

# PEOPLESOFT ENTERPRISE HUMAN RESOURCES 8.9 FRENCH PUBLIC SECTOR MERGE PROCESSES USING ORACLE9i ON A HEWLETT-PACKARD INTEGRITY rx8620

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 Enterprise Human Resources 8.9 French Public Sector Merge Processes	
	120,000 Employees – Data Conversion	
	# Hours to Process	9.08 hours
	Employees per Hour	13,216 per hour
	12,000 Employees – Daily Merge	
	# Minutes to Process	22.43 minutes
Référence d'exécution  (Français)	PeopleSoft Enterprise Ressources Humaines 8.9 Traitements de Fusion du Dossier Secteur Public	
	120.000 Employés – Traitement initial apres chargement des donnees	
	Temps d'Exécution	9,08 heures
	Employés / heure	13.216 par heure
	12.000 Employés – Traitement quotidien	
	Temps d'Exécution	22,43 minutes
	Employés / heure	32.095 par heure

The benchmark measured the process of merging French Public Sector data into generic Oracle (PeopleSoft) Enterprise HR data for a large database model. Testing was conducted in a controlled environment with no other applications running. The tuning changes, if any, were approved by Oracle Enterprise Development and will be generally available in a future update. **The goal of this Benchmark was to obtain reference performance results for Oracle's PeopleSoft Enterprise Human Resources 8.9 French Public Sector data merge processes.**

PeopleSoft Enterprise HR 8.9 French Public Sector Merge Processes using Oracle9i on an HP Integrity rx8620 Server

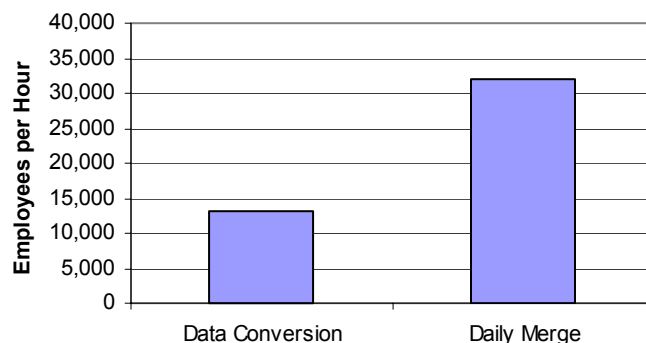


Figure 1: PeopleSoft Enterprise Human Resources 8.9 French Public Sector Data Merge Processing Rates

## BENCHMARK PROFILE

In June 2005, Oracle (PeopleSoft) conducted a benchmark in Pleasanton, CA to measure the batch performance of the Data Conversion Merge and Daily Merge processes in Oracle's PeopleSoft Enterprise Human Resources 8.9 (w/MP1) for French Public Sector data with Oracle9i™ 9.2.0.6. We used a 16-way Hewlett-Packard® Integrity™ rx8620 database server, running Hewlett-Packard® HP-UX 11i v2. An HP StorageWorks XP128 disk array was used for data storage.

## METHODOLOGY

PeopleSoft Enterprise Human Resources 8.9 batch processes can be initiated from a browser. For this benchmark, all runs used a browser to initiate Application Engine (AE) or SQR jobs.

The Data Conversion Merge and Daily Merge processes were run as 20 and 16 concurrent processes respectively—based upon the number of processes specified.

Business Process	Job Streams	Process Type
Data Conversion Merge	Single-Threaded	SQR
	20	App Engine
Daily Merge	Single-Threaded	SQR
	16	App Engine

Batch processes are background processes, requiring no operator intervention or interactivity. Results of these processes are automatically logged in the database. The runtimes are posted to the Process Request database table where they are stored for subsequent analysis.

## BUSINESS PROCESSES

The PeopleSoft Enterprise Human Resources 8.9 processes tested are as follows:

### Data Conversion Merge/Daily Merge: (SQR & AE)

The merge process provides an interface between French Public Sector and various PeopleSoft Human Resources business processes such as training. This process is mandatory.

As soon as the personnel manager completes the first step of the FPS hiring process, the pre-hired employee is available in all PeopleSoft Enterprise Human Resources components. If an employee is transferred from one department to another, the effect on PeopleSoft Enterprise Human Resources security begins for the non-FPS components only after the merge is executed.

The merge process consolidates the FPS job information to enable the integration with Global Payroll applications.

The merge process consists of feeding and updating the standard JOB, JOB\_JR, and COMPENSATION tables (job data) with various French Public Sector tables. The system considers only actual actions, not requests. The merge process is possible only after the hire is validated.

Each event in the employee record corresponds to a move in the merged record. When the same event, which has the same action and effective date, appears in various parts of the employee record, only one row is created in the merged record.

When two events have been registered in two different parts of the record on the same date, the process generates two rows in the merged record.

## BATCH RESULTS

The Data Conversion Merge calculation involved 80% of the overall employee population (120,000 out of 150,000) having their payroll characteristics initialized. The Daily Merge calculation updated the characteristics of 10% of the employee population that were just merged into the overall system (12,000 out of 120,000).

120,000 Employees – Data Conversion Merge	Duration	Employees per Hour
SQR Process	1.82 hr	66,075
AE Jobs (20 Streams)	7.26 hr	16,521
<b>Total</b>	9.08 hr	13,216
12,000 Employees – Daily Merge	Duration	Employees per Hour
SQR Process	6.02 min	119,667
AE Jobs (16 Streams)	16.42 min	43,857
<b>Total</b>	22.43 min	32,095

Table 1: Batch Process Results

## SERVER PERFORMANCE

Table 2 shows the average CPU utilization for each process. The value shown is the average across all 16 processors. In the instances of the single SQR process, one CPU was probably fully loaded with the remaining 15 CPUs idle.

	% CPU
120,000 Employees – Data Conversion Merge	
SQR Process	6.38
AE Jobs (20)	90.12
12,000 Employees – Daily Merge	
SQR Process	6.30
AE Jobs (16)	85.89

Table 2: Average CPU Utilization

## I/O PERFORMANCE

The SAN-Connected HP Storage Works XP-128 disk array was used for storage. I/O performance is crucial to batch performance and is summarized as follows:

	Avg. Data Xfers / Sec	Avg. Kilobytes / Sec
120,000 Employees – Data Conversion Merge		
SQR Process	16	427
AE Jobs (20)	71	473.5
12,000 Employees – Daily Merge		
SQR Process	136	2024.5
AE Jobs (16)	103	811.5

**Table 3: I/O Performance**

As seen in Table 3, these operations are not I/O intensive.

## DATA COMPOSITION DESCRIPTION

Two employee profiles were expanded to populate the Public Sector data. One person with a Civil Servant profile was expanded to represent 120,000 different employees and the other with a 'private contract' profile was expanded to represent 30,000 employees. The Merge processes under test applied to the former profile. The distribution is as follows:

Entire Employee Population	150,000	100%
Employees not merged	30,000	20%
Employees merged	120,000	80%
Employees merged daily	12,000	8%

**Table 3: Employee Data Division**

## BENCHMARK ENVIRONMENT

### HARDWARE CONFIGURATION

A Hewlett-Packard® Integrity™ rx8620 was used as the batch/database server. It was equipped with the following:

- 16 × 1.6 GHz Intel® Itanium®2 Processors, each with 16 Kilobytes of Level-1 Cache, 256 Kilobytes of Level-2 Cache and 6 Megabytes of Level-3 Cache
- 32 Gigabytes of Memory (~31 GB used at peak load)
- 1 SAN-Connected HP StorageWorks XP128 disk array with 2 fibre-channel connections
- ~4.6 Terabytes of total Disk Space available (64 × 73 GB + 2 × 73 GB internal disk drives), approximately 800 GB of RAID 0+1 storage used for this benchmark
- 2 × Hewlett-Packard® Tachyon™ XL2 Fibre Channel Host Bus Adapters

### SOFTWARE VERSIONS

Oracle's PeopleSoft Enterprise Human Resources 8.9 (w/MP1), French Public Sector specific

Oracle's PeopleSoft Enterprise (PeopleTools) 8.45

Oracle9i™ 9.2.0.6 (64-bit)

Hewlett-Packard® HP-UX® 11i v.2 (11.23) (64-bit)

BEA Tuxedo® 8.142 with Jolt 8.1



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