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Abstract

This document outlines the major features, enhancements, and known issues in this release of Red Hat OpenStack Platform.
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1.1. ABOUT THIS RELEASE

This release of Red Hat OpenStack Platform is based on the OpenStack "Train" release. It includes additional features, known issues, and resolved issues specific to Red Hat OpenStack Platform.

Only changes specific to Red Hat OpenStack Platform are included in this document. The release notes for the OpenStack "Train" release itself are available at the following location: https://releases.openstack.org/train/index.html.

Red Hat OpenStack Platform uses components from other Red Hat products. For specific information pertaining to the support of these components, see https://access.redhat.com/site/support/policy/updates/openstack/platform/.

To evaluate Red Hat OpenStack Platform, sign up at http://www.redhat.com/openstack/.

NOTE

The Red Hat Enterprise Linux High Availability Add-On is available for Red Hat OpenStack Platform use cases. For more details about the add-on, see http://www.redhat.com/products/enterprise-linux-add-ons/high-availability/. For details about the package versions to use in combination with Red Hat OpenStack Platform, see https://access.redhat.com/site/solutions/509783.

1.2. REQUIREMENTS

This version of Red Hat OpenStack Platform runs on the most recent fully supported release of Red Hat Enterprise Linux 8.2.

The Red Hat OpenStack Platform dashboard is a web-based interface that allows you to manage OpenStack resources and services.

The dashboard for this release supports the latest stable versions of the following web browsers:

- Chrome
- Mozilla Firefox
- Mozilla Firefox ESR
- Internet Explorer 11 and later (with Compatibility Mode disabled)

NOTE

Prior to deploying Red Hat OpenStack Platform, it is important to consider the characteristics of the available deployment methods. For more information, see Installing and Managing Red Hat OpenStack Platform.

1.3. DEPLOYMENT LIMITS

For a list of deployment limits for Red Hat OpenStack Platform, see Deployment Limits for Red Hat OpenStack Platform.
1.4. DATABASE SIZE MANAGEMENT
For recommended practices on maintaining the size of the MariaDB databases in your Red Hat OpenStack Platform environment, see Database Size Management for Red Hat Enterprise Linux OpenStack Platform.

1.5. CERTIFIED DRIVERS AND PLUG-INS
For a list of the certified drivers and plug-ins in Red Hat OpenStack Platform, see Component, Plug-In, and Driver Support in Red Hat OpenStack Platform.

1.6. CERTIFIED GUEST OPERATING SYSTEMS
For a list of the certified guest operating systems in Red Hat OpenStack Platform, see Certified Guest Operating Systems in Red Hat OpenStack Platform and Red Hat Enterprise Virtualization.

1.7. PRODUCT CERTIFICATION CATALOG
For a list of the Red Hat Official Product Certification Catalog, see Product Certification Catalog.

1.8. BARE METAL PROVISIONING OPERATING SYSTEMS
For a list of the guest operating systems that can be installed on bare metal nodes in Red Hat OpenStack Platform through Bare Metal Provisioning (ironic), see Supported Operating Systems Deployable With Bare Metal Provisioning (ironic).

1.9. HYPERVISOR SUPPORT
This release of the Red Hat OpenStack Platform is supported only with the libvirt driver (using KVM as the hypervisor on Compute nodes).

This release of the Red Hat OpenStack Platform runs with Bare Metal Provisioning.

Bare Metal Provisioning has been fully supported since the release of Red Hat OpenStack Platform 7 (Kilo). Bare Metal Provisioning allows you to provision bare-metal machines using common technologies (such as PXE and IPMI) to cover a wide range of hardware while supporting pluggable drivers to allow the addition of vendor-specific functionality.

Red Hat does not provide support for other Compute virtualization drivers such as the deprecated VMware "direct-to-ESX" hypervisor or non-KVM libvirt hypervisors.

1.10. CONTENT DELIVERY NETWORK (CDN) REPOSITORIES
This section describes the repositories required to deploy Red Hat OpenStack Platform 16.1-Beta.

You can install Red Hat OpenStack Platform 16.1-Beta through the Content Delivery Network (CDN) using subscription-manager. For more information, see Preparing the undercloud.
WARNING
Some packages in the Red Hat OpenStack Platform software repositories conflict with packages provided by the Extra Packages for Enterprise Linux (EPEL) software repositories. The use of Red Hat OpenStack Platform on systems with the EPEL software repositories enabled is unsupported.

1.10.1. Undercloud repositories

Red Hat OpenStack Platform 16.1-Beta runs on Red Hat Enterprise Linux 8.2. Before enabling repositories, lock the director to a version with the `subscription-manager release` command:

```
$ sudo subscription-manager release --set=8.2
```

Enable the following repositories for the installation and configuration of the undercloud.

**Core repositories**

The following table lists core repositories for installing the undercloud.

<table>
<thead>
<tr>
<th>Name</th>
<th>Repository</th>
<th>Description of requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hat Enterprise Linux 8 for x86_64 - BaseOS (RPMs) Extended Update Support (EUS)</td>
<td>rhel-8-for-x86_64-baseos-eus-rpms</td>
<td>Base operating system repository for x86_64 systems.</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 8 for x86_64 - AppStream (RPMs)</td>
<td>rhel-8-for-x86_64-appstream-eus-rpms</td>
<td>Contains Red Hat OpenStack Platform dependencies.</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 8 for x86_64 - High Availability (RPMs) Extended Update Support (EUS)</td>
<td>rhel-8-for-x86_64-highavailability-eus-rpms</td>
<td>High availability tools for Red Hat Enterprise Linux. Used for Controller node high availability.</td>
</tr>
<tr>
<td>Red Hat Ansible Engine 2.9 for RHEL 8 x86_64 (RPMs)</td>
<td>ansible-2.9-for-rhel-8-x86_64-rpms</td>
<td>Ansible Engine for Red Hat Enterprise Linux. Used to provide the latest version of Ansible.</td>
</tr>
<tr>
<td>Red Hat Satellite Tools for RHEL 8 Server RPMs x86_64</td>
<td>satellite-tools-6.5-for-rhel-8-x86_64-rpms</td>
<td>Tools for managing hosts with Red Hat Satellite 6.</td>
</tr>
<tr>
<td>Red Hat OpenStack Platform 16.1-Beta for RHEL 8 (RPMs)</td>
<td>openstack-beta-for-rhel-8-x86_64-rpms</td>
<td>Core Red Hat OpenStack Platform repository, which contains packages for Red Hat OpenStack Platform director.</td>
</tr>
<tr>
<td>Red Hat Fast Datapath for RHEL 8 (RPMS)</td>
<td>fast-datapath-for-rhel-8-x86_64-rpms</td>
<td>Provides Open vSwitch (OVS) packages for OpenStack Platform.</td>
</tr>
</tbody>
</table>
IBM POWER repositories

The following table contains a list of repositories for Red Hat Openstack Platform on POWER PC architecture. Use these repositories in place of equivalents in the Core repositories.

<table>
<thead>
<tr>
<th>Name</th>
<th>Repository</th>
<th>Description of requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hat Enterprise Linux for IBM Power, little endian - BaseOS (RPMs)</td>
<td>rhel-8-for-ppc64le-baseos-rpms</td>
<td>Base operating system repository for ppc64le systems.</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 8 for IBM Power, little endian - AppStream (RPMs)</td>
<td>rhel-8-for-ppc64le-appstream-rpms</td>
<td>Contains Red Hat OpenStack Platform dependencies.</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 8 for IBM Power, little endian - High Availability (RPMs)</td>
<td>rhel-8-for-ppc64le-highavailability-rpms</td>
<td>High availability tools for Red Hat Enterprise Linux. Used for Controller node high availability.</td>
</tr>
<tr>
<td>Red Hat Ansible Engine 2.8 for RHEL 8 IBM Power, little endian (RPMs)</td>
<td>ansible-2.8-for-rhel-8-ppc64le-rpms</td>
<td>Ansible Engine for Red Hat Enterprise Linux. Provides the latest version of Ansible.</td>
</tr>
<tr>
<td>Red Hat OpenStack Platform 16.1 for RHEL 8 (RPMs)</td>
<td>openstack-16.1-for-rhel-8-ppc64le-rpms</td>
<td>Core Red Hat OpenStack Platform repository for ppc64le systems.</td>
</tr>
</tbody>
</table>

1.10.2. Overcloud repositories

Red Hat OpenStack Platform 16.1-Beta runs on Red Hat Enterprise Linux 8.2. After overcloud deployment, lock the nodes to a specific version with the `subscription-manager release` command on each node:

```
$ sudo subscription-manager release --set=8.2
```

You must enable the following repositories to install and configure the overcloud.

Core repositories

The following table lists core repositories for installing the overcloud.

<table>
<thead>
<tr>
<th>Name</th>
<th>Repository</th>
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</thead>
<tbody>
<tr>
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<td>Contains Red Hat OpenStack Platform dependencies.</td>
</tr>
</tbody>
</table>
Name | Repository | Description of requirement
--- | --- | ---
Red Hat Enterprise Linux 8 for x86_64 - High Availability (RPMs) Extended Update Support (EUS) | rhel-8-for-x86_64-highavailability-eus-rpms | High availability tools for Red Hat Enterprise Linux. Used for Controller node high availability.
Red Hat Ansible Engine 2.9 for RHEL 8 x86_64 (RPMs) | ansible-2.9-for-rhel-8-x86_64-rpms | Ansible Engine for Red Hat Enterprise Linux. Used to provide the latest version of Ansible.
Advanced Virtualization for RHEL 8 x86_64 (RPMs) | advanced-virt-for-rhel-8-x86_64-rpms | Provides virtualization packages for OpenStack Platform.
Red Hat Satellite Tools for RHEL 8 Server RPMs x86_64 | satellite-tools-6.5-for-rhel-8-x86_64-rpms | Tools for managing hosts with Red Hat Satellite 6.
Red Hat OpenStack Platform 16.1-Beta for RHEL 8 (RPMs) | openstack-beta-for-rhel-8-x86_64-rpms | Core Red Hat OpenStack Platform repository.
Red Hat Fast Datapath for RHEL 8 (RPMS) | fast-datapath-for-rhel-8-x86_64-rpms | Provides Open vSwitch (OVS) packages for OpenStack Platform.

Real Time repositories

The following table lists repositories for Real Time Compute (RTC) functionality.

Name | Repository | Description of requirement
--- | --- | ---
Red Hat Enterprise Linux 8 for x86_64 - Real Time (RPMs) | rhel-8-for-x86_64-rt-rpms | Repository for Real Time KVM (RT-KVM). Contains packages to enable the real time kernel. Enable this repository for all Compute nodes targeted for RT-KVM. NOTE: You need a separate subscription to a Red Hat OpenStack Platform for Real Time SKU to access this repository.
Red Hat Enterprise Linux 8 for x86_64 - Real Time for NFV (RPMs) | rhel-8-for-x86_64-nfv-rpms | Repository for Real Time KVM (RT-KVM) for NFV. Contains packages to enable the real time kernel. Enable this repository for all NFV Compute nodes targeted for RT-KVM. NOTE: You need a separate subscription to a Red Hat OpenStack Platform for Real Time SKU to access this repository.
IBM POWER repositories

The following table lists repositories for Openstack Platform on POWER PC architecture. Use these repositories in place of equivalents in the Core repositories.

<table>
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<tr>
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<td>Core Red Hat OpenStack Platform repository for ppc64le systems.</td>
</tr>
</tbody>
</table>

1.11. PRODUCT SUPPORT

Available resources include:

Customer Portal

The Red Hat Customer Portal offers a wide range of resources to help guide you through planning, deploying, and maintaining your Red Hat OpenStack Platform deployment. Facilities available via the Customer Portal include:

- Product documentation
- Knowledge base articles and solutions
- Technical briefs
- Support case management

Access the Customer Portal at https://access.redhat.com/.

Mailing Lists

Red Hat provides these public mailing lists that are relevant to Red Hat OpenStack Platform users:

- The rhsa-announce mailing list provides notification of the release of security fixes for all Red Hat products, including Red Hat OpenStack Platform.

CHAPTER 2. TOP NEW FEATURES

This section provides an overview of the top new features in this release of Red Hat OpenStack Platform.

2.1. COMPUTE

This section outlines the top new features for the Compute service.

Tenant-isolated host aggregates using the Placement service
You can use the Placement service to provide tenant isolation by creating host aggregates that only specific tenants can launch instances on. For more information, see Creating a tenant-isolated host aggregate.

File-backed memory
You can configure instances to use a local storage device as the memory backing device.

2.2. NETWORKING

This section outlines the top new features for the Networking service.

Northbound path MTU discovery support for jumbo frames
After receiving a jumbo UPD frame that exceeds the maximum transmission unit of the external network, ML2/OVN routers can return ICMP “fragmentation needed” packets back to the sending VM, where the sending application can break the payload into smaller packets. For more information about the necessary configuration steps, see Configuring ML2/OVN northbound path MTU discovery for jumbo frame fragmentation in the Advanced Overcloud Customization guide.

Dataplane routed provider networks
You can break a provider network into multiple L3 segments with external L3 routing instead of one large L2 network. The connection between the segments is provided by top-of-rack switches.

HA support for the Load-balancing service (octavia)
In Red Hat OpenStack Platform 16.1, you can make Load-balancing service (octavia) instances highly available when you implement an active-standby topology and use the amphora provider driver. For more information, see Enabling Amphora active-standby topology in the Networking Guide.

2.3. STORAGE

This section outlines the top new features for the Storage service.

Storage at the Edge with Distributed Compute Nodes (DCN)
In Red Hat OpenStack Platform 16.1-Beta, you can perform the following image operations:

- Import an image into multiple stores.
- Copy an image across multiple stores.
- Delete an image from a specific store without removing it from other stores.

2.4. BARE METAL SERVICE

This section outlines the top new features for the Bare Metal (ironic) service.
Policy-based routing

With this enhancement, you can use policy-based routing for OpenStack nodes to configure multiple route tables and routing rules with os-net-config. Policy-based routing uses route tables where, on a host with multiple links, you can send traffic through a particular interface depending on the source address. You can also define route rules for each interface.

2.5. TECHNOLOGY PREVIEWS

This section outlines features that are in technology preview in Red Hat OpenStack Platform 16.1-Beta.

NOTE

For more information on the support scope for features marked as technology previews, see Technology Preview Features Support Scope.

Memory encryption for instances

As a cloud administrator, you can now configure SEV-capable Compute nodes to provide cloud users the ability to create instances with memory encryption enabled. For more information, see Configuring SEV-capable Compute nodes to provide memory encryption for instances.

Undercloud minion

This release contains the ability to install undercloud minions. An undercloud minion provides additional heat-engine and ironic-conductor services on a separate host. These additional services support the undercloud with orchestration and provisioning operations. The distribution of undercloud operations across multiple hosts provides more resources to run an overcloud deployment, which can result in potentially faster and larger deployments.

Deploying bare metal over IPv6 with director

If you have IPv6 nodes and infrastructure, you can configure the undercloud and the provisioning network to use IPv6 instead of IPv4 so that director can provision and deploy Red Hat OpenStack Platform onto IPv6 nodes. For more information, see Configuring the undercloud for bare metal provisioning over IPv6 and Configuring a custom IPv6 provisioning network.

Nova-less provisioning

In Red Hat OpenStack Platform 16.1, you can separate the provisioning and deployment stages of your deployment into distinct steps:

1. Provision your bare metal nodes.
   a. Create a node definition file in yaml format.
   b. Run the provisioning command, including the node definition file.

2. Deploy your overcloud.
   a. Run the deployment command, including the heat environment file that the provisioning command generates.

The provisioning process provisions your nodes and generates a heat environment file that contains various node specifications, including node count, predictive node placement, custom images, and custom NICs. When you deploy your overcloud, include this file in the deployment command.

OVN Load-balancing service (octavia) provider driver
The OVN Load-balancing service provider driver is an integration driver between load balancer provided by OVN and octavia. It supports basic load balancer functionalities and is based on Openflow rules.

The provider driver is automatically enabled in the Load-balancing service by director on OVN Neutron ML2 enabled deployments. There are no additional installation or configuration steps required. The Amphora provider driver remains enabled and as the default provider driver.
CHAPTER 3. RELEASE INFORMATION

These release notes highlight technology preview items, recommended practices, known issues, and deprecated functionality to be taken into consideration when deploying this release of Red Hat OpenStack Platform. Notes for updates released during the support lifecycle of this Red Hat OpenStack Platform release will appear in the advisory text associated with each update.

3.1. RED HAT OPENSTACK PLATFORM 16.1 BETA

These release notes highlight technology preview items, recommended practices, known issues, and deprecated functionality to be taken into consideration when deploying this release of Red Hat OpenStack Platform.

3.1.1. Bug Fix

These bugs were fixed in this release of Red Hat OpenStack Platform:

BZ#1594033
Before this update, the latest volume attributes were not updated during poll, and the volume data was incorrect on the display screen. With this update, volume attributes update correctly during poll and the correct volume data appears on the display screen.

3.1.2. Enhancements

This release of Red Hat OpenStack Platform features the following enhancements:

BZ#1676989
With this enhancement, you can use ATOS HSM deployment with HA mode.

BZ#1814278
With this enhancement, you can use policy-based routing for OpenStack nodes to configure multiple route tables and routing rules with os-net-config. Policy-based routing uses route tables where, on a host with multiple links, you can send traffic through a particular interface depending on the source address.

You can also define route rules for each interface.

BZ#1819016
With this update, the container_images_file parameter is now a required option in the undercloud.conf file. You must set this parameter before you install the undercloud. With the recent move to use registry.redhat.io as the container source, you must authenticate when you fetch containers. For the undercloud, the container_images_file is the recommended option to provide the credentials when you perform the installation. Before this update, if this parameter was not set, the deployment failed with authentication errors when trying to fetch containers.

3.1.3. Technology Preview

The items listed in this section are provided as Technology Previews. For further information on the scope of Technology Preview status, and the associated support implications, refer to https://access.redhat.com/support/offerings/techpreview/.

BZ#1459187
In Red Hat OpenStack Platform 16.1, a technology preview has been added to the Bare Metal Provisioning service (ironic) for deploying the overcloud on an IPv6 provisioning network. For more information, see “Configuring a custom IPv6 provisioning network,” in the Bare Metal Provisioning guide.

BZ#1474394
Red Hat OpenStack Platform 16.1 includes support for bare metal provisioning over an IPv6 provisioning network for BMaaS (Bare Metal as-a-Service) tenants.

BZ#1623977
In Red Hat OpenStack Platform 16.1, you can configure Load-balancing service (octavia) instances to forward traffic flow and administrative logs from inside the amphora to a syslog server.

BZ#1676631
In Red Hat OpenStack Platform 16.1, the Open Virtual Network (OVN) provider driver for the Load-balancing service (octavia) is in technology preview.

BZ#1703958
This update includes support for both TCP and UDP protocols on the same load-balancer listener for OVN Provider driver.

BZ#1801721
In Red Hat OpenStack Platform 16.1, the Load-balancing service (Octavia) has a technology preview for UDP protocol.

BZ#1848582
With this release, a technology preview has been added for the Shared File Systems service (manila) for IPv6 to work in the CephFS NFS driver. This feature requires Red Hat Ceph Storage 4.1.

3.1.4. Release Notes

This section outlines important details about the release, including recommended practices and notable changes to Red Hat OpenStack Platform. You must take this information into account to ensure the best possible outcomes for your deployment.

BZ#1784640
Before this update, the CephClusterFSID that TripleO generates when you deploy Ceph, by passing the desired FSID to ceph-ansible, used the Python uuid1() function. With this update, TripleO uses the Python uuid4() function, which generates UUIDs more randomly.

3.1.5. Known Issues

These known issues exist in Red Hat OpenStack Platform at this time:

BZ#1797047
The manila access-list feature requires Red Hat Ceph Storage 4.1 or later. Red Hat Ceph Storage 4.0 has a packaging issue. As a result, customers cannot use manila access-list. Share creation works, but without manila access-list, the share is unusable. Consequently, customers cannot use the Shared File System service with CephFS via NFS. For more information, see https://bugzilla.redhat.com/show_bug.cgi?id=1797075.

BZ#1837316
The keepalived instance in the RHOSP Load-balancing service instance (amphora) can abnormally terminate and interrupt UDP traffic. The cause of this issue is that the timeout value for the UDP health monitor is too small.
Workaround: specify a new timeout value that is greater than two seconds: $ openstack loadbalancer healthmonitor set --timeout 3 <health_monitor_id>
For more information, search for "loadbalancer healthmonitor" in the Command Line Interface Reference.

BZ#1845091

There is a known issue when you update from 16.0 to 16.1 with Public TLS or TLS-Everywhere. The parameter **InternalTLSCAFile** provides the location of the CA cert bundle for the overcloud instance. Upgrades and updates fail if this parameter is not set correctly. With new deployments, heat sets this parameter correctly, but if you upgrade a deployment that uses old heat templates, then the defaults might not be correct.

The workaround for this issue is to set the **InternalTLSCAFile** parameter to an empty string "" so that the undercloud uses the certificates in the default trust store.