Monitoring Ceph Cluster with Ceph Dashboard
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Abstract

This guide explains how to use the Red Hat Ceph Storage Dashboard for monitoring and management purposes. Red Hat is committed to replacing problematic language in our code, documentation, and web properties. We are beginning with these four terms: master, slave, blacklist, and whitelist. Because of the enormity of this endeavor, these changes will be implemented gradually over several upcoming releases. For more details, see our CTO Chris Wright’s message.
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CHAPTER 1. CEPH DASHBOARD OVERVIEW

As a storage administrator, the Red Hat Ceph Storage Dashboard provides management and monitoring capabilities, allowing you to administer and configure the cluster, as well as visualize information and performance statistics related to it. The dashboard uses a web server hosted by the ceph-mgr daemon.

The dashboard is accessible from a web browser and includes many useful management and monitoring features, for example, to configure manager modules and monitor the state of OSDs.

1.1. PREREQUISITES

- System administrator level experience.

1.2. CEPH DASHBOARD COMPONENTS

The functionality of the dashboard is provided by multiple components.

- The Cephadm application for deployment.
- The embedded dashboard ceph-mgr module.
- The embedded Prometheus ceph-mgr module.
- The Prometheus time-series database.
- The Prometheus node-exporter daemon, running on each node of the storage cluster.
- The Grafana platform to provide monitoring user interface and alerting.

Additional Resources

- For more information, see the Prometheus website.
- For more information, see the Grafana website.

1.3. CEPH DASHBOARD FEATURES

The Ceph dashboard provides the following features:

- **Multi-user and role management** The dashboard supports multiple user accounts with different permissions and roles. User accounts and roles can be managed using both, the command line and the web user interface. The dashboard supports various methods to enhance password security. Password complexity rules may be configured, requiring users to change their password after the first login or after a configurable time period.

- **Single Sign-On (SSO)**: The dashboard supports authentication with an external identity provider using the SAML 2.0 protocol.

- **Auditing**: The dashboard backend can be configured to log all PUT, POST and DELETE API requests in the Ceph manager log.

Management features
- **View cluster hierarchy**: You can view the CRUSH map, for example, to determine which node a specific OSD ID is running on. This is helpful if there is an issue with an OSD.

- **Configure manager modules**: You can view and change parameters for Ceph manager modules.

- **Embedded Grafana Dashboards**: Ceph Dashboard Grafana dashboards might be embedded in external applications and web pages to surface information and performance metrics gathered by the Prometheus module.

- **View and filter logs**: You can view event and audit cluster logs and filter them based on priority, keyword, date, or time range.

- **Toggle dashboard components**: You can enable and disable dashboard components so only the features you need are available.

- **Manage OSD settings**: You can set cluster-wide OSD flags using the dashboard. You can also mark OSDs up, down or out, purge and reweight OSDs, perform scrub operations, modify various scrub-related configuration options, select profiles to adjust the level of backfilling activity. You can set and change the device class of an OSD, display and sort OSDs by device class. You can deploy OSDs on new drives and hosts.

- **iSCSI management**: Create, modify, and delete iSCSI targets.

- **Viewing Alerts**: The alerts page allows you to see details of current alerts.

- **Quality of Service for images**: You can set performance limits on images, for example limiting IOPS or read BPS burst rates.

**Monitoring features**

- **Username and password protection**: You can access the dashboard only by providing a configurable user name and password.

- **Overall cluster health**: Displays performance and capacity metrics. This also displays the overall cluster status, storage utilization, for example, number of objects, raw capacity, usage per pool, a list of pools and their status and usage statistics.

- **Hosts**: Provides a list of all hosts associated with the cluster along with the running services and the installed Ceph version.

- **Performance counters**: Displays detailed statistics for each running service.

- **Monitors**: Lists all Monitors, their quorum status and open sessions.

- **Configuration editor**: Displays all the available configuration options, their descriptions, types, default, and currently set values. These values are editable.

- **Cluster logs**: Displays and filters the latest updates to the cluster’s event and audit log files by priority, date, or keyword.

- **Device management**: Lists all hosts known by the Orchestrator. Lists all drives attached to a host and their properties. Displays drive health predictions, SMART data, and blink enclosure LEDs.

- **View storage cluster capacity**: You can view raw storage capacity of the Red Hat Ceph Storage cluster in the Capacity panels of the Ceph dashboard.
• **Pools**: Lists and manages all Ceph pools and their details. For example: applications, placement groups, replication size, EC profile, quotas, CRUSH ruleset, etc.

• **OSDs**: Lists and manages all OSDs, their status and usage statistics as well as detailed information like attributes, like OSD map, metadata, and performance counters for read and write operations. Lists all drives associated with an OSD.

• **iSCSI**: Lists all hosts that run the tcmu-runner service, displays all images and their performance characteristics, such as read and write operations or traffic and also displays the iSCSI gateway status and information about active initiators.

• **Images**: Lists all RBD images and their properties such as size, objects, and features. Create, copy, modify and delete RBD images. Create, delete, and rollback snapshots of selected images, protect or unprotect these snapshots against modification. Copy or clone snapshots, flatten cloned images.

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**NOTE**

The performance graph for I/O changes in the Overall Performance tab for a specific image shows values only after specifying the pool that includes that image by setting the `rbd_stats_pool` parameter in Cluster > Manager modules > Prometheus.

---

• **RBD Mirroring**: Enables and configures RBD mirroring to a remote Ceph server. Lists all active sync daemons and their status, pools and RBD images including their synchronization state.

• **Ceph File Systems**: Lists all active Ceph file system (CephFS) clients and associated pools, including their usage statistics. Evict active CephFS clients, manage CephFS quotas and snapshots, and browse a CephFS directory structure.

• **Object Gateway (RGW)**: Lists all active object gateways and their performance counters. Displays and manages, including add, edit, delete, object gateway users and their details, for example quotas, as well as the users’ buckets and their details, for example, owner or quotas.

• **NFS**: Manages NFS exports of CephFS and Ceph object gateway S3 buckets using the NFS Ganesha.

### Security features

• **SSL and TLS support**: All HTTP communication between the web browser and the dashboard is secured via SSL. A self-signed certificate can be created with a built-in command, but it is also possible to import custom certificates signed and issued by a Certificate Authority (CA).

### Additional Resources

• See Toggling Ceph dashboard features in the Red Hat Ceph Storage Dashboard Guide for more information.

### 1.4. RED HAT CEPH STORAGE DASHBOARD ARCHITECTURE

The Dashboard architecture depends on the Ceph manager dashboard plugin and other components. See the diagram below to understand how they work together.
CHAPTER 2. CEPH DASHBOARD INSTALLATION AND ACCESS

As a system administrator, you can access the dashboard with the credentials provided on bootstrapping the cluster.

Cephadm installs the dashboard by default. Following is an example of the dashboard URL:

| URL: https://host01:8443/ |
| User: admin |
| Password: zbiql951ar |

**NOTE**

Update the browser and clear the cookies prior to accessing the dashboard URL.

The following are the Cephadm bootstrap options that are available for the Ceph dashboard configurations:

- `[-initial-dashboard-user INITIAL_DASHBOARD_USER]` - Use this option while bootstrapping to set initial-dashboard-user.
- `[-initial-dashboard-password INITIAL_DASHBOARD_PASSWORD]` - Use this option while bootstrapping to set initial-dashboard-password.
- `[-ssl-dashboard-port SSL_DASHBOARD_PORT]` - Use this option while bootstrapping to set custom dashboard port other than default 8443.
- `[-dashboard-key DASHBOARD_KEY]` - Use this option while bootstrapping to set Custom key for SSL.
- `[-dashboard-crt DASHBOARD_CRT]` - Use this option while bootstrapping to set Custom certificate for SSL.
- `[-skip-dashboard]` - Use this option while bootstrapping to deploy Ceph without dashboard.
- `[-dashboard-password-noupdate]` - Use this option while bootstrapping if you used above two options and don’t want to reset password at the first time login.
- `[-allow-fqdn-hostname]` - Use this option while bootstrapping to allow hostname that is fully-qualified.
- `[-skip-prepare-host]` - Use this option while bootstrapping to skip preparing the host.

**NOTE**

To avoid connectivity issues with dashboard related external URL, use the fully qualified domain names (FQDN) for hostnames, for example, `host01.ceph.redhat.com`.

**NOTE**

Open the Grafana URL directly in the client internet browser and accept the security exception to see the graphs on the Ceph dashboard. Reload the browser to view the changes.
Example

[ceph: root@host01 /]# cephadm bootstrap --mon-ip 127.0.0.1 --registry-json cephadm.txt --initial-dashboard-user admin --initial-dashboard-password zbiql951ar --dashboard-password-noupdate --allow-fqdn-hostname

NOTE

While bootstrapping the storage cluster using cephadm, you can use the --image option for either custom container images or local container images.

NOTE

You have to change the password the first time you log into the dashboard with the credentials provided on bootstrapping only if --dashboard-password-noupdate option is not used while bootstrapping. You can find the Ceph dashboard credentials in the var/log/ceph/cephadm.log file. Search with the "Ceph Dashboard is now available at" string.

This section covers the following tasks:

- Network port requirements for Ceph dashboard.
- Accessing the Ceph dashboard.
- Expanding the cluster on the Ceph dashboard.
- Toggling Ceph dashboard features.
- Understanding the landing page of the Ceph dashboard.
- Enabling Red Hat Ceph Storage Dashboard manually.
- Changing the dashboard using the Ceph dashboard.
- Creating an admin account for syncing users to the Ceph dashboard.
- Syncing users to the Ceph dashboard using the Red Hat Single Sign-On.
- Enabling single sign-on for the Ceph dashboard.
- Disabling single sign-on for the Ceph dashboard.

2.1. NETWORK PORT REQUIREMENTS FOR CEPH DASHBOARD

The Ceph dashboard components use certain TCP network ports which must be accessible. By default, the network ports are automatically opened in firewall during installation of Red Hat Ceph Storage.

Table 2.1. TCP Port Requirements

<table>
<thead>
<tr>
<th>Port</th>
<th>Use</th>
<th>Originating Node</th>
<th>Destination Node</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port</td>
<td>Use</td>
<td>Originating Node</td>
<td>Destination Node</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------------------------------</td>
<td>------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>8443</td>
<td>The dashboard web interface</td>
<td>The Ceph Manager nodes.</td>
<td>IP addresses that need access to Ceph Dashboard UI.</td>
</tr>
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<td>8443</td>
<td>The dashboard web interface</td>
<td>IP addresses that need access to Ceph Dashboard UI.</td>
<td>The Ceph Manager nodes.</td>
</tr>
<tr>
<td>3000</td>
<td>Grafana</td>
<td>The node under [grafana-server].</td>
<td>IP addresses that need access to Grafana Dashboard UI and all MGR hosts and grafana-server or prometheus host.</td>
</tr>
<tr>
<td>3000</td>
<td>Grafana</td>
<td>IP addresses that need access to Grafana Dashboard UI and all MGR hosts and grafana-server or prometheus host.</td>
<td>The node under [grafana-server].</td>
</tr>
<tr>
<td>2049</td>
<td>NFS_Ganesha</td>
<td>The node under [grafana-server].</td>
<td>IP addresses that need access to NFS.</td>
</tr>
<tr>
<td>2049</td>
<td>NFS-Ganesha</td>
<td>IP addresses that need access to NFS.</td>
<td>The node under [grafana-server].</td>
</tr>
<tr>
<td>9095</td>
<td>Default Prometheus server for basic Prometheus graphs</td>
<td>The node under [grafana-server].</td>
<td>IP addresses that need access to Prometheus UI and all MGR hosts and grafana-server or prometheus host.</td>
</tr>
<tr>
<td>9095</td>
<td>Default Prometheus server for basic Prometheus graphs</td>
<td>IP addresses that need access to Prometheus UI and all MGR hosts and grafana-server or prometheus host.</td>
<td>The node under [grafana-server].</td>
</tr>
<tr>
<td>9093</td>
<td>Prometheus Alertmanager</td>
<td>All Ceph Manager nodes and the node under [grafana-server].</td>
<td>IP addresses that need access to Alertmanager Web UI and all MGR hosts and grafana-server or prometheus host.</td>
</tr>
<tr>
<td>Port</td>
<td>Use</td>
<td>Originating Node</td>
<td>Destination Node</td>
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<tr>
<td>9093</td>
<td>Prometheus Alertmanager</td>
<td>IP addresses that need access to Alertmanager Web UI and all MGR hosts and grafana-server or prometheus host.</td>
<td>All Ceph Manager nodes and the node under [grafana-server].</td>
</tr>
<tr>
<td>9094</td>
<td>Prometheus Alertmanager for configuring a highly available cluster made from multiple instances</td>
<td>All Ceph Manager nodes and the node under [grafana-server].</td>
<td>IP addresses that need access to Alertmanager Web UI and all MGR hosts and grafana-server or prometheus host.</td>
</tr>
<tr>
<td>9094</td>
<td>Prometheus Alertmanager for configuring a highly available cluster made from multiple instances</td>
<td>IP addresses that need access to Alertmanager Web UI and all MGR hosts and grafana-server or prometheus host.</td>
<td>All Ceph Manager nodes and the node under [grafana-server].</td>
</tr>
<tr>
<td>9100</td>
<td>The Prometheus node-exporter daemon</td>
<td>All storage cluster nodes, including MONs, OSDS, [grafana-server] host.</td>
<td>IP addresses that need to view Node Exporter metrics Web UI and all MGR nodes and grafana-server or prometheus host.</td>
</tr>
<tr>
<td>9100</td>
<td>The Prometheus node-exporter daemon</td>
<td>IP addresses that need to view Node Exporter metrics Web UI and all MGR nodes and grafana-server or prometheus host.</td>
<td>All storage cluster nodes, including MONs, OSDS, [grafana-server] host.</td>
</tr>
<tr>
<td>9283</td>
<td>Ceph Manager Prometheus exporter module</td>
<td>All Ceph Manager nodes.</td>
<td>IP addresses that need access to Ceph Exporter metrics Web UI and grafana-server or prometheus host.</td>
</tr>
<tr>
<td>9283</td>
<td>Ceph Manager Prometheus exporter module</td>
<td>IP addresses that need access to Ceph Exporter metrics Web UI and grafana-server or prometheus host.</td>
<td>All Ceph Manager nodes.</td>
</tr>
<tr>
<td>Port</td>
<td>Use</td>
<td>Originating Node</td>
<td>Destination Node</td>
</tr>
<tr>
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<td>----------------------------</td>
<td>--------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>9287</td>
<td>Ceph iSCSI gateway data</td>
<td>All Ceph iSCSI gateway nodes.</td>
<td>All MGR hosts and grafana-server or prometheus host.</td>
</tr>
<tr>
<td>9287</td>
<td>Ceph iSCSI gateway data</td>
<td>All MGR hosts and grafana-server or prometheus host.</td>
<td>All Ceph iSCSI gateway nodes.</td>
</tr>
</tbody>
</table>

Additional Resources

- For more information, see the *Red Hat Ceph Storage Installation Guide*.
- For more information, see *Using and configuring firewalls* in *Configuring and managing networking*.

## 2.2. ACCESSING THE CEPH DASHBOARD

You can access the Ceph dashboard to administer and monitor your Red Hat Ceph Storage cluster.

**Prerequisites**

- Successful installation of Red Hat Ceph Storage Dashboard.
- NTP is synchronizing clocks properly.

**Procedure**

1. Enter the following URL in a web browser:

   **Syntax**
   ```
   https://HOST_NAME:PORT
   ```

   Replace:
   - `HOST_NAME` with the fully qualified domain name (FQDN) of the active manager node.
   - `PORT` with port **8443**

   **Example**
   ```
   https://host01:8443
   ```

   You can also get the URL of the dashboard by running the following command in the Cephadm shell:

   **Example**
   ```
   [ceph: root@host01 /]# ceph mgr services
   ```
This command will show you all endpoints that are currently configured. Look for the **dashboard** key to obtain the URL for accessing the dashboard.

2. On the login page, enter the username **admin** and the default password provided during bootstrapping.

3. You have to change the password the first time you log in to the Red Hat Ceph Storage dashboard.

4. After logging in, the dashboard default landing page is displayed, which provides a high-level overview of status, performance, and capacity metrics of the Red Hat Ceph Storage cluster.

Figure 2.1. Ceph dashboard landing page

5. Click the following icon on the dashboard landing page to collapse or display the options in the vertical menu:

Figure 2.2. Vertical menu on the Ceph dashboard

Additional Resources

- For more information, see *Changing the dashboard password using the dashboard* in the *Red Hat Ceph Storage Dashboard guide*.

### 2.3. EXPANDING THE CLUSTER ON THE CEPH DASHBOARD

You can use the dashboard to expand the Red Hat Ceph Storage cluster for adding hosts, adding OSDs, and creating services such as Alertmanager, Cephadm-exporter, CephFS-mirror, Grafana, ingress, iSCSI, MDS, NFS, node-exporter, Prometheus, RBD-mirror, and Ceph Object Gateway.
Once you bootstrap a new storage cluster, the Ceph Monitor and Ceph Manager daemons are created and the cluster is in `HEALTH_WARN` state. After creating all the services for the cluster on the dashboard, the health of the cluster changes from `HEALTH_WARN` to `HEALTH_OK` status.

Prerequisites

- Bootstrapped storage cluster. See `Bootstrapping a new storage cluster` section in the *Red Hat Ceph Storage Installation Guide* for more details.

- At least `cluster-manager` role for the user on the Red Hat Ceph Storage Dashboard. See the *User roles and permissions on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide* for more details.

Procedure

1. Copy the admin key from the bootstrapped host to other hosts:

   **Syntax**
   
   ```bash
   ssh-copy-id -f -i /etc/ceph/ceph.pub root@HOST_NAME
   ``

   **Example**
   
   ```bash
   [ceph: root@host01 ]# ssh-copy-id -f -i /etc/ceph/ceph.pub root@host02
   [ceph: root@host01 ]# ssh-copy-id -f -i /etc/ceph/ceph.pub root@host03
   ```

2. Log in to the dashboard with the default credentials provided during bootstrap.

3. Change the password and log in to the dashboard with the new password.

4. On the landing page, click `Expand Cluster`.

   **Figure 2.3. Expand cluster**

Welcome to Red Hat Ceph Storage Dashboard

Please expand your cluster first

[Expand Cluster] [Skip]
5. Add hosts:
   a. In the Add Hosts window, click +Add.
   b. Provide the hostname. This is same as the hostname that was provided while copying the key from the bootstrapped host.

   **NOTE**
   You can use the tool tip in the Add Hosts dialog box for more details.
   c. Optional: Provide the respective IP address of the host.
   d. Optional: Select the labels for the hosts on which the services are going to be created.
   e. Click Add Host.
   f. Follow the above steps for all the hosts in the storage cluster.

6. In the Add Hosts window, click Next.

7. Create OSDs:
   a. In the Create OSDs window, for Primary devices, Click +Add.
   b. In the Primary Devices window, filter for the device and select the device.
   c. Click Add.
   d. Optional: In the Create OSDs window, if you have any shared devices such as WAL or DB devices, then add the devices.
   e. Optional: Click on the check-box Encryption to encrypt the features.
   f. In the Create OSDs window, click Next.

8. Create services:
   a. In the Create Services window, click +Create.
   b. In the Create Service dialog box,
      i. Select the type of the service from the drop-down.
      ii. Provide the service ID, a unique name of the service.
      iii. Provide the placement by hosts or label.
      iv. Select the hosts.
      v. Provide the number of daemons or services that need to be deployed.
   c. Click Create Service.

9. In the Create Service window, Click Next.

10. Review the Cluster Resources, Hosts by Services, Host Details. If you want to edit any parameter, click Back and follow the above steps.
11. Click *Expand Cluster*.

12. You get a notification that the cluster expansion was successful.

13. The cluster health changes to *HEALTH_OK* status on the dashboard.

**Verification**

1. Log in to the *cephadm* shell:

   **Example**

   ```
   [root@host01 ~]# cephadm shell
   ```

2. Run the *ceph -s* command.

   **Example**

   ```
   [ceph: root@host01 /]# ceph -s
   ```

   The health of the cluster is *HEALTH_OK*.

**Additional Resources**

- See the *User roles and permissions on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide* for more details.

- See the *Red Hat Ceph Storage Installation Guide* for more details.

### 2.4. TOGGING CEPH DASHBOARD FEATURES

You can customize the Red Hat Ceph Storage dashboard components by enabling or disabling features on demand. All features are enabled by default. When disabling a feature, the web-interface elements become hidden and the associated REST API end-points reject any further requests for that feature. Enabling and disabling dashboard features can be done from the command-line interface or the web interface.

Available features:
Ceph Block Devices:
  - Image management, rbd
  - Mirroring, mirroring
  - iSCSI gateway, iscsi

- Ceph Filesystem, cephfs
- Ceph Object Gateway, rgw
- NFS Ganesha gateway, nfs

**NOTE**
By default, the Ceph Manager is collocated with the Ceph Monitor.

**NOTE**
You can disable multiple features at once.

**IMPORTANT**
Once a feature is disabled, it can take up to 20 seconds to reflect the change in the web interface.

**Prerequisites**
- Installation and configuration of the Red Hat Ceph Storage dashboard software.
- User access to the Ceph Manager node or the dashboard web interface.
- Root level access to the Ceph manager node.

**Procedure**
- To toggle the dashboard features from the dashboard web interface:
  a. On the dashboard landing page, navigate to Cluster drop-down menu.
  b. Select Manager Modules, and then select Dashboard.
  c. In the Edit Manager module page, you can enable or disable the dashboard features by checking or unchecking the selection box next to the feature name.
d. Once the selections have been made, scroll down and click *Update*.

- To toggle the dashboard features from the command-line interface:
  a. Log in to the Cephadm shell:
    
    **Example**
    
    
    `[root@host01 ~]# cephadm shell`

  b. List the feature status:
    
    **Example**
    
    
    `[ceph: root@host01 /]# ceph dashboard feature status`

  c. Disable a feature:
    
    `[ceph: root@host01 /]# ceph dashboard feature disable iscsi`

    This example disables the Ceph iSCSI gateway feature.

  d. Enable a feature:
    
    `[ceph: root@host01 /]# ceph dashboard feature enable cephfs`

    This example enables the Ceph Filesystem feature.

### 2.5. UNDERSTANDING THE LANDING PAGE OF THE CEPH DASHBOARD
The landing page displays an overview of the entire Ceph cluster using navigation bars and individual panels.

The navigation bar provides the following options:

- Messages about tasks and notifications.
- Link to the documentation, Ceph Rest API, and details about the [storage product] Dashboard.
- Link to user management and telemetry configuration.
- Link to change password and sign out of the dashboard.

![Navigation bar](image)

Apart from that, the individual panel displays specific information about the state of the cluster.

**Categories**

The landing page organizes panels into the following three categories:

1. **Status**
2. **Capacity**
3. **Performance**

![Ceph dashboard landing page](image)

**Status panel**

The status panels display the health of the cluster and host and daemon states.

**Cluster Status:** Displays the current health status of the Ceph storage cluster.

**Hosts:** Displays the total number of hosts in the Ceph storage cluster.
Monitors: Displays the number of Ceph Monitors and the quorum status.

OSDs: Displays the total number of OSDs in the Ceph Storage cluster and the number that are \textit{up}, and \textit{in}.

Managers: Displays the number and status of the Manager Daemons.

Object Gateways: Displays the number of Object Gateways in the Ceph storage cluster.

Metadata Servers: Displays the number and status of metadata servers for Ceph Filesystems (CephFS).

iSCSI Gateways: Displays the number of iSCSI Gateways in the Ceph storage cluster.

Capacity panel
The capacity panel displays storage usage metrics.

Raw Capacity: Displays the utilization and availability of the raw storage capacity of the cluster.

Objects: Displays the total number of objects in the pools and a graph dividing objects into states of \textit{Healthy}, \textit{Misplaced}, \textit{Degraded}, or \textit{Unfound}.

PG Status: Displays the total number of Placement Groups and a graph dividing PGs into states of \textit{Clean}, \textit{Working}, \textit{Warning}, or \textit{Unknown}. To simplify display of PG states \textit{Working} and \textit{Warning} actually each encompass multiple states.

The \textit{Working} state includes PGs with any of these states:

- activating
- backfill\_wait
- backfilling
- creating
- deep
- degraded
- forced\_backfill
- forced\_recovery
- peering
- peered
- recovering
- recovery\_wait
- repair
- scrubbing
- snaptrim
- snaptrim_wait

The **Warning** state includes PGs with any of these states:
- backfill_toofull
- backfill_unfound
- down
- incomplete
- inconsistent
- recovery_toofull
- recovery_unfound
- remapped
- snaptrim_error
- stale
- undersized

**Pools:** Displays the number of storage pools in the Ceph cluster.

**PGs per OSD:** Displays the number of placement groups per OSD.

**Performance panel**

The performance panel display information related to data transfer speeds.

- **Client Read/Write:** Displays total input/output operations per second, reads per second, and writes per second.
- **Client Throughput:** Displays total client throughput, read throughput, and write throughput.
- **Recovery Throughput:** Displays the data recovery rate.
- **Scrubbing:** Displays whether Ceph is scrubbing data to verify its integrity.

**Additional Resources**

- For more information, see [Monitor the cluster on the Ceph dashboard](#) section in the *Red Hat Ceph Storage Dashboard guide* for more information.

### 2.6. CHANGING THE DASHBOARD PASSWORD USING THE CEPH DASHBOARD

By default, the password for accessing dashboard is randomly generated by the system while bootstrapping the cluster. You have to change the password the first time you log in to the Red Hat Ceph Storage dashboard. You can change the password for the **admin** user using the dashboard.

**Prerequisites**
• A running Red Hat Ceph Storage cluster.

Procedure

1. Log in to the dashboard:

   https://HOST_NAME:8443

2. Click the Dashboard Settings icon and then click User management.

   Figure 2.8. User management

3. To change the password of admin, click its row.

4. From the Edit drop-down menu, select Edit.

5. In the Edit User window, enter the new password, and change the other parameters, and then Click Edit User.

   Figure 2.9. Edit user management

   You will be logged out and redirected to the log-in screen. A notification appears confirming the password change.

2.7. ENABLING RED HAT CEPH STORAGE DASHBOARD MANUALLY

If you have installed a Red Hat Ceph Storage cluster by using --skip-dashboard option during
bootstrap, you can see that the dashboard URL and credentials are not available in the bootstrap output. You can enable the dashboard manually using the command-line interface. Although the monitoring stack components such as Prometheus, Grafana, Alertmanager, and node-exporter are deployed, they are disabled and you have to enable them manually.

**Prerequisite**

- A running Red Hat Ceph Storage cluster installed with `--skip-dashboard` option during bootstrap.
- Root-level access to the node on which the dashboard needs to be enabled.

**Procedure**

1. Log into the Cephadm shell:

   **Example**

   ```bash
   [root@host01 ~]# cephadm shell
   ```

2. Check the Ceph Manager services:

   **Example**

   ```bash
   [ceph: root@host01 /]# ceph mgr services
   {
     "prometheus": "http://10.8.0.101:9283/
   }
   ```

   You can see that the Dashboard URL is not configured.

3. Enable the dashboard module:

   **Example**

   ```bash
   [ceph: root@host01 /]# ceph mgr module enable dashboard
   ```

4. Create the self-signed certificate for the dashboard access:

   **Example**

   ```bash
   [ceph: root@host01 /]# ceph dashboard create-self-signed-cert
   ```

   **NOTE**

   You can disable the certificate verification to avoid certification errors.

5. Check the Ceph Manager services:

   **Example**
[ceph: root@host01 /]# ceph mgr services
{
  "dashboard": "https://10.8.0.101:8443/",
  "prometheus": "http://10.8.0.101:9283/"
}

6. Create the admin user and password to access the Red Hat Ceph Storage dashboard:

**Syntax**

```bash
echo -n "p@ssw0rd" > PASSWORD_FILE
ceph dashboard ac-user-create admin -i PASSWORD_FILE administrator
```

**Example**

```bash
[ceph: root@host01 /]# echo -n "p@ssw0rd" > password.txt
[ceph: root@host01 /]# ceph dashboard ac-user-create admin -i password.txt administrator
```

7. Enable the monitoring stack. See the [Enabling monitoring stack](#) section in the *Red Hat Ceph Storage Dashboard Guide* for details.

**Additional Resources**

- See the [Deploying the monitoring stack using the Ceph Orchestrator](#) section in the *Red Hat Ceph Storage Operations Guide*.

### 2.8. CREATING AN ADMIN ACCOUNT FOR SYNCING USERS TO THE CEPH DASHBOARD

You have to create an admin account to synchronize users to the Ceph dashboard.

After creating the account, use Red Hat Single Sign-on (SSO) to synchronize users to the Ceph dashboard. See the [Syncing users to the Ceph dashboard using Red Hat Single Sign-On](#) section in the *Red Hat Ceph Storage Dashboard Guide*.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level access to the dashboard.
- Users are added to the dashboard.
- Root-level access on all the nodes.

**Procedure**
1. Download the Red Hat Single Sign-On 7.4.0 Server on the system where Red Hat Ceph Storage is installed.

2. Unzip the folder:
   ```
   [root@host01 ~]# unzip rhsso-7.4.0.zip
   ```

3. Navigate to the standalone/configuration directory and open the standalone.xml for editing:
   ```
   [root@host01 ~]# cd standalone/configuration
   [root@host01 configuration]# vi standalone.xml
   ```

4. Replace all instances of localhost and two instances of 127.0.0.1 with the IP address of the machine where Red Hat SSO is installed.

5. Optional: For Red Hat Enterprise Linux 8, users might get Certificate Authority (CA) issues. Import the custom certificates from CA and move them into the keystore with the exact java version.

   **Example**
   ```
   [root@host01 ~]# keytool -import -noprompt -trustcacerts -alias ca -file ../ca.cer -keystore /etc/java/java-1.8.0-openjdk/java-1.8.0-openjdk-1.8.0.272.b10-3.el8_3.x86_64/lib/security/cacert
   ```

6. To start the server from the bin directory of rh-sso-7 folder, run the standalone boot script:
   ```
   [root@host01 bin]# ./standalone.sh
   ```

7. Create the admin account in https: IP_ADDRESS:8080/auth with a username and password:

   **NOTE**
   You have to create an admin account only the first time that you log into the console

8. Log into the admin console with the credentials created.

**Additional Resources**

- For adding roles for users on the dashboard, see the Creating roles on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more information.

- For creating users on the dashboard, see the Creating users on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide.

**2.9. SYNCING USERS TO THE CEPH DASHBOARD USING RED HAT SINGLE SIGN-ON**

You can use Red Hat Single Sign-on (SSO) with Lightweight Directory Access Protocol (LDAP) integration to synchronize users to the Red Hat Ceph Storage Dashboard.
The users are added to specific realms in which they can access the dashboard through SSO without any additional requirements of a password.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level access to the dashboard.
- Users are added to the dashboard. See the Creating users on dashboard section in the Red Hat Ceph Storage Dashboard Guide.
- Root-level access on all the nodes.
- Admin account created for syncing users. See the Creating an admin account for syncing users to the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide.

Procedure

1. To create a realm, click the Master drop-down menu. In this realm, you can provide access to users and applications.

2. In the Add Realm window, enter a case-sensitive realm name and set the parameter Enabled to ON and click Create:

3. In the Realm Settings tab, set the following parameters and click Save:
   a. Enabled - ON
   b. User-Managed Access - ON
   c. Make a note of the link address of SAML 2.0 Identity Provider Metadata to paste in Client Settings.
4. In the Clients tab, click Create:

5. In the Add Client window, set the following parameters and click Save:
   a. Client ID - BASE_URL:8443/auth/saml2/metadata
      
      Example
      https://example.ceph.redhat.com:8443/auth/saml2/metadata
   
   b. Client Protocol - saml

6. In the Client window, under Settings tab, set the following parameters:

   Table 2.2. Client Settings tab

<table>
<thead>
<tr>
<th>Name of the parameter</th>
<th>Syntax</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Client ID</td>
<td>BASE_URL:8443/auth/saml2/metadata</td>
<td><a href="https://example.ceph.redhat.com:8443/auth/saml2/metadata">https://example.ceph.redhat.com:8443/auth/saml2/metadata</a></td>
</tr>
<tr>
<td>Enabled</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>Client Protocol</td>
<td>saml</td>
<td>saml</td>
</tr>
<tr>
<td>Include AuthnState</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>
### Table 2.3. Fine Grain SAML configuration

<table>
<thead>
<tr>
<th>Name of the parameter</th>
<th>Syntax</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sign Documents</strong></td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td><strong>Signature Algorithm</strong></td>
<td>RSA_SHA1</td>
<td>RSA_SHA1</td>
</tr>
<tr>
<td><strong>SAML Signature Key Name</strong></td>
<td>KEY_ID</td>
<td>KEY_ID</td>
</tr>
<tr>
<td><strong>Valid Redirect URLs</strong></td>
<td>BASE_URL:8443/*</td>
<td><a href="https://example.ceph.redhat.com:8443/">https://example.ceph.redhat.com:8443/</a>*</td>
</tr>
<tr>
<td><strong>Base URL</strong></td>
<td>BASE_URL:8443</td>
<td><a href="https://example.ceph.redhat.com:8443">https://example.ceph.redhat.com:8443</a></td>
</tr>
</tbody>
</table>

**NOTE**

Paste the link of SAML 2.0 Identity Provider Metadata from Realm Settings tab.

Under Fine Grain SAML Endpoint Configuration, set the following parameters and click Save:
TABLE 2.4. Client Mappers tab

<table>
<thead>
<tr>
<th>Name of the parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protocol</td>
<td>saml</td>
</tr>
<tr>
<td>Name</td>
<td>username</td>
</tr>
<tr>
<td>Mapper Property</td>
<td>User Property</td>
</tr>
<tr>
<td>Property</td>
<td>username</td>
</tr>
<tr>
<td>SAML Attribute name</td>
<td>username</td>
</tr>
</tbody>
</table>

8. In the Clients Scope tab, select role_list:
   a. In Mappers tab, select role list, set the Single Role Attribute to ON.

9. Select User_Federation tab:
   a. In User Federation window, select ldap from the drop-down menu:
   b. In User_Federation window, Settings tab, set the following parameters and click Save:

   TABLE 2.5. User Federation Settings tab

<table>
<thead>
<tr>
<th>Name of the parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Console Display Name</td>
<td>rh-ldap</td>
</tr>
<tr>
<td>Import Users</td>
<td>ON</td>
</tr>
<tr>
<td>Edit_Mode</td>
<td>READ_ONLY</td>
</tr>
<tr>
<td>Username LDAP attribute</td>
<td>username</td>
</tr>
<tr>
<td>RDN LDAP attribute</td>
<td>username</td>
</tr>
</tbody>
</table>
### Name of the parameter | Value
--- | ---
**UUID LDAP attribute** | nsuniqueid
**User Object Classes** | inetOrgPerson
**organizationalPerson** | rhatPerson
**Connection URL** | Example: ldap://ldap.corp.redhat.com Click **Test Connection**. You will get a notification that the LDAP connection is successful.
**Users DN** | ou=users, dc=example, dc=com
**Bind Type** | simple

Click **Test authentication**. You will get a notification that the LDAP authentication is successful.

c. In *Mappers* tab, select first name row and edit the following parameter and Click **Save**:
- LDAP Attribute - givenName

d. In *User_Federation* tab, *Settings* tab, Click **Synchronize all users**:

You will get a notification that the sync of users is finished successfully.

10. In the *Users* tab, search for the user added to the dashboard and click the Search icon:
To view the user, click the specific row. You should see the federation link as the name provided for the User Federation.

**IMPORTANT**

Do not add users manually as the users will not be synchronized by LDAP. If added manually, delete the user by clicking Delete.
Verification

- Users added to the realm and the dashboard can access the Ceph dashboard with their mail address and password.

Example

https://example.ceph.redhat.com:8443

Additional Resources

- For adding roles for users on the dashboard, see the Creating roles on dashboard section in the Red Hat Ceph Storage Dashboard Guide for more information.

2.10. ENABLING SINGLE SIGN-ON FOR THE CEPH DASHBOARD

The Ceph Dashboard supports external authentication of users with the Security Assertion Markup Language (SAML) 2.0 protocol. Before using single sign-On (SSO) with the Ceph dashboard, create the dashboard user accounts and assign the desired roles. The Ceph Dashboard performs authorization of the users and the authentication process is performed by an existing Identity Provider (IdP). You can enable single sign-on using the SAML protocol.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Installation of the Ceph Dashboard.
- Root-level access to the Ceph Manager nodes.

Procedure

1. To configure SSO on Ceph Dashboard, run the following command:

   Syntax

   ```
   podman exec CEPH_MGR_NODE ceph dashboard sso setup saml2
   CEPH_DASHBOARD_BASE_URL IDP_METADATA
   IDP_USERNAME_ATTRIBUTE
   IDP_ENTITY_ID SP_X_509_CERT SP_PRIVATE_KEY
   ```

   Example

   ```
   [root@host01 ~]# podman exec host01 ceph dashboard sso setup saml2
   https://dashboard_hostname.ceph.redhat.com:8443 idp-metadata.xml username
   https://10.70.59.125:8080/auth/realms/realm_name /home/certificate.txt /home/private-key.txt
   ```

   Replace

   - `CEPH_MGR_NODE` with Ceph `mgr` node. For example, `host01`
   - `CEPH_DASHBOARD_BASE_URL` with the base URL where Ceph Dashboard is accessible.
   - `IDP_METADATA` with the URL to remote or local path or content of the IdP metadata XML. The supported URL types are http, https, and file.
- **Optional**: `IDP_USERNAME_ATTRIBUTE` with the attribute used to get the username from the authentication response. Defaults to `uid`.

- **Optional**: `IDP_ENTITY_ID` with the IdP entity ID when more than one entity ID exists on the IdP metadata.

- **Optional**: `SP_X_509_CERT` with the file path of the certificate used by Ceph Dashboard for signing and encryption.

- **Optional**: `SP_PRIVATE_KEY` with the file path of the private key used by Ceph Dashboard for signing and encryption.

2. Verify the current SAML 2.0 configuration:

   **Syntax**
   ```bash
   podman exec CEPH_MGR_NODE ceph dashboard sso show saml2
   ```

   **Example**
   ```bash
   [root@host01 ~]# podman exec host01 ceph dashboard sso show saml2
   ```

3. To enable SSO, run the following command:

   **Syntax**
   ```bash
   podman exec CEPH_MGR_NODE ceph dashboard sso enable saml2
   ```

   **Example**
   ```bash
   [root@host01 ~]# podman exec host01 ceph dashboard sso enable saml2
   ```

4. Open your dashboard URL.

   **Example**
   ```plaintext
   https://dashboard_hostname.ceph.redhat.com:8443
   ```

5. On the SSO page, enter the login credentials. SSO redirects to the dashboard web interface.

Additional Resources

- To disable single sign-on, see *Disabling Single Sign-on for the Ceph Dashboard* in the *Red Hat Ceph Storage Dashboard Guide*.

### 2.11. DISABLING SINGLE SIGN-ON FOR THE CEPH DASHBOARD

You can disable single sign-on for Ceph Dashboard using the SAML 2.0 protocol.

**Prerequisites**
• A running Red Hat Ceph Storage cluster.
• Installation of the Ceph Dashboard.
• Root-level access to the Ceph Manager nodes.
• Single sign-on enabled for Ceph Dashboard

Procedure

1. To view status of SSO, run the following command:

   Syntax
   
   `podman exec CEPH_MGR_NODE ceph dashboard sso status`
   
   SSO is "enabled" with "SAML2" protocol.

   Example
   
   `[root@host01 ~]# podman exec host01 ceph dashboard sso show saml2`

2. To disable SSO, run the following command:

   Syntax
   
   `podman exec CEPH_MGR_NODE ceph dashboard sso disable`
   
   SSO is "disabled".

   Example
   
   `[root@host01 ~]# podman exec host01 ceph dashboard sso disable`

Additional Resources

• To enable single sign-on, see *Enabling Single Sign-on for the Ceph Dashboard* in the *Red Hat Ceph StorageDashboard Guide*.  

CHAPTER 3. MANAGEMENT OF ROLES ON THE CEPH DASHBOARD

As a storage administrator, you can create, edit, clone, and delete roles on the dashboard.

By default, there are eight system roles. You can create custom roles and give permissions to those roles. These roles can be assigned to users based on the requirements.

This section covers the following administrative tasks:

- User roles and permissions on the Ceph dashboard.
- Creating roles on the Ceph dashboard.
- Editing roles on the Ceph dashboard.
- Cloning roles on the Ceph dashboard.
- Deleting roles on the Ceph dashboard.

3.1. USER ROLES AND PERMISSIONS ON THE CEPH DASHBOARD

User accounts are associated with a set of roles that define the specific dashboard functionality which can be accessed.

The Red Hat Ceph Storage dashboard functionality or modules are grouped within a security scope. Security scopes are predefined and static. The current available security scopes on the Red Hat Ceph Storage dashboard are:

- cephfs: Includes all features related to CephFS management.
- config-opt: Includes all features related to management of Ceph configuration options.
- dashboard-settings: Allows to edit the dashboard settings.
- grafana: Include all features related to Grafana proxy.
- hosts: Includes all features related to the Hosts menu entry.
- iscsi: Includes all features related to iSCSI management.
- log: Includes all features related to Ceph logs management.
- manager: Includes all features related to Ceph manager management.
- monitor: Includes all features related to Ceph monitor management.
- nfs-ganesha: Includes all features related to NFS-Ganesha management.
- osd: Includes all features related to OSD management.
- pool: Includes all features related to pool management.
- prometheus: Include all features related to Prometheus alert management.
- rbd-image: Includes all features related to RBD image management.
• **rbd-mirroring**: Includes all features related to RBD mirroring management.

• **rgw**: Includes all features related to Ceph object gateway (RGW) management.

A role specifies a set of mappings between a security scope and a set of permissions. There are four types of permissions:

- Read
- Create
- Update
- Delete
The list of system roles are:

- **administrator**: Allows full permissions for all security scopes.
- **block-manager**: Allows full permissions for RBD-image, RBD-mirroring, and iSCSI scopes.
- **cephfs-manager**: Allows full permissions for the Ceph file system scope.
cluster-manager: Allows full permissions for the hosts, OSDs, monitor, manager, and config-opt scopes.

ganesha-manager: Allows full permissions for the NFS-Ganesha scope.

pool-manager: Allows full permissions for the pool scope.

read-only: Allows read permission for all security scopes except the dashboard settings and config-opt scopes.

rgw-manager: Allows full permissions for the Ceph object gateway scope.

For example, you need to provide rgw-manager access to the users for all Ceph object gateway operations.

Additional Resources

- For creating users on the Ceph dashboard, see Creating users on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.

- For creating roles on the Ceph dashboard, see Creating roles on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.

3.2. CREATING ROLES ON THE CEPH DASHBOARD

You can create custom roles on the dashboard and these roles can be assigned to users based on their roles.

Prerequisites

- A running Red Hat Ceph Storage cluster.
Dashboard is installed.

Admin level of access to the Dashboard.

Procedure

1. Log in to the Dashboard.
2. Click the Dashboard Settings icon and then click User management.
3. On Roles tab, click Create:
4. In the Create Role window, set the Name, Description, and select the Permissions for this role, and then click the Create Role button:
In this example, if you give the \textit{ganesha-manager} and \textit{rgw-manager} roles, then the user assigned with these roles can manage all NFS-Ganesha gateway and Ceph object gateway operations.

5. You get a notification that the role was created successfully.

6. Click on the Expand/Collapse icon of the row to view the details and permissions given to the roles.

\textbf{Additional Resources}

\begin{itemize}
  \item See the \textit{User roles and permissions on the Ceph dashboard} section in the \textit{Red Hat Ceph Storage Dashboard Guide} for more details.
  \item See the \textit{Creating users on the Ceph dashboard} section in the \textit{Red Hat Ceph Storage Dashboard Guide} for more details.
\end{itemize}

\section*{3.3. EDITING ROLES ON THE CEPH DASHBOARD}

The dashboard allows you to edit roles on the dashboard.

\textbf{Prerequisites}

\begin{itemize}
  \item A running Red Hat Ceph Storage cluster.
  \item Dashboard is installed.
  \item Admin level of access to the Dashboard.
  \item A role is created on the dashboard.
\end{itemize}

\textbf{Procedure}

1. Log in to the Dashboard.

2. Click the \textit{Dashboard Settings} icon and then click \textit{User management}.

3. On \textit{Roles} tab, click the role you want to edit.

4. In the \textit{Edit Role} window, edit the parameters, and then click \textit{Edit Role}.
5. You get a notification that the role was updated successfully.

**Additional Resources**

- See the [Creating roles on the Ceph dashboard](https://example.com) section in the *Red Hat Ceph Storage Dashboard Guide* for more details.

### 3.4. CLONING ROLES ON THE CEPH DASHBOARD

When you want to assign additional permissions to existing roles, you can clone the system roles and edit it on the Red Hat Ceph Storage Dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level of access to the dashboard.
- Roles are created on the dashboard.
Procedure

1. Log in to the Dashboard.

2. Click the Dashboard Settings icon and then click User management.

3. On Roles tab, click the role you want to clone.

4. Select Clone from the Edit drop-down menu.

5. In the Clone Role dialog box, enter the details for the role, and then click Clone Role.

6. Once you clone the role, you can customize the permissions as per the requirements.

Additional Resources

- See the Creating roles on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.

3.5. DELETING ROLES ON THE CEPH DASHBOARD

You can delete the custom roles that you have created on the Red Hat Ceph Storage dashboard.

NOTE

You cannot delete the system roles of the Ceph Dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
• Admin level of access to the Dashboard.
• A custom role is created on the dashboard.

**Procedure**

1. Log in to the Dashboard.

2. Click the *Dashboard Settings* icon and then click *User management*.

3. On *Roles* tab, click the role you want to delete.

4. Select *Delete* from the *Edit* drop-down menu.

5. In the *Delete Role* dialog box, Click the *Yes, I am sure* box and then click *Delete Role*.

**Additional Resources**

• See the *Creating roles on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide* for more details.
CHAPTER 4. MANAGEMENT OF USERS ON THE CEPH DASHBOARD

As a storage administrator, you can create, edit, and delete users with specific roles on the Red Hat Ceph Storage dashboard. Role-based access control is given to each user based on their roles and the requirements.

This section covers the following administrative tasks:

- Creating users on the Ceph dashboard.
- Editing users on the Ceph dashboard.
- Deleting users on the Ceph dashboard.

4.1. CREATING USERS ON THE CEPH DASHBOARD

You can create users on the Red Hat Ceph Storage dashboard with adequate roles and permissions based on their roles. For example, if you want the user to manage Ceph object gateway operations, then you can give `rgw-manager` role to the user.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level of access to the Dashboard.

NOTE

The Red Hat Ceph Storage Dashboard does not support any email verification when changing a users password. This behavior is intentional, because the Dashboard supports Single Sign-On (SSO) and this feature can be delegated to the SSO provider.

Procedure

1. Log in to the Dashboard.

2. Click the Dashboard Settings icon and then click User management.

3. On Users tab, click Create.

4. In the Create User window, set the Username and other parameters including the roles, and then click Create User.
You get a notification that the user was created successfully.

**Additional Resources**

- See the [Creating roles on the Ceph dashboard](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details.

- See the [User roles and permissions on the Ceph dashboard](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details.

### 4.2. EDITING USERS ON THE CEPH DASHBOARD

You can edit the users on the Red Hat Ceph Storage dashboard. You can modify the user’s password and roles based on the requirements.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.

- Dashboard is installed.

- Admin level of access to the Dashboard.

- User created on the dashboard.

**Procedure**

1. Log in to the Dashboard.

2. Click the *Dashboard Settings* icon and then click *User management*. 
3. To edit the user, click the row.

4. On Users tab, select Edit from the Edit drop-down menu.

5. In the Edit User window, edit parameters like password and roles, and then click Edit User.

   ![Edit User window]

   **NOTE**
   
   If you want to disable any user’s access to the Ceph dashboard, you can uncheck Enabled option in the Edit User window.

6. You get a notification that the user was created successfully.

**Additional Resources**

- See the Creating users on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.

**4.3. DELETING USERS ON THE CEPH DASHBOARD**

You can delete users on the Ceph dashboard. Some users might be removed from the system. The access to such users can be deleted from the Ceph dashboard.
Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level of access to the Dashboard.
- User created on the dashboard.

Procedure

1. Log in to the Dashboard.

2. Click the Dashboard Settings icon and then click User management.

3. On Users tab, click the user you want to delete.

4. Select Delete from the Edit drop-down menu.

5. In the Delete User dialog box, Click the Yes, I am sure box and then Click Delete User to save the settings.

Additional Resources

- See the Creating users on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.
CHAPTER 5. MONITOR THE CLUSTER ON THE CEPH DASHBOARD

As a storage administrator, you can use Red Hat Ceph Storage Dashboard to monitor specific aspects of the cluster based on types of hosts, services, data access methods, and more.

This section covers the following administrative tasks:

- Monitoring hosts of the Ceph cluster on the dashboard.
- Viewing and editing the configuration of the Ceph cluster on the dashboard.
- Viewing and editing the manager modules of the Ceph cluster on the dashboard.
- Monitoring monitors of the Ceph cluster on the dashboard.
- Monitoring services of the Ceph cluster on the dashboard.
- Monitoring Ceph OSDs on the dashboard.
- Viewing the CRUSH map of the Ceph cluster on the dashboard.
- Filtering logs of the Ceph cluster on the dashboard.
- Monitoring pools of the Ceph cluster on the dashboard.
- Monitoring Ceph file systems on the dashboard.
- Monitoring Ceph object gateway daemons on the dashboard.
- Monitoring block device images on the Ceph dashboard.

5.1. MONITORING HOSTS OF THE CEPH CLUSTER ON THE DASHBOARD

You can monitor the hosts of the cluster on the Red Hat Ceph Storage Dashboard.

The following are the different tabs on the hosts page:

- **Devices** - This tab has details such as device ID, state of health, device name, and the daemons on the hosts.

- **Inventory** - This tab shows all disks attached to a selected host, as well as their type, size and others. It has details such as device path, type of device, available, vendor, model, size, and the OSDs deployed.

- **Daemons** - This tab shows all services that have been deployed on the selected host, which container they are running in and their current status. It has details such as hostname, daemon type, daemon ID, container ID, container image name, container image ID, version status and last refreshed time.

- **Performance details** - This tab has details such as OSDs deployed, CPU utilization, RAM usage, network load, network drop rate, and OSD disk performance statistics.

- **Device health** - For SMART-enabled devices, you can get the individual health status and SMART data only on the OSD deployed hosts.
Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Hosts are added to the storage cluster.
- All the services, monitor, manager and OSD daemons are deployed on the storage cluster.

Procedure

1. Log in to the Dashboard.
2. From the Cluster drop-down menu, select Hosts.
3. To view the details of a specific host, click the Expand/Collapse icon on its row.
4. You can view the details such as Devices, Inventory, Daemons, Performance Details, and Device Health by clicking the respective tabs.

Figure 5.1. Monitoring hosts of the Ceph cluster

Additional Resources

- See the Performance counters in the Red Hat Ceph Storage Administration Guide for more details.
5.2. VIEWING AND EDITING THE CONFIGURATION OF THE CEPH CLUSTER ON THE DASHBOARD

You can view various configuration options of the Ceph cluster on the dashboard. You can edit only some configuration options.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- All the services are deployed on the storage cluster.

Procedure

1. Log in to the Dashboard.
2. From the Cluster drop-down menu, select Configuration.
3. Optional: You can search for the configuration using the Search box:
4. Optional: You can filter for a specific configuration using following filters:
   - **Level** - Basic, advanced or dev
   - **Service** - Any, mon, mgr, osd, mds, common, mds_client, rgw, and similar filters.
   - **Source** - Any, mon, and similar filters
   - **Modified** - yes or no
5. To view the details of the configuration, click the Expand/Collapse icon on its row.
To edit a configuration, click its row and click **Edit**.

In the edit dialog window, edit the required parameters and click **Update**.

You get a notification that the configuration was updated successfully.

### Additional Resources

- See the [Ceph Network Configuration](#) chapter in the [Red Hat Ceph Storage Configuration Guide](#) for more details.

## 5.3. VIEWING AND EDITING THE MANAGER MODULES OF THE CEPH CLUSTER ON THE DASHBOARD

Manager modules are used to manage module-specific configuration settings. For example, you can enable alerts for the health of the cluster.

You can view, enable or disable, and edit the manager modules of a cluster on the Red Hat Ceph Storage dashboard.

### Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.

### Viewing the manager modules

1. Log in to the Dashboard.

2. From the **Cluster** drop-down menu, select **Manager Modules**.
3. To view the details of a specific manager module, click the Expand/Collapse icon on its row.

**Figure 5.3. Manager modules**

![Manager modules](image)

<table>
<thead>
<tr>
<th>Name</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>alerts</td>
<td></td>
</tr>
<tr>
<td>balancer</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>active</th>
<th>true</th>
</tr>
</thead>
<tbody>
<tr>
<td>begin_time</td>
<td>0000</td>
</tr>
<tr>
<td>begin_weekday</td>
<td>0</td>
</tr>
<tr>
<td>crush_compat_max_iterations</td>
<td>25</td>
</tr>
<tr>
<td>crush_compat_metrics</td>
<td>pgs,objects,bytes</td>
</tr>
<tr>
<td>crush_compat_step</td>
<td>0.5</td>
</tr>
</tbody>
</table>

**Enabling a manager module**

1. Select the row.

2. From the Edit drop-down menu, select *Enable*.

**Disabling a manager module**

1. Select the row.

2. From the Edit drop-down menu, select *Disable*.

**Editing a manager module**

1. Select the row:

   **NOTE**

   Not all modules have configurable parameters. If a module is not configurable, the Edit button is disabled.

2. Edit the required parameters and click *Update*.

3. You get a notification that the module was updated successfully.

**5.4. MONITORING MONITORS OF THE CEPH CLUSTER ON THE DASHBOARD**
You can monitor the performance of the Ceph monitors on the landing page of the Red Hat Ceph Storage dashboard. You can also view the details such as status, quorum, number of open session, and performance counters of the monitors in the Monitors tab.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Monitors are deployed in the storage cluster.

**Procedure**

1. Log in to the Dashboard.
2. From the Cluster drop-down menu, select Monitors.
3. The Monitors overview page displays information about the overall monitor status as well as tables of in Quorum and Not in quorum Monitor nodes.
4. To see the number of open sessions, hover the cursor over the blue dotted trail.
5. To see performance counters for any monitor, click its host name.

**Additional Resources**

- See the Ceph monitors section in the Red Hat Ceph Storage Operations guide.
- See the Performance counters in the Red Hat Ceph Storage Administration Guide for more details.
5.5. MONITORING SERVICES OF THE CEPH CLUSTER ON THE DASHBOARD

You can monitor the services of the cluster on the Red Hat Ceph Storage Dashboard. You can view the details such as hostname, daemon type, daemon ID, container ID, container image name, container image ID, version status and last refreshed time.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Hosts are added to the storage cluster.
- All the services are deployed on the storage cluster.

Procedure

1. Log in to the Dashboard.
2. From the Cluster drop-down menu, select Services.
3. To view the details of a specific service, click the Expand/Collapse icon on its row.
5.6. MONITORING CEPH OSDS ON THE DASHBOARD

You can monitor the status of the Ceph OSDs on the landing page of the Red Hat Ceph Storage Dashboard. You can also view the details such as host, status, device class, number of placement groups (PGs), size flags, usage, and read or write operations time in the OSDs tab.

The following are the different tabs on the OSDs page:

- **Devices** - This tab has details such as Device ID, state of health, life expectancy, device name, and the daemons on the hosts.

- **Attributes (OSD map)** - This tab shows the cluster address, details of heartbeat, OSD state, and the other OSD attributes.

- **Metadata** - This tab shows the details of the OSD object store, the devices, the operating system, and the kernel details.

Additional Resources

- See the [Ceph Orchestrators](http://redhatceph.com) in the *Red Hat Ceph Storage Operations Guide* for more details.
- **Device health** - For SMART-enabled devices, you can get the individual health status and SMART data.

- **Performance counter** - This tab gives details of the bytes written on the devices.

- **Performance Details** - This tab has details such as OSDs deployed, CPU utilization, RAM usage, network load, network drop rate, and OSD disk performance statistics.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.

- Dashboard is installed.

- Hosts are added to the storage cluster.

- All the services including OSDs are deployed on the storage cluster.

**Procedure**

1. Log in to the Dashboard.

2. From the Cluster drop-down menu, select OSDs.

3. To view the details of a specific OSD, click the Expand/Collapse icon on its row.

**Figure 5.5. Monitoring OSDs of the Ceph cluster**

You can view additional details such as Devices, Attributes (OSD map), Metadata, Device Health, Performance counter, and Performance Details by clicking on the respective tabs.
5.7. VIEWING THE CRUSH MAP OF THE CEPH CLUSTER ON THE DASHBOARD

You can view the CRUSH map that contains a list of OSDs and related information on the Red Hat Ceph Storage dashboard. Together, the CRUSH map and CRUSH algorithm determine how and where data is stored. The dashboard allows you to view different aspects of the CRUSH map, including OSD hosts, OSD daemons, ID numbers, device class, and more.

The CRUSH map allows you to determine which node a specific OSD ID is running on. This is helpful if there is an issue with an OSD.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- OSD daemons deployed on the storage cluster.

Procedure

1. Log in to the Dashboard.
2. From the Cluster drop-down menu, select CRUSH Map.
3. To view the details of the specific OSD, click its row.

Figure 5.6. CRUSH Map detail view

Additional Resources

- For more information about the CRUSH map, see CRUSH administration in the Red Hat Ceph Storage strategies guide.
You can view and filter logs of the Red Hat Ceph Storage cluster on the dashboard based on several criteria. The criteria include **Priority**, **Keyword**, **Date**, and **Time range**.

You can download the logs to the system or copy the logs to the clipboard as well for further analysis.

**Prerequisites**
- A running Red Hat Ceph Storage cluster.
- The Dashboard is installed.
- Log entries have been generated since the Ceph Monitor was last started.

**NOTE**
The Dashboard logging feature only displays the thirty latest high level events. The events are stored in memory by the Ceph Monitor. The entries disappear after restarting the Monitor. If you need to review detailed or older logs, refer to the file based logs.

**Procedure**
1. Log in to the Dashboard.
2. From the Cluster drop-down menu, select *Logs*.

**Figure 5.7. Cluster logs**

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Logs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority:</td>
<td>All</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date/Time</th>
<th>Priority</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/27/21 7:31:00 PM</td>
<td>[INF]</td>
<td>Applying service osd.dashboard-admin-1621424607412 on host ceph-adm12...</td>
</tr>
<tr>
<td>5/27/21 7:31:00 PM</td>
<td>[INF]</td>
<td>Applying service osd.dashboard-admin-1621424607412 on host ceph-adm11...</td>
</tr>
<tr>
<td>5/27/21 7:31:00 PM</td>
<td>[INF]</td>
<td>Applying service osd.dashboard-admin-1621424607412 on host ceph-adm10...</td>
</tr>
<tr>
<td>5/27/21 7:30:00 PM</td>
<td>[INF]</td>
<td>overall HEALTH_OK</td>
</tr>
<tr>
<td>5/27/21 7:29:47 PM</td>
<td>[INF]</td>
<td>Applying service osd.dashboard-admin-1621424607412 on host ceph-adm12...</td>
</tr>
<tr>
<td>5/27/21 7:29:47 PM</td>
<td>[INF]</td>
<td>Applying service osd.dashboard-admin-1621424607412 on host ceph-adm11...</td>
</tr>
<tr>
<td>5/27/21 7:29:47 PM</td>
<td>[INF]</td>
<td>Applying service osd.dashboard-admin-1621424607412 on host ceph-adm10...</td>
</tr>
<tr>
<td>5/27/21 7:28:40 PM</td>
<td>[INF]</td>
<td>Applying service osd.dashboard-admin-1621424607412 on host ceph-adm12...</td>
</tr>
<tr>
<td>5/27/21 7:28:40 PM</td>
<td>[INF]</td>
<td>Applying service osd.dashboard-admin-1621424607412 on host ceph-adm11...</td>
</tr>
<tr>
<td>5/27/21 7:28:40 PM</td>
<td>[INF]</td>
<td>Applying service osd.dashboard-admin-1621424607412 on host ceph-adm10...</td>
</tr>
</tbody>
</table>

a. To filter by priority, click the **Priority** drop-down menu and select either *Debug, Info, Warning, Error,* or *All.*

b. To filter by keyword, enter text into the **Keyword** field.
To filter by date, click the Date field and either use the date picker to select a date from the menu, or enter a date in the form of YYYY-MM-DD.

d. To filter by time, enter a range in the Time range fields using the HH:MM - HH:MM format. Hours must be entered using numbers 0 to 23.

e. To combine filters, set two or more filters.

3. Click the Download icon or Copy to Clipboard icon to download the logs.

Additional Resources

- See the Configuring Logging chapter in the Red Hat Ceph Storage Troubleshooting Guide for more information.

- See the Understanding Ceph Logs section in the Red Hat Ceph Storage Troubleshooting Guide for more information.

5.9. MONITORING POOLS OF THE CEPH CLUSTER ON THE DASHBOARD

You can view the details, performance details, configuration, and overall performance of the pools in a cluster on the Red Hat Ceph Storage Dashboard.

A pool plays a critical role in how the Ceph storage cluster distributes and stores data. If you have deployed a cluster without creating a pool, Ceph uses the default pools for storing data.

Prerequisites

- A running Red Hat Ceph Storage cluster.

- Dashboard is installed.

- Pools are created

Procedure

1. Log in to the Dashboard.

2. On the navigation bar, select Pools.

3. View the pools list which gives the details of Data protection and the application for which the pool is enabled. Hover the mouse over Usage, Read bytes, and Write bytes for the required details.

4. To view more information about a pool, click the Expand/Collapse icon on it's row.
Figure 5.8. Monitoring pools

<table>
<thead>
<tr>
<th>Pools</th>
<th>Overall Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ Create +</td>
<td></td>
</tr>
</tbody>
</table>

For more information about pools, see Ceph pools in the Red Hat Ceph Storage Architecture guide.

See the Creating pools on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.

5.10. MONITORING CEPH FILE SYSTEMS ON THE DASHBOARD

You can use the Red Hat Ceph Storage Dashboard to monitor Ceph File Systems (CephFS) and related components. There are four main tabs in File Systems:

- **Details** - View the metadata servers (MDS) and their rank plus any standby daemons, pools and their usage, and performance counters.
- **Clients** - View list of clients that have mounted the file systems.
- **Directories** - View list of directories.
- **Performance** - View the performance of the file systems.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- MDS service is deployed on at least one of the nodes.
- Ceph File System is installed.

Procedure

1. Log in to the dashboard.
2. On the navigation bar, click Filesystems.
To view more information about the file system, click the Expand/Collapse icon on its row.

**Figure 5.9. Monitoring Ceph File Systems**

<table>
<thead>
<tr>
<th>Name</th>
<th>Created</th>
</tr>
</thead>
<tbody>
<tr>
<td>test</td>
<td>5/20/21 7:20:30 PM</td>
</tr>
</tbody>
</table>

**Ranks**

<table>
<thead>
<tr>
<th>Rank</th>
<th>State</th>
<th>Daemon</th>
<th>Activity</th>
<th>Dentries</th>
<th>Inodes</th>
<th>Dirs</th>
<th>Cops</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>active</td>
<td>test.cephadm[0].flyfgj</td>
<td>Req/s: 0</td>
<td>10</td>
<td>13</td>
<td>12</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pools</th>
<th>Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>cephfs.test.data</td>
</tr>
<tr>
<td></td>
<td>cephfs.test.meta</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standbys</th>
<th>Standby daemons</th>
<th>test.ceph-adm[0].flyfgj</th>
</tr>
</thead>
</table>

**MDS performance counters**

<table>
<thead>
<tr>
<th>Test</th>
<th>cephadm[0].flyfgj</th>
</tr>
</thead>
</table>

**Additional Resources**

- For more information, see the *File System Guide*.

### 5.11. MONITORING CEPH OBJECT GATEWAY DAEMONS ON THE DASHBOARD

You can use the Red Hat Ceph Storage Dashboard to monitor Ceph object gateway daemons. You can view the details, performance counters and performance details of the Ceph object gateway daemons.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- At least one Ceph object gateway daemon configured in the storage cluster.

**Procedure**

1. Log in to the dashboard.
2. On the navigation bar, click *Object Gateway*. 
3. To view more information about the Ceph object gateway daemon, click the *Expand/Collapse* icon on its row.

**Figure 5.10. Monitoring Ceph object gateway daemons**

<table>
<thead>
<tr>
<th>ID</th>
<th>Hostname</th>
</tr>
</thead>
<tbody>
<tr>
<td>rgw.def2.magna25ndsaiv</td>
<td>magna25</td>
</tr>
</tbody>
</table>

If you have configured multiple Ceph Object Gateway daemons, click on the *Sync Performance* tab and view the multi-site performance counters.

**Additional Resources**
- For more information, see the [Red Hat Ceph Storage Ceph object gateway Guide](#).

### 5.12. Monitoring Block Device Images on the Ceph Dashboard.

You can use the Red Hat Ceph Storage Dashboard to monitor and manage Block device images. You can view the details, snapshots, configuration details, and performance details of the images.

**Prerequisites**
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
An image is created.

Procedure

1. Log in to the dashboard.
2. On the navigation bar, click Block.
3. To view more information about the images, click the Expand/Collapse icon on its row.

Figure 5.11. Monitoring Block device images

Additional Resources

- See the Creating images on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.
CHAPTER 6. MANAGEMENT OF ALERTS ON THE CEPH DASHBOARD

As a storage administrator, you can see the details of alerts and create silences for them on the Red Hat Ceph Storage dashboard. This includes the following pre-defined alerts:

- 10% OSDs Down
- Flapping OSD
- Health Error
- Health Warn
- High PG count deviation
- Low monitor quorum count
- MTU Mismatch
- Network packets errors
- Network packets dropped
- OSD down
- OSDs near full
- PGs inactive
- PGs unclean
- Pool filling up
- Pool full
- Root volume full
- Slow OSD Ops
- Storage filling up
### Figure 6.1. Pre-defined alerts

Cluster » **Monitoring** » **Alerts**

<table>
<thead>
<tr>
<th>Name</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>health error</td>
<td>critical</td>
</tr>
<tr>
<td>low monitor quorum count</td>
<td>critical</td>
</tr>
<tr>
<td>root volume full</td>
<td>critical</td>
</tr>
<tr>
<td>10% OSDs down</td>
<td>critical</td>
</tr>
<tr>
<td>OSDs near full</td>
<td>critical</td>
</tr>
<tr>
<td>pgs inactive</td>
<td>critical</td>
</tr>
<tr>
<td>pool full</td>
<td>critical</td>
</tr>
<tr>
<td>health warn</td>
<td>warning</td>
</tr>
<tr>
<td>Slow OSD Ops</td>
<td>warning</td>
</tr>
<tr>
<td>network packets dropped</td>
<td>warning</td>
</tr>
<tr>
<td>network packet errors</td>
<td>warning</td>
</tr>
<tr>
<td>storage filling up</td>
<td>warning</td>
</tr>
<tr>
<td>MTU Mismatch</td>
<td>warning</td>
</tr>
<tr>
<td>OSD down</td>
<td>warning</td>
</tr>
<tr>
<td>flapping OSD</td>
<td>warning</td>
</tr>
<tr>
<td>high pg count deviation</td>
<td>warning</td>
</tr>
<tr>
<td>pgs unclean</td>
<td>warning</td>
</tr>
<tr>
<td>pool filling up</td>
<td>warning</td>
</tr>
</tbody>
</table>
You can also monitor alerts using simple network management protocol (SNMP) traps. See the Configuration of SNMP traps chapter in the Red Hat Ceph Storage Operations Guide.

6.1. ENABLING MONITORING STACK

You can manually enable the monitoring stack of the Red Hat Ceph Storage cluster, such as Prometheus, Alertmanager, and Grafana, using the command-line interface.

You can use the Prometheus and Alertmanager API to manage alerts and silences.

Prerequisite

- A running Red Hat Ceph Storage cluster.
- Root-level access to all the nodes.

Procedure

1. Log into the cephadm shell:

   Example

   ```
   [root@host01 ~]# cephadm shell
   ```

2. Set the APIs for the monitoring stack:

   - Specify the host and port of the Alertmanager server:

     Syntax

     ```text
     ceph dashboard set-alertmanager-api-host 'ALERTMANAGER_API_HOST:PORT'
     ```

     Example

     ```
     [ceph: root@host01 ]#/# ceph dashboard set-alertmanager-api-host 'http://10.0.0.101:9093'
     Option ALERTMANAGER_API_HOST updated
     ```

   - To see the configured alerts, configure the URL to the Prometheus API. Using this API, the Ceph Dashboard UI verifies that a new silence matches a corresponding alert.

     Syntax

     ```text
     ceph dashboard set-prometheus-api-host 'PROMETHEUS_API_HOST:PORT'
     ```

     Example

     ```
     [ceph: root@host01 ]#/# ceph dashboard set-prometheus-api-host 'http://10.0.0.101:9095'
     Option PROMETHEUS_API_HOST updated
     ```

   After setting up the hosts, refresh your browser’s dashboard window.

   - Specify the host and port of the Grafana server:
Syntax

```bash
ceph dashboard set-grafana-api-url 'GRAFANA_API_URL:PORT'
```

Example

```bash
[ceph: root@host01 /]
# ceph dashboard set-grafana-api-url 'http://10.0.0.101:3000'
Option GRAFANA_API_URL updated
```

3. Get the Prometheus, Alertmanager, and Grafana API host details:

Example

```bash
[ceph: root@host01 /]
# ceph dashboard get-alertmanager-api-host
http://10.0.0.101:9093
[ceph: root@host01 /]
# ceph dashboard get-prometheus-api-host
http://10.0.0.101:9095
[ceph: root@host01 /]
# ceph dashboard get-grafana-api-url
http://10.0.0.101:3000
```

4. Optional: If you are using a self-signed certificate in your Prometheus, Alertmanager, or Grafana setup, disable the certificate verification in the dashboard. This avoids refused connections caused by certificates signed by an unknown Certificate Authority (CA) or that do not match the hostname.

   - For Prometheus:

     Example

     ```bash
     [ceph: root@host01 /]
     # ceph dashboard set-prometheus-api-ssl-verify False
     ```

   - For Alertmanager:

     Example

     ```bash
     [ceph: root@host01 /]
     # ceph dashboard set-alertmanager-api-ssl-verify False
     ```

   - For Grafana:

     Example

     ```bash
     [ceph: root@host01 /]
     # ceph dashboard set-grafana-api-ssl-verify False
     ```

5. Get the details of the self-signed certificate verification setting for Prometheus, Alertmanager, and Grafana:

Example

```bash
[ceph: root@host01 /]
# ceph dashboard get-prometheus-api-ssl-verify
[ceph: root@host01 /]
# ceph dashboard get-alertmanager-api-ssl-verify
[ceph: root@host01 /]
# ceph dashboard get-grafana-api-ssl-verify
```
6. Optional: If the dashboard does not reflect the changes, you have to disable and then enable the dashboard:

**Example**

```plaintext
[ceph: root@host01 /]# ceph mgr module disable dashboard
[ceph: root@host01 /]# ceph mgr module enable dashboard
```

**Additional Resources**

- See the *Bootstrap command options* section in the *Red Hat Ceph Storage Installation Guide*.
- See the *Red Hat Ceph Storage installation* chapter in the *Red Hat Ceph Storage Installation Guide*.
- See the *Deploying the monitoring stack using the Ceph Orchestrator* section in the *Red Hat Ceph Storage Operations Guide*.

### 6.2. VIEWING ALERTS ON THE CEPH DASHBOARD

After an alert has fired, you can view it on the Red Hat Ceph Storage Dashboard. You can edit the *Manager module* settings to trigger a mail when an alert is fired.

**Prerequisite**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- An alert fired.

**Procedure**

1. Log in to the Dashboard.
2. Customize the *alerts* module on the dashboard to get an email alert for the storage cluster:
   a. On the navigation menu, click *Cluster*.
   b. Select *Manager modules*.
   c. Select *alerts* module.
   d. In the *Edit* drop-down menu, select *Edit*.
   e. In the *Edit Manager module* window, update the required parameters and click *Update*.
3. On the navigation menu, click **Cluster**.

4. Select **Monitoring** from the drop-down menu.

5. To view details of the alert, click the **Expand/Collapse** icon on its row.

**Figure 6.3. Viewing alerts**
6. To view the source of an alert, click on its row, and then click Source.

6.3. CREATING A SILENCE ON THE CEPH DASHBOARD

You can create a silence for an alert for a specified amount of time on the Red Hat Ceph Storage Dashboard.

Prerequisite

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- An alert fired.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Cluster.
3. Select Monitoring from the drop-down menu.
4. To create silence for an alert, select it’s row.
5. Click +Create Silence.
6. In the Create Silence window, Add the details for the Duration and click Create Silence.
You get a notification that the silence was created successfully.

### 6.4. RE-CREATING A SILENCE ON THE CEPH DASHBOARD

You can re-create a silence from an expired silence on the Red Hat Ceph Storage Dashboard.

**Prerequisite**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- An alert fired.
- A silence created for the alert.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation menu, click Cluster.
3. Select Monitoring from the drop-down menu.
4. Click the Silences tab.
5. To recreate an expired silence, click its row.
6. Click the Recreate button.
7. In the Recreate Silence window, add the details and click Recreate Silence.

**Figure 6.5. Recreate silence**

![Recreate Silence window](image)

8. You get a notification that the silence was recreated successfully.

### 6.5. EDITING A SILENCE ON THE CEPH DASHBOARD

You can edit an active silence, for example, to extend the time it is active on the Red Hat Ceph Storage Dashboard. If the silence has expired, you can either recreate a silence or create a new silence for the alert.
Prerequisite

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- An alert fired.
- A silence created for the alert.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Cluster.
3. Select Monitoring from the drop-down menu.
4. Click the Silences tab.
5. To edit the silence, click its row.
6. In the Edit drop-down menu, select Edit.
7. In the Edit Silence window, update the details and click Edit Silence.
8. You get a notification that the silence was updated successfully.

**6.6. EXPIRING A SILENCE ON THE CEPH DASHBOARD**

You can expire a silence so any matched alerts will not be suppressed on the Red Hat Ceph Storage Dashboard.

**Prerequisite**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- An alert fired.
- A silence created for the alert.

**Procedure**
1. Log in to the Dashboard.

2. On the navigation menu, click Cluster.

3. Select Monitoring from the drop-down menu.

4. Click the Silences tab.

5. To expire a silence, click it’s row.

6. In the Edit drop-down menu, select Expire.

7. In the Expire Silence dialog box, select Yes, I am sure, and then click Expire Silence.

   Figure 6.7. Expire Silence

   ![Expire Silence dialog box]

   Are you sure that you want to expire ffdb900f-2fff-4959-810c-cdd09c7b9f57?

   Yes, I am sure.

   ![Expire Silence buttons]

   Cancel  Expire Silence

8. You get a notification that the silence was expired successfully.

6.7. ADDITIONAL RESOURCES

- For more information, see the Red Hat Ceph Storage Troubleshooting Guide.
CHAPTER 7. MANAGEMENT OF NFS GANESHA EXPORTS ON THE CEPH DASHBOARD

As a storage administrator, you can manage the NFS Ganesha exports that use Ceph object gateway as the backstore on the Red Hat Ceph Storage dashboard. You can deploy and configure, edit and delete the NFS ganesha daemons on the dashboard.

The dashboard manages NFS-Ganesha configuration files stored in RADOS objects on the Ceph Cluster. NFS-Ganesha must store part of their configuration in the Ceph cluster.

7.1. CONFIGURING NFS GANESHA DAEMONS ON THE CEPH DASHBOARD

You can configure NFS Ganesha on the dashboard after configuring the Ceph object gateway and enabling a dedicated pool for NFS-Ganesha using the command line interface.

NOTE
Red Hat Ceph Storage 5 supports only NFSv4 protocol.

Prerequisites
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Ceph Object gateway login credentials are added to the dashboard.
- A dedicated pool enabled and tagged with custom tag of nfs.
- At least ganesha-manager level of access on the Ceph dashboard.

Procedure

1. Log into the Cephadm shell:
   
   **Example**
   
   
   ```
   [root@host01 ~]# cephadm shell
   ```

2. Create the RADOS pool, namespace, and enable rgw:
   
   **Syntax**
   
   ```
   ceph osd pool create POOL_NAME_
   ceph osd pool application enable POOL_NAME freeform/rgw/rbd/cephfs/nfs
   ```

   **Example**
3. Deploy NFS-Ganesha gateway using placement specification in the command line interface:

**Syntax**

```bash
ceph orch apply nfs SERVICE_ID --pool POOL_NAME --namespace NAMESPACE --placement="NUMBER_OF_DAEMONS HOST_NAME_1 HOST_NAME_2 HOST_NAME_3"
```

**Example**

```bash
[ceph: root@host01 /]# ceph orch apply nfs foo --pool nfs-ganesha --namespace nfs-ns --placement="2 host01 host02"
```

This deploys an NFS-Ganesha cluster `nfsganesha` with one daemon on `host01` and `host02`.

4. Update `ganesha-clusters-rados-pool-namespace` parameter with the namespace and the service_ID:

**Syntax**

```bash
ceph dashboard set-ganesha-clusters-rados-pool-namespace POOL_NAME/SERVICE_ID
```

**Example**

```bash
[ceph: root@host01 /]# ceph dashboard set-ganesha-clusters-rados-pool-namespace nfsganesha/foo
```

5. On the dashboard landing page, click `NFS`.

6. Select `Create`.

7. In the `Create NFS export` window, set the following parameters and click `Create NFS export`:
   a. Cluster - Name of the cluster.
   b. Daemons - You can select all daemons.
   c. Storage Backend - You can select Object Gateway.
   d. Object Gateway User - Select the user created. In this example, it is `test_user`.
   e. Path - Any directory.
   f. NFS Protocol - NFSv4 is selected by default.
   g. Pseudo - root path
   h. Access Type
   i. Squash
   j. Transport Protocol
8. Verify the NFS daemon is configured:

   Example

   [ceph: root@host01 ~]$ ceph -s

9. As a root user, check if the NFS-service is active and running:

   Example

   [root@host01 ~]$ systemctl list-units | grep nfs

10. Mount the NFS export and perform a few I/O operations.

11. Once the NFS service is up and running, in the NFS-RGW container, comment out the `dir_chunk=0` parameter in `etc/ganesha/ganesha.conf` file. Restart the NFS-Ganesha service. This allows proper listing at the NFS mount.

   Verification

   - You can view the NFS daemon under buckets in the Ceph Object Gateway.
### Additional Resources

- For more information on deploying Ceph object gateway, see the *Deploying the Ceph object gateway using the command line interface* section in the *Red Hat Ceph Storage Operations guide*.

- For more information on adding object gateway login credentials to the dashboard, see the *Manually adding object gateway login credentials to the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard guide*.

- For more information on creating object gateway users on the dashboard, see the *Creating object gateway users on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard guide*.

- For more information on creating object gateway buckets on the dashboard, see the *Creating object gateway buckets on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard guide*.

- For more information on system roles, see the *System roles on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide*.

### 7.2. Editing NFS Ganesha Daemons on the Ceph Dashboard

You can edit the NFS Ganesha daemons on the Red Hat Ceph Storage dashboard.

#### Prerequisites

- A running Red Hat Ceph Storage cluster.

- At least *ganesha-manager* level of access on the Ceph dashboard.

- NFS Ganesha daemon configured on the dashboard.

#### Procedure

1. On the dashboard, click *NFS*.

2. Click the row that needs to be edited.

3. From the *Edit* drop-down menu, click *Edit*.

4. In the *Edit NFS export* window, edit the required parameters and click *Edit NFS export*.
Verification

- You will get a notification that the NFS ganesha is updated successfully.

Additional Resources

- For more information on configuring NFS Ganesha, see Configuring NFS Ganesha daemons on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.

- For more information on adding object gateway login credentials to the dashboard, see the Manually adding object gateway login credentials to the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.

- For more information on creating object gateway users on the dashboard, see the Creating object gateway users on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.

- For more information on creating object gateway buckets on the dashboard, see the Creating object gateway buckets on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.
For more information on system roles, see the System roles on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide.

7.3. DELETING NFS GANESHA DAEMONS ON THE CEPH DASHBOARD

The Ceph dashboard allows you to delete the NFS Ganesha daemons.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- At least `ganesha-manager` level of access on the Ceph dashboard.
- NFS Ganesha daemon configured on the dashboard.

Procedure

1. On the dashboard, click NFS.
2. Click the row that needs to be delete.
3. From the Edit drop-down menu, click Delete.
4. In the Delete NFS export dialog box, check Yes, I am sure and click Delete NFS export.

Verification

- The selected row is deleted successfully.

Additional Resources

- For more information on configuring NFS Ganesha, see Configuring NFS Ganesha daemons on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.
- For more information on adding object gateway login credentials to the dashboard, see the Manually adding object gateway login credentials to the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.
- For more information on creating object gateway users on the dashboard, see the Creating object gateway users on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.
• For more information on creating object gateway buckets on the dashboard, see the Creating object gateway buckets on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.

• For more information on system roles, see the System roles on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide.
CHAPTER 8. MANAGEMENT OF POOLS ON THE CEPH DASHBOARD

As a storage administrator, you can create, edit, and delete pools on the Red Hat Ceph Storage dashboard.

This section covers the following administrative tasks:

- Creating pools on the Ceph dashboard.
- Editing pools on the Ceph dashboard.
- Deleting pools on the Ceph dashboard.

8.1. CREATING POOLS ON THE CEPH DASHBOARD

When you deploy a storage cluster without creating a pool, Ceph uses the default pools for storing data. You can create pools to logically partition your storage objects on the Red Hat Ceph Storage dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.

Procedure

1. Log in to the dashboard.
2. On the navigation menu, click Pools.
3. Click Create.
4. In the Create Pool window, set the following parameters:
Figure 8.1. Creating pools

- Set the name of the pool and select the pool type.
- Select either replicated or Erasure Coded (EC) pool type.
- Set the Placement Group (PG) number.
- Optional: If using a replicated pool type, set the replicated size.
- Optional: If using an EC pool type configure the following additional settings.
- Optional: To see the settings for the currently selected EC profile, click the question mark.
- Optional: Add a new EC profile by clicking the plus symbol.
- Optional: Click the pencil symbol to select an application for the pool.
- Optional: Set the CRUSH rule, if applicable.
- Optional: If compression is required, select passive, aggressive, or force.
- Optional: Set the Quotas.
- Optional: Set the Quality of Service configuration.
5. Click Create Pool.

6. You get a notification that the pool was created successfully.

Additional Resources

- For more information, see Ceph pools section in the Red Hat Ceph Storage Architecture Guide for more details.

8.2. EDITING POOLS ON THE CEPH DASHBOARD

You can edit the pools on the Red Hat Ceph Storage Dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool is created.

Procedure

1. Log in to the dashboard.

2. On the navigation menu, click Pools.

3. To edit the pool, click its row.


5. In the Edit Pool window, edit the required parameters and click Edit Pool:
6. You get a notification that the pool was created successfully.

**Additional Resources**

- See the *Ceph pools* in the *Red Hat Ceph Storage Architecture Guide* for more information.
- See the *Pool values* in the *Red Hat Ceph Storage Storage Strategies Guide* for more information on Compression Modes.

**8.3. DELETING POOLS ON THE CEPH DASHBOARD**

You can delete the pools on the Red Hat Ceph Storage Dashboard. Ensure that value of `mon_allow_pool_delete` is set to `True` in Manager modules.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool is created.
Procedure

1. Log in to the dashboard.
2. On the navigation bar, in Cluster drop-down menu, click Configuration.
3. In the Level drop-down menu, select Advanced:
4. Search for mon_allow_pool_delete, click Edit
5. Set all the values to true:

Figure 8.3. Configuration to delete pools

6. On the navigation bar, click Pools:
7. To delete the pool, click on its row:
8. From Edit drop-down menu, select Delete.
9. In the Delete Pool window, Click the Yes, I am sure box and then Click Delete Pool to save the settings:
Figure 8.4. Delete pools

Delete Pool

Are you sure that you want to delete test_pool?

Yes, I am sure.

Additional Resources

- See the Ceph pools in the Red Hat Ceph Storage Architecture Guide for more information.
- See the Pool values in the Red Hat Ceph Storage Storage Strategies Guide for more information on Compression Modes.
CHAPTER 9. MANAGEMENT OF CEPH OSDS ON THE DASHBOARD

As a storage administrator, you can monitor and manage OSDs on the Red Hat Ceph Storage Dashboard.

Some of the capabilities of the Red Hat Ceph Storage Dashboard are:

- List OSDs, their status, statistics, information such as attributes, metadata, device health, performance counters and performance details.
- Mark OSDs down, in, out, lost, purge, reweight, scrub, deep-scrub, destroy, delete, and select profiles to adjust backfilling activity.
- List all drives associated with an OSD.
- Set and change the device class of an OSD.
- Deploy OSDs on new drives and hosts.

9.1. PREREQUISITES

- A running Red Hat Ceph Storage cluster
- cluster-manager level of access on the Red Hat Ceph Storage dashboard

9.2. MANAGING THE OSDS ON THE CEPH DASHBOARD

You can carry out the following actions on a Ceph OSD on the Red Hat Ceph Storage Dashboard:

- Create a new OSD.
- Edit the device class of the OSD.
- Mark the Flags as No Up, No Down, No In, or No Out.
- Scrub and deep-scrub the OSDs.
- Reweight the OSDs.
- Mark the OSDs Out, In, Down, or Lost.
- Purge the OSDs.
- Destroy the OSDs.
- Delete the OSDs.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Hosts are added to the storage cluster.
All the services including OSDs are deployed on the storage cluster.

**Procedure**

1. Log in to the Dashboard.
2. From the Cluster drop-down menu, select OSDs.

**Creating an OSD**

1. To create the OSD, click Create.
   a. In the Create OSDs window, click +Add for Primary devices.
   b. In the Primary devices dialog box, from the Hostname drop-down list, select any one filter. From Any drop-down list, select the respective option.

   **NOTE**

   You have to select the Hostname first and then at least one filter to add the devices.

   For example, from Hostname list, select Type and from Any list select hdd. Select Vendor and from Any list, select ATA.

   **Figure 9.1. Add device for OSDs**

   Primary devices

   ![Primary devices table](image)

   c. Click Add.
   d. In the Create OSDs window, click the Preview button.
   e. In the OSD Creation Preview dialog box, Click Create.
   f. You get a notification that the OSD was created successfully.
   g. The OSD will change the status to in and down to in and up.

**Editing an OSD**

1. To edit an OSD, select the row.
   a. From Edit drop-down menu, select Edit.
   b. Edit the device class.
c. Click Edit OSD.

Figure 9.2. Edit an OSD

You get a notification that the OSD was updated successfully.

Marking the Flags of OSDs

1. To mark the flag of the OSD, select the row.
   a. From Edit drop-down menu, select Flags.
   b. Mark the Flags with No Up, No Down, No In, or No Out.
   c. Click Update.

Figure 9.3. Marking Flags of an OSD

Individual OSD Flags

- **No Up**
  OSDs are not allowed to start

- **No Down**
  OSD failure reports are being ignored, such that the monitors will not mark OSDs down

- **No In**
  OSDs that were previously marked out will not be marked back in when they start

- **No Out**
  OSDs will not automatically be marked out after the configured interval
d. You get a notification that the flags of the OSD was updated successfully.

**Scrubbing the OSDs**

1. To scrub the OSD, select the row.
   a. From *Edit* drop-down menu, select *Scrub*.
   b. In the *OSDs Scrub* dialog box, click *Update*.

   ![Figure 9.4. Scrubbing an OSD](image)

   You are about to apply a scrub to the OSD(s): 9.

   ![Cancel Update](image)

   c. You get a notification that the scrubbing of the OSD was initiated successfully.

**Deep-scrubbing the OSDs**

1. To deep-scrub the OSD, select the row.
   a. From *Edit* drop-down menu, select *Deep scrub*.
   b. In the *OSDs Deep Scrub* dialog box, click *Update*.

   ![Figure 9.5. Deep-scrubbing an OSD](image)

   You are about to apply a deep scrub to the OSD(s): 9.

   ![Cancel Update](image)

   c. You get a notification that the deep scrubbing of the OSD was initiated successfully.

**Reweighting the OSDs**

1. To reweight the OSD, select the row.
   a. From *Edit* drop-down menu, select *Reweight*. 
In the Reweight OSD dialog box, enter a value between zero and one.

c. Click Reweight.

Figure 9.6. Reweighting an OSD

Marking OSDs Out

1. To mark the OSD out, select the row.
   
a. From Edit drop-down menu, select Mark Out.

   b. In the Mark OSD out dialog box, click Mark Out.

   Figure 9.7. Marking OSDs out

   Mark OSD out

   OSD(s) 9 will be marked out if you proceed.

   
   
   c. The status of the OSD will change to out.

Marking OSDs In

1. To mark the OSD in, select the OSD row that is in out status.
   
a. From Edit drop-down menu, select Mark In.

   b. In the Mark OSD in dialog box, click Mark In.
Marking OSDs in

Figure 9.8. Marking OSDs in

Mark OSD in

**OSD(s)** 9 will be marked in if you proceed.

- The status of the OSD will change to *in*.

**Marking OSDs Down**

1. To mark the OSD down, select the row.
   - From *Edit* drop-down menu, select *Mark Down*.
   - In the *Mark OSD down* dialog box, click *Mark Down*.

Figure 9.9. Marking OSDs down

Mark OSD down

**OSD(s)** 9 will be marked down if you proceed.

- The status of the OSD will change to *down*.

**Marking OSDs Lost**

1. To mark the OSD lost, select the OSD in *out* and *down* status.
   - From *Edit* drop-down menu, select *Mark Lost*.
   - In the *Mark OSD Lost* dialog box, check *Yes, I am sure* option, and click *Mark Lost*. 
Purging OSDs

1. To purge the OSD, select the OSD in down status.
   a. From Edit dropdown menu, select Purge.
   b. In the Purge OSDs dialog box, check Yes, I am sure option, and click Purge OSD.

   c. All the flags are reset and the OSD is back in in and up status.

Destroying OSDs
1. To destroy the OSD, select the OSD in down status.
   a. From Edit drop-down menu, select Destroy.
   b. In the Destroy OSDs dialog box, check Yes, I am sure option, and click Destroy OSD.

Figure 9.12. Destroying OSDs

```
Destroy OSD
```

```
Warning
The OSD is not safe to be destroyed!
```

OSD 9 will be destroyed if you proceed.

Are you sure that you want to destroy the selected OSD?

☑ Yes, I am sure.

1. The status of the OSD changes to destroyed.

Deleting OSDs

1. To delete the OSD, select the OSD in down status.
   a. From Edit drop-down menu, select Delete.
   b. In the Destroy OSDs dialog box, check Yes, I am sure option, and click Delete OSD.

NOTE
You can preserve the OSD_ID when you have to to replace the failed OSD.
9.3. REPLACING THE FAILED OSDS ON THE CEPH DASHBOARD

You can replace the failed OSDs in a Red Hat Ceph Storage cluster with the `cluster-manager` level of access on the dashboard. One of the highlights of this feature on the dashboard is that the OSD IDs can be preserved while replacing the failed OSDs.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- At least `cluster-manager` level of access to the Ceph Dashboard.
- At least one of the OSDs is **down**

**Procedure**

1. On the dashboard, you can identify the failed OSDs in the following ways:
   - Dashboard AlertManager pop-up notifications.
   - Dashboard landing page showing `HEALTH_WARN` status.
   - Dashboard landing page showing failed OSDs.
   - Dashboard OSD page showing failed OSDs.

In this example, you can see that one of the OSDs is down on the landing page of the dashboard.
Apart from this, on the physical drive, you can view the LED lights blinking if one of the OSDs is down.

2. Click OSDs.

3. Select the **out** and **down** OSD:
   a. From the *Edit* drop-down menu, select *Flags* and select *No Up* and click *Update*.
   b. From the *Edit* drop-down menu, select *Delete*.
   c. In the *Delete OSD* dialog box, select the *Preserve OSD ID(s) for replacement* and *Yes, I am sure* check boxes.
   d. Click *Delete OSD*.
   e. Wait till the status of the OSD changes to **out** and **destroyed** status.

4. Optional: If you want to change the *No Up* Flag for the entire cluster, in the *Cluster-wide configuration* drop-down menu, select *Flags*.
   a. In *Cluster-wide OSDs Flags* dialog box, select *No Up* and click Update.

5. Optional: If the OSDs are down due to a hard disk failure, replace the physical drive:
   - If the drive is hot-swappable, replace the failed drive with a new one.
   - If the drive is not hot-swappable and the node contains multiple OSDs, you might have to shut down the whole node and replace the physical drive. Consider preventing the cluster from backfilling. See the *Stopping and Starting Rebalancing* chapter in the *Red Hat Ceph Storage Troubleshooting Guide* for details.
   - When the drive appears under the */dev/* directory, make a note of the drive path.
   - If you want to add the OSD manually, find the OSD drive and format the disk.
   - If the new disk has data, zap the disk:
     
     **Syntax**
     
     ```
     ceph orch device zap HOST_NAME PATH --force
     ```

     **Example**
     
     ```
     ceph orch device zap ceph-adm2 /dev/sdc --force
     ```

6. From the *Create* drop-down menu, select *Create*.

7. In the *Create OSDs* window, click +Add for Primary devices.
   a. In the *Primary devices* dialog box, from the *Hostname* drop-down list, select any one filter. From *Any* drop-down list, select the respective option.
NOTE

You have to select the Hostname first and then at least one filter to add the devices.

For example, from **Hostname** list, select **Type** and from **Any** list select **hdd**. Select **Vendor** and from **Any** list, select **ATA**.

Primary devices

<table>
<thead>
<tr>
<th>Hostname</th>
<th>Device path</th>
<th>Type</th>
<th>Vendor</th>
<th>Model</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>ceph-0</td>
<td>/dev/sdo</td>
<td>HDD</td>
<td>OEMU</td>
<td>OEMU_HARDDISK</td>
<td>30 GB</td>
</tr>
</tbody>
</table>

b. Click **Add**.

c. In the **Create OSDs window**, click the **Preview** button.

d. In the **OSD Creation Preview** dialog box, click **Create**.

e. You will get a notification that the OSD is created. The OSD will be in **out** and **down** status.

8. Select the newly created OSD that has **out** and **down** status.

   a. In the **Edit** drop-down menu, select **Mark-in**.

   b. In the **Mark OSD in** window, select **Mark in**.

   c. In the **Edit** drop-down menu, select **Flags**.

   d. Uncheck **No Up** and click **Update**.

9. Optional: If you have changed the **No Up** Flag before for cluster-wide configuration, in the **Cluster-wide configuration** menu, select **Flags**.

   a. In **Cluster-wide OSDs Flags** dialog box, uncheck **No Up** and click **Update**.

**Verification**

1. Verify that the OSD that was destroyed is created on the device and the OSD ID is preserved.

**Additional Resources**
For more information on Down OSDs, see the *Down OSDs* section in the *Red Hat Ceph Storage Troubleshooting Guide*.

For additional assistance see the *Red Hat Support for service* section in the *Red Hat Ceph Storage Troubleshooting Guide*.

For more information on system roles, see the *System roles on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide*.
CHAPTER 10. MANAGEMENT OF CEPH OBJECT GATEWAY USING THE DASHBOARD

As a storage administrator, the Ceph Object Gateway functions of the dashboard allow you to manage and monitor the Ceph Object Gateway.

You can also create the Ceph Object Gateway services with Secure Sockets Layer (SSL) using the dashboard.

For example, monitoring functions allow you to view details about a gateway daemon such as its zone name, or performance graphs of GET and PUT rates. Management functions allow you to view, create, and edit both users and buckets.

Ceph object gateway functions are divided between user functions and bucket functions.

10.1. MANUALLY ADDING CEPH OBJECT GATEWAY LOGIN CREDENTIALS TO THE DASHBOARD

The Red Hat Ceph Storage Dashboard can manage the Ceph Object Gateway, also known as the RADOS Gateway, or RGW. When Ceph Object Gateway is deployed with cephadm, the Ceph Object Gateway credentials used by the dashboard is automatically configured. You can also manually force the Ceph object gateway credentials to the Ceph dashboard using the command-line interface.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Ceph Object Gateway is installed.

Procedure

1. Log into the Cephadm shell:

   Example

   ```bash
   [root@host01 ~]# cephadm shell
   ```

2. Set up the credentials manually:

   Example

   ```bash
   [ceph: root@host01 /]# ceph dashboard set-rgw-credentials
   ```

   This creates a Ceph Object Gateway user with UID `dashboard` for each realm in the system.

3. Optional: If you have configured a custom `admin` resource in your Ceph Object Gateway admin API, you have to also set the the `admin` resource:

   Syntax

   ```bash
   ceph dashboard set-rgw-api-admin-resource RGW_API_ADMIN_RESOURCE
   ```
Example

[ceph: root@host01 /]# ceph dashboard set-rgw-api-admin-resource admin
Option RGW_API_ADMIN_RESOURCE updated

4. Optional: If you are using HTTPS with a self-signed certificate, disable certificate verification in the dashboard to avoid refused connections. Refused connections can happen when the certificate is signed by an unknown Certificate Authority, or if the host name used does not match the host name in the certificate.

Syntax

ceph dashboard set-rgw-api-ssl-verify false

Example

[ceph: root@host01 /]# ceph dashboard set-rgw-api-ssl-verify False
Option RGW_API_SSL_VERIFY updated

5. Optional: If the Object Gateway takes too long to process requests and the dashboard runs into timeouts, you can set the timeout value:

Syntax

ceph dashboard set-rest-requests-timeout _TIME_IN_SECONDS_

The default value of 45 seconds.

Example

[ceph: root@host01 /]# ceph dashboard set-rest-requests-timeout 240

10.2. CREATING THE CEPH OBJECT GATEWAY SERVICES WITH SSL USING THE DASHBOARD

After installing a Red Hat Ceph Storage cluster, you can create the Ceph Object Gateway service with SSL using two methods:

- Using the command-line interface.
- Using the dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- SSL key from Certificate Authority (CA).
NOTE

Obtain the SSL certificate from a CA that matches the hostname of the gateway node. Red Hat recommends obtaining a certificate from a CA that has subject alternate name fields and a wildcard for use with S3-style subdomains.

Procedure

1. Log in to the Dashboard.
2. From the Cluster drop-down menu, select Services.
3. Click +Create.
4. In the Create Service window, select rgw service.
5. Select SSL and upload the Certificate in .pem format.

Figure 10.1. Creating Ceph Object Gateway service

6. Click Create Service.
7. Check the Ceph Object Gateway service is up and running.

Additional Resources

- See the Configuring SSL for Beast section in the Red Hat Ceph Storage Object Gateway Guide.
10.3. MANAGEMENT OF CEPH OBJECT GATEWAY USERS ON THE DASHBOARD

As a storage administrator, the Red Hat Ceph Storage Dashboard allows you to view and manage Ceph Object Gateway users.

10.3.1. Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.

10.3.2. Creating Ceph object gateway users on the dashboard

You can create Ceph object gateway users on the Red Hat Ceph Storage once the credentials are set-up using the CLI.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.

Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click Object Gateway.
3. Click Users and then Click Create.
4. In the Create User window, set the following parameters:
   a. Set the user name, full name, and edit the maximum number of buckets if required.
   b. Optional: Set an email address or suspended status.
   c. Optional: Set a custom access key and secret key by unchecking Auto-generate key.
   d. Optional: Set a user quota.
   e. Check Enabled under User quota.
   f. Uncheck Unlimited size or Unlimited objects.
   g. Enter the required values for Max. size or Max. objects.
   h. Optional: Set a bucket quota.
i. Check *Enabled* under *Bucket quota*.

j. Uncheck *Unlimited size* or *Unlimited objects*:

k. Enter the required values for *Max. size* or *Max. objects*:

5. Click *Create User*.

**Figure 10.2. Create Ceph object gateway user**

6. You get a notification that the user was created successfully.

### Additional Resources

- See the [Adding Ceph object gateway login credentials to the dashboard](#) section in the Red Hat Ceph Storage Dashboard guide for more information.

- See the [Red Hat Ceph Storage Object Gateway Guide](#) for more information.

### 10.3.3. Creating Ceph object gateway subusers on the dashboard
A subuser is associated with a user of the S3 interface. You can create a sub user for a specific Ceph object gateway user on the Red Hat Ceph Storage dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.
- Object gateway user is created.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation bar, click **Object Gateway**.
3. Click **Users**.
4. Select the user by clicking its row.
5. From **Edit** drop-down menu, select **Edit**.
6. In the **Edit User** window, click **+Create Subuser**.
7. In the **Create Subuser** dialog box, enter the user name and select the appropriate permissions.
8. Check the **Auto-generate secret** box and then click **Create Subuser**.
9. In the Edit User window, click the Edit user button

10. You get a notification that the user was updated successfully.

10.3.4. Editing Ceph object gateway users on the dashboard

You can edit Ceph object gateway users on the Red Hat Ceph Storage once the credentials are set-up using the CLI.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.
A Ceph object gateway user is created.

Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click Object Gateway.
3. Click Users.
4. To edit the user capabilities, click its row.
5. From the Edit drop-down menu, select Edit.
6. In the Edit User window, edit the required parameters.
7. Click Edit User.

Figure 10.4. Edit Ceph object gateway user

8. You get a notification that the user was updated successfully.

Additional Resources
● See the *Adding Ceph object gateway login credentials to the dashboard* section in the Red Hat Ceph Storage Dashboard guide for more information.

● See the *Red Hat Ceph Storage Object Gateway Guide* for more information.

### 10.3.5. Deleting Ceph object gateway users on the dashboard

You can delete Ceph object gateway users on the Red Hat Ceph Storage once the credentials are set-up using the CLI.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.
- A Ceph object gateway user is created.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*.
3. Click *Users*.
4. To delete the user, click its row.
5. From the *Edit* drop-down menu, select *Delete*.
6. In the *Edit User* window, edit the required parameters.
7. In the *Delete user* dialog window, Click the *Yes, I am sure* box and then Click *Delete User* to save the settings:
10.4. MANAGEMENT OF CEPH OBJECT GATEWAY BUCKETS ON THE DASHBOARD

As a storage administrator, the Red Hat Ceph Storage Dashboard allows you to view and manage Ceph Object Gateway buckets.

10.4.1. Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- At least one Ceph object gateway user is created.
- Object gateway login credentials are added to the dashboard.

10.4.2. Creating Ceph object gateway buckets on the dashboard

You can create Ceph object gateway buckets on the Red Hat Ceph Storage once the credentials are set-up using the CLI.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
The Ceph Object Gateway is installed.
Object gateway login credentials are added to the dashboard.
Object gateway user is created and not suspended.

Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click Object Gateway.
3. Click Buckets and then click Create.
4. In the Create Bucket window, enter a value for Name and select a user that is not suspended. Select a placement target.

Figure 10.6. Create Ceph object gateway bucket

**NOTE**

A bucket’s placement target is selected on creation and cannot be modified.

5. Optional: Enable Locking for the objects in the bucket. Locking can only be enabled while creating a bucket. Once locking is enabled, you also have to choose the lock mode, Compliance or Governance and the lock retention period in either days or years, not both.

6. Click Create bucket.
7. You get a notification that the bucket was created successfully.

10.4.3. Editing Ceph object gateway buckets on the dashboard
You can edit Ceph object gateway buckets on the Red Hat Ceph Storage once the credentials are set-up using the CLI.

Prerequisites
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.
- Object gateway user is created and not suspended.
- A Ceph Object Gateway bucket created.

Procedure
1. Log in to the Dashboard.
2. On the navigation bar, click Object Gateway.
3. Click Buckets.
4. To edit the bucket, click it’s row.
5. From the Edit drop-down select Edit.
6. In the Edit bucket window, edit the Owner by selecting the user from the dropdown.
a. **Optional**: Enable **Versioning** if you want to enable versioning state for all the objects in an existing bucket.

   - To enable versioning, you must be the owner of the bucket.

   - If **Locking** is enabled during bucket creation, you cannot disable the versioning.

   - All objects added to the bucket will receive a unique version ID.

   - If the versioning state has not been set on a bucket, then the bucket will not have a versioning state.

b. **Optional**: Check **Delete enabled** for **Multi-Factor Authentication**. Multi-Factor Authentication (MFA) ensures that users need to use a one-time password (OTP) when removing objects on certain buckets. Enter a value for **Token Serial Number** and **Token PIN**.

   **NOTE**

   The buckets must be configured with versioning and MFA enabled which can be done through the S3 API.

7. **Click Edit Bucket.**
8. You get a notification that the bucket was updated successfully.

10.4.4. Deleting Ceph object gateway buckets on the dashboard

You can delete Ceph object gateway buckets on the Red Hat Ceph Storage once the credentials are set-up using the CLI.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.
- Object gateway user is created and not suspended.
- A Ceph Object Gateway bucket created.

Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click Object Gateway.
3. Click Buckets.
4. To delete the bucket, click its row.
5. From the Edit drop-down select Delete.
6. In the Delete Bucket dialog box, Click the Yes, I am sure box and then Click Delete bucket to save the settings:

Figure 10.8. Delete Ceph object gateway bucket

Delete bucket

Are you sure that you want to delete rgw-test?

✓ Yes, I am sure.
10.5. MONITORING MULTISITE OBJECT GATEWAY CONFIGURATION ON THE CEPH DASHBOARD

The Red Hat Ceph Storage dashboard supports monitoring the users and buckets of one zone in another zone in a multisite object gateway configuration. For example, if the users and buckets are created in a zone in the primary site, you can monitor those users and buckets in the secondary zone in the secondary site.

Prerequisites

- At least one running Red Hat Ceph Storage cluster deployed on both the sites.
- Dashboard is installed.
- The multi-site object gateway is configured on the primary and secondary sites.
- Object gateway login credentials of the primary and secondary sites are added to the dashboard.
- Object gateway users are created on the primary site.
- Object gateway buckets are created on the primary site.

Procedure

1. On the Dashboard landing page of the secondary site, in the vertical menu bar, click Object Gateway drop-down list.
2. Select Buckets.
3. You can see those object gateway buckets on the secondary landing page that were created for the object gateway users on the primary site.

Figure 10.9. Multisite object gateway monitoring

<table>
<thead>
<tr>
<th>Name</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>test</td>
<td>test-user-2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>test</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID</td>
<td>19969065-e089-49c5-89e0-0c3537b356bc.45549.4</td>
</tr>
<tr>
<td>Owner</td>
<td>test-user-2</td>
</tr>
<tr>
<td>Index Type</td>
<td>Normal</td>
</tr>
<tr>
<td>Placement rule</td>
<td>default-placement</td>
</tr>
<tr>
<td>Marker</td>
<td>19969065-e089-49c5-89e0-0c3537b356bc.45549.4</td>
</tr>
<tr>
<td>Maximum marker</td>
<td>0#1#2#3#4#5#6#7#8#9#10#</td>
</tr>
<tr>
<td>Version</td>
<td>0#1#2#3#4#0.5#0.6#0.7#0.8#0.9#0.10#0</td>
</tr>
<tr>
<td>Master version</td>
<td>0#1#2#3#4#0.5#0.6#0.7#0.8#0.9#0.10#0</td>
</tr>
</tbody>
</table>
Additional Resources

- For more information on configuring multisite, see the RGW Multisite section of the Red Hat Ceph Storage Object Gateway guide.

- For more information on adding object gateway login credentials to the dashboard, see the Manually adding object gateway login credentials to the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.

- For more information on creating object gateway users on the dashboard, see the Creating object gateway users on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.

- For more information on creating object gateway buckets on the dashboard, see the Creating object gateway buckets on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.

10.6. MANAGEMENT OF BUCKETS OF A MULTISITE OBJECT CONFIGURATION ON THE CEPH DASHBOARD

As a storage administrator, you can edit buckets of one zone in another zone on the Red Hat Ceph Storage Dashboard. However, you can delete buckets of secondary sites in the primary site. You cannot delete the buckets of master zones of primary sites in other sites. For example, if the buckets are created in a zone in the secondary site, you can edit and delete those buckets in the master zone in the primary site.

10.6.1. Prerequisites

- At least one running Red Hat Ceph Storage cluster deployed on both the sites.

- Dashboard is installed.

- The multi-site object gateway is configured on the primary and secondary sites.

- Object gateway login credentials of the primary and secondary sites are added to the dashboard.

- Object gateway users are created on the primary site.

- Object gateway buckets are created on the primary site.

- At least rgw-manager level of access on the Ceph dashboard.

10.6.2. Editing buckets of a multisite object gateway configuration on the Ceph dashboard

You can edit and update the details of the buckets of one zone in another zone on the Red Hat Ceph Storage Dashboard in a multisite object gateway configuration. You can edit the owner, versioning, multi-factor authentication and locking features of the buckets with this feature of the dashboard.

Prerequisites

- At least one running Red Hat Ceph Storage cluster deployed on both the sites.

- Dashboard is installed.
The multi-site object gateway is configured on the primary and secondary sites.

Object gateway login credentials of the primary and secondary sites are added to the dashboard.

Object gateway users are created on the primary site.

Object gateway buckets are created on the primary site.

At least `rgw-manager` level of access on the Ceph dashboard.

**Procedure**

1. On the Dashboard landing page of the secondary site, in the vertical menu bar, click **Object Gateway** drop-down list.

2. Select **Buckets**.

3. You can see those object gateway buckets on the secondary landing page that were created for the object gateway users on the primary site.

**Figure 10.10. Monitoring object gateway monitoring**

![Object Gateway > Buckets](image)

<table>
<thead>
<tr>
<th>Name</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>test</td>
<td>test-user-2</td>
</tr>
</tbody>
</table>

4. Click the row of the bucket that you want to edit.

5. From the **Edit** drop-down menu, select **Edit**.

6. In the **Edit Bucket** window, edit the required parameters and click **Edit Bucket**.
**Figure 10.11. Edit buckets in a multisite**

<table>
<thead>
<tr>
<th>Object Gateway</th>
<th>Buckets</th>
<th>Edit</th>
</tr>
</thead>
</table>

**Edit Bucket**

- **Id**: 199090e5-6069-45c5-88e0-0c3037b135bc-45549.4
- **Name**: test
- **Owner**: test-user
- **Placement target**: default-placement

**Versioning**

- **Enabled**: Not enabled

**Multi-Factor Authentication**

- **Delete enabled**: Not enabled

**Locking**

- **Enabled**: Not enabled

**Verification**

- You will get a notification that the bucket is updated successfully.

**Additional Resources**

- For more information on configuring multisite, see the [RGW Multisite](#) section of the *Red Hat Ceph Storage Object Gateway* guide.
- For more information on adding object gateway login credentials to the dashboard, see the *Manually adding object gateway login credentials to the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard* guide.
- For more information on creating object gateway users on the dashboard, see the *Creating object gateway users on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard* guide.
- For more information on creating object gateway buckets on the dashboard, see the *Creating object gateway buckets on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard* guide.
- For more information on system roles, see the *System roles on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide*. 
10.6.3. Deleting buckets of a multisite object gateway configuration on the Ceph dashboard

You can delete buckets of secondary sites in primary sites on the Red Hat Ceph Storage Dashboard in a multisite object gateway configuration.

IMPORTANT: Red hat does not recommend to delete buckets of primary site from secondary sites.

Prerequisites

- At least one running Red Hat Ceph Storage cluster deployed on both the sites.
- Dashboard is installed.
- The multi-site object gateway is configured on the primary and secondary sites.
- Object gateway login credentials of the primary and secondary sites are added to the dashboard.
- Object gateway users are created on the primary site.
- Object gateway buckets are created on the primary site.
- At least rgw-manager level of access on the Ceph dashboard.

Procedure

1. On the Dashboard landing page of the primary site, in the vertical menu bar, click Object Gateway drop-down list.
2. Select Buckets.
3. You can see those object gateway buckets of the secondary site here.
4. Click the row of the bucket that you want to delete.
5. From the Edit drop-down menu, select Delete.
6. In the Delete Bucket dialog box, select Yes, I am sure checkbox, and click Delete Bucket.

Verification

- The selected row of the bucket is deleted successfully.

Additional Resources

- For more information on configuring multisite, see the RGW Multisite section of the Red Hat Ceph Storage Object Gateway guide.
- For more information on adding object gateway login credentials to the dashboard, see the Manually adding object gateway login credentials to the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.
- For more information on creating object gateway users on the dashboard, see the Creating object gateway users on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard guide.
• For more information on creating object gateway buckets on the dashboard, see the *Creating object gateway buckets on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard* guide.

• For more information on system roles, see the *System roles on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide*. 
CHAPTER 11. MANAGEMENT OF BLOCK DEVICES USING THE CEPH DASHBOARD

As a storage administrator, you can manage and monitor block device images on the Red Hat Ceph Storage dashboard. The functionality is divided between generic image functions, mirroring functions, and iSCSI functions. For example, you can create new images, view the state of images mirrored across clusters, manage or monitor iSCSI targets, and set IOPS limits on an image.

11.1. MANAGEMENT OF BLOCK DEVICE IMAGES ON THE CEPH DASHBOARD

As a storage administrator, you can create, edit, copy, purge, and delete images using the Red Hat Ceph Storage dashboard.

You can also create, clone, copy, rollback, and delete snapshots of the images using the Ceph dashboard.

11.1.1. Creating images on the Ceph dashboard

You can create block device images on the Red Hat Ceph Storage dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.

Procedure

1. Log in to the Dashboard.

2. On the navigation menu, click the Block drop-down menu.


4. Click Create.

5. In the Create RBD window, enter the parameters.

6. Optional: Click Advanced and set the parameters.

7. Click Create RBD.

8. Create Block device image.
You get a notification that the image was created successfully.

Additional Resources

- See the Red Hat Ceph Storage Block Device Guide for more information on Images.
- See the Creating pools on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.

11.1.2. Creating namespaces on the Ceph dashboard

You can create namespaces for the block device images on the Red Hat Ceph Storage dashboard. Once the namespaces are created, you can give access to the users for those namespaces.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
- A Block device image is created.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click the Block drop-down menu.


4. To create the namespace of the image, in the Namespaces tab, click Create.

5. In the Create Namespace window, select the pool and enter a name for the namespace.

6. Click Create.

   Figure 11.2. Create namespace

   Create Namespace

   Pool *
   
   Name *

   testbench

   Namespace name...

   Cancel  Create

7. You get a notification that the namespace was created successfully.

Additional Resources

- See the Knowledgebase article Segregate Block device images within isolated namespaces for more details.

11.1.3. Editing images on the Ceph dashboard

You can edit block device images on the Red Hat Ceph Storage dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
- An image is created.

Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click the Block drop-down menu.


4. To edit the image, click its row.

5. In the Edit drop-down menu, select Edit.

6. In the Edit RBD window, edit the required parameters and click Edit RBD.

Figure 11.3. Edit Block device image

7. You get a notification that the image was updated successfully.

Additional Resources

- See the Red Hat Ceph Storage Block Device Guide for more information on Images.
- See the Creating pools on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.

11.1.4. Copying images on the Ceph dashboard

You can copy block device images on the Red Hat Ceph Storage dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
• An image is created.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation bar, click the *Block* drop-down menu.
3. Select *Images*.
4. To copy the image, click its row.
5. In the *Edit* drop-down menu, select *Copy*.
6. In the *Copy RBD* window, set the required parameters and click *Copy RBD*.

**Figure 11.4. Copy Block device image**

7. You get a notification that the image was copied successfully.

**Additional Resources**

• See the *Red Hat Ceph Storage Block Device Guide* for more information on Images.

• See the *Creating pools on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide* for more details.

**11.1.5. Moving images to trash on the Ceph dashboard**
You can move the block device images to trash before it is deleted on the Red Hat Ceph Storage dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rbd` application enabled is created.
- An image is created.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation menu, click *Block*.
3. Select *Images* from the drop-down menu.
4. To move the image to trash, click its row.
5. Select *Move to Trash* in the *Edit* drop-down.
6. In the *Moving an image to trash* window, edit the date till which the image needs protection, and then click *Move*.

**Figure 11.5. Moving images to trash**

![Move an image to trash](image)

7. You get a notification that the image was moved to trash successfully.
11.1.6. Purging trash on the Ceph dashboard

You can purge trash using the Red Hat Ceph Storage dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the **rbd** application enabled is created.
- An image is trashed.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation bar, click **Block**:
3. Select **Images**.
4. In the **Trash** tab, click **Purge Trash**.
5. In the **Purge Trash** window, select the pool, and then click **Purge Trash**.

**Figure 11.6. Purge trash**

6. You get a notification that the pools in the trash were purged successfully.

**Additional resources**

- See the [Purging the Block Device Snapshots](#) section in the *Red Hat Ceph Storage Block Device Guide* for more details.

11.1.7. Restoring images from trash on the Ceph dashboard
You can restore the images that were trashed and has an expiry date on the Red Hat Ceph Storage Dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
- An image is trashed.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Block:
4. To restore the image from Trash, in the Trash tab, click its row:
5. Select Restore in the Restore drop-down.
6. In the Restore Image window, enter the new name of the image, and then click Restore.

Figure 11.7. Restore images from trash

7. You get a notification that the image was restored successfully.

Additional resources

- See the Creating images section in the Red Hat Ceph Storage Dashboard Guide for more details on creating images in an RBD pool.

You can delete the images only after the images are moved to trash. You can delete the cloned images and the copied images directly without moving them to trash.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rbd` application enabled is created.
- An image is created and is moved to trash.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation bar, click *Block*.
3. Select *Images*.
4. To delete the image, in the *Trash* tab, click its row.
5. Select *Delete* in the *Restore* drop-down menu.
6. Optional: To remove the cloned images and copied images, select *Delete* from the *Edit* drop-down menu.
7. In the *Delete RBD* dialog box, click the *Yes, I am sure* box and then Click *Delete RBD* to save the settings:

   ![Delete RBD dialog box](image)

   *Are you sure that you want to delete rbd_primary_pool/450cb496723a?*

   ![Yes, I am sure](image)

   ![Delete RBD button](image)

8. You get a notification that the image was deleted successfully.

**Additional resources**

- See the *Moving images to trash on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide* for more details on creating images in an RBD pool.
11.1.9. Deleting namespaces on the Ceph dashboard.

You can delete the namespaces of the images on the Red Hat Ceph Storage Dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
- An image is created and is moved to trash.
- A block device image and its namespaces is created

**Procedure**

1. Log in to the Dashboard.
2. On the navigation bar, click Block
4. To delete the namespace of the image, in the Namespaces tab, click its row.
5. Click Delete.
6. In the Delete Namespace dialog box, click the Yes, I am sure box and then Click Delete Namespace to save the settings:

   **Figure 11.9. Deleting namespaces**

   ![Delete Namespace dialog box](image)

    Delete Namespace

    Are you sure that you want to delete testbench/namespace-testing?

    ![Yes, I am sure.](image)

    Cancel  Delete Namespace

7. You get a notification that the namespace was deleted successfully.

11.1.10. Creating snapshots of images on the Ceph dashboard

You can take snapshots of the Ceph block device images on the Red Hat Ceph Storage Dashboard.
Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
- An image is created.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Block.
4. To take the snapshot of the image, in the Images tab, click its row, and then click the Snapshots tab.
5. Select Create in the Create drop-down.
6. In the Create RBD Snapshot dialog, enter the name and click Create RBD Snapshot:

   ![Create RBD Snapshot](image)

   Figure 11.10. Creating snapshot of images

   7. You get a notification that the snapshot was created successfully.

Additional Resources

- See the Creating a block device snapshot section in the Red Hat Ceph Storage Block Device Guide for more information on creating snapshots.
- See the Creating pools on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details on creating RBD pools.
- See the Creating images on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.

11.1.11. Renaming snapshots of images on the Ceph dashboard
You can rename the snapshots of the Ceph block device images on the Red Hat Ceph Storage Dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
- An image is created.
- A snapshot of the image is created.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation menu, click *Block*.
3. Select *Images*.
4. To rename the snapshot of the image, in the *Images* tab, click its row, and then click the *Snapshots* tab.
5. Select *Rename* in the the *Rename* drop-down.
6. In the *Rename RBD Snapshot* dialog box, enter the name and click *Rename RBD Snapshot*:

   ![Figure 11.11. Renaming snapshot of images](image)

**Additional Resources**

- See the [Renaming a block device snapshot](#) section in the *Red Hat Ceph Storage Block Device Guide* for more information.
- See the [Creating pools on the Ceph dashboard](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details on creating RBD pools.
- See the [Creating images on the Ceph dashboard](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details.
11.1.12. Protecting snapshots of images on the Ceph dashboard

You can protect the snapshots of the Ceph block device images on the Red Hat Ceph Storage Dashboard.

This is required when you need to clone the snapshots.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
- An image is created.
- A snapshot of the image is created.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Block.
4. To protect the snapshot of the image, in the Images tab, click its row, and then click the Snapshots tab.
5. Select Protect in the the Rename drop-down.
6. The State of the snapshot changes from UNPROTECTED to PROTECTED.

Additional Resources

- See the Protecting a block device snapshot section in the Red Hat Ceph Storage Block Device Guide for more information.

11.1.13. Cloning snapshots of images on the Ceph dashboard

You can clone the snapshots of images on the Red Hat Ceph Storage Dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
- An image is created.
- A snapshot of the image is created and protected.

Procedure
1. Log in to the Dashboard.

2. On the navigation menu, click *Block*.

3. Select *Images*.

4. To protect the snapshot of the image, in the *Images* tab, click its row, and then click the *Snapshots* tab.

5. Select *Clone* in the the *Rename* drop-down.

6. In the *Clone RBD* window, edit the parameters and click *Clone RBD*.

**Figure 11.12. Cloning snapshot of images**

7. You get a notification that the snapshot was cloned successfully. You can search for the cloned image in the *Images* tab.

**Additional Resources**

- See the *Protecting a Block device Snapshot* section in the *Red Hat Ceph Storage Block Device Guide* for more information.

- See the *Protecting snapshots of images on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard Guide* for more details.

You can copy the snapshots of images on the Red Hat Ceph Storage Dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rbd` application enabled is created.
- An image is created.
- A snapshot of the image is created.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation menu, click *Block*.
3. Select *Images*.
4. To protect the snapshot of the image, in the *Images* tab, click its row, and then click the *Snapshots* tab.
5. Select *Copy* in the *Rename* drop-down menu.
6. In the *Copy RBD* window, enter the parameters and click the *Copy RBD* button:

![Figure 11.13. Copying snapshot of images](image.png)

7. You get a notification that the snapshot was copied successfully. You can search for the copied image in the *Images* tab.

**Additional Resources**

See the *Creating pools on the Ceph dashboard* section in the *Red Hat Ceph Storage Dashboard* Red Hat Ceph Storage 5 Dashboard Guide.
11.1.15. Unprotecting snapshots of images on the Ceph dashboard

You can unprotect the snapshots of the Ceph block device images on the Red Hat Ceph Storage Dashboard.

This is required when you need to delete the snapshots.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rbd` application enabled is created.
- An image is created.
- A snapshot of the image is created and protected.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation menu, click Block.
4. To unprotect the snapshot of the image, in the Images tab, click its row, and then click the Snapshots tab.
5. Select UnProtect in the the Rename drop-down.
6. The State of the snapshot changes from PROTECTED to UNPROTECTED.

**Additional Resources**

- See the Unprotecting a block device snapshot section in the Red Hat Ceph Storage Block Device Guide for more information.
- See the Protecting snapshots of images on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.

11.1.16. Rolling back snapshots of images on the Ceph dashboard

You can rollback the snapshots of the Ceph block device images on the Red Hat Ceph Storage Dashboard. Rolling back an image to a snapshot means overwriting the current version of the image with data from a snapshot. The time it takes to execute a rollback increases with the size of the image. It is faster to clone from a snapshot than to rollback an image to a snapshot, and it is the preferred method of returning to a pre-existing state.
Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the rbd application enabled is created.
- An image is created.
- A snapshot of the image is created.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Block.
4. To rollback the snapshot of the image, in the Images tab, click its row, and then click the Snapshots tab.
5. Select Rollback in the Rename drop-down.
6. In the RBD snapshot rollback dialog box, click Rollback.

Figure 11.14. Rolling back snapshot of images

RBD snapshot rollback

You are about to rollback rbd_primary_pool/image_test@image_snap.

Additional Resources

- See the Rolling a block device snapshot section in the Red Hat Ceph Storage Block Device Guide for more information.
- See the Creating pools on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details on creating RBD pools.
- See the Creating images on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.

11.1.17. Deleting snapshots of images on the Ceph dashboard

You can delete the snapshots of the Ceph block device images on the Red Hat Ceph Storage Dashboard.

Prerequisites
A running Red Hat Ceph Storage cluster.
Dashboard is installed.
A pool with the rbd application enabled is created.
An image is created.
A snapshot of the image is created and is unprotected.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Block.
4. To take the snapshot of the image, in the Images tab, click its row, and then click the Snapshots tab.
5. Select Delete in the Rename drop-down:

Figure 11.15. Deleting snapshot of images

Delete RBD snapshot

Are you sure that you want to delete image_test_snapshot_1?

☐ Yes, I am sure.

6. You get a notification that the snapshot was deleted successfully.

Additional Resources

- See the Deleting a block device snapshot section in the Red Hat Ceph Storage Block Device Guide for more information.
- See the Unprotecting snapshots of images on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more details.

11.2. MANAGEMENT OF MIRRORING FUNCTIONS ON THE CEPH DASHBOARD

As a storage administrator, you can manage and monitor mirroring functions of the Block devices on the Red Hat Ceph Storage Dashboard.
You can add another layer of redundancy to Ceph block devices by mirroring data images between storage clusters. Understanding and using Ceph block device mirroring can provide you protection against data loss, such as a site failure. There are two configurations for mirroring Ceph block devices, one-way mirroring or two-way mirroring, and you can configure mirroring on pools and individual images.

11.2.1. Mirroring view on the Ceph dashboard

You can view the Block device mirroring on the Red Hat Ceph Storage Dashboard.

You can view the daemons, the site details, the pools, and the images that are configured for Block device mirroring.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Mirroring is configured.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Block.
3. Click Mirroring.

Figure 11.16. View mirroring of Block devices

Additional Resources

- For more information on mirroring, see Block Device Mirroring section in the Red Hat Ceph Storage Block Device Guide.

11.2.2. Editing mode of pools on the Ceph dashboard
You can edit mode of the overall state of mirroring functions, which includes pools and images on the Red Hat Ceph Storage Dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is created.
- Mirroring is configured.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation menu, click *Block*.
3. Click *Mirroring*.
4. In the *Pools* tab, click the peer you want to delete.
5. In the *Edit Mode* drop-down, select *Edit Mode*.
6. In the *Edit pool mirror mode* window, select the mode from the drop-down, and then click *Update*:

   ![Edit pool mirror mode](image)

   **Figure 11.17. Editing mode in mirroring**

7. You get a notification that the pool was updated successfully.

**Additional Resources**

- See the *Ceph Block Device Mirroring* section in the *Red Hat Ceph Storage Block Device Guide* for more information.
11.2.3. Adding peer in mirroring on the Ceph dashboard

You can add storage cluster peer for the `rbd-daemon` mirror to discover its peer storage cluster on the Red Hat Ceph Storage Dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rbd` application enabled is created.
- An image is created.
- Mirroring is configured.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Block.
3. Click Mirroring.
4. In the Pools tab, click the peer you want to delete.
5. In the Edit Mode drop-down, select Add peer.
6. In the Add pool mirror peer window, enter the parameters, and then click Submit:
Figure 11.18. Adding peer in mirroring

Add pool mirror peer

Add the pool mirror peer attributes for pool **pool_test_1** and click **Submit**.

- **Cluster Name**
- "Name..."

- **CephX ID**
- "CephX ID..."

- **Monitor Addresses**
- "Comma-delimited addresses..."

- **CephX Key**
- "Base64-encoded key..."

You get a notification that the peer was created successfully.

**Additional Resources**

- See the [Adding a storage cluster peer](#) section in the *Red Hat Ceph Storage Block Device Guide* for more information.

**11.2.4. Editing peer in mirroring on the Ceph dashboard**

You can edit storage cluster peer for the `rbd-daemon` mirror to discover its peer storage cluster in the Red Hat Ceph Storage Dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rbd` application enabled is created.
- An image is created.
- Mirroring is configured.
A peer is added.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click Block.
3. Click Mirroring.
4. In the Pools tab, click the peer you want to delete.
5. In the Edit Mode drop-down, select Edit peer.
6. In the Edit pool mirror peer window, edit the parameters, and then click Submit:

   Figure 11.19. Editing peer in mirroring

7. You get a notification that the peer was updated successfully.

Additional Resources

- See the Adding peer in mirroring on the Ceph dashboard section in the Red Hat Ceph Storage Dashboard Guide for more information.
11.2.5. Deleting peer in mirroring on the Ceph dashboard

You can edit storage cluster peer for the `rbd-daemon` mirror to discover its peer storage cluster in the Red Hat Ceph Storage Dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rbd` application enabled is created.
- An image is created.
- Mirroring is configured.
- A peer is added.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click `Block`.
3. Click `Mirroring`.
4. In the `Pools` tab, click the peer you want to delete.
5. In the `Edit Mode` drop-down, select `Delete peer`.
6. In the `Delete mirror peer` dialog window, click the `Yes, I am sure` box and then click `Delete mirror peer` to save the settings:

   Figure 11.20. Delete peer in mirroring

   **Delete mirror peer**
   
   Are you sure that you want to delete `g_mirror_pool (767be0c5-2721-4e9b-9ac1-a8096527a772)`?

   ![Yes, I am sure.]

   ![Cancel] (Delete mirror peer)
   
   7. You get a notification that the peer was deleted successfully.

Additional Resources
11.3. MANAGEMENT OF iSCSI FUNCTIONS USING THE CEPH DASHBOARD

As a storage administrator, you can manage and monitor iSCSI images and targets on the Red Hat Ceph Storage Dashboard. Before you can use the dashboard to manage and monitor iSCSI images and targets, you must add gateways to it and enable the dashboard iSCSI feature.

11.3.1. Manually adding iSCSI gateways to the Ceph dashboard

You can manage iSCSI targets using the REST API provided by the rbd-target-api service of the Ceph iSCSI Gateway. You must add the API address to the dashboard before the dashboard can access it.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph iSCSI nodes and containers are deployed.

IMPORTANT

The Ceph iSCSI gateway requires at least two gateways to provide high availability.

Procedure

1. Log into the Cephadm shell:

   Example

   ```
   [root@host01 ~]# cephadm shell
   ```

2. If the REST API for the iSCSI gateway is configured in HTTPS mode using a self-signed certificate, you must configure the dashboard to avoid SSL certificate verification when accessing the API. Run the following command to disable SSL verification.

   Syntax

   ```
   # ceph dashboard set-iscsi-api-ssl-verification false
   ```

   Example

   ```
   [ceph: root@host01 /]# ceph dashboard set-iscsi-api-ssl-verification false
   Option ISCSI_API_SSL_VERIFICATION updated
   ```

3. List the gateways:

   Syntax
ceph dashboard iscsi-gateway-list

Example

```
[ceph: root@host01 /]
```

4. Create a file for the first of at least two gateways and add the service_url:

Example

```
[ceph: root@host01 /]
```

5. Add the first of at least two gateways to the dashboard:

Syntax

```
ceph dashboard iscsi-gateway-add FILE HOSTNAME
```

Example

```
[ceph: root@host01 /]
```

6. Create a file for the second of at least two gateways:

Example

```
[ceph: root@host01 /]
```

7. Add the second of at least two gateways to the dashboard:

Syntax

```
ceph dashboard iscsi-gateway-add FILE HOSTNAME
```

Example

```
[ceph: root@host01 /]
```

Additional Resources

- For more information on managing iSCSI gateway, see the Management of iSCSI gateway using the Ceph Orchestrator in the Red Hat Ceph Storage Operations Guide.
11.3.2. iSCSI overview on the Ceph dashboard

You can see the overview that displays iSCSI gateway hosts and images exported over iSCSI on the Red Hat Ceph Storage Dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph iSCSI gateway is installed.
- iSCSI gateways are added to the dashboard.
- The dashboard iSCSI feature is enabled.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation menu, click the *Block* drop-down menu.
3. Click *iSCSI*.

**Figure 11.21. iSCSI overview**

<table>
<thead>
<tr>
<th>Name</th>
<th>State</th>
<th># Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>magno007</td>
<td>up</td>
<td>1</td>
</tr>
<tr>
<td>magno010</td>
<td>up</td>
<td>1</td>
</tr>
</tbody>
</table>

2 total

**Images**

<table>
<thead>
<tr>
<th>Pool</th>
<th>Image</th>
<th>Backstore</th>
<th>Read Bytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>iscsi_pool</td>
<td>disk_1</td>
<td>user:rwbd (tcemu-runner)</td>
<td></td>
</tr>
</tbody>
</table>

1 total
Additional Resources

- For information on how to install the Ceph iSCSI Gateway, see *Installing the iSCSI gateway* in the *Red Hat Ceph Storage Block device guide*.

- For information on how to add iSCSI gateways to the dashboard, see *Manually adding iSCSI gateways to the Ceph dashboard* in the *Red Hat Ceph Storage Dashboard guide*.

11.3.3. Creating iSCSI targets on the Ceph dashboard

You can create iSCSI targets on the Red Hat Ceph Storage Dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph iSCSI gateway is installed with at least two gateways.
- iSCSI gateways are added to the dashboard.
- The dashboard iSCSI feature is enabled.
- A replicated pool with the RBD application enabled.
- An erasure coded pool with the RBD application enabled.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation menu, click the *Block* drop-down menu.
3. Click *iSCSI*.
4. Click the *Targets* tab.
5. Click *Create* from the *Create* drop-down menu.
6. In the *Create Target* window, set the following parameters:
   a. Optional: Modify the *Target IQN*.
   b. Optional: Set advanced settings for the target.
   c. Click the *Add portal* button and select the first of at least two gateways. Repeat this step for any additional gateways.
   d. Click the *Add image* button and select an image to be exported by the target. Repeat this step for any additional images.
   e. Click the *ACL authentication* box.
   f. Click the *Add group* button.
   g. Click *Create Target*. 
Additional Resources

- For information on how to create a pool with the RBD application enabled, see *Creating Block Device Pools* in the *Red Hat Ceph Storage Block device guide*.

- For information on how to create images see *Creating block device images* in the *Red Hat Ceph Storage Block device guide*.

11.3.4. Viewing iSCSI targets on the Ceph dashboard

You can view the iSCSI targets on the Red Hat Ceph Storage Dashboard.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph iSCSI gateway is installed.
- An iSCSI target is created.
Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click the Block drop-down menu.
3. Click iSCSI.
4. Click the Targets tab.
5. To view details about a target, click on its row.
   a. You can see the iSCSI topology, including whether an initiator is logged in:
   b. Click an object to view detailed information about it:

Additional Resources

- For information on how to create iSCSI targets in dashboard, see Creating iSCSI targets on the Ceph dashboard in the Red Hat Ceph StorageDashboard guide.

11.3.5. Editing iSCSI targets on the Ceph dashboard

You can edit iSCSI targets on the Red Hat Ceph Storage Dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph iSCSI gateway is installed with at least two gateways.
- iSCSI gateways are added to the dashboard.
- The dashboard iSCSI feature is enabled.
- A replicated pool with the RBD application enabled.
- An erasure coded pool with the RBD application enabled.
- An iSCSI target is created.

**Procedure**

1. Log in to the Dashboard.
2. On the navigation menu, click the *Block* drop-down menu.
3. Click *iSCSI*.
4. Click the *Targets* tab.
5. To edit details about a target, click on its row.
6. In the *Edit* drop-down menu, select *Edit*.
7. In the *Edit Target* window, edit the parameters and click *Edit Target*.

**Figure 11.24. Edit iSCSI target**

**Additional Resources**
For information on how to create iSCSI targets in dashboard, see Creating iSCSI targets on the Ceph dashboard in the Red Hat Ceph Storage Dashboard guide.

11.3.6. Deleting iSCSI targets on the Ceph dashboard

You can delete iSCSI targets on the Red Hat Ceph Storage Dashboard.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph iSCSI gateway is installed with at least two gateways.
- iSCSI gateways are added to the dashboard.
- The dashboard iSCSI feature is enabled.
- An iSCSI target is created.
- Disconnect all iSCSI Initiators.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click the Block drop-down menu.
3. Click iSCSI.
4. Click the Targets tab.
5. To delete a target, click on its row.
6. In the Edit drop-down menu, select Delete.
7. In the Delete iSCSI target dialog box, click the Yes, I am sure box and then Click Delete iSCSI to save the settings.
Figure 11.25. Delete iSCSI target

Delete iSCSI target

Are you sure that you want to delete iqn.2001-07.com.ceph:1623141973968?

- Yes, I am sure.

Additional Resources

- For information on how to install the Ceph iSCSI Gateway, see Installing the iSCSI gateway in the Red Hat Ceph Storage Block Device guide.
- For information on how to disconnect iSCSI initiators see Removing the iSCSI configuration in the Red Hat Ceph Storage Block Device guide.

11.3.7. Setting discovery authentication on the Ceph dashboard

The dashboard allows Discovery Authentication by using CHAP/CHAP_MUTUAL.

Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph iSCSI gateway is installed with at least two gateways.
- iSCSI gateways are added to the dashboard.
- The dashboard iSCSI feature is enabled.

Procedure

1. Log in to the Dashboard.
2. On the navigation menu, click the Block drop-down menu.
3. Click iSCSI.
4. Click the Targets tab.
5. Click Discovery authentication.
6. In *Discovery Authentication* window, provide the details and then Click *Submit*.

Figure 11.26. Discovery Authentication