

PEOPLESOFT HRMS 8.9 SELF-SERVICE USING ORACLE ON SUN SPARC® Enterprise M3000 and Enterprise T5120 Servers

As a global leader in e-business applications, Oracle is committed to delivering high performance solutions that meet our customers' expectations. Business software must deliver rich functionality with robust performance. This performance must be maintained at volumes that are representative of customer environments.

Oracle benchmarks demonstrate our software's performance characteristics for a range of processing volumes in a specific configuration. Customers and prospects can use this information to determine the software, hardware, and network configurations necessary to support their processing volumes.

The primary objective of our benchmarking effort is to provide as many data points as possible to support this important decision.



SUMMARY OF RESULTS

Benchmark (English)	PeopleSoft HRMS 8.9 Self-Service	
	Standard Data Model	
	Average Response	Search 0.77 sec, Save 0.74 sec
	Concurrent Users	4,000
Référence d'exécution (Français)	PeopleSoft Ressources Humaines 8.9	
	Norme modèle de données	
	temps de réponse	Search 0,77 sec, Save 0,74 sec
	Concourants Utilisateurs	4.000
Benchmark-Test (Deutsch)	PeopleSoft Personalmanagementsystem 8.9	
	Datenbankmodell "Standard"	
	Antwortzeit	Search 0,77 sec, Save 0,74 sec
	Gleichzeitige Benutzer	4.000
Patrón de rendimiento (Español)	PeopleSoft Recursos Humanos 8.9	
	Volumen Estándar de datos	
	tiempo de reacción	Search 0,77 sec, Save 0,74 sec
	Simultáneos Utilizadores	4.000
Benchmark (Português)	Gerenciamento de Recursos Humanos, PeopleSoft 8.9	
	Volume Padrão dos dados	
	tempo de resposta	Search 0,77 sec, Save 0,74 sec
	Simultâneos Usuários	4.000

BENCHMARK PROFILE

In August 2008, Sun Microsystems® conducted a benchmark in Menlo Park, CA in collaboration with Oracle (PeopleSoft) to measure the online performance of Oracle's PeopleSoft Enterprise Human Resources Management System (HRMS) 8.9 using Oracle10g for Solaris on a 1-way Sun Microsystems Sun SPARC Enterprise M3000 (4-cores) server running Sun Solaris 10 10/08. Two Sun SPARC Enterprise M3000 (4-cores) servers running Sun Solaris 10 10/08 were used as the application servers. A 1-way Sun SPARC Enterprise T5120 (4-cores) server running Sun Solaris 10 8/07 was used as a web server. Two Sun Storage® J4200 disk arrays were used for data storage.

The benchmark measured client response times for 4,000 concurrent users. The standard database composition model represents a medium-sized company profile. The testing was conducted in a controlled environment with no other applications running. The tuning changes involved ICE Resolution Id: 734685. This will be generally available in a future update. **The goal of this Benchmark was to obtain baseline results for PeopleSoft HRMS 8.9 self-service transactions with Oracle for Solaris on Sun SPARC Enterprise M3000 and T5120 Servers.**

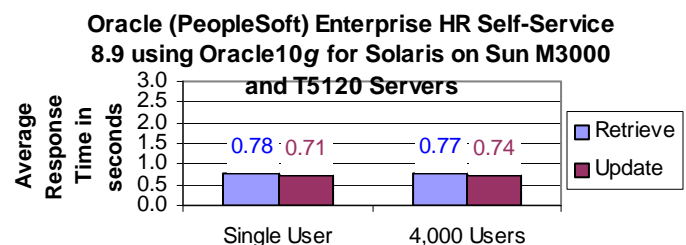


Figure 1: Average Response Times

* This average is weighted based on the business mix as reflected in Table 1: Business Process Mix.

METHODOLOGY

Hewlett-Packard (Mercury®) LoadRunner® was used as the load driver, simulating concurrent users. It submitted a business process at an average rate of one every five minutes for each concurrent user.

Hewlett-Packard (Mercury®) QuickTest® Professional was used to automatically submit transactions and to record the benchmark measurements on the client PC.

Measurements were recorded when the user load was attained and the environment reached a steady state.

Figure 2 shows a typical 4-tier benchmark configuration.

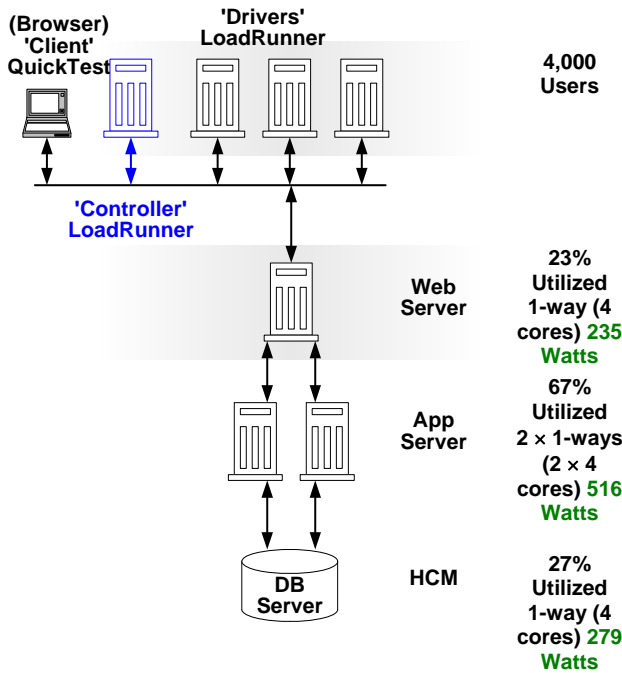


Figure 2: 4-Tier Configuration

Each tier was run on a discrete server or servers.

Load (search/retrieval) times were measured from the time the user clicks the <OK> button until all the data for the entire business transaction has been retrieved.

Update (save) times were measured from the time the user clicks the <SAVE> button until the system has released the page.

BUSINESS PROCESSES

Oracle (PeopleSoft) defines a business transaction as a series of HTML pages that guide a user through a particular scenario, such as promoting an employee.

The thirteen PeopleSoft Enterprise 8.9 HRMS business processes tested in this benchmark are as follows:

EMPLOYEE SELF-SERVICE

eProfile

Update Home Address: Update address in Personal Data section.

Update Home Phone: Update phone number in Personal Data section.

eBenefits

View Benefits Summary: View overall benefits enrollment data.

Benefits Change Life: View benefits and alter the beneficiaries' allocations in the Basic Life Plan.

ePay

View Paycheck: View current paycheck information.

Update Direct Deposit Info: Add a direct deposit directive.

MANAGER SELF-SERVICE

eDevelopment

View Employee Info: View job and personal information.

eProfile

Initiate Termination: Initiate a termination by recording an effective date and reason for termination.

Initiate Promotion: Initiate a promotion by entering a new job title and salary.

eCompensation

Initiate Employee Salary Change: Process a salary change for a single employee.

HR ADMINISTRATION

Add a Person: Add a person and their biographical details.

Hire a Person: Enter the specified job data and work location, followed by the payroll and compensation details.

Add a Job: Add job details to an existing employee.

ONLINE PROCESS RESULTS

The table below shows average retrieval (search) and update (save) times, in seconds, for each business process.

HRMS Process	% within Group	% Overall	Pacing in Min
Employee Self-Service (60%)			
Update Home Address	3%	1.8%	5
Update Phone Numbers	3%	1.8%	5
View Benefits Summary	10%	6%	5
Update Beneficiary	2%	1.2%	5
View Paycheck	80%	48%	5
Update Direct Deposit	2%	1.2%	5
Manager Self-Service (20%)			
View Employee Info	50%	10%	5
Initiate Termination	20%	4%	5
Initiate Promotion	10%	2%	5
Initiate Employee Salary Change	20%	4%	5
HR Administrator (20%)			
Add a Person	20%	4%	5
Hire a Person	40%	8%	5
Add a Job Row	40%	8%	5
Total		100%	5

Table 1: Business Process Mix

The table above shows the proportions of the business processes used in the measurements of this benchmark. The proportions are intended to simulate a typical user scenario.

Process		Single User	4,000 Users
Update Home Address	Search	0.65	0.65
	Save	0.58	0.58
Update Home Phone	Search	0.06	0.06
	Save	0.08	0.08
View Benefits Sum	Search	0.60	0.59
Update Beneficiary	Search	0.65	1.09
	Save 1	0.14	0.14
	Save 2	0.59	0.60
	Edit/Calc	1.28	1.23
View Paycheck	Search	0.61	0.58
Update Direct Deposit Info	Search	1.94	1.90
	Save	0.14	0.14
View Employee Info	Search	1.19	1.21
Initiate Termination	Search	1.24	1.48
Initiate Promotion	Search	1.25	1.21
	Save	0.65	0.58
Initiate Salary Change	Search	2.36	2.16
	Save	0.17	0.18
	Calc	0.59	0.59
Add a Person	Save	2.21	2.16
Hire a Person	Save 1	0.60	0.59
	Save 2	0.79	0.69
Add a Job	Search	0.14	0.14
	Save	0.66	0.92
* Average Search		0.78	0.77
* Average Save		0.71	0.74
Trans/min Est.			800

Table 2: Employee/Manager Process Runtimes

The database and application servers were processing a total of 800 business processes per minute at the peak load of 4,000 concurrent users. The estimated transaction rate is calculated by dividing the total number of concurrent users by the average pacing rate.

Performance may vary on other hardware and software platforms and with other data composition models.

SERVER PERFORMANCE

Figure 3 shows the average CPU utilization for each of the servers in this test. The CPU utilization is the average across all of the CPUs in each server.

**Oracle (PeopleSoft) Enterprise HR 8.9
using Oracle10g for Solaris on Sun
Enterprise M3000 & T5120 Servers**

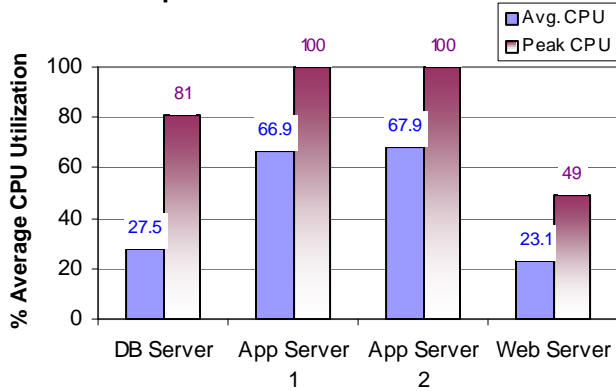


Figure 3: Average Server CPU Utilization

% CPU	Avg.	Max.
DB Server		
User	23.63	73
System	3.82	8
Idle	72.51	88
App Server 1		
User	62.72	94
System	4.20	9
Idle	33.08	65
App Server 2		
User	63.44	94
System	4.41	8
Idle	32.13	67
Web Server		
User	18.66	37
System	4.44	12
Idle	76.89	86

Table 3: 4,000-User CPU Utilization

	DB Server (8 GB)	App Server 1 (8 GB)	App Server 2 (8 GB)	Web Server (8 GB)
Avg. Memory	5.54 GB	3.67 GB	3.72 GB	4.15 GB
Peak Memory	5.57 GB	4.2 GB	4.27 GB	4.18 GB

Table 4: Average Memory Utilization

	Watts
DB Server	279.5
App Servers	516.1
Web Server	234.84
Total:	1,030.44

Table 5: Average Power Consumption

I/O PERFORMANCE

Two Sun Storage J4200 Arrays, each with 3 × 250 GB 7,200 rpm SATA II Disks were set up in a RAID 0 configuration for the benchmark. I/O performance is crucial to performance and is summarized as follows:

	Reads KBs per Sec	Writes KBs per Sec
DB Server	45	252
App 1 Server	75	334
App 2 Server	90	999
Web Server	0	12

Table 6: I/O Metrics

DATA COMPOSITION DESCRIPTION

The standard database was comprised of:

- 100,000 Employees (10 per Department)
- 20,000 Managers
- 1,000 Department Table Entries

BENCHMARK ENVIRONMENT

HARDWARE CONFIGURATION

Database Server:

The Sun Microsystems Sun SPARC™ Enterprise M3000 was used as the database server. It was equipped with the following:

- 1 × 2.5 GHz SPARC64-VII quad-core processor with 5 Megabytes of Level-2 Cache
- 8 Gigabytes of Memory

The Sun Enterprise M3000 was attached to:

- Two Sun Storage J4200 arrays with ~686 GB capacity apiece

Application Server(s):

2 × Sun Microsystems Sun SPARC™ Enterprise M3000s were used as the application servers. They were equipped with the following:

- 1 × 2.5 GHz SPARC64-VII quad-core processor with 5 Megabytes of Level-2 Cache
- 8 Gigabytes of Memory
- ~119 Gigabytes of total Disk Space
- 1 × SCSI Internal Disk Controller

Web Server(s):

1 × Sun Microsystems Sun SPARC Enterprise T5120 server was used as the web server. It was equipped with the following:

- 1 × 1.2 GHz UltraSPARC-T2 quad-core processor with 4 Megabytes of Level-2 Cache
- 8 Gigabytes of Memory
- ~119 Gigabytes of total Disk Space
- 1 × SCSI Internal Disk Controller

Load Simulation Driver(s):

3 × Sun Fire X4200 server were used as drivers.

- 4 × 2.39 GHz AMD® Opteron™ dual-core Processors 280, each with 512 Kilobytes of Level-3 Cache
- 4 Gigabytes of Memory

Load Driver Controller:

1 × Sun Fire X4200 server was used as a controller. It was equipped with the following:

- 4 × 2.39 GHz AMD® Opteron™ dual-core Processors 280, each with 512 Kilobytes of Level-3 Cache
- 4 Gigabytes of Memory

Client PC:

Sun Fire® V65x workstation with the following:

- 2 × 3.06 Gigahertz Intel® Xeon® Processors, with 512 kilobytes of Level-2 Cache
- 4 Gigabytes of Memory

SOFTWARE VERSIONS

Oracle's PeopleSoft HCM (HRMS) 8.9

Oracle's PeopleSoft Enterprise (PeopleTools) 8.48.07

Oracle10g™ 10.2.0.3 (64-bit) with PeopleSoft-required patches

Sun Solaris™ 10 10/08 (on the Database server and App servers)

Sun Solaris™ 10 8/07 (on the Web Server)

Microsoft® Windows Server 2003 Enterprise Edition w/SP 2 (on the Driver Controller and the Drivers)

Microsoft® Windows XP™ w/SP 2 (on the QTP Client)

Hewlett-Packard LoadRunner® 8.1 w/FP 4

Hewlett-Packard QuickTest® Professional 9.1

BEA Tuxedo® 8.1 rp 192 (64-bit) with Jolt 8.1 with Java 1.4.2

BEA WebLogic® 8.1 w/SP 6

Java™ 2 Runtime Environment, Standard Edition (build 1.4.2)

Classic VM (build 1.4.2, J2RE 1.4.2 IBM AIX 5L for PowerPC (64 bit JVM) build caix64142-20050929 (SR3) (JIT enabled: jitc))

ICE Tracking:

1568366000

Resolution ID: 734685, HRMS 8.9 Bundle #18



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