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# Understanding PeopleSoft Deployment Packages for Update Images

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Understanding PeopleSoft Deployment Packages for Update Images  
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# About this Documentation

This preface discusses:

- Understanding This Documentation
- Audience
- Typographical Conventions
- Products
- Related Information
- Comments and Suggestions

## **Understanding This Documentation**

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This documentation is designed to guide you through the deployment of the Oracle's PeopleSoft Deployment Packages. It is not a substitute for the documentation provided for PeopleSoft PeopleTools or PeopleSoft applications.

## **Audience**

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This documentation is written for the individuals responsible for installing and administering the PeopleSoft environment. This documentation assumes that you have a basic understanding of the PeopleSoft system. One of the most important components in the installation and maintenance of your PeopleSoft system is your on-site expertise.

You should be familiar with your operating environment and RDBMS and have the necessary skills to support that environment. You should also have a working knowledge of:

- SQL and SQL command syntax.
- PeopleSoft system navigation.
- PeopleSoft windows, menus, and pages, and how to modify them.
- Microsoft Windows.

Oracle recommends that you complete training, particularly a PeopleSoft Server Administration and Installation course, before performing an installation.

See Oracle University, <http://education.oracle.com>.

## Typographical Conventions

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To help you locate and understand information easily, the following conventions are used in this documentation:

Convention	Description
Monospace	Indicates a PeopleCode program or other code, such as scripts that you run during the install. Monospace is also used for messages that you may receive during the install process.
<i>Italics</i>	Indicates field values, emphasis, and book-length publication titles. Italics is also used to refer to words as words or letters as letters, as in the following example:  Enter the letter <i>O</i> .  Italics are also used to indicate user-supplied information. For example, the term <i>domain</i> is used as a placeholder for the actual domain name in the user's environment. When two such placeholders are used together, they may be set apart with angle brackets. For example, the path <code>&lt;PS_CFG_HOME&gt;/appserv/&lt;domain&gt;</code> includes two placeholders that require user-supplied information.
Initial Caps	Field names, commands, and processes are represented as they appear on the window, menu, or page.
lower case	File or directory names are represented in lower case, unless they appear otherwise on the interface.
Menu, Page	A comma (,) between menu and page references indicates that the page exists on the menu. For example, "Select Use, Process Definitions" indicates that you can select the Process Definitions page from the Use menu.
Cross-references	Cross-references that begin with <i>See</i> refer you to additional documentation that will help you implement the task at hand. We highly recommend that you reference this documentation.  Cross-references under the heading <i>See Also</i> refer you to additional documentation that has more information regarding the subject.
⇒ (line-continuation arrow)	A line-continuation arrow inserted at the end of a line of code indicates that the line of code has been wrapped at the page margin. The code should be viewed or entered as a continuous line of code, without the line-continuation arrow.
" " (quotation marks)	Indicate chapter titles in cross-references and words that are used differently from their intended meaning.

Convention	Description
<b>Note.</b> Note text.	Text that begins with <i>Note.</i> indicates information that you should pay particular attention to as you work with your PeopleSoft system.
<b>Important!</b> Important note text.	A note that begins with <i>Important!</i> is crucial and includes information about what you need to do for the system to function properly.
<b>Warning!</b> Warning text.	A note that begins with <i>Warning!</i> contains critical configuration information or implementation considerations; for example, if there is a chance of losing or corrupting data. Pay close attention to warning messages.

## Products

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This documentation may refer to these products and product families:

- Oracle® BPEL Process Manager
- Oracle® Enterprise Manager
- Oracle® Tuxedo
- Oracle® WebLogic Server
- Oracle's PeopleSoft Application Designer
- Oracle's PeopleSoft Change Assistant
- Oracle's PeopleSoft Change Impact Analyzer
- Oracle's PeopleSoft Data Mover
- Oracle's PeopleSoft Process Scheduler
- Oracle's PeopleSoft Pure Internet Architecture
- Oracle's PeopleSoft Customer Relationship Management
- Oracle's PeopleSoft Enterprise Learning Management
- Oracle's PeopleSoft Enterprise Performance Management
- Oracle's PeopleSoft Financial Management
- Oracle's PeopleSoft Human Capital Management
- Oracle's PeopleSoft Interaction Hub
- Oracle's PeopleSoft Pay/Bill Management
- Oracle's PeopleSoft PeopleTools
- Oracle's PeopleSoft Staffing Front Office
- Oracle's PeopleSoft Supply Chain Management

See the Products area on the Oracle web site, <http://www.oracle.com/us/products/product-list/products-a-z/index.html>.

## Related Information

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Oracle provides reference information about PeopleSoft PeopleTools and your particular PeopleSoft Application. You can access documentation for recent releases of PeopleSoft PeopleTools and PeopleSoft Applications at the PeopleSoft page in the Oracle Help Center. You can also find documentation by searching for the product name on My Oracle Support.

- PeopleSoft on the Oracle Help Center

You can access PeopleSoft Online Help, or download the PeopleBooks PDFs, from the PeopleSoft page in the Oracle Help Center. Select PeopleTools or your PeopleSoft application from the navigation list on the left. On the page for the selected product application, select the PeopleTools release or image number at the top and go to the Online Help and PeopleBooks section.

See Oracle Help Center, <https://docs.oracle.com/en/applications/peoplesoft/index.html>.

- *PeopleTools: Getting Started with PeopleTools* for your release.

This documentation provides a high-level introduction to PeopleTools technology and usage.

See PeopleTools on the Oracle Help Center, <https://docs.oracle.com/en/applications/peoplesoft/peopletools/index.html>.

- PeopleSoft Application Fundamentals for your PeopleSoft Application and release

This documentation provides essential information about the setup, design, and implementation of your PeopleSoft Application.

See Oracle Help Center, <https://docs.oracle.com/en/applications/peoplesoft/index.html>.

- Installation guides

You can find the installation guides for PeopleSoft PeopleTools and your PeopleSoft application on the appropriate Oracle Help Center page. Select your release or update image at the top and then go to the Install and Upgrade section.

- My Oracle Support

This support platform requires a user account to log in. Contact your PeopleSoft representative for information.

See My Oracle Support, <https://support.oracle.com>.

You can find several pages which compile documentation, links, and known issues for various PeopleSoft product areas. For a list of many of the PeopleSoft pages, select the PeopleSoft tab on the Oracle Information Center Catalog.

See Oracle Information Center Catalog, My Oracle Support, Doc ID 50.2.

To install additional component software products for use with PeopleSoft products, including those products that are packaged with your PeopleSoft products as well as products from other vendors, you should refer to the documentation provided with those products, as well as this documentation. For those additional components that are offered by Oracle, such as Oracle Middleware products, see the documentation on the Oracle Help Center.

See Oracle Help Center, <https://docs.oracle.com/en/>.



## Comments and Suggestions

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Your comments are important to us. We encourage you to tell us what you like, or what you would like changed about PeopleSoft documentation and other Oracle reference and training materials. Please send your suggestions to:

PSOFT-Infodev\_US@oracle.com

While we cannot guarantee to answer every email message, we will pay careful attention to your comments and suggestions. We are always improving our product communications for you.



## Chapter 1

# Preparing to Deploy

This chapter discusses:

- Understanding Deployment Packages for PeopleSoft Update Images
- Understanding PeopleSoft Components
- Understanding Oracle VM VirtualBox
- Understanding VirtualBox Network Configuration Settings
- Understanding Puppet and the PeopleSoft Puppet Modules
- Understanding the PeopleSoft Upgrade Source Images
- Understanding the Deployment Packages Uses and Contents

## Understanding Deployment Packages for PeopleSoft Update Images

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The installation of the PeopleSoft Update Images takes advantage of PeopleSoft Deployment Packages (DPKs). The DPKs can be installed on Oracle VirtualBox, as in previous releases. In addition, the PeopleSoft DPKs include an interactive setup script that allows for fast deployment on physical or virtual Linux and Microsoft Windows operating system platforms.

DPKs offer out-of-the-box functionality that greatly enhances the installation and configuration of your PeopleSoft environment, which is not available with the installation media used in previous releases (VCD).

DPKs allow fast deployment of a PeopleSoft environment on supported hardware platform allowing you to skip the manual steps associated with the following:

- Gathering the necessary installation programs
- Installing third-party products such as Oracle Tuxedo and WebLogic and the latest patches (CPUs)
- Installing Application Home (PS\_APP\_HOME) (for PI DPKs)
- Installing both PeopleTools and the PeopleTools patch binaries
- Configuring a default instance of the PeopleSoft mid-tier domains—PeopleSoft Pure Internet Architecture (PIA), Application Server and Process Scheduler domains

The document you are reading, *Understanding PeopleSoft Deployment Packages for Update Images*, discusses some of the concepts and more advanced topics for the use of the PeopleSoft Update Images and deployment packages. To use the PeopleSoft Update Images, follow the instructions in the product documentation *PeopleSoft Deployment Packages for Update Images Installation*.

See PeopleSoft PeopleTools on the Oracle Help Center, Install and Upgrade, <https://docs.oracle.com/en/applications/peoplesoft/peopletools/index.html>.

## Understanding PeopleSoft Components

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Here are brief descriptions of some of the terms referenced in this documentation for components included in a PeopleSoft environment. The components included for each deployment depend upon the types of DPKs downloaded and method used to deploy them. PeopleSoft components, including PeopleSoft Pure Internet Architecture (PIA), application server and Process Scheduler, are described in the PeopleSoft PeopleTools product documentation.

See the PeopleTools System and Server Administration product documentation for an explanation of PeopleSoft architecture fundamentals.

- PeopleSoft Pure Internet Architecture (PIA)

This is the Web Server component of the PeopleSoft system.

- Application server and Process Scheduler

The application server acts as the business logic engine of the PeopleSoft system. The Process Scheduler is responsible for processing scheduled tasks or jobs that typically do not happen during the course of a user's browser request.

- PeopleSoft application database

PeopleSoft applications refers to Oracle PeopleSoft products such as:

- PeopleSoft Campus Solutions (CS)
- PeopleSoft Customer Relationship Management (CRM)
- PeopleSoft Enterprise Learning Management (ELM)
- PeopleSoft Financials and Supply Chain Management (FSCM)
- PeopleSoft Human Capital Management (HCM)
- PeopleSoft Interaction Hub (IH)

- Database components

The database components in a PeopleSoft system include Oracle database server, Oracle database client, and PeopleSoft application database.

- Mid-tier components

This documentation uses the term "mid-tier" to refer to PeopleSoft Application Server, Process Scheduler, and PIA, and the software required to deploy them, including Oracle Tuxedo and Oracle WebLogic.

- Full tier components

This document uses the term "full tier" to refer to a complete PeopleSoft environment. This includes the Oracle database server and PeopleSoft application database along with the application server, Process Scheduler, and PIA.

- AppBatch components

This documentation uses the term "AppBatch" to refer to the Application Server and Process Scheduler server.

## Understanding Oracle VM VirtualBox

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When deploying the PeopleSoft application DPKs, you have the option of using Oracle VM VirtualBox. Oracle VM VirtualBox is a virtualization product from Oracle that allows one or more guest operating systems (OSs) to be run on and in a single host OS.

VirtualBox is intended to host applications with only a very small number of users. VirtualBox is a machine-bound solution—it runs on a single host. Therefore, PeopleSoft VirtualBox images as delivered are intended for demonstration or evaluation purposes. They are not intended to be used for a large number of users or for remote access. A typical PeopleSoft application will be secured by the administrator before being made available to the user population. Furthermore, a PeopleSoft deployment typically makes considerations for scalability and fault tolerance. The PeopleSoft VirtualBox images, as delivered, have not been constructed to meet these requirements. If the decision is made to make the virtual machine for the PeopleSoft image available to a larger user population, the administrator should take steps to implement the necessary security requirements.

See Oracle VM VirtualBox Web site, <https://www.virtualbox.org>.

See *Oracle VM VirtualBox® User Manual*, Oracle Technology Network, <https://docs.oracle.com/en/virtualization/virtualbox/index.html>.

## **Understanding VirtualBox Network Configuration Settings**

This section discusses:

- Understanding Host-Only and Bridged Adapters
- Accessing the VM Using the Hostname

### **Understanding Host-Only and Bridged Adapters**

This section briefly describes the network configuration settings that you can use with the VirtualBox DPKs. When you deploy the VirtualBox DPKs, you have the option to select either host-only or bridged adapter configuration.

See Oracle VM VirtualBox Users Manual for more information about VirtualBox network configurations, <http://virtualbox.oracle.com>.

A host-only adapter network configuration means:

- The virtual machine will be used in a machine-bound deployment. Select the host-only configuration if your environment will not need access to networked resources outside the host. This means that the virtual machine will only be used for single user or demonstration purposes and will be accessed only by users logged on to the host OS.
- Everything required of the runtime environment is contained within the virtual appliance (the PeopleSoft image).
- During the deployment process, a dynamic IP address is assigned to the virtual machine.

A bridged adapter network configuration means:

- The virtual machine will be able to operate in a wider network.
- If you choose to use a bridged adapter network configuration, you must provide an IP address during the deployment process.

Oracle strongly recommends that the IP address of the VirtualBox host and the IP address of the guest be within the same subnet. Otherwise, customers will need to have their own networking experts verify that everything is set up properly, such that all virtual machines can see other machines as needed. Oracle Support will not assist customers directly with the actual network configuration of machines on different subnets.

## Accessing the VM Using the Hostname

Note that if the hostname of your virtual machine is not known to the network on which your host OS is running, you will not be able to use it to access the virtual machine. Client connections such as those made by the browser to PIA will not be able to resolve the hostname.

To overcome this issue it is necessary to update the hosts file on the host OS. This file will be located in %SystemRoot%\System32\drivers\etc. The %SystemRoot% value by default maps to C:\Windows. The hosts file must be updated to contain a mapping from the virtual machine IP address to the hostname that it has been assigned. This will allow the network adapter on the host OS to route any network traffic directly to the virtual appliance.

Add an entry such as the following in order to use the virtual machine hostname rather than the IP address to establish connections:

```
192.168.1.103    hostname.example.com
```

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## Understanding Puppet and the PeopleSoft Puppet Modules

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The DPKs are delivered with the PeopleSoft Puppet modules, which are initialization and management scripts based upon the open-source Puppet software. The PeopleSoft Puppet modules can be used to customize and control the PeopleSoft environments deployed from the DPKs. For detailed information, see the documentation on the Puppet Labs Web site.

See Puppet Labs Documentation, <http://docs.puppetlabs.com>.

The PeopleSoft DPKs use Puppet to automate the process of deploying and configuring a PeopleSoft environment. Oracle has created custom modules and types to deploy and configure a PeopleSoft environment, which can be used to customize the DPK deployment. Customization examples and instructions are described in the PeopleSoft PeopleTools product documentation.

See *Installation: PeopleSoft PeopleTools Deployment Packages*, PeopleSoft PeopleTools on the Oracle Help Center, Install and Upgrade section, <https://docs.oracle.com/en/applications/peoplesoft/peopletools/index.html>.

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## Understanding the PeopleSoft Upgrade Source Images

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The PeopleSoft Upgrade Source Images can be used during a PeopleSoft application upgrade to install a demo database, and are available for each PeopleSoft application. Keep in mind that the PeopleSoft Upgrade Source Images are not interchangeable with the PeopleSoft Application images.

Here is an overview of the differences between the two types of images:

- The PeopleSoft Upgrade Source Images are released on a different schedule, and the sequence of version numbers is independent of that for either PeopleSoft Application images or PeopleSoft PeopleTools patches.
- The PeopleSoft Upgrade Source Image zip file names include UPG rather than UPD.
- The total number of DPK zip files is different.

The PeopleSoft Upgrade Source Images include one PeopleTools Client DPK, for the current PeopleTools release, whereas the PeopleSoft Application Images include PeopleTools Client DPKs for the last three PeopleTools releases.

- The DPK setup script recognizes the type of DPK, and suppresses unnecessary prompts.

For example, the prompt for selecting a FRESH or PUM installation does not appear when deploying the

PeopleSoft Upgrade Source Image.

For more information, including installation documentation, see the Upgrade Source Images tab on the following upgrade home pages:

- PeopleSoft Campus Solutions Upgrade Home Page, My Oracle Support, Doc ID 2078564.2
- PeopleSoft Customer Relationship Management (CRM) Upgrade Home Page, My Oracle Support, Doc ID 1961844.2
- PeopleSoft Enterprise Learning Management (ELM) Upgrade Home Page, My Oracle Support, Doc ID 1962959.2
- PeopleSoft Financials / Supply Chain Management (FSCM) Upgrade Home Page, My Oracle Support, Doc ID 1963697.2
- PeopleSoft Human Capital Management (HCM) Upgrade Home Page, My Oracle Support, Doc ID 1959519.2

## **Understanding the Deployment Packages Uses and Contents**

This section discusses:

- Understanding How Deployment Packages are Used
- Defining the Types of Deployment Packages

### **Understanding How Deployment Packages are Used**

The PeopleSoft DPKs are the delivery method for many PeopleSoft installation, upgrade, and maintenance products. Depending upon the usage, you may see a variety of terms used in connection with the DPKs. Some of the products mentioned in this documentation include:

- A DPK is a zip file which includes specific PeopleSoft functionality.  
The PeopleSoft products delivered as DPKs include one or more zip files numbered sequentially. Normally you need to extract only the first zip file to obtain documentation and scripts. The DPK setup script will extract the rest. See the appropriate documentation for details.
- PeopleTools patches are provided to update the PeopleSoft PeopleTools software.  
A PeopleTools patch is comprised of four DPKs. The PeopleTools patch DPKs are available for Linux, IBM AIX, HP-UX, Oracle Solaris, and Microsoft Windows operating systems.  
See PeopleSoft PeopleTools Patches Home Page, My Oracle Support, Doc ID 2062712.2.  
The DPKs delivered for the PeopleTools patches can also be used to install the PeopleSoft mid-tier components for an existing database.
- PeopleSoft Update Images (PIs) are used for applying maintenance for PeopleSoft applications (Campus Solutions, CRM, ELM, Interaction Hub, FSCM, and HCM).  
A PI is comprised of eleven or more DPKs. The PIs are available for Microsoft Windows, Linux, and for VirtualBox.  
See PeopleSoft Update Manager (PUM) Home Page, My Oracle Support, Doc ID 1641843.2.  
These images can also be used for carrying out a fresh installation, with some differences in the installation procedure. When used for fresh installation, the documentation uses the term PeopleSoft Application Images.  
See PeopleSoft PeopleTools on the Oracle Help Center, Install and Upgrade, <https://docs.oracle.com/en/applications/peoplesoft/peopletools/index.html>.
- PeopleSoft Upgrade Source Images can be used during a PeopleSoft application upgrade as a demo database.

The Upgrade Source Images are typically comprised of nine or more DPKs, and are available for Microsoft Windows, Linux, and VirtualBox. Note that the Upgrade Source Images and the PIs are delivered on different schedules, and are not interchangeable.

See Understanding the PeopleSoft Upgrade Source Images.

## Defining the Types of Deployment Packages

Here are some of the DPKs that are available to use in installing PeopleSoft software, with references for further information.

- DPK Setup Zip file

The first zip file that you download will include a setup folder with the scripts needed to automate the deployment process and documentation. You follow the instructions in this documentation to extract the first zip file to obtain the setup script to begin the installation. The subsequent zip files are extracted during the deployment. Each zip file includes a manifest that lists the software versions included in the DPK.

- PeopleSoft PeopleTools server DPKs

Two PeopleSoft PeopleTools server DPKs are included with both the PeopleSoft PeopleTools patches, and with the PeopleSoft application images.

- PeopleSoft PeopleTools Client DPK

The PeopleSoft PeopleTools Client DPK for the current release is included with the PeopleTools patches. The PeopleSoft application images include PeopleTools Client DPK for the last three releases.

- PeopleSoft application DPKs

Three PeopleSoft application DPKs are included with the PeopleSoft application images. They include the following features:

- PeopleSoft application installation directory (*PS\_APP\_HOME*)
- PeopleSoft Update Manager data files (*PI\_HOME*)
- Application database (Oracle pluggable database)

- Oracle Database Client DPK

The Oracle Database Client (ODC) DPK is included with the PeopleSoft application images.

- Oracle Database Server DPK

The Oracle Database Server (ODS) DPK is included with the PeopleSoft application images. It is used for full-tier deployments.

- Elasticsearch DPK

The Elasticsearch DPK deploys open-source software used for the PeopleSoft Search Framework. The Elasticsearch DPKs for Linux and Microsoft Windows are posted on My Oracle Support. You can also obtain the Elasticsearch DPKs in the PeopleSoft PeopleTools for PSFT Application products installation files from Oracle Software Delivery Cloud.

Elasticsearch is included in the VirtualBox version of the PeopleSoft Update Images.

See PeopleTools Elasticsearch Home Page, My Oracle Support, Doc ID 2205540.2.

- PT-INFRA DPK

The PT-INFRA DPK contains supporting (third-party) software that is required for a PeopleSoft installation. A separate PT-INFRA DPK for Microsoft Windows, Linux, AIX, HP-UX, or Solaris is delivered as needed to provide security updates or other patches for one or more of the components. You can use this separate PT-INFRA DPK in a new installation to take advantage of up-to-date patches and security updates (CPUs).

See PeopleSoft PeopleTools 8.58 Home Page, My Oracle Support, Doc ID 2602329.2.



## Chapter 2

# Planning Security Administration

This chapter discusses:

- Understanding Virtual Machine Security Administration
- Considering Network Security
- Considering User Security
- Considering the Virtual Machine Guest Operating System Security
- Considering PeopleSoft Application Security and Client Access
- Summarizing Security Considerations

## Understanding Virtual Machine Security Administration

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This chapter presents topics for you to consider when planning to secure your PeopleSoft virtual machine (VM). This chapter is not intended to replace or supersede any of the concepts covered in the PeopleSoft PeopleTools Security Red Papers or other sources of corporate infrastructure hardening.

The extent to which your VM must be secured is decided by the way in which it will be used and by whom. The more exposure the VM receives, the more secure it must be.

This chapter does not discuss details concerning the physical security of the servers on which your virtual machines will run. This is because the physical and operational obligations will be unique to your situation and will be based on standards defined at your organization. By the time you are deploying virtual machines you will have implemented a security infrastructure within your data center. You will have secured your network and firewalls and other security infrastructure components at appropriate points.

This chapter therefore discusses the aspects that are specific to the PeopleSoft DPKs and the VM deployed from them. This section applies especially to the use of the VirtualBox DPKs or the Native OS for Linux DPKs when using a virtual operating system. The chapter sometimes uses the term "guest OS" to mean the VM OS (Oracle Linux in this case) installed on the host OS for the VirtualBox deployment, such as Microsoft Windows. Communication with the virtual machine and network-based access are subjects that are not included here; decisions concerning these subjects derive from standards and procedures defined at your organization.

### See Also

*PeopleTools: Security Administration*

Securing Your PeopleSoft Application Environment, My Oracle Support, Doc ID 747524.1

## Considering Network Security

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The approach that you take towards network security will mirror existing guidelines you have in place for traditional non-virtual ("bare-metal") systems. The main distinction between network security for your virtual artifacts and bare-metal systems is that the PeopleSoft DPKs do not contain a network configuration when shipped. The network configuration is assigned to the VMs when they are initialized. This means that prior to this initialization you should plan your network configuration and provide necessary access to the users of this system. The PeopleSoft Security Red Paper provides detailed information about how to plan your network configurations for a multi-tiered PeopleSoft deployment involving load balancers, proxy servers and the logical tiers of a PeopleSoft application including PeopleSoft Pure Internet Architecture (PIA), Application Server, Process Scheduler and Database.

See *Securing Your PeopleSoft Application Environment*, My Oracle Support, Doc ID 747524.1.

Network services used for reaching the VM services such as Samba, NFS, SSH and so on are configured and sometimes enabled in the VM by default. You must inspect the default configuration of your VM. Use Linux utilities such as `netstat` and `ps` to report the services and ports that are open on the VM. Use this information to reconfigure the system services and other network security utilities such as `iptables`.

## Considering User Security

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A number of distinct and separate user accounts are used when interacting with the VM. These user accounts are as follows:

- Network users — Network users that access the virtual machine after it is started by using PIA, Application Designer, and so on.
- Application user accounts — User accounts contained in the PeopleSoft application database that are used to sign on to the PeopleSoft application.
- Guest OS user accounts — User accounts for signing on to the guest virtual machine. There are a number of default users in the virtual machine.

See *PeopleSoft Deployment Packages for Update Images Installation*, "Using and Maintaining the PeopleSoft Environment."

It is important to understand the implications of the local user accounts. The availability of these accounts means that there is no domain authentication of user log in. Audit facilities that you employ for tracking user activity and access will not be available for the VM by default. The default configuration for PeopleSoft runtime components and installed software is reliant on these default users.

If you wish to set up an environment using non-default user accounts, you must use the customizations.

See *PeopleSoft PeopleTools Deployment Packages Installation*, "Completing the DPK Initialization with Customizations."

Each of these accounts has different activities or roles that can be associated with them. This partitioning of roles with different authentication mechanisms provides scope for a more secure deployment of the VM similar to a typical environment management strategy used in your data center.

For example, it is possible to manage the environment such that the owner of the VM is unable to log in to the virtual machine. This allows the system and database administrators of the virtual machine to be divided into separate groups.

The following table lists administrators and likely sample activities:

Administrator	Sample Activities and Permissions
Network administrator	<ul style="list-style-type: none"> <li>• Administers network addresses and names</li> <li>• (Sys Admin) Manages the host on which the VM runs and creates the VM.</li> <li>• After initial configuration, cannot log in to guest OS</li> </ul>
System administrator	<ul style="list-style-type: none"> <li>• Applies security to the guest OS and PeopleSoft runtime environment</li> <li>• Shuts down non-essential services and configures firewall</li> <li>• Cannot log in to Oracle VM Manager and cannot control starting up and shutting down of the VM.</li> </ul>
PeopleSoft runtime administrator	<ul style="list-style-type: none"> <li>• Manages the PeopleSoft runtime components and local installed software.</li> <li>• This is a non-root user and cannot stop or start OS services, install system software, change kernel parameters, and so on.</li> <li>• Manages the three user accounts psadm1 and psadm3, which are installation administrators, and psadm2 which is the runtime administrator.</li> </ul> <p><i>See PeopleSoft Deployment Packages for Update Images Installation, "Using and Maintaining the PeopleSoft Environment."</i></p> <p><b>Note.</b> This role may in fact be broken into a number of users along the lines of the three separate user accounts. This separation has been skipped for the sake of simplicity in this example.</p>
Database administrator (DBA)	<ul style="list-style-type: none"> <li>• Manages the PeopleSoft application databases, availability and performance</li> <li>• Participates in creating new databases during upgrade</li> </ul>
PeopleSoft administrator	Signs on to PeopleSoft Application (PIA and Application Designer) and manages users, groups and authorization.

## Considering the Virtual Machine Guest Operating System Security

This section discusses:

- Understanding the Virtual Machine Guest Operating System Security
- Applying Operating System Patches and Updates
- Checking for Critical Patch Updates
- Disabling Unnecessary Services

## Understanding the Virtual Machine Guest Operating System Security

The Linux OS packaged with the VirtualBox is delivered with limited security. The PeopleSoft installation is secure in terms of file system permissions. The OS users that are used to administer the PeopleSoft system are consistent with available recommended guidelines. As noted elsewhere, those users are local to the virtual machine and must have their passwords immediately changed upon initial deployment.

See PeopleTools Mid-Tier Deployment Best Practices, Oracle Technology Network, [http://docs.oracle.com/cd/E29604\\_01/psft/html/docset.html](http://docs.oracle.com/cd/E29604_01/psft/html/docset.html).

## Applying Operating System Patches and Updates

The PeopleSoft DPKs that are downloaded from My Oracle Support contain the most recent versions of PeopleSoft PeopleTools and additional component (third-party) products (for example, Oracle Tuxedo) required by the PeopleSoft application. You may need to apply updates to the VM operating system, Oracle Linux, to ensure that it has all the required patches and fixes to function correctly and securely.

The Oracle Yum Public Repository (<http://public-yum.oracle.com>) posts fixes and updates for Oracle Linux operating systems. The Linux operating systems incorporated in the PeopleSoft DPKs are up to date with Linux YUM patches (including security vulnerability patches) as of two weeks before a PeopleSoft Update Image (PI) image is made generally available on My Oracle Support. This applies to the Native OS for Linux DPKs, and the guest operating system of the VirtualBox DPKs.

There are additional fixes and updates for Oracle Linux available from the Oracle Yum Public Repository. These fixes can be accessed directly from your VM by configuring YUM on your VM to connect directly to the repository. You will connect to the YUM repository through a secure channel. If traffic to the public YUM repository is required to flow through a corporate proxy, the YUM process can be configured to honor those settings. An alternative to using the remote public repository is to create your own YUM repository. The approach you take will derive from pre-existing security processes in place within your organization for patching operating systems.

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**Note.** The YUM repository is not configured on the delivered PeopleSoft DPKs.

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See the information on YUM in the Oracle Linux documentation.

See *Oracle Linux Administrator's Solutions Guide for Release 6*, Oracle Technology Network, <http://www.oracle.com/technetwork/indexes/documentation/ol-1-1861776.html>.

Your organization will have pre-existing guidelines and standards set forth for hardening the operating system prior to making any host accessible on your network. You should apply these same security guidelines for the guest OS of any virtual artifacts delivered by Oracle for PeopleSoft environments. Your security personnel should be familiar with published hardening and threat mitigation documentation, including the following from Oracle:

- Tips for Hardening an Oracle Linux Server

Suggestions and techniques for hardening an Oracle Linux server.

See Oracle Technology Network, <http://www.oracle.com/technetwork/articles/servers-storage-admin/tips-harden-oracle-linux-1695888.html>.

- Tips for Securing an Oracle Linux Environment

An overview of the software, network, and system monitoring recommendations for maintaining a secure Oracle Linux environment, plus an overview of the tools to help you do it.

See Oracle Technology Network, <http://www.oracle.com/technetwork/articles/servers-storage-admin/secure-linux-env-1841089.html>.

In addition, review the following Oracle resources for information on securing the machines running the PeopleSoft database:

- Oracle Database Security Guide 19c  
This guide describes how you can configure security for Oracle Database by using the default database features.  
See Oracle Database Online Documentation, <https://docs.oracle.com/en/database/oracle/oracle-database/19/dbseg/index.html>.
- Series: Project Lockdown. A phased approach to securing your database infrastructure.  
This project is divided into four distinct phases, each of which are achievable and provide measurable improvements within a specific period of time: one day, one week, one month, and one quarter.  
See Oracle Technology Network, <http://www.oracle.com/technetwork/articles/index-087388.html>.

## Checking for Critical Patch Updates

Critical Patch Updates (CPUs) are made available according to a published schedule. If CPUs have been released subsequent to the availability of the PeopleSoft DPKs, you may want to install these CPUs if your VM is available to an untrusted user population.

See Critical Patch Updates, Security Alerts and Third Party Bulletin, Oracle Technology Networks, <http://www.oracle.com/technetwork/topics/security/alerts-086861.html>.

You can also search for critical patches in My Oracle Support, Patches & Updates.

See My Oracle Support Patches and Updates for PeopleSoft Products, My Oracle Support, Doc ID 1465172.1.

## Disabling Unnecessary Services

At initialization the VM starts a number of services. These frequently run as background or daemon processes, and they may be owned by either root or regular users. These services are responsible for runtime management of the system. Some of these services may be deemed non-essential for the running of your VM.

You may wish to review the services that are running, for example with the following Linux command:

```
service --status-all
```

Decide from those running services which ones are non-essential and whether the essential ones are properly configured. Consult your organization security authorities to determine which services are either mandatory or prohibited.

## Considering PeopleSoft Application Security and Client Access

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This section discusses:

- Understanding PeopleSoft Application Security and Client Access
- Considering PeopleSoft Pure Internet Architecture Security
- Considering Security for Client Tools
- Considering SQL\*Plus Security
- Considering Security for Samba and the VM File System
- Considering the VM Operating System and Secure Shell Access

## Understanding PeopleSoft Application Security and Client Access

To effectively use the virtual machine you will need to make it available to users. This access may be direct where the users can communicate directly with the machine from their own machine. For example, this might be in a demo environment where a small and known population of functional users have the host name or IP address of the system to perform tasks such as logging in to PIA. More frequently however, the access will be indirect, where the user is not aware, and should not be aware, that the machine is accessing the VM. In such cases proxy servers and load balancers will be part of a larger system configuration that is employed to make the system opaque to the client with the exception of the specific channels, such as HTTPS, through which the communication is directed.

In the most secure deployment the only user that needs to access the VM is the logged-in user on the host OS. This is not expected to be sufficient in most cases and therefore access to the VM will need to be made available to the user population. The VM should be made only as accessible as it needs to be for the users to perform the required tasks. Each of the VM access channels is discussed below.

## Considering PeopleSoft Pure Internet Architecture Security

By default, any user that can reach the VM over TCP/IP can access the PIA login page. The URL for accessing PIA is well-known and can be constructed if the host name of the VM is known. There are no security certificates with the delivered VM and all traffic is HTTP by default. Because these default characteristics mean that access to the virtual appliance is quite open by default, and because unencrypted HTTP can be observed on the network by anyone that is reading the network path between the user and PIA machine, unless there is a security infrastructure including the use of SSL on front of the PIA domains, HTTP should be disabled and only HTTPS should be used.

For information on setting up SSL for PeopleSoft PeopleTools, see the *PeopleTools: Security Administration* product documentation.

For an example of steps that can be taken to lock down PIA and other components, see *Reviewing a Sample Scenario* later in this chapter.

## Considering Security for Client Tools

### Understanding Client Tools

PeopleSoft PeopleTools, including Application Designer (PSIDE) and PeopleSoft Change Assistant, are client tools that can run on only a Microsoft Windows machine, which can be the host OS or a remote workstation that has network access to the virtual machine. Alternatively the PeopleTools client installation can be placed on a shared (or mapped) drive that multiple users can access in read-execute mode. The installer for these Microsoft Windows-based client tools is contained within the VM and is exposed through a Samba share. Note that the Samba service is delivered enabled by default.

The administrator should access the installation program for the client tools from the VM to a shared location in order to make it available to users. See the documentation on Samba shares for more information about how to manage access to the shared folders. After the client installation has been deployed from the VM it is no longer necessary to expose the VM file system to clients.

See *PeopleSoft Deployment Packages for Update Images Installation*, "Deploying the PeopleSoft Application Deployment Packages."

## Considering Application Designer Security

The Workstation Listener (WSL) port (7000) on the Application Server domain for Application Designer connectivity is enabled in the delivered PeopleSoft DPKs. Application Designer is used for development or debugging purposes. If you do not need it, you can disable the WSL port by deploying the DPKs using customizations, or by using traditional methods.

See *PeopleTools Deployment Packages Installation*, "Completing the DPK Initialization with Customizations."

See the information on Workstation Listener options in the *PeopleTools: System and Server Administration* product documentation.

## Considering SQL\*Plus Security

Oracle SQL\*Plus is a client tool that allows direct access to the database tables. It can be used by a super-user to manipulate application data, and a database administrator can use it to manipulate the database itself. Obviously, this level of access should only be afforded to the most trusted users and DBAs.

The connectivity information for the PeopleSoft application database is available in the VM file system when the Samba service is enabled and the file system is accessed. This connectivity information is available in the form of a `tnsnames.ora` file that provides the service name and listening port for the database. This can be seen by any user that can log in to the virtual machine over SSH or remotely access the file system of the VM. With this information it is necessary to supply the required credentials to connect to the database with SQL\*Plus.

Your environment may include a database created separately from the VM. Nevertheless, as a general rule for database security, access to the database should be disabled for user accounts that do not require direct database access. Passwords for legitimate users should be changed from the default values that are contained in the delivered virtual machine. Most importantly the administrator must change the password for the SYSADM user immediately after VM startup. The DBA will be familiar with which parts of the PeopleSoft database tablespace must be secured including user accounts and passwords.

Network security can also be employed to turn off remote access in the database service. As noted earlier in this section, the firewall can be configured to only allow connections to the database service listener port from specific clients.

### See Also

*SQL\*Plus User's Guide and Reference*, Oracle Technology Network, Oracle Database Documentation Library

## Considering Security for Samba and the VM File System

The Samba configuration allows users outside the guest OS to access the file system that is internal to the VM. Only a limited part of the file system is exposed, for access to the client installation programs required for PeopleSoft application development, and for working with Change Assistant for applying maintenance.

There is one difference between the way that Samba is handled in the Native OS for Linux and VirtualBox situations. If you deploy on a Linux OS, either with the Native OS on Linux DPKs, or with the VirtualBox DPKs, the Samba file system is set up as part of the deployment. With the Native OS on Linux DPKs, the Samba installation and the service setup is not part of the DPK installation. You are responsible for ensuring that Samba is available, and enabled if necessary.

When you deploy with the VirtualBox DPKs, Samba is installed, and the Samba service is delivered enabled. Because Samba is not required for ongoing use of the virtual machine after initial setup, after the required file systems are used, you should disable the Samba service. This will further prevent unauthorized users accessing the VM file system. In the Linux VM, as root, use this command to disable the Samba service:

```
chkconfig smb off
```

See *PeopleSoft Deployment Packages for Update Images Installation*, "Deploying the PeopleSoft Application Deployment Packages."

## Considering the VM Operating System and Secure Shell Access

When you deploy on VirtualBox, remote users (that is, users outside the host OS) can only sign on to the virtual machine using Secure Shell (SSH). All of the default users in the virtual machine must therefore have their passwords changed or invalidated immediately after initial startup.

SSH uses public-private key pairs to authenticate users and restrict access to the machine. The approaches provided in the virtual machine are the same as those used for conventional Linux systems.

See the documentation for your SSH client for more information.

## Summarizing Security Considerations

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This section discusses:

- Deciding on Security Plans
- Reviewing a Sample Scenario

### Deciding on Security Plans

This section includes samples of questions related to security considerations. Use these questions to help you decide the level of security to be applied to your virtual machine:

1. *Question:* Do you have the required hardware available to run the virtual machine?  
*Implication:* You may have to procure new hardware that is an exception to the current hardware in place.
2. *Question:* Does the hardware on which you will run the virtual machine require an exception to the existing organizational standards?  
*Implication:* You will have to work with your security and network administration team.
3. *Question:* Do you have organizational processes and standards in place for assessment or auditing of new hosts on the network?  
*Implication:* You will have to work with your security and network administration team to verify that the VM is permitted to join the corporate network. In addition, consider the use of security scan and analysis tools to help you determine compliance with organizational standards.
4. *Question:* Will multiple users require access to the VM without connection through a proxy or firewall?  
*Implication:* If multiple users require access to the VM it will be necessary to apply network, VM and application security, as discussed earlier in this chapter.
5. *Question:* Will the VM be hosted in a LAN sub-domain that can only be accessed by the authorized domain users?  
*Implication:* If not, and if the unauthorized users have a network path to the VM, additional on-host security



will need to be applied to prevent access to the VM.

6. *Question:* What is your time line for retaining the VM?

*Implication:* If you download new DPKs from My Oracle Support frequently, you can take advantage of updated patches and so on. For long-term use, you must consider activities associated with ongoing maintenance of the VM such as OS and PeopleSoft application software patching, password expiration, and so on.

## Reviewing a Sample Scenario

Here is a suggested list of steps that an administrator might carry out to secure the system:

1. Review the existing operational guidelines for your organization for adding machines, web servers, AppBatch domains and so on to the network.
2. Update account and authentication settings, by changing default passwords; for example:
  - Change the OS passwords for the non-root users.  
If any of the users are not required they can be disabled completely.  
*See PeopleSoft Deployment Packages for Update Images Installation, "Using and Maintaining the PeopleSoft Environment."*
  - Change the default Oracle WebLogic password.  
*See PeopleTools: System and Server Administration, "Implementing WebLogic SSL Keys and Certificates."*
  - Change the domain connection password, used in the PIA to Application Server communication.  
*See PeopleTools: System and Server Administration, "Configuring Domain Connection Password."*
  - Disable unneeded user accounts in the PeopleSoft database.  
PeopleSoft databases contain a number of default users, such as VP1 or PS, with well-known passwords. These users are only needed as templates for creating users with specific roles, and after that is done, they should be removed or disabled. The needed accounts should have their passwords changed on first signon.  
*See PeopleTools: Security Administration, "Purging Inactive User Profiles."*
3. Configure iptables to restrict access to well-known ports, such as those listed here, to a restricted set of client IP addresses:  
*See Considering Network Security.*
  - Secure shell, SSH, Port 22
  - TNS listener, port 1521
  - Jolt listeners, ports 9000–9003
  - Workstation listeners, ports 7000–7003 (normally disabled by default but needed if Application Designer access is required)
4. Disable HTTP access in PIA.  
As noted earlier, HTTP is enabled by default in the virtual machine. Secure HTTP (HTTPS) should be used if the virtual machine is network accessible. This is to prevent eavesdropping on the network between the authorized user and the VM  
*See PeopleTools: Portal Technology, "Configuring Web Profiles."*
5. Obtain and install a valid security certificate from an approved certificate authority (CA).  
*See PeopleTools: Security Administration, "Understanding SSL/TLS and Digital Certificates."*

See *PeopleTools: Integration Broker*, "Understanding Digital Certificates."

6. Enable encryption between PIA and Application Server domain.

This is achieved by using the Custom Configuration menu for the Application Server domain. In the section for Workstation Listener options, set the value for Encryption to 128 bit.

See *PeopleTools: System and Server Administration*, "Workstation Listener Options."

7. Configure a forward proxy server if your VM allows communications with an untrusted network, such as communications over the internet.

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**Note.** This is relevant for the next step for access to the yum repository on the internet.

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8. Configure the yum repository to use the latest label from Oracle Linux.

See *Considering the Virtual Machine Guest Operating System Security*.

9. Update all packages on the virtual appliance using yum update.

10. Disable any network services that are not needed.

In particular the Samba service should be disabled as soon as it is no longer needed.

See *PeopleSoft Deployment Packages for Update Images Installation*, "Deploying the PeopleSoft Application Deployment Packages."

## Appendix A

# Learning About the PeopleSoft Deployment Packages

This appendix discusses:

- Reviewing the PeopleSoft Update Image DPKs
- Reviewing the PeopleTools Client DPKs
- Reviewing the DPK Customization Use Case

## **Task A-1: Reviewing the PeopleSoft Update Image DPKs**

This section discusses:

- Understanding the PeopleSoft Update Image DPKs
- Reviewing the Native OS DPKs
- Reviewing the VirtualBox DPKs

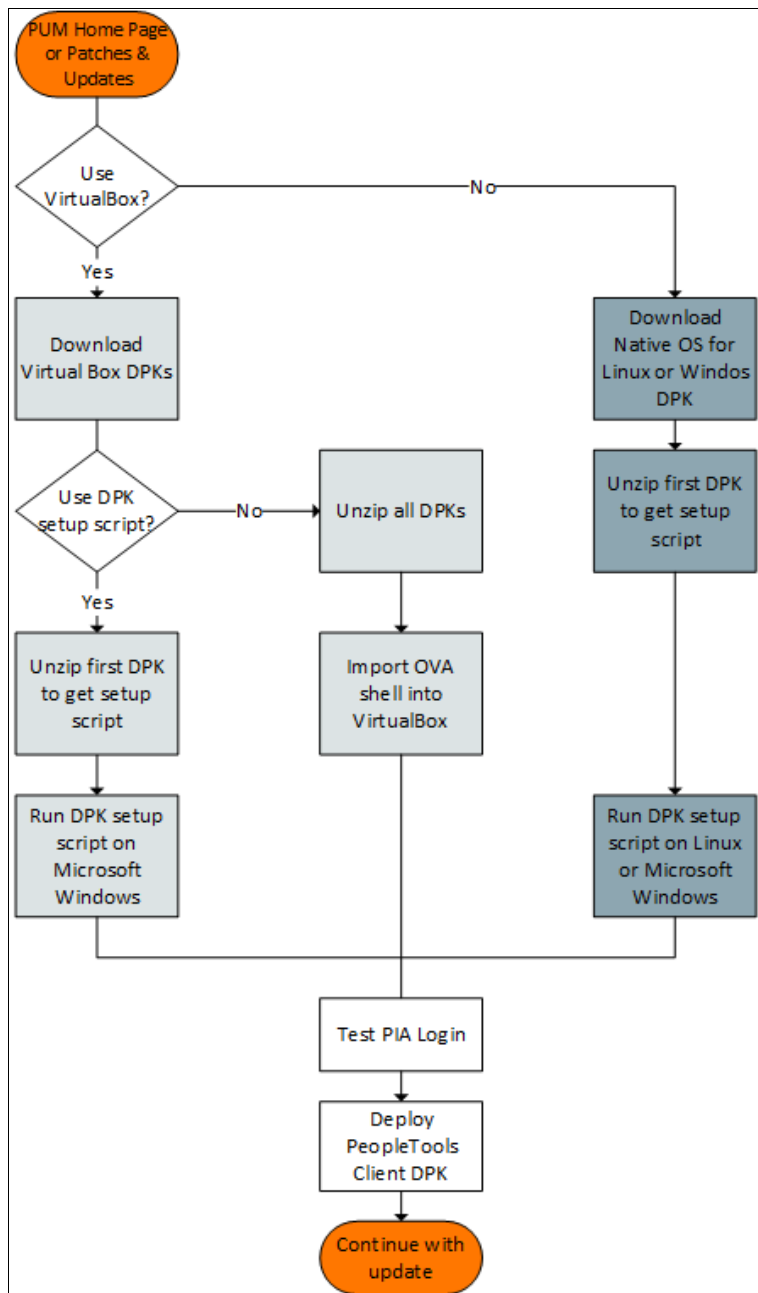
### **Understanding the PeopleSoft Update Image DPKs**

In previous releases, the PeopleSoft Update Images (PIs) were deployed on a Microsoft Windows host machine with Oracle VM VirtualBox. The current release of the PIs can also be deployed using Oracle VM VirtualBox to host the PeopleSoft DPKs. Alternatively, you can install and configure PeopleSoft environments on Microsoft Windows or Linux hardware or virtualization platforms using the DPKs.

The DPKs that are deployed using Oracle VM VirtualBox are referred to as "VirtualBox DPK," and those that are deployed directly onto Microsoft Windows and Linux operating systems are referred to as "Native OS DPK."

See PeopleSoft Deployment Packages for Update Images Installation for your release.

The following figure shows an overview of the deployment process for the two types of DPKs:



Overview of PeopleSoft Update Image Deployment

For information on using the PIs for a fresh installation, see the installation documentation.

See PeopleSoft PeopleTools on the Oracle Help Center, Install and Upgrade, <https://docs.oracle.com/en/applications/peoplesoft/peopletools/index.html>.

## Task A-1-1: Reviewing the Native OS DPKs

This table describes the usage, requirements, and results associated with deploying the Native OS for Linux or Microsoft Windows DPKs, using the DPK setup script.

### Usage

- Install a PeopleSoft application to use as the source for PeopleSoft Update Manager (PUM), on Microsoft Windows or Linux.
- Access the installation files for the PeopleSoft PeopleTools Client on a Microsoft Windows host.

As with a traditional installation, you may not need to perform a separate installation of the PeopleTools Client if your environment is installed on a Microsoft Windows host. If your environment is installed on Linux, you need to install the PeopleTools Client on a Microsoft Windows host to set up Change Assistant.

- On Linux, the deployment sets up a Samba shared drive folder including the Client installation files and the files required by Change Assistant.

See *PeopleSoft Deployment Packages for Update Images Installation*, "Using the Samba Shared Drive Folders."

See "Planning Security Administration," Considering Security for Samba and the VM File System

### Requirements

- The latest PeopleSoft application PI (11 DPKs)
- Microsoft Windows or Linux hosts that are supported for PeopleTools servers, such as database, application server, Process Scheduler.

**Deployment Results**

The deployment process creates the following three sub-directories under the user-specified base directory, *BASE\_DIR*:

- *BASE\_DIR/pt*

The script uses this directory to deploy the *PS\_HOME* and *PS\_APP\_HOME* utilities and scripts, and *PI\_HOME*, including the following:

- *PS\_HOME* installed to the default location under the DPK base directory, *BASE\_DIR/pt/ps\_home*<PeopleTools\_patch\_release>.
- *PS\_HOME/appserv/PSADMIN.exe*
- *PS\_HOME/bin/client/winx86/pscfg.exe* (Configuration Manager)
- *PS\_HOME/bin/client/winx86/psdmt.exe* (Data Mover)
- *PS\_HOME/bin/client/winx86/pside.exe* (Application Designer)
- *PS\_HOME/scripts*
- *PS\_HOME/setup/PsMpPIAInstall* (PeopleSoft Pure Internet Architecture installer)
- *PS\_HOME/setup/PsMpDbInstall* (Database silent mode installer)
- *PS\_HOME/setup/PsCA* (Change Assistant silent mode installer)
- *PS\_HOME/setup/PsCIA* (Change Impact Analyzer silent mode installer)
- *PS\_HOME/setup/PsMpWebAppDeployInstall* (Web Application Deployment silent mode installer)
- *PS\_APP\_HOME* installed to the default location under the DPK base directory, *BASE\_DIR/pt*/*<Product>\_app\_home*, where *<Product>* is the abbreviation for the PeopleSoft application; for example, *hcm\_app\_home* for PeopleSoft Human Capital Management.

Files for the specific PeopleSoft application, including files needed for database creation.

The files required for translations are installed under *BASE\_DIR/pt*/*<Product>\_app\_home*.

- *PI\_HOME* installed to *BASE\_DIR/pt*/*<Product>\_pi\_home*, where *<Product>* is the abbreviation for the PeopleSoft application; for example, *hcm\_pi\_home* for PeopleSoft Human Capital Management.

This is the file repository that Change Assistant uses when you define a Change Package in PeopleSoft Update Manager.

- *BASE\_DIR/db*

- *BASE\_DIR/db/oracle-server*

This directory includes the Oracle RDBMS database server and client connectivity software, including the SQL\*Plus program.

- *BASE\_DIR/db/oradata*

This directory includes the Oracle database files and tables for the PeopleSoft application. The PUM source uses an Oracle container database (CDB) and pluggable database (PDB).

- *BASE\_DIR/dpk*

The script uses this directory to extract the archives from the PeopleSoft DPKs, and contains the Puppet YAML files for the deployment. Do not alter the installed Puppet YAML files.

*PS\_CFG\_HOME*

- This directory includes the Application Server, Process Scheduler server configuration files, as well as the web server (PIA) installation.
- On Linux, *PS\_CFG\_HOME* is installed in */home/psadm2/psft/pt*/*<peopletools\_major\_version>*
- On Microsoft Windows, *PS\_CFG\_HOME* is installed in *C:\%USERPROFILE%\psft\pt*

<peopletools\_major\_version>

- On Microsoft Windows:
  - The DPK setup script also creates services for starting the PeopleSoft domains.
  - Microsoft Windows DPKs include Microsoft Visual C++ Redistributable Packages for Visual Studio, which include required Microsoft C++ runtime libraries.
- On Linux, the DPK setup script creates five default users, psadm1, psadm2, psadm3, oracle2 and esadm1.

**PeopleTools Client  
installation**

See Reviewing the PeopleTools Client DPK.

## Task A-1-2: Reviewing the VirtualBox DPKs

The deployment of the VirtualBox DPKs sets up a PeopleSoft installation on a Linux guest operating system in the VirtualBox on a Microsoft Windows host. If you choose to use VirtualBox, be aware of the following guidelines:

- Oracle's PeopleSoft certifies only VirtualBox on the Microsoft Windows platform.
- You can deploy the Virtual Box DPKs either by importing the OVA shell directly into VirtualBox, or by using the delivered PeopleSoft DPK setup script.

See *PeopleSoft Deployment Packages for Update Images Installation*.

**Usage**

- Install a PeopleSoft application to use as the source for PeopleSoft Update Manager (PUM) in Oracle VirtualBox.
- Access the installation files from a Samba shared drive folder, to install the PeopleSoft PeopleTools Client on a Microsoft Windows host.  
See "Planning Security Administration," Considering Security for Samba and the VM File System

**Requirements**

- The latest PeopleSoft application PI (13 DPKs)
- Microsoft Windows hosts that are supported for VirtualBox.

**Deployment Results**

The deployment process creates the following three sub-directories under the base directory, /opt/oracle/psft:

- /opt/oracle/psft/pt

The script uses this directory to deploy the *PS\_HOME* and *PS\_APP\_HOME* utilities and scripts, and *PI\_HOME*, including the following:

- *PS\_HOME* installed to the default location under the DPK base directory, /opt/oracle/psft/pt/ps\_home<PeopleTools\_patch\_release>.
- *PS\_HOME*/appserv/PSADMIN.exe
- *PS\_HOME*/bin/client/winx86/pscfg.exe (Configuration Manager)
- *PS\_HOME*/bin/client/winx86/psdmt.exe (Data Mover)
- *PS\_HOME*/bin/client/winx86/pside.exe (Application Designer)
- *PS\_HOME*/scripts
- *PS\_HOME*/setup/PsMpPIAInstall (PeopleSoft Pure Internet Architecture silent mode installer)
- *PS\_HOME*/setup/PsMpDbInstall (Database silent mode installer)
- *PS\_HOME*/setup/PsCA (Change Assistant silent mode installer)
- *PS\_HOME*/setup/PsCIA (Change Impact Analyzer silent mode installer)
- *PS\_HOME*/setup/PsMpWebAppDeployInstall (Web Application Deployment silent mode installer)
- *PS\_APP\_HOME* installed to the default location under the DPK base directory, /opt/oracle/psft/pt/<Product>\_app\_home, where <Product> is the abbreviation for the PeopleSoft application; for example, hcm\_app\_home for PeopleSoft Human Capital Management.

Files for the specific PeopleSoft application, including files needed for database creation.

The files required for translations are installed under /opt/oracle/psft/pt/<Product>\_app\_home.

- *PI\_HOME* installed to /opt/oracle/psft/pt/<Product>\_pi\_home, where <Product> is the abbreviation for the PeopleSoft application; for example, hcm\_pi\_home for PeopleSoft Human Capital Management.

This is the file repository that Change Assistant uses when you define a Change Package in PeopleSoft Update Manager.

- *ES\_HOME* installed to /opt/oracle/psft/pt/ES.

This is the installation directory for Elasticsearch.

- /opt/oracle/psft/db

- /opt/oracle/psft/db/oracle-server

This includes the Oracle RDBMS database server and client connectivity software, including the SQL\*Plus program.

- /opt/oracle/psft/db/oradata

This includes the Oracle database files and tables for the PeopleSoft application. The PUM source uses an Oracle container database (CDB) and pluggable database (PDB).

- /opt/oracle/psft/dpk

The script uses this directory to extract the archives from the PeopleSoft DPKs, and contains the Puppet YAML files for the deployment. Do not alter the installed Puppet YAML files.

*PS\_CFG\_HOME*

- This directory includes the Application Server, Process Scheduler server configuration files, as well as the web server (PIA) installation.
- On Linux, *PS\_CFG\_HOME* is installed in /home/psadm2/psft/pt/



<peopletools\_major\_version>

On the guest Linux OS, the DPK setup script also creates five default users, psadm1, psadm2, psadm3, oracle2, and esadm1.

**PeopleTools Client  
installation**

See the next section, Reviewing the PeopleTools Client DPK.

## **Task A-2: Reviewing the PeopleTools Client DPKs**

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The PeopleSoft application DPKs include three PeopleTools Client DPKs for three supported versions of the PeopleSoft PeopleTools. Deploy the PeopleTools Client DPK, for example, to install utilities such as Change Assistant or Application Designer to connect to a target environment.

For information on setting up the PeopleTools client for use with PeopleSoft Update Manager, see the product documentation *PeopleTools: Change Assistant and Update Manager*.

**Usage**

- Install the PeopleSoft PeopleTools Client in Update Manager mode (UM) on a Microsoft Windows host.

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**Note.** As with a traditional installation, you may not need to perform a separate installation of the PeopleTools Client if your environment is installed on a Microsoft Windows host. If your environment is installed on Linux, you need to install the PeopleTools Client on a Microsoft Windows host to set up Change Assistant.

---

- Install Change Assistant and Change Impact Analyzer.
- Install and configure PeopleSoft Test Framework (PTF).

**Requirements**

The latest PeopleSoft application PI (11 or more DPKs).

Microsoft Windows host that is supported for the PeopleTools client.

**PeopleTools Client installation**

- *PS\_CLIENT\_HOME*
- Oracle database client, if not already installed
- PeopleTools utilities including:
  - *PS\_CLIENT\_HOME/bin/client/winx86/pscfg.exe* (Configuration Manager)
  - *PS\_CLIENT\_HOME/bin/client/winx86/psdmt.exe* (Data Mover)
  - *PS\_CLIENT\_HOME/bin/client/winx86/pside.exe* (Application Designer)
- Setup utilities including:
  - *PS\_CLIENT\_HOME/setup/PsCA* (Change Assistant installer)
  - *PS\_CLIENT\_HOME/setup/PsCIA* (Change Impact Analyzer installer)
  - *PS\_CLIENT\_HOME/setup/PsTestFramework* (PeopleSoft Test Framework installer)
- Upgrade deployment mode files
 

If you select the People Tools Full Upgrade deployment type, the client setup script installs the directories needed for a PeopleSoft PeopleTools-only upgrade, such as data, projects, and scripts directories.
- Patch deployment mode files
 

If you select the People Tools Patch deployment type, the client setup script installs the directories needed for a PeopleSoft PeopleTools patch application, such as the data, PTP, and scripts directories.
- None of the above deployment mode files
 

If you select the None of the above deployment type, the client setup script installs the basic client directories.

## **Task A-3: Reviewing the DPK Customization Use Case**

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You have the option to customize your environment using the YAML data files that are provided as part of the Puppet implementation. See the PeopleSoft PeopleTools documentation for a few common examples, and instructions.

See *PeopleSoft PeopleTools Deployment Packages Installation*.