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Preface

This document is part of the documentation library for Oracle OpenStack for Oracle Linux Release 2.1, which is available at:

http://www.oracle.com/technetwork/server-storage/openstack/linux/documentation/

The documentation library consists of the following items:

**Oracle OpenStack for Oracle Linux Release Notes**

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

**Oracle OpenStack for Oracle Linux Installation and Deployment Guide**

This document guides you through different options for installing and deploying Oracle OpenStack for Oracle Linux. It is intended for system administrators, and assumes that you are familiar with the Oracle Linux operating system, virtualization in general, and web technologies.

**Further Information**

You can get the latest information on Oracle OpenStack for Oracle Linux at:


OpenStack has a rich set of features and services. To find out more about existing and new OpenStack features, see the OpenStack documentation available at:

http://docs.openstack.org/kilo/

**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>italic</td>
<td>Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.</td>
</tr>
<tr>
<td>monospace</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>
</table>
| backslash \ | 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:  
  dd if=/dev/rdsk/c0t1d0s6 of=/dev/rst0 bs=10b \  
  count=10000 |
| braces { } | Braces indicate required items:  
  .DEFINE {macro1} |
| brackets [ ] | Brackets indicate optional items:  
  cvtcrt termname [outfile] |
| ellipses ... | Ellipses indicate an arbitrary number of similar items:  
  CHKVAL fieldname value1 value2 ... valueN |
| italics | Italic type indicates a variable. Substitute a value for the variable:  
  library_name |
| vertical line | A vertical line indicates a choice within braces or brackets:  
  FILE filesize [K|M] |
Chapter 1 Introduction

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

Oracle OpenStack for Oracle Linux 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 Kilo release. This document is in addition to the OpenStack upstream documentation, available at:

http://docs.openstack.org/kilo/

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

http://docs.oracle.com/cd/E73172_01

1.1 Licensing Information for Oracle OpenStack for Oracle Linux

Oracle OpenStack for Oracle Linux is an additional program for the Oracle Linux product. Oracle OpenStack for Oracle Linux is licensed and supported under the same terms and conditions as Oracle Linux. For information on license terms and third-party notices, see the Oracle Linux Licensing Information User Manual for Release 7 at:


1.2 Getting the Software

Oracle Linux is the operating system on which Oracle OpenStack for Oracle Linux is installed. Oracle Linux is freely downloadable, and includes all Oracle Linux patches and updates.

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

The Oracle OpenStack for Oracle Linux product is delivered in the following parts:

• The Oracle Linux packages needed to perform the Oracle OpenStack for Oracle Linux deployment are available on the Oracle Linux Yum Server at http://yum.oracle.com, and on the Oracle Unbreakable Linux Network (ULN) at http://linux.oracle.com. The packages are:

  • openstack-kolla-preinstall: This package is to be installed on hosts to be included in a deployment (that is, controller, compute, database, network, storage nodes). These nodes are referred to as target nodes.

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

- **openstack-kolla-utils**: This package contains the OpenStack CLIs used to access the Docker containers. This package installs the utility, which wraps Docker commands to enable access to the OpenStack CLIs on containers. This package allows you to easily issue OpenStack CLI commands.

- The Oracle OpenStack for Oracle Linux Docker images are available on the Oracle Software Delivery Cloud at:

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

  The zip file you download includes a Docker image for each OpenStack service, and a script to perform the upload to a Docker registry.

  For information on installing and configuring Oracle OpenStack for Oracle Linux, see the [Oracle OpenStack for Oracle Linux Installation and Deployment Guide](https://edelivery.oracle.com/linux).
In addition to updates and bug fixes from the upstream Kilo release, the following new features, changes, and bug fixes are included Oracle OpenStack for Oracle Linux Release 2.1:

- **Oracle VM Server hypervisor.** Support for the Oracle VM Server hypervisor on 64-bit x86 platforms (x86_64) for compute nodes.

- **Ceilometer.** Support for the Ceilometer telemetry service.

- **Changes to System Requirements.** Oracle OpenStack for Oracle Linux Release 2.1 requires a version of Docker which requires that you configure a system to boot with the Unbreakable Enterprise Kernel Release 4 (UEK R4). The UEK R4 kernel includes the Open vSwitch kernel module and you no longer have to install this separately.

- **Enhancements for deploying and updating OpenStack services.** The following changes and enhancements for deploying and updating OpenStack services have been made:
  - There is a new `kollacli upgrade` command. The command prepares all hosts so that they are ready for a new release of Oracle OpenStack for Oracle Linux and deploys updated OpenStack Kolla containers.
  - It is now possible to deploy Heat and Murano services to a custom standalone group. Previously these services could only be deployed to a controller node. (Bug: 22319782)
  - The `kollacli setdeploy local` command is no longer supported as single-node deployments (sometimes referred to as all-in-one deployments) are not supported.

- **Configuration Enhancements.** The following enhancements have been made to the OpenStack configuration:
  - The `kollacli property list` command has been updated to show all the available Kolla properties and their values. By default, only the properties with values of less than 50 characters are shown. You can change the maximum number of characters shown by setting the `KOLLA_PROP_LIST_LENGTH` environmental variable. Alternatively, you can use the new `--all` option, which lists all properties regardless of their length.
  - The `kollacli property list` command has a new `--long` option which enables you to list properties and their values, showing whether the value overrides the default and the original default value.
  - The `kollacli property set` command has new `--groups` and `--hosts` options which enable you to set group-specific and host-specific properties. The same options are also available for the `kollacli property list` and `kollacli property clear` commands, and enable you to list and clear group-specific and host-specific properties. For detailed information about setting properties, see Setting Properties for Groups or Hosts.
  - The `kollacli password set` command now prompts you to confirm the password value.
  - Automatic hypervisor detection. When you deploy the Nova compute service to a node, the hypervisor is detected and the `virt_type` option in the `[libvirt]` section of the `nova.conf` configuration file is configured automatically. See Automatic Hypervisor Configuration for details.
  - Support for iSCSI multipath. You can enable iSCSI multipath support by setting the `nova_iscsi_use_multipath` property to `true`. If this property is set to true, the
The `nova_multipathd` container runs on compute nodes and enables iSCSI initiators to use multiple paths to the iSCSI LUNs (the Cinder volumes).

- **Changes to Data Containers.** In previous Oracle OpenStack for Oracle Linux releases, all OpenStack services that needed to store data persistently stored their data inside a dedicated Docker data volume container. This meant that OpenStack data was not easy to back up and that the data containers could not be updated.

In Release 2.1, the OpenStack data containers bind-mount a directory in the `/var/lib/kolla` directory on the host instead. For example, the `nova_data` container mounts the `/var/lib/kolla/var/lib/nova` directory on the host as `/var/lib/nova`. This means OpenStack data is now stored directly on the host, making it easier to back up and restore. The required directories in `/var/lib/kolla` are created automatically when you deploy Oracle OpenStack for Oracle Linux.

When you update to Release 2.1, the data previously stored in the data volume containers is copied to the `/var/lib/kolla` directory on the host. The data containers are updated to use the latest Docker image and are configured to bind-mount the required directories in `/var/lib/kolla`. This preserves your existing data. The data stored in the following locations is not affected by these changes:

- `/var/lib/glance` used by the Glance image service (the `glance_api` container deployed on controller nodes).
- `/etc/iscsi` used by the Nova compute service (the `nova_iscsid` container deployed on compute nodes).

By default, when you destroy hosts with the `kollacli host destroy` command, the data in `/var/lib/kolla` is not removed unless you specify the `--includedata` option.

- **Fixes to Known Issues.** The following known issues have been fixed:
  - The log files for the `nova_libvirt` container are now available using the `docker logs` command (Bug 21966891).
  - The iSCSI ZFS driver for Cinder is now supported (Bug 21954155).
  - When you create a VLAN network in Horizon, the default physical network is now named `physnet1`. In previous releases, it was named `default` (Bug 21912215).
  - The `genisoimage` package is now included in the `nova_compute` container. This enables you to boot instances with a configuration drive attached (Bug 22476727).
Chapter 3 System Requirements and Support

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This chapter describes what is supported in this release of Oracle OpenStack for Oracle Linux 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 for Oracle Linux.

3.1 OpenStack Services Supported

The supported OpenStack services included in this release of Oracle OpenStack for Oracle Linux are listed in the following table:

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nova</td>
<td>Compute service. Controls the creation, placement, and life cycle of virtual machines.</td>
</tr>
<tr>
<td>Neutron</td>
<td>Network service. Controls the network creation, and integration of network services.</td>
</tr>
<tr>
<td>Swift</td>
<td>Object storage service.</td>
</tr>
<tr>
<td>Cinder</td>
<td>Block storage service. Enables users to connect storage devices to the virtual machines.</td>
</tr>
<tr>
<td>Keystone</td>
<td>Identity service. Provides authentication and authorization services for users and OpenStack services.</td>
</tr>
<tr>
<td>Glance</td>
<td>Image service. Controls the images, their permissions and attributes.</td>
</tr>
<tr>
<td>Horizon</td>
<td>Dashboard. Provides a browser-based UI to perform common OpenStack tasks.</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>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>Ceilometer</td>
<td>Telemetry service. Collects, normalizes and transforms data produced by OpenStack services for various telemetry use cases, such as customer billing, resource tracking, metering, and alarming.</td>
</tr>
</tbody>
</table>

3.2 Deployment Configurations Supported

Oracle OpenStack for Oracle Linux 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.

• Each group must contain at least two nodes to enable high availability.

3.3 System Requirements

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

http://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/linux

The following table lists the minimum system requirements for each OpenStack node type:

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</td>
</tr>
<tr>
<td></td>
<td>• 8 GB RAM</td>
</tr>
<tr>
<td></td>
<td>• 2 NICs</td>
</tr>
<tr>
<td></td>
<td>• Oracle Linux Release 7 Update 2 and later</td>
</tr>
<tr>
<td></td>
<td>• Unbreakable Enterprise Kernel Release 4</td>
</tr>
<tr>
<td></td>
<td>• 64 GB btrfs file system mounted on /var/lib/docker</td>
</tr>
<tr>
<td></td>
<td>• 15 GB btrfs file system mounted on /var/lib/registry</td>
</tr>
<tr>
<td></td>
<td>(if the node hosts the Docker registry)</td>
</tr>
<tr>
<td>Compute (Oracle Linux)</td>
<td>• 1 CPU</td>
</tr>
<tr>
<td></td>
<td>• 16 GB RAM</td>
</tr>
</tbody>
</table>
### System Requirements

<table>
<thead>
<tr>
<th>Node Type</th>
<th>Minimum System Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• 2 NICs (4 NICs recommended for best performance)</td>
</tr>
<tr>
<td></td>
<td>• Oracle Linux Release 7 Update 2 and later</td>
</tr>
<tr>
<td></td>
<td>• Unbreakable Enterprise Kernel Release 4</td>
</tr>
<tr>
<td></td>
<td>• 64 GB btrfs file system mounted on <code>/var/lib/docker</code></td>
</tr>
<tr>
<td>Compute (Oracle VM Server)</td>
<td>• 1 CPU</td>
</tr>
<tr>
<td></td>
<td>• 16 GB RAM</td>
</tr>
<tr>
<td></td>
<td>• 2 NICs (4 NICs recommended for best performance)</td>
</tr>
<tr>
<td></td>
<td>• Oracle VM Server Release 3.4, on 64-bit x86 platforms (x86_64)</td>
</tr>
<tr>
<td></td>
<td>• Unbreakable Enterprise Kernel Release 4</td>
</tr>
<tr>
<td></td>
<td>• 64 GB btrfs file system mounted on <code>/var/lib/docker</code></td>
</tr>
<tr>
<td>Database</td>
<td>• 1 CPU</td>
</tr>
<tr>
<td></td>
<td>• 8 GB RAM</td>
</tr>
<tr>
<td></td>
<td>• 2 NICs</td>
</tr>
<tr>
<td></td>
<td>• Oracle Linux Release 7 Update 2 and later</td>
</tr>
<tr>
<td></td>
<td>• Unbreakable Enterprise Kernel Release 4</td>
</tr>
<tr>
<td></td>
<td>• 64 GB btrfs file system mounted on <code>/var/lib/docker</code></td>
</tr>
<tr>
<td>Network</td>
<td>• 1 CPU</td>
</tr>
<tr>
<td></td>
<td>• 8 GB RAM</td>
</tr>
<tr>
<td></td>
<td>• 3 NICs (4 NICs recommended for best performance)</td>
</tr>
<tr>
<td></td>
<td>• Oracle Linux Release 7 Update 2 and later</td>
</tr>
<tr>
<td></td>
<td>• Unbreakable Enterprise Kernel Release 4</td>
</tr>
<tr>
<td></td>
<td>• 64 GB btrfs file system mounted on <code>/var/lib/docker</code></td>
</tr>
<tr>
<td>Storage</td>
<td>• 1 CPU</td>
</tr>
<tr>
<td></td>
<td>• 8 GB RAM</td>
</tr>
<tr>
<td></td>
<td>• 2 NICs (3 NICs recommended for best performance)</td>
</tr>
<tr>
<td></td>
<td>• Oracle Linux Release 7 Update 2 and later</td>
</tr>
<tr>
<td></td>
<td>• Unbreakable Enterprise Kernel Release 4</td>
</tr>
<tr>
<td></td>
<td>• 64 GB btrfs file system mounted on <code>/var/lib/docker</code></td>
</tr>
</tbody>
</table>

In addition to the OpenStack nodes, Oracle OpenStack for Oracle Linux requires a node to host a Docker registry and a node (known as a master node) from which you deploy OpenStack services using the
Hypervisors Supported

The following are the supported hypervisors for Oracle OpenStack for Oracle Linux:

- Oracle VM Server
- Kernel-based Virtual Machine (KVM)

For details of the system requirements for these hypervisors, see Section 3.3, “System Requirements”.

3.5 Networking Supported

This release of Oracle OpenStack for Oracle Linux 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.

3.6 Guest Operating Systems Supported

This section contains the supported guest operating systems for each supported hypervisor.

Oracle VM Server Compute Node Guests

This release of Oracle OpenStack for Oracle Linux supports the guest operating systems supported by Oracle VM, which includes Oracle Linux, Oracle Solaris, Microsoft Windows, and other flavors of Linux. For a complete list of certified guest operating systems, see the Oracle VM Release Notes for Release 3.4 at:
Oracle Linux Compute Node Guests

The guest operating systems supported and certified on Oracle Linux (KVM) compute nodes are:

- Oracle Linux Release 6
- Oracle Linux Release 7

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

3.7 Support Subscription Requirements

Support for Oracle OpenStack for Oracle Linux 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 10 compute nodes installed with Oracle VM Server, to be fully supported, you need two subscriptions of Oracle Linux Premier Support and 10 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
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4.26 Issues When Upgrading to Docker Engine Version 1.10 .............................................................. 18
4.27 Deployment Fails With a "Command Failed" Error ....................................................................... 18
4.28 Multiple HA Deployments on the Same Subnet Fails ................................................................ 19

This chapter lists the known issues and any workarounds for Oracle OpenStack for Oracle Linux in this release.

You should also check the release notes for:

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

4.1 Neutron Networking Not Working After Updating to the Latest Release

After you update to the latest Oracle OpenStack for Oracle Linux release, you might find that Neutron networking no longer works.

The solution is to reboot all network and compute nodes.

Bug: 22336570
4.2 VM Network Degradation When Using VxLANs

When you use VxLANs for virtual machine traffic (the default), there may be performance degradation of up to 40% of the virtual machine network traffic between compute nodes. This is due to the libvirt driver not supporting the multiqueue feature, and the default OpenStack MTU setting of 1500 being set too low. This is a known upstream bug in OpenStack. For information on this OpenStack upstream bug, see:

https://bugs.launchpad.net/neutron/+bug/1419069

Bug: 22109298

4.3 Docker Fails with IP Firewall

There is a known issue that causes Docker to timeout and fail if the IP firewall is running.

Workaround: On all nodes that run Docker (target nodes, and master nodes), turn off the firewall, if it is running. On Oracle Linux nodes, enter:

```
# systemctl stop firewalld
# systemctl disable firewalld
```

Bug: 21889953, and 21795342

4.4 Nova Container Fails to Start

Nova fails to start on a compute node. This may occur if the libvirt process is running on the compute node before the deployment begins. The libvirt process blocks nova_libvirt from starting. This issue applies to Oracle Linux compute nodes only, do not apply the workaround to Oracle VM Server compute nodes.

Workaround: Stop the libvirt process on the compute node, and redeploy the container:

```
# systemctl stop libvirtd.service
```

Bug: 21925920

4.5 The nova_iscsid Container Fails to Start

When the Nova containers are deployed to a compute node, the nova_iscsid container fails to start. The following error is shown with the docker logs command:

```
$ docker logs nova_iscsid
...  
iscsid: Can not bind IPC socket
```

This may occur when the iscsi-initiator-utils package is installed on the compute node host. Having this package installed causes systemd or iscsid to use the same TCP or UNIX sockets as nova_iscsid for iSCSI functions.

Workaround: On the compute node, unmount the file systems on any attached iSCSI disks and disconnect from all iSCSI targets. Then do either of the following:

- Uninstall the iscsi-initiator-utils package.
  
  ```
  # yum remove iscsi-initiator-utils
  ```

- Disable iSCSI services.
4.6 VNC Console Fails on 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 correctly display 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. You can use either Glance or Nova to change the image property. For example, using Nova:

```
$ nova image-meta img-uuid set vm_mode=hvm
```

Or using Glance:

```
$ glance image-update img-uuid --property vm_mode=hvm
```

**Bug:** 22682182

4.7 HVM Instances do not Boot from Flavors with Swap Space on Oracle VM Server

OpenStack flavors include an option to set the swap space for instances. If the swap space is set to a value greater than 0, a virtual machine instance created using that flavor is instantiated with an additional disk for the swap partition.

Hardware virtualized (HVM) instances created from this type of flavor fail to boot on Oracle VM Server. Paravirtualized (PV), and hardware virtualized with paravirtualized drivers (PVHVM) instances are not affected, and boot with the additional disk assigned as the swap space.

**Workaround:** Delete the flavor, and create another without the swap space option. Alternatively, set the `hw_disk_bus=xen` property on the image, for example:

```
$ glance image-update --property hw_disk_bus=xen image_id
```

**Bug:** 22949662, 23148861

4.8 HVM Instances do not Boot with CDROMs on Oracle VM Server

Hardware virtualized (HVM) instances created with a CDROM fail to boot on Oracle VM Server. Paravirtualized (PV), and hardware virtualized with paravirtualized drivers (PVHVM) instances are not affected, and boot with the CDROM.

**Workaround:** Set the `hw_cdrom_bus=xen` property on the image, for example:
HVM Instances do not Boot with config-drive Option on Oracle VM Server

$ glance image-update --property hw_cdrom_bus=xen image_id

**Bug:** 23195986

### 4.9 HVM Instances do not Boot with config-drive Option on Oracle VM Server

HVM instances which use the `nova boot --config-drive` option fail to boot on Oracle VM Server.

**Bug:** 23196327

### 4.10 No Log Files for HVM VMs on 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
$ nova console-log vm
```

If accessing the virtual machine's console log using Horizon, the following error is displayed:

**Instance Console Log: Unable to get log for instance "vm_id".**

**Bug:** 20681823

### 4.11 Ceilometer does not Capture Disk Usage or NIC Metrics for Oracle VM Server

The Ceilometer service does not capture the disk usage or network interface metrics for Oracle VM Server.

**Bug:** 23138245, 23137870

### 4.12 Ceilometer with MySQL 5.7 Fails to Deploy

If you use MySQL Release 5.7 as the database for Ceilometer, the deployment fails. The deployment error may looks similar to:

```
TASK: [ceilometer | Waiting for bootstrap container to exit] ***************
failed: [server1] => {"changed": true, "cmd": ["docker", "wait",
"bootstrap ceilometer"], "delta": "0:00:19.831865", "end": "2016-04-24
19:42:39.136083", "failed": true, "failed_when_result": true, "rc": 0,
"start": "2016-04-24 19:42:19.304218", "stdout_lines": ["1"], "warnings": []}
stdout: 1
FATAL: all hosts have already failed -- aborting
```

The log for the bootstrap ceilometer container shows:

```
$ docker logs bootstrap ceilometer
...
TRACE ceilometer DBError: (ProgrammingError)
(1064, "You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near "generated FLOAT, \n	unique_name_id INTEGER, \n	PRIMARY KEY (id), \n	FOREIGN KEY(uni at line 3") \nCREATE TABLE event (\n	id INTEGER NOT NULL AUTO_INCREMENT, \n	generated FLOAT, \n	unique_name_id INTEGER, \n	PRIMARY KEY (id), \n	FOREIGN KEY(unique_name_id) REFERENCES unique_name
(id)\nENGINE=InnoDB CHARSET=utf8\n\n"
```
MySQL Release 5.7 cannot be used as the Ceilometer database.

**Workaround:** Use MySQL Release 5.5 or 5.6.

### 4.13 Cannot Reset Root Password Using nova root-password on Instances

Resetting the root password of virtual machine instances using the `nova root-password` is not supported. If you attempt to change the root password in this way, the following error is displayed.

```bash
$ nova root-password vm_id
New password:
Again:
ERROR (HTTPNotImplemented): Unable to set password on instance (HTTP 501) ...
```

This error occurs on both Oracle Linux KVM-based compute nodes, and Oracle VM Server compute nodes.

**Bug:** 23017499

### 4.14 Nodes in a RabbitMQ Cluster Must Be Resolvable With Their Short Host Name

The nodes in a RabbitMQ cluster must be resolvable by their short (unqualified) host name. This can be configured in DNS or by adding entries in `/etc/hosts`.

**Bug:** 21950917

### 4.15 NFS Drivers Not Supported For Cinder Volumes

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

**Bug:** 22077741

### 4.16 NFS Backend to Cinder Backup Requires NFS 4.1

To use NFS as the storage mechanism for Cinder Backup requires the storage hardware to support NFS release 4.1 or higher. Storage hardware which uses earlier versions of NFS may cause Cinder errors.

**Workaround:** Change the Cinder configuration on the storage nodes to downgrade the NFS version. Edit the `/etc/kolla/config/cinder.conf` file on the master node to include:

```
[DEFAULT]
backup_mount_options="vers=3"
```

Alternatively, you can use the following if your storage hardware supports NFS version 4:

```
[DEFAULT]
backup_mount_options="vers=4,minorversion=0"
```

Redeploy the Cinder container using:

```bash
$ kollacli deploy --service cinder
```

**Bug:** 22040962
4.17 Unable to Manage Network Namespaces from a Network Node

You can list the network namespaces from a network node or the openvswitch_vswitchd container, but namespace management operations, such as using the `ip netns exec` command, fail with an `Invalid argument` error message.

Network namespaces are managed from the neutron_agents container. Run the following command to access the container before performing any network namespace management operations:

```
$ docker exec -ti neutron_agents /bin/bash
```

**Bug:** 21924174

4.18 Murano Cannot Access External Network

The Murano engine cannot access the external network when deploying an application. When you deploy a Murano application, an error similar to the following is in the murano_engine logs:

```
murano_engine: ... getDefaultRouter'no external network found' % router_name
```

**Workaround:** Perform one of the following:

- Create an external network named `ext-net` and the `murano-default-router` is automatically created and connected to the network, for example:

  ```
  $ neutron net-create ext-net --router:external
  ```

- Create a router named `murano-default-router` and attach it to the external network.

  ```
  $ neutron router-create murano-default-router
  $ neutron router-gateway-set murano-default-router ext-net
  ```

**Bug:** 21976631

4.19 Murano Fails to Deploy on Oracle Linux

When deploying applications using Murano based on Oracle Linux images, the deployment may fail due to the Murano Agent becoming unavailable. This is caused by a loss of the TCP connection from the controller node to the Murano Agent in the virtual machine(s) in the deployment. A loss of the TCP connection may be caused by any action that breaks the TCP connection, for example, by restarting the `iptables` daemon in an instance.

To resolve this issue, avoid actions that may break a TCP connection.

**Workaround:** Connect to the virtual machine using SSH, and restart the Murano Agent.

On Oracle Linux 7:

```
# systemctl restart murano-agent.service
```

On Oracle Linux 6:

```
# service murano-agent restart
```

**Bug:** 22627408

4.20 Errors in Swift Object Auditor Logs

The Swift object auditor (swift-object-auditor) may log errors similar to the following:
4.21 Live Migration not Supported with Oracle Linux KVM Compute Nodes

Live migration of instances between Oracle Linux-based compute nodes is not supported. Live migration of instances between Oracle VM Server-based compute nodes is, however, supported.

Bug: 22851698

4.22 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: 21935577

4.23 Post-Deployment Configuration Changes Are Not Automatically Copied to Containers

If you make post-deployment changes to the configuration files in /etc/kolla/config on a master node, the configuration changes are not automatically copied to their corresponding containers. Configuration changes are only copied if a container is redeployed or restarted. Currently kollacli does not support restarting individual containers.

If you want to make post-deployment configuration changes, use the kollacli host destroy and kollacli deploy command to redeploy the containers.

For compute nodes that are currently running instances, you must move the running instances to another node before performing these steps. Alternatively, you can restart all the Docker containers on the compute node individually using docker restart.

Bug: 22289940, 22998416

4.24 Glance Images Remain on Disk After a Node is Destroyed

When you use the kollacli host destroy --includedata command to destroy a node that runs the Glance Image service (usually a controller node), the Glance images are removed from the deployment but they remain on disk in /var/lib/glance/images on the node.

You might want to monitor the /var/lib/glance/images directory. Each image file is named after the ID of the Glance image. Use either the openstack image list or the glance image list command to display a list of image IDs. You can safely remove the image files that are not listed by these commands.
Bug: 22909370

4.25 Nova Instance Cache Remains on Disk After Instances Destroyed

On a compute node, if you destroy an instance, the instance cache may remain on disk. The manner by which you destroy the instance does not matter. It could be by using the `nova delete` command, or by using the `kollacli host destroy` command to destroy the services on the compute node. The instance cache may remain on disk in the `/var/lib/kolla/var/lib/nova/instances/_base/` directory on the node.

**Workaround:** If no instances are running on the node, you can safely remove the instance cache files manually. To check if any instances are running on the compute node, enter the following from the master node:

```
$ nova list --host compute_hostname --all-tenants
```

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Tenant ID</th>
<th>Status</th>
<th>Task State</th>
<th>Power State</th>
<th>Networks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>

If no instances are running, enter the following on the compute node:

```
# rm -rf /var/lib/kolla/var/lib/nova/instances/_base/
```

Bug: 22887481

4.26 Issues When Upgrading to Docker Engine Version 1.10

When you update to Oracle OpenStack for Oracle Linux Release 2.1, you upgrade the Docker Engine to version 1.10. You might experience the following issues when you upgrade the Docker Engine:

- In Release 2.1, the OpenStack Docker images are built using Docker version 1.10. These images cannot be deployed to a host that runs Docker Engine version 1.9 or earlier.
  
  **Bug:** 22963639

- After you upgrade a host to Docker Engine version 1.10, it can take a while for the Docker service to restart. This is because Docker performs a migration on existing containers and images to convert them to the new content-addressable storage used in version 1.10. If you downgrade the Docker Engine to version 1.9, the migrated Docker images and containers cannot be used.
  
  **Bug:** 22931204

- When you import images to the Docker registry using the `import_to_registry.sh` script and the host runs Docker Engine version 1.10, you see a lot of warnings that the `-f` flag is deprecated. You can safely ignore these warnings.
  
  **Bug:** 22915568

4.27 Deployment Fails With a "Command Failed" Error

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

```
TASK [common : Starting Ansible container]
```
The Docker Engine must be running on all target nodes before you deploy OpenStack. To resolve this issue:

1. Remove the OpenStack services that are currently deployed on the target nodes.

   $ kollacli host destroy all

2. Ensure that the Docker Engine is running on all target nodes.

   To check that the Docker Engine is running:

   $ systemctl status docker.service

   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 target nodes:

   $ kollacli deploy

**Bug:** 22979229

## 4.28 Multiple HA Deployments on the Same Subnet Fails

If you try to deploy multiple OpenStack HA environments to the same subnet, the deployment may fail during the haproxy deployment step, with an error similar to:

**TASK:** [haproxy | Waiting for virtual IP to appear]

This is caused by having the same HA keepalived ID (`virtual_router_id`) on the management networks for each deployment. The default ID is 51. Each deployment requires a unique ID to successfully deploy.

**Workaround:** For each deployment, make sure you set the `virtual_router_id` deployment parameter to a unique ID, then (re)deploy.
1. On the master node, change the `virtual_router_id` to a unique ID, for example:

   ```bash
   $ kollacli property set virtual_router_id 10
   ```

2. On the master node, (re)deploy OpenStack services to the target nodes:

   ```bash
   $ kollacli deploy
   ```

**Bug:** 22826409