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# Solution-in-a-box: Best practices for deploying PeopleSoft Applications on Oracle Database Appliance

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## Introduction

This red paper is a practical guide for system architects or PeopleSoft application DBAs planning a PeopleSoft implementation on Oracle Database Appliance. This paper provides guidance for using the Oracle VM Template for PeopleSoft to reduce the time required to deploy a PeopleSoft PeopleTools middle tier. The instructions and recommendations provided in this document incorporate best practices for both PeopleSoft installations and Oracle Database Appliance. With some customization, the Oracle VM template for PeopleSoft can be used to deploy PeopleSoft applications on Oracle Database Appliance in a high availability (HA) configuration.

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## Structure of This Red Paper

This red paper provides guidance for implementing a PeopleSoft deployment on Oracle Database Appliance.

Oracle updates this document as needed. Therefore, the structure, headings, content, and length of this document may vary with each posted version. To see if the document has been updated since you last downloaded it, compare the date of your version to the date of the version that is posted.

## Related Materials

This paper is written for experienced IT professionals with a good understanding of the PeopleSoft Pure Internet Architecture (PIA) and Oracle Database Appliance. It also assumes that readers have a basic understanding of Oracle Database Appliance administration and PeopleSoft PeopleTools administration, and this paper does not replace the product documentation for PeopleSoft PeopleTools or Oracle Database Appliance. Before reading this paper, you should become familiar with the PeopleSoft Pure Internet Architecture information available in PeopleSoft PeopleTools product documentation to ensure that you have a good understanding of the technologies.

The following documentation available on the PeopleSoft Online Help site discusses many of the fundamental concepts that are related to PeopleSoft PeopleTools.

- [PeopleTools: Getting Started with PeopleTools](#)
- [PeopleTools: System and Server Administration](#)

Additionally, you should become familiar with the Oracle Database Appliance documentation. More specifically, you should be familiar with the Oracle Database Appliance Virtualized Platform architecture and administration concepts.

You can refer to the Oracle Database Appliance Getting Started Guide and other documentation at:

- [Oracle Database Appliance Documentation](#)

Note: This paper is applicable to PeopleSoft PeopleTools 8.53 and later. And, is applicable to Oracle Appliance Manager Release 2.8 and later.

## Overview

This red paper explains how you can accelerate the deployment of your PeopleSoft system on Oracle Database Appliance. Underpinning this solution are the Oracle VM templates for PeopleSoft that are developed and maintained by the Oracle PeopleSoft product development team. The solution architecture takes advantage of Oracle Database Appliance Virtualized Platform and optimizes the use of onboard storage to take advantage of the resources and bandwidth available within the platform. By following the best practices described in this document you can drive down the cost of managing your PeopleSoft application environment substantially, and start from a proven reference environment. This document outlines the process of implementing and configuring PeopleSoft applications with an Oracle RAC Database environment and clustered Oracle WebLogic servers running on different virtual machines.

This document deals with the following topics:

- Design – planning your environment: Overview of the Oracle VM template for PeopleSoft and a review of the Oracle Database Appliance features that will contribute to an efficient PeopleSoft deployment.
- Best practices for deployment of PeopleSoft on Oracle Database Appliance: Steps to deploy a PeopleSoft environment in a highly available environment on Oracle Database Appliance and how to set up load balancing between logical tiers in a PeopleSoft environment.

## Understanding Oracle Database Appliance Virtualized Platform

Oracle Database Appliance Virtualized Platform is based on Oracle VM and enables customers to quickly deploy both database and PeopleSoft applications in a single virtualized appliance. Customers can easily deploy a complete solution-in-a-box through virtualization that efficiently consolidates different workloads while retaining the simplicity associated with the appliance.

VM management tools for deployment tasks such as configuring hard partitioning and provisioning virtual machines are built directly into the Appliance Manager software, eliminating the need for a separate VM management server. In addition, PeopleSoft Oracle VM templates streamline the traditional Peoplesoft installation process and enable customers to deploy and manage a fully functioning solution in a fraction of the time it would normally take.

Virtual Machine templates and Virtual Machines are stored in a storage repository on Oracle Database Appliance. This repository can be stored on the local disks on the server nodes or it can be stored on the shared storage that is accessible from both nodes. This shared repository runs on ASM Cluster File System (ACFS) file system which enables VM high availability. Individual virtual machines can be configured with the ability to failover to the other node if one node goes offline.

## Oracle PeopleSoft Overview

Oracle's PeopleSoft applications are designed to address the most complex business requirements and provide comprehensive business and industry solutions, enabling organizations to increase productivity and, accelerate business performance while providing lower cost of ownership. For more information and a general overview refer to Oracle's PeopleSoft Information Portal at [www.peoplesoftinfo.com](http://www.peoplesoftinfo.com).

Figure 1 illustrates the system architecture for a PeopleSoft deployment on Oracle Database Appliance and specifically diagrams the appliance enabled as a virtualized platform with Oracle RAC running on both nodes along with the PeopleSoft application tier.

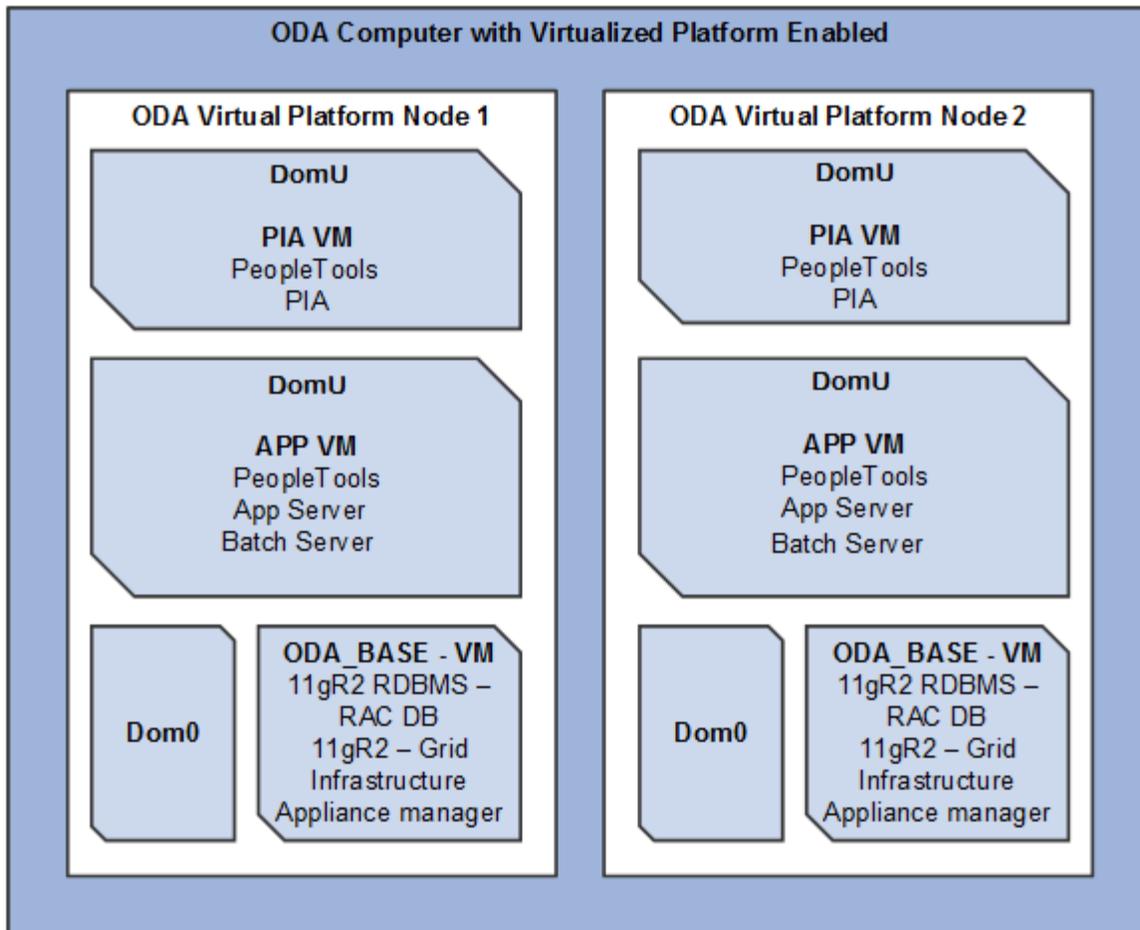
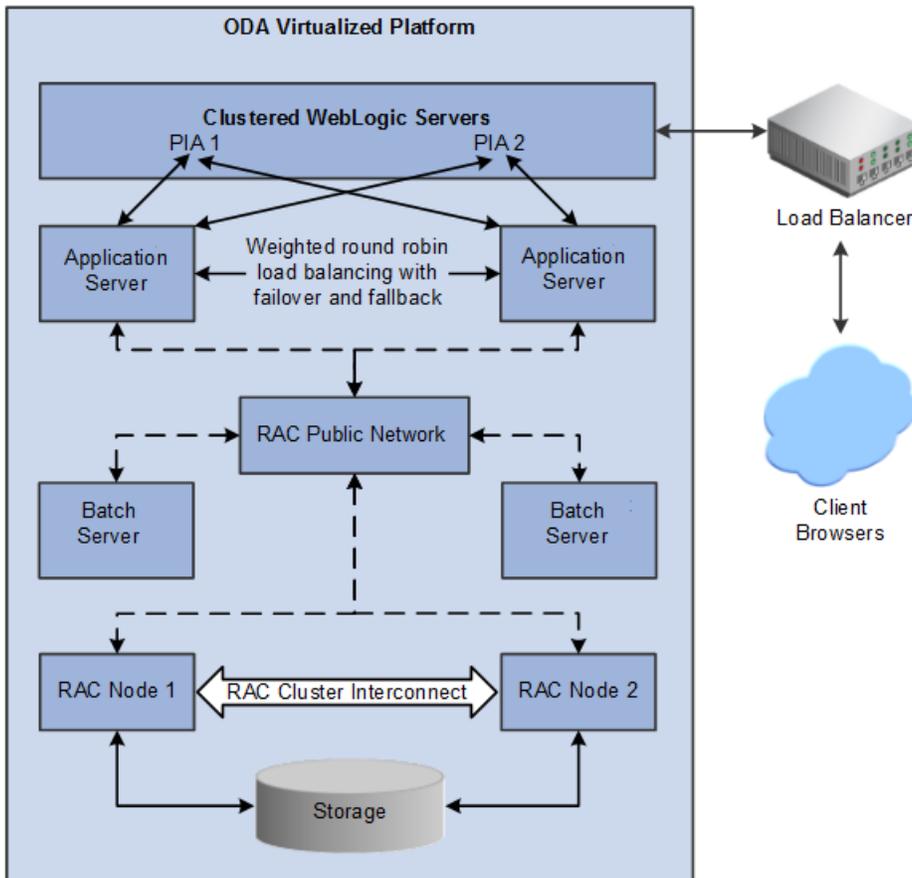


Figure 1 : System architecture of a PeopleSoft deployment on Oracle Database Appliance Virtualized Platform

The system architecture includes these components:

- **DOM0:** Domain-0 is the administrative domain that resides on each server node. The dom0 kernel is a complete Linux kernel with support for a wide range of devices, file systems, software RAID and volume management.
- **ODA\_BASE:** ODA\_BASE is a “privileged domain” within Oracle Database Appliance Virtualized Platform. This domain hosts the databases and is configured and sized specifically to support database workloads. The other application workloads are isolated from this domain in their respective application virtual machines
- **APP VM:** APP VMs are user domains (DomU). These domains can host the middle-tier such as Oracle WebLogic Server or specific applications. The APP VMs in the above system architecture diagram host PeopleSoft PeopleTools, Application Server, and PeopleSoft Batch Server.
- **PIA VM:** The PIA VM is a user domain and hosts the PeopleSoft Pure Internet Architecture which handles online user page requests and web services through the Integration Gateway.

Figure 2 illustrates the logical flow architecture of PeopleSoft Applications on Oracle Database Appliance in a high availability environment. The diagram includes components that are deployed on ODA\_Base and components on the APP VMs. This diagram also shows a relationship between PIA servers deployed on Oracle Database Appliance and a load balancer and client browsers outside the Oracle Database Appliance environment.



**Figure 2 : Logical architecture of a PeopleSoft deployment on Oracle Database Appliance Virtualized Platform**

The components running on the Oracle Database Appliance Virtualized Platform shown in the diagram include the following:

- Clustered WebLogic servers: Two PIA servers which access the Oracle Tuxedo Application servers.
- Tuxedo Application Server: The application servers are configured with Weighted Round Robin load balancing with Failover and Fallback.
- Process Scheduler: The Process Scheduler (batch server) supports the PeopleSoft application environment.
- RAC Public Network: The batch server and application server access the RAC database using the RAC Public Network that is configured using SCAN IPs.

## Design – Planning Your Environment

The Oracle VM templates for PeopleSoft help you optimize your PeopleSoft application deployment to meet the changing needs of your dynamic business. They can position your environment for long term operational efficiency.

With the use of the Oracle VM templates for PeopleSoft and choosing Oracle Database Appliance as your deployment platform you can achieve faster deployment, optimal load balancing between PeopleSoft components and high availability of PeopleSoft applications.

Note: For the sake of brevity, this documentation sometimes uses "PeopleSoft PeopleTools VM template" to refer to the Oracle VM template for PeopleSoft on Oracle Linux.

For the planning and designing process, you need to understand your organization's business process and determine whether to deploy customized PeopleSoft VM templates on Oracle Database Appliance. Deploying PeopleSoft VM templates on Oracle Database Appliance helps you to achieve the following:

- Simplify complex deployment processes to minimize errors and speed progress
- Increase agility to quickly scale up and down the infrastructure as required
- Reduce IT costs by speeding up deployments
- Enhance application availability and simplify disaster recovery

When planning your PeopleSoft deployment on Oracle Database Appliance Virtualized Platform you should take into account many of the same considerations that are applicable to conventional environments. For example, you will still need to plan for disaster recovery, failover, application security, patching and so forth. You will find that some of these activities are simple with Oracle Database Appliance. With PeopleSoft VM templates deployed on Oracle Database Appliance, you have the unique opportunity to implement standards that are advocated by Oracle. Following well-established standards reduces application ownership costs by implementing proven and well-documented procedures.

An important part of the planning phase is identifying what additional configuration and customization needs to be done to the PeopleSoft VM templates. Some examples of design considerations include:

- Security
- Networking
- Capacity Planning
- High Availability
- Load Balancing
- Disaster Recovery
- VM Configuration
- Application Configuration

## Understanding PeopleSoft VM Templates

PeopleSoft VM templates allow fast deployment of a PeopleSoft PeopleTools environment on Oracle Linux. The PeopleSoft VM template used in this red paper is based on the following software versions:

- Oracle Linux 5.6 64 bit
- PeopleSoft PeopleTools 8.53.11 Application Server
- PeopleSoft Pure Internet Architecture (PIA) 8.53.11
- Oracle Tuxedo 11gR1 PS2
- Oracle Database client 11.2.0.3

- Verity Development Kit
- Oracle Weblogic 10.3.6

The PeopleSoft VM templates can be downloaded from My Oracle Support. For details, see [PeopleSoft VM templates Home Page](#), My Oracle Support, Document 1598176.1, for more information.

Note: The PeopleSoft VM templates are designed to simplify installation and patch application, saving significant time and effort with setting up the PeopleSoft PeopleTools middle tiers. They do not include a PeopleSoft application installation or database.

## Accelerated Provisioning

Using the pre-built, fully-patched PeopleSoft VM templates allows you to streamline your provisioning of the PeopleSoft PeopleTools middle tiers. These templates are fully tested and production ready.

Accelerated deployment is one of the primary motivators for using the PeopleSoft VM templates. In addition to shortening the time needed to deploy, PeopleSoft VM templates also serve as a reference implementation that has been created specifically by Oracle that includes best practices for installing a traditionally complex enterprise software product.

## Template Customization and Oracle Database Appliance

From the PeopleSoft VM templates, any number of virtual machine instances can be created. Each virtual machine instance can contain one or more PeopleSoft PeopleTools logical tiers. A virtual machine could therefore run one or more Application Server, Process Scheduler, or PIA instances. The PeopleSoft VM template contains a generic configuration and is delivered with the latest release and patches. A few configuration changes may be required to tailor the template to your environment.

## Oracle PeopleSoft Deployment on Oracle Database Appliance

Traditionally, a new installation and deployment of Oracle PeopleSoft applications involves a team of business analysts, system architects, and database and system administrators, to jointly plan and prepare the deployment, design the platform architecture, procure hardware and software, deploy the systems and customize the PeopleSoft applications. Furthermore, high availability (HA), load balancing, etc. must be configured across components to ensure their interoperability and compatibility.

This process can be very time and resource consuming. Use of Oracle's pre-tested PeopleSoft VM Templates along with an Oracle Engineered System, Oracle Database Appliance, as part of your deployment strategy can substantially reduce the deployment effort.

Oracle Database Appliance can also serve a great migration platform for your existing PeopleSoft Applications. Table 1 outlines the procedures involved in a typical deployment of Peoplesoft on Oracle Database Appliance Virtualized Platform.

DEPLOYMENT STAGE	PROCEDURES
Stage 1	<ul style="list-style-type: none"> <li>• Set up Oracle Database Appliance Virtualized Platform</li> <li>• Set up Shared Repository on Oracle Database Appliance.</li> </ul>

Stage 2	<ul style="list-style-type: none"> <li>• Download the PeopleSoft VM template <ul style="list-style-type: none"> <li>○ Import the PeopleSoft VM template in Oracle Database Appliance</li> <li>○ Configure the template</li> <li>○ Create and configure the VM</li> </ul> </li> <li>• Configure the Database, PeopleSoft PeopleTools, and applications on Oracle Database Appliance</li> <li>• Customize the PeopleSoft VM template <ul style="list-style-type: none"> <li>○ Customize the VM</li> <li>○ Cleanup the VM</li> <li>○ Save VM as a template</li> <li>○ Create and configure VMs from customized template</li> </ul> </li> <li>• Configure the PeopleSoft Application Server and Batch Server on Oracle Database Appliance</li> <li>• Configure PeopleSoft Pure Internet Architecture on Oracle Database Appliance</li> <li>• Complete additional setup</li> </ul>
Stage 3*	<ul style="list-style-type: none"> <li>• Perform load testing</li> <li>• Set up Disaster Recovery site</li> </ul>
Stage 4*	<ul style="list-style-type: none"> <li>• Apply patches and maintenance packs</li> <li>• Maintain the VM template</li> </ul>

**Table 1 : Typical PeopleSoft deployment procedures on Oracle Database Appliance Virtualized platform**

\*(These procedures are not discussed in this red paper, but should be part of your deployment process. For details, please refer to [PeopleSoft template customization guide](#))

## Setting Up the Oracle Database Appliance Virtualized Platform

Before the PeopleSoft VM template is deployed, the Oracle Database Appliance Virtualized Platform setup must be completed. Detailed step-by-step instructions for deploying Oracle Database Appliance Virtualized Platform are beyond the scope of this red paper. The [Oracle Database Appliance Setup Poster](#) illustrates the process of Oracle Database Appliance Virtualized Platform setup. This red paper does not replace standard Oracle Database Appliance documentation. However, the following outline can be useful in understanding and executing the setup of the Oracle Database Appliance Virtualized Platform:

- Unpack and cable Oracle Database Appliance hardware.
- Set up ILOM on each Oracle Database Appliance server node.
- Re-image servers and create the virtualized platform.
- Download the ODA\_BASE template.
- Deploy database domain (ODA\_BASE).
- Deploy Oracle GI and RDBMS stack inside ODA\_BASE

### Setting Up the Shared Repository on Oracle Database Appliance

Use the following instructions to create the shared repository. Once the shared repository is created, it must be started to make the storage available before assigning virtual machines to the repository.

To set up a shared repository:

1. Run the following command to specify the repository name, the disk group to use for its storage (DATA or RECO), and its size (in Gigabytes). In this example, the repository name is psoftrepo, the disk group is data, and the size is 500 GB:

```
# oakcli create repo psoftrepo -dg data -size 500
```

Note: The shared repository (psoftrepo) sizing is based on downloaded PeopleSoft VM templates zip files, imported template size, APP and PIA VMs size. However, be sure to size the shared repository appropriately for your environment.

2. Run the following commands to check the repos:

```
#oakcli show repo psoftrepo -node 0
```

```
#oakcli show repo psoftrepo -node 1
```

Note: The shared repository “psoftrepo” should start automatically after creation and you should see the state online on both the nodes.

## Downloading the PeopleSoft VM Template

This red paper uses the PeopleSoft VM template for PeopleSoft PeopleTools 8.53. To obtain the PeopleSoft VM template, execute the following steps:

1. Log in to My Oracle Support
2. Select the Patches & Update tab.
3. Select Product or Family (Advanced) under Patch Search, and provide the following details:
  - Product: PeopleSoft PeopleTools
  - Release: PeopleTools 8.53
  - Platform: Linux x86-64
4. Click Search.

The result page will have details of all the PeopleSoft PeopleTools Product Patch VM templates. Sort the Updated column in descending order to download the PeopleSoft VM template based on the latest patch. This red paper uses PeopleSoft PeopleTools 8.53.11 Product Patch VM template as shown in Figure 3.

**Patch Search**  
Patch Advanced Search Results  
Filters: Product is PeopleSoft PeopleTools; Release is PeopleTools 8.53; Platform is Linux x86-64; [Edit Search](#)

Patch Name	Description	Release	Platform (Language)	Classification	Product	Updated	Size	Download Access
18036403	PT 8.53.11 PRODUCT PATCH (Patchset)	8.53	Generic Platform (American English)	General	PeopleSoft PeopleTools	20 days ago	3.1 GB	Software
18296076	PT 8.53.11 PRODUCT PATCH OVM TEMPLATE - EXALOGIC (Patchset)	8.53	Linux x86-64 (American English)	General	PeopleSoft PeopleTools	20 days ago	12.2 GB	Software
18297202	PT 8.53.11 PRODUCT PATCH OVM TEMPLATE (Patchset)	8.53	Linux x86-64 (American English)	General	PeopleSoft PeopleTools	20 days ago	14.5 GB	Software
18075009	PT 8.53.10 PRODUCT PATCH OVM TEMPLATE - EXALOGIC (Patchset)	8.53	Linux x86-64 (American English)	General	PeopleSoft PeopleTools	2+ months ago	12.0 GB	Software
18075246	PT 8.53.10 PRODUCT PATCH OVM TEMPLATE (Patchset)	8.53	Linux x86-64 (American English)	General	PeopleSoft PeopleTools	2+ months ago	14.8 GB	Software

Figure 3 : PeopleSoft Patch Search Screen

5. Select the patch number under Patch Name column and you will be redirected to the Patch download page.

6. Click the Download button to download the PeopleSoft VM patch files.

Note: Read all the installation instructions in the README file before moving to the next step in this red paper. Also, keep in mind that the PeopleSoft VM template does not contain a PeopleSoft application installation and does not contain a PeopleSoft database.

## Importing the PeopleSoft PeopleTools VM Template into Oracle Database Appliance

In this procedure we import the downloaded PeopleSoft VM templates to a VM-based template, so that we can create virtual machines .

To import the PeopleSoft VM template into Oracle Database Appliance:

1. Execute the following command from ODA\_BASE:

```
# oakcli import vmtemplate PSFT_PT_853_TEMPLATE -files
/OVS/Repositories/psoftrepo/staging/OVM_EL5U6_X86_64_TOOLS8_53_11_PVM.tgz -
repo psoftrepo -node 0
```

Note: If the PeopleSoft VM template is in assembly form, which is packaged as .ova files, then you need to use the parameter `-assembly` instead of `-files`.

2. Check the template with the following command:

```
# oakcli show vmtemplate
```

The result in the second row shows the PSFT\_PT\_853\_TEMPLATE on the psoftrepo repository:

NAME	MEMORY	VCPU	REPOSITORY
PSFT_PT_853_TEMPLATE	4096	2	psoftrepo

## Changing the Base Configuration of the PeopleSoft VM Template

Execute the following command (in ODA\_BASE) to set up the required network configuration for the VMs:

```
# oakcli configure vmtemplate PSFT_PT_853_TEMPLATE -network
['type=netfront,bridge=net1']"
```

The second row shows the result:

```
Configured VM Template
```

## Cloning the VM from PeopleSoft VM Template on Oracle Database Appliance

Clone the VM from PeopleSoft VM templates to the required VMs by issuing the following commands from ODA\_BASE:

```
# oakcli clone vm PSFT_PT_853_VM -vmtemplate PSFT_PT_853_TEMPLATE -repo
psoftrepo -node 0
```

```
# oakcli configure vm PSFT_PT_853_VM -prefnode 0
```

## Starting the PeopleSoft VM on Oracle Database Appliance

The following hostname is used for configuring the PeopleSoft VM. (Use the IPs column to note the IPs in your environment).

VM NAME	IPS	HOST NAME
PSFT_PT_853_VM	xx.xxx.xx.xx	ps-v1.us.oracle.com.

**Table 2 : IP details of PSFT\_PT\_853\_VM**

Use these steps to start the PeopleSoft VM system. To start the first PeopleSoft VM system on ODAVP node1:

1. Issue the following commands from ODA Base:

```
# oakcli start vm PSFT_PT_853_VM
```

When the command returns without an error, the guest is running.

2. You will have to attach a VM console to view the console. You need to provide setting to configure VMs. Execute the following command to connect to VM:

```
# oakcli show vmconsole PSFT_PT_853_VM
```

3. Provide the required input to configure network stack and root password.

4. Enter 'N' when prompted for configuring APP, PIA and PS\_APP\_HOME during boot time for PeopleSoft VM configuration.

5. Review the status of the setup steps.

For the details about using PeopleSoft VM templates, user details, pre-installed software, and setup instructions, please open the product documentation [Using Oracle VM Template for PeopleSoft on Oracle Linux](#) which corresponds to the version of the PeopleSoft VM template you downloaded in PeopleSoft VM templates home page, My Oracle Support, Document 1598176.1.

## Setting Up a PeopleSoft Application Database on Oracle Database Appliance

Provisioning a PeopleSoft database for Oracle Database Appliance can be achieved either by performing a fresh database installation on Oracle Database Appliance or by migrating an existing PeopleSoft database to Oracle Database Appliance.

We have three Oracle Database Appliance models that exist in the market today. The CPU and Memory details are outlined below:

- Oracle Database Appliance                      24 Cores                      192 GB
- Oracle Database Appliance X3-2                32 Cores                      512 GB
- Oracle Database Appliance X4-2                48 Cores                      512 GB

The PeopleSoft VM template can be deployed on any of the above Oracle Database Appliance models. For the sizing of ODA\_BASE refer [Oracle Database Appliance](#) documentation. For demonstration purposes, we will be using a small database template. However, choose the appropriate database template for your environment.

### Migrating an Existing Database

Several migration methods are available depending on the operating system (OS) platform of the existing Oracle database. These methods are discussed in the [Oracle Database Appliance: Migration Strategies](#). However, you should be very familiar with PeopleSoft and Oracle Database migration utilities before migrating PeopleSoft Application Database to Oracle Database Appliance.

## Installing a New PeopleSoft Application Database

Performing a PeopleSoft application database installation on Oracle Database Appliance uses the standard tools provided in the PeopleSoft PeopleTools software suite, such as Data Mover and Application Designer. The tools and methods for building an Oracle database and installing the PeopleSoft schema are the same as for all OS platforms.

### Task 1: Installing PeopleSoft HCM 9.2 Applications on Oracle Database Appliance

Before beginning the PeopleSoft application database setup, the PeopleSoft application must be installed on ODA\_BASE. For this setup, we downloaded PeopleSoft Human Capital Management (HCM) 9.2 installation software zip files from the Oracle Software Delivery Cloud portal.

Before you start the PeopleSoft HCM 9.2 application installation process, you need to create an ACFS mount point (/cloudfs) of size 10G on ODA\_BASE that can be used to stage and install PeopleSoft application software. Once the PeopleSoft application software is installed it can be exported to APP VMs via a NFS mount point.

Note: For creating an ACFS mount point, see [How to Setup ACFS Post Deploy](#), My Oracle Support, Document 1435019.1, for information.

Execute the following steps to install a PeopleSoft HCM 9.2 Application database on Oracle Database Appliance:

1. Log in to [edelivery.oracle.com](http://edelivery.oracle.com)
2. Download PeopleSoft Human Capital Management 9.2 installation software.

Use /cloudfs to stage and unzip it on /cloudfs as an oracle user.

3. Install PeopleSoft application files as an oracle user.

```
# setup.sh -tempdir /tmp
```

4. Provide the following input when prompted:

- Database platform: Oracle
- Database: UNICODE
- PeopleSoft Server: Database Server
- PS\_APP\_HOME:/cloudfs/psft/hcm9.2

This will run for 5 minutes and PeopleSoft application files will be installed under PS\_APP\_HOME.

5. Export the ACFS mount point to ps-v1.us.oracle.com as an nfs mount point.

For exporting the ACFS mount point, see [How to export ACFS \(cloudfs\) using NFS](#), My Oracle Support, Document 1456551.1, for information. Also, you need to make sure that psadm1 (installation administrator) user has read and execute access on NFS mount point. Export PS\_APP\_HOME in .bashrc on ps-v1.us.oracle.com as psadm2 user.

6. Export the PS\_HOME mount point as a nfs mount point to ODA\_BASE.

It is a good idea to use the same path for the \$PS\_HOME mount point on ODA\_BASE as it was mounted on ps-v1.us.oracle.com. Oracle user should have read and execute permission on PS\_HOME. To get the more details on using PeopleSoft Mid-tier deployment, refer to [PeopleTools: Mid-Tier Deployment Best Practices](#).

### Task 2: Creating a New PeopleSoft HCM 9.2 Application Database

On Oracle Database Appliance, it is recommended to first create an empty RAC-enabled database using oakcli, and then use the PeopleSoft PeopleTools utilities to complete the installation of the PeopleTools schemas, and application

schemas. The PeopleSoft PeopleTools setup scripts use file system path names in the tablespace creation SQL statements. When instructed to edit these scripts, you will need to modify them to use ASM instead. For details, refer to the [PeopleTools Installation for Oracle guide](#).

Since there is not an existing PeopleSoft application database configured in the PeopleSoft VM template, you will need to complete the setup of a PeopleSoft application database on Oracle Database Appliance.

Execute the following steps to create and set up a PeopleSoft application database:

1. From the oda\_base, execute the following commands:

```
# oakcli create database -db PSFT -oh $ORACLE_HOME
```

Note: You need to set the ORACLE HOME according to your environment.

For more details on database creation on Oracle Database Appliance, please refer to [Managing Oracle Database on Oracle Database Appliance](#). We choose a small database template for this setup.

2. Change the value of NLS\_LENGTH\_SEMANTICS to char as PSFT is UNICODE database.

For details, refer to [ORA-12899: value too large for column](#), My Oracle Support, Document 656182.1

3. Change the system password to manager and sys user password to welcome1 in PSFT database as sys user.

4. Copy the following files on ODA\_BASE node1 under /home/oracle from \$PS\_HOME/script/unix.

- dbowner.sql
- psroles.sql
- utlspace.sql

Note: PS\_HOME should be mounted as nfs mount point on ODA\_BASE.

5. Copy hcddl.sql from \$PS\_APP\_HOME/scripts/unix to /home/oracle on ODA\_BASE node1.

6. Edit /home/oracle/utlspace.sql and change the datafile location to '+DATA' for PSTEMP and PSDEFAULT tablespace. Also, comment the catproc, catalog and catblock sql scripts, as they already were executed during the PeopleSoft database creation. Execute the following commands:

```
cd to /home/oracle
sqlplus sys/welcome1@psft as sysdba
@ utlspace.sql
```

Review the logs and make sure you do not see any error.

7. To create the specific tablespaces (for HRMS hcddl.sql), modify and run hcddl.sql.

Edit /home/oracle/hcddl.sql and change the datafile location to '+DATA' for all the tablespaces. To avoid space extension problem against the tablespace during the application load, you need to set autoextend and execute the following command:

```
sqlplus sys/welcome1@psft as sysdba
@ hcddl.sql
```

Review the logs and make sure you do not see any error.

8. Create dbowner on RAC Database PSFT as an oracle user with the following commands:

```
sqlplus system/manager
@dbowner.sql
```

Verify dbowner.log. Also, verify PS user has been created in the PeopleSoft database.

9. Create PeopleSoft Database Roles with the following commands:

```
sqlplus system/manager
@psroles.sql
```

Verify psroles.log to make sure the required roles have been created.

### Task 3: Running the Database Configuration Wizard

The Database Configuration Wizard is a tool designed to simplify your PeopleSoft database installation. When you run the Database Configuration Wizard, Data Mover is also running silently. To run the PeopleSoft Database Configuration Wizard on a database server, your setup must have read and execute permission on PS\_HOME and PS\_APP\_HOME have PeopleSoft application software installed and access to Oracle Tuxedo binaries.

Since the PeopleSoft database (PSFT) is already created, we will use the existing SID to set up the PeopleSoft application database.

1. Set the required environment variables for running Database Configuration Wizard on ODA\_BASE node1 as oracle user.

```
source $PS_HOME/psconfig.sh
source $BEA_HOME/tuxedo/tux.env
```

2. Start the Database Configuration Wizard in console mode as oracle user.

```
$PS_HOME/setup/PsMpDbInstall/setup.sh
```

Provide required input when prompted. Proceed further when the Database Configuration Wizard complete successfully.

Note: Select “Use existing ID” for new SID setup, and choose HCM system database.

3. Execute grant.sql to give select privilege on PeopleSoft security tables to connect ID user. Copy \$PS\_HOME/scripts/grant.sql to /home/oracle and replace <CONNECTID> with people.

```
sqlplus sysadm/SYSADM@psft
@/home/oracle/grant.sql;
exit;
```

4. Verify the HCM 9.2 PeopleSoft application database configuration:

```
sqlplus sysadm/SYSADM@psft
select toolsrel,ownerid,database_options,owneracct from sysadm.PSSTATUS;
exit;
```

5. Check the operator id and operator password. The password should be encrypted.

```
sqlplus sysadm/SYSADM@psft
select OPRID,SYMBOLICID,OPERPSWD from sysadm.PSOPRDEFN where OPRID='PS';
select * from sysadm.PSACCESSPRFL;
exit;
```

#### Task 4: Create a Service for Middle-Tier Connection

1. For a middle tier connection from the PeopleSoft system to DB, create a service under RAC PSFT database which will be used for connection, with the following commands:

```
srvctl add service -d PSFT -s PSFTSVC -r "PSFT1,PSFT2"
srvctl start service -d PSFT -s PSFTSVC
srvctl status service -d PSFT -s PSFTSVC
```

2. Execute the following statement to add servicename name in psdbowner.

```
sqlplus sysadm/SYSADM@psft
Insert into ps.psdbowner values ('PSFTSVC','SYSADM');
commit;
exit;
```

3. Check the status of PSDBOWNER with the following commands:

```
sqlplus sysadm/SYSADM@PSFT
Select * from ps.psdbowner;
commit;
exit;
```

4. Unmount NFS mount points for PS\_HOME and PS\_APP\_HOME from ODA\_BASE and ps-v1.us.oracle.com.

## Customizing the PeopleSoft VM Template

This section addresses the steps that you will follow to develop your own template from the PeopleSoft VM template. The PeopleSoft VM template contains a setup that is intended as a starting point for your environment. The steps by which this is achieved are described below.

### Customizing the VM

The PeopleSoft VM template can be customized by making changes to the VM created from PeopleSoft VM template. Examples are as follows:

- Enable or disable of services. e.g: iptables firewall.
- Add or remove file system mounts points.
- Change security or user profiles.

- Apply patches.

Note: You should upgrade PeopleSoft PeopleTools to the latest patch set in order to receive bug fixes.

## Cleaning Up the VM

You need to clean up the VM PSFT\_PT\_853\_VM created from PeopleSoft VM template because some settings in the VM must be removed before the VM can be used as a template. One such setting is the hostname of a VM and reset the network stack on the VM before it can be reused.

Note: For cleaning up, please refer to the section Resetting Virtual Machine in [Using Oracle VM Template for PeopleSoft on Oracle Linux](#) documentation corresponding to the version of the PeopleSoft VM template, My Oracle Support, Document 1598176.1. You need to run only cleanup option from VMConsole and reset the root password after cleanup.

## Saving the VM as a Template

Once a VM has been cleaned up as described above it may now be saved a template. This is achieved by stopping the VM PSFT\_PT\_853\_VM and packaged as compressed ‘tgz’ file and import it as template from ODA\_BASE. This new template is often referred to as a Golden Image Template.

Execute the following command from dom0:

```
# tar -Sczvf
/OVS/Repositories/psoftrepo/staging/PSFT_PT_853_GOLD_Template.tgz
/OVS/Repositories/psoftrepo/VirtualMachines/PSFT_PT_853_VM/*
```

Execute the following command from ODA\_BASE:

```
# oakcli import vmtemplate PSFT_PT_853_GOLD_TEMPLATE -files
/OVS/Repositories/psoftrepo/staging/PSFT_PT_853_GOLD_Template.tgz -repo
pssoftrepo -node 0
```

Note: If you want to claim space, delete “PSFT\_PT\_853\_TEMPLATE” template as later in this red paper the gold template is used for setup purpose. Also, you can delete zip files downloaded from My Oracle Support.

## Creating the VMs from a Customized Template

Clone the PeopleSoft VM templates to the required VMs by issuing the following commands from ODA\_BASE:

```
# oakcli clone vm PS_APP_1 -vmtemplate PSFT_PT_853_GOLD_TEMPLATE -repo
pssoftrepo -node 0
# oakcli clone vm PS_APP_2 -vmtemplate PSFT_PT_853_GOLD_TEMPLATE -repo
pssoftrepo -node 0
# oakcli clone vm PS_PIA_1 -vmtemplate PSFT_PT_853_GOLD_TEMPLATE -repo
pssoftrepo -node 0
# oakcli clone vm PS_PIA_2 -vmtemplate PSFT_PT_853_GOLD_TEMPLATE -repo
pssoftrepo -node 0
```

## Change Base Configurations for the Cloned PeopleSoft VMs

The default configuration of the PeopleSoft VM template is 2 VCPUs (1 Hyper-threaded CPU Core = 2 VCPUs) and 4GB of memory.

Since we are using this setup for demonstration purpose, we will be using same vCPU and memory settings for PeopleSoft VMs. However, when deployed in a production, development or testing environments, you need to size the VMs appropriately for that requirement.

To change the base configurations

1. Change the CPU setting for the VM, using the following commands:

```
# oakcli configure vm PS_APP_1 -vcpu 2 -maxvcpu 2
# oakcli configure vm PS_APP_2 -vcpu 2 -maxvcpu 2
# oakcli configure vm PS_PIA_1 -vcpu 2 -maxvcpu 2
# oakcli configure vm PS_PIA_2 -vcpu 2 -maxvcpu 2
```

2. Change the Memory setting for the VM, using the following commands:

```
# oakcli configure vm PS_APP_1 -memory 4G -maxmemory 4G
# oakcli configure vm PS_APP_2 -memory 4G -maxmemory 4G
# oakcli configure vm PS_PIA_1 -memory 4G -maxmemory 4G
# oakcli configure vm PS_PIA_2 -memory 4G -maxmemory 4G
```

3. Use the following command to verify the vCPU and Memory settings.

```
# oakcli show vm
```

4. Configure the VM for the use of Shared Repository with these commands:

```
# oakcli configure vm PS_APP_1 -prefnode 0
# oakcli configure vm PS_APP_2 -prefnode 1
# oakcli configure vm PS_PIA_1 -prefnode 0
# oakcli configure vm PS_PIA_2 -prefnode 1
```

Note: You can also use the `-failover true` parameter for VM failover to another node if any node goes down, but you need to make sure the same CPU pool exists there, and that CPUs in the pool are available.

### Start the PeopleSoft VM on Oracle Database Appliance

The following hostname are used for configuring PeopleSoft Tools customized VM template. (Use the IP column to note the IPs in your environment.

VM NAME	IPS	HOST NAME
PS_APP_1	xx.xxx.xx.xx	psapp-v1.us.oracle.com.
PS_APP_2	xx.xxx.xx.xx	psapp-v2.us.oracle.com.
PS_PIA_1	xx.xxx.xx.xx	pspia-v1.us.oracle.com.
PS_PIA_2	xx.xxx.xx.xx	pspia-v2.us.oracle.com.

**Table 3 : IP details of APP and PIA VMs**

Use these steps to start the PeopleSoft VM system from ODA\_BASE node1:

1. Issue the following commands from ODA Base:

```
# oakcli start vm PS_APP_1
# oakcli start vm PS_APP_2
```

```
# oakcli start vm PS_PIA_1
# oakcli start vm PS_PIA_2
```

When the command returns without an error, the guest is running.

2. Connect to VMs using following command:

```
# oakcli show vmconsole <VM_NAME>
```

3. Configure network stack which include setting IPs, Gateway and registration of IPs in DNS.

4. You need to repeat step 2 and 3 for all the VMs cloned from Gold Image.

## Configuring PeopleSoft Application Server VMs on Oracle Database Appliance

We have cloned the VMs from gold template and configured the network stack. We will be configuring oracle application server and batch server on PS\_APP\_1 and PS\_APP\_2 VMs.

### Configuring PeopleSoft Application Server and Batch Server on Oracle Database Appliance

PS\_APP\_1 and PS\_APP\_2 VMs are used for the Oracle Tuxedo application server which is the centerpiece of the PeopleSoft Pure Internet Architecture. It connects to the PeopleSoft database and handles almost all SQL-intensive interactions with the database server required during online transaction processing. These VMs also have PeopleSoft batch processes, such as COBOL and SQR, which are scheduled and invoked by a Process Scheduler server.

Note: Should your PeopleSoft application require a COBOL compiler, the compiler must be licensed and installed separately.

Execute the following tasks to configure the Application server and Batch server on Oracle Database Appliance:

#### Task 1: Edit the tnsnames file

Edit /etc/tnsnames.ora on both PS\_APP\_1 and PS\_APP\_2 as a root user and add the following entries, where <SCAN\_HOSTNAME> is the scan hostname of your RAC database:

```
PSFTSVC=(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=<SCAN_HOSTNAME>)(PORT=1521))) (LOAD_BALANCE = yes) (CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=PSFTSVC)))
```

To scale across Oracle RAC instances, ensure that the TNS alias connect string specifies LOAD\_BALANCE = YES

#### Task 2: Create an Application Server Domain

Use the PeopleSoft PeopleTools PSAdmin for managing application server domains, PeopleSoft Process Scheduler domains, integration server processes, search domains, and so on. A domain is the collection of server processes, supporting processes, and resource managers that enable the database connections required to fulfill application requests.

A number of template files are delivered in \$PS\_HOME/appserv as a part of PeopleSoft PeopleTools installation. Based on your requirement you can create small, medium and large domains. This example uses the small domain template for demonstration purpose. However, you need to choose the appropriate template based on your requirement.

1. Execute following command as psadm2 user on psapp-v1.us.oracle.com to create application domain APPDOM.

```
$PS_HOME/bin/psadmin -c create -d APPDOM -t small -s
PSFTSVC%ORACLE%PS%PS%AppDom%.%people%people%_____%_____%NOENCRYPT
```

2. Configure the domain with the following command.

```
$PS_HOME/bin/psadmin -c configure -d APPDOM -u
{PUBSUB}=Yes%{QUICKSRV}=N%{QUERYSRV}=N%{JOLT}=Yes%{JRAD}=N%{WSL}=N%{DBGSRV}=
N%{RENSRV}=Yes%{MCF}=Yes%{PPM}=N%{ANALYTICSRV}=Yes%{DOMAIN_GW}=N%{VERITY_TYP
E3}=N
```

3. Repeat steps 1 and 2 on psapp-v2.us.oracle.com as the psadm2 user.

The application server handles the bulk of the workload within the PeopleSoft system. It runs the business logic and processes all application requests. The application server relies on Oracle Tuxedo middleware to process transaction requests. Server processes are configured to boot within a domain. The number and type of server processes that boot within a particular domain varies depending on the purpose of the domain. For example, we need to set up Integration Broker, so we enabled Publisher and Subscriber server process.

### Task 3: Create a Process Scheduler Domain

PeopleSoft PeopleTools Process Scheduler is a centralized tool that enables application developers, system administrators, and application users to manage PeopleSoft batch processes.

A Master Scheduler enables load balancing of workload by automatically routing requests to available Process Scheduler servers, which ensures that you maintain optimal processing at all times. In addition, an active Master Scheduler manages and controls all Process Scheduler server domains that are on the same PeopleSoft database. You need to execute the following steps as psadm2 user.

1. Use this command to create a master process scheduler domain on psapp-v1.us.oracle.com:

```
$PS_HOME/bin/psadmin -p create -d PRCSDOM -t unix -ps
PSFTSVC, ORACLE, PSUNX, PS, PS, people, people, , , , , , _____, NOENCRYPT
```

2. Configure master process scheduler on psapp-v1:

```
$PS_HOME/bin/psadmin -p configure -d PRCSDOM -u {MSTRSRV}=Yes%{APPENG}=Yes%
```

3. Use this command to create process scheduler on psapp-v2:

```
$PS_HOME/bin/psadmin -p create -d PRCSDOM1 -t unix -ps
PSFTSVC, ORACLE, PSUNX1, PS, PS, people, people, , , , , , _____, NOENCRYPT
```

4. Configure process scheduler on psapp-v2:

```
$PS_HOME/bin/psadmin -p configure -d PRCSDOM1 -u {MSTRSRV}=N%{APPENG}=Yes%
```

Note: You can configure Process Scheduler based on your requirements. For more details on [Master Process Scheduler](#), refer to My Oracle Support, Document 647481.1, for information.

### Task 4: Start the Application Server and Process Scheduler Domains

1. Use the following commands to load the configuration file and start the domain as psadm2 user on PS\_APP\_1:

```
# psadmin -c configure -d APPDOM
# psadmin -c start -d APPDOM
```

```
# psadmin -p configure -d PRCSDOM
```

```
# psadmin -p start -d PRCSDOM
```

2. Use the following commands to load the configuration file and start the domain as psadm2 user on PS\_APP\_2:

```
# psadmin -c configure -d APPDOM
```

```
# psadmin -c start -d APPDOM
```

```
# psadmin -p configure -d PRCSDOM1
```

```
# psadmin -p start -d PRCSDOM1
```

3. Use the following commands to check status of domains on PS\_APP\_1. You should see that both domains are started.

```
# psadmin -c sstatus -d APPDOM
```

```
# psadmin -p sstatus -d PRCSDOM
```

4. Use the following commands to check status of domains on PS\_APP\_2. You should see that both domains are started.

```
# psadmin -c sstatus -d APPDOM
```

```
# psadmin -p sstatus -d PRCSDOM1
```

You should see that the status values for both domains are Started and all the configured components are up and running on both the VMs.

## Configuring PeopleSoft Pure Internet Architecture VMs on Oracle Database Appliance

Now that the gold template VMs have been cloned and the network stack configured, Oracle PeopleSoft Pure Internet Architecture (PIA) on PS\_PIA\_1 and PS\_PIA\_2 VMs needs to be configured.

### Configuring PeopleSoft Pure Internet Architecture on Oracle Database Appliance

In this paper, we have used a clustered Oracle WebLogic Server to run the PIA. Since all the required files are already installed on the PeopleSoft VM template, we will use them to configure the PIA domains.

PS\_PIA\_1 will be used as admin server so a multi server domain will be configured on this VM. Distributed server will be configured on PS\_PIA\_2 as it will be used as the failover domain.

Execute the following tasks to configure PIA:

#### Task 1: Set the Permissions

1. Login as a psadm1 user on both the PS\_PIA\_1 and PS\_PIA\_2 VMs.

2. Execute the following statement:

```
chmod -R g+w $BEA_HOME
```

Note: You need to set the BEA\_HOME environment variable for psadm1 and psadm2 user. You can get the details of the Oracle WebLogic installed location from the installation instruction guide for PeopleSoft VM templates.

3. If you see any error in changing the permission, change the owner from root for failed files and set owner psadm1 and same group. Once this is fixed for failed files, try step 2 of Task 1.

### Task 2: Install the Multi Server Domain in Silent Mode

1. Log in as psadm2 on PS\_PIA\_1.
2. Change directory on PS\_PIA\_1 to *<PS\_HOME>*, the directory where you installed PeopleSoft PeopleTools, for example, *\$PS\_HOME/setup/PsMpPIAInstall*.
3. Go to *<PS\_HOME>/setup/PsMpPIAInstall/scripts* directory.
4. Copy *resp\_file.txt* from scripts folder and modify the parameters based on your environment; for example:

```
PS_CFG_HOME=<PS_CFG_HOME LOCATION>
DOMAIN_NAME=peoplesoft
SERVER_TYPE=weblogic
BEA_HOME=<BEA_HOME LOCATION>
USER_ID=system
USER_PWD=Passw0rd
USER_PWD_RETYPE=Passw0rd
INSTALL_ACTION=CREATE_NEW_DOMAIN
DOMAIN_TYPE=NEW_DOMAIN
INSTALL_TYPE=MULTI_SERVER_INSTALLATION
WEBSITE_NAME=ps
APPSERVER_NAME=psapp-v1.us.oracle.com
JSL_PORT=9000
HTTP_Port=8000
HTTPS_PORT=4430
WEB_PROF_NAME=PROD
WEB_PROF_PWD=PTWEBSERVER
WEB_PROF_PWD_RETYPE=PTWEBSERVER
IGW_USERID=administrator
IGW_PWD=password
IGW_PWD_RETYPE=password
APPSRVR_CONN_PWD=PS
APPSRVR_CONN_PWD_RETYPE=PS
REPORTS_DIR=<Dir Location>
```

5. Execute the following command to install the domain:

```
sh $PS_HOME/setup/PsMpPIAInstall/setup.sh -javahome $PS_HOME/jre -i silent -
DRES_FILE_PATH=/tmp/resp_file.txt
```

### Task 3: Install the Distributed Domain in Silent Mode

1. Log in as psadm2 on PS\_PIA\_2.
2. Change directory on PS\_PIA\_1 to <PS\_HOME>, the directory where you installed PeopleSoft PeopleTools, for example, \$PS\_HOME/setup/PsMpPIAInstall.
3. Go to <PS\_HOME>/setup/PsMpPIAInstall/scripts directory.
4. Copy resp\_file.txt from scripts folder and modify the parameters based on your environment; for example:

```
PS_CFG_HOME=<PS_CFG_HOME LOCATION>
DOMAIN_NAME=peoplesoft
SERVER_TYPE=weblogic
BEA_HOME=<BEA_HOME LOCATION>
USER_ID=system
USER_PWD=Passw0rd
USER_PWD_RETYPE=Passw0rd
INSTALL_ACTION=CREATE_NEW_DOMAIN
DOMAIN_TYPE=NEW_DOMAIN
INSTALL_TYPE=DISTRIBUTED_SERVER_INSTALLATION
WEBSITE_NAME=ps
APPSERVER_NAME=psapp-v2.us.oracle.com
JSL_PORT=9000
HTTP_Port=8000
HTTPS_PORT=4430
WEB_PROF_NAME=PROD
WEB_PROF_PWD=PTWEBSERVER
WEB_PROF_PWD_RETYPE=PTWEBSERVER
IGW_USERID=administrator
IGW_PWD=password
IGW_PWD_RETYPE=password
APPSRVR_CONN_PWD=PS
APPSRVR_CONN_PWD_RETYPE=PS
REPORTS_DIR=<Dir Node>
```

5. Execute following command to install the domain:

```
sh $PS_HOME/setup/PsMpPIAInstall/setup.sh -javahome $PS_HOME/jre -i silent -
DRES_FILE_PATH=/tmp/resp_file.txt
```

#### Task 4: Specify the PeopleSoft Data in the Oracle WebLogic Admin Console

1. Log in as psadm2 on PS\_PIA\_1.

2. Change directory to `<PS_CFG_HOME>/webserv/<Multi-Server-Domain>/bin`; for example, `cd $PIA_HOME/bin`. You need to set the PIA\_HOME and PS\_CFG\_HOME environment variables for psadm2 user.

3. Enter the following command to start the Oracle WebLogic Admin console:

```
./startWebLogicAdmin.sh
```

4. Enter this URL in a browser to access the Oracle WebLogic Admin console:

```
http://<PS_PIA_1_IP>:9999/console
```

For example, `http://pspia-v1.us.oracle.com:9999/console/`

5. To update the IP address for PIA1, in the Admin Console, navigate to `<Domain Name>`, Environment, Servers.

6. On the Summary of Servers page, select PIA1, Configuration (General Tab).

7. Update the Listen Address field with the IP address of the server (PS\_PIA\_1) where the multidomain (PIA1) is deployed.

8. Click Save and Activate Changes.

9. Repeat the above step for WebLogicAdmin.

10. To update the IP address for PIA2, in the Admin Console, navigate to `<Domain Name>`, Environment, Servers.

11. On the Summary of Servers page, select PIA2, Configuration (General Tab).

12. Update the Listen Address field with the IP address of the server (PS\_PIA\_2) where the distributed domain (PIA 2) is deployed.

13. Click Save and Activate Changes.

#### Task 5: Update the Cookie Name

To update the cookie name to match PS\_PIA\_1 vm server:

1. On PS\_PIA\_2, open the weblogic.xml in this location:

```
$PIA_HOME/applications/peoplesoft/PORTAL.war/WEB-INF/
```

2. Update the value of `<cookie-name>` so it has same value as that found on PS\_PIA\_1, as shown in this example:

```
<session-descriptor>
<id-length>32</id-length>
<cookie-name>pspia-v1-us-oracle-com-8000-PORTAL-PSJSESSIONID</cookie-name>
<monitoring-attribute-name>USERID</monitoring-attribute-name>
<persistent-store-table>wl_servlet_sessions</persistent-store-table>
<http-proxy-caching-of-cookies>true</http-proxy-caching-of-cookies>
</session-descriptor>
```

Figure 4 : The weblogic.xml file showing the value for `<cookie-name>`

3. Repeat this process in the weblogic.xml file found in \$PIA\_HOME/applications/peoplesoft/pspc.war/WEB-INF/ as well.

#### Task 6: Configure UNICAST to PeopleSoft Cluster

1. Log into the Oracle WebLogic Admin Console.
2. Go to Environment, Clusters, peoplesoftCluster, Configuration, Messaging and ensure Unicast is selected.
3. After you activate the changes, if the Admin Console indicates that you need to restart the server, please log out of the Admin Console, close the browser, and then restart the Admin Server.

### Configuring PeopleSoft Clustering Using Node Manager

Node Manager is a WebLogic Server utility that facilitates the remote communication between an Admin Server and Managed Servers. It enables the user to start, shut down, and restart Managed Server instances from a remote location. A Node Manager monitors the Managed Server it starts; if the Managed Server goes down, Node Manager will restart it automatically. A Node Manager process is not associated with a specific WebLogic domain but with a specific server and must run on each system that hosts WebLogic Server instances that you want to control with Node Manager.

Note: For the purpose of this paper, we have used Demotrust and DemoIdentity for secure communication between Nodemanager and WeblogicAdmin. In a production environment, always use certificates provided by Certificate Authority (CA).

#### Task 1: Disable Hostname Verification

1. Log into the admin console.
2. From the left panel, under the Domain Structure, select Environment, then Servers.
3. At the bottom of right panel, click on WebLogicAdmin (admin).
4. Select the SSL tab under Configuration.
5. Select the Advanced link to expand the page.
6. To disable the hostname verification, set the Hostname Verification drop-down list to “None” as shown in this example:

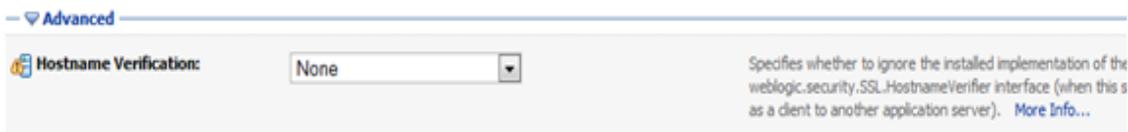


Figure 5 : The Hostname Verification drop-down list in the Admin Console

7. Save and activate the changes.

#### Task 2: Configure the Node Manager

1. Start the node manager on both the PS\_PIA\_1 and PS\_PIA\_2.  
`$BEA_Home/wlserver_10.3/server/bin/startNodeManager.sh`
2. After the Node Manager has been started the first time, a file called nodemanager.properties will be created under the \$BEA\_Home/wlserver\_10.3/common/nodemanager directory.
3. After the properties file is created, you may stop the Node Manager for now.

4. On both the PS\_PIA\_1 and PS\_PIA\_2 VMs, open the file `nodemanager.properties` and update the following:

- Set property “SecureListener” to “true”
- Set property “ListenAddress” to the IP address of the box hosting the Node Manager

**Note:** We used demo keystore store for demonstration purposes but in a production environment you need to create custom trust and keystore.

### Task 3: Update the Environment Variables in StartNodeManager Script

1. For both the PS\_PIA\_1 and PS\_PIA\_2 VMs, back up the “startNodeManager.sh” script under `$BEA_Home/wlserver_10.3/server/bin` directory.

2. Open `startNodeManager.sh` for editing and update the following items as shown in the example:

- Comment out the line of code: “`${WL_HOME}/common/bin/commEnv.sh`”
- Add a new line of code to call the `setEnv.sh` file under your PeopleSoft Domain/bin directory.

```
."${PIA_HOME}/bin/setEnv.sh"
```

Add the above line in the beginning of `commEnv.sh`.

3. Start the Node manager in background with the following command:

```
./startNodeManager.sh &
```

### Task 4: Create Machines for both PS\_PIA\_1 and PS\_PIA\_2 VMs.

1. Log in to the Admin Console.
2. From the left panel, under the Domain Structure, select Environment, then Machines.
3. Create one local machine (for example, MC\_PIA\_1) for each of the managed servers running in the same local box as Admin Server (PS\_PIA\_1)
4. Create one remote machine (for example, MC\_PIA\_2) for each of the managed servers running on remote boxes. (PS\_PIA\_2.)

[Customize this table](#)

Machines	
Name	Type
MC_PIA_1	Machine
MC_PIA_2	Machine

Showing 1 to 2 of 2 Pr

Figure 6 : Machines table in Admin Console

5. For each of the machines created, under the configuration tab, select Node Manager, and enter the following:

- Type: SSL
- Listen Address: Fill in the IP address of the box hosting the Node Manager.
- Listen Port: 5556

Note: If the “Machine” is for a remote server, then fill in the IP address of the remote box. This is default port; however it is configurable in the NodeManager.properties

- Restart Node Manager on both PS\_PIA\_1 and PS\_PIA\_2 VM machines.

#### Task 4: Assign the Cluster Servers to PS\_PIA\_1 and PS\_PIA\_2 Node Manager.

In Node Manager, under the “Servers” tab, add the PIA1 managed server into MC\_PIA\_1, and PIA2 remote managed servers to the MC\_PIA\_2.

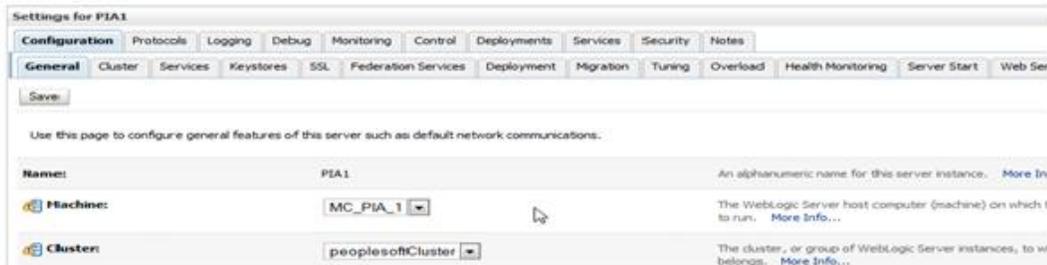


Figure 7 : PIA1 Managed Server in Node Manager

<input type="checkbox"/>	PIA			SHUTDOWN	8000
<input type="checkbox"/>	PIA1	peoplesoftCluster	MC_PIA_1	SHUTDOWN	8000
<input type="checkbox"/>	PIA2	peoplesoftCluster	MC_PIA_2	SHUTDOWN	8000

Figure 8 : PIA1 and PIA2

#### Task 5: Additional Configuration

Additional configuration is required for a PS\_PIA\_2 Node Manager. Use WLST to enroll remote Node manager and distributed server as psadm2 user.

- Issue the following WLST commands on the host where the distributed server and the remote node manager are installed.

```
source $PIA_HOME/bin/setEnv.sh
java weblogic.WLST
```

- Connect the remote box to the Admin Server running on the local box. The syntax of the command is:

```
connect('username','password','t3://<AdminServerIPAddress>:<AdminServer_Console_Port>')
```

- Enroll the PS\_PIA\_2 Node Manager and PS\_PIA\_2 distributed server into the Admin Server by running the command:

```
nmEnroll('\full_path_of_distributed_domain','BEA_Home/wlserver_10.3/common/nodemanager')
```

For example:

```
nmEnroll('<PIA_HOME>','<BEA_HOME>/wlserver_10.3/common/nodemanager')
```

Enrolling this machine with the domain directory at <PIA\_HOME>...

Successfully enrolled this machine with the domain directory at <PIA\_HOME>.

## Starting the Managed Oracle WebLogic Server

1. Stop Admin Console and Node Manager from PS\_PIA\_1 as psadm2 user. Change directory to \$PIA\_HOME/bin and execute the following:

```
./stopWebLogic.sh
```

2. Start Admin Console and Node Manager. Start Node Manager on both the nodes.

3. Execute following on PS\_PIA\_1 as psadm2 user:

```
source $PIA_HOME/bin/setEnv.sh
./startManagedWebLogic.sh PIA1
```

4. Execute following on PS\_PIA\_2 as psadm2 user:

```
source $PIA_HOME/bin/setEnv.sh
```

5. Modify boot.properties under \$PIA\_HOME/servers/WebLogicAdmin/security and delete the encrypted username and password on PS\_PIA\_2.

6. Add the following:

- username=system
- password=Passw0rd

7. If this is the first time that you are starting distributed managed server, execute the following on PS\_PIA\_2 as psadm2 user:

```
./startManagedWebLogic.sh PIA2
http://<AdminServer_hostname_or_IP_Address>:9999
```

8. Log in to admin console and verify the status of managed server and cluster.

You should see cluster up and running, as shown in this example:

Name	Cluster	Machine	State	Health	Listen Port
PIA			SHUTDOWN		8000
PIA1	peoplesoftCluster	MC_PIA_1	RUNNING	OK	8000
PIA2	peoplesoftCluster	MC_PIA_2	RUNNING	OK	8000
PSEM-HUB			SHUTDOWN		8081
PSOL			SHUTDOWN		6001
RPS			SHUTDOWN		8080
WebLogicAdmin(admin)			RUNNING	OK	9999

Figure 9 : Verifying status in admin console for managed server and clusters

## Load Balancing the Application Server

The Application server can also be used in load balancing and failover configuration. We have two application servers that are running on PS\_APP\_1 and PS\_APP\_2. We need to add failover and load balancing information in PIA configuration files, as follows:

1. Edit \$PIA\_HOME/applications/peoplesoft/PORTAL.war/WEB-INF/psftdocs/ps/configuration.properties
2. Add following in file to enable weighted load balancing and failover on PS\_PIA\_1 and PS\_PIA\_2 VMs.

```
psserver=psapp-v1.us.oracle.com:9000#1,psapp-v2.us.oracle.com:9000#1
```

## Configuring PIA Servers with Load Balancer

You can configure PIA server details in the hardware load balancer or Oracle HTTP Server (OHS). OHS is the Web server component for Oracle Fusion Middleware. It provides a HTTP listener for Oracle WebLogic Server and the framework for hosting static pages, dynamic pages, and applications over the Web. Key aspects of Oracle HTTP Server are its technology, its serving of both static and dynamic content and its integration with both Oracle and non-Oracle products.

See [How to Setup PeopleSoft and WebLogic when using a Load Balancer](#), My Oracle Support, Document 653998.1 for the implementation details.

## Accessing the PeopleSoft Application Console

To access the PeopleSoft Application console, type this URL in a browser:

`http://<Load balancer IP>/`

## Additional Setup

### Setting Up PeopleSoft Integration Broker

For the implementation of PeopleSoft Integration Broker, refer to [PeopleTools: PeopleSoft Integration Broker](#) product documentation.

### Using COBOL with the PeopleSoft System

The COBOL compiler and runtime are not delivered with PeopleSoft virtual artifacts (VM templates). If you plan to use any PeopleSoft applications that require COBOL, see the information on obtaining, installing, compiling and running Micro Focus Server Express COBOL in the PeopleSoft PeopleTools installation documentation.

See also [COBOL in PeopleSoft](#), My Oracle Support, Document 835487.1.

## Documentation Resources

- [PeopleSoft Oracle Virtual Machine Templates Development and Customization Guide](#), My Oracle Support, Document 1385319.1
- [Red Paper on Implementing Clustering and High Availability for PeopleSoft](#), My Oracle Support, Document 612096.1
- [How to Setup PeopleSoft and WebLogic when using a Load Balancer](#), My Oracle Support, Document 653998.1
- [COBOL in PeopleSoft](#), My Oracle Support, Document 835487.1
- [WebLogic Managed Server Architecture for PeopleSoft](#)
- [Oracle Database Appliance Overview](#)
- [Oracle Database Appliance FAQ](#)
- [Securing Your PeopleSoft Application Environment](#)



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