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About This Document

This document is part of the documentation library for Oracle OpenStack Release 3.0, which is available at:

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

The documentation library consists of the following items:

Oracle OpenStack Release Notes

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

Oracle OpenStack Licensing Information User Manual

This document provides licensing information for Oracle OpenStack.

This document was generated on 25 July 2017 (revision: 984).

You can get the latest information on Oracle OpenStack at:


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>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>
<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></td>
<td><code>dd if=/dev/rdsk/c0t1d0s6 of=/dev/rst0 bs=10b count=10000</code></td>
</tr>
<tr>
<td>braces { }</td>
<td>Braces indicate required items:</td>
</tr>
<tr>
<td></td>
<td><code>.DEFINE {macro1}</code></td>
</tr>
<tr>
<td>brackets [ ]</td>
<td>Brackets indicate optional items:</td>
</tr>
<tr>
<td></td>
<td><code>cvtcrt termname [outfile]</code></td>
</tr>
<tr>
<td>ellipses ...</td>
<td>Ellipses indicate an arbitrary number of similar items:</td>
</tr>
<tr>
<td></td>
<td><code>CHKVAL fieldname value1 value2 ... valueN</code></td>
</tr>
<tr>
<td>italics</td>
<td>Italic type indicates a variable. Substitute a value for the variable:</td>
</tr>
<tr>
<td></td>
<td><code>library_name</code></td>
</tr>
<tr>
<td>vertical line</td>
<td>A vertical line indicates a choice within braces or brackets:</td>
</tr>
<tr>
<td></td>
<td>`FILE filesize [K</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](http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info) or visit [http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs](http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs) if you are hearing impaired.
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 Mitaka release. This document is in addition to the OpenStack upstream documentation, available at:

http://docs.openstack.org/mitaka/

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

http://docs.oracle.com/cd/E78305_01

1.1 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 http://linux.oracle.com. The packages are:

- **openstack-kolla-preinstall**: This package is installed on the 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 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 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.

- **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. The Oracle OpenStack images are in the process of being made available on this registry. Check the images exist on this registry before you perform a deployment from the Oracle Container Registry.

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/linux.
For information on installing and configuring Oracle OpenStack, see the Oracle OpenStack Installation and Deployment Guide at:

Chapter 2 What's New in Oracle OpenStack

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This chapter outlines the new features, changes, and bug fixes included Oracle OpenStack Release 3.0.

2.1 New Features and Changes in Release 3.0.1

Oracle OpenStack Release 3.0.1 includes the following new features, changes, and bug fixes:

• Update to OpenStack Mitaka Release
• Docker Images on Docker Hub and the Oracle Container Registry
• Ceph Support
• Neutron Distributed Virtual Routing
• Logging Improvements
• Cinder Backup to Swift Object Storage
• Jumbo Frames in Neutron
• Changes and Enhancements for Deploying and Updating OpenStack Services
• Configuration Property Changes
• Data Storage Changes
• Passwords for OpenStack Services
• Swift Object Storage Network Change
• Change to the openstack-kollacli Package
• Change to the docker-ostk Utility
• Fixes to Known Issues

Update to OpenStack Mitaka Release

The OpenStack Docker images have been updated to the upstream Mitaka release. This includes images for the new Aodh alarm service, which was previously part of the Ceilometer telemetry service.

Section 2.2, “Changes to Docker Images” has details of the new and removed images in this release.

Docker Images on Docker Hub and the Oracle Container Registry

You no longer need to configure your own Docker registry to perform a deployment of Oracle OpenStack. Starting with this release, the Oracle OpenStack Docker images are available on Docker Hub (https://hub.docker.com) and the Oracle Container Registry at https://container-registry.oracle.com.
By default, deployments are configured to use the Oracle Container Registry (the `docker_registry` property). Before you perform a deployment using the Oracle Container Registry, you need to sign in at [https://container-registry.oracle.com](https://container-registry.oracle.com) and accept the Oracle Standard Terms and Restrictions for the Oracle software images. If you do not have an Oracle account, you can create one. Before you use the Oracle Container Registry, check that the Oracle OpenStack images are available using the Oracle Container Registry web interface at:

[https://container-registry.oracle.com](https://container-registry.oracle.com)

If you prefer, you can still use a local Docker registry. The Oracle OpenStack 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 the Docker images, and a script to upload the images to a Docker registry. The README file explains how to use the script.

### Ceph Support

Support for Ceph storage is included in this release. Ceph Jewel is included in this release.

Ceph is supported for ephemeral storage for instances (Nova).

The Ceph object storage is not supported in this release. Use Swift object storage instead.

### Neutron Distributed Virtual Routing

This release includes support for Neutron Distributed Virtual Routing (DVR) for improved performance and scalability. With DVR, routers are created automatically on compute nodes as instances are connected to networks. The routers on the compute nodes can route connections between instances on the same tenant network, and connections between instances and external networks, where instances have been assigned a floating IP. Connections between instances without a floating IP and external networks are handled by the network node. DVR is disabled by default.

### Logging Improvements

New in this release is support for central logging using Heka, Elasticsearch and Kibana. With central logging, the log files from all OpenStack containers on all target nodes are consolidated and indexed so that you can search the logs from a single location using a web browser, and create graphical representations of the data. Central logging is enabled by default.

All the log files that are processed by Heka are collected on each target node in the `/var/lib/docker/volumes/kolla_logs/_data` directory. If you disable central logging, you can still examine the log files in this location.

You can also enable deployment debug output in the log files in `/var/log/kolla` on the master node by setting the `KOLLA_LOG_LEVEL` environment variable to `DEBUG` before you deploy OpenStack services.

### Cinder Backup to Swift Object Storage

You can now use the Swift object service as the backing storage for Cinder backups.

### Jumbo Frames in Neutron

You can now set the MTU for all networks, specific networks and virtual machine instances in Neutron. This allows you to enable Jumbo Frames.
Changes and Enhancements for Deploying and Updating OpenStack Services

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

• The `--hosts` option for the `kollacli deploy` command has changed and can now only be used to deploy compute services tocompute nodes. The hosts specified with this option must belong to the compute or storage group and must not belong to any other group.

• There is a new `--timeout` option for the `kollacli deploy` command. A deployment is stopped automatically if it takes longer than the timeout value, which is in minutes.

• The `--groups` and `--services` options have been removed from the `kollacli deploy` command.

• The `kollacli host destroy` command now always removes the OpenStack data from a target node (dedicated data containers are no longer used). If you do not use the `--includedata` option with this command, you are prompted to confirm that you want to remove the data. If you want to preserve the existing data on a target node or back it up, the new `kollacli host stop` command enables you to stop all running OpenStack containers on a node so that you can do this.

• The `kollacli host destroy` command now performs several tasks to clean up a host after removing the OpenStack containers, for example the disks used for Swift or Ceph are unmounted and their entries are removed from the `/etc/fstab` file (a backup of this file is also created). There is also a new `--removeimages` option which enables you to remove the OpenStack Docker images as well as the containers.

Configuration Property Changes

The `virtual_router_id` property has been renamed `keepalived_virtual_router_id`. If you upgrade from a previous release, the `virtual_router_id` property is preserved, and the `keepalived_virtual_router_id` property is mapped to `virtual_router_id`.

There are new properties for configuring the OpenStack service endpoint URLs. The new `kolla_internal_vip_address` property is used to configure the virtual IP address on the internal management/API network, and it replaces the `kolla_internal_address` that was used in previous releases. When you upgrade, the `kolla_internal_vip_address` property is mapped to the `kolla_internal_address` property to preserve your existing configuration. The new `kolla_external_vip_interface` and `kolla_external_vip_address` properties enable you to configure a virtual IP address on a public network, and this address is used for the public endpoint URLs. The `kolla_external_address` property used in previous releases is not preserved when upgrade. You can also use fully qualified DNS names for the endpoint URLs instead of IP addresses by setting the new `kolla_internal_fqdn` and `kolla_external_fqdn` properties.

Data Storage Changes

Oracle OpenStack no longer uses dedicated data containers to bind-mount directories on the host for storing OpenStack service data in `/var/lib/kolla`. Instead, each OpenStack service container directly bind-mounts directories on the host as needed.

Some OpenStack services now use named Docker volumes for shared storage in the containers. When you install the `openstack-kolla-preinstall` package, a systemd drop-in file is created at `/etc/systemd/system/docker.service.d/kolla.conf` which enables the named volumes to be shared.
Passwords for OpenStack Services

Oracle OpenStack no longer ships with default passwords for OpenStack services. When you deploy OpenStack services, there is an additional check that all passwords have been set and the deployment fails if a password has not been set. The new `kollacli password init` command can be used to set random strong passwords for all passwords that have not been set.

Swift Object Storage Network Change

In this release, the Swift object storage service uses the storage network (`storage_interface`) for storage data operations. In previous releases, the management/API network (`api_interface`) was used. Before you upgrade from a previous release, you might need to recreate the Swift rings if the IP addresses of the storage hosts are different as a result of this change.

Change to the openstack-kollacli Package

The `openstack-kollacli` package no longer has a dependency on the `openstack-kolla-preinstall` package. This change makes it easier to install the OpenStack Kolla CLI on a separate master node that is not a controller node.

Change to the docker-ostk Utility

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

Fixes to Known Issues

The following known issues have been fixed:

- Cinder backup no longer fails due to missing iSCSI utilities (Bug 24332557).
- With the introduction of the new `kollacli host stop` command, you no longer need to use the `kollacli host destroy` and `kollacli deploy` commands to apply post-deployment configuration changes to OpenStack services. (Bug 22289940, 22998416)
- When RabbitMQ is deployed, automatic configuration takes place to ensure that the nodes are resolvable with their short host names (Bug 21950917).
- The issues that prevented Oracle VM Server HVM instances from booting when the flavor included swap space, or when the instances included a CDROM, have been fixed (Bugs 22949662, 23148861, 23195986).
- You no longer need to disable the IP firewall (firewalld) to enable Docker to run on Oracle Linux target nodes (Bugs 21889953 and 21795342).

2.2 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 3.0 Docker images is `openstack`. To pull an image, use the following command:

```
docker pull registry_hostname:port/openstack/image:tag
```

If you use Docker Hub, the namespace is `oracle`, as in previous releases.
The following are the changes to the Docker images for Oracle OpenStack Release 3.0.

**General Purpose Component Images**

New images:

- ol-openstack-ceph-base
- ol-openstack-ceph-mon
- ol-openstack-ceph-osd
- ol-openstack-ceph-rgw
- ol-openstack-cron
- ol-openstack-elasticsearch
- ol-openstack-heka
- ol-openstack-iscsid
- ol-openstack-kibana
- ol-openstack-kolla-toolbox
- ol-openstack-multipathd
- ol-openstack-openvswitch-base
- ol-openstack-openvswitch-db-server
- ol-openstack-openvswitch-vswitchd

Removed images:

- ol-openstack-kolla-ansible (replaced by ol-openstack-kolla-toolbox)
- ol-openstack-ovs-base (replaced by ol-openstack-openvswitch-base)
- ol-openstack-ovs-db-server (replaced by ol-openstack-openvswitch-db-server)
- ol-openstack-ovs-vswitchd (replaced by ol-openstack-openvswitch-vswitchd)
- ol-openstack-utils (replaced by ol-openstack-kolla-toolbox)

**Aodh**

New images:

- ol-openstack-aodh-api
- ol-openstack-aodh-base
- ol-openstack-aodh-evaluator
- ol-openstack-aodh-expirer
- ol-openstack-aodh-listener
Ceilometer

Removed ol-openstack-ceilometer-alarm image, replaced by the new Aodh images.

Cinder

New ol-openstack-cinder-rpbind image.

Ironic

New images:

- ol-openstack-ironic-api
- ol-openstack-ironic-base
- ol-openstack-ironic-conductor
- ol-openstack-ironic-inspector
- ol-openstack-ironic-pxe

Keystone

New images:

- ol-openstack-keystone-base
- ol-openstack-keystone-fernet
- ol-openstack-keystone-ssh

Magnum

New images:

- ol-openstack-magnum-api
- ol-openstack-magnum-base
- ol-openstack-magnum-conductor

Neutron

New images:

- ol-openstack-neutron-dhcp-agent
- ol-openstack-neutron-l3-agent
- ol-openstack-neutron-lbaas-agent
- ol-openstack-neutron-metadata-agent
Nova

- `ol-openstack-neutron-metering-agent`
- `ol-openstack-neutron-networking-sfc-agent`

Removed `ol-openstack-neutron-agents` image, replaced by the new separate agent images listed above.

New images:
- `ol-openstack-nova-compute-ironic`
- `ol-openstack-nova-spicehtml5proxy`
- `ol-openstack-nova-ssh`

Removed images:
- `ol-openstack-nova-iscsid` (replaced by `ol-openstack-iscsid`)
- `ol-openstack-nova-multipathd` (replaced by `ol-openstack-multipathd`)

Swift

New images:
- `ol-openstack-swift-account`
- `ol-openstack-swift-container`
- `ol-openstack-swift-object`

Removed images:
- `ol-openstack-swift-account-auditor` (replaced by `ol-openstack-swift-account`)
- `ol-openstack-swift-account-replicator` (replaced by `ol-openstack-swift-account`)
- `ol-openstack-swift-account-updater` (replaced by `ol-openstack-swift-account`)
- `ol-openstack-swift-container-auditor` (replaced by `ol-openstack-swift-container`)
- `ol-openstack-swift-container-replicator` (replaced by `ol-openstack-swift-container`)
- `ol-openstack-swift-container-updater` (replaced by `ol-openstack-swift-container`)
- `ol-openstack-swift-object-auditor` (replaced by `ol-openstack-swift-object`)
- `ol-openstack-swift-object-base` (replaced by `ol-openstack-swift-object`)
- `ol-openstack-swift-object-expirer` (replaced by `ol-openstack-swift-object`)
- `ol-openstack-swift-object-replicator` (replaced by `ol-openstack-swift-object`)
- `ol-openstack-swift-object-updater` (replaced by `ol-openstack-swift-object`)
2.3 Technology Preview

The following features included with this release are under technology preview:

- Ironic Bare Metal Service
- Magnum Container Management Service
- Load-Balancer-as-a-Service, Firewall-as-a-Service, and VPN-as-a-Service
- Oracle Database 12c Murano Application

Ironic Bare Metal Service

The Ironic service provides the ability to provision bare-metal machines in an OpenStack environment. When you enable and deploy Ironic, the Horizon plug-in for Ironic is also enabled.

To enable Ironic:

1. Enable the Ironic service.

   ```sh
   $ kollacli property set enable_ironic yes
   ```

2. Set the password for the Ironic database user.

   You only need to perform this step if you did not use the `kollacli password init` command to set all the passwords at once.

   ```sh
   $ kollacli password set ironic_database_password
   ```

   The `kollacli password set` command prompts you for the password, and to confirm the password. The password value is not displayed on screen.

3. Set the Ironic PXE boot server’s DHCP range, for example:

   ```sh
   $ kollacli property set ironic_dnsmasq_dhcp_range 192.168.1.1,192.168.1.150
   ```

4. Edit the `/usr/share/kolla/ansible/roles/nova/templates/nova.conf.j2` file and replace the first code block with the second. Delete the block:

   ```yaml
   {% if service_name == "nova-compute-ironic" %}
   [ironic]
   username = {{ ironic_keystone_user }}
   password = {{ ironic_keystone_password }}
   auth_url = {{ openstack_auth.auth_url }}/v3
   auth_type = password
   project_name = service
   user_domain_name = default
   project_domain_name = default
   api_endpoint = {{ internal_protocol }}://{{ kolla_internal_fqdn }}:{{ ironic_api_port }}/v1
   {% endif %}
   ```

   Replace with:

   ```yaml
   {% if service_name == "nova-compute-ironic" %}
   [ironic]
   admin_username = {{ ironic_keystone_user }}
   admin_password = {{ ironic_keystone_password }}
   admin_url = {{ openstack_auth.auth_url }}
   admin_tenant_name = service
   api_endpoint = {{ internal_protocol }}://{{ kolla_internal_fqdn }}:{{ ironic_api_port }}/v1
   ```
5. Ironic requires a ramdisk image with the ironic-python-agent service running on it for controlling and deploying bare metal nodes.

To create a ramdisk image for Ironic

a. Install the diskimage-builder utility. This may be on the master node, or some other node where you want to create and store ramdisk images for use with Ironic.

   # pip install diskimage-builder

   If your host does not already have the qemu-img package installed, you must install it:

   # yum install qemu-img

b. Create a ramdisk image:

   # disk-image-create ironic-agent fedora -o ironic-agent

   The above command creates the deploy ramdisk and kernel named **ironic-agent.vmlinuz** and **ironic-agent.initramfs** in your current directory. You must use the name **ironic-agent** for the ramdisk image, or the deployment fails.

c. Copy the ramdisk image files to the /etc/kolla/config/ironic directory on the master node. Make sure any files in this directory are owned by the kolla user:

   # mkdir /etc/kolla/config/ironic
   # cp -R ironic-a* /etc/kolla/config/ironic/
   # chown -R kolla:kolla /etc/kolla/config/ironic

6. After deployment, and after installing the Ironic CLI, you can create a bare metal node with:

   # ironic node-create -d pxe_ipmitool

   This does not create a usable bare metal node. This command creates a dummy node to verify Ironic has been correctly deployed.

Magnum Container Management Service

The Magnum service provides container orchestration engines for deploying and managing containers. When you enable and deploy Magnum, the Horizon plug-in for Magnum is also enabled. Although the Horizon plug-in for Magnum is deployed, there are known issues using the UI to create and control objects in Magnum. You should instead use the Magnum CLI to manage Magnum objects.

To enable Magnum:

1. Enable the Magnum service.

   $ kollacli property set enable_magnum yes

2. Set the password for the Magnum database user.

   You only need to perform this step if you did not use the **kollacli password init** command to set all the passwords at once.

   $ kollacli password set magnum_database_password

   The **kollacli password set** command prompts you for the password, and to confirm the password. The password value is not displayed on screen.
During the deployment, the Magnum service needs access to the Internet to connect to https://discovery.etcd.io in order to generate an etcd token.

If your OpenStack environment is behind an HTTP proxy, you must ensure that the correct environment variables are set inside the magnum_conductor container before you deploy the Magnum service. To do this, edit the /usr/share/kolla/ansible/roles/magnum/tasks/start.yml file, and change the Starting magnum-conductor container task to include the required proxy settings.

```yaml
- name: Starting magnum-conductor container
  kolla_docker:
    action: "start_container"
    common_options: "{{ docker_common_options }}"
    image: "{{ magnum_conductor_image_full }}"
    name: "magnum_conductor"
    environment:
      KOLLA_CONFIG_STRATEGY: "{{ config_strategy }}"
      http_proxy: "proxy-host:proxy-port"
      https_proxy: "proxy-host:proxy-port"
      no_proxy: "127.0.0.1,localhost,proxy-exception-list,\%
        {{ hostvars[host]['ansible_' + api_interface]['ipv4']['address'] }},\%
        {{ hostvars[host]['ansible_' + api_interface]['ipv4']['address'] }},\%
        {{ kolla_internal_vip_address }},\%
        {{ kolla_external_vip_address }},\%
        {{ kolla_internal_fqdn }},\%
        {{ kolla_external_fqdn }}"
```

If you are not using an HTTP proxy, comment out the environment keyword section, as shown in the example below.

```yaml
- name: Starting magnum-conductor container
  kolla_docker:
    action: "start_container"
    common_options: "{{ docker_common_options }}"
    image: "{{ magnum_conductor_image_full }}"
    name: "magnum_conductor"
    # environment:
    #   KOLLA_CONFIG_STRATEGY: "{{ config_strategy }}"
    #   http_proxy: "proxy-host:proxy-port"
    #   https_proxy: "proxy-host:proxy-port"
    #   no_proxy: "127.0.0.1,localhost,proxy-exception-list,\%
    #     {{ hostvars[host]['ansible_' + api_interface]['ipv4']['address'] }},\%
    #     {{ hostvars[host]['ansible_' + api_interface]['ipv4']['address'] }},\%
    #     {{ kolla_internal_vip_address }},\%
    #     {{ kolla_external_vip_address }},\%
    #     {{ kolla_internal_fqdn }},\%
    #     {{ kolla_external_fqdn }}"
```

When you use the Magnum client, you must include the --service-type container-infra option to override the service type that is hard-coded in the Magnum client. You might find it easier to create a command alias to do this, for example

```
alias magnum='docker-ostk magnum --service-type container-infra'
```

Some Magnum commands have changed between the Mitaka and Newton releases. The Mitaka version of Magnum is included with this release. You should use the Mitaka Magnum command names, not the updated command names in the later releases. Some of the commands you should use (deprecated in the Newton release) are:
• `magnum baymodel-create` (not `magnum cluster-template-create`).
• `magnum baymodel-delete` (not `magnum cluster-template-delete`).
• `magnum baymodel-list` (not `magnum cluster-template-list`).
• `magnum baymodel-show` (not `magnum cluster-template-show`).
• `magnum baymodel-update` (not `magnum cluster-template-update`).

For a list of all the Magnum commands deprecated from the Mitaka release, see the OpenStack Command Line Interface Reference:

http://docs.openstack.org/cli-reference/magnum.html

If you use Fedora-atomic as the Glance image to boot servers in a Magnum BayModel, you must use the fedora-atomic-25 template available from:

https://fedorapeople.org/groups/magnum/fedora-atomic-25-latest.qcow2

When you import this image into Glance, make sure you add the optional property `os_distro='fedora-atomic'` into the `glance image-create` command, for example:

```bash
$ glance image-create --name fedora-atomic-25 --visibility public --disk-format qcow2 \
   --property os_distro='fedora-atomic' --container-format bare \
   --file fedora-atomic-25-latest.qcow2
```

There is a known issue with this Fedora-atomic image. When creating a Bay, the flanneld service fails to start while contacting the etcd agent, which causes the bay creation to fail. The Fedora-atomic image uses a Heat Template to configure Kubernetes, Flanneld, and etcd. The Heat Template and cloud-init.config file are part of the Fedora-atomic image, and not part of Oracle OpenStack.

To create a BayModel with the Fedora-atomic image, use a command similar to the following, replacing the appropriate information for your environment:

```bash
$ magnum baymodel-create --name MyBayModel --image-id fedora-atomic-25 --keypair-id MyKeyPair \
   --coe kubernetes --external-network-id MyExternalNetwork
```

WARNING: Baymodel commands are deprecated and will be removed in a future release.
Use cluster commands to avoid seeing this message.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>insecure_registry</td>
<td>-</td>
</tr>
<tr>
<td>labels</td>
<td>{}</td>
</tr>
<tr>
<td>updated_at</td>
<td>-</td>
</tr>
<tr>
<td>floating_ip_enabled</td>
<td>True</td>
</tr>
<tr>
<td>fixed_subnet</td>
<td>-</td>
</tr>
<tr>
<td>master_flavor_id</td>
<td>-</td>
</tr>
<tr>
<td>uuid</td>
<td>607ca037-b8d4-43a2-ac8b-d3eefcfcfda</td>
</tr>
<tr>
<td>no_proxy</td>
<td>-</td>
</tr>
<tr>
<td>https_proxy</td>
<td>-</td>
</tr>
<tr>
<td>tls_disabled</td>
<td>False</td>
</tr>
<tr>
<td>keypair_id</td>
<td>MyKeyPair</td>
</tr>
<tr>
<td>public</td>
<td>False</td>
</tr>
<tr>
<td>http_proxy</td>
<td>-</td>
</tr>
<tr>
<td>docker_volume_size</td>
<td>-</td>
</tr>
<tr>
<td>server_type</td>
<td>vm</td>
</tr>
<tr>
<td>external_network_id</td>
<td>MyExternalNetwork</td>
</tr>
<tr>
<td>cluster_distro</td>
<td>fedora-atomic</td>
</tr>
<tr>
<td>image_id</td>
<td>fedora-atomic-25</td>
</tr>
<tr>
<td>volume_driver</td>
<td>-</td>
</tr>
<tr>
<td>registry_enabled</td>
<td>False</td>
</tr>
<tr>
<td>docker_storage_driver</td>
<td>devicemapper</td>
</tr>
<tr>
<td>apiserver_port</td>
<td>-</td>
</tr>
<tr>
<td>name</td>
<td>MyBayModel</td>
</tr>
<tr>
<td>created_at</td>
<td>2017-03-17T01:46:37+00:00</td>
</tr>
<tr>
<td>network_driver</td>
<td>flannel</td>
</tr>
<tr>
<td>fixed_network</td>
<td>-</td>
</tr>
<tr>
<td>coe</td>
<td>kubernetes</td>
</tr>
<tr>
<td>flavor_id</td>
<td>m1.medium</td>
</tr>
<tr>
<td>master_lb_enabled</td>
<td>False</td>
</tr>
<tr>
<td>dns_nameserver</td>
<td>8.8.8.8</td>
</tr>
</tbody>
</table>

To create a Bay from the BayModel, use:
```
$ magnum bay-create --baymodel MyBay
```

Load-Balancer-as-a-Service, Firewall-as-a-Service, and VPN-as-a-Service

Load-Balancer-as-a-Service (LBaaS), Firewall-as-a-Service (FWaaS), and VPN-as-a-Service (VPNaaS) are plug-ins for Neutron. If you enable these plug-ins, do not enable Neutron distributed virtual routing (DVR). Neutron DVR is disabled by default. To enable the LBaaS, FWaaS, and VPNaaS plug-ins:
```
$ kollacli property set enable_neutron_lbaas yes
$ kollacli property set enable_neutron_fwaas yes
$ kollacli property set enable_neutron_vpnaas yes
```

Oracle Database 12c Murano Application

Oracle Database 12c is a Murano application that provides OpenStack cloud users with means for self-service provisioning of Oracle Database 12c. This database application delivers industry leading performance, scalability, security and reliability on single-servers running Oracle Linux 7.2 or higher. It provides comprehensive features to easily manage the most demanding transaction processing, business intelligence, and content management applications.

This is an unsupported technology preview release of the Oracle Database 12c Murano application, and is not intended for use in production environments.

Only use the application to provision a single instance of the Oracle Database.

To set up the Oracle Database 12c Murano application:

1. Download the required images.
   - Oracle Linux 7.2 or higher image.
     This image is available on Oracle Software Delivery Cloud at https://edelivery.oracle.com/linux.
     On Oracle Software Delivery Cloud, search by product for 'Oracle Linux 7 Virtual Machine Image for Openstack'.
   - Oracle Database 12.1.0.2 or higher image.
     The image is available on Oracle Software Delivery Cloud at https://edelivery.oracle.com/linux or My Oracle Support at https://support.oracle.com.
     On Oracle Software Delivery Cloud, search by product for 'Oracle VM Templates for Oracle Database - RAC 12c'.
     The name of the image is in the format: OraclereleaseDBRAC_x86_64-xvdb.img where release is the numeric release name without the intervening periods, for example 12102 for the 12.1.0.2 release.
Oracle Database 12c Murano Application


2. Install the required packages in the Oracle Linux 7 image.
   a. Install the OpenStack Murano Agent.
      For information on installing the Murano Agent, see Creating Oracle Linux Murano-enabled Images in the Oracle OpenStack Installation and Deployment Guide.
   b. Install the appropriate Oracle Database Server Preinstallation RPM based on the version of the Oracle Database being installed.
      For example, the RPM for version 12.1.0.2 is named oracle-rdbms-server-12cR1-preinstall.

3. Create Glance images for the Oracle Linux and Oracle Database images.
   Create the images using either the openstack image create or the glance image-create command. Remember to use the --property murano_image_info option to mark the images as Murano application images, for example:

```
--property murano_image_info='{"type": "linux", "title": "My Image Title"}'
```

For an example of how to create the Glance image, see Creating Oracle Linux Murano-enabled Images in the Oracle OpenStack Installation and Deployment Guide.

4. Configure DNS name resolution.
   If you configure the kolla_external_fqdn property with a valid domain name, you must configure name resolution (DNS) for the instance in order for the Murano Agent to succeed. You configure DNS for an instance by either of the following:
   • Set the default_dns networking option in the murano.conf file.
     For more information, see the OpenStack Configuration Reference at http://docs.openstack.org/newton/config-reference/application-catalog/config-options.html
   • Set the dnsmasq_dns_servers default option in the dhcp_agent.ini file.
     For more information, see the OpenStack Networking Guide for more information at http://docs.openstack.org/mitaka/networking-guide/config-dns-res.html

5. Ensure that you have enough storage for Cinder volumes.
   Three Cinder volumes are created during the application deployment. The volumes created are for Oracle Linux, Oracle Database, and for swap space. During the application deployment, the user is asked to specify the size for each of these volumes.

6. Ensure users create a key pair before they deploy the application.
   During the deployment, users are asked to select a key pair. The key pair enables users to connect to the instance created by Murano using SSH.
Chapter 3 System Requirements and Support

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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.

3.1 OpenStack Services Supported

The following table lists the supported OpenStack services included in this release of Oracle OpenStack:

<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aodh</td>
<td>Alarm service. Provides alarms and notifications based on metrics collected by Ceilometer.</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, and metering.</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 UI 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.</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.</td>
</tr>
</tbody>
</table>

3.2 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.
- Each group must contain at least two nodes to enable high availability.

### 3.3 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:

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. 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>
<thead>
<tr>
<th>Node Type</th>
<th>Minimum System Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controller</td>
<td>• 1 CPU&lt;br&gt;• 8 GB RAM&lt;br&gt;• 2 NICs&lt;br&gt;• Oracle Linux Release 7 Update 2 and later&lt;br&gt;• Unbreakable Enterprise Kernel Release 4&lt;br&gt;• 64 GB btrfs or ext4 file system mounted on <code>var/lib/docker</code></td>
</tr>
<tr>
<td>Compute (Oracle Linux)</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)</td>
</tr>
</tbody>
</table>
### Hypervisors Supported

<table>
<thead>
<tr>
<th>Node Type</th>
<th>Minimum System Requirements</th>
</tr>
</thead>
</table>
| **Compute** (Oracle VM Server)         | • 1 CPU  
• 16 GB RAM  
• 2 NICs (4 NICs recommended for best performance)  
  If Neutron DVR is enabled, 3 NICs (5 NICs recommended for best performance)  
• Oracle VM Server Release 3.4.2, on 64-bit x86 platforms (x86_64)  
• Unbreakable Enterprise Kernel Release 4  
• 64 GB btrfs or ext4 file system mounted on /var/lib/docker                                                                                                           |
| **Database**                           | • 1 CPU  
• 8 GB RAM  
• 2 NICs  
• Oracle Linux Release 7 Update 2 and later  
• Unbreakable Enterprise Kernel Release 4  
• 64 GB btrfs or ext4 file system mounted on /var/lib/docker                                                                                                           |
| **Network**                            | • 1 CPU  
• 8 GB RAM  
• 3 NICs (4 NICs recommended for best performance)  
• Oracle Linux Release 7 Update 2 and later  
• Unbreakable Enterprise Kernel Release 4  
• 64 GB btrfs or ext4 file system mounted on /var/lib/docker                                                                                                           |
| **Storage**                            | • 1 CPU  
• 8 GB RAM  
• 2 NICs (3 NICs recommended for best performance)  
• Oracle Linux Release 7 Update 2 and later  
• Unbreakable Enterprise Kernel Release 4  
• 64 GB btrfs or ext4 file system mounted on /var/lib/docker                                                                                                           |
| **Master** (if configured separately from a controller node) | • 1 CPU  
• 2 GB RAM  
• 1 NIC  
• Oracle Linux Release 7 Update 2 and later                                                                                                                        |

### 3.4 Hypervisors Supported

The following are the supported hypervisors for Oracle OpenStack:

- The Xen hypervisor provided with Oracle VM Server.
- The Kernel-based Virtual Machine (KVM) provided with Oracle Linux.

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

### 3.5 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.
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 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:

http://docs.oracle.com/cd/E64076_01/E64077/html/vmrs-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

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 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
Chapter 4 Known Issues

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4.5 General ....................................................................................................................... 25
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This chapter lists the known issues and any workarounds for Oracle OpenStack 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 Compute (All)

The following are the known issues that apply to all compute nodes.

The iscsid Container Fails to Start

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

```
$ docker logs 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 the iscsid container 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.

  On Oracle Linux compute nodes:

  ```
  # systemctl stop iscsid.socket iscsiulo.socket iscsid.service
  # systemctl disable iscsid.socket iscsiulo.socket iscsid.service
  ```

  On Oracle VM Server compute nodes:

  ```
  # service iscsid stop
  # chkconfig iscsid off
  ```
Bug: 22244208

Cannot Reset Root Password Using nova root-password on Instances

Resetting the root password of virtual machine instances using the `nova root-password` command 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

Instances do not Boot Using the QEMU Hypervisor

Due to an issues with the libvirt QEMU driver, instances do not boot if you use the QEMU hypervisor (when `virt_type = qemu` is configured in `nova.conf`). The QEMU hypervisor is not a supported hypervisor for Oracle OpenStack.

Bug: 25096821

Compute Nodes Must Have Host Names for Live Migration

In order to use instance live migration, compute nodes must be able to resolve the other compute nodes by their host name. This can be configured in DNS or by adding entries in `/etc/hosts`.

Bug: 25290524

4.2 Compute (Oracle Linux KVM)

The following are the known issues with KVM compute nodes.

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

4.3 Compute (Oracle VM Server)

The following are the known issues with Oracle VM Server compute nodes.

No Log Files for HVM VMs

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:
VNC Console Fails

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

Bug: 20681823

VNC Console Fails

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

HVM Instances do not Boot with config-drive Option

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

Bug: 23196327

Instances do not Boot "secret not found: rbd no secret matches uuid"

On Oracle VM Server, due to cleanup issues after previous unsuccessful deployments, instances can fail to boot and the nova-scheduler log files 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

Bug: 24954268

Cannot Start Instances When Using CEPH Storage

After you deploy OpenStack services with CEPH enabled, you may find that you cannot start any instances on Oracle VM Server compute nodes.

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

# service libvirtd restart

Bug: 25118458, 25231152

4.4 Controller

The following are the known issues with controller services.
Murano Fails to Deploy on Oracle Linux

When deploying applications using Murano and Oracle Linux images, the deployment may fail because the Murano Agent becomes unavailable. This can be 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

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]
***************************
...  
msg: Timeout when waiting for ip_address:3306
```

This is caused by the separate deployments using the same keepalived virtual router ID on the management network.

**Workaround:** For each deployment, make sure you set the `keepalived_virtual_router_id` property to a unique ID, and then redeploy. The default ID is 51.

**Note**

In previous releases, the `virtual_router_id` property was used. If you upgrade from a previous release, you might have both properties. Starting with the 3.0 release, you should set the `keepalived_virtual_router_id` property.

1. On the master node, change the `keepalived_virtual_router_id` property to a unique ID, for example:

```
$ kollacli property set keepalived_virtual_router_id 10
```

2. On the master node, deploy OpenStack services to the target 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 before you can deploy.

```
$ kollacli deploy
```

**Bug:** 22826409
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

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", "stderr_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, 
	unique_name_id INTEGER, 
	PRIMARY KEY (id), 
	FOREIGN KEY(uni' at line 3") '
CREATE TABLE event (
	id INTEGER NOT NULL AUTO_INCREMENT, 
	generated FLOAT, 
	unique_name_id INTEGER, 
	PRIMARY KEY (id), 
	FOREIGN KEY(unique_name_id) REFERENCES unique_name
)ENGINE=InnoDB CHARSET=utf8
()
MySQL Release 5.7 cannot be used as the Ceilometer database.

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

**Bug:** 23170700

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

4.5 General

The following are general known issues with Oracle OpenStack.

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.
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]
***********************
fatal: [ol7-c4]: FAILED! => {
"changed": false, "failed": true, "msg":
"ConnectionError(ProtocolError('Connection aborted.', error(2, 'No such file or directory')),)"
}
```

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
   docker.service - Docker Application Container Engine
   ● 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 target 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 before you can deploy. before you deploy.
   
   ```
   $ kollacli deploy
   ```

Update to Release 3.0.1 Sometimes Fails With a Delimiter Error

Sometimes the update to Release 3.0.1 fails with a delimiter error when creating the Keystone admin project:
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-toolbox 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-toolbox: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-toolbox:3.0
```

**Bug:** 25429843

### 4.6 Network

The following are the known issues with network services.

#### 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 a **Invalid argument** error message.

Network namespaces are managed from the neutron_l3_agent container. Run the following command to access the container before performing any network namespace management operations:

```
$ docker exec -ti -u root neutron_l3_agent /bin/bash
```

**Bug:** 21924174

#### Neutron Networking Not Working After Updating to the Latest Release

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

The solution is to reboot all network and compute nodes.

**Bug:** 22336570
GRE Tenant Networks Fail

When creating a tenant network (neutron net-create) on a GRE network, the network creation fails with an error:

ERROR neutron.api.v2.resource NoNetworkAvailable: Unable to create the network. No tenant network is available for allocation.

To workaround this issue, on the master node, as the root user, edit the `/usr/share/kolla/ansible/roles/neutron/templates/ml2_conf.ini.j2` file and include the two highlighted lines:

```
# ml2_conf.ini
[ml2]
...
# Changing type_drivers after bootstrap can lead to database inconsistencies
# type_drivers = flat,vlan,gre,vxlan
# tenant_network_types = {{ neutron_tenant_type }}
{% endif %}
...
[ml2_type_gre]
tunnel_id_ranges = 1:1000
...
{% if neutron_plugin_agent == "openvswitch" %}
{% if neutron_tenant_type == "gre" or neutron_tenant_type == "vxlan" %}
[agent]
tunnel_types = {{ neutron_tenant_type }}
l2_population = true
arp_responder = true
```

Redeploy:

```
# kollacli deploy
```

Bug: 25719285

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

4.7 Storage

The following are the known issues with storage services.

NFS Drivers Not Supported For Cinder Volumes

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

Bug: 22077741