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About this document

This document is part of the documentation for Oracle Linux Virtualization Manager, which is available at: http://docs.oracle.com/en/virtualization/oracle-linux-virtualization-manager/index.html

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.

Read this document before you install your environment.

**Oracle Linux Virtualization Manager Architecture and Planning Guide**

This document provides an architectural overview of Oracle Linux Virtualization Manager, prerequisites, and planning information for your environment.

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.

Chapter 1 Installing the Manager

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To install Oracle Linux Virtualization Manager, you perform a fresh installation of Oracle Linux 7 Update 6 on the host, install the `ovirt-engine` package, and then run the `engine-setup` command to configure the Manager.

**Note**

To review conceptual information and help to plan your installation, see Oracle™ Linux Virtualization Manager.

Manager Host Requirements

The following are the minimum system requirements for Oracle Linux Virtualization Manager hosts:

- Oracle Linux 7 Update 6
  Select **Minimal Install** as the base environment for the installation.
- Unbreakable Enterprise Kernel Release 5 Update 1 or later
- 64-bit dual-core CPU
  **Recommended:** 64-bit quad core or greater CPU
- 4 GB RAM
  **Recommended:** 16 GB or greater
- 1 network interface card (NIC) with bandwidth of at least 1 Gbps
  **Recommended:** 2 or more NICs with bandwidth of at least 1 Gbps
- 25 GB local writable hard disk
  **Recommended:** 50 GB or greater

For information about x86-based servers that are certified for Oracle Linux with UEK, see the Hardware Certification List for Oracle Linux and Oracle VM at https://linux.oracle.com/hardware-certifications.

For more details about system requirements and known issues with installation, see:

- The **Oracle Linux 7 Installation Guide** at https://docs.oracle.com/en/operating-systems/oracle-linux/7/install/.

**Important**

Oracle does not support Oracle Linux Virtualization Manager on systems where the `ol7_preview`, `ol7_developer`, `ol7_developer_kvm_utils`, or
Installing the Manager

You must perform a fresh installation of Oracle Linux 7 Update 6 an Oracle Linux Virtualization Manager host before installing the Manager. You can download the installation ISO for the latest Oracle Linux 7 Update 6 from the Oracle Software Delivery Cloud at https://edelivery.oracle.com.

1. Install Oracle Linux 7 Update 6 on the host using the Minimal Install base environment.

   Follow the instructions in the Oracle Linux 7 Installation Guide at https://docs.oracle.com/en/operating-systems/oracle-linux/7/install/.

   ! Important

   Do not install any additional packages until after you have installed the Manager packages, because they may cause dependency issues.

2. (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.

3. Do one of the following.

   a. For ULN registered hosts only: If the host is registered on ULN, subscribe the system to the required channels.

      i. Log in to https://linux.oracle.com with your ULN user name and password.

      ii. On the Systems tab, click the link named for the host in the list of registered machines.

      iii. On the System Details page, click Manage Subscriptions.

      iv. On the System Summary page, select each required channel from the list of available channels and click the right arrow to move the channel to the list of subscribed channels. Subscribe the system to the following channels:

         - `ol7_x86_64_latest`
         - `ol7_x86_64_optional_latest`
         - `ol7_x86_64_kvm_utils`
         - `ol7_x86_64_ovirt42`
         - `ol7_x86_64_ovirt42_extras`
         - `ol7_x86_64_gluster312`
         - (For VDSM) `ol7_x86_64_UERK5`

      v. Click Save Subscriptions.
b. For Oracle Linux yum server hosts only: Install the Oracle Linux Virtualization Manager Release 4.2.8 package and enable the required repositories.

i. (Optional) 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.

ii. Install the Oracle Linux Virtualization Manager Release 4.2.8 package.

```
# yum install https://yum.oracle.com/repo/OracleLinux/OL7/ovirt42/x86_64/ovirt-release42.rpm
```

iii. Use the yum command to verify that the required repositories are enabled.

A. Clear the yum cache.

```
# yum clean all
```

B. List the configured repositories and verify that the required repositories are enabled.

```
# yum repolist
```

The following repositories must be enabled:

- ol7_latest
- olv_ol7_optional_latest
- olv_ol7_kvm-utils
- olv_ol7_gluster312
- ol7_UEKR5
- ovirt-4.2
- ovirt-4.2-extra

C. If a required repository is not enabled, use the yum-config-manager to enable it.

```
# yum-config-manager enable repository
```

4. Install the Manager using the ovirt-engine command.

```
# yum install ovirt-engine
```

Proceed to Configuring the Manager.

# Configuring the Manager

After you install the Oracle Linux Virtualization Manager, you run the engine-setup command (the Setup program) to configure Manager. You are prompted to answer a series of questions whose values are used to configure Manager. Since many of these questions relate to features that are currently in technology preview, Oracle recommends that you accept the default values for these features. See Manager Configuration Options.

The Manager uses two PostgreSQL databases: one for the engine and one for the data warehouse. By default, Setup creates and configures the engine database locally on the engine host. Alternatively, you
can configure the engine host to use a manually-configured local or remote database. If you choose to use a manually-configured local or remote database, you must set it up before running `engine-setup`.

Currently, running the engine or data warehouse database on a remote host is a technology preview feature. See Technology Preview.

To configure the Manager:

1. Run the `engine-setup` command on the host where you installed the Manager.

   **Note**

   Run `engine-setup --accept-defaults` to automatically accept all questions that have default answers.

   The Setup program prompts you to configure the Manager.

2. Enter **Yes** to configure the Manager

   **Configure Engine on this host (Yes, No) [Yes]:**

   If you enter **No**, the configuration stops. To restart, rerun the `engine-setup` command.

3. For the remaining configuration questions, provide input or accept default values, which are in square brackets after each question. To accept the default value for a given question, press **Enter**.

   **Note**

   Setup asks you for the fully qualified DNS name (FQDN) of the Manager host. Although Setup tries to automatically detect the name, you must ensure the FQDN is correct.

   For detailed information on the configuration options, see Manager Configuration Options.

4. Once you have answered all the questions, Setup displays a list of the values you entered. Review the list carefully and then press **Enter** to configure the Manager.

   Your answers are saved to a file that can be used to reconfigure the Manager using the same values. Setup also displays the location of the log file for the configuration process.

5. When the configuration is complete, details about how to log in to the Administration Portal are displayed. To verify that the configuration was successful, log into the Administration Portal, as described in Logging in to the Administration Portal.

**Manager Configuration Options**

The following information describes the options for configuring Oracle Linux Virtualization Manager when you run the `engine-setup` command:

- Image I/O Proxy
- WebSocket Proxy
- Data Warehouse
- VM Console Proxy
Image I/O Proxy

Configure Image I/O Proxy on this host? (Yes, No) [Yes]:

The Image I/O Proxy (ovirt-imageio-proxy) enables you to upload virtual disks into storage domains.

WebSocket Proxy

Configure WebSocket Proxy on this machine? (Yes, No) [Yes]:

The WebSocket Proxy enables you to connect to virtual machines using the noVNC or HTML 5 consoles.

For security and performance reasons, you can configure the WebSocket Proxy on a remote host.

Data Warehouse

Please note: Data Warehouse is required for the engine.

If you choose to not configure it on this host, you have to configure it on a remote host, and then configure the engine on this host so that it can access the database of the remote Data Warehouse host.

Configure Data Warehouse on this host (Yes, No) [Yes]:

The Data Warehouse feature can run on the Manager host or on a remote host. Running Data Warehouse on a remote host reduces the load on the Manager host.

Running the Data Warehouse on a remote host is currently a technology preview feature, see Technology Preview.

VM Console Proxy

Configure VM Console Proxy on this host (Yes, No) [Yes]:

The VM Console Proxy enables you to access virtual machine serial consoles from a command line. To use this feature, serial consoles must be enabled in the virtual machines.

OVN Provider

Configure ovirt-provider-ovn (Yes, No) [Yes]:
Install the Open Virtual Network (OVN) provider on the Manager host and add it as an external network provider. The default cluster is automatically configured to use OVN as its network provider.

OVN is an OVS (Open vSwitch) extension which enables you to configure virtual networks.

Using external providers, including the OVN provider, is currently a technology preview feature, see Technology Preview.

### Manager DNS Name

Host fully qualified DNS name of this server [autodetected-host-name]:

The fully qualified DNS name of the Manager host. Check that the automatically detected DNS name is correct.

### Automatic Firewall Configuration

Setup can automatically configure the firewall on this system.  
Note: automatic configuration of the firewall may overwrite current settings.  
NOTICE: iptables is deprecated and will be removed in future releases  
Do you want Setup to configure the firewall? (Yes, No) [Yes]:

Configure the firewall on the host to open the ports used for external communication between Oracle Linux Virtualization Manager and the components it manages.

If Setup configures the firewall, and no firewall managers are active, you are prompted to select a firewall manager from a list.

If you enter No, you must manually configure the firewall. When the Manager configuration is complete, Setup displays a list of ports that need to be opened, see Manager Host Firewall Requirements for details.

### Data Warehouse Database

Where is the DWH database located? (Local, Remote) [Local]:

The Data Warehouse database (the history database) can run on the Manager host or on a remote host. Running the database on a remote host reduces the load on the Manager host.

Running the database on a remote host is currently a technology preview feature, see Technology Preview.

⚠️ **Caution**

In this step you configure the name of the database, and the user name and password for connecting to it. Make a note of these details.

Enter Local to connect to a local PostgreSQL server, or Remote to connect to an existing PostgreSQL server running on a remote host.

If you enter Local, you can choose whether to set up a local PostgreSQL server automatically, or to connect to an existing local PostgreSQL server.

Setup can configure the local postgresql server automatically for the DWH to run. This may conflict with existing applications. Would you like Setup to automatically configure postgresql and create DWH database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:
Enter **Automatic** to have Setup configure a local database server, or **Manual** to connect to an existing local database server. If you enter **Manual**, you are prompted for the details for connecting to the database:

- DWH database secured connection (Yes, No) [No]:
- DWH database name [ovirt_engine_history]:
- DWH database user [ovirt_engine_history]:
- DWH database password:

If you enter **Remote** to connect to an existing PostgreSQL server running on a remote host, you are prompted for the details for connecting to the database:

- DWH database host [localhost]:
- DWH database port [5432]:
- DWH database secured connection (Yes, No) [No]:
- DWH database name [ovirt_engine_history]:
- DWH database user [ovirt_engine_history]:
- DWH database password:

**Engine Database**

Where is the Engine database located? (Local, Remote) [Local]:

The Oracle Linux Virtualization Manager database (the engine database) can run on the Manager host or on a remote host. Running the database on a remote host reduces the load on the Manager host.

Running the database on a remote host is currently a technology preview feature, see Technology Preview.

**Caution**

In this step you configure the name of the database, and the user name and password for connecting to it. Make a note of these details.

Enter **Local** to connect to a local PostgreSQL server, or **Remote** to connect to an existing PostgreSQL server running on a remote host.

If you enter **Local**, you can choose whether to set up a local PostgreSQL server automatically, or to connect to an existing local PostgreSQL server.

Setup can configure the local postgresql server automatically for the engine to run. This may conflict with existing applications.

Would you like Setup to automatically configure postgresql and create Engine database, or prefer to perform that manually? (Automatic, Manual) [Automatic]:

Enter **Automatic** to have Setup configure a local database server, or **Manual** to connect to an existing local database server. If you enter **Manual**, you are prompted for the details for connecting to the database:

- Engine database secured connection (Yes, No) [No]:
- Engine database name [engine]:
- Engine database user [engine]:
- Engine database password:

If you enter **Remote** to connect to an existing PostgreSQL server running on a remote host, you are prompted for the details for connecting to the database:

- Engine database host [localhost]:
- Engine database port [5432]:
- Engine database secured connection (Yes, No) [No]:
- Engine database name [engine]:
### Admin User Password

<table>
<thead>
<tr>
<th>Engine database user [engine]:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine database password:</td>
<td></td>
</tr>
</tbody>
</table>

**Admin User Password**

<table>
<thead>
<tr>
<th>Engine admin password:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm engine admin password:</td>
<td></td>
</tr>
</tbody>
</table>

Enter a password for the default administrative user (admin@internal). Make a note of the password.

### Application Mode

<table>
<thead>
<tr>
<th>Application mode (Both, Virt, Gluster) [Both]:</th>
<th></th>
</tr>
</thead>
</table>

The Manager can be configured to manage virtual machines (Virt) or manage Gluster clusters (Gluster), or **Both**.

### OVN Provider Credentials

<table>
<thead>
<tr>
<th>Use default credentials (admin@internal) for ovirt-provider-ovn (Yes, No) [Yes]:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>oVirt OVN provider user[admin@internal]:</td>
<td></td>
</tr>
<tr>
<td>oVirt OVN provider password:</td>
<td></td>
</tr>
</tbody>
</table>

If you installed the OVN provider, configure the credentials for connecting to the OVN (Open vSwitch) databases.

Using external providers, including the OVN provider, is currently a technology preview feature, see [Technology Preview](#).

### SAN Wipe After Delete

<table>
<thead>
<tr>
<th>Default SAN wipe after delete (Yes, No) [No]:</th>
<th></th>
</tr>
</thead>
</table>

Enter **Yes** to set the default value for the `wipe_after_delete` flag to **true**, which wipes the blocks of a virtual disk when it is deleted.

Using the wipe after delete functionality is currently a technology preview feature, see [Technology Preview](#).

### Web Server Configuration

<table>
<thead>
<tr>
<th>Organization name for certificate [&lt;autodetected-domain-based-name&gt;]:</th>
<th></th>
</tr>
</thead>
</table>

Provide the organization name to use for the automatically generated self-signed SSL certificate used by the Manager web server.

Setup can configure the default page of the web server to present the application home page. This may conflict with existing applications.

<table>
<thead>
<tr>
<th>Do you wish to set the application as the default web page of the server? (Yes, No) [Yes]:</th>
<th></th>
</tr>
</thead>
</table>

Enter **Yes** to make the Oracle Linux Virtualization Manager landing page the default page presented by the web server.

Setup can configure apache to use SSL using a certificate issued from the internal CA. Do you wish Setup to configure that, or prefer to perform that manually? (Automatic, Manual) **[Automatic]**:

Enter **Automatic** to generate a self-signed SSL certificate for the web server. Only use self-signed certificates for testing purposes.

Enter **Manual** to provide the location of the SSL certificate and private key to use the web server.
Data Warehouse Sampling Scale

Please choose Data Warehouse sampling scale:
(1) Basic
(2) Full
(1, 2) [1]:

Set the Data Warehouse sampling scale, either Basic or Full. This step is skipped the Data Warehouse is not configured to run on the Manager host.

Enter 1 for Basic, which reduces the values of DWH_TABLES_KEEP_HOURLY to 720 and DWH_TABLES_KEEP_DAILY to 0. Enter 2 for Full.

If the Manager and the Data Warehouse run on the same host, Basic is the recommended sample scale because this reduces the load on the Manager host. Full is recommended only if the Data Warehouse runs on a remote host.

The Full sampling scale is currently a technology preview feature, see Technology Preview.

Logging in to the Administration Portal

After you run the `engine-setup` command to configure Oracle Linux Virtualization Manager, you should log into the Administration Portal to verify that the configuration was successful.

Preparing to Log in

It is recommended that you use the latest version one of the following browsers to access the Administration Portal

- Mozilla Firefox
- Google Chrome
- Apple Safari
- Microsoft Internet Explorer 11
- Microsoft Edge

If Oracle Linux Virtualization Manager was configured to use a self-signed SSL certificate, or an SSL certificate that is signed by a Certificate Authority (CA) that is not trusted by the browser (for example an Intermediate CA), you should install the CA certificate in the browser. Consult your browser’s instructions for how to import a CA certificate. You can download the CA certificate from the Manager at:


Usually you access the Administration Portal using the fully qualified domain name of the Manager host that you provided during installation. However, you can access the Administration Portal using an alternate host name(s). To do this, you need to add a configuration file to the Manager as follows:

1. Log in to the Manager host as root.
2. Create the file `/etc/ovirt-engine/engine.conf.d/99-custom-sso-setup.conf` with the following content:

   SSO_ALTERNATE_ENGINE_FQDNS="alias1.example.com alias2.example.com"
Logging in

The list of alternate host names must be separated by spaces.

3. Restart Oracle Linux Virtualization Manager.

```bash
# systemctl restart ovirt-engine
```

Logging in

You log in to the Administration Portal using a web browser and the default admin@internal user.


2. (Optional) Change the preferred language from the drop-down list on the Welcome page.

   You can view the Administration Portal in multiple languages. The default language is based on the locale of your web browser.

3. Click Administration Portal. The Login page displays.

4. Enter admin for the Username and the password you specified when you configured the Manager.

5. From the Profile list, select internal and click Log In.

Next Steps

Now that you have configured and logged in to the Manager, the next step is to add Oracle Linux KVM compute hosts, as described in Chapter 2, Installing KVM Compute Hosts.

You also need to add storage and configure logical networks. See Adding Storage and Creating a Logical Network in the Oracle Linux Virtualization Manager Getting Started Guide

Logging Out

To log out of the Administration Portal, click the person icon in the header bar and click Sign Out. You are returned to the Login page.

Manager Host Firewall Requirements

When you run the engine-setup command to configure Oracle Linux Virtualization Manager, you can have the Setup program automatically configure the firewall ports on the host. Use the following information if you want to manually configure firewalls.

The following ports are the default ports. The Setup program enables you to choose different ports for some of the configuration options, see Manager Configuration Options.

<table>
<thead>
<tr>
<th>Port</th>
<th>Protocol</th>
<th>Source</th>
<th>Destination</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not applicable</td>
<td>ICMP</td>
<td>Oracle Linux KVM compute hosts</td>
<td>Manager host</td>
<td>(Optional) Diagnostics</td>
</tr>
<tr>
<td>22</td>
<td>TCP</td>
<td>External systems</td>
<td>Manager host</td>
<td>(Optional) SSH access to the Manager host for administration and maintenance</td>
</tr>
<tr>
<td>80</td>
<td>TCP</td>
<td>Administration Portal clients</td>
<td>Manager host</td>
<td>HTTP access to the Manager</td>
</tr>
</tbody>
</table>
### Remote Component Firewall Requirements

Some Oracle Linux Virtualization Manager components can run on separate remote hosts. Use the following information to configure the firewall on these hosts.

**Table 1.2 Remote Component Firewall Requirements**

<table>
<thead>
<tr>
<th>Port</th>
<th>Protocol</th>
<th>Source</th>
<th>Destination</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>5432</td>
<td>TCP,UDP</td>
<td>Manager host</td>
<td>PostgreSQL database server</td>
<td>Connections to PostgreSQL database server Required if the Engine database or the Data Warehouse database run on a remote host</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data Warehouse Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>External systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6100</td>
<td>TCP</td>
<td>Administration Portal clients</td>
<td>WebSocket proxy host</td>
<td>WebSocket proxy access to the noVNC or HTML 5 VM consoles Only required if the WebSocket proxy runs on the Manager host</td>
</tr>
<tr>
<td>7410</td>
<td>UDP</td>
<td>Oracle Linux KVM compute hosts</td>
<td>Manager host</td>
<td>Kdump notifications Only required if Kdump is enabled</td>
</tr>
<tr>
<td>54323</td>
<td>TCP</td>
<td>Administration Portal clients</td>
<td>Manager host</td>
<td>Image I/O Proxy access to upload images Only required if the Image I/O Proxy runs on the Manager host</td>
</tr>
</tbody>
</table>

---

**Port**
- VM Portal clients
- Oracle Linux KVM compute hosts
- REST API clients

**Protocol**
- TCP
- UDP

**Source**
- Administration Portal clients
- VM Portal clients
- Oracle Linux KVM compute hosts
- REST API clients

**Destination**
- Manager host
- Manager host
- Manager host
- Manager host

**Purpose**
- HTTPS access to the Manager
- Optional Connections to PostgreSQL database server Only required if the Engine database or the Data Warehouse database run on the Manager host
- Optional WebSocket proxy access to the noVNC or HTML 5 VM consoles Only required if the WebSocket proxy runs on the Manager host
- Optional Kdump notifications Only required if Kdump is enabled
- Optional Image I/O Proxy access to upload images Only required if the Image I/O Proxy runs on the Manager host
## Remote Component Firewall Requirements

<table>
<thead>
<tr>
<th>Port</th>
<th>Protocol</th>
<th>Source</th>
<th>Destination</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>VM Portal clients</td>
<td></td>
<td>Required if the WebSocket proxy runs on a remote host</td>
</tr>
</tbody>
</table>
Chapter 2 Installing KVM Compute Hosts

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Adding a KVM Compute Host to the Manager ............................................. 16
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To manage an Oracle Linux KVM compute host using Oracle Linux Virtualization Manager, you must prepare the host by performing a fresh installation of Oracle Linux 7 and enabling the required repositories, and then you add the host to a data center using the Administration Portal.

KVM Compute Host Requirements

The following are the minimum system requirements for Oracle Linux KVM compute hosts:

- Oracle Linux 7 Update 6 or later
  Select **Minimal Install** as the base environment for the installation.
- Unbreakable Enterprise Kernel Release 5 Update 1 or later
- 64-bit dual-core CPU
  **Recommended:** Multiple CPUs
  
The CPUs must support either the Intel VT-x or the AMD AMD-V hardware virtualization extensions and the extensions must be enabled in the host's BIOS. The CPUs must also support the No eXecute flag (NX).
- 2 GB RAM
  **Maximum Tested:** 2 TB
  
The amount of RAM required varies depending on guest operating system requirements, guest application requirements, and guest memory activity and usage.
- 1 network interface card (NIC) with bandwidth of at least 1 Gbps
  **Recommended:** 2 or more NICs with bandwidth of at least 1 Gbps
  
Multiple NICs are recommended so that NICs can be dedicated for network intensive activities, such as virtual machine migration.
- 45 GB local writable hard disk allocated as follows:

<table>
<thead>
<tr>
<th>Allocation</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ (root)</td>
<td>6 GB</td>
</tr>
<tr>
<td>/home</td>
<td>1 GB</td>
</tr>
<tr>
<td>/tmp</td>
<td>1 GB</td>
</tr>
<tr>
<td>/boot</td>
<td>1 GB</td>
</tr>
<tr>
<td>/var</td>
<td>15 GB</td>
</tr>
<tr>
<td>/var/log</td>
<td>8 GB</td>
</tr>
<tr>
<td>/var/log/audit</td>
<td>2 GB</td>
</tr>
<tr>
<td>swap</td>
<td>1 GB</td>
</tr>
</tbody>
</table>
Anaconda reserves 20% of the thin pool size within the volume group for future metadata expansion. This is to prevent an out-of-the-box configuration from running out of space under normal usage conditions. Oracle recommend using the default allocations which use more.

For information about x86-based servers that are certified for Oracle Linux with UEK, see the **Hardware Certification List for Oracle Linux and Oracle VM** at https://linux.oracle.com/hardware-certifications.

Do not install any third-party watchdogs on your Oracle Linux KVM compute hosts, as they can interfere with the watchdog daemon provided by VDSM.

Do not install any other applications on the Oracle Linux KVM compute hosts as they may interfere with the operation of the KVM hypervisor.

For more details about system requirements and known issues with installation, see:

- The **Oracle Linux 7 Installation Guide** at https://docs.oracle.com/en/operating-systems/oracle-linux/7/install/.

---

**Configuring a KVM Compute Host**

You must perform a fresh installation of Oracle Linux 7 Update 6 on an Oracle Linux KVM compute host before configuration.

You can download the installation ISO for the latest Oracle Linux 7 Update 6 update from the Oracle Software Delivery Cloud at https://edelivery.oracle.com.

1. Install Oracle Linux 7 Update 6 on the host.

   Follow the instructions in the **Oracle Linux 7 Installation Guide** at https://docs.oracle.com/en/operating-systems/oracle-linux/7/install/.

   Select **Minimal Install** as the base environment for the installation.

   Do not install any additional packages until after you have added the host to the Manager, because they may cause dependency issues.

2. **(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.

3. Do one of the following.

   a. **For ULN registered hosts only**: If the host is registered on ULN, subscribe the system to the required channels.

      i. Log in to https://linux.oracle.com with your ULN user name and password.

      ii. On the Systems tab, click the link named for the host in the list of registered machines.

      iii. On the System Details page, click **Manage Subscriptions**.

---
iv. On the System Summary page, select each required channel from the list of available channels and click the right arrow to move the channel to the list of subscribed channels. Subscribe the system to the following channels:

- `ol7_x86_64_latest`
- `ol7_x86_64_optional_latest`
- `ol7_x86_64_kvm_utils`
- `ol7_x86_64_ovirt42`
- `ol7_x86_64_ovirt42_extras`
- `ol7_x86_64_gluster312`
- **(For VDSM)** `ol7_x86_64_UEKR5`

v. Click **Save Subscriptions**.

b. **For Oracle Linux yum server configured KVM compute hosts only**: Install the Oracle Linux Virtualization Manager Release 4.2.8 package and enable the required repositories.

   - **Note**
     
     Installing the Oracle Linux Virtualization Manager Release 4.2.8 package configures an Oracle Linux KVM compute host; it does not install the Manager.

   i. **(Optional)** 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](http://yum.oracle.com/getting-started.html).

   ii. Install the Oracle Linux Virtualization Manager Release 4.2.8 package.

   ```
   # yum install https://yum.oracle.com/repo/OracleLinux/OL7/ovirt42/x86_64/ovirt-release42.rpm
   ```

   iii. Use the **yum** command to verify that the required repositories are enabled.

   A. Clear the yum cache.

   ```
   # yum clean all
   ```

   B. List the configured repositories and verify that the required repositories are enabled.

   ```
   # yum repolist
   ```

   The following repositories must be enabled:

   - `ol7_latest`
   - `olv_o17_optional_latest`
   - `olv_o17_kvm-utils`
   - `olv_o17_gluster312`
Adding a KVM Compute Host to the Manager

- ol7_UEKR5
- ovirt-4.2
- ovirt-4.2-extra

C. If a required repository is not enabled, use the `yum-config-manager` to enable it.

```
# yum-config-manager enable repository
```

4. (Optional) Open the Cockpit port.

```
# firewall-cmd --zone=public --add-port=9090/tcp
```

The Cockpit web interface can be used to monitor the host’s resources and to perform administrative tasks. You can access the host's Cockpit web interface from the Administration Portal or by connecting directly to the host.

For more information about configuring `firewalld`, see Controlling Access to Ports at https://docs.oracle.com/en/operating-systems/oracle-linux/7/admin/section_r22_155_5n.html

The KVM compute host is now ready to be added to the Manager using the Administration Portal.

**Adding a KVM Compute Host to the Manager**

Once you have configured an Oracle Linux KVM compute host (see Configuring a KVM Compute Host), you use the Administration Portal to add the host to a data center so that it can be used to run virtual machines.

When you install Oracle Linux Virtualization Manager, a data center and cluster named Default is created. You can rename and configure this data center and cluster, or you can add new data centers and clusters, to meet your needs. See Additional Administration Tasks in the Oracle Linux Virtualization Manager Getting Started Guide for details of how to do this.

1. Log in to the Administration Portal.

   See Logging in to the Administration Portal for details.

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

3. On the **Hosts** pane, click **New**.

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

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

   By default, the **Default** data center is selected.

5. In the **Name** field, enter a name for the host.

6. In the **Hostname** field, enter the fully qualified DNS name for the host.

7. In the **SSH Port** field, change the standard SSH port 22 if the SSH server on the host uses a different port.

8. 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.

9. **(Optional)** Configure other settings for the host from the other tabs on the New Host sidebar.

10. 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**.

**KVM Compute Host Firewall Requirements**

When you add an Oracle Linux KVM compute host to Oracle Linux Virtualization Manager, the existing firewall configuration on the host is overwritten and the required firewall ports are configured automatically.

To disable automatic firewall configuration when adding a KVM compute host, clear the **Automatically configure host firewall** check box under **Advanced Parameters**. Then use the following information to manually configure the firewall.

<table>
<thead>
<tr>
<th>Port</th>
<th>Protocol</th>
<th>Source</th>
<th>Destination</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>TCP</td>
<td>Manager host</td>
<td>KVM compute hosts</td>
<td>(Optional) SSH access to KVM compute hosts</td>
</tr>
<tr>
<td>111</td>
<td>TCP</td>
<td>NFS storage server</td>
<td>KVM compute hosts</td>
<td>(Optional) NFS connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only required if you use NFS storage</td>
</tr>
<tr>
<td>161</td>
<td>UDP</td>
<td>KVM compute hosts</td>
<td>Manager host</td>
<td>(Optional) Simple network management protocol (SNMP)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only required if you want to send SNMP traps to external SNMP managers</td>
</tr>
<tr>
<td>2223</td>
<td>TCP</td>
<td>Manager host</td>
<td>KVM compute hosts</td>
<td>SSH access to VM serial consoles</td>
</tr>
<tr>
<td>5900 to 6923</td>
<td>TCP</td>
<td>Administration Portal clients VM Portal clients</td>
<td>KVM compute hosts</td>
<td>Access to VM consoles using VNC or RDP protocols</td>
</tr>
<tr>
<td>5989</td>
<td>TCP,UDP</td>
<td>Common Information Model Object Manager (CIMOM)</td>
<td>KVM compute hosts</td>
<td>(Optional) CIMOM connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only required if you use CIMOM to monitor VMs running on the host</td>
</tr>
<tr>
<td>6081</td>
<td>UDP</td>
<td>KVM compute hosts</td>
<td>KVM compute hosts</td>
<td>(Optional) Open Virtual Network (OVN) connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only required if the OVN network provider is enabled</td>
</tr>
<tr>
<td>9090</td>
<td>TCP</td>
<td>Manager host Client machines</td>
<td>KVM compute hosts</td>
<td>(Optional) Cockpit connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Only required if Cockpit is installed</td>
</tr>
<tr>
<td>16514</td>
<td>TCP</td>
<td>KVM compute hosts</td>
<td>KVM compute hosts</td>
<td>VM migration using <strong>libvirt</strong></td>
</tr>
</tbody>
</table>
## KVM Compute Host Firewall Requirements

<table>
<thead>
<tr>
<th>Port</th>
<th>Protocol</th>
<th>Source</th>
<th>Destination</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>49152 to 49216</td>
<td>TCP</td>
<td>KVM compute hosts</td>
<td>KVM compute hosts</td>
<td>Automated and manual VM migration and fencing using VDSM</td>
</tr>
<tr>
<td>54321</td>
<td>TCP</td>
<td>Manager host</td>
<td>KVM compute hosts</td>
<td>VDSM communication with the Oracle Linux Virtualization Manager and other KVM compute hosts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KVM compute hosts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54322</td>
<td>TCP</td>
<td>Manager host</td>
<td>KVM compute hosts</td>
<td>(Optional) Communication with the Image I/O Proxy to upload images</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Image I/O Proxy host</td>
<td></td>
<td>Only required if the Image I/O Proxy runs on the Manager host or a separate host</td>
</tr>
</tbody>
</table>