buf_body);

   r->content_type = "text/html";
//  ap_send_http_header(r);
   ap_rputs(buf_body, r);
//buf_body[100]=0;
//TpccUserLog (LOG_INF, "Content len=%d
data=(%s)\n", len,buf_body);
   return;
}

/*********************************************************
*****
 * Get configuration information
*
 * Return Value                                  *
 *     char* NULL : allways                          *

*********************************************************
****/
   module  tpapl_module;

char* GetConfigInfo(cmd_parms* parms, void*
mconfig, char* path) {

   char    work_path[MAX_PATH];
   int     i;
   char    *conf;

   /* Set default log path */
   strcpy(GLB_TpAplLogPath,
DEFAULT_TPAPL_LOG_PATH);
   strcpy(GLB_LogFilePath,
DEFAULT_TPAPL_LOG_PATH);
   TpccUserLog(LOG_LCK, "Directive
processing start [GetConfigInfo]\n");

   /* Get configuration informaion (set to global
area) */
   strcpy(GLB_ConfigFilePath, path);
   GetConfFileInfo();

   /* Initialize TPAPL semafore for log */
   strcpy(work_path, GLB_TpAplLogPath);
   for(i = strlen(work_path) - 1; i > 0 &&
work_path[i] != '/' ; i--);
   work_path[i] = '\0';

   if ((GLB_LogSemId = InitSem(work_path,
SEM_TPAPL_PROJID)) == -1) {
      TpccUserLog(LOG_LCK, "InitSem() faile for
TpApl log\n");
      return NULL;
   }

   /* Initialize SVRAPL semafore for log */
   strcpy(work_path, GLB_SvrAplLogPath);
   for(i = strlen(work_path) - 1; i > 0 &&
work_path[i] != '/' ; i--);
   work_path[i] = '\0';
```

```
    if (InitSem(work_path,
SEM_SVRAPL_PROJID) == -1) {
        TpccUserLog(LOG_LCK, "InitSem() faile for
SvrApl log\n");
        return NULL;
    }

    /* Set server configuration */
    conf = (char*)ap_get_module_config(parms-
>server->module_config, &tpapl_module);
    strcpy(conf, path);

    /* Initialize client performance monitor */
    MAC_SampleInitPerformance;

    TpccUserLog(LOG_INF, "Directive processing
ended [GetConfigInfo]\n");
    return NULL;
}

/*********************************************************
*****
 * Initialize child process creates.                     *
 * Return Value                                          *
 *      NONE                                             *

**********************************************************
****/
void InitNewChildCreate(apr_pool_t* p,
server_rec* s) {

    TpccUserLog(LOG_INF, "Child creating
process start [InitNewChildCreate]\n");

    /* Get TSD key */
    GetThreadKey();

    /* Regist TUXEDO aplication */
#if 0 /* 2006.03.29 T.Motoo: Modified because
the argument had been changed. */
!   if ((GLB_TpContext = RegistTuxApl()) == 0) {
#endif
    if ((GLB_TpContext = RegistTuxApl(p)) == 0) {
            TpccUserLog(LOG_ERR,
"RegistTuxApl() faild\n");
    }

    /* Regist cleanup entry */
    apr_pool_cleanup_register(p, NULL,
PlainCleanup, TermChildProcess);

    /* Initialize performance sampling */
    MAC_SampleInitChild;

    TpccUserLog(LOG_INF, "Child creating
process end [InitNewChildCreate]\n");

    return;
}

/*********************************************************
*****
 * Create server configuration                           *
 * Return Value                                          *
 *      Configuration area pointer                       *

**********************************************************
****/
void* CreateTpAplSvrConf(apr_pool_t* p,
server_rec* s) {

    char*   conf;

    /* Set default log path */
    strcpy(GLB_LogFilePath,
DEFAULT_TPAPL_LOG_PATH);

    TpccUserLog(LOG_LCK, "Create server
config start [CreateTpAplSvrConf]\n");
    if ((conf = (char*)ap_palloc(p, MAX_PATH))
== 0) {
        TpccUserLog(LOG_LCK, "Server config
area allocation faild\n");
        return (void*) conf;
    }
    *conf = '\0';
    TpccUserLog(LOG_LCK, "Create server
config ended [CreateTpAplSvrConf]\n");

    return (void*)conf;
}


::::::::::::::::::::::::::::::::
 tpapl/TpAplPrototype.h
::::::::::::::::::::::::::::::::

/*********************************************************
*****
 *                                                      *
 *       TPC-C Client Application Program Source
*
 *                                                      *
 *  Entry Functions                                     *
 *   Function definition for common.
*
 *                                                      *
 *  CREATE by TSL   2003.12.01
*
 *                                                      *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

**********************************************************
****/

int             anly_para (char *para,
RTE_INPUT_DATA *in_data);
int             select_trn ( RTE_INPUT_DATA
*in_data, char *s_buf, int cookie );

int             GetThreadKey();
#if 0 /* 2006.03.29 T.Motoo: The argument was
changed. */
!THREAD_CNTL_INFO*  CreateThreadEnv();
#endif
THREAD_CNTL_INFO*   CreateThreadEnv(int
id);
void             FreeThreadKey();
void             GetConfFileInfo();
#if 0 /* 2006.03.29 T.Motoo: The argument was
changed. */
!TPCONTEXT_T          RegistTuxApl();
#endif
TPCONTEXT_T*       RegistTuxApl(void *p);
apr_status_t       TermChildProcess(void* p);
apr_status_t       PlainCleanup(void* p);


::::::::::::::::::::::::::::::::
 tpapl/tpccinf.h
::::::::::::::::::::::::::::::::

/*********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1999.11.19 FJH
*
*  Modified TSL 2003.12.22
*********************************/

/*===================================
================================+
  FILENAME : tpccinf.h
  DESCRIPTION

+=====================================
==============================*/

#ifndef TPCCINF_H
#define TPCCINF_H

#define QUERY_STR_SIZE  1024
#define RESP_BUF_SIZE   4096

#define VLDATA "Ver 1.0 Linux & Tuxedo"


#ifdef SCRTEST

 #ifdef DBPRT
#define MDDATA "SCR And DP"
 #else
#define MDDATA "SCR"
 #endif

#else

 #ifdef NOSCR
#define MDDATA "DBG"
 #else
#define MDDATA "REL"
 #endif

#endif

#endif



::::::::::::::::::::::::::::::::
 tpapl/tpcinweb.h
::::::::::::::::::::::::::::::::

/*********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1999.08.19 FJH
*
*********************************/

/* -----------------------------------------------------------
---------
   tpcinweb.h
   Transaction input data screen data
   ------------------------------------------------------------
-------- */

/* --------------------------
    delivery page
 * --------------------------*/

#define in_delpage "\
<HTML><HEAD><TITLE>TPC-C:
Delivery</TITLE></HEAD>\r\n\
<BODY><FORM ACTION=\"%s\"
METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"D\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<center>Delivery<br></center>\r\n\
<font size=4><PRE>Warehouse:%6d\r\n\
\r\n\
Carrier Number: <INPUT NAME=\"OC\" SIZE=2
maxlength=2>\r\n\
\r\n\
Execution Status:\r\n\
</PRE><INPUT
TYPE=\"submit\"></FORM></BODY></HTML>"

#define in_delpage2 "\
<HTML><HEAD><TITLE>TPC-C:
Delivery</TITLE></HEAD>\r\n\
<BODY><FORM ACTION=\"%s\"
METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"D\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<center>Delivery<br></center>\r\n\
<font size=3><PRE>\
Warehouse:%6d\r\n\
\r\n\
Carrier Number:<INPUT NAME=\"OC\" SIZE=2
maxlength=2>\r\n\
\r\n\
Execution Status:\r\n\
</PRE><INPUT
TYPE=\"submit\"></FORM></BODY></HTML>\r
\n"

/* --------------------------
    neworder page
 * --------------------------*/
#define in_newpage "\
<HTML><HEAD><TITLE>TPC-C: New
Order</TITLE></HEAD>\r\n\
<BODY><FORM ACTION=\"%s\"
METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"N\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<center>New Order<br></center>\r\n\
<PRE><font size=4>Warehouse:%6d  District:
<INPUT NAME=\"D\" SIZE=2 maxlength=2>
Date:\r\n\
Customer:  <INPUT NAME=\"CI\" SIZE=4
maxlength=4>  Name:
Credit:      %%Disc:\r\n\
Order Number:           Number of Lines:
W_tax:          D_tax:\r\n\r\n\
 Supp_W  Item_Id  Item Name               Qty
Stock  B/G  Price    Amount\r\n\
  <INPUT NAME=\"OS01\" SIZE=5
maxlength=6> <INPUT NAME=\"OI01\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ01\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS02\" SIZE=5
maxlength=6> <INPUT NAME=\"OI02\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ02\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS03\" SIZE=5
maxlength=6> <INPUT NAME=\"OI03\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ03\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS04\" SIZE=5
maxlength=6> <INPUT NAME=\"OI04\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ04\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS05\" SIZE=5
maxlength=6> <INPUT NAME=\"OI05\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ05\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS06\" SIZE=5
maxlength=6> <INPUT NAME=\"OI06\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ06\" SIZE=2 maxlength=2>\r\n"

#define in_newpage2 "\
  <INPUT NAME=\"OS07\" SIZE=5
maxlength=6> <INPUT NAME=\"OI07\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ07\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS08\" SIZE=5
maxlength=6> <INPUT NAME=\"OI08\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ08\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS09\" SIZE=5
maxlength=6> <INPUT NAME=\"OI09\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ09\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS10\" SIZE=5
maxlength=6> <INPUT NAME=\"OI10\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ10\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS11\" SIZE=5
maxlength=6> <INPUT NAME=\"OI11\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ11\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS12\" SIZE=5
maxlength=6> <INPUT NAME=\"OI12\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ12\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS13\" SIZE=5
maxlength=6> <INPUT NAME=\"OI13\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ13\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS14\" SIZE=5
maxlength=6> <INPUT NAME=\"OI14\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ14\" SIZE=2 maxlength=2>\r\n\
  <INPUT NAME=\"OS15\" SIZE=5
maxlength=6> <INPUT NAME=\"OI15\" SIZE=6
maxlength=6>                        <INPUT
NAME=\"OQ15\" SIZE=2 maxlength=2>\r\n\
Execution Status:
Total:  $\r\n\
</PRE><INPUT
TYPE=\"submit\"></FORM></BODY></HTML>"


/* --------------------------
    orderstatus page
 * --------------------------*/
#define in_odrpage "\
<HTML><HEAD><TITLE>TPC-C: Order-
Status</TITLE></HEAD>\r\n\
<BODY><FORM ACTION=\"%s\"
METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"O\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<center>Order-Status<br></center>\r\n\
<font size=4><PRE>Warehouse:%6d  District:
<INPUT NAME=\"D\" SIZE=2 maxlength=2>\r\n\
Customer: <INPUT NAME=\"CI\" SIZE=4
maxlength=4>  Name:                  <INPUT
NAME=\"CL\" SIZE=17 maxlength=16>\r\n\
Cust-Balance: \r\n\
\r\n\
Order-Number:           Entry-Date:
Carrier-Number:\r\n\
Supply-W     Item-Id    Qty     Amount
Delivery-Date\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
</PRE>\r\n\
<INPUT
TYPE=\"submit\"></FORM></BODY></HTML>"

#define in_odrpage2 "\
<HTML><HEAD><TITLE>TPC-C: Order-
Status</TITLE></HEAD>\r\n\
<BODY><FORM ACTION=\"%s\"
METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"O\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<center>Order Status<br></center>\r\n\
<font size=3><PRE>\
Warehouse:%6d       District:<INPUT
NAME=\"D\" SIZE=2 maxlength=2>\r\n\
Customer:<INPUT NAME=\"CI\" SIZE=4
maxlength=4>   Name:                  <INPUT
NAME=\"CL\" SIZE=16 maxlength=16>\r\n\
Cust-Balance: \r\n\
\r\n\
Order-Number:           Entry-Date:
Carrier-Number:\r\n\
Supply-W     Item-Id    Qty     Amount
Delivery-Date\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
</PRE>\r\n\
<INPUT
TYPE=\"submit\"></FORM></BODY></HTML>\r
\n"

/* --------------------------
    payment page
  * --------------------------*/
#define in_paypage "\
<HTML><HEAD><TITLE>TPC-C:
Payment</TITLE></HEAD>\r\n\
<BODY><FORM ACTION=\"%s\"
METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"P\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<center>Payment<br></center>\r\n\
<font size=4><PRE>Date:\r\n\
\r\n\
Warehouse:%6d
District:<INPUT NAME=\"D\" SIZE=2
maxlength=2>\r\n\
\r\n\
\r\n\
\r\n\
\r\n\
Customer: <INPUT NAME=\"CI\" SIZE=4
maxlength=4>  Cust-Warehouse: <INPUT
NAME=\"CW\" SIZE=5 maxlength=6>  Cust-
District: <INPUT NAME=\"CD\" SIZE=2
maxlength=2>\r\n\
Name:                    <INPUT NAME=\"CL\"
SIZE=17 maxlength=16>          Since:\r\n\
                                    Credit:\r\n\
                                    %%Disc:\r\n\
                                    Phone:\r\n\
\r\n\
Amount Paid          $<INPUT NAME=\"H\"
SIZE=7 maxlength=7>       New Cust-
Balance:\r\n\
Credit Limit:\r\n\
\r\n\
Cust-Data:\r\n\
\r\n\
\r\n\
</PRE>\r\n\
<INPUT
TYPE=\"submit\"></FORM></BODY></HTML>"

/* --------------------------
    stock level page
 * -------------------------*/
#define in_stkpage "\
<HTML><HEAD><TITLE>TPC-C: Stock-
Level</TITLE></HEAD>\r\n\
<BODY><FORM ACTION=\"%s\"
METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"S\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<center>Stock-Level<br></center>\r\n\
<font size=4><PRE>Warehouse:%6d
District: %2d\r\n\
\r\n\
Stock Level Threshold: <INPUT NAME=\"t\"
SIZE=2 maxlength=2>\r\n\
\r\n\
low stock:\r\n\
</PRE>\r\n\
<INPUT
TYPE=\"submit\"></FORM></BODY></HTML>"

#define in_stkpage2 "\
<HTML><HEAD><TITLE>TPC-C: Stock-
Level</TITLE></HEAD>\r\n\
<BODY><FORM ACTION=\"%s\"
METHOD=\"GET\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"f\"
VALUE=\"S\">\r\n\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\r\n\
<center>Stock Level<br></center>\r\n\
<font size=3><PRE>\
Warehouse:%6d       District:%2d\r\n\
\r\n\
Stock Level Threshold:<INPUT NAME=\"t\"
SIZE=2 maxlength=2>\r\n\
\r\n\
low stock:\r\n\
</PRE>\r\n\
<INPUT
TYPE=\"submit\"></FORM></BODY></HTML>\r
\n"


::::::::::::::::::::::::::::::::
 tpapl/tpcweb.h
::::::::::::::::::::::::::::::::

/*********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1998.08.06 FJH
*
*********************************/

/* ---------------------------------------------------------------
------------
   tpcweb.h
   ---------------------------------------------------------------
-----------*/

/* If transaction input data is abnormal then use
this format. */
#define errhtml  "\
<HTML><HEAD><TITLE>ERROR: TPC-
C</TITLE></HEAD><BODY>\
<p>You did something bad.  The error message
was:</p>\
<PRE>%s</PRE>\
<p>Either hit the \"back\" button on your browser
and fix the problem, \
or hit the \"Quit\" button below to terminate this
session. </P><HR>\
<P><FORM ACTION=\"%s\"
METHOD=\"GET\">\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
</FORM></P></BODY></HTML>\r\n"

/* If TP application terminated abnormally then
use this format. */
#define tuxerr "\
<HTML><HEAD><TITLE>ERROR: Tuxedo
</TITLE></HEAD><BODY>\
<P>The database could not process your
request.  \
tpcall terminated abnormally.</P>\
<HR><PRE>%s</PRE><HR>\
<FORM ACTION=\"%s\" METHOD=\"GET\">\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
</BODY></HTML>"

/* If application terminated abnormally then use
this format. */
#define errorpage "\
<HTML><HEAD><TITLE>ERROR: %s
</TITLE></HEAD><BODY>\
<P>The database could not process your
request.  \
Transaction terminated abnormally.</P>\
<HR><PRE>%s</PRE><HR>\
<FORM ACTION=\"%s\" METHOD=\"GET\">\
<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\
<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
</BODY></HTML>"

#if 0 /* oraerr,symfoerr --> errorpage */
!/* [oraerr]--[symfoerr]--"TITLE"------------------------
--------------------*/
!/* Since "TITLE" was only different, [oraerr] and
[symfoerr] were changed so that it might be
common and could use.*/
!/* If Oracle application terminated abnormally
then use this format. */
!#define oraerr "\
!<HTML><HEAD><TITLE>ERROR: ORACLE
</TITLE></HEAD><BODY>\
!<P>The database could not process your
request.  \
!Transaction terminated abnormally.</P>\
!<HR><PRE>%s</PRE><HR>\
!<FORM ACTION=\"%s\" METHOD=\"GET\">\
!<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\
!<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
!</BODY></HTML>"
!
!/* If SymfoWare application terminated
abnormally then use this format. */
!#define symfoerr "\
!<HTML><HEAD><TITLE>ERROR:
SYMFOWARE</TITLE></HEAD><BODY>\
!<P>The database could not process your
request.  \
!Transaction terminated abnormally.</P>\
!<HR><PRE>%s</PRE><HR>\
!<FORM ACTION=\"%s\" METHOD=\"GET\">\
!<INPUT TYPE=\"hidden\" NAME=\"c\"
VALUE=%d>\
!<INPUT TYPE=\"submit\" NAME=\"b\"
VALUE=\"Quit\">\
!</BODY></HTML>"
#endif

/* If TPINIT( ) abnormally then use this format. */
#define tuxierr "\
<HTML><HEAD><TITLE>ERROR: Tuxedo-init
</TITLE></HEAD><BODY>\
<P>The database could not process your
request. \
%s terminated abnormally.</P>\
</BODY></HTML>"



::::::::::::::::::::::::::::::::
 tpapl/trans.h
::::::::::::::::::::::::::::::::

/*********************************
*
*  COPYRIGHT FUJITSU LIMITED 2002
*  CREATE:1999.10.28 FJH
*
*********************************/

/*==================================
===============================+
  FILENAME : trans.h
  the work struct acoording to transaction is
declared.


+==================================
==============================*/


/* RTE - Client interface struct */
typedef struct {
    char *button,
    *cookie,
    *form,
    *O_CARRIER_ID,
    *threshold,
    *D_ID,
    *C_ID,
    *C_W_ID,
    *C_D_ID,
    *C_LAST,
    *H_AMOUNT,
    *OL_SUPPLY_W_ID[15],
    *OL_I_ID[15],
    *OL_QUANTITY[15];
} RTE_INPUT_DATA;
//} rte_input_data;


::::::::::::::::::::::::::::::::
 tpapl/trnexe/ConvTime.c
::::::::::::::::::::::::::::::::

/**********************************************************
*****
 *                                           *
 *       TPC-C Client Application Program Source
*
 *                                           *
 *  Entry Functions                                *
 *   (1) time2str                              *
 *                                           *
 *  CREATE by TSL   2002.10.01
*
 *                                           *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

**********************************************************
****/

#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "forlinux.h"

#include "trans.h"
#include "ThreadCntl.h"
#include "TpAplDBDependPrototype.h"

/*
   time2str:
   Outputs a date and time in the supplied buffer
in the following format:
   DD-MM-YYYY hh:mm:ss

   field = the destination field
   date = date and time to be converted and
displayed
*/
void time2str (char *str, char *time)
{
    short mon;
    int  year, day, hour, min, sec;
    char month[4];

#ifdef DBPRT
    fprintf (test_fp, "time2: %s\n", time);
#endif
/* Modified by TSL -- BEGIN -- 2006.03.17 */
#if 0
!    sscanf( time, "%2d-%3s-%2d.%2d:%2d:%2d",
!            &day, month, &year, &hour, &min,
&sec );

!   if(strcmp(month, "jan") == 0)
!       strcpy(month, "01");
!   if(strcmp(month, "feb") == 0)
!       strcpy(month, "02");
!   if(strcmp(month, "mar") == 0)
!       strcpy(month, "03");
!   if(strcmp(month, "apr") == 0)
!       strcpy(month, "04");
!   if(strcmp(month, "may") == 0)
!       strcpy(month, "05");
!   if(strcmp(month, "jun") == 0)
!       strcpy(month, "06");
!   if(strcmp(month, "jul") == 0)
!       strcpy(month, "07");
!   if(strcmp(month, "aug") == 0)
!       strcpy(month, "08");
!   if(strcmp(month, "sep") == 0)
!       strcpy(month, "09");
!   if(strcmp(month, "oct") == 0)
!       strcpy(month, "10");
!   if(strcmp(month, "nov") == 0)
!       strcpy(month, "11");
!   if(strcmp(month, "dec") == 0)
!       strcpy(month, "12");
!
!   int3str (str, 2, day);
!   str[2] = '-';
!
!   mon = atoi(month);
!   int3str (&str[3], 2, mon);
!   str[5] = '-';
!
!   /* ------------ */
!   if ( year >= 70 )
!       year += 1900;
!   else
!       year += 2000;
!
!   int3str (&str[6], 4, year);
!
#endif
    sscanf( time, "%2d-%2d-%4d.%2d:%2d:%2d",
            &day, &mon, &year, &hour, &min, &sec );

    int3str (str, 2, day);
    str[2] = '-';
    int3str (&str[3], 2, mon);
    str[5] = '-';
    int3str (&str[6], 4, year);

/* Modified by TSL -- END -- 2006.03.17 */

    str[10] = ' ';

    int3str (&str[11], 2, hour);
    str[13] = ':';

    int3str (&str[14], 2, min);
    str[16] = ':';

    int3str (&str[17], 2, sec);
}



::::::::::::::::::::::::::::::::
 tpapl/trnexe/CreateTranErrReason.c
::::::::::::::::::::::::::::::::

/**********************************************************
*****
 *                                           *
 *       TPC-C Client Application Program Source
*
 *                                           *
 *  Entry Functions                                *
 *   (1) CreateTranErrReason
*
 *                                           *
 *  CREATE by TSL   2003.12.15
*
 *                                           *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

**********************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "forlinux.h"

#include "atmi.h"
#include "tpcc.h"

int CreateTranErrReason(long errno_code, int
reason_code, char** reason_message) {
/* errno_code ....... return value of "tpcall" or
"tpacall"
 * reason_code ...... xxxout.terror
 * reason message ... convert message
 */
    switch (errno_code) {

    /* tpcall/tpacall error */
    case -1:
        TpccUserLog (LOG_ERR, "tpcall/tpacall
execution error occured. [errno_code=%d]\n",
errno_code);
        *reason_message = "Irrecoverable error in
tpcall/tpacall.";
        return -2;
        break;

    /* Normal end */
    default:
        switch(reason_code) {
        /* Normaol end */
        case NOERR:
            return 0;

        /* Irrecoverable error */
        case IRRECERR:
            TpccUserLog (LOG_ERR, "Transaction
proccessing error [IRRECERR] occurered.\n" );
            *reason_message = "Irrecoverable error
in transaction processing.";
            return -1;      /* Execution error */


        /* Retry */
        default:
            return 1;
        }
    }
}


::::::::::::::::::::::::::::::::
 tpapl/trnexe/log_level.h
::::::::::::::::::::::::::::::::

/**********************************************************
*****
 *                                           *
 *       TPC-C Client Application Program Source
*
 *                                           *
 *  CREATE by TSL   2003.02.07
*
 *                                           *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

**********************************************************
****/

//#define   PUT_INF_LOG               //
Information log
//#define   PUT_FNC_ENTRY_LOG         //
Function entry point log
//#define PUT_FNC_EXIT_LOG          // Function
exit log
```

```
/* Function entry point log macro */
#ifdef  PUT_FNC_ENTRY_LOG
#define MAC_PutFncEntryLog(func)
TpccUserLog(LOG_INF, ">>>>> "func" start
>>>>>");
#else
#define MAC_PutFncEntryLog(func)    ;
#endif

/* Function exit point log  */
#ifdef  PUT_FNC_EXIT_LOG
#define MAC_PutFncExitLog(func)
TpccUserLog(LOG_INF, "<<<<< "func" end
<<<<<");
#else
#define MAC_PutFncExitLog(func) ;
#endif



::::::::::::::::::::::::::::::::
 tpapl/trnexe/Makefile
::::::::::::::::::::::::::::::::

#----------------------------------------------------------------------
------
#  Makefile : Makefile for TpApl library on Linux.
#
#   Created by TSL 2003.12.18
#
#   All Right Rserverd, Copyright Co, FUJITSU
LIMITED 2003-2004.
#----------------------------------------------------------------------
------

# GCC compile configurations
AR  = ar
ARFLAGS = rv
CFLAGS  = -Wall -O2
CC  = gcc

# MACRO  definition (input parameter)
# BIND_TYPE = TRNS_BIND ... Transaction
bind
#            WH_BIND ..... Ware house bind
DMACRO  = -D$(BIND_TYPE)

# home directory.
TOPDIR  = /home/tpc/client_apl
TUXDIR  = /usr/local/BEA/tuxedo8.1
APADIR  = /usr/include/httpd
APLDIR  = $(TOPDIR)/tpapl
SVRDIR  = $(TOPDIR)/svrapl
ORADIR  = /usr/local/oracle


# include directory
TPA_INC = -I$(APLDIR)/trnexe
COM_INC = -I$(TOPDIR)/common
TUX_INC = -I$(TUXDIR)/include
APA_INC = -I$(APADIR)
APL_INC = -I$(APLDIR)
SVR_INC = -I$(SVRDIR)
ORA_INC = -I$(ORADIR)/rdbms/demo -
I$(ORADIR)/rdbms/public

# header file directory
HDFDIR = $(APLDIR)/trnexe
COMDIR = $(TOPDIR)/common

INCLUDE = $(TPA-INC) $(COM_INC)
$(APA_INC) $(TUX_INC) $(APL_INC)
$(SVR_INC) $(ORA_INC)
INCFILE = $(SVRDIR)/tpcc_info.h \
        $(HDFDIR)/OracleInfo.h \
        $(HDFDIR)/OracleFunction.h \
        $(HDFDIR)/log_level.h \
        $(APLDIR)/GlobalArea.h \
        $(APLDIR)/trans.h \
        $(APLDIR)/tpcweb.h \
        $(APLDIR)/TpAplDBDependPrototype.h \
        $(APLDIR)/tpapl.h \
        $(APLDIR)/ThreadCntl.h \
        $(APLDIR)/stpage.h \
        $(APLDIR)/paypage.h \
        $(APLDIR)/odrpage.h \
        $(APLDIR)/newpage.h \
        $(APLDIR)/delpage.h \
        $(COMDIR)/log.h \
        $(COMDIR)/forlinux.h \

# target object
OBJS = ConvTime.o  CreateTranErrReason.o
TestFunction.o  TransactionDataLen.o  \
      TrxDelivery.o  TrxNewOrder.o
TrxOrderStatus.o TrxPayment.o TrxStockLevel.o
ARCH_LIB =
$(APLDIR)/trnexe/libtrnexe_$(BIND_TYPE).a


$(ARCH_LIB) : $(OBJS)
    $(AR) $(ARFLAGS) $(ARCH_LIB) $(OBJS)

.SUFFIXES: .o .c
.c.o:
    $(CC) -o $@ -c $(CFLAGS) $(INCLUDE)
$(DMACRO) $<

$(OBJS) : $(INCFILE)

clean:
#   rm  $(ARCH_LIB) $(OBJS)



::::::::::::::::::::::::::::::::
 tpapl/trnexe/MakeShell
::::::::::::::::::::::::::::::::

#! /bin/sh
cd /home/tpc/client_apl/tpapl/trnexe
echo "*------------------------------*" >
make_result.txt
echo "*----FOR WARE HOUSE BIND--------*" >>
make_result.txt
echo "*------------------------------*" >>
make_result.txt
make BIND_TYPE="WH_BIND"              >>
make_result.txt 2>&1
echo "*------------------------------*" >>
make_result.txt
echo "*----FOR TRANSACTION BIND-------*" >>
make_result.txt
echo "*------------------------------*" >>
make_result.txt
rm *.o                              >> make_result.txt
2>&1
make BIND_TYPE="TRNS_BIND"            >>
make_result.txt 2>&1


::::::::::::::::::::::::::::::::
 tpapl/trnexe/OracleFunction.h
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                   *
 *   Function definition for Oracle.                  *
 *                                                    *
 *  CREATE by TSL   2002.10.01
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

*******************************************************
****/

// ------------------
//  TrxNewOrder.cpp
// ------------------
int chk_NOdata (NewOrderData *bp, int cnt,
RTE_INPUT_DATA *in_data, int svcnt);
int setNOdata (char *s_work,int OF,int cnt,
NewOrderData *bp,RTE_INPUT_DATA
*in_data);

// ------------------
//    TestProc.cpp
// ------------------
void dummy_delivery( DeliveryData *bp );
void dummy_stocklvl( StockLevelData *bp );
void dummy_payment( PaymentData *bp );
void dummy_orderstat( OrderStatusData *bp );
void dummy_neworder( NewOrderData *bp );
void oder_dsp(RTE_INPUT_DATA *in_data,
OrderStatusData *bp, int w_id, int d_flag);
void pay_dsp(RTE_INPUT_DATA *in_data,
PaymentData *bp, int w_id, int d_flag);
void sto_dsp(RTE_INPUT_DATA *in_data,
StockLevelData *bp, int w_id, int d_id, int
d_flag);
void new_dsp(RTE_INPUT_DATA *in_data,
NewOrderData *bp, int w_id, int d_flag, int cnt);

int CreateTranErrReason(long errno_code, int
reason_code, char** reason_message);

// ----------------------Oracle--Symfo----------
// used in common by Oracle and Symfo.
#define MAC_errHTML(page, err_inf, cookie )
set_errHTML(page, err_inf, cookie, "ORACLE" );
#define MAC_errHTML_TUXEDO(page, err_inf,
cookie ) set_errHTML(page, err_inf, cookie,
"TUXEDO" );



::::::::::::::::::::::::::::::::
 tpapl/trnexe/OracleInfo.h
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                   *
 *   Oracle Area definition.                          *
 *                                                    *
 *  CREATE by TSL   2002.10.01
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

*******************************************************
****/
```

```
#ifndef ORACLEINFO_H
#define ORACLEINFO_H

#define INTNULL 0

#endif



::::::::::::::::::::::::::::::::
 tpapl/trnexe/TestFunction.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Entry Functions                             *
 *   (1) get_datetimestr                        *
 *   (2) get_datestr                            *
 *   (3) dummy_delivery                         *
 *   (4) dummy_stocklvl                         *
 *   (5) dummy_payment                          *
 *   (6) dummy_orderstat                        *
 *   (7) dummy_neworder                         *
 *   (8) oder_dsp                               *
 *   (9) pay_dsp                                *
 *   (10) sto_dsp                               *
 *   (11) new_dsp                               *
 *   (12) tsp                                   *
 *                                              *
 *  CREATE by TSL   2002.10.01
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

*******************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "forlinux.h"

#include "trans.h"
#include "tpcc_info.h"

//
// dmy.h : DLL----------------------------------------------
------------
//
//    ------------    --SCRTEST--#define-----------------
-
//    ------------------DBPRT--#define------------------
//

//
// ----------------------------
//

#ifdef SCRTEST

char *get_datetimestr( char *buf )
{
   struct tm   *tm;
   time_t      tim;

   time( &tim );
   tm  = localtime( &tim );

   sprintf( buf, "%2d-%2d-%4d %2d:%2d:%2d",
tm->tm_mday, tm->tm_mon+1,
      tm->tm_year+1900, tm->tm_hour, tm-
>tm_min, tm->tm_sec );

   return buf;
}


char *get_datestr( char *buf )
{
   struct tm   *tm;
   time_t      tim;

   time( &tim );
   tm  = localtime( &tim );

   sprintf( buf, "%2d-%2d-%4d",
      tm->tm_mday, tm->tm_mon+1, tm-
>tm_year+1900 );
   return buf;
}


void dummy_delivery( DeliveryData *bp )
{
   bp->delout.terror = NOERR;

   return;
}


void dummy_stocklvl( StockLevelData *bp )
{
   int     i;

   bp->stoout.terror = NOERR;

   do{
      i = rand()%1000;
   } while ( i > bp->stoin.threshold );

   bp->stoout.low_stock = i;

   return;
}


void dummy_payment( PaymentData *bp )
{
   bp->payout.terror = NOERR;
   strcpy( bp->payout.h_date, "11-oct-
02.16:37:15" );
   strcpy( bp->payout.w_street_1, "Baker
street" );
   strcpy( bp->payout.w_street_2, "221B" );
   strcpy( bp->payout.w_city, "London" );
   strcpy( bp->payout.w_state, "GB" );
   strcpy( bp->payout.w_zip, "88033000" );

   strcpy( bp->payout.d_street_1, "Minato-ku" );
   strcpy( bp->payout.d_street_2, "Azabu 10" );
   strcpy( bp->payout.d_city, "Tokyo" );
   strcpy( bp->payout.d_state, "JP" );
   strcpy( bp->payout.d_zip, "102  1234" );

   bp->payout.c_id = 777;
   strcpy( bp->payout.c_first, "John" );
   strcpy( bp->payout.c_middle, "H" );
   strcpy( bp->payout.c_last, "Watson" );
   strcpy( bp->payout.c_street_1, "Baker
street" );
   strcpy( bp->payout.c_street_2, "221B" );
   strcpy( bp->payout.c_credit, "GC" );
   bp->payout.c_discount = (float)20.00;
// check
   strcpy( bp->payout.c_city, "London" );
   strcpy( bp->payout.c_state, "GB" );
   strcpy( bp->payout.c_zip, "888  1234" );
   strcpy( bp->payout.c_phone,
"1234567890123456");
   bp->payout.c_balance = 67876;
   bp->payout.c_credit_lim = 77777;
   strcpy( bp->payout.c_since, "11-10-2002" );

   strcpy( bp->payout.c_data,
"Migyamigyamigyamigyamigya"
            "migyamigyamigyamigyamigya" );
   return;
}


void dummy_orderstat( OrderStatusData *bp )
{
   int i, j;

   bp->ordout.terror = NOERR;
   bp->ordout.c_id = rand()%10000;
   strcpy( bp->ordout.c_first, "Robert" );
   strcpy( bp->ordout.c_middle, "L" );
   strcpy( bp->ordout.c_last, "Fish" );
   bp->ordout.c_balance =
( ( rand()*rand()%19999999 )-9999999 ) /
(double)100.0;

   bp->ordout.o_id = rand()%10000;
   strcpy( bp->ordout.o_entry_d, "11-oct-
02.16:25:45" );
   bp->ordout.o_carrier_id = rand()%100;

   bp->ordout.o_ol_cnt = ( rand()%11 )+5;
   j = bp->ordout.o_ol_cnt;
   for ( i = 0; i < j; i++ )
   {
      bp->ordout.ol_supply_w_id[i] =
( rand()%100000 )+1;
      bp->ordout.ol_i_id[i] = ( rand()%100000 )+1;
      bp->ordout.ol_quantity[i] = ( rand()%99 )+1;
      bp->ordout.ol_amount[i] = (float)rand();
// check

   sprintf( bp->ordout.ol_delivery_d[i], "%02d-10-
2002",i + 1 );
   }

   return;
}


void dummy_neworder( NewOrderData *bp )
{
   static int  o_id = 3001;
   int i;

   bp->newout.terror = NOERR;

   strcpy( bp->newout.c_last, "Holmes" );
   strcpy( bp->newout.c_credit, "GC" );
   bp->newout.o_id = o_id++;

   strcpy( bp->newout.o_entry_d, "11-oct-
02.15:10:30" );
   bp->newout.c_discount =
(float)(( rand()%101 )/10000.0);    // check
   bp->newout.w_tax =
(float)(( rand()%2001 )/10000.0);        // check
   bp->newout.d_tax =
(float)(( rand()%2001 )/10000.0);        // check
   bp->newout.total_amount = 0;                    //
check

   for ( i = 0; i < 15; i++ ){
        if ( bp->newin.ol_supply_w_id[i] == 0 ) {
            break;
        }
        if ( bp->newin.ol_i_id[i] == -1 ) {
        }

        sprintf(bp-
>newout.i_name[i],"ItemName%02d",i);
        bp->newout.s_quantity[i] = ( rand()%10 )+1;
        bp->newout.brand_generic[i] =
( rand()%26 )+'A';
        bp->newout.i_price[i] =
(float)((( rand()%10000 )+1 )/100.0);   // check
        bp->newout.ol_amount[i]
            = bp->newout.i_price[i] * bp-
>newin.ol_quantity[i];            // check
        bp->newout.total_amount += bp-
>newout.ol_amount[i];               // check
    }
    bp->newout.o_ol_cnt = i;

    return;
}

#endif

//
// ------------------------------------
//

#ifdef DBPRT
void oder_dsp(RTE_INPUT_DATA *in_data,
           OrderStatusData *bp, int w_id, int
d_flag)
{
    int i;

    if (d_flag == 0){
        fprintf (test_fp, "----- in data area -----\n\n");
        fprintf (test_fp, "w_id = %d ", w_id);
        fprintf (test_fp, "d_id = %s ",in_data->D_ID);

        if (in_data->C_ID != 0)
            fprintf (test_fp, "c_id = %s \n",in_data-
>C_ID);
        if (in_data->C_LAST != 0)
            fprintf (test_fp, "c_last = %s \n",in_data-
>C_LAST);

        fprintf (test_fp, "----- trans buf area -----
\n\n");
        fprintf (test_fp, "w_id = %d ", bp->w_id);
        fprintf (test_fp, "d_id = %d ", bp->d_id);
        fprintf (test_fp, "c_id = %d\n", bp->c_id);
    }
    else {
        fprintf(test_fp, "----- trans buf area (after) ----
-\n\n");
        fprintf(test_fp,"w_id = %d  ", bp->w_id);
        fprintf(test_fp,"d_id = %d  ", bp->d_id);
        fprintf(test_fp,"c_id = %d\n", bp->c_id);
        fprintf(test_fp,"c_first=%s ", bp->c_first);
        fprintf(test_fp,"c_middl=%s ", bp-
>c_middle);
        fprintf(test_fp,"c_last =%s\n", bp->c_last);

        fprintf(test_fp,"c_balan=%f ", bp-
>c_balance);
        fprintf(test_fp,"o_id =%d ", bp->o_id);
        fprintf(test_fp,"o_entry_d=%s\n", bp-
>o_entry_d );  // check

        if ( bp->o_carrier_id != 0 ) {
            fprintf(test_fp,"o_carrier_id=%d\n", bp-
>o_carrier_id);
        }

        for( i = 0; i < bp->o_ol_cnt; i++ ){

            fprintf(test_fp,"ol_supp=%d ", bp-
>ol_supply_w_id[i]);
            fprintf(test_fp,"ol_i_id=%d ", bp-
>ol_i_id[i]);
            fprintf(test_fp,"ol_quan=%d ", bp-
>ol_quantity[i]);
            fprintf(test_fp,"ol_amou=%f\n", bp-
>ol_amount[i]);
        }
    }
}

void pay_dsp(RTE_INPUT_DATA *in_data,
           PaymentData *bp, int w_id, int d_flag)
{
    int i;

    if (d_flag == 0){
        fprintf (test_fp, "----- in data area -----\n\n");

        fprintf (test_fp, "w_id = %d ",  w_id);
        fprintf (test_fp, "d_id = %s ",in_data->D_ID);
        fprintf (test_fp, "c_w_id=%s ",in_data-
>C_W_ID);
        fprintf (test_fp, "c_d_id=%s ",in_data-
>C_D_ID);
        fprintf (test_fp, "h_amount=%s \n",in_data-
>H_AMOUNT);

        if (in_data->C_ID != 0)
            fprintf (test_fp, "c_id = %s \n",in_data-
>C_ID);
        if (in_data->C_LAST != 0)
            fprintf (test_fp, "c_last = %s \n",in_data-
>C_LAST);

        fprintf (test_fp, "----- trans buf area -----
\n\n");
        fprintf (test_fp, "w_id = %d ", bp->w_id);
        fprintf (test_fp, "d_id = %d ", bp->d_id);
        fprintf (test_fp, "c_id = %d ", bp->c_id);
        fprintf (test_fp, "c_w_id=%d ",bp->c_w_id);
        fprintf (test_fp, "c_d_id=%d ",bp->c_d_id);
        fprintf (test_fp, "h_amount=%f \n",bp-
>h_amount);
    }
    else {
        fprintf (test_fp, "----- trans buf area (after) ---
--\n\n");
        fprintf(test_fp,"w_id = %d  ", bp->w_id);
        fprintf(test_fp,"d_id = %d  ", bp->d_id);
        fprintf(test_fp,"c_id = %d\n", bp->c_id);

        fprintf(test_fp,"w_str_1=%s  ",bp-
>w_street_1);
        fprintf(test_fp,"w_str_2=%s\n",bp-
>w_street_2);
        fprintf(test_fp,"d_str_1=%s  ",bp-
>d_street_1);
        fprintf(test_fp,"d_str_2=%s\n",bp-
>d_street_2);
        fprintf(test_fp,"w_city=%s ",  bp->w_city);
        fprintf(test_fp,"w_state=%s\n",bp->w_state);
        fprintf(test_fp,"d_city=%s ",  bp->d_city);
        fprintf(test_fp,"d_state=%s\n",bp->d_state);

        fprintf(test_fp,"c_w_id=%d  ", bp->c_w_id);
        fprintf(test_fp,"d_w_id=%d\n", bp->c_d_id);

        fprintf(test_fp,"c_first=%s ", bp->c_first);
        fprintf(test_fp,"c_middl=%s ", bp-
>c_middle);
        fprintf(test_fp,"c_last =%s\n",bp->c_last);

        fprintf(test_fp,"c_str_1=%s  ",bp-
>c_street_1);
        fprintf(test_fp,"c_str_2=%s\n",bp-
>c_street_2);
        fprintf(test_fp,"c_city=%s\n", bp->c_city);
        fprintf(test_fp,"c_credi=%s  ",bp->c_credit);
        fprintf(test_fp,"c_state=%s\n", bp->c_state);

        fprintf(test_fp,"c_balan=%f\n", bp-
>c_balance);

        i = strlen( bp->c_data );
        fprintf(test_fp,"c_date=%s\n", bp->c_data);
    }
}

void sto_dsp(RTE_INPUT_DATA *in_data,
           StockLevelData *bp, int w_id, int d_id, int
d_flag)
{

    if (d_flag == 0){
        fprintf (test_fp, "----- in data area -----\n\n");

        fprintf(test_fp,"w_id = %d ",  w_id);
        fprintf(test_fp,"d_id = %d  ", d_id);
        fprintf (test_fp, "threshold= %s \n",in_data-
>threshold);

        fprintf (test_fp, "----- trans buf area -----
\n\n");
        fprintf (test_fp, "w_id = %d   ", bp->w_id);
        fprintf (test_fp, "d_id = %d   ", bp->d_id);
        fprintf (test_fp, "threshold= %d \n",bp-
>threshold);
    }
    else{
        fprintf (test_fp, "----- trans buf area (after) ---
--\n\n");

        fprintf (test_fp, "w_id = %d   ", bp->w_id);
        fprintf (test_fp, "d_id = %d   ", bp->d_id);
        fprintf (test_fp, "threshold= %d   ",bp-
>threshold);
        fprintf (test_fp, "low_stock= %d \n",bp-
>low_stock);
    }
}

void new_dsp(RTE_INPUT_DATA *in_data,
           NewOrderData *bp, int w_id, int d_flag,
int cnt)
{
    int i, loop;


    if (d_flag == 0){
        fprintf (test_fp, "----- in data area -----\n\n");

        fprintf (test_fp, "w_id = %d ", w_id);
        fprintf (test_fp, "d_id = %s ",in_data->D_ID);
        fprintf (test_fp, "c_id = %s \n", in_data-
>C_ID);

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

            if( in_data->OL_SUPPLY_W_ID[i] != 0 ){
                fprintf(test_fp,"ol_sup_w_id=%s
",in_data->OL_SUPPLY_W_ID[i]);
            }
```

```
          if( in_data->OL_I_ID[i] != 0 ){
            fprintf (test_fp, "ol_i_id=%s ", in_data-
>OL_I_ID[i]);
          }

          if( in_data->OL_QUANTITY[i] != 0 ){
            fprintf (test_fp, "ol_quan=%s\n",
in_data->OL_QUANTITY[i]);
          }
        }

        fprintf (test_fp, "----- trans buf area -----
\n\n");
        fprintf (test_fp, "w_id = %d ", bp->w_id);
        fprintf (test_fp, "d_id = %d ", bp->d_id);
        fprintf (test_fp, "c_id = %d\n",bp->c_id);

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

          fprintf (test_fp, "ol_sup_w_id=%d ",  bp-
>ol_supply_w_id[i]);
          fprintf (test_fp, "ol_i_id=%d ",  bp-
>ol_i_id[i]);
          fprintf (test_fp, "ol_quan=%d\n", bp-
>ol_quantity[i]);
        }
    }
    else{
        fprintf (test_fp, "----- trans buf area (after) ---
--\n\n");

        fprintf (test_fp, "c_last=%s  ", bp->c_last);
        fprintf (test_fp, "c_credit=%s\n", bp-
>c_credit);
        fprintf (test_fp, "o_id=%d  ", bp->o_id);

        fprintf (test_fp, "o_entry_d=%s\n",bp-
>o_entry_d);  // check
        fprintf (test_fp, "c_discnt=%f\n", bp-
>c_discount * 100.0);

        fprintf (test_fp, "o_ol_cnt=%d  ", bp-
>o_ol_cnt);

        fprintf (test_fp, "w_tax=%f  ", bp->w_tax *
100.0);
        fprintf (test_fp, "d_tax=%f\n", bp->d_tax *
100.0);

        loop = bp->o_ol_cnt;
        for ( i = 0; i < loop; i++ ) {

          fprintf(test_fp," - - - - - -
\no_sup_w_id=%d ",
            bp->ol_supply_w_id[i]);
          fprintf(test_fp,"o_i_id=%d  ",bp-
>ol_i_id[i]);
          fprintf(test_fp,"i_name=%s\n",&bp-
>i_name[i][0]);
          fprintf(test_fp,"o_quant=%d ",bp-
>ol_quantity[i]);
          fprintf(test_fp,"s_quant=%d ",bp-
>s_quantity[i]);
          fprintf(test_fp,"brand=%c ",  bp-
>brand_generic[i]);
          fprintf(test_fp,"i_price=%f ",bp-
>i_price[i]);      // check
          fprintf(test_fp,"ol_amnt=%f\n",bp-
>ol_amount[i]);   // check
        }
        fprintf (test_fp, "total_a=%f\n", bp-
>total_amount);    // check
    }
}
```

```
#endif

#ifdef TIMEST
int tsp(int id, char flag, char type){

//  struct  tm times;
    SYSTEMTIME systemTime; // for IIS Version

    GetLocalTime(&systemTime);

    fprintf (TIMES, "ID=%d, FL=%d,
T=%c : %d:%d:%d.%d\n",
        id, flag, type, (int)systemTime.wHour,
        (int)systemTime.wMinute,
        (int)systemTime.wSecond,
        (long)systemTime.wMilliseconds);

    fflush (TIMES);
    return 0; }

#endif



::::::::::::::::::::::::::::::::
 tpapl/trnexe/TransactionDataLen.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Entry Functions                          *
 *   (1) GetGenericDataLen                          *
 *   (2) GetDeliveryDataLen                         *
 *                                              *
 *  CREATE by TSL   2002.10.01
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

********************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "forlinux.h"

#include "tpcc_info.h"

/*******************************************************
*****
 * Get transaction data size.                      *
 * Return Value                               *
 *      transaction data size                        *

********************************************************
****/
long GetGenericDataLen() {
    long    max_len = 0;

    if (max_len < sizeof(NewOrderData)) max_len
= sizeof(NewOrderData);
    if (max_len < sizeof(OrderStatusData))
max_len = sizeof(OrderStatusData);
    if (max_len < sizeof(PaymentData)) max_len
= sizeof(PaymentData);
    if (max_len < sizeof(StockLevelData))
max_len = sizeof(StockLevelData);
    if (max_len < sizeof(DeliveryData)) max_len =
sizeof(DeliveryData);
```

```
    return max_len;
}

/*******************************************************
*****
 * Get delivery transaction data size.
*
 * Return Value                                  *
 *      Delivery transaction data size
*

********************************************************
****/
long GetDeliveryDataLen() {
    return sizeof(struct delstruct);
}



::::::::::::::::::::::::::::::::
 tpapl/trnexe/TrxDelivery.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Entry Functions                              *
 *   (1) Delivery                               *
 *                                              *
 *  CREATE by TSL   2003.12.15
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

********************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "forlinux.h"

#include <sys/time.h>

#include "atmi.h"

#include "trans.h"
#include "tpcc_info.h"
#include "delpage.h"

#include "ThreadCntl.h"
#include "TpAplDBDependPrototype.h"
#include "log.h"
#include "log_level.h"

#include "tpapl.h"
//#include "GlobalArea.h"          // Common
#include "OracleFunction.h"

/*-------------------------------------------------------------
---------
    Delivery : this function proccesses the delivery
transaction.
 --------------------------------------------------------------
--------- */
int Delivery (char *s_buf, RTE_INPUT_DATA
*in_data, int cookie)
{
    DeliveryData    *bp;
    char            S_WORK[WORK_S];

    struct  timeval     tv;
```

```
#ifdef TRNS_BIND
static  char* svr_name = "DELIVERY";
#else
static  char* svr_name = "OPSTUXSERVER";
#endif

   int h_del1_leng;
   int h_del2_leng;
   int h_del3_leng;

   THREAD_CNTL_INFO*   ThreadCntlInfo;

   //SvrAPL return value
#ifndef SCRTEST
   int                ret_val;
#endif

   MAC_PutFncEntryLog("Delivery");

   /* Create execution environment */
   ThreadCntlInfo = GetThreadCntl();
   if (ThreadCntlInfo == 0) {
      sprintf( S_WORK, "thread contorl
information is not allocated [DEL]\n");
      MAC_errHTML( s_buf, S_WORK, cookie );
      TpccUserLog (LOG_ERR, S_WORK);
      return (-1);
   }
   bp = (DeliveryData*)ThreadCntlInfo->TrxData;
   memset(bp, 0x00, sizeof(DeliveryData));

 /* ------------------------------------------------ Check
the Input data */
   bp->delin.w_id = MAC_w_id(cookie);

   bp->delin.o_carrier_id = str2short (in_data-
>O_CARRIER_ID, 2);

   if (bp->delin.o_carrier_id < 1 || bp-
>delin.o_carrier_id > 10) {
      TpccUserLog (LOG_ERR, "Input data error
[DEL] (o_carrier_id = %s)[Return_Value:%d]\n",
                     in_data->O_CARRIER_ID, bp-
>delin.o_carrier_id);
      return set_errpage(s_buf, cookie, 5, (int)bp-
>delin.o_carrier_id, 0, 0);
   }

 /* ----------------------------------------- Execute
Delivery transaction */

   /* Get Derivery start time */
   gettimeofday(&tv, NULL);
   bp->delin.startsec  = (long)tv.tv_sec;
   bp->delin.startusec = (long)(tv.tv_usec /
1000);

#ifndef SCRTEST

/* Replaced 2003.12.15 Transaction processeing
interface COM+ --> TUXEDO */
#ifndef TRNS_BIND
   /* Set transaction type for Warehouse bind */
   bp->retval = 4;
#endif

resend_delivery:
   ret_val = tpacall(svr_name, (char*)bp,
sizeof(NewOrderData), 0 | TPNOTIME |
TPNOREPLY);
   if (ret_val == -1 ) {
      /* Display messege */
      switch ( tperrno ) {
```

```
      case TPELIMIT:  /* -------------------------------
---- */
      case TPETIME:   /* -------------------------------
*/
      case TPGOTSIG:  /* ----------------- */
         /* Because it is an executable again error,
            processing is executed again. */
         TpccUserLog (LOG_WRN, "Delivery
retry reason by terrno=%d\n", tperrno);
         goto resend_delivery;
         break;

      default:
         /* The error which was not able to be
executed again occurred */
         sprintf( S_WORK, "tpacall failed in
Delivery: tperrno = %d\n"
               " svc = '%s' carrier = %d\n", tperrno,
               svr_name, bp->delin.o_carrier_id );

         MAC_errHTML_TUXEDO( s_buf,
S_WORK, cookie );
         TpccUserLog (LOG_ERR, S_WORK);
         FreeTuxBuffer(ThreadCntlInfo);
         return (-1);
      }
   }
#else
   dummy_delivery(bp);
#endif

/* -------- The execution result data notified RTE
is made by the HTML form */
/* Replaced T.kato 03.04.18 Speed up */
   //sprintf (S_WORK, h_del2);
   strcpy(S_WORK, h_del2);
   h_del2_leng = strlen(S_WORK);
/* Replaced end */

   int2str ((S_WORK + delp[0]), 6, (int)bp-
>delin.w_id);

   int2str ((S_WORK + delp[1]), 2, (int)bp-
>delin.o_carrier_id);
   alp2str ((S_WORK + delp[2]), 25, "Delivery
has been queued");

/* Replaced T.Kato 03.04.18 */
#if 0
!    sprintf(s_buf, h_del1);
!    strcat (s_buf, S_WORK);
!
!    sprintf(S_WORK, h_del3, SOPATH, cookie);
!    strcat (s_buf, S_WORK);
#endif
   strcpy(s_buf, h_del1);
   h_del1_leng = strlen(s_buf);
   memcpy(s_buf + h_del1_leng, S_WORK,
h_del2_leng);
   h_del3_leng = sprintf(S_WORK, h_del3,
SOPATH, cookie);
   memcpy(s_buf + h_del1_leng + h_del2_leng,
S_WORK, h_del3_leng);
   *(s_buf + h_del1_leng + h_del2_leng +
h_del3_leng) = '\0';
/* Replaced end */

   FreeTuxBuffer(ThreadCntlInfo);
   return 0;
}



:::::::::::::::::::::::::::::::::
 tpapl/trnexe/TrxNewOrder.c
```

```
:::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Entry Functions                                   *
 *   (1) NewOrder                                     *
 *   (2) chk_NOdata                                     *
 *   (3) setNOdata                                    *
 *                                              *
 *  CREATE by TSL   2002.10.01
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

*******************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "forlinux.h"

#include "atmi.h"

#include "trans.h"
#include "tpcc_info.h"
#include "newpage.h"

#include "ThreadCntl.h"
#include "TpAplDBDependPrototype.h"
#include "log.h"
#include "log_level.h"

#include "tpapl.h"
//#include "GlobalArea.h"          // Common
#include "OracleFunction.h"

/* Added T.Kato 04.05.13 Speed up */
   int     leng_h_new1 = strlen(h_new1);
   int     leng_h_new2 = strlen(h_new2);
/* Added end */

/*-------------------------------------------------------------
-----------

  NewOrder : this function proccesses the
NewOrder transaction.

 --------------------------------------------------------------
----------*/
int NewOrder (char *s_buf, RTE_INPUT_DATA
*in_data, int cookie)
{
   NewOrderData *bp;

   /*int  user_id, i;*/
   int  i;
   int  ol_cnt, cnt, rtn;

   char S_WORK[WORK_S];

#ifdef TRNS_BIND
static  char* svr_name = "NEWORDER";
#else
static  char* svr_name = "OPSTUXSERVER";
#endif
   long olen;

   int h_new1_leng;
   int h_new2_leng;
   int h_new3_leng;
```

```
    //SvrAPL return value
#ifndef SCRTEST
    int     ret_value;
    int     ret_val;
    char*   tran_errmsg;
#endif

    THREAD_CNTL_INFO*   ThreadCntlInfo;
    int                 return_value;

    MAC_PutFncEntryLog("NewOrder");

    /*user_id = cookie - GLB_TermBase;*/

    /* Create execution environment */
    ThreadCntlInfo = GetThreadCntl();
    if (ThreadCntlInfo == 0) {
        sprintf( S_WORK, "thread contorl
information is not allocated [NEW]\n");
        MAC_errHTML( s_buf, S_WORK, cookie );
        TpccUserLog (LOG_ERR, S_WORK);
        return (-1);
    }
    bp = ( NewOrderData * )ThreadCntlInfo-
>TrxData;
    memset(bp, 0x00, sizeof(NewOrderData));


/* ---------------------------------------------------- check
the Input data */
    bp->newin.w_id = MAC_w_id(cookie);

    if((bp->newin.d_id = str2int (in_data->D_ID,
2)) < 1 ) {
        TpccUserLog (LOG_ERR, "Input data error
[NEW] (d_id = %s)[Retuen_value:%d]\n",
                    in_data->D_ID, bp-
>newin.d_id);
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 2, (int)bp-
>newin.d_id, 0, 0);
    }

    if((bp->newin.c_id = str2int (in_data->C_ID,
4)) < 0 ) {
        TpccUserLog (LOG_ERR, "Input data error
[NEW] (c_id = %s)[Retuen_value:%d]\n",
                    in_data->C_ID, bp-
>newin.c_id);
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 6, bp-
>newin.c_id, 0, 0);
    }

    ol_cnt = 0;
    for (cnt = 0; cnt < 15; cnt++){

        if ((rtn = chk_NOdata( bp, cnt, in_data,
ol_cnt)) < 0 ){
            TpccUserLog (LOG_ERR, "Error end
chk_NOdata() [NEW]
(Line:%d)[Return_Value:%d]\n",
                        cnt, rtn);
            FreeTuxBuffer(ThreadCntlInfo);
            return set_errpage(s_buf, cookie, 13 +
cnt, rtn, 0, 0);
        }
        else if (rtn == 1){
            ol_cnt++;
        }

    }

    /* nothing order line data */
    if ( cnt >= 15 && ol_cnt == 0 ) {
        TpccUserLog (LOG_ERR, "nothing order
line data [NEW]\n");
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 13, -8, 0,
0);
    }

    /* if ol_cnt < 15 then the last order line set
NULL */
    if ( ol_cnt < 15 ){
        bp->newin.ol_i_id[ol_cnt] = 0;
        bp->newin.ol_quantity[ol_cnt] = 0;
        bp->newin.ol_supply_w_id[ol_cnt] = 0;
    }

    bp->newout.o_ol_cnt = ol_cnt;

/* -------------------------------------------- Execute
NewOrder transaction */
#ifndef SCRTEST
resend_neworder:

/* Replaced 2003.12.15 Transaction processeing
interface COM+ --> TUXEDO */
#ifndef TRNS_BIND
    /* Set transaction type for Warehouse bind */
    bp->retval = 1;
#endif

    ret_val = tpcall(svr_name,
(char*)ThreadCntlInfo->TrxData,
sizeof(NewOrderData),
                        (char**)&ThreadCntlInfo-
>TrxData, &olen, 0|TPNOTIME);
    bp = ( NewOrderData * )ThreadCntlInfo-
>TrxData;
    ret_value = CreateTranErrReason(ret_val, bp-
>newout.terror, &tran_errmsg);

    switch(ret_value) {
    case 0:
        /* Success */
        break;

    case 1:
        /* Retry NewOrder transaction */
        TpccUserLog (LOG_WRN, "NewOrder
retry\n");
        goto resend_neworder;

    case -1:
        /* Oracle failed */
        sprintf( S_WORK, "Oracle failed to process
NewOrder Transaction.(%s)\n"
                "ret_value = %d d_id = %d c_id = %d
lines = %d cookie = %d\n",
                tran_errmsg, ret_value,
                bp->newin.d_id, bp->newin.c_id,
ol_cnt, cookie );

        MAC_errHTML( s_buf, S_WORK, cookie );
        TpccUserLog (LOG_ERR, S_WORK);
        FreeTuxBuffer(ThreadCntlInfo);
        return (-1);

    default:
        /* Tuxedo failed */
        sprintf( S_WORK, "tpcall failed to process
NewOrder Transaction.(tperrno=%d)\n"
                "ret_value = %d d_id = %d c_id = %d
lines = %d cookie = %d\n",
                tperrno, ret_value,
                bp->newin.d_id, bp->newin.c_id,
ol_cnt, cookie );
        MAC_errHTML_TUXEDO( s_buf, S_WORK,
cookie );
        TpccUserLog (LOG_ERR, S_WORK);
        FreeTuxBuffer(ThreadCntlInfo);
        return (-1);
    }
/* Changed end */
#else
    dummy_neworder( bp );
#endif

/* Replaced T.Kato 04.05.13 Speed up */
#if 0
!/* Replaced T.Kato 03.04.18 Speed up */
!   //sprintf (S_WORK, h_new2);
!   strcpy(S_WORK, h_new2);
!   h_new2_leng = strlen(S_WORK);
!/* Replaced end */
#endif
    strcpy(S_WORK, h_new2);
    h_new2_leng = leng_h_new2;
/* Replaced end */

    int2str ((S_WORK + newp[0]), 6, (int)bp-
>newin.w_id);

    int2str ((S_WORK + newp[1]), 2, (int)bp-
>newin.d_id);
    int2str ((S_WORK + newp[3]), 4, bp-
>newin.c_id);

    alp2str ((S_WORK + newp[4]), 16, bp-
>newout.c_last);
    alp2str ((S_WORK + newp[5]), 2, bp-
>newout.c_credit);
    int2str ((S_WORK + newp[7]), 8, (int)bp-
>newout.o_id);

    cnt = bp->newout.o_ol_cnt;

    time2str((S_WORK + newp[2]),bp-
>newout.o_entry_d);
    dec2str ((S_WORK + newp[6]),5,(double)(bp-
>newout.c_discount*100.0));
    int2str ((S_WORK + newp[8]),2,(int)bp-
>newout.o_ol_cnt);
    dec2str ((S_WORK + newp[9]),5, (double)(bp-
>newout.w_tax * 100.0));
    dec2str ((S_WORK +
newp[10]),5,(double)(bp->newout.d_tax *
100.0));

    for ( i = 0; i < cnt; i++ ) {
        return_value = setNOdata (S_WORK,
0x50*i, i, bp, in_data);
        if (return_value != 0) {
            TpccUserLog (LOG_ERR, "Error end
setNOdata() [NEW]
(Line:%d)[Return_Value:%d]\n",
                        i, return_value);
        }
    }

    /* "Item number is not valid" or "" ('\0') */
    // Oracle Web Server use
    if (strcmp(bp->newout.status, "I") > 0)
        alp2str ((S_WORK + newp[19]), 24, bp-
>newout.status);

    dec2str ((S_WORK + newp[20]), 8,
(double)(bp->newout.total_amount));  // check

/* ------- The executtion result data notified RTE
is make by the HTML form */
```

```
/* Replaced T.Kato 04.05.13 Speed up */
#if 0
!/* Replaced T.Kato 03.04.18 Speed up */
!#if 0
!!    sprintf(s_buf, h_new1);
!!    strcat (s_buf, S_WORK);
!!
!!    sprintf(S_WORK, h_new3, SOPATH,
cookie);
!!    strcat (s_buf, S_WORK);
!#endif
!   strcpy(s_buf, h_new1);
!   h_new1_leng = strlen(s_buf);
!   memcpy(s_buf + h_new1_leng, S_WORK,
h_new2_leng);
!   h_new3_leng = sprintf(S_WORK, h_new3,
SOPATH, cookie);
!   memcpy(s_buf + h_new1_leng +
h_new2_leng, S_WORK, h_new3_leng);
!   *(s_buf + h_new1_leng + h_new2_leng +
h_new3_leng) = '\0';
!/* Replaced end */
#endif
    strcpy(s_buf, h_new1);
    h_new1_leng = leng_h_new1;
    memcpy(s_buf + h_new1_leng, S_WORK,
h_new2_leng);
    h_new3_leng = sprintf(S_WORK, h_new3,
SOPATH, cookie);
    memcpy(s_buf + h_new1_leng +
h_new2_leng, S_WORK, h_new3_leng);
    *(s_buf + h_new1_leng + h_new2_leng +
h_new3_leng) = '\0';
/* Replaced end */

    FreeTuxBuffer(ThreadCntlInfo);
    return (0);
}

#define  SUPPLY_NG     0x01
#define  I_ID_NG       0x02
#define  QUANTITY_NG   0x04

/* --------------------------------------------------------------
----------
   chk_NOdata :
   VerifyNewOrderLine verifies that a user's
inputs for a line in
   the New Order form are okay.
       return -5  : w_id abnormal value : Not
Number
       return -6  : i_id abnormal value : Not
Number
       return -7  : ol_quantity abnormal value : Not
Number

   98.8.3 : ------------------------- (-15, -16, -17----:
outside range )

  ---------------------------------------------------------------
---------- */
int chk_NOdata (NewOrderData *bp, int cnt,
RTE_INPUT_DATA *in_data, int svcnt)
{

    char flag = 0;

    if( in_data->OL_SUPPLY_W_ID[cnt] == 0 &&
in_data->OL_I_ID[cnt] == 0 &&
        in_data->OL_QUANTITY[cnt] == 0 ){
        /* Order line nothing : 1-------------------- */
        return 16;  /* change return code */
    }
    if( in_data->OL_SUPPLY_W_ID[cnt] != 0 ){

        if((bp->newin.ol_supply_w_id[svcnt] =
            str2int (in_data->OL_SUPPLY_W_ID[cnt],
6)) < 1 )
                return -5;          /* w_id abnormal */
    }
    else {
        flag |= SUPPLY_NG;
    }

    if( in_data->OL_I_ID[cnt] != 0 ){

        if((bp->newin.ol_i_id[svcnt] =
            str2int (in_data->OL_I_ID[cnt], 6)) < 0 )
                return -6;          /* i_id abnormal value
*/

/* sv-apl ------------------------------ 99.12.20 */
        else if (bp->newin.ol_i_id[svcnt] == 0)
            bp->newin.ol_i_id[svcnt] = -1;
    }
    else{
        flag |= I_ID_NG;
    }

    if( in_data->OL_QUANTITY[cnt] != 0 ){
        if(((bp->newin.ol_quantity[svcnt] =
            str2int (in_data->OL_QUANTITY[cnt], 2))
< 1) ||
            bp->newin.ol_quantity[svcnt] > 10 ){

            if ( bp->newin.ol_quantity[svcnt] < 0 )
                return -7;          /* ol_quantity abnormal
value */
            else
                return -17;         /* outside range */
        }
    }
    else{
        flag |= QUANTITY_NG;
    }

    if (flag != 0){

        /* the order lien data is abnormal : there is a
uninput item */
        if(((flag & SUPPLY_NG) != 0 )   return -8;
        if(((flag & I_ID_NG) != 0)      return -1;
        if(((flag & QUANTITY_NG) != 0)  return -2;
        return 1;
    }
    else{
    /* the order lien data is normal */
        return 1;
    }
}

/* --------------------------------------------------------------
----------
   setNOdata : This function set the execution
result data of the TP
           applicatin program.

   OF is an offset value to the next line data.
   cnt is line number
 ---------------------------------------------------------------
----------- */
int setNOdata (char *s_work,int OF,int cnt,
               NewOrderData *bp,RTE_INPUT_DATA
*in_data)
{
    //for warning
    in_data;
    if(!bp->newin.ol_i_id[cnt] ) {
        alp2str ((s_work + OF + newp[11]), 78, " ");
        return -1;
    }
    else {
        int2str((s_work + OF + newp[11]), 6, (int)bp-
>newin.ol_supply_w_id[cnt]);

        if (bp->newin.ol_i_id[cnt] == -1 )
            bp->newin.ol_i_id[cnt] = 0;
        int2str((s_work + OF + newp[12]), 6, bp-
>newin.ol_i_id[cnt]);

        alp2str((s_work + OF + newp[13]), 24,bp-
>newout.i_name[cnt]);

        int2str((s_work + OF + newp[14]), 2, (int)bp-
>newin.ol_quantity[cnt]);
        int2str((s_work + OF + newp[15]), 3, (int)bp-
>newout.s_quantity[cnt]);
        alp2str((s_work + OF + newp[16]), 1, &bp-
>newout.brand_generic[cnt]);

        dec2str((s_work + OF + newp[17]),
6,(double)bp->newout.i_price[cnt]); // check
        dec2str((s_work + OF + newp[18]),
7,(double)bp->newout.ol_amount[cnt]); // check
        return 0;
    }
}



::::::::::::::::::::::::::::::::
 tpapl/trnexe/TrxOrderStatus.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                   *
 *   (1) OrderStatus                                  *
 *                                                    *
 *  CREATE by TSL   2003.12.15
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002  *

********************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "forlinux.h"

#include "atmi.h"

#include "trans.h"
#include "tpcc_info.h"
#include "odrpage.h"

#include "ThreadCntl.h"
#include "TpAplDBDependPrototype.h"
#include "log.h"
#include "log_level.h"

#include "tpapl.h"
//#include "GlobalArea.h"          // Common
#include "OracleInfo.h"
#include "OracleFunction.h"
```

```
/* Added T.Kato 04.05.13 Speed up */
    int     leng_h_order1 = strlen(h_order1);
    int     leng_h_order2 = strlen(h_order2);
/* Added end */


/*-----------------------------------------------------------------
---------
  OrderStatus : this function proccesses the
Orderstatus transaction
 -----------------------------------------------------------------
--------- */
int OrderStatus (char *s_buf,
RTE_INPUT_DATA *in_data, int cookie)
{
    OrderStatusData *bp;
    int  i, rtn;

    char S_WORK[WORK_S];
    char c_id_flag = NG;

#ifdef TRNS_BIND
static  char* svr_name = "ORDERSTATUS";
#else
static  char* svr_name = "OPSTUXSERVER";
#endif
    long olen;

    int h_order1_leng;
    int h_order2_leng;
    int h_order3_leng;

    //SvrAPL return value
#ifndef SCRTEST
    int     ret_value;
    int     ret_val;
    char*   tran_errmsg;
#endif

    THREAD_CNTL_INFO*   ThreadCntlInfo;

    MAC_PutFncEntryLog("OrderStatus");

    ThreadCntlInfo = GetThreadCntl();
    if (ThreadCntlInfo == 0) {
        sprintf( S_WORK, "thread contorl
information is not allocated [ODR]\n");
        MAC_errHTML( s_buf, S_WORK, cookie );
        TpccUserLog (LOG_ERR, S_WORK);
        return (-1);
    }
    bp = ( OrderStatusData * )ThreadCntlInfo-
>TrxData;
    memset(bp, 0x00, sizeof(OrderStatusData));



/* --------------------------------------------------- check
the Input data */
    bp->ordin.w_id = MAC_w_id(cookie);

    /* check d_id data */
    if ((bp->ordin.d_id = str2short (in_data->D_ID,
2)) < 1 ) {
        TpccUserLog (LOG_ERR, "Input data error
[ORD] (d_id = %s)[Return_Value:%d]\n",
                        in_data->D_ID, bp->ordin.d_id);
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 2, (int)bp-
>ordin.d_id, 0, 0);
    }

    if ((bp->ordin.c_id = str2int(in_data->C_ID,
4)) != -3 ){
        if (bp->ordin.c_id < 0) {
            TpccUserLog (LOG_ERR, "Input data
error [ORD] (c_id = %s)[Return_Value:%d]\n",
                        in_data->C_ID, bp-
>ordin.c_id);
            FreeTuxBuffer(ThreadCntlInfo);
            return set_errpage(s_buf, cookie, 6, bp-
>ordin.c_id, 0, 0);
        }
        else{
            c_id_flag = OK;
        }
    }
    else{
        bp->ordin.c_id = 0;
    }

    /* check c_last data */
    if((rtn = str2str(in_data->C_LAST, 16)) < 0){
        c_id_flag = OK;

    }
    else{
        if ( rtn == 0 || *(in_data->C_LAST) == '\0') {
            bp->ordin.bylastname = 0;       /* Oracle
use only */
            bp->ordin.c_last[0] = '\0';

        } else {
            strcpy (bp->ordin.c_last, in_data-
>C_LAST);
            bp->ordin.bylastname = 1;       /* Oracle
use only */
            c_id_flag = OK;
        }
    }

    /* c_id and c_last is nothing */
    if (c_id_flag == NG) {
        TpccUserLog (LOG_ERR, "c_id and c_last
is nothing [ORD]\n");
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 11, -4, 0,
0);
    }

/* ---------------------------------------- Execute
Orderstatus transaction */
#ifndef SCRTEST
resend_orderstatus:

 /* Replaced 2003.12.15 Transaction
processeing interface COM+ --> TUXEDO */
#ifndef TRNS_BIND
    /* Set transaction type for Warehouse bind */
    bp->retval = 3;
#endif

    ret_val = tpcall(svr_name,
(char*)ThreadCntlInfo->TrxData,
sizeof(NewOrderData),
                        (char**)&ThreadCntlInfo-
>TrxData, &olen, 0|TPNOTIME);
    bp = ( OrderStatusData * )ThreadCntlInfo-
>TrxData;
    ret_value = CreateTranErrReason(ret_val, bp-
>ordout.terror, &tran_errmsg);

    switch(ret_value) {
    case 0:
        /* Success */
        break;

    case 1:
        /* Retry OrderStatus transaction */
        TpccUserLog (LOG_WRN, "OrderStatus
retry\n");
        goto resend_orderstatus;

    case -1:
        /* Oracle failed */
            sprintf( S_WORK, "Oracle failed to
process Order Status Transaction.(%s)\n"
                "ret_value = %d d_id = %d c_id = %d
c_last = '%s' cookie = %d\n",
                tran_errmsg, ret_value, bp-
>ordin.d_id, bp->ordin.c_id,
                bp->ordin.c_last, cookie );

        MAC_errHTML( s_buf, S_WORK, cookie );
        TpccUserLog (LOG_ERR, S_WORK);
        FreeTuxBuffer(ThreadCntlInfo);
        return (-1);

    default:
        /* Tuxedo failed */
        sprintf( S_WORK, "tpcall failed to process
NewOrder Transaction.(tperrno=%d)\n"
                "ret_value = %d d_id = %d c_id = %d
c_last = '%s' cookie = %d\n",
                tperrno, ret_value, bp->ordin.d_id, bp-
>ordin.c_id,
                bp->ordin.c_last, cookie );

        MAC_errHTML_TUXEDO( s_buf, S_WORK,
cookie );
        TpccUserLog (LOG_ERR, S_WORK);
        FreeTuxBuffer(ThreadCntlInfo);
        return (-1);
    }
/* Changed end */

/* ------------------------------------------- Check the
execution result */

#else
    dummy_orderstat( bp );
#endif

/* Replaced T.Kato 04.05.13 Speed up */
#if 0
!/* Replaced T.Kato 03.04.18 Speed up */
!   //sprintf(S_WORK, h_order2);
!   strcpy(S_WORK, h_order2);
!   h_order2_leng = strlen(S_WORK);
!/* Replaced end */
#endif
    strcpy(S_WORK, h_order2);
    h_order2_leng = leng_h_order2;
/* Relaced end */

    int2str ((S_WORK + orderp[0]), 6, (int)bp-
>ordin.w_id);
    int2str ((S_WORK + orderp[1]), 2, (int)bp-
>ordin.d_id);
    int2str ((S_WORK + orderp[2]), 4, bp-
>ordout.c_id);
    alp2str ((S_WORK + orderp[3]), 16,bp-
>ordout.c_first);
    alp2str ((S_WORK + orderp[4]), 2, bp-
>ordout.c_middle);
    alp2str ((S_WORK + orderp[5]), 16,bp-
>ordout.c_last);
    sigdec2str ((S_WORK + orderp[6]), 9, bp-
>ordout.c_balance);
    int2str ((S_WORK + orderp[7]), 8, (int)bp-
>ordout.o_id );
    time2str ((S_WORK + orderp[8]),bp-
>ordout.o_entry_d );
```

```
    if ( bp->ordout.o_carrier_id != INTNULL ) {
        int2str ((S_WORK + orderp[9]), 2, bp-
>ordout.o_carrier_id);
    }

    /* 0x39 is an offset value to the same filed of
the next line */
    for( i = 0; i < bp->ordout.o_ol_cnt; i++ ){

        int2str ((S_WORK+i*0x3a+orderp[10]), 6,
(int)bp->ordout.ol_supply_w_id[i]);

        int2str ((S_WORK+i*0x3a+orderp[11]), 6,
(int)bp->ordout.ol_i_id[i]);
        int2str ((S_WORK+i*0x3a+orderp[12]), 2,
(int)bp->ordout.ol_quantity[i]);
        sigdec2str ((S_WORK+i*0x3a+orderp[13]),
8,(double)bp->ordout.ol_amount[i]);

        if( strncmp( bp->ordout.ol_delivery_d[i],
"NOT DELIVR", 10 ) != 0 ){

            date2str ((S_WORK+i*0x3a+orderp[14]),
bp->ordout.ol_delivery_d[i]);
        }
    }

/* ------- The executtion result data notified RTE
is make by the HTML form */
/* Replaced T.Kato 04.05.13 Speed up */
#if 0
!/* Replaced T.Kato 03.04.18 Speed up */
!#if 0
!!    sprintf(s_buf, h_order1); /* set Header Data
*/
!!    strcat (s_buf, S_WORK);       /* set Result
Data */
!!
!!    sprintf (S_WORK, h_order3, SOPATH,
cookie); /* set Tailer Data */
!!    strcat (s_buf, S_WORK);
!#endif
!   strcpy(s_buf, h_order1);
!   h_order1_leng = strlen(s_buf);
!   memcpy(s_buf + h_order1_leng, S_WORK,
h_order2_leng);
!   h_order3_leng = sprintf (S_WORK, h_order3,
SOPATH, cookie);
!   memcpy(s_buf + h_order1_leng +
h_order2_leng, S_WORK, h_order3_leng);
!   *(s_buf + h_order1_leng + h_order2_leng +
h_order3_leng) = '\0';
!/* Replaced end */
#endif
    strcpy(s_buf, h_order1);
    h_order1_leng = leng_h_order1;
    memcpy(s_buf + h_order1_leng, S_WORK,
h_order2_leng);
    h_order3_leng = sprintf (S_WORK, h_order3,
SOPATH, cookie);
    memcpy(s_buf + h_order1_leng +
h_order2_leng, S_WORK, h_order3_leng);
    *(s_buf + h_order1_leng + h_order2_leng +
h_order3_leng) = '\0';
/* Replaced end */

    FreeTuxBuffer(ThreadCntlInfo);
    return 0;
}
```

::::::::::::::::::::::::::::::::
 tpapl/trnexe/TrxPayment.c
::::::::::::::::::::::::::::::::

```
/*******************************************************
*****
 *                                                *
 *       TPC-C Client Application Program Source
*
 *                                                *
 *  Entry Functions                                 *
 *   (1) Payment                                   *
 *                                                *
 *  CREATE by TSL   2003.12.15
*
 *                                                *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*******************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "forlinux.h"

#include "atmi.h"

#include "trans.h"
#include "tpcc_info.h"
#include "paypage.h"

#include "ThreadCntl.h"
#include "TpAplDBDependPrototype.h"
#include "log.h"
#include "log_level.h"

#include "tpapl.h"
#include "GlobalArea.h"         // Common
#include "OracleFunction.h"

/* Added T.Kato 04.03.10 Speed up */
#define SP1_DATA    "                  "
#define SP2_DATA    "        "
#define SP3_DATA    "          "
#define CREDIT_DATA "                   Credit: "
#define DISC_DATA   "                   %Disc:  "

    int     leng_h_pay1 = strlen(h_pay1);
    int     leng_h_pay2 = strlen(h_pay2);
    int     leng_h_pay4 = strlen(h_pay4);
    int     leng_h_pay5 = strlen(h_pay5);
    int     leng_sp1_data = strlen(SP1_DATA);
    int     leng_sp2_data = strlen(SP2_DATA);
    int     leng_sp3_data = strlen(SP3_DATA);
    int     leng_credit_data =
strlen(CREDIT_DATA);
    int     leng_disc_data = strlen(DISC_DATA);
/* Added end */

/*---------------------------------------------------------------
-----------

  Payment : this function proccesses the
Payment transaction.

 ---------------------------------------------------------------
----------*/
int Payment (char *s_buf, RTE_INPUT_DATA
*in_data, int cookie)
{
    PaymentData *bp;
    int    i, rtn;

    float  h_amount;        /* For work */

    char   c_id_flag = NG;
    char   S_WORK[WORK_S];
    char   buffer[128];     /* check HTML form */
    char   buffer2[128];
    char   buffer3[512];
    int    newlength;

#ifdef TRNS_BIND
static  char* svr_name = "PAYMENT";
#else
static  char* svr_name = "OPSTUXSERVER";
#endif
    long olen;

    //SvrAPL return value
#ifndef SCRTEST
    int     ret_value;
    int     ret_val;
    char*   tran_errmsg;
#endif

    THREAD_CNTL_INFO*   ThreadCntlInfo;
#ifndef SCRTEST
#endif

/* Added T.Kato 04.03.10 */
    int     next_pos;
    int     swork_pos;
/* Added end */

    MAC_PutFncEntryLog("Payment");

    ThreadCntlInfo = GetThreadCntl();
    if (ThreadCntlInfo == 0) {
        sprintf( S_WORK, "thread contorl
information is not allocated [PAY]\n");
        MAC_errHTML( s_buf, S_WORK, cookie );
        TpccUserLog (LOG_ERR, S_WORK);
        return (-1);
    }
    bp = ( PaymentData * )ThreadCntlInfo-
>TrxData;
    memset(bp, 0x00, sizeof(PaymentData));



/* --------------------------------------------------- check
the Input data */
    bp->payin.w_id = MAC_w_id(cookie);

    /* check d_id data */
    if((bp->payin.d_id = str2short (in_data->D_ID,
2)) < 1 ) {
        TpccUserLog (LOG_ERR, "Input data error
[PAY] (d_id = %s)[Return_Value:%d]\n",
                        in_data->D_ID, bp->payin.d_id);
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 2, (int)bp-
>payin.d_id, 0, 0);
    }

    /* check c_id data */
    if((bp->payin.c_id = str2int (in_data->C_ID,
4)) != -3 ){

        if (bp->payin.c_id < 0) {
            TpccUserLog (LOG_ERR, "Input data
error [PAY] (c_id = %s)[Return_Value:%d]\n",
                            in_data->C_ID, bp-
>payin.c_id);
            FreeTuxBuffer(ThreadCntlInfo);
            return set_errpage(s_buf, cookie, 6, bp-
>payin.c_id, 0, 0);
        }
        else{
            c_id_flag = OK;
        }
    }
    else{
        bp->payin.c_id = 0;
    }

    /* check c_last data */
    if((rtn = str2str(in_data->C_LAST, 16)) < 0){
            c_id_flag = OK;
    }
    else{

        if ( rtn == 0 || *(in_data->C_LAST) == '\0') {
            bp->payin.bylastname = 0;           /*
Oracle use only */
            bp->payin.c_last[0] = '\0';
        } else {
            strcpy (bp->payin.c_last, in_data-
>C_LAST);
            bp->payin.bylastname = 1;           /*
Oracle use only */
            c_id_flag = OK;
        }
    }

    /* c_id and c_last data is nothing */
    if (c_id_flag == NG) {
        TpccUserLog (LOG_ERR, "c_id and c_last
data is nothing [PAY]\n");
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 11, -4, 0,
0);
    }

    /* check c_w_id data */
/* Replaced T.Kato 03.08.20 Bug fix --effect
flowting point--- */
/*  if((bp->payin.c_w_id = str2dbl (in_data-
>C_W_ID, 5) / 100 ) < 1 ) {*/

    if((bp->payin.c_w_id = str2int (in_data-
>C_W_ID, 6)) < 1 ) {
/* Replaced end */

        TpccUserLog (LOG_ERR, "Input data error
[PAY] (c_w_id = %s)[Return_Value:%d]\n",
                        in_data->C_W_ID, bp-
>payin.c_w_id);
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 9, (int)bp-
>payin.c_w_id, 0, GLB_Numwh);
    }


    /* check c_d_id data */
    if((bp->payin.c_d_id = str2short (in_data-
>C_D_ID, 2)) < 1 ) {
        TpccUserLog (LOG_ERR, "Input data error
[PAY] (c_d_id = %s)[Return_Value:%d]\n",
                        in_data->C_D_ID, bp-
>payin.c_d_id);
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 10,
(int)bp->payin.c_d_id, 0, 0);
    }

    if((bp->payin.h_amount = (long)str2dbl
(in_data->H_AMOUNT, 7)) < 100 ||
        bp->payin.h_amount > 500000) {
        TpccUserLog (LOG_ERR, "Input data error
[PAY] (h_amount = %s)[Return_Value:%d]\n",
                        in_data->H_AMOUNT, bp-
>payin.h_amount);
        FreeTuxBuffer(ThreadCntlInfo);
        return set_errpage(s_buf, cookie, 8, (int)bp-
>payin.h_amount, 0, 0);
```

```
    }

/* -------------------------------------------- Execute
Payment transaction */
#ifndef SCRTEST
resend_payment:

/* Replaced 2003.12.15 Transaction processeing
interface COM+ --> TUXEDO */
#ifndef TRNS_BIND
    /* Set transaction type for Warehouse bind */
    bp->retval = 2;
#endif

    ret_val = tpcall(svr_name,
(char*)ThreadCntlInfo->TrxData,
sizeof(NewOrderData),
                            (char**)&ThreadCntlInfo-
>TrxData, &olen, 0|TPNOTIME);
    bp = ( PaymentData * )ThreadCntlInfo-
>TrxData;
    ret_value = CreateTranErrReason(ret_val, bp-
>payout.terror, &tran_errmsg);

    switch(ret_value) {
    case 0:
        /* Success */
        break;

    case 1:
        /* Retry Paymant transaction */
        TpccUserLog (LOG_WRN, "Payment
retry\n");
        goto resend_payment;

    case -1:
        /* Oracle failed */
                sprintf( S_WORK, "Oracle failed to
process Payment Transaction.(%s)\n"
                "ret_value = %d d_id = %d c_id = %d
c_last = '%s'\n"
                "c_w_id = %d, c_d_id = %d, h_amount
= %d cookie = %d\n",
                tran_errmsg, ret_value,
                bp->payin.d_id, bp->payin.c_id, bp-
>payin.c_last,
                bp->payin.c_w_id, bp->payin.c_d_id,
                bp->payin.h_amount, cookie );

        MAC_errHTML( s_buf, S_WORK, cookie );
        TpccUserLog (LOG_ERR, S_WORK);
        FreeTuxBuffer(ThreadCntlInfo);
        return (-1);

    default:
        /* Tuxedo failed */
        sprintf( S_WORK, "tpcall failed to process
NewOrder Transaction.(tperrno=%d)\n"
                "ret_value = %d d_id = %d c_id = %d
c_last = '%s'\n"
                "c_w_id = %d, c_d_id = %d, h_amount
= %d cookie = %d\n",
                tperrno, ret_value,
                bp->payin.d_id, bp->payin.c_id, bp-
>payin.c_last,
                bp->payin.c_w_id, bp->payin.c_d_id,
                bp->payin.h_amount, cookie );
        MAC_errHTML_TUXEDO( s_buf, S_WORK,
cookie );
        TpccUserLog (LOG_ERR, S_WORK);
        FreeTuxBuffer(ThreadCntlInfo);
        return (-1);
    }
/* Changed end */
```

```
#else
    dummy_payment( bp );
#endif

/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!/* Replaced T.Kato 03.04.18 Speed up */
!    //sprintf (S_WORK, h_pay2);
!    strcpy(S_WORK, h_pay2);
!/* Replaced end */
#endif

    memcpy(S_WORK, h_pay2, leng_h_pay2+1);
    swork_pos = leng_h_pay2;
/* Replaced end */

    time2str ((S_WORK + payp[0]), bp-
>payout.h_date );
    int2str ((S_WORK + payp[1]), 6, (int)bp-
>payin.w_id);
    int2str ((S_WORK + payp[2]), 2, (int)bp-
>payin.d_id);

    //  check HTML form

    alp2str (&buffer2[0], 20, bp-
>payout.w_street_1);
    buffer2[20] = 0;

/* Replaced T.kato 04.03.10 Speed up */
#if 0
!   newlength = checkHTMLform ( &buffer2[0],
&buffer[0]);
!   strcpy (&buffer3[0], &buffer[0]);
!   strcat (buffer3, "                    ");
#endif

    newlength = checkHTMLform ( buffer2,
buffer3);
    memcpy(buffer3+newlength, SP1_DATA,
leng_sp1_data+1);
    next_pos = newlength + leng_sp1_data;
/* Replaced end */

    alp2str (buffer2, 20, bp->payout.d_street_1);
    buffer2[20] = 0;
    newlength = checkHTMLform ( &buffer2[0],
&buffer[0]);

/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!   strcat (buffer3, &buffer[0]);
!   strcat (buffer3, "\r\n");
#endif

    memcpy(buffer3+next_pos, buffer,
newlength+1);
    next_pos += newlength;
    memcpy(buffer3+next_pos, "\r\n", 2+1);
    next_pos += 2;
/* Replaced end */

    alp2str (buffer2, 20, bp->payout.w_street_2);
    buffer2[20] = 0;
    newlength = checkHTMLform ( &buffer2[0],
&buffer[0]);

/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!   strcat (buffer3, &buffer[0]);
!   strcat (buffer3, "                    ");
#endif

    memcpy(buffer3+next_pos, buffer,
newlength+1);
```

```
    next_pos += newlength;
    memcpy(buffer3+newlength, SP1_DATA,
leng_sp1_data+1);
    next_pos = newlength + leng_sp1_data;
/* Replaced end */

    alp2str (buffer2, 20, bp->payout.d_street_2);
    buffer2[20] = 0;
    newlength = checkHTMLform ( &buffer2[0],
&buffer[0]);

/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!   strcat (buffer3, &buffer[0]);
!   strcat (buffer3, "\r\n");
!   strcat ( S_WORK, buffer3 );
#endif

    memcpy(buffer3+next_pos, buffer,
newlength+1);
    next_pos += newlength;
    memcpy(buffer3+next_pos, "\r\n", 2+1);
    next_pos += 2;

    memcpy(S_WORK+swork_pos, buffer3,
next_pos+1);
    swork_pos += next_pos;
/* Replaced end */

    // check HTML form
/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!/* Replaed T.Kato 03.04.18 Speed up */
!   //sprintf ( buffer3, h_pay4 );
!   strcpy ( buffer3, h_pay4 );
!/* Replaced end */
#endif

    memcpy(buffer3, h_pay4, leng_h_pay4+1);
/* Replaced end */

    alp2str ((&buffer3[0] + payp[7] - 0xd3), 20, bp-
>payout.w_city);
    alp2str ((&buffer3[0] + payp[8] - 0xd3), 2,  bp-
>payout.w_state);
    zip2str ((&buffer3[0] + payp[9] - 0xd3), bp-
>payout.w_zip);
    alp2str ((&buffer3[0] + payp[11] - 0xd3), 20,
bp->payout.d_city);
    alp2str ((&buffer3[0] + payp[12] - 0xd3), 2, bp-
>payout.d_state);
    zip2str ((&buffer3[0] + payp[13] - 0xd3), bp-
>payout.d_zip);

    int2str ((&buffer3[0] + payp[15] - 0xd3), 4, bp-
>payout.c_id);
    int2str ((&buffer3[0] + payp[16] - 0xd3), 6,
(int)bp->payin.c_w_id);
    int2str ((&buffer3[0] + payp[17] - 0xd3), 2,
(int)bp->payin.c_d_id);

    alp2str ((&buffer3[0] + payp[18] - 0xd3), 16,
bp->payout.c_first);
    alp2str ((&buffer3[0] + payp[19] - 0xd3), 2,  bp-
>payout.c_middle);
    alp2str ((&buffer3[0] + payp[20] - 0xd3), 16,
bp->payout.c_last);

    date2str ((&buffer3[0] + payp[21] - 0xd3),bp-
>payout.c_since);

/* Replaced T.Kato 04.03.10 Speed up */
    /*strcat (S_WORK, buffer3);*/
```

```
    memcpy(S_WORK+swork_pos, buffer3,
leng_h_pay4+1);
    swork_pos += leng_h_pay4;
/* Replaced end */

/* Replaced T.Kato 04.03.10 Speed up*/
    /*strcpy (&buffer3[0], "        ");*/

    memcpy(buffer3, SP2_DATA,
leng_sp2_data+1);
    next_pos = leng_sp2_data;
/* Repraced end */

    alp2str (buffer2, 20, bp->payout.c_street_1);
    buffer2[20] = 0;
    newlength = checkHTMLform ( &buffer2[0],
&buffer[0]);

/* Replaced T.Kato 04.03.10 */
#if 0
!   strcat (buffer3, &buffer[0]);
!   strcat (buffer3, "                    Credit: ");
#endif

    memcpy(buffer3+next_pos, buffer,
newlength+1);
    next_pos += newlength;
    memcpy(buffer3+next_pos, CREDIT_DATA,
leng_credit_data+1);
    next_pos += leng_credit_data;
/* Replaced end */

    alp2str (buffer2, 2, bp->payout.c_credit);
    buffer2[2] = 0;

/* Repalced T.Kato 04.03.10 */
#if 0
!   strcat (buffer3, &buffer2[0]);
!   strcat (buffer3, "\r\n");
#endif

    memcpy(buffer3+next_pos, buffer2, 2);
    memcpy(buffer3+next_pos+2, "\r\n", 3);
    next_pos += 4;
/* Replaced end */

/* Replaced T.Kato 40.03.10 */
    /*strcat (buffer3, "        ");*/

    memcpy(buffer3+next_pos, SP2_DATA,
leng_sp2_data+1);
    next_pos += leng_sp2_data;
/* Replaced end */

    alp2str (buffer2, 20, bp->payout.c_street_2);
    buffer2[20] = 0;
    newlength = checkHTMLform ( &buffer2[0],
&buffer[0]);

/* Repleced T.Kato 04.03.10 */
#if 0
!   strcat (buffer3, &buffer[0]);
!   strcat (buffer3, "                    %Disc:  ");
!   strcat (S_WORK, buffer3);
#endif

    memcpy(buffer3+next_pos, buffer,
newlength+1);
    next_pos += newlength;
    memcpy(buffer3+next_pos, DISC_DATA,
leng_disc_data+1);
    next_pos += leng_disc_data;

    memcpy(S_WORK+swork_pos, buffer3,
next_pos+1);
```

```
    swork_pos += next_pos;
/* Replaced end */

    dec2str (&buffer3[0], 5,
        (double)((double)(bp->payout.c_discount) *
(double)100.0));

/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!   sprintf (&buffer3[5], "\r\n");
!   strcat (S_WORK, buffer3);
#endif

    buffer3[5] = '\r';
    buffer3[6] = '\n';
    buffer3[7] = '\0';

    memcpy(S_WORK+swork_pos, buffer3, 7+1);
    swork_pos += 7;
/* Replaced end */


/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!/* Replaced T.Kato 03.04.18 Speed up */
!   //sprintf (buffer3, h_pay5);
!   strcpy (buffer3, h_pay5);
!/* Replaced end */
#endif

    memcpy(buffer3, h_pay5, leng_h_pay5+1);
/* Replaced end */

    alp2str ((&buffer3[0] + payp[26] - 0x21D), 20,
bp->payout.c_city);
    alp2str ((&buffer3[0] + payp[27] - 0x21D), 20,
bp->payout.c_state);
    zip2str ((&buffer3[0] + payp[28] - 0x21D), bp-
>payout.c_zip);
    phone2str ((&buffer3[0] + payp[29] - 0x21D),
bp->payout.c_phone);

    h_amount = (float)bp->payin.h_amount /
(float)100;
    dec2str ((&buffer3[0] + payp[30] - 0x21D), 7,
(double)h_amount);

    sigdec2str ((&buffer3[0] + payp[31] - 0x21D),
14, bp->payout.c_balance);
    dec2str ((&buffer3[0] + payp[32] - 0x21D), 13,
bp->payout.c_credit_lim);

/* Replaced T.Kato 04.03.10 */
    /*strcat (S_WORK, buffer3);*/

    memcpy(S_WORK+swork_pos, buffer3,
leng_h_pay5+1);
    swork_pos += leng_h_pay5;
/* Replaced end */

    if ( (i = strlen( bp->payout.c_data )) <= 0) {

/* Replaced T.Kato 04.03.10 Speed up */
        /*sprintf (&buffer3[0], "\r\n\r\n\r\n\r\n");*/

        memcpy(buffer3, "\r\n\r\n\r\n\r\n", 8+1);
        next_pos = 8;
/* Replaced end */

    }
    else{
        alp2str (buffer2, 50, bp->payout.c_data);
        buffer2[50] = 0;
        newlength = checkHTMLform ( &buffer2[0],
&buffer[0]);
/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!       strcpy (&buffer3[0], &buffer[0]);
!       strcat (buffer3, "\r\n");
#endif

        memcpy(buffer3, buffer, newlength+1);
        memcpy(buffer3+newlength, "\r\n", 2+1);
        next_pos = newlength + 2;
/* Replaced end */

        if ( i > 50 ){

            alp2str (buffer2, 50, &bp-
>payout.c_data[50]);
            buffer2[50] = 0;
            newlength = checkHTMLform
( &buffer2[0], &buffer[0]);

/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!           strcat (buffer3, "           ");
!           strcat (buffer3, &buffer[0]);
!           strcat (buffer3, "\r\n");
#endif

            memcpy(buffer3+next_pos, SP3_DATA,
leng_sp3_data+1);
            next_pos += leng_sp3_data;
            memcpy(buffer3+next_pos, buffer,
newlength+1);
            next_pos += newlength;
            memcpy(buffer3+next_pos, "\r\n", 2+1);
            next_pos += 2;
/* Replaced end */
            if ( i > 100 ){

                alp2str (buffer2, 50, &bp-
>payout.c_data[100]);
                buffer2[50] = 0;
                newlength = checkHTMLform
( &buffer2[0], &buffer[0]);

/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!               strcat (buffer3, "           ");
!               strcat (buffer3, &buffer[0]);
!               strcat (buffer3, "\r\n");
#endif

                memcpy(buffer3+next_pos,
SP3_DATA, leng_sp3_data+1);
                next_pos += leng_sp3_data;
                memcpy(buffer3+next_pos, buffer,
newlength+1);
                next_pos += newlength;
                memcpy(buffer3+next_pos, "\r\n",
2+1);
                next_pos += 2;
/* Replaced end */

                if ( i > 150 ){

                    alp2str (buffer2, 50, &bp-
>payout.c_data[150]);
                    buffer2[50] = 0;
                    newlength = checkHTMLform
( &buffer2[0], &buffer[0]);

/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!                   strcat (buffer3, "           ");
!                   strcat (buffer3, &buffer[0]);
!                   strcat (buffer3, "\r\n");
#endif

                    memcpy(buffer3+next_pos,
SP3_DATA, leng_sp3_data+1);
                    next_pos += leng_sp3_data;
                    memcpy(buffer3+next_pos, buffer,
newlength+1);
                    next_pos += newlength;
                    memcpy(buffer3+next_pos, "\r\n",
2+1);
                    next_pos += 2;
/* Replaced end */

                }
                else {

/* Replaced T.Kato 04.03.10 Speed up */
                    /*strcat ( buffer3, "\r\n\r\n");*/

                    memcpy(buffer3+next_pos, "\r\n",
2+1);
                    next_pos += 2;
/* Replaced end */
                }
            }
            else {

/* Replaced T.Kato 04.03.10 Speed up */
                /*strcat ( buffer3, "\r\n\r\n\r\n");*/

                memcpy(buffer3+next_pos, "\r\n\r\n",
4+1);
                next_pos += 4;
/* Replaced end */
            }
        }

/* Added T.Kato 04.03.10 Speed up */
        else {
            memcpy(buffer3+next_pos,
"\r\n\r\n\r\n", 6+1);
            next_pos += 6;
        }
/* Added end */

    }

/* Replaced T.Kato 04.03.10 Speed up */
    /*strcat (S_WORK, buffer3);*/

    memcpy(S_WORK+swork_pos, buffer3,
next_pos);
    swork_pos += next_pos;
/* Replaced end */

/* ------- The executtion result data notified RTE
is make by the HTML form */
/* Replaced T.Kato 04.03.10 Speed up */
#if 0
!/* Replaced T.Kato 03.04.18 Speed up */
!   //sprintf(s_buf, h_pay1);  /* set Header Data */
!   strcpy(s_buf, h_pay1); /* set Header Data */
!/* Replaced end */
!
!   strcat (s_buf, S_WORK); /* set Result Data */
!
!   sprintf(S_WORK, h_pay3, SOPATH, cookie);
/* set Tailer Data */
!   strcat (s_buf, S_WORK);
#endif

    memcpy(s_buf, h_pay1, leng_h_pay1+1);
    memcpy(s_buf+leng_h_pay1, S_WORK,
swork_pos+1);
    next_pos = sprintf(S_WORK, h_pay3,
SOPATH, cookie); /* set Tailer Data */
    memcpy(s_buf+leng_h_pay1+swork_pos,
S_WORK, next_pos+1);
/* Replaced end */

    FreeTuxBuffer(ThreadCntlInfo);
    return (0);
}



::::::::::::::::::::::::::::::::
 tpapl/trnexe/TrxStockLevel.c
::::::::::::::::::::::::::::::::

/*******************************************************
*****
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Entry Functions                                     *
 *   (1) StockLevel                                    *
 *                                              *
 *  CREATE by TSL   2003.12.15
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

********************************************************
****/
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include "forlinux.h"
#include "atmi.h"

#include "trans.h"
#include "tpcc_info.h"
#include "stpage.h"

#include "ThreadCntl.h"
#include "TpAplDBDependPrototype.h"
#include "log.h"
#include "log_level.h"

#include "tpapl.h"
#include "GlobalArea.h"         // Common
#include "OracleFunction.h"

/* Added T.Kato 04.05.13 Speed up */
    int     leng_h_stock1 = strlen(h_stock1);
    int     leng_h_stock2 = strlen(h_stock2);
/* Added end */


/*---------------------------------------------------------------
-----------


  StockLevel : this function proccesses the
StockLevel transaction.

  ---------------------------------------------------------------
----------*/
int StockLevel (char *s_buf, RTE_INPUT_DATA
*in_data, int cookie)
{
    StockLevelData *bp;

    char S_WORK[WORK_S];

#ifdef TRNS_BIND
static  char* svr_name = "STOCKLEVEL";
```

```
#else
static  char* svr_name = "OPSTUXSERVER";
#endif
   long olen;

   int h_stock1_leng;
   int h_stock2_leng;
   int h_stock3_leng;

   //SvrAPL return value
#ifndef SCRTEST
   int     ret_value;
   int     ret_val;
   char*   tran_errmsg;
#endif

   THREAD_CNTL_INFO*   ThreadCntlInfo;

   MAC_PutFncEntryLog("StockLevel");

   ThreadCntlInfo = GetThreadCntl();
   if (ThreadCntlInfo == 0) {
      sprintf( S_WORK, "thread contorl
information is not allocated [STO]\n");
      MAC_errHTML( s_buf, S_WORK, cookie );
      TpccUserLog (LOG_ERR, S_WORK);
      return (-1);
   }
   bp = ( StockLevelData * )ThreadCntlInfo-
>TrxData;
   memset(bp, 0x00, sizeof(StockLevelData));

/* --------------------------------------------------- check
the Input data */
   bp->stoin.w_id = MAC_w_id(cookie);
   bp->stoin.d_id = MAC_d_id(cookie);

   bp->stoin.threshold = (long)str2short(in_data-
>threshold, 2);

   if(bp->stoin.threshold < 10 || bp-
>stoin.threshold > 20) {
      TpccUserLog (LOG_ERR, "Input data error
[STO] (threshold = %s)[Return_Value:%d]\n",
                  in_data->threshold, bp-
>stoin.threshold);
      return set_errpage(s_buf, cookie, 3, (int)bp-
>stoin.threshold, 0, 0);
   }

/* ---------------------------------------- Execute Stock
Level transaction */
#ifndef SCRTEST
resend_stock:

/* Replaced 2003.12.15 Transaction processeing
interface COM+ --> TUXEDO */
#ifndef TRNS_BIND
   /* Set transaction type for Warehouse bind */
   bp->retval = 5;
#endif

   ret_val = tpcall(svr_name,
(char*)ThreadCntlInfo->TrxData,
sizeof(NewOrderData),
                  (char**)&ThreadCntlInfo-
>TrxData, &olen, 0|TPNOTIME);
   bp = ( StockLevelData * )ThreadCntlInfo-
>TrxData;
   ret_value = CreateTranErrReason(ret_val, bp-
>stoout.terror, &tran_errmsg);

   switch(ret_value) {
   case 0:
      /* Success */
      break;

   case 1:
      /* Retry Paymant transaction */
      TpccUserLog (LOG_WRN, "StockLevel
retry\n");
      goto resend_stock;

   case -1:
      /* Oracle failed */
         sprintf( S_WORK, "Oracle failed to
process StockLevel Transaction.(%s)\n"
            "ret_value = %d threshold = %d cookie
= %d\n",
            tran_errmsg, ret_value, bp-
>stoin.threshold, cookie );

      MAC_errHTML( s_buf, S_WORK, cookie );
      TpccUserLog (LOG_ERR, S_WORK);
      FreeTuxBuffer(ThreadCntlInfo);
      return (-1);

   default:
      /* Tuxedo failed */
      sprintf( S_WORK, "tpcall failed to process
NewOrder Transaction.(tperrno=%d)\n"
            "ret_value = %d threshold = %d cookie
= %d\n",
            tperrno, ret_value, bp->stoin.threshold,
cookie );

      MAC_errHTML_TUXEDO( s_buf, S_WORK,
cookie );
      TpccUserLog (LOG_ERR, S_WORK);
      FreeTuxBuffer(ThreadCntlInfo);
      return (-1);
   }
/* Changed end */

#else
   dummy_stocklvl ( bp );
#endif

/* Replaced T.Kato 04.05.13 Speed up */
#if 0
!/* Replaced T.Kato 03.04.18 Speed up */
!   //sprintf (S_WORK, h_stock2);
!   strcpy (S_WORK, h_stock2);
!   h_stock2_leng = strlen(S_WORK);
!/* Replaced end */
#endif

   strcpy (S_WORK, h_stock2);
   h_stock2_leng = leng_h_stock2;
/* Replaced end */

   int2str ((S_WORK + stockp[0]), 6, (int)bp-
>stoin.w_id);

   int2str ((S_WORK + stockp[1]), 2, (int)bp-
>stoin.d_id);
   int2str ((S_WORK + stockp[2]), 2, (int)bp-
>stoin.threshold);
   int2str ((S_WORK + stockp[3]), 3, (int)bp-
>stoout.low_stock);

/* ------- The executtion result data notified RTE
is make by the HTML form */

/* Replaced T.Kato 04.05.13 Speed up */
#if 0
!/* Replaced T.Kato 03.04.18 Speed up */
!#if 0
!!   sprintf(s_buf, h_stock1); /* Set Header data
*/
!!   strcat (s_buf, S_WORK);       /* Set Result
data */
!!
!!   sprintf(S_WORK, h_stock3, SOPATH,
cookie); /* Set Tailer data */
!!   strcat (s_buf, S_WORK);
!#endif
!   strcpy(s_buf, h_stock1);
!   h_stock1_leng = strlen(s_buf);
!   memcpy(s_buf + h_stock1_leng, S_WORK,
h_stock2_leng);
!   h_stock3_leng = sprintf(S_WORK, h_stock3,
SOPATH, cookie);
!   memcpy(s_buf + h_stock1_leng +
h_stock2_leng, S_WORK, h_stock3_leng);
!   *(s_buf + h_stock1_leng + h_stock2_leng +
h_stock3_leng) = '\0';
!/* Replaced end */
#endif
   strcpy(s_buf, h_stock1);
   h_stock1_leng = leng_h_stock1;
   memcpy(s_buf + h_stock1_leng, S_WORK,
h_stock2_leng);
   h_stock3_leng = sprintf(S_WORK, h_stock3,
SOPATH, cookie);
   memcpy(s_buf + h_stock1_leng +
h_stock2_leng, S_WORK, h_stock3_leng);
   *(s_buf + h_stock1_leng + h_stock2_leng +
h_stock3_leng) = '\0';
/* Replaced end */

   FreeTuxBuffer(ThreadCntlInfo);
   return (0);
}
```

Appendix B: Server Source Code

```
::::::::::::::::::::::::::::::::
 common/forlinux.h
::::::::::::::::::::::::::::::::

/*******************************************************
**********
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                    *
 *   definition for converting Linux.
*
 *                                                    *
 *  CREATE by TSL   2003.05.16
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004  *

********************************************************
*********/
/* forlinux.h */

#include    <limits.h>
#define MAX_PATH  PATH_MAX    /*
Windows:MAX_PATH , Linux:PATH_MAX */
```

```
#define Sleep(x)    poll(0, 0, x);  /* sleep unit is a
msec. */


::::::::::::::::::::::::::::::::
 common/GetPrivateProfileString.c
::::::::::::::::::::::::::::::::

/*******************************************************
*********
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                   *
 *   (1) GetPrivateProfileString
*
 *                                                    *
 *  CREATE by TSL   2003.12.18
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004 *

*******************************************************
********/

#include <stdio.h>
#include <string.h>

/*******************************************************
*****
 * Get data string corresponded key in
cogiguration file.   *
 * Return Value                                      *
 *     Get string length                             *

*******************************************************
****/
int GetPrivateProfileString(char*   section_name,
/* Section name               */
                        char*  key_name,       /* Key
name                   */
                        char*  delault_str,    /* Default
string, if kye nothing  */
                        char*  key_data,       /* Key
data                    */
                        int    buf_size,      /* Buffer
size of key data        */
                        char*  file_name) {    /* File
name                    */

   FILE*   prof_file;
   char    read_buf[256];
   char    search[32];
   char*   get_str;
   char*   key_pos=0;
   int     get_cnt;
   int     i;


   /* Open profile file */
   if ((prof_file = fopen(file_name, "r")) == NULL)
{
       goto DEFALT_STRING;
   }

   /* Make searching section name "[section
name]" */
   search[0] = '[';
   strcpy(&search[1], section_name);
   strcat(search,"]");

   /* Search section name */
   while((get_str = fgets(read_buf,
sizeof(read_buf), prof_file)) != NULL) {

       /* Search section name form to be read one
line */
       if ((char*)strstr(read_buf, search) == NULL)
{
          /* No match section name, next line read
*/
          continue;
       }
       break;
   }
   if (get_str == NULL) {
       /* Found EOF or read error */
       goto DEFALT_STRING_FCLOSE;
   }

   /* Make searching key name "key_name=" */
   strcpy(search, key_name);
   strcat(search,"=");

   /* Search key name in this section */
   while((get_str = fgets(read_buf,
sizeof(read_buf), prof_file)) != NULL) {
       for (i = 0; read_buf[i] == ' ' || read_buf[i] ==
'\t'; i++);
       if (read_buf[i] == '[') {
          /* Other section started, undefined key
name */
          goto DEFALT_STRING_FCLOSE;
       }
       if ((key_pos = (char*)strstr(read_buf,
search)) == NULL) {
          /* No match key name */
          continue;
       }
       break;
   }
   if (get_str == NULL) {
       /* Found EOF or read error */
       goto DEFALT_STRING_FCLOSE;
   }

   fclose(prof_file);

   /* Get key_value, fixed format "key value" */
   for (; *key_pos != '"'; key_pos++);
   key_pos++;
   for (get_cnt = 0; *key_pos != '"'; key_pos++) {
       /* Get & set key value */
       *key_data = *key_pos;
       key_data++;
       get_cnt++;
       if (get_cnt >= (buf_size -1)) {
          /* Key data buffer full */
          break;
       }
   }
   *key_data = '\0';
   return(get_cnt);

DEFALT_STRING_FCLOSE:
   fclose(prof_file);

DEFALT_STRING:
   strncpy(key_data, delault_str, buf_size-1);
   return(strlen(key_data));
}



::::::::::::::::::::::::::::::::
 common/log.c
::::::::::::::::::::::::::::::::

/*******************************************************
*********
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                   *
 *   Log is outputted to a file.                      *
 *                                                    *
 *  CREATE by TSL   2002.11.29
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2002-2004 *

*******************************************************
********/
#include "forlinux.h"
#include <stdio.h>
#include <string.h>
#include <time.h>
#include <sys/types.h>
#include <stdarg.h>
#include <unistd.h>
#include <pthread.h>
#include <sys/types.h>
#include <sys/stat.h>
#include "sema.h"

#define LOG_MODULE
#include "log.h"

void TpccUserLog(char* file_name, int line_no,
char* type_name, char* fmtp, ...)
{
   FILE*      fp;
   pid_t      pid;
   pthread_t   tId;
   char*      fname;
   int        stat;

/* -- BEGIN -- Modified by Hayashi for thread-
safe. 2006/02/13 */
#if 0
!   struct     tm *nowtime;
#else
   struct     tm tt;
   struct     tm *nowtime=&tt;
#endif
/* -- END -- Modified by Hayashi for thread-safe.
2006/02/13 */

   time_t     long_time;
   va_list    va;

   if (strcmp(type_name, "LCK") != 0) {
      /* Lock semaphore */
      stat = LockSem(GLB_LogSemId);
   }
   /* Get current time.  */

   time( &long_time );

/* -- BEGIN -- Modified by Hayashi for thread-
safe. 2006/02/13 */
#if 0
!   nowtime = localtime( &long_time );
#else
   localtime_r( &long_time, nowtime );
#endif
/* -- END  -- Modified by Hayashi for thread-safe.
2006/02/13 */

   /* Get process Id.  */
```

```
    pid = getpid();

    /* Get thread Id. */
    tId = pthread_self();

    /* Get just file name from a path.  */
    fname = (char*)strrchr(file_name, (int)'/');
    if (fname == NULL) {
        fname = file_name;
    } else {
        fname = fname + 1;
    }

    va_start(va, fmtp);

    fp = fopen(GLB_LogFilePath, "a");
    fprintf(fp, "%02d:%02d:%02d [%6d:%08x] %-
32s(%4d) :%s: " ,
        nowtime->tm_hour, nowtime->tm_min,
nowtime->tm_sec, pid, (int)tId, fname, line_no,
type_name);
    vfprintf(fp, fmtp, va);

    if (*(fmtp + strlen(fmtp) - 1) != '\n')
        fprintf(fp, "\n");

    va_end(va);

    fclose(fp);

    /* change mode which all users can read and
write. */
    chmod(GLB_LogFilePath,S_IRUSR
|S_IWUSR |S_IRGRP|S_IWGRP| S_IROTH |
S_IWOTH );

    if (strcmp(type_name, "LCK") != 0) {
       // Unlock semaphore
       stat = UnlockSem(GLB_LogSemId);
    }

    return;
}
```

```
::::::::::::::::::::::::::::::::
 common/log.h
::::::::::::::::::::::::::::::::

/********************************************************
*********
 *                                                  *
 *       TPC-C Client Application Program Source
*
 *                                                  *
 *  Entry Functions                                         *
 *   Log is outputted to a file.                              *
 *                                                  *
 *  CREATE by TSL   2002.11.29
*
 *                                                  *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004 *

*********************************************************
********/

void TpccUserLog (char *file_name, int line_no,
char* type_name, char* fmtp, ...);

extern  char    GLB_LogFilePath[MAX_PATH];
extern  int GLB_LogSemId;
#define DEFAULT_SVRAPL_LOG_PATH
"/home/tpc/log/DBDepend_Userlog.log"
#define DEFAULT_TPAPL_LOG_PATH
"/home/tpc/log/userlog.log"


#define LOG_ERR __FILE__, __LINE__, "ERR"
#define LOG_INF __FILE__, __LINE__, "INF"
#define LOG_WRN __FILE__, __LINE__,
"WRN"
#define LOG_LCK __FILE__, __LINE__, "LCK"

#define LOG_FILE_INF    __FILE__, __LINE__,
"INF"
#define LOG_FILE_LINE   __FILE__, __LINE__
```

```
::::::::::::::::::::::::::::::::
 common/Makefile
::::::::::::::::::::::::::::::::

#----------------------------------------------------------------
------
#  Makefile : Makefile for common of TPAPL and
SVRAPL.
#
#   Created by TSL 2003.12.17
#
#   All Right Rserverd, Copyright Co, FUJITSU
LIMITED 2003-2004.
#----------------------------------------------------------------
------

# GCC compile configurations
AR  = ar
ARFLAGS = rv
CFLAGS  = -Wall -O2
CC  = gcc


# MACRO  definition
DMACRO  = -DTSL -DPLSQLFLAG=1 -DTUX

# home directory
ORADIR  = /usr/local/oracle
TUXDIR  = /usr/local/BEA/tuxedo8.1
SVRDIR  = /home/tpc/client_apl/svrapl

# include directory
ORA_INC = -I$(ORADIR)/rdbms/demo -
I$(ORADIR)/rdbms/public
COM_INC = -I$(SVRDIR)/common
SVR_INC = -I$(SVRDIR)
TUX_INC = -I$(TUXDIR)/include
INCLUDE = $(COM_INC) $(SVR_INC)
$(ORA_INC) $(TUX_INC)



# target object
COMOBJS = log.o sema.o
GetPrivateProfileString.o shmem.o
COMLIB  = libcom.a

INCFILES = log.h sema.h forlinux.h shmem.h

$(COMLIB) : $(COMOBJS)
    $(AR) $(ARFLAGS) $(COMLIB) $(COMOBJS)

.SUFFIXES: .o .c
.c.o:
    $(CC) -o $@ -c $(CFLAGS) $(INCLUDE)
$(DMACRO) $<
$(COMOBJS) : $(INCFILES)

clean:
    rm  $(COMLIB) $(COMOBJS)
```

```
::::::::::::::::::::::::::::::::
 common/MakeShell
::::::::::::::::::::::::::::::::

#! /bin/sh
cd /home/tpc/client_apl/common
make > make_result.txt 2>&1
```

```
::::::::::::::::::::::::::::::::
 common/sema.c
::::::::::::::::::::::::::::::::

/*******************************************************
***********
 *                                                  *
 *       TPC-C Client Application Program Source
*
 *                                                  *
 *  Filename :                                          *
 *   sema.c                                             *
 *  Entry Functions :                                       *
 *   There are functions to control semaphore.
*
 *                                                  *
 *  CREATE by TSL   2003.12.18
*
 *                                                  *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004   *

********************************************************
**********/

#include "forlinux.h"
#include <stdio.h>
#include <sys/types.h>
#include <sys/ipc.h>
#include <sys/sem.h>
#include <errno.h>
#include "log.h"
#include "sema.h"

/*******************************************************
*****
 * Initialize semaphore.                            *
 * Return Value                                   *
 *       > 0 semaphore Id. (always over 0)
*
 *       < 0 fail.                              *

********************************************************
****/
int InitSem(char *path, int projectId)
{
     int sid;
     union semun{
        int val;
        struct semid_ds *buf;
        ushort *array;
     } c_arg;

     TpccUserLog(LOG_LCK, "InitSem: start
path<%s> projectId=%d\n",
                        path, projectId);
```

```
    if ((sid = GetSem(path, projectId)) == -1) {
       TpccUserLog(LOG_LCK, "GetSem() fail,
path<%s> projectId=%d\n",
                   path, projectId);
       return(-1);
    }
    c_arg.val=1;
    if (semctl(sid,0,SETVAL,c_arg)==-1) {
      TpccUserLog(LOG_LCK, "semctl fail,
sid=%d\n",sid);
      return(-1);
    }
    TpccUserLog(LOG_LCK, "InitSem: Get
semid =%d\n",sid);

    return(sid);
}
/********************************************************
*****
 * Get semaphore.                          *
 * Return Value                          *
 *       > 0 semaphore Id. (always over 0)
*
 *       < 0 fail.                          *

*********************************************************
****/
int GetSem(char *path, int projectId)
{
   int sid;
   int key;

   if ((key = ftok(path,projectId)) == -1) {
       TpccUserLog(LOG_LCK, "ftok() fail,
path<%s> projectId=%d errno=%d\n",
                   path, projectId, errno);
       return(-1);
   }
   if ((sid=semget(key,1,0666|IPC_CREAT))== -
1){
       TpccUserLog(LOG_LCK, "semget() fail,
key=%d errno=%d \n",key, errno);
       return(-1);
   }

   return(sid);
}
/********************************************************
*****
 * Reuire to lock semaphore.
*
 * Return Value                          *
 *       1 success.                    *
 *      -1 fail.                    *

*********************************************************
****/
int LockSem(int sid)
{
   struct sembuf sb;

   sb.sem_num=0;
   sb.sem_op=-1;
   sb.sem_flg=0;
   if(semop(sid,&sb,1)== -1) {
       TpccUserLog(LOG_LCK, "semop() fail,
sid=%d\n",sid);
       return(-1);
   }
   return(1);
}
/********************************************************
*****
 * Reuire to unlock semaphore.
*
```

```
 * Return Value                          *
 *       1 success.                    *
 *      -1 fail.                    *

*********************************************************
****/
int UnlockSem(int sid)
{
   struct sembuf sb;

   sb.sem_num=0;
   sb.sem_op=1;
   sb.sem_flg=0;
   if(semop(sid,&sb,1)== -1){
       TpccUserLog(LOG_LCK, "semop() fail,
sid=%d\n",sid);
       return(-1);
   }
   return(1);
}


::::::::::::::::::::::::::::::::
 common/sema.h
::::::::::::::::::::::::::::::::

/********************************************************
**********
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Entry Functions                             *
 *   Semaphore control.
*
 *                                              *
 *  CREATE by TSL   2003.12.19
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004  *

*********************************************************
*********/

/*== project Id    ===================*/
#define SEM_SVRAPL_PROJID            (int)'S'
#define SEM_TPAPL_PROJID             (int)'T'
#define SEM_SAMPLING_PERFOREMANCE
(int)'P'


/*===================================
====*/
/*   prototype definition             */
/*===================================
====*/
int InitSem(char *path, int projectId);
int GetSem(char *path, int projectId);
int LockSem(int sid);
int UnlockSem(int sid);



::::::::::::::::::::::::::::::::
 common/shmem.c
::::::::::::::::::::::::::::::::

/********************************************************
***********
 *                                              *
 *       TPC-C Client Application Program Source
*
 *                                              *
 *  Filename :                                    *
```

```
 *   sema.c                                     *
 *  Entry Functions :                            *
 *   There are functions to control shared
memory.              *
 *                                              *
 *  CREATE by TSL   2004.01.15
*
 *                                              *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004   *

*********************************************************
**********/


#include "forlinux.h"
#include <stdio.h>
#include <sys/types.h>
#include <sys/ipc.h>
#include <sys/shm.h>
#include <errno.h>
#include "log.h"

/********************************************************
*****
 * Initialize shared memory.                      *
 * Return Value                                *
 *       > 0 shared memory address. (always over
0)       *
 *       < 0 fail.                             *

*********************************************************
****/
char*  InitShmem(char *path, int projectId, int
size)
{
    int shmid;
    int key;
    char *shmaddr;

    TpccUserLog(LOG_LCK, "InitShmem: start
path<%s> projectId=%d\n",
                    path, projectId);

   if ((key = ftok(path,projectId)) == -1) {
       TpccUserLog(LOG_LCK, "ftok() fail,
path<%s> projectId=%d errno=%d\n",
                   path, projectId, errno);
       return((char *)-1);
   }
   if
((shmid=shmget(key,size,IPC_CREAT|0666))==
-1){
       TpccUserLog(LOG_LCK, "shmget() fail,
key=%d errno=%d",key, errno);
       return((char *)-1);
   }
   if( (shmaddr = (char *)shmat(shmid, NULL, 0))
== (char*)-1 ) {
       TpccUserLog(LOG_LCK, "shmat() fail,
shmid=%d path<%s> projectId=%d errno=%d\n",
                   shmid, path, projectId, errno);
       return ((char *)-1);
   }

   TpccUserLog(LOG_LCK, "InitShmem: Get
shmid =%d  shmaddr = %08x\n",shmid,
shmaddr);

    return(shmaddr);
}
/********************************************************
*****
 * Get shared memory.                          *
 * Return Value                                *
 *       > 0 shared memory address. (always over
0)       *
 *       < 0 fail.                              *

*********************************************************
****/
char* GetShmem(char *path, int projectId, int
size)
{
    int shmid;
    int key;
    char *shmaddr;

    if ((key = ftok(path,projectId)) == -1) {
        TpccUserLog(LOG_LCK, "ftok() fail,
path<%s> projectId=%d errno=%d\n",
                        path, projectId,errno);
        return((char *)-1);
    }
    if ((shmid=shmget(key,size, 0))== -1){
        TpccUserLog(LOG_LCK, "shmget() fail,
key=%d errno=%d\n",key,errno);
        return((char *)-1);
    }
    if ((shmaddr = (char *)shmat(shmid, NULL, 0))
== (char*)-1 ) {
        TpccUserLog(LOG_LCK, "shmat() fail,
shmid=%d path<%s> projectId=%d errno=%d\n",
                        shmid, path, projectId, errno);
        return ((char *)-1);
    }

    return(shmaddr);
}


::::::::::::::::::::::::::::::::
 common/shmem.h
::::::::::::::::::::::::::::::::

/********************************************************
**********
 *                                                      *
 *       TPC-C Client Application Program Source
*
 *                                                      *
 *  Entry Functions                                     *
 *   Shared memory control.
*
 *                                                      *
 *  CREATE by TSL   2004.01.15
*
 *                                                      *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004  *

*********************************************************
*********/

/*== project Id    ===================*/
#define
SHMEM_SAMPLING_PERFOREMANCE
(int)'P'


/*==================================
====*/
/*    prototype definition              */
/*==================================
====*/
char* InitShmem(char *path, int projectId, int
size);
char* GetShmem(char *path, int projectId, int
size);
```

```
::::::::::::::::::::::::::::::::
 svrapl/bs-del.c
::::::::::::::::::::::::::::::::

#include <stdio.h>
#include <xa.h>
#include <atmi.h>


#if defined(__cplusplus)
extern "C" {
#endif
extern int _tmrunserver _((int));
//extern void OPSTUXSERVER _((TPSVCINFO
*));
//extern void TPCC _((TPSVCINFO *));
extern void DELIVERY _((TPSVCINFO *));
#if defined(__cplusplus)
}
#endif

//static struct tmdsptchtbl_t _tmdsptchtbl[] = {
//  { "OPSTUXSERVER", "OPSTUXSERVER",
(void (*) _((TPSVCINFO *))) OPSTUXSERVER,
0, 0 },
//  { NULL, NULL, NULL, 0, 0 }
//};
static struct tmdsptchtbl_t _tmdsptchtbl[] = {
    { "DELIVERY", "DELIVERY", (void (*)
_((TPSVCINFO *))) DELIVERY, 0, 0 },
    { NULL, NULL, NULL, 0, 0 }
};

#ifndef _TMDLLIMPORT
#define _TMDLLIMPORT
#endif

_TMDLLIMPORT extern struct xa_switch_t
tmnull_switch;

struct tmsvrargs_t tmsvrargs = {
    NULL,
    &_tmdsptchtbl[0],
    0,
    tpsvrinit,
    tpsvrdone,
    _tmrunserver,   /* PRIVATE  */
    NULL,           /* RESERVED */
    NULL,           /* RESERVED */
    NULL,           /* RESERVED */
    NULL            /* RESERVED */
};

struct tmsvrargs_t *
#ifdef _TMPROTOTYPES
_tmgetsvrargs(void)
#else
_tmgetsvrargs()
#endif
{
    tmsvrargs.xa_switch = &tmnull_switch;
    return(&tmsvrargs);
}

int
#ifdef _TMPROTOTYPES
main(int argc, char **argv)
#else
main(argc,argv)
int argc;
char **argv;
#endif
{
```

```
#ifdef TMMAINEXIT
#include "mainexit.h"
#endif

    return( _tmstartserver( argc, argv,
_tmgetsvrargs()));
}



::::::::::::::::::::::::::::::::
 svrapl/bs-new.c
::::::::::::::::::::::::::::::::

#include <stdio.h>
#include <xa.h>
#include <atmi.h>

#if defined(__cplusplus)
extern "C" {
#endif
extern int _tmrunserver (int);
//extern void OPSTUXSERVER _((TPSVCINFO
*));
//extern void TPCC _((TPSVCINFO *));
extern void NEWORDER (TPSVCINFO *);

#if defined(__cplusplus)
}
#endif

//static struct tmdsptchtbl_t _tmdsptchtbl[] = {
//  { "OPSTUXSERVER", "OPSTUXSERVER",
(void (*) _((TPSVCINFO *))) OPSTUXSERVER,
0, 0 },
//  { NULL, NULL, NULL, 0, 0 }
//};
static struct tmdsptchtbl_t _tmdsptchtbl[] = {
    { "NEWORDER", "NEWORDER", (void (*)
_((TPSVCINFO *))) NEWORDER, 0, 0 },
    { NULL, NULL, NULL, 0, 0 }
};

#ifndef _TMDLLIMPORT
#define _TMDLLIMPORT
#endif

_TMDLLIMPORT extern struct xa_switch_t
tmnull_switch;

struct tmsvrargs_t tmsvrargs = {
    NULL,
    &_tmdsptchtbl[0],
    0,
    tpsvrinit,
    tpsvrdone,
    _tmrunserver,   /* PRIVATE  */
    NULL,           /* RESERVED */
    NULL,           /* RESERVED */
    NULL,           /* RESERVED */
    NULL            /* RESERVED */
};

struct tmsvrargs_t *
#ifdef _TMPROTOTYPES
_tmgetsvrargs(void)
#else
_tmgetsvrargs()
#endif
{
    tmsvrargs.xa_switch = &tmnull_switch;
    return(&tmsvrargs);
}

int
```

```
#ifdef _TMPROTOTYPES
main(int argc, char **argv)
#else
main(argc,argv)
int argc;
char **argv;
#endif
{
#ifdef TMMAINEXIT
#include "mainexit.h"
#endif

    return( _tmstartserver( argc, argv,
_tmgetsvrargs()));
}


::::::::::::::::::::::::::::::::
 svrapl/bs-ord.c
::::::::::::::::::::::::::::::::

#include <stdio.h>
#include <xa.h>
#include <atmi.h>

#if defined(__cplusplus)
extern "C" {
#endif
extern int _tmrunserver _((int));
//extern void OPSTUXSERVER _((TPSVCINFO
*));
//extern void TPCC _((TPSVCINFO *));
extern void ORDERSTATUS _((TPSVCINFO *));
#if defined(__cplusplus)
}
#endif

//static struct tmdsptchtbl_t _tmdsptchtbl[] = {
//  { "OPSTUXSERVER", "OPSTUXSERVER",
(void (*) _((TPSVCINFO *))) OPSTUXSERVER,
0, 0 },
//  { NULL, NULL, NULL, 0, 0 }
//};
static struct tmdsptchtbl_t _tmdsptchtbl[] = {
    { "ORDERSTATUS", "ORDERSTATUS", (void
(*) _((TPSVCINFO *))) ORDERSTATUS, 0, 0 },
    { NULL, NULL, NULL, 0, 0 }
};

#ifndef _TMDLLIMPORT
#define _TMDLLIMPORT
#endif

_TMDLLIMPORT extern struct xa_switch_t
tmnull_switch;

struct tmsvrargs_t tmsvrargs = {
    NULL,
    &_tmdsptchtbl[0],
    0,
    tpsvrinit,
    tpsvrdone,
    _tmrunserver,   /* PRIVATE  */
    NULL,           /* RESERVED */
    NULL,           /* RESERVED */
    NULL,           /* RESERVED */
    NULL            /* RESERVED */
};

struct tmsvrargs_t *
#ifdef _TMPROTOTYPES
_tmgetsvrargs(void)
#else
_tmgetsvrargs()
#endif
{
    tmsvrargs.xa_switch = &tmnull_switch;
    return(&tmsvrargs);
}

int
#ifdef _TMPROTOTYPES
main(int argc, char **argv)
#else
main(argc,argv)
int argc;
char **argv;
#endif
{
#ifdef TMMAINEXIT
#include "mainexit.h"
#endif

    return( _tmstartserver( argc, argv,
_tmgetsvrargs()));
}


::::::::::::::::::::::::::::::::
 svrapl/bs-pay.c
::::::::::::::::::::::::::::::::

#include <stdio.h>
#include <xa.h>
#include <atmi.h>

#if defined(__cplusplus)
extern "C" {
#endif
extern int _tmrunserver _((int));
//extern void OPSTUXSERVER _((TPSVCINFO
*));
//extern void TPCC _((TPSVCINFO *));
extern void PAYMENT _((TPSVCINFO *));
#if defined(__cplusplus)
}
#endif

//static struct tmdsptchtbl_t _tmdsptchtbl[] = {
//  { "OPSTUXSERVER", "OPSTUXSERVER",
(void (*) _((TPSVCINFO *))) OPSTUXSERVER,
0, 0 },
//  { NULL, NULL, NULL, 0, 0 }
//};
static struct tmdsptchtbl_t _tmdsptchtbl[] = {
    { "PAYMENT", "PAYMENT", (void (*)
_((TPSVCINFO *))) PAYMENT, 0, 0 },
    { NULL, NULL, NULL, 0, 0 }
};

#ifndef _TMDLLIMPORT
#define _TMDLLIMPORT
#endif

_TMDLLIMPORT extern struct xa_switch_t
tmnull_switch;

struct tmsvrargs_t tmsvrargs = {
    NULL,
    &_tmdsptchtbl[0],
    0,
    tpsvrinit,
    tpsvrdone,
    _tmrunserver,   /* PRIVATE  */
    NULL,           /* RESERVED */
    NULL,           /* RESERVED */
    NULL,           /* RESERVED */
    NULL            /* RESERVED */
};

struct tmsvrargs_t *
#ifdef _TMPROTOTYPES
_tmgetsvrargs(void)
#else
_tmgetsvrargs()
#endif
{
    tmsvrargs.xa_switch = &tmnull_switch;
    return(&tmsvrargs);
}

int
#ifdef _TMPROTOTYPES
main(int argc, char **argv)
#else
main(argc,argv)
int argc;
char **argv;
#endif
{
#ifdef TMMAINEXIT
#include "mainexit.h"
#endif

    return( _tmstartserver( argc, argv,
_tmgetsvrargs()));
}


::::::::::::::::::::::::::::::::
 svrapl/bs-sto.c
::::::::::::::::::::::::::::::::

#include <stdio.h>
#include <xa.h>
#include <atmi.h>

#if defined(__cplusplus)
extern "C" {
#endif
extern int _tmrunserver _((int));
//extern void OPSTUXSERVER _((TPSVCINFO
*));
//extern void TPCC _((TPSVCINFO *));
extern void STOCKLVL _((TPSVCINFO *));
#if defined(__cplusplus)
}
#endif

//static struct tmdsptchtbl_t _tmdsptchtbl[] = {
//  { "OPSTUXSERVER", "OPSTUXSERVER",
(void (*) _((TPSVCINFO *))) OPSTUXSERVER,
0, 0 },
//  { NULL, NULL, NULL, 0, 0 }
//};
static struct tmdsptchtbl_t _tmdsptchtbl[] = {
    { "STOCKLVL", "STOCKLVL", (void (*)
_((TPSVCINFO *))) STOCKLVL, 0, 0 },
    { NULL, NULL, NULL, 0, 0 }
};

#ifndef _TMDLLIMPORT
#define _TMDLLIMPORT
#endif

_TMDLLIMPORT extern struct xa_switch_t
tmnull_switch;

struct tmsvrargs_t tmsvrargs = {
    NULL,
    &_tmdsptchtbl[0],
    0,
    tpsvrinit,
    tpsvrdone,
    _tmrunserver,   /* PRIVATE  */
    NULL,          /* RESERVED */
    NULL,          /* RESERVED */
    NULL,          /* RESERVED */
    NULL           /* RESERVED */
};

struct tmsvrargs_t *
#ifdef _TMPROTOTYPES
_tmgetsvrargs(void)
#else
_tmgetsvrargs()
#endif
{
    tmsvrargs.xa_switch = &tmnull_switch;
    return(&tmsvrargs);
}

int
#ifdef _TMPROTOTYPES
main(int argc, char **argv)
#else
main(argc,argv)
int argc;
char **argv;
#endif
{
#ifdef TMMAINEXIT
#include "mainexit.h"
#endif

    return( _tmstartserver( argc, argv,
_tmgetsvrargs()));
}


::::::::::::::::::::::::::::::::
 svrapl/bs-whb.c
::::::::::::::::::::::::::::::::

#include <stdio.h>
#include <xa.h>
#include <atmi.h>

#include <string.h>
#include "forlinux.h"
#include "log.h"

#if defined(__cplusplus)
extern "C" {
#endif
extern int _tmrunserver _((int));
extern void OPSTUXSERVER _((TPSVCINFO
*));
#if defined(__cplusplus)
}
#endif

static struct tmdsptchtbl_t _tmdsptchtbl[] = {
    { "OPSTUXSERVER", "OPSTUXSERVER",
(void (*) _((TPSVCINFO *))) OPSTUXSERVER,
0, 0 },
    { NULL, NULL, NULL, 0, 0 }
};

#ifndef _TMDLLIMPORT
#define _TMDLLIMPORT
#endif

_TMDLLIMPORT extern struct xa_switch_t
tmnull_switch;

struct tmsvrargs_t tmsvrargs = {
    NULL,
    &_tmdsptchtbl[0],
    0,
    tpsvrinit,
    tpsvrdone,
    _tmrunserver,   /* PRIVATE  */
    NULL,          /* RESERVED */
    NULL,          /* RESERVED */
    NULL,          /* RESERVED */
    NULL           /* RESERVED */
};

struct tmsvrargs_t *
#ifdef _TMPROTOTYPES
_tmgetsvrargs(void)
#else
_tmgetsvrargs()
#endif
{

    tmsvrargs.xa_switch = &tmnull_switch;
    return(&tmsvrargs);
}

int
#ifdef _TMPROTOTYPES
main(int argc, char **argv)
#else
main(argc,argv)
int argc;
char **argv;
#endif
{
#ifdef TMMAINEXIT
#include "mainexit.h"
#endif

    return( _tmstartserver( argc, argv,
_tmgetsvrargs()));
}


::::::::::::::::::::::::::::::::
 svrapl/GlobalArea.c
::::::::::::::::::::::::::::::::

/*********************************************************
*********
 *                                                  *
 *       TPC-C Client Application Program Source
*
 *                                                  *
 *  Entry Functions                                   *
 *   Global Area definition.                           *
 *                                                  *
 *  CREATE by TSL   2003.05.16
*
 *                                                  *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004 *
 
**********************************************************
********/
#include "forlinux.h"
#include "tpcc.h"
#include "tpccflags.h"
#include "TrnCntlInfo.h"

char    GLB_LogFilePath[MAX_PATH];
char    GLB_ConfigFilePath[MAX_PATH];
int     GLB_LogSemId;

/* Global area for Oracle interfase. */
/* ---------------------------- */
/*    Delivery (pldel.cpp)       */
/* ---------------------------- */
pldelctx *pldctx;
delctx *dctx;
#ifdef DMLRETDEL
amtctx *actx;
#endif
/* ---------------------------- */
/*    NewOrder (plnew.cpp)       */
/* ---------------------------- */
newctx *nctx;
/* ---------------------------- */
/*   OrderStatus (plord.cpp)     */
/* ---------------------------- */
ordctx *octx;
defctx cbctx;

/* Added T.Kato 2004.12.21 New Oracle10g tool
kit */
int    ordcount = 0;
#ifdef DEBUG
int    trace_on = 0;
#endif
/* Added end */

/* ---------------------------- */
/*    Payment (plpay.cpp)        */
/* ---------------------------- */
payctx *pctx;
/* ---------------------------- */
/*   StockLevel (plsto.cpp)      */
/* ---------------------------- */
stoctx *sctx;
/* ---------------------------- */
/*    (tpccpl.cpp)               */
/* ---------------------------- */
FILE *lfp;
/* Deleted T.Kato 02.10.23 for warning
!FILE *fopen ();
   Deleted end */

/* Added t.Kato 02.10.24 for Delivery logging file
control */
int iflg;   /* Delivery log initialize flag */
/* Added end */
int proc_no;
int logon;
int new_init;
int pay_init;
int ord_init;

#ifdef DEL_ORA8I
int del_init;
#else
int del_init_oci;
int del_init_plsql;
#endif

int sto_init;
int res_init;

int execstatus;
int errcode;

OCIEnv *tpcenv;
OCIServer *tpcsrv;
OCIError *errhp;
OCISvcCtx *tpcsvc;
OCISession *tpcusr;
OCIStmt *curi;


/* for stock-level transaction */
int w_id;
int d_id;
int c_id;

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
```

```
!   int threshold;
#endif

#ifdef USE_IEEE_NUMBER
float threshold;
#else
int threshold;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

int low_stock;

/* for delivery transaction */
int del_o_id[10];
int retries;

/* for order-status transaction */
int bylastname;
char c_last[17];
char c_first[17];
char c_middle[3];
double c_balance;
int o_id;
text o_entry_d[20];
ub4  datelen;
int o_carrier_id;
int o_ol_cnt;
int ol_supply_w_id[15];
int ol_i_id[15];

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   int ol_quantity[15];
!   int ol_amount[15];
#endif

#ifdef USE_IEEE_NUMBER
float ol_quantity[15];
float ol_amount[15];
#else
int ol_quantity[15];
int ol_amount[15];
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

ub4  ol_del_len[15];
text ol_delivery_d[15][11];
/* xnie - begin */
OCIRowid *o_rowid;
/* xnie - end */

/* for payment transaction */
int c_w_id;
int c_d_id;

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   int h_amount;
#endif

#ifdef USE_IEEE_NUMBER
float h_amount;
#else
int h_amount;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

char w_street_1[21];
char w_street_2[21];
char w_city[21];
char w_state[3];
char w_zip[10];
char d_street_1[21];
char d_street_2[21];
char d_city[21];
char d_state[3];
char d_zip[10];
char c_street_1[21];
char c_street_2[21];
char c_city[21];
char c_state[3];
char c_zip[10];
char c_phone[17];
ub4  sincelen;
text c_since_d[11];
float c_discount;
char c_credit[3];
int c_credit_lim;
char c_data[201];
ub4 hlen;
text h_date[20];

/* for new order transaction */

int nol_i_id[15];
int nol_supply_w_id[15];

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   int nol_quantity[15];
!   int nol_amount[15];
!   int s_quantity[15];
!   int i_price[15];
#endif

#ifdef USE_IEEE_NUMBER
float nol_quantity[15];
float nol_amount[15];
float s_quantity[15];
float i_price[15];
#else
int nol_quantity[15];
int nol_amount[15];
int s_quantity[15];
int i_price[15];
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

int nol_quanti10[15];
int nol_quanti91[15];
int nol_ytdqty[15];
int o_all_local;
float w_tax;
float d_tax;
/* Deleted T.Kato 02.11.13
!float total_amount;
   Deleted end */
char i_name[15][25];
char brand_gen[15];
char brand_generic[15][1];
int status;
int tracelevel;

OCIDate cr_date;
OCIDate c_since;
OCIDate o_entry_d_base;
OCIDate ol_d_base[15];
dvoid *xmem;
/* ----------------------------- */
/*    (tpccsvr.cpp)              */
/* ----------------------------- */
/* set up pointers for type casting */
struct newstruct *newinfo;
struct paystruct *payinfo;
struct ordstruct *ordinfo;
struct delstruct *delinfo;
struct stostruct *stoinfo;


#ifndef AVOID_DEADLOCK
int indx[NITEMS], ordl_cnt;
#endif



::::::::::::::
 svrapl/GlobalArea.h
::::::::::::::

/*******************************************************
*********
 *                                                    *
 *       TPC-C Client Application Program Source
*
 *                                                    *
 *  Entry Functions                                        *
 *   Global Area definition.                                *
 *                                                    *
 *  CREATE by TSL   2003.05.16
*
 *                                                    *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004 *

*******************************************************
********/

#include "tpccflags.h"
#include "TrnCntlInfo.h"



extern char     GLB_LogFilePath[MAX_PATH];
extern char
GLB_ConfigFilePath[MAX_PATH];
extern int      GLB_LogSemId;


#define TPCC_CONF_FILE
"/home/tpc/conf/tpapl.conf"

//#define LOG_FILE_NAME_THREAD
"log\\SvrThread%05d.log"




/* Global area for Oracle interfase. */
/* ----------------------------- */
/*    Delivery (pldel.cpp)       */
/* ----------------------------- */
extern pldelctx *pldctx;
extern delctx *dctx;
#ifdef DMLRETDEL
extern amtctx *actx;
#endif
/* ----------------------------- */
/*    NewOrder (plnew.cpp)       */
/* ----------------------------- */
extern newctx *nctx;
/* ----------------------------- */
/*   OrderStatus (plord.cpp)     */
/* ----------------------------- */
extern ordctx *octx;
extern defctx cbctx;

/* Added T.Kato 2004.12.21 New Oracle10g tool
kit */
extern int    ordcount;
#ifdef DEBUG
extern int    trace_on;
#endif
/* Added end */

/* ----------------------------- */
/*    Payment (plpay.cpp)         */
/* ----------------------------- */
extern payctx *pctx;
/* ----------------------------- */
/*   StockLevel (plsto.cpp)      */
/* ----------------------------- */
extern stoctx *sctx;
/* ----------------------------- */
/*    (tpccpl.cpp)               */
/* ----------------------------- */
extern FILE *lfp;
/* Deleted T.Kato 02.10.23 for warning
!FILE *fopen ();
   Deleted end */

/* Added t.Kato 02.10.24 for Delivery logging file
control */
extern int  iflg;   /* Delivery log initialize flag */
/* Added end */
extern int proc_no;
extern int logon;
extern int new_init;
extern int pay_init;
extern int ord_init;

#ifdef DEL_ORA8I
extern int del_init;
#else
extern int del_init_oci;
extern int del_init_plsql;
#endif

extern int sto_init;
extern int res_init;

extern int execstatus;
extern int errcode;

extern OCIEnv *tpcenv;
extern OCIServer *tpcsrv;
extern OCIError *errhp;
extern OCISvcCtx *tpcsvc;
extern OCISession *tpcusr;
extern OCIStmt *curi;


/* for stock-level transaction */
extern int w_id;
extern int d_id;
extern int c_id;

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   extern int threshold;
#endif

#ifdef USE_IEEE_NUMBER
extern float threshold;
#else
extern int threshold;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

extern int low_stock;

/* for delivery transaction */
extern int del_o_id[10];
extern int retries;

/* for order-status transaction */
extern int bylastname;
extern char c_last[17];
extern char c_first[17];
extern char c_middle[3];
extern double c_balance;
extern int o_id;
extern text o_entry_d[20];
extern ub4  datelen;
extern int o_carrier_id;
extern int o_ol_cnt;
extern int ol_supply_w_id[15];
extern int ol_i_id[15];

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   extern int ol_quantity[15];
!   extern int ol_amount[15];
#endif

#ifdef USE_IEEE_NUMBER
extern float ol_quantity[15];
extern float ol_amount[15];
#else
extern int ol_quantity[15];
extern int ol_amount[15];
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

extern ub4  ol_del_len[15];
extern text ol_delivery_d[15][11];
/* xnie - begin */
extern OCIRowid *o_rowid;
/* xnie - end */

/* for payment transaction */
extern int c_w_id;
extern int c_d_id;

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   extern int h_amount;
#endif

#ifdef USE_IEEE_NUMBER
extern float h_amount;
#else
extern int h_amount;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

extern char w_street_1[21];
extern char w_street_2[21];
extern char w_city[21];
extern char w_state[3];
extern char w_zip[10];
extern char d_street_1[21];
extern char d_street_2[21];
extern char d_city[21];
extern char d_state[3];
extern char d_zip[10];
extern char c_street_1[21];
extern char c_street_2[21];
extern char c_city[21];
extern char c_state[3];
extern char c_zip[10];
extern char c_phone[17];
extern ub4  sincelen;
extern text c_since_d[11];
extern float c_discount;
extern char c_credit[3];
extern int c_credit_lim;
extern char c_data[201];
extern ub4 hlen;
extern text h_date[20];

/* for new order transaction */

extern int nol_i_id[15];
extern int nol_supply_w_id[15];
/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   extern int nol_quantity[15];
!   extern int nol_amount[15];
!   extern int s_quantity[15];
!   extern int i_price[15];
#endif

#ifdef USE_IEEE_NUMBER
extern float nol_quantity[15];
extern float nol_amount[15];
extern float s_quantity[15];
extern float i_price[15];
#else
extern int nol_quantity[15];
extern int nol_amount[15];
extern int s_quantity[15];
extern int i_price[15];
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

extern int nol_quanti10[15];
extern int nol_quanti91[15];
extern int nol_ytdqty[15];
extern int o_all_local;
extern float w_tax;
extern float d_tax;
/* Deleted T.Kato 02.11.13
!float total_amount;
   Deleted end */
extern char i_name[15][25];
extern char brand_gen[15];
extern char brand_generic[15][1];
extern int status;
extern int tracelevel;

extern OCIDate cr_date;
extern OCIDate c_since;
extern OCIDate o_entry_d_base;
extern OCIDate ol_d_base[15];
extern dvoid *xmem;
/* ----------------------------- */
/*    (tpccsvr.cpp)              */
/* ----------------------------- */
/* set up pointers for type casting */
extern struct newstruct *newinfo;
extern struct paystruct *payinfo;
extern struct ordstruct *ordinfo;
extern struct delstruct *delinfo;
extern struct stostruct *stoinfo;



#ifndef AVOID_DEADLOCK
int indx[NITEMS], ordl_cnt;
#endif



::::::::::::::::::::::::::::::::
 svrapl/initsvrconfig.c
::::::::::::::::::::::::::::::::

/*********************************************************
*********
 *                                                      *
 *        TPC-C Client Application Program Source
*
 *                                                      *
 *  Entry Functions                                        *
 *   (1) GetConfigFileInfo                                   *
 *                                                      *
 *  CREATE by TSL   2003.12.19
*
 *                                                      *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004 *

*********************************************************
********/
#include "forlinux.h"
#include <unistd.h>
#include "tpcc.h"
#include "tpcc_info.h"
#include "GlobalArea.h"
#include "log.h"
#include "sema.h"
#include "prototype.h"
#include "shmem.h"
#include "SampleInfo.h"
/* Global area for sampling. */
MAC_SampleGlobalArea;
/*********************************************************
*****
 * Get configuration file information.
*
 * Return Value                                    *
 *      None                                      *

*********************************************************
****/
int GetConfFileInfo_GetStr(char* section_name,
char* key_name, char* str);

void GetConfFileInfo()
{

   /* Check INI file exist */
   if (access(GLB_ConfigFilePath, 0x00) != 0) {
      /* INI file no exist, using defalt value */
      TpccUserLog(LOG_LCK, "INI file nothing,
using default value");
      strcpy(GLB_LogFilePath,
DEFAULT_SVRAPL_LOG_PATH);
      return;
   }

   /* Get execution informations
*/
   /* If undefined key and illigal value, using
default value  */
   if (GetConfFileInfo_GetStr("SVRAPL_INFO",
"LogPath", GLB_LogFilePath) != 0) {
      strcpy(GLB_LogFilePath,
DEFAULT_SVRAPL_LOG_PATH);
   }
}
/*-----------------------------------------------------*/
/* Get information in the CONFIG file for string
value */
/*-----------------------------------------------------*/
int GetConfFileInfo_GetStr(char* section_name,
char* key_name, char* str) {

   int     i;
   char    value_buf[1024];

   for (i = 0; i < 3; i++) {
      GetPrivateProfileString(section_name,
key_name, "*",
                        value_buf, sizeof(value_buf),
GLB_ConfigFilePath);
      if (value_buf[0] == '*') {
         /* if Key is nothing, retry gettiing */
         continue;
      }
      break;
   }
#ifdef PUT_INF_LOG
   TpccUserLog(LOG_LCK, "CONFIG file
information [%s %s]=[%s]", section_name,
key_name, value_buf);
#endif
   if (value_buf[0] == '*') {
      /* Target key was nothing */
      return (-1);
   }
   strcpy(str, value_buf);
   return(strlen(value_buf));
}

/*********************************************************
*****
 * Initialize configuration information
*
 * Return Value                                    *
 *      none.                                     *

*********************************************************
****/
void InitSvrConfig(char* path) {

   char    work_path[MAX_PATH];
   int     i;

   /* Initialize share memory for sampling of
svrapl */
   MAC_SampleInitParent;

   /* Get configuration informaion (set to global
area) */
   strcpy(GLB_ConfigFilePath, path);

   /* Set default log path */
   strcpy(GLB_LogFilePath,
DEFAULT_SVRAPL_LOG_PATH);

   GetConfFileInfo();

   TpccUserLog(LOG_LCK, "InitSvrConfig start
\n");

   /* Initialize SVRAPL semafore for log */
   strcpy(work_path, GLB_LogFilePath);
   for(i = strlen(work_path) - 1; i > 0 &&
work_path[i] != '/' ; i--);
   work_path[i] = '\0';

   if ((GLB_LogSemId = InitSem(work_path,
SEM_SVRAPL_PROJID)) == -1) {
      TpccUserLog(LOG_LCK, "InitSem() faile for
SvrApl log\n");
      return;
   }

   return;
}


::::::::::::::::::::::::::::::::
 svrapl/log_level.h
::::::::::::::::::::::::::::::::

/*********************************************************
*****
 *                                                 *
 *       TPC-C Client Application Program Source
*
 *                                                 *
 *  CREATE by TSL   2003.02.07
*
 *                                                 *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*********************************************************
****/

#define PUT_INF_LOG                 // Information
log
#define PUT_FNC_ENTRY_LOG           //
Function entry point log
//#define PUT_FNC_EXIT_LOG          // Function
exit log


/* Function entry point log macro */
#ifdef  PUT_FNC_ENTRY_LOG
#define MAC_PutFncEntryLog(func)
TpccUserLog(LOG_INF, ">>>>> "func" start
>>>>>");
#else
#define MAC_PutFncEntryLog(func)    ;
#endif

/* Function exit point log  */
#ifdef  PUT_FNC_EXIT_LOG
#define MAC_PutFncExitLog(func)
TpccUserLog(LOG_INF, "<<<<< "func" end
<<<<<");
#else
#define MAC_PutFncExitLog(func)     ;
#endif


::::::::::::::::::::::::::::::::
 svrapl/Makefile
::::::::::::::::::::::::::::::::

#---------------------------------------------------------------
------
#  Makefile : Makefile for 3 tier and 2 tier
executing files  on Linux.
#
#   Created by TSL 2003.12.17
#
#   All Right Rserverd, Copyright Co, FUJITSU
LIMITED 2003-2004.
#---------------------------------------------------------------
------

# GCC compile configurations
AR  = ar
ARFLAGS = rv
CFLAGS  = -Wall  -O2
CC  = gcc
LD  = gcc

# MACRO  definition
#DMACRO = -DTSL -DPLSQLFLAG=1 -DTUX -
DDGLDEF
DMACRO  = -DTSL -DPLSQLFLAG=1 -DTUX

# home directory.
ORADIR  = /usr/local/oracle
TUXDIR  = /usr/local/BEA/tuxedo8.1
SVRDIR  = /home/tpc/client_apl/svrapl
TPDIR   = /home/tpc/client_apl/tpapl
COMDIR  = /home/tpc/client_apl/common
SVRCOMDIR = $(COMDIR)

# include directory
ORA_INC = -I$(ORADIR)/rdbms/demo -
I$(ORADIR)/rdbms/public
COM_INC = -I$(COMDIR)
TUX_INC = -I$(TUXDIR)/include
TP_INC  = -I$(TPDIR)
INCLUDE = $(COM_INC) $(ORA_INC)
$(TUX_INC) $(TP_INC)
```

```
OBJDIR  = $(SVRDIR)/bin

# target object
3TIERDIR = /home/tpc/client_apl/svrapl/3tier
COMDIR   = /home/tpc/client_apl/common
COMOBJS = tpccsvr.o GlobalArea.o
initsvrconfig.o
ALLOBJS =  $(COMOBJS) $(MAIN_WHBOBJ)
$(MAIN_NEWOBJ) $(MAIN_PAYOBJ)
$(MAIN_DELOBJ) \
         $(MAIN_STOOBJ) $(MAIN_ORDOBJ)
3TIERLIB = $(3TIERDIR)/libtier.a
COMLIB   = $(COMDIR)/libcom.a

# depend on include file.
INCFILE = $(SVRDIR)/tpcc.h
$(SVRDIR)/GlobalArea.h $(SVRDIR)/prototype.h
\
        $(SVRDIR)/tpccflags.h
$(SVRDIR)/tpcc_info.h $(SVRDIR)/TrnCntlInfo.h
$(SVRDIR)/tpcc_info.h \
        $(COMDIR)/log.h $(COMDIR)/sema.h
$(COMDIR)/forlinux.h $(TPDIR)/SampleInfo.h

#---- transaction or warehouse main object.
MAIN_WHBOBJ = bs-whb.o
MAIN_NEWOBJ = bs-new.o
MAIN_PAYOBJ = bs-pay.o
MAIN_DELOBJ = bs-del.o
MAIN_STOOBJ = bs-sto.o
MAIN_ORDOBJ = bs-ord.o


# tuxedo
TUXLIBS = $(TUXDIR)/lib/libtux.a
$(TUXDIR)/lib/libbuft.a $(TUXDIR)/lib/libfml.a \
        $(TUXDIR)/lib/libfml32.a
$(TUXDIR)/lib/libengine.a -lpthread -ldl
#TUXLIBS    = -L$(TUXDIR)/lib/ -ltux -lbuft -lfml -
lfml32
# Oracle
#ORALIB = -l$(ORADIR)/rdbms/demo
#ORALIBS = $(ORADIR)/lib/libocci10.a
#ORALIBS    = $(ORADIR)/rdbms/lib/defopt.o
$(ORADIR)/lib/libclntst10.a
#ORALIBS    = $(ORADIR)/lib/libclntst10.a

#---- execute file for 3 tier.
TARGET_WHB_3TIER       =
$(OBJDIR)/3tier_tpccfmlw
TARGET_NEW_3TIER       =
$(OBJDIR)/3tier_tpccfmln
TARGET_PAY_3TIER       =
$(OBJDIR)/3tier_tpccfmlp
TARGET_DEL_3TIER       =
$(OBJDIR)/3tier_tpccfmld
TARGET_STO_3TIER       =
$(OBJDIR)/3tier_tpccfmls
TARGET_ORD_3TIER       =
$(OBJDIR)/3tier_tpccfmlo

3TIERTARGETS    = $(TARGET_WHB_3TIER)
$(TARGET_NEW_3TIER)
$(TARGET_PAY_3TIER) \
                $(TARGET_DEL_3TIER)
$(TARGET_ORD_3TIER)
TARGETS = $(3TIERTARGETS)

# link library.
#LDFLAGS=-L$(ORACLE_HOME)/rdbms/lib/ -
L$(ORACLE_HOME)/lib/ -dy \
#   -L$(ORACLE_HOME)/rdbms/lib/ -
L$(ORACLE_HOME)/lib/ \
#   $(ORACLE_HOME)/rdbms/lib/defopt.o  -
lclntsh \
#   -ldl -lm -lpthread -lnsl

LDFLAGS=-L$(ORACLE_HOME)/rdbms/lib/ -
L$(ORACLE_HOME)/lib/ -dy \
   -L$(ORACLE_HOME)/rdbms/lib/ -
L$(ORACLE_HOME)/lib/ \
   $(ORACLE_HOME)/rdbms/lib/defopt.o  -
lclntsh \
   -ldl -lm -lpthread -lnsl


$(TARGETS) : $(ALLOBJS) $(3TIERLIB)
$(COMLIB)
   $(LD) -o $(TARGET_WHB_3TIER)
$(MAIN_WHBOBJ) $(COMOBJS) $(COMLIB)
$(3TIERLIB) $(TUXLIBS) $(ORALIBS)
$(LDFLAGS)
   $(LD) -o $(TARGET_NEW_3TIER)
$(MAIN_NEWOBJ) $(COMOBJS) $(COMLIB)
$(3TIERLIB) $(TUXLIBS) $(ORALIBS)
$(LDFLAGS)
   $(LD) -o $(TARGET_PAY_3TIER)
$(MAIN_PAYOBJ) $(COMOBJS) $(COMLIB)
$(3TIERLIB) $(TUXLIBS) $(ORALIBS)
$(LDFLAGS)
   $(LD) -o $(TARGET_DEL_3TIER)
$(MAIN_DELOBJ) $(COMOBJS) $(COMLIB)
$(3TIERLIB) $(TUXLIBS) $(ORALIBS)
$(LDFLAGS)
   $(LD) -o $(TARGET_STO_3TIER)
$(MAIN_DELOBJ) $(COMOBJS) $(COMLIB)
$(3TIERLIB) $(TUXLIBS) $(ORALIBS)
$(LDFLAGS)
   $(LD) -o $(TARGET_ORD_3TIER)
$(MAIN_ORDOBJ) $(COMOBJS) $(COMLIB)
$(3TIERLIB) $(TUXLIBS) $(ORALIBS)
$(LDFLAGS)

.SUFFIXES: .o .c
.c.o:
   $(CC) -o $@ -c $(CFLAGS) $(INCLUDE)
$(DMACRO) $<

$(ALLOBJS) : $(INCFILE)
$(ALLOBJS) : Makefile

clean:
   rm  $(ALLOBJS) $(TARGETS)



::::::::::::::::::::::::::::::::
 svrapl/MakeShell
::::::::::::::::::::::::::::::::

#! /bin/sh
cd /home/tpc/client_apl/svrapl
make > make_result.txt 2>&1


::::::::::::::::::::::::::::::::
 svrapl/prototype.h
::::::::::::::::::::::::::::::::

/********************************************************
*********
 *                                                     *
 *       TPC-C Client Application Program Source
*
 *                                                     *
 *  Entry Functions                                    *
 *   Function prototype definition.
*
 *                                                     *
 *   CREATE by TSL   2003.12.11
*
 *                                                     *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003-2004 *

********************************************************
********/

#include "tpccflags.h"

/* ---------------------------------------------- */
/*    Prototype                                  */
/* ---------------------------------------------- */
#ifdef DEL_ORA8I
int tkvcdinit ();
int tkvcninit ();
int tkvcoinit ();
int tkvcpinit (void);
int tkvcsinit ();
int tkvcd ();
int tkvcn ();
int tkvcs ();
int tkvcp ();
int tkvco ();
void tkvcddone ();
void tkvcndone ();
void tkvcsdone ();
void tkvcpdone ();
void tkvcodone ();
#else
int tkvcdinit (int plsqlflag);
int tkvcninit ();
int tkvcoinit ();
int tkvcpinit (void);
int tkvcsinit ();
int tkvcd (int plsqlflag);
int tkvcn ();
int tkvcs ();
int tkvcp ();
int tkvco ();
void tkvcddone (int plsqlflag);
void tkvcndone ();
void tkvcsdone ();
void tkvcpdone ();
void tkvcodone ();
#endif

/* pldel */
void shiftdata(int from);

/* tpccpl Prototype */
int TPCinit (int id, char* uid, char* pwd);
int TPCnew (struct newstruct* str);
int TPCdel (struct delstruct* str);
int TPCpay (struct paystruct* str);
int TPCord (struct ordstruct* str);
int TPCsto (struct stostruct* str);
void TPCexit (void);

int ocierror(char* fname, int lineno, OCIError*
errhp, sword status);
int sqlfile(char* fnam, text* linebuf);

#ifndef AVOID_DEADLOCK
/* Added T.Kato 02.11.22 */
void swap_item(struct newstruct *str, int i, int j);
void q_sort_item(int *arr, struct newstruct *str, int
left, int right);
/* Added End */
void swap(struct newstruct *str, int i, int j);
void q_sort(int *arr, struct newstruct *str, int left,
int right);
#endif
```

```
/* Added Hayashi  03.12.24 */
void InitSvrConfig(char *);
int GetPrivateProfileString(char* section_name,
char*   key_name,
                        char* deialt_str,  char*
key_data,
                        int  buf_size,      char*
file_name);
/* Added End */




::::::::::::::::::::::::::::::::::
 svrapl/tpcc.h
::::::::::::::::::::::::::::::::::

/*
 * $Header: tpcc.h 7030100.1 95/07/19 15:10:55
plai Generic<base> $ Copyr (c) 1993 Oracle
 */
/*===================================
================================+
 |        Copyright (c) 1995  Oracle Corp,
Redwood Shores, CA      |
 |                  OPEN SYSTEMS
PERFORMANCE GROUP                |
 |                       All Rights Reserved
|

+===================================
===============================+
 | FILENAME
 |    tpcc.h
 | DESCRIPTION
 |    Include file for TPC-C benchmark programs.

+===================================
===============================*/

#ifndef TPCC_H
#define TPCC_H

#ifndef FALSE
# define FALSE 0
#endif

#ifndef TRUE
# define TRUE 1
#endif

#include <stdio.h>
#include <stdlib.h>
#include <ctype.h>
#include <string.h>

#ifndef boolean
#define boolean int
#endif

#include <oratypes.h>
#include <oci.h>
#include <ocidfn.h>
/*
#ifdef __STDC__
#include "ociapr.h"
#else
#include "ocikpr.h"
#endif
*/


#include "log.h"
```

```
/* Deleted 03.05.19 No use. */
#if 0
!typedef struct cda_def csrdef;
!typedef struct cda_def ldadef;
#endif
/* Deleted end */



/* TPC-C transaction functions */



/* Error codes */

#define RECOVERR -10
#define IRRECERR -20
#define NOERR    111
#define DEL_ERROR -666
#define DEL_DATE_LEN 7
#define NDISTS 10
#define NITEMS 15
#define SQL_BUF_SIZE 8192

/* Modified by TSL --- BEGIN ---2006.03.17 */
/* #define FULLDATE "dd-mon-yy.hh24:mi:ss" */

#define FULLDATE "dd-mm-yyyy.hh24:mi:ss"
/* Modified by TSL --- END  ---2006.03.17 */

#define SHORTDATE "dd-mm-yyyy"




#define DELRT 80.0



/* Deleted 03.05.19 No use. */
#if 0
!extern int tkvcss (); /* for alter session to get
memory size and trace */
!extern boolean multitranx;
#endif
/* Deleted end */
/* Deleted 03.05.16 For warning */
#if 0
!extern int ord_init;
#endif
/* Deleted end */



/* Deleted 03.05.19 No use. */
#if 0
!extern void errrpt ();
#endif
/* Deleted end */

/* Added T.Kato 2003.03.25 for debug */
extern  void DbgLog(char* form_dat, int arg);
#ifdef DGLDEF
#define DBGLOG(format_data, arg)
TpccUserLog(LOG_INF,format_data, arg)
#else
#define DBGLOG(format_data, arg)
#endif

#ifndef DISCARD
# define DISCARD (void)
#endif

#ifndef sword
# define sword int
#endif

#define VER7          2
```

```
#define NA              -1      /* ANSI SQL NULL */
#define NLT             1       /* length for string null
terminator */
#define DEADLOCK        60      /* ORA-00060:
deadlock */
#define NO_DATA_FOUND   1403    /* ORA-
01403: no data found */
#define NOT_SERIALIZABLE  8177  /* ORA-
08177: transaction not serializable */
#define SNAPSHOT_TOO_OLD  1555  /* ORA-
01555: snapshot too old */

#ifndef NULLP
# define NULLP(x)  (x  *)NULL
#endif /* NULLP */

#define ADR(object) ((ub1 *)&(object))
#define SIZ(object) ((sword)sizeof(object))

//typedef char date[24+NLT];
//typedef char varchar2;

#define min(x,y)  (((x) < (y)) ? (x) : (y))

#define OCIERROR(errp,function)\
       ocierror(LOG_FILE_LINE,(errp),(function));

#define OCIBND(stmp, bndp, errp, sqlvar, progv,
progvl, ftype)\
      ocierror(LOG_FILE_LINE,(errp), \

OCIHandleAlloc((stmp),(dvoid**)&(bndp),OCI_H
TYPE_BIND,0,(dvoid**)0)); \
      ocierror(LOG_FILE_LINE, (errp), \
          OCIBindByName((stmp), &(bndp),  (errp),
\
          (text *)(sqlvar), strlen((sqlvar)),\
          (progv), (progvl),
(ftype),0,0,0,0,0,OCI_DEFAULT));



/* bind arrays for sql */
#define
OCIBNDRA(stmp,bndp,errp,sqlvar,progv,progvl,f
type,indp,alen,arcode) \
      DISCARD ocierror(LOG_FILE_LINE,(errp), \

OCIHandleAlloc((stmp),(dvoid**)&(bndp),OCI_H
TYPE_BIND,0,(dvoid**)0)); \
      DISCARD ocierror(LOG_FILE_LINE,(errp), \

OCIBindByName((stmp),&(bndp),(errp),(text
*)(sqlvar),strlen((sqlvar)),\

(progv),(progvl),(ftype),(indp),(alen),(arcode),0,0,
OCI_DEFAULT));



/* use with callback data */
#define
OCIBNDRAD(stmp,bndp,errp,sqlvar,progvl,ftype
,indp,ctxp,\
              cbf_nodata,cbf_data) \
      DISCARD ocierror(LOG_FILE_LINE,(errp), \

OCIHandleAlloc((stmp),(dvoid**)&(bndp),OCI_H
TYPE_BIND,0,(dvoid**)0)); \
      DISCARD ocierror(LOG_FILE_LINE,(errp), \

OCIBindByName((stmp),&(bndp),(errp),(text
*)(sqlvar), \
                  strlen((sqlvar)),0,(progvl),(ftype),
\
indp,0,0,0,0,OCI_DATA_AT_EXEC)); \
      DISCARD ocierror(LOG_FILE_LINE,(errp), \

OCIBindDynamic((bndp),(errp),(ctxp),(cbf_nodat
a),(ctxp),(cbf_data)));



/* bind in/out for plsql without indicator and rcode
*/
#define
OCIBNDPL(stmp,bndp,errp,sqlvar,progv,progvl,f
type,alen) \
   DISCARD ocierror(LOG_FILE_LINE,(errp), \

OCIHandleAlloc((stmp),(dvoid**)&(bndp),OCI_H
TYPE_BIND,0,(dvoid**)0)); \
   DISCARD ocierror(LOG_FILE_LINE,(errp), \

OCIBindByName((stmp),&(bndp),(errp),(CONST
text *)(sqlvar), \
       (sb4)strlen((CONST char *)(sqlvar)),
(dvoid*)(progv),(progvl),(ftype),\
           NULLP(dvoid),(alen), NULLP(ub2),
0,NULLP(ub4),OCI_DEFAULT));

/* bind  in values for plsql with indicator and
rcode */
#define
OCIBNDR(stmp,bndp,errp,sqlvar,progv,progvl,ft
ype,indp,alen,arcode) \
      DISCARD ocierror(LOG_FILE_LINE,(errp), \

OCIHandleAlloc((stmp),(dvoid**)&(bndp),OCI_H
TYPE_BIND,0,(dvoid**)0)); \
      DISCARD ocierror(LOG_FILE_LINE,(errp), \

OCIBindByName((stmp),&(bndp),(errp),(text
*)(sqlvar),strlen((sqlvar)),\

(progv),(progvl),(ftype),(indp),(alen),(arcode),0,0,
\
                  OCI_DEFAULT));

/* bind in/out for plsql arrays witout indicator and
rcode */
#define
OCIBNDPLA(stmp,bndp,errp,sqlvar,progv,progvl
,ftype,alen,ms,cu) \
      DISCARD ocierror(LOG_FILE_LINE, (errp),
\

OCIHandleAlloc((stmp),(dvoid**)&(bndp),OCI_H
TYPE_BIND,0,(dvoid**)0));\
      DISCARD ocierror(LOG_FILE_LINE,(errp),\

OCIBindByName((stmp),&(bndp),(errp),(CONST
text *)(sqlvar), \
            (sb4)strlen((CONST char *)
(sqlvar)),(void *)(progv), \

(progvl),(ftype),NULL,(alen),NULL,(ms),(cu),OCI
_DEFAULT));

/* bind in/out values for plsql with indicator and
rcode */
#define
OCIBNDRAA(stmp,bndp,errp,sqlvar,progv,progv
l,ftype,indp,alen,arcode,\
               ms,cu) \
      ocierror(LOG_FILE_LINE, (errp), \

OCIHandleAlloc((stmp),(dvoid**)&(bndp),OCI_H
TYPE_BIND,0,(dvoid**)0));\
      ocierror(LOG_FILE_LINE,(errp),\

OCIBindByName((stmp),&(bndp),(errp),(text
*)(sqlvar),strlen((sqlvar)),\

(progv),(progvl),(ftype),(indp),(alen),(arcode),(ms
),(cu),OCI_DEFAULT));

#define
OCIDEFINE(stmp,dfnp,errp,pos,progv,progvl,fty
pe)\

OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(pro
gv),(progvl),(ftype),\
            0,0,0,OCI_DEFAULT);


#define
OCIDEF(stmp,dfnp,errp,pos,progv,progvl,ftype) \

OCIHandleAlloc((stmp),(dvoid**)&(dfnp),OCI_HT
YPE_DEFINE,0,\
                  (dvoid**)0);\

OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(pro
gv),(progvl),\

(ftype),NULL,NULL,NULL,OCI_DEFAULT); \


#define
OCIDFNRA(stmp,dfnp,errp,pos,progv,progvl,ftyp
e,indp,alen,arcode) \

OCIHandleAlloc((stmp),(dvoid**)&(dfnp),OCI_HT
YPE_DEFINE,0,\
                  (dvoid**)0);\

OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(pro
gv),\
                  (progvl),(ftype),(indp),(alen),\
                  (arcode),OCI_DEFAULT);

#define
OCIDFNDYN(stmp,dfnp,errp,pos,progv,progvl,ft
ype,indp,ctxp,cbf_data) \
      ocierror(LOG_FILE_LINE,(errp), \

OCIHandleAlloc((stmp),(dvoid**)&(dfnp),OCI_HT
YPE_DEFINE,0,\
                  (dvoid**)0));\
      ocierror(LOG_FILE_LINE,(errp), \

OCIDefineByPos((stmp),&(dfnp),(errp),(pos),(pro
gv), (progvl),(ftype),\
                              (indp),NULL,NULL,
OCI_DYNAMIC_FETCH));\
      ocierror(LOG_FILE_LINE,(errp), \

OCIDefineDynamic((dfnp),(errp),(ctxp),(cbf_data
)));



/* Deleted T.Kato 02.10.23 Overraped
tpcc_info.h */
#if 0
!/* New order */
!struct newinstruct {
! int d_id;
!   int c_id;
!   int ol_i_id[15];
!   int ol_supply_w_id[15];
!   int ol_quantity[15];
!};
!
!struct newoutstruct {
!   int terror;
!   int o_id;
!   int o_ol_cnt;
!   char c_last[17];
!   char c_credit[3];

!   float c_discount;
!   float w_tax;
!   float d_tax;
!   char o_entry_d[20];
!   float total_amount;
!   char i_name[15][25];
!   int s_quantity[15];
!   char brand_generic[15];
!   float i_price[15];
!   float ol_amount[15];
!   char status[26];
!   int retry;
!};
!
!struct newstruct {
!   struct newinstruct newin;
!   struct newoutstruct newout;
!};
!
!
!/* Payment */
!
!struct payinstruct {
!   int w_id;
!   int d_id;
!   int c_w_id;
!   int c_d_id;
!   int c_id;
!   int bylastname;
!   int h_amount;
!   char c_last[17];
!};
!
!struct payoutstruct {
!   int terror;
!   char w_street_1[21];
!   char w_street_2[21];
!   char w_city[21];
!   char w_state[3];
!   char w_zip[10];
!   char d_street_1[21];
!   char d_street_2[21];
!   char d_city[21];
!   char d_state[3];
!   char d_zip[10];
!   int  c_id;
!   char c_first[17];
!   char c_middle[3];
!   char c_last[17];
!   char c_street_1[21];
!   char c_street_2[21];
!   char c_city[21];
!   char c_state[3];
!   char c_zip[10];
!   char c_phone[17];
!   char c_since[11];
!   char c_credit[3];
!   double c_credit_lim;
!   float  c_discount;
!   double c_balance;
!   char c_data[201];
!   char h_date[20];
!   int retry;
!};
!
!struct paystruct {
!   struct payinstruct payin;
!   struct payoutstruct payout;
!};
!
!
!/* Order status */
!
!struct ordinstruct {
!   int w_id;
!   int d_id;
!   int c_id;
!   int bylastname;
!   char c_last[17];
!};
!
!struct ordoutstruct {
!   int terror;
!   int c_id;
!   char c_last[17];
!   char c_first[17];
!   char c_middle[3];
!   double c_balance;
!   int o_id;
!   char o_entry_d[20];
!   int o_carrier_id;
!   int o_ol_cnt;
!   int ol_supply_w_id[15];
!   int ol_i_id[15];
!   int ol_quantity[15];
!   float ol_amount[15];
!   char ol_delivery_d[15][11];
!   int retry;
!};
!
!struct ordstruct {
!   struct ordinstruct ordin;
!   struct ordoutstruct ordout;
!};
!
!
!/* Delivery */
!
!struct delinstruct {
!   int w_id;
!   int o_carrier_id;
!   double qtime;
!   int in_timing_int;
!   int plsqlflag;
!};
!
!struct deloutstruct {
!   int terror;
!   int retry;
!};
!
!struct delstruct {
!   struct delinstruct delin;
!   struct deloutstruct delout;
!};
!
!
!/* Stock level */
!
!struct stoinstruct {
!   int w_id;
!   int d_id;
!   int threshold;
!};
!
!struct stooutstruct {
!   int terror;
!   int low_stock;
!   int retry;
!};
!
!struct stostruct {
!   struct stoinstruct stoin;
!   struct stooutstruct stoout;
!};
#endif
#endif


::::::::::::::::::::::::::::::::
 svrapl/tpccflags.h
::::::::::::::::::::::::::::::::

#define DMLRETDEL

/* Deleted T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!#ifndef TSL
!#define USE_IEEE_NUMBER
!#endif
#endif



::::::::::::::::::::::::::::::::
 svrapl/tpccsvr.c
::::::::::::::::::::::::::::::::


#ifdef RCSID
static char *RCSid =
   "$Header: tpccsvr.c 7030100.1 95/07/19
15:39:28 plai Generic<base> $ Copyr (c) 1995
Oracle";
#endif /* RCSID */

/*===================================
===============================+
 |        Copyright (c) 1995  Oracle Corp,
Redwood Shores, CA       |
 |                   OPEN SYSTEMS
PERFORMANCE GROUP                 |
 |                         All Rights Reserved
|

+====================================
==============================+
 | FILENAME
 |    tpccsvr.c
 | DESCRIPTION
 |    Tuxedo server for TPC-C. use a #define TUX
 |    TOPEND server for TPC-C. use a #define
TOP

+====================================
==============================*/

#include <stdio.h>
#include <math.h>
#include <sys/time.h>
#ifdef TUX
#include <atmi.h>          // must occur prior to
include of tpccapi.h
#include <stdlib.h>       // for generation of
random seed for server id
#include <time.h>         // for generation of
random seed for server id
#endif

#include <unistd.h>

#include "forlinux.h"
#include "tpcc.h"
#include "tpcc_info.h"
//#include "httpext.h"       ISAPI DDL information
header
//#include "tpccapi.h"        //this dlls specific
structure, value e.t. header
#include "GlobalArea.h"
#include "prototype.h"
#include "sema.h"
#include "shmem.h"
#include "SampleInfo.h"


#ifdef TUX


  #include <tmenv.h>
  #include <xa.h>
  #include <userlog.h>

/* set up pointers for type casting */
struct newstruct *newinfo;
struct paystruct *payinfo;
struct ordstruct *ordinfo;
struct delstruct *delinfo;
struct stostruct *stoinfo;

//extern void TMlog();

#endif




#if 0
// Lifted from HP FDR since they did such a nice
job
void TMlog( char *format, ...)
{
    va_list args;
    char buf[4096];
    int len;
    va_start( args, format );
    _strtime( buf );
    strcat( buf," ");
    len = strlen( buf );
    (void)_vsnprintf( buf+ len, sizeof( buf) - len - 1,
format, args);
    buf[sizeof( buf )- 1]= '\0';
    va_end( args );
    userlog( buf );
}
#endif

/* FUNCTION: int tpsvrinit (int argc, char *argv[]);
 *
 * PURPOSE:     Connects into database
 * ARGUMENTS:   parameters passed in as  int
svrid, char *uid, char *pwd, int txntype
 *              do not check ordering, assume correct
 *              svrid:   an id number for server running
 *                uid:   the userid for the database
 *                pwd:   the password for the userid
 *            txntype:   transaction type the server
will be running
 * RETURNS:     None
 *
 * COMMENTS:    None
 *
 */


int tpsvrinit (int argc, char *argv[])


{


 int svrid, txntype;
 char *uid, *pwd;
 int svrcnt;
```

```
    /* pull out the values from argv */
    svrid = atoi(argv[0]);
    uid = argv[1];
    pwd = argv[2];
    txntype = atoi(argv[3]);

   /* Set default log path */
   strcpy(GLB_LogFilePath,
DEFAULT_SVRAPL_LOG_PATH);
   TpccUserLog(LOG_LCK, "Start tpsvrinit");

   /* Initialize semaphore and log. */
   InitSvrConfig(TPCC_CONF_FILE);


#ifdef TUX

      srand ( (unsigned)time( NULL ) );
      svrcnt = rand();


     /* send 6 for all txns to be inited */
     /* fix uid an pwd for now, pull out later */
     /* not passing parameters through TUX  yet
*/

#if 0     /* Replaced 2003/12/12 adjust
arguments */
!    if (TPCinit (svrcnt, "tpcc", "tpcc", 6)) {
#else
     if (TPCinit (svrcnt, "tpcc", "tpcc")) {
#endif
         TpccUserLog(LOG_FILE_INF, " FAILED
to init all txns types");
         return (-1);
     }

     TpccUserLog(LOG_INF, "Finished
TPCinit(tpsvrinit)");


     return 0;

#else                  // ifdef TUX for topend

#if 0     /* Replaced 2003/12/12 adjust
arguments */
!     if (TPCinit (svrid, uid, pwd, txntype)) {
#else
      if (TPCinit (svrid, uid, pwd)) {
#endif
        TpccUserLog(LOG_INF,"Failed in TPCinit
(probably connecting).");
      exit (1);
     }

    TpccUserLog(LOG_INF, "Finished TPCinit");

    return (1);
#endif


}



void tpsvrdone ()

{
    TpccUserLog(LOG_INF, "Start tpsvrdone");

#if 0 /* Replaced 2003/12/12 adjust arguments */
!  TPCexit (0);
#else
  TPCexit ();
#endif
    TpccUserLog(LOG_INF, "Finished
TPCexit(tpsvrdone)");
}

/* FUNCTION: int NEWORDER(CLIENTDATA
*jobData, NewOrderData *neword, int deadlock)
 *
 * PURPOSE:     This function handles the new
order transaction.
 *
 * ARGUMENTS:   deadlock :  count of
deadlocks encountered during txn
 *           jobData:    pointer to entire block of
user data
 *           neword:     pointer to datastructure in
jobData that contains the new order data
 * RETURNS:           int     TRUE    transaction
committed
 *                              FALSE   item number
not valid
 *                              -1            deadlock
max retry reached
 *
 *
 * COMMENTS:    None
 *
 */

#ifdef TOP
int NEWORDER(CLIENTDATA *jobData,
NewOrderData *neword, int deadlock)
#else
void NEWORDER (TPSVCINFO *msg)
#endif

{

#ifdef TOP
   int result;

   result =  TPCnew(neword);

   return result;

#else                               // for Tuxedo

   MAC_SampleWork;   // Sampling area

   newinfo = (struct newstruct *) msg->data;

   MAC_SampleStartTime;    // Start sampling.
   newinfo->retval = TPCnew (newinfo);  // set
return value to 0 or -1
    // Finish sampling.
   MAC_SampleDBSrvResp(RspTimeNewOrder,
MaxRspTimeNewOrder,
SMaxRspTimeNewOrder, NumNewOrder);


   // always return tpreturn success - let client
side poll retval for actual error
   tpreturn (TPSUCCESS, 0, (char *) newinfo,
sizeof (struct newstruct), 0);

#endif

}

/* FUNCTION: int PAYMENT(CLIENTDATA
*jobData, PaymentData *paydata, int deadlock)
 *
 * PURPOSE:     This function handles the new
order transaction.
 *
 * ARGUMENTS:   deadlock :   count of
deadlocks encountered during txn
 *           jobData:     pointer to entire block of
user data
 *           paydata:     pointer to datastructure in
jobData that contains the new order data
 * RETURNS:           int     TRUE    transaction
committed
 *                              FALSE   item number
not valid
 *                              -1            deadlock
max retry reached
 *
 *
 * COMMENTS:    None
 *
 */

#ifdef TOP
int PAYMENT(CLIENTDATA *jobData,
PaymentData *paydata, int deadlock)
#else
void PAYMENT (TPSVCINFO *msg)
#endif

{

#ifdef TOP

      int result;

      result = TPCpay(paydata)

      return result;
#else

   MAC_SampleWork;   // Sampling area

   payinfo = (struct paystruct *) msg->data;
   MAC_SampleStartTime;  //  Start sampling.
   payinfo->retval = TPCpay (payinfo);  // set
return value to 1 or 0 or -1
   // Finish sampling.
   MAC_SampleDBSrvResp(RspTimePayment,
MaxRspTimePayment, SMaxRspTimePayment,
NumPayment);

   // always return tpreturn success - let client
side poll retval for actual error
   tpreturn (TPSUCCESS, 0, (char *) payinfo,
sizeof (struct paystruct), 0);

#endif

}


/* FUNCTION: int
ORDERSTATUS(CLIENTDATA *jobData,
OrderStatusData *orddata, int deadlock)
 *
 * PURPOSE:     This function handles the new
order transaction.
 *
 * ARGUMENTS:   deadlock :   count of
deadlocks encountered during txn
 *           jobData:     pointer to entire block of
user data
 *           orddata:     pointer to datastructure in
jobData that contains the new order data
 * RETURNS:           int     TRUE    transaction
committed
 *                              FALSE   item number
not valid
```

```
 *                    -1          deadlock
max retry reached
 *
 *
 * COMMENTS:    None
 *
 */



#ifdef TOP
int ORDERSTATUS(CLIENTDATA *jobData,
OrderStatusData *orddata, int deadlock)
#else
void ORDERSTATUS (TPSVCINFO *msg)
#endif

{

#ifdef TOP
    int result;

    result = TPCord(orddata);

    return result;

#else
   MAC_SampleWork;   // Sampling area

   ordinfo = (struct ordstruct *) msg->data;
   MAC_SampleStartTime; // Start sampling.
   ordinfo->retval = TPCord (ordinfo);  // set
return value to 0 or -1
    // Finish sampling.

MAC_SampleDBSrvResp(RspTimeOrderStatus,
MaxRspTimeOrderStatus,
SMaxRspTimeOrderStatus, NumOrderStatus);

   // always return tpreturn success - let client
side poll retval for actual error
   tpreturn (TPSUCCESS, 0, (char *) ordinfo,
sizeof (struct ordstruct), 0);


#endif

}

/* FUNCTION: int DELIVERY(CLIENTDATA
*jobData, DeliveryData *deldata, int deadlock)
 *
 * PURPOSE:     This function handles the new
order transaction.
 *
 * ARGUMENTS:   deadlock :   count of
deadlocks encountered during txn
 *           jobData:     pointer to entire block of
user data
 *           stodata:     pointer to datastructure in
jobData that contains the new order data
 * RETURNS:          int     TRUE    transaction
committed
 *                            FALSE   item number
not valid
 *                            -1          deadlock
max retry reached
 *
 *
 * COMMENTS:    None
 *
 */

#ifdef TOP
int DELIVERY(CLIENTDATA *jobData,
DeliveryData *deldata, int deadlock)
#else
void DELIVERY (TPSVCINFO *msg)
#endif

{

#ifdef TOP
    int result;

    result = TPCdel(deldata);

    return result;

#else
   MAC_SampleWork;   // Sampling area

   delinfo = (struct delstruct *) msg->data;

   MAC_SampleStartTime;      // Start sampling.
   delinfo->retval = TPCdel (delinfo);  // set return
value to 0 or -1
   MAC_SampleDBSrvRespDel();    // Finish
sampling.

   // always return tpreturn success - let client
side poll retval for actual error
   tpreturn (TPSUCCESS, 0, (char *) delinfo,
sizeof (struct delstruct), 0);

#endif

}



/* Replaced T.kato 02.10.28 old version name
used */
#if 0
/* FUNCTION: int STOCKLEVEL(CLIENTDATA
*jobData, StockLevelData *stodata, int
deadlock)*/
#endif
/* FUNCTION: int STOCKLVL(CLIENTDATA
*jobData, StockLevelData *stodata, int deadlock)
 *
 * PURPOSE:     This function handles the new
order transaction.
 *
 * ARGUMENTS:   deadlock :   count of
deadlocks encountered during txn
 *           jobData:     pointer to entire block of
user data
 *           stodata:     pointer to datastructure in
jobData that contains the new order data
 * RETURNS:          int     TRUE    transaction
committed
 *                            FALSE   item number
not valid
 *                            -1          deadlock
max retry reached
 *
 *
 * COMMENTS:    None
 *
 */

/* Replaced T.kato 02.10.28 old vaersion name
used */
#if 0
!#ifdef TOP
!int STOCKLEVEL(CLIENTDATA *jobData,
StockLevelData *stodata, int deadlock)
!#else
!void STOCKLEVEL (TPSVCINFO *msg)
!#endif
#endif

#ifdef TOP
int STOCKLVL(CLIENTDATA *jobData,
StockLevelData *stodata, int deadlock)
#else
void STOCKLVL (TPSVCINFO *msg)
#endif
/* Replaced end */

{

#ifdef TOP

    int result;

    result = TPCsto(stodata);

    return result;

#else

   MAC_SampleWork;   // Sampling area

   stoinfo = (struct stostruct *) msg->data;
   MAC_SampleStartTime;   // Start sampling.
   stoinfo->retval = TPCsto (stoinfo);  // set return
value to 0 or -1
   // Finish sampling
   MAC_SampleDBSrvResp(RspTimeStockLevel,
MaxRspTimeStockLevel,
SMaxRspTimeStockLevel, NumStockLevel);


   // always return tpreturn success - let client
side poll retval for actual error
   tpreturn (TPSUCCESS, 0, (char *) stoinfo,
sizeof (struct stostruct), 0);


#endif
}

/* FUNCTION: int
OPSTUXSERVER(CLIENTDATA *jobData,
NewOrderData *neword, int deadlock)
 *
 * PURPOSE:     This function handles all
transactions.
 *
 * ARGUMENTS:   deadlock :  count of
deadlocks encountered during txn
 *           jobData:    pointer to entire block of
user data
 *           neword:    pointer to datastructure in
jobData that contains the new order data
 * RETURNS:          int     TRUE    transaction
committed
 *                            FALSE   item number
not valid
 *                            -1          deadlock
max retry reached
 *
 *
 * COMMENTS:    None
 *
 */
#ifdef TOP
int OPSTUXSERVER(CLIENTDATA *jobData,
NewOrderData *neword, int deadlock)
#else
void OPSTUXSERVER (TPSVCINFO *msg)
#endif
```

```
{

#ifdef TOP
   int result;

   result =  TPCnew(neword);

   return result;

#else                              // for Tuxedo

/* Replaced T.Kato 03.03.19 Ununique
STRUCTURE size between Derivery and
StockLevel */
#if 0
!   if (msg->len == 928) {  // len for neworder
!       newinfo = (struct newstruct *) msg->data;
!   newinfo->retval = TPCnew (newinfo);  // set
return value to 0 or -1
!
!   // always return tpreturn success - let client
side poll retval for actual error
!   tpreturn (TPSUCCESS, 0, (char *) newinfo,
sizeof (struct newstruct), 0);
!  }
!   else
!      if (msg->len == 616) {  // len for payment
!          payinfo = (struct paystruct *) msg->data;
!      payinfo->retval = TPCpay (payinfo);  // set
return value to 1 or 0 or -1
!
!      // always return tpreturn success - let client
side poll retval for actual error
!      tpreturn (TPSUCCESS, 0, (char *) payinfo,
sizeof (struct paystruct), 0);
!      }
!      else
!          if (msg->len == 544) {  // len for order
status
!       ordinfo = (struct ordstruct *) msg->data;
!       ordinfo->retval = TPCord (ordinfo);  // set
return value to 0 or -1
!
!       // always return tpreturn success - let client
side poll retval for actual error
!       tpreturn (TPSUCCESS, 0, (char *) ordinfo,
sizeof (struct ordstruct), 0);
!          }
!          else
!                  if (msg->len == 40) {  // len for
delivery
!                      delinfo = (struct delstruct *) msg-
>data;
!                      delinfo->retval = TPCdel
(delinfo);  // set return value to 0 or -1
!
!                      // always return tpreturn success
- let client side poll retval for actual error
!                      tpreturn (TPSUCCESS, 0, (char
*) delinfo, sizeof (struct delstruct), 0);
!                  }
!                  else {  // assume rest is stock level
!
!              stoinfo = (struct stostruct *) msg-
>data;
!              stoinfo->retval = TPCsto (stoinfo);  //
set return value to 0 or -1
!
!              // always return tpreturn success - let
client side poll retval for actual error
!              tpreturn (TPSUCCESS, 0, (char *)
stoinfo, sizeof (struct stostruct), 0);
!              }
#endif

   int trx_type = *(int*)msg->data;

   MAC_SampleWork;   // Sampling area


   if (trx_type == 1) {  // type for neworder
      newinfo = (struct newstruct *) msg->data;

      DBGLOG("OPS:[New]Start",0);
      MAC_SampleStartTime;  // Sampling start
      newinfo->retval = TPCnew (newinfo);  // set
return value to 0 or -1

MAC_SampleDBSrvResp(RspTimeNewOrder,
MaxRspTimeNewOrder,
SMaxRspTimeNewOrder, NumNewOrder); //
Sampling finish
      DBGLOG("OPS:[New]End  >%d",newinfo-
>retval);

      // always return tpreturn success - let client
side poll retval for actual error

      tpreturn (TPSUCCESS, 0, (char *) newinfo,
sizeof (struct newstruct), 0);
   }
   else
   if (trx_type == 2) {  // type for payment
      payinfo = (struct paystruct *) msg->data;
      DBGLOG("OPS:[Pay]Start",0);
      MAC_SampleStartTime;  // Sampling start
      payinfo->retval = TPCpay (payinfo);  // set
return value to 1 or 0 or -1

MAC_SampleDBSrvResp(RspTimePayment,
MaxRspTimePayment, SMaxRspTimePayment,
NumPayment); // Sampling finish
      DBGLOG("OPS:[Pay]End  >%d",payinfo-
>retval);

      // always return tpreturn success - let client
side poll retval for actual error
      tpreturn (TPSUCCESS, 0, (char *) payinfo,
sizeof (struct paystruct), 0);
   }
   else
   if (trx_type == 3) {  // type for order status
      ordinfo = (struct ordstruct *) msg->data;
      DBGLOG("OPS:[Ord]Start",0);
      MAC_SampleStartTime; // Sampling start
      ordinfo->retval = TPCord (ordinfo);  // set
return value to 0 or -1

MAC_SampleDBSrvResp(RspTimeOrderStatus,
MaxRspTimeOrderStatus,
SMaxRspTimeOrderStatus, NumOrderStatus); //
Sampling finish
      DBGLOG("OPS:[Ord]End  >%d",ordinfo-
>retval);

      // always return tpreturn success - let client
side poll retval for actual error
      tpreturn (TPSUCCESS, 0, (char *) ordinfo,
sizeof (struct ordstruct), 0);
   }
   else
   if (trx_type  == 4) {  // type for delivery
      delinfo = (struct delstruct *) msg->data;
      DBGLOG("OPS:[Del]Start",0);
      MAC_SampleStartTime;     // Start sampling.
      delinfo->retval = TPCdel (delinfo);  // set
return value to 0 or -1
      MAC_SampleDBSrvRespDel();   // Finish
sampling.
      DBGLOG("OPS:[Del]End  >%d",delinfo-
>retval);

      // always return tpreturn success - let client
side poll retval for actual error
      tpreturn (TPSUCCESS, 0, (char *) delinfo,
sizeof (struct delstruct), 0);
   }
   else {  // assume rest is stock level
      stoinfo = (struct stostruct *) msg->data;
      DBGLOG("OPS:[Sto]Start",0);
      MAC_SampleStartTime;  // Start sampling.
      stoinfo->retval = TPCsto (stoinfo);  // set
return value to 0 or -1

MAC_SampleDBSrvResp(RspTimeStockLevel,
MaxRspTimeStockLevel,
SMaxRspTimeStockLevel, NumStockLevel);  //
Finish sampling
      DBGLOG("OPS:[Sto]End  >%d",stoinfo-
>retval);

      // always return tpreturn success - let client
side poll retval for actual error
      tpreturn (TPSUCCESS, 0, (char *) stoinfo,
sizeof (struct stostruct), 0);
   }
/* Replaced end */

#endif

}


::::::::::::::::::::::::::::::::::
 svrapl/tpcc_info.h
::::::::::::::::::::::::::::::::::


/*
 * $Header: tpcc_info.h 7030100.1 95/07/19
15:11:37 plai Generic<base> $ Copyr (c) 1995
Oracle
 */
/*==================================
==============================+
 |        Copyright (c) 1995  Oracle Corp,
Redwood Shores, CA      |
 |                  OPEN SYSTEMS
PERFORMANCE GROUP                |
 |                        All Rights Reserved
|

+===================================
=============================+
 | FILENAME
 |    tpcc_info.h
 | DESCRIPTION
 |    Include file for TPC-C benchmark programs.

+===================================
=============================*/


#ifndef TPCC_INFO_H
#define TPCC_INFO_H

/* this set is duplicated in c_Defs.h, c_Defs.h is
used for batch driver */
#define MENTXN    0          /* menu txn */
#define NEWTXN    1          /* new order
transaction */
#define PAYTXN    2          /* payment
transaction */
```

```
#define ORDTXN    3         /* order status
transaction */
#define DELTXN    4         /* delivery transaction
*/
#define STOTXN    5         /* stock level
transaction */
#define ALLTXN    6         /* for processing all
txns */
#define ALLTXNNODEL 7       /* for processing
all txns except delivery */
/* New order */

struct newinstruct {
   int w_id;
   int d_id;
   int c_id;
   int ol_i_id[15];
   int ol_supply_w_id[15];
   int ol_quantity[15];
};

struct newoutstruct {
   int terror;
   int o_id;
   int o_ol_cnt;
   char c_last[17];
   char c_credit[3];
   float c_discount;
   float w_tax;
   float d_tax;
   char o_entry_d[20];
   float total_amount;
   char i_name[15][25];
   int s_quantity[15];
   char brand_generic[15];
   float i_price[15];
   float ol_amount[15];
   char status[26];
   int retry;
};

struct newstruct {
   int    retval;
   int old_quantity[15];
   struct newinstruct newin;
   struct newoutstruct newout;
};


/* Payment */

struct payinstruct {
   int w_id;
   int d_id;
   int c_w_id;
   int c_d_id;
   int c_id;
   int bylastname;
   int h_amount;
   char c_last[17];
};

struct payoutstruct {
   int terror;
   char w_street_1[21];
   char w_street_2[21];
   char w_city[21];
   char w_state[3];
   char w_zip[10];
   char d_street_1[21];
   char d_street_2[21];
   char d_city[21];
   char d_state[3];
   char d_zip[10];
   int  c_id;
   char c_first[17];
   char c_middle[3];
   char c_last[17];
   char c_street_1[21];
   char c_street_2[21];
   char c_city[21];
   char c_state[3];
   char c_zip[10];
   char c_phone[17];
   char c_since[11];
   char c_credit[3];
   double c_credit_lim;
   float c_discount;
   double c_balance;
   char c_data[201];
   char h_date[20];
   int retry;
};

struct paystruct {
   int retval;
   struct payinstruct payin;
   struct payoutstruct payout;
};


/* Order status */

struct ordinstruct {
   int w_id;
   int d_id;
   int c_id;
   int bylastname;
   char c_last[17];
};

struct ordoutstruct {
   int terror;
   int c_id;
   char c_last[17];
   char c_first[17];
   char c_middle[3];
   double c_balance;
   int o_id;
   char o_entry_d[20];
   int o_carrier_id;
   int o_ol_cnt;
   int ol_supply_w_id[15];
   int ol_i_id[15];
   int ol_quantity[15];
   float ol_amount[15];
   char ol_delivery_d[15][11];
   int retry;
};

struct ordstruct {
   int retval;
   struct ordinstruct ordin;
   struct ordoutstruct ordout;
};


/* Delivery */

struct delinstruct {
   int w_id;
   int o_carrier_id;

/* Replaced T.Kato 02.10.24 for TPAPL interface
*/
#if 0
!   double qtime;
!   int in_timing_int;
#endif
   long startsec;
   long startusec;
/* Replaced end */

};

struct deloutstruct {
   int terror;
   int retry;
};

struct delstruct {
   int retval;
   struct delinstruct delin;
   struct deloutstruct delout;
};


/* Stock level */

struct stoinstruct {
   int w_id;
   int d_id;
   int threshold;
};

struct stooutstruct {
   int terror;
   int low_stock;
   int retry;
};

struct stostruct {
   int retval;
   struct stoinstruct stoin;
   struct stooutstruct stoout;
};

/* used these definitions in client code only */
typedef struct delstruct  DeliveryData,
*pDeliveryData;
typedef struct newstruct  NewOrderData,
*pNewOrderData;
typedef struct paystruct  PaymentData,
*pPaymentData;
typedef struct ordstruct  OrderStatusData,
*pOrderStatusData;
typedef struct stostruct  StockLevelData,
*pStockLevelData;

#endif


::::::::::::::::::::::::::::::::
 svrapl/TrnCntlInfo.h
::::::::::::::::::::::::::::::::

/*********************************************************
*****
 *                                            *
 *       TPC-C Client Application Program Source
*
 *                                            *
 *  Entry Functions                                  *
 *   Transaction structure object definition.
*
 *                                            *
 *  CREATE by TSL   2003.05.16
*
 *                                            *
 *  All Right Reserved, Copyright Co. FUJITSU
LIMITED 2003  *

*********************************************************
****/
```

```
/* ---------------------------------------------- */
/*    Delivery Struct                             */
/* ---------------------------------------------- */
struct delctx {
   sb2 del_o_id_ind[NDISTS];
   sb2 d_id_ind[NDISTS];
   sb2 c_id_ind[NDISTS];
   sb2 del_date_ind[NDISTS];
   sb2 carrier_id_ind[NDISTS];
   sb2 amt_ind[NDISTS];

   ub4 del_o_id_len[NDISTS];
   ub4 c_id_len[NDISTS];
   int oid_ctx;
   int cid_ctx;
   OCIBind *olamt_bp;

   ub2 w_id_len[NDISTS];
   ub2 d_id_len[NDISTS];
   ub2 del_date_len[NDISTS];
   ub2 carrier_id_len[NDISTS];
   ub2 amt_len[NDISTS];

   ub2 del_o_id_rcode[NDISTS];
   ub2 cons_rcode[NDISTS];
   ub2 w_id_rcode[NDISTS];
   ub2 d_id_rcode[NDISTS];
   ub2 c_id_rcode[NDISTS];
   ub2 del_date_rcode[NDISTS];
   ub2 carrier_id_rcode[NDISTS];
   ub2 amt_rcode[NDISTS];

   int del_o_id[NDISTS];
   int del_d_id[NDISTS];
   int cons[NDISTS];
   int w_id[NDISTS];
   int d_id[NDISTS];
   int c_id[NDISTS];
   int carrier_id[NDISTS];
   int amt[NDISTS];
   ub4 del_o_id_rcnt;
   int retry;
   OCIRowid *no_rowid_ptr[NDISTS];
   OCIRowid *o_rowid_ptr[NDISTS];
   OCIDate del_date[NDISTS];
   OCIStmt *curd0;
   OCIStmt *curd1;
   OCIStmt *curd2;
   OCIStmt *curd3;
   OCIStmt *curd4;
   OCIStmt *curd5;
   OCIStmt *curd6;
   OCIStmt *curdtest;

   OCIBind *w_id_bp;
   OCIBind *w_id_bp3;
   OCIBind *w_id_bp4;
   OCIBind *w_id_bp5;
   OCIBind *w_id_bp6;
   OCIBind *d_id_bp;
   OCIBind *d_id_bp3;
   OCIBind *d_id_bp4;
   OCIBind *d_id_bp6;
   OCIBind *o_id_bp;
   OCIBind *cr_date_bp;
   OCIBind *c_id_bp;
   OCIBind *c_id_bp3;
   OCIBind *no_rowid_bp;
   OCIBind *carrier_id_bp;
   OCIBind *o_rowid_bp;
   OCIBind *del_o_id_bp;
   OCIBind *del_o_id_bp3;
   OCIBind *amt_bp;
   OCIBind *bstr1_bp[10];
   OCIBind *bstr2_bp[10];
   OCIBind *retry_bp;
   OCIDefine *inum_dp;
   OCIDefine *d_id_dp;
   OCIDefine *del_o_id_dp;
   OCIDefine *no_rowid_dp;
   OCIDefine *c_id_dp;
   OCIDefine *o_rowid_dp;
   OCIDefine *cons_dp;
   OCIDefine *amt_dp;

   int norow;
};

typedef struct delctx delctx;
struct pldelctx {

   ub2 del_d_id_len[NDISTS];
   ub2 del_o_id_len[NDISTS];


   ub2 w_id_len;
   ub2 d_id_len[NDISTS];
   ub2 o_c_id_len[NDISTS];
   ub2 sums_len[NDISTS];
   ub2 carrier_id_len;
   ub2 ordcnt_len;
   ub2 del_date_len;

   int del_o_id[NDISTS];
   int del_d_id[NDISTS];
   int o_c_id[NDISTS];

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!/* Replaced T.kato 03.07.18 Replaced New
Oracle10i tool kit */
!/*   int sums[NDISTS];*/
!#ifdef TSL
!   int sums[NDISTS];
!#else
!   float sums[NDISTS];
!#endif
!/* Replaced end */
#endif

#ifdef USE_IEEE_NUMBER
   float sums[NDISTS];
#else
   int sums[NDISTS];
#endif
/* Replaced end */

   OCIDate del_date;
   int carrier_id;
   int ordcnt;

   ub4 del_o_id_rcnt;
   ub4 del_d_id_rcnt;
   ub4 o_c_id_rcnt;
   ub4 sums_rcnt;

   int retry;
   OCIStmt *curp1;
   OCIStmt *curp2;
   OCIBind *w_id_bp;
   OCIBind *d_id_bp;
   OCIBind *o_id_bp;
   OCIBind *o_c_id_bp;
   OCIBind *ordcnt_bp;
   OCIBind *sums_bp;
   OCIBind *del_date_bp;
   OCIBind *carrier_id_bp;
   OCIBind *retry_bp;

   int norow;

};
typedef struct pldelctx pldelctx;

#ifdef DMLRETDEL
struct amtctx {
  int ol_amt[NITEMS];
  sb2 ol_amt_ind[NITEMS];
  ub4 ol_amt_len[NITEMS];
  ub2 ol_amt_rcode[NITEMS];
  int ol_cnt;
};
typedef struct amtctx amtctx;
#endif

/* ---------------------------------------------- */
/*    NewOrder Struct                             */
/* ---------------------------------------------- */
struct newctx {

  ub2 nol_i_id_len[NITEMS];
  ub2 nol_supply_w_id_len[NITEMS];
  ub2 nol_quantity_len[NITEMS];
  ub2 nol_amount_len[NITEMS];
  ub2 s_quantity_len[NITEMS];
  ub2 i_name_len[NITEMS];
  ub2 i_price_len[NITEMS];
  ub2 s_dist_info_len[NITEMS];
  ub2 ol_o_id_len[NITEMS];
  ub2 ol_number_len[NITEMS];
  ub2 s_remote_len[NITEMS];
  ub2 s_quant_len[NITEMS];
  ub2 ol_dist_info_len[NITEMS];
  ub2 s_bg_len[NITEMS];

  int ol_o_id[NITEMS];
  int ol_number[NITEMS];

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!  int s_remote[NITEMS];
#endif

#ifdef USE_IEEE_NUMBER
  float s_remote[NITEMS];
#else
  int s_remote[NITEMS];
#endif
/* Replaced end */

  char s_dist_info[NITEMS][25];
  OCIStmt *curn1;
  OCIBind *ol_i_id_bp;
  OCIBind *ol_supply_w_id_bp;
  OCIBind *i_price_bp;
  OCIBind *i_name_bp;
  OCIBind *s_bg_bp;
  ub4 nol_i_count;
  ub4 nol_s_count;
  ub4 nol_q_count;
  ub4 nol_item_count;
  ub4 nol_name_count;
  ub4 nol_qty_count;
  ub4 nol_bg_count;
  ub4 nol_am_count;
  ub4 s_remote_count;
  OCIStmt *curn2;
  OCIBind *ol_quantity_bp;
  OCIBind *s_remote_bp;
  OCIBind *s_quantity_bp;
  OCIBind *w_id_bp;
  OCIBind *d_id_bp;
  OCIBind *c_id_bp;
  OCIBind *o_all_local_bp;
  OCIBind *o_all_cnt_bp;
  OCIBind *w_tax_bp;
  OCIBind *d_tax_bp;
  OCIBind *o_id_bp;
  OCIBind *c_discount_bp;
  OCIBind *c_credit_bp;
  OCIBind *c_last_bp;
  OCIBind *retries_bp;
  OCIBind *cr_date_bp;
  OCIBind *ol_o_id_bp;
  OCIBind *ol_amount_bp;

/* Replaced 03.05.15 Argument error
(OCIBNDPL). */
#if 0
!  sb2 w_id_len;
#endif
  ub2 w_id_len;
/* Replaced end */
  ub2 d_id_len;
  ub2 c_id_len;
  ub2 o_all_local_len;
  ub2 o_ol_cnt_len;
  ub2 w_tax_len;
  ub2 d_tax_len;
  ub2 o_id_len;
  ub2 c_discount_len;
  ub2 c_credit_len;
  ub2 c_last_len;
  ub2 retries_len;
  ub2 cr_date_len;
};

typedef struct newctx newctx;


/* ---------------------------------------------- */
/*    OrderStatus Struct                          */
/* ---------------------------------------------- */
struct ordctx {

   ub2 c_rowid_len[100];
   ub2 ol_supply_w_id_len[NITEMS];
   ub2 ol_i_id_len[NITEMS];
   ub2 ol_quantity_len[NITEMS];
   ub2 ol_amount_len[NITEMS];
   ub2 ol_delivery_d_len[NITEMS];
   ub2 ol_w_id_len;
   ub2 ol_d_id_len;
   ub2 ol_o_id_len;


   ub4 ol_supply_w_id_csize;
   ub4 ol_i_id_csize;
   ub4 ol_quantity_csize;
   ub4 ol_amount_csize;
   ub4 ol_delivery_d_csize;
   ub4 ol_w_id_csize;
   ub4 ol_d_id_csize;
   ub4 ol_o_id_csize;

   OCIStmt *curo0;
   OCIStmt *curo1;
   OCIStmt *curo2;
   OCIStmt *curo3;
   OCIStmt *curo4;
   OCIBind *c_id_bp;
   OCIBind *w_id_bp[4];
   OCIBind *d_id_bp[4];
   OCIBind *c_last_bp[2];
   OCIBind *o_id_bp;
   OCIBind *c_rowid_bp;
/* Deleted T.Kato 2004.12.21 New Oracle10g
tool kit */
/*   OCIBind *o_rowid_bp;*/
/* Deleted end */

   OCIDefine *c_rowid_dp;
   OCIDefine *c_last_dp[2];
   OCIDefine *c_id_dp;
   OCIDefine *c_first_dp[2];
   OCIDefine *c_middle_dp[2];
   OCIDefine *c_balance_dp[2];
/* Deleted T.Kato 2004.12.21 New Oracle10g
tool kit */
/*   OCIDefine *o_rowid_dp[2];*/
/* Deleted end */
   OCIDefine *o_id_dp[2];
   OCIDefine *o_entry_d_dp[2];
   OCIDefine *o_cr_id_dp[2];
   OCIDefine *o_ol_cnt_dp[2];
   OCIDefine *ol_d_d_dp;
   OCIDefine *ol_i_id_dp;
   OCIDefine *ol_supply_w_id_dp;
   OCIDefine *ol_quantity_dp;
   OCIDefine *ol_amount_dp;
   OCIDefine *ol_d_base_dp;
   OCIDefine *c_count_dp;
   OCIRowid *c_rowid_ptr[100];
   OCIRowid *c_rowid_cust;
/* Deleted T.Kato 2004.12.21 New Oracle10g
tool kit */
/*   OCIRowid *o_rowid;*/
/* Deleted end */
   int cs;
   int cust_idx;
   int norow;
   int rcount;
   int somerows;
};

typedef struct ordctx ordctx;

struct defctx
{
 boolean reexec;
 ub4 count;
};
typedef struct defctx defctx;


/* ---------------------------------------------- */
/*    Payment Struct                              */
/* ---------------------------------------------- */
struct payctx {
  OCIStmt *curpi;
  OCIStmt *curp0;
  OCIStmt *curp1;
  OCIBind *w_id_bp[2];
  ub2 w_id_len;

  OCIBind *d_id_bp[2];
  ub2 d_id_len;

  OCIBind *c_w_id_bp[2];
  ub2 c_w_id_len;

  OCIBind *c_d_id_bp[2];
  ub2 c_d_id_len;

  OCIBind *c_id_bp[2];
  ub2 c_id_len;

  OCIBind *h_amount_bp[2];
  ub2 h_amount_len;

  OCIBind *c_last_bp[2];
  ub2 c_last_len;

  OCIBind *w_street_1_bp[2];
  ub2 w_street_1_len;

  OCIBind *w_street_2_bp[2];
  ub2 w_street_2_len;

  OCIBind *w_city_bp[2];
  ub2 w_city_len;

  OCIBind *w_state_bp[2];
  ub2 w_state_len;

  OCIBind *w_zip_bp[2];
  ub2 w_zip_len;

  OCIBind *d_street_1_bp[2];
  ub2 d_street_1_len;

  OCIBind *d_street_2_bp[2];
  ub2 d_street_2_len;

  OCIBind *d_city_bp[2];
  ub2 d_city_len;

  OCIBind *d_state_bp[2];
  ub2 d_state_len;

  OCIBind *d_zip_bp[2];
  ub2 d_zip_len;

  OCIBind *c_first_bp[2];
  ub2 c_first_len;

  OCIBind *c_middle_bp[2];
  ub2 c_middle_len;

  OCIBind *c_street_1_bp[2];
  ub2 c_street_1_len;

  OCIBind *c_street_2_bp[2];
  ub2 c_street_2_len;

  OCIBind *c_city_bp[2];
  ub2 c_city_len;

  OCIBind *c_state_bp[2];
  ub2 c_state_len;

  OCIBind *c_zip_bp[2];
  ub2 c_zip_len;

  OCIBind *c_phone_bp[2];
  ub2 c_phone_len;

  OCIBind *c_since_bp[2];
  ub2 c_since_len;

  OCIBind *c_credit_bp[2];
  ub2 c_credit_len;

  OCIBind *c_credit_lim_bp[2];
  ub2 c_credit_lim_len;

  OCIBind *c_discount_bp[2];
  ub2 c_discount_len;

  OCIBind *c_balance_bp[2];
  ub2 c_balance_len;

  OCIBind *c_data_bp[2];
  ub2 c_data_len;

  OCIBind *h_date_bp[2];
  ub2 h_date_len;

  OCIBind *retries_bp[2];
  ub2 retries_len;

  OCIBind *cr_date_bp[2];
  ub2 cr_date_len;

  OCIBind *byln_bp[2];
  ub2 byln_len;
};

typedef struct payctx payctx;


/* ---------------------------------------------- */
/*    StockLevel Struct                          */
/* ---------------------------------------------- */
struct stoctx {
  OCIStmt *curs;
  OCIBind *w_id_bp;
  OCIBind *d_id_bp;
  OCIBind *threshold_bp;
#ifdef PLSQLSTO
  OCIBind *low_stock_bp;
#else
  OCIDefine *low_stock_bp;
#endif
  int norow;
};

typedef struct stoctx stoctx;




::::::::::::::::::::::::::::::::
 svrapl/3tier/Makefile
::::::::::::::::::::::::::::::::

#-----------------------------------------------------------------
------
#  Makefile : Makefile for 3 tier library on Linux.
#
#   Created by TSL 2003.12.17
#
#   All Right Rserverd, Copyright Co, FUJITSU
LIMITED 2003-2004.
#-----------------------------------------------------------------
------

# GCC compile configurations
AR      = ar
ARFLAGS = rv
CFLAGS  = -Wall  -O2
CC      = gcc

# MACRO  definition
#DMACRO = -DTSL -DPLSQLFLAG=1 -DTUX
DMACRO  = -DPLSQLFLAG=1 -DTUX

# home directory.
ORADIR  = /usr/local/oracle
TUXDIR  = /usr/local/BEA/tuxedo8.1
SVRDIR  = /home/tpc/client_apl/svrapl
COMDIR  = /home/tpc/client_apl/common

# include directory
ORA_INC = -I$(ORADIR)/rdbms/demo -
I$(ORADIR)/rdbms/public
COM_INC = -I$(COMDIR)
SRV_COM_INC = -I$(SVRDIR)
TUX_INC = -I$(TUXDIR)/include
INCLUDE = $(COM_INC) $(ORA_INC)
$(TUX_INC) $(SRV_COM_INC)
SVRDIR  = /home/tpc/client_apl/svrapl

# depend on include file.
INCFILE = $(SVRDIR)/tpcc.h
$(SVRDIR)/GlobalArea.h $(SVRDIR)/prototype.h
\
        $(SVRDIR)/tpccflags.h
$(SVRDIR)/tpcc_info.h $(SVRDIR)/TrnCntlInfo.h
$(SVRDIR)/tpcc_info.h \
        $(COMDIR)/log.h $(COMDIR)/sema.h
$(COMDIR)/forlinux.h

# target object
TIER_OBJS       = pldel.o  plnew.o  plord.o
plpay.o  plsto.o  tpccpl.o
TIER_ARCH_LIB = libtier.a


$(TIER_ARCH_LIB) : $(TIER_OBJS)
$(INCFILE)
       $(AR) $(ARFLAGS) $(TIER_ARCH_LIB)
$(TIER_OBJS)

.SUFFIXES: .o .c
.c.o:
       $(CC) -o $@ -c $(CFLAGS) $(INCLUDE)
$(DMACRO) $<

$(TIER_OBJS) : $(INCFILE)
$(TIER_OBJS) : Makefile

clean:
       rm  $(TIER_ARCH_LIB) $(TIER_OBJS)




::::::::::::::::::::::::::::::::
 svrapl/3tier/MakeShell
::::::::::::::::::::::::::::::::

#! /bin/sh
cd /home/tpc/client_apl/svrapl/3tier
make > make_result.txt 2>&1



::::::::::::::::::::::::::::::::
 svrapl/3tier/pldel.c
::::::::::::::::::::::::::::::::

#ifdef RCSID
static char *RCSid =
   "$Header: pldel.c 7030100.5 96/06/24
16:26:06 plai Generic<base> $ Copyr (c) 1994
Oracle";
#endif /* RCSID */

/*===================================
==============================+
 |       Copyright (c) 1996  Oracle Corp,
Redwood Shores, CA       |
 |                 OPEN SYSTEMS
PERFORMANCE GROUP               |
 |                      All Rights Reserved
|

+===================================
==============================+
 | FILENAME
 |    pldel.c
 | DESCRIPTION
 |    OCI version of DELIVERY transaction in
TPC-C benchmark.

+===================================
==============================*/


#include "forlinux.h"
#include "log.h"
#include "tpcc.h"
#include "GlobalArea.h"
#include "prototype.h"


#define SQLTXT "BEGIN inittpcc.init_del ; END;"

#define SQLTXT1 "DELETE FROM nord
WHERE no_d_id = :d_id \
             AND no_w_id = :w_id and rownum <=
1 \
            RETURNING no_o_id into :o_id "

#define SQLTXT3 "UPDATE ordr SET
o_carrier_id = :carrier_id \
             WHERE o_id = :o_id and o_d_id
= :d_id and o_w_id = :w_id \
             returning o_c_id into :o_c_id"


#define SQLTXT4 "UPDATE ordl \
   SET ol_delivery_d = :cr_date \
   WHERE ol_w_id = :w_id AND ol_d_id = :d_id
AND ol_o_id = :o_id \
   RETURNING sum(ol_amount) into :ol_amount
"


#define SQLTXT6 "UPDATE cust SET
c_balance = c_balance + :amt, \
   c_delivery_cnt = c_delivery_cnt + 1 WHERE
c_w_id = :w_id AND \
   c_d_id = :d_id AND c_id = :c_id"

#define NDISTS 10
#define ROWIDLEN 20

#ifdef DMLRETDEL
sb4 no_data(dvoid *ctxp, OCIBind *bp, ub4 iter,
ub4 index,
            dvoid **bufpp, ub4 *alenp, ub1 *piecep,
            dvoid **indpp)
{

  *bufpp = (dvoid*)0;
  *alenp =0;
  *indpp = (dvoid*)0;
  *piecep =OCI_ONE_PIECE;
  return (OCI_CONTINUE);
}


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

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

  return (OCI_CONTINUE);
}
sb4 cid_data(dvoid *ctxp, OCIBind *bp, ub4 iter,
ub4 index,
            dvoid **bufpp, ub4 **alenp, ub1 *piecep,
            dvoid **indpp, ub2 **rcodepp)
{
  *bufpp = &dctx->c_id[iter];
  *indpp= &dctx->c_id_ind[iter];
  dctx->c_id_len[iter]=sizeof(dctx->c_id[0]);
  *alenp= &dctx->c_id_len[iter];
  *rcodepp = &dctx->c_id_rcode[iter];
  *piecep =OCI_ONE_PIECE;


  return (OCI_CONTINUE);
}


# ifdef OLD
sb4 amt_data(dvoid *ctxp, OCIBind *bp, ub4 iter,
ub4 index,
            dvoid **bufpp, ub4 **alenp, ub1 *piecep,
            dvoid **indpp, ub2 **rcodepp)
{
  amtctx *actx;
  actx =(amtctx*)ctxp;
  actx->ol_cnt=actx->ol_cnt+1;
  *bufpp = &actx->ol_amt[index];
  *indpp= &actx->ol_amt_ind[index];
  actx->ol_amt_len[index]=sizeof(actx-
>ol_amt[0]);
  *alenp= &actx->ol_amt_len[index];
  *rcodepp = &actx->ol_amt_rcode[index];
  *piecep =OCI_ONE_PIECE;
  if (iter ==1 )
    return (OCI_CONTINUE);
  else
    return (OCI_ERROR);
}
# else
sb4 amt_data(dvoid *ctxp, OCIBind *bp, ub4 iter,
ub4 index,
            dvoid **bufpp, ub4 **alenp, ub1 *piecep,
            dvoid **indpp, ub2 **rcodepp)
{
  amtctx *actx;

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

  return (OCI_CONTINUE);
}
#endif

#endif


int tkvcdinit (int plsqlflag)
{
   text stmbuf[SQL_BUF_SIZE];

   if (plsqlflag)
   {
     pldctx = (pldelctx *) malloc (sizeof(pldelctx));
     DISCARD
memset(pldctx,(char)0,(ub4)sizeof(pldelctx));
     /* Initialize */
     DISCARD OCIHandleAlloc(tpcenv,
(dvoid**)&pldctx->curp1, OCI_HTYPE_STMT, 0,
                        (dvoid**)0);
     DISCARD sprintf ((char *) stmbuf, SQLTXT);
     DISCARD OCIStmtPrepare(pldctx->curp1,
errhp, stmbuf,
                        (ub4) strlen((char *)stmbuf),
                 OCI_NTV_SYNTAX,
OCI_DEFAULT);
    DISCARD OCIERROR(errhp,
      OCIStmtExecute(tpcsvc,pldctx-
>curp1,errhp,1,0,NULLP(OCISnapshot),
                   NULLP(OCISnapshot),
OCI_DEFAULT));


    DISCARD OCIHandleAlloc(tpcenv,(dvoid**)
&pldctx->curp2, OCI_HTYPE_STMT,
                 0, (dvoid**)0);
#if defined(ISO5) || defined(ISO6) ||
defined(ISO8)
  #if defined(ISO5)
    sqlfile("../blocks/tkvcpdel_iso5.sql",stmbuf);
  #endif
  #if defined(ISO6)
    sqlfile("../blocks/tkvcpdel_iso6.sql",stmbuf);
  #endif
  #if defined(ISO8)
    sqlfile("../blocks/tkvcpdel_iso8.sql",stmbuf);
  #endif
#else

/* Replaced 04.01.20 TUXEDO Client */

#if 0
!     sqlfile("../blocks/tkvcpdel.sql",stmbuf);
#endif

sqlfile("/home/tpc/blocks/tkvcpdel.sql",stmbuf);
/* Replaced end */
#endif
    DISCARD OCIStmtPrepare(pldctx->curp2,
errhp, stmbuf,
                    (ub4)strlen((char *)stmbuf),
OCI_NTV_SYNTAX, OCI_DEFAULT);
    OCIBNDPL(pldctx->curp2, pldctx->w_id_bp ,
errhp,":w_id",
              ADR(w_id), SIZ(int),
SQLT_INT,&pldctx->w_id_len);
    OCIBNDPL(pldctx->curp2, pldctx->ordcnt_bp ,
errhp,":ordcnt",
              ADR(pldctx->ordcnt), SIZ(int),
SQLT_INT,&pldctx->ordcnt_len);

/* Replaced T.kato 03.07.18 New Oracle10i tool
kit */
#if 0
!     OCIBNDPL(pldctx->curp2, pldctx-
>del_date_bp,errhp,":now",
!              dctx->del_date, SIZ(OCIDate),
SQLT_ODT,&pldctx->del_date_len);
#endif

#ifdef TSL
    OCIBNDPL(pldctx->curp2, pldctx-
>del_date_bp,errhp,":now",
              dctx->del_date, SIZ(OCIDate),
SQLT_ODT,&pldctx->del_date_len);
#else
    OCIBNDPL(pldctx->curp2, pldctx-
>del_date_bp,errhp,":now",
              ADR(pldctx->del_date), SIZ(OCIDate),
SQLT_ODT,&pldctx->del_date_len);
#endif
/* Replaced end */

    OCIBNDPL(pldctx->curp2, pldctx-
>carrier_id_bp , errhp,
              ":carrier_id", ADR(o_carrier_id), SIZ(int),
              SQLT_INT, &pldctx->carrier_id_len);
    OCIBNDPLA(pldctx->curp2, pldctx->d_id_bp,
errhp,":d_id",
              pldctx->del_d_id, SIZ(int),SQLT_INT,
pldctx->del_d_id_len,
              NDISTS, &pldctx->del_d_id_rcnt);
    OCIBNDPLA(pldctx->curp2, pldctx->o_id_bp,
errhp,":order_id",
              pldctx->del_o_id,SIZ(int),SQLT_INT,
pldctx->del_o_id_len,NDISTS,
              &pldctx->del_o_id_rcnt);


/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!/* Replaced T.kato 03.07.18 New Oracle10i tool
kit */
!#if 0
!!     OCIBNDPLA(pldctx->curp2, pldctx-
>sums_bp, errhp,":sums",
!!              pldctx->sums,SIZ(int),SQLT_INT,
pldctx->sums_len,NDISTS,
!!              &pldctx->sums_rcnt);
!#endif
!
!#ifdef TSL
!     OCIBNDPLA(pldctx->curp2, pldctx-
>sums_bp, errhp,":sums",
!              pldctx->sums,SIZ(int),SQLT_INT,
pldctx->sums_len,NDISTS,
!              &pldctx->sums_rcnt);
!#else
!     OCIBNDPLA(pldctx->curp2, pldctx-
>sums_bp, errhp,":sums",
!              pldctx-
>sums,SIZ(float),SQLT_BFLOAT, pldctx-
>sums_len,NDISTS,
!              &pldctx->sums_rcnt);
!#endif
!/* Replaced end */
#endif

#ifdef USE_IEEE_NUMBER
    OCIBNDPLA(pldctx->curp2, pldctx-
>sums_bp, errhp,":sums",
              pldctx-
>sums,SIZ(float),SQLT_BFLOAT, pldctx-
>sums_len,NDISTS,
              &pldctx->sums_rcnt);
#else
    OCIBNDPLA(pldctx->curp2, pldctx-
>sums_bp, errhp,":sums",
              pldctx->sums,SIZ(int),SQLT_INT,
pldctx->sums_len,NDISTS,
              &pldctx->sums_rcnt);
#endif
/* Replaced end */




    OCIBNDPLA(pldctx->curp2, pldctx-
>o_c_id_bp, errhp,":o_c_id",
              pldctx->o_c_id,SIZ(int),SQLT_INT,
pldctx->o_c_id_len,NDISTS,
              &pldctx->o_c_id_rcnt);
    OCIBND(pldctx->curp2, pldctx->retry_bp ,
errhp,":retry",
            ADR(pldctx->retry), SIZ(int),SQLT_INT);

   }
   else
   {

    dctx = (delctx *) malloc (sizeof(delctx));
    memset(dctx,(char)0,sizeof(delctx));
    dctx->norow = 0;
    actx = (amtctx *) malloc (sizeof(amtctx));
    memset(actx,(char)0,sizeof(amtctx));

    OCIHandleAlloc(tpcenv, (dvoid **)(&dctx-
>curd1), OCI_HTYPE_STMT, 0,
            (dvoid**)0);
    DISCARD sprintf ((char *) stmbuf, "%s",
SQLTXT1);
    DISCARD OCIStmtPrepare(dctx->curd1,
errhp, stmbuf,
                strlen((char
*)stmbuf),OCI_NTV_SYNTAX, OCI_DEFAULT);

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

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

   /* open third cursor */

    DISCARD OCIHandleAlloc(tpcenv, (dvoid
**)(&dctx->curd3), OCI_HTYPE_STMT,
                    0, (dvoid**)0);
    DISCARD sprintf ((char *) stmbuf, SQLTXT3);
    DISCARD OCIStmtPrepare(dctx->curd3,
errhp, stmbuf, strlen((char *)stmbuf),
                    OCI_NTV_SYNTAX,
OCI_DEFAULT);


   /* bind variables */

    OCIBNDRA(dctx->curd3, dctx-
>carrier_id_bp,errhp,":carrier_id",
           dctx->carrier_id, SIZ(dctx-
>carrier_id[0]),SQLT_INT,
          dctx->carrier_id_ind, dctx-
>carrier_id_len,dctx->carrier_id_rcode);

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

   /* open fourth cursor */


    DISCARD OCIHandleAlloc(tpcenv, (dvoid
**)(&dctx->curd4), OCI_HTYPE_STMT, 0,
             (dvoid**)0);
    DISCARD sprintf ((char *) stmbuf, SQLTXT4);
    DISCARD OCIStmtPrepare(dctx->curd4,
errhp, stmbuf, strlen((char *)stmbuf),
                    OCI_NTV_SYNTAX,
OCI_DEFAULT);

   /* bind variables */
```

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

   /* open sixth cursor */

    DISCARD OCIHandleAlloc(tpcenv, (dvoid
**)(&dctx->curd6), OCI_HTYPE_STMT,
                    0, (dvoid**)0);
    DISCARD sprintf ((char *) stmbuf, SQLTXT6);
    DISCARD OCIStmtPrepare(dctx->curd6,
errhp, stmbuf, strlen((char *)stmbuf),
              OCI_NTV_SYNTAX,
OCI_DEFAULT);

   /* bind variables */


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

}


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


int tkvcd (int plsqlflag)
{
   //int i, j;
   int i;
   //int rpc,rcount,count;
   int rpc,rcount;
   int invalid;

   if (plsqlflag)
   {
```

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

    pldctx->retry=0;

    DISCARD OCIERROR(errhp,
      OCIStmtExecute(tpcsvc,pldctx-
>curp2,errhp,1,0,NULLP(CONST OCISnapshot),

NULLP(OCISnapshot),OCI_DEFAULT));
    for (i = 0; i < NDISTS; i++)
    {
      del_o_id[i] = 0;
    }
    for (i = 0; (unsigned int)i < pldctx-
>del_o_id_rcnt; i++)
      del_o_id[pldctx->del_d_id[i] - 1] = pldctx-
>del_o_id[i];
   }
   else
   {


retry:

    invalid = 0;

   /* initialization for array operations */

    for (i = 0; i < NDISTS; i++)
    {
      dctx->del_o_id_ind[i] = TRUE;

      dctx->d_id_ind[i] = TRUE;
      dctx->c_id_ind[i] = TRUE;
      dctx->del_date_ind[i] = TRUE;
      dctx->carrier_id_ind[i] = TRUE;
      dctx->amt_ind[i] = TRUE;

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

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

    memset(actx,(char)0,sizeof(amtctx));

   /* array select from new_order and orders
tables */

    execstatus=OCIStmtExecute(tpcsvc,dctx-
>curd1,errhp,NDISTS,0,
             NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),OCI_DEF
AULT);
```

```
    if((execstatus != OCI_SUCCESS) &&
(execstatus != OCI_NO_DATA))
    {
      DISCARD
OCITransRollback(tpcsvc,errhp,OCI_DEFAULT)
;
      errcode = OCIERROR(errhp,execstatus);
      if(errcode == NOT_SERIALIZABLE)
      {
        retries++;
        goto retry;
      }
      else if (errcode == RECOVERR)
      {
        retries++;
        goto retry;
      }
      else if (errcode == SNAPSHOT_TOO_OLD)
      {
        retries++;
        goto retry;
      }
      else
      {
        return -1;
      }
    }
    /* mark districts with no new order */
    DISCARD OCIAttrGet(dctx-
>curd1,OCI_HTYPE_STMT,&rcount,NULLP(ub4
),
              OCI_ATTR_ROW_COUNT,errhp);
    rpc = rcount;
    if (rcount != NDISTS )
    {
      int j = 0;
      for (i=0;i < NDISTS; i++)
      {
        if (dctx->del_o_id_ind[j] == 0) /* there is
data here */
          j++;
        else
          shiftdata(j);
      }
    }

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

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

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

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

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

    if(execstatus != OCI_SUCCESS)
    {

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

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

OCI_ATTR_ROW_COUNT,errhp);

    if (rcount != rpc) {
      TpccUserLog(LOG_FILE_INF, "Error in
TPC-C server %d: %d rows selected, %d cust
updated\n",
             proc_no, rpc, rcount);

      DISCARD OCITransRollback(tpcsvc, errhp,
OCI_DEFAULT);
      return (-1);
    }

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

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

}

void tkvcddone (int plsqlflag)
{

  if (plsqlflag)
  {
    if (pldctx)
    {
      DISCARD OCIHandleFree((dvoid *)dctx-
>curd0,OCI_HTYPE_STMT);
      DISCARD free(pldctx);
    }
  }
  else
  {
    if (dctx)
    {
      OCIHandleFree((dvoid *)dctx-
>curd1,OCI_HTYPE_STMT);
      OCIHandleFree((dvoid *)dctx-
>curd2,OCI_HTYPE_STMT);
      OCIHandleFree((dvoid *)dctx-
>curd3,OCI_HTYPE_STMT);
      OCIHandleFree((dvoid *)dctx-
>curd4,OCI_HTYPE_STMT);
      OCIHandleFree((dvoid *)dctx-
>curd5,OCI_HTYPE_STMT);
      OCIHandleFree((dvoid *)dctx-
>curd6,OCI_HTYPE_STMT);
      DISCARD free (dctx);
    }
  }

}


::::::::::::::::::::::::::::::::
 svrapl/3tier/plnew.c
::::::::::::::::::::::::::::::::

#ifdef RCSID
static char *RCSid =
  "$Header: tkvcnew.c 21-apr-98.18:32:59
rdecker Exp $ Copyr (c) 1994 Oracle";
#endif /* RCSID */

/*===================================
==============================+
 |        Copyright (c) 1996 , 1997, 1998 Oracle
Corp, Redwood Shores, CA       |
 |                    OPEN SYSTEMS
PERFORMANCE GROUP                  |
 |                          All Rights Reserved
|

+====================================
=============================+
 | FILENAME
 |   plnew.c
 | DESCRIPTION
 |   OCI version (using PL/SQL stored
procedure) of
 |   NEW ORDER transaction in TPC-C
benchmark.

+====================================
=============================*/


#include "forlinux.h"
#include "log.h"

#ifndef ORA_TPCC
# define ORA_TPCC
# include "tpcc.h"
#endif

#include "GlobalArea.h"
#include "prototype.h"


#define SQLTXT2 "BEGIN
inittpcc.init_no(:idx1arr); END;"

#define NITEMS 15
#define ROWIDLEN 20
#define OCIROWLEN 20
```

```
int tkvcninit ()
{
/* for warning */
/*  int i;*/

/* Replaced T.Kato 03.03.19 Repaleced Oracle
10i tool kit */
/*  text stmbuf[16*1024];*/
  text stmbuf[32*1024];
/* Replaced end */

  nctx = (newctx *) malloc (sizeof(newctx));
  DISCARD
memset(nctx,(char)0,sizeof(newctx));
  nctx->w_id_len = sizeof(w_id);
  nctx->d_id_len = sizeof(d_id);
  nctx->c_id_len = sizeof(c_id);
  nctx->o_all_local_len = sizeof(o_all_local);
  nctx->o_ol_cnt_len = sizeof(o_ol_cnt);
  nctx->w_tax_len = 0;
  nctx->d_tax_len = 0;
  nctx->o_id_len = sizeof(o_id);
  nctx->c_discount_len = 0;
  nctx->c_credit_len = 0;
  nctx->c_last_len = 0;
  nctx->retries_len = sizeof(retries);
  nctx->cr_date_len = sizeof(cr_date);

  /* open first cursor */
  DISCARD
OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&nctx->curn1),
          OCI_HTYPE_STMT, 0, (dvoid**)0));
/* Replaced T.kato 03.03.19 Replaced Oracle
10i tool kit */
/*  sqlfile("../blocks/tkvcpnew.sql",stmbuf);*/
#if defined(ISO)
  sqlfile("../blocks/tkvcpnew_iso.sql",stmbuf);
#else
#if defined(ISO7)
  sqlfile("../blocks/tkvcpnew_iso7.sql",stmbuf);
#else
/* Replaced 04.01.20 TUXEDO Client */
#if 0
!  sqlfile("../blocks/tkvcpnew.sql",stmbuf);
#endif
  sqlfile("/home/tpc/blocks/tkvcpnew.sql",stmbuf);
/* Replaced end */
#endif
#endif
/* Replaced end */

  DISCARD
OCIERROR(errhp,OCIStmtPrepare(nctx->curn1,
errhp, stmbuf,
          strlen((char *)stmbuf),
OCI_NTV_SYNTAX, OCI_DEFAULT));

  /* bind variables */

  OCIBNDPL(nctx->curn1, nctx->w_id_bp, errhp,
":w_id",ADR(w_id),SIZ(w_id),
        SQLT_INT, &nctx->w_id_len);
  OCIBNDPL(nctx->curn1, nctx->d_id_bp, errhp,
":d_id",ADR(d_id),SIZ(d_id),
        SQLT_INT, &nctx->d_id_len);
  OCIBNDPL(nctx->curn1, nctx->c_id_bp, errhp,
":c_id",ADR(c_id),SIZ(c_id),
        SQLT_INT, &nctx->c_id_len);
  OCIBNDPL(nctx->curn1, nctx->o_all_local_bp,
errhp, ":o_all_local",
```

```
        ADR(o_all_local),
SIZ(o_all_local),SQLT_INT, &nctx-
>o_all_local_len);
  OCIBNDPL(nctx->curn1, nctx->o_all_cnt_bp,
errhp, ":o_ol_cnt",ADR(o_ol_cnt),
        SIZ(o_ol_cnt),SQLT_INT, &nctx-
>o_ol_cnt_len);
  OCIBNDPL(nctx->curn1, nctx->w_tax_bp,
errhp, ":w_tax",ADR(w_tax),SIZ(w_tax),
        SQLT_FLT, &nctx->w_tax_len);
  OCIBNDPL(nctx->curn1, nctx->d_tax_bp, errhp,
":d_tax",ADR(d_tax),SIZ(d_tax),
        SQLT_FLT, &nctx->d_tax_len);
  OCIBNDPL(nctx->curn1, nctx->o_id_bp, errhp,
":o_id",ADR(o_id),SIZ(o_id),
        SQLT_INT, &nctx->o_id_len);
  OCIBNDPL(nctx->curn1, nctx->c_discount_bp,
errhp, ":c_discount",
        ADR(c_discount),
SIZ(c_discount),SQLT_FLT, &nctx-
>c_discount_len);
  OCIBNDPL(nctx->curn1, nctx->c_credit_bp,
errhp, ":c_credit",c_credit,
        SIZ(c_credit),SQLT_CHR, &nctx-
>c_credit_len);
  OCIBNDPL(nctx->curn1, nctx->c_last_bp,
errhp, ":c_last",c_last,SIZ(c_last),
        SQLT_STR, &nctx->c_last_len);
  OCIBNDPL(nctx->curn1, nctx->retries_bp,
errhp, ":retry",ADR(retries),
        SIZ(retries),SQLT_INT, &nctx-
>retries_len);
  OCIBNDPL(nctx->curn1, nctx->cr_date_bp,
errhp, ":cr_date",&cr_date,
        SIZ(OCIDate), SQLT_ODT, &nctx-
>cr_date_len);

  OCIBNDPLA(nctx->curn1, nctx-
>ol_i_id_bp,errhp,":ol_i_id",nol_i_id,
         SIZ(int), SQLT_INT, nctx-
>nol_i_id_len,NITEMS,&nctx->nol_i_count);
  OCIBNDPLA(nctx->curn1, nctx-
>ol_supply_w_id_bp, errhp, ":ol_supply_w_id",
         nol_supply_w_id,SIZ(int),SQLT_INT,
nctx->nol_supply_w_id_len,
         NITEMS, &nctx->nol_s_count);


/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!  OCIBNDPLA(nctx->curn1, nctx-
>ol_quantity_bp,errhp,":ol_quantity",
!          nol_quantity, SIZ(int),SQLT_INT,nctx-
>nol_quantity_len,
!          NITEMS,&nctx->nol_q_count);
!  OCIBNDPLA(nctx->curn1, nctx-
>i_price_bp,errhp,":i_price",i_price,SIZ(int),
!          SQLT_INT, nctx->i_price_len, NITEMS,
&nctx->nol_item_count);
#endif

#ifdef USE_IEEE_NUMBER
  OCIBNDPLA(nctx->curn1, nctx-
>ol_quantity_bp,errhp,":ol_quantity",
         nol_quantity,
SIZ(float),SQLT_BFLOAT,nctx-
>nol_quantity_len,
         NITEMS,&nctx->nol_q_count);

  OCIBNDPLA(nctx->curn1, nctx-
>i_price_bp,errhp,":i_price",i_price,SIZ(float),
         SQLT_BFLOAT, nctx->i_price_len,
NITEMS, &nctx->nol_item_count);
#else
```

```
  OCIBNDPLA(nctx->curn1, nctx-
>ol_quantity_bp,errhp,":ol_quantity",
         nol_quantity, SIZ(int),SQLT_INT,nctx-
>nol_quantity_len,
         NITEMS,&nctx->nol_q_count);

  OCIBNDPLA(nctx->curn1, nctx-
>i_price_bp,errhp,":i_price",i_price,SIZ(int),
         SQLT_INT, nctx->i_price_len, NITEMS,
&nctx->nol_item_count);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

  OCIBNDPLA(nctx->curn1, nctx-
>i_name_bp,errhp,":i_name",i_name,
         SIZ(i_name[0]),SQLT_STR, nctx-
>i_name_len,NITEMS,
         &nctx->nol_name_count);

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!  OCIBNDPLA(nctx->curn1, nctx-
>s_quantity_bp,errhp,":s_quantity",s_quantity,
!          SIZ(int), SQLT_INT,nctx-
>s_quant_len,NITEMS,&nctx->nol_qty_count);
#endif

#ifdef USE_IEEE_NUMBER
  OCIBNDPLA(nctx->curn1, nctx-
>s_quantity_bp,errhp,":s_quantity",s_quantity,
         SIZ(float), SQLT_BFLOAT,nctx-
>s_quant_len,NITEMS,&nctx->nol_qty_count);
#else
  OCIBNDPLA(nctx->curn1, nctx-
>s_quantity_bp,errhp,":s_quantity",s_quantity,
         SIZ(int), SQLT_INT,nctx-
>s_quant_len,NITEMS,&nctx->nol_qty_count);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

  OCIBNDPLA(nctx->curn1, nctx-
>s_bg_bp,errhp,":brand_generic",brand_generic,
         SIZ(char), SQLT_CHR,nctx-
>s_bg_len,NITEMS,&nctx->nol_bg_count);

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!  OCIBNDPLA(nctx->curn1, nctx-
>ol_amount_bp,errhp,":ol_amount",nol_amount,
!          SIZ(int),SQLT_INT, nctx-
>nol_amount_len,NITEMS,&nctx-
>nol_am_count);
!  OCIBNDPLA(nctx->curn1, nctx-
>s_remote_bp,errhp,":s_remote",nctx-
>s_remote,
!          SIZ(int),SQLT_INT, nctx-
>s_remote_len,NITEMS,&nctx-
>s_remote_count);
#endif

#ifdef USE_IEEE_NUMBER
  OCIBNDPLA(nctx->curn1, nctx-
>ol_amount_bp,errhp,":ol_amount",nol_amount,
         SIZ(float),SQLT_BFLOAT, nctx-
>nol_amount_len,NITEMS,&nctx-
>nol_am_count);

  OCIBNDPLA(nctx->curn1, nctx-
>s_remote_bp,errhp,":s_remote",nctx-
>s_remote,
         SIZ(float),SQLT_BFLOAT, nctx-
>s_remote_len,NITEMS,&nctx-
>s_remote_count);
#else
```

```
  OCIBNDPLA(nctx->curn1, nctx-
>ol_amount_bp,errhp,":ol_amount",nol_amount,
         SIZ(int),SQLT_INT, nctx-
>nol_amount_len,NITEMS,&nctx-
>nol_am_count);

  OCIBNDPLA(nctx->curn1, nctx-
>s_remote_bp,errhp,":s_remote",nctx-
>s_remote,
         SIZ(int),SQLT_INT, nctx-
>s_remote_len,NITEMS,&nctx-
>s_remote_count);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

  /* open second cursor */
  DISCARD
OCIERROR(errhp,OCIHandleAlloc(tpcenv,
(dvoid **)(&nctx->curn2),
               OCI_HTYPE_STMT, 0, (dvoid**)0));
  DISCARD sprintf ((char *) stmbuf, SQLTXT2);
  DISCARD
OCIERROR(errhp,OCIStmtPrepare(nctx->curn2,
errhp, stmbuf,
               strlen((char *)stmbuf),
OCI_NTV_SYNTAX, OCI_DEFAULT));


  /* execute second cursor to init newinit
package */
  {
    int idx1arr[NITEMS];
    OCIBind *idx1arr_bp;
    ub2 idx1arr_len[NITEMS];
/* for Warning */
/*    ub2 idx1arr_rcode[NITEMS];*/

    sb2 idx1arr_ind[NITEMS];
    ub4 idx1arr_count;
    ub2 idx;

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


    /* Bind array */
    OCIBNDPLA(nctx->curn2,
idx1arr_bp,errhp,":idx1arr",idx1arr,
             SIZ(int), SQLT_INT, idx1arr_len,
NITEMS,&idx1arr_count);

   DBGLOG("NEW:[1]Start",0);
     execstatus = OCIStmtExecute(tpcsvc,nctx-
>curn2,errhp,1,0,
               NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),OCI_DEF
AULT);
   DBGLOG("NEW:[1]End  >%d",execstatus);
     if(execstatus != OCI_SUCCESS) {

OCITransRollback(tpcsvc,errhp,OCI_DEFAULT)
;
       errcode = OCIERROR(errhp,execstatus);
       return -1;
     }
   }

  return (0);

}
```

```
int tkvcn ()
{
   int i;
   int rcount;

retry:

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

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

   o_ol_cnt = NITEMS;
   o_all_local = 1;
   for (i = 0; i < NITEMS; i++) {
      if (nol_i_id[i] == 0) {
         o_ol_cnt = i;
         break;
      }
      if (nol_supply_w_id[i] != w_id) {

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!         nctx->s_remote[i] = 1;
#endif

#ifdef USE_IEEE_NUMBER
         nctx->s_remote[i] = 1.0;
#else
         nctx->s_remote[i] = 1;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

         o_all_local = 0;
      }
      else
         nctx->s_remote[i] = 0;
   }

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

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

   /* initialization for array operations */
   for (i = 0; i < o_ol_cnt; i++) {
      nctx->ol_number[i] = i + 1;
      nctx->nol_i_id_len[i] = sizeof(int);
      nctx->nol_supply_w_id_len[i] = sizeof(int);
      nctx->nol_quantity_len[i] = sizeof(int);
```

```
    nctx->nol_amount_len[i] = sizeof(int);
    nctx->ol_o_id_len[i] = sizeof(int);
    nctx->ol_number_len[i] = sizeof(int);
    nctx->ol_dist_info_len[i] = nctx-
>s_dist_info_len[i];
    nctx->s_remote_len[i] = sizeof(int);
    nctx->s_quant_len[i] = sizeof(int);
    nctx->i_name_len[i]=0;
    nctx->s_bg_len[i] = 0;
  }
  for (i = o_ol_cnt; i < NITEMS; i++) {

    nctx->nol_i_id_len[i] = 0;
    nctx->nol_supply_w_id_len[i] = 0;
    nctx->nol_quantity_len[i] = 0;
    nctx->nol_amount_len[i] = 0;
    nctx->ol_o_id_len[i] = 0;
    nctx->ol_number_len[i] = 0;
    nctx->ol_dist_info_len[i] = 0;
    nctx->s_remote_len[i] = 0;
    nctx->s_quant_len[i] = 0;
    nctx->i_name_len[i]=0;
    nctx->s_bg_len[i] = 0;
  }

  DBGLOG("NEW:[2]Start",0);
  execstatus = OCIStmtExecute(tpcsvc,nctx-
>curn1,errhp,1,0,0,0,
                        OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
  DBGLOG("NEW:[2]End  >%d",execstatus);


  if(execstatus != OCI_SUCCESS) {

OCITransRollback(tpcsvc,errhp,OCI_DEFAULT)
;
    errcode = OCIERROR(errhp,execstatus);
    if(errcode == NOT_SERIALIZABLE) {
      retries++;
      goto retry;
    } else if (errcode == RECOVERR) {
      retries++;
      goto retry;
/* Deleted T.Kato 02.10.25 */
#if 0
!    } else if (errcode ==
SNAPSHOT_TOO_OLD) {
!      retries++;
!      goto retry;
#endif
/* Deleted end */
    } else {
      return -1;
    }
  }

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

#ifdef DEBUG
  printf("w_id = %d, d_id = %d, c_id
= %d\n",w_id, d_id, c_id);
#endif


  return (0);

}
```

```
void tkvcndone ()
{
/* for warning */
/*   int i;*/

  if (nctx)
  {
    DISCARD OCIHandleFree((dvoid *)nctx-
>curn1,OCI_HTYPE_STMT);
    DISCARD OCIHandleFree((dvoid *)nctx-
>curn2,OCI_HTYPE_STMT);
    free (nctx);
  }
}




::::::::::::::::::::::::::::::::
 svrapl/3tier/plord.c
::::::::::::::::::::::::::::::::


/* Copyright (c) 2002, Oracle Corporation.  All
rights reserved.  */

/*


  NAME
    tkvcordq.c - OCI version  using queues of
ORDER STATUS
             transaction in TPC-C benchmark.

  DESCRIPTION
    <short description of facility this file
declares/defines>

  EXPORT FUNCTION(S)

  INTERNAL FUNCTION(S)
    <other external functions defined - one-line
descriptions>

  STATIC FUNCTION(S)
    <static functions defined - one-line
descriptions>

  NOTES
    <other useful comments, qualifications, etc.>

  MODIFIED   (MM/DD/YY)
  xnie        06/25/02 - queue open cluster join.
  heri        05/07/02 - Fix error in cursor.
  heri        02/01/02 - Cleanup, remove indicator
values and return codes.
  lwang       07/25/01 - Merged lwang_tpccitrc
  lwang       07/23/01 - fix include
  lwang       07/23/01 - Creation

*/



#include "forlinux.h"
#include "log.h"
#include "tpcc.h"
#include "GlobalArea.h"
#include "prototype.h"

/*---------------------------------------------------------------
------------
                   PRIVATE TYPES AND
CONSTANTS
  ---------------------------------------------------------------
-----------*/
```

```
/*---------------------------------------------------------------
------------
                   STATIC FUNCTION
DECLARATIONS
  ---------------------------------------------------------------
-----------*/


/* Replaced T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!#define SQLCUR0 "SELECT rowid FROM cust \
!             WHERE c_d_id = :d_id AND c_w_id
= :w_id AND c_last = :c_last \
!             ORDER BY c_last, c_d_id, c_w_id,
c_first"
!
!#define SQLCUR1 "SELECT /*+ USE_NL(cust)
INDEX_DESC(ordr iordr2) */  \
!             c_id, c_balance, c_first, c_middle,
c_last, \
!             o_id, o_entry_d, o_carrier_id,
o_ol_cnt, ordr.rowid \
!             FROM cust, ordr \
!             WHERE cust.rowid = :cust_rowid \
!             AND   o_d_id = c_d_id AND o_w_id
= c_w_id AND o_c_id = c_id \
!             ORDER BY o_c_id DESC, o_d_id
DESC, o_w_id DESC, o_id DESC"
!
!
!#define SQLCUR2 "SELECT /*+ USE_NL(cust)
INDEX_DESC (ordr iordr2) */   \
!             c_balance, c_first, c_middle, c_last, \
!             o_id, o_entry_d, o_carrier_id,
o_ol_cnt, ordr.rowid \
!             FROM cust, ordr \
!             WHERE c_id = :c_id AND c_d_id
= :d_id AND c_w_id = :w_id \
!             AND o_d_id = c_d_id AND o_w_id =
c_w_id AND o_c_id = c_id \
!             ORDER BY o_c_id DESC, o_d_id
DESC, o_w_id DESC , o_id DESC"
!
!
!#define SQLCUR3 "SELECT  /*+ ORDERED
USE_NL(ordl) CLUSTER(ordl) */ \
!            ol_i_id, ol_supply_w_id, ol_quantity,
ol_amount, ol_delivery_d \
!            FROM ordr, ordl \
!            WHERE ordr.rowid = :ordr_rowid \
!              AND o_id = ol_o_id AND  ol_d_id =
o_d_id AND ol_w_id = o_w_id"
!
!#define SQLCUR4 "SELECT count(c_last)
FROM cust \
!             WHERE c_d_id = :d_id AND c_w_id
= :w_id AND c_last = :c_last "
#endif


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

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


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

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

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

/* Replaced end */


int tkvcoinit ()
{
   int i;
   text stmbuf[SQL_BUF_SIZE];

   octx = (ordctx *) malloc (sizeof(ordctx));
   DISCARD memset(octx,(char)0,sizeof(ordctx));
   octx->cs = 1;
   octx->norow = 0;
   octx->somerows = 10;

/* Deleted T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!   /* get the rowid handles */
!   OCIERROR(errhp, OCIDescriptorAlloc((dvoid
*)tpcenv,(dvoid **)&octx->o_rowid,
!                        (ub4)OCI_DTYPE_ROWID,
(size_t) 0, (dvoid **)0));
#endif
/* Deleted end */

   for(i=0;i<100;i++) {
    DISCARD OCIERROR(errhp,
OCIDescriptorAlloc(tpcenv,
               (dvoid**)&octx->c_rowid_ptr[i],
OCI_DTYPE_ROWID,0,(dvoid**)0));
  }


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

/* Deleted T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!   DISCARD OCIERROR(errhp,
!     OCIHandleAlloc(tpcenv,(dvoid**)&octx-
>curo0,OCI_HTYPE_STMT,0,(dvoid**)0));
```

```
#endif
/* Deleted end */

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

/*  c_id = 0, use find customer by lastname. Get
an array or rowid's back*/
   DISCARD sprintf((char *) stmbuf, SQLCUR0);
   DISCARD OCIERROR(errhp,
      OCIStmtPrepare(octx-
>curo0,errhp,stmbuf,(ub4)strlen((char *)stmbuf),

OCI_NTV_SYNTAX,OCI_DEFAULT));
   DISCARD OCIERROR(errhp,
      OCIAttrSet(octx-
>curo0,OCI_HTYPE_STMT,&octx->norow,0,

OCI_ATTR_PREFETCH_ROWS,errhp));
/* get order/customer info back based on rowid */
   DISCARD sprintf((char *) stmbuf, SQLCUR1);
   DISCARD OCIERROR(errhp,
      OCIStmtPrepare(octx-
>curo1,errhp,stmbuf,(ub4)strlen((char *)stmbuf),

OCI_NTV_SYNTAX,OCI_DEFAULT));
   DISCARD OCIERROR(errhp,
      OCIAttrSet(octx-
>curo1,OCI_HTYPE_STMT,&octx->norow,0,

OCI_ATTR_PREFETCH_ROWS,errhp));

/*  c_id == 0, use lastname to find customer */
   DISCARD sprintf((char *) stmbuf, SQLCUR2);
   DISCARD OCIERROR(errhp,
      OCIStmtPrepare(octx-
>curo2,errhp,stmbuf,(ub4)strlen((char *)stmbuf),

OCI_NTV_SYNTAX,OCI_DEFAULT));
   DISCARD OCIERROR(errhp,
      OCIAttrSet(octx-
>curo2,OCI_HTYPE_STMT,&octx->norow,0,

OCI_ATTR_PREFETCH_ROWS,errhp));

   DISCARD sprintf((char *) stmbuf, SQLCUR3);
   DISCARD OCIERROR(errhp,
      OCIStmtPrepare(octx-
>curo3,errhp,stmbuf,(ub4)strlen((char *)stmbuf),

OCI_NTV_SYNTAX,OCI_DEFAULT));
   DISCARD OCIERROR(errhp,
      OCIAttrSet(octx-
>curo3,OCI_HTYPE_STMT,&octx->norow,0,

OCI_ATTR_PREFETCH_ROWS,errhp));

   DISCARD sprintf((char *) stmbuf, SQLCUR4);
   DISCARD OCIERROR(errhp,
      OCIStmtPrepare(octx-
>curo4,errhp,stmbuf,(ub4)strlen((char *)stmbuf),

OCI_NTV_SYNTAX,OCI_DEFAULT));
   DISCARD OCIERROR(errhp,
```

```
      OCIAttrSet(octx-
>curo4,OCI_HTYPE_STMT,&octx->norow,0,

OCI_ATTR_PREFETCH_ROWS,errhp));

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

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

   /* bind variables */

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

   OCIBND(octx->curo1,octx-
>c_rowid_bp,errhp,":cust_rowid", &octx-
>c_rowid_cust,
         sizeof( octx->c_rowid_ptr[0]),SQLT_RDD);
   OCIDEF(octx->curo1,octx-
>c_id_dp,errhp,1,ADR(c_id),SIZ(int),SQLT_INT);

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   OCIDEF(octx->curo1,octx-
>c_balance_dp[0],errhp,2,ADR(c_balance),
!          SIZ(double),SQLT_FLT);
#endif

#ifdef USE_IEEE_NUMBER
   OCIDEF(octx->curo1,octx-
>c_balance_dp[0],errhp,2,ADR(c_balance),
          SIZ(double),SQLT_BDOUBLE);
#else
   OCIDEF(octx->curo1,octx-
>c_balance_dp[0],errhp,2,ADR(c_balance),
          SIZ(double),SQLT_FLT);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

   OCIDEF(octx->curo1,octx-
>c_first_dp[0],errhp,3,c_first,SIZ(c_first)-1,
          SQLT_CHR);
   OCIDEF(octx->curo1,octx-
>c_middle_dp[0],errhp,4,c_middle,
          SIZ(c_middle)-1,SQLT_AFC);
```

```
  OCIDEF(octx->curo1,octx-
>c_last_dp[0],errhp,5,c_last,SIZ(c_last)-1,
        SQLT_CHR);
  OCIDEF(octx->curo1,octx-
>o_id_dp[0],errhp,6,ADR(o_id),SIZ(int),SQLT_IN
T);
  OCIDEF(octx->curo1,octx-
>o_entry_d_dp[0],errhp,7,

&o_entry_d_base,SIZ(OCIDate),SQLT_ODT);
  OCIDEF(octx->curo1,octx-
>o_cr_id_dp[0],errhp,8,ADR(o_carrier_id),
        SIZ(int),SQLT_INT);
  OCIDEF(octx->curo1,octx-
>o_ol_cnt_dp[0],errhp,9,ADR(o_ol_cnt),
        SIZ(int),SQLT_INT);

/* Deleted T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!  OCIDEF(octx->curo1,octx-
>o_rowid_dp[0],errhp,10,ADR(octx->o_rowid),
!        SIZ(OCIRowid*),SQLT_RDD);
#endif
/* deleted end */

/* Bind for third cursor , no-zero customer id */
  OCIBND(octx->curo2,octx-
>w_id_bp[1],errhp,":w_id",ADR(w_id),
       SIZ(int),SQLT_INT);
  OCIBND(octx->curo2,octx-
>d_id_bp[1],errhp,":d_id",ADR(d_id),
        SIZ(int),SQLT_INT);
  OCIBND(octx->curo2,octx-
>c_id_bp,errhp,":c_id",ADR(c_id),
        SIZ(int),SQLT_INT);

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!  OCIDEF(octx->curo2,octx-
>c_balance_dp[1],errhp,1,ADR(c_balance),
!        SIZ(double),SQLT_FLT);
#endif

#ifdef USE_IEEE_NUMBER
  OCIDEF(octx->curo2,octx-
>c_balance_dp[1],errhp,1,ADR(c_balance),
        SIZ(double),SQLT_BDOUBLE);
#else
  OCIDEF(octx->curo2,octx-
>c_balance_dp[1],errhp,1,ADR(c_balance),
        SIZ(double),SQLT_FLT);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

  OCIDEF(octx->curo2,octx-
>c_first_dp[1],errhp,2,c_first,SIZ(c_first)-1,
        SQLT_CHR);
  OCIDEF(octx->curo2,octx-
>c_middle_dp[1],errhp,3,c_middle,
        SIZ(c_middle)-1,SQLT_AFC);
  OCIDEF(octx->curo2,octx-
>c_last_dp[1],errhp,4,c_last,SIZ(c_last)-1,
       SQLT_CHR);
  OCIDEF(octx->curo2,octx-
>o_id_dp[1],errhp,5,ADR(o_id),SIZ(int),SQLT_IN
T);
  OCIDEF(octx->curo2,octx-
>o_entry_d_dp[1],errhp,6, &o_entry_d_base,
       SIZ(OCIDate),SQLT_ODT);
  OCIDEF(octx->curo2, octx-
>o_cr_id_dp[1],errhp,7,ADR(o_carrier_id),
        SIZ(int), SQLT_INT);
  OCIDEF(octx->curo2,octx-
>o_ol_cnt_dp[1],errhp,8,ADR(o_ol_cnt),
        SIZ(int),SQLT_INT);

/* Deleted T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!  OCIDEF(octx->curo2,octx-
>o_rowid_dp[1],errhp,9,ADR(octx->o_rowid),
!        SIZ(OCIRowid*),SQLT_RDD);
#endif
/* Deleted end */

/* Bind for last cursor */

/* Replaced T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!/*
!  OCIBND(octx->curo3,octx-
>w_id_bp[2],errhp,":w_id",ADR(w_id),
SIZ(int),SQLT_INT);
!  OCIBND(octx->curo3,octx-
>d_id_bp[2],errhp,":d_id",ADR(d_id),
SIZ(int),SQLT_INT);
!  OCIBND(octx->curo3,octx-
>o_id_bp,errhp,":o_id",ADR(o_id),
SIZ(int),SQLT_INT);
!  OCIBND(octx->curo3,octx-
>c_id_bp,errhp,":c_id",ADR(c_id),
SIZ(int),SQLT_INT);
! */
#endif

   OCIBND(octx->curo3,octx-
>w_id_bp[2],errhp,":w_id",ADR(w_id),
SIZ(int),SQLT_INT);
  OCIBND(octx->curo3,octx-
>d_id_bp[2],errhp,":d_id",ADR(d_id),
SIZ(int),SQLT_INT);
  OCIBND(octx->curo3,octx-
>o_id_bp,errhp,":o_id",ADR(o_id),
SIZ(int),SQLT_INT);
/* Replaced end */

/* Deleted T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!  OCIBND(octx->curo3,octx-
>o_rowid_bp,errhp,":ordr_rowid",
!        &octx->o_rowid,
SIZ(OCIRowid*),SQLT_RDD);
#endif
/* Deleted end */

   OCIDFNRA(octx->curo3, octx->ol_i_id_dp,
errhp, 1, ol_i_id,SIZ(int),SQLT_INT,
         NULL,octx->ol_i_id_len, NULL);
  OCIDFNRA(octx->curo3,octx-
>ol_supply_w_id_dp,errhp,2, ol_supply_w_id,
         SIZ(int),SQLT_INT, NULL,
         octx->ol_supply_w_id_len, NULL);

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!  OCIDFNRA(octx->curo3, octx-
>ol_quantity_dp,errhp,3, ol_quantity,SIZ(int),
!          SQLT_INT, NULL,octx->ol_quantity_len,
NULL);
!  OCIDFNRA(octx->curo3,octx-
>ol_amount_dp,errhp,4,ol_amount, SIZ(int),
!          SQLT_INT,NULL, octx->ol_amount_len,
NULL);
#endif

#ifdef USE_IEEE_NUMBER
  OCIDFNRA(octx->curo3, octx-
>ol_quantity_dp,errhp,3, ol_quantity,SIZ(float),
          SQLT_BFLOAT, NULL,octx-
>ol_quantity_len, NULL);
  OCIDFNRA(octx->curo3,octx-
>ol_amount_dp,errhp,4,ol_amount, SIZ(float),
          SQLT_BFLOAT,NULL, octx-
>ol_amount_len, NULL);
#else
  OCIDFNRA(octx->curo3, octx-
>ol_quantity_dp,errhp,3, ol_quantity,SIZ(int),
          SQLT_INT, NULL,octx->ol_quantity_len,
NULL);
  OCIDFNRA(octx->curo3,octx-
>ol_amount_dp,errhp,4,ol_amount, SIZ(int),
          SQLT_INT,NULL, octx->ol_amount_len,
NULL);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

  OCIDFNRA(octx->curo3,octx-
>ol_d_base_dp,errhp,5,ol_d_base,SIZ(OCIDate),
          SQLT_ODT, NULL,octx-
>ol_delivery_d_len,NULL);

  OCIBND(octx->curo4,octx-
>w_id_bp[3],errhp,":w_id",ADR(w_id),
        SIZ(int),SQLT_INT);
  OCIBND(octx->curo4,octx-
>d_id_bp[3],errhp,":d_id",ADR(d_id),
        SIZ(int),SQLT_INT);
  OCIBND(octx->curo4,octx-
>c_last_bp[1],errhp,":c_last",c_last,
        SIZ(c_last), SQLT_STR);
  OCIDEF(octx->curo4,octx-
>c_count_dp,errhp,1,ADR(octx->rcount),SIZ(int),
        SQLT_INT);


  return (0);

}



int tkvco ()
{
  int i;
  int rcount;

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

       int     oci_stat;

/* Deleted T.Kato 2004.12.21 "o_rowid" was
deleted by New Oracle10g tool kit */
#if 0
!!int   f_w_id = w_id;
!!int f_d_id = d_id;
!!int f_c_id = c_id;
!!
!!int   c2_w_id = -1;
!!int c2_d_id = -1;
!!int c2_c_id = -1;
!!unsigned char b_row_id[512];
!!unsigned char a_row_id[512];
!!
!!ub2 buf_len = sizeof(b_row_id) - 1;
!!
```

```
!!memset(b_row_id, 0x00, sizeof(b_row_id));
!!memset(a_row_id, 0x00, sizeof(a_row_id));
#endif
/* Deleted end */


/* Added T.Kato 2004.12.21 New Oracle10g tool
kit */
#ifdef DEBUG
  if (bylastname) tkvc_trace_on();
#endif

#ifdef BLANK_PAD_C_LAST
  for (i = strlen(c_last); i < sizeof(c_last)-1; i++)
  {
    c_last[i] = ' ';
  }
  c_last[i] = '\0';
#endif
/* Added end */

  for (i = 0; i < NITEMS; i++) {
    octx->ol_supply_w_id_len[i] = sizeof(int);
    octx->ol_i_id_len[i] = sizeof(int);
    octx->ol_quantity_len[i] = sizeof(int);
    octx->ol_amount_len[i] = sizeof(int);
    octx->ol_delivery_d_len[i] = sizeof(OCIDate);
  }
  octx->ol_supply_w_id_csize = NITEMS;
  octx->ol_i_id_csize = NITEMS;
  octx->ol_quantity_csize = NITEMS;
  octx->ol_amount_csize = NITEMS;
  octx->ol_delivery_d_csize = NITEMS;
retry:
  if(bylastname)
  {

/* Replaced T.Kato 2004.12.21 New Oracle tool
kit */
/*    cbctx.reexec = FALSE;*/

    ordcount++;
    cbctx.reexec = FALSE;
    errcode = 0;
/*#define STRIP_BLANKS_C_LAST   Always no
blanks */
#ifdef STRIP_BLANKS_C_LAST
    for (i = strlen(c_last)-1; i >= 0 && (c_last[i] == '
'); i--)
    {
      c_last[i] = '\0';
    }
#endif
/* Replaced end */

    DBGLOG("ORD:[1]Start",0);
    execstatus=OCIStmtExecute(tpcsvc,octx-
>curo0,errhp,100,0,
              NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),OCI_DEF
AULT);
    DBGLOG("ORD:[1]End  >%d",execstatus);
    /* will get OCI_NO_DATA if <100 found */
    if ((execstatus != OCI_NO_DATA) &&
(execstatus != OCI_SUCCESS))
    {
      errcode=OCIERROR(errhp, execstatus);
      if((errcode == NOT_SERIALIZABLE) ||
(errcode == RECOVERR))
      {
        DISCARD
OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
        retries++;
        goto retry;
      } else {
```

```

/* Added T.Kato 2004.12.21 New Oracle10g tool
kit */
#ifdef DEBUG
        tkvc_trace_off();
#endif
/* Added end */
        return -1;
      }
    }
    if (execstatus == OCI_NO_DATA) /* there are
no more rows */
    {
      /* get rowcount, find middle one */
/* Replaced T.Kato 03.10.14 Add error check */
/*      DISCARD OCIAttrGet(octx-
>curo0,OCI_HTYPE_STMT,&rcount,NULL,    */
/*
OCI_ATTR_ROW_COUNT,errhp);
*/

       oci_stat = OCIAttrGet(octx-
>curo0,OCI_HTYPE_STMT,&rcount,NULL,

OCI_ATTR_ROW_COUNT,errhp);
       DISCARD OCIERROR(errhp, oci_stat);

/* Deleted T.Kato 04.06.22 for Linux */
#if 0
!            if (oci_stat == OCI_SUCCESS)
!            {
!                   TpccUserLog(LOG_FILE_INF,
"ORDERSTATUS  OCI_ATTR_ROW_COUNT
success\n");
!            }
#endif
/* Deleted end */

/* Replaced end */

         if (rcount <1)
      {

/* Replaced T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!             TpccUserLog(LOG_FILE_INF,
"ORDERSTATUS  rcount=%d\n",rcount);
!       return (-1);
#endif

        TpccUserLog(LOG_FILE_INF,
"ORDERSTATUS  rcount=%d\n",rcount);
        TpccUserLog(LOG_FILE_INF, "
w_id  =%d\n",w_id);
        TpccUserLog(LOG_FILE_INF, "
d_id  =%d\n",d_id);
        TpccUserLog(LOG_FILE_INF, "
c_last='%s'\n",c_last);
        TpccUserLog(LOG_FILE_INF, "
retries=%d\n",retries);
        TpccUserLog(LOG_FILE_INF, "
errcode=%d\n",errcode);
        TpccUserLog(LOG_FILE_INF, "
execstatus=%d\n",execstatus);
        TpccUserLog(LOG_FILE_INF, "
ordcount=%d\n",ordcount);

#ifdef DEBUG
         tkvc_trace_off();
#endif
         return -1;
/* Replaced end */

      }
```

```
      octx->cust_idx=(rcount)/2 ;
    }
    else
    {
      /* count the number of rows */
    DBGLOG("ORD:[2]Start",0);
      execstatus=OCIStmtExecute(tpcsvc,octx-
>curo4,errhp,1,0,
              NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),OCI_DEF
AULT);
    DBGLOG("ORD:[2]End  >%d",execstatus);
      if ((execstatus != OCI_NO_DATA) &&
(execstatus != OCI_SUCCESS))
      {
        errcode=OCIERROR(errhp, execstatus);
        if ((errcode == NOT_SERIALIZABLE) ||
(errcode == RECOVERR))
        {
          DISCARD
OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
          retries++;
          goto retry;
        } else {
          return -1;
        }
      }

/* Replaced T.Kato 2004.12.21 New Oracle10g
tool kit */
#if 0
!     if (octx->rcount+1 < 2*10 )
!        octx->cust_idx=(octx->rcount+1)/2 ;
!     else          /* */
!     {
!        cbctx.reexec = TRUE;
!        cbctx.count = (octx->rcount+1)/2 ;
!        DBGLOG("ORD:[3]Start",0);
!        execstatus=OCIStmtExecute(tpcsvc,octx-
>curo0,errhp,cbctx.count,
!                         0,NULLP(CONST
OCISnapshot),
!
NULLP(OCISnapshot),OCI_DEFAULT);
!        DBGLOG("ORD:[3]End
>%d",execstatus);
!        /* will get OCI_NO_DATA if <100 found */
!        if (cbctx.count > 0)
!        {
!           TpccUserLog (LOG_FILE_INF, "did not
get all rows ");
!           return (-1);
!        }
!
!        if ((execstatus != OCI_NO_DATA) &&
(execstatus != OCI_SUCCESS))
!        {
!          errcode=OCIERROR(errhp, execstatus);
!          if((errcode == NOT_SERIALIZABLE) ||
(errcode == RECOVERR))
!          {
!            DISCARD
OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
!            retries++;
!            goto retry;
!          } else {
!           return -1;
!          }
!        }
!        octx->cust_idx=0 ;
!     }
#endif

      cbctx.reexec = TRUE;
      cbctx.count = (octx->rcount+1)/2 ;
      execstatus=OCIStmtExecute(tpcsvc,octx-
>curo0,errhp,cbctx.count,
                        0,NULLP(CONST
OCISnapshot),

NULLP(OCISnapshot),OCI_DEFAULT);

      DISCARD OCIAttrGet(octx-
>curo0,OCI_HTYPE_STMT,&rcount,NULL,

OCI_ATTR_ROW_COUNT,errhp);

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

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

    }

    octx->c_rowid_cust = octx->c_rowid_ptr[octx-
>cust_idx];
    DBGLOG("ORD:[4]Start",0);
    execstatus=OCIStmtExecute(tpcsvc,octx-
>curo1,errhp,1,0,
                NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),OCI_DEF
AULT);
    DBGLOG("ORD:[4]End  >%d",execstatus);
    if (execstatus != OCI_SUCCESS)
    {
       errcode=OCIERROR(errhp,execstatus);
       DISCARD
OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
       if((errcode == NOT_SERIALIZABLE) ||
(errcode == RECOVERR)
          || (errcode == SNAPSHOT_TOO_OLD))
       {
          retries++;
          goto retry;
          } else {
          return -1;
       }
      }
    }
    else
    {
     DBGLOG("ORD:[5]Start",0);
     execstatus=OCIStmtExecute(tpcsvc,octx-
>curo2,errhp,1,0,
                    NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),
                    OCI_DEFAULT);
     DBGLOG("ORD:[5]End  >%d",execstatus);
     if (execstatus != OCI_SUCCESS)
```

```
      {
        errcode=OCIERROR(errhp,execstatus);
        DISCARD
OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
        if((errcode == NOT_SERIALIZABLE) ||
(errcode == RECOVERR)
           || (errcode == SNAPSHOT_TOO_OLD))
        {
          retries++;
          goto retry;
        }
        else
        {
          return -1;
        }
      }

/* Deleted T.Kato 2004.12.21 "o_rowid" was
deleted by New Oracle10g tool kit */
#if 0
!!c2_w_id = w_id;
!!c2_d_id = d_id;
!!c2_c_id = c_id;
!!
!!OCIRowidToChar(octx->o_rowid, b_row_id,
&buf_len, errhp);
#endif
/* Deleted end */

#ifdef ISO9
      sysdate (sdate);
if (!secondread)
      printf ("---------- FIRST READ RESULT
(out) %s ----------\n", sdate);
else
      printf ("---------- SECOND READ RESULT
(out) %s ----------\n", sdate);

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

OCIERROR(errhp,OCIDateToText(errhp,&o_ent
ry_d_base,(text*)FULLDATE,SIZ(FULLDATE),(t
ext*
)0,0,&datelen,o_entry_d));
      printf ("o_entry_d = %s\n", o_entry_d);
      printf ("o_carrier_id = %d\n", o_carrier_id);
      printf ("o_ol_cnt = %d\n", o_ol_cnt);
      printf ("---------------------------------------------
\n\n", sdate);

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

    DBGLOG("ORD:[6]Start",0);
```

```
    execstatus = OCIStmtExecute(tpcsvc,octx-
>curo3,errhp,o_ol_cnt,0,
                    NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),
                    OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
    DBGLOG("ORD:[6]End  >%d",execstatus);
    if (execstatus != OCI_SUCCESS )
    {
      errcode=OCIERROR(errhp,execstatus);

/* Deleted T.Kato 2004.12.21 "o_rowid" was
deleted by New Oracle10g tool kit */
#if 0
!!OCIRowidToChar(octx->o_rowid, a_row_id,
&buf_len, errhp);
!!TpccUserLog(LOG_FILE_INF, "DBG_LOG
start : w_id=%d d_id=%d c_id=%d\n", f_w_id,
f_d_id, f_c_id);
!!TpccUserLog(LOG_FILE_INF, "DBG_LOG
cur2  : w_id=%d d_id=%d c_id=%d\n", c2_w_id,
c2_d_id, c2_c_id);
!!TpccUserLog(LOG_FILE_INF, "DBG_LOG
cur2  : row_id=[%s]\n", b_row_id);
!!TpccUserLog(LOG_FILE_INF, "DBG_LOG
error : row_id=[%s]\n", a_row_id);
#endif
/* Deleted end */


        DISCARD
OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
      if((errcode == NOT_SERIALIZABLE) ||
(errcode == RECOVERR)
         || (errcode == SNAPSHOT_TOO_OLD))
      {
        retries++;
        goto retry;
      }
      else
      {

/* Added T.Kato 2004.12.21 New Oracle10g tool
kit */
#ifdef DEBUG
        if (bylastname) tkvc_trace_off();
#endif
/* Added end */
        return -1;
      }

    }
   /* clean up and convert the delivery dates */
    for (i = 0; i < o_ol_cnt; i++)
    {
      ol_del_len[i]=sizeof(ol_delivery_d[i]);
      DISCARD
OCIERROR(errhp,OCIDateToText(errhp,&ol_d_
base[i],
        (const
text*)SHORTDATE,(ub1)strlen(SHORTDATE),(t
ext*)0,0,
        &ol_del_len[i], ol_delivery_d[i]));
/*
        cvtdmy(ol_d_base[i],ol_delivery_d[i]);
*/
    }

/* Added T.Kato 2004.12.21 New Oracle10g tool
kit */
#ifdef DEBUG
   if (bylastname) tkvc_trace_off();
#endif
/* Added end */
```

```
   return (0);

}

/* Added T.Kato 2004.12.21 New Oracle10g tool
kit */
#ifdef DEBUG
#define SQLTRCON "alter session set events
'10046 trace name context forever, level 12'"
#define SQLTRCOFF "alter session set events
'10046 trace name context off'"

/*static trace_on = 0;   Moved to Global Area */

tkvc_trace_on()
{
        if (!trace_on)
        {
          char stmbuf[100];
          OCIStmt *curtrc;
          OCIHandleAlloc(tpcenv, (dvoid **)&curtrc,
OCI_HTYPE_STMT, 0, (dvoid**)0);
          strcpy ((char *) stmbuf, SQLTRCON);
          DISCARD OCIERROR(errhp,
            OCIStmtPrepare(curtrc, errhp, stmbuf,
strlen((char *)stmbuf),
                    OCI_NTV_SYNTAX,
OCI_DEFAULT));
          OCIERROR(errhp,
OCIStmtExecute(tpcsvc, curtrc,
errhp,1,0,0,0,OCI_DEFAULT));
          OCIHandleFree((dvoid *)curtrc,
OCI_HTYPE_STMT);
          trace_on++;
        }
}

tkvc_trace_off()
{
        if (trace_on)
        {
          char stmbuf[100];
          OCIStmt *curtrc;
          OCIHandleAlloc(tpcenv, (dvoid **)&curtrc,
OCI_HTYPE_STMT, 0, (dvoid**)0);
          strcpy (stmbuf, SQLTRCOFF);
          DISCARD OCIERROR(errhp,
            OCIStmtPrepare(curtrc, errhp, stmbuf,
strlen((char *)stmbuf),
                    OCI_NTV_SYNTAX,
OCI_DEFAULT));
          OCIERROR(errhp,
OCIStmtExecute(tpcsvc, curtrc,
errhp,1,0,0,0,OCI_DEFAULT));
          OCIHandleFree((dvoid *)curtrc,
OCI_HTYPE_STMT);
          trace_on = 0;
        }
}
#endif
/* Added end */



void tkvcodone ()
{

   if (octx)
      free (octx);

}

/* end of file tkvcord.c */
```

```
::::::::::::::::::::::::::::::::
 svrapl/3tier/plpay.c
::::::::::::::::::::::::::::::::

#ifdef RCSID
static char *RCSid =
   "$Header: plpay.c 7030100.1 95/07/19
14:44:59 plai Generic<base> $ Copyr (c) 1994
Oracle";
#endif /* RCSID */

/*===================================
==============================+
 |      Copyright (c) 1995  Oracle Corp,
Redwood Shores, CA       |
 |                 OPEN SYSTEMS
PERFORMANCE GROUP                |
 |                      All Rights Reserved
|

+===================================
==============================+
 | FILENAME
 |    plpay.c
 | DESCRIPTION
 |    OCI version (using PL/SQL stored
procedure) of
 |    PAYMENT transaction in TPC-C benchmark.

+===================================
==============================*/



#include "forlinux.h"
#include "log.h"
#include "tpcc.h"
#include "GlobalArea.h"
#include "prototype.h"


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


int tkvcpinit (void)
{
   text stmbuf[SQL_BUF_SIZE];

   pctx = (payctx *)malloc(sizeof(payctx));
   memset(pctx,(char)0,sizeof(payctx));

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

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

   /*  build the init statement  and execute it */

   sprintf ((char*)stmbuf, SQLTXT_INIT);
   DISCARD
OCIERROR(errhp,OCIStmtPrepare(pctx->curpi,
errhp, stmbuf,
          strlen((char *)stmbuf),
OCI_NTV_SYNTAX, OCI_DEFAULT));
```

```
   DBGLOG("PAY:[1]Start",0);
   DISCARD OCIERROR(errhp,
OCIStmtExecute(tpcsvc,pctx->curpi,errhp,1,0,
                  NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),OCI_DEF
AULT));
   DBGLOG("PAY:[1]End  ",0);

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

/* Replaced 04.01.20 TUXEDO Client */
#if 0
!   sqlfile("../blocks/paynz.sql",stmbuf);
#endif
   sqlfile("/home/tpc/blocks/paynz.sql",stmbuf);
/* Replaced end */
   DISCARD
OCIERROR(errhp,OCIStmtPrepare(pctx->curp0,
errhp, stmbuf,
          strlen((char *)stmbuf),
OCI_NTV_SYNTAX, OCI_DEFAULT));

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

/* Replaced 04.01.20 TUXEDO Client */
#if 0
!   sqlfile("../blocks/payz.sql",stmbuf); /* sqlfile
opens $O/bench/.../blocks/... */
#endif
   sqlfile("/home/tpc/blocks/payz.sql",stmbuf); /*
sqlfile opens $O/bench/.../blocks/... */
/* Replaced end */
   DISCARD
OCIERROR(errhp,OCIStmtPrepare(pctx->curp1,
errhp, stmbuf,
          strlen((char *)stmbuf),
OCI_NTV_SYNTAX, OCI_DEFAULT));

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


  OCIBNDPL(pctx->curp0, pctx->w_id_bp[0],
errhp,":w_id",ADR(w_id),SIZ(int),
        SQLT_INT, NULL);
  OCIBNDPL(pctx->curp0, pctx->d_id_bp[0],
errhp,":d_id",ADR(d_id),SIZ(int),
        SQLT_INT, NULL);
  OCIBND(pctx->curp0, pctx->c_w_id_bp[0],
errhp,":c_w_id",ADR(c_w_id),SIZ(int),
        SQLT_INT);
  OCIBND(pctx->curp0, pctx->c_d_id_bp[0],
errhp,":c_d_id",ADR(c_d_id),SIZ(int),
        SQLT_INT);
  OCIBND(pctx->curp0, pctx->c_id_bp[0],
errhp,":c_id",ADR(c_id),SIZ(int),
        SQLT_INT);

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   OCIBNDPL(pctx->curp0, pctx-
>h_amount_bp[0],
errhp,":h_amount",ADR(h_amount),
!          SIZ(int),SQLT_INT,  &pctx-
>h_amount_len);
#endif

#ifdef USE_IEEE_NUMBER
  OCIBNDPL(pctx->curp0, pctx-
>h_amount_bp[0],
errhp,":h_amount",ADR(h_amount),
        SIZ(float),SQLT_BFLOAT,  &pctx-
>h_amount_len);
#else
  OCIBNDPL(pctx->curp0, pctx-
>h_amount_bp[0],
errhp,":h_amount",ADR(h_amount),
        SIZ(int),SQLT_INT,  &pctx-
>h_amount_len);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

  OCIBNDPL(pctx->curp0, pctx->c_last_bp[0],
errhp,":c_last",c_last,SIZ(c_last),
        SQLT_STR, &pctx->c_last_len);
  OCIBNDPL(pctx->curp0, pctx-
>w_street_1_bp[0],
errhp,":w_street_1",w_street_1,
        SIZ(w_street_1),SQLT_STR, &pctx-
>w_street_1_len);
  OCIBNDPL(pctx->curp0, pctx-
>w_street_2_bp[0],
errhp,":w_street_2",w_street_2,
        SIZ(w_street_2),SQLT_STR, &pctx-
>w_street_2_len);
  OCIBNDPL(pctx->curp0, pctx->w_city_bp[0],
errhp,":w_city",w_city,SIZ(w_city),
        SQLT_STR, &pctx->w_city_len);
  OCIBNDPL(pctx->curp0, pctx->w_state_bp[0],
errhp,":w_state",w_state,
        SIZ(w_state), SQLT_STR, &pctx-
>w_state_len);
  OCIBNDPL(pctx->curp0, pctx->w_zip_bp[0],
errhp,":w_zip",w_zip,SIZ(w_zip),
        SQLT_STR, &pctx->w_zip_len);
  OCIBNDPL(pctx->curp0, pctx-
>d_street_1_bp[0],
errhp,":d_street_1",d_street_1,
        SIZ(d_street_1),SQLT_STR, &pctx-
>d_street_1_len);
  OCIBNDPL(pctx->curp0, pctx-
>d_street_2_bp[0],
errhp,":d_street_2",d_street_2,
        SIZ(d_street_2),SQLT_STR, &pctx-
>d_street_2_len);
  OCIBNDPL(pctx->curp0, pctx->d_city_bp[0],
errhp,":d_city",d_city,SIZ(d_city),
        SQLT_STR, &pctx->d_city_len);
  OCIBNDPL(pctx->curp0, pctx->d_state_bp[0],
errhp,":d_state",d_state,
        SIZ(d_state), SQLT_STR, &pctx-
>d_state_len);
  OCIBNDPL(pctx->curp0, pctx->d_zip_bp[0],
errhp,":d_zip",d_zip,SIZ(d_zip),
        SQLT_STR, &pctx->d_zip_len);
  OCIBNDPL(pctx->curp0, pctx->c_first_bp[0],
errhp,":c_first",c_first,
        SIZ(c_first), SQLT_STR, &pctx-
>c_first_len);
  OCIBNDPL(pctx->curp0, pctx->c_middle_bp[0],
errhp,":c_middle",c_middle,2,
        SQLT_AFC, &pctx->c_middle_len);
  OCIBNDPL(pctx->curp0, pctx-
>c_street_1_bp[0],
errhp,":c_street_1",c_street_1,
        SIZ(c_street_1),SQLT_STR, &pctx-
>c_street_1_len);
  OCIBNDPL(pctx->curp0, pctx-
>c_street_2_bp[0],
errhp,":c_street_2",c_street_2,
        SIZ(c_street_2),SQLT_STR, &pctx-
>c_street_2_len);
  OCIBNDPL(pctx->curp0, pctx->c_city_bp[0],
errhp,":c_city",c_city,SIZ(c_city),
        SQLT_STR, &pctx->c_city_len);
  OCIBNDPL(pctx->curp0, pctx->c_state_bp[0],
errhp,":c_state",c_state,
        SIZ(c_state), SQLT_STR, &pctx-
>c_state_len);
  OCIBNDPL(pctx->curp0, pctx->c_zip_bp[0],
errhp,":c_zip",c_zip,SIZ(c_zip),
        SQLT_STR,&pctx->c_zip_len);
  OCIBNDPL(pctx->curp0,  pctx->c_phone_bp[0],
errhp,":c_phone",c_phone,
        SIZ(c_phone), SQLT_STR, &pctx-
>c_phone_len);
  OCIBNDPL(pctx->curp0, pctx->c_since_bp[0],
errhp,":c_since",&c_since,
        SIZ(OCIDate), SQLT_ODT, &pctx-
>c_since_len);
  OCIBNDPL(pctx->curp0, pctx->c_credit_bp[0],
errhp,":c_credit",c_credit,
        SIZ(c_credit),SQLT_CHR, &pctx-
>c_credit_len);
  OCIBNDPL(pctx->curp0, pctx-
>c_credit_lim_bp[0], errhp,":c_credit_lim",
        ADR(c_credit_lim),SIZ(int), SQLT_INT,
&pctx->c_credit_lim_len);
  OCIBNDPL(pctx->curp0, pctx-
>c_discount_bp[0], errhp,":c_discount",
        ADR(c_discount),SIZ(c_discount),
SQLT_FLT, &pctx->c_discount_len);

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   OCIBNDPL(pctx->curp0, pctx-
>c_balance_bp[0], errhp,":c_balance",
!          ADR(c_balance), SIZ(double),SQLT_FLT,
&pctx->c_balance_len);
#endif

#ifdef USE_IEEE_NUMBER
  OCIBNDPL(pctx->curp0, pctx-
>c_balance_bp[0], errhp,":c_balance",
        ADR(c_balance),
SIZ(double),SQLT_BDOUBLE, &pctx-
>c_balance_len);
#else
  OCIBNDPL(pctx->curp0, pctx-
>c_balance_bp[0], errhp,":c_balance",
        ADR(c_balance), SIZ(double),SQLT_FLT,
&pctx->c_balance_len);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

  OCIBNDPL(pctx->curp0, pctx->c_data_bp[0],
errhp,":c_data",c_data,SIZ(c_data),
        SQLT_STR, &pctx->c_data_len);
/*
  OCIBNDR(pctx->curp0, pctx->h_date_bp,
errhp,":h_date",h_date,SIZ(h_date),
        SQLT_STR, &pctx->h_date_ind, &pctx-
>h_date_len, &pctx->h_date_rc);
*/
  OCIBNDPL(pctx->curp0, pctx->retries_bp[0],
errhp,":retry",ADR(retries),
        SIZ(int), SQLT_INT, &pctx->retries_len);
  OCIBNDPL(pctx->curp0, pctx->cr_date_bp[0],
errhp,":cr_date",ADR(cr_date),
        SIZ(OCIDate),SQLT_ODT, &pctx-
>cr_date_len);

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


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

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   OCIBNDPL(pctx->curp1, pctx-
>h_amount_bp[1],
errhp,":h_amount",ADR(h_amount),
!          SIZ(int),SQLT_INT, &pctx-
>h_amount_len);
#endif

#ifdef USE_IEEE_NUMBER
  OCIBNDPL(pctx->curp1, pctx-
>h_amount_bp[1],
errhp,":h_amount",ADR(h_amount),
        SIZ(float),SQLT_BFLOAT, &pctx-
>h_amount_len);
#else
  OCIBNDPL(pctx->curp1, pctx-
>h_amount_bp[1],
errhp,":h_amount",ADR(h_amount),
        SIZ(int),SQLT_INT, &pctx-
>h_amount_len);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

  OCIBND(pctx->curp1, pctx->c_last_bp[1],
errhp,":c_last",c_last,SIZ(c_last),
        SQLT_STR);
  OCIBNDPL(pctx->curp1, pctx-
>w_street_1_bp[1],
errhp,":w_street_1",w_street_1,
        SIZ(w_street_1),SQLT_STR, &pctx-
>w_street_1_len);
```

```
  OCIBNDPL(pctx->curp1, pctx-
>w_street_2_bp[1],
errhp,":w_street_2",w_street_2,
        SIZ(w_street_2),SQLT_STR, &pctx-
>w_street_2_len);
  OCIBNDPL(pctx->curp1, pctx->w_city_bp[1],
errhp,":w_city",w_city,SIZ(w_city),
        SQLT_STR, &pctx->w_city_len);
  OCIBNDPL(pctx->curp1, pctx->w_state_bp[1],
errhp,":w_state",w_state,
        SIZ(w_state), SQLT_STR, &pctx-
>w_state_len);
  OCIBNDPL(pctx->curp1, pctx->w_zip_bp[1],
errhp,":w_zip",w_zip,SIZ(w_zip),
        SQLT_STR, &pctx->w_zip_len);
  OCIBNDPL(pctx->curp1, pctx-
>d_street_1_bp[1],
errhp,":d_street_1",d_street_1,
        SIZ(d_street_1),SQLT_STR, &pctx-
>d_street_1_len);
  OCIBNDPL(pctx->curp1, pctx-
>d_street_2_bp[1],
errhp,":d_street_2",d_street_2,
        SIZ(d_street_2),SQLT_STR, &pctx-
>d_street_2_len);
  OCIBNDPL(pctx->curp1, pctx->d_city_bp[1],
errhp,":d_city",d_city,SIZ(d_city),
        SQLT_STR, &pctx->d_city_len);
  OCIBNDPL(pctx->curp1, pctx->d_state_bp[1],
errhp,":d_state",d_state,
        SIZ(d_state), SQLT_STR, &pctx-
>d_state_len);
  OCIBNDPL(pctx->curp1, pctx->d_zip_bp[1],
errhp,":d_zip",d_zip,SIZ(d_zip),
        SQLT_STR, &pctx->d_zip_len);
  OCIBNDPL(pctx->curp1, pctx->c_first_bp[1],
errhp,":c_first",c_first,
        SIZ(c_first), SQLT_STR, &pctx-
>c_first_len);
  OCIBNDPL(pctx->curp1, pctx->c_middle_bp[1],
errhp,":c_middle",c_middle,2,
        SQLT_AFC, &pctx->c_middle_len);

  OCIBNDPL(pctx->curp1, pctx-
>c_street_1_bp[1],
errhp,":c_street_1",c_street_1,
        SIZ(c_street_1),SQLT_STR, &pctx-
>c_street_1_len);
  OCIBNDPL(pctx->curp1, pctx-
>c_street_2_bp[1],
errhp,":c_street_2",c_street_2,
        SIZ(c_street_2),SQLT_STR, &pctx-
>c_street_2_len);
  OCIBNDPL(pctx->curp1, pctx->c_city_bp[1],
errhp,":c_city",c_city,
        SIZ(c_city),SQLT_STR, &pctx-
>c_city_len);
  OCIBNDPL(pctx->curp1, pctx->c_state_bp[1],
errhp,":c_state",c_state,
        SIZ(c_state), SQLT_STR, &pctx-
>c_state_len);
  OCIBNDPL(pctx->curp1, pctx->c_zip_bp[1],
errhp,":c_zip",c_zip,SIZ(c_zip),
        SQLT_STR, &pctx->c_zip_len);
  OCIBNDPL(pctx->curp1,  pctx->c_phone_bp[1],
errhp,":c_phone",c_phone,
        SIZ(c_phone), SQLT_STR, &pctx-
>c_phone_len);
  OCIBNDPL(pctx->curp1, pctx->c_since_bp[1],
errhp,":c_since",&c_since,
        SIZ(OCIDate), SQLT_ODT, &pctx-
>c_since_len);
  OCIBNDPL(pctx->curp1, pctx->c_credit_bp[1],
errhp,":c_credit",c_credit,
        SIZ(c_credit),SQLT_CHR, &pctx-
>c_credit_len);
  OCIBNDPL(pctx->curp1, pctx-
>c_credit_lim_bp[1], errhp,":c_credit_lim",
        ADR(c_credit_lim),SIZ(int), SQLT_INT,
&pctx->c_credit_lim_len);
  OCIBNDPL(pctx->curp1, pctx-
>c_discount_bp[1], errhp,":c_discount",
        ADR(c_discount),SIZ(c_discount),
SQLT_FLT, &pctx->c_discount_len);

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   OCIBNDPL(pctx->curp1, pctx-
>c_balance_bp[1], errhp,":c_balance",
!         ADR(c_balance), SIZ(double),SQLT_FLT,
&pctx->c_balance_len);
#endif

#ifdef USE_IEEE_NUMBER
  OCIBNDPL(pctx->curp1, pctx-
>c_balance_bp[1], errhp,":c_balance",
        ADR(c_balance),
SIZ(double),SQLT_BDOUBLE, &pctx-
>c_balance_len);
#else
  OCIBNDPL(pctx->curp1, pctx-
>c_balance_bp[1], errhp,":c_balance",
        ADR(c_balance), SIZ(double),SQLT_FLT,
&pctx->c_balance_len);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

  OCIBNDPL(pctx->curp1, pctx->c_data_bp[1],
errhp,":c_data",c_data,SIZ(c_data),
        SQLT_STR, &pctx->c_data_len);
/*
  OCIBNDR(pctx->curp1, pctx->h_date_bp1,
errhp,":h_date",h_date,SIZ(h_date),
        SQLT_STR, &pctx->h_date_ind, &pctx-
>h_date_len, &pctx->h_date_rc);
*/
  OCIBNDPL(pctx->curp1, pctx->retries_bp[1],
errhp,":retry",ADR(retries),
        SIZ(int), SQLT_INT, &pctx->retries_len);
  OCIBNDPL(pctx->curp1, pctx->cr_date_bp[1],
errhp,":cr_date",ADR(cr_date),
        SIZ(OCIDate),SQLT_ODT, &pctx-
>cr_date_len);

  return (0);

}



int tkvcp ()
{

retry:

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

  if(bylastname) {
    DBGLOG("PAY:[2]Start",0);
    execstatus=OCIStmtExecute(tpcsvc,pctx-
>curp1,errhp,1,0,
             NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),

OCI_DEFAULT|OCI_COMMIT_ON_SUCCESS);
    DBGLOG("PAY:[2]End  >%d",execstatus);
  } else {
    DBGLOG("PAY:[3]Start",0);
    execstatus=OCIStmtExecute(tpcsvc,pctx-
>curp0,errhp,1,0,
             NULLP(CONST
OCISnapshot),NULLP(OCISnapshot),

OCI_DEFAULT|OCI_COMMIT_ON_SUCCESS);
    DBGLOG("PAY:[3]End  >%d",execstatus);
  }


  if(execstatus != OCI_SUCCESS) {

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


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


::::::::::::::::::::::::::::::::
 svrapl/3tier/plsto.c
```

```
::::::::::::::::::::::::::::::::

#ifdef RCSID
static char *RCSid =
   "$Header: plsto.c 7010000.3 95/02/14
12:48:03 plai Generic<base> $ Copyr (c) 1994
Oracle";
#endif /* RCSID */

/*==================================
==============================+
 |        Copyright (c) 1994  Oracle Corp,
Redwood Shores, CA       |
 |                  OPEN SYSTEMS
PERFORMANCE GROUP                 |
 |                        All Rights Reserved
|

+==================================
=============================+
 | FILENAME
 |    plsto.c
 | DESCRIPTION
 |    OCI version of STOCK LEVEL transaction in
TPC-C benchmark.

+==================================
=============================*/



#include "forlinux.h"
#include "log.h"
#include "tpcc.h"
#include "GlobalArea.h"
#include "prototype.h"

#ifdef PLSQLSTO
#define SQLTXT "BEGIN
stocklevel.getstocklevel (:w_id, :d_id, :threshold,
\
   :low_stock); END;"
#else
/* Replaced Hayashi 06.02.20 New Oracle10g
tool kit */
#if 0
!/* Replaced Hayashi 06.01.12 New Oracle10g
tool kit */
!/* Replaced T.Kato 03.07.18 New Oracle10i tool
kit */
!/*#define SQLTXT "SELECT count (DISTINCT
s_i_id) \ */
!/*#define SQLTXT "SELECT /*+ nocache (stok)
*/ count (DISTINCT s_i_id)\  */
!/*#define SQLTXT "SELECT /*+ USE_NL(ordl)
nocache (stok) */ count (DISTINCT s_i_id) \ */
#endif
#define SQLTXT "SELECT /*+ USE_NL(ordl) */
count (DISTINCT s_i_id) \
            FROM ordl, stok, dist \
            WHERE d_id = :d_id AND d_w_id
= :w_id AND \
                  d_id = ol_d_id AND d_w_id = ol_w_id
AND \
                  ol_i_id = s_i_id AND ol_w_id =
s_w_id AND \
                  s_quantity < :threshold AND \
                  ol_o_id BETWEEN (d_next_o_id -
20) AND (d_next_o_id - 1) \
                  order by ol_o_id desc"
#endif


int tkvcsinit ()
{
   text stmbuf[SQL_BUF_SIZE];
```

```
   sctx = (stoctx *)malloc(sizeof(stoctx));
   memset(sctx,(char)0,sizeof(stoctx));

   sctx->norow=0;

   OCIERROR(errhp,
     OCIHandleAlloc(tpcenv,(dvoid**)&sctx-
>curs,OCI_HTYPE_STMT,0,(dvoid**)0));
   sprintf ((char *) stmbuf, SQLTXT);
   OCIERROR(errhp,OCIStmtPrepare(sctx-
>curs,errhp,stmbuf,strlen((char *)stmbuf),

OCI_NTV_SYNTAX,OCI_DEFAULT));
#ifndef PLSQLSTO
   OCIERROR(errhp,
     OCIAttrSet(sctx-
>curs,OCI_HTYPE_STMT,(dvoid*)&sctx-
>norow,0,

OCI_ATTR_PREFETCH_ROWS,errhp));
#endif

   /* bind variables */

   OCIBND(sctx->curs,sctx->w_id_bp,errhp,
":w_id", ADR(w_id),sizeof(int),
         SQLT_INT);
   OCIBND(sctx->curs,sctx->d_id_bp,errhp,
":d_id", ADR(d_id),sizeof(int),
     SQLT_INT);

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   OCIBND(sctx->curs,sctx->threshold_bp,errhp,
":threshold", ADR(threshold),
!      sizeof(int),SQLT_INT);
#endif

#ifdef USE_IEEE_NUMBER
   OCIBND(sctx->curs,sctx->threshold_bp,errhp,
":threshold", ADR(threshold),
     sizeof(float),SQLT_BFLOAT);
#else
   OCIBND(sctx->curs,sctx->threshold_bp,errhp,
":threshold", ADR(threshold),
     sizeof(int),SQLT_INT);
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

#ifdef PLSQLSTO
   OCIBND(sctx->curs,sctx-
>low_stock_bp,errhp,":low_stock" ,
ADR(low_stock),
     sizeof(int), SQLT_INT);
#else
   OCIDEFINE(sctx->curs,sctx-
>low_stock_bp,errhp, 1, ADR(low_stock),
     sizeof(int), SQLT_INT);
#endif

   return (0);

}



int tkvcs ()
{


retry:
    DBGLOG("STO:[1]Start",0);
    execstatus= OCIStmtExecute(tpcsvc,sctx-
>curs,errhp,1,0,0,0,
```

```
OCI_COMMIT_ON_SUCCESS |
OCI_DEFAULT);
    DBGLOG("STO:[1]End  >%d",execstatus);
    if (execstatus != OCI_SUCCESS)
    {
      errcode=OCIERROR(errhp,execstatus);

OCITransCommit(tpcsvc,errhp,OCI_DEFAULT);
      if((errcode == NOT_SERIALIZABLE) ||
(errcode == RECOVERR)
          || (errcode == SNAPSHOT_TOO_OLD))
      {
         retries++;
         goto retry;
      } else {
         return -1;
      }
     }

  return (0);
}


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


::::::::::::::::::::::::::::::::
 svrapl/3tier/tpccpl.c
::::::::::::::::::::::::::::::::

#ifdef RCSID
static char *RCSid =
   "$Header: tpccpl.c 7030100.2 96/04/02
17:51:34 plai Generic<base> $ Copyr (c) 1994
Oracle";
#endif /* RCSID */


/*==================================
==============================+
 |        Copyright (c) 1994  Oracle Corp,
Redwood Shores, CA       |
 |                  OPEN SYSTEMS
PERFORMANCE GROUP                 |
 |                        All Rights Reserved
|

+==================================
=============================+
 | FILENAME
 |    tpccpl.c
 | DESCRIPTION
 |    TPC-C transactions in PL/SQL.

+==================================
=============================*/


#include "forlinux.h"
#include <stdio.h>
#include <sys/types.h>
#include <sys/poll.h>
#include <sys/time.h>
#include <unistd.h>
//#include <time.h>
#include "tpcc.h"
/* Added T.Kato 02.10.23 Ajustment interface for
transaction data organization format*/
#include "tpcc_info.h"
/* Added end */
#include "log.h"
#include "log_level.h"
```

```
#include "GlobalArea.h"
#include "prototype.h"


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

#ifdef ORA_NT
#undef boolean
#include "dpbcore.h"
#define gettime dpbtimef
#else
extern double gettime ();
#endif


/*
extern char oracle_home[256];
*/

/* NewOrder Binding stuff */


/* vmm313 void ocierror(fname, lineno, errhp,
status)  */
int ocierror(char *fname, int lineno, OCIError
*errhp, sword status)
{
  text errbuf[512];
  sb4 errcode;
  sb4 lstat;
  ub4 recno=2;

  switch (status) {
  case OCI_SUCCESS:
    break;

  case OCI_SUCCESS_WITH_INFO:
    TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
    TpccUserLog(LOG_FILE_INF, "Error -
OCI_SUCCESS_WITH_INFO\n");

    lstat = OCIErrorGet (errhp, recno++, (text *)
NULL, &errcode, errbuf,
                         (ub4) sizeof(errbuf),
OCI_HTYPE_ERROR);

    TpccUserLog(LOG_FILE_INF, "Error - %s\n",
errbuf);
    break;

  case OCI_NEED_DATA:
    TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
    TpccUserLog(LOG_FILE_INF, "Error -
OCI_NEED_DATA\n");
    return (IRRECERR);

  case OCI_NO_DATA:
    TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
    TpccUserLog(LOG_FILE_INF, "Error -
OCI_NO_DATA\n");
    return (IRRECERR);

  case OCI_ERROR:
  /* Replaced T.Kato 03.09.12 */
#if 0
!    lstat = OCIErrorGet (errhp, (ub4) 1,
!                (text *) NULL, &errcode, errbuf,
!                      (ub4) sizeof(errbuf),
OCI_HTYPE_ERROR);
!   if (errcode == NOT_SERIALIZABLE) return
(errcode);
!    if (errcode == SNAPSHOT_TOO_OLD) return
(errcode);
#endif

    lstat = OCIErrorGet (errhp, (ub4) 1,
                (text *) NULL, &errcode, errbuf,
                      (ub4) sizeof(errbuf),
OCI_HTYPE_ERROR);
    if (errcode == NOT_SERIALIZABLE) {
       TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
          TpccUserLog(LOG_FILE_INF,
"Information - NOT_SERIALIZABLE
(OCI_ERROR)\n");
             return (errcode);
        }
    if (errcode == SNAPSHOT_TOO_OLD) {
       TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
          TpccUserLog(LOG_FILE_INF,
"Information - SNAPSHOT_TOO_OLD
(OCI_ERROR)\n");
             return (errcode);
       }

/* Replaced end */
    while (lstat != OCI_NO_DATA)
    {
      TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
      TpccUserLog(LOG_FILE_INF, "Error - %s\n",
errbuf);

      lstat = OCIErrorGet (errhp, recno++, (text *)
NULL, &errcode, errbuf,
                         (ub4) sizeof(errbuf),
OCI_HTYPE_ERROR);
    }
    return (errcode);
/* vmm313    TPCexit(1); */
/* vmm313    exit(1); */

  case OCI_INVALID_HANDLE:
    TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
    TpccUserLog(LOG_FILE_INF, "Error -
OCI_INVALID_HANDLE\n");
/* Replaced 03.05.15 TPCexit no argument */
//   TPCexit(1);
    TPCexit();
/* Replaced end */
    exit(-1);

  case OCI_STILL_EXECUTING:
    TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
    TpccUserLog(LOG_FILE_INF, "Error -
OCI_STILL_EXECUTE\n");
    return (IRRECERR);

  case OCI_CONTINUE:
    TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
    TpccUserLog(LOG_FILE_INF, "Error -
OCI_CONTINUE\n");
    return (IRRECERR);

  default:
    TpccUserLog(LOG_FILE_INF, "Module %s
Line %d\n", fname, lineno);
    TpccUserLog(LOG_FILE_INF, "Status - %d\n",
status);
    return (IRRECERR);
  }
  return (RECOVERR);
}


FILE  *vopen(char *fnam, char *mode)
{
FILE *fd;

#ifdef  DEBUG
!  fprintf(stderr, "tkvuopen() fnam: %s,
mode: %s\n", fnam, mode);
#endif

    fd = fopen((char *)fnam,(char *)mode);
    if (!fd){
        TpccUserLog(LOG_FILE_INF, "fopen
on %s failed %d\n",fnam,fd);
        exit(-1);
    }
    return(fd);
}

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

#ifdef  DEBUG
  fprintf(stderr, "sqlfile() fnam: %s,
linebuf: %#x\n", fnam, linebuf);
#endif

/*

sprintf(realfile,"%s/bench/tpc/tpcc/blocks/%s",ora
cle_home,fnam);
*/
    sprintf(realfile,"%s",fnam);
    fd = vopen(realfile,"r");
    while (fgets((char *)linebuf+nulpt,
SQL_BUF_SIZE,fd))
    {
        nulpt = strlen((char *)linebuf);
    }
    return(nulpt);
}

#ifdef NOT
void vgetdate (unsigned char *oradt)
{
 struct tm *loctime;
 time_t  int_time;

 struct ORADATE {
 unsigned char  century;
 unsigned char  year;
 unsigned char  month;
 unsigned char  day;
 unsigned char  hour;
 unsigned char  minute;
 unsigned char  second;
 } Date;
int century;
int cnvrtOK;

/* assume convert is successful */
cnvrtOK = 1;

/* get the current date and time as an integer */
time( &int_time);
```

```
/* Convert the current date and time into local
time */
loctime = localtime( &int_time);

century = (1900+loctime->tm_year) / 100;

Date.century = (unsigned char)(century + 100);
if (Date.century < 119 || Date.century > 120)
cnvrtOK = 0;
Date.year  = (unsigned char)(loctime-
>tm_year+100);
if (Date.year < 100 || Date.year > 199) cnvrtOK =
0;
Date.month = (unsigned char)(loctime->tm_mon
+ 1);
if (Date.month < 1 || Date.month > 12) cnvrtOK =
0;
Date.day   = (unsigned char)loctime->tm_mday;
if (Date.day < 1 || Date.day > 31) cnvrtOK = 0;
Date.hour  = (unsigned char)(loctime->tm_hour
+ 1);
if (Date.hour < 1 || Date.hour > 24) cnvrtOK = 0;
Date.minute= (unsigned char)(loctime->tm_min
+ 1);
if (Date.minute < 1 || Date.minute > 60) cnvrtOK
= 0;
Date.second= (unsigned char)(loctime->tm_sec
+ 1);
if (Date.second < 1 || Date.second > 60) cnvrtOK
= 0;


if (cnvrtOK)
  memcpy(oradt,&Date,7);
  else
    *oradt = '\0';

 return;

}
void cvtdmy (unsigned char *oradt, char
*outdate)
{

        struct ORADATE {
                unsigned char   century;
                unsigned char   year;
                unsigned char   month;
                unsigned char   day;
                unsigned char   hour;
                unsigned char   minute;
                unsigned char   second;
        } Date;


        int day,month,year;

        memcpy(&Date,oradt,7);

        year = (Date.century-100)*100 + Date.year-
100;
        month = Date.month;
        day = Date.day;
        sprintf(outdate,"%02d-%02d-
%4d\0",day,month,year);

        return;
}

void cvtdmyhms (unsigned char *oradt, char
*outdate)
{

        struct ORADATE {
                unsigned char   century;
                unsigned char   year;
                unsigned char   month;
                unsigned char   day;
                unsigned char   hour;
                unsigned char   minute;
                unsigned char   second;
        } Date;


        int day,month,year;
        int hour,min,sec;

        memcpy(&Date,oradt,7);

        year = (Date.century-100)*100 + Date.year-
100;
        month = Date.month;
        day = Date.day;
        hour = Date.hour - 1;
        min = Date.minute - 1;
        sec = Date.second - 1;

        sprintf(outdate,"%02d-%02d-
%4d %02d:%02d:%02d\0",
                day,month,year,hour,min,sec);

        return;
}
#endif


void TPCexit (void)
{

   TpccUserLog(LOG_INF, "Server Apl end
procedure execute (TPCexit)\n");

   if (new_init) {
     tkvcndone();
     new_init = 0;
   }

   if (pay_init) {
     tkvcpdone();
     pay_init = 0;
   }

   if (ord_init) {
     tkvcodone();
     ord_init = 0;
   }


#ifdef DEL_ORA8I
   if (del_init) {
     tkvcddone();
     del_init = 0;
   }
#else
   if (del_init_oci) {
     tkvcddone(0);
     del_init_oci = 0;
   }

   if (del_init_plsql) {
     tkvcddone(1);
     del_init_plsql = 0;
   }
#endif

   if (sto_init) {
     tkvcsdone();
     sto_init = 0;
   }

/* Deleted T.Kato 040120 Shutdown can
disconnect server normaly without the following
logic for TUXEDO. */
/*                      But You must be valid the
following logic  for COM+. */
#if 0
!
OCIERROR(errhp,OCISessionEnd(tpcsvc,errhp,
tpcusr, OCI_DEFAULT));
!   OCIERROR(errhp,OCIServerDetach(tpcsrv,
errhp, OCI_DEFAULT));
#endif
/* Deleted end */

   OCIHandleFree((dvoid *)tpcusr,
OCI_HTYPE_SESSION);
   OCIHandleFree((dvoid *)tpcsvc,
OCI_HTYPE_SVCCTX);
   OCIHandleFree((dvoid *)errhp,
OCI_HTYPE_ERROR);
   OCIHandleFree((dvoid *)tpcsrv,
OCI_HTYPE_SERVER);
   OCIHandleFree((dvoid *)tpcenv,
OCI_HTYPE_ENV);


   /* Close Derivery log */
   if (lfp) {
      fclose (lfp);
      lfp = NULL;
   }
  TpccUserLog(LOG_INF, "TPCexit all
finished\n");

}



int TPCinit (int id, char *uid, char *pwd)
{

/* Deleted T.Kato 02.10.24 Deleted derivery log
open
!   char filename[40];
   Deleted end */

   text stmbuf[100];

/* Added T.Kato 02.10.24 */
   sword rval;
/* Added End */


/* Replaced T.kato 02.10.24 Moved delivery log
open */
#if 0
!   proc_no = id;
!   sprintf (filename, "tpcc_%d.del", proc_no);
!   if ((lfp = fopen (filename, "w")) == NULL) {
!#ifdef TUX
!      TpccUserLog ("Error in TPC-C server %d:
Failed to open %s\n",
!               proc_no, filename);
!#else
!      fprintf (stderr, "Error in TPC-C server %d:
Failed to open %s\n",
!               proc_no, filename);
!#endif
!      return (-1);
!   }
#endif

   // Init delevery flag
   iflg = 0;
```

```
/* replaced end */

/* Replaced T.Kato 04.03.14 For Tuxedo
process */
#if 0
!/* Replaced 03.05.19 For Thread */
!#if 0
!!
OCIInitialize(OCI_DEFAULT|OCI_OBJECT,(dvoi
d *)0,0,0,0);
!#endif
!
OCIInitialize(OCI_THREADED|OCI_OBJECT,(d
void *)0,0,0,0);
!/* Replaced end */
#endif


OCIInitialize(OCI_DEFAULT|OCI_OBJECT,(dvoi
d *)0,0,0,0);
/* Replaced end */

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


/* Replaced T.Kato 02.10.24 Retry until
successfully
!   OCIServerAttach(tpcsrv, errhp, (text
*)0,0,OCI_DEFAULT);
*/
  for (;;) {
    rval = OCIServerAttach(tpcsrv, errhp, (text
*)0,0,OCI_DEFAULT);
    if (rval == OCI_SUCCESS || rval ==
OCI_SUCCESS_WITH_INFO)
      break;
      OCIERROR(errhp, rval);
      sleep(1);
  }
/* Replaced end */

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

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

  /* run all transaction in serializable mode */

  OCIHandleAlloc(tpcenv, (dvoid **)&curi,
OCI_HTYPE_STMT, 0, (dvoid**)0);
  sprintf ((char *) stmbuf, SQLTXT);
  OCIStmtPrepare(curi, errhp, stmbuf,
strlen((char *)stmbuf), OCI_NTV_SYNTAX,
OCI_DEFAULT);
  DBGLOG("INI:[1]Start",0);
  OCIERROR(errhp,OCIStmtExecute(tpcsvc,
curi, errhp,1,0,0,0,OCI_DEFAULT));
  DBGLOG("INI:[1]End  ",0);
  OCIHandleFree(curi, OCI_HTYPE_STMT);

/*
This is done in cvdrv.c
  if (tracelevel == 2) {
    OCIHandleAlloc(tpcenv, (dvoid **)&curi,
OCI_HTYPE_STMT, 0, (dvoid**)0);
    memset(stmbuf,0,100);
    sprintf ((char *) stmbuf, SQLTXTTRC);
    OCIStmtPrepare(curi, errhp, stmbuf,
strlen((char *)stmbuf),
                 OCI_NTV_SYNTAX,
OCI_DEFAULT);
    OCIERROR(errhp, OCIStmtExecute(tpcsvc,
curi, errhp,1,0,0,0,OCI_DEFAULT));
    OCIHandleFree((dvoid *)curi,
OCI_HTYPE_STMT);
  }
*/
  if (tracelevel == 3) {
    OCIHandleAlloc(tpcenv, (dvoid **)&curi,
OCI_HTYPE_STMT, 0, (dvoid**)0);
    memset(stmbuf,0,100);
    sprintf ((char *) stmbuf, SQLTXTTIM);
    OCIStmtPrepare(curi, errhp, stmbuf,
strlen((char *)stmbuf),
                 OCI_NTV_SYNTAX,
OCI_DEFAULT);
    DBGLOG("INI:[2]Start",0);
    OCIERROR(errhp, OCIStmtExecute(tpcsvc,
curi, errhp,1,0,0,0,OCI_DEFAULT));
    DBGLOG("INI:[2]End  ",0);
    OCIHandleFree((dvoid *)curi,
OCI_HTYPE_STMT);
  }

  logon = 1;


OCIERROR(errhp,OCIDateSysDate(errhp,&cr_d
ate));

  if (tkvcninit ()) {  /* new order */
    TPCexit ();
    return (-1);
  }
  else
    new_init = 1;

  if (tkvcpinit ()) {   /* payment */
    TPCexit ();
    return (-1);
  }
  else
    pay_init = 1;

  if (tkvcoinit ()) {   /* order status */
    TPCexit ();
    return (-1);
  }
  else
    ord_init = 1;

#ifdef DEL_ORA8I
  if (tkvcdinit ()) {   /* delivery */
    TPCexit ();
    return (-1);
  }
  else
    del_init = 1;
#else
  if (tkvcdinit (0)) {   /* delivery */
    TPCexit ();
    return (-1);
  }
  else
    del_init_oci = 1;

  if (tkvcdinit (1)) {   /* delivery */
    TPCexit ();
    return (-1);
  }
  else
    del_init_plsql = 1;
#endif

  if (tkvcsinit ()) {   /* stock level */
    TPCexit ();
    return (-1);
  }
  else
    sto_init = 1;

  return (0);

}



int TPCnew (struct newstruct *str)
{
/* Added T.Kato 02.11.25 */
#ifndef AVOID_DEADLOCK
  static int
init_value_index[NITEMS]={0,1,2,3,4,5,6,7,8,9,1
0,11,12,13,14};
#endif
/* Added end */
  int i;

  w_id = str->newin.w_id;
  d_id = str->newin.d_id;
  c_id = str->newin.c_id;

/* Added T.Kato 02.10.24 */
  for (i = 0; i < 15; i++) {
        nol_i_id[i] = 0;
    nol_supply_w_id[i] = 0;
    nol_quantity[i] = 0;
  }
/* Added end */

  for (i = 0; i < 15; i++) {
/* Added T.Kato 02.10.24 */
    if((str->newin.ol_i_id[i] == 0) && (str-
>newin.ol_supply_w_id[i] == 0) && (str-
>newin.ol_quantity[i] == 0))
            break;
/* Added end */
    nol_i_id[i] = str->newin.ol_i_id[i];
    nol_supply_w_id[i] = str-
>newin.ol_supply_w_id[i];
/* Replaced T.kato 03.09.09 Oracle10g tool kit */
/*     nol_quantity[i] = str->newin.ol_quantity[i];*/

#ifdef USE_IEEE_NUMBER
        nol_quantity[i] = (float)str-
>newin.ol_quantity[i];
#else
    nol_quantity[i] = str->newin.ol_quantity[i];
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

   }
   retries = 0;

#ifndef AVOID_DEADLOCK

   for (i = NITEMS; i > 0; i--) {
      if (nol_i_id[i-1] > 0) {
         ordl_cnt = i;
         break;
      }
   }

/* Replaced T.Kato 02.11.22 */
//   for (i = 0; i < NITEMS; i++) indx[i] = i;
        memcpy( indx, init_value_index,
sizeof(indx) );
/* Replaced End */

   q_sort_item(nol_i_id, str, 0, ordl_cnt-1);

#endif

/*
   vgetdate(cr_date); */


OCIERROR(errhp,OCIDateSysDate(errhp,&cr_d
ate));

        if ((str->newout.terror = tkvcn ()) != 0) {
      if (str->newout.terror != RECOVERR)
         str->newout.terror = IRRECERR;
      return (-1);
   }

   /* fill in date for o_entry_d from time in
beginning of txn*/
/*
   cvtdmyhms(cr_date,o_entry_d);
*/
    datelen = sizeof(o_entry_d);
    OCIERROR(errhp,

OCIDateToText(errhp,&cr_date,(text*)FULLDAT
E,SIZ(FULLDATE),(text*)0,0,
                   &datelen,o_entry_d));

   str->newout.terror = NOERR;
   str->newout.o_id = o_id;
   str->newout.o_ol_cnt = o_ol_cnt;
   strncpy (str->newout.c_last, c_last, 17);
   strncpy (str->newout.c_credit, c_credit, 3);
   str->newout.c_discount = c_discount;
   str->newout.w_tax = (float)(w_tax);
   str->newout.d_tax = (float)(d_tax);
   strncpy (str->newout.o_entry_d,
(char*)o_entry_d, 20);
/* Replaced T.Kato 02.11.13 */
#if 0
!   str->newout.total_amount = total_amount;
#endif
   str->newout.total_amount = 0.0;
/* Replaced end */
   for (i = 0; i < o_ol_cnt; i++) {
      strncpy (str->newout.i_name[i], i_name[i],
25);
      str->newout.brand_generic[i] =
brand_generic[i][0];

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!     str->newout.s_quantity[i] = s_quantity[i];
!     str->newout.i_price[i] = (float)(i_price[i])/100;
!     str->newout.ol_amount[i] =
(float)(nol_amount[i])/100;
#endif

#ifdef USE_IEEE_NUMBER
      str->newout.s_quantity[i] = (int) s_quantity[i];
      str->newout.i_price[i] = i_price[i]/100;
      str->newout.ol_amount[i] =
nol_amount[i]/100;
#else
      str->newout.s_quantity[i] = s_quantity[i];
      str->newout.i_price[i] = (float)(i_price[i])/100;
      str->newout.ol_amount[i] =
(float)(nol_amount[i])/100;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

/* Added T.Kato 02.11.13 */
      str->newout.total_amount += str-
>newout.ol_amount[i];
/* Added end */



   }

/* Added T.Kato 03.08.15 */
        str->newout.total_amount =
              (float)(str->newout.total_amount * (1.0
- c_discount) * (1.0 + w_tax + d_tax));
/* Added End */
#ifndef AVOID_DEADLOCK
    q_sort(indx, str, 0, ordl_cnt-1);
#endif

   if (status)
      strcpy (str->newout.status, "Item number is
not valid");
   else
      str->newout.status[0] = '\0';
   str->newout.retry = retries;
   return (0);

}



int TPCpay (struct paystruct *str)
{

   long double long64bit;

   w_id = str->payin.w_id;
   d_id = str->payin.d_id;
   c_w_id = str->payin.c_w_id;
   c_d_id = str->payin.c_d_id;

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!  h_amount = str->payin.h_amount;
#endif

#ifdef USE_IEEE_NUMBER
   h_amount = (float) str->payin.h_amount;
#else
   h_amount = str->payin.h_amount;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

   bylastname = str->payin.bylastname;

/* Added T.Kato 03.08.15 */
   memset(c_data, 0x00, sizeof(c_data));
/* Added end */


/*
   vgetdate(cr_date);  */

OCIERROR(errhp,OCIDateSysDate(errhp,&cr_d
ate));

   if (bylastname) {
      c_id = 0;
      strncpy (c_last, str->payin.c_last, 17);
   }
   else {
      c_id = str->payin.c_id;
      strcpy (c_last, " ");
   }
   retries = 0;

   if ((str->payout.terror = tkvcp ()) != 0) {
      if (str->payout.terror != RECOVERR)
         str->payout.terror = IRRECERR;
      return (-1);
   }

/*
   cvtdmyhms(cr_date,h_date);
*/
        hlen=SIZ(h_date);

OCIERROR(errhp,OCIDateToText(errhp,&cr_da
te,

(text*)FULLDATE,(ub1)strlen(FULLDATE),(text*)
0,0,&hlen,h_date));

/*
   cvtdmy(c_since,c_since_d);
*/
        sincelen=SIZ(c_since_d);

OCIERROR(errhp,OCIDateToText(errhp,&c_sin
ce,

(text*)SHORTDATE,(ub1)strlen(SHORTDATE),(t
ext*)0,0,&sincelen,c_since_d));



   str->payout.terror = NOERR;
   strncpy (str->payout.w_street_1, w_street_1,
21);
   strncpy (str->payout.w_street_2, w_street_2,
21);
   strncpy (str->payout.w_city, w_city, 21);
   strncpy (str->payout.w_state, w_state, 3);
   strncpy (str->payout.w_zip, w_zip, 10);
   strncpy (str->payout.d_street_1, d_street_1,
21);
   strncpy (str->payout.d_street_2, d_street_2,
21);
   strncpy (str->payout.d_city, d_city, 21);
   strncpy (str->payout.d_state, d_state, 3);
   strncpy (str->payout.d_zip, d_zip, 10);
   str->payout.c_id = c_id;
   strncpy (str->payout.c_first, c_first, 17);
   strncpy (str->payout.c_middle, c_middle, 3);
   strncpy (str->payout.c_last, c_last, 17);
   strncpy (str->payout.c_street_1, c_street_1,
21);
   strncpy (str->payout.c_street_2, c_street_2,
21);
   strncpy (str->payout.c_city, c_city, 21);
   strncpy (str->payout.c_state, c_state, 3);
   strncpy (str->payout.c_zip, c_zip, 10);
   strncpy (str->payout.c_phone, c_phone, 17);
```

```
  strncpy (str->payout.c_since, (char*)c_since_d,
11);
  strncpy (str->payout.c_credit, c_credit, 3);

/* Replaced T.Kato 03.08.15 */
  /*str->payout.c_credit_lim =
(float)(c_credit_lim)/100;*/

  long64bit = (long double)((c_credit_lim / 100.0
+ 0.005555) * 100.0);
  str->payout.c_credit_lim =
(float)((double)long64bit / 100.0);
/* replaced end */

  str->payout.c_discount = c_discount;
/* Replaced T.Kato 03.08.15 */
  /*str->payout.c_balance =
(float)(c_balance)/100;*/
  long64bit = (long double)((c_balance / 100.0 +
0.005555) * 100.0);
  str->payout.c_balance =
(float)((double)long64bit / 100.0);
/* Replaced end */
  strncpy (str->payout.c_data, c_data, 201);
  strncpy (str->payout.h_date, (char*)h_date,
20);
  str->payout.retry = retries;
  return (0);

}



int TPCord (struct ordstruct *str)
{

  int i;
  w_id = str->ordin.w_id;
  d_id = str->ordin.d_id;
  bylastname = str->ordin.bylastname;
  if (bylastname) {
    c_id = 0;
    strncpy (c_last, str->ordin.c_last, 17);
  }
  else {
    c_id = str->ordin.c_id;
    strcpy (c_last, " ");
  }
  retries = 0;

  if ((str->ordout.terror = tkvco ()) != 0) {
    if (str->ordout.terror != RECOVERR)
      str->ordout.terror = IRRECERR;
    return (-1);
  }

  datelen = sizeof(o_entry_d);
  OCIERROR(errhp,

OCIDateToText(errhp,&o_entry_d_base,(text*)F
ULLDATE,SIZ(FULLDATE),(text*)0,0,
                &datelen,o_entry_d));

  str->ordout.terror = NOERR;
  str->ordout.c_id = c_id;
  strncpy (str->ordout.c_last, c_last, 17);
  strncpy (str->ordout.c_first, c_first, 17);
  strncpy (str->ordout.c_middle, c_middle, 3);
  str->ordout.c_balance = c_balance/100;
  str->ordout.o_id = o_id;
  strncpy (str->ordout.o_entry_d,
(char*)o_entry_d, 20);
  if ( o_carrier_id == 11 )
     str->ordout.o_carrier_id = 0;
  else
```

```
     str->ordout.o_carrier_id = o_carrier_id;
  str->ordout.o_ol_cnt = o_ol_cnt;
  for (i = 0; i < o_ol_cnt; i++) {
    ol_delivery_d[i][10] = '\0';
/* Replaced by TSL -- BEGIN -- 2006.03.17
adjust data on DB. */
/*    if ( !strcmp((char*)ol_delivery_d[i],"15-09-
1911") ) */

    if ( !strcmp((char*)ol_delivery_d[i],"01-01-
1811") )
/* Replaced by TSL -- END -- 2006.03.17 adjust
data on DB. */

       strncpy((char*)ol_delivery_d[i],"NOT
DELIVR",10);
    str->ordout.ol_supply_w_id[i] =
ol_supply_w_id[i];
    str->ordout.ol_i_id[i] = ol_i_id[i];

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!     str->ordout.ol_quantity[i] = ol_quantity[i];
!     str->ordout.ol_amount[i] =
(float)(ol_amount[i])/100;
#endif

#ifdef USE_IEEE_NUMBER
    str->ordout.ol_quantity[i] = (int) ol_quantity[i];
    str->ordout.ol_amount[i] = ol_amount[i]/100;
#else
    str->ordout.ol_quantity[i] = ol_quantity[i];
    str->ordout.ol_amount[i] =
(float)(ol_amount[i])/100;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

    strncpy (str->ordout.ol_delivery_d[i],
(char*)ol_delivery_d[i], 11);
  }
  str->ordout.retry = retries;
  return (0);

}



int TPCdel (struct delstruct *str)
{

/* Replaced T.kato 02.10.24 Change the delivery
log writing method */
#if 0
!  double tr_end;
!  int i;
#endif

  int     i;

/* Replaced T.kato 03.12.22 Convert to linux
time. */
#if 0
!  SYSTEMTIME systemTime;
!  struct  tm times;
#else
  struct  timeval times;
  int     msec;
#endif
/* Replaced end  */

  char      filename[40];
  //int       svrcnt;
/* Replaced end */
```

```
/* Added T.Kato 02.10.24 Open the delivery log
file */
  if(iflg == 0)
  {
    // Execute first delivery transaction
    sprintf (filename,
"/home/tpc/dellog/tpcc_%08d.del", (int)getpid());

    if ((lfp = fopen (filename, "w")) == NULL) {
      TpccUserLog (LOG_FILE_INF,
"DELIVERY: Error in TPC-C server %d: Failed to
open %s\n",
            proc_no, filename);
              return (-1);
    }

    // Set first execution indicator
    iflg = 1;
  }
/* Added end */

  w_id = str->delin.w_id;
  o_carrier_id = str->delin.o_carrier_id;
  retries = 0;
/*
  vgetdate(cr_date);  */

OCIERROR(errhp,OCIDateSysDate(errhp,&cr_d
ate));
#ifdef DEL_ORA8I
  if ((str->delout.terror = tkvcd ()) != 0) {
#else
  if ((str->delout.terror = tkvcd (PLSQLFLAG)) !=
0) { // "PLSQLFLAG" are supplied from Compile
option!!
#endif
    if(str->delout.terror == DEL_ERROR)
      return DEL_ERROR;
    if (str->delout.terror != RECOVERR)
      str->delout.terror = IRRECERR;
    return (-1);
  }

/* Replaced T.Kato 02.10.24 Chenged time
stamp method */
#if 0
!  tr_end = gettime ();
!  fprintf (lfp, "%d %d %f %f %d %d", str-
>delin.in_timing_int,
!         (tr_end - str->delin.qtime) <= DELRT ?
1 : 0,
!         str->delin.qtime, tr_end, w_id,
o_carrier_id);
#endif

/* Replaced T.Kato 03.12.22  Convert to linux
time. */
#if 0
!  GetLocalTime(&systemTime);
!  times.tm_year = (int)systemTime.wYear -
1900;
!  times.tm_mon  = (int)systemTime.wMonth - 1;
!  times.tm_mday = (int)systemTime.wDay;
!  times.tm_hour = (int)systemTime.wHour;
!  times.tm_min  = (int)systemTime.wMinute;
!  times.tm_sec  = (int)systemTime.wSecond;
!
!  fprintf(lfp,"%09d%03d %09d%03d %d %d",str-
>delin.startsec,
!           str->delin.startusec,((long)mktime
(&times)),(long)systemTime.wMilliseconds,w_id,
o_carrier_id);
/* Replaced end */
#else
```

```
   /* get system time */
   gettimeofday(&times, 0);
   msec = times.tv_usec / 1000;


fprintf(lfp,"%010d%03d %010d%03d %d %d",(int
)str->delin.startsec,
            (int)str->delin.startusec,
(int)times.tv_sec, msec, w_id,o_carrier_id);
#endif
/* Replaced end T.Kato */

   for (i = 0; i < 10; i++) {
      fprintf (lfp, " %d %d", i + 1, del_o_id[i]);
      if (del_o_id[i] <= 0) {
         TpccUserLog (LOG_FILE_INF,
"DELIVERY: no new order for w_id: %d,
d_id %d\n",
               w_id, i + 1);
      }
   }
   fprintf (lfp, " %d\n", retries);
   str->delout.terror = NOERR;
   str->delout.retry = retries;
   return (0);

}



int TPCsto (struct stostruct *str)
{

   w_id = str->stoin.w_id;
   d_id = str->stoin.d_id;

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!   threshold = str->stoin.threshold;
#endif

#ifdef USE_IEEE_NUMBER
   threshold = (float) str->stoin.threshold;
#else
   threshold = str->stoin.threshold;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

   retries = 0;

        if ((str->stoout.terror = tkvcs ()) != 0) {
      if (str->stoout.terror != RECOVERR)
         str->stoout.terror = IRRECERR;
      return (-1);
   }

   str->stoout.terror = NOERR;
   str->stoout.low_stock = low_stock;
   str->stoout.retry = retries;
   return (0);

}

#ifndef AVOID_DEADLOCK


/* Added T.Kato 02.11.22 */
void q_sort_item(int *arr,struct newstruct *str,int
left, int right)
{
  int i, last;

  if(left >= right)
    return;
  swap_item(str,left,(left+right)/2);
```

```
  last = left;
  for(i=left+1;i<=right;i++)
    if(arr[i] < arr[left])
      swap_item(str,last,i);
  swap_item(str,left,last);
  q_sort_item(arr,str,left,last-1);
  q_sort_item(arr,str,last+1,right);
}

void swap_item(struct newstruct *str, int i, int j)
{
  int temp;

/* Added T.kato 03.09.09 Oracle10g tool kit */
#ifdef USE_IEEE_NUMBER
  float temp_float;
#endif
/* Added end */

  temp = indx[i];
  indx[i] = indx[j];
  indx[j] = temp;

  temp = nol_i_id[i];
  nol_i_id[i] = nol_i_id[j];
  nol_i_id[j] = temp;

  temp = nol_supply_w_id[i];
  nol_supply_w_id[i] = nol_supply_w_id[j];
  nol_supply_w_id[j] = temp;

/* Replaced T.kato 03.09.09 Oracle10g tool kit */
#if 0
!  temp = nol_quantity[i];
!  nol_quantity[i] = nol_quantity[j];
!  nol_quantity[j] = temp;
#endif

#ifdef USE_IEEE_NUMBER
  temp_float = nol_quantity[i];
  nol_quantity[i] = nol_quantity[j];
  nol_quantity[j] = temp_float;
#else
  temp = nol_quantity[i];
  nol_quantity[i] = nol_quantity[j];

  nol_quantity[j] = temp;
#endif /* USE_IEEE_NUMBER */
/* Replaced end */

/* Added T.Kato 03.08.15 */
  temp = str->newin.ol_quantity[i];
  str->newin.ol_quantity[i] = str-
>newin.ol_quantity[j];
  str->newin.ol_quantity[j] = temp;
/* Added End */

}
/* Added end */




void q_sort(int *arr,struct newstruct *str,int left,
int right)
{
  int i, last;

  if(left >= right)
    return;
  swap(str,left,(left+right)/2);
  last = left;
  for(i=left+1;i<=right;i++)
    if(arr[i] < arr[left])
      swap(str,last,i);
```

```
  swap(str,left,last);
  q_sort(arr,str,left,last-1);
  q_sort(arr,str,last+1,right);
}

void swap(struct newstruct *str, int i, int j)
{
  int temp;
  char tmpstr[25];
  char tmpch;

/* Added T.Kato 02.11.13 */
  float tmpflt;
/* Added end */


  temp = indx[i];
  indx[i] = indx[j];
  indx[j] = temp;

/* Deleted T.Kato 02.11.22 */
#if 0
!  temp = nol_i_id[i];
!  nol_i_id[i] = nol_i_id[j];
!  nol_i_id[j] = temp;
!
!  temp = nol_supply_w_id[i];
!  nol_supply_w_id[i] = nol_supply_w_id[j];
!  nol_supply_w_id[j] = temp;
!
!  temp = nol_quantity[i];
!  nol_quantity[i] = nol_quantity[j];
!  nol_quantity[j] = temp;
#endif
/* Deleted End */

/* Replaced T.Kato 03.03.19 Chenged Oracle
10i tool kit */
#if 0
!  strcpy(tmpstr,str->newout.i_name[i]);
!  strcpy(str->newout.i_name[i],str-
>newout.i_name[j]);
!  strcpy(str->newout.i_name[j],tmpstr);
#endif
  strncpy(tmpstr,str->newout.i_name[i],25);
  strncpy(str->newout.i_name[i],str-
>newout.i_name[j],25);
  strncpy(str->newout.i_name[j],tmpstr,25);
/* Replaced end */

/* Added T.Kato 03.08.15 */
  temp = str->newin.ol_quantity[i];
  str->newin.ol_quantity[i] = str-
>newin.ol_quantity[j];
  str->newin.ol_quantity[j] = temp;
/* Added End */

  temp = str->newout.s_quantity[i];
  str->newout.s_quantity[i] = str-
>newout.s_quantity[j];
  str->newout.s_quantity[j] = temp;

  tmpch = str->newout.brand_generic[i];
  str->newout.brand_generic[i] = str-
>newout.brand_generic[j];

  str->newout.brand_generic[j] = tmpch;

/* Replaced T.Kato 02.11.13 (int)temp =>
(float)tmpflt */
#if 0
!  temp = str->newout.i_price[i];
!  str->newout.i_price[i] = str->newout.i_price[j];
!  str->newout.i_price[j] = temp;
!
```

```
!  temp = str->newout.ol_amount[i];
!  str->newout.ol_amount[i] = str-
>newout.ol_amount[j];
!  str->newout.ol_amount[j] = temp;
#endif

  tmpflt = str->newout.i_price[i];
  str->newout.i_price[i] = str->newout.i_price[j];
  str->newout.i_price[j] = tmpflt;

  tmpflt = str->newout.ol_amount[i];
  str->newout.ol_amount[i] = str-
>newout.ol_amount[j];
  str->newout.ol_amount[j] = tmpflt;
/* Replaced end */

}

#endif



::::::::::::::::::::::::::::::::
 svrapl/blocks/load_ordordl.sql
::::::::::::::::::::::::::::::::

-- anonymous block for loading order/orderline

DECLARE
   order_idx      PLS_INTEGER;
   order_rows     PLS_INTEGER;
   ordl_rows      PLS_INTEGER;
   ordl_idx       PLS_INTEGER;
   ordl_idx_hi    PLS_INTEGER;
   local_idx      PLS_INTEGER;
BEGIN
   order_rows := :order_rows;
   ordl_rows  := :ordl_rows;
   order_idx  := 1;
   ordl_idx   := 1;

   WHILE (order_idx <= order_rows) LOOP

      INSERT INTO ordr (O_ID, O_D_ID, O_W_ID,
O_C_ID, O_ENTRY_D,
                        O_CARRIER_ID, O_OL_CNT,
O_ALL_LOCAL)
             VALUES
(:o_id(order_idx), :o_d_id(order_idx), :o_w_id(or
der_idx),
                     :o_c_id(order_idx),
SYSDATE, :o_carrier_id(order_idx),
                     :o_ol_cnt(order_idx), 1);

      ordl_idx_hi := ordl_idx + :o_ol_cnt(order_idx)
- 1;

      IF ( :o_id(order_idx) < 2101 ) THEN
          FORALL local_idx IN ordl_idx ..
ordl_idx_hi
             INSERT INTO ordl (OL_O_ID, OL_D_ID,
OL_W_ID, OL_NUMBER,
                               OL_DELIVERY_D, OL_I_ID,
OL_SUPPLY_W_ID, OL_QUANTITY,
                               OL_AMOUNT,
OL_DIST_INFO)
                     VALUES
(:ol_o_id(local_idx), :ol_d_id(local_idx),
                          :ol_w_id(local_idx), :ol_numbe
r(local_idx),
                          SYSDATE, :ol_i_id(local_idx),
                          :ol_supply_w_id(local_idx), 5,
0, :ol_dist_info(local_idx));
      ELSE
          FORALL local_idx IN ordl_idx ..
ordl_idx_hi
             INSERT INTO ordl (OL_O_ID, OL_D_ID,
OL_W_ID, OL_NUMBER,
                               OL_DELIVERY_D, OL_I_ID,
OL_SUPPLY_W_ID, OL_QUANTITY,
                               OL_AMOUNT,
OL_DIST_INFO)
                     VALUES
(:ol_o_id(local_idx), :ol_d_id(local_idx),
                          :ol_w_id(local_idx), :ol_numbe
r(local_idx),
                          to_date('01-Jan-
1811'), :ol_i_id(local_idx),
                          :ol_supply_w_id(local_idx), 5,
                          :ol_amount(local_idx), :ol_dist
_info(local_idx));
      END IF;
      ordl_idx := ordl_idx_hi + 1;
      order_idx := order_idx + 1;
   END LOOP;
END;



::::::::::::::::::::::::::::::::
 svrapl/blocks/paynz.sql
::::::::::::::::::::::::::::::::


DECLARE /* paynz */
      not_serializable         EXCEPTION;
      PRAGMA
EXCEPTION_INIT(not_serializable,-8177);
      deadlock                 EXCEPTION;
      PRAGMA EXCEPTION_INIT(deadlock,-60);
      snapshot_too_old         EXCEPTION;
      PRAGMA
EXCEPTION_INIT(snapshot_too_old,-1555);
   BEGIN
      LOOP BEGIN
         UPDATE ware
           SET w_ytd = w_ytd + :h_amount
          WHERE w_id = :w_id
        RETURNING w_name, w_street_1,
w_street_2, w_city, w_state, w_zip
             INTO
inittpcc.ware_name, :w_street_1, :w_street_2, :w
_city,
                  :w_state, :w_zip;

          UPDATE  cust
             SET  c_balance = c_balance -
 :h_amount,
                  c_ytd_payment = c_ytd_payment
+ :h_amount,
                  c_payment_cnt = c_payment_cnt+1
           WHERE    c_id = :c_id AND c_d_id
= :c_d_id AND
                  c_w_id = :c_w_id
        RETURNING rowid, c_first, c_middle,
c_last, c_street_1,
                  c_street_2, c_city, c_state, c_zip,
c_phone,
                  c_since, c_credit, c_credit_lim,
                  c_discount, c_balance
             INTO
inittpcc.cust_rowid,:c_first, :c_middle, :c_last, :c_
street_1,
                  :c_street_2, :c_city, :c_state, :c_zip, :
c_phone,
                  :c_since, :c_credit, :c_credit_lim,
                  :c_discount, :c_balance;
         IF SQL%NOTFOUND THEN
           raise NO_DATA_FOUND;
         END IF;


        IF :c_credit = 'BC' THEN
           UPDATE cust
             SET c_data = substr ((to_char (:c_id) ||
' ' ||
                           to_char (:c_d_id) || ' ' ||
                           to_char (:c_w_id) || ' ' ||
                           to_char (:d_id) || ' ' ||
                           to_char (:w_id) || ' ' ||
                           to_char (:h_amount/100,
'9999.99') || ' ')
                           || c_data, 1, 500)
           WHERE rowid = inittpcc.cust_rowid
        RETURNING substr(c_data,1, 200)
             INTO :c_data;

        END IF;

           UPDATE dist
             SET d_ytd = d_ytd + :h_amount
           WHERE d_id = :d_id
             AND d_w_id = :w_id
        RETURNING d_name, d_street_1,
d_street_2, d_city,d_state, d_zip
             INTO
inittpcc.dist_name,:d_street_1,:d_street_2,:d_cit
y,:d_state,
                 :d_zip;
         IF SQL%NOTFOUND THEN
           raise NO_DATA_FOUND;
         END IF;


        INSERT INTO hist  (h_c_id, h_c_d_id,
h_c_w_id, h_d_id, h_w_id,
                           h_amount, h_date, h_data)
        VALUES

(:c_id, :c_d_id, :c_w_id, :d_id, :w_id, :h_amount,
            :cr_date, inittpcc.ware_name || '    ' ||
inittpcc.dist_name);
        EXIT;

        EXCEPTION
          WHEN not_serializable OR deadlock OR
snapshot_too_old THEN
             ROLLBACK;
             :retry := :retry + 1;
        END;

      END LOOP;
   END;



::::::::::::::::::::::::::::::::
 svrapl/blocks/payz.sql
::::::::::::::::::::::::::::::::


DECLARE /* payz */
      not_serializable         EXCEPTION;
      PRAGMA
EXCEPTION_INIT(not_serializable,-8177);
      deadlock                 EXCEPTION;
      PRAGMA EXCEPTION_INIT(deadlock,-60);
      snapshot_too_old         EXCEPTION;
      PRAGMA
EXCEPTION_INIT(snapshot_too_old,-1555);
   BEGIN
      LOOP BEGIN
        UPDATE ware
          SET w_ytd = w_ytd+:h_amount
          WHERE w_id = :w_id
          RETURNING w_name,
                 w_street_1, w_street_2, w_city,
w_state, w_zip
          INTO inittpcc.ware_name,
              :w_street_1, :w_street_2, :w_city, :w
_state, :w_zip;


      SELECT rowid
      BULK COLLECT INTO inittpcc.row_id
      FROM cust
      WHERE c_d_id = :c_d_id AND c_w_id
= :c_w_id AND c_last = :c_last
      ORDER BY c_last, c_d_id, c_w_id, c_first;

     inittpcc.c_num := sql%rowcount;
     inittpcc.cust_rowid :=
inittpcc.row_id((inittpcc.c_num) / 2);

      UPDATE cust
       SET c_balance = c_balance - :h_amount,
          c_ytd_payment =
c_ytd_payment+ :h_amount,
          c_payment_cnt = c_payment_cnt+1
      WHERE rowid = inittpcc.cust_rowid
      RETURNING
           c_id, c_first, c_middle, c_last,
c_street_1, c_street_2,
           c_city, c_state, c_zip, c_phone,
           c_since, c_credit, c_credit_lim,
           c_discount, c_balance
        INTO :c_id, :c_first, :c_middle, :c_last,
            :c_street_1, :c_street_2, :c_city, :c_st
ate,
            :c_zip, :c_phone, :c_since, :c_credit,
            :c_credit_lim, :c_discount, :c_balance;

      :c_data := ' ';
      IF :c_credit = 'BC' THEN
        UPDATE cust
          SET c_data = substr ((to_char (:c_id) || '
' ||
                          to_char (:c_d_id) || ' ' ||
                          to_char (:c_w_id) || ' ' ||
                          to_char (:d_id) || ' ' ||
                          to_char (:w_id) || ' ' ||
                          to_char (:h_amount/100,
'9999.99') || ' ')
                          || c_data, 1, 500)
          WHERE rowid = inittpcc.cust_rowid
          RETURNING substr(c_data,1, 200)
          INTO :c_data;

      END IF;

      UPDATE dist
        SET d_ytd = d_ytd+:h_amount
        WHERE d_id = :d_id
          AND d_w_id = :w_id
        RETURNING  d_name, d_street_1,
d_street_2, d_city,
            d_state, d_zip
        INTO
inittpcc.dist_name, :d_street_1, :d_street_2, :d_c
ity,
            :d_state, :d_zip;

        IF  SQL%NOTFOUND
        THEN
           raise NO_DATA_FOUND;
        END IF;

      INSERT INTO hist (h_c_id, h_c_d_id,
h_c_w_id, h_d_id, h_w_id,
                     h_amount, h_date, h_data)
          VALUES
(:c_id, :c_d_id, :c_w_id, :d_id, :w_id, :h_amount,
          :cr_date, inittpcc.ware_name || '    ' ||
inittpcc.dist_name);

      EXIT;

      EXCEPTION
        WHEN not_serializable OR deadlock OR
snapshot_too_old THEN
            ROLLBACK;
            :retry := :retry + 1;
      END;

    END LOOP;
  END;


::::::::::::::::::::::::::::::::
 svrapl/blocks/tkvcinin.sql
::::::::::::::::::::::::::::::::

-- The initnew package for storing variables used
in the
-- New Order anonymous block

CREATE OR REPLACE PACKAGE inittpcc
AS
 TYPE intarray IS TABLE OF INTEGER INDEX
BY BINARY_INTEGER;
 TYPE distarray IS TABLE OF VARCHAR(24)
INDEX BY BINARY_INTEGER;
 nulldate       DATE;
 TYPE rowidarray IS TABLE OF ROWID INDEX
BY PLS_INTEGER;
 s_dist                distarray;
 idx1arr               intarray;
 s_remote              intarray;
 dist                  intarray;
 row_id                rowidarray;
 cust_rowid            rowid;
 dist_name             VARCHAR2(11);
 ware_name             VARCHAR2(11);
 c_num                 PLS_INTEGER;

 PROCEDURE init_no(idxarr intarray);
 PROCEDURE init_del;
 PROCEDURE init_pay;
END inittpcc;
/
show errors;

CREATE OR REPLACE PACKAGE BODY
inittpcc AS
  PROCEDURE init_no (idxarr  intarray)
  IS
  BEGIN
      -- initialize null date
   nulldate := TO_DATE('01-01-1811', 'MM-DD-
YYYY');
    idx1arr := idxarr;
  END init_no;

  PROCEDURE init_del
  IS
  BEGIN
   FOR i IN 1 .. 10 LOOP
     dist(i) := i;
   END LOOP;
  END init_del;

  PROCEDURE init_pay IS
  BEGIN
   NULL;
  END init_pay;
END inittpcc;
/
show errors
exit


::::::::::::::::::::::::::::::::
 svrapl/blocks/tkvcpdel.sql
::::::::::::::::::::::::::::::::

declare
  TYPE numarray IS TABLE OF NUMBER
INDEX BY BINARY_INTEGER;
  TYPE numlist is varray (10) of number;
  dist numarray;
  amt numarray ;
  cnt pls_integer;

  not_serializable EXCEPTION;
  PRAGMA EXCEPTION_INIT(not_serializable, -
8177);
  deadlock         EXCEPTION;
  PRAGMA EXCEPTION_INIT(deadlock, -60);
  snapshot_too_old EXCEPTION;
  PRAGMA EXCEPTION_INIT(snapshot_too_old,
-1555);

BEGIN
  LOOP BEGIN
    FORALL d IN 1..10
      DELETE FROM nord N
        WHERE no_d_id = inittpcc.dist(d)
          AND no_w_id = :w_id
          AND no_o_id = (select min (no_o_id)
                    from nord
                    where no_d_id = N.no_d_id
                          and no_w_id = N.no_w_id)
        RETURNING no_d_id, no_o_id BULK
COLLECT INTO :d_id, :order_id;

    :ordcnt := SQL%ROWCOUNT;

    FORALL o in 1.. :ordcnt
      UPDATE ordr SET o_carrier_id = :carrier_id
      WHERE o_id = :order_id (o)
        AND o_d_id = :d_id(o)
        AND o_w_id = :w_id
      RETURNING o_c_id BULK COLLECT
INTO :o_c_id;

    FORALL o in 1.. :ordcnt
      UPDATE ordl SET ol_delivery_d = :now
      WHERE ol_w_id = :w_id
        AND ol_d_id = :d_id(o)
        AND ol_o_id = :order_id(o)
      RETURNING sum(ol_amount) BULK
COLLECT INTO  :sums;

    FORALL c IN 1.. :ordcnt
      UPDATE cust
         SET c_balance = c_balance + :sums(c),
                c_delivery_cnt = c_delivery_cnt +
1
       WHERE c_w_id = :w_id
         AND c_d_id = :d_id(c)
         AND c_id = :o_c_id(c);
    COMMIT;
    EXIT;
    EXCEPTION
      WHEN not_serializable OR deadlock OR
snapshot_too_old
      THEN
        ROLLBACK;
        :retry := :retry + 1;
   END;

  END LOOP; -- for retry
END;


:::::::::::::::::::::::::::::::::
 svrapl/blocks/tkvcpnew.sql
:::::::::::::::::::::::::::::::::


-- New Order Anonymous block

  DECLARE
    idx                 PLS_INTEGER;
    dummy_local         PLS_INTEGER;
    cache_ol_cnt        PLS_INTEGER;
    not_serializable    EXCEPTION;
    PRAGMA
EXCEPTION_INIT(not_serializable,-8177);
    deadlock            EXCEPTION;
    PRAGMA EXCEPTION_INIT(deadlock,-60);
    snapshot_too_old    EXCEPTION;
    PRAGMA
EXCEPTION_INIT(snapshot_too_old,-1555);

  PROCEDURE u1 IS
  BEGIN
      FORALL idx IN 1 .. cache_ol_cnt
        UPDATE  stock_item
        SET s_order_cnt = s_order_cnt + 1,
        s_ytd = s_ytd + :ol_quantity(idx),
        s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
        s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                     THEN s_quantity +91
                     ELSE s_quantity
                  END) - :ol_quantity(idx)
        WHERE i_id = :ol_i_id(idx)
        AND s_w_id = :ol_supply_w_id(idx)
        RETURNING i_price, i_name, s_quantity,
s_dist_01,
                i_price*:ol_quantity(idx),
          CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
              THEN 'G'
               ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
                  THEN 'G'
                  ELSE 'B'
                  END)
          END
      BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                  :ol_amount,:brand_generic;
  END u1;

  PROCEDURE u2 IS
  BEGIN
      FORALL idx IN 1 .. cache_ol_cnt
        UPDATE  stock_item
        SET s_order_cnt = s_order_cnt + 1,
        s_ytd = s_ytd + :ol_quantity(idx),
        s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
        s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                     THEN s_quantity +91
                     ELSE s_quantity
                  END) - :ol_quantity(idx)
        WHERE i_id = :ol_i_id(idx)
        AND s_w_id = :ol_supply_w_id(idx)
        RETURNING i_price, i_name, s_quantity,
s_dist_02,
                i_price*:ol_quantity(idx),
          CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
              THEN 'G'
               ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
                  THEN 'G'
                  ELSE 'B'
                  END)
          END
      BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                  :ol_amount,:brand_generic;
  END u2;

  PROCEDURE u3 IS
  BEGIN
      FORALL idx IN 1 .. cache_ol_cnt
        UPDATE  stock_item
        SET s_order_cnt = s_order_cnt + 1,
        s_ytd = s_ytd + :ol_quantity(idx),
        s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
        s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                     THEN s_quantity +91
                     ELSE s_quantity
                  END) - :ol_quantity(idx)
        WHERE i_id = :ol_i_id(idx)
        AND s_w_id = :ol_supply_w_id(idx)
        RETURNING i_price, i_name, s_quantity,
s_dist_03,
                i_price*:ol_quantity(idx),
          CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
              THEN 'G'
               ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
                  THEN 'G'
                  ELSE 'B'
                  END)
          END
      BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                  :ol_amount,:brand_generic;
  END u3;

  PROCEDURE u4 IS
  BEGIN
      FORALL idx IN 1 .. cache_ol_cnt
        UPDATE  stock_item
        SET s_order_cnt = s_order_cnt + 1,
        s_ytd = s_ytd + :ol_quantity(idx),
        s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
        s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                     THEN s_quantity +91
                     ELSE s_quantity
                  END) - :ol_quantity(idx)
        WHERE i_id = :ol_i_id(idx)
        AND s_w_id = :ol_supply_w_id(idx)
        RETURNING i_price, i_name, s_quantity,
s_dist_04,
                i_price*:ol_quantity(idx),
          CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
              THEN 'G'
               ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
                  THEN 'G'
                  ELSE 'B'
                  END)
          END
      BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                  :ol_amount,:brand_generic;
  END u4;

  PROCEDURE u5 IS
  BEGIN
      FORALL idx IN 1 .. cache_ol_cnt
        UPDATE  stock_item
        SET s_order_cnt = s_order_cnt + 1,
        s_ytd = s_ytd + :ol_quantity(idx),
        s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
        s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                     THEN s_quantity +91
                     ELSE s_quantity
                  END) - :ol_quantity(idx)
        WHERE i_id = :ol_i_id(idx)
        AND s_w_id = :ol_supply_w_id(idx)
        RETURNING i_price, i_name, s_quantity,
s_dist_05,
                i_price*:ol_quantity(idx),
          CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
              THEN 'G'
               ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
                  THEN 'G'
                  ELSE 'B'
                  END)
          END
      BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                  :ol_amount,:brand_generic;
  END u5;

  PROCEDURE u6 IS
  BEGIN
      FORALL idx IN 1 .. cache_ol_cnt
        UPDATE  stock_item
        SET s_order_cnt = s_order_cnt + 1,
        s_ytd = s_ytd + :ol_quantity(idx),
        s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
        s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                     THEN s_quantity +91
                     ELSE s_quantity
                  END) - :ol_quantity(idx)
        WHERE i_id = :ol_i_id(idx)
        AND s_w_id = :ol_supply_w_id(idx)
        RETURNING i_price, i_name, s_quantity,
s_dist_06,
                i_price*:ol_quantity(idx),
          CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
              THEN 'G'
               ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
                  THEN 'G'
                  ELSE 'B'
                  END)
          END
      BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                  :ol_amount,:brand_generic;
  END u6;
  PROCEDURE u7 IS
  BEGIN
     FORALL idx IN 1 .. cache_ol_cnt
      UPDATE  stock_item
      SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                  THEN s_quantity +91
                  ELSE s_quantity
               END) - :ol_quantity(idx)
      WHERE i_id = :ol_i_id(idx)
      AND s_w_id = :ol_supply_w_id(idx)
      RETURNING i_price, i_name, s_quantity,
s_dist_07,
            i_price*:ol_quantity(idx),
       CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
          THEN 'G'
           ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
               THEN 'G'
               ELSE 'B'
               END)
       END
     BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                :ol_amount,:brand_generic;
  END u7;

  PROCEDURE u8 IS
  BEGIN
     FORALL idx IN 1 .. cache_ol_cnt
      UPDATE  stock_item
      SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                  THEN s_quantity +91
                  ELSE s_quantity
               END) - :ol_quantity(idx)
      WHERE i_id = :ol_i_id(idx)
      AND s_w_id = :ol_supply_w_id(idx)
      RETURNING i_price, i_name, s_quantity,
s_dist_08,
            i_price*:ol_quantity(idx),
       CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
          THEN 'G'
           ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
               THEN 'G'
               ELSE 'B'
               END)
       END
     BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                :ol_amount,:brand_generic;
  END u8;

  PROCEDURE u9 IS
  BEGIN
     FORALL idx IN 1 .. cache_ol_cnt
      UPDATE  stock_item
      SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                  THEN s_quantity +91
                  ELSE s_quantity
               END) - :ol_quantity(idx)
      WHERE i_id = :ol_i_id(idx)
      AND s_w_id = :ol_supply_w_id(idx)
      RETURNING i_price, i_name, s_quantity,
s_dist_09,
            i_price*:ol_quantity(idx),
       CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
          THEN 'G'
           ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
               THEN 'G'
               ELSE 'B'
               END)
       END
     BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                :ol_amount,:brand_generic;
  END u9;

  PROCEDURE u10 IS
  BEGIN
     FORALL idx IN 1 .. cache_ol_cnt
      UPDATE  stock_item
      SET s_order_cnt = s_order_cnt + 1,
      s_ytd = s_ytd + :ol_quantity(idx),
      s_remote_cnt = s_remote_cnt
+ :s_remote(idx),
      s_quantity = (CASE WHEN s_quantity
< :ol_quantity (idx) + 10
                  THEN s_quantity +91
                  ELSE s_quantity
               END) - :ol_quantity(idx)
      WHERE i_id = :ol_i_id(idx)
      AND s_w_id = :ol_supply_w_id(idx)
      RETURNING i_price, i_name, s_quantity,
s_dist_10,
            i_price*:ol_quantity(idx),
       CASE WHEN i_data NOT LIKE
'%ORIGINAL%'
          THEN 'G'
           ELSE (CASE WHEN s_data NOT
LIKE '%ORIGINAL%'
               THEN 'G'
               ELSE 'B'
               END)
       END
     BULK COLLECT
INTO :i_price, :i_name, :s_quantity,
inittpcc.s_dist,
                :ol_amount,:brand_generic;
  END u10;

  PROCEDURE fix_items IS
   rows_lost                PLS_INTEGER;
   max_index                 PLS_INTEGER;
   temp_index                PLS_INTEGER;
  BEGIN
   idx := 1;
   rows_lost := 0;
   max_index := dummy_local;

   WHILE (max_index != cache_ol_cnt) LOOP

    WHILE (idx <= sql%rowcount AND
             sql%bulk_rowcount(idx +
rows_lost) = 1)
    LOOP
     idx := idx + 1;
    END LOOP;
    temp_index := max_index;
    WHILE (temp_index >= idx + rows_lost)
LOOP
      :ol_amount(temp_index +
1)     :=  :ol_amount(temp_index);
      :i_price(temp_index +
1)       :=  :i_price(temp_index);
      :i_name(temp_index +
1)        :=  :i_name(temp_index);
      :s_quantity(temp_index +
1)    :=  :s_quantity(temp_index);
      inittpcc.s_dist(temp_index + 1) :=
inittpcc.s_dist(temp_index);
      :brand_generic(temp_index +
1)  :=  :brand_generic(temp_index);
      temp_index := temp_index - 1;
    END LOOP;

    IF (idx + rows_lost <= cache_ol_cnt) THEN
     :i_price(idx + rows_lost)       :=   0;
     :i_name(idx + rows_lost)        :=   'NO
ITEM';
     :s_quantity(idx + rows_lost)    :=   0;
     inittpcc.s_dist(idx + rows_lost) := NULL;
     :brand_generic(idx + rows_lost)  := ' ';
     :ol_amount(idx + rows_lost)     := 0;
     rows_lost := rows_lost + 1;
     max_index := max_index + 1;
    END IF;

   END LOOP;
  END fix_items;

  BEGIN
    LOOP BEGIN
      cache_ol_cnt := :o_ol_cnt;

      UPDATE dist SET d_next_o_id =
d_next_o_id + 1
       WHERE d_id = :d_id AND  d_w_id = :w_id
       RETURNING d_tax, d_next_o_id-1
       INTO :d_tax, :o_id;

      SELECT c_discount, c_last, c_credit,
w_tax

INTO :c_discount, :c_last, :c_credit , :w_tax
       FROM cust , ware
       WHERE c_id = :c_id AND c_d_id = :d_id
AND c_w_id = w_id
       AND  w_id = :w_id;


      INSERT INTO nord (no_o_id, no_d_id,
no_w_id)
       VALUES (:o_id, :d_id, :w_id);

      INSERT INTO ordr  (o_id,o_d_id, o_w_id,
o_c_id, o_entry_d,
                    o_carrier_id, o_ol_cnt,
o_all_local)
       VALUES (:o_id, :d_id, :w_id, :c_id,
            :cr_date, 11, :o_ol_cnt, :o_all_local);


      dummy_local :=  :d_id;

      IF (dummy_local < 6) THEN
        IF (dummy_local < 3) THEN
         IF (dummy_local = 1) THEN
           u1;
         ELSE
           u2;
         END IF;
```

```
          ELSE
            IF (dummy_local = 3) THEN
               u3;
            ELSIF (dummy_local = 4) then
               u4;
            ELSE
               u5;
            END IF;
          END IF;
        ELSE
          IF (dummy_local < 8) THEN
            IF (dummy_local = 6) THEN
               u6;
            ELSE
               u7;
            END IF;
          ELSE
            IF (dummy_local = 8) THEN
               u8;
            ELSIF (dummy_local = 9) then
               u9;
            ELSE
               u10;
            END IF;
          END IF;
        END IF;

       dummy_local := sql%rowcount;

       IF (dummy_local != cache_ol_cnt )  THEN
fix_items; END IF;

       FORALL idx IN 1..dummy_local
        INSERT INTO ordl
           (ol_o_id, ol_d_id, ol_w_id, ol_number,
ol_delivery_d, ol_i_id,
                 ol_supply_w_id,
ol_quantity,ol_amount,ol_dist_info)
        VALUES (:o_id, :d_id, :w_id,
inittpcc.idx1arr(idx), inittpcc.nulldate,
                :ol_i_id(idx), :ol_supply_w_id(idx),
                :ol_quantity(idx), :ol_amount(idx),
inittpcc.s_dist(idx));

       IF (dummy_local != :o_ol_cnt) THEN
          :o_ol_cnt := dummy_local;
          ROLLBACK;
       END IF;

    EXIT;

    EXCEPTION
          WHEN not_serializable OR deadlock OR
snapshot_too_old THEN
              ROLLBACK;
              :retry := :retry + 1;
        END;
     END LOOP;
   END;
```

................................:
svrapl/blocks/views.sql
................................:

```
connect tpcc/tpcc;
set echo on;

create or replace view wh_cust
(w_id, w_tax, c_id, c_d_id, c_w_id, c_discount,
c_last, c_credit)
as select w.w_id, w.w_tax,
         c.c_id, c.c_d_id, c.c_w_id, c.c_discount,
c.c_last, c.c_credit
   from cust c, ware w
   where w.w_id = c.c_w_id;

create or replace view wh_dist
(w_id, d_id, d_tax, d_next_o_id, w_tax )
as select w.w_id, d.d_id, d.d_tax, d.d_next_o_id,
w.w_tax
   from dist d, ware w
   where w.w_id = d.d_w_id;

create  or replace view stock_item
(i_id, s_w_id, i_price, i_name, i_data, s_data,
s_quantity,
 s_order_cnt, s_ytd, s_remote_cnt,
 s_dist_01, s_dist_02, s_dist_03, s_dist_04,
s_dist_05,
 s_dist_06, s_dist_07, s_dist_08, s_dist_09,
s_dist_10)
as
 select /*+ leading(s) use_nl(i) */
 i.i_id, s_w_id, i.i_price, i.i_name, i.i_data, s_data,
s_quantity,
 s_order_cnt, s_ytd, s_remote_cnt,
 s_dist_01, s_dist_02, s_dist_03, s_dist_04,
s_dist_05,
 s_dist_06, s_dist_07, s_dist_08, s_dist_09,
s_dist_10
  from stok s, item i
 where i.i_id = s.s_i_id;

set echo off;
```

Appendix C: RTE Scripts

```
::::::::::::::::::::::::::::::::
 rte11.conf
::::::::::::::::::::::::::::::::

#
#   rte11.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
  STARTRTE
    STARTSUT
      SUTHOST = cl033a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w00
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl033a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w01
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl033a
      SUTPORT = 80
      SUTTERM = 3205
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl033b
      SUTPORT = 80
      SUTTERM = 45
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl033b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w03
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl033b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w04
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl033b
      SUTPORT = 80
      SUTTERM = 3160
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl034a
      SUTPORT = 80
      SUTTERM = 90
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl034a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w06
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl034a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w07
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl034a
      SUTPORT = 80
      SUTTERM = 3115
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl034b
      SUTPORT = 80
      SUTTERM = 135
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl034b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w09
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl034b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w10
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl034b
      SUTPORT = 80
      SUTTERM = 3070
      LOGPATH = /w11
      LOGLEVEL = 0
    ENDSUT
  ENDRTE
  STARTVARIABLE
    WAREHOUSE = 98991
    MEASUREMENT = 18000
    PAY-MIX = 4302
    ORD-MIX = 402
    DEL-MIX = 402
    STK-MIX = 402
    NEW-KEYING = 18010
    PAY-KEYING = 3010
    ORD-KEYING = 2010
    DEL-KEYING = 2010
    STK-KEYING = 2010
    NEW-THINK = 12020
    PAY-THINK = 12020
    ORD-THINK = 10020
    DEL-THINK = 5020
    STK-THINK = 5020
    CONST-CLAST = 111
    CONST-CID = 1023
    CONST-IID = 8191
    THR-PER-PROC = 250
    SYNC = 0
  ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte12.conf
::::::::::::::::::::::::::::::::

#
#   rte12.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
  STARTRTE
    STARTSUT
      SUTHOST = cl035a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w00
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl035a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w01
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl035a
      SUTPORT = 80
      SUTTERM = 3205
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl035b
      SUTPORT = 80
      SUTTERM = 45
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl035b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w03
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl035b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w04
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl035b
      SUTPORT = 80
      SUTTERM = 3160
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl036a
      SUTPORT = 80
      SUTTERM = 90
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl036a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w06
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl036a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w07
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl036a
      SUTPORT = 80
      SUTTERM = 3115
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl036b
      SUTPORT = 80
      SUTTERM = 135
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl036b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w09
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl036b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w10
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl036b
      SUTPORT = 80
      SUTTERM = 3070
      LOGPATH = /w11
      LOGLEVEL = 0
    ENDSUT
  ENDRTE
  STARTVARIABLE
    WAREHOUSE = 98991
    MEASUREMENT = 18000
    PAY-MIX = 4302
    ORD-MIX = 402
    DEL-MIX = 402
    STK-MIX = 402
    NEW-KEYING = 18010
    PAY-KEYING = 3010
    ORD-KEYING = 2010
    DEL-KEYING = 2010
    STK-KEYING = 2010
    NEW-THINK = 12020
    PAY-THINK = 12020
    ORD-THINK = 10020
    DEL-THINK = 5020
    STK-THINK = 5020
    CONST-CLAST = 111
    CONST-CID = 1023
    CONST-IID = 8191
    THR-PER-PROC = 250
    SYNC = 0
  ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte13.conf
::::::::::::::::::::::::::::::::


#
#   rte13.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
  STARTRTE
    STARTSUT
      SUTHOST = cl037a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w00
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl037a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w01
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl037a
      SUTPORT = 80
      SUTTERM = 3205
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl037b
      SUTPORT = 80
      SUTTERM = 45
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl037b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w03
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl037b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w04
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl037b
      SUTPORT = 80
      SUTTERM = 3160
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl038a
      SUTPORT = 80
      SUTTERM = 90
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl038a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w06
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl038a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w07
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl038a
      SUTPORT = 80
      SUTTERM = 3115
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl038b
      SUTPORT = 80
      SUTTERM = 135
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl038b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w09
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl038b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w10
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl038b
      SUTPORT = 80
      SUTTERM = 3070
      LOGPATH = /w11
      LOGLEVEL = 0
    ENDSUT
  ENDRTE
  STARTVARIABLE
    WAREHOUSE = 98991
    MEASUREMENT = 18000
    PAY-MIX = 4302
    ORD-MIX = 402
    DEL-MIX = 402
    STK-MIX = 402
    NEW-KEYING = 18010
    PAY-KEYING = 3010
    ORD-KEYING = 2010
    DEL-KEYING = 2010
    STK-KEYING = 2010
    NEW-THINK = 12020
    PAY-THINK = 12020
    ORD-THINK = 10020
    DEL-THINK = 5020
    STK-THINK = 5020
    CONST-CLAST = 111
    CONST-CID = 1023
    CONST-IID = 8191
    THR-PER-PROC = 250
    SYNC = 0
  ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte14.conf
::::::::::::::::::::::::::::::::


#
#   rte14.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
```

```
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl039a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl039a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl039a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl039b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl039b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl039b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl039b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl040a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl040a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl040a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl040a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl040b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl040b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl040b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl040b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte15.conf
::::::::::::::::::::::::::::::::

#
#   rte15.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl041a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl041a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl041a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl041b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl041b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl041b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl041b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl042a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl042a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl042a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl042a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl042b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl042b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl042b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl042b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP
```

```
::::::::::::::::::::::::::::::::
 rte16.conf
::::::::::::::::::::::::::::::::
```

```
#
#   rte16.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl043a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl043a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl043a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl043b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl043b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl043b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl043b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl044a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl044a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl044a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl044a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl044b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl044b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl044b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl044b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP
```

```
::::::::::::::::::::::::::::::::
 rte17.conf
::::::::::::::::::::::::::::::::
```

```
#
#   rte17.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl045a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl045a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
```

```
    STARTSUT
      SUTHOST = cl045a
      SUTPORT = 80
      SUTTERM = 3205
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl045b
      SUTPORT = 80
      SUTTERM = 45
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl045b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w03
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl045b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w04
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl045b
      SUTPORT = 80
      SUTTERM = 3160
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl046a
      SUTPORT = 80
      SUTTERM = 90
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl046a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w06
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl046a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w07
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl046a
      SUTPORT = 80
      SUTTERM = 3115
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl046b
      SUTPORT = 80
      SUTTERM = 135
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl046b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w09
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl046b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w10
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl046b
      SUTPORT = 80
      SUTTERM = 3070
      LOGPATH = /w11
      LOGLEVEL = 0
    ENDSUT
  ENDRTE
  STARTVARIABLE
    WAREHOUSE = 98991
    MEASUREMENT = 18000
    PAY-MIX = 4302
    ORD-MIX = 402
    DEL-MIX = 402
    STK-MIX = 402
    NEW-KEYING = 18010
    PAY-KEYING = 3010
    ORD-KEYING = 2010
    DEL-KEYING = 2010
    STK-KEYING = 2010
    NEW-THINK = 12020
    PAY-THINK = 12020
    ORD-THINK = 10020
    DEL-THINK = 5020
    STK-THINK = 5020
    CONST-CLAST = 111
    CONST-CID = 1023
    CONST-IID = 8191
    THR-PER-PROC = 250
    SYNC = 0
  ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte18.conf
::::::::::::::::::::::::::::::::

#
#   rte18.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
  STARTRTE
    STARTSUT
      SUTHOST = cl047a
      SUTPORT = 80
      SUTTERM = 1750
      LOGPATH = /w00
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047a
      SUTPORT = 80
      SUTTERM = 1750
      LOGPATH = /w01
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047a
      SUTPORT = 80
      SUTTERM = 1750
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047a
      SUTPORT = 80
      SUTTERM = 1750
      LOGPATH = /w03
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047a
      SUTPORT = 80
      SUTTERM = 1750
      LOGPATH = /w04
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047a
      SUTPORT = 80
      SUTTERM = 955
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047b
      SUTPORT = 80
      SUTTERM = 795
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047b
      SUTPORT = 80
      SUTTERM = 1500
      LOGPATH = /w06
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047b
      SUTPORT = 80
      SUTTERM = 1500
      LOGPATH = /w07
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047b
      SUTPORT = 80
      SUTTERM = 1500
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047b
      SUTPORT = 80
      SUTTERM = 1500
      LOGPATH = /w09
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047b
      SUTPORT = 80
      SUTTERM = 1500
      LOGPATH = /w10
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl047b
      SUTPORT = 80
      SUTTERM = 1410
      LOGPATH = /w11
      LOGLEVEL = 0
    ENDSUT
  ENDRTE
  STARTVARIABLE
    WAREHOUSE = 98991
    MEASUREMENT = 18000
```

```
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


:::::::::::::::::::::::::::::::::
 rte33.conf
:::::::::::::::::::::::::::::::::

#
#   rte33.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl119a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl119a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl119a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl119b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl119b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl119b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl119b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl120a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl120a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl120a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl120a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl120b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl120b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl120b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl120b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


:::::::::::::::::::::::::::::::::
 rte34.conf
:::::::::::::::::::::::::::::::::

#
#   rte34.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl105a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl105a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl105a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl105b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl105b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl105b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl105b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl106a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl106a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl106a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl106a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl106b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl106b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl106b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl106b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte35.conf
::::::::::::::::::::::::::::::::

#
#   rte35.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl107a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl107a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl107a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl107b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl107b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl107b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl107b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl108a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl108a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl108a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl108a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl108b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl108b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl108b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl108b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
```

```
    SYNC = 0
  ENDVARIABLE
ENDGROUP


:::::::::::::::::::::::::::::::::
 rte36.conf
:::::::::::::::::::::::::::::::::

#
#   rte36.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
  STARTRTE
    STARTSUT
      SUTHOST = cl109a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w00
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl109a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w01
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl109a
      SUTPORT = 80
      SUTTERM = 3205
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl109b
      SUTPORT = 80
      SUTTERM = 45
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl109b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w03
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl109b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w04
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl109b
      SUTPORT = 80
      SUTTERM = 3160
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl110a
      SUTPORT = 80
      SUTTERM = 90
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl110a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w06
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl110a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w07
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl110a
      SUTPORT = 80
      SUTTERM = 3115
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl110b
      SUTPORT = 80
      SUTTERM = 135
      LOGPATH = /w08
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl110b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w09
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl110b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w10
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl110b
      SUTPORT = 80
      SUTTERM = 3070
      LOGPATH = /w11
      LOGLEVEL = 0
    ENDSUT
  ENDRTE
  STARTVARIABLE
    WAREHOUSE = 98991
    MEASUREMENT = 18000
    PAY-MIX = 4302
    ORD-MIX = 402
    DEL-MIX = 402
    STK-MIX = 402
    NEW-KEYING = 18010
    PAY-KEYING = 3010
    ORD-KEYING = 2010
    DEL-KEYING = 2010
    STK-KEYING = 2010
    NEW-THINK = 12020
    PAY-THINK = 12020
    ORD-THINK = 10020
    DEL-THINK = 5020
    STK-THINK = 5020
    CONST-CLAST = 111
    CONST-CID = 1023
    CONST-IID = 8191
    THR-PER-PROC = 250
    SYNC = 0
  ENDVARIABLE
ENDGROUP


:::::::::::::::::::::::::::::::::
 rte37.conf
:::::::::::::::::::::::::::::::::

#
#   rte37.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
  STARTRTE
    STARTSUT
      SUTHOST = cl111a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w00
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl111a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w01
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl111a
      SUTPORT = 80
      SUTTERM = 3205
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl111b
      SUTPORT = 80
      SUTTERM = 45
      LOGPATH = /w02
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl111b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w03
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl111b
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w04
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl111b
      SUTPORT = 80
      SUTTERM = 3160
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl112a
      SUTPORT = 80
      SUTTERM = 90
      LOGPATH = /w05
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
      SUTHOST = cl112a
      SUTPORT = 80
      SUTTERM = 3250
      LOGPATH = /w06
      LOGLEVEL = 0
    ENDSUT
    STARTSUT
```

```
         SUTHOST = cl112a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl112a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl112b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl112b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl112b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl112b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte38.conf
::::::::::::::::::::::::::::::::

#
#   rte38.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl113a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl113a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl113a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl113b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl113b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl113b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl113b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl114a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl114a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl114a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl114a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl114b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl114b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl114b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl114b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte39.conf
::::::::::::::::::::::::::::::::

#
#   rte39.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
```

```
         SUTHOST = cl115a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl115a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl115a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl115b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl115b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl115b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl115b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl116a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl116a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl116a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl116a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
```

```
      ENDSUT
      STARTSUT
         SUTHOST = cl116b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl116b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl116b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl116b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte40.conf
::::::::::::::::::::::::::::::::


#
#   rte40.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl117a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
```

```
      STARTSUT
         SUTHOST = cl117a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl117a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl117b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl117b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl117b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl117b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl118a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl118a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl118a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl118a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl118b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl118b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl118b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl118b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte42.conf
::::::::::::::::::::::::::::::::

#
#   rte42.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl121a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl121a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl121a
         SUTPORT = 80
         SUTTERM = 3205
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl121b
         SUTPORT = 80
         SUTTERM = 45
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl121b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl121b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl121b
         SUTPORT = 80
         SUTTERM = 3160
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl122a
         SUTPORT = 80
         SUTTERM = 90
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl122a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl122a
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl122a
         SUTPORT = 80
         SUTTERM = 3115
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl122b
         SUTPORT = 80
         SUTTERM = 135
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl122b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl122b
         SUTPORT = 80
         SUTTERM = 3250
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl122b
         SUTPORT = 80
         SUTTERM = 3070
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte43.conf
::::::::::::::::::::::::::::::::

#
#   rte43.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl123a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl123a
         SUTPORT = 80
         SUTTERM = 4705
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl123b
         SUTPORT = 80
         SUTTERM = 295
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl123b
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl123b
         SUTPORT = 80
         SUTTERM = 4410
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl124a
         SUTPORT = 80
         SUTTERM = 590
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl124a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl124a
         SUTPORT = 80
         SUTTERM = 4115
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl124b
         SUTPORT = 80
         SUTTERM = 635
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl124b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl124b
         SUTPORT = 80
         SUTTERM = 4320
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl125a
         SUTPORT = 80
         SUTTERM = 430
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl125a
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl125a
         SUTPORT = 80
         SUTTERM = 4525
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl125b
         SUTPORT = 80
         SUTTERM = 225
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl125b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl125b
         SUTPORT = 80
         SUTTERM = 4730
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP
```

```
::::::::::::::::::::::::::::::::::
 rte44.conf
::::::::::::::::::::::::::::::::::

#
#   rte44.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl126a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl126a
         SUTPORT = 80
         SUTTERM = 4705
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl126b
         SUTPORT = 80
         SUTTERM = 295
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl126b
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl126b
         SUTPORT = 80
         SUTTERM = 4410
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl127a
         SUTPORT = 80
         SUTTERM = 590
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl127a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl127a
         SUTPORT = 80
         SUTTERM = 4115
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl127b
         SUTPORT = 80
         SUTTERM = 635
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl127b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl127b
         SUTPORT = 80
         SUTTERM = 4320
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl128a
         SUTPORT = 80
         SUTTERM = 430
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl128a
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl128a
         SUTPORT = 80
         SUTTERM = 4525
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl128b
         SUTPORT = 80
         SUTTERM = 225
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl128b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl128b
         SUTPORT = 80
         SUTTERM = 4730
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte45.conf
::::::::::::::::::::::::::::::::

#
#   rte45.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl129a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl129a
         SUTPORT = 80
         SUTTERM = 4705
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl129b
         SUTPORT = 80
         SUTTERM = 295
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl129b
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl129b
         SUTPORT = 80
         SUTTERM = 4410
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl130a
         SUTPORT = 80
         SUTTERM = 590
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl130a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl130a
         SUTPORT = 80
         SUTTERM = 4115
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl130b
         SUTPORT = 80
         SUTTERM = 635
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl130b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl130b
         SUTPORT = 80
         SUTTERM = 4320
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl131a
         SUTPORT = 80
         SUTTERM = 430
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl131a
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl131a
         SUTPORT = 80
         SUTTERM = 4525
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl131b
         SUTPORT = 80
         SUTTERM = 225
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl131b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl131b
         SUTPORT = 80
         SUTTERM = 4730
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte46.conf
::::::::::::::::::::::::::::::::

#
#   rte46.conf :configuration file for TPC-C
Rev3.0
```

```
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl132a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl132a
         SUTPORT = 80
         SUTTERM = 4705
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl132b
         SUTPORT = 80
         SUTTERM = 295
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl132b
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl132b
         SUTPORT = 80
         SUTTERM = 4410
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl133a
         SUTPORT = 80
         SUTTERM = 590
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl133a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl133a
         SUTPORT = 80
         SUTTERM = 4115
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl133b
         SUTPORT = 80
         SUTTERM = 635
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl133b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl133b
         SUTPORT = 80
         SUTTERM = 4320
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl134a
         SUTPORT = 80
         SUTTERM = 430
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl134a
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl134a
         SUTPORT = 80
         SUTTERM = 4525
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl134b
         SUTPORT = 80
         SUTTERM = 225
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl134b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl134b
         SUTPORT = 80
         SUTTERM = 4730
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP
```

```
::::::::::::::::::::::::::::::::
 rte47.conf
::::::::::::::::::::::::::::::::

#
#   rte47.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl135a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl135a
         SUTPORT = 80
         SUTTERM = 4705
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl135b
         SUTPORT = 80
         SUTTERM = 295
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl135b
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl135b
         SUTPORT = 80
         SUTTERM = 4410
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl136a
         SUTPORT = 80
         SUTTERM = 590
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl136a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl136a
         SUTPORT = 80
         SUTTERM = 4115
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl136b
         SUTPORT = 80
         SUTTERM = 635
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl136b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl136b
         SUTPORT = 80
         SUTTERM = 4320
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl137a
         SUTPORT = 80
         SUTTERM = 430
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl137a
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl137a
         SUTPORT = 80
         SUTTERM = 4525
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl137b
         SUTPORT = 80
         SUTTERM = 225
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl137b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl137b
         SUTPORT = 80
         SUTTERM = 4730
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
      ORD-KEYING = 2010
      DEL-KEYING = 2010
      STK-KEYING = 2010
      NEW-THINK = 12020
      PAY-THINK = 12020
      ORD-THINK = 10020
      DEL-THINK = 5020
      STK-THINK = 5020
      CONST-CLAST = 111
      CONST-CID = 1023
      CONST-IID = 8191
      THR-PER-PROC = 250
      SYNC = 0
   ENDVARIABLE
ENDGROUP


::::::::::::::::::::::::::::::::
 rte48.conf
::::::::::::::::::::::::::::::::

#
#   rte48.conf :configuration file for TPC-C
Rev3.0
#   Author : mkdef -Auto Configurator for R3-
#

STARTGROUP
   STARTRTE
      STARTSUT
         SUTHOST = cl138a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w00
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl138a
         SUTPORT = 80
         SUTTERM = 4705
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl138b
         SUTPORT = 80
         SUTTERM = 295
         LOGPATH = /w01
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl138b
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w02
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl138b
         SUTPORT = 80
         SUTTERM = 4410
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl139a
         SUTPORT = 80
         SUTTERM = 590
         LOGPATH = /w03
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl139a
         SUTPORT = 80
         SUTTERM = 5000
         LOGPATH = /w04
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl139a
         SUTPORT = 80
         SUTTERM = 4115
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl139b
         SUTPORT = 80
         SUTTERM = 635
         LOGPATH = /w05
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl139b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w06
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl139b
         SUTPORT = 80
         SUTTERM = 4320
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl140a
         SUTPORT = 80
         SUTTERM = 430
         LOGPATH = /w07
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl140a
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w08
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl140a
         SUTPORT = 80
         SUTTERM = 4525
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl140b
         SUTPORT = 80
         SUTTERM = 225
         LOGPATH = /w09
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl140b
         SUTPORT = 80
         SUTTERM = 4750
         LOGPATH = /w10
         LOGLEVEL = 0
      ENDSUT
      STARTSUT
         SUTHOST = cl140b
         SUTPORT = 80
         SUTTERM = 4730
         LOGPATH = /w11
         LOGLEVEL = 0
      ENDSUT
   ENDRTE
   STARTVARIABLE
      WAREHOUSE = 98991
      MEASUREMENT = 18000
      PAY-MIX = 4302
      ORD-MIX = 402
      DEL-MIX = 402
      STK-MIX = 402
      NEW-KEYING = 18010
      PAY-KEYING = 3010
```

```
        ORD-KEYING = 2010
        DEL-KEYING = 2010
        STK-KEYING = 2010
        NEW-THINK = 12020
        PAY-THINK = 12020
        ORD-THINK = 10020
        DEL-THINK = 5020
        STK-THINK = 5020
        CONST-CLAST = 111
        CONST-CID = 1023
        CONST-IID = 8191
        THR-PER-PROC = 250
        SYNC = 0
    ENDVARIABLE
ENDGROUP
```

Appendix D: System Tunables

```
=====================================
======================
 (PRIMEQUEST configuration)
=====================================
======================
[OS tunables]
-------------------------------------------------------------
::::::::::::::::::::::::::::::::
 elilo.conf
::::::::::::::::::::::::::::::::

prompt
timeout=20
#default=2.6.9-27-New2.EL
#default=2.6.9-40.EL
#default=2.6.9-40.ELlargesmp
#default=2.6.9-42.ELlargesmp
#default=2.6.9-42.EL.ora
default=2.6.9-42.EL.ora.lpfc
relocatable

image=vmlinuz-2.6.9-42.EL.ora
    label=2.6.9-42.EL.ora.lpfc
    initrd=initrd-2.6.9-42.EL.ora.lpfc.img
    read-only
    append="rhgb root=/dev/sda2
log_buf_len=2M console=ttyS0,19200n8r
elevator=noop  ide=nodma
ihash_entries=1000000 dhash_entries=1000000
rhash_entries=500000 thash_entries=100000
ro"

image=vmlinuz-2.6.9-42.EL.ora
    label=2.6.9-42.EL.ora
    initrd=initrd-2.6.9-42.EL.ora.img
    read-only
    append="rhgb root=/dev/sda2
log_buf_len=2M console=ttyS0,19200n8r
elevator=noop  ide=nodma
ihash_entries=1000000 dhash_entries=1000000
rhash_entries=500000 thash_entries=100000
ro"

image=vmlinuz-2.6.9-42.EL.oralargesmp
    label=2.6.9-42.EL.oralargesmp
    initrd=initrd-2.6.9-42.EL.oralargesmp.img
    read-only
    append="rhgb root=/dev/sda2
log_buf_len=2M console=ttyS0,19200n8r
elevator=noop  ide=nodma
ihash_entries=1000000 dhash_entries=1000000
rhash_entries=500000 thash_entries=100000
ro"

image=vmlinuz-2.6.9-42.ELlargesmp
    label=2.6.9-42.ELlargesmp
    initrd=initrd-2.6.9-42.ELlargesmp.img
    read-only
    append="rhgb quiet root=/dev/sda2
log_buf_len=2M console=ttyS0,19200n8r
noirqdebug elevator=noop  ide=nodma
ihash_entries=1000000 dhash_entries=1000000
rhash_entries=500000 thash_entries=100000
ro"

image=vmlinuz-2.6.9-40.ELlargesmp
    label=2.6.9-40.ELlargesmp
    initrd=initrd-2.6.9-40.ELlargesmp.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r noirqdebug
elevator=noop  ide=nodma
ihash_entries=1000000 dhash_entries=1000000
rhash_entries=500000 thash_entries=100000
ro"

image=vmlinuz-2.6.9-40.EL
    label=2.6.9-40.EL
    initrd=initrd-2.6.9-40.EL.img
    read-only
    append="rhgb root=/dev/sda2
console=ttyS0,19200n8r elevator=noop
ide=nodma ihash_entries=1000000
dhash_entries=1000000 rhash_entries=500000
thash_entries=100000 ro"

image=vmlinuz-2.6.9-27.EL-vpa-sl
        label=RHEL4-u3-vpa-sl
        initrd=initrd-2.6.9-27.EL-vpa-sl
        read-only
        append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r noirqdebug
elevator=noop ide=nodma
ihash_entries=1000000 dhash_entries=1000000
rhash_entries=500000 thash_entries=100000"

image=vmlinuz-2.6.9-27.EL
    label=2.6.9-27-bcm-30-1-2.EL
    initrd=initrd-2.6.9-27-bcm-30-1-2.EL.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r"

image=vmlinuz-2.6.9-27.EL
    label=2.6.9-27-New2.EL
    initrd=initrd-2.6.9-27.ELgt3.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r noirqdebug
elevator=noop  ide=nodma
ihash_entries=1000000 dhash_entries=1000000
rhash_entries=500000 thash_entries=100000
ro"

image=vmlinuz-2.6.9-27.EL
    label=2.6.9-27-New.EL
    initrd=initrd-2.6.9-27.ELbcm5700.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r noirqdebug
elevator=noop decay=15 ide=nodma
ihash_entries=1000000 dhash_entries=1000000
rhash_entries=500000 thash_entries=100000
ro"

image=vmlinuz-2.6.9-27.EL
    label=2.6.9-27-bcm-intel.EL
    initrd=initrd-2.6.9-27.ELbcm5700.img
    read-only
    append="rhgb root=LABEL=/ noirqdebug
elevator=noop decay=15 ide=nodma
ihash_entries=1000000 dhash_entries=1000000
rhash_entries=500000 thash_entries=100000
ro"

image=vmlinuz-2.6.9-27.EL
    label=2.6.9-27-bcm.EL
    initrd=initrd-2.6.9-27.ELbcm5700.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0 elevator=deadline
thash_entries=4500000
rhash_entries=4500000"

image=vmlinuz-2.6.9-27.EL
    label=2.6.9-27-2.EL
    initrd=initrd-2.6.9-27-2.EL.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r"

image=vmlinuz-2.6.9-27.EL
    label=2.6.9-27.EL
    initrd=initrd-2.6.9-27.EL.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r"

image=vmlinuz-2.6.9-22.EL
    label=linux
    initrd=initrd-2.6.9-22.EL.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r"


image=vmlinuz-2.6.9-22.EL
    label=linux-bcm
    initrd=initrd-2.6.9-22.ELbcm5700.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r"


image=vmlinuz-2.6.9-22.EL
    label=linux-tg
    initrd=initrd-2.6.9-22.ELtg.img
    read-only
    append="rhgb quiet root=/dev/sda2
console=ttyS0,19200n8r"




::::::::::::::::::::::::::::::::
 limits.conf
::::::::::::::::::::::::::::::::

# /etc/security/limits.conf
#
#Each line describes a limit for a user in the
form:
#
#<domain>        <type>  <item>  <value>
#
#Where:
#<domain> can be:
#        - an user name
#        - a group name, with @group syntax
#        - the wildcard *, for default entry
#        - the wildcard %, can be also used
with %group syntax,
#                 for maxlogin limit
#
#<type> can have the two values:
#        - "soft" for enforcing the soft limits
#        - "hard" for enforcing hard limits
#
#<item> can be one of the following:
#        - core - limits the core file size (KB)
#        - data - max data size (KB)
#        - fsize - maximum filesize (KB)
#        - memlock - max locked-in-memory
address space (KB)
```

```
#        - nofile - max number of open files
#        - rss - max resident set size (KB)
#        - stack - max stack size (KB)
#        - cpu - max CPU time (MIN)
#        - nproc - max number of processes
#        - as - address space limit
#        - maxlogins - max number of logins for this user
#        - priority - the priority to run user process with
#        - locks - max number of file locks the user can hold
#
#<domain>      <type>  <item>         <value>
#

#*               soft    core            0
#*               hard    rss             10000
#@student        hard    nproc           20
#@faculty        soft    nproc           20
#@faculty        hard    nproc           50
#ftp             hard    nproc           0
#@student        -       maxlogins       4

#oracle soft memlock 268435456
#oracle hard memlock 268435456
#oracle soft memlock 1073741824
#oracle hard memlock 1073741824
oracle soft memlock 2147483648
oracle hard memlock 2147483648
oracle soft nofile 4096
oracle hard nofile 65536
#oracle soft nproc  2047
oracle soft nproc  4095
oracle hard nproc  16384


# End of file
```

```
::::::::::::::::::::::::::::::::
 modprobe.conf
::::::::::::::::::::::::::::::::
```

```
alias eth2 tg3
alias eth3 tg3
alias eth4 tg3
alias eth5 tg3
alias scsi_hostadapter mptbase
alias eth6 tg3
alias eth7 tg3
alias eth8 tg3
alias eth10 tg3
alias eth12 tg3
alias eth14 tg3
alias eth16 tg3
alias eth18 tg3
alias eth20 tg3
alias eth22 tg3
alias scsi_hostadapter1 mptscsih
options lpfc lpfc_lun_queue_depth=30 lpfc_cr_delay=1 lpfc_cr_count=2
alias scsi_hostadapter2 lpfc
alias usb-controller ehci-hcd
alias usb-controller1 uhci-hcd
alias eth35 e1000
alias eth36 e1000
```

```
::::::::::::::::::::::::::::::::
 rc.local
::::::::::::::::::::::::::::::::
```

```
#!/bin/sh
#
# This script will be executed *after* all the other init scripts.
# You can put your own initialization stuff in here if you don't
# want to do the full Sys V style init stuff.

touch /var/lock/subsys/local

echo "100 100000 120 512" > /proc/sys/kernel/sem
echo 0x20000000 > /proc/sys/kernel/shmall
echo 0xc000000000 > /proc/sys/kernel/shmmax
echo 5242880 > /proc/sys/fs/aio-max-nr

# needed for text and RO data in huge pages
mount none /mnt/htlb -t hugetlbfs
chown -R oracle:dba /mnt/*

#/sbin/route add -host cl107 dev eth8
#/sbin/route add -host cl108 dev eth10
#/sbin/route add -host cl109 dev eth12
#/sbin/route add -host cl110 dev eth14

#/sbin/route add -host cl111 dev eth16
#/sbin/route add -host cl112 dev eth18
#/sbin/route add -host cl113 dev eth20
#/sbin/route add -host cl114 dev eth22

#/sbin/route add -host cl110 dev eth16

#/sbin/route add -host cl111 dev eth20
#/sbin/route add -host cl112 dev eth24
#/sbin/route add -host cl113 dev eth28
#/sbin/route add -host cl114 dev eth32

/usr/sbin/ntpdate fjgw
```

```
::::::::::::::::::::::::::::::::
 sysctl.conf
::::::::::::::::::::::::::::::::
```

```
# Kernel sysctl configuration file for Red Hat Linux
#
# For binary values, 0 is disabled, 1 is enabled.  See sysctl(8) and
# sysctl.conf(5) for more details.

# Controls IP packet forwarding
net.ipv4.ip_forward = 0

# Controls source route verification
net.ipv4.conf.default.rp_filter = 1

# Do not accept source routing
net.ipv4.conf.default.accept_source_route = 0

# Controls the System Request debugging functionality of the kernel
kernel.sysrq = 0

# Controls whether core dumps will append the PID to the core filename.
# Useful for debugging multi-threaded applications.
kernel.core_uses_pid = 1
kernel.sem = 100 100000 120 512

kernel.shmmax = 0x4000000000
kernel.shmall = 0x20000000
fs.aio-max-nr =  5242880

###### 2TB #######
#vm.nr_hugepages = 7928

### 1TB ###
#vm.nr_hugepages = 4006
#vm.nr_hugepages = 4000
vm.nr_hugepages = 3975

##t
# 512GB ###
#vm.nr_hugepages = 1992

### 256GB ###
#vm.nr_hugepages = 992
#vm.nr_hugepages = 976

### 128GB ###
#vm.nr_hugepages = 484

### 64GB ###
#vm.nr_hugepages = 232

###### 1Tier #######

### 512GB 1Tier ###
#vm.nr_hugepages = 1972

### 256GB 1Tier ###
#vm.nr_hugepages = 968

### 128GB 1Tier ###
#vm.nr_hugepages = 460

### 64GB 2Tier ###
#vm.nr_hugepages = 200
```

[Database tunables]
```
-------------------------------------------------------------
::::::::::::::::::::::::::::::::
 p_run.ora
::::::::::::::::::::::::::::::::
```

```
#_inline_sql_in_plsql              = false
#_first_spare_parameter                  = 2
db_writer_processes         = 12
#_disable_logging = true
#_db_fast_obj_truncate          = false
trace_enabled                      = false
control_files                      = (/ora_dev/control_001,/ora_dev/control_002)

processes                  = 2000
sessions                   = 2000
transactions               = 2000

#processes                 = 3100
#sessions                  = 4600
#transactions                      = 5000

#processes                 = 1700
#sessions                  = 2800
#transactions                      = 2800
db_name                            = tpcc
db_files                   = 3806
compatible                 = 10.1.0.0.0
dml_locks                  = 500
db_block_size                      = 2048
remote_login_passwordfile          = shared
aq_tm_processes                    = 0
max_dump_file_size                 = 10M
db_cache_size                      = 10240M
db_keep_cache_size                 = 597000M
#db_keep_cache_size                = 580000M
```

```
db_recycle_cache_size          = 138752M
#db_recycle_cache_size                  = 130000M
db_16k_cache_size              = 244032M
db_8k_cache_size               = 2048M
db_4k_cache_size               = 512M
shared_pool_size          = 24024M
#shared_pool_size              = 22272M
#shared_pool_size              = 50000M
#shared_pool_size              = 31000M
java_pool_size                 = 0
disk_asynch_io                 = true
db_block_checking              = false
db_block_checksum              = false
undo_management                        = auto
undo_retention                 = 1
undo_tablespace                = undo_1
transactions_per_rollback_segment = 1
cursor_space_for_time          = true
plsql_optimize_level           = 2
replication_dependency_tracking      = false
db_file_multiblock_read_count= 32
fast_start_mttr_target         = 0
parallel_max_servers           = 16
log_buffer                = 33554432
log_checkpoint_interval        = 0
log_checkpoint_timeout         = 1600
log_checkpoints_to_alert       = true
timed_statistics          = false
statistics_level          = basic
query_rewrite_enabled          = false




=====================================
=======================
 (cl033 configuration)
=====================================
=======================

[OS tunables]
------------------------------------------------------------

:::::::::::::::::::::::::::::::
 chkconfig
:::::::::::::::::::::::::::::::

sendmail       0:off   1:off   2:off   3:off   4:off
5:off   6:off
xinetd         0:off   1:off   2:off   3:on    4:on
5:on    6:off
named          0:off   1:off   2:off   3:off   4:off
5:off   6:off
smartd         0:off   1:off   2:off   3:off   4:off   5:off
6:off
syslog         0:off   1:off   2:on    3:on    4:on
5:on    6:off
radiusd        0:off   1:off   2:off   3:off   4:off   5:off
6:off
rwhod          0:off   1:off   2:off   3:off   4:off   5:off
6:off
mdmonitor      0:off   1:off   2:off   3:off   4:off
5:off   6:off
ypbind         0:off   1:off   2:off   3:off   4:off   5:off
6:off
nscd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
isdn           0:off   1:off   2:off   3:off   4:off   5:off
6:off
arptables_jf   0:off   1:off   2:off   3:off   4:off
5:off   6:off
lisa           0:off   1:off   2:off   3:off   4:off   5:off
6:off
rusersd        0:off   1:off   2:off   3:off   4:off   5:off
6:off
```

```
dhcp6s         0:off   1:off   2:off   3:off   4:off
5:off   6:off
cyrus-imapd    0:off   1:off   2:off   3:off   4:off
5:off   6:off
winbind        0:off   1:off   2:off   3:off   4:off   5:off
6:off
vncserver      0:off   1:off   2:off   3:off   4:off
5:off   6:off
amd            0:off   1:off   2:off   3:off   4:off   5:off
6:off
gpm            0:off   1:off   2:off   3:off   4:off   5:off
6:off
apmd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
bgpd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
readahead      0:off   1:off   2:off   3:off   4:off
5:on    6:off
ypxfrd         0:off   1:off   2:off   3:off   4:off   5:off
6:off
mysqld         0:off   1:off   2:off   3:off   4:off
5:off   6:off
mailman        0:off   1:off   2:off   3:off   4:off
5:off   6:off
rpcgssd        0:off   1:off   2:off   3:off   4:off
5:off   6:off
innd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
pcmcia         0:off   1:off   2:off   3:off   4:off
5:off   6:off
mdmpd          0:off   1:off   2:off   3:off   4:off
5:off   6:off
autofs         0:off   1:off   2:off   3:off   4:off   5:off
6:off
rawdevices     0:off   1:off   2:off   3:on    4:on
5:on    6:off
ip6tables      0:off   1:off   2:off   3:off   4:off
5:off   6:off
nfs            0:off   1:off   2:off   3:off   4:off   5:off
6:off
bluetooth      0:off   1:off   2:off   3:off   4:off
5:off   6:off
netdump-server 0:off   1:off   2:off   3:off   4:off
5:off   6:off
ripngd         0:off   1:off   2:off   3:off   4:off   5:off
6:off
iptables       0:off   1:off   2:on    3:on    4:on
5:on    6:off
NetworkManager 0:off   1:off   2:off   3:off   4:off
5:off   6:off
rpcsvcgssd     0:off   1:off   2:off   3:off   4:off
5:off   6:off
dhcrelay       0:off   1:off   2:off   3:off   4:off
5:off   6:off
bootparamd     0:off   1:off   2:off   3:off   4:off
5:off   6:off
squid          0:off   1:off   2:off   3:off   4:off   5:off
6:off
diskdump       0:off   1:off   2:off   3:off   4:off
5:off   6:off
haldaemon      0:off   1:off   2:off   3:off   4:off
5:off   6:off
cups           0:off   1:off   2:off   3:off   4:off   5:off
6:off
yppasswdd      0:off   1:off   2:off   3:off   4:off
5:off   6:off
saslauthd      0:off   1:off   2:off   3:off   4:off
5:off   6:off
netplugd       0:off   1:off   2:off   3:off   4:off
5:off   6:off
snmptrapd      0:off   1:off   2:off   3:off   4:off
5:off   6:off
canna          0:off   1:off   2:off   3:off   4:off   5:off
6:off
```

```
readahead_early 0:off   1:off   2:off   3:off   4:off
5:on    6:off
kprop          0:off   1:off   2:off   3:off   4:off   5:off
6:off
ripd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
irqbalance     0:off   1:off   2:off   3:on    4:on
5:on    6:off
messagebus     0:off   1:off   2:off   3:off   4:off
5:off   6:off
kudzu          0:off   1:off   2:off   3:off   4:off   5:off
6:off
ldap           0:off   1:off   2:off   3:off   4:off   5:off
6:off
microcode_ctl  0:off   1:off   2:off   3:off   4:off
5:off   6:off
network        0:off   1:off   2:on    3:on    4:on
5:on    6:off
rstatd         0:off   1:off   2:off   3:off   4:off   5:off
6:off
dhcpd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
portmap        0:off   1:off   2:off   3:off   4:off
5:off   6:off
lm_sensors     0:off   1:off   2:off   3:off   4:off
5:off   6:off
atd            0:off   1:off   2:off   3:off   4:off   5:off
6:off
ntpd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
krb524         0:off   1:off   2:off   3:off   4:off   5:off
6:off
smb            0:off   1:off   2:off   3:off   4:off   5:off
6:off
httpd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
rpcidmapd      0:off   1:off   2:off   3:off   4:off
5:off   6:off
krb5kdc        0:off   1:off   2:off   3:off   4:off
5:off   6:off
anacron        0:off   1:off   2:off   3:off   4:off
5:off   6:off
ospf6d         0:off   1:off   2:off   3:off   4:off   5:off
6:off
cpuspeed       0:off   1:on    2:on    3:on    4:on
5:on    6:off
nfslock        0:off   1:off   2:off   3:off   4:off   5:off
6:off
dc_client      0:off   1:off   2:off   3:off   4:off   5:off
6:off
dovecot        0:off   1:off   2:off   3:off   4:off
5:off   6:off
sshd           0:off   1:off   2:on    3:on    4:on
5:on    6:off
psacct         0:off   1:off   2:off   3:off   4:off   5:off
6:off
hpoj           0:off   1:off   2:off   3:off   4:off   5:off
6:off
radvd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
ypserv         0:off   1:off   2:off   3:off   4:off   5:off
6:off
iiim           0:off   1:off   2:off   3:off   4:off   5:off
6:off
netdump        0:off   1:off   2:off   3:off   4:off
5:off   6:off
ospfd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
cups-config-daemon 0:off   1:off   2:off   3:off
4:off   5:off   6:off
snmpd          0:off   1:off   2:off   3:off   4:off
5:off   6:off
acpid          0:off   1:off   2:off   3:off   4:off   5:off
6:off
```

```
dc_server       0:off   1:off   2:off   3:off   4:off   5:off   6:off
sysstat         0:off   1:on    2:off   3:off   4:off   5:off   6:off
kadmin          0:off   1:off   2:off   3:off   4:off   5:off   6:off
xfs             0:off   1:off   2:off   3:off   4:off   5:off   6:off
arpwatch        0:off   1:off   2:off   3:off   4:off   5:off   6:off
netfs           0:off   1:off   2:off   3:off   4:off   5:off   6:off
spamassassin    0:off   1:off   2:off   3:off   4:off   5:off   6:off
FreeWnn         0:off   1:off   2:off   3:off   4:off   5:off   6:off
tux             0:off   1:off   2:off   3:off   4:off   5:off   6:off
crond           0:off   1:off   2:on    3:on    4:on    5:on    6:off
vsftpd          0:off   1:off   2:off   3:off   4:off   5:off   6:off
rhnsd           0:off   1:off   2:off   3:off   4:off   5:off   6:off
irda            0:off   1:off   2:off   3:off   4:off   5:off   6:off
postgresql      0:off   1:off   2:off   3:off   4:off   5:off   6:off
zebra           0:off   1:off   2:off   3:off   4:off   5:off   6:off
xinetd based services:
   talk:   off
   daytime:    off
   kshell: off
   amandaidx:  off
   amanda: off
   krb5-telnet:    off
   auth:   on
   telnet: on
   finger: off
   gssftp: off
   amidxtape:  off
   dbskkd-cdb: off
   ntalk:  off
   ktalk:  off
   rsync:  off
   time-udp:   off
   echo:   off
   echo-udp:   off
   chargen-udp:    off
   eklogin:    off
   klogin: off
   rsh:    on
   cups-lpd:   off
   time:   off
   rexec:  off
   daytime-udp:    off
   rlogin: on
   chargen:    off
   swat:   off
   tftp:   off
```

```
::::::::::::::::::::::::::::::::
 limits.conf
::::::::::::::::::::::::::::::::
```

```
# /etc/security/limits.conf
#
#Each line describes a limit for a user in the form:
#
#<domain>        <type>  <item>  <value>
#
#Where:
#<domain> can be:
#        - an user name
#        - a group name, with @group syntax
#        - the wildcard *, for default entry
#
#<type> can have the two values:
#        - "soft" for enforcing the soft limits
#        - "hard" for enforcing hard limits
#
#<item> can be one of the following:
#        - core - limits the core file size (KB)
#        - data - max data size (KB)
#        - fsize - maximum filesize (KB)
#        - memlock - max locked-in-memory address space (KB)
#        - nofile - max number of open files
#        - rss - max resident set size (KB)
#        - stack - max stack size (KB)
#        - cpu - max CPU time (MIN)
#        - nproc - max number of processes
#        - as - address space limit
#        - maxlogins - max number of logins for this user
#        - priority - the priority to run user process with
#        - locks - max number of file locks the user can hold
#
#<domain>      <type>  <item>         <value>
#

#*               soft    core            0
#*               hard    rss             10000
#@student        hard    nproc           20
#@faculty        soft    nproc           20
#@faculty        hard    nproc           50
#ftp             hard    nproc           0
#@student        -       maxlogins       4
#tpc        -   nofile      20000
#tpc        -   nproc       20000
tpc    -   nofile      30000
tpc    -   nproc       30000

# End of file
```

```
::::::::::::::::::::::::::::::::
 sysctl.conf
::::::::::::::::::::::::::::::::
```

```
# Kernel sysctl configuration file for Red Hat Linux
#
# For binary values, 0 is disabled, 1 is enabled.  See sysctl(8) and
# sysctl.conf(5) for more details.

# Controls IP packet forwarding
net.ipv4.ip_forward = 0

# Controls source route verification
net.ipv4.conf.default.rp_filter = 1

# Controls the System Request debugging functionality of the kernel
kernel.sysrq = 0

# Controls whether core dumps will append the PID to the core filename.
# Useful for debugging multi-threaded applications.
kernel.core_uses_pid = 1

# Change filediscriptor
#fs.file-max = 20000
fs.file-max = 30000
# Change Message queue
#kernel.msgmni = 20000
kernel.msgmni = 30000
kernel.msgmnb = 819200

# Change Max process
#kernel.threads-max = 20000
kernel.threads-max = 30000
# Change Semaphore
kernel.sem = 3000  384000 32  128
# Change TCP/IP backlog
net.ipv4.tcp_max_syn_backlog = 4096
```

[HTTP server tunables]

```
::::::::::::::::::::::::::::::::
 apache_cl_start.sh
::::::::::::::::::::::::::::::::
```

```
#!/bin/sh
export LD_LIBRARY_PATH=$ORACLE_HOME/srvm/lib:$ORACLE_HOME/lib64:$ORACLE_HOME/lib:/usr/lib:$ORACLE_HOME/rdbms/lib:$ORACLE_HOME/network/lib:$TUXDIR/lib

ulimit -u 30000
ulimit -s 1536

/sbin/swapoff -a

# For 3tier tune
SVRAPL=`ps -e | grep tpccfmlw | awk '{print $1}'`
/usr/bin/renice -20 -p ${SVRAPL}

rm -f /home/tpc/sar.tmp
/home/tpc/sar.`hostname`
/usr/lib/sa/sadc 5 > /home/tpc/sar.tmp &
# For 3tier tune


apachectl start
```

```
::::::::::::::::::::::::::::::::
 httpd.conf
::::::::::::::::::::::::::::::::
```

```
#
# Based upon the NCSA server configuration files originally by Rob McCool.
#
# This is the main Apache server configuration file.  It contains the
# configuration directives that give the server its instructions.
# See <URL:http://httpd.apache.org/docs-2.0/> for detailed information about
# the directives.
#
# Do NOT simply read the instructions in here without understanding
# what they do.  They're here only as hints or reminders.  If you are unsure
# consult the online docs. You have been warned.
#
# The configuration directives are grouped into three basic sections:
```

```
# 1. Directives that control the operation of the Apache server process as a
#    whole (the 'global environment').
# 2. Directives that define the parameters of the 'main' or 'default' server,
#    which responds to requests that aren't handled by a virtual host.
#    These directives also provide default values for the settings
#    of all virtual hosts.
# 3. Settings for virtual hosts, which allow Web requests to be sent to
#    different IP addresses or hostnames and have them handled by the
#    same Apache server process.
#
# Configuration and logfile names: If the filenames you specify for many
# of the server's control files begin with "/" (or "drive:/" for Win32), the
# server will use that explicit path.  If the filenames do *not* begin
# with "/", the value of ServerRoot is prepended -- so "logs/foo.log"
# with ServerRoot set to "/etc/httpd" will be interpreted by the
# server as "/etc/httpd/logs/foo.log".
#

### Section 1: Global Environment
#
# The directives in this section affect the overall operation of Apache,
# such as the number of concurrent requests it can handle or where it
# can find its configuration files.
#

#
# Don't give away too much information about all the subcomponents
# we are running.  Comment out this line if you don't mind remote sites
# finding out what major optional modules you are running
#ServerTokens OS
ServerTokens Productly

#
# ServerRoot: The top of the directory tree under which the server's
# configuration, error, and log files are kept.
#
# NOTE!  If you intend to place this on an NFS (or otherwise network)
# mounted filesystem then please read the LockFile documentation
# (available at <URL:http://httpd.apache.org/docs-2.0/mod/core.html#lockfile>);
# you will save yourself a lot of trouble.
#
# Do NOT add a slash at the end of the directory path.
#
ServerRoot "/etc/httpd"

#
# ScoreBoardFile: File used to store internal server process information.
# If unspecified (the default), the scoreboard will be stored in an
# anonymous shared memory segment, and will be unavailable to third-party
# applications.
# If specified, ensure that no two invocations of Apache share the same
# scoreboard file. The scoreboard file MUST BE STORED ON A LOCAL DISK.
#
#ScoreBoardFile run/httpd.scoreboard

#
# PidFile: The file in which the server should record its process
# identification number when it starts.
#
PidFile run/httpd.pid

#
# Timeout: The number of seconds before receives and sends time out.
#
#Timeout 300
Timeout 999

#
# KeepAlive: Whether or not to allow persistent connections (more than
# one request per connection). Set to "Off" to deactivate.
#
#KeepAlive Off
KeepAlive On


#
# MaxKeepAliveRequests: The maximum number of requests to allow
# during a persistent connection. Set to 0 to allow an unlimited amount.
# We recommend you leave this number high, for maximum performance.
#
#MaxKeepAliveRequests 100
MaxKeepAliveRequests 0

#
# KeepAliveTimeout: Number of seconds to wait for the next request from the
# same client on the same connection.
#
#KeepAliveTimeout 15
KeepAliveTimeout  999

##
## Server-Pool Size Regulation (MPM specific)
##

# prefork MPM
# StartServers: number of server processes to start
# MinSpareServers: minimum number of server processes which are kept spare
# MaxSpareServers: maximum number of server processes which are kept spare
# MaxClients: maximum number of server processes allowed to start
# MaxRequestsPerChild: maximum number of requests a server process serves
<IfModule prefork.c>
StartServers       8
MinSpareServers    5
MaxSpareServers   20
MaxClients       150
MaxRequestsPerChild  1000
</IfModule>

# worker MPM
# StartServers: initial number of server processes to start
# MaxClients: maximum number of simultaneous client connections
# MinSpareThreads: minimum number of worker threads which are kept spare
# MaxSpareThreads: maximum number of worker threads which are kept spare
# ThreadsPerChild: constant number of worker threads in each server process
# MaxRequestsPerChild: maximum number of requests a server process serves
<IfModule worker.c>

StartServers         39
ServerLimit          39
ThreadLimit          500
MaxClients           19500
MinSpareThreads      1
MaxSpareThreads      19500
ThreadsPerChild      500
MaxRequestsPerChild  0

#
#
# To reduce memory usage in the worker MPM, the thread guard page
#
# To reduce memory usage in the worker MPM, the thread guard page
# can be disabled, at the expense of some protection against stack
# overflow.
#
#ThreadGuardArea off

</IfModule>

#
# Listen: Allows you to bind Apache to specific IP addresses and/or
# ports, in addition to the default. See also the <VirtualHost>
# directive.
#
# Change this to Listen on specific IP addresses as shown below to
# prevent Apache from glomming onto all bound IP addresses (0.0.0.0)
# e.g. "Listen 12.34.56.78:80"
#
# To allow connections to IPv6 addresses add "Listen [::]:80"
#
Listen 0.0.0.0:80

#
# Dynamic Shared Object (DSO) Support
#


# To be able to use the functionality of a module which was built as a DSO you
# have to place corresponding `LoadModule' lines at this location so the
# directives contained in it are actually available _before_ they are used.
# Statically compiled modules (those listed by `httpd -l') do not need
# to be loaded here.
#
# Example:
# LoadModule foo_module modules/mod_foo.so
#
```

```
LoadModule tpapl_module
modules/mod_tpapl.so
LoadModule access_module
modules/mod_access.so
LoadModule status_module
modules/mod_status.so
LoadModule alias_module
modules/mod_alias.so
LoadModule cgi_module modules/mod_cgi.so

#
# Load config files from the config directory
"/etc/httpd/conf.d".
#
#Include conf.d/*.conf

#
# ExtendedStatus controls whether Apache will
generate "full" status
# information (ExtendedStatus On) or just basic
information (ExtendedStatus
# Off) when the "server-status" handler is called.
The default is Off.
#
#ExtendedStatus On

### Section 2: 'Main' server configuration
#
# The directives in this section set up the values
used by the 'main'
# server, which responds to any requests that
aren't handled by a
# <VirtualHost> definition.  These values also
provide defaults for
# any <VirtualHost> containers you may define
later in the file.
#
# All of these directives may appear inside
<VirtualHost> containers,
# in which case these default settings will be
overridden for the
# virtual host being defined.
#

#
# If you wish httpd to run as a different user or
group, you must run
# httpd as root initially and it will switch.
#
# User/Group: The name (or #number) of the
user/group to run httpd as.
#  . On SCO (ODT 3) use "User nouser" and
"Group nogroup".
#  . On HPUX you may not be able to use
shared memory as nobody, and the
#    suggested workaround is to create a user
www and use that user.
#  NOTE that some kernels refuse to
setgid(Group) or semctl(IPC_SET)
#  when the value of (unsigned)Group is above
60000;
#  don't use Group #-1 on these systems!
#
#User apache
#Group apache
User tpc
Group tpc


#
# ServerAdmin: Your address, where problems
with the server should be
# e-mailed.  This address appears on some
server-generated pages, such
# as error documents.  e.g. admin@your-
domain.com
#
ServerAdmin root@localhost

#
# ServerName gives the name and port that the
server uses to identify itself.
# This can often be determined automatically,
but we recommend you specify
# it explicitly to prevent problems during startup.
#
# If this is not set to valid DNS name for your
host, server-generated
# redirections will not work.  See also the
UseCanonicalName directive.
#
# If your host doesn't have a registered DNS
name, enter its IP address here.
# You will have to access it by its address
anyway, and this will make
# redirections work in a sensible way.
#
#ServerName new.host.name:80
ServerName tpccserver:80

#
# UseCanonicalName: Determines how Apache
constructs self-referencing
# URLs and the SERVER_NAME and
SERVER_PORT variables.
# When set "Off", Apache will use the Hostname
and Port supplied
# by the client.  When set "On", Apache will use
the value of the
# ServerName directive.
#
UseCanonicalName Off

#
# DocumentRoot: The directory out of which you
will serve your
# documents. By default, all requests are taken
from this directory, but
# symbolic links and aliases may be used to
point to other locations.
#
#DocumentRoot "/var/www/html"

#
# Each directory to which Apache has access
can be configured with respect
# to which services and features are allowed
and/or disabled in that
# directory (and its subdirectories).
#
# First, we configure the "default" to be a very
restrictive set of
# features.
#
#<Directory />
#    Options FollowSymLinks
#    AllowOverride None
#</Directory>

#
# Note that from this point forward you must
specifically allow
# particular features to be enabled - so if
something's not working as
# you might expect, make sure that you have
specifically enabled it
# below.
#
#
# UserDir: The name of the directory that is
appended onto a user's home
# directory if a ~user request is received.
#
# The path to the end user account 'public_html'
directory must be
# accessible to the webserver userid.  This
usually means that ~userid
# must have permissions of 711,
~userid/public_html must have permissions
# of 755, and documents contained therein must
be world-readable.
# Otherwise, the client will only receive a "403
Forbidden" message.
#
# See also:
http://httpd.apache.org/docs/misc/FAQ.html#forb
idden
#
#<IfModule mod_userdir.c>
    #
    # UserDir is disabled by default since it can
confirm the presence
    # of a username on the system (depending on
home directory
    # permissions).
    #
#    UserDir disable

    #
    # To enable requests to /~user/ to serve the
user's public_html
    # directory, remove the "UserDir disable" line
above, and uncomment
    # the following line instead:
    #
    #UserDir public_html

#</IfModule>

#
# Control access to UserDir directories.  The
following is an example
# for a site where these directories are restricted
to read-only.
#
#<Directory /home/*/public_html>
#    AllowOverride FileInfo AuthConfig Limit
#    Options MultiViews Indexes
SymLinksIfOwnerMatch IncludesNoExec
#    <Limit GET POST OPTIONS>
#        Order allow,deny
#        Allow from all
#    </Limit>
#    <LimitExcept GET POST OPTIONS>
#        Order deny,allow
#        Deny from all
#    </LimitExcept>
#</Directory>

#
# DirectoryIndex: sets the file that Apache will
serve if a directory
# is requested.
#
# The index.html.var file (a type-map) is used to
deliver content-
# negotiated documents.  The MultiViews Option
can be used for the
# same purpose, but it is much slower.
#

#
```

```
# AccessFileName: The name of the file to look
for in each directory
# for additional configuration directives.  See
also the AllowOverride
# directive.
#
AccessFileName .htaccess

#
# The following lines prevent .htaccess
and .htpasswd files from being
# viewed by Web clients.
#

#
# TypesConfig describes where the mime.types
file (or equivalent) is
# to be found.
#

#
# DefaultType is the default MIME type the
server will use for a document
# if it cannot otherwise determine one, such as
from filename extensions.
# If your server contains mostly text or HTML
documents, "text/plain" is
# a good value.  If most of your content is binary,
such as applications
# or images, you may want to use
"application/octet-stream" instead to
# keep browsers from trying to display binary
files as though they are
# text.
#
DefaultType text/plain

#
# The mod_mime_magic module allows the
server to use various hints from the
# contents of the file itself to determine its type.
The MIMEMagicFile
# directive tells the module where the hint
definitions are located.
#
#<IfModule mod_mime_magic.c>
##   MIMEMagicFile /usr/share/magic.mime
#    MIMEMagicFile conf/magic
#</IfModule>

#
# HostnameLookups: Log the names of clients
or just their IP addresses
# e.g., www.apache.org (on) or 204.62.129.132
(off).
# The default is off because it'd be overall better
for the net if people
# had to knowingly turn this feature on, since
enabling it means that
# each client request will result in AT LEAST one
lookup request to the
# nameserver.
#
HostnameLookups Off

#
# EnableMMAP: Control whether memory-
mapping is used to deliver
# files (assuming that the underlying OS
supports it).
# The default is on; turn this off if you serve from
NFS-mounted
# filesystems.  On some systems, turning it off
(regardless of
# filesystem) can improve performance; for
details, please see
# http://httpd.apache.org/docs-
2.0/mod/core.html#enablemmap
#
#EnableMMAP off

#
# EnableSendfile: Control whether the sendfile
kernel support is
# used to deliver files (assuming that the OS
supports it).
# The default is on; turn this off if you serve from
NFS-mounted
# filesystems.  Please see
# http://httpd.apache.org/docs-
2.0/mod/core.html#enablesendfile
#
#EnableSendfile off
#

#
# ErrorLog: The location of the error log file.
# If you do not specify an ErrorLog directive
within a <VirtualHost>
# container, error messages relating to that
virtual host will be
# logged here.  If you *do* define an error logfile
for a <VirtualHost>
# container, that host's errors will be logged
there and not here.
#
ErrorLog logs/error_log

#
# LogLevel: Control the number of messages
logged to the error_log.
# Possible values include: debug, info, notice,
warn, error, crit,
# alert, emerg.
#
LogLevel warn

#
# The following directives define some format
nicknames for use with
# a CustomLog directive (see below).
#

#
# The location and format of the access logfile
(Common Logfile Format).
# If you do not define any access logfiles within
a <VirtualHost>
# container, they will be logged here.
Contrariwise, if you *do*
# define per-<VirtualHost> access logfiles,
transactions will be
# logged therein and *not* in this file.
#
# CustomLog logs/access_log common
#CustomLog logs/access_log combined

#
# If you would like to have agent and referer
logfiles, uncomment the
# following directives.
#
#CustomLog logs/referer_log referer
#CustomLog logs/agent_log agent

#
# If you prefer a single logfile with access, agent,
and referer information
# (Combined Logfile Format) you can use the
following directive.
#
#CustomLog logs/access_log combined

#
# Optionally add a line containing the server
version and virtual host
# name to server-generated pages (error
documents, FTP directory listings,
# mod_status and mod_info output etc., but not
CGI generated documents).
# Set to "EMail" to also include a mailto: link to
the ServerAdmin.
# Set to one of:  On | Off | EMail
#
#ServerSignature On
ServerSignature Off

#
# Aliases: Add here as many aliases as you
need (with no limit). The format is
# Alias fakename realname
#
# Note that if you include a trailing / on fakename
then the server will
# require it to be present in the URL.  So "/icons"
isn't aliased in this
# example, only "/icons/".  If the fakename is
slash-terminated, then the
# realname must also be slash terminated, and if
the fakename omits the
# trailing slash, the realname must also omit it.
#
# We include the /icons/ alias for FancyIndexed
directory listings.  If you
# do not use FancyIndexing, you may comment
this out.
#

#
# This should be changed to the
ServerRoot/manual/.  The alias provides
# the manual, even if you choose to move your
DocumentRoot.  You may comment
# this out if you do not care for the
documentation.
#
#<IfModule mod_dav_fs.c>
#    # Location of the WebDAV lock database.
#    DAVLockDB /var/lib/dav/lockdb
#</IfModule>

#
# ScriptAlias: This controls which directories
contain server scripts.
# ScriptAliases are essentially the same as
Aliases, except that
# documents in the realname directory are
treated as applications and
# run by the server when requested rather than
as documents sent to the client.
# The same rules about trailing "/" apply to
ScriptAlias directives as to
# Alias.
#
#ScriptAlias /cgi-bin/ "/var/www/cgi-bin/"
ScriptAlias /cgi-bin/ "/home/tpc/tool/bin/"

#
# "/var/www/cgi-bin" should be changed to
whatever your ScriptAliased
# CGI directory exists, if you have that
configured.
#
```

```
<Directory "/var/www/cgi-bin">
    AllowOverride None
    Options None
    Order allow,deny
    Allow from all
</Directory>

#
# Redirect allows you to tell clients about documents which used to exist in
# your server's namespace, but do not anymore. This allows you to tell the
# clients where to look for the relocated document.
# Example:
# Redirect permanent /foo http://www.example.com/bar

#
# Directives controlling the display of server-generated directory listings.
#

#
# FancyIndexing is whether you want fancy directory indexing or standard.
# VersionSort is whether files containing version numbers should be
# compared in the natural way, so that `apache-1.3.9.tar' is placed before
# `apache-1.3.12.tar'.
#

#
# AddIcon* directives tell the server which icon to show for different
# files or filename extensions.  These are only displayed for
# FancyIndexed directories.
#


#
# DefaultIcon is which icon to show for files which do not have an icon
# explicitly set.
#

#
# AddDescription allows you to place a short description after a file in
# server-generated indexes.  These are only displayed for FancyIndexed
# directories.
# Format: AddDescription "description" filename
#
#AddDescription "GZIP compressed document" .gz
#AddDescription "tar archive" .tar
#AddDescription "GZIP compressed tar archive" .tgz

#
# ReadmeName is the name of the README file the server will look for by
# default, and append to directory listings.
#
# HeaderName is the name of a file which should be prepended to
# directory indexes.

#
# IndexIgnore is a set of filenames which directory indexing should ignore
# and not include in the listing.  Shell-style wildcarding is permitted.
#

#
# AddEncoding allows you to have certain browsers (Mosaic/X 2.1+) uncompress
# information on the fly. Note: Not all browsers support this.
# Despite the name similarity, the following Add* directives have nothing
# to do with the FancyIndexing customization directives above.
#

#
# DefaultLanguage and AddLanguage allows you to specify the language of
# a document. You can then use content negotiation to give a browser a
# file in a language the user can understand.
#
# Specify a default language. This means that all data
# going out without a specific language tag (see below) will
# be marked with this one. You probably do NOT want to set
# this unless you are sure it is correct for all cases.
#
# * It is generally better to not mark a page as
# * being a certain language than marking it with the wrong
# * language!
#
# DefaultLanguage nl
#
# Note 1: The suffix does not have to be the same as the language
# keyword --- those with documents in Polish (whose net-standard
# language code is pl) may wish to use "AddLanguage pl .po" to
# avoid the ambiguity with the common suffix for perl scripts.
#
# Note 2: The example entries below illustrate that in some cases
# the two character 'Language' abbreviation is not identical to
# the two character 'Country' code for its country,
# E.g. 'Danmark/dk' versus 'Danish/da'.
#
# Note 3: In the case of 'ltz' we violate the RFC by using a three char
# specifier. There is 'work in progress' to fix this and get
# the reference data for rfc1766 cleaned up.
#
# Danish (da) - Dutch (nl) - English (en) - Estonian (et)
# French (fr) - German (de) - Greek-Modern (el)
# Italian (it) - Norwegian (no) - Norwegian Nynorsk (nn) - Korean (ko)
# Portugese (pt) - Luxembourgeois* (ltz)
# Spanish (es) - Swedish (sv) - Catalan (ca) - Czech(cs)
# Polish (pl) - Brazilian Portuguese (pt-br) - Japanese (ja)
# Russian (ru) - Croatian (hr)
#

#
# LanguagePriority allows you to give precedence to some languages
# in case of a tie during content negotiation.
#
# Just list the languages in decreasing order of preference. We have
# more or less alphabetized them here. You probably want to change this.
#

#
# ForceLanguagePriority allows you to serve a result page rather than
# MULTIPLE CHOICES (Prefer) [in case of a tie] or NOT ACCEPTABLE (Fallback)
# [in case no accepted languages matched the available variants]
#

#
# Specify a default charset for all pages sent out. This is
# always a good idea and opens the door for future internationalisation
# of your web site, should you ever want it. Specifying it as
# a default does little harm; as the standard dictates that a page
# is in iso-8859-1 (latin1) unless specified otherwise i.e. you
# are merely stating the obvious. There are also some security
# reasons in browsers, related to javascript and URL parsing
# which encourage you to always set a default char set.
#
AddDefaultCharset UTF-8

#
# Commonly used filename extensions to character sets. You probably
# want to avoid clashes with the language extensions, unless you
# are good at carefully testing your setup after each change.
# See http://www.iana.org/assignments/character-sets for the
# official list of charset names and their respective RFCs
#

#
# AddType allows you to add to or override the MIME configuration
# file mime.types for specific file types.
#

#
# AddHandler allows you to map certain file extensions to "handlers":
# actions unrelated to filetype. These can be either built into the server
# or added with the Action directive (see below)
#
# To use CGI scripts outside of ScriptAliased directories:
# (You will also need to add "ExecCGI" to the "Options" directive.)
#
#AddHandler cgi-script .cgi

#
# For files that include their own HTTP headers:
```

```
#
#AddHandler send-as-is asis

#
# For server-parsed imagemap files:
#

#
# For type maps (negotiated resources):
# (This is enabled by default to allow the Apache
"It Worked" page
#  to be distributed in multiple languages.)
#

# Filters allow you to process content before it is
sent to the client.
#
# To parse .shtml files for server-side includes
(SSI):
# (You will also need to add "Includes" to the
"Options" directive.)
#

#
# Action lets you define media types that will
execute a script whenever
# a matching file is called. This eliminates the
need for repeated URL
# pathnames for oft-used CGI file processors.
# Format: Action media/type /cgi-script/location
# Format: Action handler-name /cgi-
script/location
#

#
# Customizable error responses come in three
flavors:
# 1) plain text 2) local redirects 3) external
redirects
#
# Some examples:
#ErrorDocument 500 "The server made a boo
boo."
#ErrorDocument 404 /missing.html
#ErrorDocument 404 "/cgi-
bin/missing_handler.pl"
#ErrorDocument 402
http://www.example.com/subscription_info.html
#

#
# Putting this all together, we can
Internationalize error responses.
#
# We use Alias to redirect any
/error/HTTP_<error>.html.var response to
# our collection of by-error message multi-
language collections.  We use
# includes to substitute the appropriate text.
#
# You can modify the messages' appearance
without changing any of the
# default HTTP_<error>.html.var files by adding
the line;
#
#   Alias /error/include/ "/your/include/path/"
#
# which allows you to create your own set of files
by starting with the
# /var/www/error/include/ files and
# copying them to /your/include/path/, even on a
per-VirtualHost basis.
#

Alias /error/ "/var/www/error/"

#    ErrorDocument 400
/error/HTTP_BAD_REQUEST.html.var
#    ErrorDocument 401
/error/HTTP_UNAUTHORIZED.html.var
#    ErrorDocument 403
/error/HTTP_FORBIDDEN.html.var
#    ErrorDocument 404
/error/HTTP_NOT_FOUND.html.var
#    ErrorDocument 405
/error/HTTP_METHOD_NOT_ALLOWED.html.v
ar
#    ErrorDocument 408
/error/HTTP_REQUEST_TIME_OUT.html.var
#    ErrorDocument 410
/error/HTTP_GONE.html.var
#    ErrorDocument 411
/error/HTTP_LENGTH_REQUIRED.html.var
#    ErrorDocument 412
/error/HTTP_PRECONDITION_FAILED.html.var
#    ErrorDocument 413
/error/HTTP_REQUEST_ENTITY_TOO_LARGE
.html.var
#    ErrorDocument 414
/error/HTTP_REQUEST_URI_TOO_LARGE.htm
l.var
#    ErrorDocument 415
/error/HTTP_SERVICE_UNAVAILABLE.html.var
#    ErrorDocument 500
/error/HTTP_INTERNAL_SERVER_ERROR.htm
l.var
#    ErrorDocument 501
/error/HTTP_NOT_IMPLEMENTED.html.var
#    ErrorDocument 502
/error/HTTP_BAD_GATEWAY.html.var
#    ErrorDocument 503
/error/HTTP_SERVICE_UNAVAILABLE.html.var
#    ErrorDocument 506
/error/HTTP_VARIANT_ALSO_VARIES.html.var


#
# The following directives modify normal HTTP
response behavior to
# handle known problems with browser
implementations.
#

#
# The following directive disables redirects on
non-GET requests for
# a directory that does not include the trailing
slash.  This fixes a
# problem with Microsoft WebFolders which
does not appropriately handle
# redirects for folders with DAV methods.
# Same deal with Apple's DAV filesystem and
Gnome VFS support for DAV.
#
# Allow server status reports, with the URL of
http://servername/server-status
# Change the ".your-domain.com" to match your
domain to enable.
#
<Location /server-status>
    SetHandler server-status
    Order deny,allow
    Deny from all
    Allow from 192.168.
</Location>

#
# Allow remote server configuration reports, with
the URL of
#  http://servername/server-info (requires that
mod_info.c be loaded).
# Change the ".example.com" to match your
domain to enable.
#
#<Location /server-info>
#    SetHandler server-info
#    Order deny,allow
#    Deny from all
#    Allow from .example.com
#</Location>

#
# Proxy Server directives. Uncomment the
following lines to
# enable the proxy server:
#
#<IfModule mod_proxy.c>
#ProxyRequests On
#
#<Proxy *>
#    Order deny,allow
#    Deny from all
#    Allow from .example.com
#</Proxy>

#
# Enable/disable the handling of HTTP/1.1 "Via:"
headers.
# ("Full" adds the server version; "Block"
removes all outgoing Via: headers)
# Set to one of: Off | On | Full | Block
#
#ProxyVia On

#
# To enable a cache of proxied content,
uncomment the following lines.
# See http://httpd.apache.org/docs-
2.0/mod/mod_cache.html for more details.
#
#<IfModule mod_disk_cache.c>
#   CacheEnable disk /
#   CacheRoot "/var/cache/mod_proxy"
#</IfModule>
#

#</IfModule>
# End of proxy directives.

### Section 3: Virtual Hosts
#
# VirtualHost: If you want to maintain multiple
domains/hostnames on your
# machine you can setup VirtualHost containers
for them. Most configurations
# use only name-based virtual hosts so the
server doesn't need to worry about
# IP addresses. This is indicated by the asterisks
in the directives below.
#
# Please see the documentation at
# <URL:http://httpd.apache.org/docs-
2.0/vhosts/>
# for further details before you try to setup virtual
hosts.
#
# You may use the command line option '-S' to
verify your virtual host
# configuration.

#
# Use name-based virtual hosting.
#
#NameVirtualHost *:80
```

```
#
# VirtualHost example:
# Almost any Apache directive may go into a
VirtualHost container.
# The first VirtualHost section is used for
requests without a known
# server name.
#
#<VirtualHost *>
#    ServerAdmin webmaster@dummy-
host.example.com
#    DocumentRoot /www/docs/dummy-
host.example.com
#    ServerName dummy-host.example.com
#    ErrorLog logs/dummy-host.example.com-
error_log
#    CustomLog logs/dummy-host.example.com-
access_log common
#</VirtualHost>

#
# For TPAPL
#
<Location /tpapl>
    SetHandler tpapl
    TpAplConf /home/tpc/conf/tpapl.conf
</Location>
```

```
[Front-end application tunables]
-----------------------------------------------------------

::::::::::::::::::::::::::::::::
 tpapl.conf
::::::::::::::::::::::::::::::::

[TPAPL_INFO]
Term_Base="1"
NumWarehouses="98991"
MaxUsers="989910"
MaxTerm of Client="19410"
CONTROL_Flag="0"
LogPath="/home/tpc/log/userlog.log"

[SVRAPL_INFO]
LogPath="/home/tpc/log/DBDepend_Userlog.log
"
```

```
 << for Linux Client >>


::::::::::::::::::::::::::::::::
 tnsnames.ora
::::::::::::::::::::::::::::::::


#
# Installation Generated Net8 Configuration
# Version Date: Oct-27-97
# Filename: Tnsnames.ora
#
extproc_connection_data =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = IPC)(KEY =
tpcc))
    (SDU=14600)
    (CONNECT_DATA = (SERVICE_NAME =
tpcc))
  )
tpcc =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
    (SDU=14600)
    (CONNECT_DATA = (SERVICE_NAME =
tpcc))
  )
```

```
[TP monitor tunables]
-----------------------------------------------------------

::::::::::::::::::::::::::::::::
 ubbconfig
::::::::::::::::::::::::::::::::

#
#   ubbconfig : TUXEDO configuration file-
@(WAREHOUSE BINED)
#

*RESOURCES
IPCKEY          211940
MASTER          SITE1
UID             500
GID             500
PERM            0660
MAXACCESSERS    1000
MAXSERVERS      100
MAXSERVICES     100
MAXGTT          0
MODEL           SHM
LDBAL           Y
OPTIONS         NO_AA,NO_XA

*MACHINES
cl033   LMID=SITE1
        APPDIR="/home/tpc/bin"
        TUXCONFIG="/home/tpc/conf/tuxconfig"
        TUXDIR="/usr/local/BEA/tuxedo8.1"
        ULOGPFX="/home/tpc/log/tuxedo.log"
        SICACHEENTRIESMAX="0"

*GROUPS
group1  LMID=SITE1 GRPNO=1

*SERVERS
DEFAULT:    RESTART=Y MAXGEN=5
REPLYQ=N RQPERM=0660

tpccfmlw    SRVGRP=group1 RQADDR=ware01
SRVID=1 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware02
SRVID=2 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware03
SRVID=3 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware04
SRVID=4 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware05
SRVID=5 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware06
SRVID=6 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware07
SRVID=7 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware08
SRVID=8 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware09
SRVID=9 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware10
SRVID=10 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware11
SRVID=11 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware12
SRVID=12 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware13
SRVID=13 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware14
SRVID=14 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware15
SRVID=15 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware16
SRVID=16 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware17
SRVID=17 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware18
SRVID=18 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware19
SRVID=19 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"

*SERVICES
"OPSTUXSERVER"  TRANTIME=0
SRVGRP=group1

*ROUTING
```

```
====================================
======================
 (configuration difference between cl033 and
cl034)
====================================
======================
1122c1122
< Term_Base="1"
---
> Term_Base="19411"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1523))
1190c1190
< cl033   LMID=SITE1
---
> cl034   LMID=SITE1

====================================
======================
 (configuration difference between cl033 and
cl035)
====================================
======================
1122c1122
< Term_Base="1"
---
```

```
> Term_Base="38821"
1141d1140
<
1156c1155
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1524))
1190c1189
< cl033   LMID=SITE1
---
> cl035   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl036)
=====================================
=======================
1122c1122
< Term_Base="1"
---
> Term_Base="58231"
1156c1156
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1525))
1190c1190
< cl033   LMID=SITE1
---
> cl036   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl037)
=====================================
=======================
1122c1122
< Term_Base="1"
---
> Term_Base="77641"
1156c1156
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1526))
1190c1190
< cl033   LMID=SITE1
---
> cl037   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl038)
=====================================
=======================
1122c1122
< Term_Base="1"
---
> Term_Base="97051"
1156c1156
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1527))
1190c1190
< cl033   LMID=SITE1
---
> cl038   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl039)
=====================================
=======================
1122c1122
< Term_Base="1"
---
> Term_Base="116461"
1156c1156
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1528))
1190c1190
< cl033   LMID=SITE1
---
> cl039   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl040)
=====================================
=======================
1122c1122
< Term_Base="1"
---
> Term_Base="135871"
1190c1190
< cl033   LMID=SITE1
---
> cl040   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl041)
=====================================
=======================
1122c1122
< Term_Base="1"
---
> Term_Base="155281"
1156c1156
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1522))
1190c1190
< cl033   LMID=SITE1
---
> cl041   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl042)
=====================================
=======================
1122c1122
< Term_Base="1"
---
> Term_Base="174691"
1156c1156
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1523))
1190c1190
< cl033   LMID=SITE1
---
> cl042   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl043)
=====================================
=======================
1122c1122
< Term_Base="1"
---
> Term_Base="194101"
1156c1156
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1524))
1190c1190
< cl033   LMID=SITE1
---
> cl043   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl044)
=====================================
=======================
1122c1122
< Term_Base="1"
---
> Term_Base="213511"
1156c1156
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1525))
1190c1190
< cl033   LMID=SITE1
---
> cl044   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl045)
=====================================
=======================
191a192
> tpc    -   stack      1500
1122c1123
< Term_Base="1"
---
> Term_Base="232921"
1141d1141
<
1156c1156
<    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1526))
1190c1190
< cl033   LMID=SITE1
---
> cl045   LMID=SITE1

=====================================
=======================
 (configuration difference between cl033 and
cl046)
=====================================
======================
192,193c192,195
< tpc    -   nofile     30000
< tpc    -   nproc      30000
---
> #tpc       -   nofile     30000
> #tpc       -   nproc      30000
> tpc    -   nofile     40000
> tpc    -   nproc      40000
222a225
> #fs.file-max = 40000
225a229
> #kernel.msgmni = 40000
230a235
> #kernel.threads-max = 40000
1122c1127
< Term_Base="1"
---
> Term_Base="252331"
1156c1161
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1527))
1190c1195
< cl033   LMID=SITE1
---
> cl046   LMID=SITE1

=====================================
======================
 (configuration difference between cl033 and
cl047)
=====================================
======================
193a194,195
> #tpc       -   nofile     40000
> #tpc       -   nproc      40000
222a225
> #fs.file-max = 40000
225a229
> #kernel.msgmni = 40000
230a235
> #kernel.threads-max = 40000
1122c1127
< Term_Base="1"
---
> Term_Base="271741"
1156c1161
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1528))
1190c1195
< cl033   LMID=SITE1
---
> cl047   LMID=SITE1



=====================================
======================
 (cl105 configuration)
=====================================
======================

[OS tunables]
------------------------------------------------------------

:::::::::::::::::::::::::::::::::
```

```
 chkconfig
:::::::::::::::::::::::::::::::::

lisa           0:off   1:off   2:off   3:off   4:off   5:off
6:off
isdn           0:off   1:off   2:off   3:off   4:off   5:off
6:off
cups           0:off   1:off   2:off   3:off   4:off   5:off
6:off
xinetd         0:off   1:off   2:off   3:on    4:on
5:on   6:off
postgresql     0:off   1:off   2:off   3:off   4:off
5:off   6:off
squid          0:off   1:off   2:off   3:off   4:off   5:off
6:off
ospfd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
psacct         0:off   1:off   2:off   3:off   4:off   5:off
6:off
mdmonitor      0:off   1:off   2:off   3:off   4:off
5:off   6:off
iptables       0:off   1:off   2:on    3:on    4:on
5:on   6:off
network        0:off   1:off   2:on    3:on    4:on
5:on   6:off
arptables_jf   0:off   1:off   2:off   3:off   4:off
5:off   6:off
dhcpd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
messagebus     0:off   1:off   2:off   3:off   4:off
5:off   6:off
ripd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
dc_client      0:off   1:off   2:off   3:off   4:off   5:off
6:off
ypserv         0:off   1:off   2:off   3:off   4:off   5:off
6:off
rusersd        0:off   1:off   2:off   3:off   4:off   5:off
6:off
sendmail       0:off   1:off   2:off   3:off   4:off
5:off   6:off
winbind        0:off   1:off   2:off   3:off   4:off   5:off
6:off
sysstat        0:off   1:on    2:off   3:off   4:off   5:off
6:off
vsftpd         0:off   1:off   2:off   3:off   4:off   5:off
6:off
kudzu          0:off   1:off   2:off   3:off   4:off   5:off
6:off
rwhod          0:off   1:off   2:off   3:off   4:off   5:off
6:off
portmap        0:off   1:off   2:off   3:off   4:off
5:off   6:off
smartd         0:off   1:off   2:off   3:off   4:off   5:off
6:off
dhcrelay       0:off   1:off   2:off   3:off   4:off
5:off   6:off
mailman        0:off   1:off   2:off   3:off   4:off
5:off   6:off
mysqld         0:off   1:off   2:off   3:off   4:off
5:off   6:off
anacron        0:off   1:off   2:off   3:off   4:off
5:off   6:off
netdump-server  0:off   1:off   2:off   3:off   4:off
5:off   6:off
atd            0:off   1:off   2:off   3:off   4:off   5:off
6:off
nscd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
kadmin         0:off   1:off   2:off   3:off   4:off
5:off   6:off
sshd           0:off   1:off   2:on    3:on    4:on
5:on   6:off
gpm            0:off   1:off   2:off   3:off   4:off   5:off
6:off
innd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
cpuspeed       0:off   1:on    2:on    3:on    4:on
5:on   6:off
named          0:off   1:off   2:off   3:off   4:off
5:off   6:off
snmptrapd      0:off   1:off   2:off   3:off   4:off
5:off   6:off
dc_server      0:off   1:off   2:off   3:off   4:off
5:off   6:off
acpid          0:off   1:off   2:off   3:off   4:off   5:off
6:off
lm_sensors     0:off   1:off   2:off   3:off   4:off
5:off   6:off
kprop          0:off   1:off   2:off   3:off   4:off   5:off
6:off
ip6tables      0:off   1:off   2:off   3:off   4:off
5:off   6:off
cyrus-imapd    0:off   1:off   2:off   3:off   4:off
5:off   6:off
rstatd         0:off   1:off   2:off   3:off   4:off   5:off
6:off
nfs            0:off   1:off   2:off   3:off   4:off   5:off
6:off
cups-config-daemon 0:off   1:off   2:off   3:off
4:off   5:off   6:off
haldaemon      0:off   1:off   2:off   3:off   4:off
5:off   6:off
krb5kdc        0:off   1:off   2:off   3:off   4:off
5:off   6:off
netfs          0:off   1:off   2:off   3:off   4:off   5:off
6:off
ospf6d         0:off   1:off   2:off   3:off   4:off   5:off
6:off
irda           0:off   1:off   2:off   3:off   4:off   5:off
6:off
spamassassin   0:off   1:off   2:off   3:off   4:off
5:off   6:off
pcmcia         0:off   1:off   2:off   3:off   4:off
5:off   6:off
irqbalance     0:off   1:off   2:off   3:on    4:on
5:on   6:off
FreeWnn        0:off   1:off   2:off   3:off   4:off
5:off   6:off
iiim           0:off   1:off   2:off   3:off   4:off   5:off
6:off
bootparamd     0:off   1:off   2:off   3:off   4:off
5:off   6:off
nfslock        0:off   1:off   2:off   3:off   4:off   5:off
6:off
hpoj           0:off   1:off   2:off   3:off   4:off   5:off
6:off
rhnsd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
zebra          0:off   1:off   2:off   3:off   4:off   5:off
6:off
httpd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
dovecot        0:off   1:off   2:off   3:off   4:off
5:off   6:off
syslog         0:off   1:off   2:on    3:on    4:on
5:on   6:off
bgpd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
bluetooth      0:off   1:off   2:off   3:off   4:off
5:off   6:off
netplugd       0:off   1:off   2:off   3:off   4:off
5:off   6:off
rpcgssd        0:off   1:off   2:off   3:off   4:off
5:off   6:off
saslauthd      0:off   1:off   2:off   3:off   4:off
5:off   6:off
vncserver      0:off   1:off   2:off   3:off   4:off
5:off   6:off
```

```
radiusd         0:off   1:off   2:off   3:off   4:off   5:off
6:off
diskdump        0:off   1:off   2:off   3:off   4:off
5:off   6:off
ypxfrd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
autofs          0:off   1:off   2:off   3:off   4:off   5:off
6:off
snmpd           0:off   1:off   2:off   3:off   4:off
5:off   6:off
readahead_early 0:off   1:off   2:off   3:off   4:off
5:on    6:off
tux             0:off   1:off   2:off   3:off   4:off   5:off
6:off
ripngd          0:off   1:off   2:off   3:off   4:off   5:off
6:off
ypbind          0:off   1:off   2:off   3:off   4:off   5:off
6:off
netdump         0:off   1:off   2:off   3:off   4:off
5:off   6:off
ntpd            0:off   1:off   2:off   3:off   4:off   5:off
6:off
crond           0:off   1:off   2:on    3:on    4:on
5:on    6:off
dhcp6s          0:off   1:off   2:off   3:off   4:off
5:off   6:off
smb             0:off   1:off   2:off   3:off   4:off   5:off
6:off
canna           0:off   1:off   2:off   3:off   4:off   5:off
6:off
amd             0:off   1:off   2:off   3:off   4:off   5:off
6:off
rawdevices      0:off   1:off   2:off   3:on    4:on
5:on    6:off
rpcsvcgssd      0:off   1:off   2:off   3:off   4:off
5:off   6:off
xfs             0:off   1:off   2:off   3:off   4:off   5:off
6:off
radvd           0:off   1:off   2:off   3:off   4:off   5:off
6:off
ldap            0:off   1:off   2:off   3:off   4:off   5:off
6:off
krb524          0:off   1:off   2:off   3:off   4:off   5:off
6:off
readahead       0:off   1:off   2:off   3:off   4:off
5:on    6:off
mdmpd           0:off   1:off   2:off   3:off   4:off
5:off   6:off
yppasswdd       0:off   1:off   2:off   3:off   4:off
5:off   6:off
NetworkManager  0:off   1:off   2:off   3:off   4:off
5:off   6:off
rpcidmapd       0:off   1:off   2:off   3:off   4:off
5:off   6:off
arpwatch        0:off   1:off   2:off   3:off   4:off
5:off   6:off
apmd            0:off   1:off   2:off   3:off   4:off   5:off
6:off
microcode_ctl   0:off   1:off   2:off   3:off   4:off
5:off   6:off
xinetd based services:
   amandaidx:  off
   talk:   off
   rsync:  off
   cups-lpd:   off
   time-udp:   off
   krb5-telnet:    off
   echo:   off
   dbskkd-cdb: off
   swat:   off
   auth:   on
   klogin: off
   gssftp: off
   rsh:    on
   kshell: off
   telnet: on
   daytime-udp:    off
   chargen-udp:    off
   amidxtape:  off
   tftp:   off
   rlogin: on
   finger: off
   daytime:    off
   eklogin:    off
   ntalk:  off
   time:   off
   ktalk:  off
   rexec:  off
   amanda: off
   echo-udp:   off
   chargen:    off
```

```
::::::::::::::::::::::::::::::::
 limits.conf
::::::::::::::::::::::::::::::::

# /etc/security/limits.conf
#
#Each line describes a limit for a user in the
form:
#
#<domain>        <type>  <item>  <value>
#
#Where:
#<domain> can be:
#        - an user name
#        - a group name, with @group syntax
#        - the wildcard *, for default entry
#
#<type> can have the two values:
#        - "soft" for enforcing the soft limits
#        - "hard" for enforcing hard limits
#
#<item> can be one of the following:
#        - core - limits the core file size (KB)
#        - data - max data size (KB)
#        - fsize - maximum filesize (KB)
#        - memlock - max locked-in-memory
address space (KB)
#        - nofile - max number of open files
#        - rss - max resident set size (KB)
#        - stack - max stack size (KB)
#        - cpu - max CPU time (MIN)
#        - nproc - max number of processes
#        - as - address space limit
#        - maxlogins - max number of logins for this
user
#        - priority - the priority to run user process
with
#        - locks - max number of file locks the user
can hold
#
#<domain>      <type>  <item>         <value>
#

#*               soft    core            0
#*               hard    rss             10000
#@student        hard    nproc           20
#@faculty        soft    nproc           20
#@faculty        hard    nproc           50
#ftp             hard    nproc           0
#@student        -       maxlogins       4
#tpc        -   nofile      20000
#tpc        -   nproc       20000
tpc     -   nofile      30000
tpc     -   nproc       30000

# End of file
```

```
::::::::::::::::::::::::::::::::
 sysctl.conf
::::::::::::::::::::::::::::::::

# Kernel sysctl configuration file for Red Hat
Linux
#
# For binary values, 0 is disabled, 1 is enabled.
See sysctl(8) and
# sysctl.conf(5) for more details.

# Controls IP packet forwarding
net.ipv4.ip_forward = 0

# Controls source route verification
net.ipv4.conf.default.rp_filter = 1

# Controls the System Request debugging
functionality of the kernel
kernel.sysrq = 0

# Controls whether core dumps will append the
PID to the core filename.
# Useful for debugging multi-threaded
applications.
kernel.core_uses_pid = 1

# Change filediscriptor
#fs.file-max = 20000
fs.file-max = 30000
# Change Message queue
#kernel.msgmni = 20000
kernel.msgmni = 30000
kernel.msgmnb = 819200

# Change Max process
#kernel.threads-max = 20000
kernel.threads-max = 30000
# Change Semaphore
kernel.sem = 3000  384000 32  128
# Change TCP/IP backlog
net.ipv4.tcp_max_syn_backlog = 4096



[HTTP server tunables]
-----------------------------------------------------------

::::::::::::::::::::::::::::::::
 apache_cl_start.sh
::::::::::::::::::::::::::::::::

#!/bin/sh
export
LD_LIBRARY_PATH=$ORACLE_HOME/srvm/li
b:$ORACLE_HOME/lib64:$ORACLE_HOME/lib:
/usr/lib:$ORACLE_HOME/rdbms/lib:$ORACLE_
HOME/network/lib:$TUXDIR/lib

ulimit -u 30000
ulimit -s 1536

/sbin/swapoff -a

# For 3tier tune
SVRAPL=`ps -e | grep tpccfmlw | awk '{print $1}'`
/usr/bin/renice -20 -p ${SVRAPL}

rm -f /home/tpc/sar.tmp
/home/tpc/sar.`hostname`
/usr/lib/sa/sadc 5 > /home/tpc/sar.tmp &
# For 3tier tune
```

```
apachectl start



::::::::::::::::::::::::::::::::
 httpd.conf
::::::::::::::::::::::::::::::::

#
# Based upon the NCSA server configuration
files originally by Rob McCool.
#
# This is the main Apache server configuration
file.  It contains the
# configuration directives that give the server its
instructions.
# See <URL:http://httpd.apache.org/docs-2.0/>
for detailed information about
# the directives.
#
# Do NOT simply read the instructions in here
without understanding
# what they do.  They're here only as hints or
reminders.  If you are unsure
# consult the online docs. You have been
warned.
#
# The configuration directives are grouped into
three basic sections:
#  1. Directives that control the operation of the
Apache server process as a
#     whole (the 'global environment').
#  2. Directives that define the parameters of the
'main' or 'default' server,
#     which responds to requests that aren't
handled by a virtual host.
#     These directives also provide default values
for the settings
#     of all virtual hosts.
#  3. Settings for virtual hosts, which allow Web
requests to be sent to
#     different IP addresses or hostnames and
have them handled by the
#     same Apache server process.
#
# Configuration and logfile names: If the
filenames you specify for many
# of the server's control files begin with "/" (or
"drive:/" for Win32), the
# server will use that explicit path.  If the
filenames do *not* begin
# with "/", the value of ServerRoot is prepended -
- so "logs/foo.log"
# with ServerRoot set to "/etc/httpd" will be
interpreted by the
# server as "/etc/httpd/logs/foo.log".
#

### Section 1: Global Environment
#
# The directives in this section affect the overall
operation of Apache,
# such as the number of concurrent requests it
can handle or where it
# can find its configuration files.
#

#
# Don't give away too much information about all
the subcomponents
# we are running.  Comment out this line if you
don't mind remote sites
# finding out what major optional modules you
are running
#ServerTokens OS
ServerTokens Productly

#
# ServerRoot: The top of the directory tree under
which the server's
# configuration, error, and log files are kept.
#
# NOTE!  If you intend to place this on an NFS
(or otherwise network)
# mounted filesystem then please read the
LockFile documentation
# (available at
<URL:http://httpd.apache.org/docs-
2.0/mod/core.html#lockfile>);
# you will save yourself a lot of trouble.
#
# Do NOT add a slash at the end of the directory
path.
#
ServerRoot "/etc/httpd"

#
# ScoreBoardFile: File used to store internal
server process information.
# If unspecified (the default), the scoreboard will
be stored in an
# anonymous shared memory segment, and will
be unavailable to third-party
# applications.
# If specified, ensure that no two invocations of
Apache share the same
# scoreboard file. The scoreboard file MUST BE
STORED ON A LOCAL DISK.
#
#ScoreBoardFile run/httpd.scoreboard

#
# PidFile: The file in which the server should
record its process
# identification number when it starts.
#
PidFile run/httpd.pid

#
# Timeout: The number of seconds before
receives and sends time out.
#
#Timeout 300
Timeout 999

#
# KeepAlive: Whether or not to allow persistent
connections (more than
# one request per connection). Set to "Off" to
deactivate.
#
#KeepAlive Off
KeepAlive On


#
# MaxKeepAliveRequests: The maximum
number of requests to allow
# during a persistent connection. Set to 0 to
allow an unlimited amount.
# We recommend you leave this number high,
for maximum performance.
#
#MaxKeepAliveRequests 100
MaxKeepAliveRequests 0

#
# KeepAliveTimeout: Number of seconds to wait
for the next request from the
# same client on the same connection.
#
#KeepAliveTimeout 15
KeepAliveTimeout  999

##
## Server-Pool Size Regulation (MPM specific)
##

# prefork MPM
# StartServers: number of server processes to
start
# MinSpareServers: minimum number of server
processes which are kept spare
# MaxSpareServers: maximum number of server
processes which are kept spare
# MaxClients: maximum number of server
processes allowed to start
# MaxRequestsPerChild: maximum number of
requests a server process serves
<IfModule prefork.c>
StartServers       8
MinSpareServers    5
MaxSpareServers   20
MaxClients       150
MaxRequestsPerChild  1000
</IfModule>

# worker MPM
# StartServers: initial number of server
processes to start
# MaxClients: maximum number of simultaneous
client connections
# MinSpareThreads: minimum number of worker
threads which are kept spare
# MaxSpareThreads: maximum number of
worker threads which are kept spare
# ThreadsPerChild: constant number of worker
threads in each server process
# MaxRequestsPerChild: maximum number of
requests a server process serves
<IfModule worker.c>

StartServers         39
ServerLimit          39
ThreadLimit          500
MaxClients           19500
MinSpareThreads      1
MaxSpareThreads      19500
ThreadsPerChild      500
MaxRequestsPerChild  0

#
#
# To reduce memory usage in the worker MPM,
the thread guard page
#
# To reduce memory usage in the worker MPM,
the thread guard page
# can be disabled, at the expense of some
protection against stack
# overflow.
#
#ThreadGuardArea off

</IfModule>

#
# Listen: Allows you to bind Apache to specific
IP addresses and/or
# ports, in addition to the default. See also the
<VirtualHost>
# directive.
#
# Change this to Listen on specific IP addresses
as shown below to
```

```
# prevent Apache from glomming onto all bound IP addresses (0.0.0.0)
# e.g. "Listen 12.34.56.78:80"
#
# To allow connections to IPv6 addresses add "Listen [::]:80"
#
Listen 0.0.0.0:80

#
# Dynamic Shared Object (DSO) Support
#


# To be able to use the functionality of a module which was built as a DSO you
# have to place corresponding `LoadModule' lines at this location so the
# directives contained in it are actually available _before_ they are used.
# Statically compiled modules (those listed by `httpd -l') do not need
# to be loaded here.
#
# Example:
# LoadModule foo_module modules/mod_foo.so
#
LoadModule tpapl_module modules/mod_tpapl.so
LoadModule access_module modules/mod_access.so
LoadModule status_module modules/mod_status.so
LoadModule alias_module modules/mod_alias.so
LoadModule cgi_module modules/mod_cgi.so

#
# Load config files from the config directory "/etc/httpd/conf.d".
#
#Include conf.d/*.conf

#
# ExtendedStatus controls whether Apache will generate "full" status
# information (ExtendedStatus On) or just basic information (ExtendedStatus
# Off) when the "server-status" handler is called. The default is Off.
#
#ExtendedStatus On

### Section 2: 'Main' server configuration
#
# The directives in this section set up the values used by the 'main'
# server, which responds to any requests that aren't handled by a
# <VirtualHost> definition.  These values also provide defaults for
# any <VirtualHost> containers you may define later in the file.
#
# All of these directives may appear inside <VirtualHost> containers,
# in which case these default settings will be overridden for the
# virtual host being defined.
#

#
# If you wish httpd to run as a different user or group, you must run
# httpd as root initially and it will switch.
#
# User/Group: The name (or #number) of the user/group to run httpd as.
#  . On SCO (ODT 3) use "User nouser" and "Group nogroup".
#  . On HPUX you may not be able to use shared memory as nobody, and the
#    suggested workaround is to create a user www and use that user.
#  NOTE that some kernels refuse to setgid(Group) or semctl(IPC_SET)
#  when the value of (unsigned)Group is above 60000;
#  don't use Group #-1 on these systems!
#
#User apache
#Group apache
User tpc
Group tpc


#
# ServerAdmin: Your address, where problems with the server should be
# e-mailed.  This address appears on some server-generated pages, such
# as error documents.  e.g. admin@your-domain.com
#
ServerAdmin root@localhost

#
# ServerName gives the name and port that the server uses to identify itself.
# This can often be determined automatically, but we recommend you specify
# it explicitly to prevent problems during startup.
#
# If this is not set to valid DNS name for your host, server-generated
# redirections will not work.  See also the UseCanonicalName directive.
#
# If your host doesn't have a registered DNS name, enter its IP address here.
# You will have to access it by its address anyway, and this will make
# redirections work in a sensible way.
#
#ServerName new.host.name:80
ServerName tpccserver:80

#
# UseCanonicalName: Determines how Apache constructs self-referencing
# URLs and the SERVER_NAME and SERVER_PORT variables.
# When set "Off", Apache will use the Hostname and Port supplied
# by the client.  When set "On", Apache will use the value of the
# ServerName directive.
#
UseCanonicalName Off

#
# DocumentRoot: The directory out of which you will serve your
# documents. By default, all requests are taken from this directory, but
# symbolic links and aliases may be used to point to other locations.
#
#DocumentRoot "/var/www/html"

#
# Each directory to which Apache has access can be configured with respect
# to which services and features are allowed and/or disabled in that
# directory (and its subdirectories).
#
# First, we configure the "default" to be a very restrictive set of
# features.
#
#<Directory />
#    Options FollowSymLinks
#    AllowOverride None
#</Directory>

#
# Note that from this point forward you must specifically allow
# particular features to be enabled - so if something's not working as
# you might expect, make sure that you have specifically enabled it
# below.
#

#
# UserDir: The name of the directory that is appended onto a user's home
# directory if a ~user request is received.
#
# The path to the end user account 'public_html' directory must be
# accessible to the webserver userid.  This usually means that ~userid
# must have permissions of 711, ~userid/public_html must have permissions
# of 755, and documents contained therein must be world-readable.
# Otherwise, the client will only receive a "403 Forbidden" message.
#
# See also: http://httpd.apache.org/docs/misc/FAQ.html#forbidden
#
#<IfModule mod_userdir.c>
    #
    # UserDir is disabled by default since it can confirm the presence
    # of a username on the system (depending on home directory
    # permissions).
    #
#    UserDir disable

    #
    # To enable requests to /~user/ to serve the user's public_html
    # directory, remove the "UserDir disable" line above, and uncomment
    # the following line instead:
    #
    #UserDir public_html

#</IfModule>

#
# Control access to UserDir directories.  The following is an example
# for a site where these directories are restricted to read-only.
#
#<Directory /home/*/public_html>
#    AllowOverride FileInfo AuthConfig Limit
#    Options MultiViews Indexes
SymLinksIfOwnerMatch IncludesNoExec
#    <Limit GET POST OPTIONS>
#        Order allow,deny
#        Allow from all
#    </Limit>
#    <LimitExcept GET POST OPTIONS>
#        Order deny,allow
#        Deny from all
#    </LimitExcept>
#</Directory>

#
# DirectoryIndex: sets the file that Apache will
serve if a directory
# is requested.
#
# The index.html.var file (a type-map) is used to
deliver content-
# negotiated documents.  The MultiViews Option
can be used for the
# same purpose, but it is much slower.
#

#
# AccessFileName: The name of the file to look
for in each directory
# for additional configuration directives.  See
also the AllowOverride
# directive.
#
AccessFileName .htaccess

#
# The following lines prevent .htaccess
and .htpasswd files from being
# viewed by Web clients.
#

#
# TypesConfig describes where the mime.types
file (or equivalent) is
# to be found.
#

#
# DefaultType is the default MIME type the
server will use for a document
# if it cannot otherwise determine one, such as
from filename extensions.
# If your server contains mostly text or HTML
documents, "text/plain" is
# a good value.  If most of your content is binary,
such as applications
# or images, you may want to use
"application/octet-stream" instead to
# keep browsers from trying to display binary
files as though they are
# text.
#
DefaultType text/plain

#
# The mod_mime_magic module allows the
server to use various hints from the
# contents of the file itself to determine its type.
The MIMEMagicFile
# directive tells the module where the hint
definitions are located.
#
#<IfModule mod_mime_magic.c>
##    MIMEMagicFile /usr/share/magic.mime
#    MIMEMagicFile conf/magic
#</IfModule>
```

```
#
# HostnameLookups: Log the names of clients
or just their IP addresses
# e.g., www.apache.org (on) or 204.62.129.132
(off).
# The default is off because it'd be overall better
for the net if people
# had to knowingly turn this feature on, since
enabling it means that
# each client request will result in AT LEAST one
lookup request to the
# nameserver.
#
HostnameLookups Off

#
# EnableMMAP: Control whether memory-
mapping is used to deliver
# files (assuming that the underlying OS
supports it).
# The default is on; turn this off if you serve from
NFS-mounted
# filesystems.  On some systems, turning it off
(regardless of
# filesystem) can improve performance; for
details, please see
# http://httpd.apache.org/docs-
2.0/mod/core.html#enablemmap
#
#EnableMMAP off

#
# EnableSendfile: Control whether the sendfile
kernel support is
# used to deliver files (assuming that the OS
supports it).
# The default is on; turn this off if you serve from
NFS-mounted
# filesystems.  Please see
# http://httpd.apache.org/docs-
2.0/mod/core.html#enablesendfile
#
#EnableSendfile off
#

#
# ErrorLog: The location of the error log file.
# If you do not specify an ErrorLog directive
within a <VirtualHost>
# container, error messages relating to that
virtual host will be
# logged here.  If you *do* define an error logfile
for a <VirtualHost>
# container, that host's errors will be logged
there and not here.
#
ErrorLog logs/error_log

#
# LogLevel: Control the number of messages
logged to the error_log.
# Possible values include: debug, info, notice,
warn, error, crit,
# alert, emerg.
#
LogLevel warn

#
# The following directives define some format
nicknames for use with
# a CustomLog directive (see below).
#

#
```

```
# The location and format of the access logfile
(Common Logfile Format).
# If you do not define any access logfiles within
a <VirtualHost>
# container, they will be logged here.
Contrariwise, if you *do*
# define per-<VirtualHost> access logfiles,
transactions will be
# logged therein and *not* in this file.
#
# CustomLog logs/access_log common
#CustomLog logs/access_log combined

#
# If you would like to have agent and referer
logfiles, uncomment the
# following directives.
#
#CustomLog logs/referer_log referer
#CustomLog logs/agent_log agent

#
# If you prefer a single logfile with access, agent,
and referer information
# (Combined Logfile Format) you can use the
following directive.
#
#CustomLog logs/access_log combined

#
# Optionally add a line containing the server
version and virtual host
# name to server-generated pages (error
documents, FTP directory listings,
# mod_status and mod_info output etc., but not
CGI generated documents).
# Set to "EMail" to also include a mailto: link to
the ServerAdmin.
# Set to one of:  On | Off | EMail
#
#ServerSignature On
ServerSignature Off

#
# Aliases: Add here as many aliases as you
need (with no limit). The format is
# Alias fakename realname
#
# Note that if you include a trailing / on fakename
then the server will
# require it to be present in the URL.  So "/icons"
isn't aliased in this
# example, only "/icons/".  If the fakename is
slash-terminated, then the
# realname must also be slash terminated, and if
the fakename omits the
# trailing slash, the realname must also omit it.
#
# We include the /icons/ alias for FancyIndexed
directory listings.  If you
# do not use FancyIndexing, you may comment
this out.
#

#
# This should be changed to the
ServerRoot/manual/.  The alias provides
# the manual, even if you choose to move your
DocumentRoot.  You may comment
# this out if you do not care for the
documentation.
#
#<IfModule mod_dav_fs.c>
#    # Location of the WebDAV lock database.
#    DAVLockDB /var/lib/dav/lockdb
```

```
#</IfModule>

#
# ScriptAlias: This controls which directories contain server scripts.
# ScriptAliases are essentially the same as Aliases, except that
# documents in the realname directory are treated as applications and
# run by the server when requested rather than as documents sent to the client.
# The same rules about trailing "/" apply to ScriptAlias directives as to
# Alias.
#
#ScriptAlias /cgi-bin/ "/var/www/cgi-bin/"
ScriptAlias /cgi-bin/ "/home/tpc/tool/bin/"

#
# "/var/www/cgi-bin" should be changed to whatever your ScriptAliased
# CGI directory exists, if you have that configured.
#
<Directory "/var/www/cgi-bin">
   AllowOverride None
   Options None
   Order allow,deny
   Allow from all
</Directory>

#
# Redirect allows you to tell clients about documents which used to exist in
# your server's namespace, but do not anymore. This allows you to tell the
# clients where to look for the relocated document.
# Example:
# Redirect permanent /foo http://www.example.com/bar

#
# Directives controlling the display of server-generated directory listings.
#

#
# FancyIndexing is whether you want fancy directory indexing or standard.
# VersionSort is whether files containing version numbers should be
# compared in the natural way, so that `apache-1.3.9.tar' is placed before
# `apache-1.3.12.tar'.
#

#
# AddIcon* directives tell the server which icon to show for different
# files or filename extensions.  These are only displayed for
# FancyIndexed directories.
#


#
# DefaultIcon is which icon to show for files which do not have an icon
# explicitly set.
#

#
# AddDescription allows you to place a short description after a file in
# server-generated indexes.  These are only displayed for FancyIndexed
# directories.
# Format: AddDescription "description" filename
#
#AddDescription "GZIP compressed document" .gz
#AddDescription "tar archive" .tar
#AddDescription "GZIP compressed tar archive" .tgz

#
# ReadmeName is the name of the README file the server will look for by
# default, and append to directory listings.
#
# HeaderName is the name of a file which should be prepended to
# directory indexes.

#
# IndexIgnore is a set of filenames which directory indexing should ignore
# and not include in the listing.  Shell-style wildcarding is permitted.
#

#
# AddEncoding allows you to have certain browsers (Mosaic/X 2.1+) uncompress
# information on the fly. Note: Not all browsers support this.
# Despite the name similarity, the following Add* directives have nothing
# to do with the FancyIndexing customization directives above.
#

#
# DefaultLanguage and AddLanguage allows you to specify the language of
# a document. You can then use content negotiation to give a browser a
# file in a language the user can understand.
#
# Specify a default language. This means that all data
# going out without a specific language tag (see below) will
# be marked with this one. You probably do NOT want to set
# this unless you are sure it is correct for all cases.
#
# * It is generally better to not mark a page as
# * being a certain language than marking it with the wrong
# * language!
#
# DefaultLanguage nl
#
# Note 1: The suffix does not have to be the same as the language
# keyword --- those with documents in Polish (whose net-standard
# language code is pl) may wish to use "AddLanguage pl .po" to
# avoid the ambiguity with the common suffix for perl scripts.
#
# Note 2: The example entries below illustrate that in some cases
# the two character 'Language' abbreviation is not identical to
# the two character 'Country' code for its country,
# E.g. 'Danmark/dk' versus 'Danish/da'.
#
# Note 3: In the case of 'ltz' we violate the RFC by using a three char
# specifier. There is 'work in progress' to fix this and get
# the reference data for rfc1766 cleaned up.
#
# Danish (da) - Dutch (nl) - English (en) - Estonian (et)
# French (fr) - German (de) - Greek-Modern (el)
# Italian (it) - Norwegian (no) - Norwegian Nynorsk (nn) - Korean (ko)
# Portugese (pt) - Luxembourgeois* (ltz)
# Spanish (es) - Swedish (sv) - Catalan (ca) - Czech(cs)
# Polish (pl) - Brazilian Portuguese (pt-br) - Japanese (ja)
# Russian (ru) - Croatian (hr)
#

#
# LanguagePriority allows you to give precedence to some languages
# in case of a tie during content negotiation.
#
# Just list the languages in decreasing order of preference. We have
# more or less alphabetized them here. You probably want to change this.
#

#
# ForceLanguagePriority allows you to serve a result page rather than
# MULTIPLE CHOICES (Prefer) [in case of a tie] or NOT ACCEPTABLE (Fallback)
# [in case no accepted languages matched the available variants]
#

#
# Specify a default charset for all pages sent out. This is
# always a good idea and opens the door for future internationalisation
# of your web site, should you ever want it. Specifying it as
# a default does little harm; as the standard dictates that a page
# is in iso-8859-1 (latin1) unless specified otherwise i.e. you
# are merely stating the obvious. There are also some security
# reasons in browsers, related to javascript and URL parsing
# which encourage you to always set a default char set.
#
AddDefaultCharset UTF-8

#
# Commonly used filename extensions to character sets. You probably
# want to avoid clashes with the language extensions, unless you
# are good at carefully testing your setup after each change.
# See http://www.iana.org/assignments/character-sets for the
# official list of charset names and their respective RFCs
#
```

```
#
# AddType allows you to add to or override the MIME configuration
# file mime.types for specific file types.
#

#
# AddHandler allows you to map certain file extensions to "handlers":
# actions unrelated to filetype. These can be either built into the server
# or added with the Action directive (see below)
#
# To use CGI scripts outside of ScriptAliased directories:
# (You will also need to add "ExecCGI" to the "Options" directive.)
#
#AddHandler cgi-script .cgi

#
# For files that include their own HTTP headers:
#
#AddHandler send-as-is asis

#
# For server-parsed imagemap files:
#

#
# For type maps (negotiated resources):
# (This is enabled by default to allow the Apache "It Worked" page
#  to be distributed in multiple languages.)
#

# Filters allow you to process content before it is sent to the client.
#
# To parse .shtml files for server-side includes (SSI):
# (You will also need to add "Includes" to the "Options" directive.)
#

#
# Action lets you define media types that will execute a script whenever
# a matching file is called. This eliminates the need for repeated URL
# pathnames for oft-used CGI file processors.
# Format: Action media/type /cgi-script/location
# Format: Action handler-name /cgi-script/location
#

#
# Customizable error responses come in three flavors:
# 1) plain text 2) local redirects 3) external redirects
#
# Some examples:
#ErrorDocument 500 "The server made a boo boo."
#ErrorDocument 404 /missing.html
#ErrorDocument 404 "/cgi-bin/missing_handler.pl"
#ErrorDocument 402 http://www.example.com/subscription_info.html
#

#
# Putting this all together, we can Internationalize error responses.
#
# We use Alias to redirect any /error/HTTP_<error>.html.var response to
# our collection of by-error message multi-language collections.  We use
# includes to substitute the appropriate text.
#
# You can modify the messages' appearance without changing any of the
# default HTTP_<error>.html.var files by adding the line;
#
#   Alias /error/include/ "/your/include/path/"
#
# which allows you to create your own set of files by starting with the
# /var/www/error/include/ files and
# copying them to /your/include/path/, even on a per-VirtualHost basis.
#

Alias /error/ "/var/www/error/"


#    ErrorDocument 400 /error/HTTP_BAD_REQUEST.html.var
#    ErrorDocument 401 /error/HTTP_UNAUTHORIZED.html.var
#    ErrorDocument 403 /error/HTTP_FORBIDDEN.html.var
#    ErrorDocument 404 /error/HTTP_NOT_FOUND.html.var
#    ErrorDocument 405 /error/HTTP_METHOD_NOT_ALLOWED.html.var
#    ErrorDocument 408 /error/HTTP_REQUEST_TIME_OUT.html.var
#    ErrorDocument 410 /error/HTTP_GONE.html.var
#    ErrorDocument 411 /error/HTTP_LENGTH_REQUIRED.html.var
#    ErrorDocument 412 /error/HTTP_PRECONDITION_FAILED.html.var
#    ErrorDocument 413 /error/HTTP_REQUEST_ENTITY_TOO_LARGE.html.var
#    ErrorDocument 414 /error/HTTP_REQUEST_URI_TOO_LARGE.html.var
#    ErrorDocument 415 /error/HTTP_SERVICE_UNAVAILABLE.html.var
#    ErrorDocument 500 /error/HTTP_INTERNAL_SERVER_ERROR.html.var
#    ErrorDocument 501 /error/HTTP_NOT_IMPLEMENTED.html.var
#    ErrorDocument 502 /error/HTTP_BAD_GATEWAY.html.var
#    ErrorDocument 503 /error/HTTP_SERVICE_UNAVAILABLE.html.var
#    ErrorDocument 506 /error/HTTP_VARIANT_ALSO_VARIES.html.var


#
# The following directives modify normal HTTP response behavior to
# handle known problems with browser implementations.
#

#
# The following directive disables redirects on non-GET requests for
# a directory that does not include the trailing slash.  This fixes a
# problem with Microsoft WebFolders which does not appropriately handle
# redirects for folders with DAV methods.
# Same deal with Apple's DAV filesystem and Gnome VFS support for DAV.
#
# Allow server status reports, with the URL of http://servername/server-status
# Change the ".your-domain.com" to match your domain to enable.
#
<Location /server-status>
    SetHandler server-status
    Order deny,allow
    Deny from all
    Allow from 192.168.
</Location>

#
# Allow remote server configuration reports, with the URL of
#  http://servername/server-info (requires that mod_info.c be loaded).
# Change the ".example.com" to match your domain to enable.
#
#<Location /server-info>
#    SetHandler server-info
#    Order deny,allow
#    Deny from all
#    Allow from .example.com
#</Location>

#
# Proxy Server directives. Uncomment the following lines to
# enable the proxy server:
#
#<IfModule mod_proxy.c>
#ProxyRequests On
#
#<Proxy *>
#    Order deny,allow
#    Deny from all
#    Allow from .example.com
#</Proxy>

#
# Enable/disable the handling of HTTP/1.1 "Via:" headers.
# ("Full" adds the server version; "Block" removes all outgoing Via: headers)
# Set to one of: Off | On | Full | Block
#
#ProxyVia On

#
# To enable a cache of proxied content, uncomment the following lines.
# See http://httpd.apache.org/docs-2.0/mod/mod_cache.html for more details.
#
#<IfModule mod_disk_cache.c>
#   CacheEnable disk /
#   CacheRoot "/var/cache/mod_proxy"
#</IfModule>
#

#</IfModule>
# End of proxy directives.

### Section 3: Virtual Hosts
#
```

```
# VirtualHost: If you want to maintain multiple
domains/hostnames on your
# machine you can setup VirtualHost containers
for them. Most configurations
# use only name-based virtual hosts so the
server doesn't need to worry about
# IP addresses. This is indicated by the asterisks
in the directives below.
#
# Please see the documentation at
# <URL:http://httpd.apache.org/docs-
2.0/vhosts/>
# for further details before you try to setup virtual
hosts.
#
# You may use the command line option '-S' to
verify your virtual host
# configuration.

#
# Use name-based virtual hosting.
#
#NameVirtualHost *:80

#
# VirtualHost example:
# Almost any Apache directive may go into a
VirtualHost container.
# The first VirtualHost section is used for
requests without a known
# server name.
#
#<VirtualHost *>
#    ServerAdmin webmaster@dummy-
host.example.com
#    DocumentRoot /www/docs/dummy-
host.example.com
#    ServerName dummy-host.example.com
#    ErrorLog logs/dummy-host.example.com-
error_log
#    CustomLog logs/dummy-host.example.com-
access_log common
#</VirtualHost>

#
# For TPAPL
#
<Location /tpapl>
    SetHandler tpapl
    TpAplConf /home/tpc/conf/tpapl.conf
</Location>
```

[Front-end application tunables]

```
::::::::::::::::::::::::::::::::::
 tpapl.conf
::::::::::::::::::::::::::::::::::

[TPAPL_INFO]
Term_Base="291151"
NumWarehouses="98991"
MaxUsers="989910"
MaxTerm of Client="19410"
CONTROL_Flag="0"
LogPath="/home/tpc/log/userlog.log"

[SVRAPL_INFO]
LogPath="/home/tpc/log/DBDepend_Userlog.log
"
```

 << for Linux Client >>

```
::::::::::::::::::::::::::::::::::
 tnsnames.ora
::::::::::::::::::::::::::::::::::


#
# Installation Generated Net8 Configuration
# Version Date: Oct-27-97
# Filename: Tnsnames.ora
#
extproc_connection_data =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = IPC)(KEY =
tpcc))
    (SDU=14600)
    (CONNECT_DATA = (SERVICE_NAME =
tpcc))
  )

tpcc =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
    (SDU=14600)
    (CONNECT_DATA = (SERVICE_NAME =
tpcc))
  )
```

[TP monitor tunables]

```
::::::::::::::::::::::::::::::::::
 ubbconfig
::::::::::::::::::::::::::::::::::


#
#   ubbconfig : TUXEDO configuration file-
@(WAREHOUSE BINED)
#

*RESOURCES
IPCKEY          211940
MASTER          SITE1
UID             500
GID             500
PERM            0660
MAXACCESSERS    1000
MAXSERVERS      100
MAXSERVICES     100
MAXGTT          0
MODEL           SHM
LDBAL           Y
OPTIONS         NO_AA,NO_XA

*MACHINES
cl105   LMID=SITE1
        APPDIR="/home/tpc/bin"
        TUXCONFIG="/home/tpc/conf/tuxconfig"
        TUXDIR="/usr/local/BEA/tuxedo8.1"
        ULOGPFX="/home/tpc/log/tuxedo.log"
        SICACHEENTRIESMAX="0"

*GROUPS
group1  LMID=SITE1 GRPNO=1

*SERVERS
DEFAULT:    RESTART=Y MAXGEN=5
REPLYQ=N RQPERM=0660
tpccfmlw    SRVGRP=group1 RQADDR=ware01
SRVID=1 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware02
SRVID=2 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware03
SRVID=3 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware04
SRVID=4 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware05
SRVID=5 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware06
SRVID=6 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware07
SRVID=7 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware08
SRVID=8 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware09
SRVID=9 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware10
SRVID=10 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware11
SRVID=11 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware12
SRVID=12 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware13
SRVID=13 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware14
SRVID=14 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware15
SRVID=15 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware16
SRVID=16 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware17
SRVID=17 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware18
SRVID=18 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"
tpccfmlw    SRVGRP=group1 RQADDR=ware19
SRVID=19 REPLYQ=N CLOPT="-s
OPSTUXSERVER:OPSTUXSERVER"

*SERVICES
"OPSTUXSERVER"  TRANTIME=0
SRVGRP=group1

*ROUTING
```

```
====================================
======================
 (configuration difference between cl105 and
cl106)
====================================
======================
1122c1122
< Term_Base="291151"
```

```
---
> Term_Base="310561"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1522))
1190c1190
< cl105   LMID=SITE1
---
> cl106   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl107)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="329971"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1523))
1190c1190
< cl105   LMID=SITE1
---
> cl107   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl108)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="349381"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1524))
1190c1190
< cl105   LMID=SITE1
---
> cl108   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl109)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="368791"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1525))
1190c1190
< cl105   LMID=SITE1
---
> cl109   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl110)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="388201"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1526))
1190c1190
< cl105   LMID=SITE1
---
> cl110   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl111)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="407611"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1527))
1190c1190
< cl105   LMID=SITE1
---
> cl111   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl112)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="427021"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1528))
1190c1190
< cl105   LMID=SITE1
---
> cl112   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl113)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="446431"
1190c1190
< cl105   LMID=SITE1
---
> cl113   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl114)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="465841"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1522))
1190c1190
< cl105   LMID=SITE1
---
> cl114   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl115)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="485251"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1523))
1190c1190
< cl105   LMID=SITE1
---
> cl115   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl116)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="504661"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1524))
1190c1190
< cl105   LMID=SITE1
---
> cl116   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl117)
=====================================
======================
1122c1122
< Term_Base="291151"
```

```
---
> Term_Base="524071"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1525))
1190c1190
< cl105   LMID=SITE1
---
> cl117   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl118)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="543481"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1526))
1190c1190
< cl105   LMID=SITE1
---
> cl118   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl119)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="562891"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1527))
1190c1190
< cl105   LMID=SITE1
---
> cl119   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl120)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="582301"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1528))
1190c1190
< cl105   LMID=SITE1
---
> cl120   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl121)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="601711"
1190c1190
< cl105   LMID=SITE1
---
> cl121   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl122)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="621121"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1522))
1190c1190
< cl105   LMID=SITE1
---
> cl122   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl123)
=====================================
=======================
235a236
> #kernel.panic = 15
237a239
>
1122c1124
< Term_Base="291151"
---
> Term_Base="640531"
1156c1158
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1523))
1190c1192
< cl105   LMID=SITE1
---
> cl123   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl124)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="659941"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1524))
1190c1190
< cl105   LMID=SITE1
---
> cl124   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl125)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="679351"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1525))
1190c1190
< cl105   LMID=SITE1
---
> cl125   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl126)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="698761"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1526))
1190c1190
< cl105   LMID=SITE1
---
> cl126   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl127)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="718171"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1527))
1190c1190
< cl105   LMID=SITE1
---
> cl127   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl128)
```

```
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="737581"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1528))
1190c1190
< cl105   LMID=SITE1
---
> cl128   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl129)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="756991"
1190c1190
< cl105   LMID=SITE1
---
> cl129   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl130)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="776401"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1522))
1190c1190
< cl105   LMID=SITE1
---
> cl130   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl131)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="795811"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1523))
1190c1190
< cl105   LMID=SITE1
---
> cl131   LMID=SITE1
=====================================
======================
 (configuration difference between cl105 and
cl132)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="815221"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1524))
1190c1190
< cl105   LMID=SITE1
---
> cl132   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl133)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="834631"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1525))
1190c1190
< cl105   LMID=SITE1
---
> cl133   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl134)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="854041"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1526))
1190c1190
< cl105   LMID=SITE1
---
> cl134   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl135)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="873451"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1527))
1190c1190
< cl105   LMID=SITE1
---
> cl135   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl136)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="892861"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1528))
1190c1190
< cl105   LMID=SITE1
---
> cl136   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl137)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="912271"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1525))
1190c1190
< cl105   LMID=SITE1
---
> cl137   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl138)
=====================================
======================
1122c1122
< Term_Base="291151"
---
> Term_Base="931681"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_b)(Port= 1526))
1190c1190
< cl105   LMID=SITE1
---
> cl138   LMID=SITE1

=====================================
======================
 (configuration difference between cl105 and
cl139)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="951091"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_c)(Port= 1527))
1190c1190
< cl105   LMID=SITE1
---
> cl139   LMID=SITE1

=====================================
=======================
 (configuration difference between cl105 and
cl140)
=====================================
=======================
1122c1122
< Term_Base="291151"
---
> Term_Base="970501"
1156c1156
<     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_a)(Port= 1521))
---
>     (ADDRESS = (PROTOCOL= TCP)(Host=
pqtpc_d)(Port= 1528))
1190c1190
< cl105   LMID=SITE1
---
> cl140   LMID=SITE1
```

Appendix E: Database Creation Code

```
:::::::::::::::::::::::::::::::::
 addfile.sh
:::::::::::::::::::::::::::::::::

#!/bin/sh
# $1 = tablespace name
# $2 = filename
# $3 = size
# $4 = temporary ts (1) or not (0)
# global variable $tpcc_listfiles, does not
execute sql

if expr x$tpcc_listfiles = xt > /dev/null; then
  echo $2 $3 >> $tpcc_bench/files.dat
  exit 0
fi

if expr $4 = 1 > /dev/null; then
  altersql="alter tablespace $1 add tempfile '$2'
size $3 reuse;"
else
  altersql="alter tablespace $1 add datafile '$2'
size $3 reuse autoextend on;"
fi

$tpcc_sqlplus $tpcc_user_pass <<!
   spool addfile_$1.log
   set echo on
  $altersql
   set echo off
   spool off
   exit ;
!
```

```
:::::::::::::::::::::::::::::::::
 addts.sh
:::::::::::::::::::::::::::::::::

#!/bin/sh
# $1 = tablespace name
# $2 = filename
# $3 = size
# $4 = uniform size
# $5 = block size
# $6 = temporary ts (1) or not (0)
# $7 = bitmapped manage (t) or not (f) or (d) for
dictionary
# global variable $tpcc_listfiles, does not
execute sql
#   drop tablespace $1 including contents;

if expr x$tpcc_listfiles = xt > /dev/null; then
  echo $2 $3 >> $tpcc_bench/files.dat
  exit 0
fi

if expr $5 = auto > /dev/null; then
  bssql=
else
  bssql="blocksize $5"
fi

if expr $6 = 1 > /dev/null; then
  createsql="create temporary tablespace $1
tempfile '$2' size $3 reuse extent management
local uniform size $4;"
else
  if expr x$7 = xt > /dev/null; then
    createsql="create tablespace $1 datafile '$2'
size $3 reuse extent management local uniform
size $4 segment space management auto
$bssql nologging ;"
  else
    if expr x$7 = xd > /dev/null; then
      createsql="create tablespace $1 datafile '$2'
size $3 reuse extent management dictionary
nologging $bssql;"
    else
      createsql="create tablespace $1 datafile '$2'
size $3 reuse extent management local uniform
size $4 segment space management manual
$bssql nologging ;"
    fi
  fi
fi

$tpcc_sqlplus $tpcc_user_pass <<!
   spool createts_$1.log
   set echo on
 $createsql
   set echo off
   spool off
   exit ;
!
```

```
:::::::::::::::::::::::::::::::::
 analyze.sh
:::::::::::::::::::::::::::::::::

#!/bin/sh
$tpcc_sqlplus $tpcc_user_pass
@${tpcc_sql_dir}/analyze > $tpcc_log_dir/junk
2>&1

if test $? -ne 0
then
  exit 1;
else
  exit 0;
fi
```

```
:::::::::::::::::::::::::::::::::
 assigntemp.sh
:::::::::::::::::::::::::::::::::

#!/bin/sh

echo Assigning temporary tablespace to user
tpcc...
$tpcc_sqlplus $tpcc_dba_user_pass
@$tpcc_sql_dir/assigntemp > junk 2>&1
if test $? -ne 0
then
  exit 1;
else
  exit 0;
fi
```

```
:::::::::::::::::::::::::::::::::
 bcexpr.sh
:::::::::::::::::::::::::::::::::

#!/bin/sh
# send command line to bc
echo "$*" | bc
```

```
:::::::::::::::::::::::::::::::::
 createdb.sql
:::::::::::::::::::::::::::::::::

/* created automatically by  /home/oracle/tpcc-
kit/scripts/buildcreatedb.sh Tue Oct 3 14:52:32
JST 2006 */
spool createdb.log

set echo on

shutdown abort

startup pfile=p_create.ora nomount
create database tpcc
  controlfile reuse
  maxinstances 1
  datafile
   '/ora_dev/system_1' size 400M reuse
  logfile '/ora_dev/log_1_1' size 205078M reuse,
          '/ora_dev/log_1_2' size 205078M reuse
  sysaux datafile '/ora_dev/tpccaux' size 120M
reuse ;




create undo tablespace undo_1 datafile
  '/ora_dev/roll1' size 8096M reuse blocksize 8K;

set echo off
exit sql.sqlcode
```

```
:::::::::::::::::::::::::::::::::
 createindex_icust1.sql
:::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:51 JST 2006 */
set timing on
    set sqlblanklines on
    spool createindex_icust1.log ;
    set echo on ;
    drop index icust1 ;
      create unique index icust1 on cust ( c_w_id
, c_d_id
, c_id )
  pctfree 1  initrans 3
  storage ( buffer_pool default )
  parallel 64
  compute statistics
  tablespace icust1_0 ;
    set echo off
    spool off
    exit sql.sqlcode;
```

```
:::::::::::::::::::::::::::::::::
 createindex_icust2.sql
:::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:52 JST 2006 */
set timing on
    set sqlblanklines on
    spool createindex_icust2.log ;
    set echo on ;
    drop index icust2 ;
      create unique index icust2 on cust ( c_last
, c_w_id
, c_d_id
, c_first
, c_id )
  pctfree 1  initrans 3
  storage ( buffer_pool default )
  parallel 1
  compute statistics
  tablespace icust2_0 ;
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createindex_idist.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:53 JST 2006 */
set timing on
    set sqlblanklines on
    spool createindex_idist.log ;
    set echo on ;
    drop index idist ;
      create unique index idist on dist ( d_w_id
, d_id )
  pctfree 5  initrans 3
  storage ( buffer_pool default )
  parallel 1
  compute statistics
  tablespace idist_0 ;
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createindex_iitem.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:54 JST 2006 */
set timing on
    set sqlblanklines on
    spool createindex_iitem.log ;
    set echo on ;
    drop index iitem ;
      create unique index iitem on item ( i_id )
  pctfree 5  initrans 4
  storage ( buffer_pool default )

  compute statistics
  tablespace iitem_0 ;
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createindex_inord.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:58 JST 2006 */
set timing on
  exit 0;

::::::::::::::::::::::::::::::::
 createindex_iordl.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:57 JST 2006 */
set timing on
  exit 0;


::::::::::::::::::::::::::::::::
 createindex_iordr1.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:55 JST 2006 */
set timing on
  exit 0;


::::::::::::::::::::::::::::::::
 createindex_iordr2.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:56 JST 2006 */
set timing on
    set sqlblanklines on
    spool createindex_iordr2.log ;
    set echo on ;
    drop index iordr2 ;
      create unique index iordr2 on ordr ( o_c_id
, o_d_id
, o_w_id
, o_id )
  pctfree 25  initrans 4
  storage ( buffer_pool default )
  parallel 64
  compute statistics
  tablespace iordr2_0 ;
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createindex_istok.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:54 JST 2006 */
set timing on
    set sqlblanklines on
    spool createindex_istok.log ;
    set echo on ;
    drop index istok ;
      create unique index istok on stok ( s_i_id
, s_w_id )
  pctfree 1  initrans 3
  storage ( buffer_pool default )
  parallel 16
  compute statistics
  tablespace istok_0 ;
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createindex_iware.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-kit/scripts/buildcreateindex.sh Tue Oct 3
14:52:51 JST 2006 */
set timing on
    set sqlblanklines on
    spool createindex_iware.log ;
    set echo on ;
    drop index iware ;
      create unique index iware on ware ( w_id )
  pctfree 1  initrans 3
  storage ( buffer_pool default )
  parallel 1
  compute statistics
  tablespace iware_0 ;
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createmisc.sh
::::::::::::::::::::::::::::::::

#!/bin/sh

$tpcc_sqlplus $tpcc_sqlplus_args << !
$tpcc_internal_connect

spool createmisc.log
set echo on;
alter user tpcc temporary tablespace system;
grant execute on dbms_lock to public;
grant execute on dbms_pipe to public;
grant select on v_\$parameter to public;

REM
REM begin plsql_mon.sql
REM

connect tpcc/tpcc;
set echo on;
CREATE OR REPLACE PACKAGE
plsql_mon_pack
IS
   PROCEDURE print
   (
      info         VARCHAR2
   );
END;
/
show errors;

CREATE OR REPLACE PACKAGE BODY
plsql_mon_pack
IS
   PROCEDURE print
   (
      info         VARCHAR2
   )
   IS
      s            NUMBER;
   BEGIN
      dbms_pipe.pack_message (info);
      s := dbms_pipe.send_message
('plsql_mon');
      IF (s <> 0) THEN
         raise_application_error (-20000, 'Error:' ||
to_char(s) ||
                              ' sending on pipe');
      END IF;
   END;
END;
/
```

```
show errors;

set echo off;

REM
REM end plsql_mon.sql
REM

REM
REM  begin cre_tab.sql
REM

connect tpcc/tpcc;
set echo on;

drop table temp_o1;
drop table temp_no;
drop table temp_o2;
drop table temp_ol;
drop table tpcc_audit_tab;

create table temp_o1 (
   o_w_id  integer,
   o_d_id  integer,
   o_o_id  integer);

create table temp_no (
   no_w_id integer,
   no_d_id integer,
   no_o_id integer);

create table temp_o2 (
   o_w_id  integer,
   o_d_id  integer,
   o_count integer);

create table temp_ol (
   ol_w_id  integer,
   ol_d_id  integer,
   ol_count integer);

create table tpcc_audit_tab (starttime date);

delete from tpcc_audit_tab;

set echo off;

REM
REM  end cre_tab.sql
REM

REM
REM  begin views.sql
REM

connect tpcc/tpcc;
set echo on;

create or replace view wh_cust
(w_id, w_tax, c_id, c_d_id, c_w_id, c_discount,
c_last, c_credit)
as select w.w_id, w.w_tax,
          c.c_id, c.c_d_id, c.c_w_id, c.c_discount,
c.c_last, c.c_credit
   from cust c, ware w
   where w.w_id = c.c_w_id;

create or replace view wh_dist
(w_id, d_id, d_tax, d_next_o_id, w_tax )
as select w.w_id, d.d_id, d.d_tax, d.d_next_o_id,
w.w_tax
   from dist d, ware w
   where w.w_id = d.d_w_id;

create  or replace view stock_item
(i_id, s_w_id, i_price, i_name, i_data, s_data,
s_quantity,
 s_order_cnt, s_ytd, s_remote_cnt,
 s_dist_01, s_dist_02, s_dist_03, s_dist_04,
s_dist_05,
 s_dist_06, s_dist_07, s_dist_08, s_dist_09,
s_dist_10)
as
 select i.i_id, s_w_id, i.i_price, i.i_name, i.i_data,
s_data, s_quantity,
 s_order_cnt, s_ytd, s_remote_cnt,
 s_dist_01, s_dist_02, s_dist_03, s_dist_04,
s_dist_05,
 s_dist_06, s_dist_07, s_dist_08, s_dist_09,
s_dist_10
  from stok s, item i
 where i.i_id = s.s_i_id;

set echo off;

REM
REM  end views.sql
REM


REM
REM  begin dml.sql
REM
connect tpcc/tpcc;
set echo on;

   alter table ware disable table lock;
   alter table dist disable table lock;
   alter table cust disable table lock;
   alter table hist disable table lock;
   alter table item disable table lock;
   alter table stok disable table lock;
   alter table ordr disable table lock;
   alter table nord disable table lock;
   alter table ordl disable table lock;

set echo off;

REM
REM  end dml.sql
REM

REM
REM  begin extent.sql
REM

$SYS_CONNECTION_STRING

@$tpcc_sql_dir/extent

@$tpcc_sql_dir/freeext

exit sql.sqlcode;

!
```

```
::::::::::::::::::::::::::::::::
 createspacestats.sh
::::::::::::::::::::::::::::::::

#!/bin/sh
cd $tpcc_genscripts_dir
$tpcc_sqlplus $tpcc_dba_user_pass
@$tpcc_genscripts_dir/createspacestats > junk
2>&1

if test $? -ne 0
then
  exit 1;
else
  exit 0;
fi


::::::::::::::::::::::::::::::::
 createspacestats.sql
::::::::::::::::::::::::::::::::

@space_init
@space_get 790000 63000
@space_rpt
spool off
exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createstats.sh
::::::::::::::::::::::::::::::::

#!/bin/sh

cstat=c_stat
if test $tpcc_np -gt 1 ; then
  cstat=c_stat_rac
fi

$tpcc_sqlplus $tpcc_sqlplus_args << !
$tpcc_internal_connect

REM
REM create tablespace for statspack user sp
begin
REM

spool createstats.log

set echo on
   drop tablespace sp_0 including contents;
   create tablespace sp_0 datafile
'${tpcc_disks_location}sp_0' size
$tpcc_statspack_size reuse autoextend on
extent management local uniform size 1M
nologging ;
   spool off

REM
REM create tablespace for statspack user sp
end
REM

REM
REM  begin now call spcreate to create
statspack sp package
REM

$tpcc_internal_connect

define default_tablespace='sp_0'

define temporary_tablespace='temp_0'

@$ORACLE_HOME/rdbms/admin/spcreate
perfstat
```

```
REM note that the last thing (after spcreate) is
the perfstat password.
REM since we're not worried about security,
perfstat will do.

REM
REM tpcc stat table for NT, it is not working so I
comment it out
REM shui.lau@oracle.com it is better to use
perfmon
REM

@$tpcc_sql_dir/cs_tpcc
@$tpcc_sql_dir/cs_cpu
@$tpcc_sql_dir/cs_os
@$tpcc_sql_dir/cs_proc
@$tpcc_sql_dir/cs_thread

REM
REM tpcc result table for unix and NT
REM

@$tpcc_sql_dir/${cstat}
@$tpcc_sql_dir/pst_c

!


::::::::::::::::::::::::::::::::
 createstoredprocs.sh
::::::::::::::::::::::::::::::::

#!/bin/sh
cd $tpcc_genscripts_dir
$tpcc_sqlplus $tpcc_user_pass
@${tpcc_genscripts_dir}/createstoredprocs >
junk 2>&1

if test $? -ne 0
then
  exit 1;
else
  exit 0;
fi


::::::::::::::::::::::::::::::::
 createstoredprocs.sql
::::::::::::::::::::::::::::::::

spool createstoreprocs.log
@tkvcinin.sql
spool off
exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createtable_cust.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatetable.sh Tue Oct 3
14:52:35 JST 2006 */
/*  size 180 */
set timing on
    set sqlblanklines on
    spool createtable_cust.log
    set echo on
      drop cluster custcluster including tables ;

create cluster custcluster (
  c_id number
, c_d_id number
, c_w_id number
  )
  single table
  hashkeys 3360000000
  hash is ( (c_id * ( 112000 * 10 ) + c_w_id * 10 +
c_d_id) )
  size 200
  pctfree 0  initrans 3
  storage ( buffer_pool recycle ) parallel ( degree
16 )
  tablespace cust_0;

create table cust (
  c_id number
, c_d_id number
, c_w_id number
, c_discount number
, c_credit char(2)
, c_last varchar2(16)
, c_first varchar2(16)
, c_credit_lim number
, c_balance number
, c_ytd_payment number
, c_payment_cnt number
, c_delivery_cnt number
, c_street_1 varchar2(20)
, c_street_2 varchar2(20)
, c_city varchar2(20)
, c_state char(2)
, c_zip char(9)
, c_phone char(16)
, c_since date
, c_middle char(2)
, c_data char(500)
)
cluster custcluster (
  c_id
, c_d_id
, c_w_id
);
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createtable_dist.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatetable.sh Tue Oct 3
14:52:38 JST 2006 */
set timing on
    set sqlblanklines on
    spool createtable_dist.log
    set echo on
      drop cluster distcluster including tables ;

create cluster distcluster (
  d_id number
, d_w_id number
  )
  single table
  hashkeys 1120000
  hash is ( ((d_w_id * 10) + d_id) )
  size 1448
    initrans 4
  storage ( buffer_pool default )
  tablespace dist_0;

create table dist (
  d_id number
, d_w_id number
, d_ytd number
, d_next_o_id number
, d_tax number
, d_name varchar2(10)
, d_street_1 varchar2(20)
, d_street_2 varchar2(20)
, d_city varchar2(20)
, d_state char(2)
, d_zip char(9)
)
cluster distcluster (
  d_id
, d_w_id
);
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createtable_hist.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatetable.sh Tue Oct 3
14:52:40 JST 2006 */
set timing on
    set sqlblanklines on
    spool createtable_hist.log
    set echo on
      drop table hist ;

create table hist (
  h_c_id number
, h_c_d_id number
, h_c_w_id number
, h_d_id number
, h_w_id number
, h_date date
, h_amount number
, h_data varchar2(24)
)
  pctfree 5  initrans 4
  storage ( buffer_pool recycle )
  tablespace hist_0 ;
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createtable_item.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatetable.sh Tue Oct 3
14:52:43 JST 2006 */
set timing on
    set sqlblanklines on
    spool createtable_item.log
    set echo on
      drop cluster itemcluster including tables ;

create cluster itemcluster (
  i_id number(6,0)
  )
  single table
  hashkeys 100000
  hash is ( (i_id) )
  size 120
  pctfree 0  initrans 3
  storage ( buffer_pool keep )
  tablespace item_0;

create table item (
  i_id number(6,0)
, i_name varchar2(24)
, i_price number
, i_data varchar2(50)
, i_im_id number
)
cluster itemcluster (
  i_id
);
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createtable_nord.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatetable.sh Tue Oct 3
14:52:47 JST 2006 */
set timing on
    set sqlblanklines on
    spool createtable_nord.log
    set echo on
        drop cluster nordcluster_queue including
tables ;

  create cluster nordcluster_queue (
    no_w_id number
, no_d_id number
, no_o_id number SORT
    )

    hashkeys 1120000
    hash is ( (no_w_id - 1) * 10 + no_d_id - 1 )
    size 190
    tablespace nord_0;

  create table nord (
    no_w_id number
, no_d_id number
, no_o_id number sort
    , constraint nord_uk primary key ( no_w_id
, no_d_id
, no_o_id )
  )
  cluster nordcluster_queue (
    no_w_id
, no_d_id
, no_o_id
  );
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createtable_ordl.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatetable.sh Tue Oct 3
14:52:46 JST 2006 */
set timing on
    set sqlblanklines on
    spool createtable_ordl.log
    set echo on
        create table ordl (
    ol_w_id number
, ol_d_id number
, ol_o_id number sort
, ol_number number sort
, ol_i_id number
, ol_delivery_d date
, ol_amount number
, ol_supply_w_id number
, ol_quantity number
, ol_dist_info char(24)
  , constraint ordl_uk primary key (ol_w_id,
ol_d_id, ol_o_id, ol_number  )) CLUSTER
ordrcluster_queue(ol_w_id, ol_d_id, ol_o_id,
ol_number) ;
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createtable_ordr.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatetable.sh Tue Oct 3
14:52:44 JST 2006 */
set timing on
    set sqlblanklines on
    spool createtable_ordr.log
    set echo on
        drop cluster ordrcluster_queue including
tables ;

  create cluster ordrcluster_queue (
    o_w_id number
, o_d_id number
, o_id number SORT
, o_number number SORT
    )

    hashkeys 1120000
    hash is ( (o_w_id - 1) * 10 + o_d_id - 1 )
    size 1490
    tablespace ordr_0;

  create table ordr (
    o_id number sort
, o_w_id number
, o_d_id number
, o_c_id number
, o_carrier_id number
, o_ol_cnt number
, o_all_local number
, o_entry_d date
    , constraint ordr_uk primary key ( o_w_id
, o_d_id
, o_id )
  )
  cluster ordrcluster_queue (
    o_w_id
, o_d_id
, o_id
  );
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createtable_stok.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatetable.sh Tue Oct 3
14:52:41 JST 2006 */
set timing on
    set sqlblanklines on
    spool createtable_stok.log
    set echo on
      drop cluster stokcluster including tables ;

create cluster stokcluster (
  s_i_id number
, s_w_id number
  )
  single table
  hashkeys 11200000000
  hash is ( (s_i_id * 112000 + s_w_id) )
  size 256
  pctfree 0  initrans 2 maxtrans 2
  storage ( buffer_pool keep ) parallel ( degree
16 )
  tablespace stok_0;

create table stok (
  s_i_id number
, s_w_id number
, s_quantity number
, s_ytd number
, s_order_cnt number
, s_remote_cnt number
, s_data varchar2(50)
, s_dist_01 char(24)
, s_dist_02 char(24)
, s_dist_03 char(24)
, s_dist_04 char(24)
, s_dist_05 char(24)
, s_dist_06 char(24)
, s_dist_07 char(24)
, s_dist_08 char(24)
, s_dist_09 char(24)
, s_dist_10 char(24)
)
cluster stokcluster (
  s_i_id
, s_w_id
);
    set echo off
    spool off
    exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createtable_ware.sql
::::::::::::::::::::::::::::::::

/* created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatetable.sh Tue Oct 3
14:52:33 JST 2006 */
set timing on
    set sqlblanklines on
    spool createtable_ware.log
    set echo on
      drop cluster warecluster including tables ;

create cluster warecluster (
  w_id number
  )
  single table
  hashkeys 112000
  hash is ( (w_id - 1) )
  size 1448
    initrans 2
  storage ( buffer_pool default )
  tablespace ware_0;

create table ware (
  w_id number
, w_ytd number
, w_tax number
, w_name varchar2(10)
, w_street_1 varchar2(20)
, w_street_2 varchar2(20)
, w_city varchar2(20)
, w_state char(2)
, w_zip char(9)
)
cluster warecluster (
  w_id
```

```
);
  set echo off
  spool off
  exit sql.sqlcode;


::::::::::::::::::::::::::::::::
 createts.sh
::::::::::::::::::::::::::::::::

#created automatically by /home/oracle/tpcc-
kit/scripts/buildcreatets.sh Tue Oct 3 14:52:19
JST 2006

# Tablespace ware, ts size 240M (245760K)
# each file 240M (245760K)
# extents 233984K (233984K)
# 1 files

$tpcc_createts ware 1 1     240M 233984K unix
0     0 16 auto t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for ware failed.
Exiting.
   exit 0
  fi

# Tablespace cust, ts size 2904000M
(2973696000K)
# each file 6050M (6195200K)
# extents 618720K (618720K)
# 480 files

$tpcc_createts cust 480 1     6050M 618720K
unix 0     1 16 auto t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for cust failed.
Exiting.
   exit 0
  fi

# Tablespace dist, ts size 2280M (2334720K)
# each file 2280M (2334720K)
# extents 1165824K (1165824K)
# 1 files

$tpcc_createts dist 1 1     2280M 1165824K
unix 0     481 16 auto t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for dist failed.
Exiting.
   exit 0
  fi

# Tablespace hist, ts size 336000M
(344064000K)
# each file 2800M (2867200K)
# extents 102172K (102172K)
# 120 files

$tpcc_createts hist 120 1     2800M 102172K
unix 0     482 16 4K t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for hist failed.
Exiting.
   exit 0
  fi

# Tablespace stok, ts size 3259200M
(3337420800K)
# each file 6790M (6952960K)
# extents 694358K (694358K)
# 480 files

$tpcc_createts stok 480 1     6790M 694358K
unix 0     602 16 auto t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for stok failed.
Exiting.
   exit 0
  fi

# Tablespace item, ts size 20M (20480K)
# each file 20M (20480K)
# extents 16892K (16892K)
# 1 files

$tpcc_createts item 1 1     20M 16892K unix 0
1082 16 auto t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for item failed.
Exiting.
   exit 0
  fi

# Tablespace ordr, ts size 4788000M
(4902912000K)
# each file 19950M (20428800K)
# extents 103120K (103120K)
# 240 files

$tpcc_createts ordr 240 1     19950M 103120K
unix 0     1083 16 16K t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for ordr failed.
Exiting.
   exit 0
  fi

# Tablespace nord, ts size 39600M (40550400K)
# each file 330M (337920K)
# extents 33380K (33380K)
# 120 files

$tpcc_createts nord 120 1     330M 33380K
unix 0     1323 16 auto t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for nord failed.
Exiting.
   exit 0
  fi

# Tablespace iware, ts size 140M (143360K)
# each file 140M (143360K)
# extents 141024K (141024K)
# 1 files

$tpcc_createts iware 1 1     140M 141024K
unix 0     1443 16 auto t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for iware failed.
Exiting.
   exit 0
  fi

# Tablespace icust1, ts size 87000M
(89088000K)
# each file 1450M (1484800K)
# extents 11536K (11536K)
# 60 files

$tpcc_createts icust1 60 1     1450M 11536K
unix 0     1444 16 16K t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for icust1 failed.
Exiting.
   exit 0
  fi

# Tablespace icust2, ts size 188400M
(192921600K)
# each file 1570M (1607680K)
# extents 12480K (12480K)
# 120 files

$tpcc_createts icust2 120 1     1570M 12480K
unix 0     1504 16 16K t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for icust2 failed.
Exiting.
   exit 0
  fi

# Tablespace idist, ts size 550M (563200K)
# each file 550M (563200K)
# extents 561024K (561024K)
# 1 files

$tpcc_createts idist 1 1     550M 561024K unix
0     1624 16 auto t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for idist failed.
Exiting.
   exit 0
  fi

# Tablespace istok, ts size 241200M
(246988800K)
# each file 4020M (4116480K)
# extents 32144K (32144K)
# 60 files

$tpcc_createts istok 60 1     4020M 32144K
unix 0     1625 16 16K t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for istok failed.
Exiting.
   exit 0
  fi

# Tablespace iitem, ts size 20M (20480K)
# each file 20M (20480K)
# extents 11264K (11264K)
# 1 files

$tpcc_createts iitem 1 1     20M 11264K unix 0
1685 16 auto t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for iitem failed.
Exiting.
   exit 0
  fi

# Tablespace iordr2, ts size 205200M
(210124800K)
# each file 1710M (1751040K)
# extents 13648K (13648K)
# 120 files

$tpcc_createts iordr2 120 1     1710M 13648K
unix 0     1686 16 16K t
  if expr $? != 0 > /dev/null; then
   echo Creating tablespace for iordr2 failed.
Exiting.
   exit 0
  fi

# Tablespace temp, ts size 586800M
(600883200K)
# each file 4890M (5007360K)
# extents 200136K (200136K)
# 120 files
```

```
$tpcc_createts temp 120 1       4890M 200136K unix 1       1806 16 auto t
   if expr $? != 0 > /dev/null; then
     echo Creating tablespace for temp failed. Exiting.
     exit 0
   fi
```

```
:::::::::::::::::::::::::::::::
 createts.sys.sh
:::::::::::::::::::::::::::::::
```

```
$tpcc_createts system 500 1       3530M 361054K unix 0       1 32 auto t
   if expr $? != 0 > /dev/null; then
     echo Creating tablespace for cust failed. Exiting.
     exit 0
   fi
```

```
:::::::::::::::::::::::::::::::
 createts_C.sh
:::::::::::::::::::::::::::::::
```

```
#created automatically by /home/oracle/tpcc-kit/scripts/buildcreatets.sh Thu Nov 17 15:08:23 JST 2005

# Tablespace cust, ts size 1765000M (1807360000K)
# each file 3530M (3614720K)
# extents 361054K (361054K)
# 500 files

$tpcc_createts cust 500 1       3530M 361054K unix 0       1 32 auto t
   if expr $? != 0 > /dev/null; then
     echo Creating tablespace for cust failed. Exiting.
     exit 0
   fi
```

```
:::::::::::::::::::::::::::::::
 createts_iC2.sh
:::::::::::::::::::::::::::::::
```

```
#created automatically by /home/oracle/tpcc-kit/scripts/buildcreatets.sh Mon Nov 21 21:16:29 JST 2005

# Tablespace icust2, ts size 123680M (126648320K)
# each file 7730M (7915520K)
# extents 30906K (30906K)
# 16 files

$tpcc_createts icust2 16 1       7730M 30906K unix 0       1089 32 auto t
   if expr $? != 0 > /dev/null; then
     echo Creating tablespace for icust2 failed. Exiting.
     exit 0
   fi
```

```
:::::::::::::::::::::::::::::::
 createts_io2.sh
:::::::::::::::::::::::::::::::
```

```
#created automatically by /home/oracle/tpcc-kit/scripts/buildcreatets.sh Fri Nov 18 01:58:04 JST 2005

# Tablespace iordr2, ts size 119200M (122060800K)
# each file 7450M (7628800K)
# extents 29758K (29758K)
# 16 files

$tpcc_createts iordr2 16 1       7450M 29758K unix 0       1113 32 auto t
   if expr $? != 0 > /dev/null; then
     echo Creating tablespace for iordr2 failed. Exiting.
     exit 0
   fi
```

```
:::::::::::::::::::::::::::::::
 createts_istok.sh
:::::::::::::::::::::::::::::::
```

```
#created automatically by /home/oracle/tpcc-kit/scripts/buildcreatets.sh Mon Nov 21 21:16:29 JST 2005

# Tablespace istok, ts size 148080M (151633920K)
# each file 6170M (6318080K)
# extents 24640K (24640K)
# 24 files

$tpcc_createts istok 24 1       6170M 24640K unix 0       1106 32 16K t
   if expr $? != 0 > /dev/null; then
     echo Creating tablespace for istok failed. Exiting.
     exit 0
   fi
```

```
:::::::::::::::::::::::::::::::
 createuser.sh
:::::::::::::::::::::::::::::::
```

```
#!/bin/sh

echo Creating user tpcc...
$tpcc_sqlplus $tpcc_dba_user_pass @$tpcc_sql_dir/createuser > junk 2>&1
if test $? -ne 0
then
  exit 1;
else
  exit 0;
fi
```

```
:::::::::::::::::::::::::::::::
 ddview.sh
:::::::::::::::::::::::::::::::
```

```
#!/bin/sh

$tpcc_sqlplus $tpcc_sqlplus_args << !
$tpcc_internal_connect

spool ddview.log


REM
REM In an ade/nde view we might need to run standard.sql and dbmsstdx manually
REM catalog and catproc suppose to take care of it
REM

@$ORACLE_HOME/plsql/admin/standard
@$ORACLE_HOME/rdbms/admin/dbmsstdx

@$ORACLE_HOME/rdbms/admin/catalog
@$ORACLE_HOME/rdbms/admin/catproc

REM
REM In an ade/nde view we might need to run pupbld manually
REM catalog and catproc suppose to take care of it
REM

connect system/manager
REM @$ORACLE_HOME/sqlplus/admin/pupbld


REM
REM Oracle
REM

REM if test $NUMBER_ORACLE_NODE -qt 1
REM then

REM @$ORACLE_HOME/rdbms/admin/catparr

REM fi

spool off
!

#sh $tpcc_scripts/queue.sh
```

```
:::::::::::::::::::::::::::::::
 estsize.sh
:::::::::::::::::::::::::::::::
```

```
#!/bin/sh
# round down closest k or m from number of kilobytes.

# fairly small, doesn't really matter
amount=$1
if $tpcc_isneg `$tpcc_bcexpr $amount - 10000`; then
  echo ${amount}K
  exit 0;
fi;

# convert to megs, then trunc to nearest 100
amount=`$tpcc_bcexpr \( $amount + $tpcc_kilo_bytes - 1 \) / $tpcc_kilo_bytes`
amount=`$tpcc_bcexpr \( $amount + 9 \) / 10`
amount=`$tpcc_bcexpr $amount  \* 10`

echo ${amount}M
exit 0;
```

```
:::::::::::::::::::::::::::::::
 evenload.sh
:::::::::::::::::::::::::::::::
```

```
#!/bin/sh
#evenly load using tpcc load, following parameters:
#$1 name of the table to load- this is used to choose where to log.
```

```
#$2 the number of things to load
#$3 the starting flag (usually b or j)
#$4 the ending flag (usually e or k)
#$5 the flag to load (h for history , c for cust, S
for stock, etc.
#$6 if true, add dummy (only used for -o so far.)
#$7 the command to be used, if not $tpcc_load

command=$7
if test -z "$command"; then
command='$tpcc_load'
fi

tablename=$1
# write out to file to load later
if expr "x$tpcc_rac_load" = "xt" > /dev/null ; then

loadout=$tpcc_genscripts_dir/load${tablename}
_node${tpcc_rac_node}.sh
else

loadout=$tpcc_genscripts_dir/load${tablename}.
sh
fi
rm -f ${loadout}
echo \#created automatically by $0 `date` >
$loadout
echo "rm -f load${tablename}*.log" >> $loadout
echo 'cd $tpcc_bench' >> $loadout

numloaders=`$tpcc_bcexpr 2 \* $tpcc_cpu`

if expr "x$tpcc_rac_load" = "xt" > /dev/null ; then
  numloaders=`$tpcc_bcexpr $tpcc_np \*
$tpcc_cpu \* 2`
fi

if expr $numloaders \> $2 > /dev/null; then
  numloaders=$2
fi

  numloaders=`$tpcc_bcexpr $tpcc_np \*
$tpcc_cpu \* 2`

echo "allprocs=" >> $loadout
curstuff=1
stuffextra=`expr $2 \% $numloaders`
stuffinc=`expr $2 / $numloaders`
curloader=0

if expr "x$tpcc_rac_load" = "xt" > /dev/null ; then
  warepernode=`$tpcc_bcexpr $2 / $tpcc_np`
  procpernode=`$tpcc_bcexpr $tpcc_cpu \* 2`
  curstuff=`$tpcc_bcexpr $warepernode \*
\( $tpcc_rac_node - 1 \) + 1`
  stuffinc=`expr $warepernode / $procpernode`
  stuffextra=`expr $warepernode \%
$procpernode`
  curloader=`$tpcc_bcexpr $procpernode \*
\( $tpcc_rac_node - 1 \) + 1`
  endloader=`$tpcc_bcexpr $procpernode \*
$tpcc_rac_node + 1`

  while expr $curloader \< $endloader >
/dev/null ; do

    newstuff=`expr $curstuff + $stuffinc +
\( $stuffextra / $procpernode \)`
    if expr x$6 = xt > /dev/null; then
      if expr $tpcc_os = unix > /dev/null; then

adddummy=\${tpcc_disks_location}dummy${curl
oader}.dat
      else
        # is this what we actually want to do?
check nt stuff
        adddummy=\\\\\\.\\\\dummy${curloader}.dat
      fi
    else
      adddummy=
    fi
    echo "$command -M $tpcc_scale -$5
$adddummy -$3 $curstuff -$4 `expr $newstuff -
1` >> load${tablename}${curloader}.log 2>&1 &"
>> $loadout
    echo 'allprocs="$allprocs ${!}"' >> $loadout

    curstuff=$newstuff
    stuffextra=`expr $stuffextra + 1`
    curloader=`expr 1 + $curloader`
  done



else
  while expr $curloader \< $numloaders >
/dev/null; do
    newstuff=`expr $curstuff + $stuffinc +
\( $stuffextra / $numloaders \)`
    if expr x$6 = xt > /dev/null; then
      if expr $tpcc_os = unix > /dev/null; then

adddummy=\${tpcc_disks_location}dummy${curl
oader}.dat
      else
        # is this what we actually want to do?
check nt stuff
        adddummy=\\\\\\.\\\\dummy${curloader}.dat
      fi
    else
      adddummy=
    fi
    echo "$command -M $tpcc_scale -$5
$adddummy -$3 $curstuff -$4 `expr $newstuff -
1` >> load${tablename}${curloader}.log 2>&1 &"
>> $loadout
    echo 'allprocs="$allprocs ${!}"' >> $loadout
    curstuff=$newstuff

    stuffextra=`expr $stuffextra + 1`
    curloader=`expr 1 + $curloader`
  done
fi

cat >> $loadout <<!
error=0
for curproc in \$allprocs; do
  wait \$curproc
  error=\`expr \$? + \$error\`
done
exit \`expr \$error != 0\`
!

exit 0


::::::::::::::::::::::::::::::::
 extractcols.sh
::::::::::::::::::::::::::::::::

#!/bin/sh

extractcols(){
  table=$1
  tablecols=`tp $table cols`

  lines=`echo "$tablecols" | sed -e's/^ *//' | cut -d'-'
-f1 |\
    sed -e's/\(.*\)/"\1", /' | tr -s '\n' ' '`
  echo "tablecols['${table}'] = [$lines" | sed -e's/,
$/];/'
}

defaultcols(){
  table=$1
  tableinds=`tp $table indices`

  indarr=`echo "$tableinds" | sed -e's/\([0-9][0-
9]*\)/\1,/g'`
  echo "tableinds['${table}'] = [$indarr];" | sed -
e's/-//g' | sed -e's/,]/]/' | sed -e's/\[no\]/[]/g'
}

. ../stepenv.sh
. $tpcc_scripts/tabledata.sh
for table in $tpcc_table_list; do
  extractcols $table
done

for table in $tpcc_table_list $tpcc_index_list; do
  defaultcols $table


::::::::::::::::::::::::::::::::
 fromkilobytes.sh
::::::::::::::::::::::::::::::::

#!/bin/sh
# round up to k, m, g, t from number of kilobytes.

amount=$1
if $tpcc_isneg `$tpcc_bcexpr $amount -
$tpcc_kilo_bytes`; then
  echo ${amount}K
  exit 0;
fi;
amount=`$tpcc_bcexpr \( $amount +
$tpcc_kilo_bytes - 1 \) / $tpcc_kilo_bytes`
if $tpcc_isneg `$tpcc_bcexpr $amount -
$tpcc_kilo_bytes`; then
  echo ${amount}M
  exit 0;
fi;
amount=`$tpcc_bcexpr \( $amount +
$tpcc_kilo_bytes - 1 \) / $tpcc_kilo_bytes`
echo ${amount}G


::::::::::::::::::::::::::::::::
 isneg.sh
::::::::::::::::::::::::::::::::

#!/bin/sh
# exit true if negative, else false

if test `$tpcc_bcexpr "$*" | cut -b1` = -; then
  exit 0
else
  exit 1
fi


::::::::::::::::::::::::::::::::
 lcm.sh
::::::::::::::::::::::::::::::::

#!/bin/sh
# echo the lcm of two numbers

if expr $2 \> $1 > /dev/null; then
  set $2 $1
# now $1 is guaranteed to be bigger
fi
```

```
lcm=$1
while expr \( \( $lcm % $1 \) + \( $lcm % $2 \) \) \>
0 > /dev/null; do
  lcm=`expr $lcm + $1`
done

echo $lcm


::::::::::::::::::::::::::::::::
 lib/Makefile.linux
::::::::::::::::::::::::::::::::

#===================================
=============================+
#       Copyright (c) 1996  Oracle Corp,
Redwood Shores, CA       |
#                 OPEN SYSTEMS PERFORMANCE
GROUP                 |
#                       All Rights Reserved
|
#===================================
=============================+
# FILENAME
#      Makefile
# DESCRIPTION
#      Makefile for lib for batch driver, load
program and tx testing.
#===================================
=============================
#
#  Programs:
#
#      dpblibunix.o
#

all: compile dpblibunix.o

#include
$(ORACLE_HOME)/bench/buildtools/prefix.mk
I_SYM=-I
#include
$(ORACLE_HOME)/rdbms/lib/env_rdbms.mk
REMOVE=rm
#CC=/opt/SunProd/SUNWspro6.1/bin/../WS6U1/
bin/cc
CC=/usr/bin/gcc

TARGS=compile cleanup

TPCBIN=.
INCLUDE=$(I_SYM).
$(I_SYM)$(ORACLE_HOME)/rdbms/demo \
 $(I_SYM)$(ORACLE_HOME)/rdbms/public \
 $(I_SYM)$(ORACLE_HOME)/rdbms/include \
 $(I_SYM)$(ORACLE_HOME)/plsql/public \
 $(I_SYM)$(ORACLE_HOME)/network/public
ITUX=$(I_SYM)$(ROOTDIR)/include

MEMBS=
OBJS=gettime.o dpbproc.o dpbwait.o dpbpchk.o
dpbtimef.o

CFLAGS=

files:

compile: $(OBJS)
    @-$(DOTARGS)

cleanup:
    $(REMOVE) $(OBJS) dpblibunix.o

dpbtimef.o: dpbtimef.c
    $(CC) $(CFLAGS) -DORA_PC $(INCLUDE) -
c dpbtimef.c

dpbproc.o: dpbproc.c
    $(CC) $(CFLAGS) -DORA_AUX $(INCLUDE)
-c dpbproc.c

dpbwait.o: dpbwait.c
    $(CC) $(CFLAGS) -DORA_AUX $(INCLUDE)
-c dpbwait.c

dpbpchk.o: dpbpchk.c
    $(CC) $(CFLAGS) -DORA_AUX $(INCLUDE)
-c dpbpchk.c

gettime.o: gettime.c
    $(CC) $(CFLAGS) $(INCLUDE) -c gettime.c

trigger.o: trigger.c

dpblibunix.o: $(OBJS)
    $(LD) -r -o $@ $(OBJS)

c_trans_tux.o: $(CTRANTUX_OBJS)
    $(LD) -r -o $@ $(CTRANTUX_OBJS)



::::::::::::::::::::::::::::::::
 lib/dpbcore.h
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1993, 1992.
All Rights Reserved. */

/*
NAME    DPBCORE.H

DESCRIPTION
   Header for CORE function

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   B Moriarty   06/02/95 -  add dpbetime() for
accurate elapsed time measure
   B Moriarty   05/26/95 -  add dpboradt() for new
reporting
   B Moriarty   05/10/95 -  add dpbcpu() for tpcc
   C Kelly      04/21/94 -  add dpbinpgm() and
dpbxtpgm() for Netware NLMs
   C Kelly      02/24/93 -  add dpbfsync()
   B Moriarty   11/12/93 -  add dpbgetprty()
   R Keller     10/18/93 -  add dpbprty()
   R Keller     03/06/92 -  initial version

*/

#ifndef __dpbcore__
# define __dpbcore__


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

#ifdef __STDC__                              /* ANSI C
*/
int          dpbfsync(FILE *);                /* fsync for
ACID          */
int          dpbgetprty(char *,char *,int);   /* get
O/S priority         */
void         dpbinpgm(void);                   /* pgm.
init. function       */
unsigned long dpbpchk(pcntl *);                 /*
check on forked process  */
unsigned long dpbproc(char *[], pcntl *);       /*
spawn/fork new process   */
int          dpbprty(char *);                  /* set O/S
priority         */
clock_t      dpbtimef(void);                   /* get time
*/
clock_t      dpbcpu(void);                     /* get CPU
time             */
void         dpbwait(clock_t);                 /* wait
routine in millisec */
void         dpbxtpgm(void);                   /* pgm
exit routine         */
int          dpboradt(char *);                 /* sys date
time in ora form*/
clock_t      dpbetime(void);                   /* elapsed
time             */
#else                                    /* K&R C
*/
int          dpbfsync();                       /* fsync for
ACID          */
int          dpbgetprty();                     /* get O/S
priority         */
void         dpbinpgm();                       /* pgm. init.
function       */
unsigned long dpbpchk();                       /* check
on forked process  */
unsigned long dpbproc();                       /*
spawn/fork new process   */
int          dpbprty();                        /* set O/S
priority         */
clock_t      dpbtimef();                       /* get time
*/
clock_t      dpbcpu();                         /* get cpu
time             */
void         dpbwait();                        /* wait routine
in millisec */
void         dpbxtpgm();                       /* pgm exit
routine          */
int          dpboradt();                       /* sys date
time in ora form*/
clock_t      dpbetime();                       /* elapsed
time             */
#endif /* __STDC__ */


#endif /* __dpbcore__ */



::::::::::::::::::::::::::::::::
 lib/dpbcpu.c
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1993.  All
Rights Reserved. */

/*
NAME    DPBTIME.C

DESCRIPTION
   Get time in seconds.

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   bmoriart     05/10/95 -  V4.7 Convert from
double to clock_t
   MBHULLAR     02/06/95 -  V4.5
*/

#ifdef ORA_NT
# include <windows.h>
# include < time.h>
```

```
clock_t dpbcpu(void)
{
  clock_t begin_cpu;

  begin_cpu = clock();
  return(begin_cpu);
}
#endif /* ORA_NT */






::::::::::::::::::::::::::::::::
 lib/dpbetime.c
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1995.  All
Rights Reserved. */
/*
NAME    DPBETIME.C

DESCRIPTION
   Get elapsed time in 10ths of millaseconds as a
clock_t.

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   B Moriarty   06/02/95 -  V4.8 Initial Version

*/

#ifdef ORA_OS2
#endif /* ORA_OS2 */

#ifdef ORA_NT
#include <windows.h>
#include <sys\types.h>
#include <time.h>
#include <stdio.h>

BOOL First = TRUE;
LARGE_INTEGER ICount;          /* Initial Time */
LARGE_INTEGER Tptms;        /* Ticks per tenth
of millisecond */
#endif /* ORA_NT */

# ifdef __STDC__
clock_t dpbetime(void)
# else
clock_t dpbetime()
# endif /* __STDC__ */
{

#ifdef ORA_NT

   LARGE_INTEGER PFreq;     /* Ticks per
Second */
   LARGE_INTEGER PCount;    /* Ticks Since
1970 */
   clock_t etime;       /* Elapsed time in tenths of
millaseconds */

   if (First)  {
      if (!QueryPerformanceFrequency(&PFreq))
         return((clock_t)-1);
      if (!QueryPerformanceCounter(&ICount))
         return((clock_t)-1);
      Tptms.QuadPart = PFreq.QuadPart / 10000;
      First = FALSE;
      return((clock_t)0);
   }
   if (!QueryPerformanceCounter(&PCount))
      return((clock_t)-1);
   etime = (clock_t) ((PCount.QuadPart -
ICount.QuadPart) / Tptms.QuadPart);
   return(etime);

#endif /* ORA_NT */

}


::::::::::::::::::::::::::::::::
 lib/dpbfsync.c
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1993, 1992.
All Rights Reserved. */

/*
NAME    DPBFSYNC.C

DESCRIPTION

   Flush o/s buffers to disk for a file.

   Calling fclose() or fflush() is not enough.
These calls will only flush
   the buffer in the FILE struture by making a
write() call to the o/s, and
   the o/s will probably place these data in its own
disk buffers.
   dpbfsync() will cause the o/s disk buffers for a
file to be written to disk.

   This function should normally be called *after*
an fflush() is done, or you
   will miss the data that is buffered in the FILE
structure.

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   C Kelly      02/24/94 -  V4.4 initial version
*/


#include <stdio.h>



#ifdef ORA_OS2
int dpbfsync(FILE *fp)
{
  return 0;
}
#endif /* ORA_OS2 */



#ifdef ORA_NT
# include <windows.h>

int dpbfsync(FILE *fp)
{
  if (FlushFileBuffers((HANDLE)(fp->_file)) ==
FALSE)
  {
    return 1;
  };

  return 0;
}
#endif /* ORA_NT */



#ifdef ORA_AUX

int dpbfsync(fp)
FILE *fp;
{
  if (fsync(fp->_file) == -1)
  {
    return 1;
  };

  return 0;
}
#endif /* ORA_AUX */



#ifdef ORA_NW
int dpbfsync(FILE *fp)
{
  return 0;
}
#endif /* ORA_NW */



#ifdef ORA_DOS
int dpbfsync(FILE *fp)
{
  return 0;
}
#endif /* ORA_DOS */



#ifdef ORA_MAC
#endif /* ORA_MAC */



::::::::::::::::::::::::::::::::
 lib/dpbinpgm.c
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1994.  All
Rights Reserved. */

/*
NAME    DPBINPGM.C

DESCRIPTION
   Routine that performs any o/s specific program
initialization.

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   C Kelly      04/21/94 -  V4.4 created to support
Netware NLMs

*/



#ifdef ORA_NW
#include <process.h>
#include <library.h>

extern int samtid;
extern int samtgid;

#else /* ORA_NW */
```

```
#endif /* ORA_NW */



#ifdef __STDC__
void dpbinpgm(void)
#else
void dpbinpgm()
#endif /* __STDC__ */
{
# ifdef ORA_NW

  samtid  = GetThreadID();      /* get this
program's thread id         */
  samtgid = GetThreadGroupID(); /* get this
program's thread group id   */

# else /* ORA_NW */

  return;              /* do nothing for everything else
*/

# endif /* ORA_NW */
}



::::::::::::::::::::::::::::::::
 lib/dpboradt.c
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1993.  All
Rights Reserved. */

/*
NAME    DPBORADT.C

DESCRIPTION
   Get System Date and Time and
    Return in Oracle External SQLT_DAT (Date)
Format
    Returns 1-JAN-2000 00:00:00
    when not implemented or when conversion
fails

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   bmoriart     05/26/95 -  V4.8 Created
*/

#ifdef ORA_NT
# include <windows.h>
#endif /* ORA_NT */

#ifdef __STDC__
void dpboradt(char *oradt)
#else
void dpboradt(oradt)
unsigned char *oradt;
#endif /* __STDC__ */
{
   char cnvrtOK=TRUE;

# ifdef ORA_NT
   SYSTEMTIME lpst;

   GetLocalTime(&lpst);
   *oradt = (unsigned char)(lpst.wYear / 100) +
100;
   if (*oradt < 119 || *oradt > 120)
cnvrtOK=FALSE;
   *(++oradt) = (unsigned char)(lpst.wYear %
100) + 100;
```

```
   if (*oradt < 100 || *oradt > 199)
cnvrtOK=FALSE;
   *(++oradt) = (unsigned char)(lpst.wMonth);
   if (*oradt < 1 || *oradt > 12) cnvrtOK=FALSE;
   *(++oradt) = (unsigned char)(lpst.wDay);
   if (*oradt < 1 || *oradt > 31) cnvrtOK=FALSE;
   *(++oradt) = (unsigned char)(lpst.wHour) + 1;
   if (*oradt < 1 || *oradt > 24) cnvrtOK=FALSE;
   *(++oradt) = (unsigned char)(lpst.wMinute) + 1;
   if (*oradt < 1 || *oradt > 60) cnvrtOK=FALSE;
   *(++oradt) = (unsigned char)(lpst.wSecond) +
1;
   if (*oradt < 1 || *oradt > 60) cnvrtOK=FALSE;
#else /* ORA_NT */
   cnvrtOK = FALSE;
#endif /* ORA_NT */

   if(!cnvrtOK) { /* Use 1-JAN-2000 00:00:00 */
     *oradt++ = 120;
     *oradt++ = 100;
     *oradt++ = 1;
     *oradt++ = 1;
     *oradt++ = 1;
     *oradt++ = 1;
     *oradt++ = 1;
   }
   return;              /* do nothing for everything
else */
}



::::::::::::::::::::::::::::::::
 lib/dpbpchk.c
::::::::::::::::::::::::::::::::

/*  Copyright (c) Oracle Corporation 1993, 1992.
All Rights Reserved. */

/*
NAME    DPBPCHK.C

DESCRIPTION
   Check New Process

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   W Brumiller  02/08/93 -  Correct error handling
for NT
   R Keller     01/08/92 -  Initial version

*/



#include "dpbpcntl.h"



#ifdef ORA_OS2                         /* IBM
OS/2 2.0            */
# define INCL_DOSPROCESS                    /*
*/
# include <os2.h>                          /*
*/

unsigned long dpbpchk(pcntl *info)
{
  ULONG pid;
  APIRET rc;

  rc = DosWaitChild(DCWA_PROCESS,
                    DCWW_WAIT,
```

```
                    &info->rcodes,
                    &pid,
                    0);

  return(info->rcodes.codeResult);
};
#endif /* ORA_OS2 */





#ifdef ORA_NT
# include <windows.h>

int dpbpchk(pcntl *info)
{
  DWORD rc;

  if (WaitForSingleObject(info-
>proc_info.hProcess, INFINITE) ==
0XFFFFFFFF)
  {
    return -1;
  };

  if (GetExitCodeProcess(info-
>proc_info.hProcess, &rc) == FALSE)
  {
    return -1;
  };

  (void)CloseHandle(info->proc_info.hProcess);
  (void)CloseHandle(info->proc_info.hThread);

  return((int)rc);
}
#endif /* ORA_NT */





#ifdef ORA_AUX
# include <errno.h>

int dpbpchk(info)
pcntl *info;
{
  extern int errno;
  int byte_mask;
  int status;
  int high_byte;
  int child;
  int i;

  byte_mask = 255;       /*  low order 8 bits are 1,
bits 8..31 are 0  */

  do
  {
    child = wait(&status);
    if (errno != ECHILD)
    {
      high_byte = ((status & (byte_mask << 8)) >>
8);
    };
  } while (errno != ECHILD);

  return high_byte;
}
#endif /* ORA_AUX */
```

```
:::::::::::::::::::::::::::::::::
 lib/dpbpcntl.h
:::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1993, 1992.
All Rights Reserved. */

/*
NAME    DPBPCNTL.H

DESCRIPTION
   OSD structures for process control

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   R Keller     02/03/93 -  initial version

*/

#ifndef __dpbpcntl__
# define __dpbpcntl__



#ifdef ORA_OS2                              /* IBM
OS/2 2.x            */
# define INCL_DOSPROCESS
# include <os2.h>
typedef struct _pcntl
{
  RESULTCODES rcodes;
} pcntl;
#endif /* ORA_OS2 */                        /* IBM
OS/2 2.x            */



#ifdef ORA_NT                              /* Microsoft
Windows NT     */
# include <windows.h>                       /*
*/
typedef struct _pcntl
{
  PROCESS_INFORMATION proc_info;
} pcntl;
#endif /* ORA_NT */                        /*
Microsoft Windows NT     */



#ifdef ORA_AUX                              /* Apple
A/UX             */
typedef struct _pcntl
{
  int dummy;
} pcntl;
#endif /* ORA_AUX */                        /* Apple
A/UX             */



#ifdef ORA_NW                               /* Novell
Netware          */
typedef struct _pcntl
{
  int dummy;
} pcntl;
#endif /* ORA_NW */                         /* Novell
Netware          */



#endif /* __dpbpcntl__ */
```

```
:::::::::::::::::::::::::::::::::
 lib/dpbproc.c
:::::::::::::::::::::::::::::::::

/*  Copyright (c) Oracle Corporation 1993, 1992.
All Rights Reserved. */

/*
NAME    DPBPROC.C

DESCRIPTION
 Create New Process

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   W Brumiller  02/08/93 -  Add flags for
minimized window under NT
   R Keller     01/08/92 -  Initial version

*/



#include "dpbpcntl.h"



#ifdef ORA_OS2                              /* IBM
OS/2 2.0              */
# define INCL_DOSPROCESS
# include <os2.h>                           /*
*/
# include <stdlib.h>                        /*
*/
# include <string.h>                        /*
*/

unsigned long dpbproc(char *i_argv[], pcntl *info)
{
  char *args;
  char *args2;
  char load_error[100];
  char pgm[44];
  APIRET rc;
  int i;

  args2 = args = (char *)malloc(128);

  strcpy(args, i_argv[0]);
  strcpy(pgm, i_argv[0]);
  strcat(pgm, ".exe");

  args2 += strlen(args) + 1;

  if (i_argv[1] != NULL)
  {
    strcpy(args2, i_argv[1]);
    for (i = 2; i_argv[i] != NULL; i++)
    {
      strcat(args2, " ");
      strcat(args2, i_argv[i]);
    };
  }
  else
  {
    *args2 = '\0';
  };

  rc = DosExecPgm(load_error,                    /*
spawn process */
                  sizeof(load_error),
                  EXEC_ASYNCRESULT,
                  args,
                  0,
                  &info->rcodes,
                  pgm);

  free(args);

  return rc;
}
#endif /* ORA_OS2 */




#ifdef ORA_NT                              /* Microsoft
Windows NT       */
#include <windows.h>
#include <stdlib.h>                        /*
*/
#include <string.h>                        /*
*/

int dpbproc(char *i_argv[], pcntl *info)
{
  BOOL rc;
  int i;
  char *args;
  STARTUPINFO start_info;

  args = (char *)malloc(128);

  memset(&start_info, 0x0,
sizeof(STARTUPINFO));
  start_info.cb = sizeof(STARTUPINFO);
  start_info.lpTitle = i_argv[0];
  start_info.dwFlags =
STARTF_USESHOWWINDOW;
  start_info.wShowWindow =
SW_SHOWMINNOACTIVE;

  strcpy(args, i_argv[0]);                    /* get
first str */

  for (i = 1; i_argv[i] != NULL; i++)
  {
    strcat(args," ");
    strcat(args,i_argv[i]);
  };

  if ((rc = CreateProcess(NULL,              //
image name
              args,              // command line
              NULL,              // process
security attr
              NULL,              // thread
security attr
              TRUE,              // inherit
handles
              CREATE_NEW_CONSOLE,   //
creation flags
              NULL,              // environment
blocks
              NULL,              // current
directory
              &start_info,
              &info->proc_info)) == FALSE)
  {
    return rc;
  };

  return 0;
};
```

```
#endif /* ORA_NT */




#ifdef ORA_AUX
#include <stdio.h>
#include <stdlib.h>
#include <sys/types.h>

int dpbproc(arg_list, info)
char *arg_list[];
pcntl *info;
{
  char *path = (char *)malloc(strlen(arg_list[0]) +
3);
  pid_t child;

  sprintf(path, "./%s", arg_list[0]);

  if ((child = fork()) == (pid_t)-1)
  {
    free(path);
    return -1;
  }
  else if (child == (pid_t)0)
  {
    return execv(path, arg_list);
  }
  else
  {
    free(path);
    return 0;
  };
}
#endif /* ORA_AUX */



::::::::::::::::::::::::::::::::
 lib/dpbprty.c
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1993.  All
Rights Reserved. */

/*
NAME    DPBPRTY.C

DESCRIPTION
 Set O/S Priority.

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   MBHULLAR     03/25/94 -  Change prty_str[1]
to case statement
   B Moriarty   11/11/93 -  Add Get Priority
   R Keller     10/18/93 -  Redesign
   R Keller     10/16/93 -  Iniital version

*/


#ifdef ORA_OS2
#include <string.h>
#include <sys\types.h>
#endif /* ORA_OS2 */


#ifdef ORA_NW
#endif /* ORA_NW */

#ifdef ORA_NT
# include <windows.h>
# include <string.h>
# define REALCLASS 'R'
# define HIGHCLASS 'H'
# define NORMALCLASS 'N'
# define IDLECLASS 'I'
#endif /* ORA_NT */


#ifdef ORA_AUX
#endif /* ORA_AUX */


#ifdef __STDC__
int dpbprty(char *prty_str)
#else
int dpbprty(prty_str)
char *prty_str;
#endif
{
#ifdef ORA_OS2
  return 0;
#endif /* ORA_OS2 */

#ifdef ORA_AUX
  return 0;
#endif /* ORA_AUX */

#ifdef ORA_NW
  return 0;
#endif /* ORA_NW */

#ifdef ORA_NT

  HANDLE this_process, this_thread;

  DWORD class;

 int prios;

  if ( (strlen(prty_str) > 2) || prty_str[0] == '0')
  {
    return(0);                    /* return if invalid length
or 0 */
  };

  this_process = GetCurrentProcess();

  switch (prty_str[0])
  {
  case IDLECLASS:
  case 'i':
    class = IDLE_PRIORITY_CLASS;
    break;

  case NORMALCLASS:
  case 'n':
    class = NORMAL_PRIORITY_CLASS;
    break;

  case HIGHCLASS:
  case 'h':
    class = HIGH_PRIORITY_CLASS;
    break;

  case REALCLASS:
  case 'r':
    class = REALTIME_PRIORITY_CLASS;
    break;
  };

  if (!SetPriorityClass(this_process, class))
  {
    return(1);
  };

this_thread = GetCurrentThread();
switch(prty_str[1])
 {
  case '1':
  prios = THREAD_PRIORITY_IDLE;
  break;

  case '2':
  prios = THREAD_PRIORITY_LOWEST;
  break;

  case '3':
  prios =
THREAD_PRIORITY_BELOW_NORMAL;
  break;

  case '4':
  prios = THREAD_PRIORITY_NORMAL;
  break;

  case '5':
  prios =
THREAD_PRIORITY_ABOVE_NORMAL;
  break;

  case '6':
  prios = THREAD_PRIORITY_HIGHEST;
  break;

  case '7':
  prios = THREAD_PRIORITY_TIME_CRITICAL;
  break;

  default:
  break;
} /* End of switch statement */

  if (!SetThreadPriority(this_thread, prios))
  {
    return(2);
  }

  return 0;

# endif /* ORA_NT */

}




#ifdef __STDC__
int dpbgetprty(char *os_pri, char *prty_str, int
os_pri_len)
#else
int dpbgetprty(os_pri, prty_str, os_pri_len)
char *os_pri;
char *prty_str;
int os_pri_len;
#endif /* __STDC__ */
{
#ifdef ORA_OS2
  strncpy(os_pri,prty_str,(size_t)os_pri_len);
  return 0;
#endif /* ORA_OS2 */

#ifdef ORA_AUX
  strncpy(os_pri,prty_str,os_pri_len);
  return 0;
#endif /* ORA_AUX */
#ifdef ORA_NW
 strncpy(os_pri, prty_str, os_pri_len);
 return 0;
#endif /* ORA_NW */

#ifdef ORA_NT

 HANDLE this_process, this_thread;
 DWORD pclass;
 int tpri;

 this_process = GetCurrentProcess();
 pclass = GetPriorityClass(this_process);

 switch (pclass)
 {
 case IDLE_PRIORITY_CLASS:
  strcpy(os_pri,"I");
  break;

 case NORMAL_PRIORITY_CLASS:
  strcpy(os_pri,"N");
  break;

 case HIGH_PRIORITY_CLASS:
  strcpy(os_pri,"H");
  break;

 case REALTIME_PRIORITY_CLASS:
  strcpy(os_pri,"R");
  break;

 default:
  strcpy(os_pri,"?");
  break;
 };

 this_thread=GetCurrentThread();
 tpri=GetThreadPriority(this_thread);
 switch (tpri)
 {
 case THREAD_PRIORITY_IDLE:
  strcat(os_pri,"1");
  break;

 case THREAD_PRIORITY_LOWEST:
  strcat(os_pri,"2");
  break;

 case THREAD_PRIORITY_BELOW_NORMAL:
  strcat(os_pri,"3");
  break;

 case THREAD_PRIORITY_NORMAL:
  strcat(os_pri,"4");
  break;

 case THREAD_PRIORITY_ABOVE_NORMAL:
  strcat(os_pri,"5");
  break;

 case THREAD_PRIORITY_HIGHEST:
  strcat(os_pri,"6");
  break;

 case THREAD_PRIORITY_TIME_CRITICAL:
  strcat(os_pri,"7");
  break;

 default:
  strcat(os_pri,"?");
  break;
 };
  return 0;

#endif /* ORA_NT */
}



::::::::::::::::::::::::::::::::
 lib/dpbtimef.c
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1993, 1992.
All Rights Reserved. */

/*
NAME    DPBTIMEF.C

DESCRIPTION
   Get time in seconds as a clock_t.

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   B Moriarty   02/14/95 -  V4.6 fix NT & OS/2
   C Kelly      01/20/94 -  V4.4 added Netware
support
   C Kelly      02/05/93 -  V3.1 added A/UX
support
   R Keller     03/02/92 -  V3.0

*/

#ifdef ORA_OS2
# define ORA_PC
#endif /* ORA_OS2 */

#ifdef ORA_NT
# define ORA_PC
#endif /* ORA_NT */



#ifdef ORA_PC
# include <sys/types.h>
# include <sys/timeb.h>
# include <stdio.h>
# include <time.h>

# ifdef __STDC__
clock_t dpbtimef(void)
# else
clock_t dpbtimef()
# endif /* __STDC__ */
{
  struct timeb buf;

  ftime(&buf);
  return((clock_t) (buf.time));
}
#endif /* ORA_PC */



#ifdef ORA_AUX
# include <sys/time.h>
double dpbtimef()
{
  struct timeval t;
  int rc;

  do
  {
   rc = gettimeofday(&t, (struct timezone *)0);
  } while (rc != 0);

  return (((double)t.tv_sec) +
(((double)t.tv_usec)/1000000));
}
#endif



#ifdef ORA_NW
# include <time.h>
double dpbtimef()
{
  return (double)time(NULL);    /* there is no
function with greater precision */
}
#endif /* ORA_NW */



#ifdef ORA_MAC
# include <types.h>
# include <OSUtils.h>

double dpbtimef()
{
  unsigned long secs;
  GetDateTime(&secs);
  return((double) secs);
}
#endif /* ORA_MAC */



::::::::::::::::::::::::::::::::
 lib/dpbwait.c
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1993.  All
Rights Reserved. */

/*
NAME    DPBWAIT.C

DESCRIPTION
   Wait for n milliseconds.

NOTES
   Desktop Performance Group

MODIFIED       (MM/DD/YY)
   R Keller     03/02/92 -  V3.0
*/



#ifdef ORA_OS2
# define INCL_DOS
# include <os2.h>
# include <time.h>

void dpbwait(clock_t i)
{
  DosSleep(i);
}
#endif /* ORA_OS2 */



#ifdef ORA_NW
# include <process.h>
void dpbwait(long i)
{
  delay((unsigned)i);
};
#endif /* ORA_NW */
```

```
#ifdef ORA_AUX
void dpbwait(wait_time)
long wait_time;
{
  unsigned secs = (unsigned)(wait_time / 1000);

  while (secs)
  {
    secs = sleep(secs);
  };
}
#endif /* ORA_AUX */



#ifdef ORA_NT
# include <windows.h>

void dpbwait(long i)
{
  Sleep(i);
}
#endif /* ORA_NT */



#ifdef ORA_DOS
# include <time.h>

void dpbwait(long i)
{
  long current_time;
  long target_time;

  current_time = time(NULL);
  target_time = current_time + i/1000;

  while (current_time < target_time)
  {
    current_time = time(NULL);
  };
}
#endif /* ORA_DOS */



::::::::::::::::::::::::::::::::
 lib/dpbxtpgm.c
::::::::::::::::::::::::::::::::

/* Copyright (c) Oracle Corporation 1994.  All
Rights Reserved. */

/*
NAME    DPBXTPGM.C

DESCRIPTION
   Routine that performs any o/s specific program
exit operations.

NOTES
   Desktop Performance Group

MODIFIED      (MM/DD/YY)
   C Kelly      04/21/94 -  V4.4 created to support
Netware NLMs

*/



#ifdef ORA_NW
#include <process.h>
#include <library.h>

extern int samtid;
extern int samtgid;

#else /* ORA_NW */
#endif /* ORA_NW */



#ifdef __STDC__
void dpbxtpgm(void)
#else
void dpbxtpgm()
#endif /* __STDC__ */
{
#ifdef ORA_NW

/*
** Cleanup code for NetWare.
**   This routine will cleanup any Oracle
connection should the module
**   be unexpectedly unloaded.
*/

  int oldtgid;

  oldtgid = SetThreadGroupID(samtgid);  /*
switch to this NLM's thread group */
  OraClientExit(samtid);               /* cleanup
Oracle connection    */
  SetThreadGroupID(oldtgid);           /* reset the
thread group       */

#else /* ORA_NW */

  return;              /* do nothing for everything else
*/

#endif /* ORA_NW */
}



::::::::::::::::::::::::::::::::
 lib/gettime.c
::::::::::::::::::::::::::::::::

#ifdef RCSID
static char *RCSid =
   "$Header: gettime.c 7030100.1 96/05/21
15:31:36 plai Generic<base> $ Copyr (c) 1993
Oracle";
#endif /* RCSID */

/*===================================
================================+
 |       Copyright (c) 1996  Oracle Corp,
Redwood Shores, CA       |
 |                 OPEN SYSTEMS
PERFORMANCE GROUP                |
 |                      All Rights Reserved
|

+===================================
=============================+

 |
 | FILENAME
 |  gettime.c
 |
 | ROUTINES
 |  gettime
 |  getcpu
 | DESCRIPTION
 |  get wall clock time.
 |  get cpu time.
 | NOTES
 |  Both routines return time in seconds as a
double.

+===================================
=============================*/
/*
**  Options:
**     TIME_W_TIMES:      implement gettime()
with times().
**     TIME_W_GETTIME:    implement gettime()
with gettimeofday().
**     CPU_W_TIMES:       implement getcpu()
with times().
**     CPU_W_GETRU:       implement getcpu()
with getrusage().
**     GETRU_STATS:       collect getrusage
statistics
**     GET_P_STATS:       collect
get_process_stats statistics
*/

#if defined(sequent) || defined(SEQ_PSX)
# define GET_P_STATS
#endif /* sequent */

#if defined(aix) || defined(AIXRIOS)
# define TIME_W_GETTIME
# define CPU_W_TIMES
# define GETRU_STATS
#endif /* AIXRIOS */

#if defined(a_osf) || defined(A_OSF)
# define TIME_W_GETTIME
# define CPU_W_GETRU
# define GETRU_STATS
#endif /* AIXRIOS */

#if !defined(TIME_W_GETTIME)
&& !defined(TIME_W_TIMES)
# define TIME_W_TIMES
#endif

#if !defined(CPU_W_GETRU)
&& !defined(CPU_W_TIMES)
# define CPU_W_TIMES
#endif

#ifdef GET_P_STATS
# ifdef GETRU_STATS
#  undef GETRU_STATS
# endif
#endif

#if defined(TIME_W_GETTIME) ||
defined(CPU_W_GETRU) ||
defined(GETRU_STATS)
# include <sys/time.h>
#endif /* TIME_W_GETTIME || CPU_W_GETRU
|| GETRU_STATS */

#if defined(CPU_W_GETRU) ||
defined(GETRU_STATS)
# include <sys/resource.h>
#endif /* CPU_W_GETRU || GETRU_STATS */

#if defined(TIME_W_TIMES) || defined
(CPU_W_TIMES)
# include <sys/types.h>
# include <sys/times.h>
# include <sys/param.h>  /* most systems define
HZ here */
#if !defined(_SC_CLK_TCK)
```

```
# include <unistd.h>
#endif
#endif /* TIME_W_TIMES or CPU_W_TIMES */

#ifdef GET_P_STATS
# include <sys/types.h>
# include <sys/procstats.h>
#endif /* GET_P_STATS */

# include <stdio.h>

#ifdef GETRU_STATS
struct rusage selfru;
struct rusage kidsru;
#endif /* GETRU_STATS */

#ifdef GET_P_STATS
struct process_stats selfru;
struct process_stats kidsru;
#endif /* GET_P_STATS */



void getwait(clock_t secs)
{
  printf("sleep = %lu\n", (secs/1000) / HZ);
  printf("hz = %lu\n", HZ);
  sleep((secs/1000) / HZ);
}

clock_t getetime()
{
   struct tms buf;

   return ((times (&buf) / HZ)*10000);
}

double gettime ()

{

#ifdef TIME_W_GETTIME
   struct timeval tv;

   (void) gettimeofday (&tv, (struct timezone *) 0);
   return ((double) tv.tv_sec + (1.0e-6 * (double)
tv.tv_usec));
#endif /* TIME_W_GETTIME */

#ifdef TIME_W_TIMES
   struct tms buf;

   return ((double) times (&buf) / HZ);
#endif /* TIME_W_TIMES */

}



double getcpu ()

{

#ifdef CPU_W_TIMES
   struct tms buf;

   (void) times (&buf);
   return (((double) buf.tms_utime + (double)
buf.tms_stime) / HZ);
#endif /* CPU_W_TIMES */

#ifdef CPU_W_GETRU
   struct rusage ru;
   double usecs;

   (void) getrusage (0, &ru);
   usecs = 1.0e-6 * (double) (ru.ru_utime.tv_usec
+ ru.ru_stime.tv_usec);
   return ((double) (ru.ru_utime.tv_sec +
ru.ru_stime.tv_sec) + usecs);
#endif /* CPU_W_GETRU */

}



getru (fp, kids, config, runname, proc_no)

FILE *fp;
int kids;
char *config;
char *runname;
int proc_no;

{

#ifdef GETRU_STATS
   struct rusage ru;

   fprintf (fp, "%-10.10s %-10.10s %10d %10d ",
config,runname, proc_no, kids);
   getrusage (kids ? RUSAGE_CHILDREN :
RUSAGE_SELF, &ru);
   print_ru (fp, &ru);
   fprintf (fp, "\n");
#endif /* GETRU_STATS */

#ifdef GET_P_STATS
   timeval_t tv;
   struct process_stats ru;

   fprintf (fp, "%-10.10s %-10.10s %10d %10d ",
config,runname, proc_no, kids);
   if (kids)
      get_process_stats (&tv, PS_SELF, (struct
process_stats *) 0, &ru);
   else
      get_process_stats (&tv, PS_SELF, &ru,
(struct process_stats *) 0);
   print_ru (fp, &ru);
   fprintf (fp, "\n");
#endif /* GET_P_STATS */

}



getru1 (kids)

int kids;

{

#ifdef GETRU_STATS
   if (kids) {
      memset (&kidsru, 0, sizeof (kidsru));
      getrusage (RUSAGE_CHILDREN, &kidsru);
   }
   else {
      memset (&selfru, 0, sizeof (selfru));
      getrusage (RUSAGE_SELF, &selfru);
   }
#endif /* GETRU_STATS */

#ifdef GET_P_STATS
   timeval_t tv;

   if (kids) {
      memset (&kidsru, 0, sizeof (kidsru));
      get_process_stats (&tv, PS_SELF, (struct
process_stats *) 0, &kidsru);
   }
   else {
      memset (&selfru, 0, sizeof (selfru));
      get_process_stats (&tv, PS_SELF, &selfru,
(struct process_stats *) 0);
   }
#endif /* GET_P_STATS */

}



getru2 (fp, kids, config, runname, proc_no)

FILE *fp;
int kids;
char *config;
char *runname;
int proc_no;

{

#ifdef GETRU_STATS
   struct rusage ru;

   fprintf (fp, "%-10.10s %-10.10s %10d %10d ",
config, runname, proc_no, kids);
   getrusage (kids ? RUSAGE_CHILDREN :
RUSAGE_SELF, &ru);
   if (kids)
      diffru (&ru, &kidsru);
   else
      diffru (&ru, &selfru);
   print_ru (fp, &ru);
   fprintf (fp, "\n");
#endif /* GETRU_STATS */

#ifdef GET_P_STATS
   timeval_t tv;
   struct process_stats ru;

   fprintf (fp, "%-10.10s %-10.10s %10d %10d ",
config, runname, proc_no, kids);
   if (kids)
      get_process_stats (&tv, PS_SELF, (struct
process_stats *) 0, &ru);
   else
      get_process_stats (&tv, PS_SELF, &ru,
(struct process_stats *) 0);
   if (kids)
      diffru (&ru, &kidsru);
   else
      diffru (&ru, &selfru);
   print_ru (fp, &ru);
   fprintf (fp, "\n");
#endif /* GET_P_STATS */

}



#ifdef GETRU_STATS

print_ru (fp, ru)

FILE *fp;
struct rusage *ru;

{

   fprintf (fp, "%10ld ", ru->ru_utime.tv_sec * 1000
+
                    (ru->ru_utime.tv_usec/1000));
   fprintf (fp, "%10ld ", ru->ru_stime.tv_sec * 1000
+
                    (ru->ru_stime.tv_usec/1000));
   fprintf (fp, "%10ld ", ru->ru_maxrss);
   fprintf (fp, "%10ld ", ru->ru_majflt);
   fprintf (fp, "%10ld ", ru->ru_minflt);
   fprintf (fp, "%10ld ", 0);
   fprintf (fp, "%10ld ", 0);
   fprintf (fp, "%10ld ", 0);
   fprintf (fp, "%10ld ", ru->ru_nswap);
   fprintf (fp, "%10ld ", 0);
   fprintf (fp, "%10ld ", ru->ru_nvcsw);
   fprintf (fp, "%10ld ", ru->ru_nivcsw);
   fprintf (fp, "%10ld ", ru->ru_nsignals);
   fprintf (fp, "%10ld ", 0);
   fprintf (fp, "%10ld ", 0);
   fprintf (fp, "%10ld ", ru->ru_inblock);
   fprintf (fp, "%10ld ", ru->ru_oublock);
   fprintf (fp, "%10ld ", 0);
   fprintf (fp, "%10ld",  0);

}



diffru (ru2, ru)

struct rusage *ru2;
struct rusage *ru;

{

   ru2->ru_utime.tv_sec -= ru->ru_utime.tv_sec;
   ru2->ru_utime.tv_usec -= ru-
>ru_utime.tv_usec;
   ru2->ru_stime.tv_sec -= ru->ru_stime.tv_sec;
   ru2->ru_stime.tv_usec -= ru-
>ru_stime.tv_usec;
   ru2->ru_maxrss -= ru->ru_maxrss;
   ru2->ru_ixrss -= ru->ru_ixrss;
   ru2->ru_idrss -= ru->ru_idrss;
   ru2->ru_minflt -= ru->ru_minflt;
   ru2->ru_majflt -= ru->ru_majflt;
   ru2->ru_nswap -= ru->ru_nswap;
   ru2->ru_inblock -= ru->ru_inblock;
   ru2->ru_oublock -= ru->ru_oublock;
   ru2->ru_msgsnd -= ru->ru_msgsnd;
   ru2->ru_msgrcv -= ru->ru_msgrcv;
   ru2->ru_nsignals -= ru->ru_nsignals;
   ru2->ru_nvcsw -= ru->ru_nvcsw;
   ru2->ru_nivcsw -= ru->ru_nivcsw;

}

#endif /* GETRU_STATS */



#ifdef GET_P_STATS

print_ru (fp, ps)

FILE *fp;
struct process_stats *ps;

{

   fprintf (fp, "%lu ", ps->ps_utime.tv_sec * 1000
+
                   (ps->ps_utime.tv_usec/1000));
   fprintf (fp, "%lu ", ps->ps_stime.tv_sec * 1000
+
                    (ps->ps_stime.tv_usec/1000));
   fprintf (fp, "%lu ", ps->ps_maxrss);
   fprintf (fp, "%lu ", ps->ps_pagein);
   fprintf (fp, "%lu ", ps->ps_reclaim);
   fprintf (fp, "%lu ", ps->ps_zerofill);
   fprintf (fp, "%lu ", ps->ps_pffincr);
   fprintf (fp, "%lu ", ps->ps_pffdecr);
   fprintf (fp, "%lu ", ps->ps_swap);
   fprintf (fp, "%lu ", ps->ps_syscall);
   fprintf (fp, "%lu ", ps->ps_volcsw);
   fprintf (fp, "%lu ", ps->ps_involcsw);
   fprintf (fp, "%lu ", ps->ps_signal);
   fprintf (fp, "%lu ", ps->ps_lread);
   fprintf (fp, "%lu ", ps->ps_lwrite);
   fprintf (fp, "%lu ", ps->ps_bread);
   fprintf (fp, "%lu ", ps->ps_bwrite);
   fprintf (fp, "%lu ", ps->ps_phread);
   fprintf (fp, "%lu",  ps->ps_phwrite);

}



diffru (ru2, ru)

struct process_stats *ru2;
struct process_stats *ru;

{

   ru2->ps_utime.tv_sec -= ru->ps_utime.tv_sec;
   ru2->ps_utime.tv_usec -= ru-
>ps_utime.tv_usec;
   ru2->ps_stime.tv_sec -= ru->ps_stime.tv_sec;
   ru2->ps_stime.tv_usec -= ru-
>ps_stime.tv_usec;
   ru2->ps_maxrss -= ru->ps_maxrss;
   ru2->ps_pagein -= ru->ps_pagein;
   ru2->ps_reclaim -= ru->ps_reclaim;
   ru2->ps_zerofill -= ru->ps_zerofill;
   ru2->ps_pffincr -= ru->ps_pffincr;
   ru2->ps_pffdecr -= ru->ps_pffdecr;
   ru2->ps_swap -= ru->ps_swap;
   ru2->ps_syscall -= ru->ps_syscall;
   ru2->ps_volcsw -= ru->ps_volcsw;
   ru2->ps_involcsw -= ru->ps_involcsw;
   ru2->ps_signal -= ru->ps_signal;
   ru2->ps_lread -= ru->ps_lread;
   ru2->ps_lwrite -= ru->ps_lwrite;
   ru2->ps_bread -= ru->ps_bread;
   ru2->ps_bwrite -= ru->ps_bwrite;
   ru2->ps_phread -= ru->ps_phread;
   ru2->ps_phwrite -= ru->ps_phwrite;

}

#endif /* GET_P_STATS */


::::::::::::::::::::::::::::::::
 lib/tstetime.c
::::::::::::::::::::::::::::::::

#include <windows.h>
#include <sys\types.h>
#include <time.h>

clock_t dpbetime();

main()
{

   clock_t begin, middle, end;

   begin = dpbetime();
   Sleep(2000);
   middle = dpbetime();
   Sleep(2000);
   end = dpbetime();
   printf(" begin = %lu\n middle = %lu\n end
= %lu\n",begin,middle,end);
}



::::::::::::::::::::::::::::::::
 loadcust.sh
::::::::::::::::::::::::::::::::

#created automatically by /home/oracle/tpcc-
kit/scripts/evenload.sh Tue Oct 3 14:52:49 JST
2006
rm -f loadcust*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 112000 -C  -l 1 -m 93 >>
loadcust0.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 94 -m 186 >>
loadcust1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 187 -m 279 >>
loadcust2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 280 -m 372 >>
loadcust3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 373 -m 465 >>
loadcust4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 466 -m 558 >>
loadcust5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 559 -m 651 >>
loadcust6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 652 -m 744 >>
loadcust7.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 745 -m 838 >>
loadcust8.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 839 -m 932 >>
loadcust9.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 933 -m 1026 >>
loadcust10.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1027 -m 1120 >>
loadcust11.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1121 -m 1214 >>
loadcust12.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1215 -m 1308 >>
loadcust13.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1309 -m 1402 >>
loadcust14.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1403 -m 1496 >>
loadcust15.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1497 -m 1590 >>
loadcust16.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1591 -m 1684 >>
loadcust17.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1685 -m 1778 >>
loadcust18.log 2>&1 &
allprocs="$allprocs ${!}"
```

```
$tpcc_load -M 112000 -C  -l 1779 -m 1872 >>
loadcust19.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1873 -m 1966 >>
loadcust20.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 1967 -m 2060 >>
loadcust21.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2061 -m 2154 >>
loadcust22.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2155 -m 2248 >>
loadcust23.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2249 -m 2342 >>
loadcust24.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2343 -m 2436 >>
loadcust25.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2437 -m 2530 >>
loadcust26.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2531 -m 2624 >>
loadcust27.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2625 -m 2718 >>
loadcust28.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2719 -m 2812 >>
loadcust29.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2813 -m 2906 >>
loadcust30.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -C  -l 2907 -m 3000 >>
loadcust31.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
  wait $curproc
  error=`expr $? + $error`
done
exit `expr $error != 0`


::::::::::::::::::::::::::::::::
 loadcust2.sh
::::::::::::::::::::::::::::::::

#created automatically by /home/oracle/tpcc-
kit/scripts/evenload.sh Fri Nov 18 01:58:38 JST
2005
rm -f loadcust*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 68000 -C  -l 47 -m 92 >>
loadcust1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 68000 -C  -l 93 -m 138 >>
loadcust2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 68000 -C  -l 139 -m 184 >>
loadcust3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 68000 -C  -l 185 -m 230 >>
loadcust4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 68000 -C  -l 231 -m 276 >>
loadcust5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 68000 -C  -l 277 -m 322 >>
loadcust6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 68000 -C  -l 323 -m 368 >>
loadcust7.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 68000 -C  -l 369 -m 415 >>
loadcust8.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 68000 -C  -l 416 -m 462 >>
loadcust9.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 68000 -C  -l 463 -m 509 >>
loadcust10.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
  wait $curproc
  error=`expr $? + $error`
done
exit `expr $error != 0`


::::::::::::::::::::::::::::::::
 loaddist.sh
::::::::::::::::::::::::::::::::

cd $tpcc_bench
$tpcc_load -M $tpcc_scale -d > loaddist.log
2>&1


::::::::::::::::::::::::::::::::
 loadhist.sh
::::::::::::::::::::::::::::::::

#created automatically by /home/oracle/tpcc-
kit/scripts/evenload.sh Tue Oct 3 14:52:48 JST
2006
rm -f loadhist*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 112000 -h  -b 1 -e 3500 >>
loadhist0.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 3501 -e 7000 >>
loadhist1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 7001 -e 10500 >>
loadhist2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 10501 -e 14000 >>
loadhist3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 14001 -e 17500 >>
loadhist4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 17501 -e 21000 >>
loadhist5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 21001 -e 24500 >>
loadhist6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 24501 -e 28000 >>
loadhist7.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 28001 -e 31500 >>
loadhist8.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 31501 -e 35000 >>
loadhist9.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 35001 -e 38500 >>
loadhist10.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 38501 -e 42000 >>
loadhist11.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 42001 -e 45500 >>
loadhist12.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 45501 -e 49000 >>
loadhist13.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 49001 -e 52500 >>
loadhist14.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 52501 -e 56000 >>
loadhist15.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 56001 -e 59500 >>
loadhist16.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 59501 -e 63000 >>
loadhist17.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 63001 -e 66500 >>
loadhist18.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 66501 -e 70000 >>
loadhist19.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 70001 -e 73500 >>
loadhist20.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 73501 -e 77000 >>
loadhist21.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 77001 -e 80500 >>
loadhist22.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 80501 -e 84000 >>
loadhist23.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 84001 -e 87500 >>
loadhist24.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 87501 -e 91000 >>
loadhist25.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 91001 -e 94500 >>
loadhist26.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 94501 -e 98000 >>
loadhist27.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 98001 -e 101500
>> loadhist28.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 101501 -e 105000
>> loadhist29.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 105001 -e 108500
>> loadhist30.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -h  -b 108501 -e 112000
>> loadhist31.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
  wait $curproc
  error=`expr $? + $error`
done
exit `expr $error != 0`


::::::::::::::::::::::::::::::::
 loaditem.sh
::::::::::::::::::::::::::::::::

cd $tpcc_bench
$tpcc_load -M $tpcc_scale -i > loaditem.log
2>&1
```

```
::::::::::::::::::::::::::::::::
 loadnord.sh
::::::::::::::::::::::::::::::::

#created automatically by /home/oracle/tpcc-
kit/scripts/evenload.sh Tue Oct 3 14:52:48 JST
2006
rm -f loadnord*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 112000 -n  -b 1 -e 3500 >>
loadnord0.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 3501 -e 7000 >>
loadnord1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 7001 -e 10500 >>
loadnord2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 10501 -e 14000 >>
loadnord3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 14001 -e 17500 >>
loadnord4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 17501 -e 21000 >>
loadnord5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 21001 -e 24500 >>
loadnord6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 24501 -e 28000 >>
loadnord7.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 28001 -e 31500 >>
loadnord8.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 31501 -e 35000 >>
loadnord9.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 35001 -e 38500 >>
loadnord10.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 38501 -e 42000 >>
loadnord11.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 42001 -e 45500 >>
loadnord12.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 45501 -e 49000 >>
loadnord13.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 49001 -e 52500 >>
loadnord14.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 52501 -e 56000 >>
loadnord15.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 56001 -e 59500 >>
loadnord16.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 59501 -e 63000 >>
loadnord17.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 63001 -e 66500 >>
loadnord18.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 66501 -e 70000 >>
loadnord19.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 70001 -e 73500 >>
loadnord20.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 73501 -e 77000 >>
loadnord21.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 77001 -e 80500 >>
loadnord22.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 80501 -e 84000 >>
loadnord23.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 84001 -e 87500 >>
loadnord24.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 87501 -e 91000 >>
loadnord25.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 91001 -e 94500 >>
loadnord26.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 94501 -e 98000 >>
loadnord27.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 98001 -e 101500
>> loadnord28.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 101501 -e 105000
>> loadnord29.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 105001 -e 108500
>> loadnord30.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -n  -b 108501 -e 112000
>> loadnord31.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
  wait $curproc
  error=`expr $? + $error`
done
exit `expr $error != 0`


::::::::::::::::::::::::::::::::
 loadordrordl.sh
::::::::::::::::::::::::::::::::

#created automatically by /home/oracle/tpcc-
kit/scripts/evenload.sh Tue Oct 3 14:52:49 JST
2006
rm -f loadordrordl*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy0.dat -b 1 -e 3500
>> loadordrordl0.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy1.dat -b 3501 -e
7000 >> loadordrordl1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy2.dat -b 7001 -e
10500 >> loadordrordl2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy3.dat -b 10501 -e
14000 >> loadordrordl3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy4.dat -b 14001 -e
17500 >> loadordrordl4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy5.dat -b 17501 -e
21000 >> loadordrordl5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy6.dat -b 21001 -e
24500 >> loadordrordl6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy7.dat -b 24501 -e
28000 >> loadordrordl7.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy8.dat -b 28001 -e
31500 >> loadordrordl8.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy9.dat -b 31501 -e
35000 >> loadordrordl9.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy10.dat -b 35001 -e
38500 >> loadordrordl10.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy11.dat -b 38501 -e
42000 >> loadordrordl11.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy12.dat -b 42001 -e
45500 >> loadordrordl12.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy13.dat -b 45501 -e
49000 >> loadordrordl13.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy14.dat -b 49001 -e
52500 >> loadordrordl14.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy15.dat -b 52501 -e
56000 >> loadordrordl15.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy16.dat -b 56001 -e
59500 >> loadordrordl16.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy17.dat -b 59501 -e
63000 >> loadordrordl17.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy18.dat -b 63001 -e
66500 >> loadordrordl18.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy19.dat -b 66501 -e
70000 >> loadordrordl19.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy20.dat -b 70001 -e
73500 >> loadordrordl20.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy21.dat -b 73501 -e
77000 >> loadordrordl21.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy22.dat -b 77001 -e
80500 >> loadordrordl22.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy23.dat -b 80501 -e
84000 >> loadordrordl23.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o
${tpcc_disks_location}dummy24.dat -b 84001 -e
87500 >> loadordrordl24.log 2>&1 &
```

```
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o ${tpcc_disks_location}dummy25.dat -b 87501 -e 91000 >> loadordrordl25.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o ${tpcc_disks_location}dummy26.dat -b 91001 -e 94500 >> loadordrordl26.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o ${tpcc_disks_location}dummy27.dat -b 94501 -e 98000 >> loadordrordl27.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o ${tpcc_disks_location}dummy28.dat -b 98001 -e 101500 >> loadordrordl28.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o ${tpcc_disks_location}dummy29.dat -b 101501 -e 105000 >> loadordrordl29.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o ${tpcc_disks_location}dummy30.dat -b 105001 -e 108500 >> loadordrordl30.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -o ${tpcc_disks_location}dummy31.dat -b 108501 -e 112000 >> loadordrordl31.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
  wait $curproc
  error=`expr $? + $error`
done
exit `expr $error != 0`
```

```
::::::::::::::::::::::::::::::::::
 loadstok.sh
::::::::::::::::::::::::::::::::::

#created automatically by /home/oracle/tpcc-kit/scripts/evenload.sh Tue Oct 3 14:52:50 JST 2006
rm -f loadstok*.log
cd $tpcc_bench
allprocs=
$tpcc_load -M 112000 -S  -j 1 -k 3125 >> loadstok0.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 3126 -k 6250 >> loadstok1.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 6251 -k 9375 >> loadstok2.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 9376 -k 12500 >> loadstok3.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 12501 -k 15625 >> loadstok4.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 15626 -k 18750 >> loadstok5.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 18751 -k 21875 >> loadstok6.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 21876 -k 25000 >> loadstok7.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 25001 -k 28125 >> loadstok8.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 28126 -k 31250 >> loadstok9.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 31251 -k 34375 >> loadstok10.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 34376 -k 37500 >> loadstok11.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 37501 -k 40625 >> loadstok12.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 40626 -k 43750 >> loadstok13.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 43751 -k 46875 >> loadstok14.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 46876 -k 50000 >> loadstok15.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 50001 -k 53125 >> loadstok16.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 53126 -k 56250 >> loadstok17.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 56251 -k 59375 >> loadstok18.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 59376 -k 62500 >> loadstok19.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 62501 -k 65625 >> loadstok20.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 65626 -k 68750 >> loadstok21.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 68751 -k 71875 >> loadstok22.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 71876 -k 75000 >> loadstok23.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 75001 -k 78125 >> loadstok24.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 78126 -k 81250 >> loadstok25.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 81251 -k 84375 >> loadstok26.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 84376 -k 87500 >> loadstok27.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 87501 -k 90625 >> loadstok28.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 90626 -k 93750 >> loadstok29.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 93751 -k 96875 >> loadstok30.log 2>&1 &
allprocs="$allprocs ${!}"
$tpcc_load -M 112000 -S  -j 96876 -k 100000 >> loadstok31.log 2>&1 &
allprocs="$allprocs ${!}"
error=0
for curproc in $allprocs; do
  wait $curproc
  error=`expr $? + $error`
done
exit `expr $error != 0`
```

```
::::::::::::::::::::::::::::::::::
 loadware.sh
::::::::::::::::::::::::::::::::::

cd $tpcc_bench
$tpcc_load -M $tpcc_scale -w > loadware.log 2>&1
```

```
::::::::::::::::::::::::::::::::::
 p_build.ora
::::::::::::::::::::::::::::::::::


compatible = 10.1.0.0.0
db_name = tpcc
control_files = (/ora_dev/control_001,/ora_dev/control_002)
parallel_max_servers = 100
recovery_parallelism = 40
db_files = 2026
db_cache_size   = 85333M
db_8k_cache_size  = 32000M
db_16k_cache_size  = 85333M
dml_locks = 500
statistics_level = basic
log_buffer = 1048576
processes = 400
sessions = 400
transactions = 400
shared_pool_size = 16000M
cursor_space_for_time = TRUE
db_block_size = 2048
undo_management = auto
undo_retention = 2
plsql_optimize_level=2

UNDO_TABLESPACE = undo_1
db_4k_cache_size = 20M
```

```
::::::::::::::::::::::::::::::::::
 p_create.ora
::::::::::::::::::::::::::::::::::

compatible = 10.1.0.0.0
db_name = tpcc
control_files = (/ora_dev/control_001, /ora_dev/control_002)
db_block_size = 2048
db_cache_size = 85333M
db_8k_cache_size = 32000M
log_buffer = 1048576
db_16k_cache_size = 85333M
undo_management = manual
statistics_level = basic
shared_pool_size = 16000M
plsql_optimize_level=2
db_4k_cache_size = 20M
```

```
::::::::::::::::::::::::::::::::::
 shutdowndb.sh
::::::::::::::::::::::::::::::::::

#!/bin/sh

echo "Shutting down database..."

$tpcc_sqlplus $tpcc_sqlplus_args << !
$tpcc_internal_connect

spool shutdowndb.log;
```

```
set echo on;

alter system switch logfile;
alter system switch logfile;

shutdown immediate;

set echo off;
spool off;

exit
!


::::::::::::::::::::::::::::::::::
 startupdb.sh
::::::::::::::::::::::::::::::::::

#!/bin/sh

echo "Starting up database using $1..."

init_file=${1}.ora

if test $tpcc_np -gt 1 ; then
  init_file=build_init_${tpcc_rac_id}.ora
fi

$tpcc_sqlplus $tpcc_sqlplus_args << !
$tpcc_internal_connect

spool startdb.log

set echo on

startup pfile=$init_file open

spool off
set echo off
exit sql.sqlcode
!


::::::::::::::::::::::::::::::::::
 tpccload.c
::::::::::::::::::::::::::::::::::

#ifdef RCSID
static char *RCSid =
   "$Header: tpccload.c 7030100.1 96/05/13
16:20:36 plai Generic<base> $ Copyr (c) 1993
Oracle";
#endif /* RCSID */

/*===================================
==============================+
 |       Copyright (c) 1994  Oracle Corp,
Redwood Shores, CA      |
 |                  OPEN SYSTEMS
PERFORMANCE GROUP               |
 |                      All Rights Reserved
|

+===================================
=============================+
 | FILENAME
 |    tpccload.c
 | DESCRIPTION
 |    Load or generate TPC-C database tables.
 |    Usage: tpccload -M <# of wares> [options]
 |            options: -A  load all tables
 |                     -w  load ware table
 |                     -d  load dist table
 |                  -c  load cust table (cluster around
c_w_id)
 |                  -C  load cust table (cluster
around c_id)
 |                  -i  load item table
 |                  -s  load stok table (cluster around
s_w_id)
 |                  -S  load stok table (cluster
around s_i_id)
 |                  -h  load hist table
 |                  -n  load new-order table
 |                  -o <oline file> load order and
order-line table
 |                  -b <ware#>  beginning ware
number
 |                  -e <ware#>  ending ware number
 |                  -j <item#>  beginning item
number (with -S)
 |                  -k <item#>  ending item number
(with -S)
 |                  -l <cid#>  beginning cid number
(with -C)
 |                  -m <cid#>  ending cid number
(with -C)
 |                  -g  generate rows to standard
output

+===================================
==============================*/


#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <time.h>
#include <sys/types.h>
#include "tpcc.h"

#ifdef ORA_NT
#undef boolean
#include <process.h>
#include "dpbcore.h"
#define gettime dpbtimef
#define getcpu  dpbcpu
#define lrand48() ((long)rand() <<15 | rand())
#ifdef __STDC__
#  define PROTO(args)    args
#else
#  define PROTO(args)    ()
#endif
#endif

#define DISTARR 10      /* dist insert array size
*/
#define CUSTARR 100     /* cust insert array
size   */
#define STOCARR 100     /* stok insert array
size   */
#define ITEMARR 100     /* item insert array size
*/
#define HISTARR 100             /* hist insert array
size    */
#define ORDEARR 100             /* order insert
array size      */
#define NEWOARR 100             /* new order
insert array size  */

#define DISTFAC 10      /* max. dist id */
#define CUSTFAC 3000        /* max. cust id */
#define STOCFAC 100000      /* max. stok id */
#define ITEMFAC 100000      /* max. item id     */
#define HISTFAC 30000           /* history /
warehouse  */
#define ORDEFAC 3000            /* order / district
*/
#define NEWOFAC 900             /* new order /
district */

#define C       0               /* constant in non-
uniform dist. eqt. */
#define CNUM1   1               /* first constant in
non-uniform dist. eqt. */
#define CNUM2   2               /* second constant
in non-uniform dist. eqt. */
#define CNUM3   3               /* third constant in
non-uniform dist. eqt. */

#define SEED    2               /* seed for random
functions */

#define NOT_SERIALIZABLE  8177  /* ORA-
08177: transaction not serializable */
#define SNAPSHOT_TOO_OLD  1555  /* ORA-
01555: snapshot too old */
#define RECOVERR -10
#define IRRECERR -20

#define SQLTXTW "INSERT INTO ware (w_id,
w_ytd, w_tax, w_name, w_street_1, w_street_2,
w_city, w_state, w_zip) VALUES (:w_id,
30000000, :w_tax, :w_name, :w_street_1, \
   :w_street_2, :w_city, :w_state, :w_zip)"

#define SQLTXTD "INSERT INTO dist (d_id,
d_w_id, d_ytd, d_tax, d_next_o_id, d_name,
d_street_1, d_street_2, d_city, d_state, d_zip)
VALUES (:d_id, :d_w_id,3000000, :d_tax, \

3001, :d_name, :d_street_1, :d_street_2, :d_city,
 :d_state, :d_zip)"

#define SQLTXTCQUERY "select /*+ HASH
( cust ) */ count(*) from cust where c_w_id
= :s_c_w_id and c_d_id = :s_c_d_id and c_id
= :s_c_id"

#define SQLTXTC "INSERT INTO cust (C_ID,
C_D_ID, C_W_ID, C_FIRST, C_MIDDLE,
C_LAST, C_STREET_1, C_STREET_2,
C_CITY, C_STATE, C_ZIP, C_PHONE,
C_SINCE, C_CREDIT, C_CREDIT_LIM,
C_DISCOUNT, C_BALANCE,
C_YTD_PAYMENT, C_PAYMENT_CNT,
C_DELIVERY_CNT, C_DATA) VALUES
(:c_id, :c_d_id, :c_w_id, \
   :c_first,
'OE', :c_last, :c_street_1, :c_street_2, :c_city, :c_
state, \
   :c_zip, :c_phone, SYSDATE, :c_credit,
5000000, :c_discount, -1000, 1000, 1, \
   0, :c_data)"

#define SQLTXTH "INSERT INTO hist (h_c_id,
h_c_d_id, h_c_w_id, h_d_id, h_w_id, h_date,
h_amount, h_data) VALUES
(:h_c_id, :h_c_d_id, :h_c_w_id, \
   :h_d_id, :h_w_id, SYSDATE, 1000, :h_data)"

#define SQLTXTSQUERY "select /*+ HASH
( stok ) */ count(*) from stok where s_w_id
= :s_s_w_id and s_i_id = :s_s_i_id "

#define SQLTXTS "INSERT INTO stok (s_i_id,
s_w_id, s_quantity,s_dist_01, s_dist_02,
s_dist_03, s_dist_04, s_dist_05 , s_dist_06,
s_dist_07, s_dist_08, s_dist_09, s_dist_10,
s_ytd, s_order_cnt, s_remote_cnt, s_data) \
VALUES (:s_i_id, :s_w_id, :s_quantity, \
   :s_dist_01, :s_dist_02, :s_dist_03, :s_dist_04, :
s_dist_05, :s_dist_06, \
   :s_dist_07, :s_dist_08, :s_dist_09, :s_dist_10,
0, 0, 0, :s_data)" \

#define SQLTXTI "INSERT INTO item
(I_ID,I_IM_ID,I_NAME,I_PRICE,I_DATA)
VALUES (:i_id, :i_im_id, :i_name, :i_price, \
   :i_data)"

#define SQLTXTO1 "INSERT INTO ordr (O_ID,
O_D_ID,O_W_ID,O_C_ID,O_ENTRY_D,O_CAR
RIER_ID,O_OL_CNT,O_ALL_LOCAL) \
   VALUES (:o_id, :o_d_id, :o_w_id, :o_c_id, \
   SYSDATE, :o_carrier_id, :o_ol_cnt, 1)"

#define SQLTXTO2 "INSERT INTO ordr (O_ID,
O_D_ID,O_W_ID,O_C_ID,O_ENTRY_D,O_CAR
RIER_ID,O_OL_CNT,O_ALL_LOCAL) \
   VALUES (:o_id, :o_d_id, :o_w_id, :o_c_id, \
   SYSDATE, 11, :o_ol_cnt, 1)"

#define SQLTXTOL1 "INSERT INTO ordl
(OL_O_ID, OL_D_ID, OL_W_ID, OL_NUMBER,
OL_DELIVERY_D, OL_I_ID,
OL_SUPPLY_W_ID, OL_QUANTITY,
OL_AMOUNT, OL_DIST_INFO) \
   VALUES (:ol_o_id, :ol_d_id, \
   :ol_w_id, :ol_number,
SYSDATE, :ol_i_id, :ol_supply_w_id, 5, 0, \
   :ol_dist_info)"

#define SQLTXTOL2 "INSERT INTO ordl
(OL_O_ID, OL_D_ID, OL_W_ID, OL_NUMBER,
OL_DELIVERY_D, OL_I_ID,
OL_SUPPLY_W_ID, OL_QUANTITY,
OL_AMOUNT, OL_DIST_INFO) \
   VALUES (:ol_o_id, :ol_d_id, \
   :ol_w_id, :ol_number, to_date('01-Jan-
1811'), :ol_i_id, :ol_supply_w_id, 5, :ol_amount, \
   :ol_dist_info)"

#define SQLTXTNO "INSERT INTO nord
(no_o_id, no_d_id, no_w_id) VALUES
(:no_o_id, :no_d_id, :no_w_id)"

#define SQLTXTENHA "alter session set
\"_enable_hash_overflow\"=true"
#define SQLTXTDIHA "alter session set
\"_enable_hash_overflow\"=false"

static char *lastname[] = {
   "BAR",
   "OUGHT",
   "ABLE",
   "PRI",
   "PRES",
   "ESE",
   "ANTI",
   "CALLY",
   "ATION",
   "EING"
};

char num9[10];
char num16[17];
char str2[3];
char str24[15][25];
int randperm3000[3000];

void initperm();
void randstr();
void randdatastr();
void randnum();
void randlastname (char*, int);
int NURand();
void sysdate();

OCIEnv *tpcenv;
OCIServer *tpcsrv;
OCIError *errhp;
OCISvcCtx *tpcsvc;
OCISession *tpcusr;

OCIStmt *curw;
OCIStmt *curd;
OCIStmt *curc;
OCIStmt *curcs;
OCIStmt *curh;
OCIStmt *curs;
OCIStmt *curss;
OCIStmt *curi;
OCIStmt *curo1;
OCIStmt *curo2;
OCIStmt *curol1;
OCIStmt *curol2;
OCIStmt *curno;

OCIBind *w_id_bp = (OCIBind *) 0;
OCIBind *w_name_bp = (OCIBind *) 0;
OCIBind *w_street1_bp = (OCIBind *) 0;
OCIBind *w_street2_bp = (OCIBind *) 0;
OCIBind *w_city_bp = (OCIBind *) 0;
OCIBind *w_state_bp = (OCIBind *) 0;
OCIBind *w_zip_bp = (OCIBind *) 0;
OCIBind *w_tax_bp = (OCIBind *) 0;

OCIBind *d_id_bp = (OCIBind *) 0;
OCIBind *d_w_id_bp = (OCIBind *) 0;
OCIBind *d_name_bp = (OCIBind *) 0;
OCIBind *d_street1_bp = (OCIBind *) 0;
OCIBind *d_street2_bp = (OCIBind *) 0;
OCIBind *d_city_bp = (OCIBind *) 0;
OCIBind *d_state_bp = (OCIBind *) 0;
OCIBind *d_zip_bp = (OCIBind *) 0;
OCIBind *d_tax_bp = (OCIBind *) 0;

OCIDefine *s_c_ret_bp = (OCIDefine *) 0;
OCIBind *s_c_id_bp = (OCIBind *) 0;
OCIBind *s_c_d_id_bp = (OCIBind *) 0;
OCIBind *s_c_w_id_bp = (OCIBind *) 0;

OCIBind *c_id_bp = (OCIBind *) 0;
OCIBind *c_d_id_bp = (OCIBind *) 0;
OCIBind *c_w_id_bp = (OCIBind *) 0;
OCIBind *c_first_bp = (OCIBind *) 0;
OCIBind *c_last_bp = (OCIBind *) 0;
OCIBind *c_street1_bp = (OCIBind *) 0;
OCIBind *c_street2_bp = (OCIBind *) 0;
OCIBind *c_city_bp = (OCIBind *) 0;
OCIBind *c_state_bp = (OCIBind *) 0;
OCIBind *c_zip_bp = (OCIBind *) 0;
OCIBind *c_phone_bp = (OCIBind *) 0;
OCIBind *c_discount_bp = (OCIBind *) 0;
OCIBind *c_credit_bp = (OCIBind *) 0;
OCIBind *c_data_bp = (OCIBind *) 0;

OCIBind *i_id_bp = (OCIBind *) 0;
OCIBind *i_im_id_bp = (OCIBind *) 0;
OCIBind *i_name_bp = (OCIBind *) 0;
OCIBind *i_price_bp = (OCIBind *) 0;
OCIBind *i_data_bp = (OCIBind *) 0;

OCIDefine *s_s_ret_bp = (OCIDefine *) 0;
OCIBind *s_s_i_id_bp = (OCIBind *) 0;
OCIBind *s_s_w_id_bp = (OCIBind *) 0;

OCIBind *s_i_id_bp = (OCIBind *) 0;
OCIBind *s_w_id_bp = (OCIBind *) 0;
OCIBind *s_quantity_bp = (OCIBind *) 0;
OCIBind *s_dist_01_bp = (OCIBind *) 0;
OCIBind *s_dist_02_bp = (OCIBind *) 0;
OCIBind *s_dist_03_bp = (OCIBind *) 0;
OCIBind *s_dist_04_bp = (OCIBind *) 0;
OCIBind *s_dist_05_bp = (OCIBind *) 0;
OCIBind *s_dist_06_bp = (OCIBind *) 0;
OCIBind *s_dist_07_bp = (OCIBind *) 0;
OCIBind *s_dist_08_bp = (OCIBind *) 0;
OCIBind *s_dist_09_bp = (OCIBind *) 0;
OCIBind *s_dist_10_bp = (OCIBind *) 0;
OCIBind *s_data_bp = (OCIBind *) 0;

OCIBind *h_c_id_bp = (OCIBind *) 0;
OCIBind *h_c_d_id_bp = (OCIBind *) 0;
OCIBind *h_c_w_id_bp = (OCIBind *) 0;
OCIBind *h_d_id_bp = (OCIBind *) 0;
OCIBind *h_w_id_bp = (OCIBind *) 0;
OCIBind *h_data_bp = (OCIBind *) 0;

OCIBind *ol_o_id_bp = (OCIBind *) 0;
OCIBind *ol_d_id_bp = (OCIBind *) 0;
OCIBind *ol_w_id_bp = (OCIBind *) 0;
OCIBind *ol_i_id_bp = (OCIBind *) 0;
OCIBind *ol_number_bp = (OCIBind *) 0;
OCIBind *ol_supply_w_id_bp = (OCIBind *) 0;
OCIBind *ol_dist_info_bp = (OCIBind *) 0;
OCIBind *ol_amount_bp = (OCIBind *) 0;

OCIBind *o_id_bp = (OCIBind *) 0;
OCIBind *o_d_id_bp = (OCIBind *) 0;
OCIBind *o_w_id_bp = (OCIBind *) 0;
OCIBind *o_c_id_bp = (OCIBind *) 0;
OCIBind *o_carrier_id_bp = (OCIBind *) 0;
OCIBind *o_ol_cnt_bp  = (OCIBind *) 0;
OCIBind *o_ocnt_bp = (OCIBind *) 0;
OCIBind *o_olcnt_bp  = (OCIBind *) 0;


OCIBind *no_o_id_bp  = (OCIBind *) 0;
OCIBind *no_d_id_bp  = (OCIBind *) 0;
OCIBind *no_w_id_bp  = (OCIBind *) 0;

void myusage()
{
   fprintf (stderr, "\n");
   fprintf (stderr, "Usage:\ttpccload -M
<multiplier> [options]\n");
   fprintf (stderr, "options:\n");
   fprintf (stderr, "\t-A :\tload all tables\n");
   fprintf (stderr, "\t-w :\tload ware table\n");
   fprintf (stderr, "\t-d :\tload dist table\n");
   fprintf (stderr, "\t-c :\tload cust table (cluster
around c_w_id\n");
   fprintf (stderr, "\t-C :\tload cust table (cluster
around c_id\n");
   fprintf (stderr, "\t-i :\tload item table\n");
   fprintf (stderr, "\t-s :\tload stok table (cluster
around s_w_id)\n");
   fprintf (stderr, "\t-S :\tload stok table (cluster
around s_i_id)\n");
   fprintf (stderr, "\t-h :\tload hist table\n");
   fprintf (stderr, "\t-n :\tload new-order table\n");
   fprintf (stderr, "\t-o <oline file> :\tload order and
order-line table\n");
   fprintf (stderr, "\t-b <ware#> :\tbeginning ware
number\n");
   fprintf (stderr, "\t-e <ware#> :\tending ware
number\n");
   fprintf (stderr, "\t-j <item#> :\tbeginning item
number (with -S)\n");
   fprintf (stderr, "\t-k <item#> :\tending item
number (with -S)\n");
   fprintf (stderr, "\t-l <cid#> :\tbeginning cid
number (with -C)\n");
   fprintf (stderr, "\t-m <cid#> :\tending cid
number (with -C)\n");
```

```
  fprintf (stderr, "\t-g :\tgenerate rows to standard
output\n");
  fprintf (stderr,"\t   $tpcc_bench must be set to
the location of the kit\n");
  fprintf (stderr, "\n");
  exit(1);
}

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

   sprintf(realfile,"%s",fnam);
   fd = fopen(realfile,"r");
   if (!fd)
   {
     return (0);
   }
   while (fgets((char *)linebuf+nulpt,
SQL_BUF_SIZE, fd))
   {
      nulpt = strlen((char *)linebuf);
   }
   return(nulpt);
}

void quit()
{
  OCIERROR(errhp,OCISessionEnd
( tpcsvc,errhp, tpcusr, OCI_DEFAULT));
  OCIERROR(errhp,OCIServerDetach ( tpcsrv,
errhp, OCI_DEFAULT));
  OCIHandleFree((dvoid *)tpcusr,
OCI_HTYPE_SESSION);
  OCIHandleFree((dvoid *)tpcsvc,
OCI_HTYPE_SVCCTX);
  OCIHandleFree((dvoid *)errhp,
OCI_HTYPE_ERROR);
  OCIHandleFree((dvoid *)tpcsrv,
OCI_HTYPE_SERVER);
  OCIHandleFree((dvoid *)tpcenv,
OCI_HTYPE_ENV);
}

void main (argc, argv)
int argc;
char *argv[];
{
  char *uid="tpcc";
  char *pwd="tpcc";
  int scale=0;
  int i, j;
  int loop;
  int loopcount;
  int cid;
  int dwid;
  int cdid;
  int cwid;
  int sid;
  int swid;
  int olcnt;
  int nrows;
  int row;

  int w_id;
  char w_name[11];
  char w_street_1[21];
  char w_street_2[21];
  char w_city[21];
  char w_state[2];
  char w_zip[9];
  float w_tax;

  int d_id[10];
  int d_w_id[10];
  char d_name[10][11];
  char d_street_1[10][21];
  char d_street_2[10][21];
  char d_city[10][21];
  char d_state[10][2];
  char d_zip[10][9];
  float d_tax[10];

  int s_c_id;
  int s_c_d_id;
  int s_c_w_id;
  int s_c_count;

  int c_id[100];
  int c_d_id[100];
  int c_w_id[100];
  char c_first[100][17];
  char c_last[100][17];
  char c_street_1[100][21];
  char c_street_2[100][21];
  char c_city[100][21];
  char c_state[100][2];
  char c_zip[100][9];
  char c_phone[100][16];
  char c_credit[100][2];
  float c_discount[100];
  char c_data[100][501];

  int i_id[100];
  int i_im_id[100];
  int i_price[100];
  char i_name[100][25];
  char i_data[100][51];

  int s_s_count;
  int s_s_i_id;
  int s_s_w_id;

  int s_i_id[100];
  int s_w_id[100];
  int s_quantity[100];
  char s_dist_01[100][25];
  char s_dist_02[100][25];
  char s_dist_03[100][25];
  char s_dist_04[100][25];
  char s_dist_05[100][25];
  char s_dist_06[100][25];
  char s_dist_07[100][25];
  char s_dist_08[100][25];
  char s_dist_09[100][25];
  char s_dist_10[100][25];
  char s_data[100][51];

  int h_w_id[100];
  int h_d_id[100];
  int h_c_id[100];
  char h_data[100][25];

  int o_id[100];
  int o_d_id[100];
  int o_w_id[100];
  int o_c_id[100];
  int o_carrier_id[100];
  int o_ol_cnt[100];

  int ol_o_id[1500];
  int ol_d_id[1500];
  int ol_w_id[1500];
  int ol_number[1500];
  int ol_i_id[1500];
  int ol_supply_w_id[1500];
  int ol_amount[1500];
  char ol_dist_info[1500][24];
  int o_cnt;
  int ol_cnt;

  ub2 ol_o_id_len[1500];
  ub2 ol_d_id_len[1500];
  ub2 ol_w_id_len[1500];
  ub2 ol_number_len[1500];
  ub2 ol_i_id_len[1500];
  ub2 ol_supply_w_id_len[1500];
  ub2 ol_dist_info_len[1500];
  ub2 ol_amount_len[1500];

  ub4 ol_o_id_clen;
  ub4 ol_d_id_clen;
  ub4 ol_w_id_clen;
  ub4 ol_number_clen;
  ub4 ol_i_id_clen;
  ub4 ol_supply_w_id_clen;
  ub4 ol_dist_info_clen;
  ub4 ol_amount_clen;

  ub2 o_id_len[100];
  ub2 o_d_id_len[100];
  ub2 o_w_id_len[100];
  ub2 o_c_id_len[100];
  ub2 o_carrier_id_len[100];
  ub2 o_ol_cnt_len[100];

  ub4 o_id_clen;
  ub4 o_d_id_clen;
  ub4 o_w_id_clen;
  ub4 o_c_id_clen;
  ub4 o_carrier_id_clen;
  ub4 o_ol_cnt_clen;

  text stmbuf[16*1024];

  int no_o_id[100];
  int no_d_id[100];
  int no_w_id[100];

  char sdate[30];

#ifdef ORA_NT
  clock_t begin_time, end_time;
  clock_t begin_cpu, end_cpu;

  char *arg_ptr,  **end_args;
#else
  double begin_time, end_time;
  double begin_cpu, end_cpu;
  double gettime(), getcpu();

  extern int getopt();
  extern char *optarg;
  extern int optind, opterr;
  int opt;
#endif

  char *argstr="M:AwdcCisShno:b:e:j:k:l:m:g";
  int do_A=0;
  int do_w=0;
  int do_d=0;
  int do_i=0;
  int do_c=0;
  int do_C=0;
  int do_s=0;
  int do_S=0;
  int do_h=0;
  int do_o=0;
  int do_n=0;
  int gen=0;
  int bware=1;
  int eware=0;
  int bitem=1;
  int eitem=0;
  int bcid=1;
  int ecid=0;

  FILE *olfp=NULL;
  char olfname[100];
  char* basename;
  int status;
#ifdef ORA_NT
  char fname[100];
  FILE *logfile;
#endif /* ORA_NT */

/*--------------------------------------------------------------+
 | Parse command line -- look for scale factor.
|
 +---------------------------------------------------------------
*/

  if (argc == 1) {
    myusage ();
  }

#ifdef ORA_NT
  end_args = argv + argc;
  for (++argv; argv < end_args; )
  {
    arg_ptr = *argv++;

       if (*arg_ptr != '-')
       {
         myusage ();
       } else
       {
      switch (arg_ptr[1]) {
       case '?': myusage ();
              break;
       case 'M': scale = atoi (*argv++);
              break;
       case 'A': do_A = 1;
              break;
       case 'w': do_w = 1;
              break;
       case 'd': do_d = 1;
              break;
       case 'c': do_c = 1;
              break;
       case 'C': do_C = 1;
              break;
       case 'i': do_i = 1;
              break;
       case 's': do_s = 1;
              break;
       case 'S': do_S = 1;
              break;
       case 'h': do_h = 1;
              break;
       case 'n': do_n = 1;
              break;
       case 'o': do_o = 1;
              strcpy (olfname, *argv++);
              break;
       case 'b': bware = atoi (*argv++);
              break;
       case 'e': eware = atoi (*argv++);
              break;
       case 'j': bitem = atoi (*argv++);
              break;
       case 'k': eitem = atoi (*argv++);
              break;
       case 'l': bcid = atoi (*argv++);
              break;
       case 'm': ecid = atoi (*argv++);
              break;
       case 'g': gen = 1;
              strcpy (fname, *argv++);
              break;
       case 'l': logfile=fopen(*argv++,"w");
              break;
       default: fprintf (stderr, "THIS SHOULD
NEVER HAPPEN!!!\n");
             fprintf (stderr, "(reached default case
in getopt ())\n");
             myusage ();
      }
        }
  }


#else

  while ((opt = getopt (argc, argv, argstr)) != -1) {
    switch (opt) {
      case '?': myusage ();
             break;
      case 'M': scale = atoi (optarg);
             break;
      case 'A': do_A = 1;
             break;
      case 'w': do_w = 1;
             break;
      case 'd': do_d = 1;
             break;
      case 'c': do_c = 1;
             break;
      case 'C': do_C = 1;
             break;
      case 'i': do_i = 1;
             break;
      case 's': do_s = 1;
             break;
      case 'S': do_S = 1;
             break;
      case 'h': do_h = 1;
             break;
      case 'n': do_n = 1;
             break;
      case 'o': do_o = 1;
             strcpy (olfname, optarg);
             break;
      case 'b': bware = atoi (optarg);
             break;
      case 'e': eware = atoi (optarg);
             break;
      case 'j': bitem = atoi (optarg);
             break;
      case 'k': eitem = atoi (optarg);
             break;
      case 'l': bcid = atoi (optarg);
             break;
      case 'm': ecid = atoi (optarg);
             break;
      case 'g': gen = 1;
             break;
      default: fprintf (stderr, "THIS SHOULD
NEVER HAPPEN!!!\n");
            fprintf (stderr, "(reached default case
in getopt ())\n");
            myusage ();
    }
  }

# endif /* ORA_NT */

/*--------------------------------------------------------------*|
|   Rudimentary error checking              |
|*--------------------------------------------------------------*/

  if (scale  < 1) {
    fprintf (stderr, "Invalid scale factor: '%d'\n",
scale);
    myusage ();
  }

  if (!(do_A || do_w || do_d || do_c || do_C || do_i
|| do_s || do_S || do_h || do_o ||
      do_n)) {
    fprintf (stderr, "What should I load???\n");
    myusage ();
  }

  if (gen && (do_A || (do_w + do_d + do_c +
do_C + do_i + do_s + do_S + do_h + do_o +
                do_n > 1))) {
    fprintf (stderr, "Can only generate table one
at a time\n");
    myusage ();
  }

  if (do_S && (do_A || do_s)) {
    fprintf (stderr, "Cluster stock table around
s_w_id or s_i_id?\n");
    myusage ();
  }

  if (do_C && (do_A || do_c)) {
    fprintf (stderr, "Cluster cust table around
c_w_id or c_id?\n");
    myusage ();
  }

  if (eware <= 0)
    eware = scale;
  if (ecid <= 0)
    ecid = CUSTFAC;
  if (eitem <= 0)
    eitem = STOCFAC;

  if (do_C) {
    if ((bcid  < 1) || (bcid > CUSTFAC)) {
      fprintf (stderr, "Invalid beginning cid
number: '%d'\n", bcid);
      myusage ();
    }

    if ((ecid  < bcid) || (ecid > CUSTFAC)) {
      fprintf (stderr, "Invalid ending cid number:
'%d'\n", ecid);
      myusage ();
    }
  }
  if (do_S) {
    if ((bitem  < 1) || (bitem > STOCFAC)) {
      fprintf (stderr, "Invalid beginning item
number: '%d'\n", bitem);
      myusage ();
    }

    if ((eitem  < bitem) || (eitem > STOCFAC)) {
      fprintf (stderr, "Invalid ending item number:
'%d'\n", eitem);
      myusage ();
    }
  }
  if (do_o) {
    if ((basename = getenv ("tpcc_bench")) ==
NULL)
    {
      fprintf (stderr, "$tpcc_bench is not set");
      myusage ();
    }
  }
  if ((bware  < 1) || (bware > scale)) {
    fprintf (stderr, "Invalid beginning warehouse
number: '%d'\n", bware);
    myusage ();
  }

  if ((eware  < bware) || (eware > scale)) {
    fprintf (stderr, "Invalid ending warehouse
number: '%d'\n", eware);
    myusage ();
  }

  if (gen && do_o) {
    if ((olfp = fopen (olfname, "w")) == NULL) {
      fprintf (stderr, "Can't open '%s' for writing
order lines\n", olfname);
      myusage ();
    }


  }

/*-------------------------------------------------------------+
 | Prepare to insert into database.           |
 +-------------------------------------------------------------
*/

  sysdate (sdate);
  if (!gen) {

    /* log on to Oracle */


OCIInitialize(OCI_DEFAULT|OCI_OBJECT,(dvoi
d *)0,0,0,0);
    OCIEnvInit(&tpcenv, OCI_DEFAULT, 0,
(dvoid **)0);
    OCIHandleAlloc((dvoid *)tpcenv, (dvoid
**)&tpcsrv, OCI_HTYPE_SERVER, 0 , (dvoid
**)0);
    OCIHandleAlloc((dvoid *)tpcenv, (dvoid
**)&errhp, OCI_HTYPE_ERROR, 0 , (dvoid
**)0);
    OCIHandleAlloc((dvoid *)tpcenv, (dvoid
**)&tpcsvc, OCI_HTYPE_SVCCTX, 0 , (dvoid
**)0);
    OCIServerAttach(tpcsrv, errhp, (text
*)0,0,OCI_DEFAULT);
    OCIAttrSet((dvoid *)tpcsvc,
OCI_HTYPE_SVCCTX, (dvoid *)tpcsrv,
            (ub4)0,OCI_ATTR_SERVER, errhp);
    OCIHandleAlloc((dvoid *)tpcenv, (dvoid
**)&tpcusr, OCI_HTYPE_SESSION, 0 , (dvoid
**)0);
    OCIAttrSet((dvoid *)tpcusr,
OCI_HTYPE_SESSION, (dvoid *)uid,

(ub4)strlen(uid),OCI_ATTR_USERNAME,
errhp);
    OCIAttrSet((dvoid *)tpcusr,
OCI_HTYPE_SESSION, (dvoid *)pwd,
(ub4)strlen(pwd),
         OCI_ATTR_PASSWORD, errhp);
    OCIERROR(errhp, OCISessionBegin(tpcsvc,
errhp, tpcusr, OCI_CRED_RDBMS,
OCI_DEFAULT));

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

    fprintf (stderr, "\nConnected to Oracle userid
'%s/%s'.\n", uid, pwd);

    /* open cursors and parse statement */
    if (do_A || do_w)  {

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curw), OCI_HTYPE_STMT, 0,
(dvoid**)0));
      OCIERROR(errhp,OCIStmtPrepare(curw,
errhp, (text *)SQLTXTW,
              strlen((char *)SQLTXTW), (ub4)
OCI_NTV_SYNTAX, (ub4) OCI_DEFAULT));
    }

    if (do_A || do_d) {

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curd), OCI_HTYPE_STMT, 0,
(dvoid**)0));
      OCIERROR(errhp,OCIStmtPrepare(curd,
errhp, (text *)SQLTXTD,
              strlen((char *)SQLTXTD), (ub4)
OCI_NTV_SYNTAX, (ub4) OCI_DEFAULT));
    }

    if (do_A || do_c || do_C) {

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curc), OCI_HTYPE_STMT, 0, (dvoid**)0));
      OCIERROR(errhp,OCIStmtPrepare(curc,
errhp, (text *)SQLTXTC,
              strlen((char *)SQLTXTC), (ub4)
OCI_NTV_SYNTAX, (ub4) OCI_DEFAULT));

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curcs), OCI_HTYPE_STMT, 0,
(dvoid**)0));
      OCIERROR(errhp,OCIStmtPrepare(curcs,
errhp, (text *)SQLTXTCQUERY,
              strlen((char *)SQLTXTCQUERY),
(ub4) OCI_NTV_SYNTAX, (ub4)
OCI_DEFAULT));
    }

    if (do_A || do_h) {

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curh), OCI_HTYPE_STMT, 0,
(dvoid**)0));
      OCIERROR(errhp,OCIStmtPrepare(curh,
errhp, (text *)SQLTXTH,
              strlen((char *)SQLTXTH), (ub4)
OCI_NTV_SYNTAX, (ub4) OCI_DEFAULT));
    }

    if (do_A || do_s || do_S) {

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curs), OCI_HTYPE_STMT, 0, (dvoid**)0));
      OCIERROR(errhp,OCIStmtPrepare(curs,
errhp, (text *)SQLTXTS,
              strlen((char *)SQLTXTS), (ub4)
OCI_NTV_SYNTAX, (ub4) OCI_DEFAULT));

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curss), OCI_HTYPE_STMT, 0,
(dvoid**)0));
      OCIERROR(errhp,OCIStmtPrepare(curss,
errhp, (text *)SQLTXTSQUERY,
              strlen((char *)SQLTXTSQUERY),
(ub4) OCI_NTV_SYNTAX, (ub4)
OCI_DEFAULT));
    }

    if (do_A || do_i) {

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curi), OCI_HTYPE_STMT, 0, (dvoid**)0));
      OCIERROR(errhp,OCIStmtPrepare(curi,
errhp, (text *)SQLTXTI,
              strlen((char *)SQLTXTI), (ub4)
OCI_NTV_SYNTAX, (ub4) OCI_DEFAULT));
    }

    if (do_A || do_o) {
      int stat;
      char fname[160];

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curo1), OCI_HTYPE_STMT, 0,
(dvoid**)0));
      DISCARD strcpy(fname,basename);
      DISCARD strcat(fname, "/");
      DISCARD strcat(fname,
"benchrun/blocks/load_ordordl.sql");
      stat = sqlfile(fname, stmbuf);
      if (!stat)
      {
        fprintf (stderr, "unable to open %s
\n",fname);
        quit();
        exit(1);
      }
      OCIERROR(errhp,OCIStmtPrepare(curo1,
errhp, stmbuf,
              strlen((char *)stmbuf), (ub4)
OCI_NTV_SYNTAX, (ub4) OCI_DEFAULT));
    }

    if (do_A || do_n) {

OCIERROR(errhp,OCIHandleAlloc(tpcenv,(dvoi
d **)(&curno), OCI_HTYPE_STMT, 0,
(dvoid**)0));
      OCIERROR(errhp,OCIStmtPrepare(curno,
errhp, (text *)SQLTXTNO,
              strlen((char *)SQLTXTNO), (ub4)
OCI_NTV_SYNTAX, (ub4) OCI_DEFAULT));
    }

    /* bind variables */

    /* warehouse */

    if (do_A || do_w) {
      OCIERROR(errhp, OCIBindByName(curw,
&w_id_bp, errhp, (text *)(":w_id"),
strlen((":w_id")),
              (ub1 *)&(w_id), sizeof(w_id),
SQLT_INT, (dvoid *) 0, (ub2 *)0, (ub2 *)0,
              (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curw,
&w_name_bp, errhp,(text *)":w_name",
strlen(":w_name"),
              (ub1 *)w_name, 11, SQLT_STR,
(dvoid *) 0, (ub2 *)0, (ub2 *)0,
              (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curw,
&w_street1_bp, errhp, (text *)":w_street_1",
          strlen(":w_street_1"), (ub1 *)w_street_1,
21, SQLT_STR,
          (dvoid *) 0, (ub2 *)0, (ub2 *)0,
              (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curw,
&w_street2_bp, errhp, (text *)":w_street_2",
          strlen(":w_street_2"), (ub1 *)w_street_2,
21, SQLT_STR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curw,
&w_city_bp, errhp, (text *)":w_city",
            strlen(":w_city"), (ub1 *)w_city, 21,
SQLT_STR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curw,
&w_state_bp, errhp, (text *)":w_state",
            strlen(":w_state"), (ub1 *)w_state, 2,
SQLT_CHR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curw,
&w_zip_bp, errhp, (text *)":w_zip",
            strlen(":w_zip"), (ub1 *)w_zip, 9,
SQLT_CHR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curw,
&w_tax_bp, errhp, (text *)":w_tax",
            strlen(":w_tax"), (ub1 *) & w_tax,
sizeof(w_tax), SQLT_FLT,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));
      }

      /* district */

      if (do_A || do_d) {
        OCIERROR(errhp, OCIBindByName(curd,
&d_id_bp, errhp, (text *)":d_id",
            strlen(":d_id"), (ub1 *)d_id, sizeof(int),
SQLT_INT,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curd,
&d_w_id_bp, errhp, (text *)":d_w_id",
            strlen(":d_w_id"), (ub1 *)d_w_id,
sizeof(int), SQLT_INT,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curd,
&d_name_bp, errhp, (text *)":d_name",
            strlen(":d_name"), (ub1 *)d_name, 11,
SQLT_STR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curd,
&d_street1_bp, errhp, (text *)":d_street_1",
            strlen(":d_street_1"), (ub1 *)d_street_1,
21, SQLT_STR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curd,
&d_street2_bp, errhp, (text *)":d_street_2",
            strlen(":d_street_2"), (ub1 *)d_street_2,
21, SQLT_STR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curd,
&d_city_bp, errhp, (text *)":d_city",
            strlen(":d_city"), (ub1 *)d_city, 21,
SQLT_STR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curd,
&d_state_bp, errhp, (text *)":d_state",
                  strlen(":d_state"), (ub1 *)d_state, 2,
SQLT_CHR,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curd,
&d_zip_bp, errhp, (text *)":d_zip",
                  strlen(":d_zip"), (ub1 *)d_zip, 9,
SQLT_CHR,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curd,
&d_tax_bp, errhp, (text *)":d_tax",
                  strlen(":d_tax"), (ub1 *)d_tax,
sizeof(float), SQLT_FLT,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));
      }

      /* customer */

      if (do_A || do_c || do_C) {
        OCIERROR(errhp,  OCIBindByName(curcs,
&s_c_id_bp, errhp, (text *)":s_c_id",
                  strlen(":s_c_id"), (ub1 *)&s_c_id,
sizeof(int), SQLT_INT,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp,  OCIBindByName(curcs,
&s_c_w_id_bp, errhp, (text *)":s_c_w_id",
                  strlen(":s_c_w_id"), (ub1
*)&s_c_w_id, sizeof(int), SQLT_INT,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp,  OCIBindByName(curcs,
&s_c_d_id_bp, errhp, (text *)":s_c_d_id",
                  strlen(":s_c_d_id"), (ub1
*)&s_c_d_id, sizeof(int), SQLT_INT,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


OCIDefineByPos(curcs,&s_c_ret_bp,errhp,1,&s_
c_count,sizeof(int),SQLT_INT,\
                  0,0,0,OCI_DEFAULT);

        OCIERROR(errhp, OCIBindByName(curc,
&c_id_bp, errhp, (text *)":c_id",
                  strlen(":c_id"), (ub1 *)c_id,
sizeof(int), SQLT_INT,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_d_id_bp, errhp, (text *)":c_d_id",
                  strlen(":c_d_id"), (ub1 *)c_d_id,
sizeof(int), SQLT_INT,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_w_id_bp, errhp, (text *)":c_w_id",
                  strlen(":c_w_id"), (ub1 *)c_w_id,
sizeof(int), SQLT_INT,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_first_bp, errhp, (text *)":c_first",
            strlen(":c_first"), (ub1 *)c_first, 17,
SQLT_STR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_last_bp, errhp, (text *)":c_last",
            strlen(":c_last"), (ub1 *)c_last, 17,
SQLT_STR,
            (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_street1_bp, errhp, (text *)":c_street_1",
                  strlen(":c_street_1"), (ub1
*)c_street_1, 21, SQLT_STR,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_street2_bp, errhp, (text *)":c_street_2",
                  strlen(":c_street_2"), (ub1
*)c_street_2, 21, SQLT_STR,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_city_bp, errhp, (text *)":c_city",
                  strlen(":c_city"), (ub1 *)c_city, 21,
SQLT_STR,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_state_bp, errhp, (text *)":c_state",
                  strlen(":c_state"), (ub1 *)c_state, 2,
SQLT_CHR,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_zip_bp, errhp, (text *)":c_zip",
                  strlen(":c_zip"), (ub1 *)c_zip, 9,
SQLT_CHR,
                  (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                  (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));
```

```
        OCIERROR(errhp, OCIBindByName(curc,
&c_phone_bp, errhp, (text *)":c_phone",
                 strlen(":c_phone"), (ub1 *)c_phone,
16, SQLT_CHR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_credit_bp, errhp, (text *)":c_credit",
                 strlen(":c_credit"), (ub1 *)c_credit,
2, SQLT_CHR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_discount_bp, errhp, (text *)":c_discount",
                 strlen(":c_discount"), (ub1
*)c_discount, sizeof(float), SQLT_FLT,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curc,
&c_data_bp, errhp, (text *)":c_data",
                 strlen(":c_data"), (ub1 *)c_data,
501, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));
     }

     /* item */

     if (do_A || do_i) {
        OCIERROR(errhp, OCIBindByName(curi,
&i_id_bp, errhp, (text *)":i_id",
                 strlen(":i_id"), (ub1 *)i_id, sizeof(int),
SQLT_INT,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curi,
&i_im_id_bp, errhp, (text *)":i_im_id",
                 strlen(":i_im_id"), (ub1 *)i_im_id,
sizeof(int), SQLT_INT,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curi,
&i_name_bp, errhp, (text *)":i_name",
                 strlen(":i_name"), (ub1 *)i_name,
25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curi,
&i_price_bp, errhp, (text *)":i_price",
                 strlen(":i_price"), (ub1 *)i_price,
sizeof(int), SQLT_INT,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curi,
&i_data_bp, errhp, (text *)":i_data",
                 strlen(":i_data"), (ub1 *)i_data, 51,
SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
```

```
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));
     }

     /* stock */

     if (do_A || do_s || do_S) {
        OCIERROR(errhp,  OCIBindByName(curss,
&s_s_i_id_bp, errhp, (text *)":s_s_i_id",
                 strlen(":s_s_i_id"), (ub1
*)&s_s_i_id, sizeof(int), SQLT_INT,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp,  OCIBindByName(curss,
&s_s_w_id_bp, errhp, (text *)":s_s_w_id",
                 strlen(":s_s_w_id"), (ub1
*)&s_s_w_id, sizeof(int), SQLT_INT,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

OCIDefineByPos(curss,&s_s_ret_bp,errhp,1,&s_
s_count,sizeof(int),SQLT_INT,\
                 0,0,0,OCI_DEFAULT);

        OCIERROR(errhp, OCIBindByName(curs,
&s_i_id_bp, errhp, (text *)":s_i_id",
                 strlen(":s_i_id"), (ub1 *)s_i_id,
sizeof(int), SQLT_INT,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curs,
&s_w_id_bp, errhp, (text *)":s_w_id",
                 strlen(":s_w_id"), (ub1 *)s_w_id,
sizeof(int), SQLT_INT,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curs,
&s_quantity_bp, errhp, (text *)":s_quantity",
                 strlen(":s_quantity"), (ub1
*)s_quantity, sizeof(int), SQLT_INT,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_01_bp, errhp, (text *)":s_dist_01",
                 strlen(":s_dist_01"), (ub1
*)s_dist_01, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_02_bp, errhp, (text *)":s_dist_02",
                 strlen(":s_dist_02"), (ub1
*)s_dist_02, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_03_bp, errhp, (text *)":s_dist_03",
                 strlen(":s_dist_03"), (ub1
*)s_dist_03, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
```

```
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_04_bp, errhp, (text *)":s_dist_04",
                 strlen(":s_dist_04"), (ub1
*)s_dist_04, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_05_bp, errhp, (text *)":s_dist_05",
                 strlen(":s_dist_05"), (ub1
*)s_dist_05, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_06_bp, errhp, (text *)":s_dist_06",
                 strlen(":s_dist_06"), (ub1
*)s_dist_06, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_07_bp, errhp, (text *)":s_dist_07",
                 strlen(":s_dist_07"), (ub1
*)s_dist_07, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_08_bp, errhp, (text *)":s_dist_08",
                 strlen(":s_dist_08"), (ub1
*)s_dist_08, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_09_bp, errhp, (text *)":s_dist_09",
                 strlen(":s_dist_09"), (ub1
*)s_dist_09, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));


        OCIERROR(errhp, OCIBindByName(curs,
&s_dist_10_bp, errhp, (text *)":s_dist_10",
                 strlen(":s_dist_10"), (ub1
*)s_dist_10, 25, SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

        OCIERROR(errhp, OCIBindByName(curs,
&s_data_bp, errhp, (text *)":s_data",
                 strlen(":s_data"), (ub1 *)s_data, 51,
SQLT_STR,
                 (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                 (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));
     }
```

```
    /* history */

    if (do_A || do_h) {
      OCIERROR(errhp, OCIBindByName(curh,
&h_c_id_bp, errhp, (text *)":h_c_id",
               strlen(":h_c_id"), (ub1 *)h_c_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)0, (ub2 *)0,
               (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curh,
&h_c_d_id_bp, errhp, (text *)":h_c_d_id",
               strlen(":h_c_d_id"), (ub1 *)h_d_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)0, (ub2 *)0,
               (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curh,
&h_c_w_id_bp, errhp, (text *)":h_c_w_id",
               strlen(":h_c_w_id"), (ub1 *)h_w_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)0, (ub2 *)0,
               (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curh,
&h_d_id_bp, errhp, (text *)":h_d_id",
               strlen(":h_d_id"), (ub1 *)h_d_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)0, (ub2 *)0,
               (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curh,
&h_w_id_bp, errhp, (text *)":h_w_id",
               strlen(":h_w_id"), (ub1 *)h_w_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)0, (ub2 *)0,
               (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curh,
&h_data_bp, errhp, (text *)":h_data",
               strlen(":h_data"), (ub1 *)h_data, 25,
SQLT_STR,
               (dvoid *) 0, (ub2 *)0, (ub2 *)0,
               (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

    }

    /* order and order_line (delivered) */

    if (do_A || do_o) {

      for (i = 0; i < ORDEARR; i++ ) {
        o_id_len[i] = sizeof(int);
        o_d_id_len[i] = sizeof(int);
        o_w_id_len[i] = sizeof(int);
        o_c_id_len[i] = sizeof(int);
        o_carrier_id_len[i] = sizeof(int);
        o_ol_cnt_len[i] = sizeof(int);
      }

      OCIERROR(errhp, OCIBindByName(curo1,
&ol_o_id_bp, errhp, (text *)":ol_o_id",
               strlen(":ol_o_id"), (ub1 *)ol_o_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)ol_o_id_len,
(ub2 *)0,
               (ub4) 15*ORDEARR, (ub4
*)&ol_o_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&ol_d_id_bp, errhp, (text *)":ol_d_id",
               strlen(":ol_d_id"), (ub1 *)ol_d_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)ol_d_id_len,
(ub2 *)0,
               (ub4) 15*ORDEARR, (ub4 *)
&ol_d_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&ol_w_id_bp, errhp, (text *)":ol_w_id",
               strlen(":ol_w_id"), (ub1 *)ol_w_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)ol_w_id_len,
(ub2 *)0,
               (ub4) 15*ORDEARR, (ub4 *)
&ol_w_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&ol_number_bp, errhp, (text *)":ol_number",
               strlen(":ol_number"), (ub1
*)ol_number, sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)ol_number_len,
(ub2 *)0,
               (ub4) 15*ORDEARR, (ub4 *)
&ol_number_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&ol_i_id_bp, errhp, (text *)":ol_i_id",
               strlen(":ol_i_id"), (ub1 *)ol_i_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)ol_i_id_len, (ub2
*)0,
               (ub4) 15*ORDEARR, (ub4 *)
&ol_i_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&ol_supply_w_id_bp, errhp, (text
*)":ol_supply_w_id",
               strlen(":ol_supply_w_id"), (ub1
*)ol_supply_w_id, sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2
*)ol_supply_w_id_len, (ub2 *)0,
               (ub4) 15*ORDEARR, (ub4 *)
&ol_supply_w_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&ol_dist_info_bp, errhp, (text *)":ol_dist_info",
               strlen(":ol_dist_info"), (ub1
*)ol_dist_info, 24, SQLT_CHR,
               (dvoid *) 0, (ub2 *)ol_dist_info_len,
(ub2 *)0,
               (ub4) 15*ORDEARR, (ub4 *)
&ol_dist_info_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&ol_amount_bp, errhp, (text *)":ol_amount",
               strlen(":ol_amount"), (ub1
*)ol_amount, sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)ol_amount_len,
(ub2 *)0,
               (ub4) 15*ORDEARR, (ub4 *)
&ol_amount_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&o_id_bp, errhp, (text *)":o_id",
               strlen(":o_id"), (ub1 *)o_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)o_id_len, (ub2
*)0,
               (ub4) ORDEARR, (ub4 *)
&o_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&o_d_id_bp, errhp, (text *)":o_d_id",
               strlen(":o_d_id"), (ub1 *)o_d_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)o_d_id_len, (ub2
*)0,
               (ub4) ORDEARR, (ub4 *)
&o_d_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&o_w_id_bp, errhp, (text *)":o_w_id",
               strlen(":o_w_id"), (ub1 *)o_w_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)o_w_id_len,
(ub2 *)0,
               (ub4) ORDEARR, (ub4 *)
&o_w_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&o_c_id_bp, errhp, (text *)":o_c_id",
               strlen(":o_c_id"), (ub1 *)o_c_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)o_c_id_len, (ub2
*)0,
               (ub4) ORDEARR, (ub4 *)
&o_c_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&o_carrier_id_bp, errhp, (text *)":o_carrier_id",
               strlen(":o_carrier_id"), (ub1
*)o_carrier_id, sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)o_carrier_id_len,
(ub2 *)0,
               (ub4) ORDEARR, (ub4 *)
&o_carrier_id_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&o_ol_cnt_bp, errhp, (text *)":o_ol_cnt",
               strlen(":o_ol_cnt"), (ub1 *)o_ol_cnt,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)o_ol_cnt_len,
(ub2 *)0,
               (ub4) ORDEARR, (ub4 *)
&o_ol_cnt_clen, (ub4) OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&o_ocnt_bp, errhp, (text *)":order_rows",
               strlen(":order_rows"), (ub1
*)&o_cnt, sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)0, (ub2 *)0,
               (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curo1,
&o_olcnt_bp, errhp, (text *)":ordl_rows",
               strlen(":ordl_rows"), (ub1 *)&ol_cnt,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)0, (ub2 *)0,
               (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));
    }

    /* new order */

    if (do_A || do_n) {
      OCIERROR(errhp, OCIBindByName(curno,
&no_o_id_bp, errhp, (text *)":no_o_id",
               strlen(":no_o_id"), (ub1 *)no_o_id,
sizeof(int), SQLT_INT,
               (dvoid *) 0, (ub2 *)0, (ub2 *)0,
               (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curno,
&no_d_id_bp, errhp, (text *)":no_d_id",
               strlen(":no_d_id"), (ub1 *)no_d_id,
sizeof(int), SQLT_INT,
                (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));

      OCIERROR(errhp, OCIBindByName(curno,
&no_w_id_bp, errhp, (text *)":no_w_id",
                strlen(":no_w_id"), (ub1 *)no_w_id,
sizeof(int), SQLT_INT,
                (dvoid *) 0, (ub2 *)0, (ub2 *)0,
                (ub4) 0, (ub4 *) 0, (ub4)
OCI_DEFAULT));
    }
  }

/*-------------------------------------------------------------+
 | Initialize random number generator            |
 +-------------------------------------------------------------
*/

  srand (SEED);
#ifndef ORA_NT
  srand48 (SEED);
#endif
  initperm ();


/*-------------------------------------------------------------+
 | Load the WAREHOUSE table.                   |
 +-------------------------------------------------------------
*/

  if (do_A || do_w) {
    nrows = eware - bware + 1;

    fprintf (stderr, "Loading/generating
warehouse: w%d - w%d (%d rows)\n",
           bware, eware, nrows);

    begin_time = gettime ();
    begin_cpu = getcpu ();

    for (loop = bware; loop <= eware; loop++) {

      w_tax = (float) ((lrand48 () % 2001) *
0.0001);
      randstr (w_name, 6, 10);
      randstr (w_street_1, 10, 20);
      randstr (w_street_2, 10, 20);
      randstr (w_city, 10, 20);
      randstr (str2, 2, 2);
      randnum (num9, 9);
      num9[4] = num9[5] = num9[6] = num9[7] =
num9[8] = '1';

      if (gen) {
        printf ("%d
30000000 %6.4f %s %s %s %s %s %s\n", loop,
w_tax,
              w_name, w_street_1, w_street_2,
w_city, str2, num9);
        fflush (stdout);
      }
      else {
        w_id = loop;
        strncpy (w_state, str2, 2);
        strncpy (w_zip, num9, 9);

      status = OCIStmtExecute(tpcsvc, curw,
errhp, (ub4) 1, (ub4) 0,
                (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
      if (status != OCI_SUCCESS) {
        fprintf (stderr, "Error at ware %d\n", loop);
```

```
        OCIERROR(errhp, status);
        quit ();
          exit (1);
        }
      }
    }

    end_time = gettime ();
    end_cpu = getcpu ();
    fprintf (stderr, "Done.  %d rows
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
          nrows, end_time - begin_time, end_cpu
- begin_cpu);
  }

/*-------------------------------------------------------------+
 | Load the DISTRICT table.                |
 +-------------------------------------------------------------
*/

  if (do_A || do_d) {
    nrows = (eware - bware + 1) * DISTFAC;

    fprintf (stderr, "Loading/generating district:
w%d - w%d (%d rows)\n",
          bware, eware, nrows);

    begin_time = gettime ();
    begin_cpu = getcpu ();

    dwid = bware - 1;

    for (row = 0; row < nrows; ) {
      dwid++;

      for (i = 0; i < DISTARR; i++, row++) {
        d_tax[i] = (float) ((lrand48 () % 2001) *
0.0001);
        randstr (d_name[i], 6, 10);
        randstr (d_street_1[i], 10, 20);
        randstr (d_street_2[i], 10, 20);
        randstr (d_city[i], 10, 20);
        randstr (str2, 2, 2);
        randnum (num9, 9);
        num9[4] = num9[5] = num9[6] = num9[7]
= num9[8] = '1';

        if (gen) {
          printf ("%d %d 3000000 %6.4f
3001 %s %s %s %s %s %s\n",
               i + 1, dwid, d_tax[i], d_name[i],
d_street_1[i],
          d_street_2[i], d_city[i], str2, num9 );
        }
        else {
          d_id[i] = i + 1;
          d_w_id[i] = dwid;
          strncpy (d_state[i], str2, 2);
          strncpy (d_zip[i], num9, 9);
        }
      }

      if (gen) {
        fflush (stdout);
      }
      else {
        status = OCIStmtExecute(tpcsvc, curd,
errhp, (ub4) DISTARR, (ub4) 0,
                (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
        if (status != OCI_SUCCESS) {
```

```
        fprintf (stderr, "Aborted at ware %d, dist
1\n", dwid);
            OCIERROR(errhp, status);
            quit ();
            exit (1);
        }
      }
    }

    end_time = gettime ();
    end_cpu = getcpu ();
    fprintf (stderr, "Done.  %d rows
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
          nrows, end_time - begin_time, end_cpu
- begin_cpu);
  }

/*-------------------------------------------------------------+
 | Load the CUSTOMER table.                |
 +-------------------------------------------------------------
*/

  if (do_A || do_c) {

    nrows = (eware - bware + 1) * CUSTFAC *
DISTFAC;

    fprintf (stderr, "Loading/generating customer:
w%d - w%d (%d rows)\n   ",
          bware, eware, nrows);

    if (getenv("tpcc_hash_overflow")) {
      fprintf(stderr,"Hash overflow is enabled\n");
      OCIHandleAlloc(tpcenv, (dvoid **)&curi,
OCI_HTYPE_STMT, 0, (dvoid**)0);
      sprintf ((char *) stmbuf, SQLTXTENHA);
      OCIStmtPrepare(curi, errhp, stmbuf,
strlen((char *)stmbuf),
              OCI_NTV_SYNTAX,
OCI_DEFAULT);
      OCIERROR(errhp,OCIStmtExecute(tpcsvc,
curi, errhp,1,0,0,0,OCI_DEFAULT));
      OCIHandleFree(curi, OCI_HTYPE_STMT);
      fprintf (stderr,"Customer loaded for
horizontal partitioning\n");
    }
    else
    {
      fprintf (stderr,"Customer not loaded for
horizontal partitioning\n");
    }
    begin_time = gettime ();
    begin_cpu = getcpu ();

    s_c_id = 1;
    s_c_d_id = 1;
    s_c_w_id = bware;

    while (s_c_w_id <= eware) {
      status = OCIStmtExecute(tpcsvc, curcs,
errhp, (ub4) 1, (ub4) 0,
            (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
            (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
        if (status != OCI_SUCCESS) {
            OCIERROR(errhp, status);
            quit ();
            exit (1);
        }

        if (s_c_count == 0) {
          s_c_w_id--;
          break;
          }
          else s_c_w_id++;
      }

      if (s_c_w_id < bware ) s_c_w_id = bware;
      else {
        if (s_c_w_id > eware ) s_c_w_id = eware;
        while (s_c_d_id <= DISTFAC) {
          status = OCIStmtExecute(tpcsvc, curcs,
errhp, (ub4) 1, (ub4) 0,
                (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
            if (status != OCI_SUCCESS) {
          fprintf (stderr, "Select failed\n");
                OCIERROR(errhp, status);
                quit ();
                exit (1);
            }
            if (s_c_count == 0) {
              s_c_d_id--;
              break;
            }
            else s_c_d_id++;
        }
        if (s_c_d_id > DISTFAC) s_c_d_id =
DISTFAC;

        while (s_c_id <= CUSTFAC) {
          status = OCIStmtExecute(tpcsvc, curcs,
errhp, (ub4) 1, (ub4) 0,
                (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
            if (status != OCI_SUCCESS) {
                OCIERROR(errhp, status);
                quit ();
                exit (1);
            }
            if (s_c_count == 0) break;
            else s_c_id++;
        }
      }
      if (s_c_id > CUSTFAC) {
        if (s_c_d_id == DISTFAC) {
          s_c_d_id=1;
          s_c_w_id++;
        } else {
      s_c_d_id++;
        }
        s_c_id=1;
      }

      fprintf (stderr, "start at wid: %d, did: %d,
cid: %d\n   ",s_c_w_id, s_c_d_id, s_c_id);
      cid = s_c_id - 1;
      cdid = s_c_d_id;
      cwid = s_c_w_id;
      nrows = (eware - s_c_w_id + 1) * DISTFAC *
CUSTFAC - (s_c_d_id - 1) * CUSTFAC - s_c_id
+ 1;
      fprintf (stderr, "remaining rows: %d\n   ",
nrows);
      loopcount = 0;

      for (row = 0; row < nrows; ) {
         for (i = 0; i < CUSTARR && row < nrows;
i++, row++) {
          cid++;
          if (cid > CUSTFAC) {         /* cycle cust id
*/
             cid = 1;                 /* cheap mod */
             cdid++;                  /* shift dist cycle */
            if (cdid > DISTFAC) {
              cdid = 1;
              cwid++;                /* shift ware cycle */
            }
          }
          c_id[i] = cid;
          c_d_id[i] = cdid;
          c_w_id[i] = cwid;
          if (cid <= 1000)
            randlastname (c_last[i], cid - 1);
          else
            randlastname (c_last[i], NURand (255,
0, 999, CNUM1));
          c_credit[i][1] = 'C';
          if (lrand48 () % 10)
            c_credit[i][0] = 'G';
          else
            c_credit[i][0] = 'B';
          c_discount[i] = (float)((lrand48 () % 5001)
* 0.0001);
          randstr (c_first[i], 8, 16);
          randstr (c_street_1[i], 10, 20);
          randstr (c_street_2[i], 10, 20);
          randstr (c_city[i], 10, 20);
          randstr (str2, 2, 2);
          randnum (num9, 9);
          num9[4] = num9[5] = num9[6] = num9[7]
= num9[8] = '1';
          randnum (num16, 16);
          randstr (c_data[i], 300, 500);

          if (gen) {
            printf ("%d %d %d %s
OE %s %s %s %s %s %s %s %cC
5000000 %6.4f -1000 1000 1 0 %s\n",
                cid, cdid, cwid, c_first[i], c_last[i],
                c_street_1[i], c_street_2[i], c_city[i],
str2, num9,
                num16, sdate, c_credit[i][0],
c_discount[i], c_data[i]);
          }
          else {
            strncpy (c_state[i], str2, 2);
            strncpy (c_zip[i], num9, 9);
            strncpy (c_phone[i], num16, 16);
          }
        }

        if (gen) {
          fflush (stdout);
        }
        else {
          status = OCIStmtExecute(tpcsvc, curc,
errhp, (ub4) i, (ub4) 0,
                (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);

          if (status != OCI_SUCCESS) {
         fprintf (stderr, "Aborted at w_id %d,
d_id %d, c_id %d\n",
                c_w_id[0], c_d_id[0], c_id[0]);
              OCIERROR(errhp, status);
              quit ();
              exit (1);
          }
        }

        if ((++loopcount) % 50)
          fprintf (stderr, ".");
        else
          fprintf (stderr, " %d rows committed\n   ",
row);
      }
      end_time = gettime ();
      end_cpu = getcpu ();
      fprintf (stderr, "Done.  %d rows
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
            nrows < 0 ? 0 : nrows, end_time -
begin_time, end_cpu - begin_cpu);
      if (getenv("tpcc_hash_overflow")) {
        fprintf(stderr,"Hash overflow is disabled\n");
        OCIHandleAlloc(tpcenv, (dvoid **)&curi,
OCI_HTYPE_STMT, 0, (dvoid**)0);
        sprintf ((char *) stmbuf, SQLTXTDIHA);
        OCIStmtPrepare(curi, errhp, stmbuf,
strlen((char *)stmbuf),
                OCI_NTV_SYNTAX,
OCI_DEFAULT);
        OCIERROR(errhp,OCIStmtExecute(tpcsvc,
curi, errhp,1,0,0,0,OCI_DEFAULT));
        OCIHandleFree(curi, OCI_HTYPE_STMT);
      }
    }


/*-------------------------------------------------------------+
 | Load the CUSTOMER table (cluster around
c_id)       |
 +-------------------------------------------------------------
*/

    if (do_C) {

      srand (bcid);
#ifndef ORA_NT
      srand48 (bcid);
#endif

      nrows = (ecid - bcid + 1) * (eware - bware
+1) * DISTFAC;

      fprintf (stderr, "Loading/generating customer:
c%d - c%d, w%d - w%d (%d rows)\n   ",
            bcid, ecid, bware, eware, nrows);

      if (getenv("tpcc_hash_overflow")) {
        fprintf(stderr,"Hash overflow is enabled\n");
        OCIHandleAlloc(tpcenv, (dvoid **)&curi,
OCI_HTYPE_STMT, 0, (dvoid**)0);
        sprintf ((char *) stmbuf, SQLTXTENHA);
        OCIStmtPrepare(curi, errhp, stmbuf,
strlen((char *)stmbuf),
                OCI_NTV_SYNTAX,
OCI_DEFAULT);
        OCIERROR(errhp,OCIStmtExecute(tpcsvc,
curi, errhp,1,0,0,0,OCI_DEFAULT));
        OCIHandleFree(curi, OCI_HTYPE_STMT);
        fprintf (stderr,"Customer loaded for
horizontal partitioning\n");
      }
      else
      {
        fprintf (stderr,"Customer not loaded for
horizontal partitioning\n");
      }
      begin_time = gettime ();
      begin_cpu = getcpu ();

      s_c_id = bcid;
      s_c_d_id = 1;
      s_c_w_id = bware;

      while (s_c_id <= ecid) {
         status = OCIStmtExecute(tpcsvc, curcs,
errhp, (ub4) 1, (ub4) 0,
         (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
         (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
      if (status != OCI_SUCCESS) {
         OCIERROR(errhp, status);
         quit ();
         exit (1);
      }

      if (s_c_count == 0) {
       s_c_id--;
       break;
      }
      else s_c_id++;
   }

   if (s_c_id < bcid ) s_c_id = bcid;
   else {
    if (s_c_id > ecid ) s_c_id = ecid;
    while (s_c_w_id <= eware) {
      status = OCIStmtExecute(tpcsvc, curcs,
errhp, (ub4) 1, (ub4) 0,
          (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
          (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
       if (status != OCI_SUCCESS) {
      fprintf (stderr, "Select failed\n");
          OCIERROR(errhp, status);
          quit ();
          exit (1);
       }
       if (s_c_count == 0) {
        s_c_w_id--;
        break;
       }
       else s_c_w_id++;
    }
    if (s_c_w_id > eware) s_c_w_id = eware;
    else if (s_c_w_id < bware) s_c_w_id =
bware;

    while (s_c_d_id <= DISTFAC) {
      status = OCIStmtExecute(tpcsvc, curcs,
errhp, (ub4) 1, (ub4) 0,
          (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
          (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
       if (status != OCI_SUCCESS) {
          OCIERROR(errhp, status);
          quit ();
          exit (1);
       }
       if (s_c_count == 0) break;
       else s_c_d_id++;
    }
   }

   if (s_c_d_id > DISTFAC) {
    s_c_d_id=1;
    if (s_c_w_id==eware) {
     s_c_w_id=bware;
     s_c_id++;
    }
    else s_c_w_id++;
   }

   fprintf (stderr, "start at cid: %d, wid: %d,
did: %d\n   ",s_c_id, s_c_w_id, s_c_d_id);
   cid = s_c_id;
   cdid = s_c_d_id-1;
   cwid = s_c_w_id;
```

```
   nrows = (ecid - s_c_id + 1) * (eware - bware
+ 1) * DISTFAC - (s_c_w_id - 1) * DISTFAC -
s_c_d_id + 1;
   fprintf (stderr, "remaining rows: %d\n   ",
nrows);
   loopcount = 0;

   for (row = 0; row < nrows; ) {
     for (i = 0; i < CUSTARR && row < nrows;
i++, row++) {
      cdid++;
      if (cdid > DISTFAC) {      /* cycle dist id
*/
        cdid = 1;              /* cheap mod */
        cwid++;                /* shift dist cycle */
        if (cwid > eware) {
          cwid = bware;             /* shift ware
cycle */
          cid++;
        }
      }
      c_id[i] = cid;
      c_d_id[i] = cdid;
      c_w_id[i] = cwid;
      if (cid <= 1000)
        randlastname (c_last[i], cid - 1);
      else
        randlastname (c_last[i], NURand (255,
0, 999, CNUM1));
      c_credit[i][1] = 'C';
      if (lrand48 () % 10)
        c_credit[i][0] = 'G';
      else
        c_credit[i][0] = 'B';
      c_discount[i] = (float)((lrand48 () % 5001)
* 0.0001);
      randstr (c_first[i], 8, 16);
      randstr (c_street_1[i], 10, 20);
      randstr (c_street_2[i], 10, 20);
      randstr (c_city[i], 10, 20);
      randstr (str2, 2, 2);
      randnum (num9, 9);
      num9[4] = num9[5] = num9[6] = num9[7]
= num9[8] = '1';
      randnum (num16, 16);
      randstr (c_data[i], 300, 500);

      if (gen) {
        printf ("%d %d %d %s
OE %s %s %s %s %s %s %s %s %cC
5000000 %6.4f -1000 1000 1 0 %s\n",
             cid, cdid, cwid, c_first[i], c_last[i],
             c_street_1[i], c_street_2[i], c_city[i],
str2, num9,
             num16, sdate, c_credit[i][0],
c_discount[i], c_data[i]);
      }
      else {
        strncpy (c_state[i], str2, 2);
        strncpy (c_zip[i], num9, 9);
        strncpy (c_phone[i], num16, 16);
      }
    }

    if (gen) {
      fflush (stdout);
    }
    else {
      status = OCIStmtExecute(tpcsvc, curc,
errhp, (ub4) i, (ub4) 0,
            (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
            (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
```

```
      if (status != OCI_SUCCESS) {
     fprintf (stderr, "Aborted at w_id %d,
d_id %d, c_id %d\n",
            c_w_id[0], c_d_id[0], c_id[0]);
         OCIERROR(errhp, status);
         quit ();
         exit (1);
      }
    }

    if ((++loopcount) % 50)
      fprintf (stderr, ".");
    else
      fprintf (stderr, " %d rows committed\n   ",
row);
   }

   end_time = gettime ();
   end_cpu = getcpu ();
   fprintf (stderr, "Done.  %d rows
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
         nrows < 0 ? 0 : nrows, end_time -
begin_time, end_cpu - begin_cpu);
   if (getenv("tpcc_hash_overflow")) {
    fprintf(stderr,"Hash overflow is disabled\n");
    OCIHandleAlloc(tpcenv, (dvoid **)&curi,
OCI_HTYPE_STMT, 0, (dvoid**)0);
    sprintf ((char *) stmbuf, SQLTXTDIHA);
    OCIStmtPrepare(curi, errhp, stmbuf,
strlen((char *)stmbuf),
           OCI_NTV_SYNTAX,
OCI_DEFAULT);
    OCIERROR(errhp,OCIStmtExecute(tpcsvc,
curi, errhp,1,0,0,0,OCI_DEFAULT));
    OCIHandleFree(curi, OCI_HTYPE_STMT);
   }
  }


/*--------------------------------------------------------------+
 | Load the ITEM table.                    |
 +--------------------------------------------------------------
*/

  if (do_A || do_i) {
   nrows = ITEMFAC;

   fprintf (stderr, "Loading/generating item: (%d
rows)\n   ", nrows);

   begin_time = gettime ();
   begin_cpu = getcpu ();

   loopcount = 0;

   for (row = 0; row < nrows; ) {
    for (i = 0; i < ITEMARR; i++, row++) {
      i_im_id[i] = (lrand48 () % 10000) + 1;
      i_price[i] = ((lrand48 () % 9901) + 100);
      randstr (i_name[i], 14, 24);
      randdatastr (i_data[i], 26, 50);

      if (gen) {
        printf ("%d %d %s %d %s\n", row + 1,
i_im_id[i], i_name[i],
           i_price[i], i_data[i]);
      }
      else {
        i_id[i] = row + 1;
      }
    }

    if (gen) {
      fflush (stdout);
```

```
        }
        else {
          status = OCIStmtExecute(tpcsvc, curi,
errhp, (ub4) ITEMARR, (ub4) 0,
                (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
          if (status != OCI_SUCCESS) {
         fprintf (stderr, "Aborted at i_id %d\n",
i_id[0]);
              OCIERROR(errhp, status);
              quit ();
              exit (1);
          }
        }

        if ((++loopcount) % 50)
          fprintf (stderr, ".");
        else
          fprintf (stderr, " %d rows committed\n   ",
row);
      }

      end_time = gettime ();
      end_cpu = getcpu ();
      fprintf (stderr, "Done.  %d rows
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
             nrows, end_time - begin_time, end_cpu
- begin_cpu);
   }


/*-------------------------------------------------------------+
 | Load the STOCK table.                  |
 +-------------------------------------------------------------
*/

   if (do_A || do_s) {

      nrows = (eware - bware + 1) * STOCFAC;

      fprintf (stderr, "Loading/generating stock:
w%d - w%d (%d rows)\n   ",
             bware, eware, nrows);

      begin_time = gettime ();
      begin_cpu = getcpu ();

      s_s_i_id = 1;
      s_s_w_id = bware;

      while (s_s_w_id <= eware) {
        status = OCIStmtExecute(tpcsvc, curss,
errhp, (ub4) 1, (ub4) 0,
              (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
              (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
          if (status != OCI_SUCCESS) {
              OCIERROR(errhp, status);
              quit ();
              exit (1);
          }
          if (s_s_count == 0) {
            s_s_w_id--;
            break;
          }
          else s_s_w_id++;
      }

      if (s_s_w_id < bware ) s_s_w_id = bware;
      else {
        if (s_s_w_id > eware) s_s_w_id = eware;
```

```
        while (s_s_i_id<=STOCFAC) {
          status = OCIStmtExecute(tpcsvc, curss,
errhp, (ub4) 1, (ub4) 0,
              (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
              (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
          if (status != OCI_SUCCESS) {
              OCIERROR(errhp, status);
              quit ();
              exit (1);
          }
          if (s_s_count == 0) {
            break;
          }
          else s_s_i_id++;
        }
      }
      if (s_s_i_id > STOCFAC) {
        s_s_i_id=1;
        s_s_w_id++;
      }

      fprintf(stderr,"start at s_i_id: %d,
s_w_id: %d\n   ", s_s_i_id, s_s_w_id);

      sid = s_s_i_id - 1;
      swid = s_s_w_id;
      nrows = (eware - s_s_w_id + 1) * STOCFAC
- ( s_s_i_id - 1);
      fprintf (stderr, "remaining rows: %d\n   ",
nrows);
      loopcount = 0;

      for (row = 0; row < nrows; ) {
          /* added row < nrows condition on next
line - alex.ni */
     for (i = 0; (i < STOCARR) && (row < nrows);
i++, row++) {
          if (++sid > STOCFAC) {        /* cheap
mod */
            sid = 1;
            swid++;
          }
          s_quantity[i] = (lrand48 () % 91) + 10;
          randstr (s_dist_01[i], 24, 24);
          randstr (s_dist_02[i], 24, 24);
          randstr (s_dist_03[i], 24, 24);
          randstr (s_dist_04[i], 24, 24);
          randstr (s_dist_05[i], 24, 24);
          randstr (s_dist_06[i], 24, 24);
          randstr (s_dist_07[i], 24, 24);
          randstr (s_dist_08[i], 24, 24);
          randstr (s_dist_09[i], 24, 24);
          randstr (s_dist_10[i], 24, 24);
          randdatastr (s_data[i], 26, 50);

          if (gen) {
            printf
("%d %d %d %s %s %s %s %s %s %s %s %s %
s 0 0 0 %s\n",
                sid, swid, s_quantity[i], s_dist_01[i],
s_dist_02[i],
                s_dist_03[i], s_dist_04[i],
s_dist_05[i], s_dist_06[i],
                s_dist_07[i], s_dist_08[i],
s_dist_09[i], s_dist_10[i],
                s_data[i]);
          }
          else {
            s_i_id[i] = sid;
            s_w_id[i] = swid;
          }
        }
```

```
        if (gen) {
          fflush (stdout);
        }
        else {
      /* Changed to STOCKARR to i - alex.ni */
          status = OCIStmtExecute(tpcsvc, curs,
errhp, (ub4) i, (ub4) 0,
                (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
          if (status != OCI_SUCCESS) {
            fprintf (stderr, "Aborted at w_id %d,
s_i_id %d\n", s_w_id[0], s_i_id[0]);
              OCIERROR(errhp, status);
              quit ();
              exit (1);
          }
        }

        if ((++loopcount) % 50)
          fprintf (stderr, ".");
        else
          fprintf (stderr, " %d rows committed\n   ",
row);
      }

      end_time = gettime ();
      end_cpu = getcpu ();
      fprintf (stderr, "Done.  %d rows
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
             nrows < 0 ? 0 : nrows, end_time -
begin_time, end_cpu - begin_cpu);
   }

/*-------------------------------------------------------------+
 | Load the STOCK table (cluster around s_i_id).
|
 +-------------------------------------------------------------
*/

   if (do_S) {

      nrows = (eitem - bitem + 1) * (eware - bware
+ 1);

      fprintf (stderr, "Loading/generating stock: i%d
- i%d, w%d - w%d (%d rows)\n   ",
             bitem, eitem, bware, eware, nrows);

      begin_time = gettime ();
      begin_cpu = getcpu ();

      s_s_i_id = bitem;
      s_s_w_id = bware;

      while (s_s_i_id <= eitem) {
        status = OCIStmtExecute(tpcsvc, curss,
errhp, (ub4) 1, (ub4) 0,
              (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
              (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
          if (status != OCI_SUCCESS) {
              OCIERROR(errhp, status);
              quit ();
              exit (1);
          }
          if (s_s_count == 0) {
            s_s_i_id--;
            break;
          }
          else s_s_i_id++;
      }
```

```
    if (s_s_i_id < bitem ) s_s_i_id = bitem;
    else {
      if (s_s_i_id > eitem) s_s_i_id = eitem;
      while (s_s_w_id <= eware) {
        status = OCIStmtExecute(tpcsvc, curss,
errhp, (ub4) 1, (ub4) 0,
              (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
              (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
          if (status != OCI_SUCCESS) {
              OCIERROR(errhp, status);
              quit ();
              exit (1);
          }
          if (s_s_count == 0) {
            break;
          }
          else s_s_w_id++;
      }
    }
    if (s_s_w_id > eware) {
      s_s_w_id=bware;
      s_s_i_id++;
    }

    fprintf(stderr,"start at s_i_id: %d,
s_w_id: %d\n   ", s_s_i_id, s_s_w_id);

    sid = s_s_i_id;
    swid = s_s_w_id - 1;
    nrows = (eitem - s_s_i_id + 1) * (eware -
bware + 1) - (s_s_w_id - bware);
    fprintf (stderr, "remaining rows: %d\n   ",
nrows);
    loopcount = 0;

    for (row = 0; row < nrows; ) {
      for (i = 0; i < STOCARR && row < nrows;
i++, row++) {
        if (++swid > eware) {         /* cheap mod
*/
          swid = bware;
          sid++;
        }
        s_quantity[i] = (lrand48 () % 91) + 10;
        randstr (s_dist_01[i], 24, 24);
        randstr (s_dist_02[i], 24, 24);
        randstr (s_dist_03[i], 24, 24);
        randstr (s_dist_04[i], 24, 24);
        randstr (s_dist_05[i], 24, 24);
        randstr (s_dist_06[i], 24, 24);
        randstr (s_dist_07[i], 24, 24);
        randstr (s_dist_08[i], 24, 24);
        randstr (s_dist_09[i], 24, 24);
        randstr (s_dist_10[i], 24, 24);
        randdatastr (s_data[i], 26, 50);

        if (gen) {
          printf
("%d %d %d %s %s %s %s %s %s %s %s %s %
s 0 0 0 %s\n",
                sid, swid, s_quantity[i], s_dist_01[i],
s_dist_02[i],
                s_dist_03[i], s_dist_04[i],
s_dist_05[i], s_dist_06[i],
                s_dist_07[i], s_dist_08[i],
s_dist_09[i], s_dist_10[i],
                s_data[i]);
        }
        else {
          s_i_id[i] = sid;
          s_w_id[i] = swid;
        }
      }

      if (gen) {
        fflush (stdout);
      }
      else {
        status = OCIStmtExecute(tpcsvc, curs,
errhp, (ub4) i, (ub4) 0,
                (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
        if (status != OCI_SUCCESS) {
            fprintf (stderr, "Aborted at w_id %d,
s_i_id %d\n", s_w_id[0], s_i_id[0]);
            OCIERROR(errhp, status);
            quit ();
            exit (1);
        }
      }

      if ((++loopcount) % 50)
        fprintf (stderr, ".");
      else
        fprintf (stderr, " %d rows committed\n   ",
row);
    }

    end_time = gettime ();
    end_cpu = getcpu ();
    fprintf (stderr, "Done.  %d rows
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
           nrows < 0 ? 0 : nrows, end_time -
begin_time, end_cpu - begin_cpu);
  }

/*--------------------------------------------------------------+
 | Load the HISTORY table.                  |
 +--------------------------------------------------------------
*/

  if (do_A || do_h) {
    nrows = (eware - bware + 1) * HISTFAC;

    fprintf (stderr, "Loading/generating history:
w%d - w%d (%d rows)\n   ",
           bware, eware, nrows);

    begin_time = gettime ();
    begin_cpu = getcpu ();

    cid = 0;
    cdid = 1;
    cwid = bware;
    loopcount = 0;

    for (row = 0; row < nrows; ) {
      for (i = 0; i < HISTARR; i++, row++) {
        cid++;
        if (cid > CUSTFAC) {        /* cycle cust id
*/
          cid = 1;                  /* cheap mod */
          cdid++;                   /* shift district cycle
*/
          if (cdid > DISTFAC) {
            cdid = 1;
            cwid++;               /* shift warehouse
cycle */
          }
        }
        h_c_id[i] = cid;
        h_d_id[i] = cdid;
        h_w_id[i] = cwid;
        randstr (h_data[i], 12, 24);

        if (gen) {
          printf ("%d %d %d %d %d %s
1000 %s\n", cid, cdid, cwid, cdid,
                cwid, sdate, h_data[i]);
        }
      }

      if (gen) {
        fflush (stdout);
      }
      else {
        status = OCIStmtExecute(tpcsvc, curh,
errhp, (ub4) HISTARR, (ub4) 0,
                (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
        if (status != OCI_SUCCESS) {
        fprintf (stderr, "Aborted at w_id %d,
d_id %d, c_id %d\n",
                h_w_id[0], h_d_id[0], h_c_id[0]);
            OCIERROR(errhp, status);
            quit ();
            exit (1);
        }
      }

      if ((++loopcount) % 50)
        fprintf (stderr, ".");
      else
        fprintf (stderr, " %d rows committed\n   ",
row);
    }

    end_time = gettime ();
    end_cpu = getcpu ();
    fprintf (stderr, "Done.  %d rows
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
           nrows, end_time - begin_time, end_cpu
- begin_cpu);
  }

/*--------------------------------------------------------------+
 | Load the ORDERS and ORDER-LINE table.
|
 +--------------------------------------------------------------
*/

  if (do_A || do_o) {

    int batch_olcnt;

    nrows = (eware - bware + 1) * ORDEFAC *
DISTFAC;

    fprintf (stderr, "Loading/generating orders
and order-line: w%d - w%d (%d ord, ~%d ordl)\n
",
           bware, eware, nrows, nrows * 10);

    begin_time = gettime ();
    begin_cpu = getcpu ();

    cid = 0;
    cdid = 1;
    cwid = bware;
    loopcount = 0;

    for (row = 0; row < nrows; ) {

      batch_olcnt = 0;

      for (i = 0; i < ORDEARR; i++, row++) {
        cid++;
```

```
            if (cid > ORDEFAC) {        /* cycle cust id
*/
               cid = 1;                 /* cheap mod */
               cdid++;                  /* shift district cycle
*/
               if (cdid > DISTFAC) {
                  cdid = 1;
                  cwid++;               /* shift warehouse
cycle */
               }
            }
            o_carrier_id[i] = lrand48 () % 10 + 1;
            o_ol_cnt[i] = olcnt = lrand48 () % 11 + 5;

            if (gen) {
               if (cid < 2101) {
                  printf ("%d %d %d %d %s %d %d
1\n", cid, cdid, cwid,
                          randperm3000[cid - 1],
sdate,o_carrier_id[i],
                          o_ol_cnt[i]);
               }
               else {
             /* set carrierid to 11 instead of null */
                  printf ("%d %d %d %d %s 11 %d 1\n",
cid, cdid, cwid,
                          randperm3000[cid - 1], sdate,
o_ol_cnt[i]);
               }
            }
            else {
               o_id[i] = cid;
               o_d_id[i] = cdid;
               o_w_id[i] = cwid;
               o_c_id[i] = randperm3000[cid - 1];
               if (cid >= 2101 ) {
                   o_carrier_id[i] = 11;
               }
            }

            for (j = 0; j < o_ol_cnt[i]; j++,
batch_olcnt++ ) {
               ol_i_id[batch_olcnt] = sid = lrand48 () %
100000 + 1;
               if (cid < 2101)
                  ol_amount[batch_olcnt] = 0;
               else
                  ol_amount[batch_olcnt] = (lrand48
() % 999999 + 1) ;
               randstr (str24[j], 24, 24);

               if (gen) {
                  if (cid < 2101) {
                     fprintf (olfp,
"%d %d %d %d %s %d %d 5 %ld %s\n", cid,
                             cdid, cwid, j + 1, sdate,
ol_i_id[batch_olcnt], cwid,
                             ol_amount[batch_olcnt],
str24[j]);
                  }
                  else {
                     /* Insert a default date instead of
null date */
                     fprintf (olfp, "%d %d %d %d 01-Jan-
1811 %d %d 5 %ld %s\n", cid,
                             cdid, cwid, j + 1,
ol_i_id[batch_olcnt], cwid,
                             ol_amount[batch_olcnt],
str24[j]);
                  }
               }
               else {
                  ol_o_id[batch_olcnt] = cid;
                  ol_d_id[batch_olcnt] = cdid;
                  ol_w_id[batch_olcnt] = cwid;
                  ol_number[batch_olcnt] = j + 1;
                  ol_supply_w_id[batch_olcnt] = cwid;
                  strncpy (ol_dist_info[batch_olcnt],
str24[j], 24);
               }
            }
            if (gen) {
               fflush (olfp);
            }
         }

         o_cnt =  ORDEARR;
         ol_cnt =  batch_olcnt;

         for (j = 0; j < batch_olcnt; j++) {
            ol_o_id_len[j] = sizeof(int);
            ol_d_id_len[j] = sizeof(int);
            ol_w_id_len[j] = sizeof(int);
            ol_number_len[j] = sizeof(int);
            ol_i_id_len[j] = sizeof(int);
            ol_supply_w_id_len[j] = sizeof(int);
            ol_dist_info_len[j] = 24;
            ol_amount_len[j] = sizeof(int);
         }
         for (j = batch_olcnt; j < 15*ORDEARR; j++)
{
            ol_o_id_len[j] = 0;
            ol_d_id_len[j] = 0;
            ol_w_id_len[j] = 0;
            ol_number_len[j] = 0;
            ol_i_id_len[j] = 0;
            ol_supply_w_id_len[j] = 0;
            ol_dist_info_len[j] = 0;
            ol_amount_len[j] = 0;
         }

         o_id_clen = ORDEARR;
         o_d_id_clen = ORDEARR;
         o_w_id_clen = ORDEARR;
         o_c_id_clen = ORDEARR;
         o_carrier_id_clen = ORDEARR;
         o_ol_cnt_clen = ORDEARR;

         ol_o_id_clen = batch_olcnt;
         ol_d_id_clen = batch_olcnt;
         ol_w_id_clen = batch_olcnt;
         ol_number_clen = batch_olcnt;
         ol_i_id_clen = batch_olcnt;
         ol_supply_w_id_clen = batch_olcnt;
         ol_dist_info_clen = batch_olcnt;
         ol_amount_clen = batch_olcnt;

         OCIERROR(errhp,
OCIStmtExecute(tpcsvc, curo1, errhp, (ub4) 1,
(ub4) 0,
                   (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                   (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS ));

         if ((++loopcount) % 50) {
             fprintf (stderr, ".");
         } else {
             fprintf (stderr, " %d orders committed\n
", row);
         }
      }

      end_time = gettime ();
      end_cpu = getcpu ();
      fprintf (stderr, "Done.  %d orders
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
            nrows, end_time - begin_time, end_cpu
- begin_cpu);
   }

/*--------------------------------------------------------------+
 | Load the NEW-ORDER table.                   |
 +--------------------------------------------------------------
*/

   if (do_A || do_n) {
      nrows = (eware - bware + 1) * NEWOFAC *
DISTFAC;

      fprintf (stderr, "Loading/generating new-
order: w%d - w%d (%d rows)\n   ",
            bware, eware, nrows);

      begin_time = gettime ();
      begin_cpu = getcpu ();

      cid = 0;
      cdid = 1;
      cwid = bware;
      loopcount = 0;

      for (row = 0; row < nrows; ) {
         for (i = 0; i < NEWOARR; i++, row++) {
            cid++;
            if (cid > NEWOFAC) {
               cid = 1;
               cdid++;
               if (cdid > DISTFAC) {
                  cdid = 1;
                  cwid++;
               }
            }

            if (gen) {
               printf ("%d %d %d\n", cid + 2100, cdid,
cwid);
            }
            else {
               no_o_id[i] = cid + 2100;
               no_d_id[i] = cdid;
               no_w_id[i] = cwid;
            }
         }

         if (gen) {
            fflush (stdout);
         }
         else {
            status = OCIStmtExecute(tpcsvc, curno,
errhp, (ub4) NEWOARR, (ub4) 0,
                   (CONST OCISnapshot*) 0,
(OCISnapshot*) 0,
                   (ub4) OCI_DEFAULT |
OCI_COMMIT_ON_SUCCESS);
            if (status != OCI_SUCCESS) {
        fprintf (stderr, "Aborted at w_id %d, d_id %d,
o_id %d\n", cwid, cdid, cid + 2100);
               OCIERROR(errhp, status);
               quit ();
               exit (1);
            }
         }

         if ((++loopcount) % 45)
            fprintf (stderr, ".");
         else
            fprintf (stderr, " %d rows committed\n   ",
row);
      }

      end_time = gettime ();
      end_cpu = getcpu ();
      fprintf (stderr, "Done.  %d rows
loaded/generated in %10.2f sec. (%10.2f
cpu)\n\n",
              nrows, end_time - begin_time, end_cpu
- begin_cpu);
   }

/*-------------------------------------------------------------+
 | clean up and exit.                    |
 +-------------------------------------------------------------
*/

   if (olfp)
      fclose (olfp);
   if (!gen)
      quit ();
   exit (0);

}

void initperm ()
{
   int i;
   int pos;
   int temp;

   /* init randperm3000 */

   for (i = 0; i < 3000; i++)
      randperm3000[i] = i + 1;
   for (i = 3000; i > 0; i--) {
      pos = lrand48 () % i;
      temp = randperm3000[i - 1];
      randperm3000[i - 1] = randperm3000[pos];
      randperm3000[pos] = temp;
   }
}

void randstr (str, x, y)
char *str;
int x;
int y;
{
   int i, j;
   int len;

   len = (lrand48 () % (y - x + 1)) + x;
   for (i = 0; i < len; i++) {
      j = lrand48 () % 62;
      if (j < 26)
         str[i] = (char) (j + 'a');
      else if (j < 52)
         str[i] = (char) (j - 26 + 'A');
      else
         str[i] = (char) (j - 52 + '0');
   }
   str[len] = '\0';

}

void randdatastr (str, x, y)
char *str;
int x;
int y;
{
   int i, j;
   int len;
   int pos;

   len = (lrand48 () % (y - x + 1)) + x;
   for (i = 0; i < len; i++) {
      j = lrand48 () % 62;
      if (j < 26)
         str[i] = (char) (j + 'a');
      else if (j < 52)
         str[i] = (char) (j - 26 + 'A');
      else
         str[i] = (char) (j - 52 + '0');
   }
   str[len] = '\0';
   if ((lrand48 () % 10) == 0) {
      pos = (lrand48 () % (len - 8));
      str[pos] = 'O';
      str[pos + 1] = 'R';
      str[pos + 2] = 'I';
      str[pos + 3] = 'G';
      str[pos + 4] = 'I';
      str[pos + 5] = 'N';
      str[pos + 6] = 'A';
      str[pos + 7] = 'L';
   }
}

void randnum (str, len)
char *str;
int len;
{
   int i;

   for (i = 0; i < len; i++)
      str[i] = (char) (lrand48 () % 10 + '0');
   str[len] = '\0';

}

void randlastname (str, id)
char *str;
int id;
{
   id = id % 1000;
   strcpy (str, lastname[id / 100]);
   strcat (str, lastname[(id / 10) % 10]);
   strcat (str, lastname[id % 10]);
}

int NURand (A, x, y, cnum)
int A, x, y, cnum;
{
   int a, b;

   a = lrand48 () % (A + 1);
   b = (lrand48 () % (y - x + 1)) + x;
   return ((((a | b) + cnum) % (y - x + 1)) + x);

}

void sysdate (sdate)
char *sdate;
{
   time_t tp;
   struct tm *tmptr;

   time (&tp);
   tmptr = localtime (&tp);
   strftime (sdate, 29, "%d-%b-%Y", tmptr);
}

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

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

Appendix F: 60 Day Space Calculation

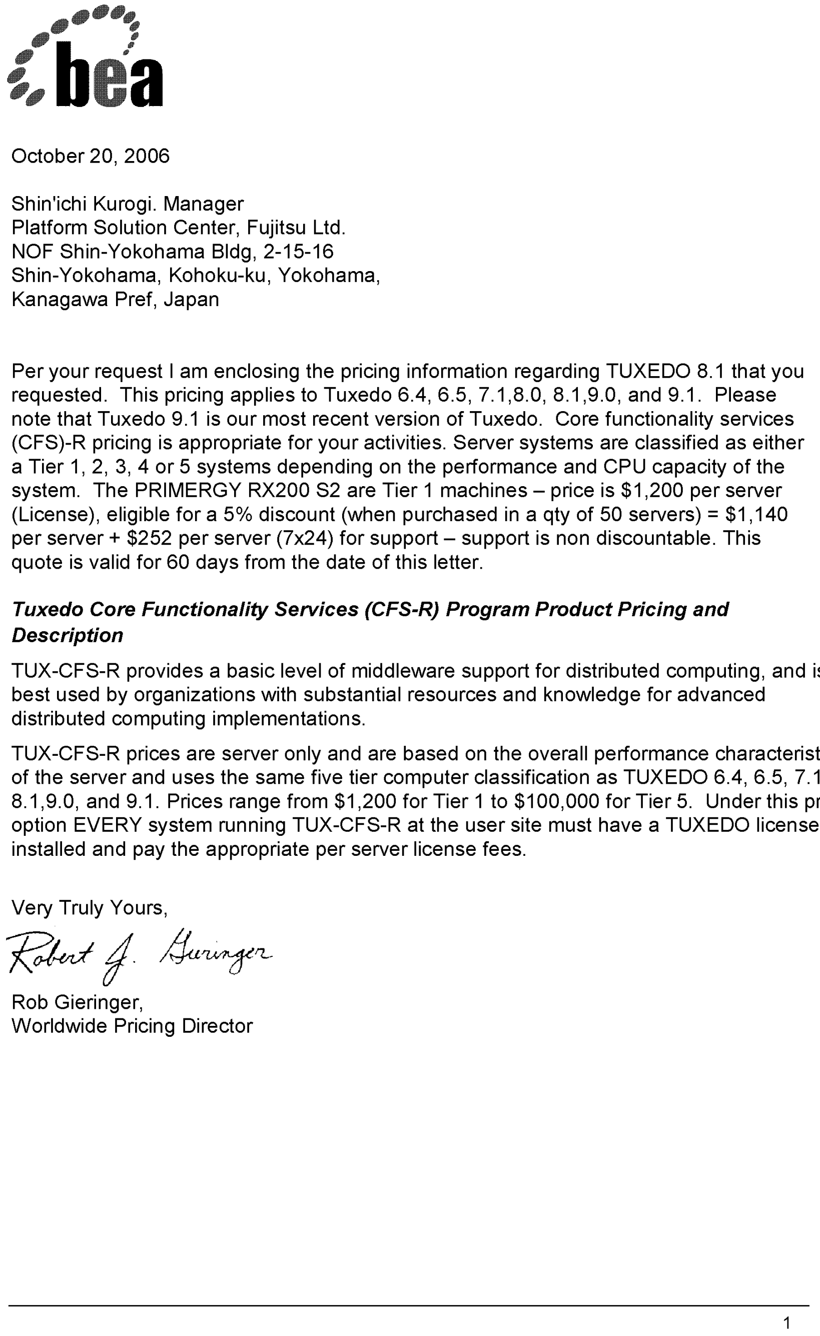
TPM	1,238,579.67							
Warehouses	98,991							
SEGMENT	**TYPE**	**TSPACE**	**BLOCKS**	**BLOCK_ SIZE**	**KB**	**FIVE_PCT (KB)**	**DAILY_GROW(KB)**	**TOTAL(KB)**
CUSTCLUSTER	CLUSTER	CUST	1,214,657,536	2,048	2,429,315,072	121,465,754	0	2,550,780,826
DB_STAT	SYS	SYSTEM	1,048,576	2,048	2,097,152	0		2,097,152
DCLUSTER	CLUSTER	DIST	1,165,824	2,048	2,331,648	116,582	0	2,448,230
HIST	TABLE	HIST	49,732,221	4,096	198,928,884	0	41,910,320	240,839,204
ICUST1	INDEX	ICUST1	4,635,309	16,384	74,164,944	3,708,247	0	77,873,191
ICUST2	INDEX	ICUST2	10,096,320	16,384	161,541,120	8,077,056	0	169,618,176
IDIST	INDEX	IDIST	280,512	2,048	561,024	28,051	0	589,075
IITEM	INDEX	ITEMS	5,632	2,048	11,264	563	0	11,827
IORDR2	INDEX	IORD2	7,224,057	16,384	115,584,912	5,779,246	0	121,364,158
ISTOK	INDEX	ISTK	13,906,298	16,384	222,500,768	11,125,038	0	233,625,806
ITEMCLUSTER	CLUSTER	ITEMS	8,446	2,048	16,892	845	0	17,737
IWARE	INDEX	WARE	70,512	2,048	141,024	7,051	0	148,075
NORDCLUSTER_Q UEUE	CLUSTER	NORD	12,450,740	2,048	24,901,480	1,245,074	0	26,146,554
ORDRCLUSTER_Q UEUE	CLUSTER	ORDR	172,758,225	16,384	2,764,131,600	0	596,759,200	3,360,890,800
STOCKCLUSTER	CLUSTER	STOK	1,601,883,906	2,048	3,203,767,812	160,188,391	0	3,363,956,203
SYS_IQ0000009620 $$	INDEX	SYSTEM	560,715	2,048	1,121,430	56,072	0	1,177,502
SYS_IQ0000009625 $$	INDEX	SYSTEM	233,660	16,384	3,738,560	186,928	0	3,925,488
SYSAUX	SYS	SYSTEM	61,440	2,048	122,880	0	0	122,880
SYSTEM	SYS	SYSTEM	204,800	2,048	409,600	0	0	409,600
WCLUSTER	CLUSTER	WARE	116,992	2,048	233,984	11,699	0	245,683
Total			3,091,101,721		9,205,622,050	311,996,597	638,669,520	10,156,288,167
Dynamic space(KB)		2,963,060,484						
Static space(KB)		6,554,558,163						
Free space(KB)		638,669,520						
Daily growth(KB)		638,669,520						
Daily spread		0	Oracle may be configured such that daily spread is 0					
60-day (GB)		42,795.88						
Log KB/tpmC		5.00	Number of log blocks used per New-Order					
8-hour log (GB)		226.57						
		Capacity	**NumDisk**				**Total GB**	
Database Disks	ETERNUS6000	33.25	1,920				63,840.00	
							63,840.00	
		Capacity	**NumDisk(RAID0+1)**					
8-Hr Log Disks	ETERNUS6000	33.25	224				7,448.00	
							7,448.00	

Appendix G: Price Quotes

Date: Wednesday, November 01, 2006 7:21
Subject: Oracle quote

Product	Price	Quantity	Extended Price
Oracle Database 10g Enterprise Edition, Per Processor, Unlimited Users,3 years	20,000	16	320,000
Oracle Database Server Support Package for 3 years	2,000	3	6,000
Oracle Mandatory E-Business Discount			<65,200>
TOTAL			260,800

Oracle Pricing Contact: MaryBeth Pierantoni, mary.beth.pierantoni@oracle.com, 916-315-5081



bea

October 20, 2006

Shin'ichi Kurogi. Manager
Platform Solution Center, Fujitsu Ltd.
NOF Shin-Yokohama Bldg, 2-15-16
Shin-Yokohama, Kohoku-ku, Yokohama,
Kanagawa Pref, Japan

Per your request I am enclosing the pricing information regarding TUXEDO 8.1 that you requested. This pricing applies to Tuxedo 6.4, 6.5, 7.1,8.0, 8.1,9.0, and 9.1. Please note that Tuxedo 9.1 is our most recent version of Tuxedo. Core functionality services (CFS)-R pricing is appropriate for your activities. Server systems are classified as either a Tier 1, 2, 3, 4 or 5 systems depending on the performance and CPU capacity of the system. The PRIMERGY RX200 S2 are Tier 1 machines – price is $1,200 per server (License), eligible for a 5% discount (when purchased in a qty of 50 servers) = $1,140 per server + $252 per server (7x24) for support – support is non discountable. This quote is valid for 60 days from the date of this letter.

Tuxedo Core Functionality Services (CFS-R) Program Product Pricing and Description

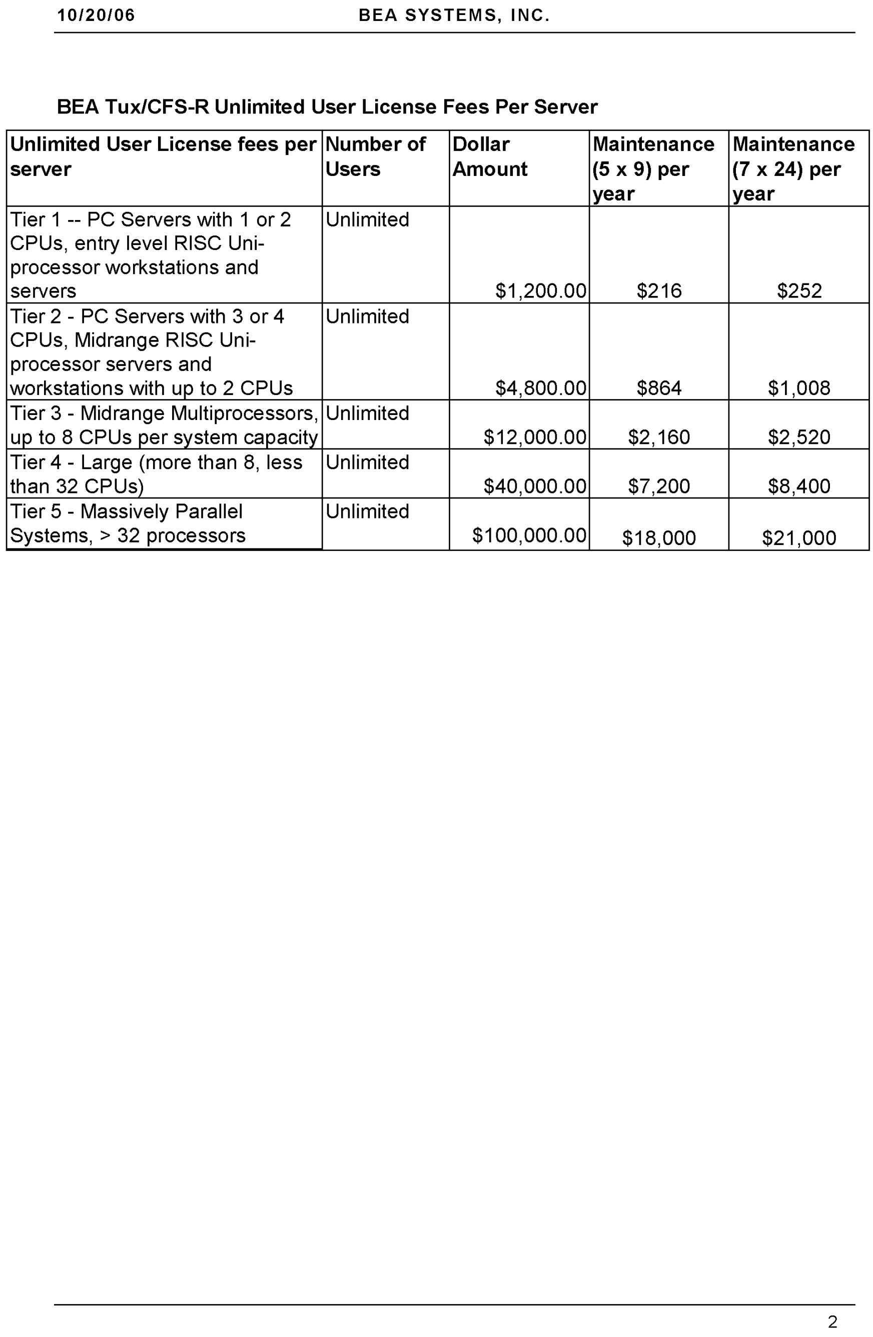
TUX-CFS-R provides a basic level of middleware support for distributed computing, and is best used by organizations with substantial resources and knowledge for advanced distributed computing implementations.

TUX-CFS-R 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 6.4, 6.5, 7.1,8.0, 8.1,9.0, and 9.1. Prices range from $1,200 for Tier 1 to $100,000 for Tier 5. Under this pricing option EVERY system running TUX-CFS-R at the user site must have a TUXEDO license installed and pay the appropriate per server license fees.

Very Truly Yours,

Robert J. Gieringer

Rob Gieringer,
Worldwide Pricing Director

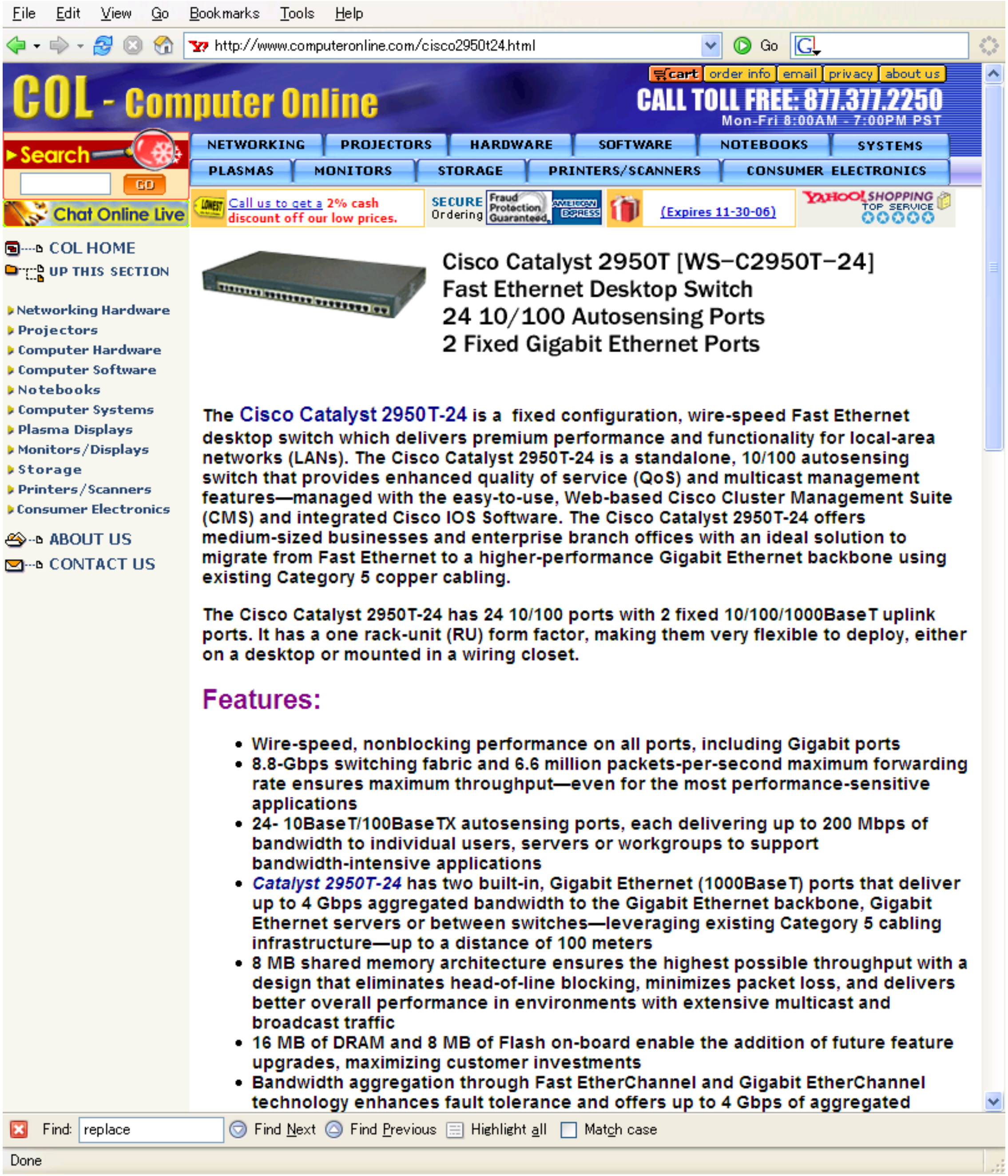


10/20/06 BEA SYSTEMS, INC.

BEA Tux/CFS-R Unlimited User License Fees Per Server

Unlimited User License fees per server	Number of Users	Dollar Amount	Maintenance (5 x 9) 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	Unlimited	$1,200.00	$216	$252
Tier 2 - PC Servers with 3 or 4 CPUs, Midrange RISC Uni-processor servers and workstations with up to 2 CPUs	Unlimited	$4,800.00	$864	$1,008
Tier 3 - Midrange Multiprocessors, up to 8 CPUs per system capacity	Unlimited	$12,000.00	$2,160	$2,520
Tier 4 - Large (more than 8, less than 32 CPUs)	Unlimited	$40,000.00	$7,200	$8,400
Tier 5 - Massively Parallel Systems, > 32 processors	Unlimited	$100,000.00	$18,000	$21,000

2


File Edit View Go Bookmarks Tools Help
http://www.computeronline.com/cisco2950t24.html
Go
COL - Computer Online
cart order info email privacy about us
CALL TOLL FREE: 877.377.2250
Mon-Fri 8:00AM - 7:00PM PST
Search
GO
Chat Online Live
NETWORKING PROJECTORS HARDWARE SOFTWARE NOTEBOOKS SYSTEMS
PLASMAS MONITORS STORAGE PRINTERS/SCANNERS CONSUMER ELECTRONICS
Call us to get a 2% cash discount off our low prices.
SECURE Ordering
Fraud Protection Guaranteed
(Expires 11-30-06)
YAHOO! SHOPPING TOP SERVICE
COL HOME
UP THIS SECTION
Networking Hardware
Projectors
Computer Hardware
Computer Software
Notebooks
Computer Systems
Plasma Displays
Monitors/Displays
Storage
Printers/Scanners
Consumer Electronics
ABOUT US
CONTACT US
Find: replace
Find Next
Find Previous
Highlight all
Match case
Done

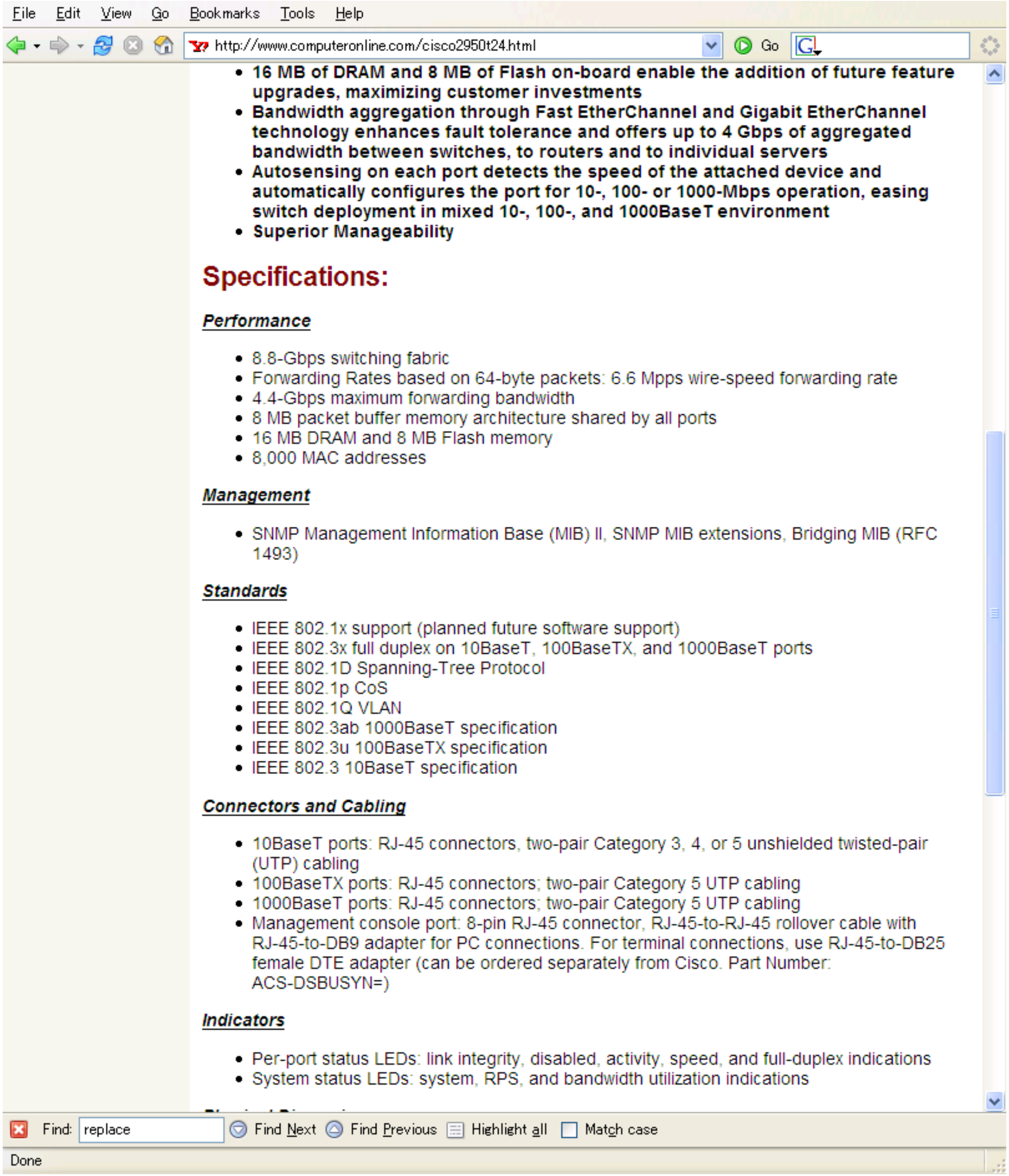
Cisco Catalyst 2950T [WS–C2950T–24]
Fast Ethernet Desktop Switch
24 10/100 Autosensing Ports
2 Fixed Gigabit Ethernet Ports

The Cisco Catalyst 2950T-24 is a fixed configuration, wire-speed Fast Ethernet desktop switch which delivers premium performance and functionality for local-area networks (LANs). The Cisco Catalyst 2950T-24 is a standalone, 10/100 autosensing switch that provides enhanced quality of service (QoS) and multicast management features—managed with the easy-to-use, Web-based Cisco Cluster Management Suite (CMS) and integrated Cisco IOS Software. The Cisco Catalyst 2950T-24 offers medium-sized businesses and enterprise branch offices with an ideal solution to migrate from Fast Ethernet to a higher-performance Gigabit Ethernet backbone using existing Category 5 copper cabling.

The Cisco Catalyst 2950T-24 has 24 10/100 ports with 2 fixed 10/100/1000BaseT uplink ports. It has a one rack-unit (RU) form factor, making them very flexible to deploy, either on a desktop or mounted in a wiring closet.

Features:

- Wire-speed, nonblocking performance on all ports, including Gigabit ports
- 8.8-Gbps switching fabric and 6.6 million packets-per-second maximum forwarding rate ensures maximum throughput—even for the most performance-sensitive applications
- 24- 10BaseT/100BaseTX autosensing ports, each delivering up to 200 Mbps of bandwidth to individual users, servers or workgroups to support bandwidth-intensive applications
- *Catalyst 2950T-24* has two built-in, Gigabit Ethernet (1000BaseT) ports that deliver up to 4 Gbps aggregated bandwidth to the Gigabit Ethernet backbone, Gigabit Ethernet servers or between switches—leveraging existing Category 5 cabling infrastructure—up to a distance of 100 meters
- 8 MB shared memory architecture ensures the highest possible throughput with a design that eliminates head-of-line blocking, minimizes packet loss, and delivers better overall performance in environments with extensive multicast and broadcast traffic
- 16 MB of DRAM and 8 MB of Flash on-board enable the addition of future feature upgrades, maximizing customer investments
- Bandwidth aggregation through Fast EtherChannel and Gigabit EtherChannel technology enhances fault tolerance and offers up to 4 Gbps of aggregated


File Edit View Go Bookmarks Tools Help
http://www.computeronline.com/cisco2950t24.html
Go

- **16 MB of DRAM and 8 MB of Flash on-board enable the addition of future feature upgrades, maximizing customer investments**
- **Bandwidth aggregation through Fast EtherChannel and Gigabit EtherChannel technology enhances fault tolerance and offers up to 4 Gbps of aggregated bandwidth between switches, to routers and to individual servers**
- **Autosensing on each port detects the speed of the attached device and automatically configures the port for 10-, 100- or 1000-Mbps operation, easing switch deployment in mixed 10-, 100-, and 1000BaseT environment**
- **Superior Manageability**

Specifications:

Performance

- 8.8-Gbps switching fabric
- Forwarding Rates based on 64-byte packets: 6.6 Mpps wire-speed forwarding rate
- 4.4-Gbps maximum forwarding bandwidth
- 8 MB packet buffer memory architecture shared by all ports
- 16 MB DRAM and 8 MB Flash memory
- 8,000 MAC addresses

Management

- SNMP Management Information Base (MIB) II, SNMP MIB extensions, Bridging MIB (RFC 1493)

Standards

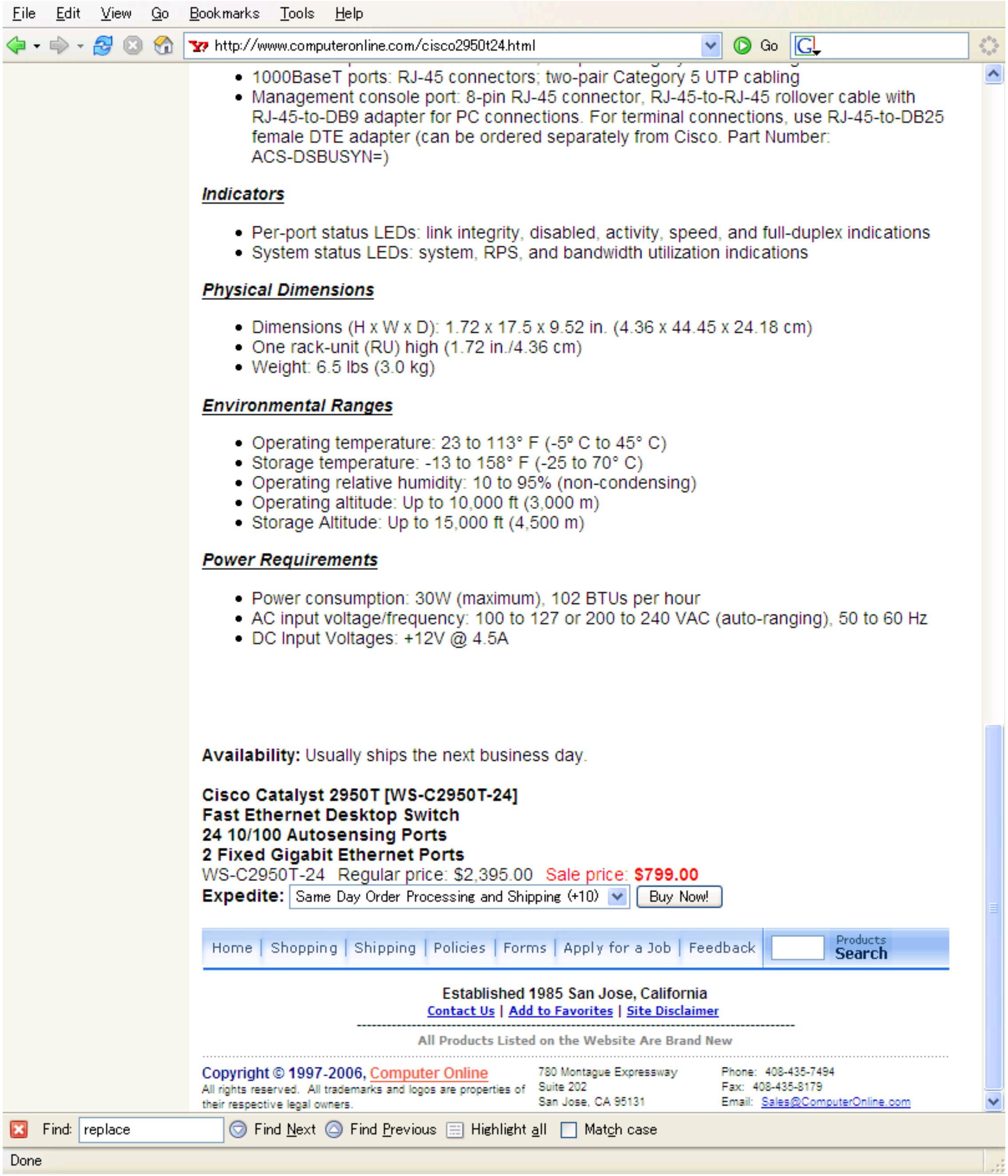
- IEEE 802.1x support (planned future software support)
- IEEE 802.3x full duplex on 10BaseT, 100BaseTX, and 1000BaseT ports
- IEEE 802.1D Spanning-Tree Protocol
- IEEE 802.1p CoS
- IEEE 802.1Q VLAN
- IEEE 802.3ab 1000BaseT specification
- IEEE 802.3u 100BaseTX specification
- IEEE 802.3 10BaseT specification

Connectors and Cabling

- 10BaseT ports: RJ-45 connectors, two-pair Category 3, 4, or 5 unshielded twisted-pair (UTP) cabling
- 100BaseTX ports: RJ-45 connectors; two-pair Category 5 UTP cabling
- 1000BaseT ports: RJ-45 connectors; two-pair Category 5 UTP cabling
- Management console port: 8-pin RJ-45 connector, RJ-45-to-RJ-45 rollover cable with RJ-45-to-DB9 adapter for PC connections. For terminal connections, use RJ-45-to-DB25 female DTE adapter (can be ordered separately from Cisco. Part Number: ACS-DSBUSYN=)

Indicators

- Per-port status LEDs: link integrity, disabled, activity, speed, and full-duplex indications
- System status LEDs: system, RPS, and bandwidth utilization indications


File Edit View Go Bookmarks Tools Help
http://www.computeronline.com/cisco2950t24.html
Go

- 1000BaseT ports: RJ-45 connectors; two-pair Category 5 UTP cabling
- Management console port: 8-pin RJ-45 connector, RJ-45-to-RJ-45 rollover cable with RJ-45-to-DB9 adapter for PC connections. For terminal connections, use RJ-45-to-DB25 female DTE adapter (can be ordered separately from Cisco. Part Number: ACS-DSBUSYN=)

Indicators

- Per-port status LEDs: link integrity, disabled, activity, speed, and full-duplex indications
- System status LEDs: system, RPS, and bandwidth utilization indications

Physical Dimensions

- Dimensions (H x W x D): 1.72 x 17.5 x 9.52 in. (4.36 x 44.45 x 24.18 cm)
- One rack-unit (RU) high (1.72 in./4.36 cm)
- Weight: 6.5 lbs (3.0 kg)

Environmental Ranges

- Operating temperature: 23 to 113° F (-5° C to 45° C)
- Storage temperature: -13 to 158° F (-25 to 70° C)
- Operating relative humidity: 10 to 95% (non-condensing)
- Operating altitude: Up to 10,000 ft (3,000 m)
- Storage Altitude: Up to 15,000 ft (4,500 m)

Power Requirements

- Power consumption: 30W (maximum), 102 BTUs per hour
- AC input voltage/frequency: 100 to 127 or 200 to 240 VAC (auto-ranging), 50 to 60 Hz
- DC Input Voltages: +12V @ 4.5A

Availability: Usually ships the next business day.

Cisco Catalyst 2950T [WS-C2950T-24]
Fast Ethernet Desktop Switch
24 10/100 Autosensing Ports
2 Fixed Gigabit Ethernet Ports
WS-C2950T-24 Regular price: $2,395.00 Sale price: **$799.00**
Expedite: Same Day Order Processing and Shipping (+10) Buy Now!

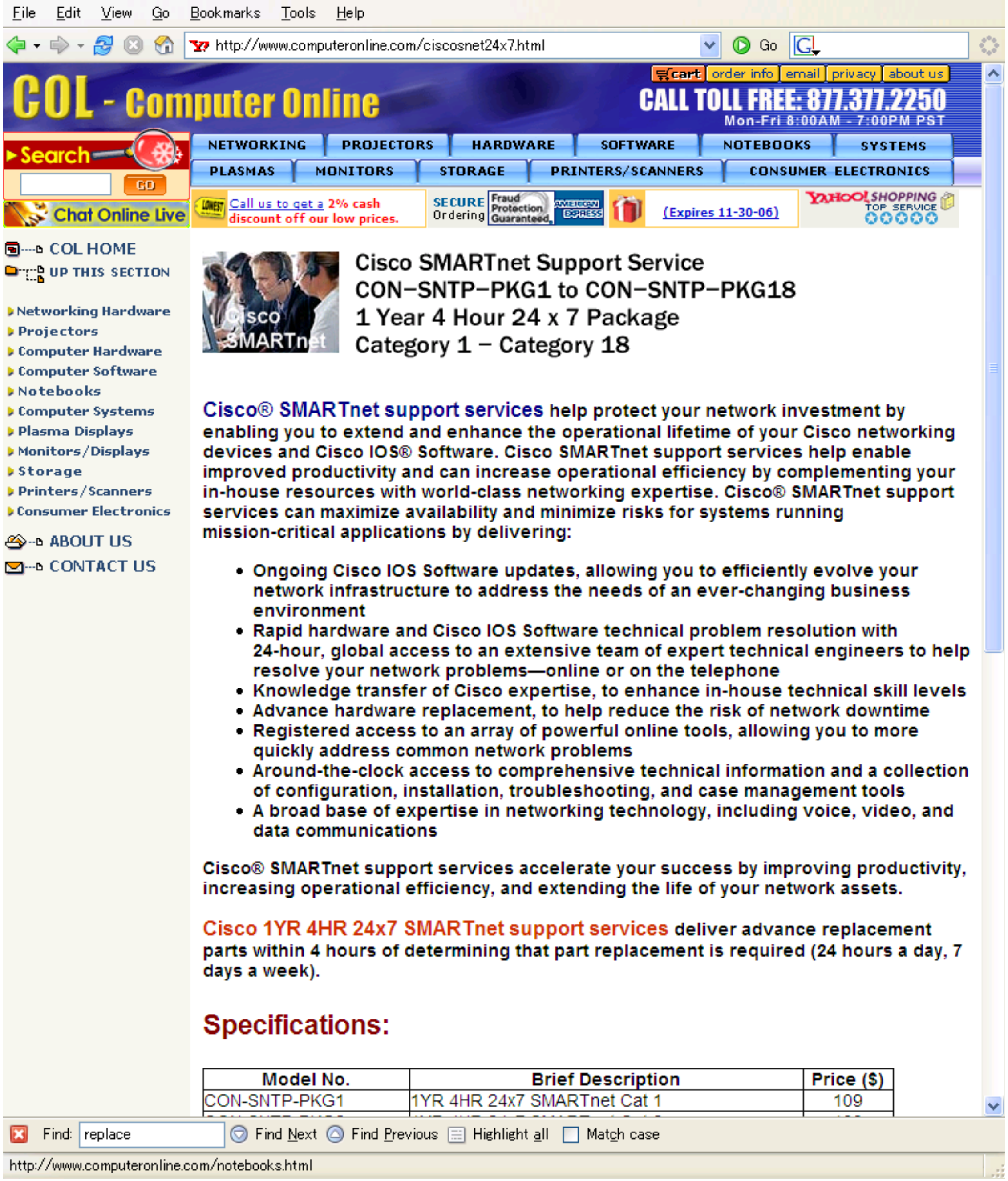
Home | Shopping | Shipping | Policies | Forms | Apply for a Job | Feedback
Products Search

Established 1985 San Jose, California
Contact Us | Add to Favorites | Site Disclaimer

All Products Listed on the Website Are Brand New

780 Montague Expressway
Suite 202
San Jose, CA 95131

Phone: 408-435-7494
Fax: 408-435-8179
Email: Sales@ComputerOnline.com


File Edit View Go Bookmarks Tools Help
http://www.computeronline.com/ciscosnet24x7.html
Go
cart order info email privacy about us
COL - Computer Online
CALL TOLL FREE: 877.377.2250
Mon-Fri 8:00AM - 7:00PM PST
Search
GO
Chat Online Live
NETWORKING PROJECTORS HARDWARE SOFTWARE NOTEBOOKS SYSTEMS
PLASMAS MONITORS STORAGE PRINTERS/SCANNERS CONSUMER ELECTRONICS
Call us to get a 2% cash discount off our low prices.
SECURE Ordering
Fraud Protection Guaranteed
AMERICAN EXPRESS
(Expires 11-30-06)
YAHOO! SHOPPING TOP SERVICE
COL HOME
UP THIS SECTION
Networking Hardware
Projectors
Computer Hardware
Computer Software
Notebooks
Computer Systems
Plasma Displays
Monitors/Displays
Storage
Printers/Scanners
Consumer Electronics
ABOUT US
CONTACT US
Cisco SMARTnet
Find: replace
Find Next
Find Previous
Highlight all
Match case
http://www.computeronline.com/notebooks.html

Cisco SMARTnet Support Service
CON–SNTP–PKG1 to CON–SNTP–PKG18
1 Year 4 Hour 24 x 7 Package
Category 1 – Category 18

Cisco® SMARTnet support services help protect your network investment by enabling you to extend and enhance the operational lifetime of your Cisco networking devices and Cisco IOS® Software. Cisco SMARTnet support services help enable improved productivity and can increase operational efficiency by complementing your in-house resources with world-class networking expertise. Cisco® SMARTnet support services can maximize availability and minimize risks for systems running mission-critical applications by delivering:

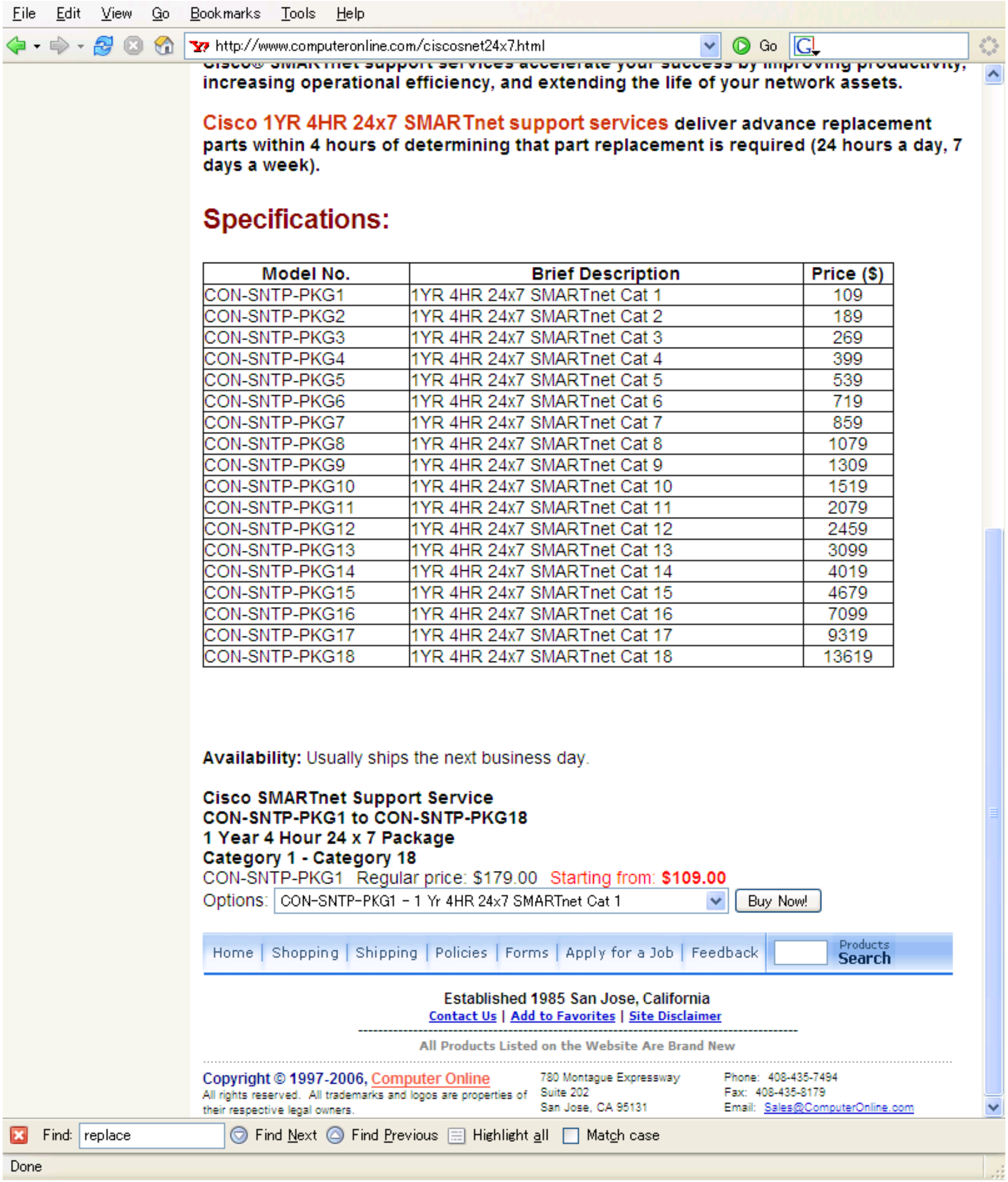
- Ongoing Cisco IOS Software updates, allowing you to efficiently evolve your network infrastructure to address the needs of an ever-changing business environment
- Rapid hardware and Cisco IOS Software technical problem resolution with 24-hour, global access to an extensive team of expert technical engineers to help resolve your network problems—online or on the telephone
- Knowledge transfer of Cisco expertise, to enhance in-house technical skill levels
- Advance hardware replacement, to help reduce the risk of network downtime
- Registered access to an array of powerful online tools, allowing you to more quickly address common network problems
- Around-the-clock access to comprehensive technical information and a collection of configuration, installation, troubleshooting, and case management tools
- A broad base of expertise in networking technology, including voice, video, and data communications

Cisco® SMARTnet support services accelerate your success by improving productivity, increasing operational efficiency, and extending the life of your network assets.

Cisco 1YR 4HR 24x7 SMARTnet support services deliver advance replacement parts within 4 hours of determining that part replacement is required (24 hours a day, 7 days a week).

Specifications:

Model No.	Brief Description	Price ($)
CON-SNTP-PKG1	1YR 4HR 24x7 SMARTnet Cat 1	109


File Edit View Go Bookmarks Tools Help
http://www.computeronline.com/ciscosnet24x7.html
Go
Find: replace
Find Next
Find Previous
Highlight all
□ Match case
Done

Cisco® SMARTnet support services accelerate your success by improving productivity, increasing operational efficiency, and extending the life of your network assets.

Cisco 1YR 4HR 24x7 SMARTnet support services deliver advance replacement parts within 4 hours of determining that part replacement is required (24 hours a day, 7 days a week).

Specifications:

Model No.	Brief Description	Price ($)
CON-SNTP-PKG1	1YR 4HR 24x7 SMARTnet Cat 1	109
CON-SNTP-PKG2	1YR 4HR 24x7 SMARTnet Cat 2	189
CON-SNTP-PKG3	1YR 4HR 24x7 SMARTnet Cat 3	269
CON-SNTP-PKG4	1YR 4HR 24x7 SMARTnet Cat 4	399
CON-SNTP-PKG5	1YR 4HR 24x7 SMARTnet Cat 5	539
CON-SNTP-PKG6	1YR 4HR 24x7 SMARTnet Cat 6	719
CON-SNTP-PKG7	1YR 4HR 24x7 SMARTnet Cat 7	859
CON-SNTP-PKG8	1YR 4HR 24x7 SMARTnet Cat 8	1079
CON-SNTP-PKG9	1YR 4HR 24x7 SMARTnet Cat 9	1309
CON-SNTP-PKG10	1YR 4HR 24x7 SMARTnet Cat 10	1519
CON-SNTP-PKG11	1YR 4HR 24x7 SMARTnet Cat 11	2079
CON-SNTP-PKG12	1YR 4HR 24x7 SMARTnet Cat 12	2459
CON-SNTP-PKG13	1YR 4HR 24x7 SMARTnet Cat 13	3099
CON-SNTP-PKG14	1YR 4HR 24x7 SMARTnet Cat 14	4019
CON-SNTP-PKG15	1YR 4HR 24x7 SMARTnet Cat 15	4679
CON-SNTP-PKG16	1YR 4HR 24x7 SMARTnet Cat 16	7099
CON-SNTP-PKG17	1YR 4HR 24x7 SMARTnet Cat 17	9319
CON-SNTP-PKG18	1YR 4HR 24x7 SMARTnet Cat 18	13619

Availability: Usually ships the next business day.

Cisco SMARTnet Support Service
CON-SNTP-PKG1 to CON-SNTP-PKG18
1 Year 4 Hour 24 x 7 Package
Category 1 - Category 18
CON-SNTP-PKG1 Regular price: $179.00 Starting from: **$109.00**
Options: CON-SNTP-PKG1 - 1 Yr 4HR 24x7 SMARTnet Cat 1 Buy Now!

Home | Shopping | Shipping | Policies | Forms | Apply for a Job | Feedback | Products Search

Established 1985 San Jose, California
Contact Us | Add to Favorites | Site Disclaimer

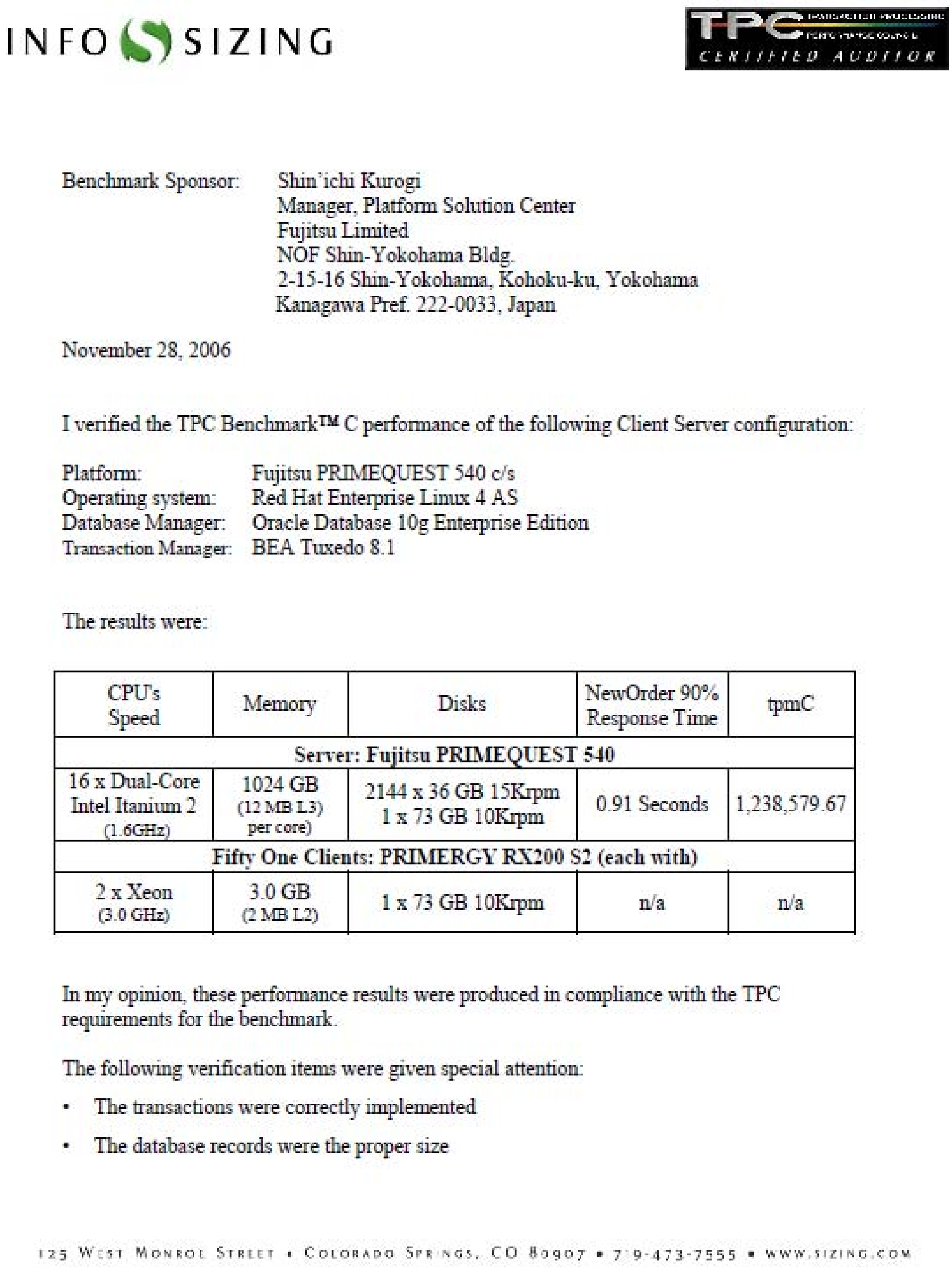
All Products Listed on the Website Are Brand New

Copyright © 1997-2006, Computer Online
All rights reserved. All trademarks and logos are properties of their respective legal owners.

780 Montague Expressway
Suite 202
San Jose, CA 95131

Phone: 408-435-7494
Fax: 408-435-8179
Email: Sales@ComputerOnline.com

Appendix H: Auditor's attestation letter



INFO SIZING

TPC CERTIFIED AUDITOR

Benchmark Sponsor: Shin'ichi Kurogi
Manager, Platform Solution Center
Fujitsu Limited
NOF Shin-Yokohama Bldg.
2-15-16 Shin-Yokohama, Kohoku-ku, Yokohama
Kanagawa Pref. 222-0033, Japan

November 28, 2006

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

Platform:	Fujitsu PRIMEQUEST 540 c/s
Operating system:	Red Hat Enterprise Linux 4 AS
Database Manager:	Oracle Database 10g Enterprise Edition
Transaction Manager:	BEA Tuxedo 8.1

The results were:

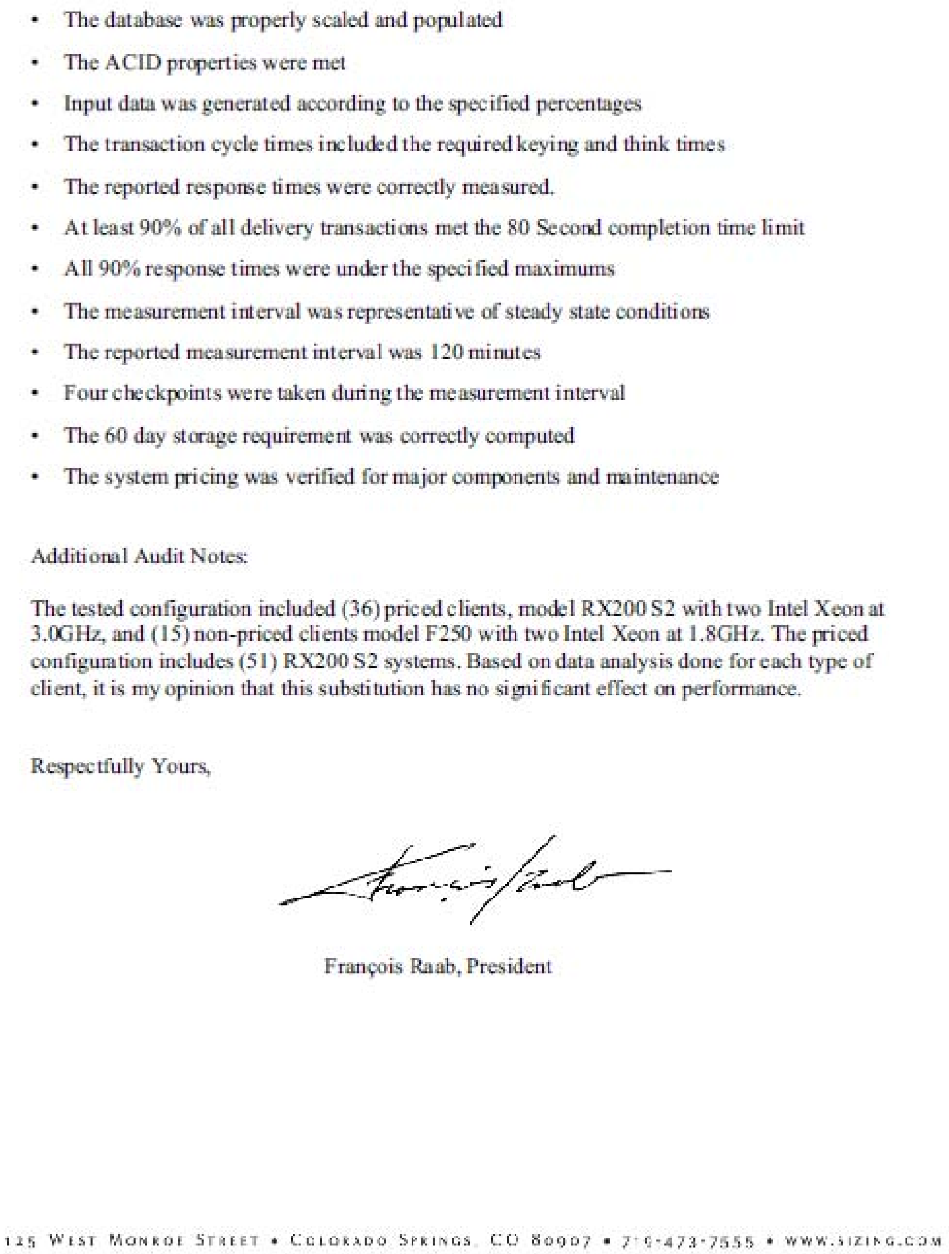
CPU's Speed	Memory	Disks	NewOrder 90% Response Time	tpmC
Server: Fujitsu PRIMEQUEST 540				
16 x Dual-Core Intel Itanium 2 (1.6GHz)	1024 GB (12 MB L3) per core)	2144 x 36 GB 15Krpm 1 x 73 GB 10Krpm	0.91 Seconds	1,238,579.67
Fifty One Clients: PRIMERGY RX200 S2 (each with)				
2 x Xeon (3.0 GHz)	3.0 GB (2 MB L2)	1 x 73 GB 10Krpm	n/a	n/a

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

The following verification items were given special attention:

- The transactions were correctly implemented
- The database records were the proper size

125 West Monroe Street • Colorado Springs, CO 80907 • 719-473-7555 • www.sizing.com



- The database was properly scaled and populated
- The ACID properties were met
- Input data was generated according to the specified percentages
- The transaction cycle times included the required keying and think times
- The reported response times were correctly measured.
- At least 90% of all delivery transactions met the 80 Second completion time limit
- All 90% response times were under the specified maximums
- The measurement interval was representative of steady state conditions
- The reported measurement interval was 120 minutes
- Four checkpoints were taken during the measurement interval
- The 60 day storage requirement was correctly computed
- The system pricing was verified for major components and maintenance

Additional Audit Notes:

The tested configuration included (36) priced clients, model RX200 S2 with two Intel Xeon at 3.0GHz, and (15) non-priced clients model F250 with two Intel Xeon at 1.8GHz. The priced configuration includes (51) RX200 S2 systems. Based on data analysis done for each type of client, it is my opinion that this substitution has no significant effect on performance.

Respectfully Yours,

François Raab, President

125 West Monroe Street • Colorado Springs, CO 80907 • 719-473-7555 • www.sizing.com