



# Red Hat Enterprise Virtualization 3.6

## Upgrade Guide

Update and upgrade tasks for Red Hat Enterprise Virtualization



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## Abstract

A comprehensive guide to upgrading and updating components in a Red Hat Enterprise Virtualization environment.

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# CHAPTER 1. UPDATING THE RED HAT ENTERPRISE VIRTUALIZATION ENVIRONMENT

## 1.1. UPDATE OVERVIEW

This chapter covers both updating your Red Hat Enterprise Virtualization environment between minor releases, and upgrading to the next major version. Always update to the latest minor version of your current Red Hat Enterprise Virtualization Manager version before you upgrade to the next major version.

For interactive upgrade instructions, you can also use the RHEV Upgrade Helper available at <https://access.redhat.com/labs/rhevupgradehelper/>. This application asks you to provide information about your upgrade path and your current environment, and presents the relevant steps for upgrade as well as steps to prevent known issues specific to your upgrade scenario.

Upgrading Red Hat Enterprise Virtualization involves the following steps:

- Upgrading Red Hat Enterprise Virtualization Manager:
  - Subscribe to the appropriate entitlements
  - Update the system
  - Run engine-setup
  - Remove repositories no longer required
- Updating RHEV-H, RHVH, and RHEL hosts
- Updating cluster and data center compatibility levels

The command used to perform the upgrade itself is `engine-setup`, which provides an interactive interface. While the upgrade is in progress, virtualization hosts and the virtual machines running on those virtualization hosts continue to operate independently. When the upgrade is complete, you can then upgrade your hosts to the latest versions of Red Hat Enterprise Linux or Red Hat Enterprise Virtualization Hypervisor.

## CHAPTER 2. UPDATES BETWEEN MINOR RELEASES

### 2.1. UPDATING THE RED HAT ENTERPRISE VIRTUALIZATION MANAGER

Updates to the Red Hat Enterprise Virtualization Manager are released via the Content Delivery Network. Before installing an update from the Content Delivery Network, ensure you read the advisory text associated with it and the latest version of the *Red Hat Enterprise Virtualization Manager Release Notes* and *Red Hat Enterprise Virtualization Technical Notes* on the [Customer Portal](#).

#### Procedure 2.1. Updating Red Hat Enterprise Virtualization Manager

1. On the Red Hat Enterprise Virtualization Manager machine, check if updated packages are available:

```
# engine-upgrade-check
```

2.
  - o If there are no updates are available, the command will output the text **No upgrade**:

```
# engine-upgrade-check
VERB: queue package rhvm-setup for update
VERB: package rhvm-setup queued
VERB: Building transaction
VERB: Empty transaction
VERB: Transaction Summary:
No upgrade
```

- o If updates are available, the command will list the packages to be updated:

```
# engine-upgrade-check
VERB: queue package rhvm-setup for update
VERB: package rhvm-setup queued
VERB: Building transaction
VERB: Transaction built
VERB: Transaction Summary:
VERB:   updated   - rhvm-lib-3.3.2-0.50.el6ev.noarch
VERB:   update    - rhvm-lib-3.4.0-0.13.el6ev.noarch
VERB:   updated   - rhvm-setup-3.3.2-0.50.el6ev.noarch
VERB:   update    - rhvm-setup-3.4.0-0.13.el6ev.noarch
VERB:   install   - rhvm-setup-base-3.4.0-0.13.el6ev.noarch
VERB:   install   - rhvm-setup-plugin-ovirt-engine-3.4.0-
0.13.el6ev.noarch
VERB:   updated   - rhvm-setup-plugins-3.3.1-1.el6ev.noarch
VERB:   update    - rhvm-setup-plugins-3.4.0-0.5.el6ev.noarch
Upgrade available

Upgrade available
```

3. Update the rhvm-setup package:

```
# yum update rhvm-setup
```



- Update the Red Hat Enterprise Virtualization Manager. By running **engine-setup**, the script will prompt you with some configuration questions like updating the firewall rules or updating PKI certificates. The script will then go through the process of stopping the **ovirt-engine** service, downloading and installing the updated packages, backing up and updating the database, performing post-installation configuration, and starting the **ovirt-engine** service.



### NOTE

The **engine-setup** script is also used during the Red Hat Enterprise Virtualization Manager installation process, and it stores the configuration values that were supplied. During an update, the stored values are displayed when previewing the configuration, and may not be up to date if **engine-config** was used to update configuration after installation. For example, if **engine-config** was used to update **SANWipeAfterDelete** to **true** after installation, **engine-setup** will output "Default SAN wipe after delete: False" in the configuration preview. However, the updated values will not be overwritten by **engine-setup**.

```
# engine-setup
```



### IMPORTANT

The update process may take some time; allow time for the update process to complete and do not stop the process once initiated. Once the update is complete, you will also be instructed to separately update the Data Warehouse and Reports functionality. These additional steps are only required if you installed these features.

## 2.2. UPDATING RED HAT ENTERPRISE VIRTUALIZATION HYPERVISORS

Updating Red Hat Enterprise Virtualization Hypervisors involves reinstalling the Hypervisor with a newer version of the Hypervisor ISO image. This includes stopping and restarting the Hypervisor. If migration is enabled at cluster level, virtual machines are automatically migrated to another host in the cluster; as a result, it is recommended that Hypervisor updates are performed at a time when the Hypervisor's usage is relatively low.

Ensure that the cluster to which the host belongs has sufficient memory reserve in order for its hosts to perform maintenance. If a cluster lacks sufficient memory, the virtual machine migration operation will hang and then fail. You can reduce the memory usage of this operation by shutting down some or all virtual machines before updating the Hypervisor.

It is recommended that administrators update Red Hat Enterprise Virtualization Hypervisors regularly. Important bug fixes and security updates are included in updates. Hypervisors that are not up to date may be a security risk.



### IMPORTANT

Ensure that the cluster contains more than one host before performing an upgrade. Do not attempt to reinstall or upgrade all the hosts at the same time, as one host must remain available to perform Storage Pool Manager (SPM) tasks.

### Procedure 2.2. Updating Red Hat Enterprise Virtualization Hypervisors

1. Log in to the system hosting the Red Hat Enterprise Virtualization Manager as the **root** user.
2. Ensure that you have the Red Hat Enterprise Virtualization Hypervisor repository enabled:

```
# subscription-manager repos --enable=rhel-6-server-rhev-h-rpms
```

3. Update the rhev-hypervisor package:

- o Red Hat Enterprise Virtualization Hypervisor 6:

```
# yum update rhev-hypervisor6
```

- o Red Hat Enterprise Virtualization Hypervisor 7:

```
# yum update rhev-hypervisor7
```

4. From the Administration Portal, click the **Hosts** tab, and then select the Hypervisor that you intend to upgrade.
    - o If the Hypervisor requires updating, an alert message under **Action Items** and an icon next to the Hypervisor's name indicate that a new version of the Red Hat Enterprise Virtualization Hypervisor is available.
    - o If the Hypervisor does not require updating, no alert message or icon is displayed and no further action is required.
  5. Click **Upgrade** to open the **Upgrade Host** confirmation window.
  6. Select the appropriate Hypervisor ISO image.
  7. Click **OK**. The details of the Hypervisor are updated in the **Hosts** tab, and the status will transition through these stages:
    - o **Maintenance**
    - o **Installing**
    - o **Non Responsive**
    - o **Up**
- These are all expected, and each stage will take some time.
8. Restart the Hypervisor to ensure all updates are correctly applied.

Once successfully updated, the Hypervisor displays a status of **Up**. Any virtual machines that were migrated off the Hypervisor are, at this point, able to be migrated back to it. Repeat the update procedure for each Hypervisor in the Red Hat Enterprise Virtualization environment.



## IMPORTANT

After a Red Hat Enterprise Virtualization Hypervisor is successfully registered to the Red Hat Enterprise Virtualization Manager and then upgraded, it may erroneously appear in the Administration Portal with the status of **Install Failed**. Click **Activate**, and the Hypervisor will change to an **Up** status and be ready for use.

## 2.3. UPDATING RED HAT ENTERPRISE LINUX VIRTUALIZATION HOSTS

From Red Hat Enterprise Virtualization 3.6 onwards, you can use the host upgrade manager to update individual hosts. The upgrade manager reduces the time required for host updates by automating the process of putting the host into maintenance mode, updating packages, and bringing the host back up. On large deployments with many hosts, this automated process can save a significant amount of time.

The upgrade manager checks for and notifies you of available updates to the `vdsm` and `vdsm-cli` packages by default. You can specify additional packages for the upgrade manager to monitor for updates using the system configuration value **UserPackageNamesForCheckUpdate**. This value accepts wildcards. Run the **engine-config** command on the Manager machine. For example:

```
# engine-config -m UserPackageNamesForCheckUpdate=qemu-kvm-rhev
```

The upgrade manager checks for updates every 24 hours by default. You can change this setting using the **HostPackagesUpdateTimeInHours** configuration value. Run the **engine-config** command on the Manager machine. For example:

```
# engine-config -s HostPackagesUpdateTimeInHours=48
```



### WARNING

The upgrade manager only updates `vdsm`, `vdsm-cli`, and any other packages added to **UserPackageNamesForCheckUpdate**. For additional updates, such as security fixes for the operating system, you must manually update the host with **yum update** as shown in [Section 2.4, “Manually Updating Red Hat Enterprise Linux Virtualization Hosts”](#).

If migration is enabled at cluster level, virtual machines are automatically migrated to another host in the cluster; as a result, it is recommended that host updates are performed at a time when the host's usage is relatively low.

Ensure that the cluster to which the host belongs has sufficient memory reserve in order for its hosts to perform maintenance. If a cluster lacks sufficient memory, the virtual machine migration operation will hang and then fail. You can reduce the memory usage of this operation by shutting down some or all virtual machines before updating the host.

**IMPORTANT**

Ensure that the cluster contains more than one host before performing an update. Do not attempt to update all the hosts at the same time, as one host must remain available to perform Storage Pool Manager (SPM) tasks.

**Procedure 2.3. Updating Red Hat Enterprise Linux Virtualization Hosts**

1. Click the **Hosts** tab and select the host to be updated.
  - o If the host requires updating, an alert message under **Action Items** and an icon next to the host's name indicate that a new version is available.
  - o If the host does not require updating, no alert message or icon is displayed and no further action is required.
2. Click **Upgrade** to open the **Upgrade Host** confirmation window.
3. Click **OK** to update the host. The details of the host are updated in the **Hosts** tab, and the status will transition through these stages:
  - o **Maintenance**
  - o **Installing**
  - o **Up**

Once successfully updated, the host displays a status of **Up**. Any virtual machines that were migrated off the host are, at this point, able to be migrated back to it. Repeat the update procedure for each host in the Red Hat Enterprise Virtualization environment.

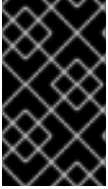
**NOTE**

If the update fails, the host's status changes to **Install Failed**. From **Install Failed** you can click **Upgrade** again.

**2.4. MANUALLY UPDATING RED HAT ENTERPRISE LINUX VIRTUALIZATION HOSTS**

Red Hat Enterprise Linux hosts use the **yum** command in the same way as regular Red Hat Enterprise Linux systems. It is highly recommended that you use **yum** to update your systems regularly, to ensure timely application of security and bug fixes. Updating a host includes stopping and restarting the host. If migration is enabled at cluster level, virtual machines are automatically migrated to another host in the cluster; as a result, it is recommended that host updates are performed at a time when the host's usage is relatively low.

The cluster to which the host belongs must have sufficient memory reserve in order for its hosts to perform maintenance. Moving a host with live virtual machines to maintenance in a cluster that lacks sufficient memory causes any virtual machine migration operations to hang and then fail. You can reduce the memory usage of this operation by shutting down some or all virtual machines before moving the host to maintenance.

**IMPORTANT**

Ensure that the cluster contains more than one host before performing an update. Do not attempt to update all the hosts at the same time, as one host must remain available to perform Storage Pool Manager (SPM) tasks.

**Procedure 2.4. Manually Updating Red Hat Enterprise Linux Hosts**

1. From the Administration Portal, click the **Hosts** tab and select the host to be updated.
2. Click **Maintenance** to place the host into maintenance mode.
3. On the Red Hat Enterprise Linux host machine, run the following command:

```
# yum update
```

4. Restart the host to ensure all updates are correctly applied.

You have successfully updated the Red Hat Enterprise Linux host. Repeat this process for each Red Hat Enterprise Linux host in the Red Hat Enterprise Virtualization environment.

## CHAPTER 3. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION 3.6

### 3.1. FEATURES REQUIRING A COMPATIBILITY UPGRADE TO RED HAT ENTERPRISE VIRTUALIZATION 3.6

Some of the features provided by Red Hat Enterprise Virtualization 3.6 are only available if your data centers, clusters, and storage have a compatibility version of 3.6.

**Table 3.1. Features Requiring a Compatibility Upgrade to Red Hat Enterprise Virtualization 3.6**

Feature	Description
Auto-convergence support	This feature adds support for auto-convergence during virtual machine migration. If a lack of convergence during migration is detected, the vCPUs are incrementally slowed to guarantee convergence.
Deprecation of <code>cfg</code> files	This feature deprecates the reliance of <code>cfg</code> files, which are specific to interface configuration files. These were previously required by VDSM for host configuration.
Change properties of network under bridge in use	This feature adds support for VDSM to change the properties of a virtual machine network under a bridge that is being used by virtual machines.
Cinder provider support	This feature adds support for managing Ceph volumes through OpenStack Cinder in the Red Hat Enterprise Virtualization Manager.
Events queue	This feature adds a separate events queue.
<code>getDeviceList</code> without status support	This feature adds support for status checks only on user-selected storage devices prior to adding or extending a storage domain or creating a new LUN disk. This improves performance and avoids timeouts.
Gluster brick provisioning support	This feature adds support for synchronizing Red Hat Gluster Storage disk provisioning. This monitors all storage devices on the host and updates the database accordingly.
Gluster geo-replication support	This feature adds support for creating, starting, stopping, and monitoring geo-replication for Red Hat Gluster Storage volumes from the Red Hat Enterprise Virtualization Manager. GlusterFS geo-replication provides a continuous, asynchronous, distributed, and incremental replication service from one site to another over Local Area Networks (LANs), Wide Area Network (WANs), and across the Internet.
Gluster network support	The feature adds support for a role to specify a network to be used for Gluster data traffic.

Feature	Description
Gluster volume info support	This feature adds support for gathering Gluster volume information in order to mount Gluster to backup volume servers.
Gluster volume snapshot support	This feature adds support for administrators to maintain snapshots of a Red Hat Gluster Storage volume. Administrators can create, schedule, list, delete, start, stop, and restore to a given snapshot. In a case of inconsistency, these snapshots can be used to restore the volume to a consistent stage. The snapshots are also a mechanism of volume backup for future references.
Graphics device enabled	This feature adds support for the engine to represent the graphics framebuffer as a generic device when sending the virtual machine to VDSM.
Host device passthrough support	This feature adds support for passing host devices to virtual machines. This allows virtual machines to be directly assigned selected host devices for near-native use.
Host network Quality of Service (QoS) support	This feature adds support for host network QoS, which controls traffic of specific networks through the physical network interface controller (NIC) of a host. This feature is an expansion of the virtual machine network QoS feature, which provided similar functionality for a virtual network through a virtual NIC (vNIC).
Import virtual machine from external providers support	This feature extends the support of the existing functionality for importing virtual machines in Red Hat Enterprise Virtualization to additionally support importing virtual machines into the Manager from external providers.
Initial allocation size sparse disk support	This feature adds support for specifying the initial allocation size for block storage with thin provisioning. This is necessary when importing a virtual machine and associated virtual disks from an external provider.
I/O threads support	This feature adds support for configuring QEMU I/O threads in Red Hat Enterprise Virtualization Manager. I/O threads are a new feature of QEMU, a separate thread outside of QEMU's global mutex to which block devices can be pinned to significantly enhance virtual machine performance.
Live storage migration between different storage types	This feature adds support for live storage migration between file-based storage domains and block-based storage domains.

Feature	Description
Migration downtime support	This feature adds support for reporting the downtime for each live migration. This includes the time that the virtual machine is not available for the user, and allows for different policies to be implemented and created by the user.
Migration compression support	This feature adds support for XBZRLE compression for virtual machine migration.
Multiple graphics console support	This feature adds support for virtual machines to have multiple consoles. This allows the user to switch between concurrent SPICE and VNC clients without restarting the virtual machine.
Network exclusiveness permissive validation	This feature adds support for host networks to permit VLAN-tagged networks as well as a virtual machine trunk network.
Network SR-IOV support	This feature adds supports for Single Root I/O Virtualization (SR-IOV) NICs. SR-IOV enables a Single Root Function, such as a single Ethernet port, to appear as multiple, separate physical devices.
Refresh LUN size support	This feature adds support for refreshing LUN size in existing storage domains for accurate representation in the Red Hat Enterprise Virtualization Manager.
SPICE file transfer toggle support	This feature adds support in Red Hat Enterprise Virtualization to control the SPICE agent file transfer support and clipboard copy and paste.
Total network statistics reported	This feature adds support for reporting the total received and total transmitted bytes per network interface for both hosts and virtual machines.
VirtIO serial console support	This feature adds support for direct SSH access, using the SSH proxy server, to the virtual serial console of virtual machines managed by the self-hosted engine.
Virtual machine status events	This feature adds support for virtual machine statuses based on an event.

## 3.2. RED HAT ENTERPRISE VIRTUALIZATION 3.6 UPGRADE CONSIDERATIONS

The following is a list of key considerations that must be made when planning your upgrade.



**IMPORTANT****Upgrading to version 3.6 can only be performed from version 3.5**

To upgrade a previous version of Red Hat Enterprise Virtualization earlier than Red Hat Enterprise Virtualization 3.5 to Red Hat Enterprise Virtualization 3.6, you must sequentially upgrade to any newer versions of Red Hat Enterprise Virtualization before upgrading to the latest version. For example, if you are using Red Hat Enterprise Virtualization 3.4, you must upgrade to the latest minor version of Red Hat Enterprise Virtualization 3.5 before you can upgrade to Red Hat Enterprise Virtualization 3.6.

**Red Hat Enterprise Virtualization Manager cannot be installed on the same machine as IPA**

An error message displays if the ipa-server package is installed. Red Hat Enterprise Virtualization Manager 3.6 does not support installation on the same machine as Identity Management (IdM). To resolve this issue, you must migrate the IdM configuration to another system before re-attempting the upgrade.

**Red Hat Enterprise Virtualization Manager 3.6 is supported to run on Red Hat Enterprise Linux 6.7**

Upgrading to version 3.6 involves also upgrading the base operating system of the machine that hosts the Manager.

### 3.3. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION MANAGER 3.6

The following procedure outlines the process for upgrading Red Hat Enterprise Virtualization Manager 3.5 to 3.6. This procedure assumes that the system on which the Manager is installed is subscribed to the entitlements for receiving Red Hat Enterprise Virtualization 3.5 packages at the start of the procedure.

**IMPORTANT**

If the upgrade fails, the **engine-setup** command will attempt to roll your Red Hat Enterprise Virtualization Manager installation back to its previous state. For this reason, the repositories required by Red Hat Enterprise Virtualization 3.5 must not be removed until after the upgrade is complete as outlined below. If the upgrade fails, detailed instructions display that explain how to restore your installation.

**Procedure 3.1. Upgrading to Red Hat Enterprise Virtualization Manager 3.6**

1. Subscribe to the required entitlements for receiving Red Hat Enterprise Virtualization Manager 3.6 packages:

- o With RHN Classic:

```
# rhn-channel --add --channel=rhel-x86_64-server-6-rhev-3.6
```

- o With Subscription Manager:

```
# subscription-manager repos --enable=rhel-6-server-rhev-3.6-rpms
```

**IMPORTANT**

Red Hat Enterprise Virtualization 3.x has reached End Of Life (EOL). If you purchased Extended Lifecycle Support (ELS), use the repositories in <https://access.redhat.com/solutions/3194482> to keep the environment up and running.

2. Update the rhvm setup packages:

```
# yum update rhvm\*setup\*
```

3. Run the following command and follow the prompts to upgrade the Red Hat Enterprise Virtualization Manager:

```
# engine-setup
```

4. Remove or disable the Red Hat Enterprise Virtualization Manager 3.5 channel to ensure the system does not use any Red Hat Enterprise Virtualization Manager 3.5 packages:

- o With RHN Classic:

```
# rhn-channel --remove --channel=rhel-x86_64-server-6-rhvm-3.5
```

- o With Subscription Manager:

```
# subscription-manager repos --disable=rhel-6-server-rhvm-3.5-rpms
```

5. Update the base operating system:

```
# yum update
```

### 3.4. UPGRADING HOSTS IN A CLUSTER FROM RED HAT ENTERPRISE LINUX 6 TO RED HAT ENTERPRISE LINUX 7

To take advantage of all the features in Red Hat Enterprise Virtualization 3.6, upgrade the cluster compatibility version of your cluster from 3.5 to 3.6. All hosts in the cluster must be upgraded to Red Hat Enterprise Linux 7-based hypervisors before the upgrade of the cluster compatibility version is possible. For more information about the different hypervisor hosts see [Introduction to Hypervisor Hosts](#) in the *Installation Guide*.

**IMPORTANT**

Red Hat recommends installing Next Generation Red Hat Virtualization Host (RHVH) 3.6 in place of Red Hat Enterprise Virtualization Hypervisor (RHEV-H) because it provides an upgrade path to the most recent version of Red Hat Virtualization 4.x through the Manager. Installations that use RHEV-H require a full reinstall of the hypervisors to upgrade to the most recent version of Red Hat Virtualization 4.x.

**NOTE**

This procedure assumes the current cluster compatibility version is 3.5, and is intended for clusters where virtual machines cannot be shut down during the upgrade. If a Red Hat Enterprise Linux 7-only cluster exists in the environment, shut down and move virtual machines that do not need to stay up to the Red Hat Enterprise Linux 7 cluster.

To enable the upgrade, the Manager must be configured to allow Red Hat Enterprise Linux 6 hosts and Red Hat Enterprise Linux 7 hosts to run in the same cluster. The **InClusterUpgrade** scheduling policy can be applied to your cluster to enable this functionality. See [Scheduling Policies](#) in the *Administration Guide* for more information about scheduling policies.

Before the the scheduling policy can be applied to the cluster, the following prerequisites apply:

- No suspended virtual machines in the cluster.
- No CPU pinning on any virtual machine in the cluster.
- No NUMA pinning on any virtual machine in the cluster.
- No virtual machines with the migration option **Do not allow migration** or **Allow manual migration only** selected.

**NOTE**

Virtual machines with **Do not allow migration** or **Allow manual migration only** selected, or with CPU pinning enabled must be shut down before these settings can be updated.

The following limitations apply during the upgrade process:

- Virtual machines cannot be suspended.
- High availability reservation for virtual machines is disabled. The Manager will still attempt to restart highly available virtual machines if they are failing.
- Affinity groups will not be respected. After the upgrade is complete, the Affinity Rules Enforcement Manager will re-establish them.
- Load balancing will not occur.
- Migrating a virtual machine back to an older operating system version is not possible during upgrade. To run a virtual machine on an older host operating system, the virtual machine has to be stopped first.

**NOTE**

When placing a host into maintenance mode, all virtual machines on the host will be automatically migrated to hosts with an equal or greater operating system version.

### Procedure 3.2. Upgrading Hosts in a Cluster from Red Hat Enterprise Linux 6 to Red Hat Enterprise Linux 7

1. Enable the upgrade mode to allow the **InClusterUpgrade** policy to be set.

```
# engine-config -s CheckMixedRhelVersions=false --cver=3.5
```

- Restart the engine.

```
# service ovirt-engine restart
```

- In the Administration Portal, set the **InClusterUpgrade** scheduling policy on the cluster:
  - Click the **Clusters** tab.
  - Select the cluster and click **Edit**.
  - Click the **Scheduling Policy** tab.
  - From the **Select Policy** drop-down list, select **InClusterUpgrade**.
  - Click **OK**.



#### NOTE

This policy must only be used during the upgrade process since it affects the way virtual machines are migrated.

- Reinstall each host with a hypervisor based on Red Hat Enterprise Linux 7:



#### NOTE

If required, migrate virtual machines manually as a precaution. If a host in the cluster has already been upgraded, then virtual machines will migrate to the Red Hat Enterprise Linux 7 host.



#### IMPORTANT

Red Hat Enterprise Virtualization does not support using the **Reinstall** button to install a different hypervisor type, for example Red Hat Enterprise Linux host to Red Hat Virtualization Host. To install a different hypervisor type you must remove the host from the environment, install the new hypervisor, and then add it back.

- For Red Hat Enterprise Linux Hosts:
  - In the Administration Portal, click the **Hosts** tab and select the host to be upgraded.
  - Click **Maintenance** to place the host into maintenance mode.
  - To install a Red Hat Enterprise Linux 7 operating system on the host, see the [Red Hat Enterprise Linux 7 Installation Guide](#).
  - Subscribe the host to the required entitlements. See [Subscribing to the Required Entitlements](#) in the *Installation Guide*.
- For RHEV-H or Next Generation RHVH:

- a. In the Administration Portal, click the **Hosts** tab and select the host to be upgraded.
- b. Click **Maintenance** to place the host into maintenance mode.
- c. Install the hypervisor:
  - To install Red Hat Virtualization Host 3.6 on the host, see [Installing Red Hat Virtualization Host](#) in the *Red Hat Enterprise Virtualization Installation Guide*.
  - To install Red Hat Enterprise Virtualization Hypervisor 7 on the host, see [Installing the Red Hat Enterprise Virtualization Hypervisor](#) in the *Red Hat Enterprise Virtualization Installation Guide*.

**NOTE**

A RHEV-H upgrade between major versions is not supported via the Manager. The installation must be done using installation media or via a PXE server on the host machine.

5. Update the host's new SSH fingerprint in the Administration Portal to allow the Manager to connect to the host after reinstallation:
  - a. Click the **Hosts** tab and select the upgraded host.
  - b. Click **Edit**.
  - c. Click the **General** tab and click **Advanced Parameters**.
  - d. Click the **fetch** link to retrieve the new SSH fingerprint.
  - e. Click **OK**.
6. Install the Red Hat Enterprise Virtualization packages on the host:
  - a. Click the **Hosts** tab and select the upgraded host.
  - b. Click **Reinstall** to open the **Install Host** window.
  - c. Click **OK** to reinstall the host.
7. Remove the **InClusterUpgrade** scheduling policy:
  - a. In the Administration Portal, click the **Clusters** tab.
  - b. Select the cluster and click **Edit**.
  - c. Click the **Scheduling Policy** tab.
  - d. From the **Select Policy** drop-down list, select **None**. Alternatively apply a different scheduling policy.
  - e. Click **OK**.
8. Disable the upgrade mode if there are no more clusters to upgrade.

```
# engine-config -s CheckMixedRhelVersions=true --cver=3.5
```

9. Restart the engine.

```
# service ovirt-engine restart
```

After you have upgraded all hosts, see [Chapter 9, Post-Upgrade Tasks](#) to complete the post-upgrade tasks.

### 3.5. UPGRADING THE SELF-HOSTED ENGINE

To upgrade a Red Hat Enterprise Virtualization 3.5 self-hosted engine environment running on RHEV 7 or RHEL 7 hosts, see [Upgrading a RHEL 7 Self-Hosted Engine Environment](#) in the *Self-Hosted Engine Guide*.

To upgrade a Red Hat Enterprise Virtualization 3.5 self-hosted engine environment running on RHEV-H 6 or RHEL 6 hosts, see [Upgrading a RHEL or RHEV-H 6 Self-Hosted Engine Environment](#) in the *Self-Hosted Engine Guide*.

## CHAPTER 4. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION 3.5

### 4.1. FEATURES REQUIRING A COMPATIBILITY UPGRADE TO RED HAT ENTERPRISE VIRTUALIZATION 3.5

Some of the features provided by Red Hat Enterprise Virtualization 3.5 are only available if your data centers, clusters, and storage have a compatibility version of 3.5.

**Table 4.1. Features Requiring a Compatibility Upgrade to Red Hat Enterprise Virtualization 3.5**

Feature	Description
Para-virtualized random number generator (RNG) device support	This feature adds support for enabling a para-virtualized random number generator in virtual machines. To use this feature, the random number generator source must be set at cluster level to ensure all hosts support and report desired RNG device sources. This feature is supported in Red Hat Enterprise Linux hosts of version 6.6 and higher.
Serial number policy support	This feature adds support for setting a custom serial number for virtual machines. Serial number policy can be specified at cluster level, or for an individual virtual machine.
Save OVF files on any data domain	This feature adds support for Open Virtualization Format files, including virtual machine templates, to be stored on any domain in a supported pool.
Boot menu support	This feature adds support for enabling a boot device menu in a virtual machine.
Import data storage domains	This feature adds support for users to add existing data storage domains to their environment. The Manager then detects and adds all the virtual machines in that storage domain.
SPICE copy and paste support	This feature adds support for users to enable or disable SPICE clipboard copy and paste.
Storage pool metadata removal	This feature adds support for storage pool metadata to be stored and maintained in the engine database only.
Network custom properties support	This feature adds support for users to define custom properties when a network is provisioned on a host.

### 4.2. RED HAT ENTERPRISE VIRTUALIZATION 3.5 UPGRADE CONSIDERATIONS

The following is a list of key considerations that must be made when planning your upgrade.



## IMPORTANT

### Upgrading to version 3.5 can only be performed from version 3.4

To upgrade a previous version of Red Hat Enterprise Virtualization earlier than Red Hat Enterprise Virtualization 3.4 to Red Hat Enterprise Virtualization 3.5, you must sequentially upgrade to any newer versions of Red Hat Enterprise Virtualization before upgrading to the latest version. For example, if you are using Red Hat Enterprise Virtualization 3.3, you must upgrade to the latest minor version of Red Hat Enterprise Virtualization 3.4 before you can upgrade to Red Hat Enterprise Virtualization 3.5.

### Red Hat Enterprise Virtualization Manager cannot be installed on the same machine as IPA

An error message displays if the ipa-server package is installed. Red Hat Enterprise Virtualization Manager 3.5 does not support installation on the same machine as Identity Management (IdM). To resolve this issue, you must migrate the IdM configuration to another system before re-attempting the upgrade.

### Red Hat Enterprise Virtualization Manager 3.5 is supported to run on Red Hat Enterprise Linux 6.6

Upgrading to version 3.5 involves also upgrading the base operating system of the machine that hosts the Manager.

## 4.3. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION MANAGER 3.5

The following procedure outlines the process for upgrading Red Hat Enterprise Virtualization Manager 3.4 to Red Hat Enterprise Virtualization Manager 3.5. This procedure assumes that the system on which the Manager is installed is subscribed to the entitlements for receiving Red Hat Enterprise Virtualization 3.4 packages at the start of the procedure.



## IMPORTANT

If the upgrade fails, the `engine-setup` command will attempt to roll your Red Hat Enterprise Virtualization Manager installation back to its previous state. For this reason, the repositories required by Red Hat Enterprise Virtualization 3.4 must not be removed until after the upgrade is complete as outlined below. If the upgrade fails, detailed instructions display that explain how to restore your installation.

### Procedure 4.1. Upgrading to Red Hat Enterprise Virtualization Manager 3.5

1. Subscribe the system on which the Red Hat Enterprise Virtualization Manager is installed to the required entitlements for receiving Red Hat Enterprise Virtualization Manager 3.5 packages:

- o With RHN Classic:

```
# rhn-channel --add --channel=rhel-x86_64-server-6-rhev-3.5
```

- o With Subscription Manager:

```
# subscription-manager repos --enable=rhel-6-server-rhev-3.5-rpms
```

2. Update the rhvm setup packages:



```
# yum update rhvm\*setup\*
```

3. Run the following command and follow the prompts to upgrade the Red Hat Enterprise Virtualization Manager:

```
# engine-setup
```

4. Remove or disable the Red Hat Enterprise Virtualization Manager 3.4 channel to ensure the system does not use any Red Hat Enterprise Virtualization Manager 3.4 packages:

- o With RHN Classic:

```
# rhn-channel --remove --channel=rhel-x86_64-server-6-rhvm-3.4
```

- o With Subscription Manager:

```
# subscription-manager repos --disable=rhel-6-server-rhvm-3.4-rpms
```

5. Update the base operating system:

```
# yum update
```

## CHAPTER 5. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION 3.4

### 5.1. FEATURES REQUIRING A COMPATIBILITY UPGRADE TO RED HAT ENTERPRISE VIRTUALIZATION 3.4

Some of the features provided by Red Hat Enterprise Virtualization 3.4 are only available if your data centers, clusters, and storage have a compatibility version of 3.4.

**Table 5.1. Features Requiring a Compatibility Upgrade to Red Hat Enterprise Virtualization 3.4**

Feature	Description
Abort migration on error	This feature adds support for handling errors encountered during the migration of virtual machines.
Forced Gluster volume creation	This feature adds support for allowing the creation of Gluster bricks on root partitions. With this feature, you can choose to override warnings against creating bricks on root partitions.
Management of asynchronous Gluster volume tasks	This feature provides support for managing asynchronous tasks on Gluster volumes, such as rebalancing volumes or removing bricks. To use this feature, you must use GlusterFS version 3.5 or above.
Import Glance images as templates	This feature provides support for importing images from an OpenStack image service as templates.
File statistic retrieval for non-NFS ISO domains	This feature adds support for retrieving statistics on files stored in ISO domains that use a storage format other than NFS, such as a local ISO domain.
Default route support	This feature adds support for ensuring that the default route of the management network is registered in the main routing table and that registration of the default route for all other networks is disallowed. This ensures the management network gateway is set as the default gateway for hosts.
Virtual machine reboot	This feature adds support for rebooting virtual machines from the User Portal or Administration Portal via a new button. To use this action on a virtual machine, you must install the guest tools on that virtual machine.

### 5.2. RED HAT ENTERPRISE VIRTUALIZATION 3.4 UPGRADE CONSIDERATIONS

The following is a list of key considerations that must be made when planning your upgrade.

**IMPORTANT****Upgrading to version 3.4 can only be performed from version 3.3**

To upgrade a previous version of Red Hat Enterprise Virtualization earlier than Red Hat Enterprise Virtualization 3.3 to Red Hat Enterprise Virtualization 3.4, you must sequentially upgrade to any newer versions of Red Hat Enterprise Virtualization before upgrading to the latest version. For example, if you are using Red Hat Enterprise Virtualization 3.2, you must upgrade to Red Hat Enterprise Virtualization 3.3 before you can upgrade to Red Hat Enterprise Virtualization 3.4.

**Red Hat Enterprise Virtualization Manager cannot be installed on the same machine as IPA**

An error message displays if the ipa-server package is installed. Red Hat Enterprise Virtualization Manager 3.4 does not support installation on the same machine as Identity Management (IdM). To resolve this issue, you must migrate the IdM configuration to another system before re-attempting the upgrade.

**Upgrading to JBoss Enterprise Application Platform 6.2 is recommended**

Although Red Hat Enterprise Virtualization Manager 3.4 supports Enterprise Application Platform 6.1.0, upgrading to the latest supported version of JBoss is recommended.

**Reports and the Data Warehouse are now installed via engine-setup**

From Red Hat Enterprise Virtualization 3.4, the Reports and Data Warehouse features are configured and upgraded using the **engine-setup** command. If you have configured the Reports and Data Warehouse features in your Red Hat Enterprise Virtualization 3.3 environment, you must install the `rhev-reports-setup` and `rhev-dwh-setup` packages prior to upgrading to Red Hat Enterprise Virtualization 3.4 to ensure these features are detected by **engine-setup**.

## 5.3. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION MANAGER 3.4

The following procedure outlines the process for upgrading Red Hat Enterprise Virtualization Manager 3.3 to Red Hat Enterprise Virtualization Manager 3.4. This procedure assumes that the system on which the Manager is installed is subscribed to the entitlements for receiving Red Hat Enterprise Virtualization 3.3 packages at the start of the procedure.

**IMPORTANT**

If the upgrade fails, the **engine-setup** command will attempt to roll your Red Hat Enterprise Virtualization Manager installation back to its previous state. For this reason, the repositories required by Red Hat Enterprise Virtualization 3.3 must not be removed until after the upgrade is complete as outlined below. If the upgrade fails, detailed instructions display that explain how to restore your installation.

**Procedure 5.1. Upgrading to Red Hat Enterprise Virtualization Manager 3.4**

1. Subscribe the system on which the Red Hat Enterprise Virtualization Manager is installed to the required entitlements for receiving Red Hat Enterprise Virtualization Manager 3.4 packages.
  - o With RHN Classic:

```
# rhn-channel --add --channel=rhel-x86_64-server-6-rhev-3.4
```

- o With Subscription Manager:

```
# subscription-manager repos --enable=rhel-6-server-rhev-3.4-rpms
```

2. Update the rhvm-setup package:

```
# yum update rhvm-setup
```

3. Run the following command and follow the prompts to upgrade the Red Hat Enterprise Virtualization Manager:

```
# engine-setup
```

4. Remove or disable the Red Hat Enterprise Virtualization Manager 3.3 repositories to ensure the system does not use any Red Hat Enterprise Virtualization Manager 3.3 packages.

- o With RHN Classic:

```
# rhn-channel --remove --channel=rhel-x86_64-server-6-rhev-3.3
```

- o With Subscription Manager:

```
# subscription-manager repos --disable=rhel-6-server-rhev-3.3-rpms
```

5. Update the base operating system:

```
# yum update
```

## CHAPTER 6. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION 3.3

### 6.1. FEATURES REQUIRING A COMPATIBILITY UPGRADE TO RED HAT ENTERPRISE VIRTUALIZATION 3.3

Some of the features in Red Hat Enterprise Virtualization are only available if your data centers, clusters, and storage have a compatibility version of **3.3**.

**Table 6.1. Features Requiring a Compatibility Upgrade to Red Hat Enterprise Virtualization 3.3**

Feature	Description
Libvirt-to-libvirt virtual machine migration	Perform virtual machine migration using libvirt-to-libvirt communication. This is safer, more secure, and has less host configuration requirements than native KVM migration, but has a higher overhead on the host CPU.
Isolated network to carry virtual machine migration traffic	Separates virtual machine migration traffic from other traffic types, like management and display traffic. Reduces chances of migrations causing a network flood that disrupts other important traffic types.
Define a gateway per logical network	Each logical network can have a gateway defined as separate from the management network gateway. This allows more customizable network topologies.
Snapshots including RAM	Snapshots now include the state of a virtual machine's memory as well as disk.
Optimized iSCSI device driver for virtual machines	Virtual machines can now consume iSCSI storage as virtual hard disks using an optimized device driver.
Host support for MOM management of memory overcommitment	MOM is a policy-driven tool that can be used to manage overcommitment on hosts. Currently MOM supports control of memory ballooning and KSM.
GlusterFS data domains.	Native support for the GlusterFS protocol was added as a way to create storage domains, allowing Gluster data centers to be created.
Custom device property support	In addition to defining custom properties of virtual machines, you can also define custom properties of virtual machine devices.
Multiple monitors using a single virtual PCI device	Drive multiple monitors using a single virtual PCI device, rather than one PCI device per monitor.
Updatable storage server connections	It is now possible to edit the storage server connection details of a storage domain.

Feature	Description
Check virtual hard disk alignment	Check if a virtual disk, the filesystem installed on it, and its underlying storage are aligned. If it is not aligned, there may be a performance penalty.
Extendable virtual machine disk images	You can now grow your virtual machine disk image when it fills up.
OpenStack Image Service integration	Red Hat Enterprise Virtualization supports the OpenStack Image Service. You can import images from and export images to an Image Service repository.
Gluster hook support	You can manage Gluster hooks, which extend volume life cycle events, from Red Hat Enterprise Virtualization Manager.
Gluster host UUID support	This feature allows a Gluster host to be identified by the Gluster server UUID generated by Gluster in addition to identifying a Gluster host by IP address.
Network quality of service (QoS) support	Limit the inbound and outbound network traffic at the virtual NIC level.
Cloud-Init support	Cloud-Init allows you to automate early configuration tasks in your virtual machines, including setting hostnames, authorized keys, and more.

## 6.2. RED HAT ENTERPRISE VIRTUALIZATION 3.3 UPGRADE CONSIDERATIONS

The following is a list of key considerations that must be made when planning your upgrade.

**IMPORTANT****Upgrading to version 3.3 can only be performed from version 3.2**

Users of Red Hat Enterprise Virtualization 3.1 must migrate to Red Hat Enterprise Virtualization 3.2 before attempting to upgrade to Red Hat Enterprise Virtualization 3.3.

**Red Hat Enterprise Virtualization Manager cannot be installed on the same machine as IPA**

An error message displays if the ipa-server package is installed. Red Hat Enterprise Virtualization Manager 3.3 does not support installation on the same machine as Identity Management (IdM). To resolve this issue, you must migrate the IdM configuration to another system before re-attempting the upgrade. For further information, see <https://access.redhat.com/knowledge/articles/233143>.

```
Error: IPA was found to be installed on this machine. Red Hat
Enterprise Virtualization Manager 3.3 does not support
installing IPA on the same machine. Please remove ipa
packages before you continue.
```

**Upgrading to JBoss Enterprise Application Platform 6.1.0 is recommended**

Although Red Hat Enterprise Virtualization Manager 3.3 supports Enterprise Application Platform 6.0.1, upgrading to the latest supported version of JBoss is recommended. For more information on upgrading to JBoss Enterprise Application Platform 6.1.0, see [Upgrade the JBoss EAP 6 RPM Installation](#).

**The rhvm-upgrade command has been replaced by engine-setup**

From Version 3.3, installation of Red Hat Enterprise Virtualization Manager supports **otopi**, a standalone, plug-in-based installation framework for setting up system components. Under this framework, the **rhvm-upgrade** command used during the installation process has been updated to **engine-setup** and is now obsolete.

**6.3. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION MANAGER 3.3**

The following procedure outlines the process for upgrading Red Hat Enterprise Virtualization Manager 3.2 to Red Hat Enterprise Virtualization Manager 3.3. This procedure assumes that the system on which the Manager is hosted is subscribed to the entitlements for receiving Red Hat Enterprise Virtualization 3.2 packages.

If the upgrade fails, the **engine-setup** command will attempt to roll your Red Hat Enterprise Virtualization Manager installation back to its previous state. For this reason, the repositories required by Red Hat Enterprise Virtualization 3.2 must not be removed until after the upgrade is complete as outlined below. If the upgrade fails, detailed instructions display that explain how to restore your installation.

**Procedure 6.1. Upgrading to Red Hat Enterprise Virtualization Manager 3.3**

1. Subscribe the system to the required entitlements for receiving Red Hat Enterprise Virtualization Manager 3.3 packages.

**Subscription Manager**

Red Hat Enterprise Virtualization 3.3 packages are provided by the **rhel-6-server-rhvm-3.3-rpms** repository associated with the **Red Hat Enterprise Virtualization** entitlement. Use the **subscription-manager** command to enable the repository in your **yum**

configuration.

```
# subscription-manager repos --enable=rhel-6-server-rhev-3.3-rpms
```

### Red Hat Network Classic

The Red Hat Enterprise Virtualization 3.3 packages are provided by the **Red Hat Enterprise Virtualization Manager (v.3.3 x86\_64)** channel. Use the `rhn-channel` command or the Red Hat Network web interface to subscribe to the **Red Hat Enterprise Virtualization Manager (v.3.3 x86\_64)** channel:

```
# rhn-channel --add --channel=rhel-x86_64-server-6-rhev-3.3
```

2. Update the base operating system:

```
# yum update
```

In particular, if you are using the JBoss Application Server from JBoss Enterprise Application Platform 6.0.1, you must run the above command to upgrade to Enterprise Application Platform 6.1.

3. Update the `rhev-setup` package to ensure you have the most recent version of **engine-setup**.

```
# yum update rhv-setup
```

4. Run the **engine-setup** command and follow the prompts to upgrade Red Hat Enterprise Virtualization Manager.

```
# engine-setup
[ INFO ] Stage: Initializing

Welcome to the RHEV 3.3.0 upgrade.
Please read the following knowledge article for known
issues and
updated instructions before proceeding with the upgrade.
RHEV 3.3.0 Upgrade Guide: Tips, Considerations and Roll-
back Issues
https://access.redhat.com/articles/408623
Would you like to continue with the upgrade? (Yes, No)
[Yes]:
```

5. Remove Red Hat Enterprise Virtualization Manager 3.2 repositories to ensure the system does not use any Red Hat Enterprise Virtualization Manager 3.2 packages.

### Subscription Manager

Use the **subscription-manager** command to disable the Red Hat Enterprise Virtualization 3.2 repository in your `yum` configuration.

```
# subscription-manager repos --disable=rhel-6-server-rhev-3.2-rpms
```

### Red Hat Network Classic



Use the `rhn-channel` command or the Red Hat Network web interface to remove the **Red Hat Enterprise Virtualization Manager (v.3.2 x86\_64)** channels.

```
# rhn-channel --remove --channel=rhel-x86_64-server-6-rhev-3.2
```

Red Hat Enterprise Virtualization Manager has been upgraded. To take full advantage of all Red Hat Enterprise Virtualization 3.3 features you must also:

- Ensure all of your virtualization hosts are up to date and running the most recent Red Hat Enterprise Linux packages or Hypervisor images.
- Change all of your clusters to use compatibility version 3.3.
- Change all of your data centers to use compatibility version 3.3.

## CHAPTER 7. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION MANAGER 3.2

### 7.1. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION MANAGER 3.2

Upgrading Red Hat Enterprise Virtualization Manager to version 3.2 is performed using the **rhevms-upgrade** command. Virtualization hosts, and the virtual machines running upon them, will continue to operate independently while the Manager is being upgraded. Once the Manager upgrade is complete you will be able to upgrade your hosts, if you haven't already, to the latest versions of Red Hat Enterprise Linux and Red Hat Enterprise Virtualization Hypervisor.



#### IMPORTANT

Users of Red Hat Enterprise Virtualization 3.0 must migrate to Red Hat Enterprise Virtualization 3.1 before attempting this upgrade.



#### NOTE

In the event that the upgrade fails the **rhevms-upgrade** command will attempt to roll your Red Hat Enterprise Virtualization Manager installation back to its previous state. Where this also fails detailed instructions for manually restoring the installation are displayed.

#### Procedure 7.1. Upgrading to Red Hat Enterprise Virtualization Manager 3.2

1. Ensure that the system is subscribed to the required entitlements to receive Red Hat Enterprise Virtualization Manager 3.2 packages. This procedure assumes that the system is already subscribed to required entitlements to receive Red Hat Enterprise Virtualization 3.1 packages. These must also be available to complete the upgrade process.

##### Certificate-based Red Hat Network

The Red Hat Enterprise Virtualization 3.2 packages are provided by the **rhel-6-server-rhevms-3.2-rpms** repository associated with the **Red Hat Enterprise Virtualization** entitlement. Use the **subscription-manager** command to enable the repository in your **yum** configuration.

```
# subscription-manager repos --enable=rhel-6-server-rhevms-3.2-rpms
```

##### Red Hat Network Classic

The Red Hat Enterprise Virtualization 3.2 packages are provided by the **Red Hat Enterprise Virtualization Manager (v.3.2 x86\_64)** channel. Use the **rhn-channel** command, or the Red Hat Network Web Interface, to subscribe to the **Red Hat Enterprise Virtualization Manager (v.3.2 x86\_64)** channel.

```
# rhn-channel --add --channel=rhel-x86_64-server-6-rhevms-3.2
```

2. Ensure that the system does not use any Red Hat Enterprise Virtualization Manager 3.1 packages by removing the Red Hat Enterprise Virtualization Manager 3.1 entitlements.

##### Certificate-based Red Hat Network

Use the **subscription-manager** command to disable the Red Hat Enterprise Virtualization 3.1 repository in your **yum** configuration. The **subscription-manager** command must be run while logged in as the **root** user.

```
# subscription-manager repos --disable=rhel-6-server-rhev-3.1-rpms
```

### Red Hat Network Classic

Use the **rhn-channel** command, or the Red Hat Network Web Interface, to remove the **Red Hat Enterprise Virtualization Manager (v.3.1 x86\_64)** channels.

```
# rhn-channel --remove --channel=rhel-6-server-rhev-3.1
```

3. Update the base operating system:

```
# yum update
```

4. To ensure that you have the most recent version of the **rhev-upgrade** command installed you must update the **rhev-setup** package.

```
#yum update rhv-setup
```

5. To upgrade Red Hat Enterprise Virtualization Manager run the **rhev-upgrade** command.

```
# rhv-upgrade
Loaded plugins: product-id, rhnplugin
Info: RHEV Manager 3.1 to 3.2 upgrade detected
Checking pre-upgrade conditions...(This may take several minutes)
```

6. If the **ipa-server** package is installed then an error message is displayed. Red Hat Enterprise Virtualization Manager 3.2 does not support installation on the same machine as Identity Management (IdM).

```
Error: IPA was found to be installed on this machine. Red Hat
Enterprise Virtualization Manager 3.2 does not support installing
IPA on the same machine. Please remove ipa packages before you
continue.
```

To resolve this issue you must migrate the IdM configuration to another system before re-attempting the upgrade. For further information see <https://access.redhat.com/knowledge/articles/233143>.

Your Red Hat Enterprise Virtualization Manager installation has now been upgraded. To take full advantage of all Red Hat Enterprise Virtualization 3.2 features you must also:

- Ensure that all of your virtualization hosts are up to date and running the most recent Red Hat Enterprise Linux packages or Hypervisor images.
- Change all of your clusters to use compatibility version 3.2.
- Change all of your data centers to use compatibility version 3.2.

## CHAPTER 8. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION MANAGER 3.1

### 8.1. UPGRADING TO RED HAT ENTERPRISE VIRTUALIZATION MANAGER 3.1

Upgrading Red Hat Enterprise Virtualization Manager to version 3.1 is performed using the **rhevms-upgrade** command. Virtualization hosts, and the virtual machines running upon them, will continue to operate independently while the Manager is being upgraded. Once the Manager upgrade is complete you will be able to upgrade your hosts, if you haven't already, to the latest versions of Red Hat Enterprise Linux and Red Hat Enterprise Virtualization Hypervisor.



#### IMPORTANT

Refer to <https://access.redhat.com/knowledge/articles/269333> for an up to date list of tips and considerations to be taken into account when upgrading to Red Hat Enterprise Virtualization 3.1.



#### IMPORTANT

Users of Red Hat Enterprise Virtualization 2.2 must migrate to Red Hat Enterprise Virtualization 3.0 before attempting this upgrade. For information on migrating from Red Hat Enterprise Virtualization 2.2 to Red Hat Enterprise Virtualization 3.0, refer to <https://access.redhat.com/knowledge/techbriefs/migrating-red-hat-enterprise-virtualization-manager-version-22-30>.



#### NOTE

In the event that the upgrade fails the **rhevms-upgrade** command will attempt to roll your Red Hat Enterprise Virtualization Manager installation back to its previous state. Where this also fails detailed instructions for manually restoring the installation are displayed.

#### Procedure 8.1. Upgrading to Red Hat Enterprise Virtualization Manager 3.1

1. Ensure that the system is subscribed to the required entitlements to receive Red Hat JBoss Enterprise Application Platform 6 packages. Red Hat JBoss Enterprise Application Platform 6 is a required dependency of Red Hat Enterprise Virtualization Manager 3.1.

##### Certificate-based Red Hat Network

The Red Hat JBoss Enterprise Application Platform 6 packages are provided by the **Red Hat JBoss Enterprise Application Platform** entitlement in certificate-based Red Hat Network.

Use the **subscription-manager** command to ensure that the system is subscribed to the **Red Hat JBoss Enterprise Application Platform** entitlement.

```
# subscription-manager list
```

##### Red Hat Network Classic

The Red Hat JBoss Enterprise Application Platform 6 packages are provided by the **Red Hat**

**JBoss Application Platform (v 6) for 6Server x86\_64** channel. The Channel Entitlement Name for this channel is **Red Hat JBoss Enterprise Application Platform (v 4, zip format)**.

Use the **rhn-channel** command, or the Red Hat Network Web Interface, to subscribe to the **Red Hat JBoss Application Platform (v 6) for 6Server x86\_64** channel.

2. Ensure that the system is subscribed to the required channels and entitlements to receive Red Hat Enterprise Virtualization Manager 3.1 packages.

### Certificate-based Red Hat Network

The Red Hat Enterprise Virtualization 3.1 packages are provided by the **rhel-6-server-rhev-3.1-rpms** repository associated with the **Red Hat Enterprise Virtualization** entitlement. Use the **subscription-manager** command to enable the repository in your **yum** configuration. The **subscription-manager** command must be run while logged in as the **root** user.

```
# subscription-manager repos --enable=rhel-6-server-rhev-3.1-rpms
```

### Red Hat Network Classic

The Red Hat Enterprise Virtualization 3.1 packages are provided by the **Red Hat Enterprise Virtualization Manager (v.3.1 x86\_64)** channel.

Use the **rhn-channel** command, or the Red Hat Network Web Interface, to subscribe to the **Red Hat Enterprise Virtualization Manager (v.3.1 x86\_64)** channel.

3. Ensure that the system does not use any Red Hat Enterprise Virtualization Manager 3.0 packages by removing the Red Hat Enterprise Virtualization Manager 3.0 channels and entitlements.

### Certificate-based Red Hat Network

Use the **subscription-manager** command to disable the Red Hat Enterprise Virtualization 3.0 repositories in your **yum** configuration.

```
# subscription-manager repos --disable=rhel-6-server-rhev-3-rpms
```

```
# subscription-manager repos --disable=jb-eap-5-for-rhel-6-server-rpms
```

### Red Hat Network Classic

Use the **rhn-channel** command, or the Red Hat Network Web Interface, to remove the **Red Hat Enterprise Virtualization Manager (v.3.0 x86\_64)** channels.

```
# rhn-channel --remove --channel=rhel-6-server-rhev-3
```

```
# rhn-channel --remove --channel=jbappplatform-5-x86_64-server-6-rpm
```

4. Update the base operating system.

```
# yum update
```

5. To ensure that you have the most recent version of the **rhev**-**upgrade** command installed you must update the `rhev`-`setup` package.

```
# yum update rhvm-setup
```

6. To upgrade Red Hat Enterprise Virtualization Manager run the **rhev**-**upgrade** command.

```
# rhvm-upgrade
Loaded plugins: product-id, rhnplugin
Info: RHEV Manager 3.0 to 3.1 upgrade detected
Checking pre-upgrade conditions...(This may take several minutes)
```

7. If the `ipa-server` package is installed then an error message is displayed. Red Hat Enterprise Virtualization Manager 3.1 does not support installation on the same machine as Identity Management (IdM).

```
Error: IPA was found to be installed on this machine. Red Hat
Enterprise Virtualization Manager 3.1 does not support installing
IPA on the same machine. Please remove ipa packages before you
continue.
```

To resolve this issue you must migrate the IdM configuration to another system before re-attempting the upgrade. For further information see <https://access.redhat.com/knowledge/articles/233143>.

8. A list of packages that depend on Red Hat JBoss Enterprise Application Platform 5 is displayed. These packages must be removed to install Red Hat JBoss Enterprise Application Platform 6, required by Red Hat Enterprise Virtualization Manager 3.1.

```
Warning: the following packages will be removed if you proceed with
the upgrade:
```

```
* objectweb-asm
```

```
Would you like to proceed? (yes|no):
```

You must enter **yes** to proceed with the upgrade, removing the listed packages.

Your Red Hat Enterprise Virtualization Manager installation has now been upgraded. To take full advantage of all Red Hat Enterprise Virtualization 3.1 features you must also:

- Ensure that all of your virtualization hosts are up to date and running the most recent Red Hat Enterprise Linux packages or Hypervisor images.
- Change all of your clusters to use compatibility version 3.1.
- Change all of your data centers to use compatibility version 3.1.

## CHAPTER 9. POST-UPGRADE TASKS

### 9.1. CHANGING THE CLUSTER COMPATIBILITY VERSION

Red Hat Enterprise Virtualization clusters have a compatibility version. The cluster compatibility version indicates the features of Red Hat Enterprise Virtualization supported by all of the hosts in the cluster. The cluster compatibility is set according to the version of the least capable host operating system in the cluster.



#### NOTE

To change the cluster compatibility version, you must have first updated all the hosts in your cluster to a level that supports your desired compatibility level.

#### Procedure 9.1. Changing the Cluster Compatibility Version

1. From the Administration Portal, click the **Clusters** tab.
2. Select the cluster to change from the list displayed.
3. Click **Edit**.
4. Change the **Compatibility Version** to the desired value.
5. Click **OK** to open the **Change Cluster Compatibility Version** confirmation window.
6. Click **OK** to confirm.



#### NOTE

When changing the cluster compatibility version to 3.6, running or suspended virtual machines are marked with a symbol to denote the requirement for rebooting them as soon as possible after the cluster version upgrade.

You have updated the compatibility version of the cluster. Once you have updated the compatibility version of all clusters in a data center, you can then change the compatibility version of the data center itself.



#### WARNING

Upgrading the compatibility will also upgrade all of the storage domains belonging to the data center. If you are upgrading the compatibility version from below 3.1 to a higher version, these storage domains will become unusable with versions older than 3.1.

### 9.2. CHANGING THE DATA CENTER COMPATIBILITY VERSION

Red Hat Enterprise Virtualization data centers have a compatibility version. The compatibility version indicates the version of Red Hat Enterprise Virtualization that the data center is intended to be compatible with. All clusters in the data center must support the desired compatibility level.

**NOTE**

To change the data center compatibility version, you must have first updated all the clusters in your data center to a level that supports your desired compatibility level.

**Procedure 9.2. Changing the Data Center Compatibility Version**

1. From the Administration Portal, click the **Data Centers** tab.
2. Select the data center to change from the list displayed.
3. Click **Edit**.
4. Change the **Compatibility Version** to the desired value.
5. Click **OK** to open the **Change Data Center Compatibility Version** confirmation window.
6. Click **OK** to confirm.

You have updated the compatibility version of the data center.

**WARNING**

Upgrading the compatibility will also upgrade all of the storage domains belonging to the data center. If you are upgrading the compatibility version from below 3.1 to a higher version, these storage domains will become unusable with versions older than 3.1.



## APPENDIX A. UPDATING AN OFFLINE RED HAT ENTERPRISE VIRTUALIZATION MANAGER

### A.1. UPDATING THE LOCAL REPOSITORY FOR AN OFFLINE RED HAT ENTERPRISE VIRTUALIZATION MANAGER INSTALLATION

If your Red Hat Enterprise Virtualization Manager is hosted on a system that receives packages via FTP from a local repository, you must regularly synchronize the repository to download package updates from the Content Delivery Network, then update or upgrade your Manager system. Updated packages address security issues, fix bugs, and add enhancements.

1. On the system hosting the repository, synchronize the repository to download the most recent version of each available package:

```
# reposync -l --newest-only /var/ftp/pub/rhevrepo
```

This command may download a large number of packages, and take a long time to complete.

2. Ensure that the repository is available on the Manager system, and then update or upgrade the Manager system. See [Section 2.1, “Updating the Red Hat Enterprise Virtualization Manager”](#) for information on updating the Manager between minor versions. See [Section 1.1, “Update Overview”](#) for information on upgrading between major versions.

## APPENDIX B. REVISION HISTORY

<b>Revision 3.6-15</b>	<b>Wed 24 Jan 2018</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
<a href="#">BZ#1529957</a> - Added link to a new self-hosted engine upgrade section.		
<b>Revision 3.6-14</b>	<b>Fri 20 Oct 2017</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
<a href="#">BZ#1496998</a> - Added EOL notice to 3.6 upgrade section.		
<b>Revision 3.6-13</b>	<b>Wed 23 Aug 2017</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
<a href="#">BZ#1467578</a> - Updated the upgrade overview.		
<a href="#">BZ#1471548</a> - Clarified hypervisor information in the upgrade instructions.		
<b>Revision 3.6-12</b>	<b>Mon 10 Jul 2017</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
<a href="#">BZ#1445157</a> - Added instructions for installing Red Hat Virtualization Host.		
<b>Revision 3.6-11</b>	<b>Fri 02 Dec 2016</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
<a href="#">BZ#1364266</a> - Clarified the documentation about upgrading clusters.		
<a href="#">BZ#1394448</a> - Added links to the self-hosted engine upgrade instructions from the standard upgrade instructions.		
<b>Revision 3.6-10</b>	<b>Wed 29 Jun 2016</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
<a href="#">BZ#1346383</a> - Updated the upgrade procedure.		
<b>Revision 3.6-9</b>	<b>Wed 25 May 2016</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
<a href="#">BZ#1329052</a> - Updated hypervisor update steps.		
<a href="#">BZ#1306212</a> - Changed 'yum update rhevm-setup' to 'yum update rhevm\*setup\*' so that any installed data warehouse, reports, or vmconsole packages will get updated as well.		
<a href="#">BZ#1301447</a> - Updated the RHEL 6 to 7 upgrade procedure with in-cluster upgrade instructions.		
<b>Revision 3.6-8</b>	<b>Wed 09 Mar 2016</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
Updated the Upgrading a Red Hat Enterprise Linux 6 Cluster to Red Hat Enterprise Linux 7 topic.		
<b>Revision 3.6-7</b>	<b>Tue 01 Mar 2016</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
<a href="#">BZ#1297266</a> - Added a topic on Upgrading a Red Hat Enterprise Linux 6 Cluster to Red Hat Enterprise Linux 7.		
<b>Revision 3.6-6</b>	<b>Mon 22 Feb 2016</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
Initial revision for Red Hat Enterprise Virtualization 3.6 general availability.		
<b>Revision 3.6-5</b>	<b>Fri 19 Feb 2016</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
Removed draft upgrade considerations content.		
<b>Revision 3.6-4</b>	<b>Mon 4 Jan 2016</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>
<a href="#">BZ#1290096</a> - Updated the 3.4, 3.5, and 3.6 upgrade procedures.		
<b>Revision 3.6-3</b>	<b>Wed 18 Nov 2015</b>	<b>Red Hat Enterprise Virtualization Documentation Team</b>

Final revision for Red Hat Enterprise Virtualization 3.6 beta.

**Revision 3.6-2****Tues 22 Sep 2015****Red Hat Enterprise Virtualization  
Documentation Team**

[BZ#1219336](#) - Improved the procedure for updating between minor releases.

[BZ#1224935](#) - Added a procedure for updating an offline repository.

**Revision 3.6-1****Fri 10 Jul 2015****Red Hat Enterprise Virtualization  
Documentation Team**

Initial creation for the Red Hat Enterprise Virtualization 3.6 release.