

PeopleSoft PeopleTools

PeopleSoft Container Image Installation



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About This Documentation

Understanding the PeopleSoft Online Help and PeopleBooks

The PeopleSoft Online Help is a website that enables you to view all help content for PeopleSoft applications and PeopleTools. The help provides standard navigation and full-text searching, as well as context-sensitive online help for PeopleSoft users.

Hosted PeopleSoft Online Help

You can access the hosted PeopleSoft Online Help on the Oracle Help Center. The hosted PeopleSoft Online Help is updated on a regular schedule, ensuring that you have access to the most current documentation. This reduces the need to view separate documentation posts for application maintenance on My Oracle Support. The hosted PeopleSoft Online Help is available in English only. To configure the context-sensitive help for your PeopleSoft applications to use the Oracle Help Center, see *Configuring Context-Sensitive Help Using the Hosted Online Help*.

Downloadable PeopleSoft PDF Files

You can access downloadable PDF versions of the help content in the traditional PeopleBook format on the Oracle Help Center. The content in the PeopleBook PDFs is the same as the content in the PeopleSoft Online Help, but it has a different structure and it does not include the interactive navigation features that are available in the online help.

Related Information

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>

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/>

Typographical Conventions

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><PS_CFG_HOME>/appserv/<domain></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.

Convention	Description
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.
Note: 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.
Important: 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.
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.

Comments and Suggestions

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.

1

Preparing for Installation

Understanding PeopleSoft Container Images

PeopleSoft container images enable you to deploy a PeopleSoft environment in a container on a Linux host.

The process involves these high-level steps:

1. Prepare the Oracle Linux host by installing and configuring Podman.
2. Download the PeopleSoft container images from My Oracle Support.
3. Install the container images.

This release includes support for the following PeopleSoft container images:

- Mid-tier — Deploy an application server, Process Scheduler, and web server (PIA) that connects to an existing PeopleSoft application database.

Note

PeopleTools mid-tier container images are available beginning with PeopleSoft PeopleTools 8.63.

- Search components (OSK) — Deploy OpenSearch, OpenSearch Dashboards, Logstash, Data Prepper, and Fluent Bit.

Note

PeopleTools search container images are available beginning with Update Images on PeopleTools 8.62.10.

- PeopleSoft Update Image (PUM) — Deploy the PeopleSoft Update Images to create a PeopleSoft Update Manager (PUM) source for applying updates and fixes. The PeopleSoft Update Image installation sets up a PeopleSoft application database on Oracle Database Server, application server, Process Scheduler, and web server (PIA).

Note

PeopleSoft Update Image container images are available beginning with Update Images on PeopleTools 8.62.10.

Containers have the advantage of isolating your environment, so that the VM or computer running it does not have to be changed. In addition, containers provide a standard environment, which aids in troubleshooting and support.

For information on Podman, see these references:

- Oracle Linux 9 Documentation, Podman User's Guide, <https://docs.oracle.com/en/operating-systems/oracle-linux/podman/>
- Get Started with Podman on Oracle Linux, <https://docs.oracle.com/en/learn/ol-podman-intro/index.html#introduction>

Using PeopleTools Mid-tier with Search Components

There are two ways to use PeopleTools mid-tier containers and search component containers:

- Download zip files from MOS to run containers.
Beginning with PeopleSoft PeopleTools 8.63, you can obtain container zip files from My Oracle Support. You can use these zip files to run the containers for PeopleTools mid-tier and search components. There is no need to build container images. The file names are:
 - Use PEOPLETOOLS-CNT-8.63.xx_1of2.zip for PeopleTools mid-tier
 - Use PEOPLETOOLS-CNT-8.63.xx_2of2.zip for search components.
- Build containers with container code in PS_HOME/containers.
Use the PeopleTools DPKs to build PeopleTools containers.
Use the search component DPK (OSK DPK) to build OpenSearch containers.

Prerequisites for PeopleSoft Container Images

Before beginning the installation, you must fulfill the following requirements:

- Access to My Oracle Support to download the container images.
- Oracle Linux Server 9.x
The Oracle Linux VM is the host for the container, and must be configured to use Podman as described in this documentation.
- Podman version 5.x.x
Each user that builds and runs containers and the prebuilt container images must be able to run Podman and podman-compose.
- Podman-compose version 1.0.6
- A non-root user with sudo root permission
To configure the Linux host computer and run the container images, the user must be able to use the sudo command.
- The minimum disk space requirement for a PeopleTools mid-tier installation is 128 GB.

Preparing the Oracle Linux Computer for the Container Images

Use these steps to prepare a supported Linux host for the PeopleSoft container image installation.

Updating the Linux Operating System

Perform the following before the installation:

1. (Optional) Perform a full operating system (OS) update on the Oracle Linux computer by running this command:

```
sudo dnf update -y && sudo dnf clean all
```

Note

An OS update can take a long time and download a few GB data for the update.

2. If a kernel update was applied, reboot the computer so that it uses the new kernel.

```
sudo reboot
```

3. Locate nscd.
This is required only for Linux 9.

```
rpm -q nscd
systemctl status nscd
systemctl is-enabled nscd
```

4. Disable nscd.
This is required only for Linux 9.

```
sudo systemctl stop nscd
sudo systemctl disable nscd
systemctl status nscd
```

Installing Podman and Podman Compose

Install or update podman.

1. Check the status.

```
podman -v
```

2. If Podman is present, update it if necessary

```
sudo dnf update -y podman
```

3. If Podman is not present, follow the instructions in the Oracle Linux documentation to install it.

See Oracle Linux, Podman User's Guide, Install Podman, <https://docs.oracle.com/en/operating-systems/oracle-linux/podman/install.html>.

4. Install the Podman Compose package.

See "Use Compose Files with Podman on Oracle Linux," Install Podman Compose, <https://docs.oracle.com/en/learn/ol-podman-compose/index.html#introduction>.

Setting Up Podman in Rootless Mode

Run the following commands to authorize users and group IDs:

```
echo "${USER}:231072:65536" | sudo tee -a "/etc/subuid"
echo "${USER}:231072:65536" | sudo tee -a "/etc/subgid"
podman system migrate
podman info | grep rootless
```

The output of the `podman info` command should include `rootless: true`.

Setting Podman Resource Limits

See the Podman Troubleshooting guide for instructions on allowing non-root users to set resource limits. Follow the instructions in item 26) Running containers with resource limits fails with a permissions error.

See Podman Troubleshooting, <https://github.com/containers/podman/blob/main/troubleshooting.md>

Configuring the Podman Storage

Configure the Podman storage path for a non-root user. These commands assume that the storage location is /scratch/podman- $\{USER\}$ /storage.

See Oracle Linux, Podman User's Guide, Podman Storage, <https://docs.oracle.com/en/operating-systems/oracle-linux/podman/storage.html#storage>.

1. Create directories in the storage location and give the owner read/write/execute permission with these commands.
Replace $\{USER\}$ with the user ID.

```
mkdir -p "/scratch/podman- $\{USER\}$ /storage"  
mkdir -p "/scratch/podman- $\{USER\}$ /storage/tmp"  
chmod -R 700 "/scratch/podman- $\{USER\}$ /storage"
```

2. Create a containers directory and a storage configuration file.

```
mkdir -p ~/.config/containers  
vi ~/.config/containers/storage.conf
```

3. Use the vi editor to add the following content to storage.conf.

```
[storage]  
driver = "overlay"  
rootless_storage_path = "/scratch/podman- $\{USER\}$ /storage"
```

4. Save the file and exit the vi editor.
Enter ESC to leave editing mode, then :wq.

Configuring the Container Configuration File

Set up the container configuration file.

Note

Enter each command on a single line.

1. Use the vi editor to create a container configuration file.

```
vi ~/.config/containers/containers.conf
```

2. Add the following content:

```
[engine]
stop_timeout = 90
image_copy_tmp_dir = "storage"
```

The parameter `image_copy_tmp_dir` is `/scratch/podman-${USER}/storage/tmp` in this example.

3. Save the file and exit the vi editor.
Enter ESC to leave editing mode, then `:wq`.
4. Verify the configuration.

```
podman info | grep -i storage
```

The output should include the storage directory. For example:

```
configFile: /home/user/.config/containers/storage.conf
graphRoot: /scratch/podman-user/storage
imageCopyTmpDir: /scratch/podman-user/storage/tmp
volumePath: /scratch/podman-spurushe/storage/volumes
```

Preventing Shutdown on Logout

Enable `linger` to prevent `systemd` from shutting down your containers when you log out.

```
sudo loginctl enable-linger "$(whoami)"
```

See item 17) "rootless containers exit once the user session ends" in the Podman Troubleshooting guide.

See Podman Troubleshooting, <https://github.com/containers/podman/blob/main/troubleshooting.md>

Creating the `nodocker` File

Create a file called `nodocker` in `/etc/containers`. This is used by the Podman build.

```
sudo touch "/etc/containers/nodocker"
```

Setting Proxy Environment Variable

Ensure that the following proxy-related environment variables are configured with the correct values for your environment.

```
export http_proxy=<proxy value>
export https_proxy=<proxy value>
export no_proxy=<proxy values for exclusions>
```

Verifying Podman

To confirm that Podman works, enter this command:

```
podman run --rm hello-world
```

Or run this command:

```
podman run --rm quay.io/podman/hello
```

Modifying the sysctl Settings

Use the vi editor to modify the /etc/sysctl.conf file for the installation.

```
sudo vi "/etc/sysctl.conf"
```

These sysctl settings will be inherited by the containers.

```
# sysctl setting for PeopleTools
kernel.msgmnb = 65538
kernel.msgmni = 1024
kernel.msgmax = 65536
kernel.shmmax = 68719476736
kernel.shmall = 4294967296
kernel.core_uses_pid = 1
# sysctl setting for PeopleTools search (OSK)
vm.max_map_count=262144
net.core.somaxconn=1024
```

Verify the sysctl setting.

```
sudo /usr/sbin/sysctl -p
```

Verifying Access to the Oracle Container Registry

This section is required for users that will build and run containers. The user should perform these steps to verify they can obtain the necessary images from Oracle Container Registry (OCR). This can be a non-root user.

Note

The procedure to install the PeopleSoft container images does not access the OCR. This access is needed in the next section to verify storage.

1. Generate an Oracle Container Registry authentication token.

Note

The authentication token is required to download licensed software.

After logging into the registry, use the command Generate Secret Key. Use the resulting key in the next step.

See Oracle Linux, Podman User's Guide, Container Registries, https://docs.oracle.com/en/operating-systems/oracle-linux/podman/registries.html#registry_ocr_token.

2. Log in to Oracle Container Registry with Podman.

```
podman login -u <username> -p <auth token generated from container-⇒  
registry.oracle.com> container-registry.oracle.com
```

3. Sign in using your Oracle Account to accept the license agreement for the Oracle container you have selected.
4. Test pulling an Oracle Linux 9 image.

```
podman pull container-registry.oracle.com/os/oraclelinux:9
```

Configuring Podman Storage Maintenance

Use the following steps to inspect and clean Podman storage when standard pruning is insufficient. Use with caution as some actions are destructive.

1. View the Podman storage location.

```
podman info | grep graphRoot
```

2. View the Podman storage size.

Note

The command ends with a period, indicating the current directory.

```
cd <podman storage location>; sudo du -hs .
```

3. Reset Podman.

```
podman system reset -f
```

4. View the Podman storage size again.

```
cd <podman storage location>; sudo du -hs .
```

5. Log in to Oracle Container Registry as described in the previous section.

```
mkdir -p "<podman storage location>/tmp"  
podman login -u <username> -p <auth token generated from container-⇒  
registry.oracle.com> container-registry.oracle.com
```

6. Test pulling an image.

```
podman pull oraclelinux:9
```

Obtaining the PeopleSoft Container Images

The PeopleSoft Container Images are available on My Oracle Support. From the My Oracle Support home page, click Patches and search for the current PeopleSoft PeopleTools Release.

The container image includes README.md files with up-to-date instructions for various deployments. Note that the file structure and directory names may differ in different PeopleTools releases. Here are the files included:

- Linux host setup — README-PODMAN.md
- PeopleTools mid-tier container installation — peopletools/README.md
- PeopleSoft Full-tier (PUM) container installation — pum/README.md
- PeopleTools search components container installation— search/README.md

2

Installing the PeopleTools Mid-tier Container Image

Reviewing the PeopleTools Mid-tier Container Image

The PeopleTools Mid-tier container image includes files for PeopleSoft PeopleTools mid-tier components (Java, Oracle Tuxedo, Oracle WebLogic).

Obtain the zip file for the PeopleTools mid-tier container image from My Oracle Support, and extract the contents. The container image zip file includes the following files and directories:

Files and Directories	Description
compose.yaml	Compose file to run the PT (mid-tier) container.
docs/	The documentation directory is described in the following table.
image/	Directory containing the container image in the form of a tar archive, to install the PeopleTools mid-tier for the environment; for example, 86x.xx.tgz.
in/pt/	Input files for the PeopleTools mid-tier container: - install.file — command file for mid-tier installation. - install.rsp — mid-tier silent installation response file to create domains. Update the file for your environment. - psft_customizations.yaml — mid-tier customizations file for review only.

The container images include up-to-date instructions for various deployments. Note that the file structure and directory names may differ in different PeopleTools releases. Here are the files included:

Files and Directories	Description
docs/FAQ.md	List of errors and remedies.
docs/index.md	Links to documentation included with the container zip file.
docs/PODMAN.md	Instructions to set up a Linux host computer with Podman.
docs/peopletools/README.md	Instructions to install the container image for PeopleTools mid-tier. Instructions to build and run a mid-tier container image.

Running the PeopleTools Mid-tier Container Image

To run the container image:

1. Extract the image zip file, referred to here as FILENAME.zip, in a convenient directory.
2. Enter this commands to load a single container image:

```
podman load -i FILENAME.tgz
```

Use this command to list all images:

```
podman images -a
```

3. Open ./compose.yaml for editing and specify the following values:

Parameter	Value
hostname	Enter the mid-tier container hostname. This hostname is critical for PeopleTools domain creation processes. The hostname must not contain underscores (_) and should be distinct from the host machine's FQDN. For example, if your container host computer's FQDN is server.example.one.oraclevcn.com then set the container hostname as midtier.oraclevcn.com. This will set the PeopleTools Auth Token Domain to .oraclevcn.com. The PIA URL will be http://server.example.one.oraclevcn.com:8000.
Resource limit	Add CPU and memory resource limits for each container. Leave some resources for host. <pre> deploy: resources: limits: cpus: '4' memory: 16g </pre>
services/midtier/environment	To run on Windows, remove the comment character (#) in front of: <pre> container=windows </pre>

4. Update the port mapping for the type of container you are installing.
Each container must use different ports. The syntax of the port definition is <port on host>:<port on container>. To override the default port mapping, define a PORT_* environment variable, which will be used by the docker-compose-pum.yaml file. For example, to change the default PORT_PIA to 9980 use this command: export PORT_PIA=9980 Then the line \${PORT_PIA:-8000}:8000 will be translated as 9980:8000. With this definition, when you use the PIA URL http://server.example.com:8000/ps/signon.html, the Linux host VM reads it as http://server.example.com:9980/ps/signon.html. Note. "MY_VAR=\${NEW_VAR:-DefaultValue}" is a BASH shell syntax to override a default value and assign a new value to MY_VAR.

Mappings for midtier containers	Description
\${PORT_RMT_ADMIN:-10100}:10100	Remote Admin port (default: 10100)
\${PORT_RMT_ADMIN_RMI:-10101}:10101	Remote Admin RMI port (default: 10101)

Mappings for midtier containers	Description
\${PORT_WSL:-7000-7003}:7000-7003	Workstation Listener ports (default range: 7000-7003)
\${PORT_WSL_SSL:-7010}:7010	Workstation Listener SSL port (default: 7010)
\${PORT_PIA:-8000}:8000	PeopleSoft Internet Architecture (PIA) port (default: 8000)
\${PORT_PIA_SSL:-8443}:8443	PIA SSL port (default: 8443)

Mappings for appserver and appbatch Containers	Description
\${PORT_RMT_ADMIN:-10100}:10100	Remote Admin port (default: 10100)
\${PORT_RMT_ADMIN_RMI:-10101}:10101	Remote Admin RMI port (default: 10101)
\${PORT_WSL:-7000-7003}:7000-7003	Workstation Listener ports (default range: 7000-7003)
\${PORT_WSL_SSL:-7010}:7010	Workstation Listener SSL port (default: 7010)
\${PORT_JOLT:-9033-9043}:9033-9043	JOLT ports (default range: 9033-9043)

Mappings for pia Container	Description
\${PORT_PIA:-8000}:8000	PeopleSoft Internet Architecture (PIA) port (default: 8000).
\${PORT_PIA_SSL:-8443}:8443	PIA SSL port (default: 8443)

No specific port mappings are defined for Process Scheduler (prcs) container.

- View and update the `./in/pt/install.rsp` file with the appropriate values for your environment. The values in the `install.rsp` response file will be used for the installation.

Specify the type of installation.

- midtier
 - appserver (Application server)
 - prcs (Process Scheduler)
 - appbatch (Application server and Process Scheduler)
 - pia (Web server, PeopleSoft PUre Internet Architecture)
- View and update the `./in/pt/psft_customizations.yaml` file, using the instructions in the file.
 - Enter this command to run the container:

```
podman-compose -f compose.yaml up -d
```

Note

Remove `./in/pt/install.rsp` once the midtier container is up and running.

- Check the logs with these commands.

The -f option means follow log output. The -n option outputs container names rather than IDs.

```
podman logs -fn midtier
```

Enter CTRL+C to exit the log.

9. The container is up and running when it shows the following message in the container logs:

```
=====
PEOPLETOOLS IS READY TO USE!
=====
```

The PIA URL is `http://<container hostname FQDN>:8000`

10. Use these commands to log in as one of the delivered Linux users. For other commands see *Working with PeopleSoft Containers*.
 - Mid-tier — `podman exec -ti midtier bash`
 - Linux psadm2 user — `podman exec --user psadm2 -ti midtier bash`
11. Stop the services using Podman Compose.

```
podman-compose -f compose.yaml down
```

3

Installing the Search (OSK) Container Image

Reviewing the Search (OSK) Container Image

The PeopleTools Search (OSK) container image includes files for OpenSearch and OpenSearch Dashboards.

Obtain the zip file for the PeopleTools OSK container image from My Oracle Support, and extract the contents. The container image zip file includes the following files and directories:

Files and Directories	Description
compose.yaml	Compose file to run the OSK container.
docs/	The documentation directory is described in the following table.
image/	Directory containing the container image in the form of a tar archive, to install OSK for the environment; for example, 3.2.0.tgz.
in/osk/	Input files for the OSK container: - install-osk.file — command file for OSK installation. - install-osk.rsp — OSK silent installation response file to configure OSK. Update the file for your environment.

The container images include up-to-date instructions for various deployments. Note that the file structure and directory names may differ in different PeopleTools releases. Here are the files included:

Files and Directories	Description
docs/FAQ.md	List of errors and remedies.
docs/index.md	Links to documentation included with the container zip file.
docs/PODMAN.md	Instructions to set up a Linux host computer with Podman.
docs/search/README.md	Instructions to install the OSK container image. Instructions to build and run an OSK container image.

Running the Search (OSK) Container Image

To run the container image:

1. Extract the image zip file, referred to here as FILENAME.zip, in a convenient directory.

2. Enter this commands to load a single container image:

```
podman load -i FILENAME.tgz
```

Use this command to list all images:

```
podman images -a
```

3. Open ./compose.yaml for editing and specify the following values:

Parameter	Value
hostname	Enter the mid-tier container hostname. This hostname is critical for PeopleTools domain creation processes. The hostname must not contain underscores (_) and should be distinct from the host machine's FQDN. For example, if your container host computer's FQDN is server.example.one.oraclevcn.com then set the container hostname as midtier.oraclevcn.com. This will set the PeopleTools Auth Token Domain to .oraclevcn.com. The PIA URL will be http://server.example.one.oraclevcn.com:8000.
Resource limit	Add CPU and memory resource limits for each container. Leave some resources for host. mem_limit: "8g" cpus: "4"

4. Leave the proxy variable empty.
5. Update the port mapping for the type of container you are installing.
Each container must use different ports. The syntax of the port definition is <port on host>:<port on container>. To override the default port mapping, define a PORT_* environment variable, which will be used by the docker-compose-pum.yaml file. For example, to change the default PORT_PIA to 9980 use this command: export PORT_PIA=9980 Then the line \${PORT_PIA:-8000}:8000 will be translated as 9980:8000. With this definition, when you use the PIA URL http://server.example.com:8000/ps/signon.html, the Linux host VM reads it as http://server.example.com:9980/ps/signon.html. Note. "MY_VAR=\${NEW_VAR:-DefaultValue}" is a BASH shell syntax to override a default value and assign a new value to MY_VAR.

Mappings for search container	Description
\${PORT_OSSERVER:-9200}:9200	OpenSearch port
\${PORT_OSSERVER_NODE:-9300}:9300	OpenSearch node port
\${PORT_LOGSTASH:-9800}:9800	Logstash port
\${PORT OSDASHBOARD:-5601}:5601	OpenSearch Dashboards port

6. View and update the ./in/osk/install-osk.rsp file with the appropriate values for your environment.
The values in the install-osk.rsp response file will be used for the installation.

7. Enter this command to run the container:

```
podman-compose -f compose.yaml up -d
```

Note

Remove `./in/osk/install-osk.rsp` once the OSK container is up and running.

8. Check the logs with these commands.
The `-f` option means follow log output. The `-n` option outputs container names rather than IDs.

```
podman logs -fn osk
```

Enter CTRL+C to exit the log.

9. Use this command to view the DPK logs in case of failure:

```
podman exec -ti osk vi /in/dpk/setup/OSKInstall.log
```

10. To copy the DPK logs to the current location:

```
podman cp -a osk:/in/dpk/setup/OSKInstall.log
```

11. The container is up and running when it shows the following message in the container logs:

```
=====
OSK IS READY TO USE!
=====
```

12. Stop the services using Podman Compose.

```
podman-compose -f compose.yaml down
```

For information on running the Automated Configuration Manager (ACM) plugins, see the [search/readme.md](#).

4

Installing the PeopleSoft Update Image (PUM) Container Image

Reviewing the PeopleSoft Update Image (PUM) Container Image

The PeopleSoft Update Image (PUM) container image includes three containers: Oracle database server (DB), PeopleSoft PeopleTools mid-tier (MT), and search components (OpenSearch, OpenSearch Dashboards, and Logstash or OSK). The container image zip file includes the following files and directories:

Files and Directories	Description
docs/	The documentation directory is described in the following table.
compose.yaml	Compose file to run the PUM containers.
image/	Directory containing tar archives (.tgz): - Oracle 19c database server image with container database (CDB) and pluggable database (PDB) attached; for example, latest-19-os.tgz. - Container image to install the PeopleTools mid-tier for the environment; for example, hr92u055.tgz. - Search components container image (OSK); for example, 3.2.0.tgz.
in/pum/	Input files for the PUM container: - install.file — command file for mid-tier installation. - install.rsp — mid-tier silent installation response file to create domains. Update the file for your environment. - psft_customizations.yaml — mid-tier customizations file for review only.
in/pdb/	Directory containing tar archive (.tgz) for the PDB for the PeopleSoft demo database; for example, hcm-db-demo92-8.62.09.tgz.
in/osk/	Files for installation of search components: - install-osk.file — command file. - install-osk.rsp — OSK silent installation response file. Update the file for your environment.

The container images include up-to-date instructions for various deployments. Note that the file structure and directory names may differ in different PeopleTools releases. Here are the files included:

Files and Directories	Description
docs/FAQ.md	List of errors and remedies.
docs/index.md	Links to documentation included with the container zip file.
docs/PODMAN.md	Instructions to set up a Linux host computer with Podman.
docs/peopletools/README.md	Instructions to install the container image for PeopleTools mid-tier. Instructions to build and run a mid-tier container image.
docs/pum/README.md	Instructions to install the container image for a PeopleSoft Update Image (PUM) environment.
docs/search/README.md	Instructions to install the container image for search components (OpenSearch, OpenSearch Dashboards, and Logstash, or OSK). Instructions to build and run an OSK container image.

Creating NFS Shares

To use NFS shares to make PUM Linux directories on the container available to the Linux host, you must manually create an NFS directory. You can then map a drive from Windows to the Linux host.

1. Manually create an NFS share directory, `/path/to/nfs_share`, on the Linux host computer and ensure the directory has read-write permission.
See Create an NFS server on Oracle Linux, https://docs.oracle.com/en/learn/create_nfs_linux/#introduction.
2. Install the container.
The container run process will copy the following directories from the PeopleTools mid-tier container to `/path/to/nfs_share` on the Linux host computer.

Linux Path in Container Image	Shared Directory on Linux Host	Description
<code>/opt/oracle/pt/tools_client</code>	<code>/path/to/nfs_share/tools_client</code>	This directory includes installation software for all current PeopleTools client versions, and the Oracle database client.
<code>/opt/oracle/pt/<pi_home></code>	<code>/path/to/nfs_share/<pi_home></code>	Change Assistant file repository
<code>/opt/oracle/pt/<app_home></code>	<code>/path/to/nfs_share/<app_home></code>	PeopleSoft Application installation files.

3. If necessary, map a drive from a Microsoft Windows computer to access the shared directories.

Running the PeopleSoft Update Image (PUM) Container Image

To run the container image:

1. Extract the image zip file, referred to here as `FILENAME.zip`, in a convenient directory.

2. Enter this commands to load a single container image:

```
podman load -i ./image/FILENAME.tgz
```

Use this command to load all three images:

```
find ./image -name "*.tgz" -exec bash -c 'podman load -i "{}" &' \;
```

Use this command to list all images:

```
podman images -a
```

3. Open `./in/pum/psft_customizations.yaml` for editing and add the FQDN for the Linux host computer to this parameter:

```
pia_host_name: "<Host Machine FQDN>"
```

4. Open `./compose.yaml` for editing and specify the following values:

Parameter	Value
ORACLE_PWD	Enter the password for the Oracle database SYS user. Use the same password to update <code>admin_pwd</code> in <code>./in/pum/install.rsp</code> .
hostname	Enter the mid-tier container hostname. This hostname is critical for PeopleTools domain creation processes. The hostname must not contain underscores (<code>_</code>) and should be distinct from the host machine's FQDN. For example, if your container host computer's FQDN is <code>server.example.one.oraclevcn.com</code> then set the container hostname as <code>midtier.oraclevcn.com</code> . This will set the PeopleTools Auth Token Domain to <code>.oraclevcn.com</code> . The PIA URL will be <code>http://server.example.one.oraclevcn.com:8000</code> .
volume	Remove the comment character (<code>#</code>) in front of <code>/path/to/nfs_share</code> . Update it to <code>/path/to/nfs_share:/out/nfs:rw</code> .
Resource limit	Add CPU and memory resource limits for each container. Leave some resources for host. <pre> deploy: resources: limits: cpus: '4' memory: 16g </pre>
services/midtier/environment	To run on Windows, remove the comment character (<code>#</code>) in front of: <pre> container=windows </pre>

5. If you do not want to run the OSK container at this time, remove the search section from `compose.yaml`.
6. View and update the `./in/pum/install.rsp` file with the appropriate values for your environment.
The values in the `install.rsp` response file will be used for the installation.
7. Enter this command to run the container:

```
podman-compose -f compose.yaml up -d
```

Note

Remove `./in/pum/install.rsp` once the midtier container is up and running.

8. Check the logs with these commands.
The `-f` option means follow log output. The `-n` option outputs container names rather than IDs.

```
podman logs -fn database
podman logs -fn midtier
podman logs -fn osk
```

Enter CTRL+C to exit the log.

9. The container is up and running when it shows the following message in the container logs:

```
=====
PUM IS READY TO USE!
=====
```

10. Use these commands to log in as one of the delivered Linux users. For other commands see *Working with PeopleSoft Containers*.
 - Database — `podman exec -ti database bash`
 - Mid-tier — `podman exec -ti midtier bash`
 - Linux `psadm1` user — `podman exec --user psadm1 -ti midtier bash`
 - Linux `psadm2` user — `podman exec --user psadm2 -ti midtier bash`
 - Linux `psadm3` user — `podman exec --user psadm3 -ti midtier bash`
 - OSK — `podman exec -ti osk bash`

11. Stop the services using Podman Compose.

```
podman-compose -f compose.yaml down
```

5

Installing Visual COBOL in Containers

Installing Visual COBOL in the Mid-tier Container

Install Rocket Software Visual COBOL 11 on the PeopleTools mid-tier container. Install Visual COBOL Development Hub for Linux or UNIX if you want both the COBOL compiler and runtime. Install COBOL Server to run compiled COBOL programs only.

Download the required files for Visual COBOL from Oracle Software Delivery Cloud. Review the information in the *Rocket Software Visual COBOL for PeopleSoft Quick Reference Guide* that is included in the Visual COBOL documentation package. The guide includes information on obtaining a permanent or temporary license.

To install Visual COBOL or COBOL Server on the PeopleSoft mid-tier container:

1. Download the certified version and license for the desired product to the Linux host computer.
The exact file names may vary. Use these names as a guideline to find the correct file.

- For Visual COBOL Development Hub, download `setup_visualcobol_devhub_for_docker`.
- For COBOL server, download `cobol_server_for_docker`.

2. Make a directory for Visual COBOL in the container.

```
podman exec -ti midtier bash -c "mkdir -p /in/vc"
```

3. Copy the Visual COBOL Development Hub file and license to the container.

```
podman cp <setup_visualcobol_devhub_for_docker> midtier:/in/vc
podman cp <setup_visualcobol_devhub_for_docker license> midtier:/in/vc
```

4. Copy the COBOL Server file and license:

```
podman cp <cobol_server_for_docker> midtier:/in/vc
podman cp <cobol_server_for_docker license> midtier:/in/vc
```

Alternatively, use this generic command:

```
podman cp <cobol_server_for_docker> <container name or id>:/in/vc
podman cp <cobol_server_for_docker license> <container name or id>:/in/vc
```

5. Log in to the mid-tier container:

```
podman exec -w /in/vc -ti midtier bash
```

6. Run the commands to obtain the prerequisites:

- For Visual COBOL Development Hub:

```
dnf install -y ed gcc cpp
```
 - For COBOL server:

```
dnf install -y ed
```
7. Install with these commands:
- For Visual COBOL Development Hub:

```
./<setup_visualcobol_devhub_for_docker> -IacceptEULA
```
 - For COBOL server:

```
./<cobol_server_for_docker> -IacceptEULA
```
8. View the logs.
- ```
vi VisualCOBOLDevelopmentHub*.log
```
9. Change directory to the location for the Visual COBOL license.
- ```
cd /opt/microfocus/licensing/bin
```
10. Install the license.
- For Visual COBOL Development Hub:

```
./MFLicenseAdmin -install /in/vc/<setup_visualcobol_devhub_for_docker  
license>
```
 - For COBOL server:

```
./MFLicenseAdmin -install /in/vc/<cobol_server_for_docker license>
```
11. Check the license status and then exit.
- ```
sh cesadmintool.sh
exit
```

### Compiling Visual COBOL with PS\_HOME

For installations of Visual COBOL Development Hub, to compile COBOL in PS\_HOME:

1. Sign in to the mid-tier container.  

```
podman exec --user psadm1 -ti midtier bash
```
2. Change directory.  

```
cd $PS_HOME/setup
```

3. Set environment variables.

```
COBDIR=/opt/rocketsoftware/VisualCOBOL; export COBDIR
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$COBDIR/lib; export LD_LIBRARY_PATH
LIBPATH=$LIBPATH:$COBDIR/lib; export LIBPATH
SHLIB_PATH=$SHLIB_PATH:$COBDIR/lib; export SHLIB_PATH
PATH=$PATH:$COBDIR/bin; export PATH
```

4. Compile COBOL.

```
./pschl.mak
./psrun.mak
```

5. Exit from the container.

```
exit
```

### Removing Visual COBOL

Enter this command to remove Visual COBOL from the container:

```
rm -rf /in/vc
```

## Installing Visual COBOL in the PeopleSoft Update Image (PUM) Container

Install Rocket Software Visual COBOL 11 on the PeopleTools PUM container. Install Visual COBOL Development Hub for Linux or UNIX if you want both the COBOL compiler and runtime. Install COBOL Server to run compiled COBOL programs only.

Download the required files for Visual COBOL from Oracle Software Delivery Cloud. Review the information in the *Rocket Software Visual COBOL for PeopleSoft Quick Reference Guide* that is included in the Visual COBOL documentation package. The guide includes information on obtaining a permanent or temporary license.

To install Visual COBOL or COBOL Server on the PeopleSoft mid-tier container:

1. Download the certified version and license for the desired product to the Linux host computer.  
The exact file names may vary. Use these names as a guideline to find the correct file.
  - For Visual COBOL Development Hub, download `setup_visualcobol_devhub_for_docker`.
  - For COBOL server, download `cobol_server_for_docker`.
2. Make a directory for Visual COBOL in the container.

```
podman exec -ti midtier bash -c "mkdir -p /in/vc"
```

3. Copy the Visual COBOL Development Hub file and license to the container.

```
podman cp <setup_visualcobol_devhub_for_docker> pum:/in/vc
podman cp <setup_visualcobol_devhub_for_docker license> pum:/in/vc
```

Alternatively, use this generic command:

```
podman cp <cobol_server_for_docker> <container name or id>:/in/vc
podman cp <cobol_server_for_docker license> <container name or id>:/in/vc
```

4. Copy the COBOL Server file and license:

```
podman cp <cobol_server_for_docker> pum:/in/vc
podman cp <cobol_server_for_docker license> pum:/in/vc
```

5. Log in to the mid-tier container:

```
podman exec -w /in/vc -ti pum bash
```

6. Run the commands to obtain the prerequisites:

- For Visual COBOL Development Hub:

```
dnf install -y ed gcc cpp
```

- For COBOL server:

```
dnf install -y ed
```

7. Install with these commands:

- For Visual COBOL Development Hub:

```
./<setup_visualcobol_devhub_for_docker> -IacceptEULA
```

- For COBOL server:

```
./<cobol_server_for_docker> -IacceptEULA
```

8. View the logs.

```
vi VisualCOBOLDevelopmentHub*.log
```

9. Change directory to the location for the Visual COBOL license.

```
cd /opt/microfocus/licensing/bin
```

10. Install the license.

- For Visual COBOL Development Hub:

```
./MFLicenseAdmin -install /in/vc/<setup_visualcobol_devhub_for_docker
license>
```

- For COBOL server:

```
./MFLicenseAdmin -install /in/vc/<cobol_server_for_docker license>
```

11. Check the license status and then exit.

```
sh cesadmintool.sh
exit
```

### Compiling Visual COBOL with PS\_HOME

For installations of Visual COBOL Development Hub, to compile COBOL in PS\_HOME:

1. Sign in to the mid-tier container.

```
podman exec --user psadm1 -ti pum bash
```

2. Change directory.

```
cd $PS_HOME/setup
```

3. Set environment variables.

```
COBDIR=/opt/rocketsoftware/VisualCOBOL; export COBDIR
LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$COBDIR/lib; export LD_LIBRARY_PATH
LIBPATH=$LIBPATH:$COBDIR/lib; export LIBPATH
SHLIB_PATH=$SHLIB_PATH:$COBDIR/lib; export SHLIB_PATH
PATH=$PATH:$COBDIR/bin; export PATH
```

4. Compile COBOL.

```
./psdbl.mak
./psrun.mak
```

5. Exit from the container.

```
exit
```

### Removing Visual COBOL

Enter this command to remove Visual COBOL from the container:

```
rm -rf /in/vc
```

# 6

## Working with Containers

### Using Container Code

PeopleTools container code is available at `${PS_HOME}/containers/OraclePeopleTools`. Use container code to build a PeopleTools container image zip.

To use the container code:

1. Copy `${PS_HOME}/containers/OraclePeopleTools` to your container build machine.
2. Change the permissions on the OraclePeopleTools directory.

```
chmod -R 755 OraclePeopleTools
```

3. Build the context directory.

```
cd OraclePeopleTools/containerfiles/pt
```

4. Copy three PeopleTools DPK zip files into the `/OraclePeopleTools/containerfiles/pt` directory.
5. Build the image.

```
/bin/sh buildContainerImage.sh -t <image_name:tag> -s <image zip file location> 2>&1 | tee buildContainerImage.log
```

In this command:

For `-t <image_name:tag>`, enter an image name and tag in lower-case letters only. For example, `oracle/peopletools/midtier:8.63`

For `-s <image zip file location>`, enter a location to store the image zip file. This is optional, for build administrators only.

See the `FAQ.md` for troubleshooting information.

### Working with PeopleSoft Containers

After the container is up and running, you can connect to the PeopleSoft environment in the container from a Microsoft Windows-based PeopleTools Client to use utilities such as Change Assistant.

Use the IP address for the Linux VM, the port numbers from the setup YAML file, and the user IDs and passwords from the silent response file for the connection.

Use these commands to review and maintain the containers. These are examples of commands to perform actions without logging into the container.

- To perform a health check on the container:

```
podman ps -a --filter "name=<container-name>"
podman healthcheck run <container-name>
```

- To list all of the port mappings in use in the container:

```
podman port -a
```

- To display the Podman disk usage:

```
podman system df -v
```

- To display the container configuration and status:

```
podman ps -a
```

- To log in to the container as the psadm2 user, which is one of the default Linux users that is created by the DPK setup script:

```
podman exec -ti <container-name> su - psadm2
```

- To view the PeopleSoft PIA URL:

```
echo "http://$(hostname -f):${PORT_PIA:-8000}"
```

- To view the peopletools.properties file:

```
podman exec -ti <container-name> su - psadm2 -c 'cat ${PS_HOME}⇒
/peopletools.properties'
```

- To view the PeopleTools release:

```
podman exec -ti <container-name> su - psadm2 -c 'psreleaseinfo'
```

- To view the location of *PS\_HOME*:

```
podman exec -ti <container-name> su - psadm2 -c 'echo $PS_HOME'
```

- To run the PSADMIN utility:

```
podman exec -ti <container-name> su - psadm2 -c 'psadmin'
```

- To run Data Mover on the command line:

```
podman exec -ti <container-name> su - psadm2 -c 'psdmtx'
```

- To run Application Designer on the command line:

```
podman exec -ti <container-name> su - psadm2 -c 'psidex'
```

- To run Application Engine:

```
podman exec -ti <container-name> su - psadm2 -c 'psae'
```

- To view the tnsnames.ora file, used for connectivity to the Oracle Database:

```
podman exec -ti <container-name> su - psadm2 -c 'cat ${TNS_ADMIN}⇒
/tnsnames.ora'
```

- To connect to the database with sqlplus (enter the user and password):

```
podman exec -ti <container-name> su - psadm2 -c 'sqlplus <user>⇒
/<password>@<dbname>
```

- To run the Automated Configuration Management (ACM) script:

```
podman exec -ti <container-name> su - psadm2 -c '$PS_HOME/utility/psrun⇒
ACM.sh'
```

- To run the top command to list the psadm2 processes:

```
podman exec -ti <container-name> su - psadm2 -c 'top'
```

# 7

## Deploying PeopleSoft Containers on Oracle Kubernetes Engine

### Understanding the Oracle Kubernetes Engine Deployment

Run PeopleSoft containers Oracle Kubernetes Engine (OKE) on Oracle Cloud Infrastructure. OKE uses Kubernetes, which is an open-source system for automating deployment, scaling, and management of containerized applications across clusters of hosts. This process supports the deployment of PeopleTools mid-tier and search components (OpenSearch, OpenSearch Dashboards, Logstash).

#### See Also

Overview of Kubernetes Engine (OKE) in Oracle Cloud Infrastructure documentation, <https://docs.oracle.com/en-us/iaas/Content/ContEng/Concepts/contentoverview.htm>

Kubernetes Evolution: Streamlining Deployments with Helm, <https://blogs.oracle.com/developers/post/kubernetes-evolution-streamlining-deployments-with-helm>

### Prerequisites for the OKE Deployment

Before beginning the deployment, you must fulfill the following requirements:

- Access to My Oracle Support to download the DPKs  
Download the four DPKs for PeopleTools mid-tier, and the search components DPK (OpenSearch, OpenSearch Dashboards, and Logstash, or OSK DPK). You will use the DPKs to install *PS\_HOME*, to create container images, and to deploy the container images to OKE.
- Oracle Cloud Infrastructure account  
Verify that the Oracle Cloud Account includes subscriptions for Compute, Block Storage, File Storage service, and Oracle Kubernetes Engine (OKE). You will also need a subscription to Database Cloud Service if you host your database on Oracle Cloud Infrastructure.
- Knowledge of OKE administration, Kubernetes clusters, OKE and Kubernetes commands.
- Access to Oracle Container Registry  
The Oracle Linux 8 platform image for the installation will be downloaded from this location during the container build process. After you create the container image, you upload it to the registry to be used by OKE.  
See Oracle Container Registry, <https://container-registry.oracle.com>
- An Oracle Linux VM  
The Oracle Linux VM is the host for the container, and must be configured to use Podman as described in this documentation.
- Podman and podman-compose

Each user that builds and runs containers and the prebuilt container images must be able to run Podman and podman-compose. The file *PS\_HOME*/containers/OraclePeopleTools/README.md includes steps to verify that Podman and podman-compose are available.

- A non-root user with sudo root permission  
To configure the Linux VM, build and run containers, the user must be able to use the sudo command.
- Access to Helm and familiarity with Helm commands.

## Installing PS\_HOME and Deploying on OKE

To deploy PeopleSoft containers on a Kubernetes cluster (OKE):

1. Install *PS\_HOME* on a Linux computer or VM.  
See "Deploying Containers" Installing PS\_HOME for the Container File System.
2. Follow the instructions in *PS\_HOME*/containers/OraclePeopleTools/k8s/README.md.

You also have the option to deploy PeopleSoft containers on a Kubernetes cluster (OKE) with Helm. Helm is a package manager for Kubernetes that helps to manage deployment, scaling, and upgrades.

See Using Helm, [https://helm.sh/docs/intro/using\\_helm](https://helm.sh/docs/intro/using_helm)

To deploy PeopleSoft containers on a Kubernetes cluster (OKE) using Helm:

1. Install *PS\_HOME* on a Linux computer or VM.  
See "Deploying Containers," Installing PS\_HOME for the Container File System.
2. Follow the instructions in *PS\_HOME*/containers/OraclePeopleTools/helm-charts/oracle-peopletools/README.md.