

Oracle® Linux Virtualization Manager

Getting Started Guide



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Table of Contents

About this document	v
1 Before You Begin	1
2 Getting Started with Oracle Linux Virtualization Manager	3
Adding a KVM Compute Host to the Manager	3
Adding Storage	4
Attaching an iSCSI Data Domain	4
Uploading Images to the Data Domain	5
Creating a Logical Network	7
Creating a Virtual Machine Network	7
Assigning the Virtual Machine Network to a KVM Compute Host	8
Creating a New Virtual Machine	11
Creating a New Oracle Linux Virtual Machine	11
Creating a New Microsoft Windows Virtual Machine	16
Creating a Template	23
Sealing an Oracle Linux Virtual Machine for Use as a Template	23
Creating an Oracle Linux Template	24
Creating a Cloud-Init Enabled Template	25
Creating a Virtual Machine from a Template	27
Creating an Oracle Linux Virtual Machine from a Template	27
Backing Up and Restoring the Manager	29
Backing Up the Manager	29
Restoring a Full Backup of the Manager	30
3 Additional Administration Tasks	33
Global Configuration	33
Administering User Accounts from the Administration Portal	33
Administering User and Group Accounts from the Command Line	36
Data Centers	44
Creating a New Data Center	44
Clusters	44
Creating a New Cluster	44
Storage	46
Preparing Local Storage for a KVM Compute Host	46
Configuring a KVM Compute Host to Use Local Storage	46
Preparing NFS Storage	47
Attaching an NFS Data Domain	48
Adding an FC Data Domain	49
Virtual Machines	50
Customizing vNIC Profiles for Virtual Machines	50
Creating a Snapshot of a Virtual Machine	50
Restoring a Virtual Machine from a Snapshot	51
Creating a Virtual Machine from a Snapshot	52
Deleting a Snapshot	53
Encrypted Communication	53
Replacing the Oracle Linux Virtualization Manager Apache SSL Certificate	54

About this document

This document is part of the documentation for Oracle Linux Virtualization Manager, which is available at: http://docs.oracle.com/cd/F15085_01

The documentation consists of the following items:

Oracle Linux Virtualization Manager Release Notes

This document provides a summary of the new features, changes, fixed bugs, and known issues in the Oracle Linux Virtualization Manager. It contains last-minute information, which may not be included in the main body of documentation, and information on Oracle Linux Virtualization Manager system requirements.

Read this document before you install your environment.

Oracle Linux Virtualization Manager Installation Guide

This document provides an overview of the Oracle Linux Virtualization Manager and explains how to install the Oracle Linux Virtualization Manager environment, including important information, such as system requirements, for planning your virtualization environment.

Oracle Linux Virtualization Manager Getting Started Guide

This document explains how to get started with the Oracle Linux Virtualization Manager. It provides an example scenario that covers some of the basic procedures for setting up the environment, such as, adding hosts, adding storage, creating virtual machines, and so on.

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Chapter 1 Before You Begin

Before you begin the tasks in this guide, you should be familiar with the concepts that are presented in the [Oracle Linux Virtualization Manager Installation Guide](#).

To follow along with the tasks in this guide, ensure the following prerequisites are met:

- The procedures in this guide assume that you have installed Oracle Linux Virtualization Manager in your environment. For more information, refer to [Installing the Manager](#) in the *Oracle Linux Virtualization Manager Installation Guide*.
- For tasks that must be completed in the Manager, the procedures in this guide assume that you are logged in to the Administration Portal.
- Oracle Linux Virtualization Manager creates a default data center and cluster during installation. For the purpose of tutorial, the default data center and cluster are used. For the procedures to create new data centers or a new clusters, refer to [Chapter 3, Additional Administration Tasks](#).
- For [Adding a KVM Compute Host to the Manager](#), you must have access to a host that you can add to your virtualization environment.
- For [Adding Storage](#), an Internet Small Computer System Interface (iSCSI) storage device is used for the example scenario in this guide. If you do not have access to an iSCSI device, refer to [Storage](#) for the procedures for adding other storage types to your virtualization environment.
- For [Uploading Images to the Data Domain](#), the `ovirt-engine` certificate must be registered as a valid CA in the browser to connect to the `ovirt-imageio-proxy` service.
- For [Creating a New Virtual Machine](#):
 - The procedures for creating Oracle Linux and Microsoft Windows VMs assume that you have added the ISO images to the data domain on the storage device used in [Adding Storage](#).
 - To use the console, you must install the Remote Viewer application. This application provides users with a graphical console for connecting to virtual machines.

1. Install the `virt-viewer` package.

```
# yum install virt-viewer
```

2. Restart your browser for the changes to effect in the Oracle Linux Virtualization Manager.

Chapter 2 Getting Started with Oracle Linux Virtualization Manager

Table of Contents

Adding a KVM Compute Host to the Manager	3
Adding Storage	4
Attaching an iSCSI Data Domain	4
Uploading Images to the Data Domain	5
Creating a Logical Network	7
Creating a Virtual Machine Network	7
Assigning the Virtual Machine Network to a KVM Compute Host	8
Creating a New Virtual Machine	11
Creating a New Oracle Linux Virtual Machine	11
Creating a New Microsoft Windows Virtual Machine	16
Creating a Template	23
Sealing an Oracle Linux Virtual Machine for Use as a Template	23
Creating an Oracle Linux Template	24
Creating a Cloud-Init Enabled Template	25
Creating a Virtual Machine from a Template	27
Creating an Oracle Linux Virtual Machine from a Template	27
Backing Up and Restoring the Manager	29
Backing Up the Manager	29
Restoring a Full Backup of the Manager	30

To get you started with Oracle Linux Virtualization Manager, the following example scenario walks you through the procedures for adding hosts, adding storage, setting up a network, creating virtual machines, and backing up and restoring the Manager.

Adding a KVM Compute Host to the Manager

To add a KVM host to the Manager:

1. Go to **Compute** and then click **Hosts**.
2. On the **Hosts** pane, click **New**.

The **New Host** dialog box opens with the **General** tab selected on the sidebar.

3. From the **Host Cluster** drop-down list, select the data center and host cluster for the new host.

By default, the **Default** option is selected in the drop-down list.

For this step, leave **Default** selected from the drop-down list because the default data center and cluster are used for the example scenario.

For the procedures to create new data centers or a new clusters, refer to [Chapter 3, Additional Administration Tasks](#).

4. For the **Name** field, enter a name for the new host.
5. For the **Hostname** field, enter the host name for the new host. You must use the DNS host name for the host.

6. For the **SSH Port** field, the standard SSH port, port 22, is auto-filled.
7. Under **Authentication**, select the authentication method to use.

Oracle recommends that you select **SSH PublicKey** authentication. If you select this option, copy the key displayed in the **SSH PublicKey** field to the `/root/.ssh/authorized_keys` file on the host.

Otherwise, enter the root user's password to use password authentication.

8. **(Optional)** Configure other settings for the new host from the other tabs on the **New Host** sidebar.
9. Click **OK** to add the host to the data center.

The host is added to the list of hosts in the Manager. While the Manager is installing the host agent (VDSM) and other required packages on the host, the status of the host is shown as **Installing**. You can view the progress of the installation in the details pane. When the host is added to the Manager, the host status changes to **Up**.

Adding Storage

For this example scenario, you attach an iSCSI storage to your virtualization environment and then upload an ISO image to the data domain.

If you do not have access to an iSCSI device, refer to [Storage](#) for the procedures for adding other storage types to your virtualization environment.

Attaching an iSCSI Data Domain

For iSCSI storage, a storage domain is created from a volume group that is composed of pre-existing LUNs.

To attach an iSCSI data domain to your virtualization environment:

1. Go to **Storage** and then click **Domains**.

The **Storage Domains** pane opens.

2. Click **New Domain**.

The **New Domain** dialog box opens.

3. For the **Name** field, enter a name for the data domain.
4. From the **Data Center** drop-down list, select the Data Center for which to attach the data domain.

By default, the **Default** option is selected in the drop-down list.

For this step, leave **Default** selected from the drop-down list because the default data center and cluster are used for the example scenario.

For the procedures to create new data centers or a new clusters, refer to [Chapter 3, Additional Administration Tasks](#).

5. From the **Domain Function** drop-down list, select the domain function. By default, the **Data** option is selected in the drop-down list.

For this step, leave **Data** as the domain function because you are creating a data domain in this example.

6. From the **Storage Type** drop-down list, select **iSCSI**.

7. For the **Host to Use** drop-down list, select the host for which to attach the data domain.

For this example scenario, select the host added in [Adding a KVM Compute Host to the Manager](#).

8. When **iSCSI** is selected for the **Storage Type**, the **Discover Targets** dialog box opens and the **New Domain** dialog box automatically displays the known targets with unused LUNs under the **Target Name** column.

If the **Discover Targets** dialog box is not visible in the **New Domain** dialog box, make sure that you have selected the **Target > LUNS** view on the left-side of the column.

If the target from which you are adding storage is not listed, complete the following fields in the **Discover Targets** dialog box:

- a. For the **Address** field, enter fully qualified domain name or IP address of the iSCSI host on the storage array.
- b. For the **Port** field, enter the port to connect to on the host when browsing for targets. By default, this field is automatically populated with the default iSCSI Port, **3260**.

After completing these fields, click **Discover**.

The **Target Name** column updates to list all the available targets discovered on the storage array.

9. Under the **Target Name** column, select the desired target and select the black right-directional arrow to log in to the target.

The **Storage Domains** pane refreshes to list only the targets for which you logged in.

10. Click **+** to expand the desired target.

The target expands to display all the unused LUNS.

11. Click **Add** for each LUN ID that is to connect to the target.

12. **(Optional)** Configure the advanced parameters.

If you are using ZFS storage, you must uncheck the **Discard after Delete** option.

13. Click **OK**.

You can click **Tasks** to monitor the various processing steps that are completed to attach the iSCSI data domain to the data center.

After the iSCSI data domain has been added to your virtualization environment, you can then upload the ISO images that are used for creating virtual machines in [Creating a New Virtual Machine](#).

Uploading Images to the Data Domain

Before using the Manager to upload images to the data domain, you must perform the following steps to ensure that the prerequisites for uploading images have been met on the Manager and KVM hosts.

Before You Begin

To ensure that the prerequisites for uploading images to the data domain have been met:

1. On the Manager host, verify that the `ovirt-image-proxy` service has been configured and is running.

```
# systemctl status ovirt-imageio-proxy.service
```

When the service is running, the output displays as follows.

```
# systemctl status ovirt-imageio-proxy.service
ovirt-imageio-proxy.service - oVirt ImageIO Proxy
  Loaded: loaded (/usr/lib/systemd/system/ovirt-imageio-proxy.service; enabled;
  vendor preset: disabled)
  Active: active (running) since Mon 2019-03-25 13:12:29 PDT; 2 weeks 0 days ago
  Main PID: 28708 (ovirt-imageio-p)
  CGroup: /system.slice/ovirt-imageio-proxy.service
          └─28708 /usr/bin/python2 /usr/bin/ovirt-imageio-proxy
...

```

This service is automatically configured and is started when you run the `engine-setup` command during the installation of the Manager.

2. On the Manager host, copy the `ovirt-engine` certificate as a trusted certificate to the `/etc/pki/ca-trust/source/anchors/ovirt.ca.pem` file, or use the correct path of the file:

```
# scp /etc/pki/ovirt-engine/ca.pem \
root@image-proxy-address:/etc/pki/ca-trust/source/anchors/ovirt.ca.pem
```

You can obtain the address to enter for the `image-proxy-address` variable by entering the `engine-config --get ImageProxyAddress` command.

3. On the KVM host, verify that the `ovirt-image-proxy` service has been configured and is running. For example:

```
# systemctl status ovirt-imageio-daemon
ovirt-imageio-daemon.service - oVirt ImageIO Daemon
  Loaded: loaded (/usr/lib/systemd/system/ovirt-imageio-daemon.service; disabled;
  vendor preset: disabled)
  Active: active (running) since Wed 2019-03-27 18:38:36 EDT; 3 weeks 4 days ago
  Main PID: 366 (ovirt-imageio-d)
  Tasks: 4
  CGroup: /system.slice/ovirt-imageio-daemon.service
          └─366 /usr/bin/python /usr/bin/ovirt-imageio-daemon

Mar 27 18:38:36 myserver systemd[1]: Starting oVirt ImageIO Daemon...
Mar 27 18:38:36 myserver systemd[1]: Started oVirt ImageIO Daemon.

```

4. On the KVM host, ensure the `ovirt-image-proxy` is properly linked by creating a directory for the certificate and then creating a symbolic link to the certificate.

```
# mkdir /etc/pki/ovirt-engine/
# ln -s /etc/pki/ca-trust/source/anchors/ovirt.ca.pem /etc/pki/ovirt-engine/ca.pem
```

5. Verify that the certificate authority has been imported into the web browser used to access the Manager by browsing to the following URL and enabling the trust settings: https://engine_address/ovirt-engine/services/pki-resource?resource=ca-certificate&format=X509-PEM-CA
6. Verify that you are using a browser that meets the browser requirement to access the Administration Portal.

For more information, refer to the [Oracle Linux Virtualization Manager Installation Guide](#).

7. Proceed to [Uploading an ISO Image to the Data Domain](#).

Uploading an ISO Image to the Data Domain

To upload an ISO image to data domain using the Manager:

1. Download or copy an ISO image file that you want to upload into your environment to a location on your desktop, laptop, or a system where the Manager is accessible from a Web browser.

2. Go to **Storage** and then click **Disks**.

The **Disks** pane opens.

3. Click **Upload** and then select **Start** from the drop-down list.

The **Upload Image** dialog box opens.

4. Click **Choose File** and navigate to the location where you saved the ISO image.

5. Complete the **Disk Options** section of the dialog box.

6. Ensure that the prerequisites have been met by clicking **Test Connection**.

If the test returns a warning or error message, refer to [Before You Begin](#) to review the prerequisites.

7. Click **OK** to start uploading the ISO image.

The status field on the **Disks** pane tracks the progress of the upload.

After the ISO image upload is completed successfully, you can attach the image to virtual machines as CDROMs or use the image to boot virtual machines.

Creating a Logical Network

For this example scenario, you create a virtual machine network that you then assign to the KVM host added in [Adding a KVM Compute Host to the Manager](#). This network is used as the virtual machine network for the virtual machines created in [Creating a New Virtual Machine](#).

Creating a Virtual Machine Network

To create a virtual machine network:

1. Go to **Network** and then click **Networks**.

2. On the **Networks** pane, click **New**.

The **New Logical Network** dialog box opens with the **General** tab selected on the sidebar.

3. From the **Data Center** drop-down list, select the Data Center for the network.

By default, the **Default** option is selected in the drop-down list.

For this step, leave **Default** selected from the drop-down list because the default data center and cluster are used in this example scenario.

For the procedures to create new data centers or a new clusters, refer to [Chapter 3, Additional Administration Tasks](#).

4. For the **Name** field, enter a name for the new network.

5. Leave the the **VM Network** check box selected.

Under the **Network Parameters** section, the **VM Network** check box is selected by default, which is left selected because a virtual machine network is being created in this example.

6. **(Optional)** Configure other settings for the new logical network from the other tabs on the **New Logical Network** sidebar.

The default settings are used for this example scenario.

7. Click **OK** to create the network.

The following screenshot shows the **General** tab of the **New Logical Network** dialog box completed for the new logical network that is being created in this example:

- From the **Data Center** drop-down list, the **Default** option is selected.
- For the **Name** field, `vm_pub` is entered.
- Under the **Network Parameters** section, the **VM Network** check box is selected.

Figure 2.1 New Logical Network Dialog Box: General Tab

New Logical Network	
General	<p>Data Center: Default</p> <p>Name: vm_pub</p> <p>Description: </p> <p>Comment: </p> <p>Network Parameters</p> <p>Network Label: </p> <p><input type="checkbox"/> Enable VLAN tagging</p> <p><input checked="" type="checkbox"/> VM network </p> <p>MTU: Default (1500)</p> <p><input type="radio"/> Custom </p> <p>Host Network QoS: [Unlimited]</p>
Cluster	
vNIC Profiles	
<p>OK Cancel</p>	

Assigning the Virtual Machine Network to a KVM Compute Host

To assign the virtual machine network to a KVM host:

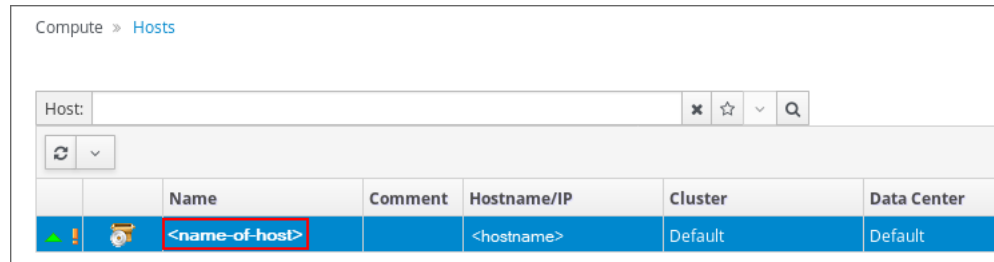
1. Go to **Compute** and then click **Hosts**.

The **Hosts** pane opens.

2. Under the **Name** column, click the name of the host for which to add the network.

The following screenshot shows the **Hosts** pane with the name of the host highlighted in a red rectangular box to emphasize where you need to click to set up a network on a host.

Figure 2.2 Hosts Pane



After clicking the name of the host, the **General** tab opens with details about the host.

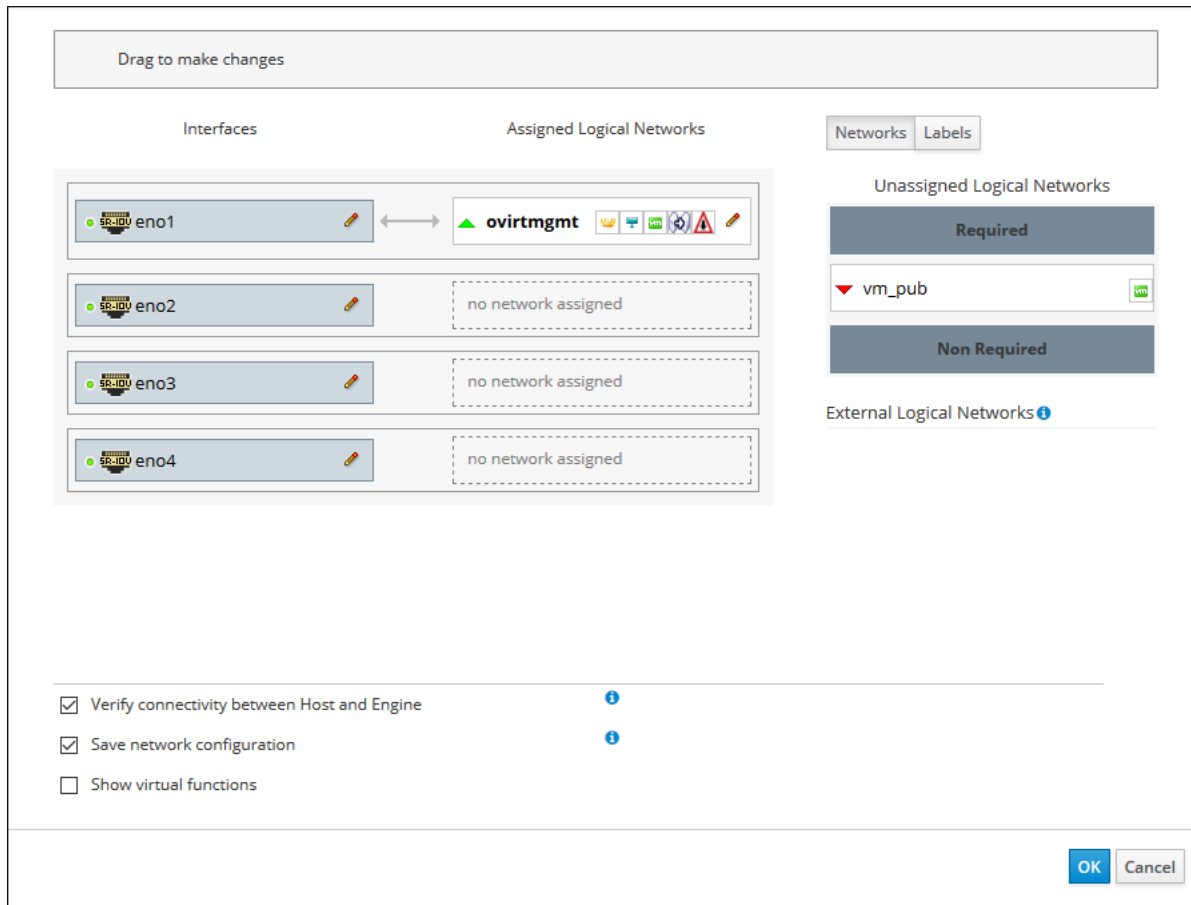
3. Click the **Network Interfaces** tab on the horizontal menu.

The **Network Interfaces** tab opens with details about the network interfaces on the available host.

4. Highlight the network interface that you want to use for the network being added by clicking the row for the respective interface.
5. Click **Setup Host Networks**.

The **Setup Host Networks** dialog box opens for the host. The physical interfaces on the host are listed under the **Interfaces** column and any logical networks assigned to the interface are displayed under the **Assigned Logical Networks** column. Unassigned logical networks are displayed under the **Unassigned Logical Networks** column.

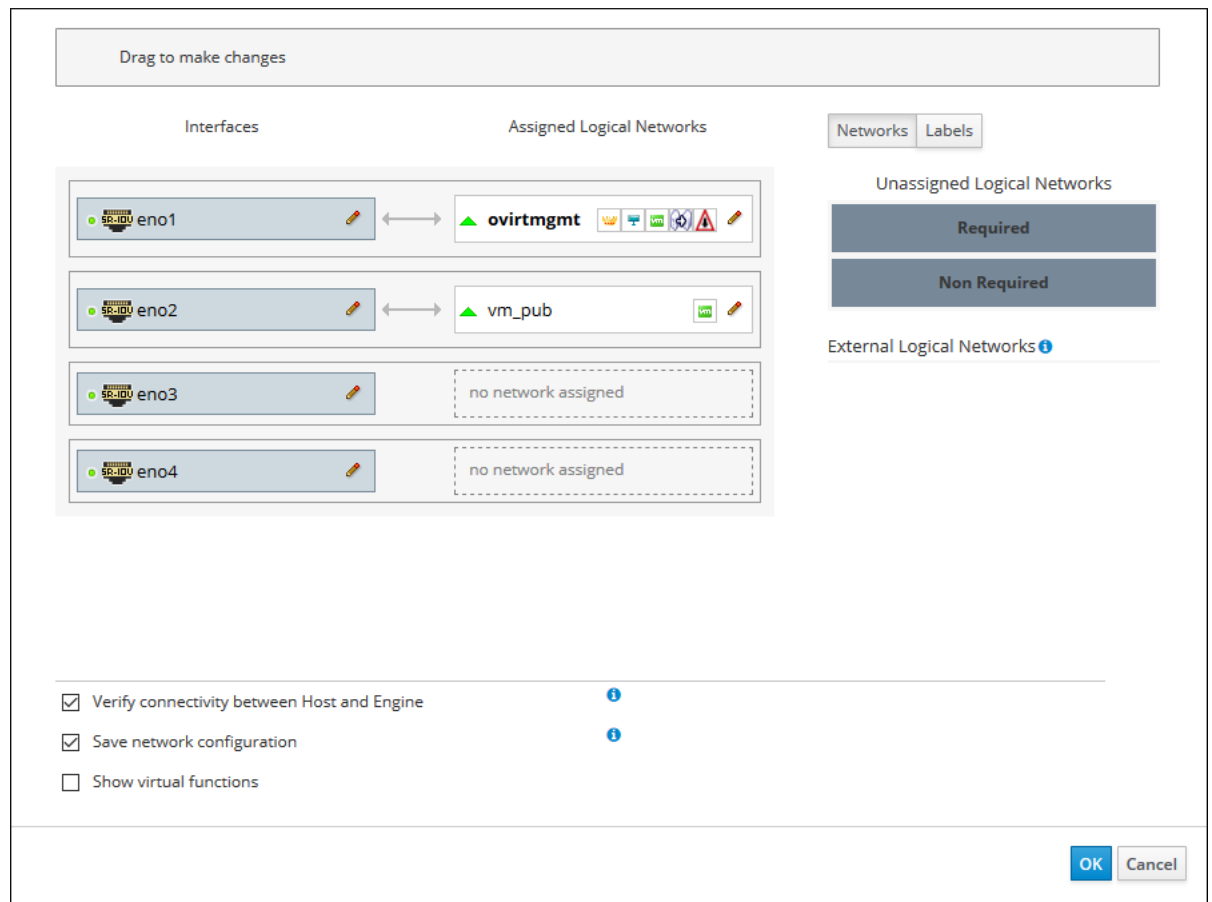
As shown in the following screenshot, the logical network created in [Creating a Logical Network](#) named `vm_pub` is displayed under the **Unassigned Logical Networks** column. In the next step, you assign this network to the network interface named `eno2`, which currently has no network assigned to it.

Figure 2.3 Setup Host Dialog Box: Unassigned Logical Networks

6. Select the network you want to add from the **Unassigned Logical Networks** column by left-clicking the network and, while holding down the mouse, drag the network over to the box to the right of the available network interface where you want to add the network.

Alternatively, you can right-click the network and select the available interface from a drop-down list.

For this example, the logical network named `vm_pub` is assigned to the available network interface named `eno2`. As shown in the following screenshot, after dragging the network from **Unassigned Logical Networks** over to this interface, the network named `vm_pub` appears under the **Assigned Logical Networks** column as assigned to the network interface named `eno2`.

Figure 2.4 Setup Host Dialog Box: Assigned Logical Networks

7. After editing the network settings, click **OK** to save the settings.

8. Click **OK** to add the network.

Creating a New Virtual Machine

Before creating new virtual machines for use in your virtualization environment, refer to [Chapter 1, Before You Begin](#) for more information about the prerequisites for this example scenario.

Creating a New Oracle Linux Virtual Machine

For the example scenario, you create a new Oracle Linux virtual machine, install the Oracle Linux guest OS, and install the Linux guest agent for this Oracle Linux virtual machine.

To create a new Oracle Linux virtual machine:

1. Go to **Compute** and then click **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Click **New**.

The **New Virtual Machine** dialog box opens with the **General** tab selected on the sidebar.

3. From the **Cluster** drop-down list, select the data center and host cluster for the new host.

By default, the **Default** option is selected in the drop-down list.

For this step, leave **Default** selected from the drop-down list because the default data center and cluster are used in this example scenario. For the procedures to create new data centers or a new clusters, refer to [Chapter 3, Additional Administration Tasks](#).

4. From the **Operating System** drop-down list, select the operating system for the virtual machine.
5. For the **Name** field, enter a name for the new virtual machine.
6. Under **Instance Images**, add storage to the virtual machine by either using an existing virtual disk or creating a new virtual desk.
 - To use an existing virtual disk, click **Attach** and select the virtual disk to use for the virtual machine storage. Then click **OK**.
 - To create a new virtual disk, click **Create** and update the fields for the virtual machine storage or accept the default settings. Then click **OK**.

For the example scenario, all of the default settings are accepted for the new virtual disk that is being created, except the **Size (GiB)** field, which is set to 4. The following screenshot shows the **New Virtual Disk** dialog box for the Oracle Linux virtual machine being created in this example scenario.

Figure 2.5 New Virtual Disk Dialog Box

New Virtual Disk [X]

Image Direct LUN Cinder

Size (GiB)

Alias

Description

Interface

Storage Domain

Allocation Policy

Disk Profile

☐ Wipe After Delete

☒ Bootable

☐ Shareable

☐ Read-Only

☐ Enable Discard

7. Connect the virtual machine to a network by adding a network interface. To do that, select the vNIC profile created in [Creating a Logical Network](#) from the **nic1** drop-down list.

For information about customizing vNICs, refer to [Customizing vNIC Profiles for Virtual Machines](#).

The following screenshot shows the **General** tab open on the **New Virtual Machine** dialog box for the new Oracle Linux virtual machine being created in this example scenario. In the dialog box, the following key fields are completed:

- From the **Cluster** drop-down list, the **Default** option is selected.
- For the **Operating System** drop-down list, **Oracle Linux 7.x x64** is selected.
- For the **Name** field, **ol7-vm1** is entered.
- Under **Instance Images**, a virtual disk named **ol7-vm1_Disk1** is being created, which has been set to a size of **4GB**.
- From the **nic1** drop-down list, the logical network named **vm_pub** is selected.

Figure 2.6 New Virtual Machine Dialog Box

The screenshot displays the 'New Virtual Machine' dialog box with the 'General' tab selected. The left sidebar contains various configuration categories, with 'General' being the active one. The main area shows the following settings:

- Cluster:** Default (Data Center: Default)
- Template:** Blank | (0)
- Operating System:** Oracle Linux 7.x x64
- Instance Type:** Custom
- Optimized for:** Desktop
- Name:** ol7-vm1
- Description:** (empty field)
- Comment:** (empty field, highlighted with a blue border)
- VM ID:** (empty field)
- Options:** ☐ Stateless ☐ Start in Pause Mode ☐ Delete Protection
- Instance Images:** ol7-vm1_Disk1: (4 GB) creating (boot) (with Edit, +, and - buttons)
- Network:** Instantiate VM network interfaces by picking a vNIC profile. nic1 is set to vm_pub/vm_pub (with + and - buttons).

At the bottom, there is a 'Hide Advanced Options' button and 'OK' and 'Cancel' buttons.

8. Click **Show Advanced Options** to display additional configuration options available for the new virtual machine.
9. **(Optional)** Click the **System** tab on the sidebar to adjust the CPU and memory size for the virtual machine from the defaults.

For this example scenario the default values are used:

- For **Memory Size** field, the default value of **1024 MB** is used.
 - For the **Maximum memory** field, the default value of **4096 MB** is used.
 - For the **Total Virtual CPUs** field, the default value of **1** is used.
10. Click the **Boot Options** tab on the sidebar to specify the boot sequence for the virtual device and then select the device from the **First Device** drop-down list.

In the following screenshot, **CD-ROM** is selected from the **First Device** drop-down list. The **Attach CD** check box is also selected with the appropriate ISO file chosen from the drop-down list. For this example scenario, **OracleLinux-R7-U6-Server-x86_64-dvd.iso** is selected.

Figure 2.7 New Virtual Machines Dialog Box: Boot Options Tab

New Virtual Machine

General

Cluster: Default

Data Center: Default

System

Template: Blank | (0)

Operating System: Oracle Linux 7.x x64

Instance Type: Custom

Optimized for: Desktop

Initial Run

Console

Host

High Availability

Resource Allocation

Boot Options

Boot Sequence:

First Device: CD-ROM

Second Device: [None]

☒ Attach CD: OracleLinux-R7-U6-Server-x86_64-dv

☐ Enable menu to select boot device

Linux Boot Options:

kernel path:

initrd path:

kernel parameters:

Hide Advanced Options

OK Cancel

After you install the Oracle Linux guest OS, change the **First Device** from **CD-ROM** to **Hard Disk** from the drop-down list. For more information, refer to [Installing the Oracle Linux Guest OS](#).

11. Click **OK** to create the virtual machine.
12. Proceed to [Installing the Oracle Linux Guest OS](#).

Installing the Oracle Linux Guest OS

To install the Oracle Linux guest OS:

1. Go to **Compute** and then click **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Select the virtual machine created in [Creating a New Oracle Linux Virtual Machine](#) and click **Run**.
3. Click **Console** to open a console to the virtual machine.

If you have not installed the Remote Viewer application, refer to [Chapter 1, Before You Begin](#).

4. Install the Oracle Linux guest OS.

Refer to the [Oracle Linux Installation Guide for Release 7](#) for more information on how to install Oracle Linux.

5. After you finish installing the Oracle Linux guest OS, return to the **Virtual Machines** pane, highlight the row for this virtual machine, and click **Edit**.

The **Edit Virtual Machines** dialog box opens.

6. Click the **Boot Options** tab on the sidebar of the dialog box to specify the boot sequence for the virtual device and then change **CD-ROM** to **Hard Disk** from the **First Device** drop-down list.
7. Click **OK** to save the changes to the virtual machine configuration.

The Oracle Linux virtual machine now boots from the virtual disk where the operating system is installed.

8. **(Optional)** If you use a proxy server for Internet access, configure Yum with the proxy server settings. For more information, see *Configuring Use of a Proxy Server* at <https://docs.oracle.com/en/operating-systems/oracle-linux/7/admin/ol7-proxy-config.html>.
9. **(Optional)** If you are using yum to update the host, make sure the host is using the modular yum repository configuration. For more information, see *Getting Started with Oracle Linux Yum Server* at <http://yum.oracle.com/getting-started.html>.
10. Proceed to [Installing the Linux Guest Agent](#).

Installing the Linux Guest Agent

To install the Linux guest agent:

1. Open a console session for the Oracle Linux guest and log in to the terminal.
2. Install the latest ovirt-guest-agent package, which is available from http://yum.oracle.com/repo/OracleLinux/OL7/ovirt42/x86_64.

For Oracle Linux 7 guests:

```
# yum install https://yum.oracle.com/repo/OracleLinux/OL7/ovirt42/x86_64/getPackage/ovirt-guest-agent-commo
```

For Oracle Linux 6 guests:

```
# yum install https://yum.oracle.com/repo/OracleLinux/OL7/ovirt42/x86_64/getPackage/ovirt-guest-agent-versi
```

For Oracle Linux 5 guests:

```
# yum install https://yum.oracle.com/repo/OracleLinux/OL7/ovirt42/x86_64/getPackage/ovirt-guest-agent-versi
```

where *version* is the ovirt-guest-agent package number.

3. Start the guest agent service for the Oracle Linux guest.

For Oracle Linux 7 guests:

```
# systemctl start ovirt-guest-agent.service
```

For Oracle Linux 6 and Oracle Linux 5 guests:

```
# service ovirt-guest-agent start
```

4. **(Optional)** Enable an automatic restart of the guest agent service when the VM is rebooted.

For Oracle Linux 7 guests:

```
# systemctl enable ovirt-guest-agent.service
```

For Oracle Linux 6 and Oracle Linux 5 guests:

```
# chkconfig ovirt-guest-agent on
```

Creating a New Microsoft Windows Virtual Machine

For the example scenario, you create a new Microsoft Windows virtual machine, install the Microsoft Windows guest OS, and install the Microsoft Windows guest agent and VirtIO drivers for this virtual machine.

Before You Begin

Before creating Microsoft Windows virtual machines, ensure the following prerequisites are met.

1. Install the `ovirt-guest-tools-iso` package on the Manager:

```
# yum install ovirt-guest-tools-iso
```

2. Verify the package installation:

```
# rpm -ql ovirt-guest-tools-iso
/usr/share/ovirt-guest-tools-iso
/usr/share/ovirt-guest-tools-iso/oVirt-toolsSetup_4.2-4.el7.iso
/usr/share/ovirt-guest-tools-iso/ovirt-tools-setup.iso
```

Creating a New Microsoft Windows Virtual Machine

To create a new Microsoft Windows virtual machine:

1. Go to **Compute** and then click **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Click **New**.

The **New Virtual Machine** dialog box opens with the **General** tab selected on the sidebar.

3. From the **Cluster** drop-down list, select the data center and host cluster for the new host.

By default, the **Default** option is selected in the drop-down list.

For this step, leave **Default** selected from the drop-down list because the default data center and cluster are used in this example scenario. For the procedures to create new data centers or a new clusters, refer to [Chapter 3, Additional Administration Tasks](#).

4. From the **Operating System** drop-down list, select the appropriate Microsoft Windows operating system for the virtual machine.
5. For the **Name** field, enter a name for the new virtual machine.
6. Under **Instance Images**, add storage to the virtual machine by either using an existing virtual disk or creating a new virtual disk.
 - To use an existing virtual disk, click **Attach** and select the virtual disk to use for the virtual machine storage. Then click **OK**.
 - To create a new virtual disk, click **Create** and update the fields for the virtual machine storage or accept the default settings. Then click **OK**.

The following screenshot shows the **New Virtual Disk** dialog box for the Oracle Linux virtual machine being created in this example scenario. In the dialog box, the following key fields are completed:

- For the **Size (GiB)** field, a value of **12** is entered.
- From the **Interface** drop-down list, **IDE** is selected.
- From the **Allocation Policy** drop-down list, **Thin Provision** is selected.

Figure 2.8 New Virtual Disk Dialog Box

7. Connect the virtual machine to a network by selecting the vNIC profile created in [Creating a Logical Network](#) from the **nic1** drop-down list.

For information about customizing vNICs, refer to [Customizing vNIC Profiles for Virtual Machines](#).

The following screenshot shows the **General** tab on **New Virtual Machine** dialog box for the new Microsoft Windows virtual machine that is being created in this example scenario. In the dialog box, the following key fields are completed:

- From the **Cluster** drop-down list, the **Default** option is selected.
- For the **Operating System** drop-down list, **Windows 10 x64** is selected.
- For the **Name** field, **windows-10-vm** is entered.
- Under **Instance Images**, a virtual disk named **windows-10-vm_Disk1** is being created, which has been set to a size of **12GB**.
- From the **nic1** drop-down list, the logical network named **vm_pub** is selected.

Figure 2.9 New Virtual Machine Dialog Box

New Virtual Machine

General

Cluster: Default
Data Center: Default

Template: Blank | (0)

Operating System: Windows 10 x64

Instance Type: Custom

Optimized for: Desktop

Name: windows-10-vm

Description:

Comment:

VM ID:

☐ Stateless ☐ Start in Pause Mode ☐ Delete Protection

Instance Images
windows-10-vm_Disk1: (12 GB) creating (boot)

Instantiate VM network interfaces by picking a vNIC profile.

nic1: vm_pub/vm_pub

Hide Advanced Options

OK Cancel

8. Click the **System** tab on the sidebar to adjust the memory size for the virtual machine from the defaults.

In this example, change the **Memory Size** field to **4096 MB** and the **Total Virtual CPUs** field to **4**.

The following screenshot shows the **System** tab on **New Virtual Machine** dialog box for the new Microsoft Windows virtual machine that is being created in this example scenario. In the dialog box, the following key fields are completed:

- The **Memory Size** field is changed to **4096 MB**.
- The **Maximum memory** field automatically updates to **16384 MB** when the **Memory Size** field is changed to **4096 MB**.
- The **Total Virtual CPUs** field is changed to **4**.

Figure 2.10 New Virtual Machine Dialog Box: System Tab

New Virtual Machine

General

System

Initial Run

Console

Host

High Availability

Resource Allocation

Boot Options

Random Generator

Custom Properties

Icon

Foreman/Satellite

Affinity Labels

Cluster: Default

Data Center: Default

Template: Blank | (0)

Operating System: Windows 10 x64

Instance Type: Custom

Optimized for: Desktop

Memory Size: 4096 MB

Maximum memory: 16384 MB

Total Virtual CPUs: 4

Advanced Parameters

General

Hardware Clock Time Offset: default: (GMT) GMT Standard Time

☐ Provide custom serial number policy

Hide Advanced Options

OK Cancel

9. Click the **Boot Options** tab on the sidebar of the dialog box to specify the boot sequence for the virtual device.
 - a. From the **First Device** drop-down list select **CD-ROM**.
 - b. Select the **Attach CD** checkbox and choose the appropriate ISO image from the drop-down list.

After you install the Microsoft Windows guest OS, change the **First Device** drop-down list from **CD-ROM** to **Hard Disk** from the drop-down list. For more information, refer to [Installing the Microsoft Windows Guest Agent and VirtIO Drivers](#).

In the following screenshot, **CD-ROM** is selected from the **First Device** drop-down list. The **Attach CD** check box is also selected with the **en_windows_10_enterprise_1511_x64_dvd.iso** ISO file chosen from the drop-down list.

Figure 2.11 New Virtual Machines Dialog Box: Boot Options Tab

New Virtual Machine

General

System

Initial Run

Console

Host

High Availability

Resource Allocation

Boot Options

Random Generator

Custom Properties

Icon

Foreman/Satellite

Affinity Labels

Cluster: Default

Data Center: Default

Template: Blank | (0)

Operating System: Windows 10 x64

Instance Type: Custom

Optimized for: Desktop

Boot Sequence:

First Device: CD-ROM

Second Device: [None]

☒ Attach CD

☐ Enable menu to select boot device

en_windows_10_enterprise_1511_x64

Hide Advanced Options

OK Cancel

10. Click **OK** to create the virtual machine.
11. Proceed to [Installing the Oracle Linux Guest OS](#).

Installing the Microsoft Windows Guest OS

To install the Microsoft Windows guest OS:

1. Go to **Compute** and then click **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Select the Microsoft Windows virtual machine created in [Creating a New Microsoft Windows Virtual Machine](#) and click **Run**.
3. Click **Console** to open a console to the virtual machine.

If you have not installed the Remote Viewer application, refer to [Chapter 1, Before You Begin](#).

4. Install the Microsoft Windows guest OS.

Refer to the applicable Microsoft Windows documentation for instructions on how to install the operating system.

5. Proceed to [Installing the Microsoft Windows Guest Agent and VirtIO Drivers](#).

Installing the Microsoft Windows Guest Agent and VirtIO Drivers

To install the Microsoft Windows guest agent and VirtIO drivers:

1. After you finish installing the Microsoft Windows guest OS, return to the **Virtual Machines** pane, highlight the row for this virtual machine, and click **Edit**.

The **Edit Virtual Machines** dialog box opens.

2. Click the **Boot Options** tab on the sidebar of the dialog box to specify the boot sequence for the virtual device.
 - a. From the **First Device** drop-down list, change **CD-ROM** to **Hard Disk**.
 - b. From the **Second Device** drop-down list, select **CD-ROM**.
 - c. Select the **Attach CD** checkbox and choose **oVirt-toolsSetup_4.2-4.el7.iso** from the drop-down list.
3. Click **OK** to save the changes to the virtual machine configuration.
4. Click **OK** when the **Pending Virtual Machine changes** dialog box appears.
5. From the **Virtual Machines** pane, reboot the virtual machine.
6. Click **Console** to open a console to the virtual machine and navigate to the CDROM.
7. Double-click **ovirt-guest-tools-setup** to install the Microsoft Windows guest agent.
8. Double-click the **virtio** folder and then click **Setup** to start the Oracle VirtIO Drivers for Microsoft Windows installer.

The installer window is displayed.

9. Click **Install** to start the Oracle VirtIO Drivers for Microsoft Windows installer.

The installer copies the Oracle VirtIO Drivers for Microsoft Windows installer files and then installs the drivers on the Microsoft Windows guest OS.

10. Click **Yes, I want to restart my computer now** and click **Finish**.

The virtual machine is restarted.

11. Stop the virtual machine.
12. Go to **Compute** and then click **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

13. Select the Microsoft Windows virtual machine created in [Creating a New Microsoft Windows Virtual Machine](#) and click **Edit**.
14. Edit the virtual disk. From the **Interface** drop-down list, change **IDE** to **VirtIO-SCSI**.

15. Click the **Boot Options** tab on the sidebar.
 - a. Do not make any changes to the **First Device** drop-down list. The **Hard Disk** option is selected from a previous step.
 - b. From the **Second Device** drop-down list, select **None**.
 - c. Deselect the **Attach CD** checkbox.
16. Click **OK** to save the changes to the virtual machine configuration.
17. Run the Microsoft Windows virtual machine.

Creating a Template

For this example scenario, you seal the Oracle Linux virtual machine created in [Creating a New Virtual Machine](#) and then you create an Oracle Linux template based on that virtual machine. You then use that template as the basis for a Cloud-Init enabled template to automate the initial setup of a virtual machine.

A template is a copy of a virtual machine that you can use to simplify the subsequent, repeated creation of similar virtual machines. Templates capture the configuration of software, the configuration of hardware, and the software installed on the virtual machine on which the template is based, which is known as the source virtual machine.

Virtual machines that are created based on a template use the same NIC type and driver as the original virtual machine but are assigned separate, unique MAC addresses.

Sealing an Oracle Linux Virtual Machine for Use as a Template

Sealing is the process of removing all system-specific details from a virtual machine before creating a template based on that virtual machine. Sealing is necessary to prevent the same details from appearing on multiple virtual machines that are created based on the same template. It is also necessary to ensure the functionality of other features, such as predictable vNIC order.

To seal an Oracle Linux virtual machine for use as a template:

1. Log in to the Oracle Linux virtual machine as the `root` user.
2. Flag the system for reconfiguration.

```
# touch /.unconfigured
```

3. Remove the SSH host keys.

```
# rm -rf /etc/ssh/ssh_host_*
```

4. Set the host name value of the `HOSTNAME=localhost.localdomain` in the `/etc/sysconfig/network` file for Oracle Linux 6 or the `/etc/hostname` file for Oracle Linux 7.
5. Remove `/etc/udev/rules.d/70-*`.

```
rm -rf /etc/udev/rules.d/70-*
```

6. Remove the `HWADDR` and `UUID` lines in the `/etc/sysconfig/network-scripts/ifcfg-eth*` file.
7. **(Optional)** Delete all the logs from `/var/log` and build logs from `/root`.
8. Cleanup the command history.

```
# history -c
```

9. Shutdown the virtual machine.

```
# poweroff
```

The Oracle Linux virtual machine is now sealed and ready to be made into a template.

Creating an Oracle Linux Template

When you create a template based on a virtual machine, a read-only copy of the virtual machine's disk is created. This read-only disk becomes the base disk image of the new template, and of any virtual machines that are created based on the template. As such, the template cannot be deleted while any virtual machines based on that template exist in the virtualization environment.

To create an Oracle Linux template:

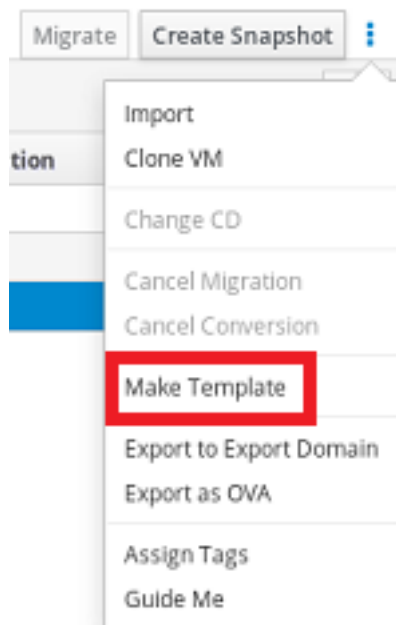
1. Go to **Compute**, and then click **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Click **More Actions** to expand the drop-down list and select **Make Template** from the drop-down list.

The following screenshot shows the **More Actions** drop-down list expanded to display the **Make Template** option. The **Make Template** option is highlighted with a red rectangular box for emphasis.

Figure 2.12 Make Template Option



3. For the **Name** field, enter a name for the new virtual machine template.
4. In the **Disc Allocation:** section under the **Alias** column, rename the disk alias to be the same as the template name entered for the **Name** field.

- Click the **Seal Template (Linux only)** checkbox.

The following screenshot shows the **New Template** dialog box completed for the new template named `ol7-vm-template`, which is being created in this example scenario. In the dialog box, the disk alias has been renamed to `ol7-vm-template` and the **Seal Template (Linux only)** checkbox is selected.

Figure 2.13 New Template Dialog Box

New Template

Name:

Description:

Comment:

Cluster:

CPU Profile:

☐ Create as a Template Sub-Version

Disk Allocation:

Alias	Virtual Size	Format	Target	Disk Profile
ol7-vm2_Disk1	4 GiB	Raw	iscsi-data-domain	iSCSI-data-domain

☒ Allow all users to access this Template

☐ Copy VM permissions

☒ Seal Template (Linux only)

- Click the **OK** button to create the template.

The virtual machine displays a status of image `Locked` while the template is being created. The time it takes for the template to be created depends on the size of the virtual disk and the capabilities of your storage hardware. When the template creation process completes, the template is added to the list of templates displayed on the **Templates** pane.

You can now create new Oracle Linux virtual machines that are based on this template.

Creating a Cloud-Init Enabled Template

For Oracle Linux 7 and later VMs, you can use the Cloud-Init tool to automate the initial setup of virtual machines. Common tasks, such as configuring host names, network interfaces, and authorized keys, can be automated by using this tool. When provisioning virtual machines that have been deployed based on a template, the Cloud-Init tool can be used to prevent conflicts on the network.

Before You Begin

Before you create Cloud-Init enabled templates, ensure the following prerequisites are met:

- To use Cloud-Init, the `cloud-init` package must first be installed on the virtual machine. Once installed, the Cloud-Init service starts during the boot process and searches for instructions on what to configure. You can use options in the **Run Once** window to provide these instructions on a one-time only basis, or use the options in the **New Virtual Machine**, **Edit Virtual Machine**, and **Edit Template** dialog boxes to provide these instructions every time the virtual machine starts.
- You must have sealed an Oracle Linux for use as a template. For more information, refer to [Sealing an Oracle Linux Virtual Machine for Use as a Template](#).
- You must create a template. For more information, refer to [Creating an Oracle Linux Template](#).

1. Log in to a Oracle Linux virtual machine.

2. List the `cloud-init` package.

```
# yum list cloud-init
```

3. Install the `cloud-init` package.

```
# yum install cloud-init
```

4. Run the following command to enable the `cloud-init` service.

```
# systemctl enable cloud-init
```

5. Run the following command to start the `cloud-init` service.

```
# systemctl start cloud-init
```

Using Cloud-Init to Automate the Initial Setup of a Virtual Machine

To use Cloud-Init to automate the initial setup of a virtual machine:

1. Go to **Compute** and then click **Templates**.

The **Templates** pane opens with the list of templates that have been created.

2. Select a template and click the **Edit** button.

3. Click **Show Advanced Options**.

4. Click the **Initial Run** tab and select the **Use Cloud-Init/Sysprep** check box.

5. Enter a host name in the **VM Hostname** text field.

6. Select the **Configure Time Zone** check box and select a time zone from the **Time Zone** drop-down list.

7. Expand the **Authentication** section.

- Select the **Use already configured password** check box to use the existing credentials, or clear that check box and enter a `root` password in the **Password** and **Verify Password** text fields to specify a new `root` password.
- Enter any SSH keys to be added to the authorized hosts file on the virtual machine in the **SSH Authorized Keys** text area.
- Select the **Regenerate SSH Keys** check box to regenerate SSH keys for the virtual machine.

8. Expand the **Networks** section.
 - Enter any DNS servers in the **DNS Servers** text field.
 - Enter any DNS search domains in the **DNS Search Domains** text field.
 - Select the **In-guest Network Interface** check box and use the **+ Add new** and **- Remove selected** buttons to add or remove network interfaces to or from the virtual machine.



Important

You must specify the correct network interface name and number (for example, `eth0`, `eno3`, `enp0s`); otherwise, the virtual machine's interface connection will be up but will not have the Cloud-Init network configuration.

9. Expand the **Custom Script** section and enter any custom scripts in the **Custom Script** text area.

Creating a Virtual Machine from a Template

For this example scenario, you create an Oracle Linux virtual machine from the template created in [Creating a Template](#).

Creating an Oracle Linux Virtual Machine from a Template

To create an Oracle Linux virtual machine from a template:

1. Go to **Compute** and then click **Templates**.

The **Templates** pane opens with the list of templates that have been created.

2. On the far right corner of the **Templates** pane, click **New VM**.

The **New Virtual Machine** dialog box opens for the template.

3. On the **Cluster** drop-down list, select the data center and host cluster for the new host.

By default, the **Default** option is selected in the drop-down list.

For this step, leave **Default** selected from the drop-down list because the default data center and cluster are used in this example scenario.

For the procedures to create new data centers or a new clusters, refer to [Chapter 3, Additional Administration Tasks](#).

4. For the **Template** drop-down list, select the desired template from the drop-down list.

For this example scenario, select the template created in [Creating an Oracle Linux Template](#).

5. For the **Operating System** drop-down list, select the operating system from the drop-down list.
6. For the **Name** field, enter a name for the virtual machine.

The following screenshot shows the **New Virtual Machine** dialog box for the new Oracle Linux virtual machine that is being created based on the template that was created in [Creating an Oracle Linux Template](#). In the dialog box, the following key fields are completed:

- From the **Cluster** drop-down list, the **Default** option is selected.
- From the **Template** drop-down list, the template named `ol7-vm-template` is selected.

- For the **Operating System** drop-down list, [Oracle Linux 7.x x64](#) is selected.
- For the **Name** field, `ol7-vm2` is entered.
- From the **nic1** drop-down list, the logical network named `vm_pub` is selected.

Figure 2.14 New Virtual Machine Dialog Box for a Template - General Tab

New Virtual Machine

General

Cluster: Default

Data Center: Default

Template: ol7-tm-template | base version (1)

Operating System: Oracle Linux 7.x x64

Instance Type: Custom

Optimized for: Desktop

Name: ol7-vm2

Description:

Comment:

VM ID:

☐ Stateless ☐ Start in Pause Mode ☐ Delete Protection ☐ Copy Template Permissions

Instance Images: Attach Create + -

Instantiate VM network interfaces by picking a vNIC profile.

nic1: vm_pub/vm_pub + -

Hide Advanced Options OK Cancel

- Click the **Boot Options** tab and ensure that the **First Device** is set to [Hard Disk](#).

The following screenshot shows the **New Virtual Machines** dialog box with the **Boot Options** tab options selected for the new Oracle Linux virtual machine named `ol7-vm4` that is being created from the template named `ol7-vm-template` in this example. The **First Device** is set to [Hard Disk](#).

Figure 2.15 New Virtual Machine Dialog Box for a Template - Boot Options Tab

New Virtual Machine

General

Cluster: Default

Data Center: Default

System

Template: ol7-vm-template | base version (1)

Operating System: Oracle Linux 7.x x64

Instance Type: Custom

Optimized for: Desktop

Initial Run

Console

Host

High Availability

Resource Allocation

Boot Options

Boot Sequence:

First Device: Hard Disk

Second Device: [None]

☐ Attach CD

☐ Enable menu to select boot device

Linux Boot Options:

kernel path:

initrd path:

kernel parameters:

Hide Advanced Options

OK Cancel

- Click **OK** to create the virtual machine from the template.

The new virtual machine appears on the **Virtual Machines** pane.

- Highlight the virtual machine that you created from the template and then click **Run** to boot the virtual machine.

The red down arrow icon to the left of the virtual machine turns green and the **Status** column displays **Up** when the virtual machine is up and running on the network.

Backing Up and Restoring the Manager

For this example scenario, you backup and restore the Oracle Linux Virtualization Manager by using the `engine-backup` command utility.

Backing Up the Manager

To backup the Manager:

- Log in to the host that is running the Manager.

2. Create a full backup of the Manager.

```
# engine-backup --mode=backup --scope=all --file=path --log=path
```

The following example shows how to use the `engine-backup` command to create a full backup of the Manager. A backup file and log file for the Manager backup is created in the path specified.

```
# engine-backup --mode=backup --scope=all --file=backup/file/ovirt-engine-backup --log=backup/log/ovirt-eng
Backing up:
Notifying engine
- Files
- Engine database 'engine'
- DWH database 'ovirt_engine_history'
Packing into file 'backup/file/ovirt-engine-backup'
Notifying engine
Done.
```

3. **(Optional)** Set up a `cron` job to take regular backups.

By default, the Manager does not take automatic backups. Oracle recommends that you take you regular backups of the Manager.

The following example shows a sample `cron` job defined in a `crontab`-format file.

```
today=`date +%Y%m%d-%H%M`
engine-backup --mode=backup --scope=all --file=/backup/file/ovirt-engine-backup-${today}
--log=/backup/log/ovirt-engine-backup-${today}.log
```

Restoring a Full Backup of the Manager

To restore a full backup of the Manager:

1. Log in to the host that is running the Manager.
2. Clean up the objects associated with the Manager.

```
# engine-cleanup
```

This `engine-cleanup` command removes the configuration files and cleans the database associated with the Manager.

The following example shows output from the `engine-cleanup` command.

```
# engine-cleanup
[ INFO ] Stage: Initializing
[ INFO ] Stage: Environment setup
        Configuration files: ...
        Log file: ...
        Version: otopi-1.7.8 (otopi-1.7.8-1.el7)
[ INFO ] Stage: Environment packages setup
[ INFO ] Stage: Programs detection
[ INFO ] Stage: Environment customization
        Do you want to remove all components? (Yes, No) [Yes]: Yes
        The following files were changed since setup:
        /etc/ovirt-engine/engine.conf.d/11-setup-sso.conf
        Remove them anyway? (Yes, No) [Yes]: Yes

        === PRODUCT OPTIONS ===

[ INFO ] Stage: Setup validation
        During execution engine service will be stopped (OK, Cancel) [OK]: OK
        All the installed ovirt components are about to be removed ...(OK, Cancel)
        [Cancel]: OK
[ INFO ] Stage: Transaction setup
```

```
[ INFO ] Stopping engine service
[ INFO ] Stopping ovirt-fence-kdump-listener service
[ INFO ] Stopping dwh service
[ INFO ] Stopping Image I/O Proxy service
[ INFO ] Stopping vmconsole-proxy service
[ INFO ] Stopping websocket-proxy service
[ INFO ] Stage: Misc configuration
[ INFO ] Stage: Package installation
[ INFO ] Stage: Misc configuration
[ INFO ] Backing up PKI configuration and keys
...
[ INFO ] Clearing Engine database engine
...
[ INFO ] Clearing DWH database ovirt_engine_history
[ INFO ] Removing files
[ INFO ] Reverting changes to files
...
[ INFO ] Stage: Transaction commit
[ INFO ] Stage: Closing up

      === SUMMARY ===

      Engine setup successfully cleaned up
      A backup of PKI configuration and keys is available at ...
      ovirt-engine has been removed
      A backup of the Engine database is available at ...
      A backup of the DWH database is available at ...

      === END OF SUMMARY ===

[ INFO ] Stage: Clean up
      Log file is located at ...
[ INFO ] Generating answer file ...
[ INFO ] Stage: Pre-termination
[ INFO ] Stage: Termination
[ INFO ] Execution of cleanup completed successfully
```

3. Restore a full backup of the Manager.

The following form of the `engine-backup` command is used to restore a full backup of the Manager.

```
engine-backup --mode=restore --scope=all --file=backup --log=backup --restore-permissions
```

The following example shows how to use the `engine-backup` command to restore a full backup of the Manager.

```
# engine-backup --mode=restore --scope=all --file=backup/file/ovirt-engine-backup --log=backup/log/ovirt-engine-backup
Preparing to restore:
- Unpacking file 'backup/file/ovirt-engine-backup'
Restoring:
- Files
- Engine database 'engine'
  - Cleaning up temporary tables in engine database 'engine'
  - Updating DbJustRestored VdcOption in engine database
  - Resetting DwhCurrentlyRunning in dwh_history_timekeeping in engine database
  - Resetting HA VM status
-----
Please note:

The engine database was backed up at 2019-03-25 12:48:02.000000000 -0700 .

Objects that were added, removed or changed after this date, such as virtual
machines, disks, etc., are missing in the engine, and will probably require
recovery or recreation.
-----
- DWH database 'ovirt_engine_history'
```

```
You should now run engine-setup.  
Done.
```

4. Run the `engine-setup` command to complete the setup of the restored Manager.

```
# engine-setup
```

This command reconfigures the firewall and ensures that the Manager service is correctly configured.

5. Log in to the Manager and verify that the Manager has been restored to the backup.

Chapter 3 Additional Administration Tasks

Table of Contents

Global Configuration	33
Administering User Accounts from the Administration Portal	33
Administering User and Group Accounts from the Command Line	36
Data Centers	44
Creating a New Data Center	44
Clusters	44
Creating a New Cluster	44
Storage	46
Preparing Local Storage for a KVM Compute Host	46
Configuring a KVM Compute Host to Use Local Storage	46
Preparing NFS Storage	47
Attaching an NFS Data Domain	48
Adding an FC Data Domain	49
Virtual Machines	50
Customizing vNIC Profiles for Virtual Machines	50
Creating a Snapshot of a Virtual Machine	50
Restoring a Virtual Machine from a Snapshot	51
Creating a Virtual Machine from a Snapshot	52
Deleting a Snapshot	53
Encrypted Communication	53
Replacing the Oracle Linux Virtualization Manager Apache SSL Certificate	54

The following Oracle Linux Virtualization Manager administration tasks are provided as a supplement to the getting started scenario (see [Chapter 2, *Getting Started with Oracle Linux Virtualization Manager*](#)).

For conceptual information about these topics, refer to [Planning for Oracle Linux Virtualization Manager](#) in the *Oracle Linux Virtualization Manager Installation Guide*.

Global Configuration

Global configuration options are set from the **Configure** dialog box. This dialog box is accessed by selecting **Administration** and then clicking **Configure**. From the **Configure** dialog box, you can configure a number of global resources for your virtualization environment, such as users, roles, system permissions, scheduling policies, instance types, and MAC address pools. You can also customize the way in which users interact with resources in the environment and configure options that can be applied to multiple clusters from a central location.

Administering User Accounts from the Administration Portal

The following tasks describe common user administration tasks that are performed in the Administration Portal.

Adding VM Portal Permissions to a User

Users must be created already before they can be added and assigned roles and permissions. For more information, refer to [Administering User and Group Accounts from the Command Line](#).

In the following example procedure, a user is assigned the roles and permissions associated with the [UserRole](#). This role gives the user the permission to log in to the VM Portal and to start creating virtual machines. The procedure also applies to group accounts.

1. Click **Administration** and then select **Configure**.

The **Configure** dialog box opens with the **Roles** tab selected on the sidebar menu.

2. Click the **System Permissions** tab on the sidebar.
3. Click **Add**.

The **Add System Permission to User** dialog box opens.

4. Select a profile from the **Search** drop-down list and click **Go**.
5. Select the check box next to the user or group account.
6. Under the **Role to Assign** drop-down list, select **UserRole**.
7. Click **OK**.
8. **(Optional)** Log in to the VM Portal to verify the permissions of the user account.

Removing Users and Groups

To use the Administration Portal to remove a user or group:

1. Go to **Administration** and then click **Users**.

The **Users** pane opens.

2. On the **Users** pane, select either the **User** or **Group** tab to display the added users or groups.
3. Select the user or group to be removed.
4. Click **Remove**.

The **Remove User(s)** dialog box opens.

5. Click **OK** to confirm the removal of the user.

The user or group is removed and no longer appears on the **Users** pane.

Assigning Permissions to Users and Groups

Users and groups must be created already before they can be assigned roles and permissions. For more information, refer to [Administering User and Group Accounts from the Command Line](#).

1. Go to **Administration** and then click **Users**.

The **Users** pane opens.

2. Click **Add**.

The **Add Users and Groups** dialog box opens.

3. Select either the **Users** option.

4. In the **Search** field, enter the name of the user or group to be added and then select **Go**.

The dialog box updates to display the search results.

5. Select the check box next to the user or group to be added.
6. Click **Add**.

The user or group is added and appears on the **Users** pane.

7. On the **Users** pane, select either the **User** or **Group** tab to display the added users or groups.
8. Display the detailed view for the user or group by clicking the name of the user under the **User Name** column or the name of the group under the **Group Name** column.
9. Click the **Permissions** tab.
10. Click **Add System Permissions**.

The **Add System Permission to User** dialog box opens.

11. From the **Add System Permission to User** drop-down list, select the role to assign to the user.

Creating a Custom Role

If you require a role that is not available in the default set of roles provided by the Manager, you can create a custom role.



Note

For more information about the default set of roles provided by the Manager, refer to the latest oVirt upstream documentation that is available at:

<https://ovirt.org/documentation/>

To create a custom role:

1. Click **Administration** and then select **Configure**.

The **Configure** dialog box opens with the **Roles** tab selected on the sidebar menu. The **Roles** tab displays a list of administrator and user roles, and any custom roles that have been created.

2. Click **New**.

The **New Role** dialog box opens.

3. For the **Name** and **Description** fields, enter an appropriate name and description for the role.
4. Under **Account Type**, select either **Admin** or **User**.
5. Under **Check Boxes to Allow Action**, select the appropriate objects whose permissions to assign to the user.

Click **Expand All** to see the objects under each permissions group. Click **Collapse All** to collapse the list of objects under each of the permission group.

6. For each of the objects, select or clear the objects the actions to be permitted or denied for the custom role that is being created.

7. Click **OK** to create the custom role.

The custom role now appears on the **Roles** tab.

Administering User and Group Accounts from the Command Line

The following sections describe the common tasks that can be performed to administer user accounts using the `ovirt-aaa-jdbc-tool` command utility. This utility is used to manage user and group accounts on the internal domain. To view a list all available options for managing user and group accounts, run the `ovirt-aaa-jdbc-tool --help` command.



Note

Changes made using `ovirt-aaa-jdbc-tool` command utility take effect immediately and do not require you to restart the Manager.

Creating a New User Account

The `ovirt-aaa-jdbc-tool user add` command is used to create user accounts.

To create a new user account:

1. Log in to the host that is running the Manager.
2. Create a new user account.

```
ovirt-aaa-jdbc-tool user add username option
```

To view a full list of options available for creating a user account, run the `ovirt-aaa-jdbc-tool user add --help` command.

The following example shows how to create a new user account and add a first and last name to associate with the account.

```
# ovirt-aaa-jdbc-tool user add test1 --attribute=firstName=John --attribute=lastName=Doe
adding user test1...
user added successfully
Note: by default created user cannot log in. see:
/usr/bin/ovirt-aaa-jdbc-tool user password-reset --help.
```



Note

After creating a new user account, you must set a password so that the user can log in. See [Setting the Password for a User Account](#).

3. Add the newly created user in the Administration Portal and assign the group appropriate roles and permissions. See [Assigning Permissions to Users and Groups](#).

Setting the Password for a User Account

The `ovirt-aaa-jdbc-tool password-reset` command is used to set (or reset) passwords for a user account.

To set (or reset) the password for a user account:

1. Log in to the host that is running the Manager.
2. Set (or reset) the password for a user account.

```
ovirt-aaa-jdbc-tool user password-reset username --password-valid-to yyyy-MM-dd HH:mm:ssX
```

**Note**

You must set a value for the `--password-valid-to` option; otherwise the password expiry time defaults to the current time.

By default, the password policy for user accounts on the internal domain has the following restrictions:

- A user password must be a minimum length of 6 characters.
- When resetting a password, you cannot use the three previous passwords used for the user account.

For more information on the password policy and other default settings, run the `ovirt-aaa-jdbc-tool settings show` command.

The following example shows how to set a user password. In the example, `0800` stands for GMT minus 8 hours.

```
# ovirt-aaa-jdbc-tool user password-reset test1 --password-valid-to="2025-08-01 12:00:00-0800"
Password:
Reenter password:
updating user test1...
user updated successfully
```

Editing User Information

The `ovirt-aaa-jdbc-tool user edit` command is used to edit user information associated with a user account.

To edit user information:

1. Log in to the host that is running the Manager.
2. Edit the user account.

```
ovirt-aaa-jdbc-tool user edit username option
```

To view a full list of options available for editing user information, run the `ovirt-aaa-jdbc-tool user edit --help` command.

The following example shows to edit a user account by adding an email address to associate with this user.

```
# ovirt-aaa-jdbc-tool user edit test1 --attribute=email=jdoe@example.com
updating user test1...
user updated successfully
```

Viewing User Information

The `ovirt-aaa-jdbc-tool user show` command is used to display user information.

To view detailed user information:

1. Log in to the host that is running the Manager.
2. Display information about a user.

```
ovirt-aaa-jdbc-tool user show username
```

The following example shows how to view details about a user account.

```
# ovirt-aaa-jdbc-tool user show test1
-- User test1(e9e4b7d0-8ffd-45a3-b6ea-1f519238e766) --
Namespace: *
Name: test1
ID: e9e4b7d0-8ffd-45a3-b6ea-1f519238e766
Display Name:
Email: jdoe@example.com
First Name: John
Last Name: Doe
Department:
Title:
Description:
Account Disabled: false
Account Locked: false
Account Unlocked At: 1970-01-01 00:00:00Z
Account Valid From: 2019-08-26 18:59:16Z
Account Valid To: 2219-08-26 18:59:16Z
Account Without Password: false
Last successful Login At: 2019-08-27 15:21:20Z
Last unsuccessful Login At: 2019-08-27 15:20:59Z
Password Valid To: 2025-08-01 20:00:00Z
```

Removing a User

The `ovirt-aaa-jdbc-tool user delete` command is used to remove a user.

To remove a user account:

1. Log in to the host that is running the Manager.
2. Remove a user.

```
ovirt-aaa-jdbc-tool user delete username
```

The following example shows how to remove a user account.

```
# ovirt-aaa-jdbc-tool user delete test1
deleting user test1...
user deleted successfully
```

Disabling User Accounts

You can disable users on the local domains, including the internal `admin` user created that is created when you run the `engine-setup` command.



Important

Make sure you have at least one user in the environment with full administrative permissions before disabling the default internal administrative user account (`admin` user). The `SuperUser` role gives a user full administrative permissions.

To disable a user:

1. Log in to the host that is running the Manager.
2. Disable the user.

```
ovirt-aaa-jdbc-tool user edit username --flag=+disabled
```

The following example shows how to disable the `admin` user.

```
# ovirt-aaa-jdbc-tool user edit admin --flag=+disabled
updating user admin...
user updated successfully
```

**Note**

If for some reason you need to reenable the internal `admin` user after it has been disabled, you can do so by running the `ovirt-aaa-jdbc-tool user edit admin --flag=-disabled` command.

Creating Group Accounts

The `ovirt-aaa-jdbc-tool` command is used to create and manage group accounts on the internal domain. Managing group accounts is similar to managing user accounts. To view all available options for managing group accounts, run the `ovirt-aaa-jdbc-tool group --help` command. Common examples are provided in this section.

Creating a Group

To create a group account:

1. Log in to the host that is running the Manager.
2. Create a new group account.

```
ovirt-aaa-jdbc-tool group add group-name
```

**Note**

Users must be created before they can be added to groups.

The following examples shows how to add a new group account.

```
# ovirt-aaa-jdbc-tool group add group1
adding group group1...
group added successfully
```

3. Add users to the group:

```
ovirt-aaa-jdbc-tool group-manage useradd group-name --user=username
```

To view a full list of the options for adding or removing members to and from groups, run the `ovirt-aaa-jdbc-tool group-manage --help` command.

The following example shows how to add users to a group.

```
# ovirt-aaa-jdbc-tool group-manage useradd group1 --user test1
updating user group1...
user updated successfully
```

4. Display group account details.

```
ovirt-aaa-jdbc-tool group show group-name
```

The following example shows how to display details about a group account.

```
# ovirt-aaa-jdbc-tool group show group1
```

```
-- Group group1(f23ca27c-1d6a-4f6e-8c3e-1e03e8e56829) --  
Namespace: *  
Name: group1  
ID: f23ca27c-1d6a-4f6e-8c3e-1e03e8e56829  
Display Name:  
Description:
```

5. Add the newly created group in the Administration Portal and assign the group appropriate roles and permissions. See [Assigning Permissions to Users and Groups](#).

The users in the group inherit the roles and permissions of the group.

Creating Nested Groups

To create nested groups:

1. Log in to the host that is running the Manager.
2. Create the first group account.

```
ovirt-aaa-jdbc-tool group add group1
```

The following examples shows how to add a new group account.

```
# ovirt-aaa-jdbc-tool group add group1  
adding group group1...  
group added successfully
```

3. Create the second group account.

```
ovirt-aaa-jdbc-tool group add group2
```

The following examples shows how to create the second group account.

```
# ovirt-aaa-jdbc-tool group add group2  
adding group group2...  
group added successfully
```

4. Add the second group to the first group.

```
ovirt-aaa-jdbc-tool group manage group add group1 --group=group2
```

The following examples shows how to add the second group to the first group.

```
# ovirt-aaa-jdbc-tool group-manage groupadd group1 --group=group2  
updating group group1...  
group updated successfully
```

5. Add the first group in the Administration Portal and assign the group appropriate roles and permissions. See [Assigning Permissions to Users and Groups](#).

Removing a Group Account

To remove a group account:

1. Log in to the host that is running the Manager.
2. Remove a group account.

```
ovirt-aaa-jdbc-tool group delete group-name
```

The following example shows how to remove a group account.

```
# ovirt-aaa-jdbc-tool group delete group3
deleting group group3...
group deleted successfully
```

Querying Users and Groups

The `ovirt-aaa-jdbc-tool query` command is used to query user and group information. To view a full list of options available for querying users and groups, run the `ovirt-aaa-jdbc-tool query --help` command.

Listing All User or Group Account Details

To list all account information:

1. Log in to the host that is running the Manager.
2. Display account details.
 - List all user user account details.

```
ovirt-aaa-jdbc-tool query --what=user
```

The following example shows sample output from the `ovirt-aaa-jdbc-tool query --what=user` command.

```
# ovirt-aaa-jdbc-tool query --what=user
-- User test2(35e8b35e-2320-45da-b59e-1076b521d13f) --
Namespace: *
Name: test2
ID: 35e8b35e-2320-45da-b59e-1076b521d13f
Display Name:
Email:
First Name: Jane
Last Name: Doe
Department:
Title:
Description:
Account Disabled: false
Account Locked: false
Account Unlocked At: 1970-01-01 00:00:00Z
Account Valid From: 2019-09-06 16:51:32Z
Account Valid To: 2219-09-06 16:51:32Z
Account Without Password: false
Last successful Login At: 2019-09-06 17:12:08Z
Last unsuccessful Login At: 1970-01-01 00:00:00Z
Password Valid To: 2025-08-01 20:00:00Z
-- User admin(89559d7f-3b48-420b-bd4d-2790122c199b) --
Namespace: *
Name: admin
ID: 89559d7f-3b48-420b-bd4d-2790122c199b
Display Name:
Email:
First Name: admin
Last Name:
Department:
Title:
Description:
Account Disabled: false
Account Locked: false
Account Unlocked At: 2019-03-07 11:09:07Z
Account Valid From: 2019-01-24 21:18:11Z
Account Valid To: 2219-01-24 21:18:11Z
Account Without Password: false
Last successful Login At: 2019-09-06 18:10:11Z
```

```
Last unsuccessful Login At: 2019-09-06 18:09:36Z
Password Valid To: 2025-08-01 20:00:00Z
-- User test1(e75956a8-6ebf-49d7-94fa-504afbfb96ad) --
Namespace: *
Name: test1
ID: e75956a8-6ebf-49d7-94fa-504afbfb96ad
Display Name:
Email: jdoe@example.com
First Name: John
Last Name: Doe
Department:
Title:
Description:
Account Disabled: false
Account Locked: false
Account Unlocked At: 1970-01-01 00:00:00Z
Account Valid From: 2019-08-29 18:15:20Z
Account Valid To: 2219-08-29 18:15:20Z
Account Without Password: false
Last successful Login At: 1970-01-01 00:00:00Z
Last unsuccessful Login At: 1970-01-01 00:00:00Z
Password Valid To: 2025-08-01 20:00:00Z
```

- List all group account details.

```
ovirt-aaa-jdbc-tool query --what=group
```

The following example shows sample output from the `ovirt-aaa-jdbc-tool query --what=group` command.

```
# ovirt-aaa-jdbc-tool query --what=group
-- Group group2(d6e0b913-d038-413a-b732-bc0c33ealed4) --
Namespace: *
Name: group2
ID: d6e0b913-d038-413a-b732-bc0c33ealed4
Display Name:
Description:
-- Group group1-1(e43ba527-6256-4c29-bd7a-0fb08b990b72) --
Namespace: *
Name: group1-1
ID: e43ba527-6256-4c29-bd7a-0fb08b990b72
Display Name:
Description:
-- Group group1(f23ca27c-1d6a-4f6e-8c3e-1e03e8e56829) --
Namespace: *
Name: group1
ID: f23ca27c-1d6a-4f6e-8c3e-1e03e8e56829
Display Name:
Description:
```

Listing Filtered Account Details

To apply filters when listing account information:

1. Log in to the host that is running the Manager.
 2. Filter account details using the `--pattern` keyword.
- List user account based on a pattern.

```
ovirt-aaa-jdbc-tool query --what=user --pattern=attribute=value
```

The following example shows how to filter the output of the `ovirt-aaa-jdbc-tool query` command to display only user account details that start with the character `J`.


```
# ovirt-aaa-jdbc-tool query --what=user --pattern="firstName=J*"
-- User test1(e75956a8-6ebf-49d7-94fa-504afbfb96ad) --
Namespace: *
Name: test1
ID: e75956a8-6ebf-49d7-94fa-504afbfb96ad
Display Name:
Email: jdoe@example.com
First Name: John
Last Name: Doe
Department:
Title:
Description:
Account Disabled: false
Account Locked: false
Account Unlocked At: 1970-01-01 00:00:00Z
Account Valid From: 2019-08-29 18:15:20Z
Account Valid To: 2219-08-29 18:15:20Z
Account Without Password: false
Last successful Login At: 1970-01-01 00:00:00Z
Last unsuccessful Login At: 1970-01-01 00:00:00Z
Password Valid To: 2025-08-01 20:00:00Z
-- User test2(35e8b35e-2320-45da-b59e-1076b521d13f) --
Namespace: *
Name: test2
ID: 35e8b35e-2320-45da-b59e-1076b521d13f
Display Name:
Email:
First Name: Jane
Last Name: Doe
Department:
Title:
Description:
Account Disabled: false
Account Locked: false
Account Unlocked At: 1970-01-01 00:00:00Z
Account Valid From: 2019-09-06 16:51:32Z
Account Valid To: 2219-09-06 16:51:32Z
Account Without Password: false
Last successful Login At: 2019-09-06 17:12:08Z
Last unsuccessful Login At: 1970-01-01 00:00:00Z
Password Valid To: 2025-08-01 20:00:00Z
```

- List groups based on a pattern.

```
ovirt-aaa-jdbc-tool-query --what=group --pattern=attribute=value
```

The following example shows how to filter the output of the `ovirt-aaa-jdbc-tool query` command to display only group account details that match the description `documentation-group`.

```
# ovirt-aaa-jdbc-tool query --what=group --pattern="description=documentation-group"
-- Group group1(f23ca27c-1d6a-4f6e-8c3e-1e03e8e56829) --
Namespace: *
Name: group1
ID: f23ca27c-1d6a-4f6e-8c3e-1e03e8e56829
Display Name:
Description: documentation-group
```

Managing Account Settings

The `ovirt-aaa-jdbc-tool settings` command is used to change the default account settings.

To change the default account settings:

1. Log in to the host that is running the Manager.

2. **(Optional)** Display all the settings that are available.

```
ovirt-aaa-jdbc-tool setting show
```

3. Change the desired settings.

```
ovirt-aaa-jdbc-tool setting set --name=setting-name --value=value
```

Data Centers

Oracle Linux Virtualization Manager creates a default data center during installation. You can configure the default data center, or set up new appropriately named data centers.

A data center requires a functioning cluster, host, and storage domain to operate in your virtualization environment.

Creating a New Data Center

To create a new data center:

1. Go to **Compute** and then select **Data Centers**.

The **Data Centers** pane opens.

2. Click **New**.
3. Select the storage **Type**, **Compatibility Version**, and **Quota Mode** of the data center from the respective drop-down menus.
4. Click **OK** to create the data center.

The new data center is added to the virtualization environment and the **Data Center - Guide Me** menu opens to guide you through the entities that are required be configured for the data center to operate.

The new data center remains in **Uninitialized** state until a cluster, host, and storage domain are configured for it.

You can postpone the configuration of these entities by clicking the **Configure Later** button. You can resume the configuration of these entities by selecting the respective data center and clicking **More Actions** and then choosing **Guide Me** from the drop-down menu.

Clusters

Oracle Linux Virtualization Manager creates a default cluster in the default data center during installation. You can configure the default cluster, or set up new appropriately named clusters.

Creating a New Cluster

To create a new cluster:

1. Go to **Compute** and then select **Clusters**.

The **Clusters** pane opens.

2. Click **New**.

The **New Cluster** dialog box opens with the **General** tab selected on the sidebar.

3. From the **Data Center** drop-down list, choose the Data Center to associate with the cluster.
4. For the **Name** field, enter an appropriate name for the data center.
5. For the **Description** field, enter an appropriate description for the cluster.
6. From the **Management Network** drop-down list, choose the network for which to assign the management network role.
7. From the **CPU Architecture** and **CPU Type** drop-down lists, choose the CPU processor family and minimum CPU processor that match the hosts that are to be added to the cluster.

For both Intel and AMD CPU types, the listed CPU models are in logical order from the oldest to the newest. If your cluster includes hosts with different CPU models, choose the oldest CPU model from the list to ensure that all hosts can operate in the cluster.

8. From the **Compatibility Version** drop-down list, choose the compatibility version of the cluster.
9. From the **Switch Type** drop-down list, choose the type of switch to be used for the cluster.

By default, **Linux Bridge** is selected from the drop-down list.

10. From the **Firewall Type** drop-down list, choose the firewall type for hosts in the cluster.

The firewall types available are either **iptables** or **firewalld**. By default, the **firewalld** option is selected from the drop-down list.

11. The **Enable Virt Service** check box is selected by default. This check box designates that the cluster is to be populated with virtual machine hosts.
12. **(Optional)** Select the **Enable to set VM maintenance reason** check box to enable an optional reason field when a virtual machine is shut down from the Administration Portal.

Administrators can use this field to provide an explanation for the maintenance window.

13. **(Optional)** Select the **Enable to set Host maintenance reason** check box to enable an optional reason field when a host is placed into maintenance mode from the Administration Portal.

Administrators can use this field to provide an explanation for the maintenance window.

14. **(Optional)** Click the **Optimization** tab on the sidebar to select the memory page sharing threshold for the cluster, and optionally enable CPU thread handling and memory ballooning on the hosts in the cluster.
15. **(Optional)** Click the **Migration Policy** tab on the sidebar menu to define the virtual machine migration policy for the cluster.
16. **(Optional)** Click the **Scheduling Policy** tab on the sidebar to optionally configure a scheduling policy, configure scheduler optimization settings, enable trusted service for hosts in the cluster, enable HA Reservation, and add a custom serial number policy.
17. **(Optional)** Click the **Console** tab on the sidebar to optionally override the global SPICE proxy, if any, and specify the address of a SPICE proxy for hosts in the cluster.
18. **(Optional)** Click the **Fencing policy** tab on the sidebar to enable or disable fencing in the cluster, and select fencing options.

19. **(Optional)** Click the **MAC Address Pool** tab on the sidebar to specify a MAC address pool other than the default pool for the cluster.
20. Click **OK** to create the data center.

The cluster is added to the virtualization environment and the **Cluster - Guide Me** menu opens to guide you through the entities that are required to be configured for the cluster to operate.

You can postpone the configuration of these entities by clicking the **Configure Later** button. You can resume the configuration of these entities by selecting the respective cluster and clicking **More Actions** and then choosing **Guide Me** from the drop-down menu.

Storage

Oracle Linux Virtualization Manager uses a centralized storage system for virtual machine disk images, ISO files, and snapshots. You can use Network File System (NFS), Internet Small Computer System Interface (iSCSI), or Fibre Channel Protocol (FCP) storage. You can also configure local storage attached directly to hosts.

This following administration tasks cover preparing and adding local, NFS, and FCP storage. For information about attaching iSCSI storage, refer to [Attaching an iSCSI Data Domain](#).

Preparing Local Storage for a KVM Compute Host

Before you begin, ensure the following prerequisites have been met:

- You have allocated disk space for local storage. You can allocate an entire physical disk on the host or you can use a portion of the disk.
- You have created a filesystem on the block device path to be used for local storage. Local storage should always be defined on a file system that is separate from the root directory (`/root`).

To prepare local storage for a KVM compute host:

1. Create the directory to be used for the local storage on the host.

```
# mkdir -p /data/images
```

2. Ensure that the directory has permissions that allows read-write access to the `vdsm` user (UID 36) and `kvm` group (GID 36).

```
# chown 36:36 /data /data/images
# chmod 0755 /data /data/images
```

The local storage can now be added to your virtualization environment.

Configuring a KVM Compute Host to Use Local Storage

When you configure a KVM compute host to use local storage, it is automatically added to a new data center and cluster that can contain no other hosts. With local storage, features, such as live migration, fencing, and scheduling, are not available.

To configure a KVM compute host to use local storage:

1. Go to **Compute**, and then click **Hosts**.

The **Hosts** pane opens.

2. Highlight the host on which to add the local storage domain.
3. Click **Management** and then select **Maintenance** from the drop-down list.
The **Status** column for the host displays **Maintenance** when the host has successfully entered into Maintenance mode.
4. After the host is in **Maintenance** mode, click **Management** and then select **Configure Local Storage** from the drop-down list.
The **Configure Local Storage** pane opens with the **General** tab selected.
5. Click **Edit** next to the **Data Center**, **Cluster**, and **Storage** fields to configure and name the local storage domain.
6. In the **Set the path to your local storage** text input field, specify the path to your local storage domain.
For more information, refer to [Preparing Local Storage for a KVM Compute Host](#).
7. Click **OK** to add the local storage domain.

When the virtualization environment is finished adding the local storage, the new data center, cluster, and storage created for the local storage appears on the **Data Center**, **Clusters**, and **Storage** panes, respectively.

You can click **Tasks** to monitor the various processing steps that are completed to add the local storage to the host.

You can also verify the successful addition of the local storage domain by viewing the `/var/log/ovirt-engine/engine.log` file.

Preparing NFS Storage

Before preparing the NFS share, ensure your environment meets the following conditions:

- Ensure that the Manager and KVM host installation are running the latest Oracle Linux 7 Update 6 in an environment with two or more servers where one acts as the Manager host and the other servers act as KVM hosts.

The installation creates a `vdsm:kvm (36:36)` user and group in the `/etc/passwd` and `/etc/group` directories, respectively.

```
# cat /etc/passwd | grep vdsm
vdsm:x:36:36:Node Virtualization Manager:/:sbin/nologin
```

```
# cat /etc/group | grep kvm
kvm:x:36:qemu,sanlock
```

- An Oracle Linux NFS File server that is reachable by your virtualization environment.

To prepare NFS storage:

1. On a Linux fileserver that has access to the virtualization environment, create a directory that is to be used for the data domain.

```
# mkdir -p /nfs/olv_ovirt/data
```

2. Set the required permissions on the new directory to allow read-write access to the `vdsm` user (UID 36) and `kvmgroup` (GID 36).

```
# chown -R 36:36 /nfs/olv_ovirt
# chmod -R 0755 /nfs/olv_ovirt
```

3. Add an entry for the newly created NFS share in the `/etc/exports` directory on the NFS fileserver that uses the following format: *full-path-of-share-created* `*(rw, sync, no_subtree_check, all_squash, anonuid=36, anongid=36)`.

For example:

```
# vi /etc/exports

# added the following entry

/nfs/olv_ovirt/data *(rw, sync, no_subtree_check, all_squash, anonuid=36, anongid=36)

:wq
```

Verify that the entry has been added.

```
# grep "/nfs/olv_ovirt/data" /etc/exports
/nfs/olv_ovirt/data *(rw, sync, no_subtree_check, all_squash, anonuid=36, anongid=36)
```

If you do not want to export the domain share to all servers on the network (denoted by the `*` before the left parenthesis), you can specify each individual host in your virtualization environment by using the following format: */nfs/olv_ovirt/data hostname-or-ip-address* `(rw, sync, no_subtree_check, all_squash, anonuid=36, anongid=36)`.

For example:

```
/nfs/olv_ovirt/data hostname(rw, sync, no_subtree_check, all_squash, anonuid=36, anongid=36)
```

4. Export the NFS share.
- ```
exportfs -rv
```
5. Confirm that the added export is available to Oracle Linux Virtualization Manager hosts by using the following `showmount` commands on the NFS File Server.

```
showmount -e | grep pathname-to-domain-share-added
showmount | grep ip-address-of-host
```

## Attaching an NFS Data Domain

To attach an NFS data domain:

1. Go to **Storage** and then click **Domains**.

The **Storage Domains** pane opens.

2. Click **New Domain**.

The **New Domain** dialog box opens.

3. From the **Data Center** drop-down list, select the Data Center for which to attach the data domain.
4. From the **Domain Function** drop-down list, select **Data**. By default, the **Data** option is selected in the drop-down list.
5. From the **Storage Type** drop-down list, select **NFS**. By default, the **NFS** option is selected in the drop-down list.

When **NFS** is selected for the Storage Type, the options that are applicable to this storage types (such as the required **Export Path** option) are displayed in the **New Domain** dialog box.

6. For the **Host to Use** drop-down list, select the host for which to attach the data domain.
7. For the **Export Path** option, enter the remote path to the NFS export to be used as the storage data domain in the text input field.

The **Export Path** option must be entered in one of the following formats: *IP:/pathname* or *FQDN:/pathname* (for example, `server.example.com:/nfs/olv_ovirt/data`).

The */pathname* that you enter must be the same as the path that you created on the NFS file server for the data domain in [Preparing NFS Storage](#).

8. Click **OK** to attach the NFS storage data domain.

For information about uploading images to the data domain, see [Uploading Images to the Data Domain](#).

## Adding an FC Data Domain

To add an FC data domain:

1. Go to **Storage** and then click **Domains**.

The **Storage Domains** pane opens.

2. On the **Storage Domains** pane, click the **New Domain** button.

The **New Domain** dialog box opens.

3. For the **Name** field, enter a name for the data domain.
4. From the **Data Center** drop-down list, select the Data Center for which to attach the data domain. By default, the **Default** option is selected in the drop-down list.
5. From the **Domain Function** drop-down list, select the domain function. By default, the **Data** option is selected in the drop-down list.

For this step, leave **Data** as the domain function because you are creating a data domain in this example.

6. From the **Storage Type** drop-down list, select **Fibre Channel**.
7. For the **Host to Use** drop-down list, select the host for which to attach the data domain.
8. When **Fibre Channel** is selected for the **Storage Type**, the **New Domain** dialog box automatically displays the known targets with unused LUNs.
9. Click **Add** next to the LUN ID that is connect to the target.
10. **(Optional)** Configure the advanced parameters.
11. Click **OK**.

You can click **Tasks** to monitor the various processing steps that are completed to attach the FC data domain to the data center.

## Virtual Machines

The following tasks show you how to customize vNIC profiles and work with virtual machine snapshots.

### Customizing vNIC Profiles for Virtual Machines

To customize vNICs for virtual machines:

1. Go to **Compute** and then click **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Under the **Name** column, select the virtual machine for which to add the virtual machine network.

The **General** tab opens with details about the virtual machine.

3. Click the **Network Interfaces** tab.

The **Network Interfaces** tab opens with the available network interface to be used for the network.

4. Highlight the network interface by clicking the row for the respective interface and then click **Edit** on the right side above the interface listing.

The **Edit Network Interface** dialog box opens.

5. In the **Edit Network Interface** dialog box, update the following fields:

- a. From the **Profile** drop-down list, select the network to be added to the virtual machine.
- b. Click the **Custom MAC address** check box, and then enter or update the MAC address that is allocated for this virtual machine in the text entry field.

6. Click **OK** when you are finished editing the network interface settings for the virtual machine.

7. Go to **Compute** and then click **Virtual Machines**.

The **Virtual Machines** pane opens.



#### Important

Since virtual machines can start on any host in a data center/cluster, all hosts must have the customized VM network assigned to one of its NICs. Ensure that you assign this customized VM network to each host before booting the virtual machine. For more information, see [Assigning the Virtual Machine Network to a KVM Compute Host](#).

8. Highlight the virtual machine where you added the network and then click **Run** to boot the virtual machine.

The red down arrow icon to the left of the virtual machine turns green and the **Status** column displays **UP** when the virtual machine is up and running on the network.

### Creating a Snapshot of a Virtual Machine

A snapshot is a view of a virtual machine's operating system and applications on any or all available disks at a given point in time. You can take a snapshot of a virtual machine before you make a change to it that may have unintended consequences. If needed, you can use the snapshot to return the virtual machine to its previous state.



To create a snapshot of a virtual machine:

1. Click **Compute** and then select **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Under the **Name** column, select the virtual machine for which to take a snapshot.

The **General** tab opens with details about the virtual machine.

3. Click the **Snapshots** tab.
4. Click **Create**.
5. **(Optional)** For the **Description** field, enter a description for the snapshot.
6. **(Optional)** Select the **Disks to include** checkboxes. By default, all disks are selected.



#### Important

Not selecting a disk results in the creation of a partial snapshot of the virtual machine without a disk. Although a saved partial snapshot does not have a disk, you can still preview a partial snapshot to view the configuration of the virtual machine.

7. **(Optional)** Select the **Save Memory** check box to include the virtual machine's memory in the snapshot. By default, this checkbox is selected.
8. Click **OK** to save the snapshot.

The virtual machine's operating system and applications on the selected disks are stored in a snapshot that can be previewed or restored.

On the **Snapshots** pane, the [Lock](#) icon appears next to the snapshot as it is being created. Once complete, the icon changes to the [Snapshot](#) (camera) icon. You can then display details about the snapshot by selecting the **General**, **Disks**, **Network Interfaces**, and **Installed Applications** drop-down views.

## Restoring a Virtual Machine from a Snapshot

A snapshot can be used to restore a virtual machine to its previous state.



#### Note

The virtual machine must be in a [Down](#) state before performing this task.

To restore a virtual machine from a snapshot:

1. Click **Compute** and then select **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Under the **Name** column, select the virtual machine that you want to restore from a snapshot.

The **General** tab opens with details about the virtual machine.

3. Click the **Snapshots** tab.

4. On the **Snapshots** pane, select the snapshot to be used to restore the virtual machine.
5. From the **Preview** drop-down list, select **Custom**.

On the **Virtual Machines** pane, the status of the virtual machine briefly changes to [Image Locked](#) before returning to [Down](#).

On the **Snapshots** pane, the [Preview](#) (eye) icon appears next to the snapshot when the preview of the snapshot is completed.

6. Click **Run** to start the virtual machine.

The virtual machine runs using the disk image of the snapshot. You can preview the snapshot and verify the state of the virtual machine.

7. Click **Shutdown** to stop the virtual machine.
8. From the **Snapshot** pane, perform one of the following steps:
  - a. Click **Commit** to permanently restore the virtual machine to the condition of the snapshot. Any subsequent snapshots are erased.
  - b. Alternatively, click **Undo** to deactivate the snapshot and return the virtual machine to its previous state.

## Creating a Virtual Machine from a Snapshot

Before performing this task, you must create a snapshot of a virtual machine. For more information, refer to [Creating a Snapshot of a Virtual Machine](#).

To create a virtual machine from a snapshot:

1. Click **Compute** and then select **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Under the **Name** column, select the virtual machine with the snapshot that you want to use as the basis from which to create another virtual machine.

The **General** tab opens with details about the virtual machine.

3. Click the **Snapshots** tab.
4. On the **Snapshots** pane, select the snapshot from which to create the virtual machine.
5. Click **Clone**.

The **Clone VM from Snapshot** dialog box opens.

6. For the **Name** field, enter a name for the virtual machine.



### Note

The **Name** field is the only required field on this dialog box.

After a short time, the cloned virtual machine appears on the **Virtual Machines** pane with a status of [Image Locked](#). The virtual machine remains in this state until the Manager completes the creation of

the virtual machine. When the virtual machine is ready to use, its status changes from **Image Locked** to **Down** on the **Virtual Machines** pane.

## Deleting a Snapshot

You can delete a virtual machine snapshot and permanently remove it from your virtualization environment. This operation is supported on a running virtual machine and does not require the virtual machine to be in a **Down** state.



### Important

- When you delete a snapshot from an image chain, there must be enough free space in the storage domain to temporarily accommodate both the original volume and the newly merged volume; otherwise, the snapshot deletion fails. This is due to the data from the two volumes being merged in the resized volume and the resized volume growing to accommodate the total size of the two merged images. In this scenario, you must export and reimport the volume to remove the snapshot.
- If the snapshot being deleted is contained in a base image, the volume subsequent to the volume containing the snapshot being deleted is extended to include the base volume.
- If the snapshot being deleted is contained in a QCOW2 (thin provisioned), non-base image hosted on internal storage, the successor volume is extended to include the volume containing the snapshot being deleted.

To delete a snapshot:

1. Click **Compute** and then select **Virtual Machines**.

The **Virtual Machines** pane opens with the list of virtual machines that have been created.

2. Under the **Name** column, select the virtual machine with the snapshot that you want to delete.

The **General** tab opens with details about the virtual machine.

3. Click the **Snapshots** tab.
4. On the **Snapshots** pane, select the snapshot to delete.
5. Select the snapshot to delete.
6. Click **Delete**.
7. Click **OK**.

On the **Snapshots** pane, a **Lock** icon appears next to the snapshot until the snapshot is deleted.

## Encrypted Communication

You can configure your organization's third-party CA certificate to identify the Oracle Linux Virtualization Manager to users connecting over HTTPS.

Using a third-party CA certificate for HTTPS connections does not affect the certificate that is used for authentication between the Manager host and KVM hosts. They continue to use the self-signed certificate generated by the Manager.

## Replacing the Oracle Linux Virtualization Manager Apache SSL Certificate

Before you begin, you must obtain a third-party CA certificate, which is a digital certificate issued by a certificate authority (CA). The certificate is provided as a PEM file. The certificate chain must be complete up to the root certificate. The chain's order is critical and must be from the last intermediate certificate to the root certificate.



### Caution

Do not change the permissions and ownerships for the `/etc/pki` directory or any subdirectories. The permission for the `/etc/pki` and `/etc/pki/ovirt-engine` directories must remain as the default value of `755`.

To replace the Oracle Linux Virtualization Manager Apache SSL Certificate:

1. Copy the new third-party CA certificate to the host-wide trust store and update the trust store.

```
cp third-party-ca-cert.pem /etc/pki/ca-trust/source/anchors/
update-ca-trust export
```

2. Remove the symbolic link to `/etc/pki/ovirt-engine/apache-ca.pem`.

The Engine has been configured to use `/etc/pki/ovirt-engine/apache-ca.pem`, which is symbolically linked to `/etc/pki/ovirt-engine/ca.pem`.

```
rm /etc/pki/ovirt-engine/apache-ca.pem
```

3. Copy the CA certificate into the PKI directory for the Manager.

```
cp third-party-ca-cert.pem /etc/pki/ovirt-engine/apache-ca.pem
```

4. Back up the existing private key and certificate.

```
cp /etc/pki/ovirt-engine/keys/apache.key.nopass \
/etc/pki/ovirt-engine/keys/apache.key.nopass.bck
cp /etc/pki/ovirt-engine/certs/apache.cer \
/etc/pki/ovirt-engine/certs/apache.cer.bck
```

5. Copy the new Apache private key into the PKI directory for the Manager by entering the following command and respond to prompt.

```
cp apache.key /etc/pki/ovirt-engine/keys/apache.key.nopass
cp: overwrite \u2018/etc/pki/ovirt-engine/keys/apache.key.nopass\u2019? y
```

6. Copy the new Apache certificate into the PKI directory for the Manager by entering the following command and respond to the prompt.

```
cp apache.cer /etc/pki/ovirt-engine/certs/apache.cer
cp: overwrite \u2018/etc/pki/ovirt-engine/certs/apache.cer\u2019? y
```

7. Restart the Apache HTTP server (`httpd`) and the Manager.

```
systemctl restart httpd
systemctl restart ovirt-engine
```

8. Create a new trust store configuration file (or edit the existing one) at `/etc/ovirt-engine/engine.conf.d/99-custom-truststore.conf` by adding the following parameters.

```
ENGINE_HTTPS_PKI_TRUST_STORE="/etc/pki/java/cacerts"
ENGINE_HTTPS_PKI_TRUST_STORE_PASSWORD=""
```

9. Back up the existing Websocket configuration file.

```
cp /etc/ovirt-engine/ovirt-websocket-proxy.conf.d/10-setup.conf \
/etc/ovirt-engine/ovirt-websocket-proxy.conf.d/10-setup.conf.bck
```

10. Edit the Websocket configuration file at `/etc/ovirt-engine/ovirt-websocket-proxy.conf.d/10-setup.conf` by adding the following parameters.

```
SSL_CERTIFICATE=/etc/pki/ovirt-engine/apache.cer
SSL_KEY=/etc/pki/ovirt-engine/keys/apache.key.nopass
```

11. Restart the `ovirt-provider-ovn` service.

```
systemctl restart ovirt-provider-ovn
```

12. Restart the `ovirt-engine` service.

```
systemctl restart ovirt-engine
```

