
OpenStack-Ansible Documentation:

os_cinder role

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OpenStack-Ansible Contributors

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This Ansible role installs and configures OpenStack cinder.

The following cinder services are managed by the role:

- cinder-api
- cinder-volume
- cinder-scheduler

By default, cinder API v1 and v2 are both enabled.

CONFIGURING THE BLOCK (CINDER) STORAGE SERVICE (OPTIONAL)

By default, the Block (cinder) storage service installs on the host itself using the LVM backend.

Note

While this is the default for cinder, using the LVM backend results in a Single Point of Failure.

The LVM back end needs to run on the host, however most of the other back ends can be deployed inside a container. If the storage back ends deployed within your environment are able to run inside containers, then it is recommended to set `is_metal: False` in the `env.d/cinder.yml` file.

Note

Due to a [limitation of the container system](#), you must deploy the volume service directly onto the host when using back ends depending on iSCSI. That is the case, for example, for storage appliances configured to use the iSCSI protocol.

1.1 NFS backend

Edit `/etc/openstack_deploy/openstack_user_config.yml` and configure the NFS client on each storage node if the NetApp backend is configured to use an NFS storage protocol.

1. For each storage node, add one `cinder_backends` block underneath the a new `container_vars` section. `container_vars` are used to allow container/host individualized configuration. Each cinder back end is defined with a unique key. For example, `nfs-volume1`. This later represents a unique cinder backend and volume type.

```
container_vars:  
  cinder_backends:  
    nfs-volume1:
```

2. Configure the appropriate cinder volume backend name:

```
volume_backend_name: NFS_VOLUME1
```

3. Configure the appropriate cinder NFS driver:

```
volume_driver: cinder.volume.drivers.nfs.NfsDriver
```

4. Configure the location of the file that lists shares available to the block storage service. This configuration file must include `nfs_shares_config`:

```
nfs_shares_config: FILENAME_NFS_SHARES
```

Replace `FILENAME_NFS_SHARES` with the location of the share configuration file. For example, `/etc/cinder/nfs_shares_volume1`.

5. Define mount options for the NFS mount. For example:

```
nfs_mount_options: "rsize=65535,wsize=65535,timeo=1200,actimeo=120"
```

6. Configure one or more NFS shares:

```
shares:
  - { ip: "HOSTNAME", share: "PATH_TO_NFS_VOLUME" }
```

Replace `HOSTNAME` with the IP address or hostname of the NFS server, and the `PATH_TO_NFS_VOLUME` with the absolute path to an existing and accessible NFS share (excluding the IP address or hostname).

The following is a full configuration example of a cinder NFS backend named `NFS1`. The cinder playbooks will automatically add a custom `volume-type` and `nfs-volume1` as in this example:

```
container_vars:
  cinder_backends:
    nfs-volume1:
      volume_backend_name: NFS_VOLUME1
      volume_driver: cinder.volume.drivers.nfs.NfsDriver
      nfs_shares_config: /etc/cinder/nfs_shares_volume1
      nfs_mount_options: "rsize=65535,wsize=65535,timeo=1200,
↪actimeo=120"
      shares:
        - { ip: "1.2.3.4", share: "/vol1" }
```

1.2 Backup

You can configure cinder to backup volumes to Object Storage (swift). Enable the default configuration to back up volumes to a swift installation accessible within your environment. Alternatively, you can set `cinder_service_backup_swift_url` and other variables to back up to an external swift installation.

1. Add or edit the following line in the `/etc/openstack_deploy/user_variables.yml` file and set the value to `True`:

```
cinder_service_backup_program_enabled: True
```

2. By default, cinder uses the access credentials of the user initiating the backup. Default values are set in the `/opt/openstack-ansible/playbooks/roles/os_cinder/defaults/main.yml` file. You can override those defaults by setting variables in `/etc/openstack_deploy/user_variables.yml` to change how cinder performs backups. Add and edit any of the following variables to the `/etc/openstack_deploy/user_variables.yml` file:


```

...
cinder_service_backup_swift_auth: per_user
# Options include 'per_user' or 'single_user'. We default to
# 'per_user' so that backups are saved to a user's swift
# account.
cinder_service_backup_swift_url:
# This is your swift storage url when using 'per_user', or keystone
# endpoint when using 'single_user'. When using 'per_user', you
# can leave this as empty or as None to allow cinder-backup to
# obtain a storage url from environment.
cinder_service_backup_swift_url:
cinder_service_backup_swift_auth_version: 2
cinder_service_backup_swift_user:
cinder_service_backup_swift_tenant:
cinder_service_backup_swift_key:
cinder_service_backup_swift_container: volumebackups
cinder_service_backup_swift_object_size: 52428800
cinder_service_backup_swift_retry_attempts: 3
cinder_service_backup_swift_retry_backoff: 2
cinder_service_backup_compression_algorithm: zlib
cinder_service_backup_metadata_version: 2

```

During installation of cinder, the backup service is configured.

1.3 Using Ceph for cinder backups

You can deploy Ceph to hold cinder volume backups. To get started, set the `cinder_service_backup_driver` Ansible variable:

```
cinder_service_backup_driver: cinder.backup.drivers.ceph.CephBackupDriver
```

Configure the Ceph user and the pool to use for backups. The defaults are shown here:

```
cinder_service_backup_ceph_user: cinder-backup
cinder_service_backup_ceph_pool: backups
```

1.4 Availability zones

Create multiple availability zones to manage cinder storage hosts. Edit the `/etc/openstack_deploy/openstack_user_config.yml` and `/etc/openstack_deploy/user_variables.yml` files to set up availability zones.

1. For each cinder storage host, configure the availability zone under the `container_vars` stanza:

```
cinder_storage_availability_zone: CINDERAZ
```

Replace CINDERAZ with a suitable name. For example `cinderAZ_2`.

2. If more than one availability zone is created, configure the default availability zone for all the hosts by creating a `cinder_default_availability_zone` in your `/etc/openstack_deploy/user_variables.yml`

```
cinder_default_availability_zone: CINDERAZ_DEFAULT
```

Replace CINDERAZ_DEFAULT with a suitable name. For example, cinderAZ_1. The default availability zone should be the same for all cinder hosts.

1.5 OpenStack Dashboard (horizon) configuration for cinder

You can configure variables to set the behavior for cinder volume management in OpenStack Dashboard (horizon). By default, no horizon configuration is set.

1. The default destination availability zone is nova if you use multiple availability zones and cinder_default_availability_zone has no definition. Volume creation with horizon might fail if there is no availability zone named nova. Set cinder_default_availability_zone to an appropriate availability zone name so that *Any availability zone* works in horizon.
2. horizon does not populate the volume type by default. On the new volume page, a request for the creation of a volume with the default parameters fails. Set cinder_default_volume_type so that a volume creation request without an explicit volume type succeeds.

1.6 Configuring cinder to use LVM

1. List the container_vars that contain the storage options for the target host.

Note

The vars related to the cinder availability zone and the limit_container_types are optional.

To configure an LVM, utilize the following example:

```
storage_hosts:
  Infra01:
    ip: 172.29.236.16
    container_vars:
      cinder_storage_availability_zone: cinderAZ_1
      cinder_default_availability_zone: cinderAZ_1
    cinder_backends:
      lvm:
        volume_backend_name: LVM_iSCSI
        volume_driver: cinder.volume.drivers.lvm.LVMVolumeDriver
        volume_group: cinder-volumes
        iscsi_ip_address: "{{ cinder_storage_address }}"
        limit_container_types: cinder_volume
```

To use another backend in a container instead of bare metal, copy the env.d/cinder.yml to /etc/openstack_deploy/env.d/cinder.yml file and change the is_metal: true stanza under the cinder_volumes_container properties to is_metal: false.

Alternatively, you can also selectively override, like this:

```
container_skel:
  cinder_volumes_container:
```

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```
properties:
  is_metal: false
```

1.7 Configuring cinder to use Ceph

In order for cinder to use Ceph, it is necessary to configure for both the API and backend. When using any forms of network storage (iSCSI, NFS, Ceph) for cinder, the API containers can be considered as backend servers. A separate storage host is not required.

Copy the `env.d/cinder.yml` to `/etc/openstack_deploy/env.d/cinder.yml` file and change the `is_metal: true` stanza under the `cinder_volumes_container` properties to `is_metal: false`.

Alternatively, you can also selectively override, like this:

```
container_skel:
  cinder_volumes_container:
    properties:
      is_metal: false
```

1. List of target hosts on which to deploy the cinder API. We recommend that a minimum of three target hosts are used for this service.

```
storage-infra_hosts:
  infra1:
    ip: 172.29.236.101
  infra2:
    ip: 172.29.236.102
  infra3:
    ip: 172.29.236.103
```

To configure an RBD backend, utilize the following example:

```
container_vars:
  cinder_storage_availability_zone: cinderAZ_3
  cinder_default_availability_zone: cinderAZ_1
  cinder_backends:
    limit_container_types: cinder_volume
  rbd_backend:
    volume_driver: cinder.volume.drivers.rbd.RBDDriver
    rbd_pool: volumes
    rbd_ceph_conf: /etc/ceph/ceph.conf
    rbd_flatten_volume_from_snapshot: 'false'
    rbd_max_clone_depth: 5
    rbd_store_chunk_size: 4
    rados_connect_timeout: 30
    volume_backend_name: rbd_backend
    rbd_user: "{{ cinder_ceph_client }}"
    rbd_secret_uuid: "{{ cinder_ceph_client_uuid }}"
```

The following example sets cinder to use the `cinder_volumes` pool. The example uses `cephx` authentication and requires existing cinder account for `cinder_volumes` pool.

In `user_variables.yml`:

```
ceph_mons:
- 172.29.244.151
- 172.29.244.152
- 172.29.244.153
```

In `openstack_user_config.yml`:

```
storage_hosts:
  infra1:
    ip: 172.29.236.101
    container_vars:
      cinder_backends:
        limit_container_types: cinder_volume
        rbd:
          volume_group: cinder-volumes
          volume_driver: cinder.volume.drivers.rbd.RBDDriver
          volume_backend_name: rbd
          rbd_pool: cinder-volumes
          rbd_ceph_conf: /etc/ceph/ceph.conf
          rbd_user: cinder
  infra2:
    ip: 172.29.236.102
    container_vars:
      cinder_backends:
        limit_container_types: cinder_volume
        rbd:
          volume_group: cinder-volumes
          volume_driver: cinder.volume.drivers.rbd.RBDDriver
          volume_backend_name: rbd
          rbd_pool: cinder-volumes
          rbd_ceph_conf: /etc/ceph/ceph.conf
          rbd_user: cinder
  infra3:
    ip: 172.29.236.103
    container_vars:
      cinder_backends:
        limit_container_types: cinder_volume
        rbd:
          volume_group: cinder-volumes
          volume_driver: cinder.volume.drivers.rbd.RBDDriver
          volume_backend_name: rbd
          rbd_pool: cinder-volumes
          rbd_ceph_conf: /etc/ceph/ceph.conf
          rbd_user: cinder
```

This link provides a complete working example of Ceph setup and integration with cinder (nova and glance included):

- [OpenStack-Ansible and Ceph Working Example](#)

1.8 Configuring cinder to use Dell EqualLogic

To use the Dell EqualLogic volume driver as a back end, edit the `/etc/openstack_deploy/openstack_user_config.yml` file and configure the storage nodes that will use it.

Define the following parameters.

1. Add `dellqlx` stanza under the `cinder_backends` for each storage node:

```
cinder_backends:
  delleqlx:
```

2. Specify volume back end name:

```
volume_backend_name: DelleQLX_iSCSI
```

3. Use Dell EQLX San ISCSI driver:

```
volume_driver: cinder.volume.drivers.dell_emc.ps.PSSeriesISCSIDriver
```

4. Specify the SAN IP address:

```
san_ip: ip_of_dell_storage
```

5. Specify SAN username (Default: `grpadmin`):

```
san_login: grpadmin
```

6. Specify the SAN password:

```
san_password: password
```

7. Specify the group name for pools (Default: `group-0`):

```
eqlx_group_name: group-0
```

8. Specify the pool where Cinder will create volumes and snapshots (Default: `default`):

```
eqlx_pool: default
```

9. Ensure the `openstack_user_config.yml` configuration is accurate:

```
storage_hosts:
  Infra01:
    ip: infra_host_ip
    container_vars:
      cinder_backends:
        limit_container_types: cinder_volume
        delleqlx:
          volume_backend_name: DelleQLX_iSCSI
          volume_driver: cinder.volume.drivers.dell_emc.ps.
↪ PSSeriesISCSIDriver
          san_ip: ip_of_dell_storage
          san_login: grpadmin
```

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```

san_password: password
eqlx_group_name: group-0
eqlx_pool: default

```

Note

For more details about available configuration options, see <https://docs.openstack.org/ocata/config-reference/block-storage/drivers/dell-equallogic-driver.html>

1.9 Configuring cinder to use a NetApp appliance

To use a NetApp storage appliance back end, edit the `/etc/openstack_deploy/openstack_user_config.yml` file and configure each storage node that will use it.

Note

Ensure that the NAS Team enables `httpd.admin.access`.

1. Add the `netapp` stanza under the `cinder_backends` stanza for each storage node:

```

cinder_backends:
  netapp:

```

The options in subsequent steps fit under the `netapp` stanza.

The backend name is arbitrary and becomes a volume type within cinder.

2. Configure the storage family:

```

netapp_storage_family: STORAGE_FAMILY

```

Replace `STORAGE_FAMILY` with `ontap_7mode` for Data ONTAP operating in 7-mode or `ontap_cluster` for Data ONTAP operating as a cluster.

3. Configure the storage protocol:

```

netapp_storage_protocol: STORAGE_PROTOCOL

```

Replace `STORAGE_PROTOCOL` with `iscsi` for iSCSI or `nfs` for NFS.

For the NFS protocol, specify the location of the configuration file that lists the shares available to cinder:

```

nfs_shares_config: FILENAME_NFS_SHARES

```

Replace `FILENAME_NFS_SHARES` with the location of the share configuration file. For example, `/etc/cinder/nfs_shares`.

4. Configure the server:

```

netapp_server_hostname: SERVER_HOSTNAME

```

Replace SERVER_HOSTNAME with the hostnames for both netapp controllers.

5. Configure the server API port:

```
netapp_server_port: PORT_NUMBER
```

Replace PORT_NUMBER with 80 for HTTP or 443 for HTTPS.

6. Configure the server credentials:

```
netapp_login: USER_NAME
netapp_password: PASSWORD
```

Replace USER_NAME and PASSWORD with the appropriate values.

7. Select the NetApp driver:

```
volume_driver: cinder.volume.drivers.netapp.common.NetAppDriver
```

8. Configure the volume back end name:

```
volume_backend_name: BACKEND_NAME
```

Replace BACKEND_NAME with a value that provides a hint for the cinder scheduler. For example, NETAPP_iSCSI.

9. Ensure the openstack_user_config.yml configuration is accurate:

```
storage_hosts:
  Infra01:
    ip: 172.29.236.16
    container_vars:
      cinder_backends:
        limit_container_types: cinder_volume
      netapp:
        netapp_storage_family: ontap_7mode
        netapp_storage_protocol: nfs
        netapp_server_hostname: 111.222.333.444
        netapp_server_port: 80
        netapp_login: openstack_cinder
        netapp_password: password
        volume_driver: cinder.volume.drivers.netapp.common.NetAppDriver
        volume_backend_name: NETAPP_NFS
```

For netapp_server_hostname, specify the IP address of the Data ONTAP server. Include iSCSI or NFS for the netapp_storage_family depending on the configuration. Add 80 if using HTTP or 443 if using HTTPS for netapp_server_port.

The cinder-volume.yml playbook will automatically install the nfs-common file across the hosts, transitioning from an LVM to a NetApp back end.

1.10 Configuring cinder qos specs

Deployers may optionally define the variable `cinder_qos_specs` to create qos specs. This variable is a list of dictionaries that contain the options for each qos spec. `cinder` volume-types may be assigned to a qos spec by defining the key `cinder_volume_types` in the desired qos spec dictionary.

```
- name: high-iops
  options:
    consumer: front-end
    read_iops_sec: 2000
    write_iops_sec: 2000
  cinder_volume_types:
    - volumes-1
    - volumes-2
- name: low-iops
  options:
    consumer: front-end
    write_iops_sec: 100
```

1.11 Configure cinder to create a private volume type

By default, a define `cinder-backend` will create a public volume type. In order to create a private volume type, add the variable `public` and set it to `false`. If it is set to `true` or not set at all the volume type created will be public.

```
cinder_backends:
  private_type:
    public: false
```

1.12 Shared storage and synchronized UID/GID

Specify a custom UID for the `cinder` user and GID for the `cinder` group to ensure they are identical on each host. This is helpful when using shared storage on Compute nodes because it allows instances to migrate without filesystem ownership failures.

By default, Ansible creates the `cinder` user and group without specifying the UID or GID. To specify custom values for the UID or GID, set the following Ansible variables:

```
cinder_system_user_uid = <specify a UID>
cinder_system_group_gid = <specify a GID>
```

Warning

Setting this value after deploying an environment with OpenStack-Ansible can cause failures, errors, and general instability. These values should only be set once before deploying an OpenStack environment and then never changed.

To clone or view the source code for this repository, visit the role repository for [os_cinder](#).

DEFAULT VARIABLES

```
# Set the package install state for distribution packages
# Options are 'present' and 'latest'
cinder_package_state: "{{ package_state | default('latest') }}"

# Set the host which will execute the shade modules
# for the service setup. The host must already have
# clouds.yaml properly configured.
cinder_service_setup_host: "{{ openstack_service_setup_host | default(
↳ 'localhost') }}"
cinder_service_setup_host_python_interpreter: >-
  {{
    openstack_service_setup_host_python_interpreter | default(
      (cinder_service_setup_host == 'localhost') | ternary(ansible_playbook_
↳ python, ansible_facts['python']['executable']))
  }}

# Set installation method.
cinder_install_method: "{{ service_install_method | default('source') }}"
cinder_venv_python_executable: "{{ openstack_venv_python_executable | default(
↳ 'python3') }}"

cinder_git_repo: https://opendev.org/openstack/cinder
cinder_git_install_branch: master
cinder_upper_constraints_url: >-
  {{ requirements_git_url | default('https://releases.openstack.org/
↳ constraints/upper/' ~ requirements_git_install_branch | default('master')) }}
  ↳}
cinder_git_constraints:
  - "--constraint {{ cinder_upper_constraints_url }}"

cinder_pip_install_args: "{{ pip_install_options | default('') }}"

# Name of the virtual env to deploy into
cinder_venv_tag: "{{ venv_tag | default('untagged') }}"
cinder_bin: "{{ _cinder_bin }}"

# Enable/Disable Barbican
cinder_barbican_enabled: "{{ (groups['barbican_all'] is defined) and (groups["
```

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```

↪'barbican_all'] | length > 0) }}"

# Enable/Disable Ceilometer
cinder_ceilometer_enabled: "{{ (groups['ceilometer_all'] is defined) and_
↪(groups['ceilometer_all'] | length > 0) }}"

# Time period for which to generate volume usages. The options are hour, day,
# month, or year. (string value)
cinder_volume_usage_audit: hour
cinder_volume_usage_audit_send_actions_enabled: true

cinder_storage_availability_zone: nova
cinder_default_availability_zone: "{{ cinder_storage_availability_zone }}"

cinder_storage_address: 127.0.0.1
cinder_management_address: "{{ management_address | default('127.0.0.1') }}"
cinder_uwsgi_bind_address: "{{ openstack_service_bind_address | default('0.0.
↪0.0') }}"

cinder_nova_catalog_info: compute:nova:internalURL
cinder_nova_catalog_admin_info: compute:nova:adminURL

cinder_fatal_deprecations: false

## Database info
cinder_db_setup_host: "{{ openstack_db_setup_host | default('localhost') }}"
cinder_db_setup_python_interpreter: >-
  {{
    openstack_db_setup_python_interpreter | default(
      (cinder_db_setup_host == 'localhost') | ternary(ansible_playbook_python,
↪ ansible_facts['python']['executable'])
  }}
cinder_galera_address: "{{ galera_address | default('127.0.0.1') }}"
cinder_galera_user: cinder
cinder_galera_database: cinder
cinder_galera_use_ssl: "{{ galera_use_ssl | default(False) }}"
cinder_galera_ssl_ca_cert: "{{ galera_ssl_ca_cert | default('') }}"
cinder_galera_port: "{{ galera_port | default('3306') }}"
cinder_db_max_overflow: "{{ openstack_db_max_overflow | default('50') }}"
cinder_db_max_pool_size: "{{ openstack_db_max_pool_size | default('5') }}"
cinder_db_pool_timeout: "{{ openstack_db_pool_timeout | default('30') }}"
cinder_db_connection_recycle_time: "{{ openstack_db_connection_recycle_time |_
↪default('600') }}"

## Oslo Messaging

# RabbitMQ
cinder_oslomsg_heartbeat_in_pthread: "{{ oslomsg_heartbeat_in_pthread |_
↪default(False) }}"

```

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```

# RPC
cinder_oslomsg_rpc_host_group: "{{ oslomsg_rpc_host_group | default('rabbitmq_
↪all') }}"
cinder_oslomsg_rpc_setup_host: "{{ (cinder_oslomsg_rpc_host_group in groups) |
↪ ternary(groups[cinder_oslomsg_rpc_host_group][0], 'localhost') }}"
cinder_oslomsg_rpc_transport: "{{ oslomsg_rpc_transport | default('rabbit') }}"
↪
cinder_oslomsg_rpc_servers: "{{ oslomsg_rpc_servers | default('127.0.0.1') }}"
cinder_oslomsg_rpc_port: "{{ oslomsg_rpc_port | default('5672') }}"
cinder_oslomsg_rpc_use_ssl: "{{ oslomsg_rpc_use_ssl | default(False) }}"
cinder_oslomsg_rpc_userid: cinder
cinder_oslomsg_rpc_policies: []
# vhost name depends on value of oslomsg_rabbit_quorum_queues. In case quorum_
↪queues
# are not used - vhost name will be prefixed with leading `/.
cinder_oslomsg_rpc_vhost:
  - name: /cinder
    state: "{{ cinder_oslomsg_rabbit_quorum_queues | ternary('absent',
↪'present') }}"
  - name: cinder
    state: "{{ cinder_oslomsg_rabbit_quorum_queues | ternary('present',
↪'absent') }}"
cinder_oslomsg_rpc_ssl_version: "{{ oslomsg_rpc_ssl_version | default('TLSv1.2
↪') }}"
cinder_oslomsg_rpc_ssl_ca_file: "{{ oslomsg_rpc_ssl_ca_file | default('') }}"

# Notify
cinder_oslomsg_notify_configure: "{{ oslomsg_notify_configure |
↪default(cinder_ceilometer_enabled) }}"
cinder_oslomsg_notify_host_group: "{{ oslomsg_notify_host_group | default(
↪'rabbitmq_all') }}"
cinder_oslomsg_notify_setup_host: "{{ (cinder_oslomsg_notify_host_group in
↪groups) | ternary(groups[cinder_oslomsg_notify_host_group][0], 'localhost')
↪ }}"
cinder_oslomsg_notify_transport: "{{ oslomsg_notify_transport | default(
↪'rabbit') }}"
cinder_oslomsg_notify_servers: "{{ oslomsg_notify_servers | default('127.0.0.1
↪') }}"
cinder_oslomsg_notify_port: "{{ oslomsg_notify_port | default('5672') }}"
cinder_oslomsg_notify_use_ssl: "{{ oslomsg_notify_use_ssl | default(False) }}"
cinder_oslomsg_notify_userid: "{{ cinder_oslomsg_rpc_userid }}"
cinder_oslomsg_notify_password: "{{ cinder_oslomsg_rpc_password }}"
cinder_oslomsg_notify_vhost: "{{ cinder_oslomsg_rpc_vhost }}"
cinder_oslomsg_notify_ssl_version: "{{ oslomsg_notify_ssl_version | default(
↪'TLSv1.2') }}"
cinder_oslomsg_notify_ssl_ca_file: "{{ oslomsg_notify_ssl_ca_file | default(
↪') }}"
cinder_oslomsg_notify_policies: []

```

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```

## RabbitMQ integration
cinder_oslomsg_rabbit_quorum_queues: "{{ oslomsg_rabbit_quorum_queues |
↳default(True) }}"
cinder_oslomsg_rabbit_stream_fanout: "{{ oslomsg_rabbit_stream_fanout |
↳default(cinder_oslomsg_rabbit_quorum_queues) }}"
cinder_oslomsg_rabbit_transient_quorum_queues: "{{ oslomsg_rabbit_transient_
↳quorum_queues | default(cinder_oslomsg_rabbit_stream_fanout) }}"
cinder_oslomsg_rabbit_qos_prefetch_count: "{{ oslomsg_rabbit_qos_prefetch_
↳count | default(cinder_oslomsg_rabbit_stream_fanout | ternary(10, 0)) }}"
cinder_oslomsg_rabbit_queue_manager: "{{ oslomsg_rabbit_queue_manager |
↳default(cinder_oslomsg_rabbit_quorum_queues) }}"
cinder_oslomsg_rabbit_quorum_delivery_limit: "{{ oslomsg_rabbit_quorum_
↳delivery_limit | default(0) }}"
cinder_oslomsg_rabbit_quorum_max_memory_bytes: "{{ oslomsg_rabbit_quorum_max_
↳memory_bytes | default(0) }}"

## Coordination
cinder_coordination_driver: "{{ coordination_driver | default('zookeeper') }}"
cinder_coordination_group: "{{ coordination_host_group | default('zookeeper_
↳all') }}"
cinder_coordination_enable: "{{ cinder_active_active_cluster and (cinder_
↳coordination_group in groups and groups[cinder_coordination_group] | length_
↳> 0) }}"
cinder_coordination_namespace: cinder
cinder_coordination_client_ssl: "{{ coordination_client_ssl | default(False) }
↳}"
cinder_coordination_verify_cert: "{{ coordination_verify_cert | default(True)
↳}"
cinder_coordination_port: "{{ coordination_port | default(cinder_coordination_
↳client_ssl | ternary('2281', '2181')) }}"
cinder_coordination_url: "{{ _cinder_coordination_url | default() }}"

## Cinder User / Group
cinder_system_user_name: cinder
cinder_system_group_name: cinder
cinder_system_comment: cinder system user
cinder_system_shell: /bin/false
cinder_system_home_folder: "/var/lib/{{ cinder_system_user_name }}"
cinder_system_slice_name: cinder

## Manually specified cinder UID/GID
# Deployers can specify a UID for the cinder user as well as the GID for the
# cinder group if needed. This is commonly used in environments where shared
# storage is used, such as NFS or GlusterFS, and cinder UID/GID values must be
# in sync between multiple servers.
#
# WARNING: Changing these values on an existing deployment can lead to
# failures, errors, and instability.

```

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```

#
# cinder_system_user_uid = <UID>
# cinder_system_group_gid = <GID>

cinder_lock_dir: "{{ openstack_lock_dir | default('/run/lock') }}"

## Cinder Auth
cinder_service_admin_tenant_name: "service"
cinder_service_admin_username: "cinder"

## Cinder api service type and data
cinder_service_project_domain_id: default
cinder_service_user_domain_id: default
cinder_service_user_name: cinder
cinder_service_project_name: service
cinder_service_role_names:
  - admin
  - service
cinder_service_token_roles:
  - service
cinder_service_token_roles_required: "{{ openstack_service_token_roles_
↳required | default(True) }}"
cinder_service_region: "{{ service_region | default('RegionOne') }}"
cinder_service_port: 8776
cinder_service_proto: http

cinder_service_name: cinder
cinder_service_type: block-storage
cinder_service_description: "Cinder Volume Service"
cinder_service_publicuri_proto: "{{ openstack_service_publicuri_proto |
↳default(cinder_service_proto) }}"
cinder_service_adminuri_proto: "{{ openstack_service_adminuri_proto |
↳default(cinder_service_proto) }}"
cinder_service_internaluri_proto: "{{ openstack_service_internaluri_proto |
↳default(cinder_service_proto) }}"
cinder_service_publicuri: "{{ cinder_service_publicuri_proto }}://{{ external_
↳lb_vip_address }}:{{ cinder_service_port }}"
cinder_service_publicurl: "{{ cinder_service_publicuri }}/v3/(project_id)s"
cinder_service_adminuri: "{{ cinder_service_adminuri_proto }}://{{ internal_
↳lb_vip_address }}:{{ cinder_service_port }}"
cinder_service_adminurl: "{{ cinder_service_adminuri }}/v3/(project_id)s"
cinder_service_internaluri: "{{ cinder_service_internaluri_proto }}://{{
↳internal_lb_vip_address }}:{{ cinder_service_port }}"
cinder_service_internalurl: "{{ cinder_service_internaluri }}/v3/(project_
↳id)s"

cinder_service_v3_enabled: false
cinder_service_v3_name: cinderv3
cinder_service_v3_type: volumev3

```

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```

cinder_service_v3_description: "Cinder Volume Service V3"
cinder_service_v3_publicuri_proto: "{{ openstack_service_publicuri_proto |
↳default(cinder_service_publicuri_proto) }}"
cinder_service_v3_adminuri_proto: "{{ openstack_service_adminuri_proto |
↳default(cinder_service_adminuri_proto) }}"
cinder_service_v3_internaluri_proto: "{{ openstack_service_internaluri_proto
↳| default(cinder_service_internaluri_proto) }}"
cinder_service_v3_publicuri: "{{ cinder_service_v3_publicuri_proto }}://{{
↳external_lb_vip_address }}:{{ cinder_service_port }}"
cinder_service_v3_publicurl: "{{ cinder_service_v3_publicuri }}/v3/(tenant_
↳id)s"
cinder_service_v3_adminuri: "{{ cinder_service_v3_adminuri_proto }}://{{
↳internal_lb_vip_address }}:{{ cinder_service_port }}"
cinder_service_v3_adminurl: "{{ cinder_service_v3_adminuri }}/v3/(tenant_id)s
↳"
cinder_service_v3_internaluri: "{{ cinder_service_v3_internaluri_proto }}://{
↳{ internal_lb_vip_address }}:{{ cinder_service_port }}"
cinder_service_v3_internalurl: "{{ cinder_service_v3_internaluri }}/v3/
↳%(tenant_id)s"

cinder_auth_strategy: keystone

## Keystone authentication middleware
cinder_keystone_auth_plugin: "{{ cinder_keystone_auth_type }}"
cinder_keystone_auth_type: password

## In order to enable the cinder backup you MUST set `cinder_service_backup_
↳program_enabled` to "true"
cinder_service_backup_program_enabled: false
# cinder_service_backup_driver: Options include 'cinder.backup.drivers.swift.
↳SwiftBackupDriver' or
#
↳'cinder.backup.drivers.ceph.CephBackupDriver'
cinder_service_backup_driver: cinder.backup.drivers.swift.SwiftBackupDriver
# cinder_service_backup_swift_auth: Options include 'per_user' or 'single_user',
↳we default to
#
↳'per_user' so that backups are saved to a
↳user's swift account.
cinder_service_backup_swift_auth: per_user
# cinder_service_backup_swift_url: This is your swift storage url when using
↳'per_user', or keystone
#
↳endpoint when using 'single_user'. When
↳using 'per_user', you
#
↳can leave this as empty or as None to
↳allow cinder-backup to
#
↳obtain storage url from environment.
cinder_service_backup_swift_url:
cinder_service_backup_swift_auth_version: 2
cinder_service_backup_swift_user:
cinder_service_backup_swift_tenant:

```

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```
cinder_service_backup_swift_key:
cinder_service_backup_swift_container: volumebackups
cinder_service_backup_swift_object_size: 52428800
cinder_service_backup_swift_retry_attempts: 3
cinder_service_backup_swift_retry_backoff: 2
cinder_service_backup_ceph_user: cinder-backup
cinder_service_backup_ceph_pool: backups
cinder_service_backup_compression_algorithm: zlib
cinder_service_backup_metadata_version: 2

cinder_swift_catalog_info: "object-store:swift:internalURL"

## Cap the maximum number of threads / workers when a user value is
↳unspecified.
cinder_osapi_volume_workers_max: 16
cinder_osapi_volume_workers: >-
  {{ [(ansible_facts['processor_vcpus'] // ansible_facts['processor_threads_
↳per_core']) | default(1), 1] | max * 2, cinder_osapi_volume_workers_max] |
↳min }}

## Cinder iscsi
cinder_target_helper_mapping:
  RedHat: lioadm
  Debian: tgtadm
cinder_target_helper: "{{ cinder_target_helper_mapping[ansible_facts['os_
↳family']] }}"
cinder_iscsi_iotype: fileio
cinder_iscsi_num_targets: 100
cinder_iscsi_port: 3260

## Cinder RPC
cinder_rpc_executor_thread_pool_size: 64
cinder_rpc_response_timeout: 60

# (StrOpt) Method used to wipe old volumes (valid options are: none, zero)
cinder_volume_clear: zero
# (StrOpt) The flag to pass to ionice to alter the i/o priority of the process
# used to zero a volume after deletion, for example "-c3" for idle only
# priority.
cinder_volume_clear_ionice: -c3

# (IntOpt) Size in MiB to wipe at start of old volumes. 0 => all
cinder_volume_clear_size: 0

cinder_volume_name_template: volume-%s

# osprofiler
cinder_profiler_enabled: false
# cinder_profiler_hmac_key is set in user_secrets.yml
```

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```
cinder_profiler_trace_sqlalchemy: false

cinder_client_socket_timeout: 900

## Cinder quota
cinder_quota_volumes: 10
cinder_quota_snapshots: 10
cinder_quota_consistencygroups: 10
cinder_quota_gigabytes: 1000
cinder_quota_backups: 10
cinder_quota_backup_gigabytes: 1000

## General configuration
# cinder_backends:
#   lvm:
#     volume_group: cinder-volumes
#     volume_driver: cinder.volume.drivers.lvm.LVMVolumeDriver
#     volume_backend_name: LVM_iSCSI
#     extra_volume_types:
#       - lvm_high_iops
#       - lvm_low_iops

cinder_manage_volume_types: true

# Override generated device filter in lvm.conf
# Example:
# cinder_lvm_devices_filter_override:
#   - "a/sd.*/"
#   - "a/hd.*/"
cinder_lvm_devices_filter_override: []

# cinder_backend_lvm_inuse: True if current host has an lvm backend
cinder_backend_lvm_inuse: '{{ (cinder_backends | default("") | to_json).find(
  ↪"lvm") != -1 }}'
# cinder_backend_rbd_inuse: True if the current host has an rbd backend
cinder_backend_rbd_inuse: '{{ (cinder_backends | default("") | to_json).find(
  ↪"cinder.volume.drivers.rbd.RBDDriver") != -1 }}'

# Set to false if you want to explicitly disable active/active cluster
cinder_active_active_cluster: "{{ cinder_backend_rbd_inuse }}"
cinder_active_active_cluster_name: ceph

## Policy vars
# Provide a list of access controls to merge with the default
# access controls in the service code.
# cinder_policy_overrides:
#   "volume:create": ""
#   "volume:delete": ""
```

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```

# Comma separated list of Glance API servers
cinder_glance_api_servers: >-
  {{
    (
      glance_service_internalurl | default('http://localhost')
    ) | urlsplit('scheme') ~ '://' ~ (
      glance_service_internalurl | default('http://localhost')
    ) | urlsplit('netloc')
  }}

cinder_service_in_ldap: "{{ service_ldap_backend_enabled | default(False) }}"

# Common pip packages
cinder_pip_packages:
  - "git+{{ cinder_git_repo }}@{{ cinder_git_install_branch }}#egg=cinder"
  - cryptography
  - ecdsa
  - httplib2
  - keystonemiddleware
  - osprofiler
  - PyMySQL
  - pymemcache
  - python-memcached
  - systemd-python
  - "tooz[{{ cinder_coordination_driver }}"

# Specific pip packages provided by the user
cinder_user_pip_packages: []

cinder_api_init_overrides: {}
cinder_scheduler_init_overrides: {}
cinder_volume_init_overrides: {}
cinder_backup_init_overrides: {}

## Service Name-Group Mapping
cinder_services:
  cinder-scheduler:
    group: cinder_scheduler
    service_name: cinder-scheduler
    init_config_overrides: "{{ cinder_scheduler_init_overrides }}"
    start_order: 1
    execstarts: "{{ cinder_bin }}/cinder-scheduler"
    execreloads: "/bin/kill -HUP $MAINPID"
  cinder-volume:
    group: cinder_volume
    service_name: cinder-volume
    init_config_overrides: "{{ cinder_volume_init_overrides }}"
    start_order: 2
    execstarts: "{{ cinder_bin }}/cinder-volume"

```

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```

execreloads: "/bin/kill -HUP $MAINPID"
environment:
  MALLOC_ARENA_MAX: 1
  MALLOC_MMAP_THRESHOLD_: 131072
  MALLOC_TRIM_THRESHOLD_: 262144
cinder-backup:
  group: cinder_backup
  service_name: cinder-backup
  condition: "{{ cinder_service_backup_program_enabled | bool }}"
  init_config_overrides: "{{ cinder_backup_init_overrides }}"
  start_order: 3
  execstarts: "{{ cinder_bin }}/cinder-backup"
  execreloads: "/bin/kill -HUP $MAINPID"
  environment:
    MALLOC_ARENA_MAX: 1
    MALLOC_MMAP_THRESHOLD_: 131072
    MALLOC_TRIM_THRESHOLD_: 262144
cinder-api:
  group: cinder_api
  service_name: cinder-api
  init_config_overrides: "{{ cinder_api_init_overrides }}"
  start_order: 4
  wsgi_app: true
  wsgi_name: cinder-wsgi
  uwsgi_overrides: "{{ cinder_api_uwsgi_ini_overrides }}"
  uwsgi_port: "{{ cinder_service_port }}"
  uwsgi_tls: "{{ cinder_backend_ssl | ternary(cinder_uwsgi_tls, {}) }}"
  uwsgi_bind_address: "{{ cinder_uwsgi_bind_address }}"

# Cinder uWSGI settings
cinder_wsgi_processes_max: 16
cinder_wsgi_processes: "{{ [(ansible_facts['processor_vcpus'] | default(1),
↪1) | max * 2, cinder_wsgi_processes_max] | min }}"
cinder_wsgi_threads: 1
cinder_uwsgi_tls:
  crt: "{{ cinder_ssl_cert }}"
  key: "{{ cinder_ssl_key }}"

# Define the following dictionary variable to enable qos settings on volumes.
# cinder_qos_specs
# - name: high-iops
#   options:
#     consumer: front-end
#     read_iops_sec: 2000
#     write_iops_sec: 2000
# cinder_volume_types:
#   - volumes-1
#   - volumes-2
# - name: low-iops

```

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```

#  options:
#    consumer: front-end
#    write_iops_sec: 100

## Tunable overrides
cinder_policy_overrides: {}
cinder_rootwrap_conf_overrides: {}
cinder_api_paste_ini_overrides: {}
cinder_cinder_conf_overrides: {}
cinder_api_uwsgi_ini_overrides: {}
cinder_resource_filters_overrides: {}

## Set default cinder path in service units. The default override sets the
## execution path for the cinder service.
cinder_environment_overrides:
  Service:
    Environment: "PATH={{ cinder_bin }}:/usr/local/sbin:/usr/local/bin:/usr/
↳sbin:/usr/bin:/sbin:/bin"

cinder_memcached_servers: "{{ memcached_servers }}"

###
### Backend TLS
###

# Define if communication between haproxy and service backends should be
# encrypted with TLS.
cinder_backend_ssl: "{{ openstack_service_backend_ssl | default(False) }}"

# Storage location for SSL certificate authority
cinder_pki_dir: "{{ openstack_pki_dir | default('/etc/openstack_deploy/pki') }
↳}"

# Delegated host for operating the certificate authority
cinder_pki_setup_host: "{{ openstack_pki_setup_host | default('localhost') }}"

# cinder server certificate
cinder_pki_keys_path: "{{ cinder_pki_dir ~ '/certs/private/' }}"
cinder_pki_certs_path: "{{ cinder_pki_dir ~ '/certs/certs/' }}"
cinder_pki_intermediate_cert_name: "{{ openstack_pki_service_intermediate_
↳cert_name | default('ExampleCorpIntermediate') }}"
cinder_pki_regen_cert: ""
cinder_pki_san: "{{ openstack_pki_san | default('DNS:' ~ ansible_facts[
↳'hostname'] ~ ',IP:' ~ management_address) }}"
cinder_pki_certificates:
  - name: "cinder-{{ ansible_facts['hostname'] }}"
    provider: ownca
    cn: "{{ ansible_facts['hostname'] }}"
    san: "{{ cinder_pki_san }}"

```

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```

    signed_by: "{{ cinder_pki_intermediate_cert_name }}"

# cinder destination files for SSL certificates
cinder_ssl_cert: /etc/cinder/cinder.pem
cinder_ssl_key: /etc/cinder/cinder.key

# Installation details for SSL certificates
cinder_pki_install_certificates:
  - src: "{{ cinder_user_ssl_cert | default(cinder_pki_certs_path ~ 'cinder_' ~
    ↪~ ansible_facts['hostname'] ~ '-chain.crt') }}"
    dest: "{{ cinder_ssl_cert }}"
    owner: "{{ cinder_system_user_name }}"
    group: "{{ cinder_system_user_name }}"
    mode: "0644"
  - src: "{{ cinder_user_ssl_key | default(cinder_pki_keys_path ~ 'cinder_' ~
    ↪~ ansible_facts['hostname'] ~ '.key.pem') }}"
    dest: "{{ cinder_ssl_key }}"
    owner: "{{ cinder_system_user_name }}"
    group: "{{ cinder_system_user_name }}"
    mode: "0600"

# Define user-provided SSL certificates
# cinder_user_ssl_cert: <path to cert on ansible deployment host>
# cinder_user_ssl_key: <path to cert on ansible deployment host>

# Database cleanup
# Periodically purge shadow tables, where archived records are stored
cinder_purge_deleted: false
# When to start purge task.
cinder_purge_deleted_on_calendar: "*-*-* 01:00:00"
# Purge events that are older then the number of days below.
cinder_purge_deleted_before_days: "364"
# Delay the timer by a randomly selected amount of time.
cinder_purge_deleted_randomized_delay_sec: 0

```

DEPENDENCIES

This role needs pip \geq 7.1 installed on the target host.

This role needs to have the following variables defined:

```
# Comma separated list of Glance API servers  
cinder_glance_api_servers: "http://glance_server:9292"  
  
# Hostname or IP address of the Galera database  
cinder_galera_address: "1.2.3.4"
```

This list is not exhaustive at present. See role internals for further details.

EXAMPLE PLAYBOOK

```
---  
- name: Installation and setup of cinder  
  hosts: cinder_all  
  user: root  
  roles:  
    - role: "os_cinder"  
      tags: "os-cinder"  
  vars:  
    cinder_glance_api_servers: "http://glance_server:9292"  
    cinder_galera_address: "{{ internal_lb_vip_address }}"  
    galera_root_user: root  
  vars_prompt:  
    - name: "galera_root_password"  
      prompt: "What is galera_root_password?"
```


TAGS

This role supports two tags: `cinder-install` and `cinder-config`

The `cinder-install` tag can be used to install and upgrade.

The `cinder-config` tag can be used to maintain configuration of the service.