# Table of Contents

About This Document .................................................................................................................. v
1 Introduction ................................................................................................................................. 1
   Getting the Software ...................................................................................................................... 1
2 What’s New in Oracle OpenStack ............................................................................................... 3
   New Features and Changes in Release 4.0 .................................................................................. 3
   Changes to Docker Images .......................................................................................................... 4
3 System Requirements and Support ........................................................................................... 7
   OpenStack Services Supported .................................................................................................. 7
   Deployment Configurations Supported ....................................................................................... 7
   System Requirements ................................................................................................................. 8
   Hypervisors Supported .............................................................................................................. 9
   Storage Supported ...................................................................................................................... 11
   Networking Supported .............................................................................................................. 12
   Support Subscription Requirements ......................................................................................... 12
4 Known Issues .............................................................................................................................. 13
5 Accessibility Features .................................................................................................................. 19
About This Document

This document is part of the documentation library for Oracle OpenStack Release 4.0, which is available at:

https://docs.oracle.com/cd/E90981_01/

The documentation library consists of the following items:

**Oracle OpenStack Release Notes**

This document provides a summary of the new features, changes, fixed bugs, and known issues in Oracle OpenStack. It contains last-minute information, which may not be included in the main body of documentation, and information on Oracle OpenStack support. Read this document before you install your environment.

**Oracle OpenStack Installation and Deployment Guide**

This document explains how to install Oracle OpenStack and deploy OpenStack services.

**Oracle OpenStack Configuration Guide**

This document describes the configuration options for deploying services with Oracle OpenStack.

**Oracle OpenStack Application Deployment Guide**

This document describes how to set up Oracle products and deploy them using the OpenStack Application Catalog (Murano) service.

**Oracle OpenStack Licensing Information User Manual**

This document provides licensing information for Oracle OpenStack.

This document was generated on 16 February 2018 (revision: 1309).

You can get the latest information on Oracle OpenStack at:

https://www.oracle.com/linux/openstack/index.html

Conventions

The following text conventions are used in this document:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boldface</strong></td>
<td>Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.</td>
</tr>
<tr>
<td><em>italic</em></td>
<td>Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.</td>
</tr>
<tr>
<td><code>monospace</code></td>
<td>Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.</td>
</tr>
</tbody>
</table>

Command Syntax

Command syntax appears in `monospace` font. The dollar character ($) and number sign (#) are command prompts. You do not enter them as part of the command. Commands that any user, including the `root` user, can run are shown with the `$` prompt:
$ command

Commands that must be run as the root user, or by a user with superuser privileges obtained through another utility such as sudo, are shown with the # prompt:

# command

The following command syntax conventions are used in this guide:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>backslash \</td>
<td>A backslash is the Oracle Linux command continuation character. It is used in command examples that are too long to fit on a single line. Enter the command as displayed (with a backslash) or enter it on a single line without a backslash:</td>
</tr>
<tr>
<td>braces { }</td>
<td>Braces indicate required items:</td>
</tr>
<tr>
<td>brackets [ ]</td>
<td>Brackets indicate optional items:</td>
</tr>
<tr>
<td>ellipses ...</td>
<td>Ellipses indicate an arbitrary number of similar items:</td>
</tr>
<tr>
<td>italics</td>
<td>Italic type indicates a variable. Substitute a value for the variable:</td>
</tr>
<tr>
<td>vertical line</td>
<td>A vertical line indicates a choice within braces or brackets:</td>
</tr>
</tbody>
</table>

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.
Chapter 1 Introduction

Table of Contents

Getting the Software ................................................................. 1

Oracle OpenStack uses Oracle Linux as the foundation for deploying the OpenStack cloud management software, and provides deployment and support to deliver a complete product based on OpenStack.

This release is based on the OpenStack Pike release. This document is in addition to the OpenStack upstream documentation, available at:

https://docs.openstack.org/pike/

This section lists how to get the Oracle OpenStack software. For a list of additional resources, see:

https://docs.oracle.com/cd/E90981_01

You must perform a fresh installation of Oracle OpenStack Release 4.0. Updates from a previous release of Oracle OpenStack to Release 4.0 are not supported.

Getting the Software

Oracle Linux is the operating system on which Oracle OpenStack is installed. Oracle Linux is free to download, and includes all Oracle Linux patches and updates.

Oracle OpenStack is considered part of Oracle Linux, and is free to download and distribute, under the same licensing restrictions as Oracle Linux.

The Oracle OpenStack product is delivered in two parts, the Oracle Linux software packages and the Oracle OpenStack Docker images.

The Oracle Linux packages needed to perform an Oracle OpenStack deployment are available from the Oracle Linux yum server at http://yum.oracle.com, and from the Oracle Unbreakable Linux Network (ULN) at https://linux.oracle.com. The packages are:

• openstack-kolla-preinstall: This package is installed on the hosts to be included in a deployment as controller, compute, database, network, or storage nodes.

• openstack-kollacli: This package is installed on a controller node, or a separate Oracle Linux host, if required. This package includes the Oracle OpenStack command line interface (kollacli), which is used to deploy OpenStack services (as Docker containers) to the nodes. A node with kollacli installed is referred to as a master node.

• openstack-kolla-utils: This package contains a utility for running the OpenStack CLIs in a Docker container.

You can obtain the Oracle OpenStack Docker images from the following Docker registries:

• Docker Hub at https://hub.docker.com

• Oracle Container Registry at https://container-registry.oracle.com

If you prefer, you can use a local Docker registry to mirror the images in the Oracle Container Registry. The images are available on the Oracle Software Delivery Cloud, together with a script for uploading the images to the registry, at https://edelivery.oracle.com.
For information on installing and configuring Oracle OpenStack, see the *Installation and Deployment Guide* at:

https://docs.oracle.com/cd/E90981_01/E90976/html/index.html
Chapter 2 What's New in Oracle OpenStack

Table of Contents

New Features and Changes in Release 4.0 ................................................................. 3
Changes to Docker Images ......................................................................................... 4

This chapter outlines the new features, changes, and bug fixes included Oracle OpenStack Release 4.0.

New Features and Changes in Release 4.0

Oracle OpenStack Release 4.0 includes the following new features, changes, and bug fixes:

• Update to OpenStack Pike Release
• OpenStack Services
• New Chrony Service for Time Synchronization
• Changes and Enhancements for Deploying and Updating OpenStack Services
• Change to Central Logging
• Change to Cinder LVM Volume Driver
• Changes to System Requirements
• Updates to Oracle OpenStack Release 4.0
• Change to the docker-ostk Utility

Update to OpenStack Pike Release

The Docker images have been updated to the OpenStack Pike release.

Changes to Docker Images has details of the new and removed images in this release.

OpenStack Services

Barbican key manager service is a new service in Release 4.0 and is a supported service.

Ceph and Swift are now supported storage backends for Glance.

Neutron plug-in services Firewall-as-a-Service and Load-Balancer-as-a-Service are no longer a technology preview and are now supported services. VPN-as-a-Service is no longer available (was a technology preview in Release 3.0).

Designate DNS service is a new service in Release 4.0 and is available as a technology preview.

Ironic bare metal service is still a technology preview.

Magnum container infrastructure service is still a technology preview.

The Ceilometer telemetry and Aodh alarm services are no longer available.
New Chrony Service for Time Synchronization

The Chrony service runs the `chronyd` service daemon in a Docker container, and this is used to synchronize the time between the nodes. You can specify the NTP servers that the service uses by setting a configuration property.

The Chrony service is disabled by default. If you enable it, you must disable NTP services on the nodes.

Changes and Enhancements for Deploying and Updating OpenStack Services

The following changes and enhancements for deploying and updating OpenStack services have been made:

- The new `kollacli reconfigure` command enables you to apply post-deployment configuration changes to OpenStack services. This command copies the configuration changes to the nodes and restarts the Docker containers for all services that are affected by the configuration changes.

- The new `kollacli pull` command enables you pull the Docker images for the enabled services on to the nodes before you deploy.

- The predeployment checks (`kollacli host check --predeploy`) now check that you have configured an even number of database nodes.

Change to Central Logging

Central logging now uses Fluentd instead of Heka for aggregating the OpenStack log files. The change means that you need to configure Kibana to use the `flog-*` index pattern instead of `log-*`.

Change to Cinder LVM Volume Driver

The Cinder LVM volume driver is no longer enabled by default. You must now set the `enable_cinder_backend_lvm` property to enable it. Remember also that the LVM volume driver is supported only with Oracle Linux 7 storage nodes. You cannot use this driver with Oracle VM Server storage nodes.

Changes to System Requirements

Oracle VM Server compute nodes require Release 3.4.4 on 64-bit x86 platforms (previously Release 3.4.2 was required).

Updates to Oracle OpenStack Release 4.0

You must perform a fresh installation of Oracle OpenStack Release 4.0. Updates from a previous release of Oracle OpenStack to Release 4.0 are not supported.

Change to the docker-ostk Utility

The `docker-ostk` utility now uses the `ol-openstack-kolla-utils` Docker image to run OpenStack command-line clients.

Changes to Docker Images

If you use the Oracle Container Registry or a local Docker registry, the namespace used to store the Oracle OpenStack Release 4.0 Docker images is `openstack`. To pull an image, use the following command:
If you use Docker Hub, the namespace is **oracle**.

The following are the changes to the Docker images for Oracle OpenStack Release 4.0.

### General Purpose Component Images

**New images:**
- `ol-openstack-ceph-mds`
- `ol-openstack-cephfs-fuse`
- `ol-openstack-chrony`
- `ol-openstack-fluentd`

**Removed images:**
- `ol-openstack-heka` *(replaced by `ol-openstack-fluentd`)*
- `ol-openstack-mysqlcluster-base`

### Barbican

**New images:**
- `ol-openstack-barbican-api`
- `ol-openstack-barbican-base`
- `ol-openstack-barbican-keystone-listener`
- `ol-openstack-barbican-worker`

### Designate

**New images:**
- `ol-openstack-designate-api`
- `ol-openstack-designate-backend-bind9`
- `ol-openstack-designate-base`
- `ol-openstack-designate-central`
- `ol-openstack-designate-mdns`
- `ol-openstack-designate-pool-manager`
- `ol-openstack-designate-sink`
- `ol-openstack-designate-worker`

### Heat

**New images:**
New images:

- ol-openstack-neutron-server-opendaylight
- ol-openstack-neutron-server-ovn
- ol-openstack-neutron-sfc-agent
- ol-openstack-neutron-sriov-agent

Chapter 3 System Requirements and Support

Table of Contents

OpenStack Services Supported ................................................................. 7  
Deployment Configurations Supported .................................................... 7  
System Requirements ............................................................................... 8  
Hypervisors Supported ........................................................................... 9  
Storage Supported .................................................................................. 11  
Networking Supported ........................................................................... 12  
Support Subscription Requirements .......................................................... 12  

This chapter describes what is supported in this release of Oracle OpenStack including the supported OpenStack services, the supported deployment configurations, and the hardware and software requirements. It also gives information on how to get support for Oracle OpenStack.

OpenStack Services Supported

The following table lists the supported OpenStack services included in Oracle OpenStack Release 4.0:

Table 3.1 Supported OpenStack Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbican</td>
<td>Key manager service. Provides secure storage, provisioning and management of secrets such as passwords, encryption keys and X.509 certificates.</td>
</tr>
<tr>
<td>Cinder</td>
<td>Block storage service. Enables users to connect storage devices to the virtual machines.</td>
</tr>
<tr>
<td>Glance</td>
<td>Image service. Controls the images, their permissions and attributes.</td>
</tr>
<tr>
<td>Heat</td>
<td>Orchestration service. Provides a method to deploy an OpenStack infrastructure using templates. Can also auto-scale some infrastructure elements.</td>
</tr>
<tr>
<td>Horizon</td>
<td>Dashboard. Provides a browser-based user interface to perform common OpenStack tasks.</td>
</tr>
<tr>
<td>Keystone</td>
<td>Identity service. Provides authentication and authorization services for users and OpenStack services.</td>
</tr>
<tr>
<td>Murano</td>
<td>Application catalog service. Provides a method to deploy cloud applications from a catalog. Deployment is performed using Heat.</td>
</tr>
<tr>
<td>Neutron</td>
<td>Network service. Controls the network creation, and integration of network services. The Neutron plugin services Firewall-as-a-Service and Load-Balancer-as-a-Service are also supported.</td>
</tr>
<tr>
<td>Nova</td>
<td>Compute service. Controls the creation, placement, and life cycle of virtual machines.</td>
</tr>
<tr>
<td>Swift</td>
<td>Object storage service. Provides a highly available, distributed, consistent object store.</td>
</tr>
</tbody>
</table>

Deployment Configurations Supported

Oracle OpenStack uses groups to define the role a node has in an OpenStack deployment and the OpenStack services it runs. The default groups are compute, control, database, network, and storage. A node can belong to more than one group and can run multiple OpenStack services.
The minimum supported deployment of OpenStack contains at least three nodes:

- Two controller nodes, each node belongs to the control, database, network and storage groups.
- One or more nodes belonging to the compute group.

**Note**

Single-node deployments (sometimes referred to as all-in-one deployments) are **not supported**.

As your scaling and performance requirements change, you can increase the number of nodes and move groups on to separate nodes to spread the workload. However, you should note the following “rules” for deployment:

- The nodes in the compute group must not be assigned to the control group.
- The control group must contain at least two nodes.
- The number of nodes in the database group must always be a multiple of two.
- The number of nodes in each group must be two or more to enable high availability.

### System Requirements

Oracle OpenStack is supported on Oracle Linux (for all node types) and Oracle VM Server (as compute and storage nodes only). Information on the supported hardware is available in the *Hardware Certification List for Oracle Linux and Oracle VM* at:

[https://linux.oracle.com/hardware-certifications](https://linux.oracle.com/hardware-certifications)

The storage hardware you use should be included in the hardware list. Oracle is working with its partners to make sure customers have a choice of storage. For specific storage plug-ins, contact Oracle or the plug-in vendor.

You can download Oracle Linux and Oracle VM Server from the Oracle Software Delivery Cloud at:

[https://edelivery.oracle.com](https://edelivery.oracle.com)

The following table lists the minimum system requirements for each OpenStack node type. In addition to the OpenStack nodes, Oracle OpenStack requires a node (known as a **master node**) from which you deploy OpenStack services using the *kollacli* command. Typically you use a controller node as the master node, but you can use a separate node if you prefer.

**Table 3.2 OpenStack Node Minimum System Requirements**

<table>
<thead>
<tr>
<th>Node Type</th>
<th>Minimum System Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller</td>
<td>• 1 CPU&lt;br&gt;• 16 GB RAM&lt;br&gt;• 2 NICs&lt;br&gt;• Oracle Linux Release 7 Update 4 and later&lt;br&gt;• Unbreakable Enterprise Kernel Release 4 or later&lt;br&gt;• 64 GB file system mounted on /var/lib/docker, either a btrfs file system with the Docker btrfs storage driver, or an ext4 file system with the Docker overlay2 storage driver.</td>
</tr>
</tbody>
</table>
## Hypervisors Supported

### Node Type

<table>
<thead>
<tr>
<th>Node Type</th>
<th>Minimum System Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compute</strong></td>
<td>• 1 CPU&lt;br&gt;• 16 GB RAM&lt;br&gt;• 2 NICs (4 NICs recommended for best performance)&lt;br&gt;If Neutron DVR is enabled, 3 NICs (5 NICs recommended for best performance)&lt;br&gt;• Oracle Linux Release 7 Update 4 and later&lt;br&gt;• Unbreakable Enterprise Kernel Release 4 or later&lt;br&gt;• 64 GB file system mounted on /var/lib/docker, either a btrfs file system with the Docker btrfs storage driver, or an ext4 file system with the Docker overlay2 storage driver.</td>
</tr>
<tr>
<td><strong>(Oracle Linux)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Compute</strong></td>
<td>• 1 CPU&lt;br&gt;• 16 GB RAM&lt;br&gt;• 2 NICs (4 NICs recommended for best performance)&lt;br&gt;If Neutron DVR is enabled, 3 NICs (5 NICs recommended for best performance)&lt;br&gt;• Oracle VM Server Release 3.4.4 and later, on 64-bit x86 platforms (x86_64)&lt;br&gt;• Unbreakable Enterprise Kernel Release 4 or later&lt;br&gt;• 64 GB file system mounted on /var/lib/docker, either a btrfs file system with the Docker btrfs storage driver, or an ext4 file system with the Docker overlay2 storage driver.</td>
</tr>
<tr>
<td><strong>(Oracle VM Server)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Database</strong></td>
<td>• 1 CPU&lt;br&gt;• 8 GB RAM&lt;br&gt;• 2 NICs&lt;br&gt;• Oracle Linux Release 7 Update 4 and later&lt;br&gt;• Unbreakable Enterprise Kernel Release 4 or later&lt;br&gt;• 64 GB file system mounted on /var/lib/docker, either a btrfs file system with the Docker btrfs storage driver, or an ext4 file system with the Docker overlay2 storage driver.</td>
</tr>
<tr>
<td><strong>Network</strong></td>
<td>• 1 CPU&lt;br&gt;• 8 GB RAM&lt;br&gt;• 3 NICs (4 NICs recommended for best performance)&lt;br&gt;• Oracle Linux Release 7 Update 4 and later&lt;br&gt;• Unbreakable Enterprise Kernel Release 4 or later&lt;br&gt;• 64 GB file system mounted on /var/lib/docker, either a btrfs file system with the Docker btrfs storage driver, or an ext4 file system with the Docker overlay2 storage driver.</td>
</tr>
<tr>
<td><strong>Storage</strong></td>
<td>• 1 CPU&lt;br&gt;• 8 GB RAM&lt;br&gt;• 2 NICs (3 NICs recommended for best performance)&lt;br&gt;• Oracle Linux Release 7 Update 4 and later&lt;br&gt;• Unbreakable Enterprise Kernel Release 4 or later&lt;br&gt;• 64 GB file system mounted on /var/lib/docker, either a btrfs file system with the Docker btrfs storage driver, or an ext4 file system with the Docker overlay2 storage driver.</td>
</tr>
<tr>
<td><strong>Master</strong></td>
<td>• 1 CPU&lt;br&gt;• 2 GB RAM&lt;br&gt;• 1 NIC&lt;br&gt;• Oracle Linux Release 7 Update 4 and later</td>
</tr>
<tr>
<td>(if configured separately</td>
<td></td>
</tr>
<tr>
<td>from a controller node)</td>
<td></td>
</tr>
</tbody>
</table>

### Hypervisors Supported

The following are the supported hypervisors for Oracle OpenStack:
• Kernel-based Virtual Machine (KVM) provided with Oracle Linux
• Xen hypervisor provided with Oracle VM Server

For details of the system requirements for these hypervisors, see System Requirements.

Support for Microsoft Hyper-V is available on request. Contact Oracle Support at https://support.oracle.com.

Supported Guest Operating Systems on Oracle Linux KVM

Oracle Linux Release 7 is the only guest operating system supported and certified on Oracle Linux KVM compute nodes.

Oracle software products (such as the Oracle Database) are not certified on KVM-based compute nodes. To gain full certification for Oracle software products, you should use Oracle VM Server compute nodes to run Oracle software.

You may also be able to create instances with the guest operating systems supported by KVM, although no Oracle Support is offered for these operating systems. For a list of the operating systems supported by KVM, see:

http://www.linux-kvm.org/page/Guest_Support_Status

Supported Guest Operating Systems on Oracle VM Server

Oracle OpenStack supports the guest operating systems supported by Oracle VM, which includes Oracle Linux, Oracle Solaris, Microsoft Windows, and other Linux distributions.

For a complete list of certified guest operating systems, see the Oracle VM Release Notes for Release 3.4 at:

https://docs.oracle.com/cd/E64076_01/E64077/html/vmrns-guest-os-x86.html

For a list of certified Oracle software on Oracle VM Server, see the Oracle Support document Certified Software on Oracle VM, (Doc ID 464754.1) at:

https://support.oracle.com/epmos/faces/DocumentDisplay?id=464754.1

Supported OpenStack Features by Hypervisor

The following table summarises the OpenStack features supported by each hypervisor.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Oracle Linux KVM</th>
<th>Oracle VM Server</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nova cold migration</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nova live migration</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Nova NUMA placement</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Nova CPU pinning</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Neutron DVR</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

For more detailed information about the features supported by each hypervisor, see the Nova Feature Classification documentation at https://docs.openstack.org/nova/latest/user/feature-classification.html.

Live migration only works when an instance uses shared storage. For instances using ephemeral storage, you can enable shared storage by using Ceph storage, or by configuring the /var/lib/kolla/var/
Storage Supported

The following are the supported storage options included in Oracle OpenStack Release 4.0.

Ephemeral storage

By default, the `/var/lib/kolla/var/lib/nova/instances` directory on compute nodes is used for ephemeral storage for instances (virtual machines). You must ensure that your compute nodes have sufficient disk space to store instances.

As an alternative, you can enable the Ceph service and use it for ephemeral storage. The Ceph service is disabled by default.

Glance Images

By default, the Glance image service stores images in the `/var/lib/glance` directory on controller nodes. Oracle recommends that this directory is configured to use a shared file system, such as NFS, to enable the high availability of images.

Ceph and Swift can also be used as storage backends for Glance.

Cinder Block Storage

The Cinder block storage service can be used to provide persistent block storage for instances. Starting with Release 4.0, it is possible to attach a Cinder volume to multiple instances (multi-attach). The Cinder service is enabled by default, but you need to enable and configure a storage backend. The LVM volume driver or an iSCSI volume driver are supported.

The LVM volume driver uses the iSCSI protocol to connect to volumes in a volume group managed by the Linux Logical Volume Manager (LVM) on a storage node. The LVM volume driver is supported only with Oracle Linux 7 storage nodes. You cannot use this driver with Oracle VM Server storage nodes.

If you have dedicated storage appliances that support iSCSI volume drivers for Cinder, you can use these instead of, or in addition to, the Cinder LVM volume driver. Support for iSCSI storage devices is enabled by default but requires additional configuration. Oracle recommends the Oracle ZFS Storage Appliance (using the Oracle ZFS Storage Appliance iSCSI driver).

NFS storage is not supported for use with Cinder volumes.

Cinder also provides a service for backing up Cinder volumes either manually or automatically on a schedule. You can use an NFS share or the Swift object service as the backing storage for Cinder backups.

Swift Object Storage

The Swift object storage service can be used to provide storage for instances. Swift is disabled by default.
Swift can also be used as the backing storage for the Cinder backup service and the Glance image service.

**Networking Supported**

This release of Oracle OpenStack supports the Open vSwitch plug-in with VLANs as L2 isolation mechanism, and VXLAN tunneling.

Oracle is working with its partners to make sure customers have a choice of networking. For specific network plug-ins please contact Oracle or the plug-in vendor.

**Support Subscription Requirements**

Support for Oracle OpenStack is provided as part of the Oracle Premier Support for Oracle Linux and Oracle VM. If a deployment consists of two controller nodes installed with Oracle Linux, and ten compute nodes installed with Oracle VM Server, to be fully supported, you need two subscriptions of Oracle Linux Premier Support and ten subscriptions of Oracle VM Premier Support. For more information about Oracle Linux and Oracle VM support, see the Oracle Knowledge Management article that describes the support policy.


A community-based discussion forum is available on the Oracle Technology Network at:

https://community.oracle.com/community/server_%26_storage_systems/linux/openstack
Chapter 4 Known Issues

The following are the known issues, with any workarounds, for Oracle OpenStack Release 4.0:

- No Log Files for HVM VMs (Oracle VM Server)
- Multiple Container Configuration Files Not Supported
- NFS Drivers Not Supported For Cinder Volumes
- VNC Console Fails (Oracle VM Server)
- Block Live Migration Not Supported with Oracle Linux KVM Compute Nodes
- Deployment Fails With a "Command Failed" Error
- Deployment Fails When Fernet Tokens are Enabled for Keystone
- Cannot Start Instances When Using Ceph Storage (Oracle VM Server)
- docker-ostk Fails to Pull Image from the Docker Registry
- Distributed Virtual Routing Fails with GRE Tenant Networks
- Service and Database User Password Changes Are Not Preserved When You Upgrade or Redeploy
- Attaching an Encrypted Device to an Instance Fails
- NUMA and CPU Pinning Features Do Not Work (Oracle VM Server)
- Unable to Add or Remove Controller Nodes After Initial Deployment
- Existing Network Not Used in Oracle Database 12c and Oracle Real Application Clusters 12c Applications
- Error When Attaching a Volume to a Running Instance or Using Live Migration (Oracle VM Server)
- ASM Data Disk Group Requires 10GB Minimum in Oracle Database 12c and Oracle Real Application Clusters 12c Applications
- Using docker-ostk to Run OpenStack CLI Commands Fails if the Output Contains Unicode Characters
- Creating a Swift Object Fails if the File Name Contains Unicode Characters
- Deployment to a Compute Node Fails With "no space left on device" (Oracle VM Server)

You should also check the release notes for:

- Oracle Linux 7 and for UEK R4, available at https://docs.oracle.com/cd/E52668_01/index.html

No Log Files for HVM VMs (Oracle VM Server)

No log files are available for hardware virtualized (HVM) virtual machines running on Oracle VM Server. The following commands return no results for HVM virtual machines on an Oracle VM Server:

```bash
$ openstack console log show
```

If accessing the virtual machine's console log using Horizon, the following error is displayed:
Multiple Container Configuration Files Not Supported

Multiple container configuration files are not supported. Any changes to a container's configuration must be made in the main configuration file (for example, /etc/kolla/config/cinder.conf). You cannot separate the configuration into separate files.

Bug: 20681823

NFS Drivers Not Supported For Cinder Volumes

Using NFS as the storage mechanism for Cinder volumes is not supported.

Bug: 22077741

VNC Console Fails (Oracle VM Server)

The VNC console works for hardware virtualized (HVM) machines. For all other types (paravirtualized (PV), and hardware virtualized with paravirtualized drivers (PVHVM)), the VNC console fails to display correctly for virtual machines on Oracle VM Server. The console is blank (black). The serial console is not affected.

Workaround: Set the virtual machine image to be of type HVM, then boot a virtual machine from the amended image:

$ openstack image set --property vm_mode=hvm img-uuid

Bug: 22682182

Block Live Migration Not Supported with Oracle Linux KVM Compute Nodes

On Oracle Linux KVM compute nodes, live migration of instances that use non-shared block storage is not supported. Live migration of instances that use shared storage is supported.

Bug: 22851698

Deployment Fails With a "Command Failed" Error

If the Docker Engine is not running on a node when you deploy OpenStack, the deployment fails with a Command failed error when starting the Ansible container, for example:

File */usr/lib/python2.7/site-packages/kollacli/commands/deploy.py", line66, in take_action
verbose_level)
File */usr/lib/python2.7/site-packages/kollacli/common/ansible/actions.py",line 89, in deploy
playbook.run()
File*/usr/lib/python2.7/site-packages/kollacli/common/ansible/playbook.py", line139, in run
Deployment Fails When Fernet Tokens are Enabled for Keystone

The Docker Engine must be running on all nodes before you deploy OpenStack. To resolve this issue:

1. Remove the OpenStack services that are currently deployed on the nodes.
   ```
   $ kollacli host destroy all
   ```

2. Ensure that the Docker Engine is running on all nodes.
   To check that the Docker Engine is running:
   ```
   $ systemctl status docker.service
   
   ● docker.service - Docker Application Container Engine
     Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; vendor preset: disabled)
     Drop-in: /etc/systemd/system/docker.service.d
       └─docker-sysconfig.conf, var-lib-docker-mount.conf
     Active: inactive (dead) since Tue 2016-03-29 13:20:53 BST; 2min 35s ago
   ...
   ```
   If the output of this command shows the status of the Docker service to be inactive (dead), start the Docker Engine:
   ```
   # systemctl start docker.service
   ```

3. From the master node, deploy OpenStack services to the nodes:
   If you are using the Oracle Container Registry, you might need to sign in at https://container-registry.oracle.com and accept the Oracle Standard Terms and Restrictions for the Oracle software images (see Choosing a Docker Registry) before you deploy.
   ```
   $ kollacli deploy
   ```

**Bug:** 22979229

Deployment Fails When Fernet Tokens are Enabled for Keystone

If you enable fernet tokens for Keystone (by using the `kollacli property set keystone_token_provider fernet` command), a deployment can fail due to issues with SSH key distribution. The use of fernet tokens is not enabled by default.

**Workaround:** If you enable fernet tokens, update the `/etc/hosts` file on every controller node with the names and IP addresses of all the controller nodes in the deployment.

**Bug:** 25039151

Cannot Start Instances When Using Ceph Storage (Oracle VM Server)

After you deploy OpenStack with Ceph enabled, you may find that you cannot start any instances on Oracle VM Server compute nodes. The nova-scheduler log files might also contain the exception message: `secret not found: rbd no secret matches uuid`.

**Workaround:** Restart the `libvirtd` service on the Oracle VM Server.

```
# service libvirtd restart
```

**Bugs:** 24954268, 25118458, 25231152
The document contains several issues and workarounds related to Oracle OpenStack. Here's a summary:

**docker-ostk Fails to Pull Image from the Docker Registry**

When you run the `docker-ostk` utility on a master node, it can fail to pull the `ol-openstack-kolla-utils` image from the Docker registry. This occurs when a Docker registry, such as the Oracle Container Registry, requires user credentials and you configure Kolla properties such as `docker_registry_username` or `docker_registry_email`.

**Workaround:** On the master mode, set the `OPENSTACK_UTILS_IMAGE` environment variable with the full location of the Docker image before you use the `docker-ostk` utility. You specify the Docker image using the form:

```
registry_hostname:port/namespace/ol-openstack-kolla-utils:release_tag
```

For example, to use the image in the Oracle Container Registry:

```
$ export OPENSTACK_UTILS_IMAGE=container-registry.oracle.com/openstack/ol-openstack-kolla-utils:4.0
```

**Bug:** 25429843

**Distributed Virtual Routing Fails with GRE Tenant Networks**

If you set the tenant network type to GRE, and enable Distributed Virtual Routing (DVR), DVR is unusable. No external connections via public IP addresses can be made, although ping requests receive replies.

**Bug:** 25719285

**Service and Database User Password Changes Are Not Preserved When You Upgrade or Redeploy**

If you change the password for a Keystone service user or a MySQL service database user, the changed password is reset to the value in the `/etc/kolla/passwords.yml` file when you upgrade or redeploy OpenStack services.

**Workaround:** Once you deploy Oracle OpenStack, you must ensure that any password changes applied to Keystone service users or MySQL service database users are also applied to your configuration using the `kollacli password set` command so that the password changes are preserved when you upgrade or redeploy.

**Bug:** 26718456

**Attaching an Encrypted Device to an Instance Fails**

If you use the Barbican key manager service to create an encrypted volume (LUKS), you cannot attach the volume to an instance. Nova reports that it cannot format the device because it is still in use.

This is a known issue upstream, see [https://bugs.launchpad.net/nova/+bug/1721522](https://bugs.launchpad.net/nova/+bug/1721522).

**Bug:** 26926545

**NUMA and CPU Pinning Features Do Not Work (Oracle VM Server)**

The NUMA and CPU pinning features are not implemented for Oracle VM Server compute nodes. This is a known issue upstream, see [https://bugs.launchpad.net/nova/+bug/1726356](https://bugs.launchpad.net/nova/+bug/1726356).
Unable to Add or Remove Controller Nodes After Initial Deployment

Bug: 27001841

Unable to Add or Remove Controller Nodes After Initial Deployment

Once you have performed an initial deployment, it is currently not possible to add or remove controller nodes.

Workaround: To add or remove controller nodes, you must destroy the deployment, add or remove nodes from your deployment configuration, and then deploy.

Bug: 27253571

Existing Network Not Used in Oracle Database 12c and Oracle Real Application Clusters 12c Applications

When creating an Oracle Database 12c or Oracle Real Application Clusters 12c application, you are given the opportunity to select an existing network on which the nodes connect. The option to select a network is provided in two locations, when you create the application environment, and in the application deployment wizard. The network selected in the deployment wizard should override the one selected when creating the application environment, but in this release it does not. The network used is the one you selected when creating the application environment.

Workaround: To use an existing network, select the network from the Environment Default Network field when you create the environment, and select the Auto option from the Network field during the application deployment wizard.

Bugs: 27233276, 27212744, 27212269

Error When Attaching a Volume to a Running Instance or Using Live Migration (Oracle VM Server)

When you attach a volume (hot plug) to an instance running on an Oracle VM Server compute node, it fails and errors such as the following appear in the nova-compute.log log files:

```
Failed to attach volume at mountpoint: /dev/hdb: 
libvirtError: unsupported configuration: disk bus 'ide' cannot be hotplugged.
```

Similarly, when you perform a live migration of an instance running on an Oracle VM Server compute node, it fails.

Workaround: Set the hw_disk_bus=xen metadata property on the image. This causes the instance to be created with the xen disk bus instead of the default ide bus. The default ide bus does not support attaching and detaching volumes from running instances.

Bug: 27266708

ASM Data Disk Group Requires 10GB Minimum in Oracle Database 12c and Oracle Real Application Clusters 12c Applications

When creating an Oracle Real Application Clusters 12c (Murano) application environment, the ASM data disk group default volume size is 5GB. If you use the default volume size, the deployment fails. The ASM disk group is optional for Oracle Database 12c applications (and no default is set), and mandatory for Oracle Real Application Clusters 12c applications (with a default of 5GB).
Using docker-ostk to Run OpenStack CLI Commands Fails if the Output Contains Unicode Characters

**Workaround:** Use 10GB as the minimum size for an ASM data disk group volume.

**Bug:** 27268982

Using docker-ostk to Run OpenStack CLI Commands Fails if the Output Contains Unicode Characters

When you use the `docker-ostk` utility to run OpenStack CLI commands, the command fails if the output contains Unicode characters. You might see error messages about encoding, such as:

```
f'ascii' codec can't encode characters in position 458-460: ordinal not in range(128)
```

**Bug:** 27273126

Creating a Swift Object Fails if the File Name Contains Unicode Characters

You cannot create a Swift object if the file name contains Unicode characters.

**Bug:** 27395148

Deployment to a Compute Node Fails With "no space left on device" (Oracle VM Server)

A deployment to an Oracle VM Server compute node, the nova-compute service might fail with a 'no space left on device' error even though the node has sufficient storage.

**Workaround:** On the master node, edit the `/usr/share/kolla/ansible/roles/nova/defaults/main.yml` file and delete line 126 with the following content:

```
- */var/lock/iscsi:/var/lock/iscsi*
```

Then perform the deployment again.

**Bug:** 27494385
Chapter 5 Accessibility Features

This chapter describes the accessibility features and known issues for the Oracle OpenStack Release 4.0 documentation.

Documentation is provided in HTML and PDF formats. The HTML format is accessible, but the PDF format is not accessible.

Documentation HTML Access Keys

To use the documentation without using a mouse, you can use HTML access keys. Enter the HTML access key for your browser, plus the access key letter. For example, using Mozilla Firefox, press Alt+Shift+n to go to the next page. See your web browser documentation to find the key combination to use for HTML access keys. The following table lists the tasks you can perform using access keys.

<table>
<thead>
<tr>
<th>Task</th>
<th>Access Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go to the next page</td>
<td>n</td>
</tr>
<tr>
<td>Go to the previous page</td>
<td>p</td>
</tr>
<tr>
<td>Go to the document home page</td>
<td>h</td>
</tr>
<tr>
<td>Go up a level in the document</td>
<td>u</td>
</tr>
<tr>
<td>Activate the Contents tab</td>
<td>c</td>
</tr>
<tr>
<td>Activate the Search tab</td>
<td>s</td>
</tr>
</tbody>
</table>

In addition to the HTML access keys, the following keyboard shortcuts are available:

<table>
<thead>
<tr>
<th>Task</th>
<th>Shortcut Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toggle hide and show the sidebar</td>
<td>Ctrl+Left Arrow</td>
</tr>
<tr>
<td>Toggle hide and show page header</td>
<td>Ctrl+Up Arrow</td>
</tr>
</tbody>
</table>

Documentation Accessibility Issues

The following are the known accessibility issues with Oracle OpenStack Release 4.0 documentation:

- Product does not have Accessibility Features documentation (Bug: 26175494)
- HTML page heading levels might not start at h1 (Bug: 26717728)
- Book title can extend off the screen with 200% zoom (Bug: 26717874)
- docs.oracle.com Help drawer HTML heading tags have structure violation (Bug: 26560104)