



# Red Hat Ceph Storage 4

## Dashboard Guide

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. DASHBOARD COMPONENTS

The functionality of the dashboard is provided by multiple components.

- The Ansible automation 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 [Ansible website](#)
- For more information, see the [Prometheus website](#).
- For more information, see the [Grafana website](#).

## 1.3. DASHBOARD FEATURES

The Ceph dashboard provides multiple features.

### 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.
- **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.
- **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.
- **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). From Red Hat Ceph Storage 4.2, **dashboard\_protocol** is set to **https** and Ansible generates the dashboard and grafana certificate. To plot data points and graphs, update the TLS handshake manually as:
  - Alert manager API host - http://grafana\_node:9093
  - Prometheus API host - http://grafana\_node:9092
  - Grafana API Host - https://grafana\_node:3000
- **Overall cluster health** 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 Reference:** Lists all available configuration options, their description and default values.
- **Cluster logs:** Display and filter the cluster's event and audit logs.
- **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, CRUSH ruleset, etc.
- **OSDs:** Lists and manages all OSDs, their status and usage statistics as well as detailed information like attributes (OSD map), metadata, performance counters and usage histograms for read/write operations.
- **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.

- **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.



#### 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*.

- **Mirroring:** Lists all active sync daemons and their status, pools and RBD images including their synchronization state.
- **Filesystems:** Lists all active Ceph file system (CephFS) clients and associated pools, including their usage statistics.
- **Object Gateway (RGW):** Lists all active object gateways and their performance counters. Displays and manages (adds, edits, deletes) object gateway users and their details, for example quotas, as well as the users' buckets and their details, for example, owner or quotas.

#### Additional Resources

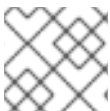
- See [Toggling dashboard components on or off](#) in the *Red Hat Ceph Storage Dashboard Guide* for more information.

### 1.3.1. Toggling dashboard features on or off

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.

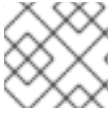
Available features:

- Ceph Block Devices:
  - Image management, **rbd**
  - Mirroring, **mirroring**
  - iSCSI gateway, **iscsi**
- Ceph Filesystem, **cephfs**
- Ceph Object Gateway, **rgw**



#### NOTE

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

**NOTE**

You can disable multiple features at once.

**IMPORTANT**

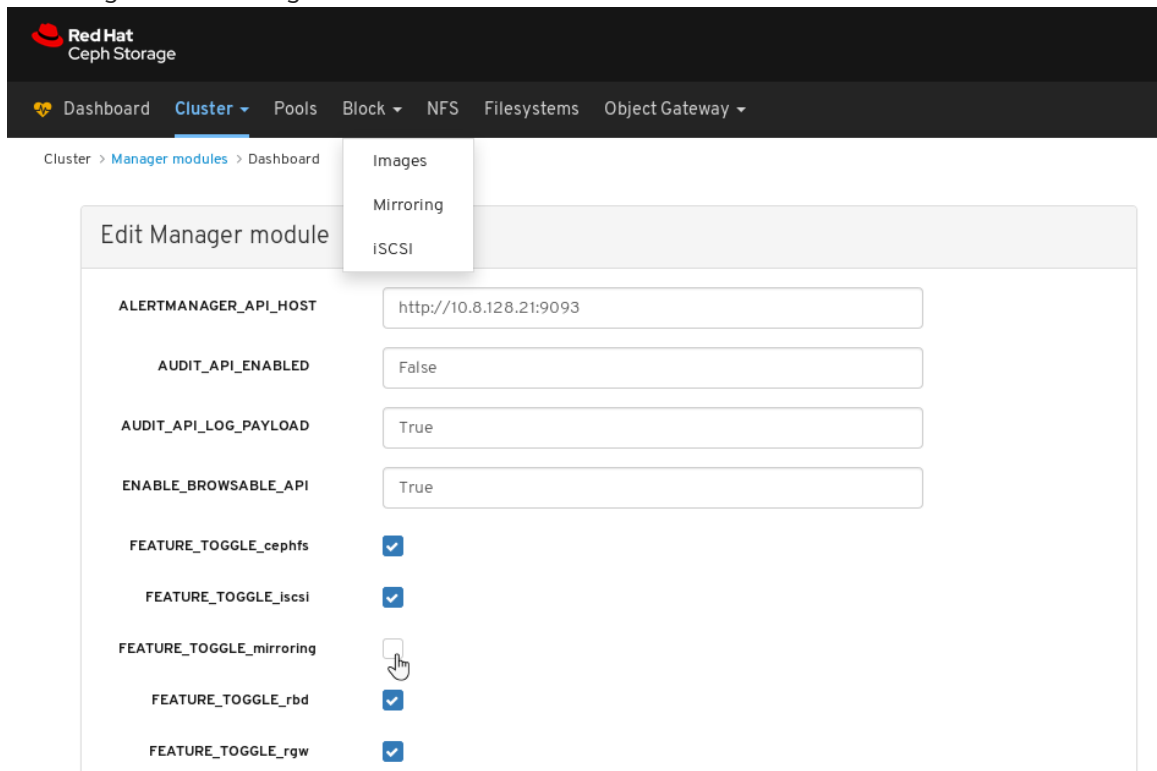
Once a feature is disabled, it can take up to 20 seconds to reflect the change in the web interface.

**Prerequisites**

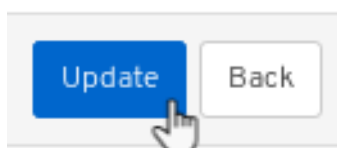
- Installation and configuration of the Red Hat Ceph Storage dashboard software.
- User access to the Ceph Manager node or the dashboard web interface.

**Procedure**

1. To toggle the dashboard features from the dashboard web interface:
  - a. From the navigation bar on the dashboard page, navigate to *Cluster*, then *Manager Modules*, then click on *Dashboard*. This opens the *Edit Manager module* page.
  - b. From 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.



- c. Once the selections have been made, click on the *Update* button at the bottom of the page.



2. To toggle the dashboard features from the command-line interface:

a. Log in to the Ceph Manager node.

b. List the feature status:

```
[user@mon ~]$ ceph dashboard feature status
```

c. Disable a feature:

```
[user@mon ~]$ ceph dashboard feature disable iscsi
```

This example disables the Ceph iSCSI gateway feature.

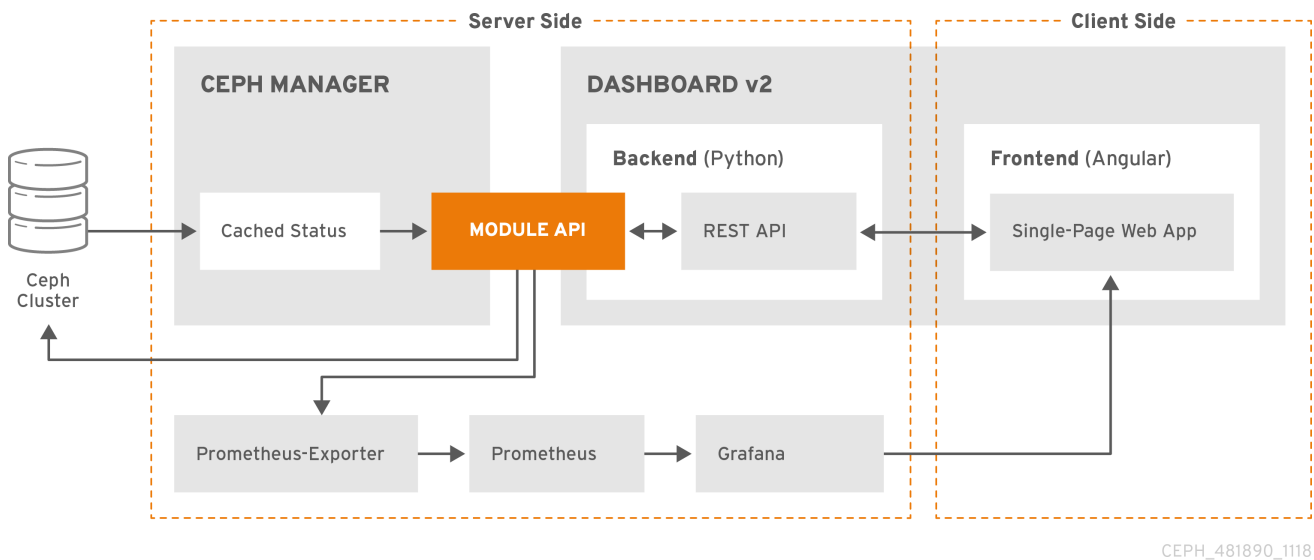
d. Enable a feature:

```
[user@mon ~]$ ceph dashboard feature enable cephfs
```

This example enables the Ceph Filesystem feature.

## 1.4. 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 install dashboard and access it for the first time.

Red Hat Ceph Storage is installed graphically using the Cockpit web interface, or on the command line using the Ansible playbooks provided by the **ceph-ansible** RPM. Cockpit uses the same Ansible playbooks to install Ceph. Those playbooks install dashboard by default. Therefore, whether you directly use the Ansible playbooks, or use Cockpit to install Ceph, dashboard will be installed.



### IMPORTANT

Change the default dashboard password. By default, the password for dashboard is **p@ssw0rd**, which is insecure. You can change the default password before installing Ceph by updating **dashboard\_admin\_password** in the **all.yml** Ansible playbook before using the playbooks to install Ceph, or after install using the same playbook, or dashboard itself. For more information, see the [Install Guide](#), [Changing the dashboard password using the dashboard](#), or [Changing the dashboard password using Ansible](#).

### 2.1. INSTALLING DASHBOARD USING COCKPIT

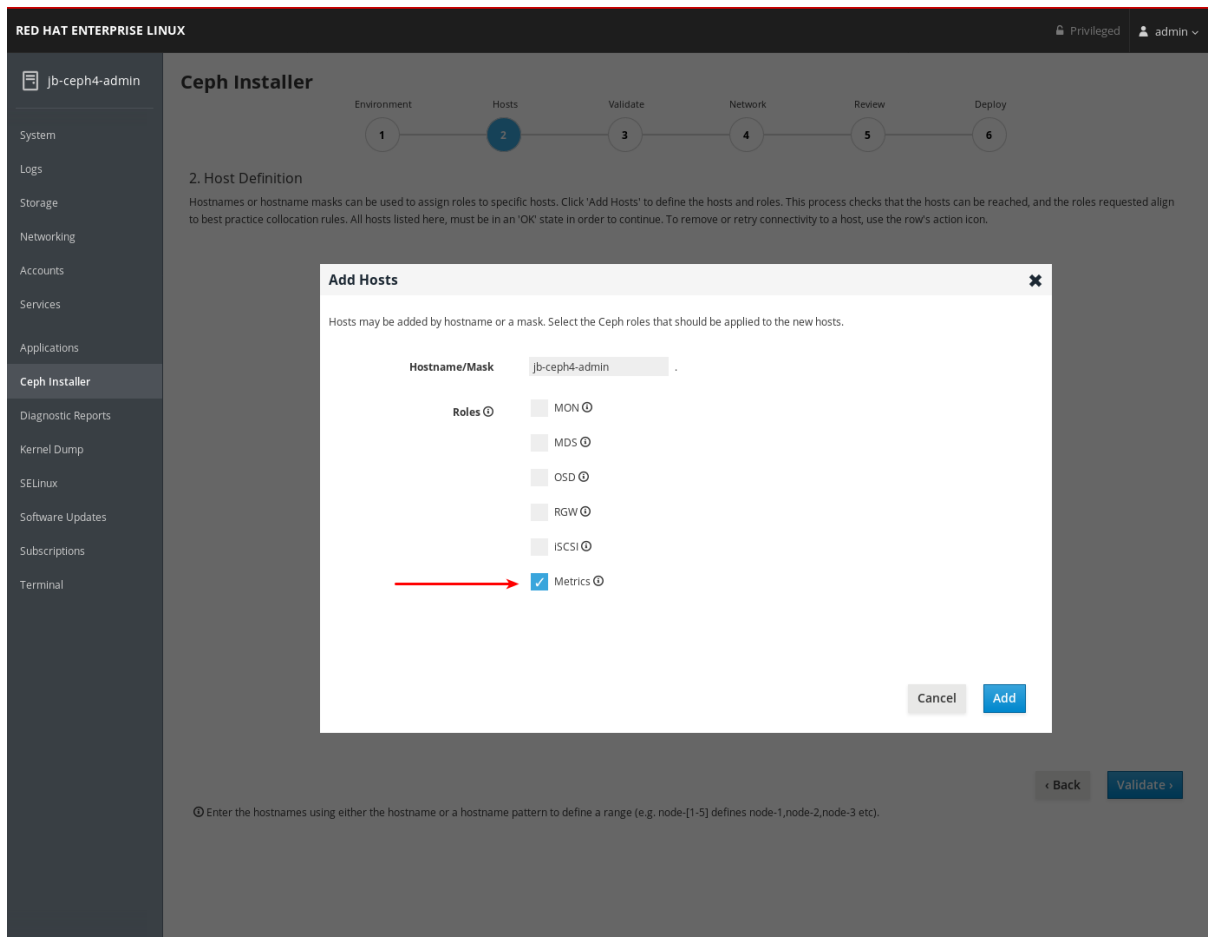
Dashboard is installed by default when using the Cockpit web interface to install Red Hat Ceph Storage. You must set a host with the *Metrics* role for Grafana to be installed on.

#### Prerequisites

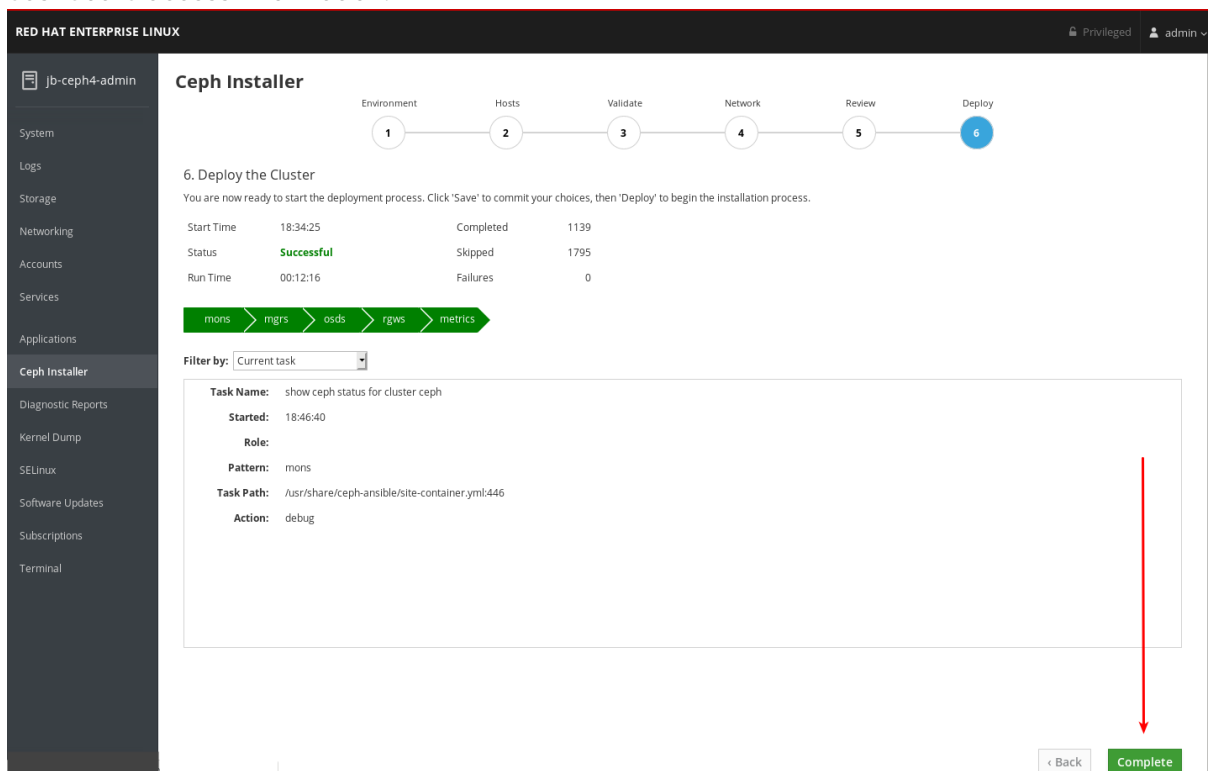
- Consult the [Installation Guide](#) for full prerequisites. This procedure only highlights the steps relevant to the dashboard install.

#### Procedure

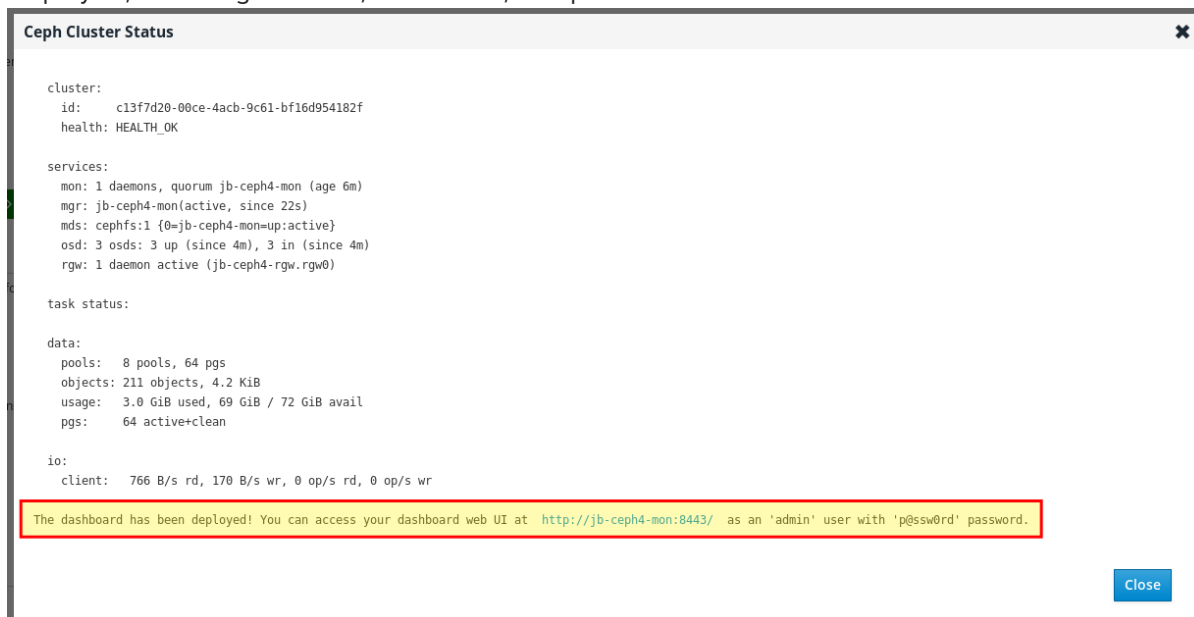
1. On the *Hosts* page, add a host and set the *Metrics* role.



2. Click Add.
3. Complete the remaining Cockpit Ceph Installer prompts.
4. After the deploy process finishes, click the *Complete* button at the bottom right corner of the page. This opens a window which displays the output of the command **ceph status**, as well as dashboard access information.



- At the bottom of the Ceph Cluster Status window, the dashboard access information is displayed, including the URL, user name, and password. Take note of this information.



- For more information, see [Installing Red Hat Ceph Storage using the Cockpit Web User Interface](#) in the [Installation Guide](#).

## 2.2. INSTALLING DASHBOARD USING ANSIBLE

Dashboard is installed by default when installing Red Hat Ceph Storage using the Ansible playbooks provided by the **ceph-ansible** RPM.

### Prerequisites

- Consult the [Installation Guide](#) for full prerequisites. This procedure only highlights the steps relevant to the dashboard install.

### Procedure

- Ensure a **[grafana-server]** group with a node defined under it exists in the Ansible inventory file. Grafana and Prometheus are installed on this node.

```
[root@jb-ceph4-admin ~]# grep grafana-server -A 1 /etc/ansible/hosts
[grafana-server]
jb-ceph4-mon
```

- In the **all.yml** Ansible playbook, ensure **dashboard\_enabled:** has not been set to **False**. There should be a comment indicating the default setting of **True**.

```
[root@jb-ceph4-admin ~]# grep "dashboard_enabled" /usr/share/ceph-ansible/group_vars/all.yml
#dashboard_enabled: True
```

- Complete the rest of the steps necessary to install Ceph as outlined in the [Installation Guide](#).
- After running **ansible-playbook site.yml** for bare metal installs, or **ansible-playbook site-docker.yml** for container installs, Ansible will print the dashboard access information. Find the dashboard URL, username, and password towards the end of the playbook output:



```

2019-12-13 15:31:17,871 p=11421 u=admin | TASK [ceph-dashboard : print dashboard
URL] *****
2019-12-13 15:31:17,871 p=11421 u=admin | task path: /usr/share/ceph-ansible/roles/ceph-
dashboard/tasks/main.yml:5
2019-12-13 15:31:17,871 p=11421 u=admin | Friday 13 December 2019 15:31:17 -0500
(0:00:02.189) 0:04:25.380 *****
2019-12-13 15:31:17,934 p=11421 u=admin | ok: [jb-ceph4-mon] =>
msg: The dashboard has been deployed! You can access your dashboard web UI at
http://jb-ceph4-mon:8443/ as an 'admin' user with 'p@ssw0rd' password.

```

Take note of the output **You can access your dashboard web UI at <http://jb-ceph4-mon:8443/> as an 'admin' user with 'p@ssw0rd' password.**

## NOTE

The Ansible playbook does the following:

- Enables the Prometheus module in **ceph-mgr**.
- Enables the dashboard module in **ceph-mgr** and opens TCP port 8443.
- Deploys the Prometheus **node\_exporter** daemon to each node in the storage cluster.
  - Opens TCP port 9100.
  - Starts the **node\_exporter** daemon.
- Deploys Grafana and Prometheus containers under Docker/systemd on the node under **[grafana-server]** in the Ansible inventory file.
  - Configures Prometheus to gather data from the ceph-mgr nodes and the node-exporters running on each Ceph host
  - Opens TCP port 3000.
  - Creates the dashboard, theme, and user accounts in Grafana.
  - Displays the Ceph Dashboard login page URL.

- For more information, see [Installing a Red Hat Ceph Storage cluster](#) in the *Red Hat Ceph Storage Installation Guide*.
- To remove the dashboard, see [Purging the Ceph Dashboard using Ansible](#) in the *Red Hat Ceph Storage Installation Guide*.

## 2.3. NETWORK PORT REQUIREMENTS

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

**Table 2.1. TCP Port Requirements**

Port	Use	Originating Node	Destination Node
8443	The dashboard web interface	IP addresses that need access to Ceph Dashboard UI and the node under <b>[grafana-server]</b> in the Ansible inventory file, since the AlertManager service can also initiate connections to the Dashboard for reporting alerts.	The Ceph Manager nodes.
3000	Grafana	IP addresses that need access to Grafana Dashboard UI and all Ceph Manager hosts and <b>[grafana-server]</b> .	The node under <b>[grafana-server]</b> in the Ansible inventory file.
9090	Default Prometheus server for basic Prometheus graphs	IP addresses that need access to Prometheus UI and all Ceph Manager hosts and <b>[grafana-server]</b> or Hosts running Prometheus.	The node under <b>[grafana-server]</b> in the Ansible inventory file.
9092	Prometheus server for basic Prometheus graphs	IP addresses that need access to Prometheus UI and all Ceph Manager hosts and <b>[grafana-server]</b> or Hosts running Prometheus.	The node under <b>[grafana-server]</b> in the Ansible inventory file.
9093	Prometheus Alertmanager	IP addresses that need access to Alertmanager Web UI and all Ceph Manager hosts and <b>[grafana-server]</b> or Hosts running Prometheus.	All Ceph Manager nodes and the node under <b>[grafana-server]</b> in the Ansible inventory file.
9094	Prometheus Alertmanager for configuring a highly available cluster made from multiple instances	All Ceph Manager nodes and the node under <b>[grafana-server]</b> in the Ansible inventory file.	Prometheus Alertmanager High Availability (peer daemon sync), so both <b>src</b> and <b>dst</b> should be nodes running Prometheus Alertmanager.

Port	Use	Originating Node	Destination Node
9100	The Prometheus <b>node-exporter</b> daemon	Hosts running Prometheus that need to view Node Exporter metrics Web UI and all Ceph Manager nodes and <b>[grafana-server]</b> or Hosts running Prometheus.	All storage cluster nodes, including MONs, OSDs, <b>[grafana-server]</b> host.
9283	Ceph Manager Prometheus exporter module	Hosts running Prometheus that need access to Ceph Exporter metrics Web UI and <b>[grafana-server]</b> .	All Ceph Manager nodes.
9287	Ceph iSCSI gateway data	All Ceph Manager hosts and <b>[grafana-server]</b> .	All Ceph iSCSI gateway nodes.

### 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](#).

## 2.4. CONFIGURING DASHBOARD PORTS

The Red Hat Ceph Storage Dashboard, by default, binds to a TCP/IP address and TCP port.

By default, the **ceph-mgr** daemon hosting the dashboard binds to TCP port 8443 or 8080 when SSL is disabled. If no specific address is configured, the web app binds to `::`, which corresponds to all the available IP4 and IP6 addresses.

You can change the IP address and the port using the configuration key facility on a cluster-wide level.

### Prerequisites

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

### Procedure

1. Get the URL for accessing the dashboard:

#### Example

```
[root@admin ~]# ceph mgr services
```

2. Get the current IP and port configuration of the **ceph-mgr** daemon:

### Example

```
[root@admin ~]# netstat -ntlp
```

3. Set the IP address and the port:

### Syntax

```
ceph config set mgr mgr/dashboard/server_addr IP_ADDRESS
ceph config set mgr mgr/dashboard/server_port PORT
ceph config set mgr mgr/dashboard/ssl_server_port PORT
```

### Example

```
[root@mon ~]# ceph config set mgr mgr/dashboard/server_addr 192.168.0.120
[root@mon ~]# ceph config set mgr mgr/dashboard/server_port 8443
[root@mon ~]# ceph config set mgr mgr/dashboard/ssl_server_port 8443
```

4. Optional: Since the **ceph-mgr** hosts its own instance of the dashboard, you can configure them separately. Change the IP address and port for a specific manager instance:

### Syntax

```
ceph config set mgr mgr/dashboard/NAME/server_addr IP_ADDRESS
ceph config set mgr mgr/dashboard/NAME/server_port PORT
ceph config set mgr mgr/dashboard/NAME/ssl_server_port PORT
```

**Replace:** *NAME* with the ID of the **ceph-mgr** instance hosting the dashboard.

### Example

```
[root@mon ~]# ceph config set mgr mgr/dashboard/mgrs-0/server_addr 192.168.0.120
[root@mon ~]# ceph config set mgr mgr/dashboard/mgrs-0/server_port 8443
[root@mon ~]# ceph config set mgr mgr/dashboard/mgrs-0/ssl_server_port 8443
```

### Additional Resources

- See the Knowledgebase article [How to update the IP address or Port of the Ceph-dashboard](#) for more details.

## 2.5. ACCESSING DASHBOARD

Accessing the dashboard allows you to administer and monitor your Red Hat Ceph Storage cluster.

### Prerequisites

- Successful installation of Red Hat Ceph Storage Dashboard.

- NTP is synchronizing clocks properly.



## NOTE

A time lag can occur between the dashboard node, cluster nodes, and a browser, when the nodes are not properly synced. Ensure all nodes and the system where the browser runs have time synced by NTP. By default, when Red Hat Ceph Storage is deployed, Ansible configures NTP on all nodes. To verify, for Red Hat Enterprise Linux 7, see [Configuring NTP Using ntpd](#), for Red Hat Enterprise Linux 8, see [Using the Chrony suite to configure NTP](#). If you run your browser on another operating system, consult the vendor of that operating system for NTP configuration information.



## NOTE

When using OpenStack Platform (OSP) with Red Hat Ceph Storage, to enable OSP Safe Mode, use one of the following methods. With Ansible, edit the **group\_vars/all.yml** Ansible playbook, set **dashboard\_admin\_user\_ro: true** and re-run **ansible-playbook** against **site.yml**, or **site-container.yml**, for bare-metal, or container deployments, respectively. To enable OSP Safe Mode using the **ceph** command, run **ceph dashboard ac-user-set-roles admin read-only**. To ensure the changes persist if you run the **ceph-ansible** Ansible playbook, edit **group\_vars/all.yml** and set **dashboard\_admin\_user\_ro: true**.

## Procedure

1. Enter the following URL in a web browser:

```
http://HOST_NAME:PORT
```

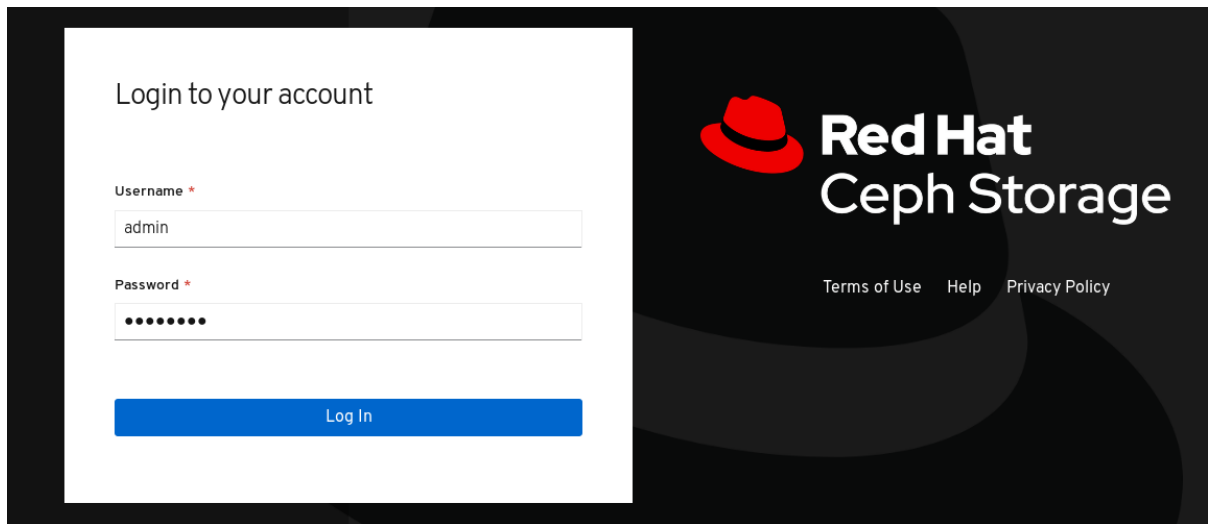
Replace:

- *HOST\_NAME* with the host name of the dashboard node.
- *PORT* with port **8443**  
For example:

```
http://dashboard:8443
```

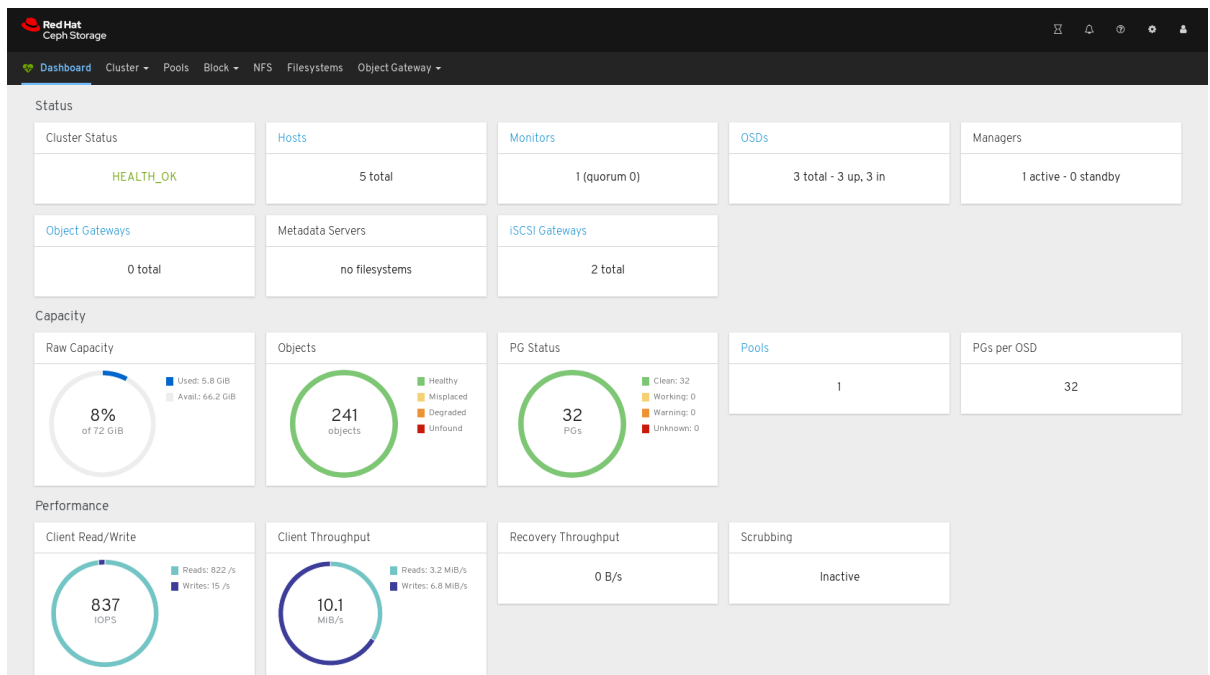
2. On the login page, enter the username **admin** and the default password **p@ssw0rd** if you did not change the password during installation.

Figure 2.1. Ceph Dashboard Login Page



- 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 2.2. Ceph Dashboard Default Landing Page



### Additional Resources

- For more information, see [Changing the dashboard password using the dashboard](#) in the [Dashboard guide](#).
- For more information, see [Changing the dashboard password using Ansible](#) in the [Dashboard guide](#).

## 2.6. CHANGING THE DASHBOARD PASSWORD USING ANSIBLE

By default, the password for accessing dashboard is set to **p@ssw0rd**.

**IMPORTANT**

For security reasons, change the password after installation.

You can change the dashboard password using Ansible.

**Prerequisites**

- A running Red Hat Ceph Storage cluster.
- Access to the Ansible administration node.

**Procedure**

1. Open the Ansible playbook file `/usr/share/ceph-ansible/group_vars/all.yml` for editing.
2. Uncomment and update the password on this line:

```
#dashboard_admin_password: p@ssw0rd
```

to:

```
dashboard_admin_password: NEW_PASSWORD
```

Replace *NEW\_PASSWORD* with your preferred password.

3. Rerun the Ansible playbook file which deploys or updates the Ceph cluster.
  - a. For bare metal installs, use the **site.yml** playbook:

```
[admin@admin ceph-ansible]$ ansible-playbook -v site.yml
```

- b. For container installs, use the **site-docker.yml** playbook:

```
[admin@admin ceph-ansible]$ ansible-playbook -v site-docker.yml
```

4. Log in using the new password.

**Additional Resources**

- For more information, see [Changing the dashboard password using the dashboard](#) in the [Dashboard guide](#).

**2.7. CHANGING THE DASHBOARD PASSWORD USING THE DASHBOARD**

By default, the password for accessing dashboard is set to **p@ssw0rd**.

**IMPORTANT**

For security reasons, change the password after installation.

To change the password using the dashboard, also change the dashboard password setting in Ansible to ensure the password does not revert to the default password if Ansible is used to reconfigure the Red Hat Ceph Storage cluster.

## Prerequisites

- A running Red Hat Ceph Storage cluster.

## Procedure

1. Update the password in the **group\_vars/all.yml** file to prevent the password from being reset to **p@ssw0rd** when Ansible is used to reconfigure the Ceph cluster.

- a. Open the Ansible playbook file **/usr/share/ceph-ansible/group\_vars/all.yml** for editing.

- b. Uncomment and update the password on this line:

```
#dashboard_admin_password: p@ssw0rd
```

to:

```
dashboard_admin_password: NEW_PASSWORD
```

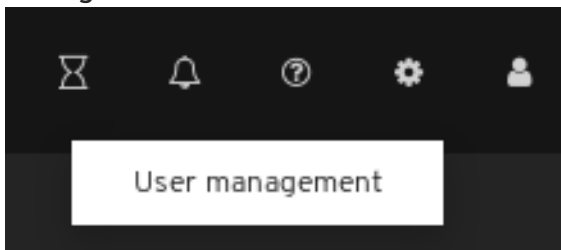
Replace *NEW\_PASSWORD* with your preferred password.

2. Change the password in the dashboard web user-interface.

- a. Log in to the dashboard:

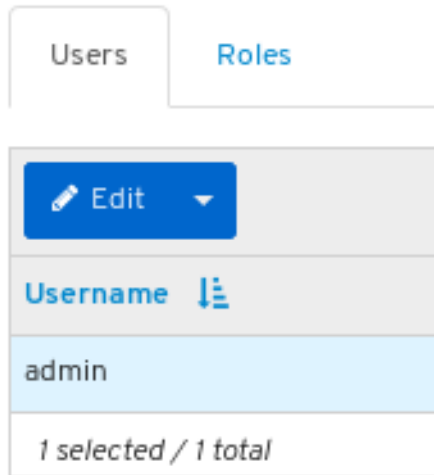
```
http://HOST_NAME:8443
```

- b. At the top right hand side toolbar, click the dashboard settings icon and then click **User management**.



- c. Locate the **admin** user in the **Username** table and click on **admin**.





- d. Above the table title **Username**, click on the **Edit** button.
- e. Enter the new password and confirm it by reentering it and click **Edit User**.

You will be logged out and taken to the log in screen. A notification will appear confirming the password change.

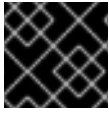
3. Log back in using the new password.

### Additional Resources

- For more information, see [Changing the dashboard password using Ansible](#) in the [Dashboard guide](#).

## 2.8. CHANGING THE GRAFANA PASSWORD USING ANSIBLE

By default, the password for Grafana, used by dashboard, is set to **admin**. Use this procedure to change the password.



## IMPORTANT

For security reasons, change the password from the default.

### Prerequisites

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

### Procedure

1. Optional: If you do not know which node the Grafana container is running on, find the node listed under **[grafana-server]** in the Ansible hosts file, usually located at `/etc/ansible/hosts`:

#### Example

```
[grafana-server]
grafana
```

2. On the node where the Grafana container is running, change the password:

#### Syntax

```
podman exec CONTAINER_ID grafana-cli admin reset-admin-password --homepath
"/usr/share/grafana" NEW_PASSWORD
```

Change `CONTAINER_ID` to the ID of the Grafana container. Change `NEW_PASSWORD` to the desired Grafana password.

#### Example

```
[root@grafana ~]# podman exec 3f28b0309aee grafana-cli admin reset-admin-password --
homepath "/usr/share/grafana" NewSecurePassword
t=2020-10-29T17:45:58+0000 lvl=info msg="Connecting to DB" logger=sqlstore
dbtype=sqlite3
t=2020-10-29T17:45:58+0000 lvl=info msg="Starting DB migration" logger=migrator

Admin password changed successfully ✓
```

3. On the Ansible administration node, use **ansible-vault** to encrypt the Grafana password, and then add the encrypted password to **group\_vars/all.yml**.
  - a. Change to the `/usr/share/ceph-ansible/` directory:

```
[admin@admin ~]$ cd /usr/share/ceph-ansible/
```

- b. Run **ansible-vault** and create a new vault password:

#### Example

```
[admin@admin ceph-ansible]$ ansible-vault encrypt_string --stdin-name
'grafana_admin_password_vault'
New Vault password:
```

- 
- c. Re-enter the password to confirm it:

### Example

```
[admin@admin ceph-ansible]$ ansible-vault encrypt_string --stdin-name
'grafana_admin_password_vault'
New Vault password:
Confirm New Vault password:
```

- d. Enter the Grafana password, press enter, and then enter CTRL+D to complete the entry:

### Syntax

```
ansible-vault encrypt_string --stdin-name 'grafana_admin_password_vault'
New Vault password:
Confirm New Vault password:
Reading plaintext input from stdin. (ctrl-d to end input)
NEW_PASSWORD
```

Replace *NEW\_PASSWORD* with the Grafana password that was set earlier.

### Example

```
[admin@admin ceph-ansible]$ ansible-vault encrypt_string --stdin-name
'grafana_admin_password_vault'
New Vault password:
Confirm New Vault password:
Reading plaintext input from stdin. (ctrl-d to end input)
NewSecurePassword
```

- e. Take note of the output that begins with **grafana\_admin\_password\_vault: !vault |** and ends with a few lines of numbers, as it will be used in the next step:

### Example

```
[admin@admin ceph-ansible]$ ansible-vault encrypt_string --stdin-name
'grafana_admin_password_vault'
New Vault password:
Confirm New Vault password:
Reading plaintext input from stdin. (ctrl-d to end input)
NewSecurePassword
grafana_admin_password_vault: !vault |
    $ANSIBLE_VAULT;1.1;AES256

3838363964616665613032666666332626438363439303738363763313264373530323761
65306234

3161386334616632653530383231316631636462363761660a3733383733346634343638
65356633

663839633230333036623337653839383536306234333465653635346364346436343364
30643438
```

```
6134306662646365370a3431353166333038306535656337363034666362613263613337
66613462
```

```
39353365343137323163343937636464663534383234326531666139376561663532
Encryption successful
```

- f. Open for editing **group\_vars/all.yml** and paste the output from above into the file:

### Example

```
grafana_admin_password_vault: !vault |
    $ANSIBLE_VAULT;1.1;AES256
```

```
383836396461666561303266666332626438363439303738363763313264373530323761
65306234
```

```
3161386334616632653530383231316631636462363761660a3733383733346634343638
65356633
```

```
663839633230333036623337653839383536306234333465653635346364346436343364
30643438
```

```
6134306662646365370a3431353166333038306535656337363034666362613263613337
66613462
```

```
39353365343137323163343937636464663534383234326531666139376561663532
```

- g. Add a line below the encrypted password with the following:

### Example

```
grafana_admin_password: "{{ grafana_admin_password_vault }}"
```



### NOTE

Using two variables as seen above is required due to a [bug in Ansible](#) that breaks the string type when assigning the vault value directly to the Ansible variable.

- h. Save and close the file.
4. Re-run **ansible-playbook**.
- a. For container based deployments:

### Example

```
[admin@node1 ceph-ansible]$ ansible-playbook --ask-vault-pass -v site-container.yml -i
hosts
```

Note that **-i hosts** is only necessary if you are not using the default Ansible hosts file location of **/etc/ansible/hosts**.

- b. For bare-metal, RPM based deployments:

## Example

```
[admin@node1 ceph-ansible]$ ansible-playbook --ask-vault-pass -v site.yml -i hosts
```

Note that **-i hosts** is only necessary if you are not using the default Ansible hosts file location of **/etc/ansible/hosts**.

## 2.9. SYNCING USERS USING RED HAT SINGLE SIGN-ON FOR THE DASHBOARD

Administrators can provide access to users on Red Hat Ceph Storage Dashboard using Red Hat Single Sign-on (SSO) with Lightweight Directory Access Protocol (LDAP) integration.

### 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.
- Red hat Single Sign-On installed from a ZIP file. See the [Installing Red Hat Single Sign-On from a zip file](#) for additional information.

### 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@cephuser]# unzip rhssso-7.4.0.zip
```

3. Navigate to the **standalone/configuration** directory and open the **standalone.xml** for editing:

```
[root@cephuser]# cd standalone/configuration
[root@cephuser configuration]# vi standalone.xml
```

4. Replace three instances of **localhost** and two instances of **127.0.0.1** with the IP address of the machine where Red Hat Single Sign-On 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 exact java version.

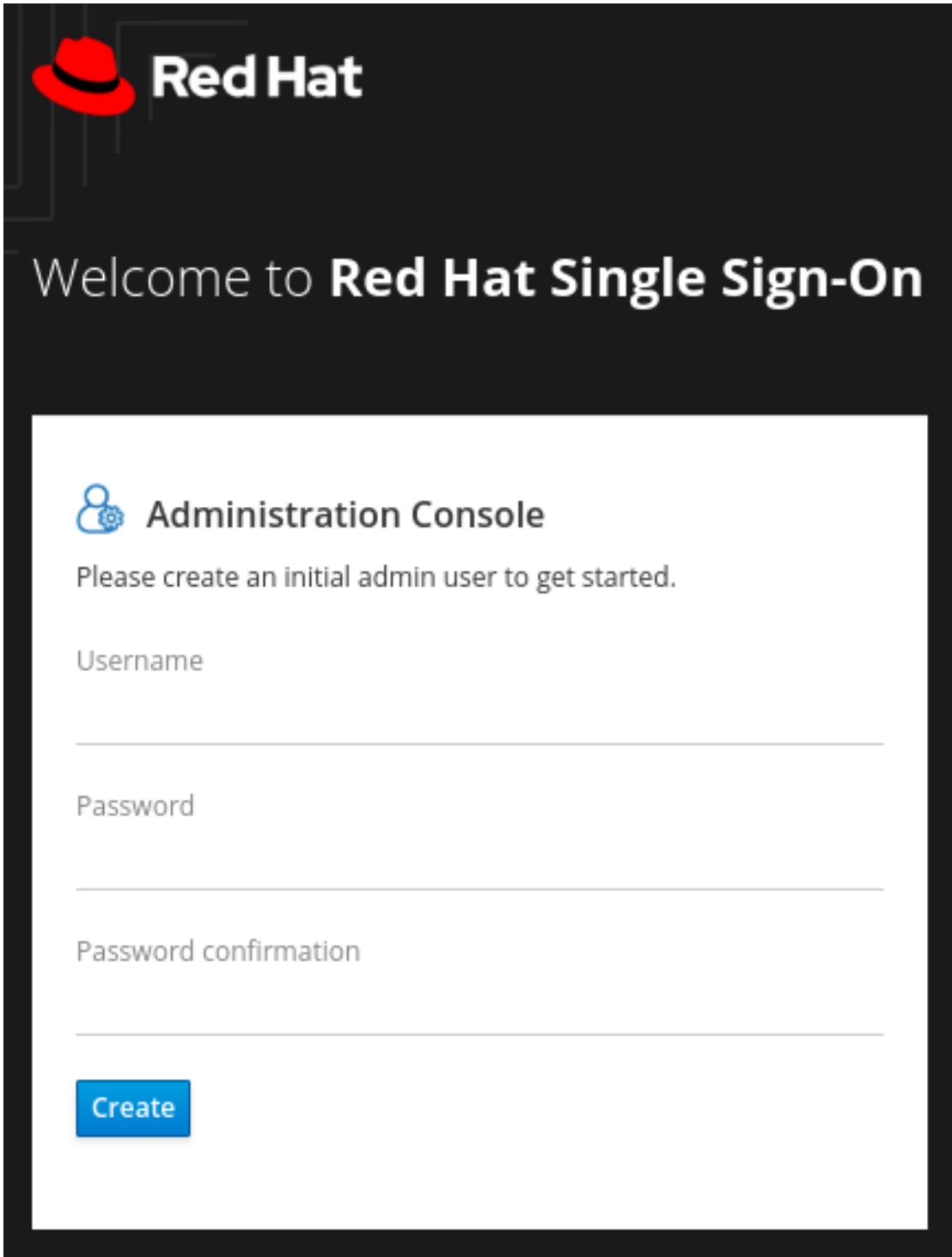
### Example


```
[root@cephuser]# 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-ss0-7.4** folder, run the **standalone** boot script:


```
[root@cephuser bin]# ./standalone.sh
```

- 7. Create the admin account in `http://_IP_ADDRESS_:8080/auth` with a username and password:



 **Red Hat**

Welcome to **Red Hat Single Sign-On**

 **Administration Console**

Please create an initial admin user to get started.

Username

\_\_\_\_\_

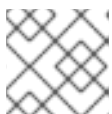
Password

\_\_\_\_\_

Password confirmation

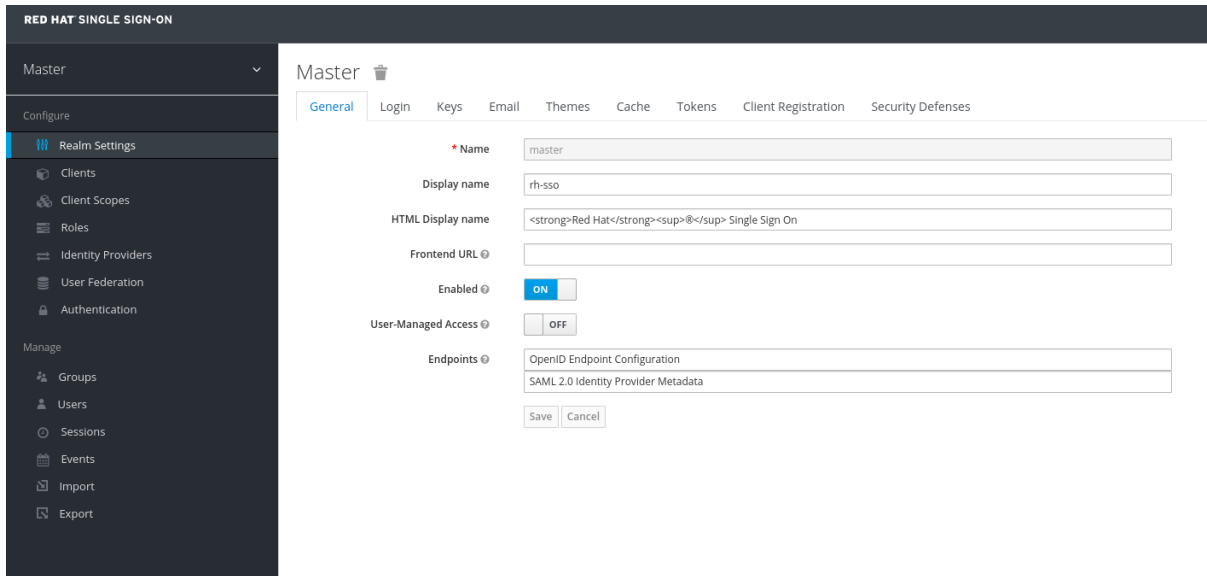
\_\_\_\_\_

**Create**

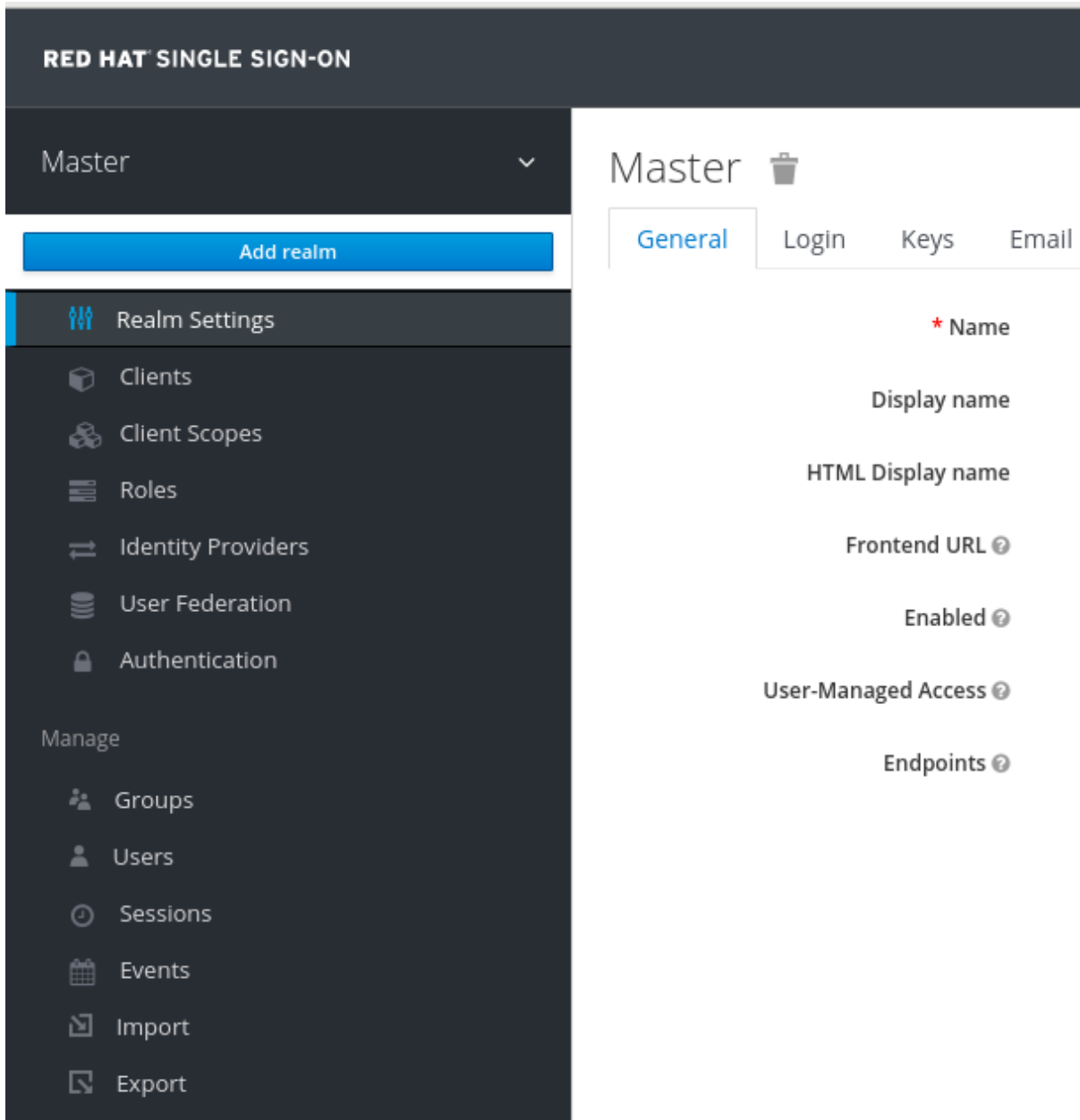
**NOTE**

The admin account has to be created only the first time you log into the console.

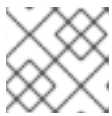
- 8. Log into the admin console with the credentials created:



9. To create a realm, click the *Master* drop-down. In this realm, administrators provide access to users and applications.



10. In the *Add Realm* window, enter a name for the realm and set the parameter *Enabled* to ON and click Create:



## NOTE

The realm name is case-sensitive.

11. In the *Realm Settings* tab, set the following parameters and click Save:
- Enabled - ON
  - User-Managed Access - ON
  - Copy the link address of SAML 2.0 Identity Provider Metadata

12. In the *Clients* tab, click Create:

Client ID	Enabled	Base URL	Actions
account	True	http://localhost:8080/auth/realms/Ceph_LDAP/account/	Edit Export Delete
account-console	True	http://localhost:8080/auth/realms/Ceph_LDAP/account/	Edit Export Delete
admin-cli	True	Not defined	Edit Export Delete
broker	True	Not defined	Edit Export Delete

13. In the *Add Client* window, set the following parameters and click Save:



- a. Client ID - BASE\_URL:8443/auth/saml2/metadata

### Example

<https://magna082.ceph.redhat.com:8443/auth/saml2/metadata>

- b. Client Protocol - saml

The screenshot shows the 'Add Client' form in the Red Hat Single Sign-On interface. The left sidebar contains a navigation menu with the following items: Ceph\_LDAP, Configure, Realm Settings, Clients (selected), Client Scopes, Roles, Identity Providers, User Federation, and Authentication. The main content area is titled 'Add Client' and includes an 'Import' button with a 'Select file' dropdown. Below this are three input fields: 'Client ID' (containing the URL from the example), 'Client Protocol' (containing 'saml'), and 'Client SAML Endpoint'. At the bottom right, there are 'Save' and 'Cancel' buttons.

14. In the *Clients* window, under *Settings* tab, set the following parameters and click Save:

- a. Client ID - BASE\_URL:8443/auth/saml2/metadata

### Example

<https://magna082.ceph.redhat.com:8443/auth/saml2/metadata>

- b. Enabled - ON  
 c. Client Protocol - saml  
 d. Include AuthnStatement - ON  
 e. Sign Documents - ON  
 f. Signature Algorithm - RSA\_SHA1  
 g. SAML Signature Key Name - KEY\_ID  
 h. Valid Redirect URLs - BASE\_URL:8443/\*

### Example

[https://magna082.ceph.redhat.com:8443/\\*](https://magna082.ceph.redhat.com:8443/*)

- i. Base URL - BASE\_URL:8443

### Example

<https://magna082.ceph.redhat.com:8443/>

- j. Master SAML Processing URL -  
[http://localhost:8080/auth/realms/REALM\\_NAME/protocol/saml/descriptor](http://localhost:8080/auth/realms/REALM_NAME/protocol/saml/descriptor)

### Example

[http://localhost:8080/auth/realms/Ceph\\_LDAP/protocol/saml/descriptor](http://localhost:8080/auth/realms/Ceph_LDAP/protocol/saml/descriptor)

**NOTE**

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

Under Fine Grain SAML Endpoint Configuration, set the parameters:

- k. Assertion Consumer Service POST Binding URL - `BASE_URL:8443/#/dashboard`

**Example**

`https://magna082.ceph.redhat.com:8443/#/dashboard`

- l. Assertion Consumer Service Redirect Binding URL - `BASE_URL:8443/#/dashboard`

**Example**

`https://magna082.ceph.redhat.com:8443/#/dashboard`

- m. Logout Service Redirect Binding URL - `BASE_URL:8443/`

**Example**

`https://magna082.ceph.redhat.com:8443/`

**RED HAT SINGLE SIGN-ON**

Ceph\_LDAP

Configure

- Realm Settings
- Clients**
- Client Scopes
- Roles
- Identity Providers
- User Federation
- Authentication

Manage

- Groups
- Users
- Sessions
- Events
- Import
- Export

Clients > <https://magna082.ceph.redhat.com:8443/auth/saml2/metadata>

[Settings](#) Roles Client Scopes Mappers Scope Sessions Offline Access Clustering Installation

Client ID

Name

Description

Enabled

Consent Required

Login Theme

Client Protocol

Include AuthnStatement

Include OneTimeUse Condition

Sign Documents

Optimize REDIRECT signing key lookup

Sign Assertions

Signature Algorithm

SAML Signature Key Name

Canonicalization Method

Encrypt Assertions

Force POST Binding ?	<input type="checkbox"/> OFF
Front Channel Logout ?	<input type="checkbox"/> OFF
Force Name ID Format ?	<input type="checkbox"/> OFF
Name ID Format ?	username
Root URL ?	
Valid Redirect URIs ?	https://magna082.ceph.redhat.com:8443/*
Base URL ?	https://magna082.ceph.redhat.com:8443/
Master SAML Processing URL ?	http://localhost:8080/auth/realms/Ceph_LDAP/protocol/saml/descriptor
IDP Initiated SSO URL Name ?	
IDP Initiated SSO Relay State ?	
<b>&gt; Fine Grain SAML Endpoint Configuration ?</b>	
Assertion Consumer Service POST Binding URL ?	https://magna082.ceph.redhat.com:8443/#/dashboard
Assertion Consumer Service Redirect Binding URL ?	https://magna082.ceph.redhat.com:8443/#/dashboard
Logout Service POST Binding URL ?	
Logout Service Redirect Binding URL ?	https://magna082.ceph.redhat.com:8443/
<b>&gt; Advanced Settings ?</b>	
<b>&gt; Authentication Flow Overrides ?</b>	
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

15. In the *Clients* window, *Mappers* tab, set the following parameters and click Save:
- Protocol - saml
  - Name - username
  - Mapper Property - User Property
  - Property - username
  - SAML Attribute name - username

The screenshot shows the Red Hat Single Sign-On dashboard. The left sidebar is expanded to the 'Clients' section. The breadcrumb trail is 'Clients > https://magna082.ceph.redhat.com:8443/auth/saml2/metadata > Mappers > username'. The main content area is titled 'Username' and displays the configuration for a SAML client. The fields are as follows:

- Protocol: saml
- ID: b788e5b4-7315-4b9d-ad73-4a12d0d4a440
- Name: username
- Mapper Type: User Property
- Property: username
- Friendly Name: (empty)
- SAML Attribute Name: username
- SAML Attribute NameFormat: Select One... (dropdown)

At the bottom right, there are 'Save' and 'Cancel' buttons.

16. In the *Clients Scope* tab, select *role\_list*:

a. In *Mappers* tab, select *role list*, set the *Single Role Attribute* to ON.

The screenshot shows the Red Hat Single Sign-On dashboard. The left sidebar is expanded to the 'Client Scopes' section. The breadcrumb trail is 'Client Scopes > role\_list > Mappers > role list'. The main content area is titled 'Role List' and displays the configuration for a SAML client. The fields are as follows:

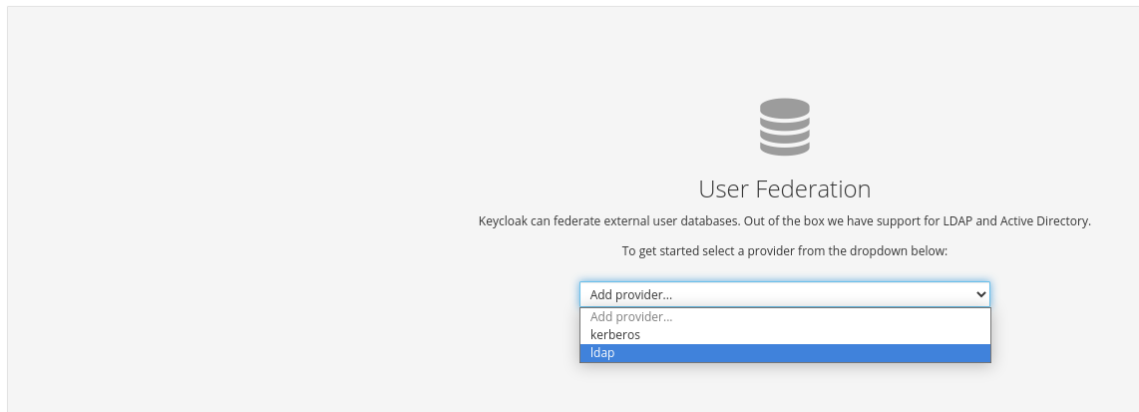
- Protocol: saml
- ID: 8a963bad-28fc-403d-ae69-2c6c2d681670
- Name: role list
- Mapper Type: Role list
- Role attribute name: Role
- Friendly Name: (empty)
- SAML Attribute NameFormat: Select One... (dropdown)
- Single Role Attribute: ON (checkbox)

At the bottom right, there are 'Save' and 'Cancel' buttons.

17. Select *User\_Federation* tab:

a. In *User Federation* window, select *ldap* from the drop-down:

## User Federation



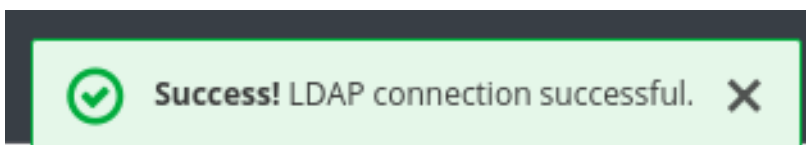
18. In *User\_Federation* window, *Settings* tab, set the following parameters and click Save:

- a. Console Display Name - rh-ldap
- b. Import Users - ON
- c. Edit\_Mode - READ\_ONLY
- d. Username LDAP attribute - username
- e. RDN LDAP attribute - username
- f. UUID LDAP attribute - nsuniqueid
- g. User Object Classes - inetOrgPerson, organizationalPerson, rhatPerson
- h. Connection URL - ldap://myldap.example.com

**Example**

ldap://ldap.corp.redhat.com

Click *Test Connection*.



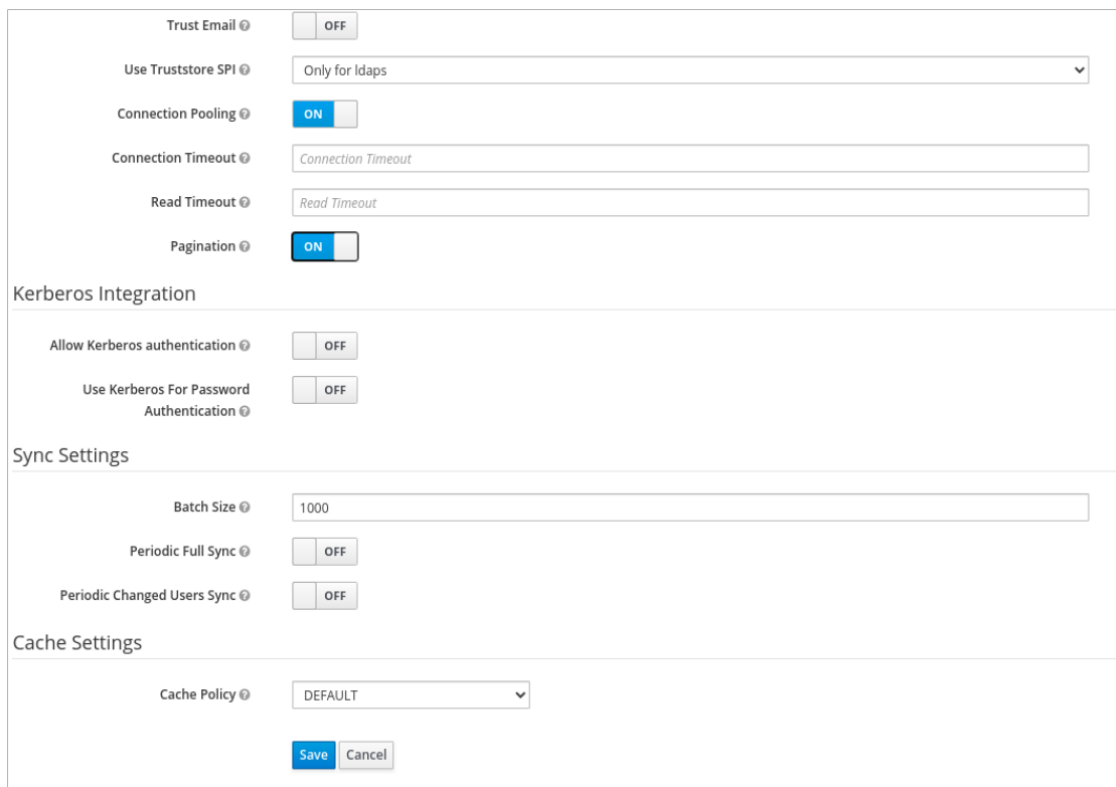
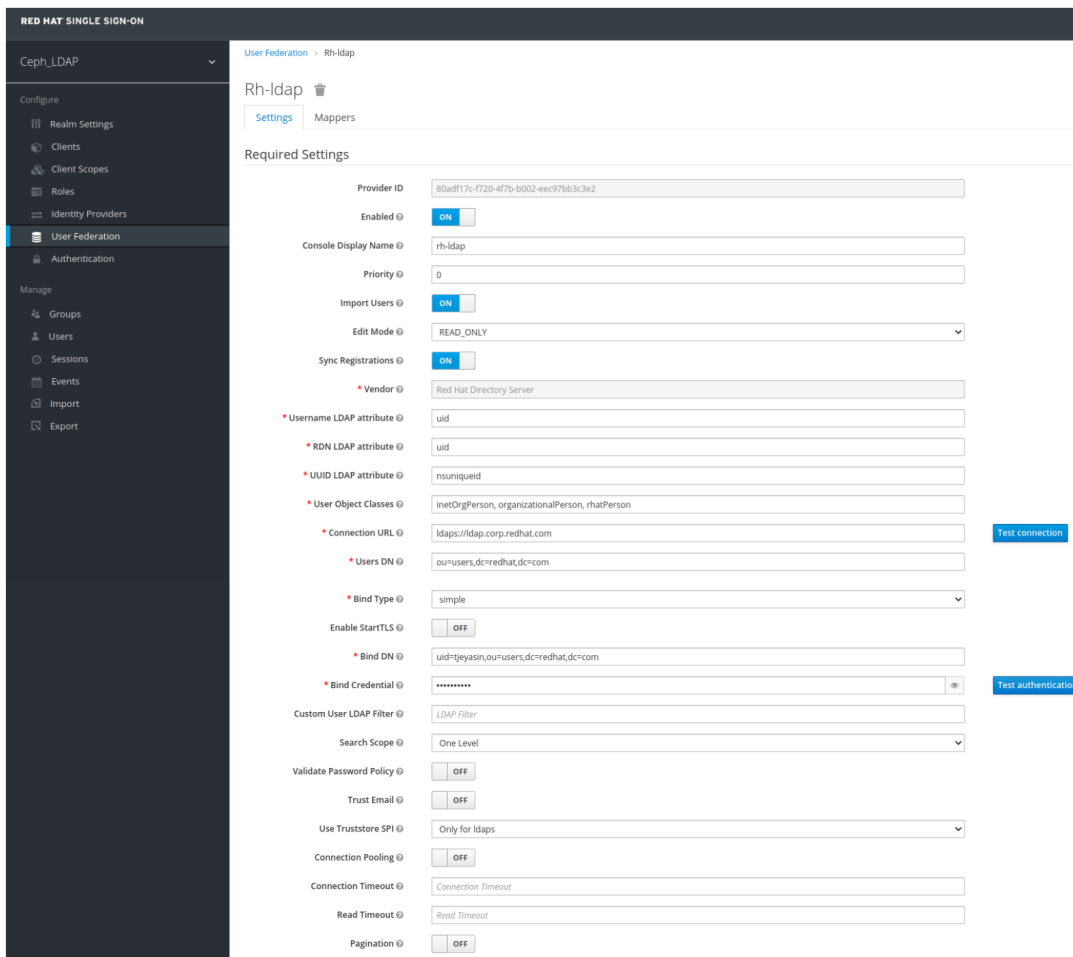
You will get a notification that the LDAP connection is successful.

- i. Users DN - ou=users, dc=example, dc=com

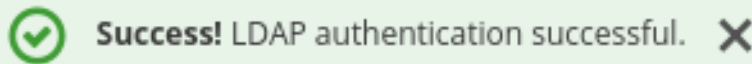
**Example**

ou=users,dc=redhat,dc=com

- j. Bind Type - simple



k. Click *Test authentication*.



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

19. In *Mappers* tab, select *first name* row and edit the following parameter and Click Save:

a. LDAP Attribute - givenName

The screenshot shows the Red Hat Single Sign-On dashboard. On the left is a navigation menu with 'User Federation' selected. The main content area shows the breadcrumb 'User Federation > Rh-ldap > LDAP Mappers'. Below this, there are tabs for 'Settings' and 'Mappers'. A search bar is present. A list of LDAP Mappers is shown with columns for Name, creation date, modify date, first name, email, and username. The 'first name' row is highlighted with a red arrow.

The screenshot shows the configuration page for the 'first name' LDAP Mapper. The breadcrumb is 'User Federation > Ldap > LDAP Mappers > first name'. The page title is 'First Name'. The configuration fields are:

- ID: cc71c709-b024-4b26-9d5b-c001b89dd0c7
- Name: first name
- Mapper Type: user-attribute-ldap-mapper
- User Model Attribute: firstName
- LDAP Attribute: givenName
- Read Only: ON
- Always Read Value From LDAP: ON
- Is Mandatory In LDAP: ON
- Is Binary Attribute: OFF

Buttons for 'Save' and 'Cancel' are at the bottom.

20. In *User\_Federation* tab, *Settings* tab, Click *Synchronize all users*:

Trust Email  OFF

Use Truststore SPI

Connection Pooling  ON

Connection Timeout

Read Timeout

Pagination  ON

### Kerberos Integration

Allow Kerberos authentication  OFF

Use Kerberos For Password Authentication  OFF

### Sync Settings

Batch Size

Periodic Full Sync  OFF

Periodic Changed Users Sync  OFF

### Cache Settings

Cache Policy

Save Cancel Synchronize changed users Synchronize all users Remove imported Unlink users

You will get a notification that the sync of users are updated successfully.



21. In the *Users* tab, search for the user added to the dashboard and click the Search icon:



**RED HAT SINGLE SIGN-ON**

Ceph\_LDAP

Configure

- Realm Settings
- Clients
- Client Scopes
- Roles
- Identity Providers
- User Federation
- Authentication

Manage

- Groups
- Users**
- Sessions

**Users**

Lookup

View all users

ID	Username
0edc54ea-8a2b-4d1d-815a-e894e97...	[Redacted]

22. To view the user, click its row. You should see the federation link as the name provided for the *User Federation*.

**RED HAT SINGLE SIGN-ON**

Ceph\_LDAP

Users > [Redacted]

Details

Attributes

Credentials

Role Mappings

Groups

Consents

ID [Redacted]

Created At 9/11/20 5:32:37 PM

Username [Redacted]

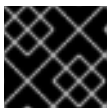
Email [Redacted]

First Name [Redacted]

Last Name [Redacted]

User Enabled  ON

Federation Link



## IMPORTANT

Do not add users manually. If added manually, delete the user by clicking *Delete*.

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

### Example

`https://magna082.ceph.redhat.com:8443`



Ceph\_LDAP

Log In

Username or email

Password

Log In

### Additional Resources

- For adding users to the dashboard, see the [Creating users on dashboard](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more information.
- 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) 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). Red Hat uses Keycloak to test the dashboard SSO feature.

### Prerequisites

- A running Red Hat Ceph Storage cluster.

- Installation of the Ceph Dashboard software.
- Launch the Dashboard.
- Root-level access to the Ceph Manager nodes.
- Installation of the following library packages on the Ceph Manager nodes:
  - **python3-saml**
  - **python3-defusedxml**
  - **python3-isodate**
  - **python3-xmlsec**

## Procedure

1. To configure SSO on Ceph Dashboard, run the following command:
  - a. **Bare-metal** deployments:

### Syntax

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

- b. **Container** deployments:

### 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@mon ~]# podman exec ceph-mgr-hostname ceph dashboard sso setup saml2
http://dashboard_hostname.ceph.redhat.com:8443 idp-metadata.xml username
http://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, **ceph-mgr-hostname**
- *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:

- a. **Bare-metal** deployments:

### Syntax

```
ceph dashboard sso show saml2
```

- b. **Container** deployments:

### Syntax

```
podman exec CEPH_MGR_NODE ceph dashboard sso show saml2
```

3. To enable SSO, run the following command:

- a. **Bare-metal** deployments:

### Syntax

```
ceph dashboard sso enable saml2  
SSO is "enabled" with "SAML2" protocol.
```

- b. **Container** deployments:

### Syntax

```
podman exec CEPH_MGR_NODE ceph dashboard sso enable saml2  
SSO is "enabled" with "SAML2" protocol.
```

4. Open your dashboard URL. For example:

```
http://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.

### Prerequisites

- A running Red Hat Ceph Storage cluster.
- Installation of the Ceph Dashboard software.
- Launch the Dashboard.
- Root-level access to the Ceph Manager nodes.
- Single sign-on enabled for Ceph Dashboard
- Installation of the following library packages on the Ceph Manager nodes:
  - **python3-saml**
  - **python3-defusedxml**
  - **python3-isodate**
  - **python3-xmlsec**

### Procedure

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

- a. **Bare-metal** deployments:

#### Syntax

```
ceph dashboard sso status
SSO is "enabled" with "SAML2" protocol.
```

- b. **Container** deployments:

#### Syntax

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

#### Replace

- `CEPH_MGR_NODE` with Ceph **mgr** node. For example, **ceph-mgr-hostname**

2. To disable SSO, run the following command:

- a. **Bare-metal** deployments:

#### Syntax

```
ceph dashboard sso disable  
SSO is "disabled".
```

b. **Container** deployments:

### Syntax

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

### Replace

- `CEPH_MGR_NODE` with Ceph **mgr** node. For example, **ceph-mgr-hostname**

### Additional Resources

- To enable single sign-on, see [Enabling Single Sign-on for the Ceph Dashboard](#) in the *Red Hat Ceph Storage Dashboard Guide*.

## CHAPTER 3. MANAGING ROLES ON DASHBOARD

As a storage administrator, you can create, view, edit, and delete roles on the dashboard. You can give permissions to the roles and you can assign specific roles for users.

### 3.1. CREATING ROLES ON DASHBOARD

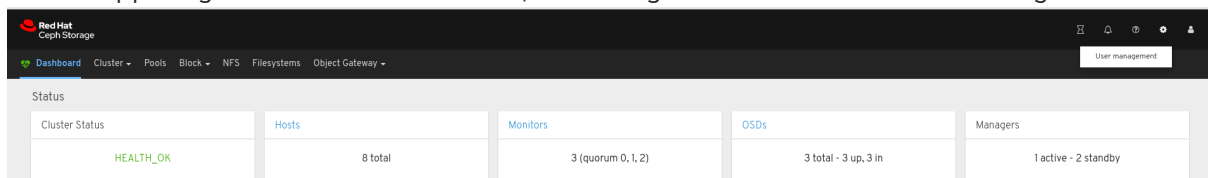
The dashboard allows you to create roles on the dashboard which can be assigned to the users.

#### Prerequisites

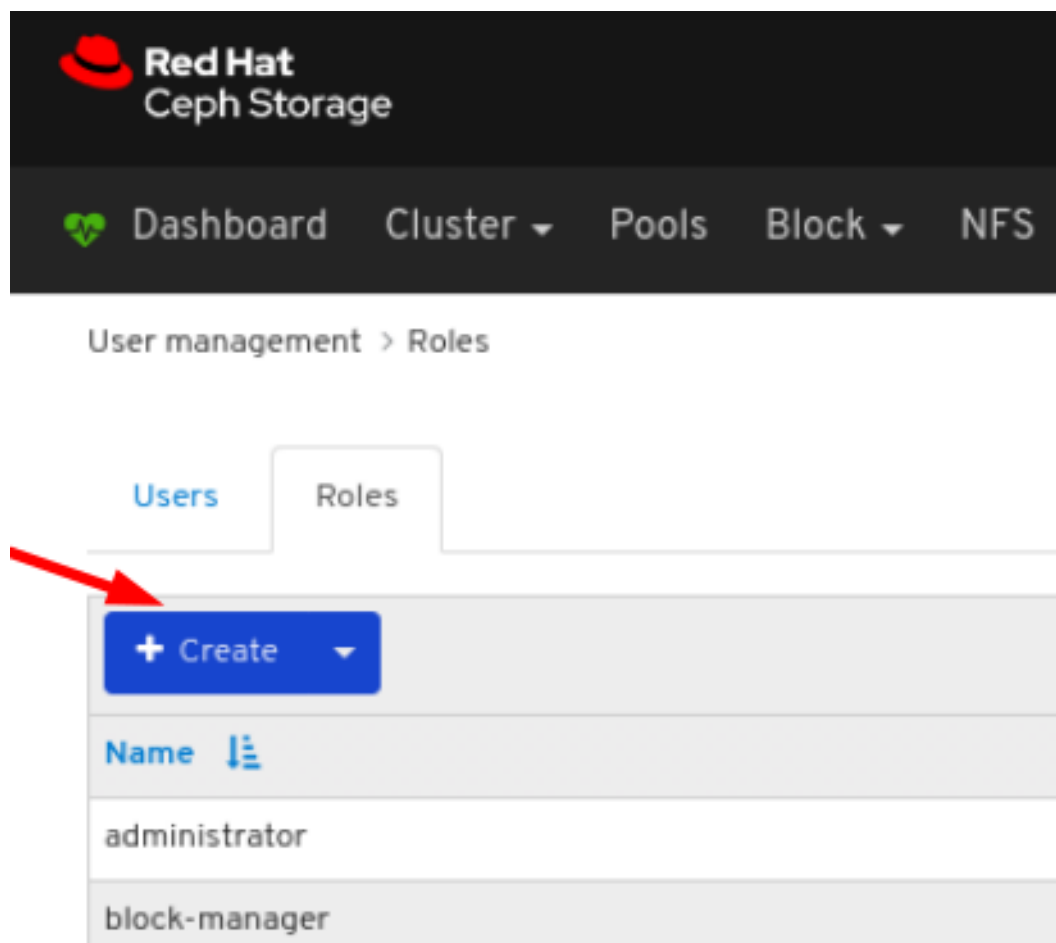
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level of access to the Dashboard.

#### Procedure

1. Log in to the Dashboard.
2. On the upper right side of the Dashboard, click the gear icon and select *User management*:



3. On *Roles* tab, click the *Create* button:



4. In the *CreateRole* window, set the *Name* and select the *Permissions* for this role, and then click the *CreateRole* button:



Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

User management > Roles > Create

### CreateRole

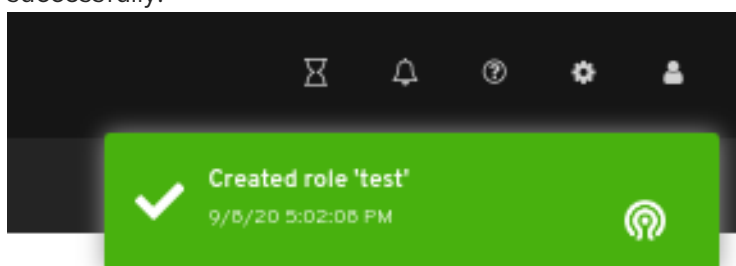
**Name \***

**Description**

**Permissions**

<input type="checkbox"/> All	<input type="checkbox"/> Read	<input type="checkbox"/> Create	<input type="checkbox"/> Update	<input type="checkbox"/> Delete
<input type="checkbox"/> cephfs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> config-opt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> dashboard-settings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> grafana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> hosts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> iscsi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> log	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> manager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> monitor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> nfs-ganesha	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> osd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> pool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> prometheus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> rbd-image	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> rbd-mirroring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> rgw	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> user	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- A notification towards the top right corner of the page indicates the role was created successfully.



## 3.2. VIEWING ROLES ON DASHBOARD

The dashboard allows you to view the details of the roles on the dashboard.

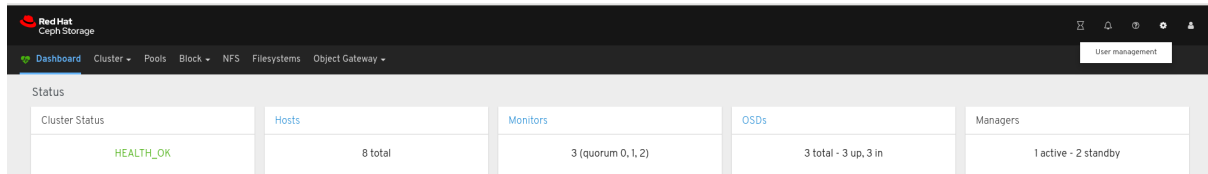
### Prerequisites

- A running Red Hat Ceph Storage cluster.

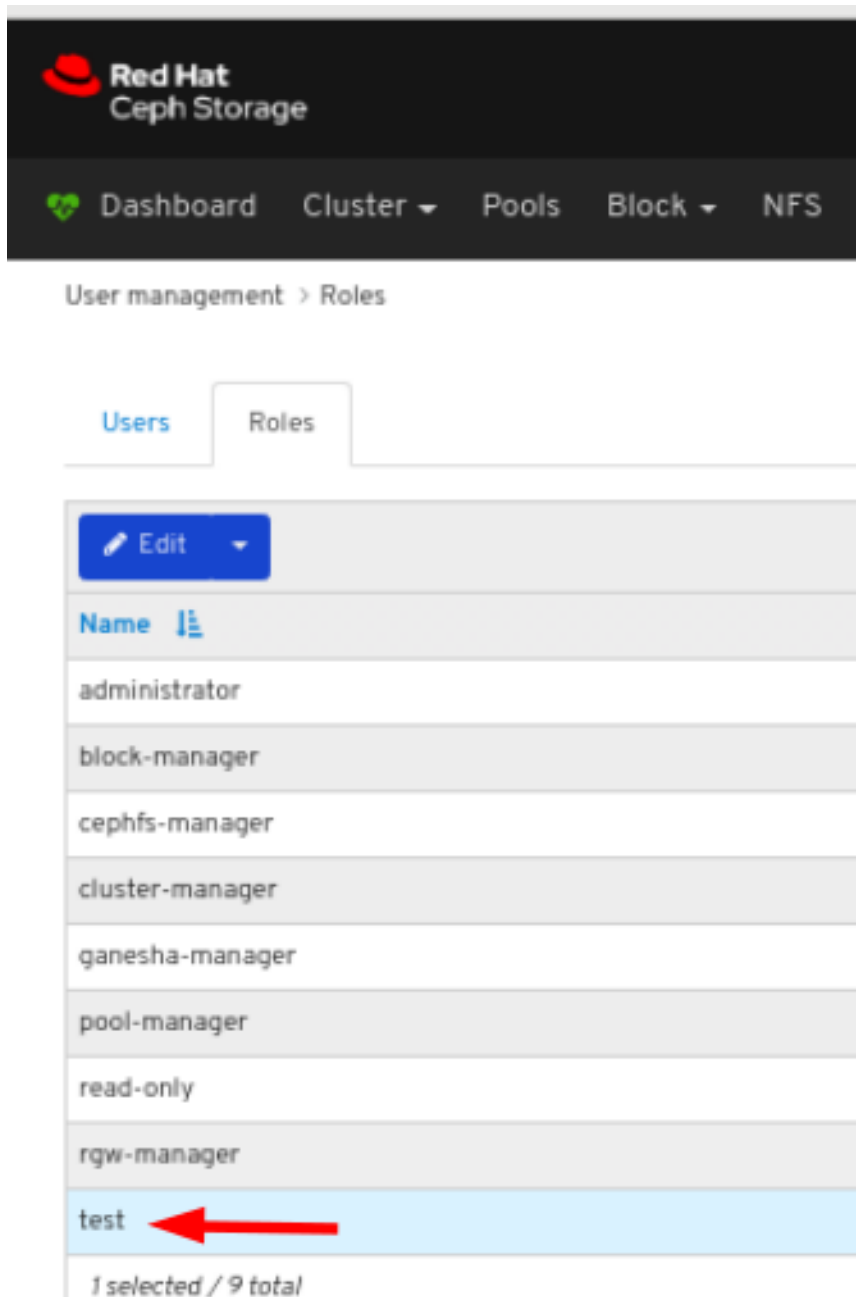
- Dashboard is installed.
- Admin level of access to the dashboard.
- Roles are created on the dashboard.

## Procedure

1. Log in to the Dashboard.
2. On the upper right side of the Dashboard, click the gear icon and select *User management*:



3. To view the details of the role, click the row:



4. You can see the details of the permissions provided for the roles.

Scope <a href="#">↕</a>	Read <a href="#">↕</a>
cephfs	
config-opt	
dashboard-settings	
grafana	✓
hosts	
iscsi	✓
log	
manager	
monitor	
nfs-ganesha	
osd	
pool	✓
prometheus	
rbd-image	✓
rbd-mirroring	✓
rgw	
user	

### Additional Resources

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

## 3.3. EDITING ROLES ON DASHBOARD

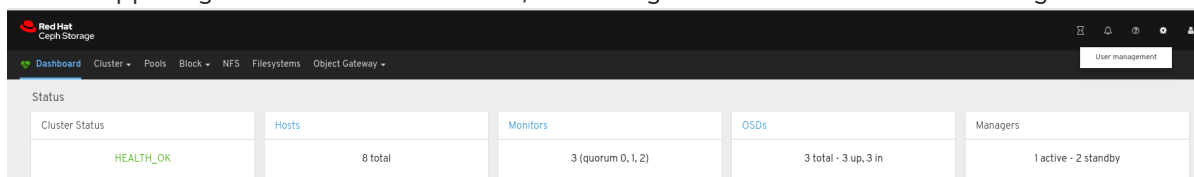
The dashboard allows you to edit roles on the dashboard.

### Prerequisites

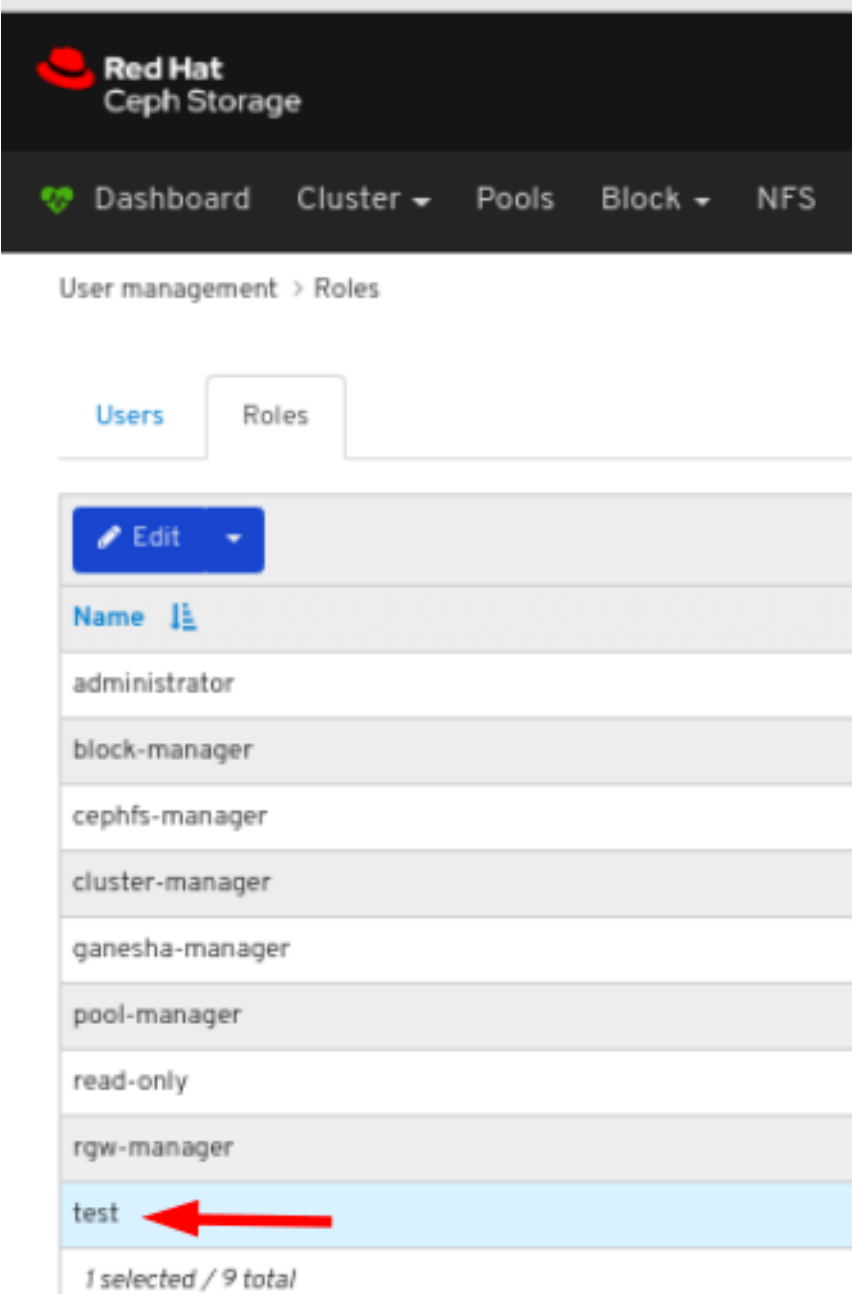
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level of access to the Dashboard.
- A role is created on the dashboard.

### Procedure

1. Log in to the Dashboard.
2. On the upper right side of the Dashboard, click the gear icon and select *User management*:



3. To edit the role, click the row:



The screenshot shows the Red Hat Ceph Storage 4 Dashboard. At the top, there is a navigation bar with the Red Hat logo and the text "Red Hat Ceph Storage". Below this, there is a secondary navigation bar with links for "Dashboard", "Cluster", "Pools", "Block", and "NFS". The main content area is titled "User management > Roles". There are two tabs: "Users" and "Roles", with "Roles" being the active tab. A blue "Edit" button is visible at the top left of the roles list. The roles list is a table with a header "Name" and a list of roles: administrator, block-manager, cephfs-manager, cluster-manager, ganesha-manager, pool-manager, read-only, rgw-manager, and test. The "test" role is highlighted in light blue, and a red arrow points to it. At the bottom of the list, it says "1 selected / 9 total".

Red Hat  
Ceph Storage

Dashboard Cluster Pools Block NFS

User management > Roles

Users Roles

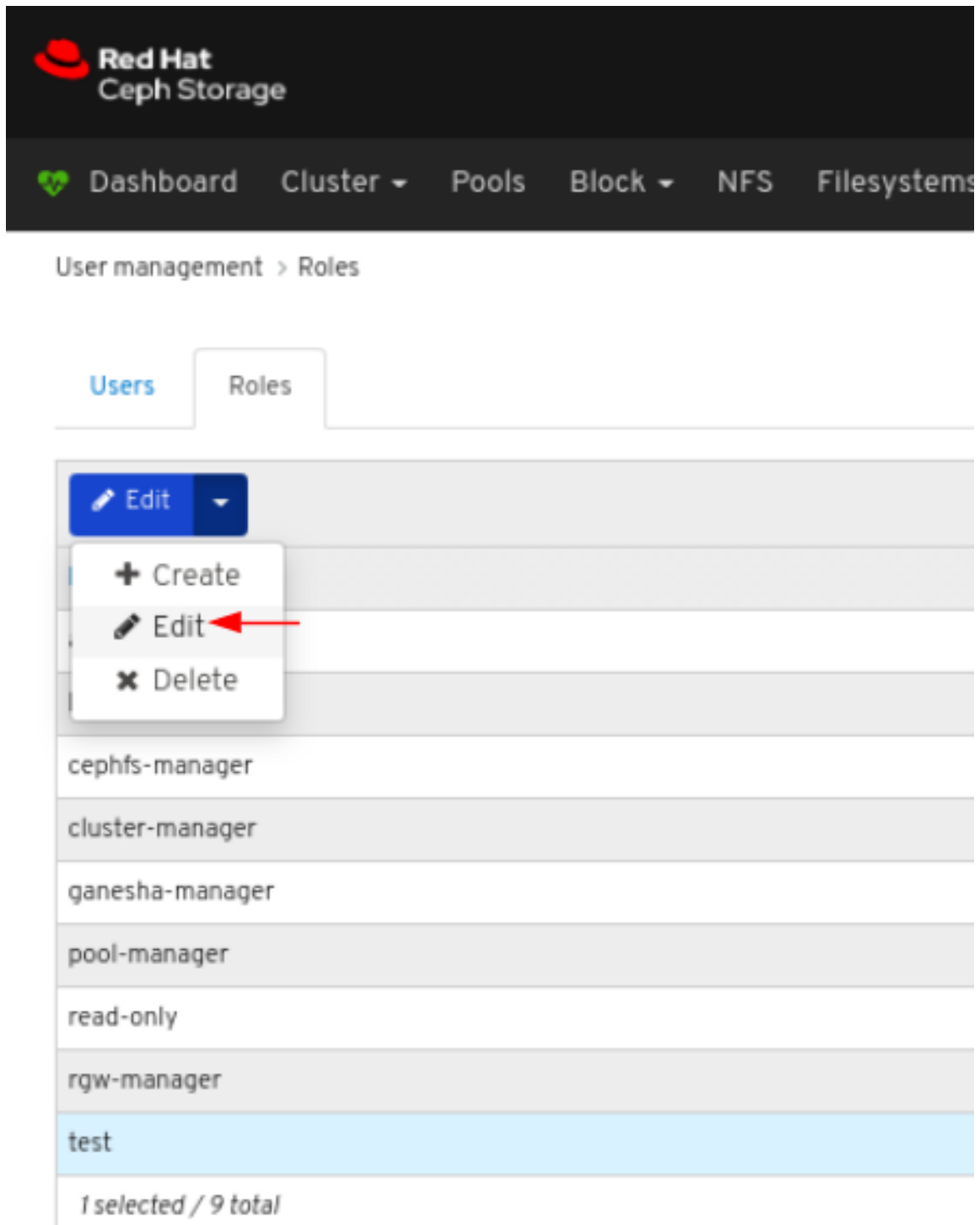
Edit

Name

administrator
block-manager
cephfs-manager
cluster-manager
ganesha-manager
pool-manager
read-only
rgw-manager
test

1 selected / 9 total

4. On the *Roles* tab, select *Edit* from the *Edit* dropdown menu:



The screenshot shows the Red Hat Ceph Storage dashboard. The top navigation bar includes the Red Hat logo and 'Ceph Storage' text. Below the navigation bar, there are tabs for 'Dashboard', 'Cluster', 'Pools', 'Block', 'NFS', and 'Filesystems'. The main content area is titled 'User management > Roles'. There are two tabs: 'Users' and 'Roles', with 'Roles' being the active tab. A table of roles is displayed, with the 'test' role selected. A dropdown menu is open over the 'test' role, showing options: 'Edit', 'Create', 'Edit', and 'Delete'. A red arrow points to the 'Edit' option in the dropdown menu. The table lists the following roles: cephfs-manager, cluster-manager, ganesha-manager, pool-manager, read-only, rgw-manager, and test. At the bottom of the table, it says '1 selected / 9 total'.

5. In the *EditRole* window, edit parameters including, and then click the *EditRole* button:

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

User management > Roles > Edit

### EditRole

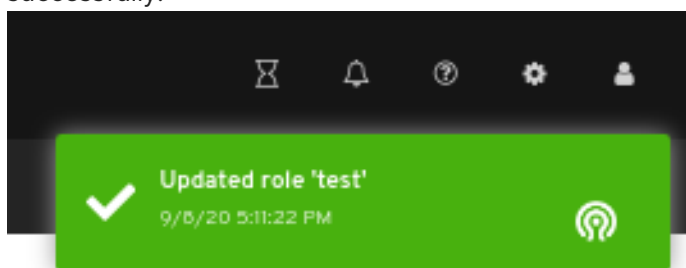
Name: test

Description: Description...

Permissions	All	Read	Create	Update	Delete
cephfs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
config-opt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
dashboard-settings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
grafana	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
hosts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iscsi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
log	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
manager	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
monitor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
nfs-ganesha	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
osd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
prometheus	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
rbd-image	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
rbd-mirroring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
rgw	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
user	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

EditRole Cancel

6. A notification towards the top right corner of the page indicates the role was updated successfully.

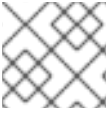


### Additional Resources

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

## 3.4. DELETING ROLES ON DASHBOARD

The dashboard allows you to delete roles on the dashboard.



## NOTE

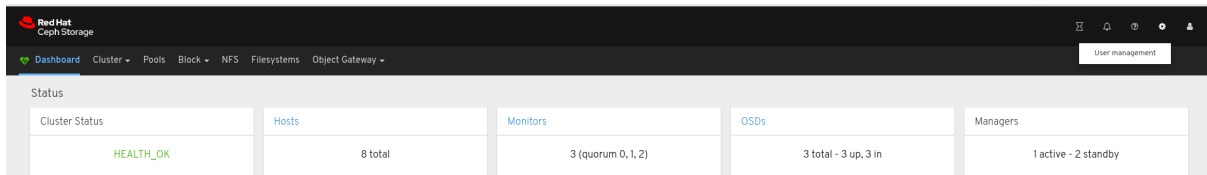
You can only delete the roles that you have created.

## Prerequisites

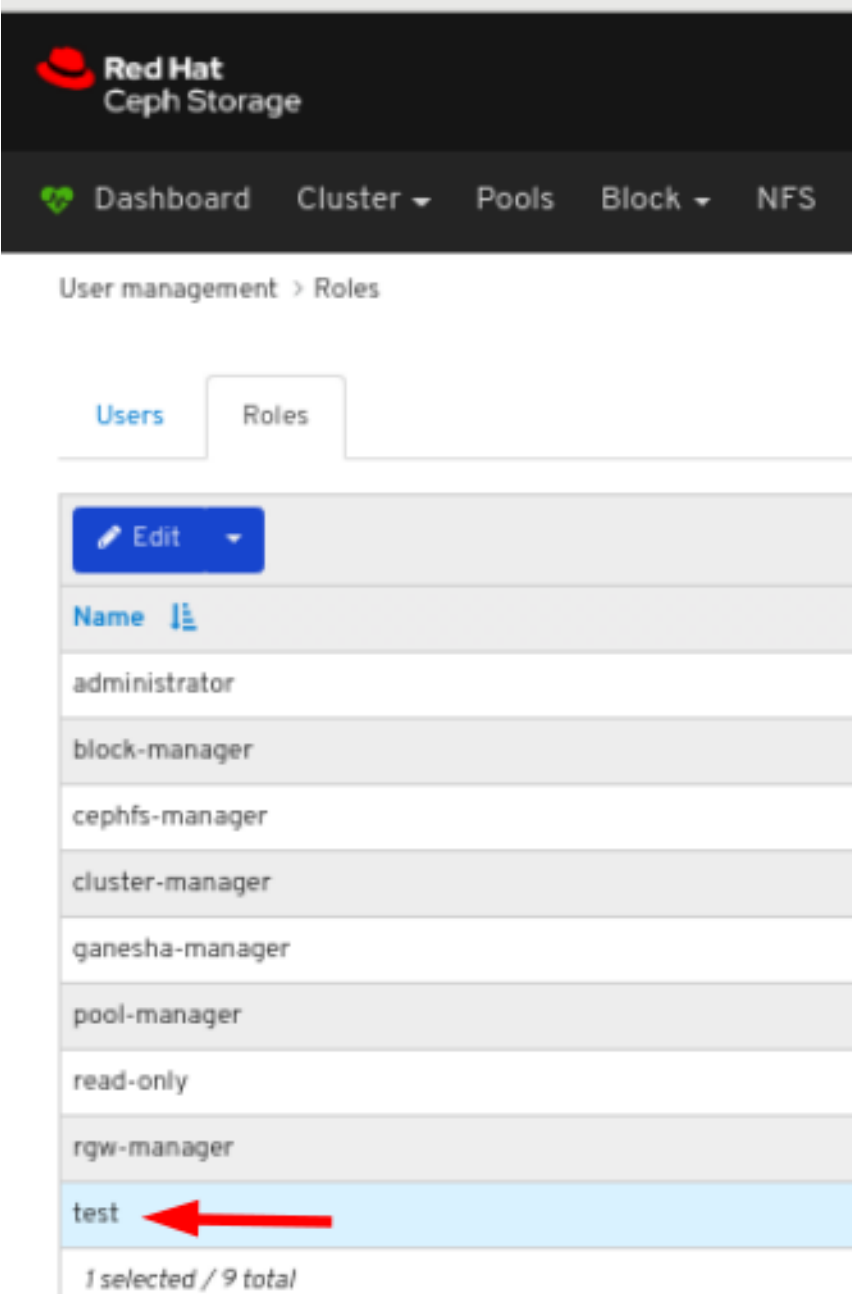
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level of access to the Dashboard.
- A role is created on the dashboard.

## Procedure

1. Log in to the Dashboard.
2. On the upper right side of the Dashboard, click the gear icon and select *User management*:



3. To delete the role, click the row:



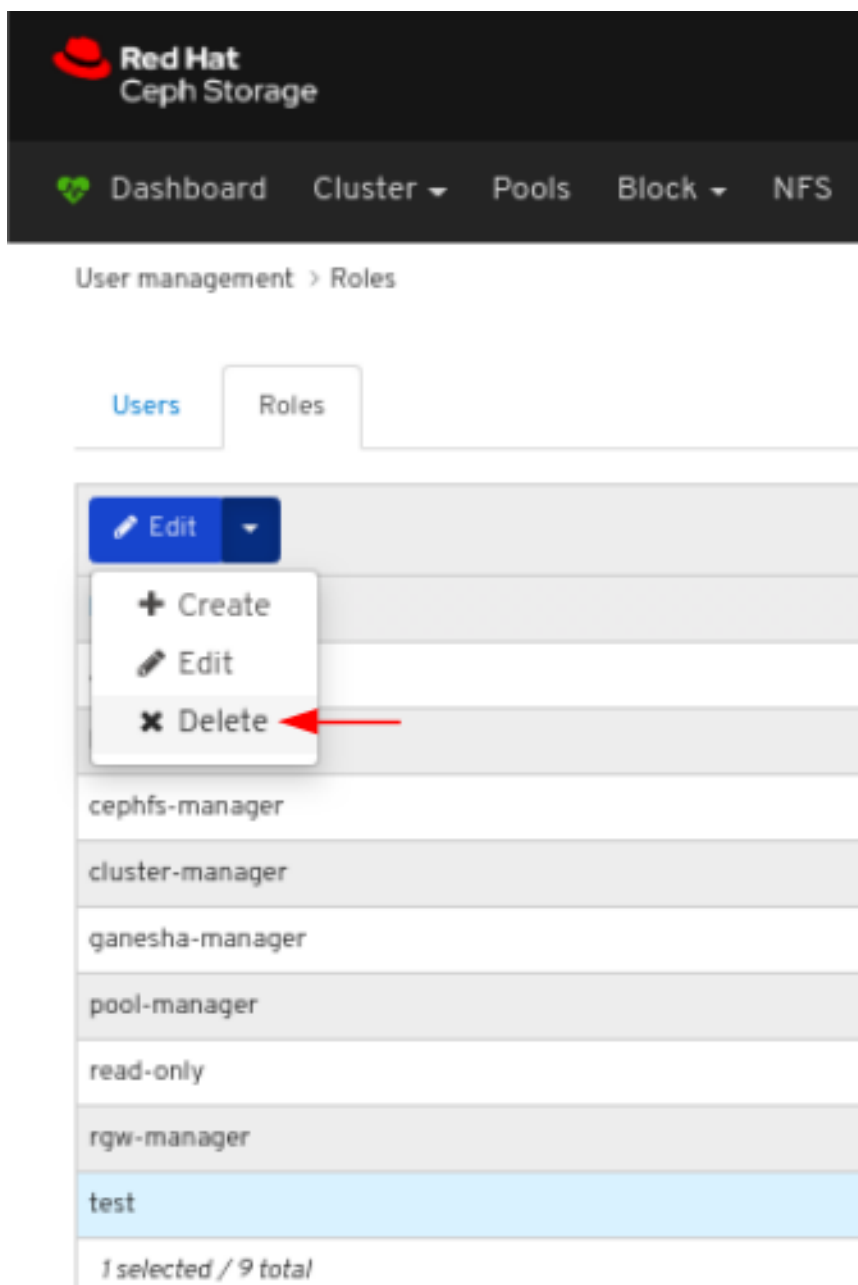
The screenshot shows the Red Hat Ceph Storage 4 Dashboard. At the top, there is a navigation bar with the Red Hat logo and the text "Red Hat Ceph Storage". Below this, there is a secondary navigation bar with links for "Dashboard", "Cluster", "Pools", "Block", and "NFS". The main content area is titled "User management > Roles". There are two tabs: "Users" and "Roles", with "Roles" being the active tab. Below the tabs, there is a table of roles. The table has a header row with a blue "Edit" button and a "Name" column. The roles listed are: administrator, block-manager, cephfs-manager, cluster-manager, ganesha-manager, pool-manager, read-only, rgw-manager, and test. The "test" role is highlighted in light blue, and a red arrow points to the "Delete" option in the "Edit" dropdown menu. At the bottom of the table, it says "1 selected / 9 total".

Name
administrator
block-manager
cephfs-manager
cluster-manager
ganesha-manager
pool-manager
read-only
rgw-manager
test

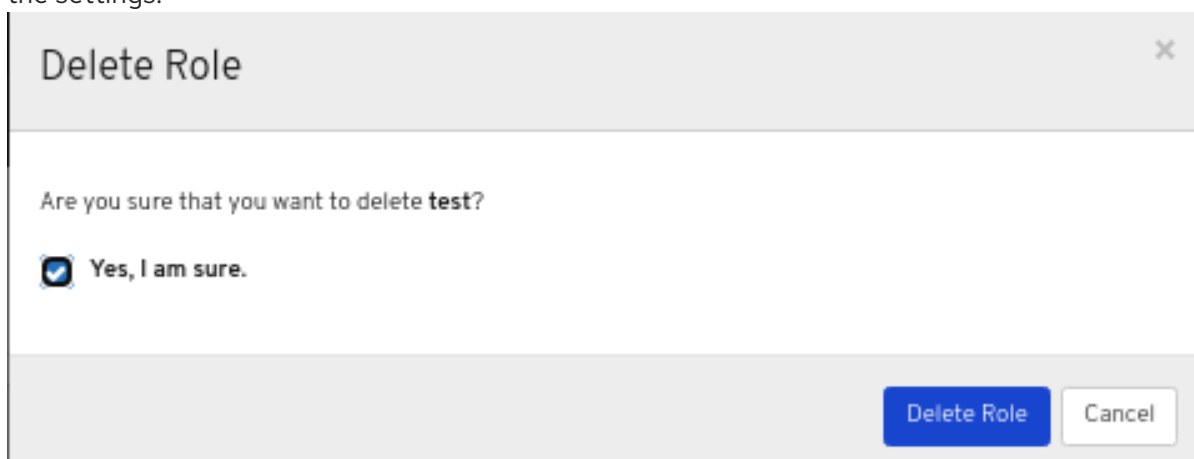
1 selected / 9 total

4. On *Roles* tab, select *Delete* from the *Edit* dropdown menu:





5. In the *Delete Role* dialog window, Click the *Yes, I am sure* box and then Click *Delete Role* to save the settings:



## Additional Resources

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

## CHAPTER 4. MANAGING USERS ON DASHBOARD

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

### 4.1. CREATING USERS ON DASHBOARD

The dashboard allows you to create users on the dashboard.

#### Prerequisites

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

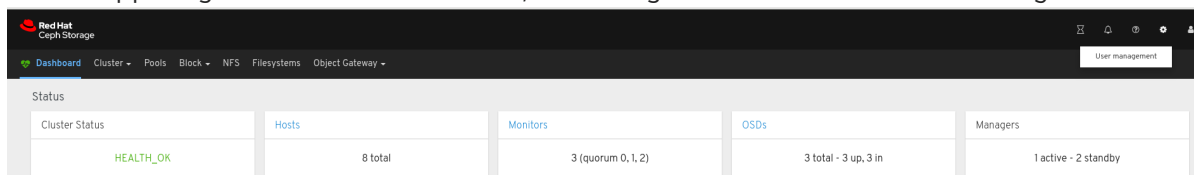


#### NOTE

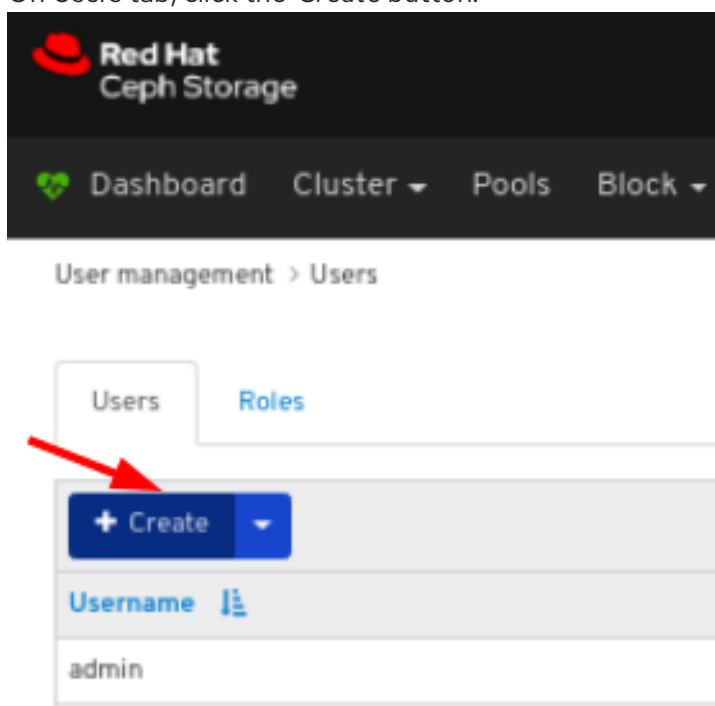
The Red Hat Ceph Storage Dashboard does not support any email verification when changing a users password. This behavior is intentional, because the Dashboard supports Single Sign-On (SSO) and this feature can be delegated to the SSO provider.

#### Procedure

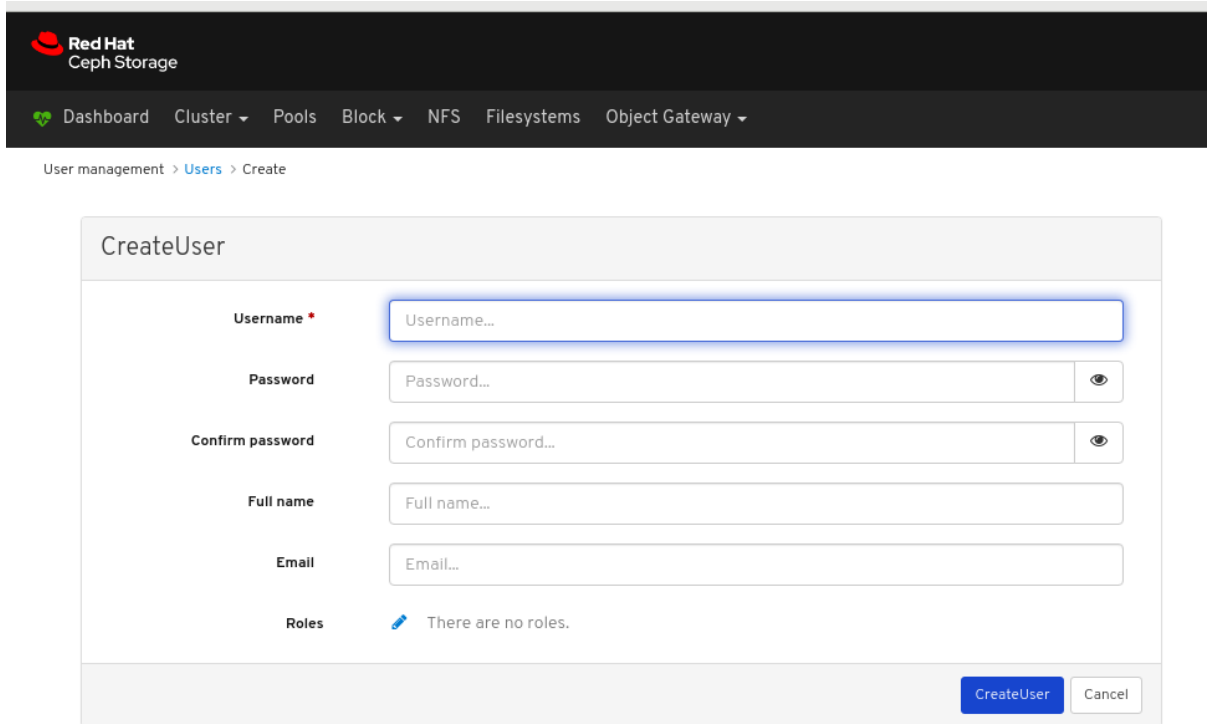
1. Log in to the Dashboard.
2. On the upper right side of the Dashboard, click the gear icon and select *User management*:



3. On *Users* tab, click the *Create* button:



- In the `CreateUser` window, set the `Username` and other parameters including the roles, and then click the `_CreateUser_button`:

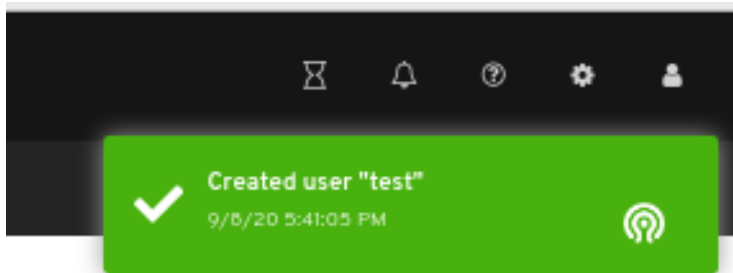


The screenshot shows the Red Hat Ceph Storage Dashboard interface. At the top, there is a navigation bar with the Red Hat logo and 'Ceph Storage' text. Below it, a menu bar contains 'Dashboard', 'Cluster', 'Pools', 'Block', 'NFS', 'Filesystems', and 'Object Gateway'. A breadcrumb trail reads 'User management > Users > Create'. The main content area is titled 'CreateUser' and contains the following form fields:

- Username \***: A text input field with a blue border and a blue glow effect.
- Password**: A text input field with a toggle icon (eye) to the right.
- Confirm password**: A text input field with a toggle icon (eye) to the right.
- Full name**: A text input field.
- Email**: A text input field.
- Roles**: A section with a blue pencil icon and the text 'There are no roles.'

At the bottom right of the form, there are two buttons: 'CreateUser' (highlighted in blue) and 'Cancel'.

- A notification towards the top right corner of the page indicates the user was created successfully.



### Additional Resources

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

## 4.2. EDITING USERS ON DASHBOARD

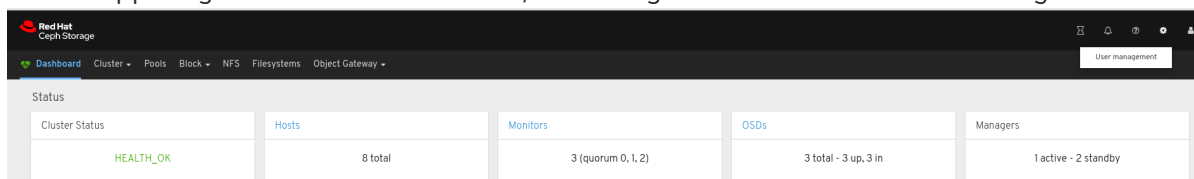
The dashboard allows you to edit users on the dashboard.

### Prerequisites

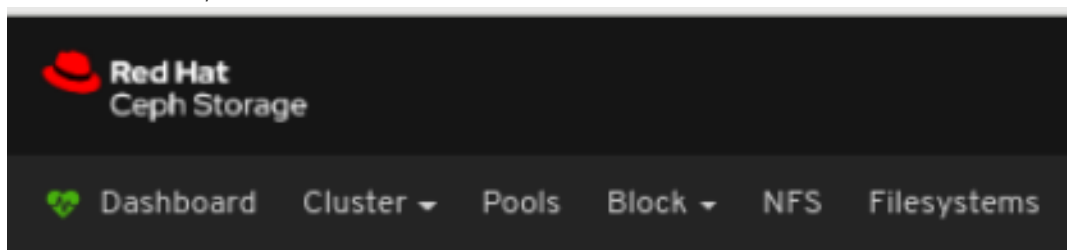
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level of access to the Dashboard.
- User created on the dashboard.

## Procedure

1. Log in to the Dashboard.
2. On the upper right side of the Dashboard, click the gear icon and select *User management*:



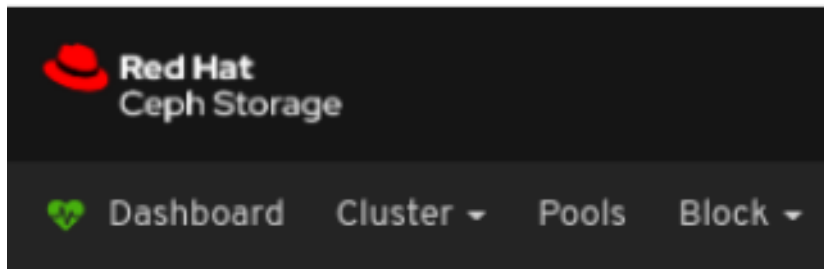
3. To edit the user, click the row:



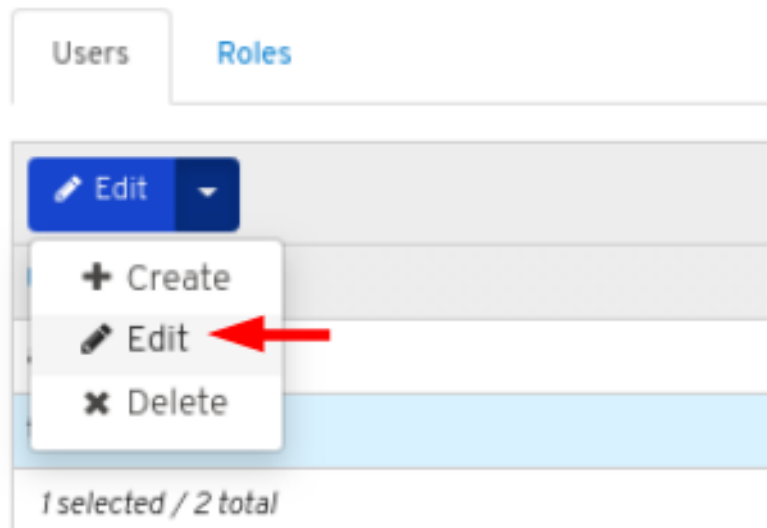
User management > Users



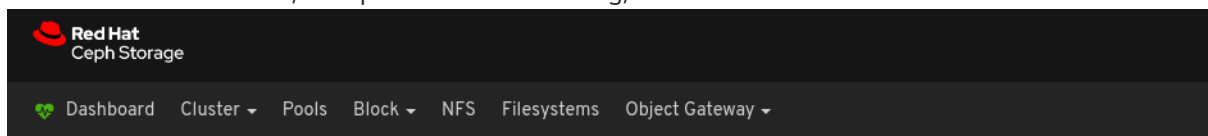
4. On *Users* tab, select *Edit* from the *Edit* dropdown menu:



User management > Users



- In the *EditUser* window, edit parameters including, and then click the *EditUser* button:

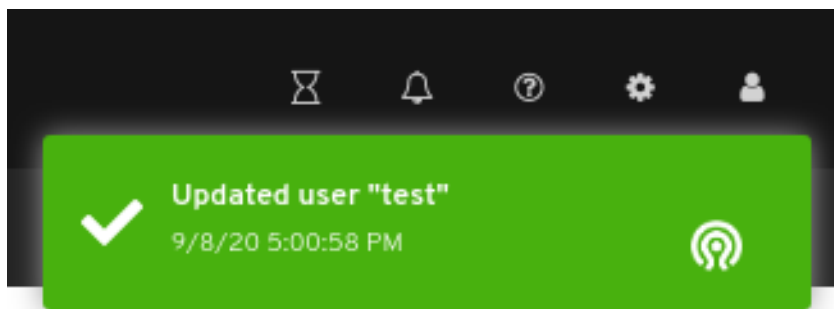


User management > Users > Edit

### EditUser

<b>Username</b>	<input type="text" value="test"/>
<b>Password</b>	<input type="password" value="Password..."/> <span style="float: right;">👁</span>
<b>Confirm password</b>	<input type="password" value="Confirm password..."/> <span style="float: right;">👁</span>
<b>Full name</b>	<input type="text" value="ceph"/>
<b>Email</b>	<input type="text" value="Email..."/>
<b>Roles</b>	<span style="color: blue;">✎</span> There are no roles.

- A notification towards the top right corner of the page indicates the user was updated successfully.



### Additional Resources

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

## 4.3. DELETING USERS ON DASHBOARD

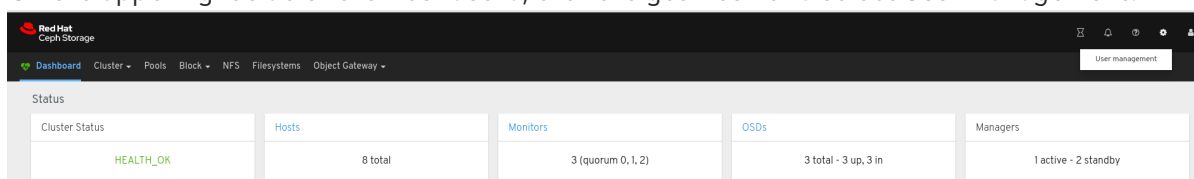
The dashboard allows you to delete users on the dashboard.

### Prerequisites

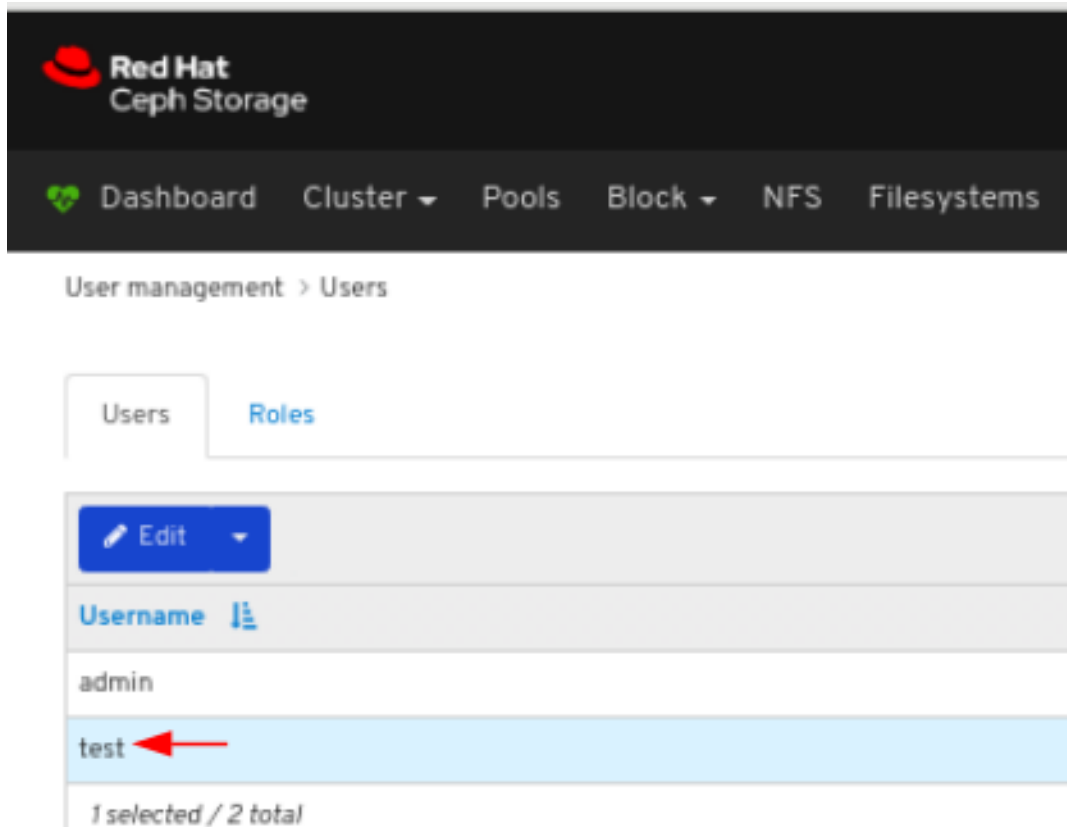
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Admin level of access to the Dashboard.
- User created on the dashboard.

### Procedure

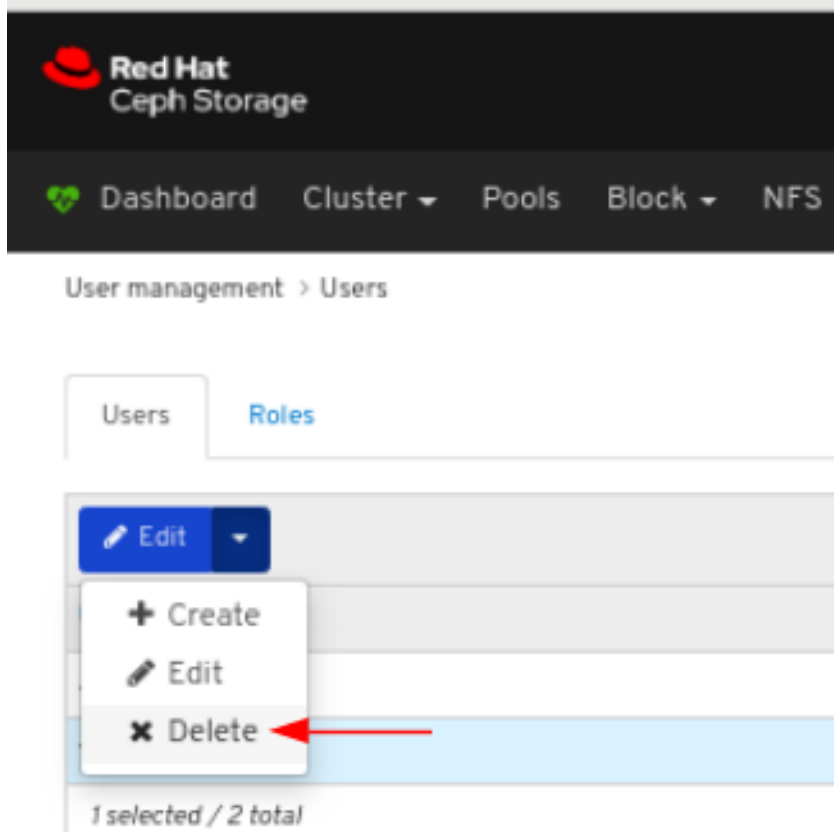
1. Log in to the Dashboard.
2. On the upper right side of the Dashboard, click the gear icon and select *User management*:



3. To delete the user, click the row:



4. On *Users* tab, select *Delete* from the *Edit* dropdown menu:



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



## Delete User ✕

Are you sure that you want to delete **test**?

Yes, I am sure.

### Additional Resources

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

## CHAPTER 5. MONITORING THE CLUSTER

The monitoring functions of the dashboard provide different web pages which update regularly to indicate various aspects of the storage cluster. You can monitor the overall state of the cluster using the landing page, or you can monitor specific functions of the cluster, like the state of block device images.

### Additional Resources

- For more information, see [Accessing the landing page](#) in the [Dashboard guide](#).
- For more information, see [Understanding the landing page](#) in the [Dashboard guide](#).
- For more information, see [Monitoring specific functions](#) in the [Dashboard guide](#).

### 5.1. ACCESSING THE LANDING PAGE

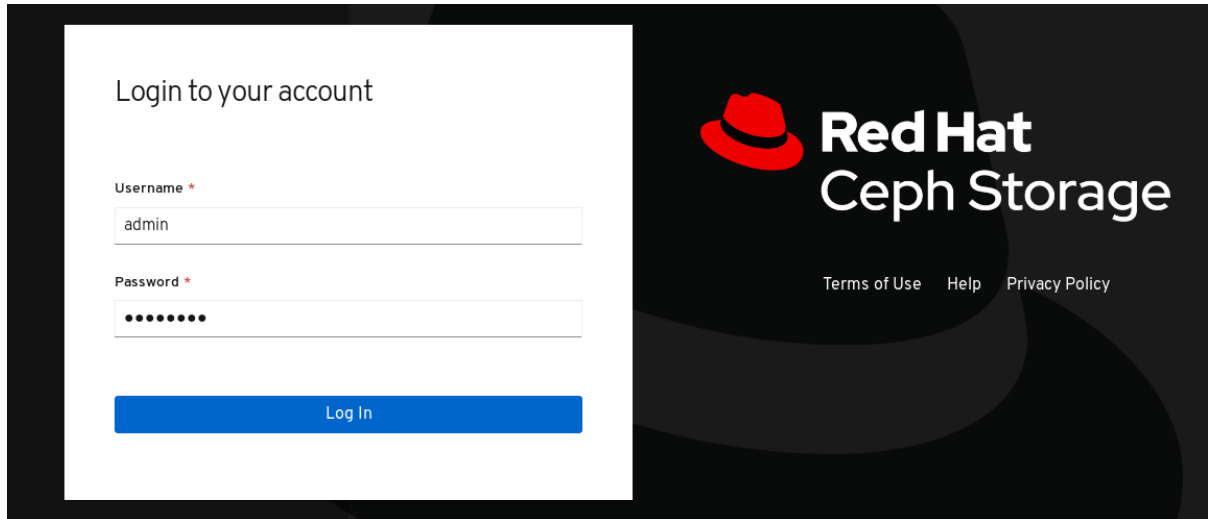
After you log in to the dashboard, the landing page loads.

#### Prerequisites

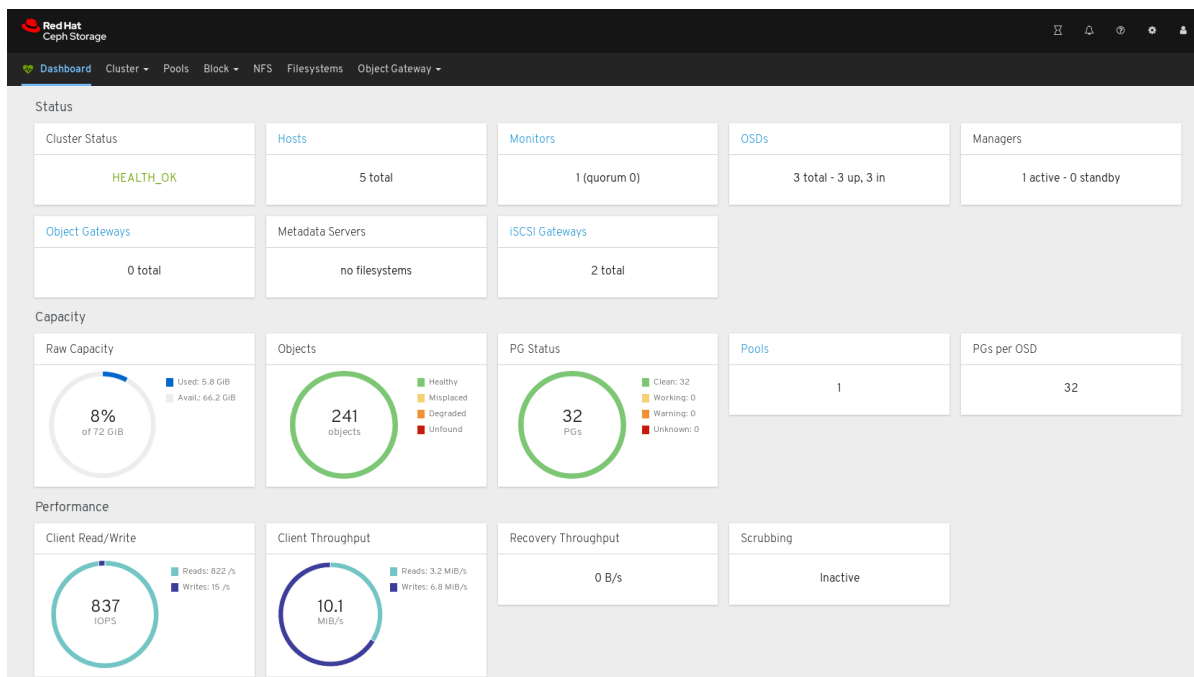
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.

#### Procedure

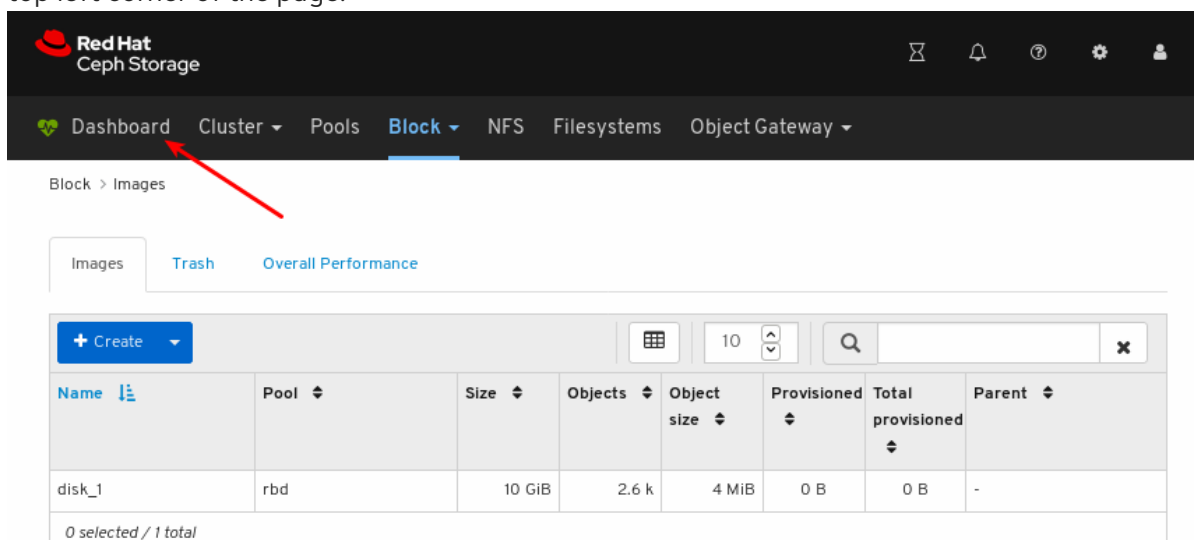
1. Log in to the Dashboard:



2. After you log in to the dashboard, the landing page loads:



- To return to the landing page after viewing other dashboard pages, click *Dashboard* towards the top left corner of the page:



### Additional Resources

- For more information, see [Understanding the landing page](#) in the [Dashboard guide](#).
- For more information, see [Monitoring specific functions](#) in the [Dashboard guide](#).

## 5.2. UNDERSTANDING THE LANDING PAGE

The landing page displays an overview of the entire Ceph cluster using individual panels. Each panel displays specific information about the state of the cluster.

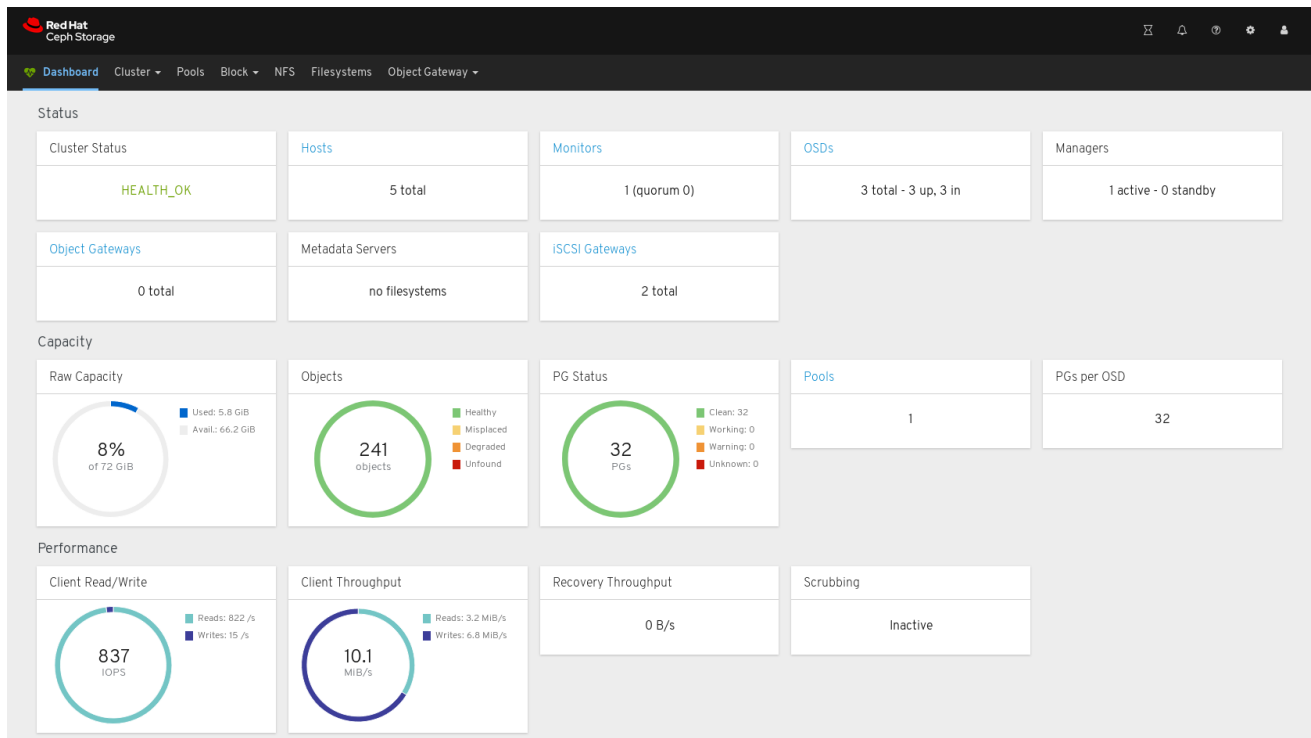
### Categories

The landing page organizes panels into the following three categories:

1. **Status**

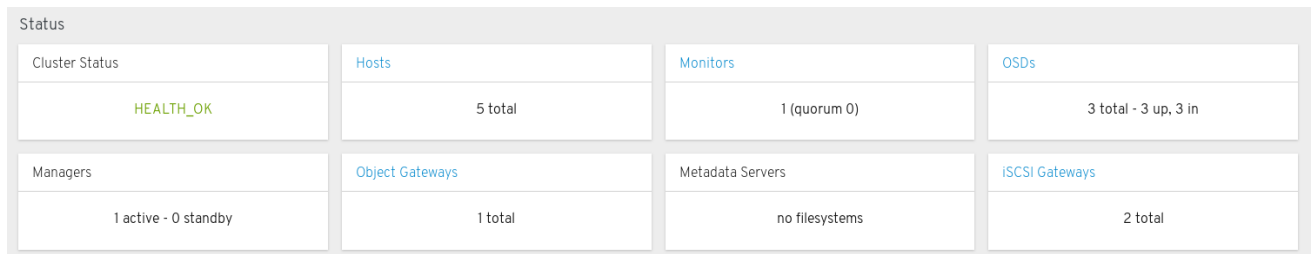
## 2. Capacity

## 3. Performance



### Status panels

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



**Cluster Status:** Displays the current health status of the Ceph 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 *up*, and *in*.

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

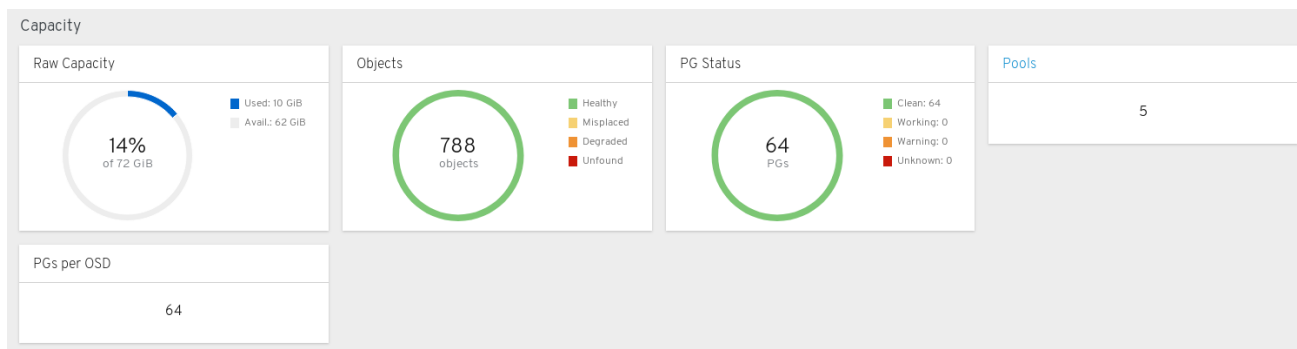
**Object Gateways:** Displays the number of Object Gateways in the Ceph storage cluster.

**Metadata Servers:** Displays the number and status of metadata servers for Ceph Filesystems.

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

### Capacity panels

The capacity panels display 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 *Healthy*, *Misplaced*, *Degraded*, or *Unfound*.

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

The *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

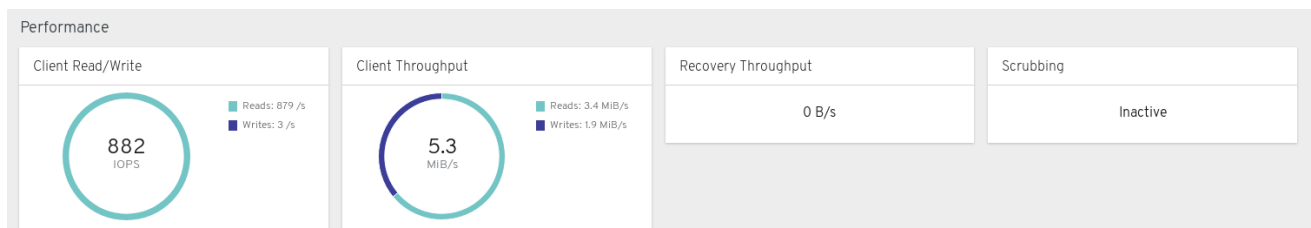
- backfill\_unfound
- down
- incomplete
- inconsistent
- recovery\_toofull
- recovery\_unfound
- remapped
- snaptrim\_error
- stale
- undersized

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

**PGs per OSD:** Displays the number of Placement Groups per OSD.

## Performance panels

The performance panels 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 Client recovery rate.

**Scrubbing:** Displays whether Ceph is scrubbing data to verify its integrity.

## Additional Resources

- For more information, see [Accessing the landing page](#) in the [Dashboard guide](#).
- For more information, see [Monitoring specific functions](#) in the [Dashboard guide](#).

## CHAPTER 6. MONITORING SPECIFIC FUNCTIONS

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

### 6.1. MONITORING MONITORS

The Red Hat Ceph Storage Dashboard allows you to view various details about Monitor nodes.

#### Prerequisites

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

#### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Cluster* and then click *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:

The screenshot shows the Red Hat Ceph Storage Dashboard interface. The navigation bar includes 'Dashboard', 'Cluster', 'Pools', 'Block', 'NFS', 'Filesystems', and 'Object Gateway'. The 'Cluster' menu is expanded, and 'Monitors' is selected. The main content area is divided into two sections: 'Status' and 'In Quorum'.

**Status**

Cluster ID	76f30c40-1197-41ce-9e06-5d6fc0235f9
monmap modified	2019-10-15 09:52:16.216802
monmap epoch	1
quorum con	4611087854031667199
quorum mon	kraken,luminous,mimic,osdmap-prune,nautilus
required con	2449958747315912708
required mon	kraken,luminous,mimic,osdmap-prune,nautilus

**In Quorum**

Name	Rank	Public Address	Open Sessions
magna019	0	10.8.128.19:6789/0	.....
magna023	1	10.8.128.23:6789/0	.....
magna030	2	10.8.128.30:6789/0	.....

3 total

**Not In Quorum**

Name	Rank	Public Address
No data to display		

0 total

4. To see the number of open sessions, hover the cursor over the blue dotted trail:

This close-up view shows the 'Open Sessions' column for the 'In Quorum' table. The first row, corresponding to the monitor node 'magna019' with public address '10.8.128.19:6789/0', has a blue dotted trail representing open sessions. A tooltip is displayed over this trail, showing the number '7'. The other two monitor nodes in the table also have blue dotted trails, but their session counts are not visible in this view.

- To see performance counters for any monitor, click its host name:

#### In Quorum

Name	Rank	Public Address	Open Sessions
<a href="#">magna019</a>	0	10.8.128.19:6789/0	
<a href="#">magna023</a>	1	10.8.128.23:6789/0	
<a href="#">magna030</a>	2	10.8.128.30:6789/0	
3 total			

- View the performance counters:

Cluster > Monitors > Performance Counters

#### mon.magna019

Name	Description	Value
mon.election_call	Elections started	0
mon.election_lose	Elections lost	0
mon.election_win	Elections won	0
mon.num_elections	Elections participated in	0
mon.num_sessions	Open sessions	18
mon.session_add	Created sessions	0
mon.session_rm	Removed sessions	0
mon.session_trim	Trimmed sessions	0
paxos.accept_timeout	Accept timeouts	0
paxos.begin	Started and handled begins	0.6
100 total		

### Additional Resources

- For more information about Monitors, see [Ceph monitors](#) in the [Operations guide](#).
- For more information about performance counters, see [Performance counters](#) in the [Administration Guide](#)

## 6.2. MONITORING HOSTS

The Red Hat Ceph Storage Dashboard allows you to view various details about hosts.

### Prerequisites

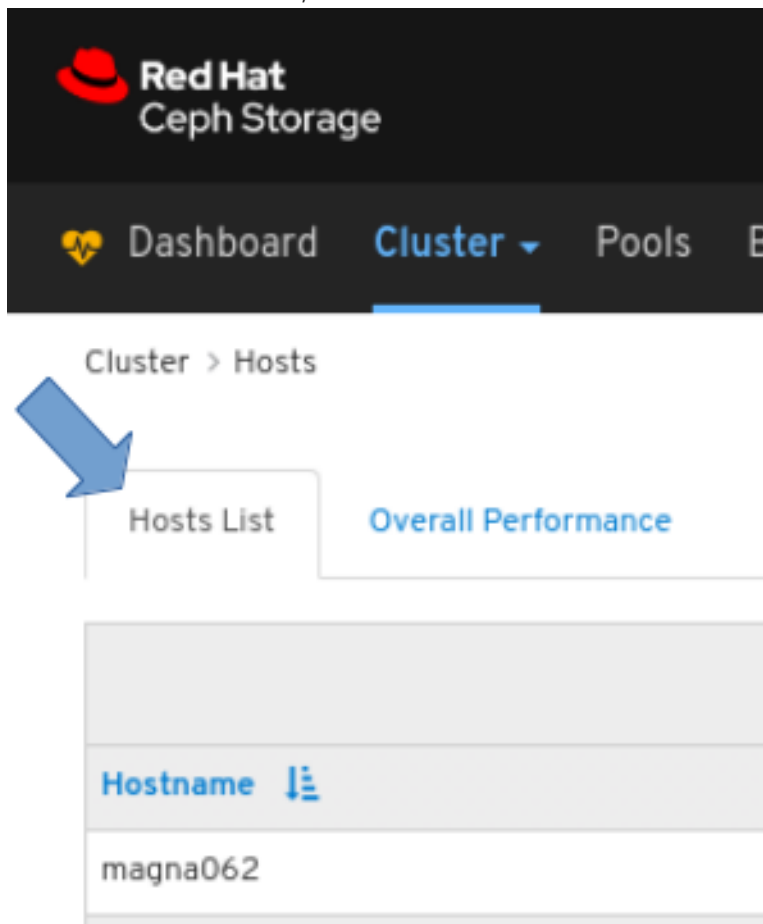
- A running Red Hat Ceph Storage cluster.



- Dashboard is installed.

### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Cluster* and then click *Hosts*.
3. To view the list of hosts, click the *Hosts List* tab:



4. To view the *Performance Details* of a host, in the *Host* tab, click its row and select the time range from the *Grafana Time Picker* drop-down menu:

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

Cluster > Hosts

Hosts List Overall Performance

Hostname	Services
magna062	mon.magna062
magna063	mgr.magna063, mon.magna063
magna064	mon.magna064, osd.0, osd.4, osd.7
magna064.ceph.redhat.com	osd.0, osd.4, osd.7
magna065	osd.1, osd.3, osd.6, rgw.magna065.rgw0
magna066	osd.2, osd.5, osd.8, rgw-nfs.magna066
magna068	mds.magna068

1 selected / 7 total

Performance Details

Grafana Time Picker

- Last 1 hour (Default)
- Last 5 minutes
- Last 15 minutes
- Last 30 minutes
- Last 1 hour (Default)
- Last 3 hours
- Last 6 hours
- Last 12 hours
- Last 24 hours
- Yesterday
- Today
- Today so far
- Day before yesterday
- Last 2 days
- This day last week

magna064.ceph.redhat.com

OSDs

3

- To view the performance counters for a specific service on a host, click the service:

Cluster > Hosts

Hosts List Overall Performance

Hostname	Services
magna062	mon.magna062
magna063	mgr.magna063 , mon.magna063
magna064	mon.magna064 , osd.0 , <u>osd.4</u> , osd.7
magna064.ceph.redhat.com	osd.0 , osd.4 , osd.7
magna065	osd.1 , osd.3 , osd.6 , rgw.magna065.rgw0

6. View the performance counters:

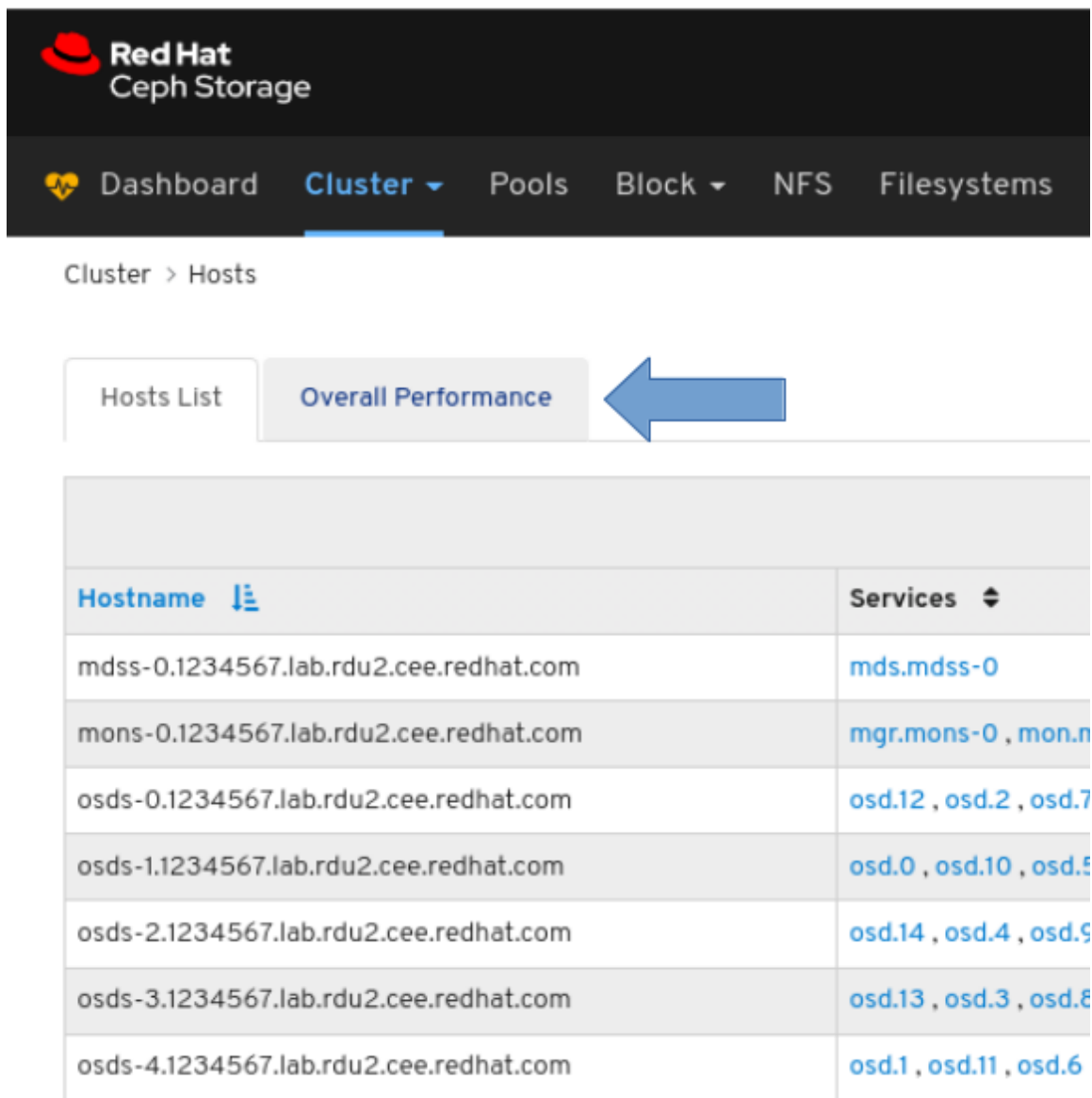
Cluster > Hosts > Performance Counters

osd.4

Name	Description	Value
bluefs.bytes_written_slow	Bytes written to WAL/SSTs at slow device	0
bluefs.bytes_written_sst	Bytes written to SSTs	0
bluefs.bytes_written_wal	Bytes written to WAL	0
bluefs.db_total_bytes	Total bytes (main db device)	1073741824
bluefs.db_used_bytes	Used bytes (main db device)	61472768
bluefs.log_bytes	Size of the metadata log	37064704
bluefs.logged_bytes	Bytes written to the metadata log	0
bluefs.num_files	File count	11
bluefs.read_bytes	Bytes requested in buffered read mode	0
bluefs.read_prefetch_bytes	Bytes requested in prefetch read mode	0
112 total		

7. To view performance data for all the hosts:

- a. Click the *Overall Performance* tab towards the top left of the page:

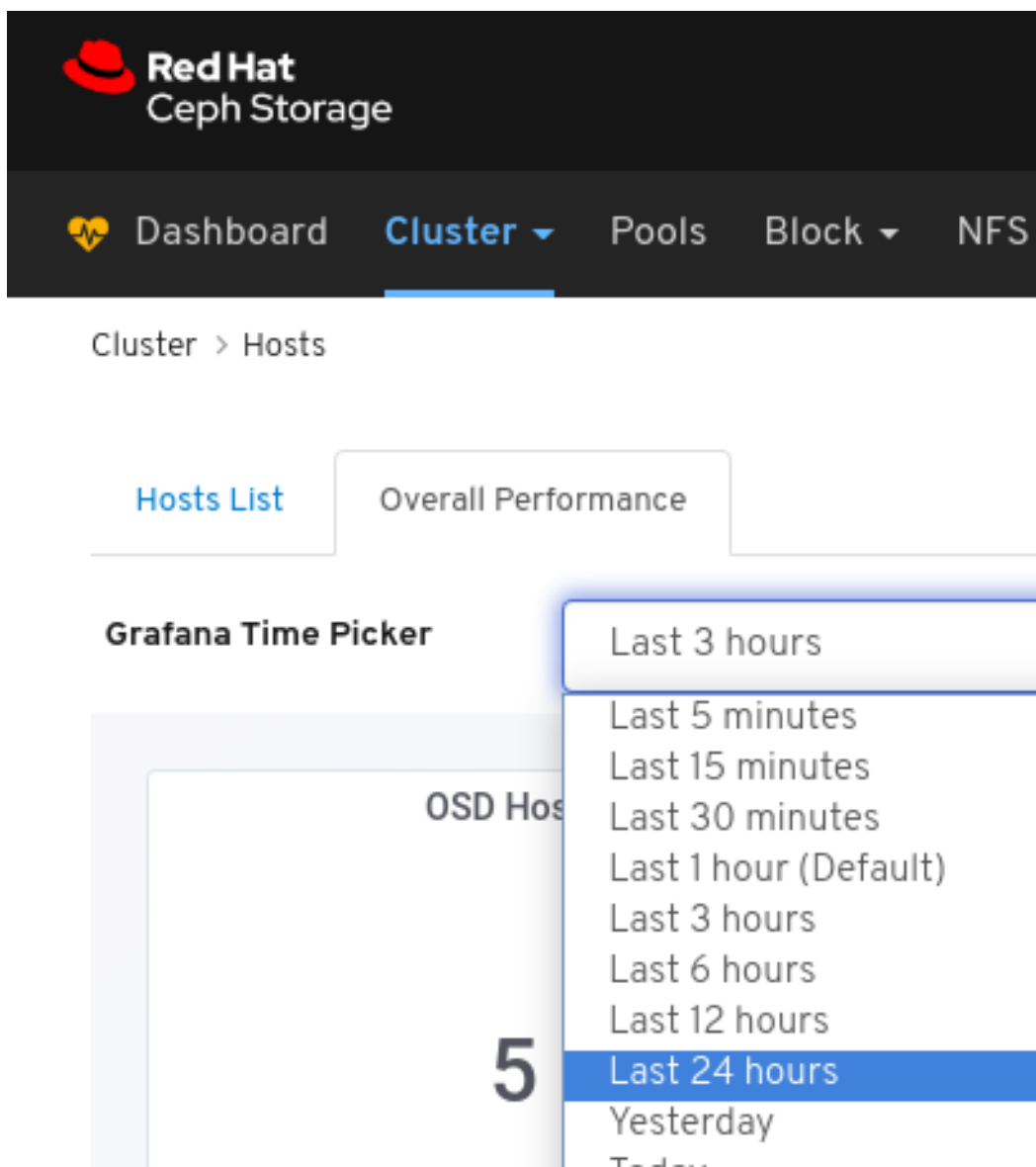


Cluster > Hosts

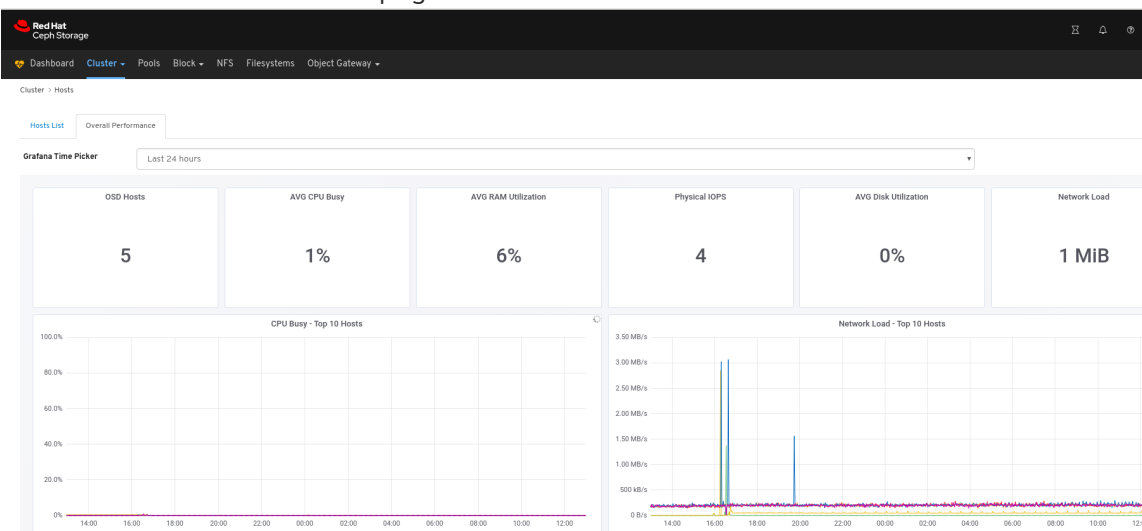
Hosts List Overall Performance

Hostname	Services
mdss-0.1234567.lab.rdu2.cee.redhat.com	mds.mdss-0
mons-0.1234567.lab.rdu2.cee.redhat.com	mgr.mons-0 , mon.n
osds-0.1234567.lab.rdu2.cee.redhat.com	osd.12 , osd.2 , osd.7
osds-1.1234567.lab.rdu2.cee.redhat.com	osd.0 , osd.10 , osd.5
osds-2.1234567.lab.rdu2.cee.redhat.com	osd.14 , osd.4 , osd.9
osds-3.1234567.lab.rdu2.cee.redhat.com	osd.13 , osd.3 , osd.8
osds-4.1234567.lab.rdu2.cee.redhat.com	osd.1 , osd.11 , osd.6

- b. Select the time range from the *Grafana Time Picker* drop-down:



c. View the *Overall Performance* page:



## Additional Resources

- See the [Performance counters](#) in the *Red Hat Ceph Storage Administration Guide* for more details.

## 6.3. MONITORING OSDS

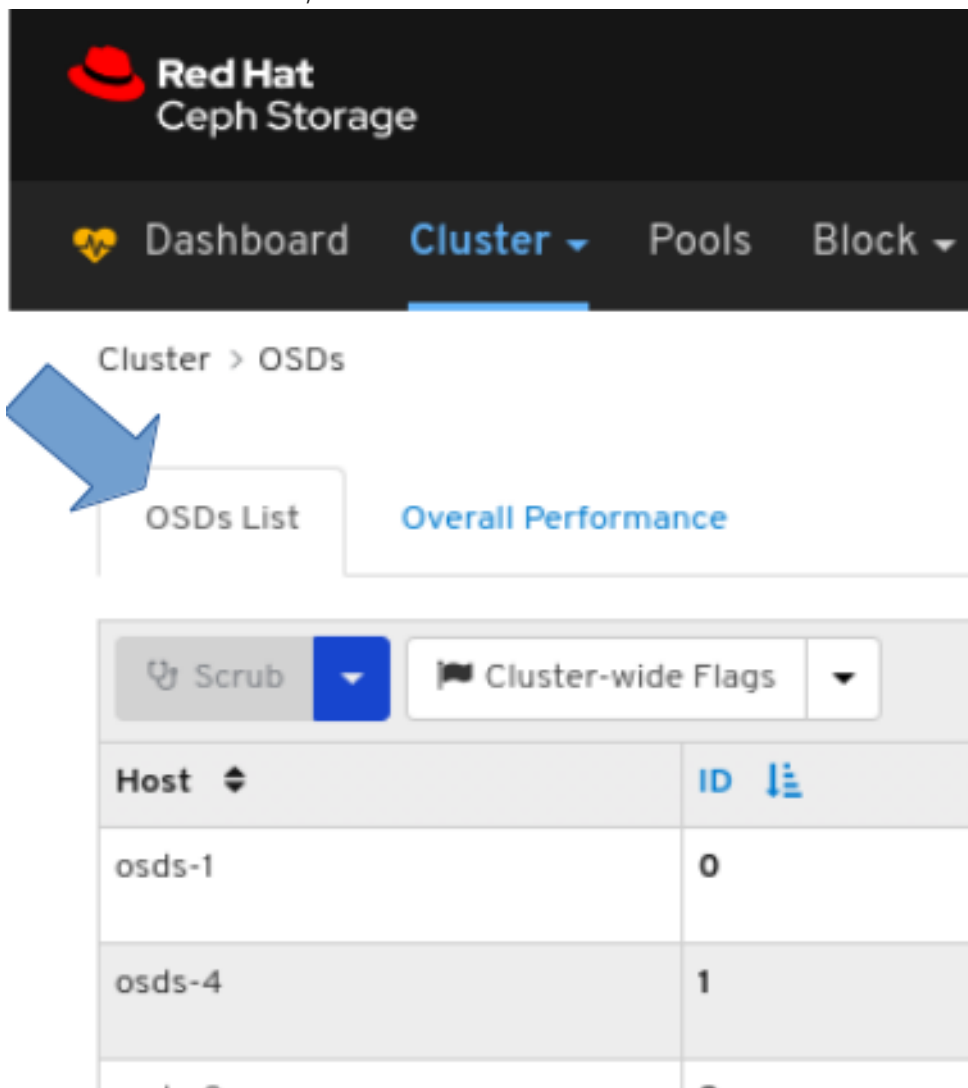
The Red Hat Ceph Storage Dashboard allows you to view various details about OSDs.

### Prerequisites

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

### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Cluster* and then click *OSDs*.
3. To view the list of OSDs, click the *OSDs List* tab:



The screenshot shows the Red Hat Ceph Storage Dashboard interface. At the top, the navigation bar includes 'Dashboard', 'Cluster', 'Pools', and 'Block'. Below the navigation bar, the breadcrumb 'Cluster > OSDs' is visible. Two tabs are shown: 'OSDs List' (selected) and 'Overall Performance'. A blue arrow points to the 'OSDs List' tab. Below the tabs, there is a table with columns 'Host' and 'ID'. The table contains two rows: 'osds-1' with ID '0' and 'osds-4' with ID '1'. Above the table, there are controls for 'Scrub' and 'Cluster-wide Flags'.

Host	ID
osds-1	0
osds-4	1

4. To view the attributes of an OSD, on the *OSDs List* tab, click its row:

Red Hat  
Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

Cluster > OSDs

OSDs List Overall Performance

Scrub Cluster-wide Flags

Host	ID	Status	PGs
osds-1	0	in up	30
osds-4	1	in up	30
osds-0	2	in up	27
osds-3	3	in up	39
osds-2	4	in up	35
osds-1	5	in up	25
osds-4	6	in up	23
osds-0	7	in up	32
osds-3	8	in up	36
osds-2	9	in up	33

1 selected / 15 total

Attributes (OSD map) Metadata Performance counter Histogram Performance Details

cluster_addr	192.168.1.8:6805/1150
down_at	53
heartbeat_back_addr	192.168.1.8:6807/1150
heartbeat_front_addr	10.10.95.196:6807/1150
id	0
in	1
last_clean_begin	30
last_clean_end	52
lost_at	0

- To view the metadata of the OSD, in the *OSDs* tab, click its row and click the *Metadata* tab:

Cluster > OSDs

OSDs List Overall Performance

Scrub Cluster-wide Flags

Host	ID	Status	PGs
osds-1	0	in up	30
osds-4	1	in up	30
osds-0	2	in up	27
osds-3	3	in up	39
osds-2	4	in up	35
osds-1	5	in up	25
osds-4	6	in up	23
osds-0	7	in up	32
osds-3	8	in up	36
osds-2	9	in up	33

1 selected / 15 total

Attributes (OSD map) Metadata Performance counter Histogram Performance Details

arch	x86_64
back_addr	[v2:192.168.1.8:6804/1150,v1:192
back_iface	eth1
bluefs	1
bluefs_single_shared_device	1
bluestore_bdev_access_mode	blk
bluestore_bdev_block_size	4096
bluestore_bdev_dev_node	/dev/dm-1

- To view the performance counter of the OSD, in the OSDs tab, click its row and click the *Performance counter* tab:



Red Hat  
Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

Cluster > OSDs

OSDs List Overall Performance

Scrub Cluster-wide Flags

Host	ID	Status	PGs
osds-1	0	in up	30
osds-4	1	in up	30
osds-0	2	in up	27
osds-3	3	in up	39
osds-2	4	in up	35
osds-1	5	in up	25
osds-4	6	in up	23
osds-0	7	in up	32
osds-3	8	in up	36
osds-2	9	in up	33

1 selected / 15 total

Attributes (OSD map) Metadata Performance counter Histogram Performance Details

Name

- bluefs.bytes\_written\_slow
- bluefs.bytes\_written\_sst
- bluefs.bytes\_written\_wal
- bluefs.db\_total\_bytes
- bluefs.db\_used\_bytes
- bluefs.log\_bytes
- bluefs.logged\_bytes

- To view the histogram of the OSD, in the OSDs tab, click its row and click the *Histogram* tab:

Cluster > OSDs

OSDs List Overall Performance

Scrub Cluster-wide Flags

Host	ID	Status	PGs
osds-1	0	in up	30
osds-4	1	in up	30
osds-0	2	in up	27
osds-3	3	in up	39
osds-2	4	in up	35
osds-1	5	in up	25
osds-4	6	in up	23
osds-0	7	in up	32
osds-3	8	in up	36
osds-2	9	in up	33

1 selected / 15 total

Attributes (OSD map) Metadata Performance counter Histogram Performance Details

Writes

8. To view the performance details of the OSD:
  - a. In the OSDs tab, click its row, click the *Performance Details* tab:

Cluster > OSDs

OSDs List Overall Performance

Scrub Cluster-wide Flags

Host	ID	Status
osds-1	0	in up
osds-4	1	in up
osds-0	2	in up
osds-3	3	in up
osds-2	4	in up
osds-1	5	in up
osds-4	6	in up
osds-0	7	in up
osds-3	8	in up
osds-2	9	in up

1 selected / 10 total

Attributes (OSD map) Metadata Performance counter Histogram Performance Details

- b. Select the time range from the *Grafana Time Picker* drop-down menu:

Cluster > OSDs

OSDs List Overall Performance

Scrub Cluster-wide Flags

Host	ID	Status	PGs
osds-1	0	in up	30
osds-4	1	in up	30
osds-0	2	in up	27
osds-3	3	in up	39
osds-2	4	in up	35
osds-1	5	in up	25
osds-4	6	in up	23
osds-0	7	in up	32
osds-3	8	in up	36
osds-2	9	in up	33

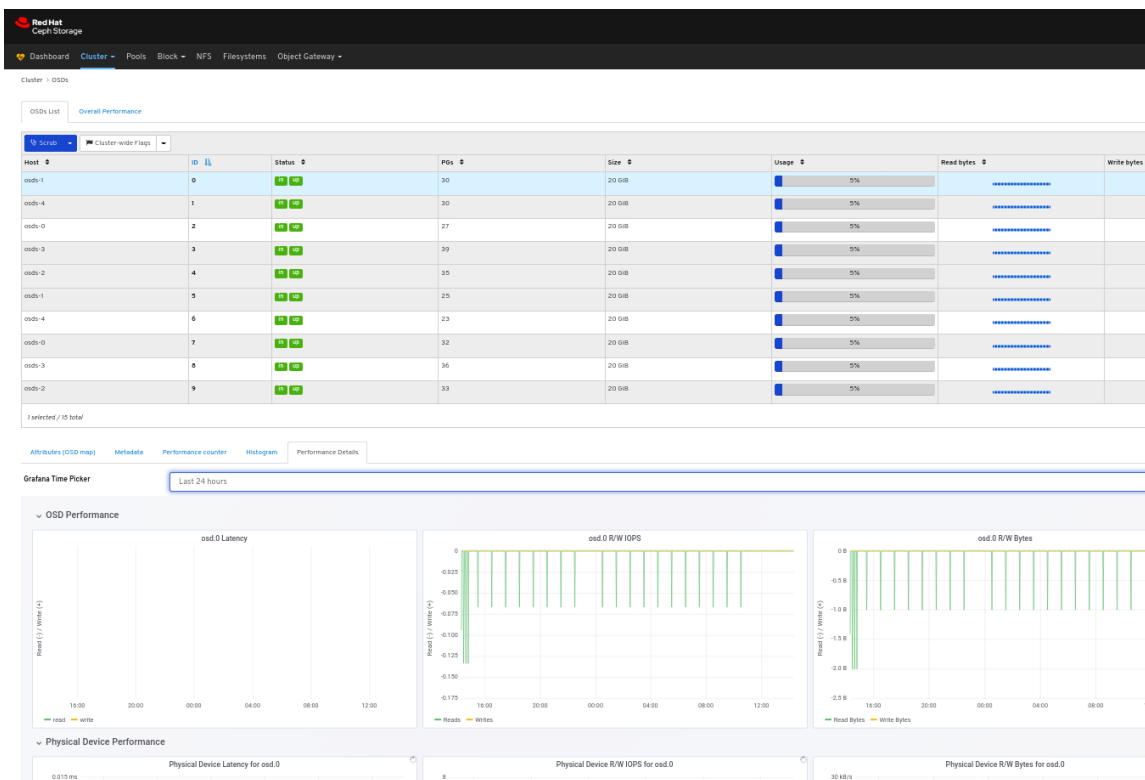
1 selected / 10 total

Attributes (OSD map) Metadata Performance counter Histogram Performance Details

Grafana Time Picker

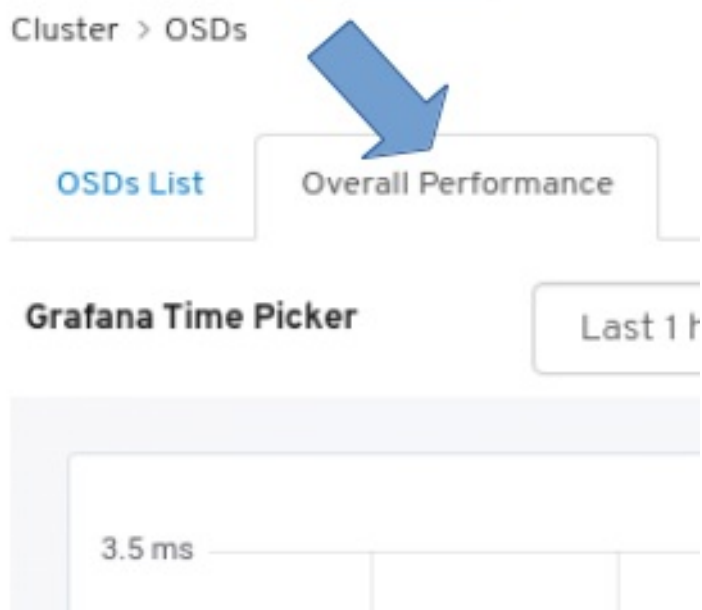
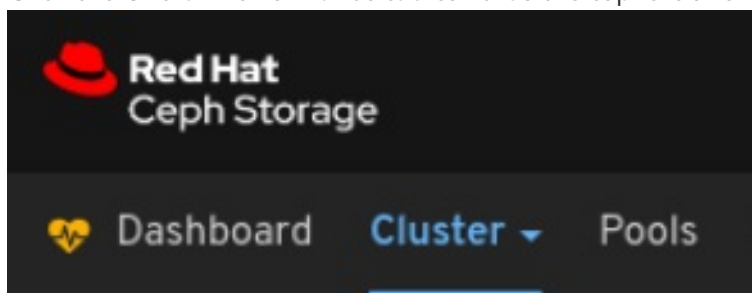
- Last 24 hours
- Last 5 minutes
- Last 15 minutes
- Last 30 minutes
- Last 1 hour (Default)
- Last 3 hours
- Last 6 hours
- Last 12 hours
- Last 24 hours
- Yesterday
- Today
- Today so far
- Day before yesterday

c. View the performance details of the OSD:

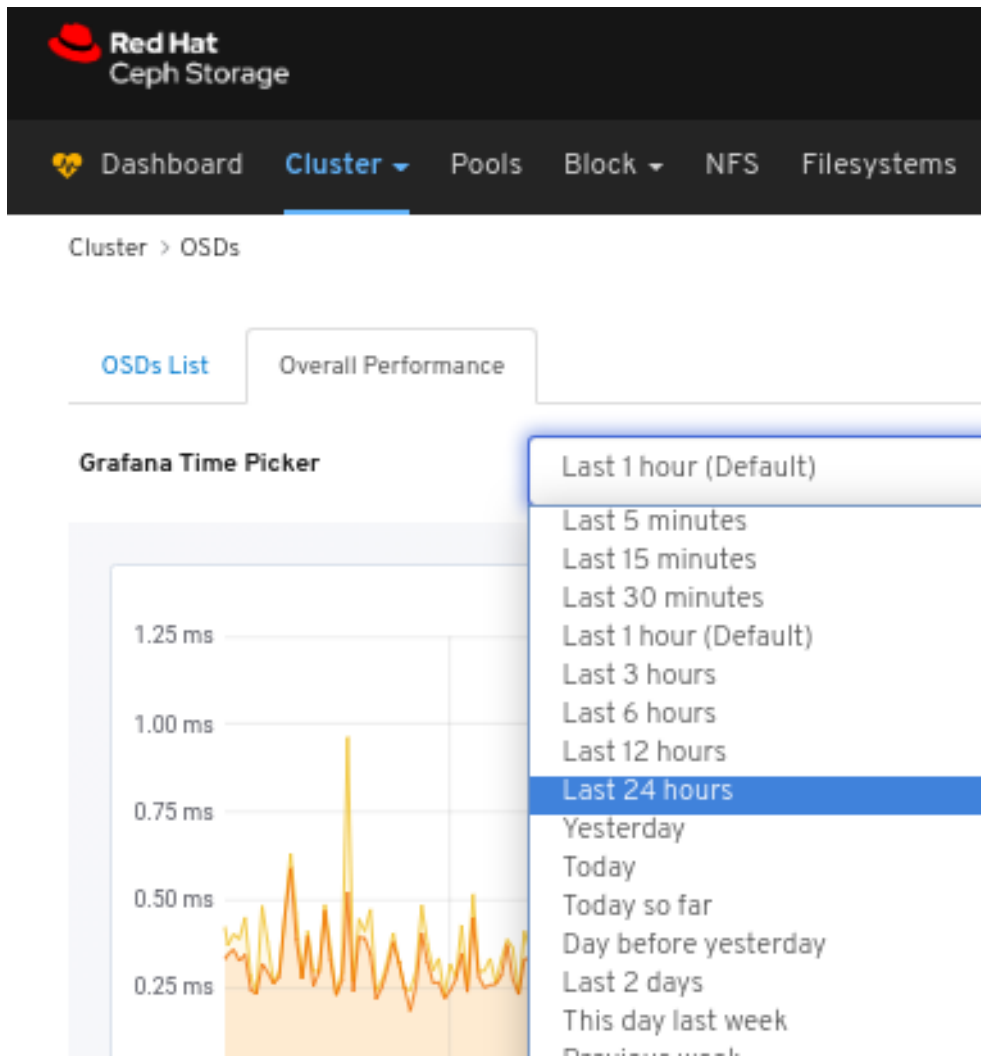


9. To view the overall performance of all the OSDs:

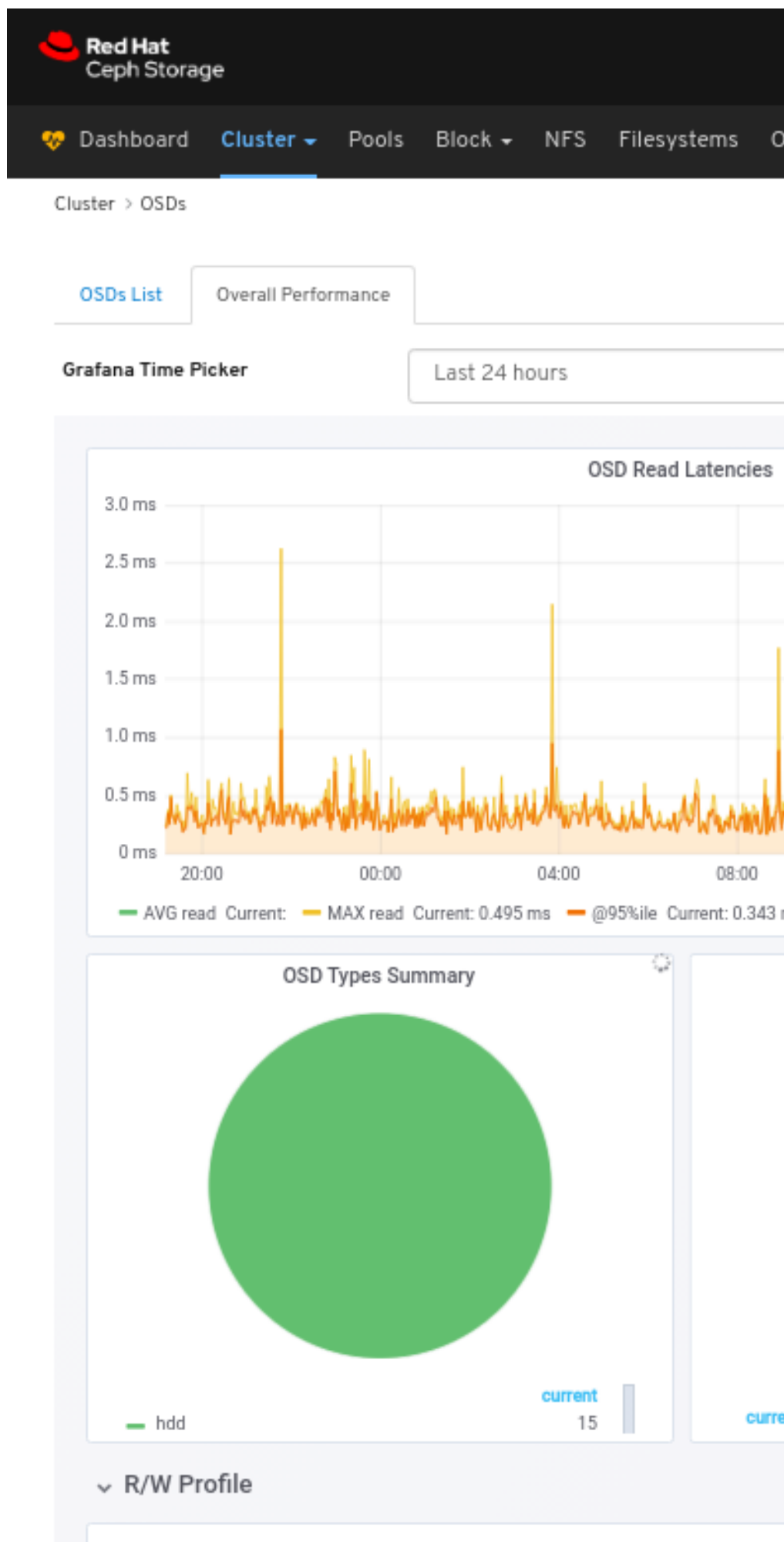
a. Click the *Overall Performance* tab towards the top left of the page:



b. Select the time range from the *Grafana Time Picker* drop-down:



10. View the *Overall Performance* page:



## Additional Resources

- See the [Performance counters](#) in the *Red Hat Ceph Storage Administration Guide* for more details.

## 6.4. MONITORING POOLS

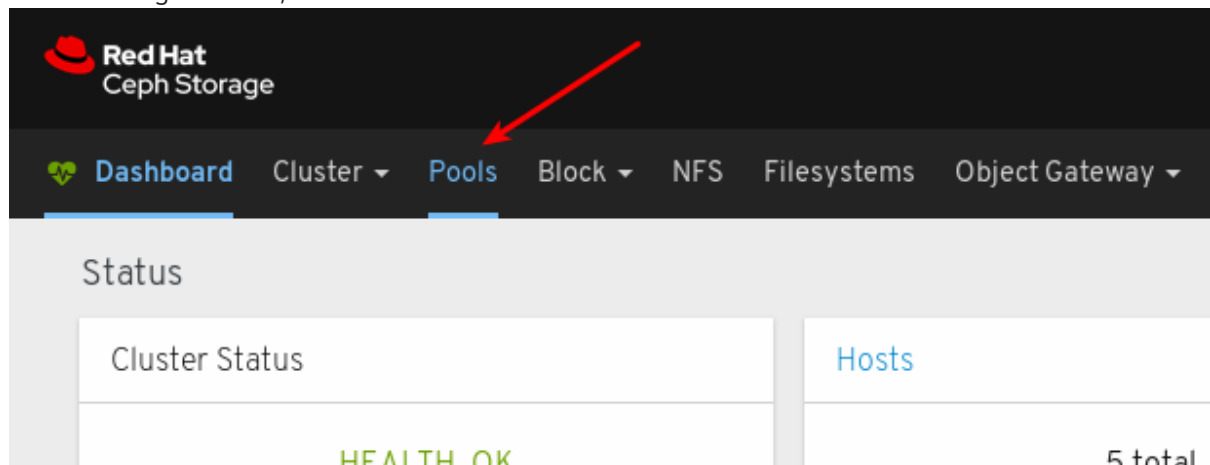
The Red Hat Ceph Storage Dashboard allows you to view various details about pools in the cluster.

### Prerequisites

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

### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Pools*:



3. View the pools list:

Name	Type	Applications	PG Status	Replica Size	Last Change	Erasure Coded Profile	Crush Ruleset	Usage	Read bytes	Write bytes	Read ops	Write ops
rgw.root	replicated	rgw	8 active+clean	3	125		replicated_rule	0%			0 /s	0 /s
cephfs_data	replicated	cephfs	8 active+clean	3	161		replicated_rule	45%			0 /s	0 /s
cephfs_metadata	replicated	cephfs	8 active+clean	3	161		replicated_rule	0%			0 /s	0 /s
default.rgw.control	replicated	rgw	8 active+clean	3	127		replicated_rule	0%			0 /s	0 /s
default.rgw.log	replicated	rgw	8 active+clean	3	131		replicated_rule	0%			0 /s	0 /s
default.rgw.meta	replicated	rgw	8 active+clean	3	129		replicated_rule	0%			0 /s	0 /s
rbid	replicated	rbid	32 active+clean	3	59		replicated_rule	31%			0 /s	0 /s

4. Mouse over a usage bar graph to view the actual used and free space:



PG Status	Replic Size	Last Chang	Erasure Coded Profile	Crush Ruleset	Usage	Read bytes
8 active+clean	3	125		replicated_rule	0%	
8 active+clean	3	161		replicated_rule	0%	
8 active+clean	3	161		replicated_rule	0%	
8 active+clean	3	127		replicated_rule	0%	
8 active+clean	3	131		replicated_rule	0%	
8 active+clean	3	129		replicated_rule	0%	
32 active+clean	3	59		replicated_rule	Used: 7 GIB Free: 19.4 GIB 26%	

5. To view more information about a pool, select it by clicking on its row:

Pools List Overall Performance

+ Create

Name	Type	Applications	PG Status	Replic Size	Last Chang	Erasure Coded Profile	Crush Ruleset	Usage	Read bytes	Write bytes	Read ops	Write ops
.rgw.root	replicated	rgw	8 active+clean	3	125		replicated_rule	0%			0 /s	0 /s
cephfs_data	replicated	cephfs	8 active+clean	3	161		replicated_rule	0%			0 /s	0 /s
cephfs_metadata	replicated	cephfs	8 active+clean	3	161		replicated_rule	0%			0 /s	0 /s
default.rgw.control	replicated	rgw	8 active+clean	3	127		replicated_rule	0%			0 /s	0 /s
default.rgw.log	replicated	rgw	8 active+clean	3	131		replicated_rule	0%			0 /s	0 /s
default.rgw.meta	replicated	rgw	8 active+clean	3	129		replicated_rule	0%			0 /s	0 /s
rbd	replicated	rbd	32 active+clean	3	59		replicated_rule	26%			1.5 /s	0 /s

0 selected / 7 total

6. View the details of the pool. To view performance details and configuration data for the pool, click on the associated tabs.

default.rgw.log	replicated	rgw	8 active+clean
default.rgw.meta	replicated	rgw	8 active+clean
rbd	replicated	rbd	32 active+clean

1 selected / 7 total

[Details](#)
[Performance Details](#)
[Configuration](#)

<b>application_metadata</b>	rbd
<b>audit</b>	0
<b>cache_min_evict_age</b>	0
<b>cache_min_flush_age</b>	0
<b>cache_mode</b>	none

7. To view performance data for all the pools, click the *Overall Performance* tab towards the top left of the page:

[Pools List](#)
[Overall Performance](#)

<a href="#">+ Create</a>			
Name	Type	Applications	PG Status
.rgw.root	replicated	rgw	8 active+clean
cephfs_data	replicated	cephfs	8 active+clean
cephfs_metadata	replicated	cephfs	8 active+clean

8. View the *Overall Performance* page:



## Additional Resources

- For more information about pools, see [Pools](#) in the [Architecture guide](#).

## 6.5. MONITORING CEPH FILE SYSTEMS

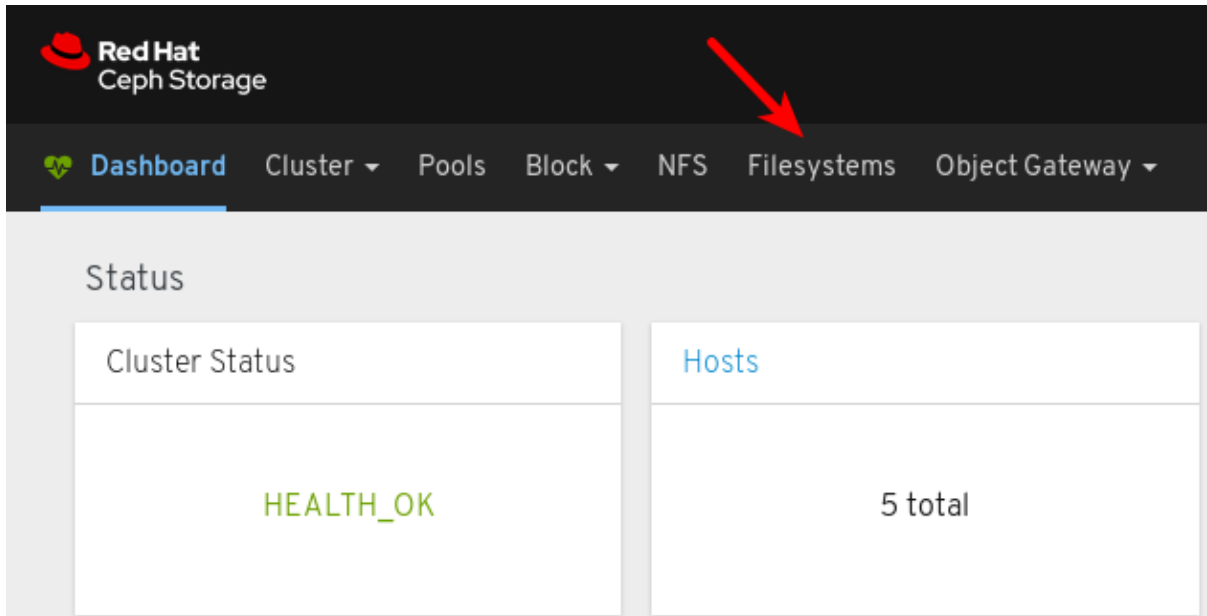
As a storage administrator, you can use the Red Hat Ceph Storage Dashboard to monitor Ceph File Systems (CephFS) and related components.

### Prerequisites

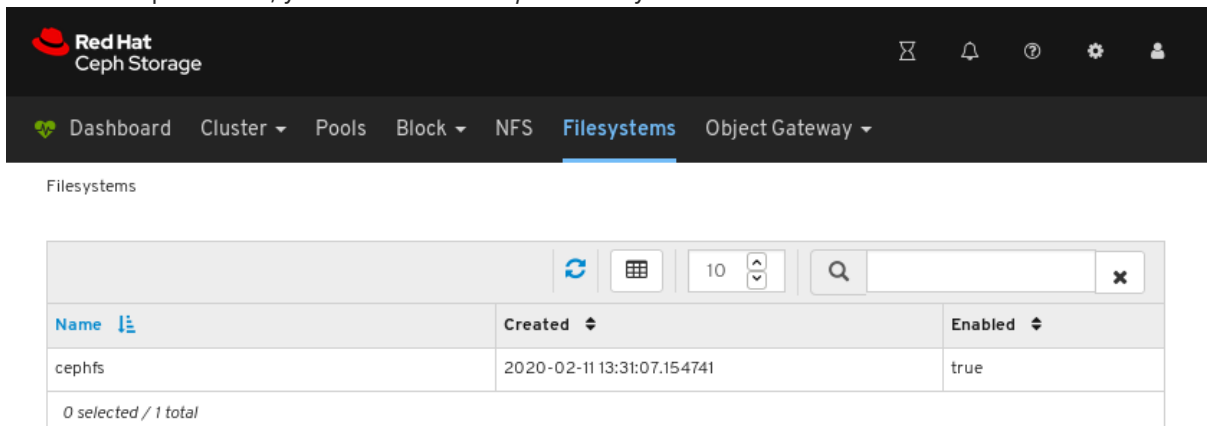
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed
- Ceph File System is installed.

### Procedure

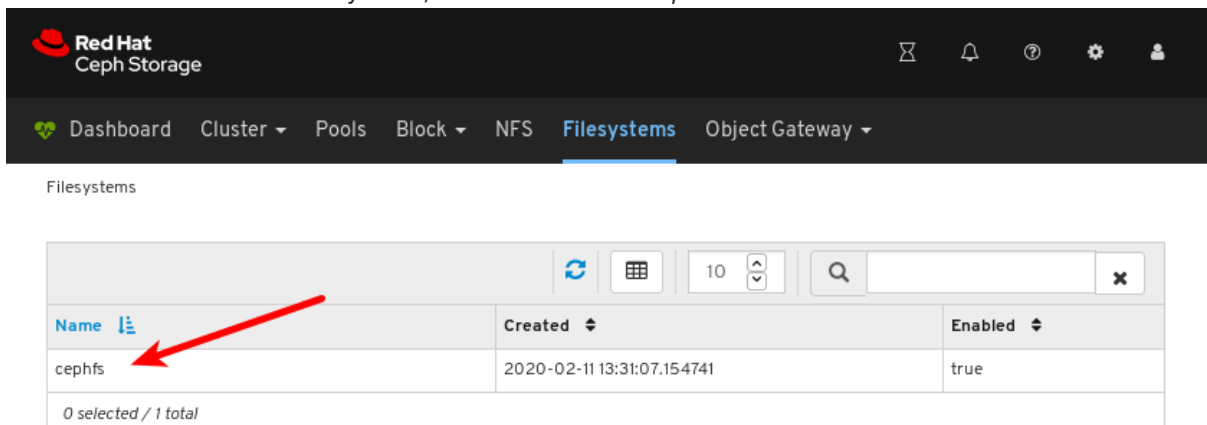
1. Log in to the dashboard.
2. On the navigation bar, click *Filesystems*.



3. In the example below, you can see the *cephfs* file system.



4. To view details for the file system, click the row for *cephfs*.



5. On the *Details* tab, you can see metadata servers and their rank plus any standby daemons, at 1, pools and their usage, at 2, and performance counters at 3.

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS **Filesystems** Object Gateway

Filesystems

Refresh Grid 10 Search

Name	Created	Enabled
cephfs	2020-02-11 13:31:07.154741	true

1 selected / 1 total

Details Clients: 1 Performance Details

**Ranks** ①

Rank	State	Daemon	Activity	Dentries	Inodes
0	active	jb-ceph4-osd1	Reqs: 0 /s	11	14

1 total

Standby daemons

**Pools** ②

Pool	Type	Size	Usage
cephfs_data	data	25.1 GiB	20%
cephfs_metadata	metadata	20.1 GiB	0%

2 total

**MDS performance counters** ③

jb-ceph4-osd1

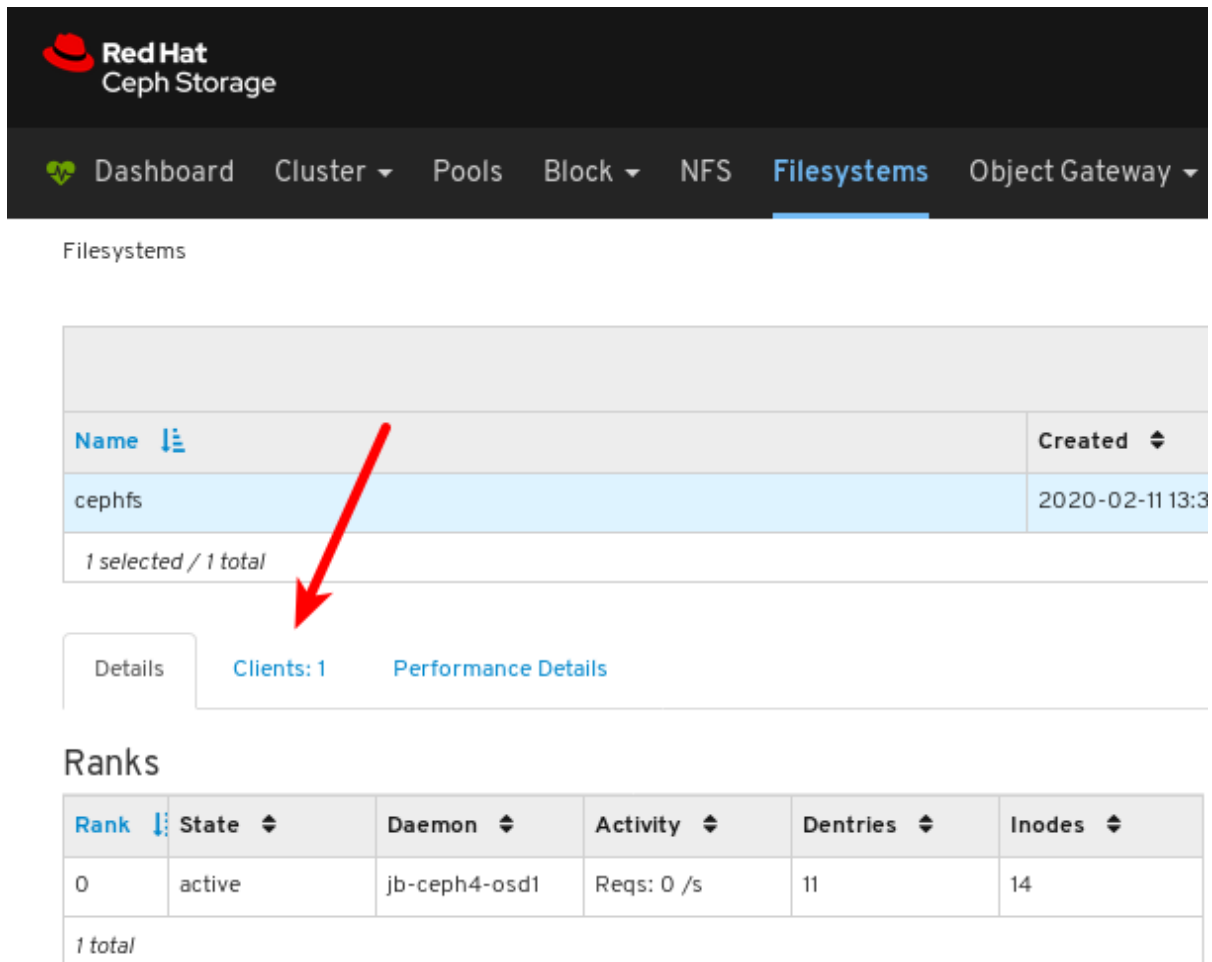
Legend: mds\_mem.ino (red), mds\_server.handle\_client\_request (blue)

1:57:18 pm 1:57:28 pm 1:57:38 pm 1:57:48 pm 1:57:58 pm 1:58:08 pm 1:58:18 pm 1:58:28 pm 1:58:38 pm 1:58:48 pm

15.0 14.8 14.6 14.4 14.2 14.0 13.8 13.6 13.4 13.2 13.0

1.0 0.8 0.6 0.4 0.2 0 -0.2 -0.4 -0.6 -0.8 -1.0

6. To view the list of clients which have mounted the file system, click the *Clients* tab.



Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS **Filesystems** Object Gateway

Filesystems

Name	Created
cephfs	2020-02-11 13:3

1 selected / 1 total

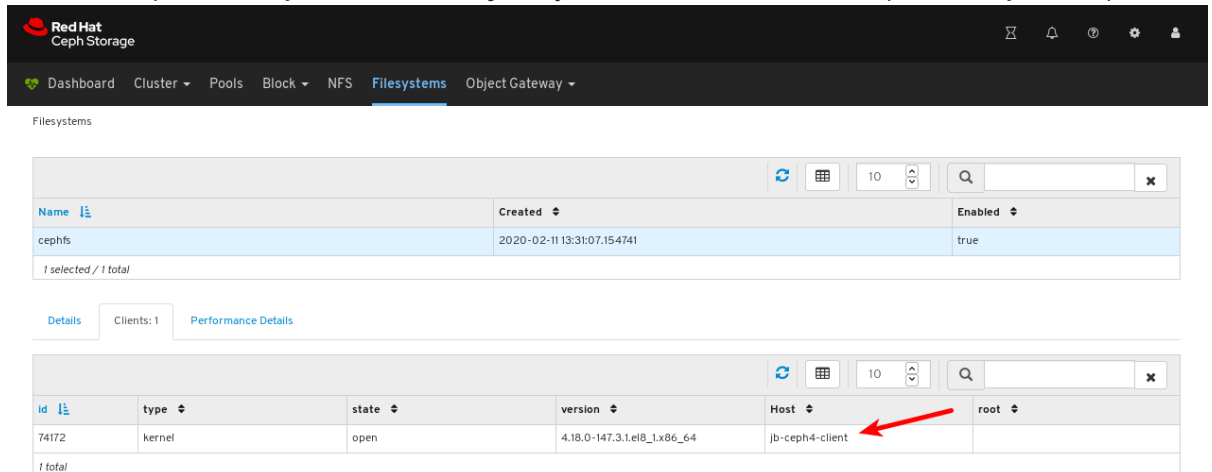
Details **Clients: 1** Performance Details

Ranks

Rank	State	Daemon	Activity	Dentries	Inodes
0	active	jb-ceph4-osd1	Reqs: 0 /s	11	14

1 total

7. In the example below, you can see the **jb-ceph4-client** host has the *cephfs* file system opened.



Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS **Filesystems** Object Gateway

Filesystems

Name	Created	Enabled
cephfs	2020-02-11 13:31:07.154741	true

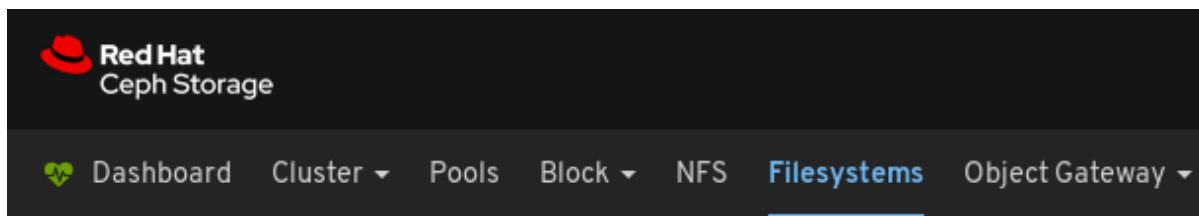
1 selected / 1 total

Details Clients: 1 Performance Details

id	type	state	version	Host	root
74172	kernel	open	4.18.0-147.3.1.el8_1.x86_64	jb-ceph4-client	

1 total

8. To view the performance of the file system, click the *Performance Details* tab.



## Filesystems

Name	Created
cephfs	2020-02-11 13:3

1 selected / 1 total

Details Clients: 1 Performance Details

id	type	state	vers
74172	kernel	open	4.18.

1 total

9. In the example below, you can see the read and write operations, at 1, client requests, at 2, and you can change the time range at 3.

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS **Filesystems** Object Gateway

Filesystems

Name	Created	Enabled
cephfs	2020-02-11 13:31:07.154741	true

1 selected / 1 total

Details Clients: 1 Performance Details

Grafana Time Picker Last 1 hour (Default) 3

MDS Performance

MDS Workload - mds.jb-ceph4-osd1

Client Request Load - mds.jb-ceph4-osd1

1 2

## Additional Resources

- For more information, see [Installing Metadata servers](#) in the [Installation Guide](#).
- For more information, see the [File System Guide](#).

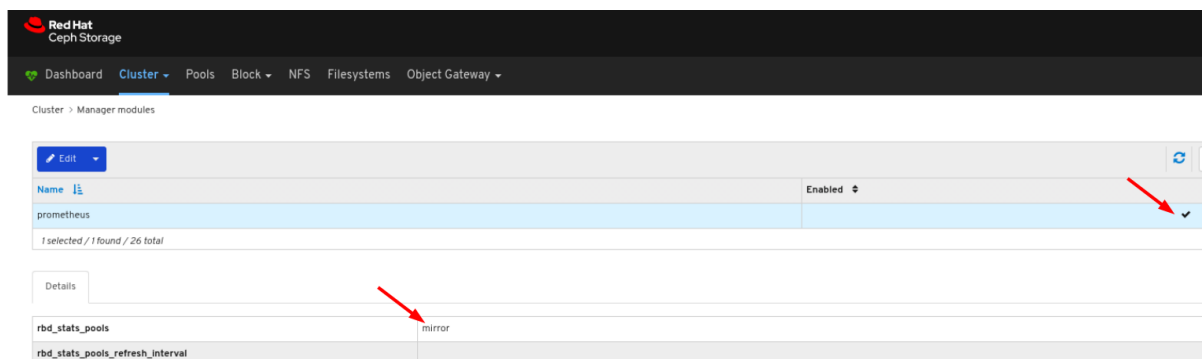
## 6.6. MONITORING OVERALL PERFORMANCE OF IMAGES

The Red Hat Ceph Storage Dashboard allows you to monitor the overall performance of the images in Blocks.

### Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- Rados Block Device (RBD) pool is created.
- Image is created.
- Manager module **Prometheus** exporter is enabled for the pool.

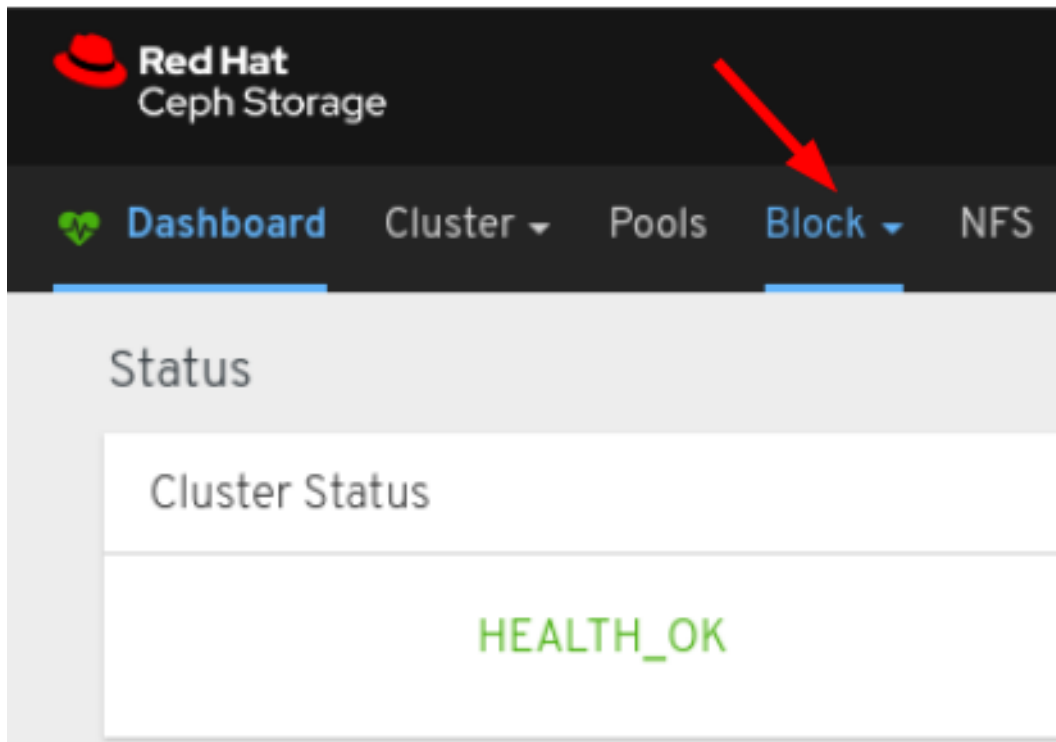
Figure 6.1. Example



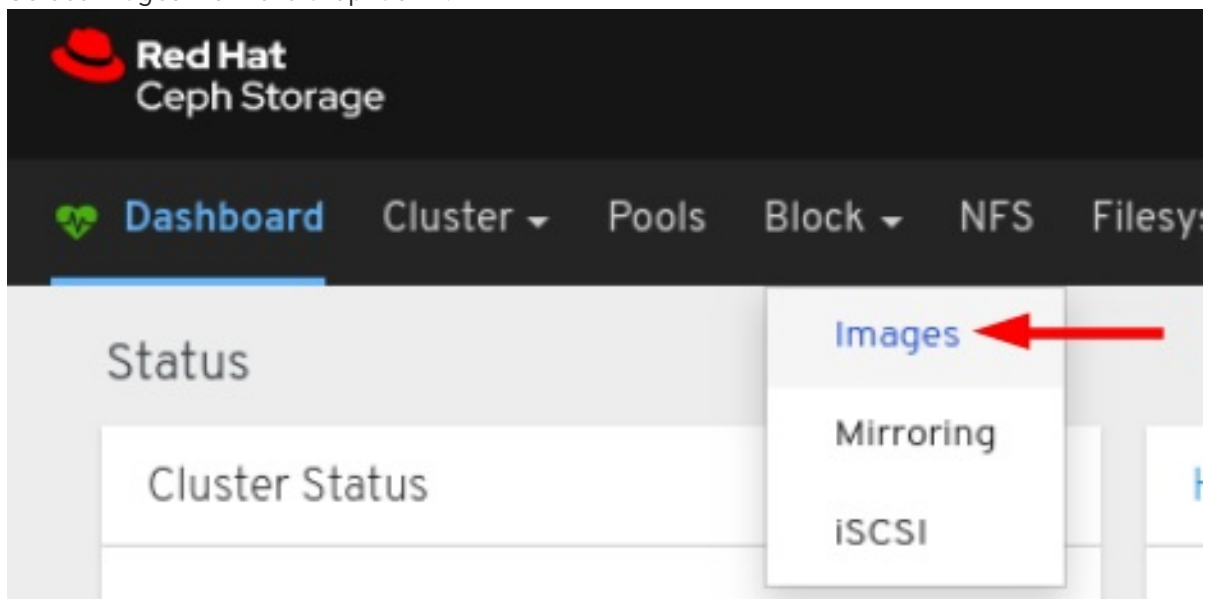
### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:

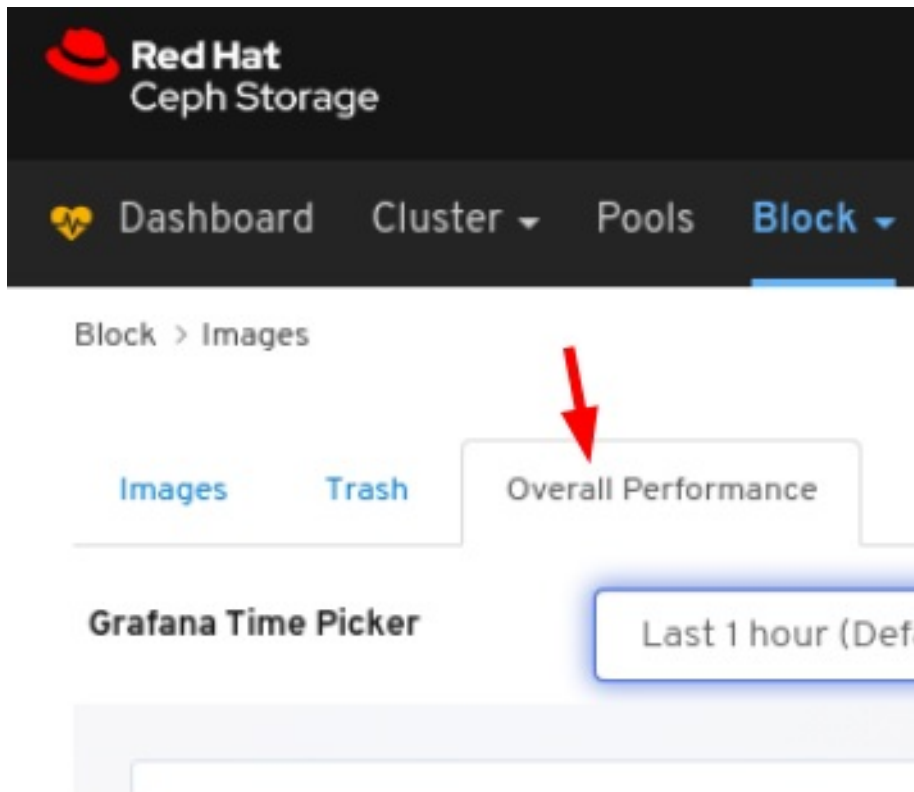




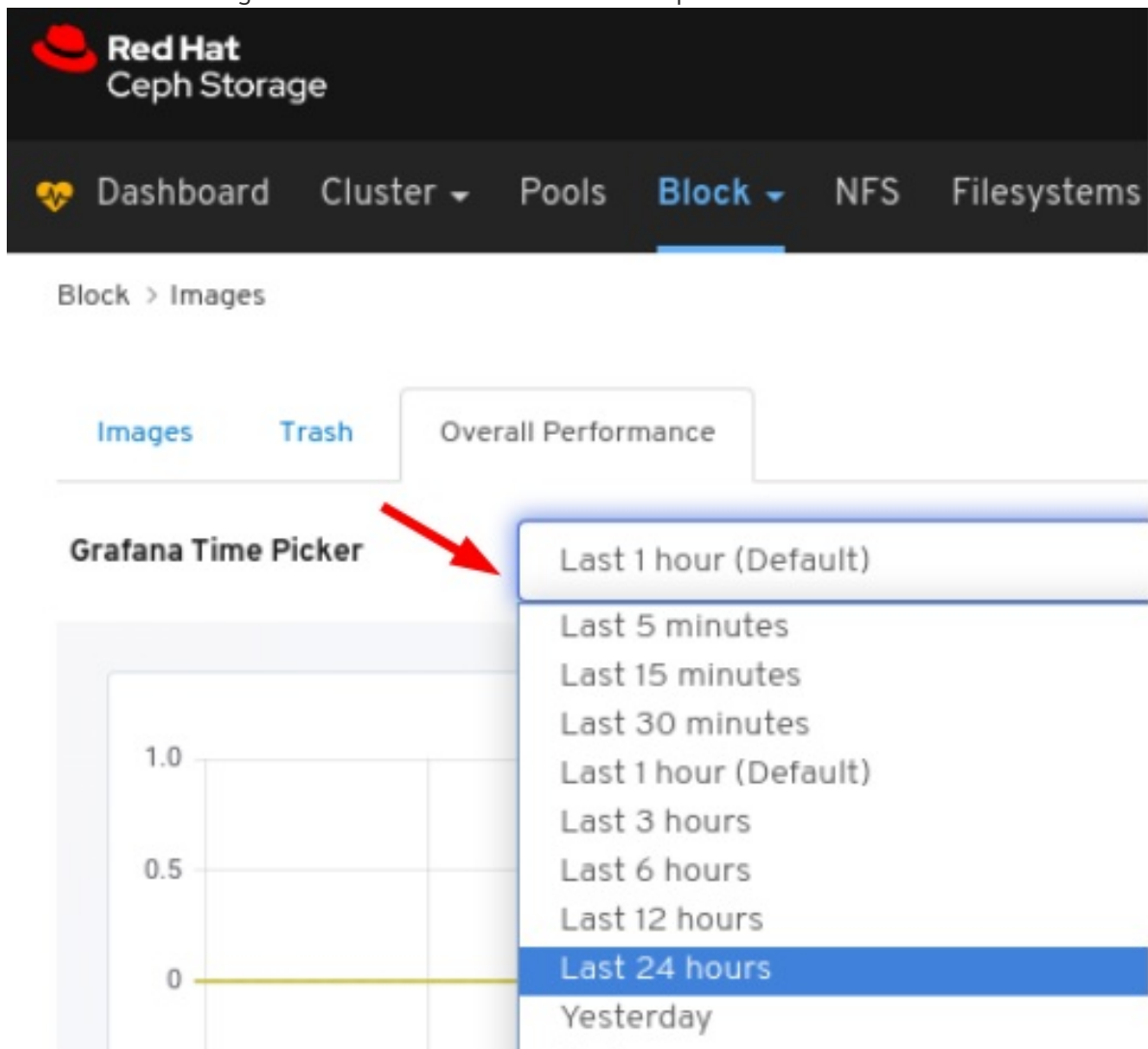
3. Select *Images* from the drop-down:



4. Select the *Overall Performance* tab:



5. Select the time range from the *Grafana Time Picker* drop-down:



6. View the *Overall Performance* page:

Red Hat  
Ceph Storage

Dashboard Cluster ▾ Pools Block ▾ NFS Filesystems Object Gateway ▾

Block > Images

Images
Trash
Overall Performance

**Grafana Time Picker**
Last 1 hour (Default)

### IOPS

Legend: — Writes — Reads

### Highest IOPS

Image	Pool	IOPS ▾
test1	data	0 iops
image2	data	0 iops
image1	data	0 iops

## CHAPTER 7. MANAGING THE CLUSTER

### 7.1. MANAGING THE CLUSTER

The management functions of the dashboard allow you to view and modify configuration settings, and manage cluster resources.

### 7.2. VIEWING THE CRUSH MAP

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

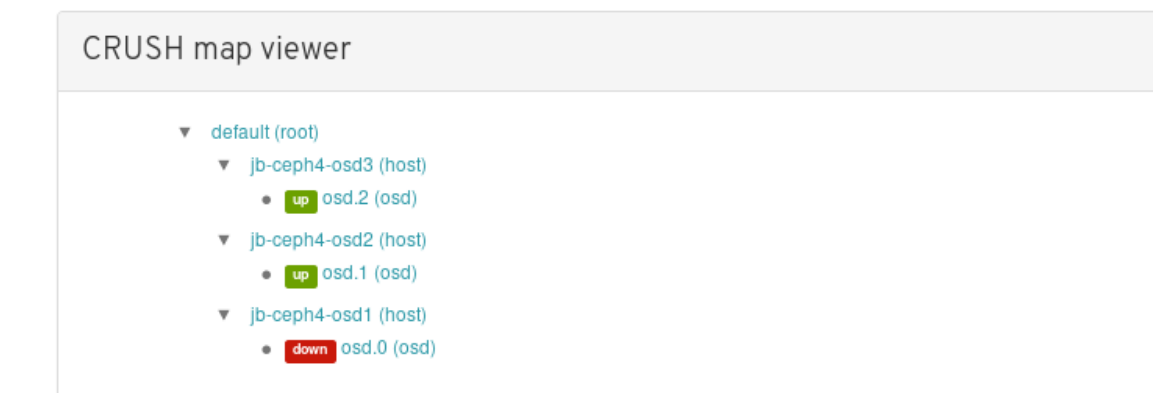
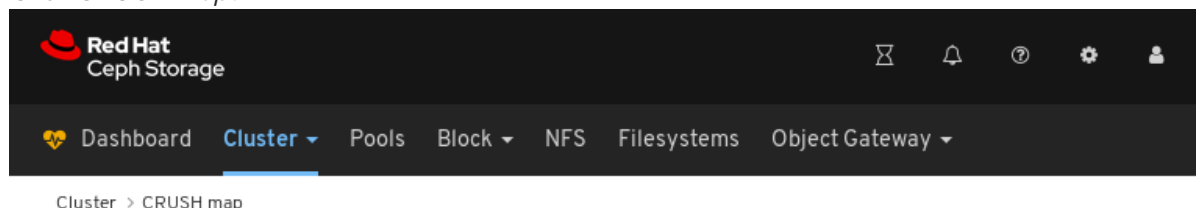
The CRUSH map allows you to determine which node a specific OSD ID is running on. This is helpful if there is an issue with an OSD.

#### Prerequisites

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

#### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Cluster*.
3. Click *CRUSH map*.



In the above example, you can see the default CRUSH map, three nodes, and OSDs running on two of the three nodes.

4. Click on the CRUSH map name, nodes, or OSDs, to view details about each object.

Cluster > CRUSH map

CRUSH map viewer

- ▼ default (root)
  - ▼ jb-ceph4-osd3 (host)
    - up osd.2 (osd)
  - ▼ jb-ceph4-osd2 (host)
    - up osd.1 (osd)
  - ▼ jb-ceph4-osd1 (host)
    - down osd.0 (osd)

osd.2 (osd)

crush_weight	0.0233917236328125
depth	2
device_class	hdd
exists	1
id	2
primary_affinity	1
reweight	1
type_id	0

In the above example, you can see the values of variables related to an OSD running on the **jb-rhel-osd3** node. In particular, note the **id** is **2**.

### Additional Resources

- For more information about the CRUSH map, see [CRUSH administration](#) in the [Storage strategies guide](#).

## 7.3. CONFIGURING MANAGER MODULES

The Red Hat Ceph Storage dashboard allows you to view and configure manager module parameters.

### Prerequisites

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

### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Cluster*.
3. Click *Manager modules*:

Cluster > Manager modules

Name	Enabled
ansible	
balancer	
crash	
dashboard	✓
deepsea	
devicehealth	
diskprediction_local	
influx	
insights	
iostat	

0 selected / 23 total

The above screenshot shows the first of three pages of manager modules.

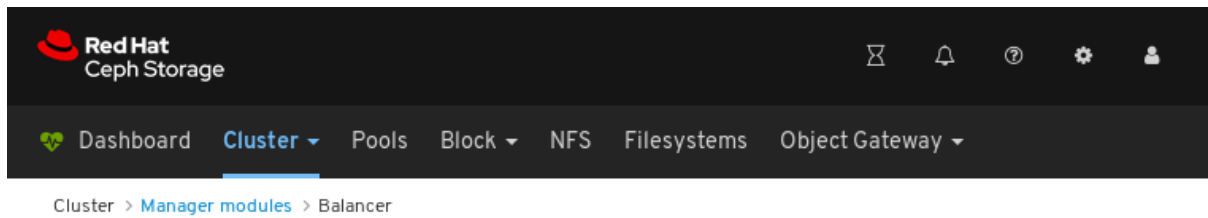
- Click on a row for a module you want to configure:

Cluster > Manager modules

Name	Enabled
ansible	
balancer	
crash	
dashboard	✓
deepsea	
devicehealth	
diskprediction local	

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

- Towards the upper left of the page, click the *Edit* button to load the page with the configurable parameters.



**Edit Manager module**

**active** ?

Automatically balance PGs across cluster

**begin\_weekday** ?

**crush\_compat\_max\_iteratio** ?

The above screenshot shows parameters that you can change for the balancer module. To display a description of a parameter, click the question mark button.

- To change a parameter, modify the state of the parameter and click the *Update* button at the bottom of the page:

**sleep\_interval** ?

**upmap\_max\_deviation** ?

**upmap\_max\_iterations** ?

**Update** **Back**

A notification confirming the change appears in the upper-right corner of the page:

Cluster > Manager modules

Name	Enabled
ansible	
balancer	
crash	
dashboard	✓
deepsea	

Updated options for module "balancer".  
11/20/19 3:29:28 PM

### Additional Resources

- See [Using the Ceph Manager balancer module](#) in the *Red Hat Ceph Storage Operations Guide*.

## 7.4. FILTERING LOGS

The Red Hat Ceph Storage Dashboard allows you to view and filter logs based on several criteria. The criteria include *priority*, *keyword*, *date*, and *time range*.

### Prerequisites

- A running Red Hat Ceph Storage cluster.
- The Dashboard is installed.
- Log entries have been generated since the 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 Monitor. The entries disappear after restarting the Monitor. If you need to review detailed or older logs, refer to the file based logs. See [Additional Resources](#) below for more information about file based logs.

### Procedure

1. Log in to the Dashboard.
2. Click the **Cluster** drop-down menu in the top navigation bar.
3. Click **Logs** in the drop-down menu.
4. View the last thirty unfiltered log entries.



Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

Cluster > Logs

Priority: All Keyword: Date: Datepicker Time range: 00 : 00 - 23 : 59

Cluster Logs Audit Logs

```

2019-10-15 12:14:19.464899 [WRN] Health check update: Reduced data availability: 184 pgs inactive (PG_AVAILABILITY)
2019-10-15 12:14:17.386304 [WRN] Health check update: Degraded data redundancy: 13020/19530 objects degraded (66.667%), 144 pgs degraded, 184 pgs undersized (PG_DEGRADED)
2019-10-15 12:14:11.380231 [WRN] Health check update: Reduced data availability: 94 pgs inactive (PG_AVAILABILITY)
2019-10-15 12:13:31.349296 [WRN] Health check update: Reduced data availability: 74 pgs inactive (PG_AVAILABILITY)
2019-10-15 12:13:24.457533 [WRN] Health check update: Degraded data redundancy: 13020/19530 objects degraded (66.667%), 144 pgs degraded (PG_DEGRADED)
2019-10-15 12:13:15.569268 [WRN] Health check update: 2 hosts (2 osds) down (OSD_HOST_DOWN)
2019-10-15 12:13:15.569247 [ERR] Health check update: 1 full osd(s) (OSD_FULL)
2019-10-15 12:13:15.569200 [WRN] Health check update: 2 osds down (OSD_DOWN)
2019-10-15 12:13:15.566406 [WRN] Health check update: Degraded data redundancy: 9820/19530 objects degraded (50.282%), 144 pgs degraded (PG_DEGRADED)
2019-10-15 12:13:14.804474 [INF] osd.2 failed (root=default,host=jb-ceph4-osd2) (connection refused reported by osd.0)
2019-10-15 12:13:10.558089 [INF] osd.2 [v2:192.168.122.146:6800/3760,v1:192.168.122.146:6801/3760] boot
2019-10-15 12:13:10.505245 [WRN] Health check update: 1 host (1 osds) down (OSD_HOST_DOWN)
2019-10-15 12:13:10.505237 [ERR] Health check update: 2 full osd(s) (OSD_FULL)
2019-10-15 12:13:10.505214 [WRN] Health check update: 1 osds down (OSD_DOWN)
2019-10-15 12:13:09.339354 [INF] Health check cleared: PG_DEGRADED_FULL (was: Degraded data redundancy (low space): 4 pgs recovery_toofull)
2019-10-15 12:13:09.339348 [WRN] Health check update: Degraded data redundancy: 13020/19530 objects degraded (66.667%), 144 pgs degraded (PG_DEGRADED)
2019-10-15 12:13:09.339331 [WRN] Health check update: Reduced data availability: 5 pgs inactive (PG_AVAILABILITY)
2019-10-15 12:13:04.798957 [WRN] Health check update: 2 hosts (2 osds) down (OSD_HOST_DOWN)
2019-10-15 12:13:04.798950 [ERR] Health check update: 1 full osd(s) (OSD_FULL)
2019-10-15 12:13:04.798933 [WRN] Health check update: 2 osds down (OSD_DOWN)
2019-10-15 12:13:04.273793 [INF] osd.2 failed (root=default,host=jb-ceph4-osd2) (connection refused reported by osd.0)
2019-10-15 12:12:59.895691 [ERR] Health check failed: Degraded data redundancy (low space): 4 pgs recovery_toofull (PG_DEGRADED_FULL)
2019-10-15 12:12:59.895670 [WRN] Health check update: Degraded data redundancy: 9820/19530 objects degraded (50.282%), 144 pgs degraded (PG_DEGRADED)
2019-10-15 12:12:56.713439 [INF] osd.2 [v2:192.168.122.146:6800/3630,v1:192.168.122.146:6801/3630] boot
2019-10-15 12:12:56.682613 [WRN] Health check update: 1 host (1 osds) down (OSD_HOST_DOWN)
2019-10-15 12:12:56.682608 [ERR] Health check update: 2 full osd(s) (OSD_FULL)
2019-10-15 12:12:56.682593 [WRN] Health check update: 1 osds down (OSD_DOWN)
2019-10-15 12:12:53.996138 [WRN] Health check update: Degraded data redundancy: 13020/19530 objects degraded (66.667%), 144 pgs degraded (PG_DEGRADED)
2019-10-15 12:12:53.996109 [WRN] Health check update: Reduced data availability: 11 pgs inactive (PG_AVAILABILITY)
2019-10-15 12:12:49.955161 [INF] Health check cleared: PG_DEGRADED_FULL (was: Degraded data redundancy (low space): 4 pgs recovery_toofull)

```

- a. To filter by priority, click the **Priority** drop-down menu and select either **Info**, **Warning**, or **Error**. The example below only shows log entries with the priority of **Error**.

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

Cluster > Logs

Priority: Error Keyword: Date: Datepicker Time range: 00 : 00 - 23 : 59

Cluster Logs Audit Logs

```

2019-10-15 12:13:15.569247 [ERR] Health check update: 1 full osd(s) (OSD_FULL)
2019-10-15 12:13:10.505237 [ERR] Health check update: 2 full osd(s) (OSD_FULL)
2019-10-15 12:13:04.798950 [ERR] Health check update: 1 full osd(s) (OSD_FULL)
2019-10-15 12:12:59.895691 [ERR] Health check failed: Degraded data redundancy (low space): 4 pgs recovery_toofull (PG_DEGRADED_FULL)
2019-10-15 12:12:56.682608 [ERR] Health check update: 2 full osd(s) (OSD_FULL)

```

- b. To filter by keyword, enter text into the **Keyword** form. The example below only shows log entries that include the text **osd.2**.

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

Cluster > Logs

Priority: All Keyword: osd.2 Date: Datepicker Time range: 00 : 00 - 23 : 59

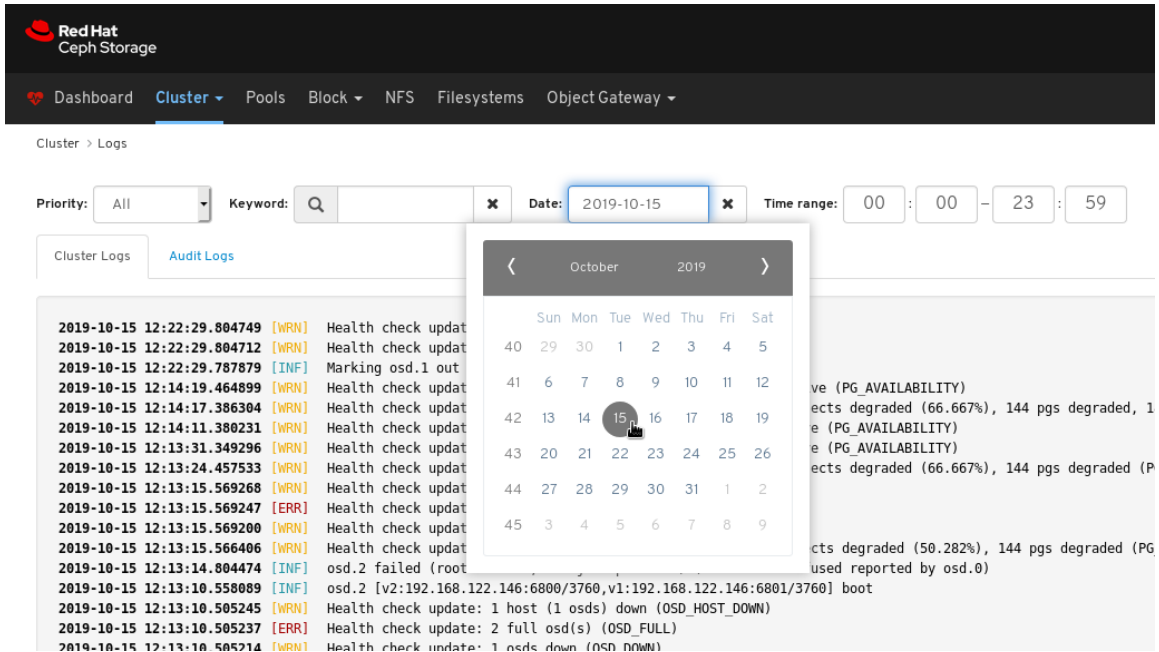
Cluster Logs Audit Logs

```

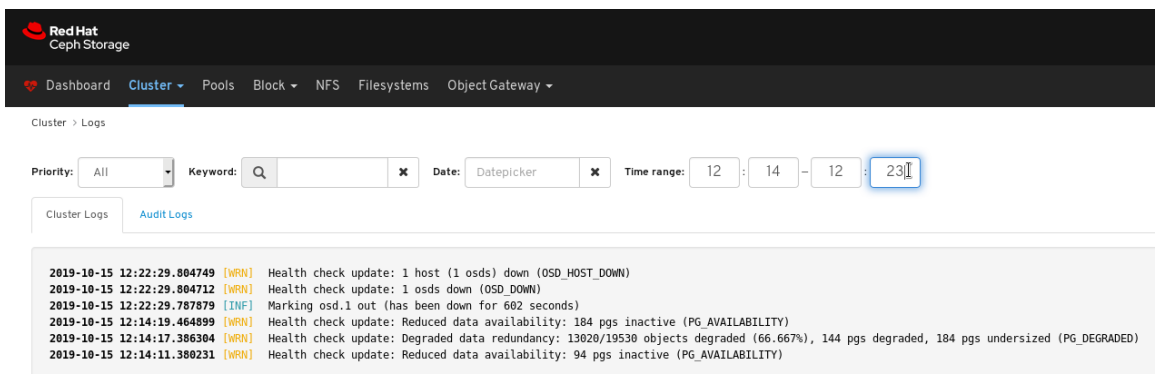
2019-10-15 12:13:14.804474 [INF] osd.2 failed (root=default,host=jb-ceph4-osd2) (connection refused reported by osd.0)
2019-10-15 12:13:10.558089 [INF] osd.2 [v2:192.168.122.146:6800/3760,v1:192.168.122.146:6801/3760] boot
2019-10-15 12:13:04.273793 [INF] osd.2 failed (root=default,host=jb-ceph4-osd2) (connection refused reported by osd.0)
2019-10-15 12:12:56.713439 [INF] osd.2 [v2:192.168.122.146:6800/3630,v1:192.168.122.146:6801/3630] boot

```

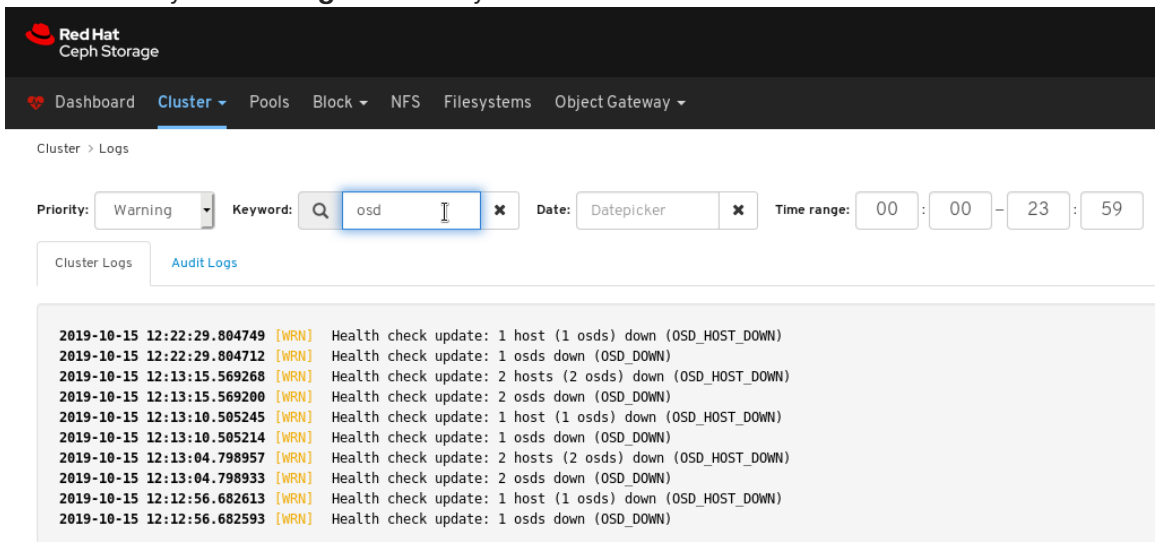
- c. To filter by date, click the **Date** form and either use the date picker to select a date from the menu, or enter a date in the form of *YYYY-MM-DD*. The example below only shows log entries with the date of **2019-10-15**.



- 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**. The example below only shows log entries from **12:14** to **12:23**.



- e. To combine filters, set two or more filters. The example below only shows entries that have both a Priority of **Warning** and the keyword of **osd**.



## Additional Resources

- See the [Configuring Logging](#) section in the [Troubleshooting Guide](#) for more information.
- See the [Understanding Ceph Logs](#) section in the [Troubleshooting Guide](#) for more information.

## 7.5. CONFIGURING OSD RECOVERY SETTINGS

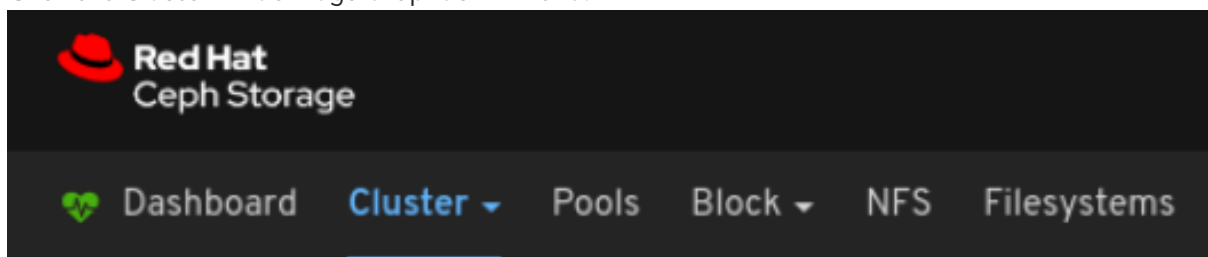
As a storage administrator, you can change the OSD recovery priority and customize how the cluster recovers. This allows you to influence your cluster's rebuild performance or recovery speed.

### Prerequisites

- A Red Hat Ceph Storage cluster.
- The dashboard is installed.

### Procedure

1. Log in to the dashboard.
2. Click the *Cluster* drop-down menu in the top navigation bar.
3. Click *OSDs* in the drop-down menu.
4. Click the *Cluster-Wide Flags* drop-down menu.



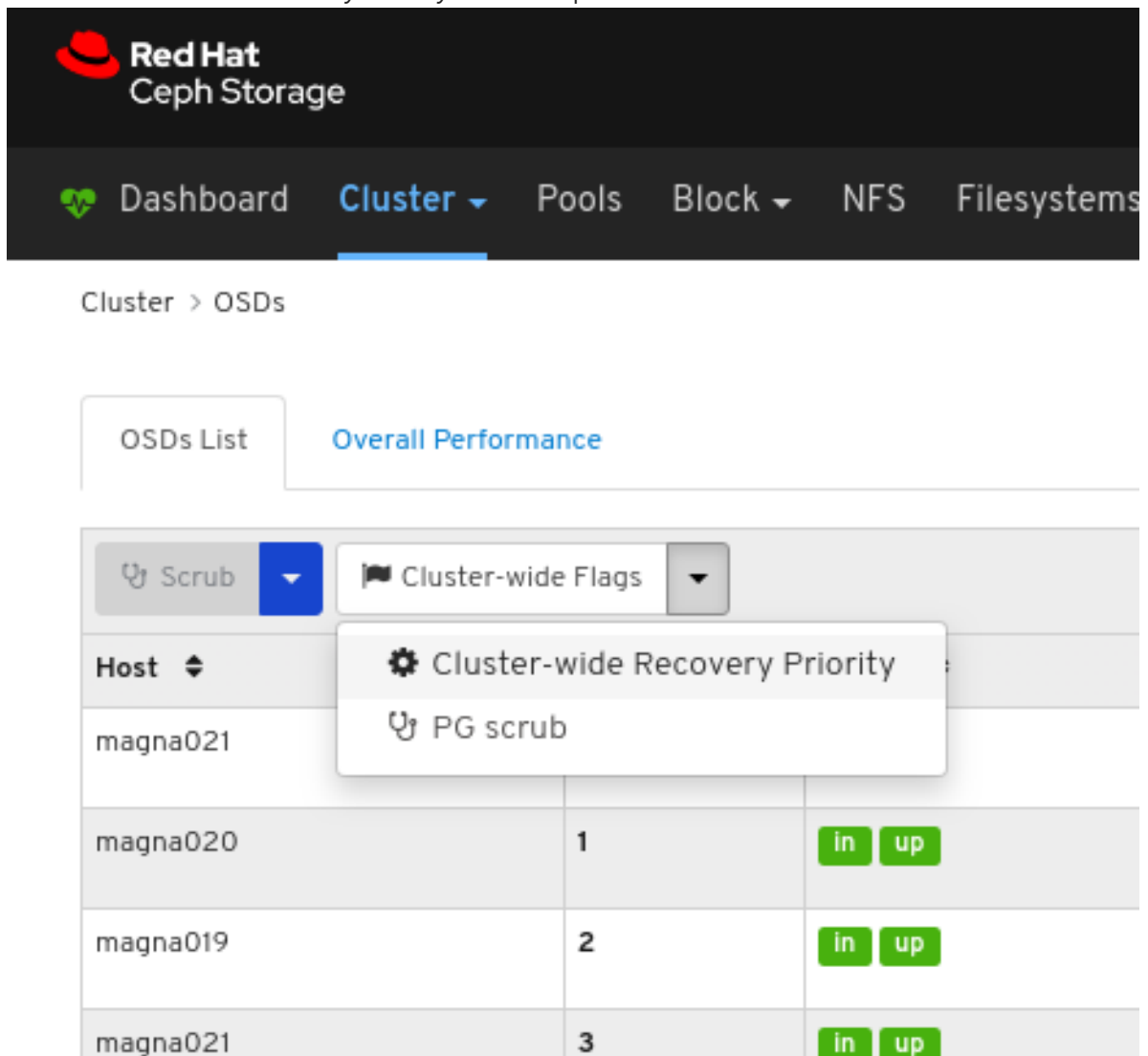
Cluster > OSDs

OSDs List Overall Performance

Scrub Cluster-wide Flags

Host	ID	Status
magna021	0	in up
magna020	1	in up
magna019	2	in up

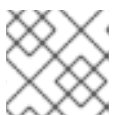
5. Select *Cluster-wide Recovery Priority* in the drop-down.



The screenshot shows the Red Hat Ceph Storage dashboard. The navigation bar includes 'Dashboard', 'Cluster', 'Pools', 'Block', 'NFS', and 'Filesystems'. The 'Cluster' menu is expanded, showing 'OSDs'. Below this, there are tabs for 'OSDs List' and 'Overall Performance'. A 'Scrub' button is visible, along with a 'Cluster-wide Flags' dropdown menu. The 'Cluster-wide Flags' dropdown is open, showing 'Cluster-wide Recovery Priority' and 'PG scrub'. Below the dropdown is a table of OSDs.

Host	PG	Status
magna021		
magna020	1	in up
magna019	2	in up
magna021	3	in up

6. Optional: Select **Priority** in the drop-down menu, and then click the *Submit* button.



#### NOTE

There are 3 predefined options: **Low**, **Default**, **High**

OSD Recovery Priority
✕

**Priority \*** ▼

-- Select the priority --

Low

Default

High

**Max Backfills ?**

**Recovery Max Active**

**Recovery Max Single Start**

**Recovery Sleep ?**

7. Optional: Click *Customize priority values*, make the required changes, and then click the *Submit* button.

OSD Recovery Priority
✕

**Priority \*** ▼

Custom

**Customize priority values**

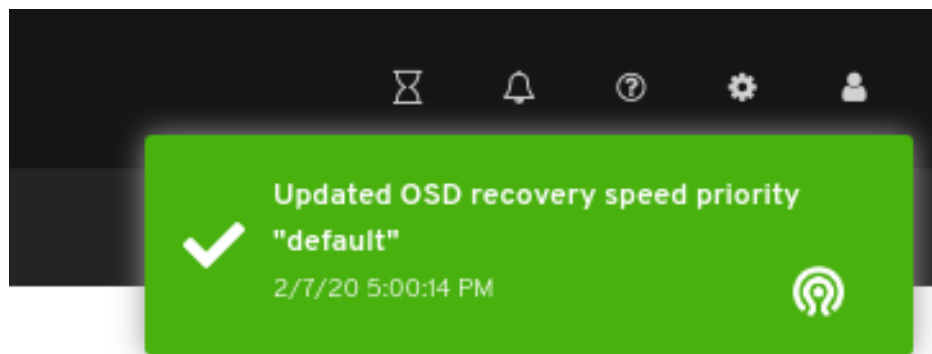
**Max Backfills ? \***

**Recovery Max Active \***

**Recovery Max Single Start \***

**Recovery Sleep ? \***

8. A notification towards the top right corner of the page pops up indicating the flags were updated successfully.



### Additional Resources

- For more information on OSD recovery, see [OSD Recovery](#) in the [Configuration Guide](#).

## 7.6. VIEWING AND MONITORING CONFIGURATION

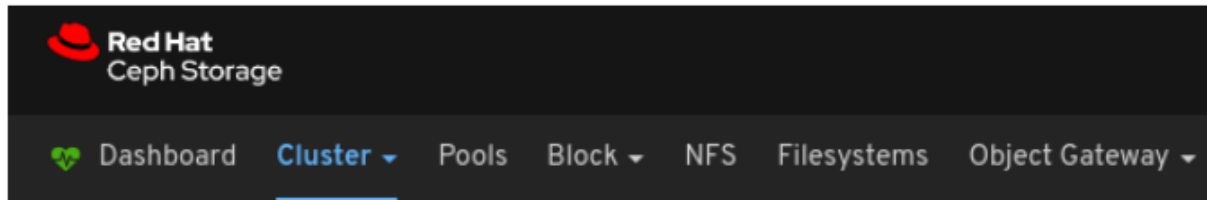
The Red Hat Ceph Storage Dashboard allows you to view the list of all configuration options for the Ceph cluster. You can also edit the configuration on the Dashboard.

### Prerequisites


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




### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Cluster* and then click *Configuration*.
3. To view the details of the configuration, click its row:

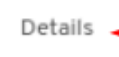



Cluster &gt; Configuration

 Edit

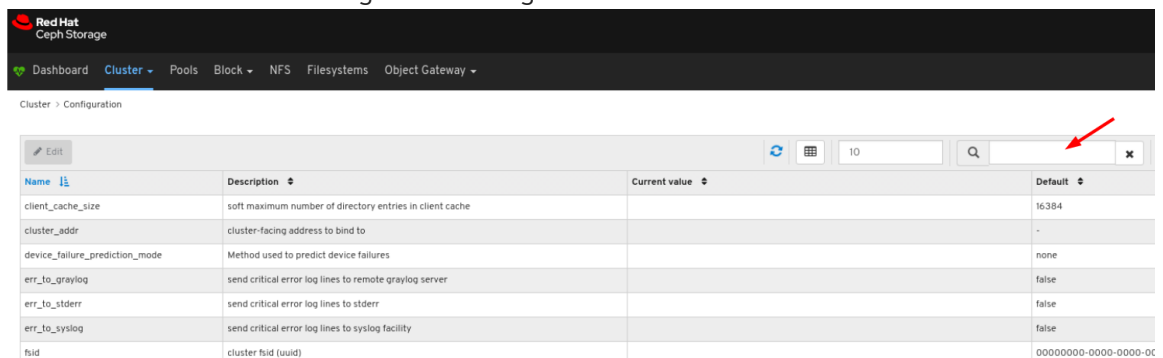
Name 	Description 
client_cache_size 	soft maximum number of directory entries in client cache
cluster_addr	cluster-facing address to bind to
device_failure_prediction_mode	Method used to predict device failures
err_to_graylog	send critical error log lines to remote graylog server
err_to_stderr	send critical error log lines to stderr
err_to_syslog	send critical error log lines to syslog facility
fsid	cluster fsid (uuid)
host	local hostname
log_file	path to log file
log_graylog_host	address or hostname of graylog server to log to

1 selected / 51 total

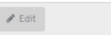




 Details 





<b>Name</b>	client_cache_size
<b>Description</b>	soft maximum numl

- You can search for the configuration using the *Search* box:

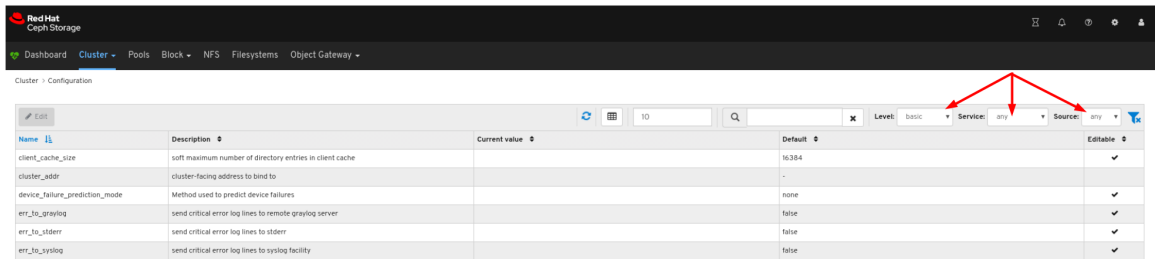


Cluster > Configuration

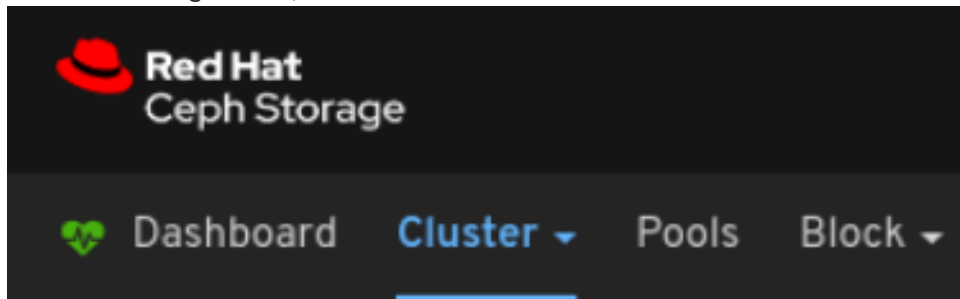
 Edit   10    

Name 	Description 	Current value 	Default 
client_cache_size	soft maximum number of directory entries in client cache		16384
cluster_addr	cluster-facing address to bind to		-
device_failure_prediction_mode	Method used to predict device failures		none
err_to_graylog	send critical error log lines to remote graylog server		false
err_to_stderr	send critical error log lines to stderr		false
err_to_syslog	send critical error log lines to syslog facility		false
fsid	cluster fsid (uuid)		00000000-0000-0000-00

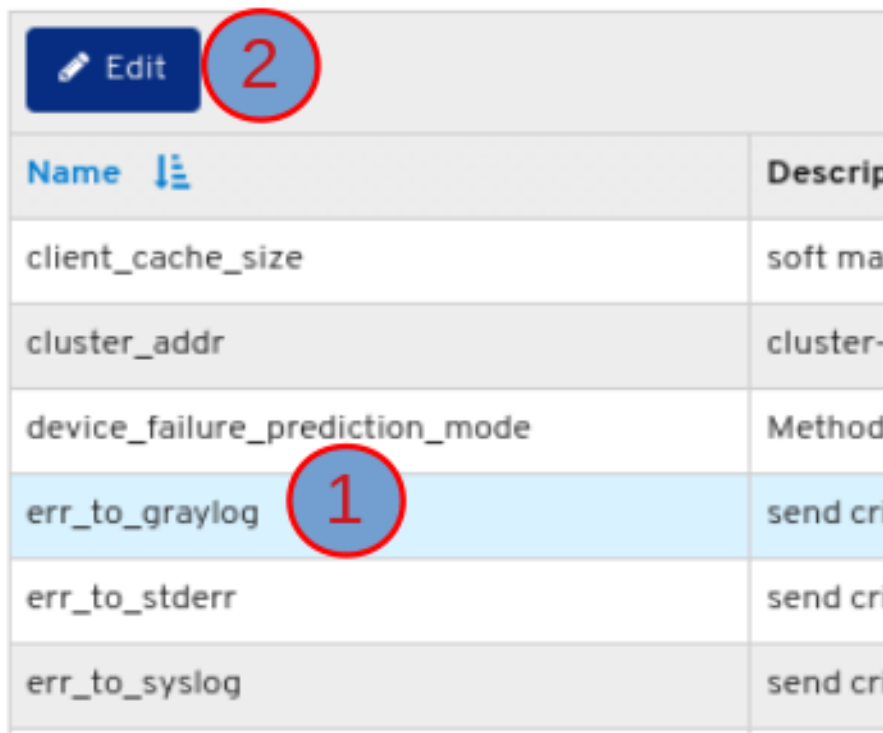
- You can filter for the configuration using *Level*, *Service* or *Source* drop-down:



4. To edit a configuration, click its row and click the *Edit* button:



Cluster > Configuration



a. In the dialog window, edit the required parameters and Click the Save button:



Red Hat  
Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

Cluster > Configuration > Edit

### Edit err\_to\_graylog

**Name** err\_to\_graylog

**Description** send critical error log lines to remote graylog server

**Default** false

**Values**

global -- Default --

mon -- Default --

mgr -- Default --

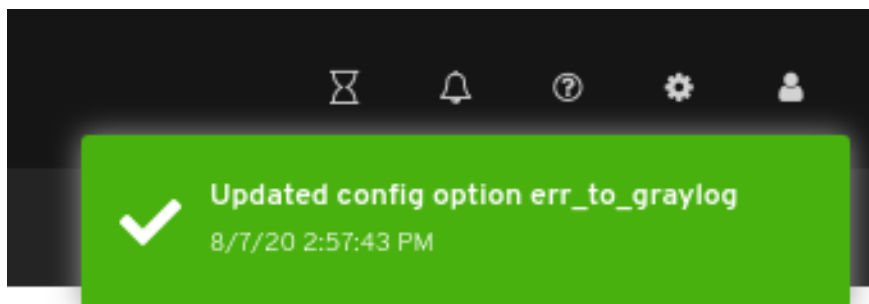
osd -- Default --

mds -- Default --

client -- Default --

Save Cancel

A notification confirming the change appears in the upper-right corner of the page.



### Additional Resources

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

## 7.7. MANAGING THE PROMETHEUS ENVIRONMENT

To monitor a Ceph storage cluster with Prometheus you can configure and enable the Prometheus exporter so the metadata information about the Ceph storage cluster can be collected.

### Prerequisites

- A running Red Hat Ceph Storage 3.1 or higher cluster.

- Installation of the Red Hat Ceph Storage Dashboard.
- Root-level access to the Red Hat Ceph Storage Dashboard node.

## Procedure

1. Open and edit the `/etc/prometheus/prometheus.yml` file.
  - a. Under the **global** section, set the **scrape\_interval** and **evaluation\_interval** options to 15 seconds.

### Example

```
global:
  scrape_interval: 15s
  evaluation_interval: 15s
```

- b. Under the **scrape\_configs** section, add the **honor\_labels: true** option, and edit the **targets**, and **instance** options for each of the **ceph-mgr** nodes.

### Example

```
scrape_configs:
  - job_name: 'node'
    honor_labels: true
    static_configs:
      - targets: ['node1.example.com:9100']
        labels:
          instance: "node1.example.com"
      - targets: ['node2.example.com:9100']
        labels:
          instance: "node2.example.com"
```



### NOTE

Using the **honor\_labels** option enables Ceph to output properly-labelled data relating to any node in the Ceph storage cluster. This allows Ceph to export the proper **instance** label without Prometheus overwriting it.

- c. To add a new node, simply add the **targets**, and **instance** options in the following format:

### Example

```
- targets: ['new-node.example.com:9100']
  labels:
    instance: "new-node"
```



### NOTE

The **instance** label has to match what appears in Ceph's OSD metadata **instance** field, which is the short host name of the node. This helps to correlate Ceph stats with the node's stats.

2. Add Ceph targets to the `/etc/prometheus/ceph_targets.yml` file in the following format.

### Example

```
[
  {
    "targets": [ "cephnode1.example.com:9283" ],
    "labels": {}
  }
]
```

3. Enable the Prometheus module:

```
[root@mon ~]# ceph mgr module enable prometheus
```

## 7.8. RESTORING GRAFANA-SERVER AND PROMETHEUS

The grafana-server includes the Grafana UI, Prometheus, the containers, and the Red Hat Ceph Storage configuration. When the grafana-server crashes or is faulty, you can restore it by taking a back-up of the files and restoring it using the backed-up files. For Prometheus, you can take an external back-up and then restore the data.

### Prerequisites

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

### Procedure

1. Take the back-up of the Grafana database:
  - a. On the grafana-server node, stop the Grafana service:

#### Example

```
[root@node04 ~]# systemctl stop grafana-server.service
[root@node04 ~]# systemctl status grafana-server.service
```

- b. Take the back-up of the Grafana database:

#### Example

```
[root@node04 ~]# cp /var/lib/grafana/grafana.db /var/lib/grafana/grafana_backup.db
```

- c. On the grafana-server node, restart the Grafana service:

#### Example

```
[root@node04 ~]# systemctl restart grafana-server.service
```

2. Restore the grafana-server:

- a. On the grafana-server node, if the Grafana service is running, stop the service:

**Example**

```
[root@node04 ~]# systemctl stop grafana-server.service
[root@node04 ~]# systemctl status grafana-server.service
```

- b. Move the backed-up **grafana.db** file to **/var/lib/grafana/** directory:

**Example**

```
[root@node04 ~]# mv /var/lib/grafana/grafana_backup.db /var/lib/grafana/
```

- c. On the grafana-server node, restart the Grafana service:

**Example**

```
[root@node04 ~]# systemctl restart grafana-server.service
```

3. For the Prometheus alerts, you have to take external back-up of **prometheus\_data\_dir** directory, a Ceph-Ansible setting which by default is **var/lib/prometheus** directory and restore the service using the backed-up directory.

- a. On the grafana-server node, stop the Prometheus service:

**Example**

```
[root@node04 ~]# systemctl stop prometheus.service
[root@node04 ~]# systemctl status prometheus.service
```

- b. Take the back-up of the default Prometheus directory:

**Example**

```
[root@node04 ~]# cp /var/lib/prometheus/ /var/lib/prometheus_backup/
```

- c. Replace the **prometheus\_data\_dir** directory with the backed-up directory:

**Example**

```
[root@node04 ~]# mv /var/lib/prometheus_backup/ /var/lib/prometheus_data_dir
```

- d. On the grafana-server node, restart the prometheus service:

**Example**

```
[root@node04 ~]# systemctl restart prometheus.service
[root@node04 ~]# systemctl status prometheus.service
```

**NOTE**

If you have made changes to the Prometheus parameters in **group\_vars/all.yml** file, then you have to rerun the playbook.

- Optional: If the changes do not reflect on the Red Hat Ceph Storage Dashboard, then you have to disable and then enable the dashboard:

**Example**

```
[root@node04 ~]# ceph mgr module disable dashboard
[root@node04 ~]# ceph mgr module enable dashboard
```

## 7.9. VIEWING AND MANAGING ALERTS

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:

- OSD(s) Down
- Ceph Health Error
- Ceph Health Warning
- Cluster Capacity Low
- Disk(s) Near Full
- MON(s) Down
- Network Errors
- OSD Host Loss Check
- OSD Host(s) Down
- OSD(s) with High PG Count
- PG(s) Stuck
- Pool Capacity Low
- Slow OSD Responses

### 7.9.1. Viewing alerts

After an alert has fired, you can view it on the Red Hat Ceph Storage Dashboard. You can also enable the dashboard to send an email about the alert.

**NOTE**

Simple mail transfer protocol (SMTP) and SSL is not supported in Red Hat Ceph Storage 4 cluster.

## 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 bar, 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*, update the required parameters and click *Update*.

**Figure 7.1. Edit Manager module for alerts**

Cluster > Manager modules > Alerts

The screenshot shows the 'Edit Manager module' interface for alerts. It features a list of configuration parameters, each with a help icon (question mark) to its right. The parameters and their values are:

- interval**: 15
- smtp\_destination**: vereddy@redhat.com
- smtp\_from\_name**: 4.2z2 BB Scale setup alerts
- smtp\_host**: smtp.corp.redhat.com
- smtp\_password**: (empty)
- smtp\_port**: 25
- smtp\_sender**: ceph-iad2-c01-lab.mgr@redhat.com
- smtp\_ssl**:
- smtp\_user**: (empty)

At the bottom right of the form, there are two buttons: a blue 'Update' button and a white 'Back' button.





3. On the navigation bar, click *Cluster*.
4. Select *Monitoring* from the drop-down menu.
5. To view details about the alert, click on its row:

Figure 7.2. Alert Details

Cluster > Monitoring

Active Alerts   All Alerts   Silences

+ Create Silence

Name 	Job 	Severity 	State 
Ceph Health Warning	ceph	page	active

1 selected / 1 total

Details

alertname	Ceph Health Warning
description	Overall Ceph Health
endTime	6/7/21 1:03:21 PM

- To view the source of an alert, click on its row, and then click **Source**.

## 7.9.2. Creating a silence

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 bar, click *Cluster*.
3. Select *Monitoring* from the drop-down menu.
4. Click on the row for the alert and then click *+Create Silence*.
5. In the *CreateSilence* window, Add the details for the *Duration* and click *Create Silence*.

Figure 7.3. Create Silence

Cluster &gt; Monitoring &gt; Create

### Create Silence

**Creator \***

**Comment \***

**Start time ⓘ \***

**Duration \***

**End time \***

**Matchers\***

<input type="checkbox"/> instance	>_	ceph_cluster	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> job	>_	ceph	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> severity	>_	page	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> alertname	>_	Ceph Health Warning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

### 7.9.3. Re-creating a silence

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. Select *Monitoring* from the drop-down menu.
3. Click the *Silences* tab.
4. Click on the row for the expired silence.
5. Click the *Recreate* button.



6. In the *RecreateSilence* window, add the details and click *RecreateSilence*.

**Figure 7.4. Recreate silence**

Cluster > Monitoring > Recreate

### RecreateSilence

**Creator \***

**Comment \***

**Start time ⓘ \***

**Duration \***

**End time \***

**Matchers\***

Field	Operator	Value	Match	Edit	Delete
instance	>_	ceph_cluster	<input type="checkbox"/>		
job	>_	ceph	<input type="checkbox"/>		
severity	>_	page	<input type="checkbox"/>		
alertname	>_	Ceph Health Warning	<input type="checkbox"/>		

[Delete](#)

Matches 1 rule with 1 active alert.

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

### 7.9.4. Editing a silence

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 bar, click *Cluster*.
3. Select *Monitoring* from the drop-down menu.

4. Click the *Silences* tab.
5. Click on the row for the silence.
6. In the *Edit* drop-down menu, select *Edit*.
7. In the *EditSilence* window, update the details and click *Edit Silence*.

**Figure 7.5. Edit silence**

Cluster > Monitoring > Edit

**EditSilence** ?

**Creator \*** admin

**Comment \*** test

**Start time ? \*** 2021-06-07T 13:05

**Duration \*** 2m

**End time \*** 2021-06-07T 13:07

**Matchers\***

instance	>_	ceph_cluster		<input type="checkbox"/>	
job	>_	ceph		<input type="checkbox"/>	
severity	>_	page		<input type="checkbox"/>	
alertname	>_	Ceph Health Warning		<input type="checkbox"/>	

[+ Add matcher](#)

Matches 1 rule with 1 active alert.

**EditSilence** **Cancel**

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

### 7.9.5. Expiring a silence

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

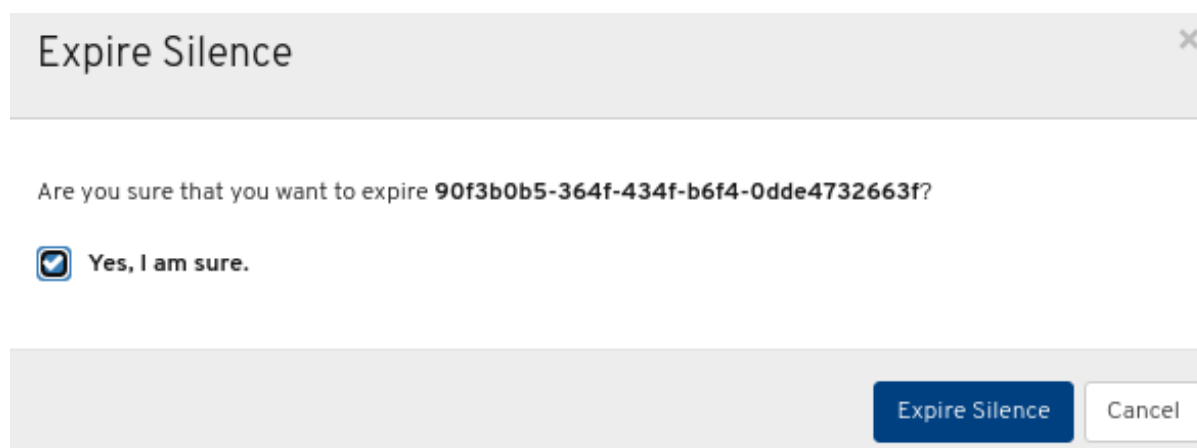
#### Prerequisite

- 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 bar, click *Cluster*.
3. Select *Monitoring* from the drop-down menu.
4. Click the *Silences* tab.
5. Click on the row for the silence.
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 7.6. Expire Silence**



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

### 7.9.6. Additional Resources

- For more information, see the [Red Hat Ceph Storage Troubleshooting Guide](#).

## 7.10. MANAGING POOLS

As a storage administrator, you can create, delete, and edit pools.

### Prerequisites

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

### 7.10.1. Creating pools

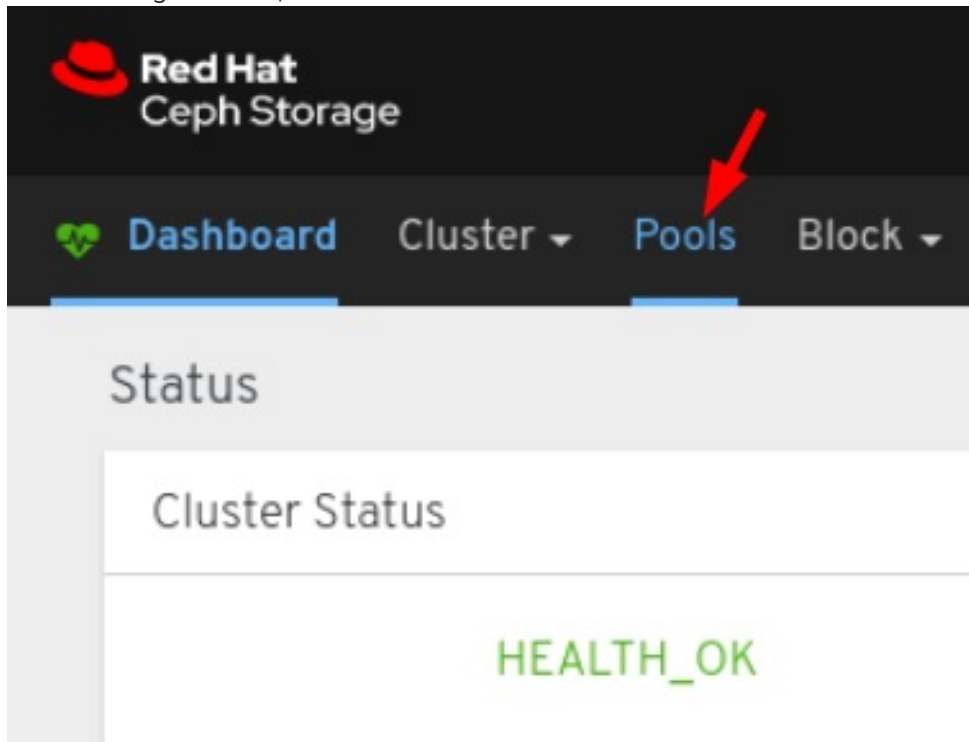
You can create pools to logically partition your storage objects.

### Prerequisites

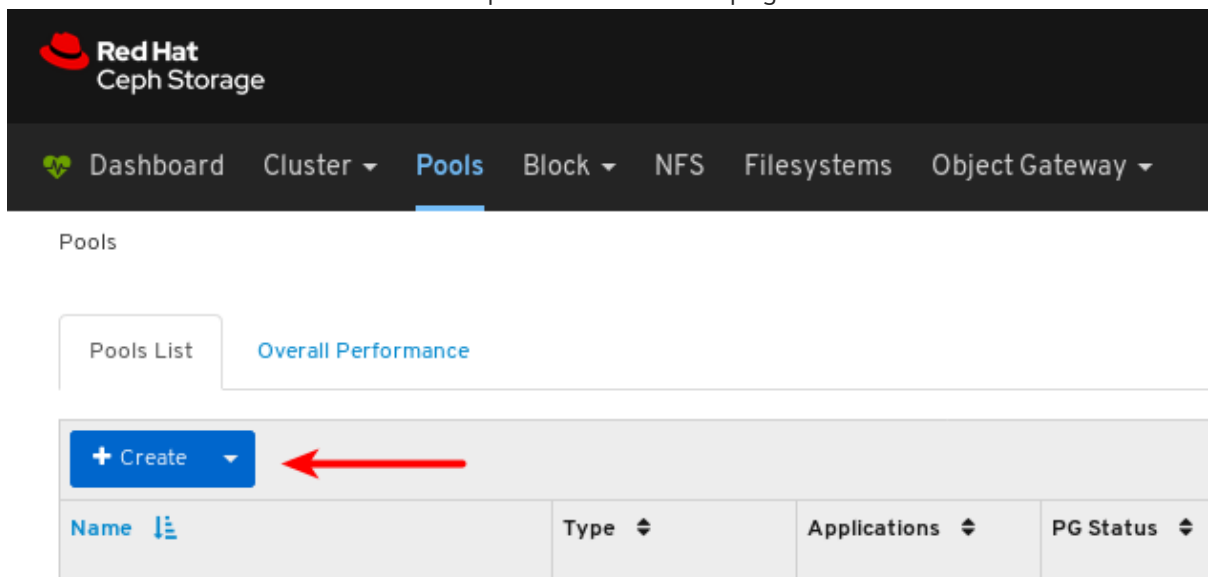
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.

## Procedure

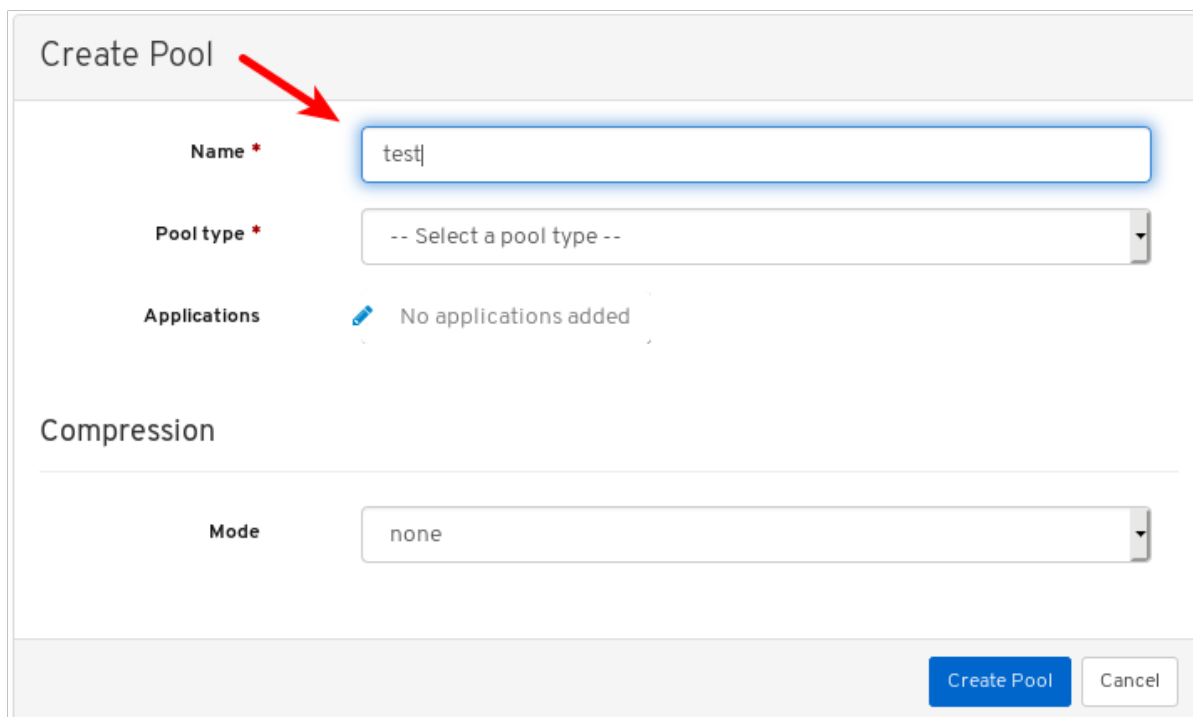
1. Log in to the dashboard.
2. On the navigation bar, click *Pools*.



3. Click the *Create* button towards the top left corner of the page.

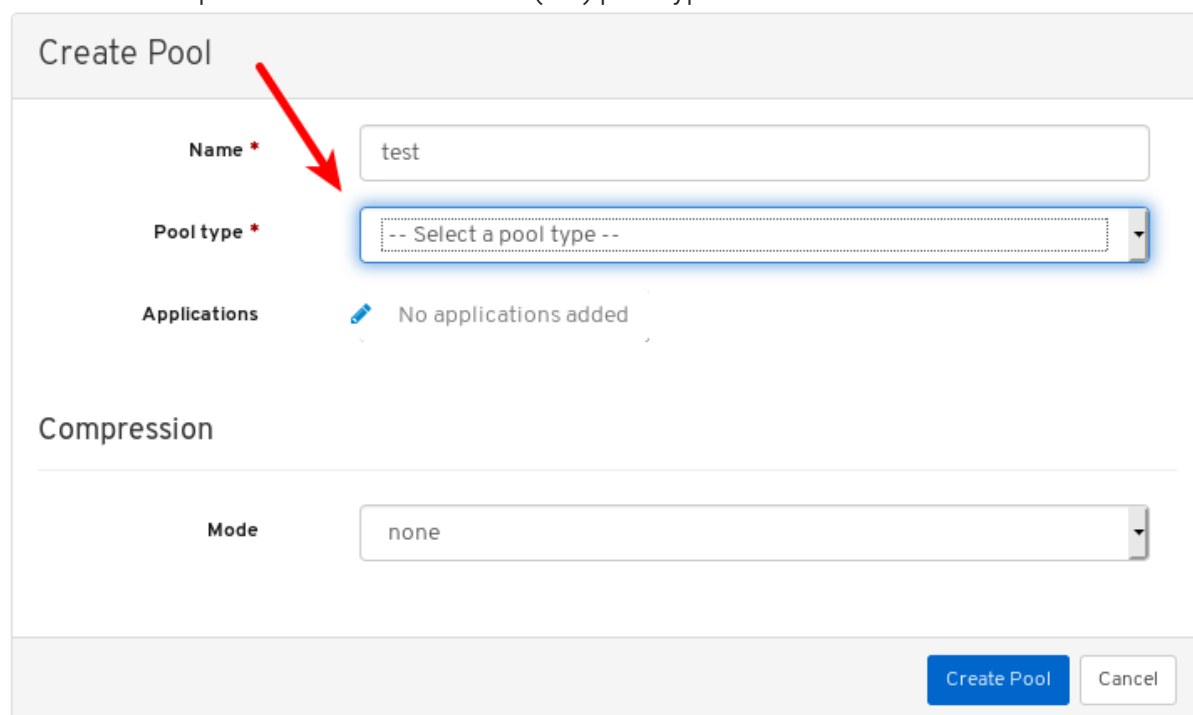


4. In the dialog window, set the name.



The screenshot shows the 'Create Pool' form. The 'Name' field is highlighted with a blue border and contains the text 'test'. A red arrow points to the 'Name' field. The 'Pool type' dropdown menu is currently set to '-- Select a pool type --'. The 'Applications' section shows 'No applications added'. The 'Compression' section has a 'Mode' dropdown set to 'none'. At the bottom right, there are 'Create Pool' and 'Cancel' buttons.

5. Select either replicated or Erasure Coded (EC) pool type.



The screenshot shows the 'Create Pool' form. The 'Name' field contains the text 'test'. The 'Pool type' dropdown menu is highlighted with a blue border and contains the text '-- Select a pool type --'. A red arrow points to the 'Pool type' dropdown. The 'Applications' section shows 'No applications added'. The 'Compression' section has a 'Mode' dropdown set to 'none'. At the bottom right, there are 'Create Pool' and 'Cancel' buttons.

6. Set the Placement Group (PG) number.

### Create Pool

**Name \***

**Pool type \***

**Placement groups \***  [Calculation help](#)

**Crush ruleset**

**Erasure code profile**  ? + 🗑️

**Flags**  EC Overwrites

**Applications** No applications added

### Compression

**Mode**

For assistance in choosing the PG number, use the [PG calculator](#). Contact [Red Hat Technical Support](#) if unsure.

- Optional: If using a replicated pool type, set the replicated size.

### Create Pool

**Name \***

**Pool type \***

**Placement groups \***  [Calculation help](#)

**Crush ruleset**

**Replicated size \***

**Applications** No applications added

---

### Compression

**Mode**

8. Optional: If using an EC pool type configure the following additional settings.

a. Optional: To see the settings for the currently selected EC profile, click the question mark.

**Crush ruleset**

**Erasure code profile**

**Flags**  EC Overwrites

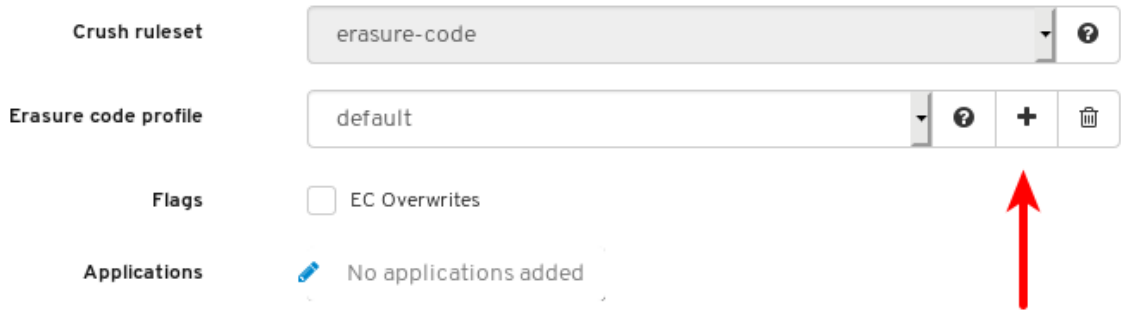
**Applications** No applications added

i. A table of the settings for the selected EC profile is shown.

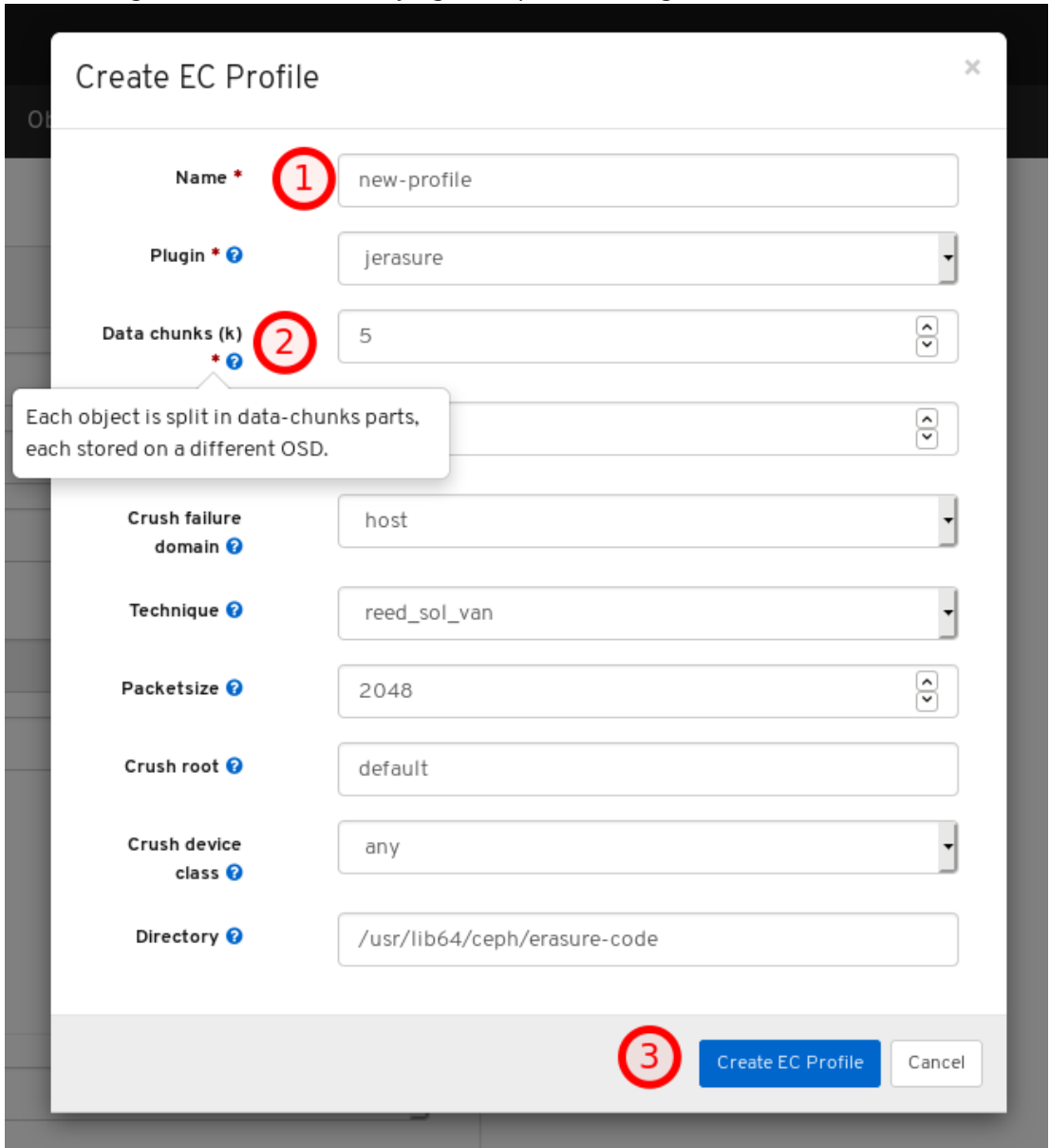
**Erasure code profile**

k	2
m	1
name	default
plugin	jerasure
technique	reed_sol_van

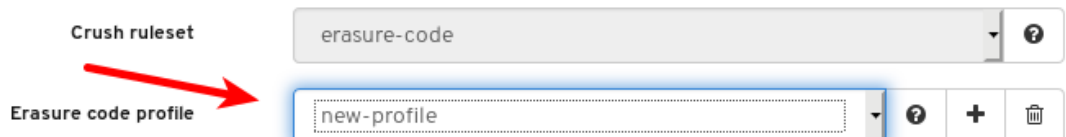
b. Optional: Add a new EC profile by clicking the plus symbol.



i. Set the name of the new EC profile, at 1, click any question mark symbol for info about that setting, at 2, and after modifying all required settings, click *Create EC Profile*, at 3.



ii. Select the new EC profile.






c. Optional: If EC overwrites are required, click its button.


Erasure code profile  ? + 🗑️

Flags  EC Overwrites

Applications  No applications added

9. Optional: Click the pencil symbol to select an application for the pool.

Flags  EC Overwrites

Applications  No applications added

Filter or add applications

cephfs

---

rbd

---

rgw

10. Optional: If compression is required, select *passive*, *aggressive*, or *force*.


Compression

Mode

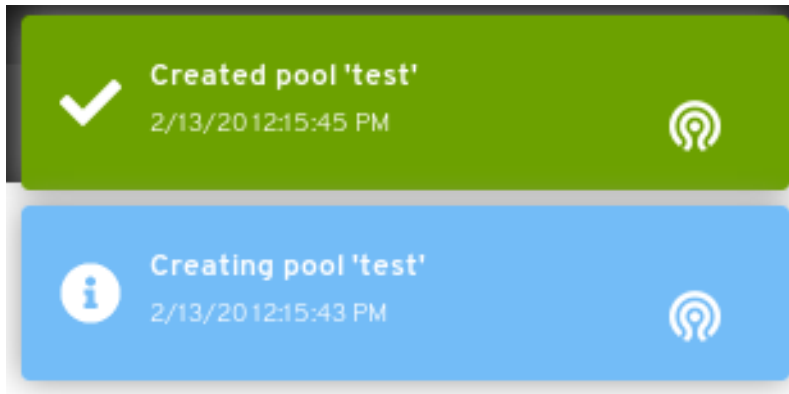
11. Click the *Create Pool* button.

Compression

Mode



12. Notifications towards the top right corner of the page indicate the pool was created successfully.



### Additional Resources

- For more information, see [Ceph pools](#) in the [Architecture Guide](#).

### 7.10.2. Editing pools

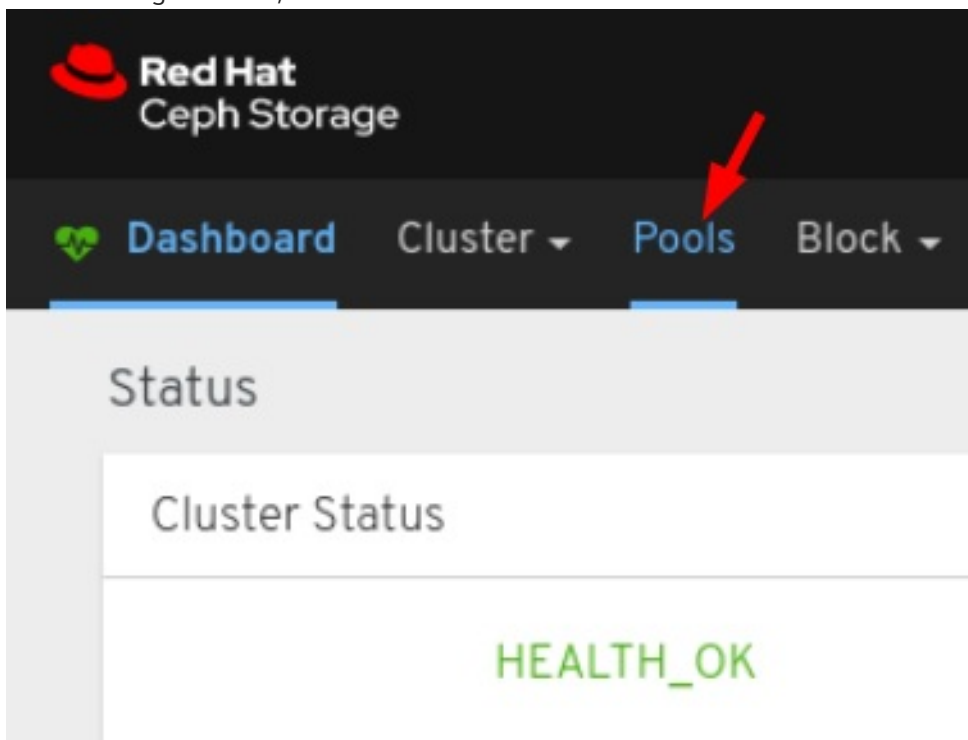
The Red Hat Ceph Storage Dashboard allows editing of pools.

#### Prerequisites

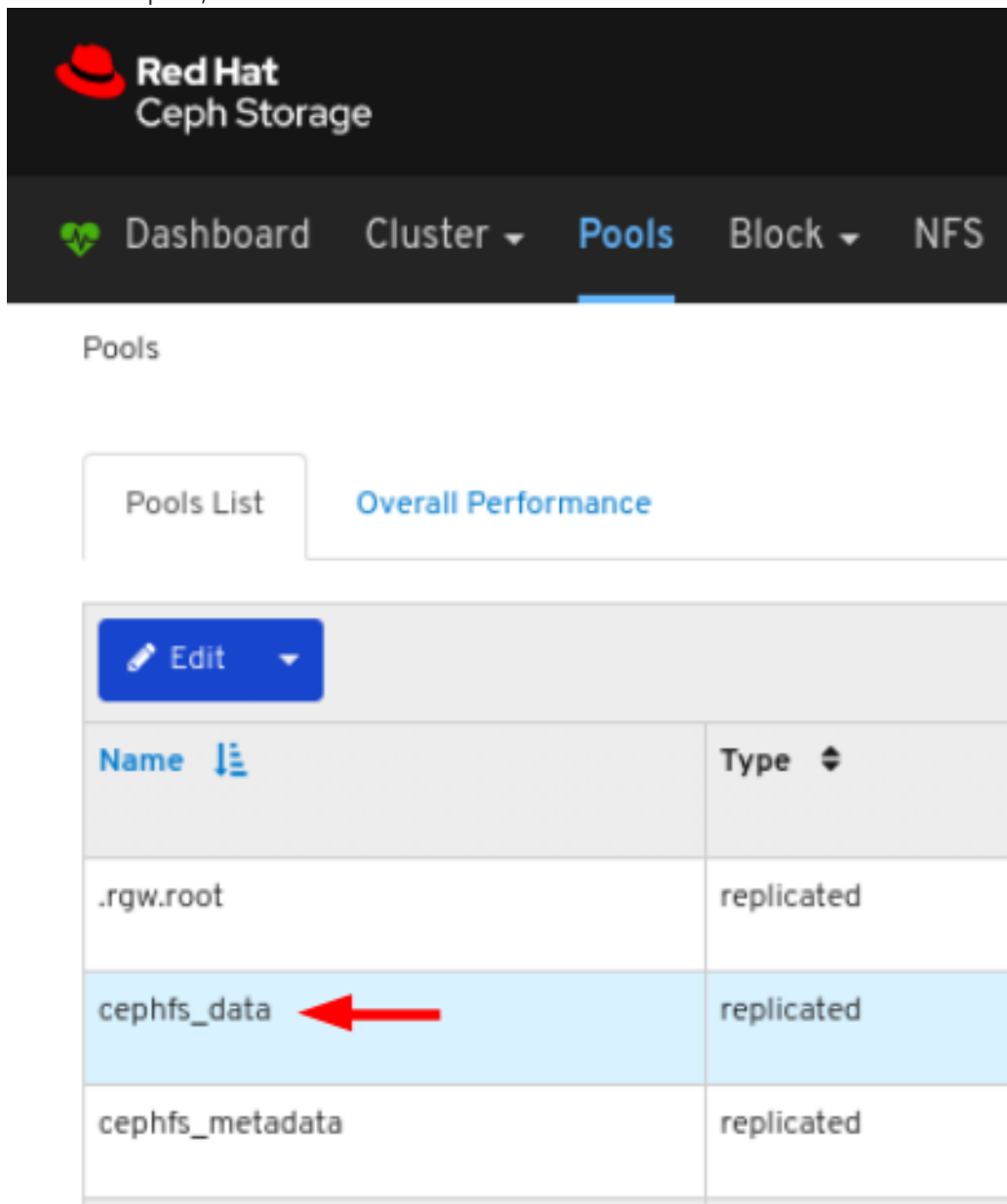
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool is created.

#### Procedure

1. Log in to the dashboard.
2. On the navigation bar, click *Pools*.



- To edit the pool, click its row:

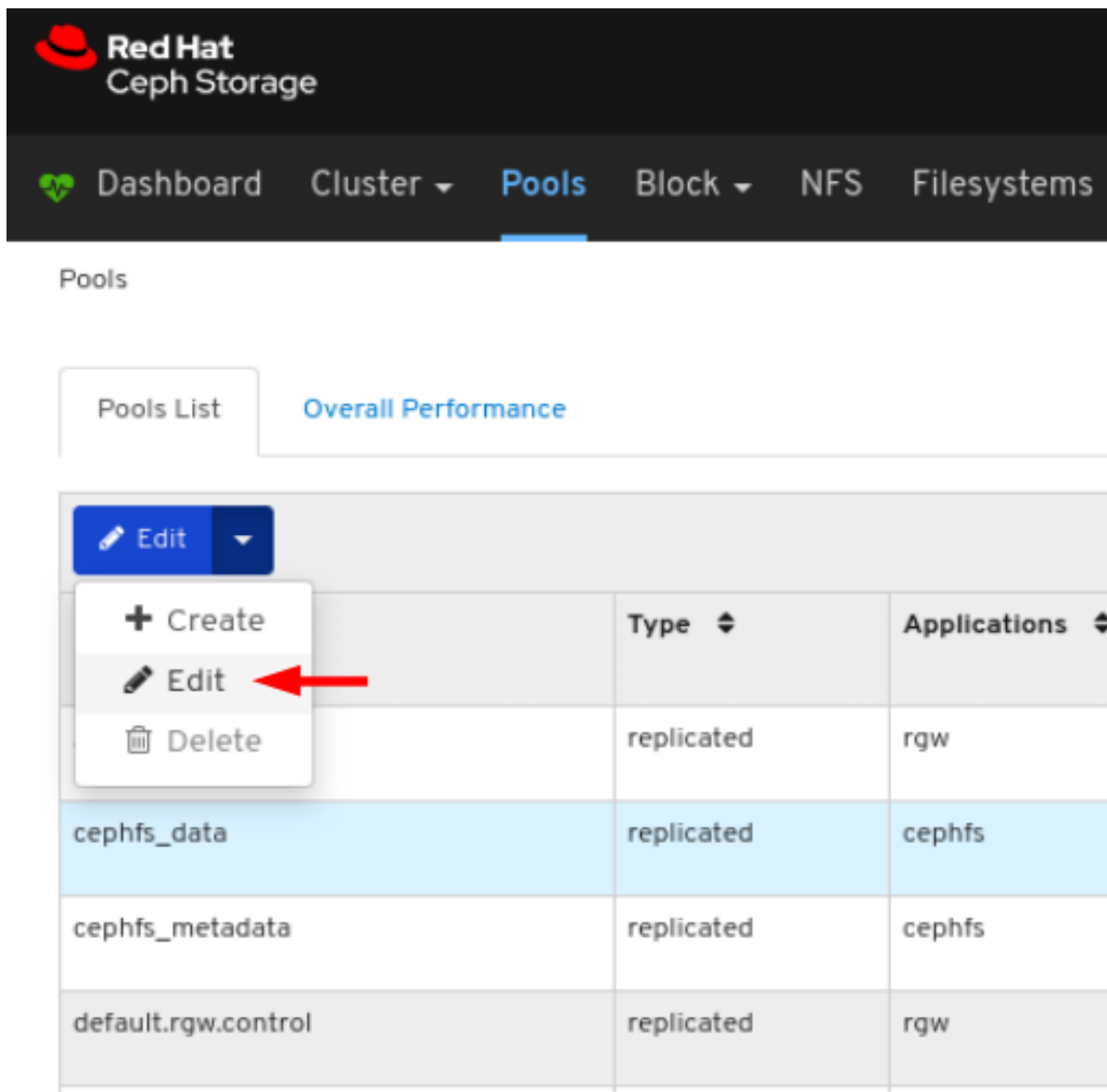


The screenshot shows the Red Hat Ceph Storage interface. At the top, there is a navigation bar with the Red Hat logo and the text "Red Hat Ceph Storage". Below this, there are several menu items: "Dashboard", "Cluster", "Pools", "Block", and "NFS". The "Pools" menu item is highlighted with a blue underline. Below the navigation bar, the word "Pools" is displayed. There are two tabs: "Pools List" and "Overall Performance". The "Pools List" tab is active. Below the tabs, there is a table with the following data:

Name	Type
.rgw.root	replicated
cephfs_data	replicated
cephfs_metadata	replicated

A red arrow points to the "cephfs\_data" row in the table. Above the table, there is a blue button with a pencil icon and the text "Edit".

- Select *Edit* in the *Edit* drop-down:



The screenshot shows the Red Hat Ceph Storage dashboard. The top navigation bar includes the Red Hat logo and the text "Red Hat Ceph Storage". Below the navigation bar, there are tabs for "Dashboard", "Cluster", "Pools", "Block", "NFS", and "Filesystems". The "Pools" tab is selected. Underneath, there are two sub-tabs: "Pools List" and "Overall Performance". The "Pools List" tab is active, showing a table of storage pools. A context menu is open over the "cephfs\_data" row, with the "Edit" option highlighted by a red arrow.

	Type	Applications
	replicated	rgw
cephfs_data	replicated	cephfs
cephfs_metadata	replicated	cephfs
default.rgw.control	replicated	rgw

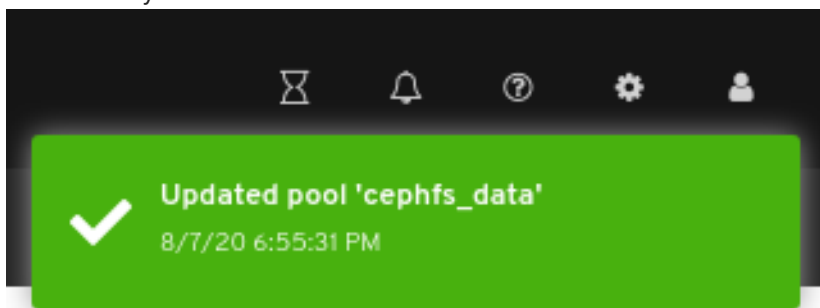
5. In the dialog window, edit the required parameters and click the *EditPool* button:

The screenshot shows the Red Hat Ceph Storage dashboard with the 'EditPool' form. The form includes the following fields and options:

- Name \***:
- Pool type \***:
- Placement groups \***:  [Calculation help](#)
- Replicated size \***:
- Applications**:
- Compression Mode**:

Buttons for 'EditPool' and 'Cancel' are located at the bottom right of the form.

- A notifications towards the top right corner of the page indicates the pool was updated 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.

### 7.10.3. Deleting pools

The Red Hat Ceph Storage Dashboard allows deletion of pools.

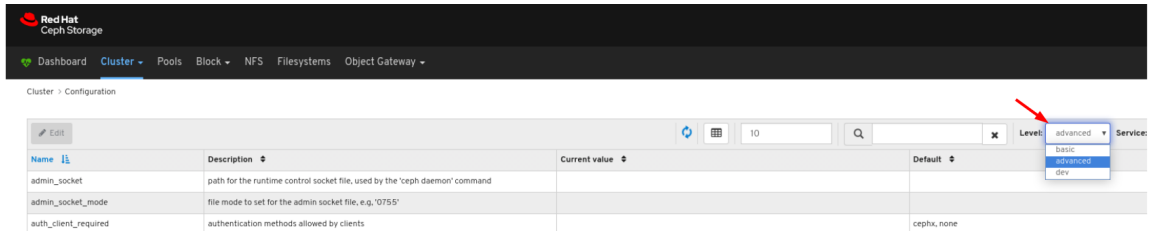
#### Prerequisites

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

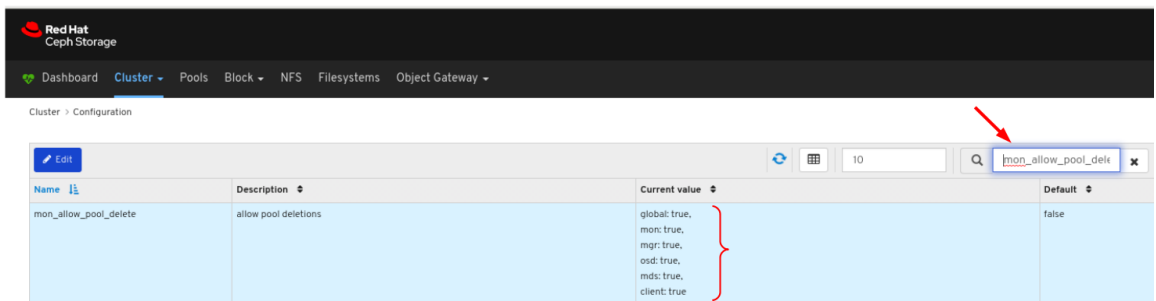
- A pool is created.

## Procedure

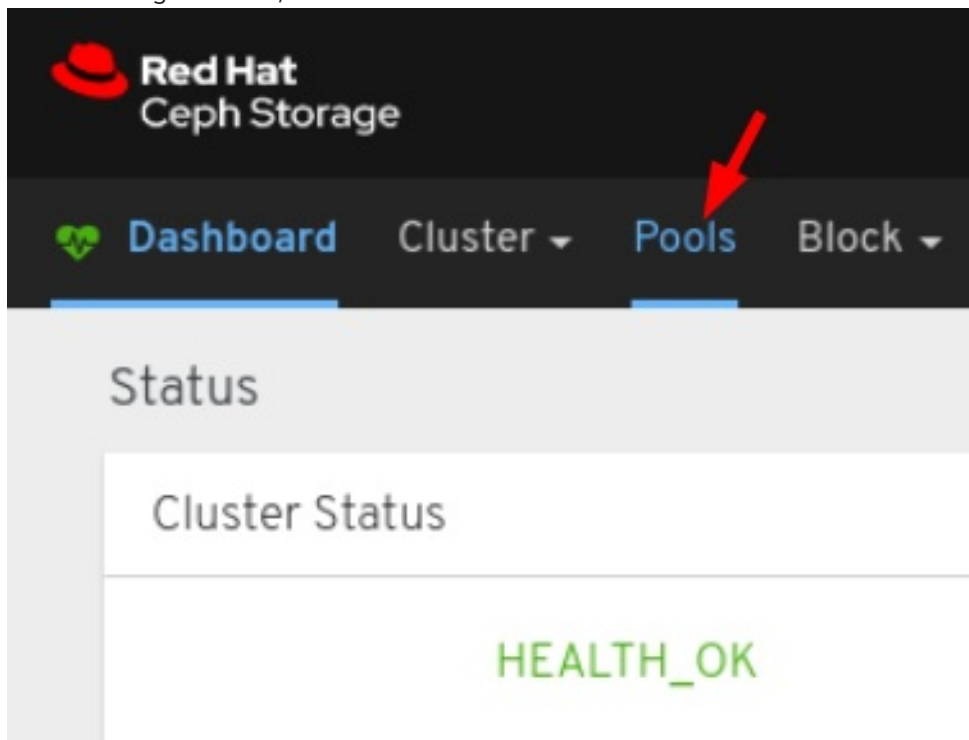
1. Log in to the dashboard.
2. Ensure the values of **mon\_allow\_pool\_delete** is set to **true**:
  - a. On the navigation bar, click *Cluster* and then click *Configuration*.
  - b. In the *Level*/drop-down menu, select **Advanced**:



- c. Search for **mon\_allow\_pool\_delete** and set the values to **true**



3. On the navigation bar, click *Pools*:



4. To delete the pool, click on its row:

Red Hat  
Ceph Storage

Dashboard Cluster **Pools** Block NFS Filesystems Object Gateway

Pools

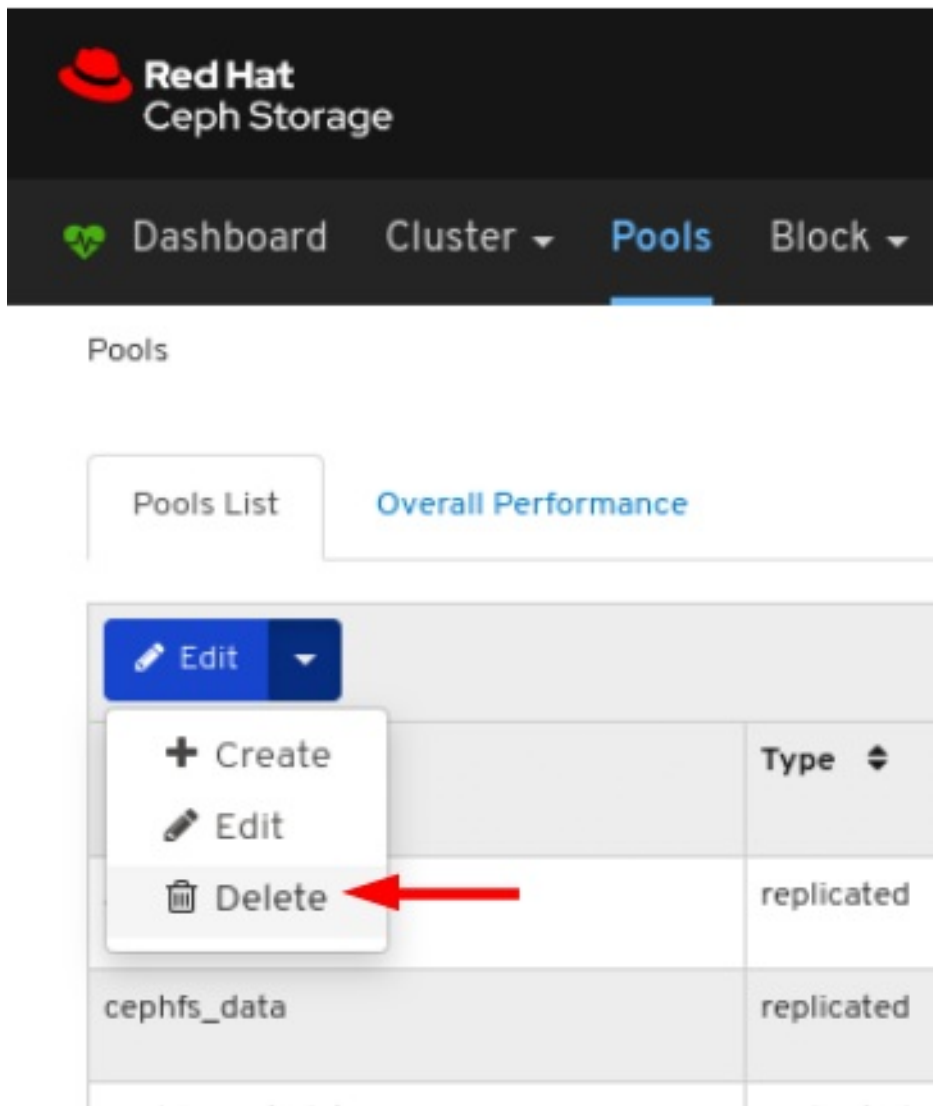
Pools List Overall Performance

Edit

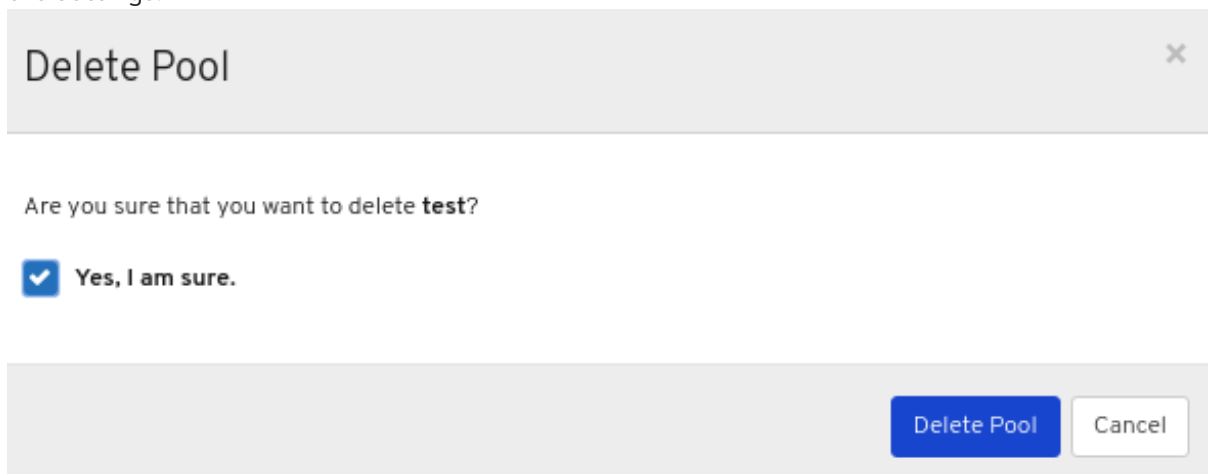
Name	Type	Applications	PG Status
.rgw.root	replicated	rgw	32 active+
cephfs_data	replicated	cephfs	8 active+
cephfs_metadata	replicated	cephfs	8 active+
default.rgw.control	replicated	rgw	32 active+
default.rgw.log	replicated	rgw	32 active+
default.rgw.meta	replicated	rgw	32 active+
test	replicated		512 active+

1 selected / 7 total

5. Select *Delete* in the *Edit* drop-down:

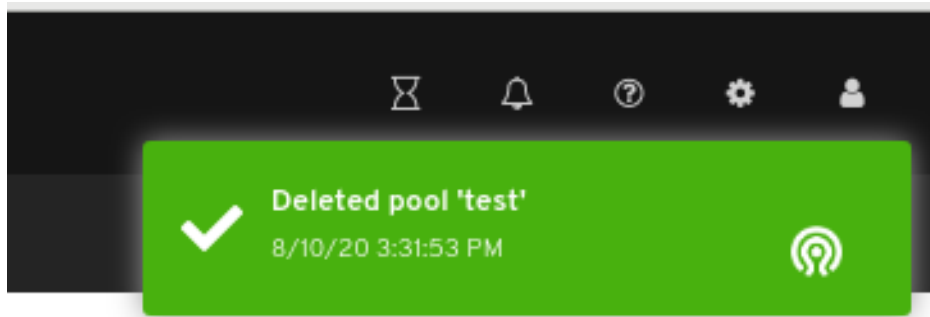


6. In the *Delete Pool* dialog window, Click the *Yes, I am sure* box and then Click *Delete Pool* to save the settings:



7. A notification towards the top right corner of the page indicates the pool was deleted successfully.





### Additional Resources

- See the [Ceph pools](#) in the *Red Hat Ceph Storage Architecture Guide* for more information.
- See the [Monitoring Configuration](#) in the *Red Hat Ceph Storage Dashboard Guide* for more information.
- See the [Pool values](#) in the *Red Hat Ceph Storage Storage Strategies Guide* for more information on Compression Modes.

## CHAPTER 8. OBJECT GATEWAY

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

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.

Object gateway functions are divided between daemon functions, user functions, and bucket functions.

### 8.1. PREREQUISITES

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

### 8.2. OBJECT GATEWAY DAEMON FUNCTIONS

As a storage administrator, the Red Hat Ceph Storage Dashboard allows you to view and monitor information about Ceph Object Gateway daemons.

#### 8.2.1. 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.

#### 8.2.2. Viewing object gateway daemons

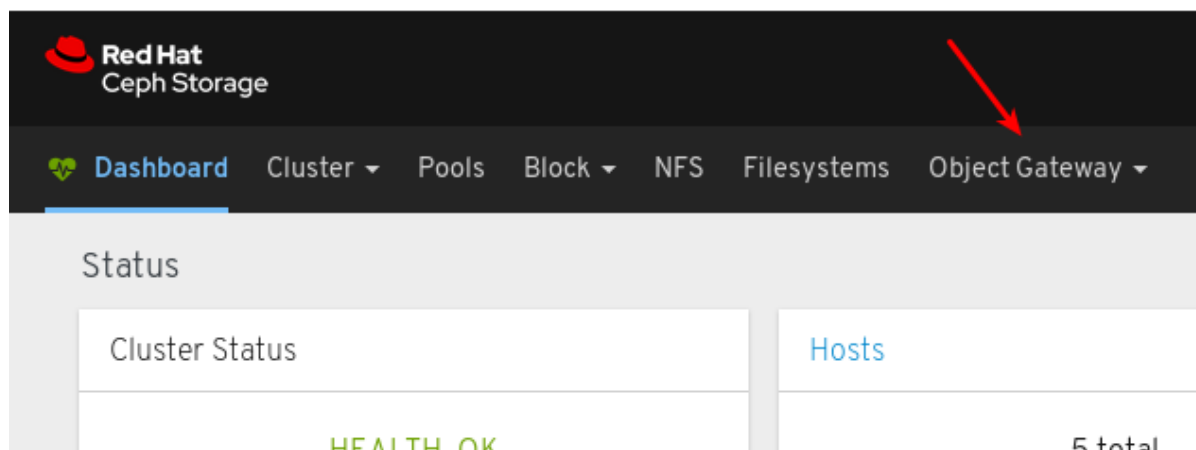
The dashboard allows you to view a list of all Ceph Object Gateway daemons.

##### Prerequisites

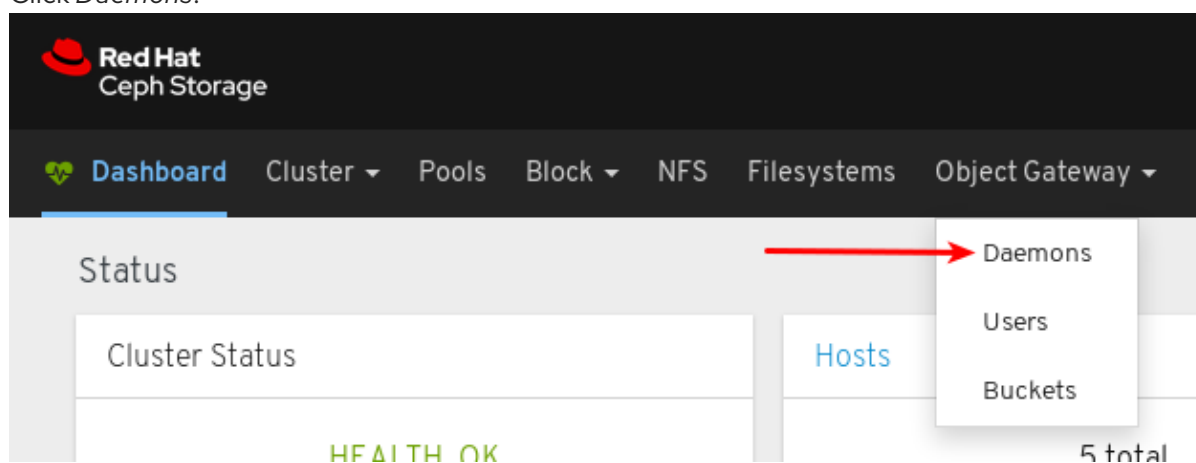
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.

##### Procedure

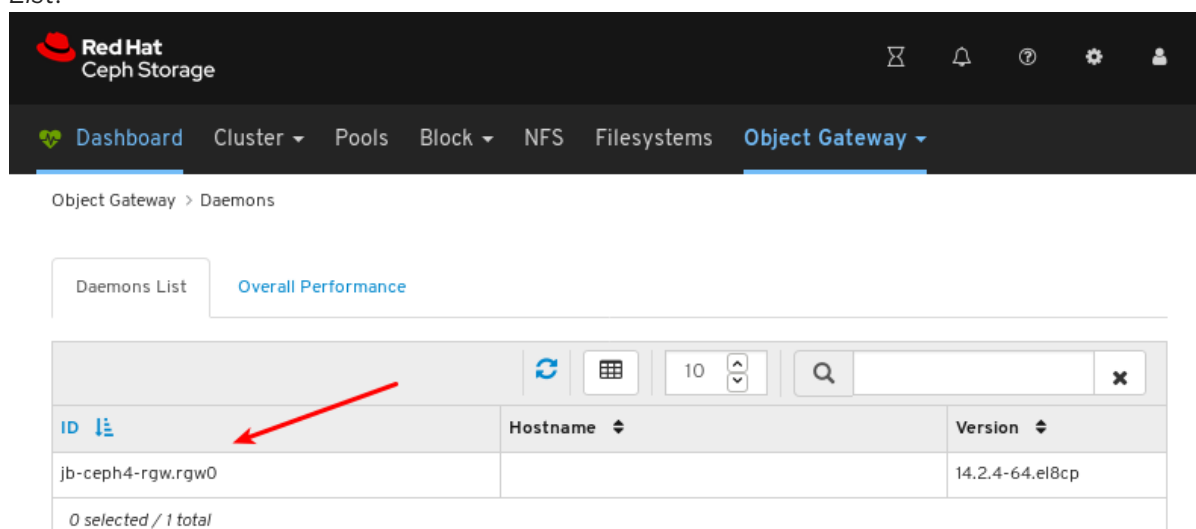
1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*.



3. Click *Daemons*.



4. In the example below, you can see a daemon with the ID **jb-ceph4-rgw.rgw0** in the *Daemons List*.



5. To view details, select the daemon by clicking the row for **jb-ceph4-rgw.rgw0**:

Object Gateway > Daemons

Daemons List Overall Performance

ID	Hostname	Version
jb-ceph4-rgw.rgw0		14.2.4-64.el8cp

1 selected / 1 total

Details Performance Counters Performance Details

arch	x86_64
ceph_release	nautilus
ceph_version	ceph version 14.2.4-64.el8cp (43d92db934e1265ece3959d495f9548d34d1672e) nautilus (stable)
ceph_version_short	14.2.4-64.el8cp
cpu	Intel Core Processor (Skylake, IBRS)
distro	rhel
distro_description	Red Hat Enterprise Linux 8.1 (Ootpa)
distro_version	8.1
frontend_config#0	beast endpoint=192.168.122.193:8080
frontend_type#0	beast
hostname	jb-ceph4-rgw
kernel_description	#1 SMP Mon Nov 11 12:58:36 UTC 2019
kernel_version	4.18.0-147.0.3.el8_1.x86_64
mem_swap_kb	1048572
mem_total_kb	840952
num_handles	1
os	Linux
pid	972
zone_id	a29af04c-be82-44e7-b41d-ca34170c808b
zone_name	default
zonegroup_id	a37c4870-ee26-4678-ac54-9b1025b2d787
zonegroup_name	default

You can see the zone name the daemon is serving is **default**.

### Additional Resources

- For information on how to install the Ceph Object Gateway, see [Installing the Ceph Object Gateway](#) in the [Installation Guide](#).

- For information on how to add object gateway login credentials to the dashboard, see [Adding object gateway login credentials to the dashboard](#) in the [Dashboard guide](#).

## 8.3. OBJECT GATEWAY USER FUNCTIONS

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

### 8.3.1. 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.

### 8.3.2. Viewing object gateway users

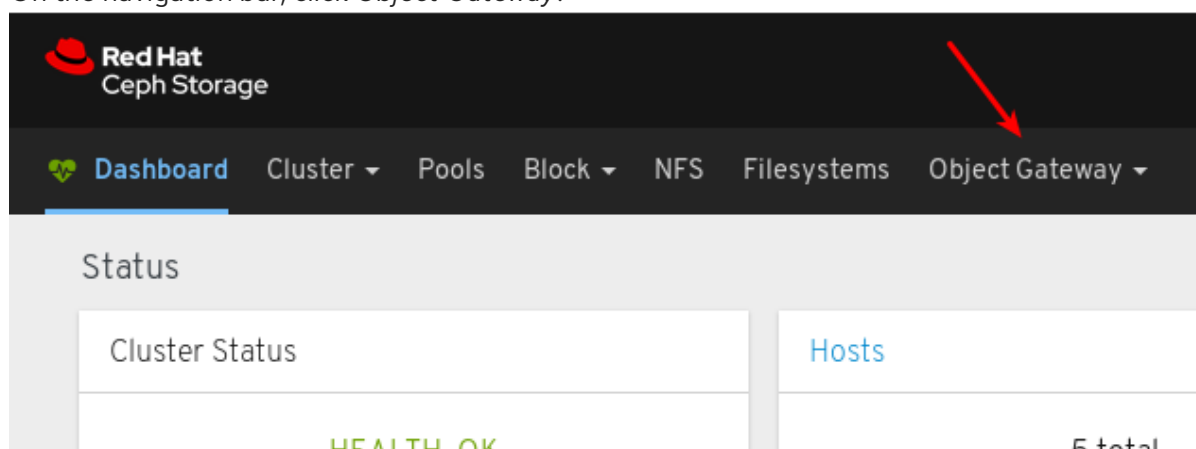
The dashboard allows you to view a list of all Ceph Object Gateway users.

#### Prerequisites

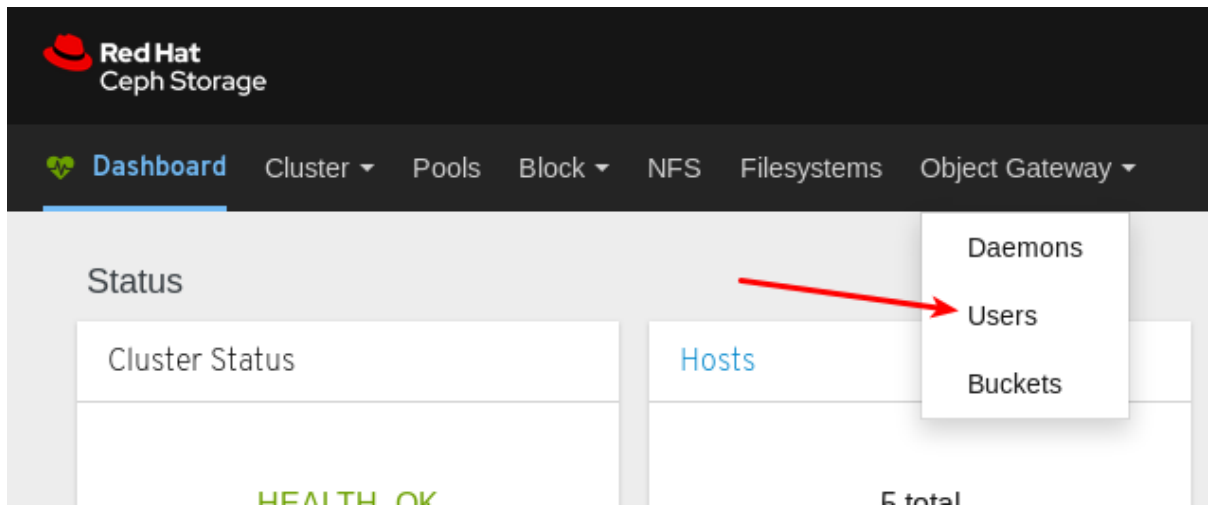
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.

#### Procedure

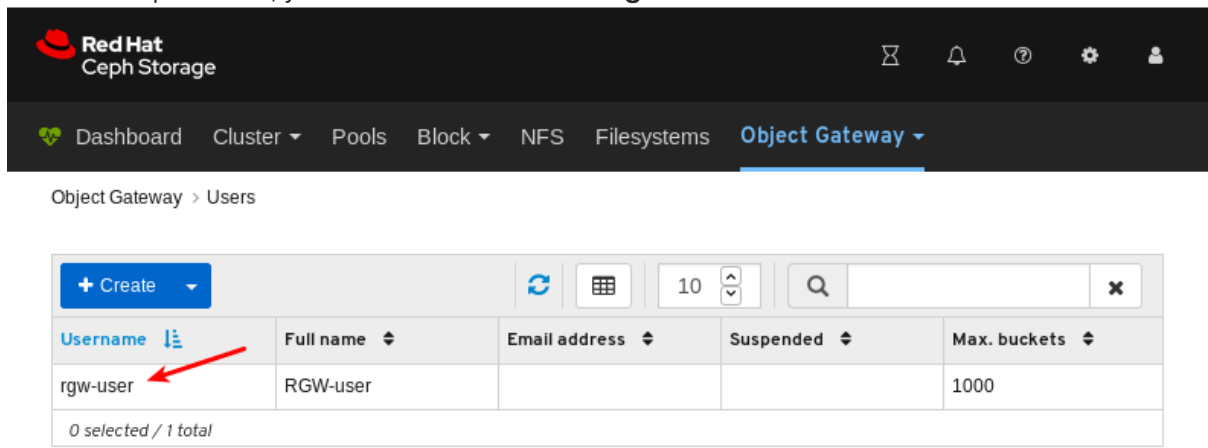
1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*.



3. Click *Users*.



4. In the example below, you can see a user named **rgw-user** in the table.



5. To view details, select the user by clicking the row for **rgw-user**:

Object Gateway > Users

Username	Full name	Email address	Suspended	Max. buckets
rgw-user	RGW-user			1000

1 selected / 1 total

Details **Keys**

Username	rgw-user
Full name	RGW-user
Suspended	No
System	
Maximum buckets	1000

User quota

Enabled	No
Maximum size	Unlimited
Maximum objects	Unlimited

Bucket quota

Enabled	No
Maximum size	Unlimited
Maximum objects	Unlimited

### Additional Resources

- For information on how to install the Ceph Object Gateway, see [Installing the Ceph Object Gateway](#) in the [Installation Guide](#).
- For information on how to add object gateway login credentials to the dashboard, see [Adding object gateway login credentials to the dashboard](#) in the [Dashboard guide](#).
- For more information on the Ceph Object Gateway, see the [Object Gateway Configuration and Administration Guide](#).

### 8.3.3. Creating object gateway users

The dashboard allows you to create Ceph Object Gateway users.

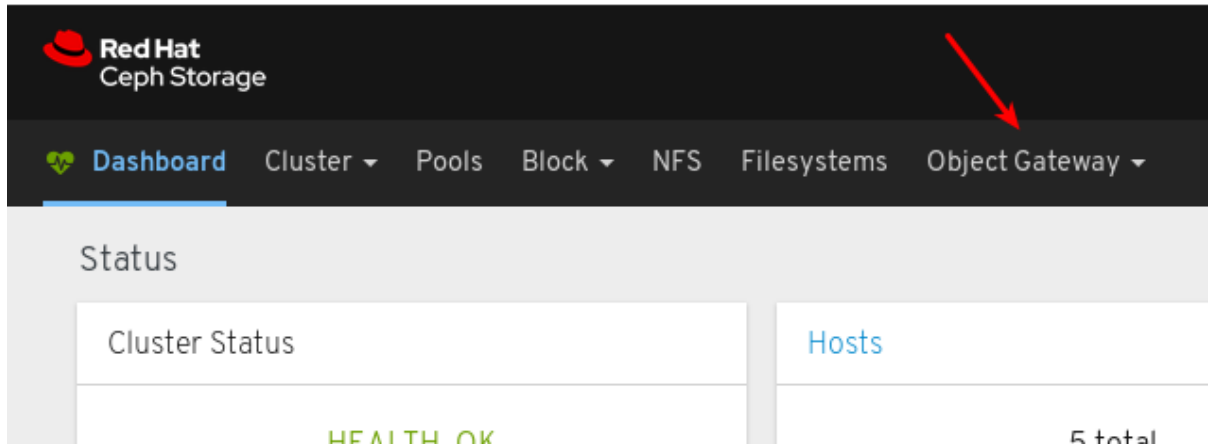
#### Prerequisites

- A running Red Hat Ceph Storage cluster.

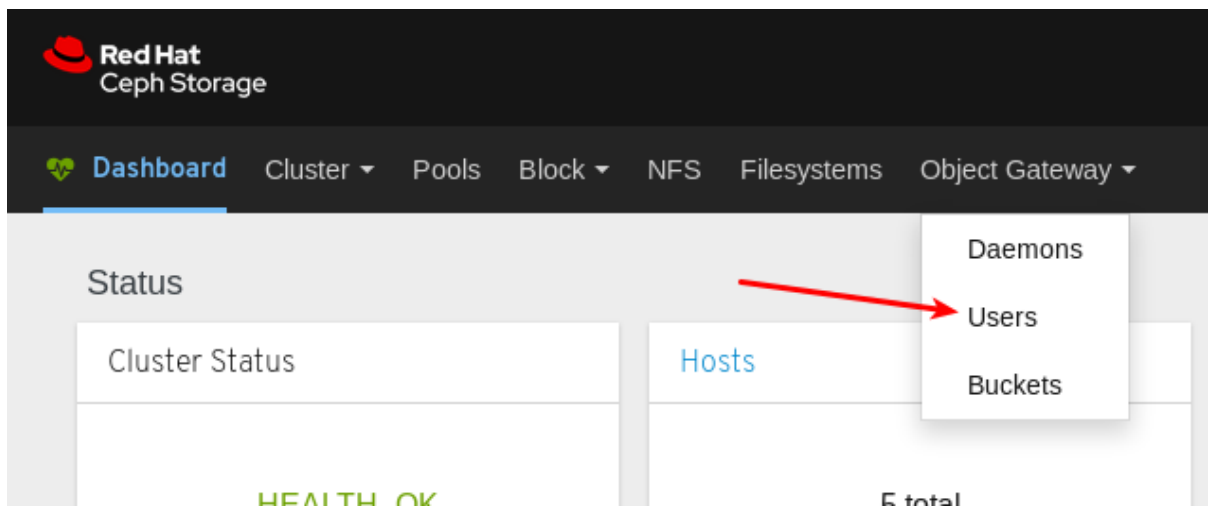
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.

## Procedure

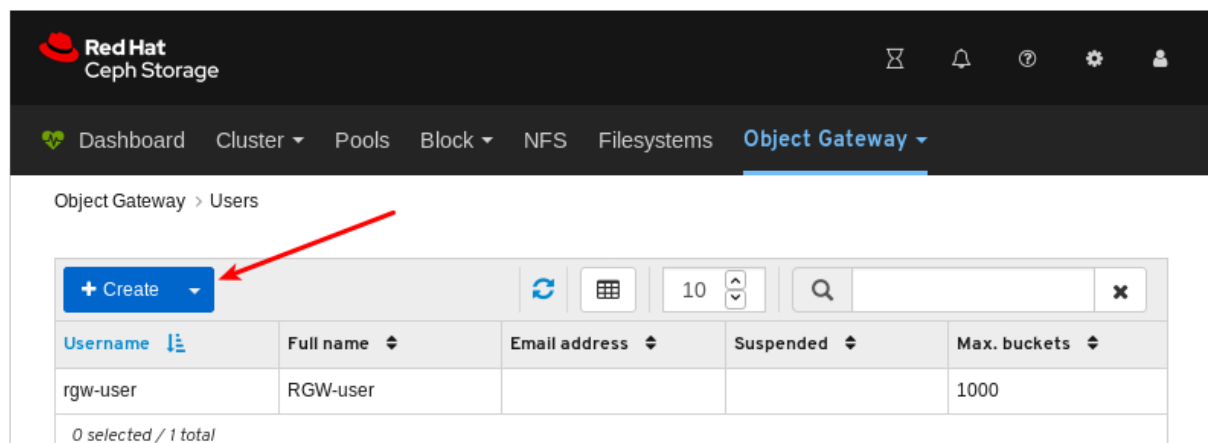
1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*.



3. Click *Users*.

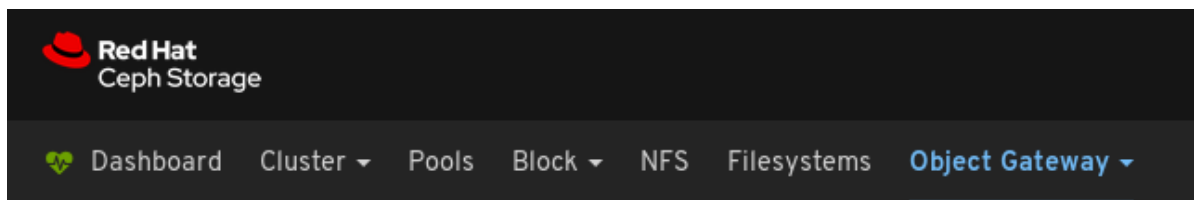


4. Click *Create*.



5. Set the user name, full name, and edit the maximum number of buckets if required.





Object Gateway > Users > Create

### Create User

**1** Username \*

**2** Full name \*

Email address

**3** Max. buckets \*

Suspended

#### S3 key

Auto-generate key

#### User quota

Enabled

#### Bucket quota

Enabled

6. Optional: Set an email address or suspended status.

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems **Object Gateway**

Object Gateway > Users > Create

### Create User

**Username \*** rgw-user-2

**Full name \*** RGW user 2

**Email address** root@jb-ceph4-mon

**Max. buckets \*** 1000

Suspended

#### S3 key

Auto-generate key

#### User quota

Enabled

#### Bucket quota

Enabled

**Create User** **Cancel**

7. Optional: Set a custom access key and secret key by unchecking *Auto-generate key*.

a. Uncheck *Auto-generate key*:

Suspended

#### S3 key

Auto-generate key

#### User quota

Enabled

b. Set the access key and secret key:

Suspended

### S3 key

Auto-generate key

**1** Access key \*

**2** Secret key \*

User quota

8. Optional: Set a user quota.

a. Check *Enabled* under *User quota*:

SECRET KEY

User quota

Enabled

Bucket quota

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

SECRET KEY

User quota

Enabled

Unlimited size

Unlimited objects

Bucket quota

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

secret key [REDACTED]

---

### User quota

Enabled

Unlimited size

→ **Max. size \***

Unlimited objects

→ **Max. objects \***

---

### Bucket quota

9. Optional: Set a bucket quota.

a. Check *Enabled* under *Bucket quota*:

max. objects

---

### Bucket quota

→  Enabled

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

max. objects

---

### Bucket quota

Enabled

→  Unlimited size

→  Unlimited objects

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

**max. objects** 1000000

### Bucket quota

Enabled

Unlimited size

→ **Max. size \*** 1 MiB

Unlimited objects

→ **Max. objects \*** 1000000

10. Finalize the user creation by clicking *Create User*.

**Max. objects \*** 1000000

→ **Create User** **Cancel**

11. Verify the user creation was successful. A notification confirms the user was created and the user can be seen in the table of users.

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems **Object Gateway**

Object Gateway > Users

Created Object Gateway user "rgw-user-2"  
12/15/19 11:46:30 AM

Username	Full name	Email address	Suspended	Max. buckets
rgw-user	RGW-user			1000
rgw-user-2	RGW user 2	root@jb-ceph4-mon	<input checked="" type="checkbox"/>	1000

0 selected / 2 total

## Additional Resources

- For information on how to install the Ceph Object Gateway, see [Installing the Ceph Object Gateway](#) in the [Installation Guide](#).
- For information on how to add object gateway login credentials to the dashboard, see [Adding object gateway login credentials to the dashboard](#) in the [Dashboard guide](#).
- For more information on the Ceph Object Gateway, see the [Object Gateway Configuration and Administration Guide](#).

### 8.3.4. Editing object gateway users

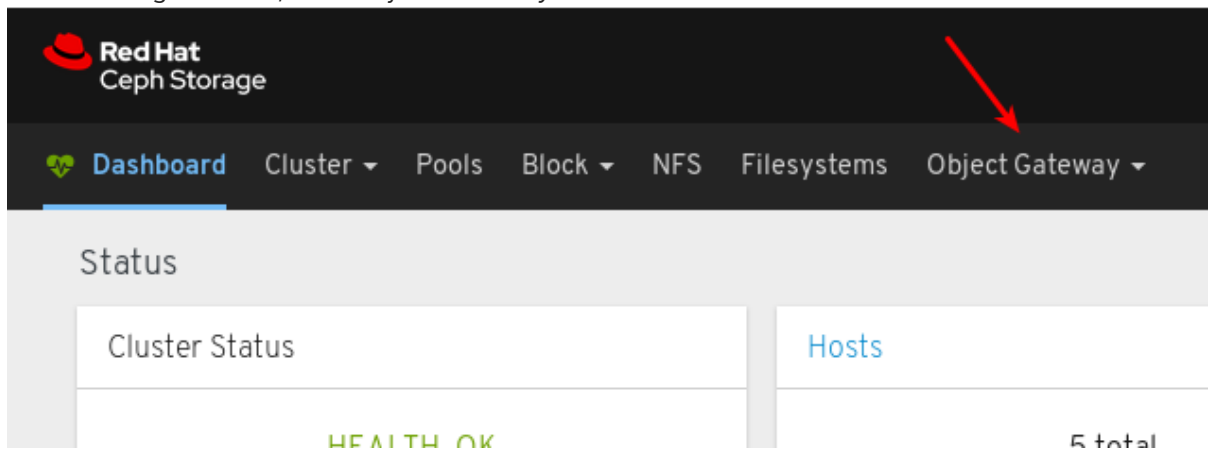
The dashboard allows you to edit Ceph Object Gateway users.

## Prerequisites

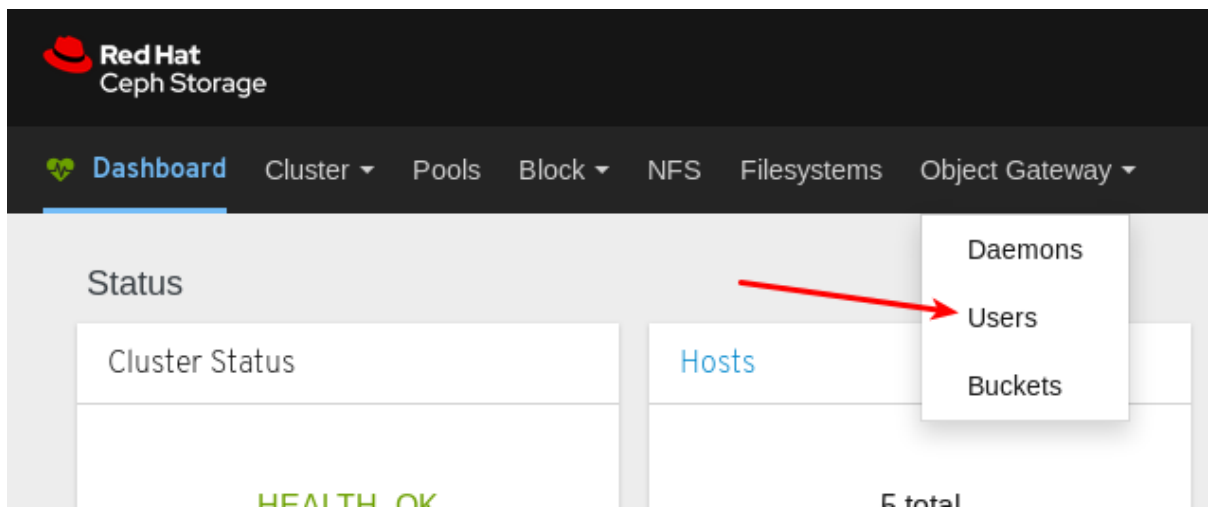
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.
- A Ceph Object Gateway user created.

## Procedure

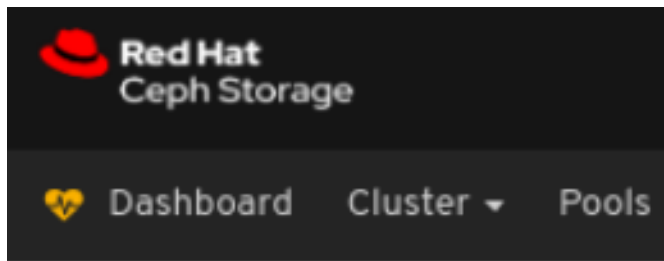
1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*:



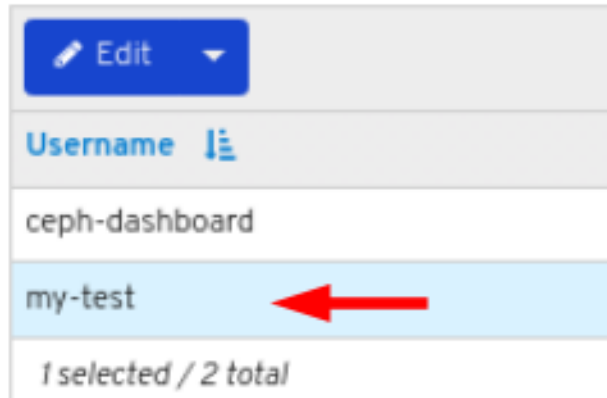
3. Click *Users*:



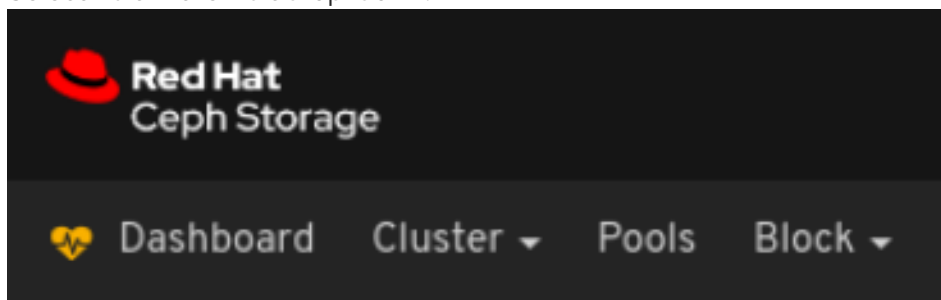
4. To edit the user capabilities, click its row:



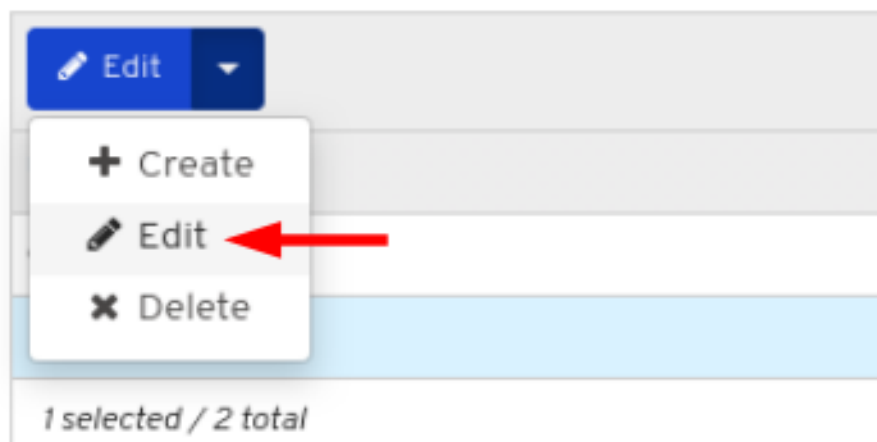
Object Gateway > Users



5. Select *Edit* In the *Edit* drop-down:



Object Gateway > Users



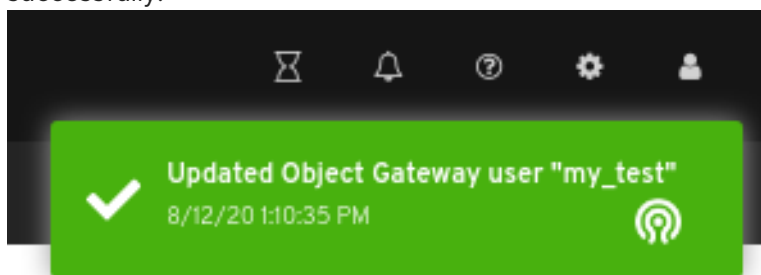
6. In the *EditUser* window, edit the required parameters and click the *EditUser* button:

The screenshot shows the 'EditUser' form in the Red Hat Ceph Storage 4 Dashboard. The form is titled 'EditUser' and contains the following fields and sections:

- Username:** my\_test
- Full name:** My\_test
- Email address:** testing@test.com
- Max. buckets:** 1000
- Suspended
- Subusers:** There are no subusers. [+ CreateSubuser](#)
- Keys:**
  - S3:** my\_test (with search, eye, and close icons). [+ CreateS3 Key](#)
  - Swift:** There are no keys.
- Capabilities:** There are no capabilities. [+ AddCapability](#)
- User quota:**  Enabled
- Bucket quota:**  Enabled

At the bottom right of the form, there are two buttons: [EditUser](#) and [Cancel](#).

7. A notification towards the top right corner of the page indicates the user was updated successfully.



### 8.3.5. Deleting object gateway users

The dashboard allows you to delete Ceph Object Gateway users.

#### Prerequisites

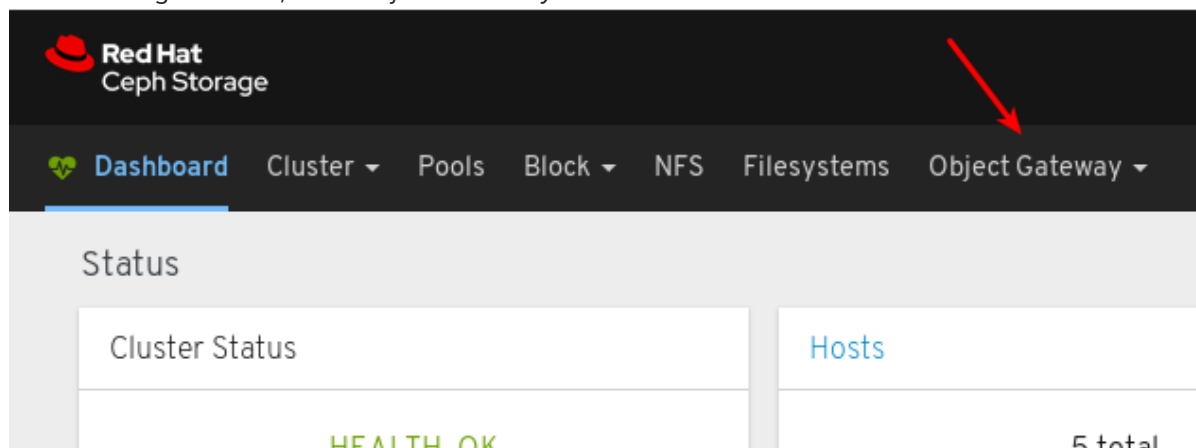
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.



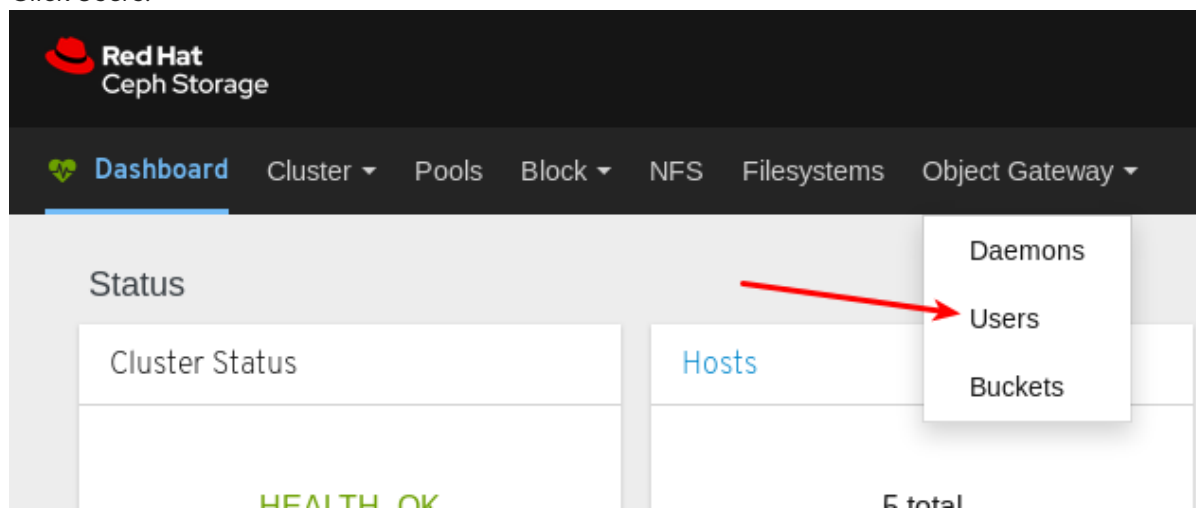
- Object gateway login credentials are added to the dashboard.
- A Ceph Object Gateway user created.

### Procedure

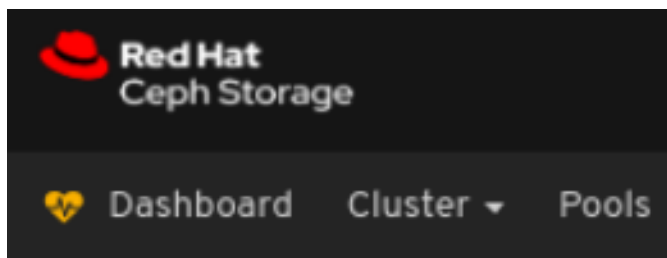
1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*:



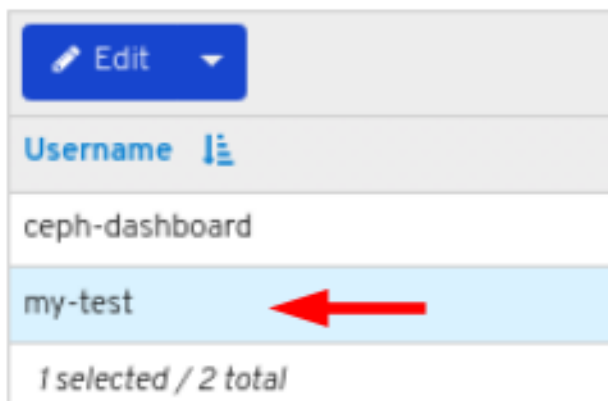
3. Click *Users*:



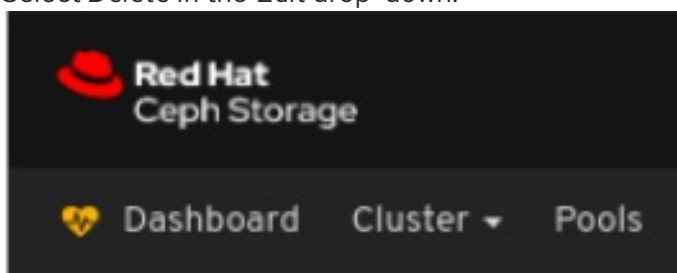
4. To delete the user, click its row:



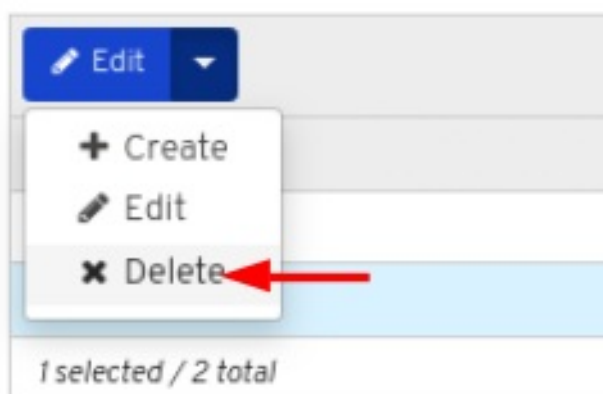
Object Gateway > Users



5. Select *Delete* In the *Edit* drop-down:



Object Gateway > Users



6. In the *Delete User* dialog window, Click the *Yes, I am sure* box and then Click *Delete User* to save the settings:

Delete user
✕

Are you sure that you want to delete **my\_test**?

Yes, I am sure.

Delete user
Cancel

### 8.3.6. Creating object gateway subusers

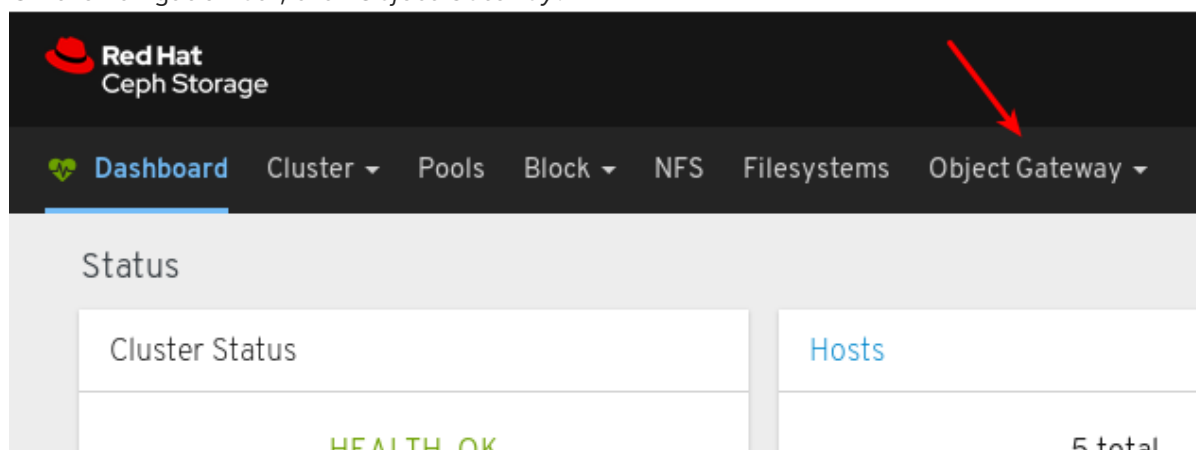
A subuser is associated with a user of the S3 interface. The dashboard allows you to create Ceph Object Gateway subusers.

#### Prerequisites

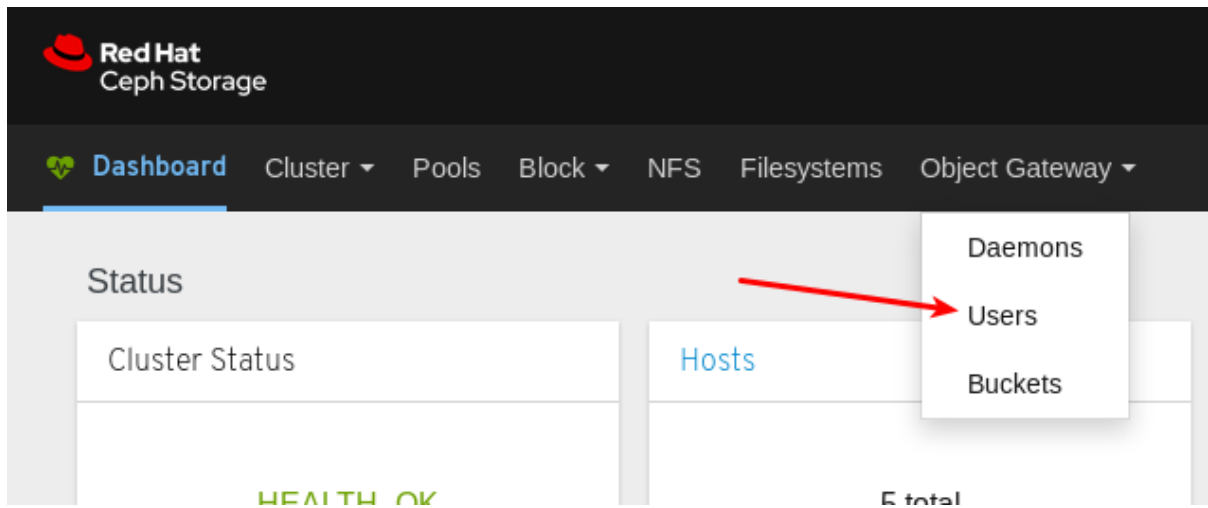
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.
- Object gateway user is created.

#### Procedure

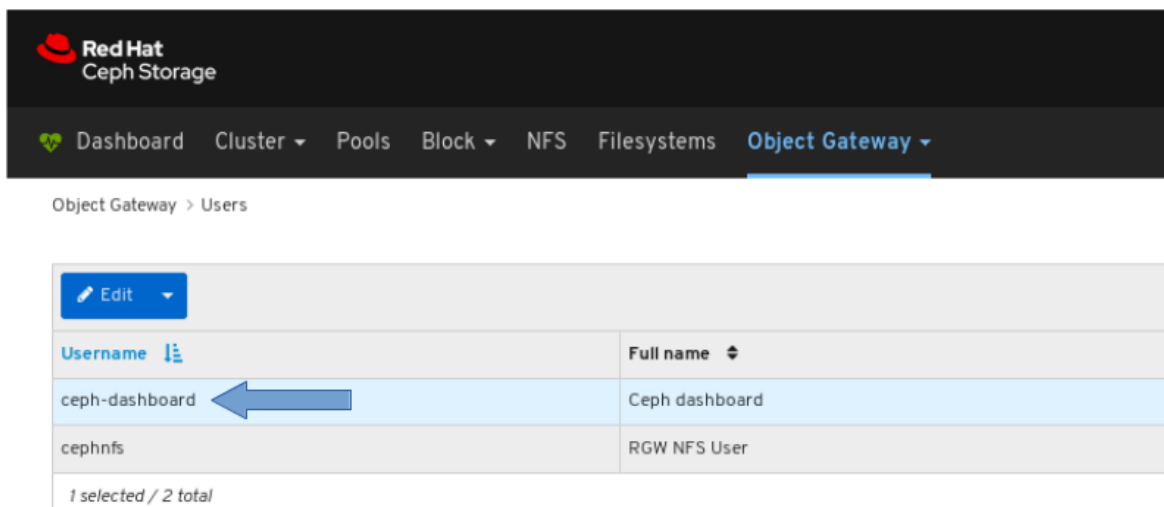
1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*.



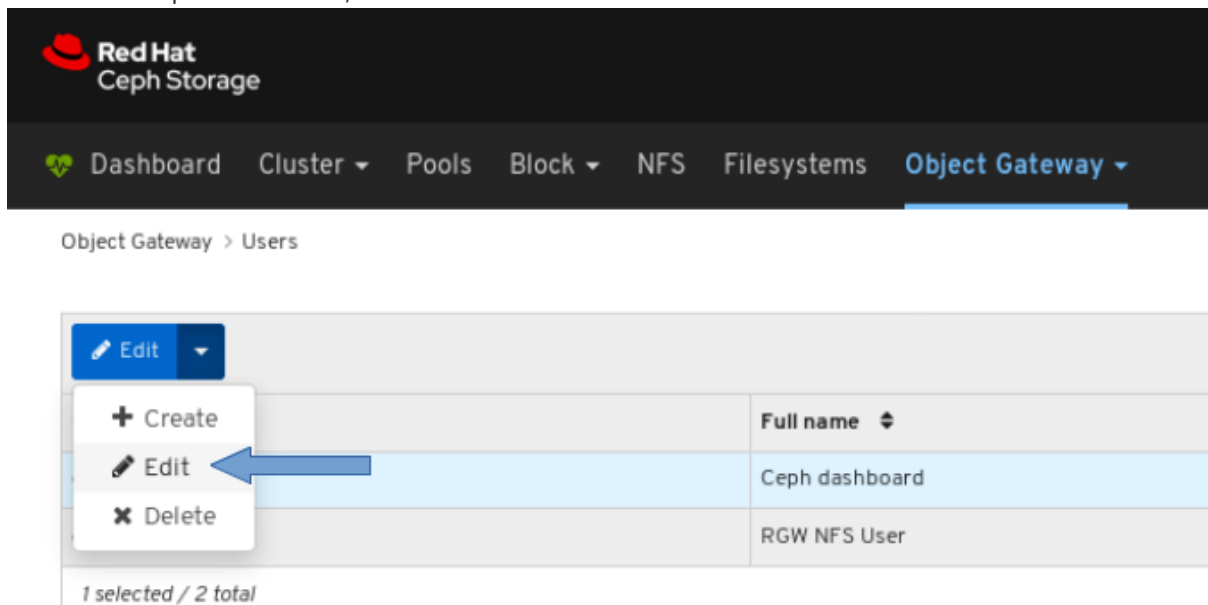
3. Click *Users* from the drop-down menu.



- In the example below, you can see a user named **ceph-dashboard** in the table. Select the user by clicking its row.



- Click *Edit* drop-down menu, and then select *Edit*.



- Click the *+CreateSubuser* button.

Red Hat  
Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

Object Gateway > Users > Edit

### EditUser

**Username**

**Full name**

**Email address**

**Max. buckets \***

Suspended

**Subusers**

There are no subusers. ➔

**Keys**

Protocol	Key	Visibility	Actions
S3	<input type="text" value="ceph-dashboard"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Enter a *Subuser* name and select the appropriate permissions.

### CreateSubuser

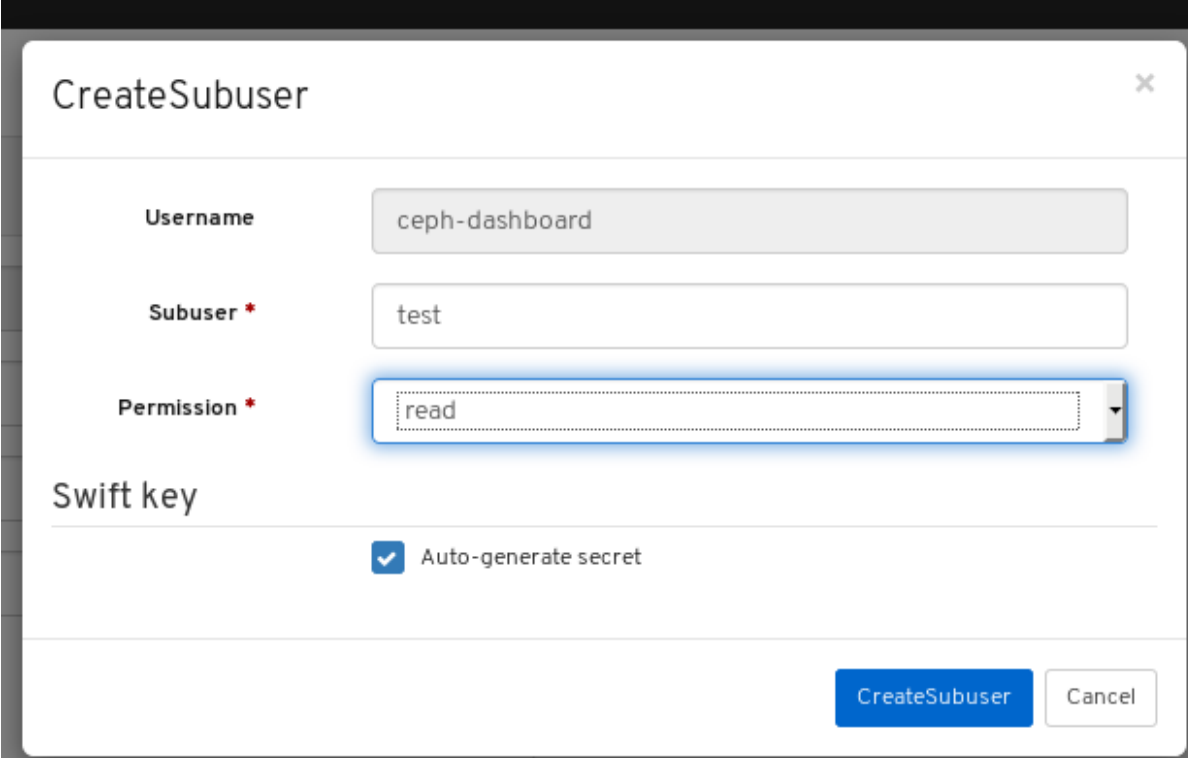
**Username**

**Subuser \***

**Permission \***

**Swift key**

- Click the *Auto-generate secret* box and then click the *Create Subuser* button.



**CreateSubuser**

**Username** ceph-dashboard

**Subuser \*** test

**Permission \*** read

**Swift key**

Auto-generate secret

CreateSubuser Cancel

**NOTE**

By clicking *Auto-generate-secret* checkbox, the secret key for object gateway is generated automatically.

9. Click the *Edit user* button in the *Edit User* window.

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems **Object Gateway**

Object Gateway > Users > Edit

### EditUser

Username:

Full name:

Email address:

Max. buckets:

Suspended

#### Subusers

#### Keys

S3:

Swift:

#### Capabilities

There are no capabilities.

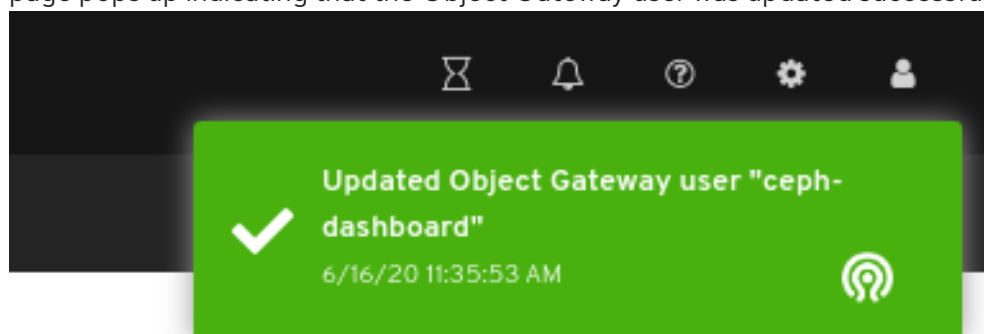
#### User quota

Enabled

#### Bucket quota

Enabled

10. Verify the subuser creation was successful. A notification towards the top right corner of the page pops up indicating that the Object Gateway user was updated successfully.



### Additional Resources

- For information on how to install the Ceph Object Gateway, see the [Installing the Ceph Object Gateway](#) in the [Red Hat Ceph Storage Installation Guide](#).
- For information on how to manually add object gateway login credentials to the dashboard, see the [Manually adding object gateway login credentials to the dashboard](#) in the [Dashboard guide](#).
- For more information on the Ceph Object Gateway, see the [Object Gateway Configuration and Administration Guide](#).

## 8.4. OBJECT GATEWAY BUCKET FUNCTIONS

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

### 8.4.1. 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.

### 8.4.2. Viewing object gateway buckets

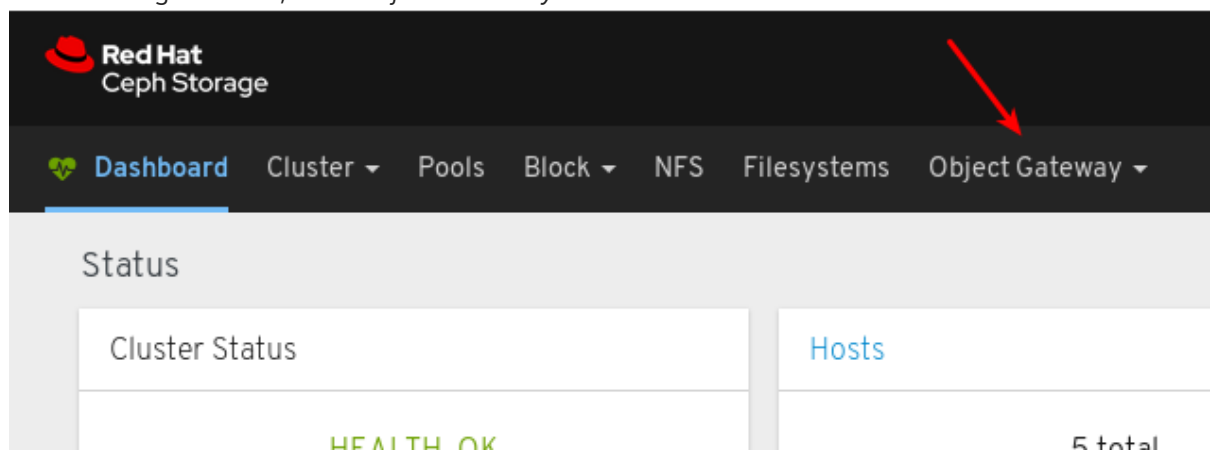
The dashboard allows you to view and manage Ceph Object Gateway buckets.

#### 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.
- An object gateway bucket is created.

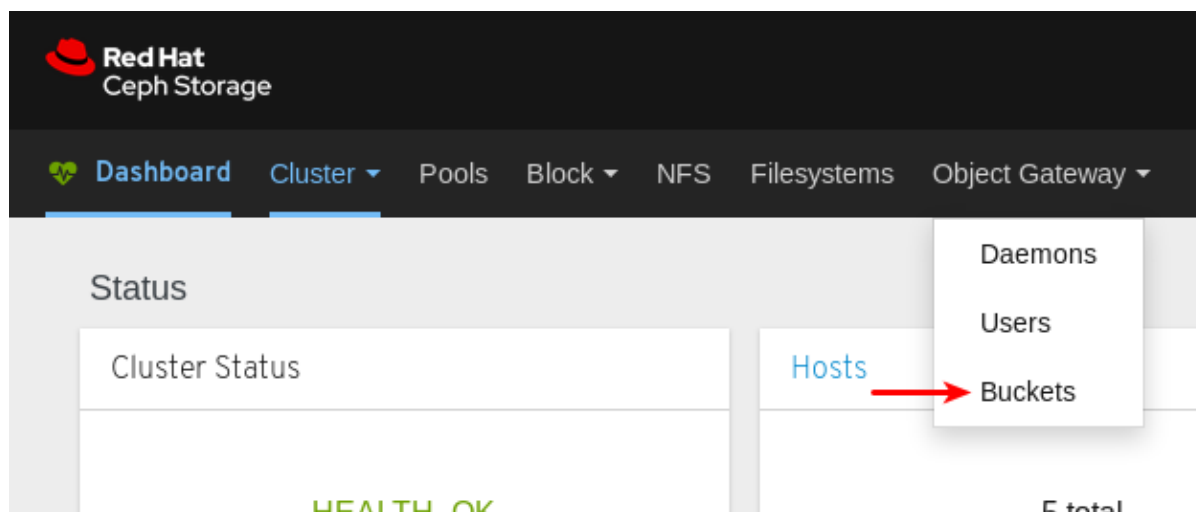
#### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*.

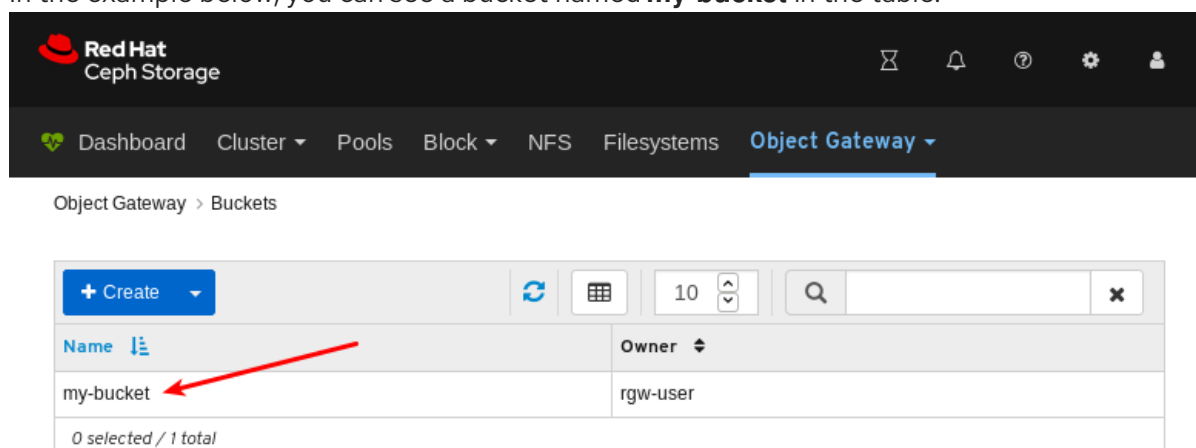


3. Click *Buckets*.





4. In the example below, you can see a bucket named **my-bucket** in the table.



5. To view details, select the bucket by clicking the row for **my-bucket**.

Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems **Object Gateway**

Object Gateway > Buckets

Edit 10

Name	Owner
my-bucket	rgw-user

1 selected / 1 total

Details

Name	my-bucket
ID	a29af04c-be82-44e7-b41d-ca34170c808b.214123.1
Owner	rgw-user
Index type	Normal
Placement rule	default-placement
Marker	a29af04c-be82-44e7-b41d-ca34170c808b.214123.1
Maximum marker	0#
Version	0#1
Master version	0#0
Modification time	12/3/19 5:00:18 PM
Zonegroup	a37c4870-ee26-4678-ac54-9b1025b2d787

Bucket quota

Enabled	No
Maximum size	Unlimited
Maximum objects	Unlimited

### Additional Resources

- For information on how to install the Ceph Object Gateway, see [Installing the Ceph Object Gateway](#) in the [Installation Guide](#).
- For information on how to add object gateway login credentials to the dashboard, see [Adding object gateway login credentials to the dashboard](#) in the [Dashboard guide](#).
- For more information on the Ceph Object Gateway, see the [Object Gateway Configuration and Administration Guide](#).

### 8.4.3. Creating object gateway buckets

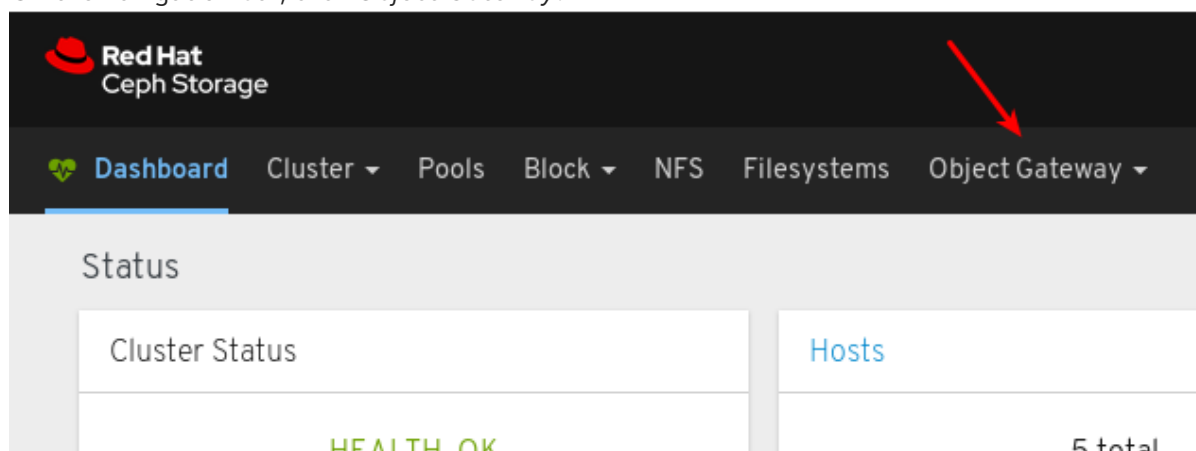
The dashboard allows you to create Ceph Object Gateway buckets.

## Prerequisites

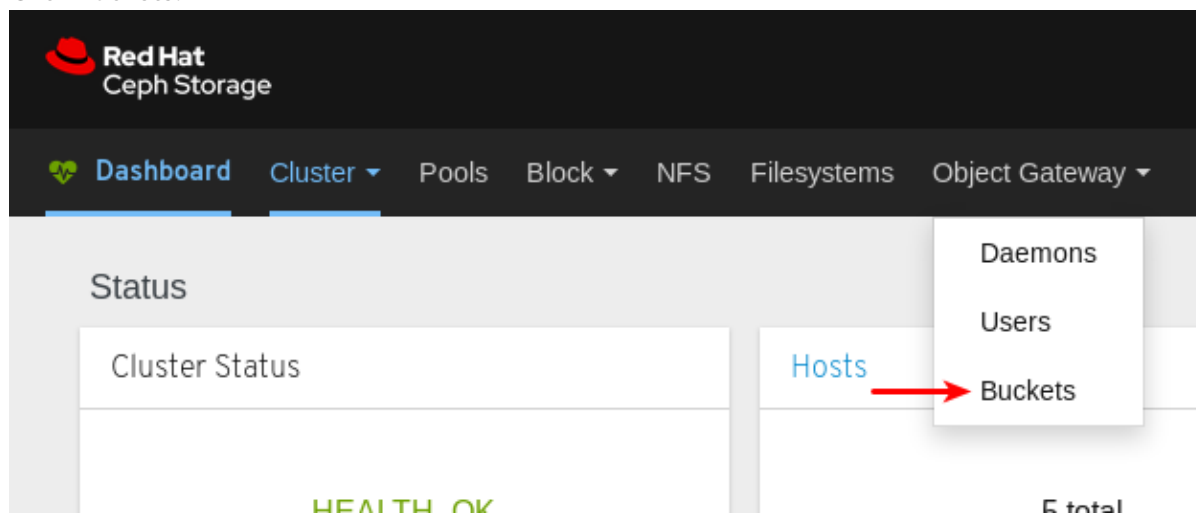
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- The Ceph Object Gateway is installed.
- Object gateway login credentials are added to the dashboard.
- An object gateway user that is not suspended is created.

## Procedure

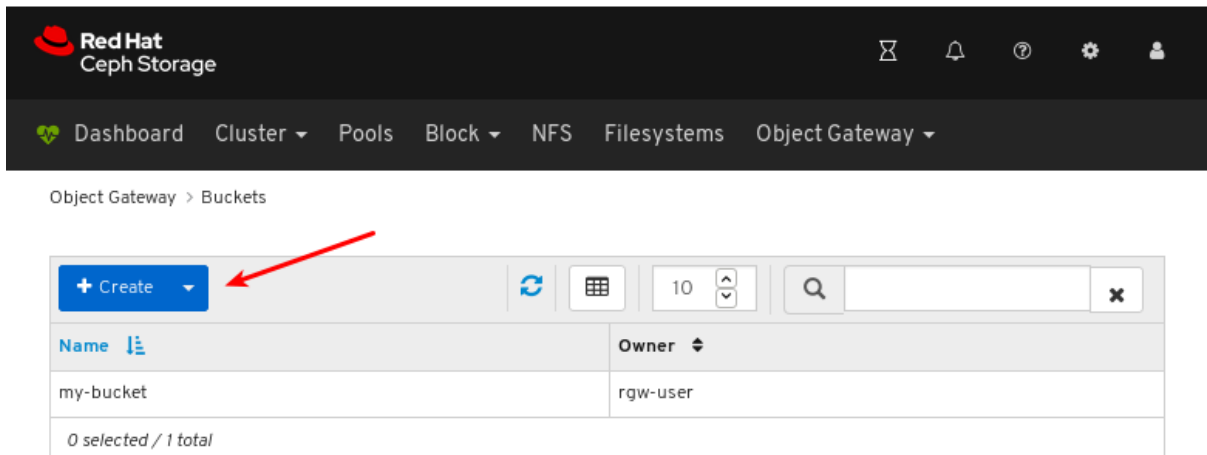
1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*.



3. Click *Buckets*.



4. Click *Create*.



Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

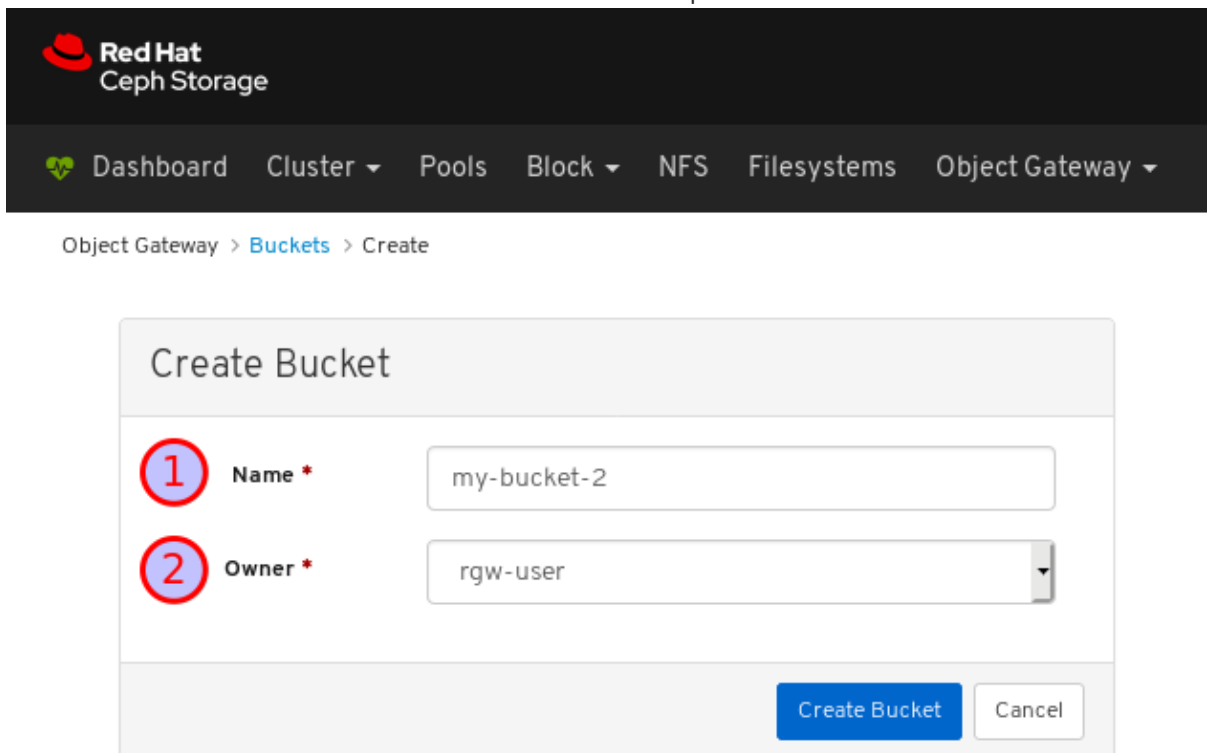
Object Gateway > Buckets

+ Create

Name	Owner
my-bucket	rgw-user

0 selected / 1 total

5. Enter a value for *Name* and select a user that is not suspended.



Red Hat Ceph Storage

Dashboard Cluster Pools Block NFS Filesystems Object Gateway

Object Gateway > Buckets > Create

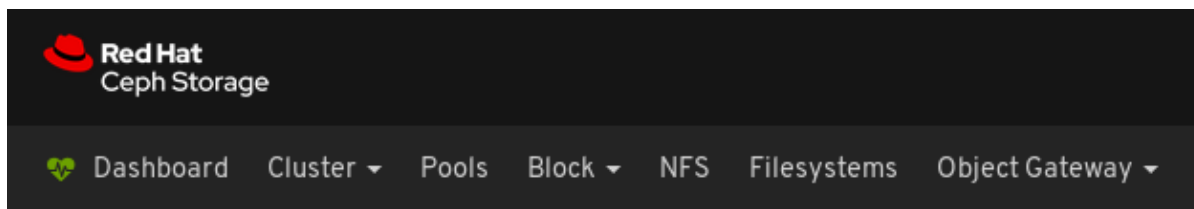
### Create Bucket

1 Name \* my-bucket-2

2 Owner \* rgw-user

Create Bucket Cancel

6. Click *Create bucket*.



Object Gateway > Buckets > Create

### Create Bucket

**Name \***

**Owner \***

→

- Verify the bucket creation was successful. A notification confirms the bucket was created and the bucket can be seen in the table of buckets.

Object Gateway > Buckets

Name	Owner
my-bucket	rgw-user
my-bucket-2	rgw-user

## Additional Resources

- For information on how to install the Ceph Object Gateway, see [Installing the Ceph Object Gateway](#) in the [Installation Guide](#).
- For information on how to add object gateway login credentials to the dashboard, see [Adding object gateway login credentials to the dashboard](#) in the [Dashboard guide](#).
- For more information on the Ceph Object Gateway, see the [Object Gateway Configuration and Administration Guide](#).

### 8.4.4. Editing object gateway buckets

The dashboard allows you to edit Ceph Object Gateway buckets.

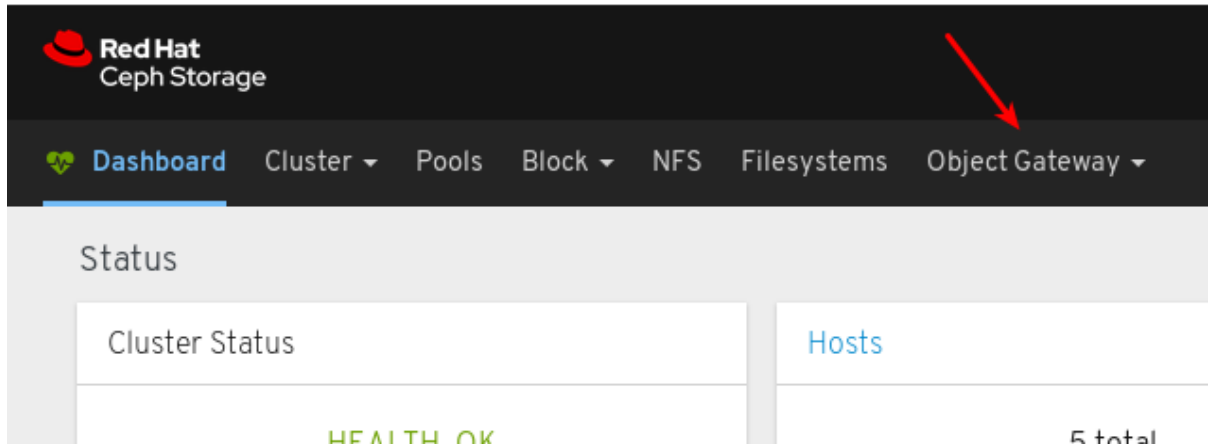
#### Prerequisites

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

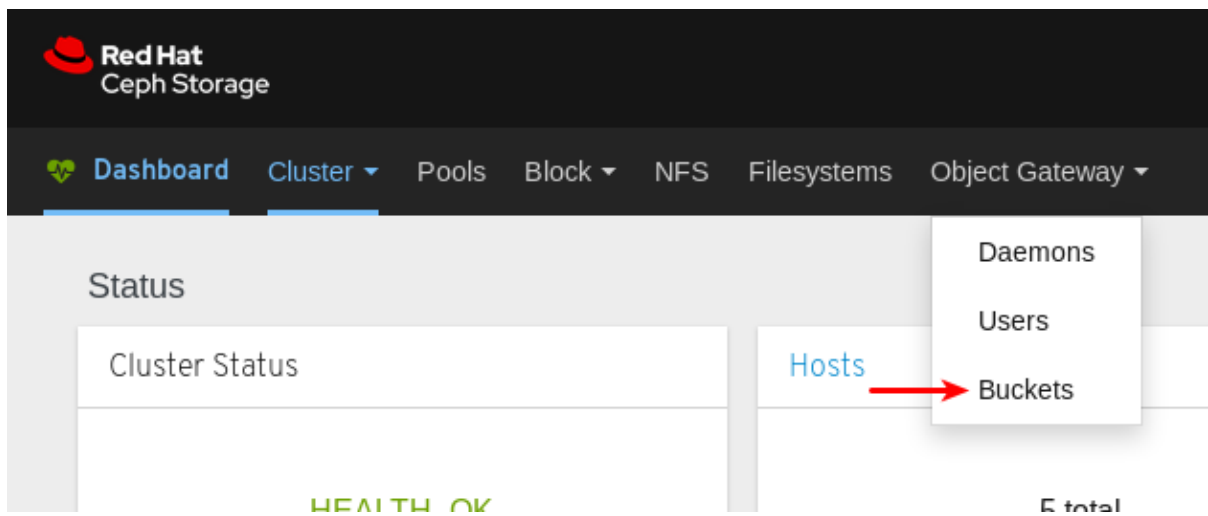
- Object gateway login credentials are added to the dashboard.
- A Ceph Object Gateway user that is not suspended is created.
- A Ceph Object Gateway bucket created.

## Procedure

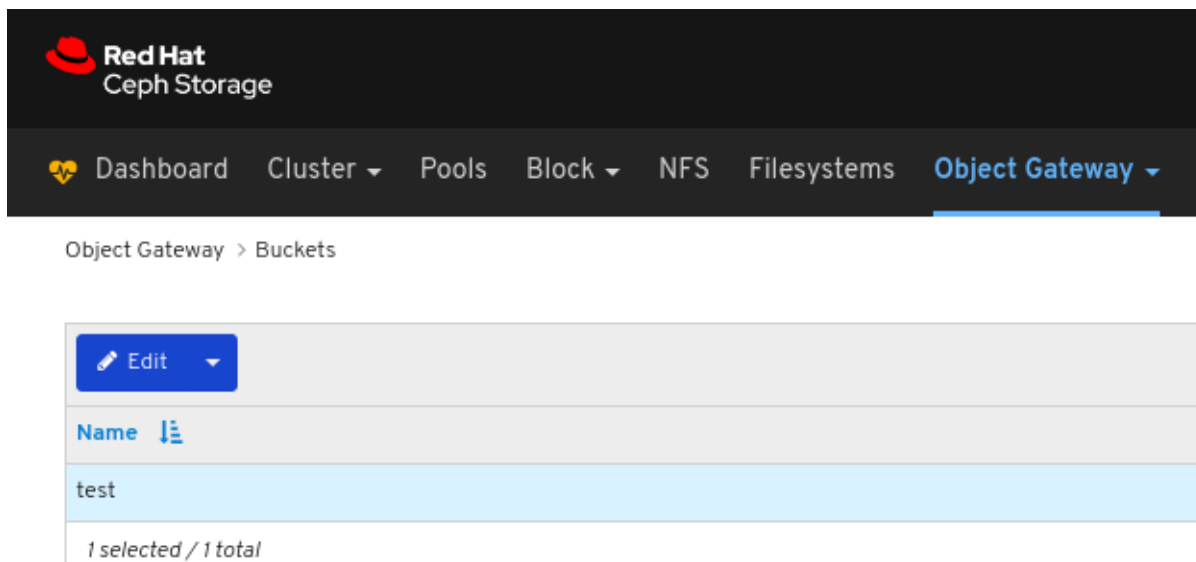
1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*:



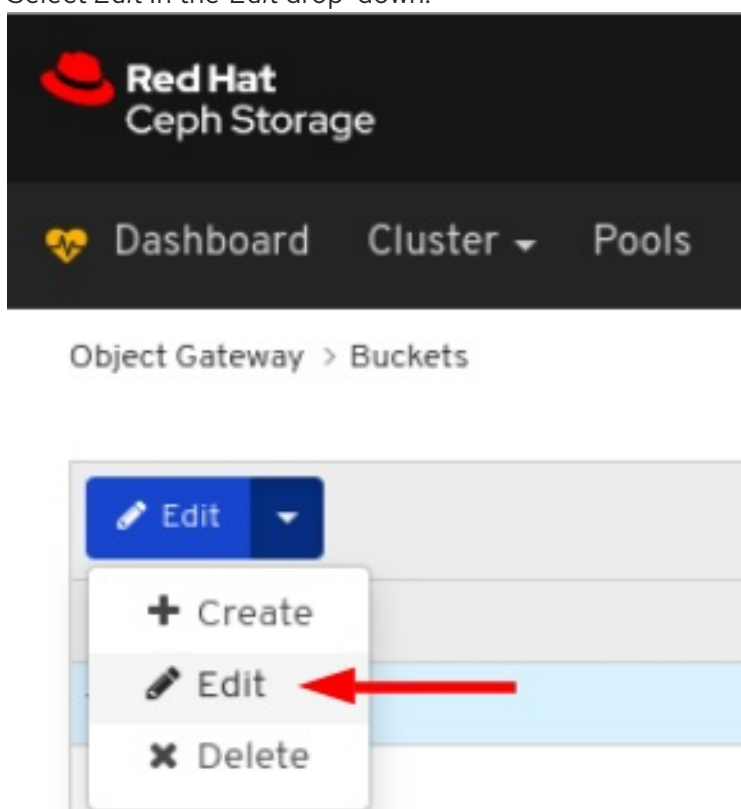
3. Click *Buckets*:



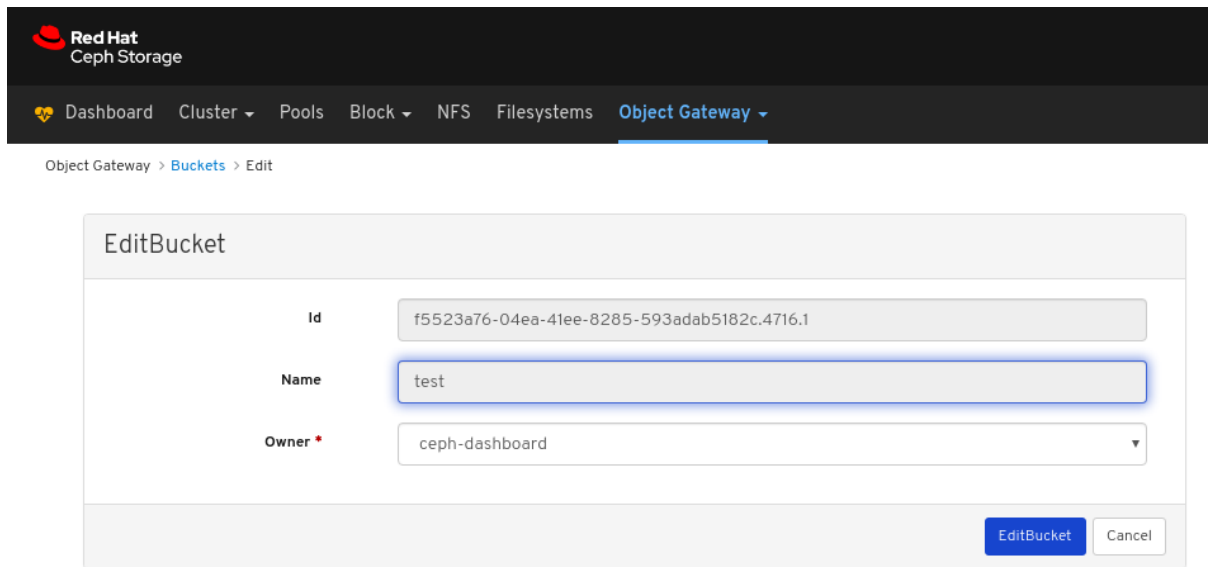
4. To edit the bucket, click its row:



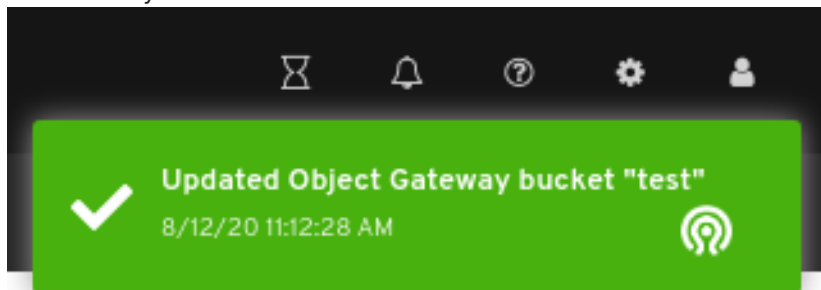
5. Select *Edit* in the *Edit* drop-down:



6. In the *EditBucket* window, edit the required parameters and click the *EditBucket* button:



- A notification towards the top right corner of the page indicates the bucket was updated successfully.



### Additional Resources

- See the [Installing the Ceph Object Gateway](#) section in the *Red Hat Ceph Storage Installation Guide* for more information.
- See the [Adding object gateway login credentials to the dashboard](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more information.

### 8.4.5. Deleting object gateway buckets

The dashboard allows you to delete Ceph Object Gateway buckets.

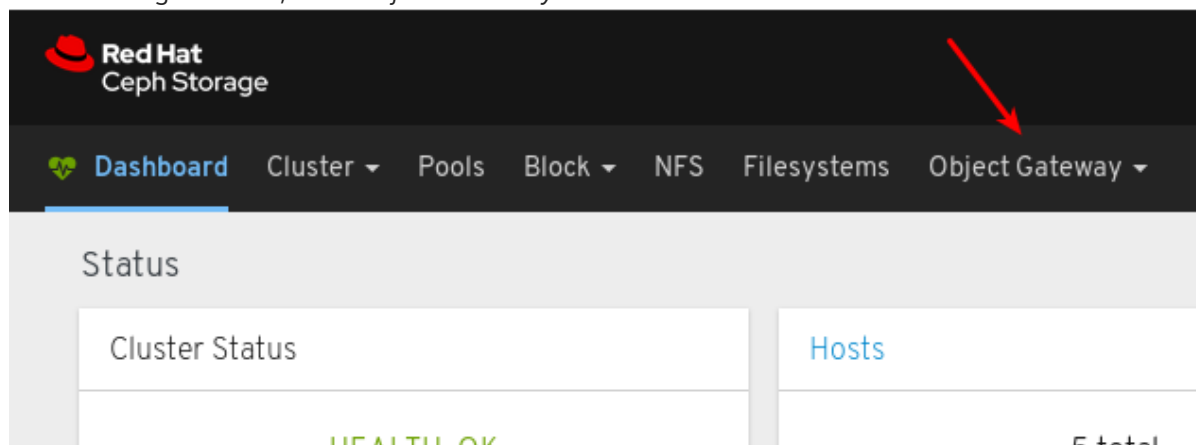
#### Prerequisites

- 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 that is not suspended is created.
- A Ceph Object Gateway bucket created.

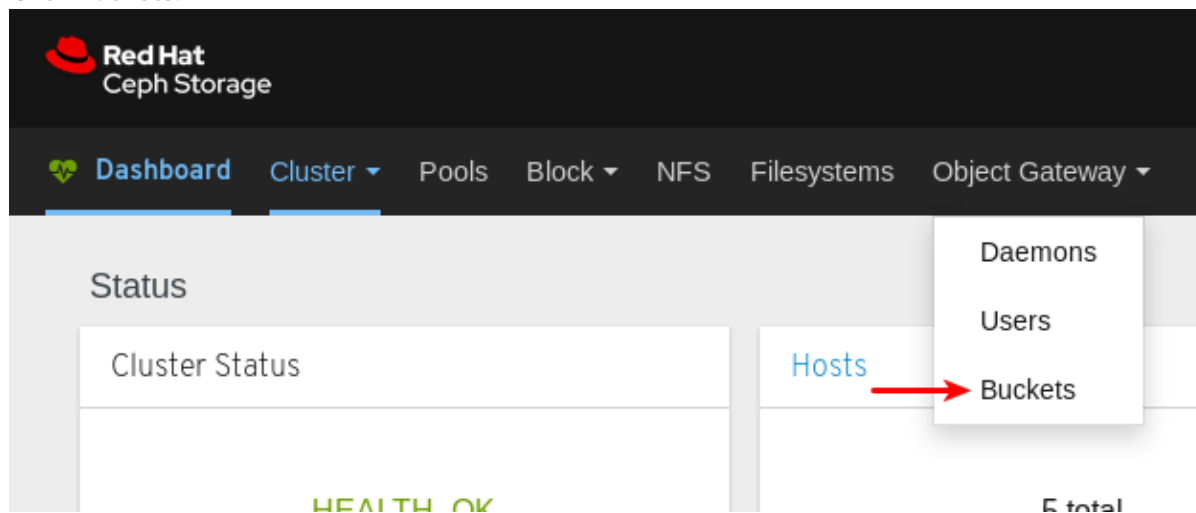


## Procedure

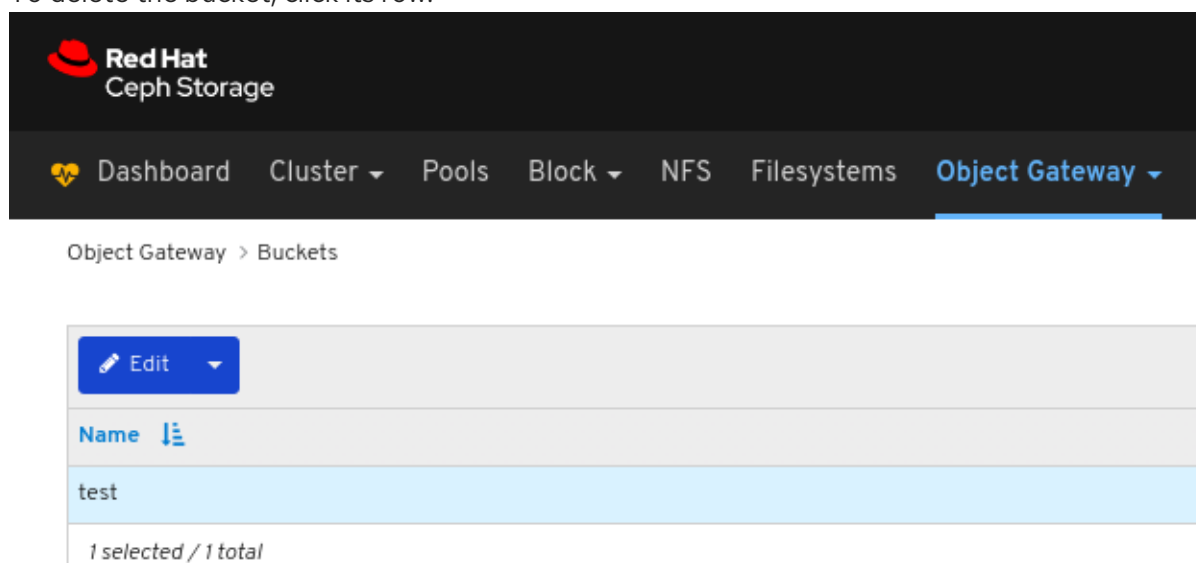
1. Log in to the Dashboard.
2. On the navigation bar, click *Object Gateway*:



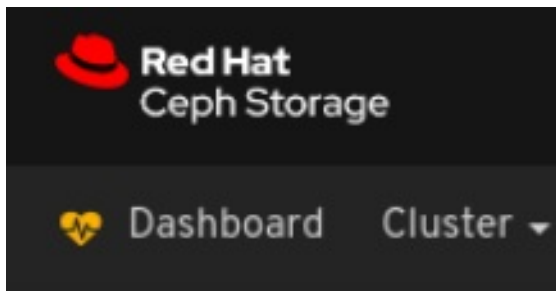
3. Click *Buckets*:



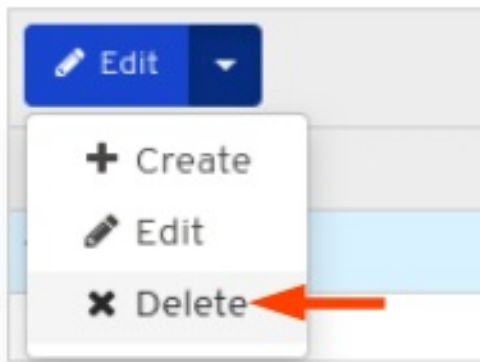
4. To delete the bucket, click its row:



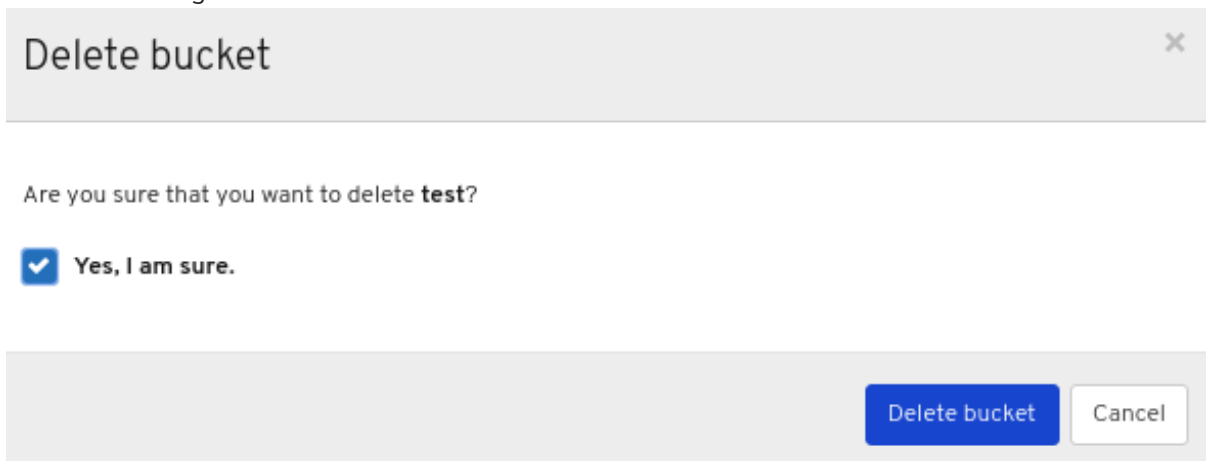
5. Select *Delete* in the *Edit* drop-down:



Object Gateway > Buckets



- In the *Delete Bucket* dialog window, Click the *Yes, I am sure* box and then Click *Delete bucket* to save the settings:



## 8.5. MANUALLY ADDING 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. To manage the Ceph Object Gateway, the dashboard must connect to it using login credentials of an RGW user with the **system** flag. When the Object Gateway is installed using **ceph-ansible**, it automatically adds the login credentials to the dashboard. It is also possible to set the login credentials manually.

### Prerequisites

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

## Procedure

1. Obtain the **access\_key** and **secret\_key** of an RGW user with the **system** flag enabled:
  - If you do not have an RGW user with the **system** flag enabled, create one.

```
radosgw-admin user create --uid=USER_ID --display-name=DISPLAY_NAME --system
```

Example:

```
[root@mon ~]# radosgw-admin user create --uid=rgw-user --display-name=RGW-user --system
{
  "user_id": "rgw-user",
  "display_name": "RGW-user",
  "email": "",
  "suspended": 0,
  "max_buckets": 1000,
  "subusers": [],
  "keys": [
    {
      "user": "rgw-user",
      "access_key": "BYC5SWQQH24A2BFHS2RC",
      "secret_key": "159d94uHK9ADiWZrGsNYWYjRXCDrhL2xVi8PO6kT"
    }
  ],
  "swift_keys": [],
  "caps": [],
  "op_mask": "read, write, delete",
  "system": "true",
  "default_placement": "",
  "default_storage_class": "",
  "placement_tags": [],
  "bucket_quota": {
    "enabled": false,
    "check_on_raw": false,
    "max_size": -1,
    "max_size_kb": 0,
    "max_objects": -1
  },
  "user_quota": {
    "enabled": false,
    "check_on_raw": false,
    "max_size": -1,
    "max_size_kb": 0,
    "max_objects": -1
  },
  "temp_url_keys": [],
  "type": "rgw",
  "mfa_ids": []
}
```

Take note of the values for **access\_key** and **secret\_key**. In the example above, **access\_key** is **BYC5SWQQH24A2BFHS2RC** and **secret\_key** is **159d94uHK9ADiWZrGsNYWYjRXCDrhL2xVi8PO6kT**.

- If an RGW user with the **system** flag enabled is already created, obtain the credentials using the **user info** command of the **radosgw-admin** utility.

```
radosgw-admin user info --uid=USER_ID
```

Example:

```
[root@mon ~]# radosgw-admin user info --uid=rgw-user
{
  "user_id": "rgw-user",
  "display_name": "RGW-user",
  "email": "",
  "suspended": 0,
  "max_buckets": 1000,
  "subusers": [],
  "keys": [
    {
      "user": "rgw-user",
      "access_key": "BYC5SWQQH24A2BFHS2RC",
      "secret_key": "159d94uHK9ADiWZrGsNYWYjRXCDrhL2xVi8PO6kT"
    }
  ],
  "swift_keys": [],
  "caps": [],
  "op_mask": "read, write, delete",
  "system": "true",
  "default_placement": "",
  "default_storage_class": "",
  "placement_tags": [],
  "bucket_quota": {
    "enabled": false,
    "check_on_raw": false,
    "max_size": -1,
    "max_size_kb": 0,
    "max_objects": -1
  },
  "user_quota": {
    "enabled": false,
    "check_on_raw": false,
    "max_size": -1,
    "max_size_kb": 0,
    "max_objects": -1
  },
  "temp_url_keys": [],
  "type": "rgw",
  "mfa_ids": []
}
```

Take note of the values for **access\_key** and **secret\_key**. In the example above, **access\_key** is **BYC5SWQQH24A2BFHS2RC** and **secret\_key** is **159d94uHK9ADiWZrGsNYWYjRXCDrhL2xVi8PO6kT**.

2. Provide the **access\_key** and **secret\_key** credentials to the dashboard:
  - a. Provide the **access\_key** to the dashboard.

```
ceph dashboard set-rgw-api-access-key ACCESS_KEY
```

Example:

```
[root@mon ~]# ceph dashboard set-rgw-api-access-key BYC5SWQQH24A2BFHS2RC
Option RGW_API_ACCESS_KEY updated
```

- b. Provide the **secret\_key** to the dashboard.

```
ceph dashboard set-rgw-api-secret-key SECRET_KEY
```

Example:

```
[root@mon ~]# ceph dashboard set-rgw-api-secret-key
159d94uHK9ADiWZrGsNYWYjRXCDrhL2xVi8PO6kT
Option RGW_API_SECRET_KEY updated
```

3. Provide the host name and port of the object gateway to the dashboard:

- a. Provide the host name to the dashboard.

```
ceph dashboard set-rgw-api-host HOST_NAME
```

Example:

```
[root@mon ~]# ceph dashboard set-rgw-api-host 192.168.122.193
Option RGW_API_HOST updated
```

- b. Provide the port to the dashboard.

```
ceph dashboard set-rgw-api-port PORT
```

Example:

```
[root@mon ~]# ceph dashboard set-rgw-api-port 8080
Option RGW_API_PORT 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.

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

Example:

```
[root@mon ~]# ceph dashboard set-rgw-api-ssl-verify false
Option RGW_API_SSL_VERIFY updated
```

## Additional Resources

- For information on how to install the Ceph Object Gateway, see [Installing the Ceph Object Gateway](#) in the [Installation Guide](#).
- For more information on the Ceph Object Gateway, see the [Object Gateway Configuration and Administration Guide](#).

---

## CHAPTER 9. BLOCK DEVICES

### 9.1. BLOCK DEVICES INTRODUCTION

The block device functions of the dashboard allow you to manage and monitor block device images. The functionality is divided between generic image functions, mirroring functions, iSCSI functions, and Quality of Service configuration. 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.

### 9.2. IMAGES FUNCTIONS

The dashboard provides several functions related to managing and monitoring images.

#### 9.2.1. Prerequisites

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

#### 9.2.2. Creating images

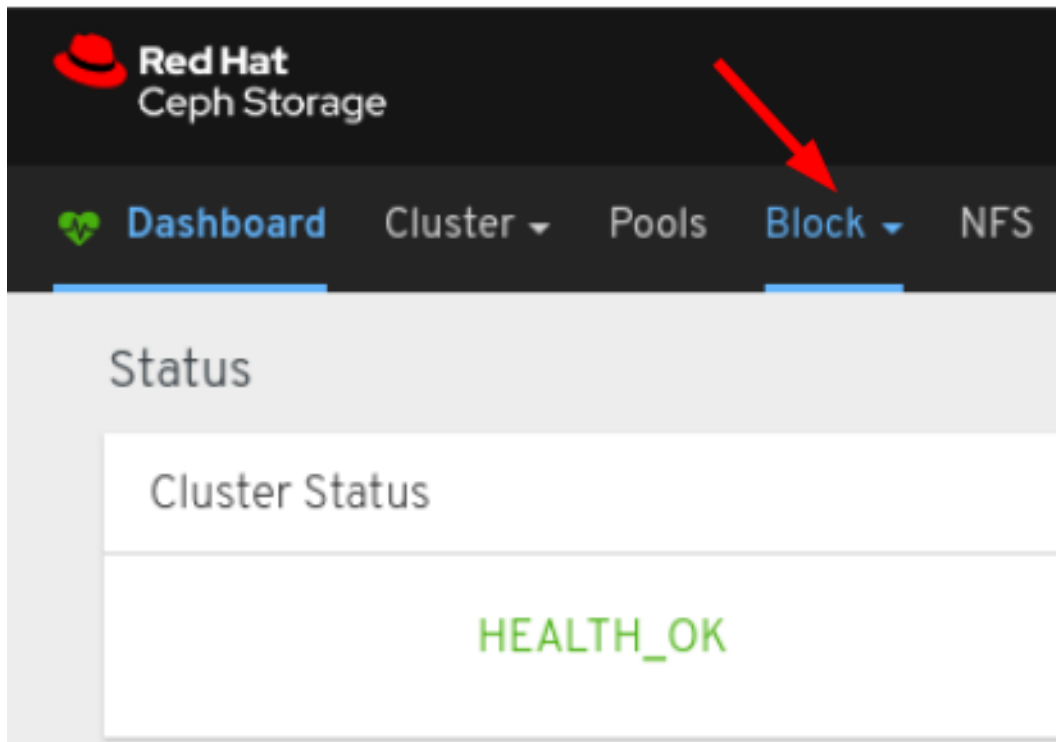
The dashboard allows you to create images.

##### Prerequisites

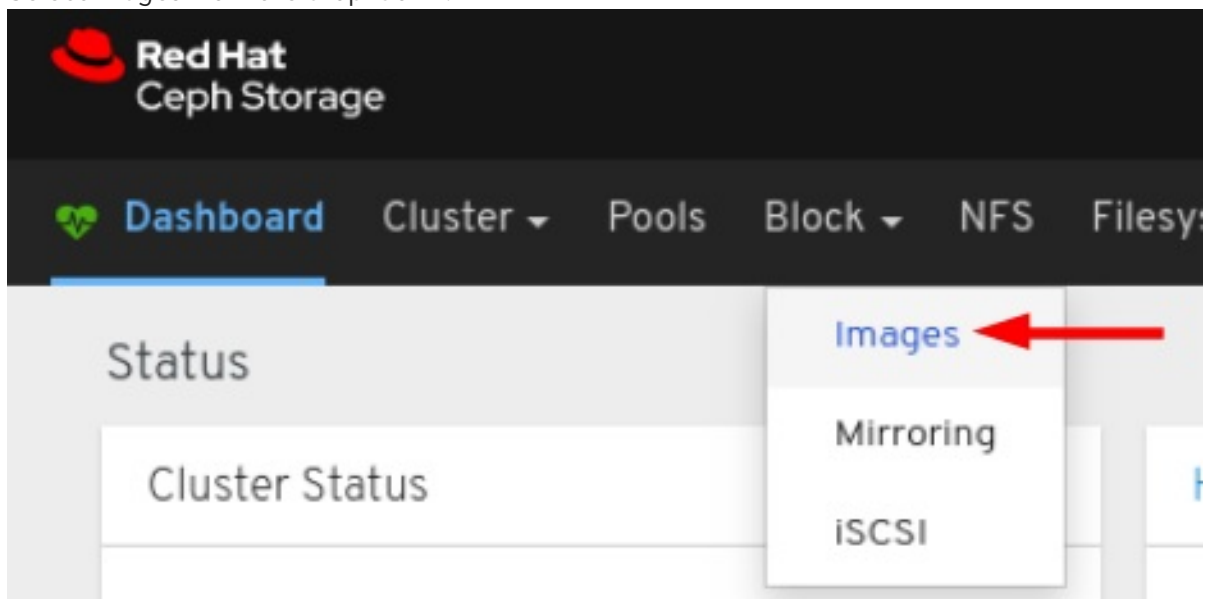
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.

##### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click the *Block*:

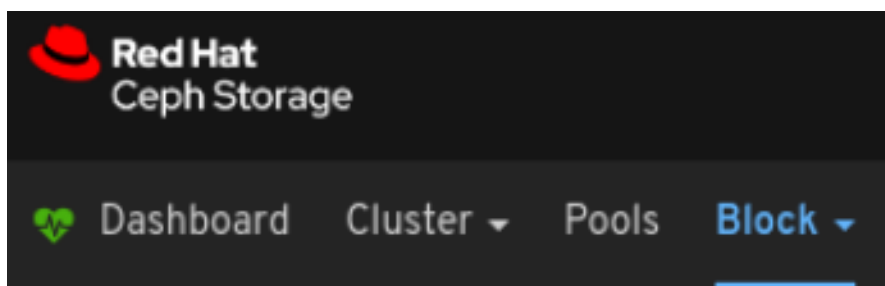


3. Select *Images* from the drop-down:

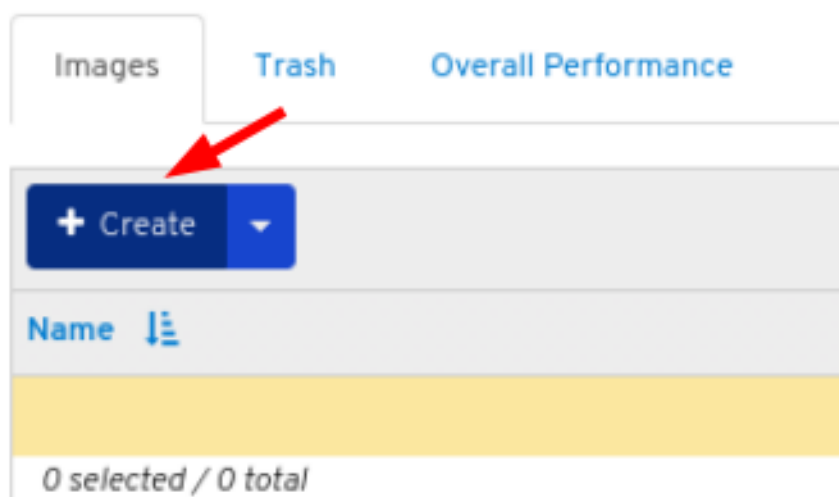


4. In the *Images* tab, Click the *Create* button:

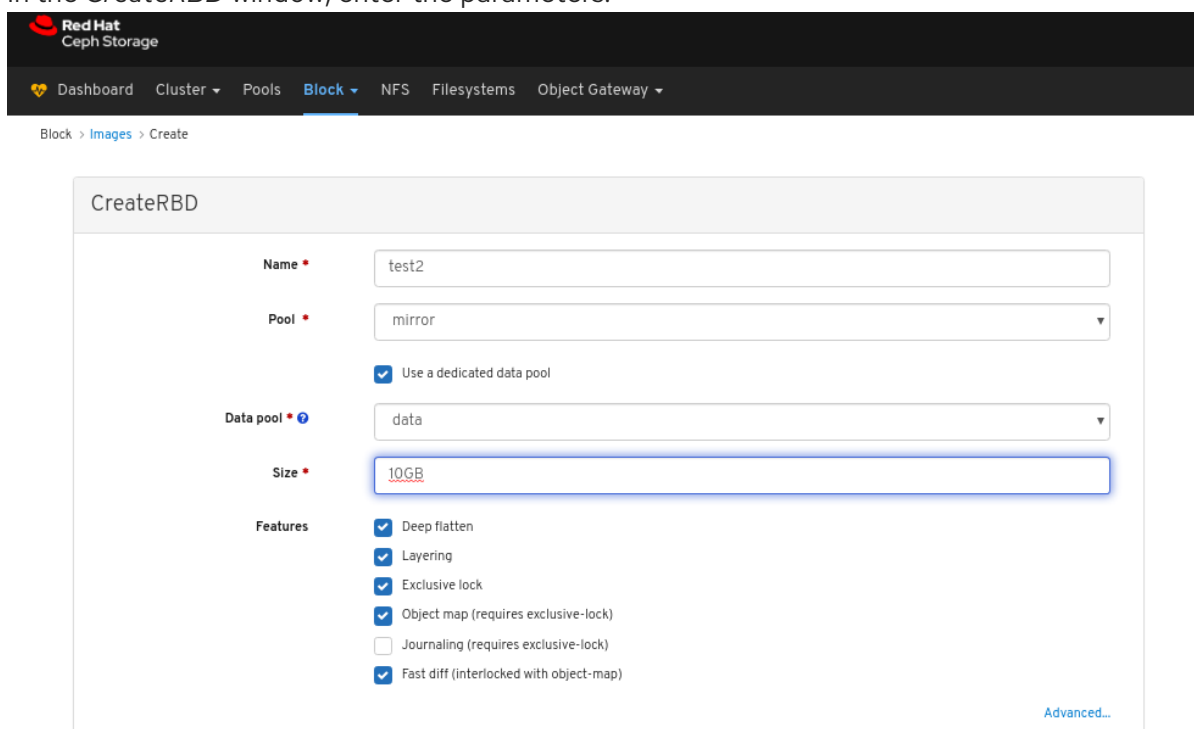




Block > Images



5. In the *CreateRBD* window, enter the parameters:



6. Optional: Click *Advanced* and set the parameters:

The image shows two screenshots from the Red Hat Ceph Storage 4 dashboard. The top screenshot is the 'CreateRBD' form, and the bottom screenshot is the 'Advanced' configuration section.

**CreateRBD Form:**

- Name:** test2
- Pool:** mirror
- Use a dedicated data pool
- Data pool:** data
- Size:** 10GB
- Features:**
  - Deep flatten
  - Layering
  - Exclusive lock
  - Object map (requires exclusive-lock)
  - Journaling (requires exclusive-lock)
  - Fast diff (interlocked with object-map)

A red arrow points to the 'Advanced...' link in the bottom right corner of the form. At the bottom of the form are 'CreateRBD' and 'Cancel' buttons.

**Advanced Configuration:**

**Striping:**

- Object size:** 4 MIB
- Stripe unit:** -- Select stripe unit --
- Stripe count:** (empty field)

**RBD Configuration:**

- Quality of Service:** (plus icon)

At the bottom of the advanced section are 'CreateRBD' and 'Cancel' buttons.

7. Click the *CreateRBD* button:

Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > Images > Create

### CreateRBD

Name \* test2

Pool \* mirror

Use a dedicated data pool

Data pool \* data

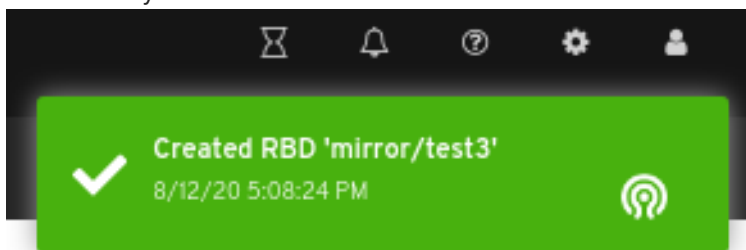
Size \* 10GB

Features

- Deep flatten
- Layering
- Exclusive lock
- Object map (requires exclusive-lock)
- Journaling (requires exclusive-lock)
- Fast diff (interlocked with object-map)

[Advanced...](#)

8. Notifications towards the top right corner of the page indicate 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](#) section in the [Red Hat Ceph Storage Dashboard Guide](#) for more details on creating RBD pools.

### 9.2.3. Viewing images

The dashboard allows you to view images.

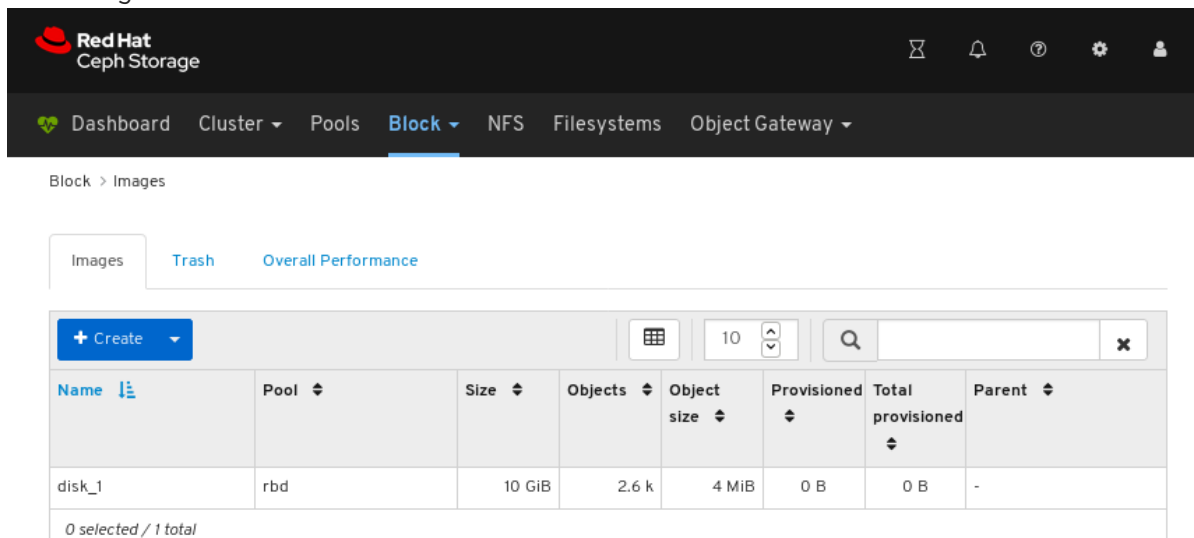
#### Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- An image is in the cluster.

#### Procedure

## Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Block*.
3. Click *Images*:



Block > Images

Images Trash Overall Performance

+ Create

Name	Pool	Size	Objects	Object size	Provisioned	Total provisioned	Parent
disk_1	rbd	10 GiB	2.6 k	4 MiB	0 B	0 B	-

0 selected / 1 total

In the above example, you can see a 10 GiB image named *disk\_1*.

4. To view details, select the image by clicking the row for *disk\_1*:

Block > Images

Images **Trash** Overall Performance

Edit

Name	Pool	Size	Objects	Object size	Provisioned	Total provisioned	Parent
disk_1	rbid	10 GiB	2.6 k	4 MiB	0 B	0 B	-

1 selected / 1 total

Details **Snapshots** Configuration

Name	disk_1
Pool	rbid
Data Pool	-
Created	11/5/19 3:23:00 PM
Size	10 GiB
Objects	2.6 k
Object size	4 MiB
Features	<a href="#">deep-flatten</a> <a href="#">exclusive-lock</a> <a href="#">fast-diff</a> <a href="#">layering</a> <a href="#">object-map</a>
Provisioned	0 B
Total provisioned	0 B
Striping unit	4 MiB
Striping count	1
Parent	-
Block name prefix	rbid_data.860c70361bb1
Order	22

## Additional Resources

- For more information on images, see the [Block Device Guide](#).

## 9.2.4. Editing images

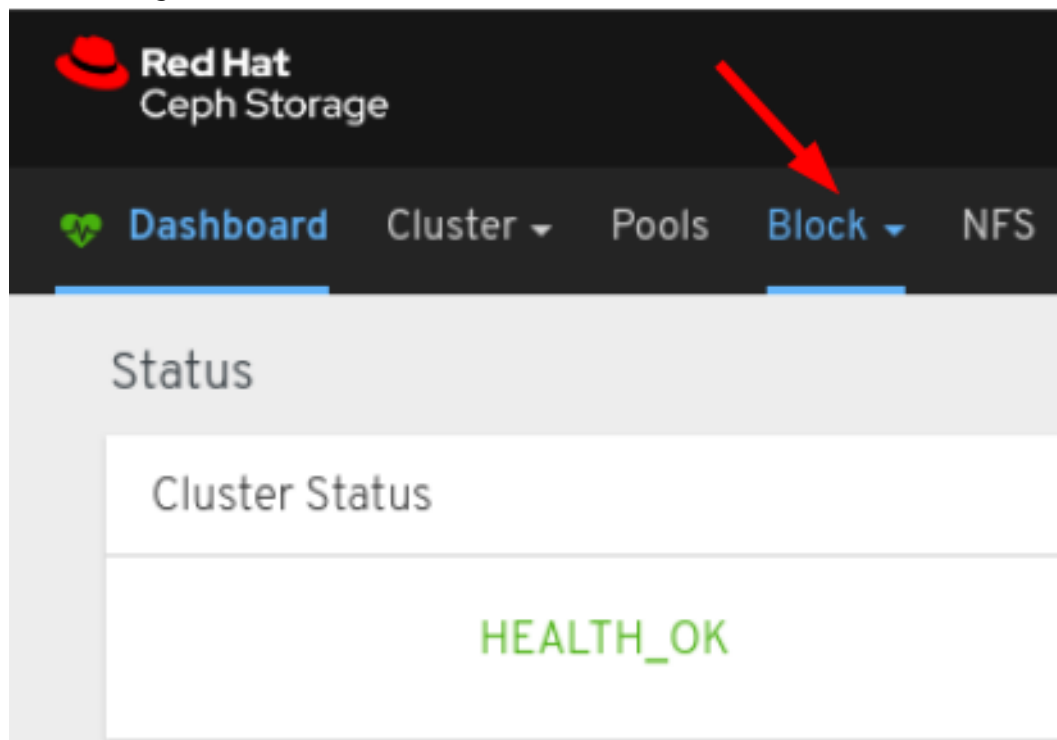
The dashboard allows you to edit images

### Prerequisites

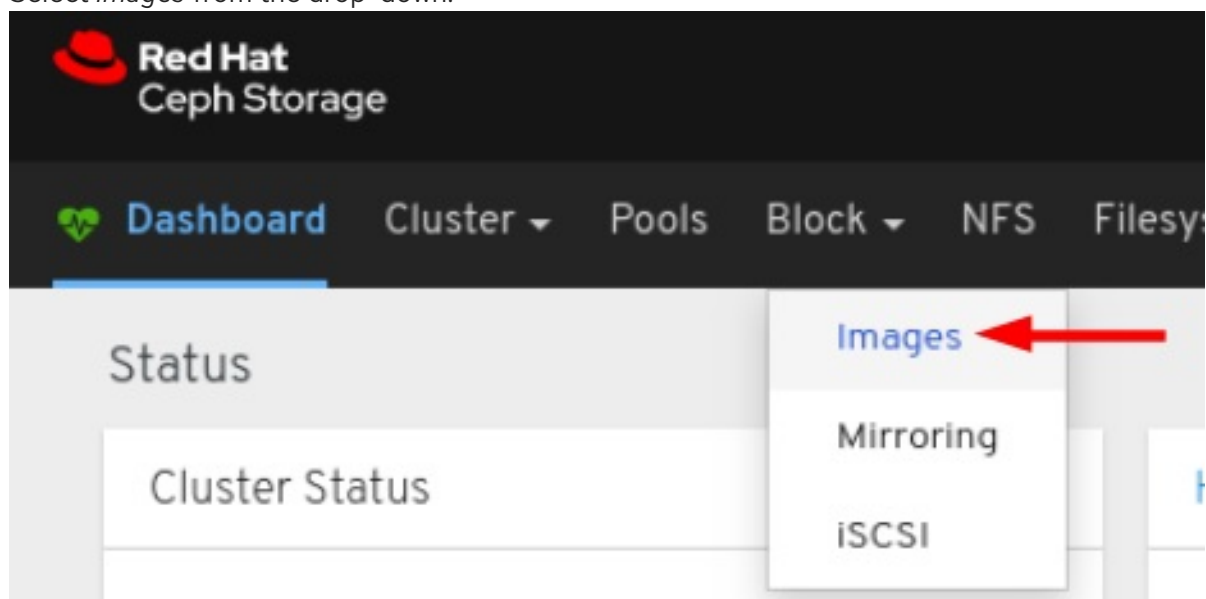
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbid* application enabled is created.
- An image is created.

## Procedure

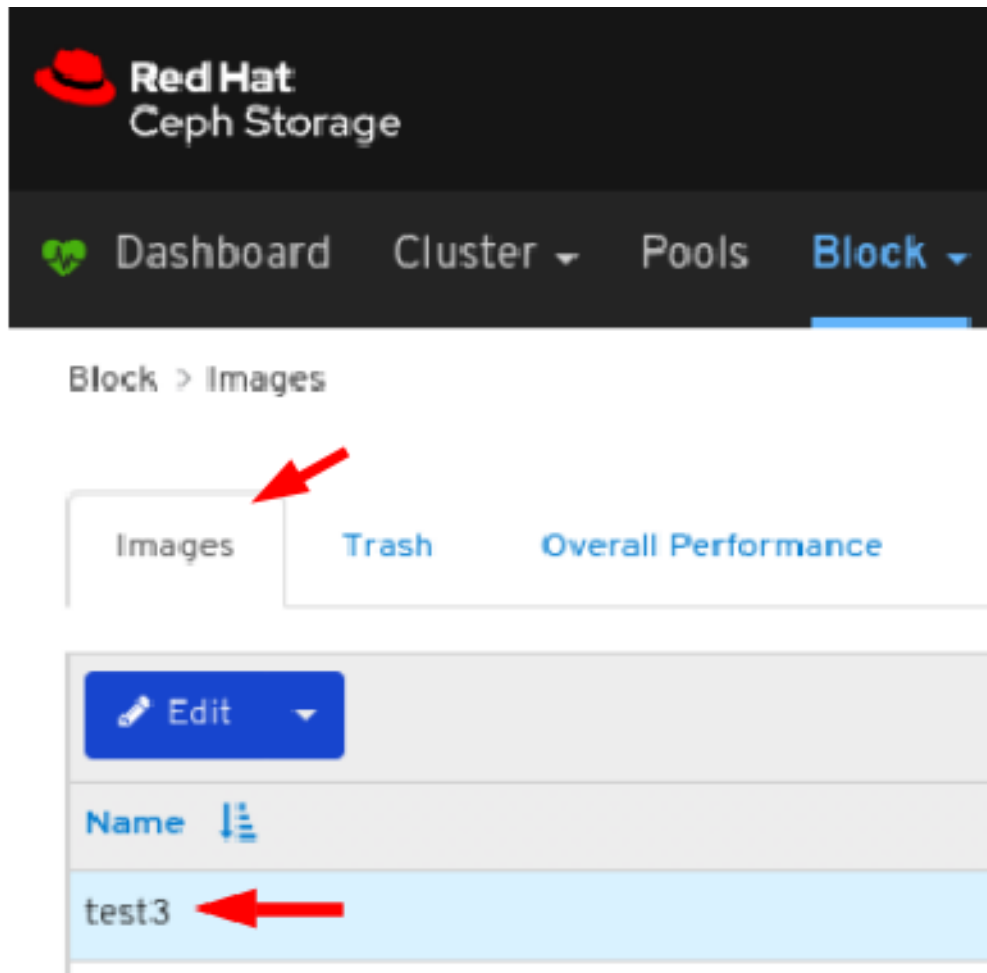
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



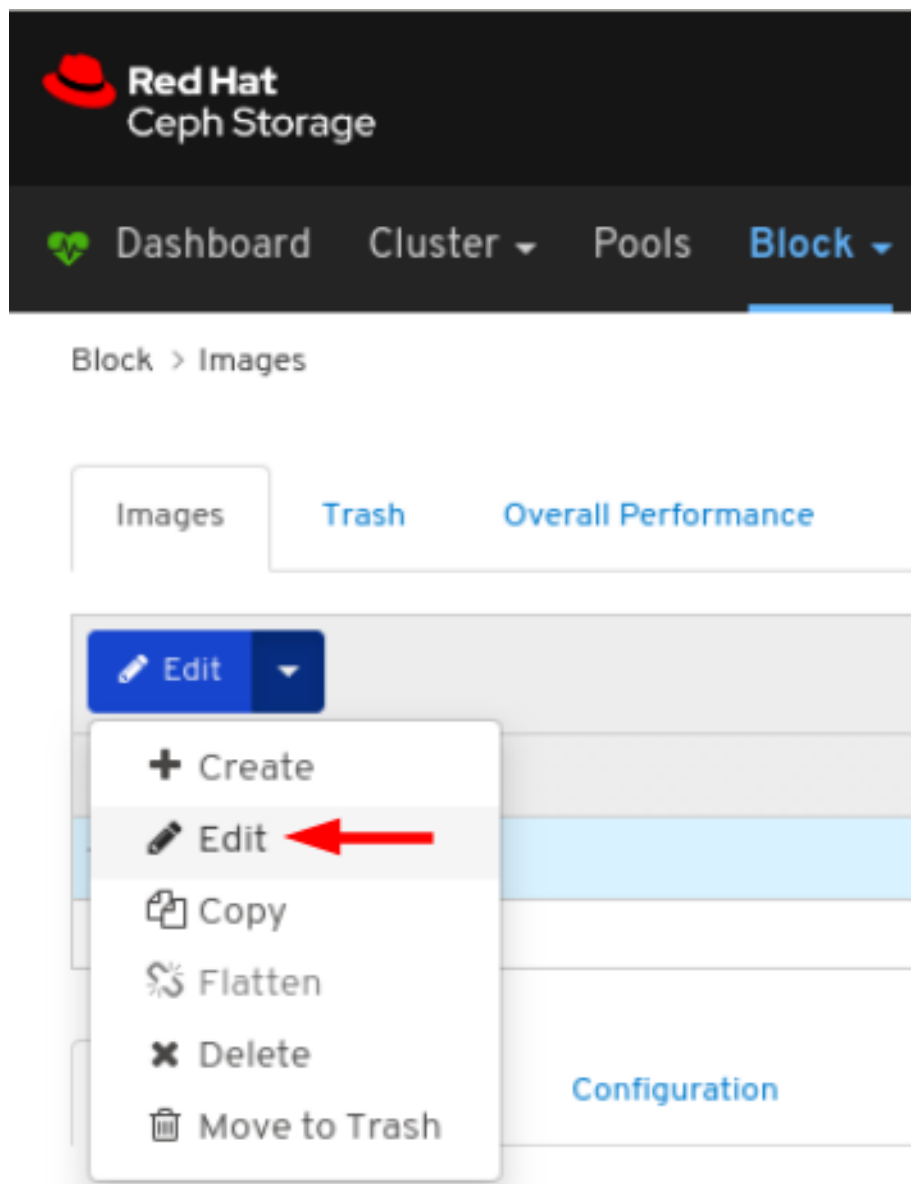
3. Select *Images* from the drop-down:



4. To edit the image, in the *Images* tab, click its row:



5. Select *Edit* In the *Edit* drop-down:



6. In the *EditRBD* dialog, edit the required parameters and click the *EditRBD* button:



Red Hat  
Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > Images > Edit

### EditRBD

**Name \*** test3

**Pool** mirror

Use a dedicated data pool

**Size \*** 10 GiB

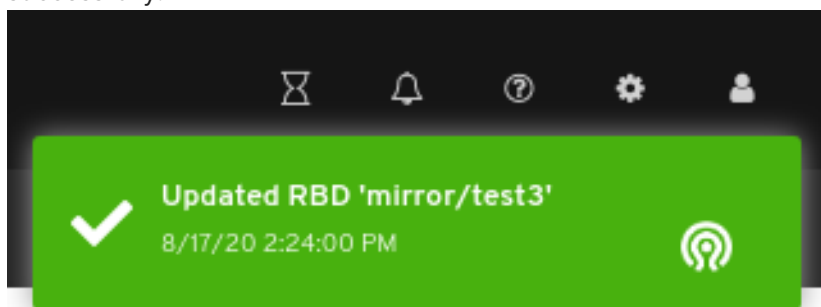
**Features**

- Deep flatten
- Layering
- Exclusive lock
- Object map (requires exclusive-lock)
- Journaling (requires exclusive-lock)
- Fast diff (interlocked with object-map)

[Advanced...](#)

EditRBD Cancel

7. A notification towards the top right corner of the page indicates the image was updated successfully.



### Additional Resources

- See the [Creating Images](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more information.

### 9.2.5. Copying images

The dashboard allows you to copy images.

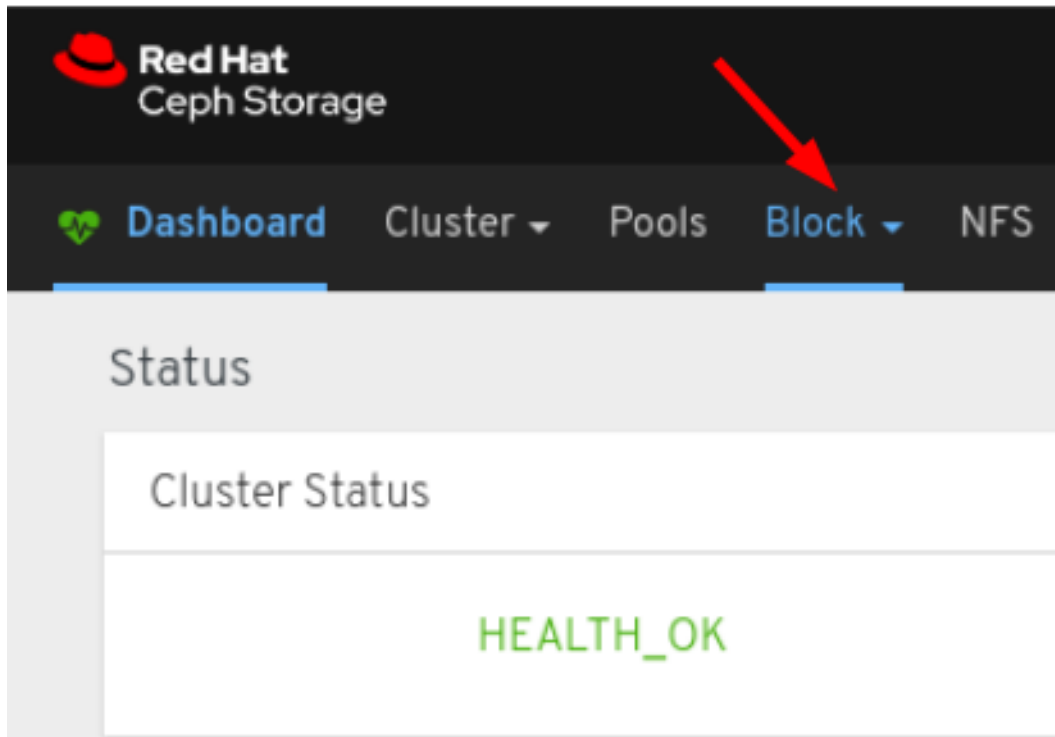
#### Prerequisites

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

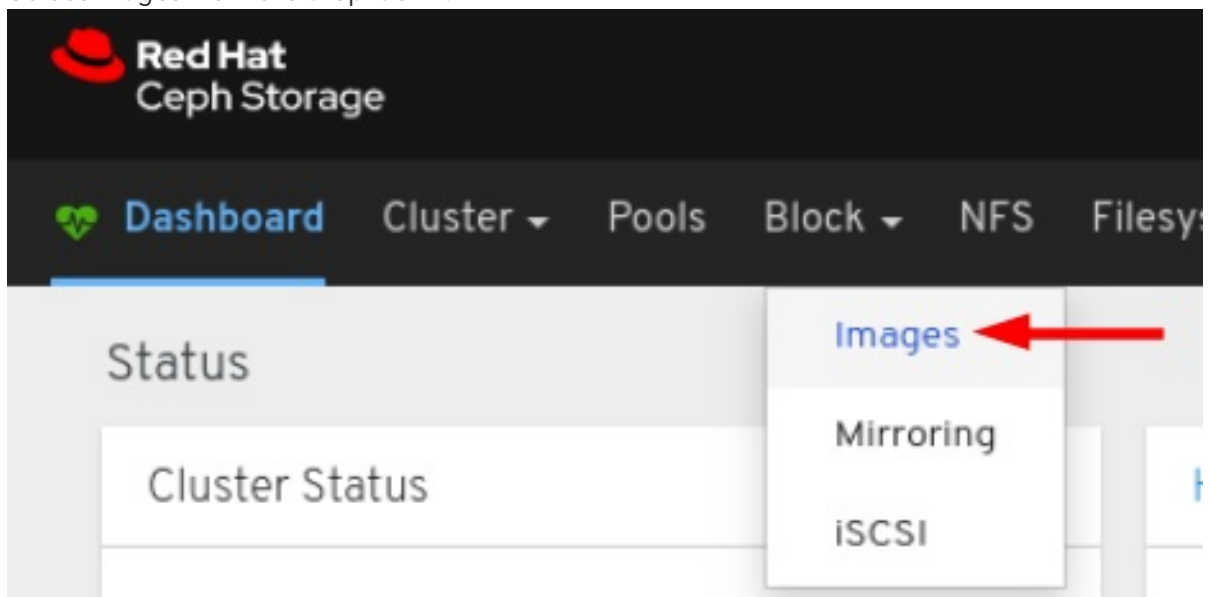
- An image is created.

### Procedure

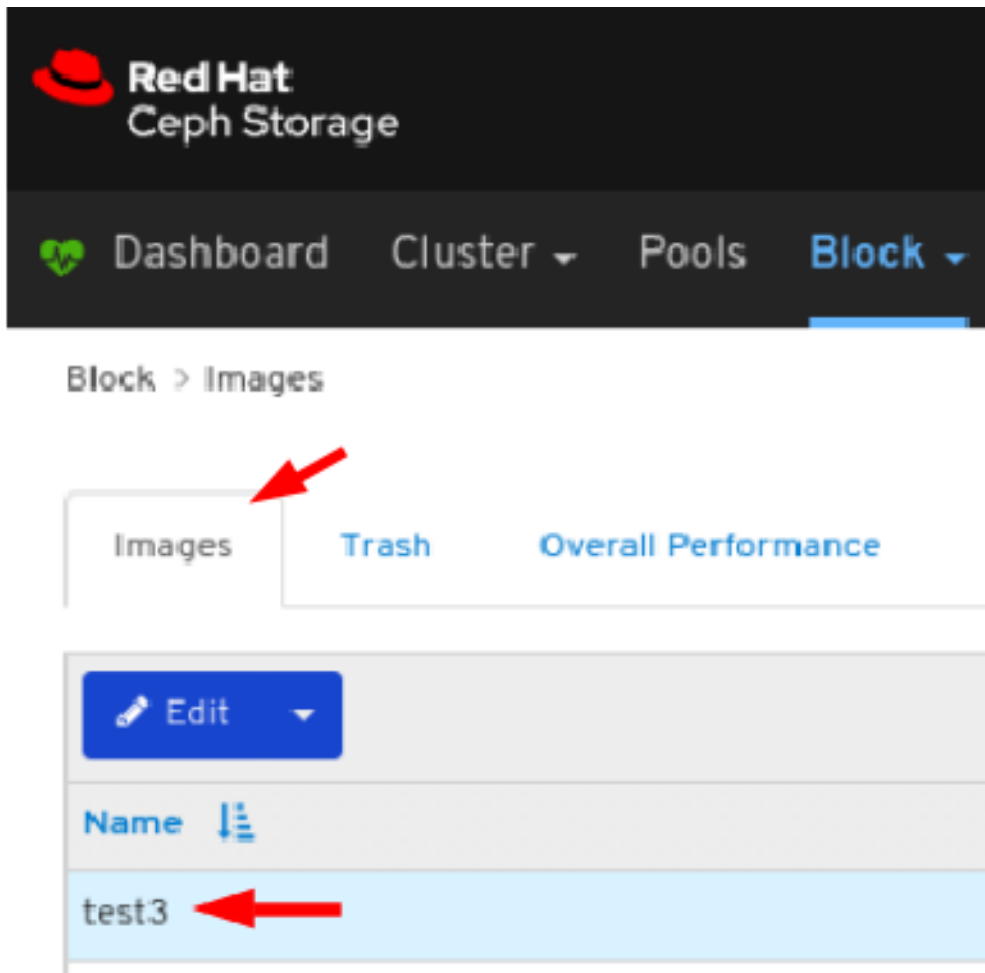
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



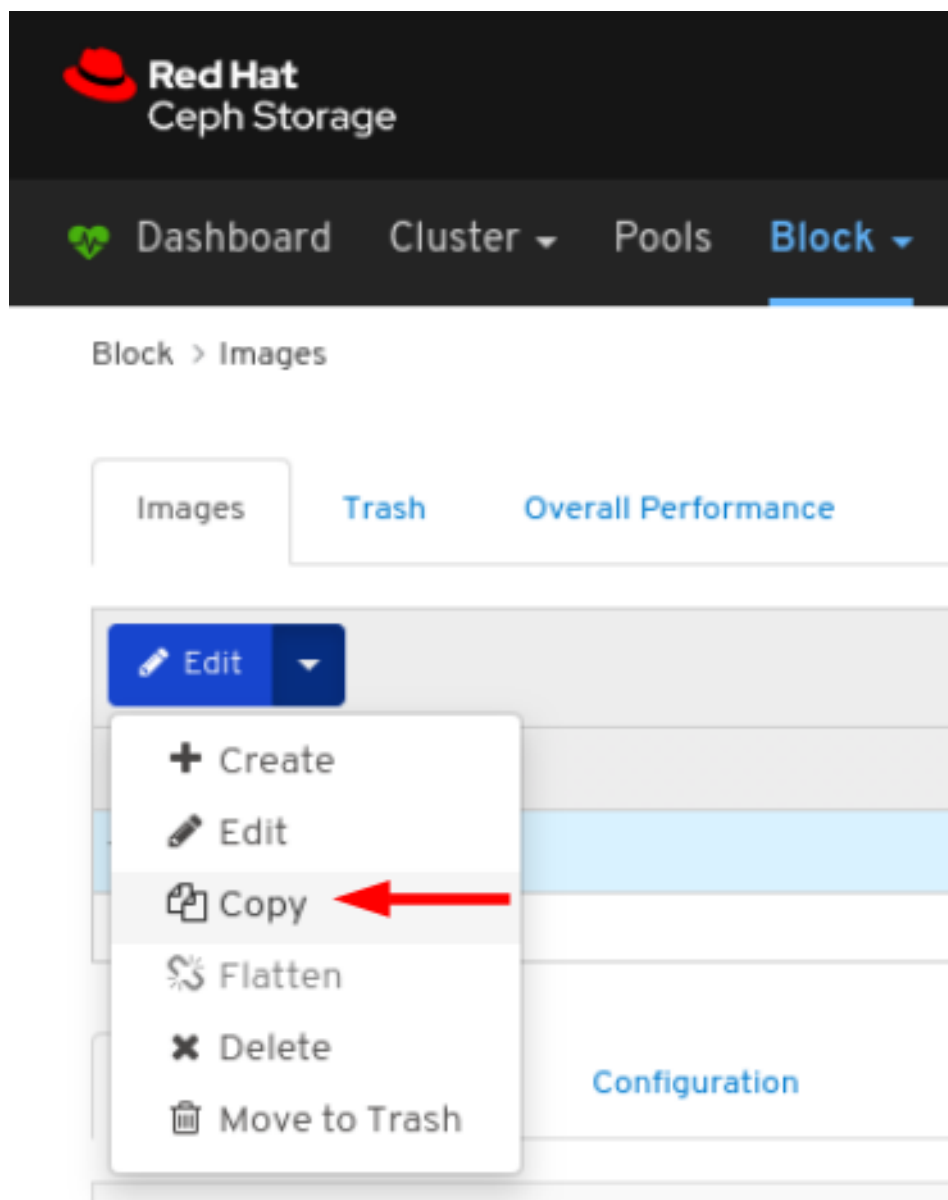
3. Select *Images* from the drop-down:



4. To copy the image, in the *Images* tab, click its row:



5. Select *Copy In* in the *Edit* drop-down:



6. In the *CopyRBD* window, edit the required parameters and click the *CopyRBD* button:

Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > Images > Copy

### CopyRBD

Copy from: mirror/test3

Name \*

Pool \* mirror

Use a dedicated data pool

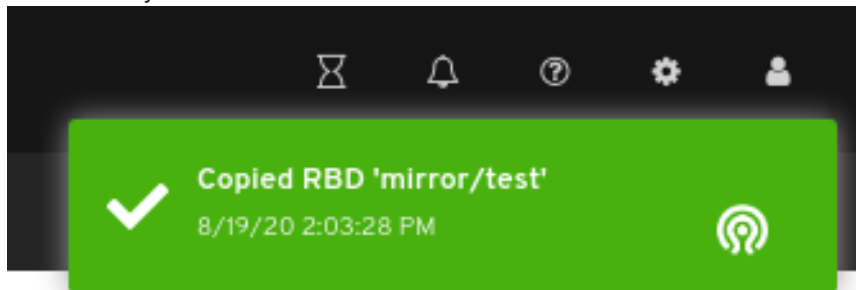
Size \* 10 GiB

Features

- Deep flatten
- Layering
- Exclusive lock
- Object map (requires exclusive-lock)
- Journaling (requires exclusive-lock)
- Fast diff (interlocked with object-map)

[Advanced...](#)

7. A notification towards the top right corner of the page indicates the image was updated successfully.



### Additional Resources

- See the [Creating Images](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more information.

### 9.2.6. Moving images to trash

The dashboard allows you to move images to trash.

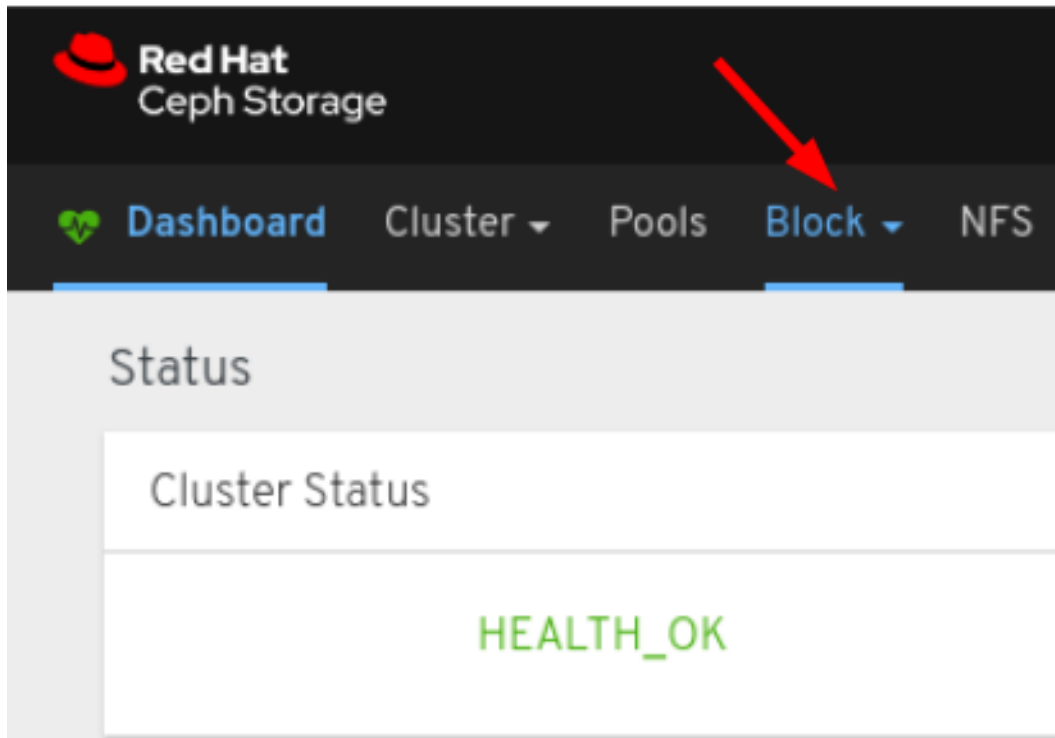
### Prerequisites

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

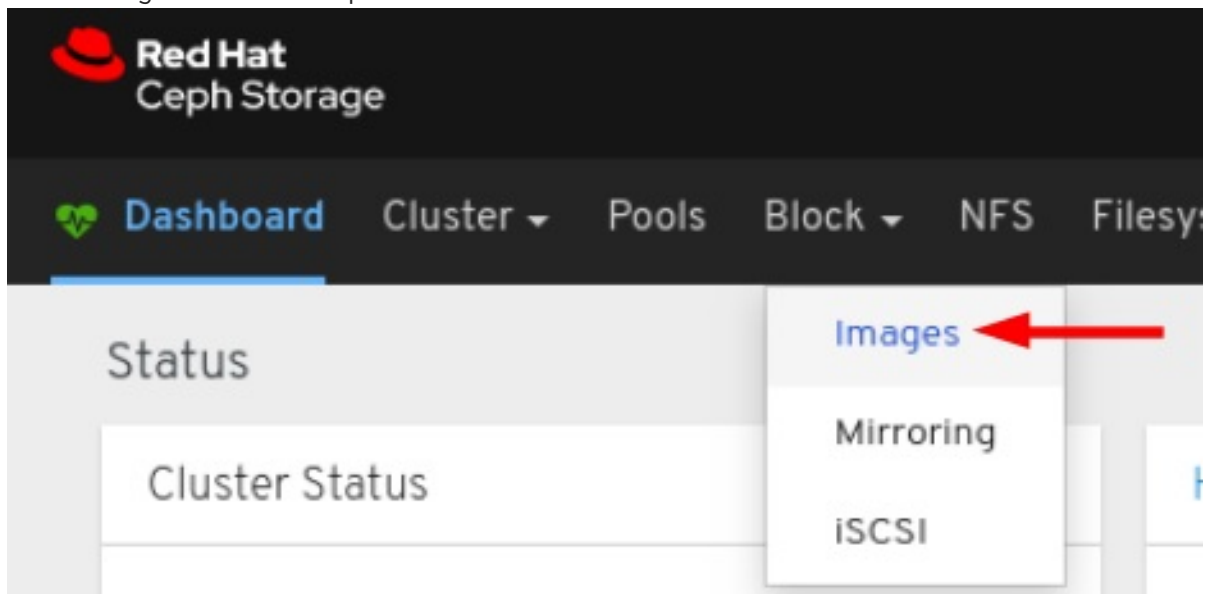
- A pool with the *rbd* application enabled is created.
- An image is created.

### Procedure

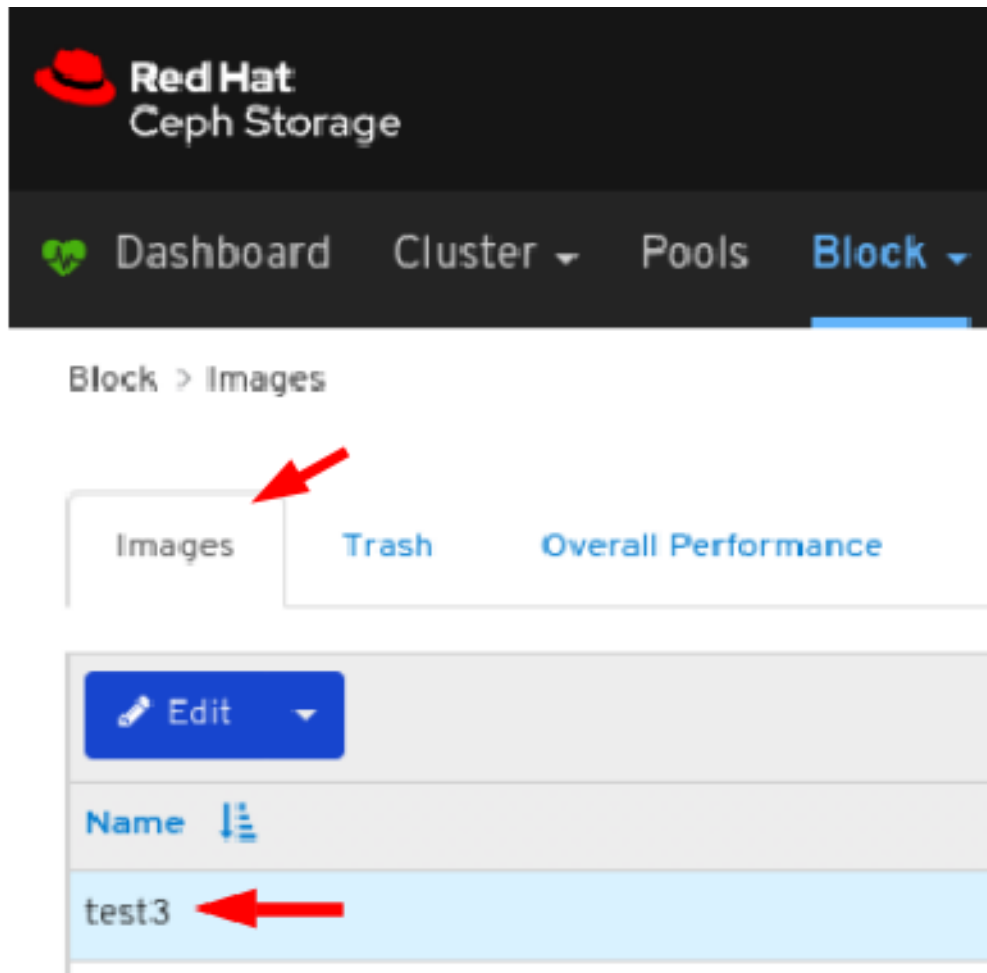
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



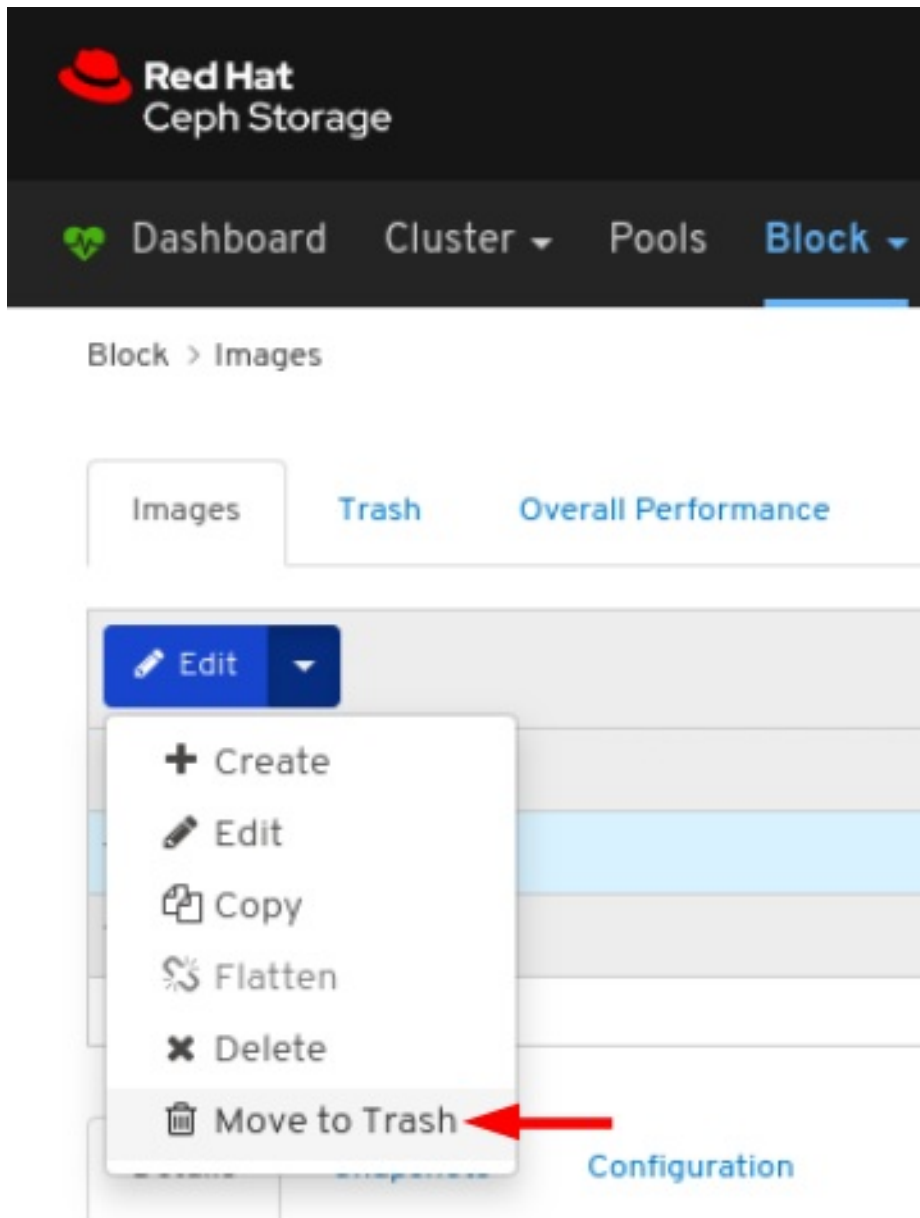
3. Select *Images* from the drop-down:



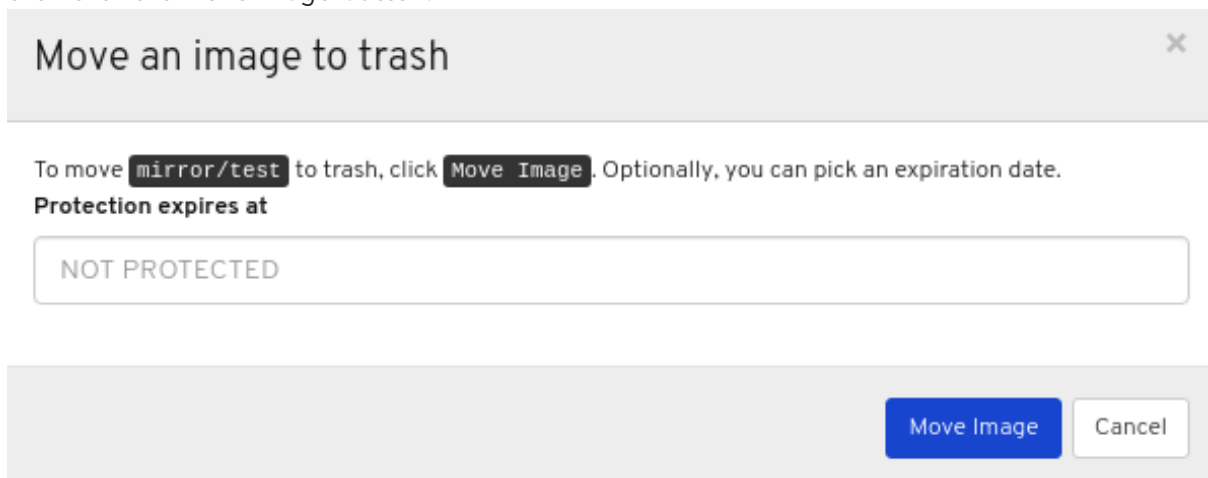
4. To move the image to Trash, in the *Images* tab, click its row:



5. Select *Move to Trash* In the *Edit* drop-down:

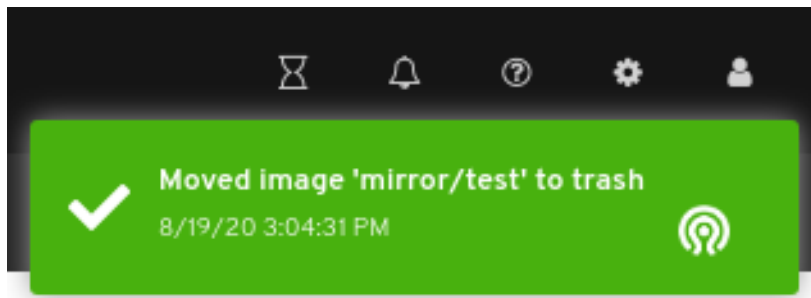


- In the *Moving an image to trash* window, edit the date till which the image needs protection, and then click the *Move Image* button:



- A notification towards the top right corner of the page indicates the image was moved to trash successfully.





### 9.2.7. Purging trash

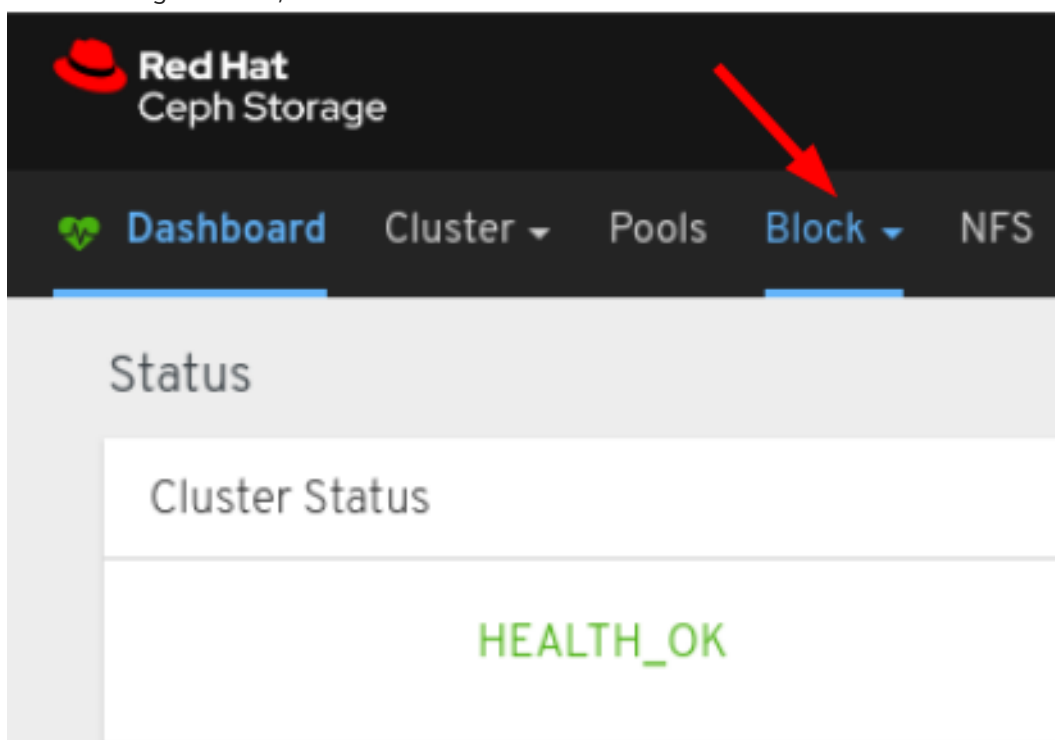
The dashboard allows you to purge trash of images.

#### Prerequisites

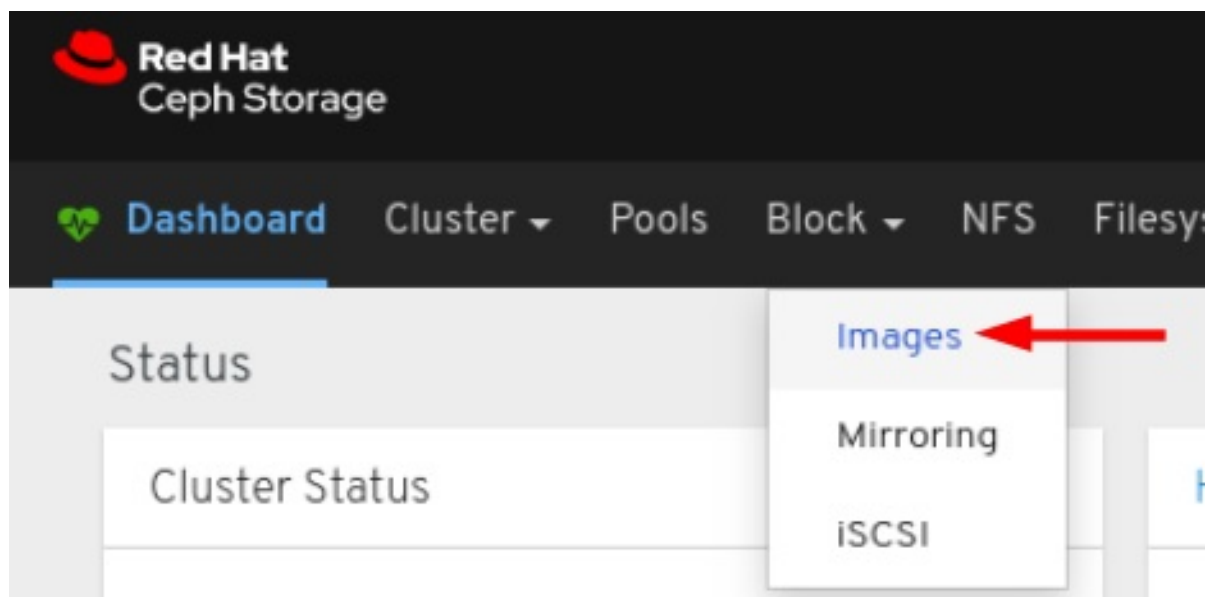
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is trashed.

#### Procedure

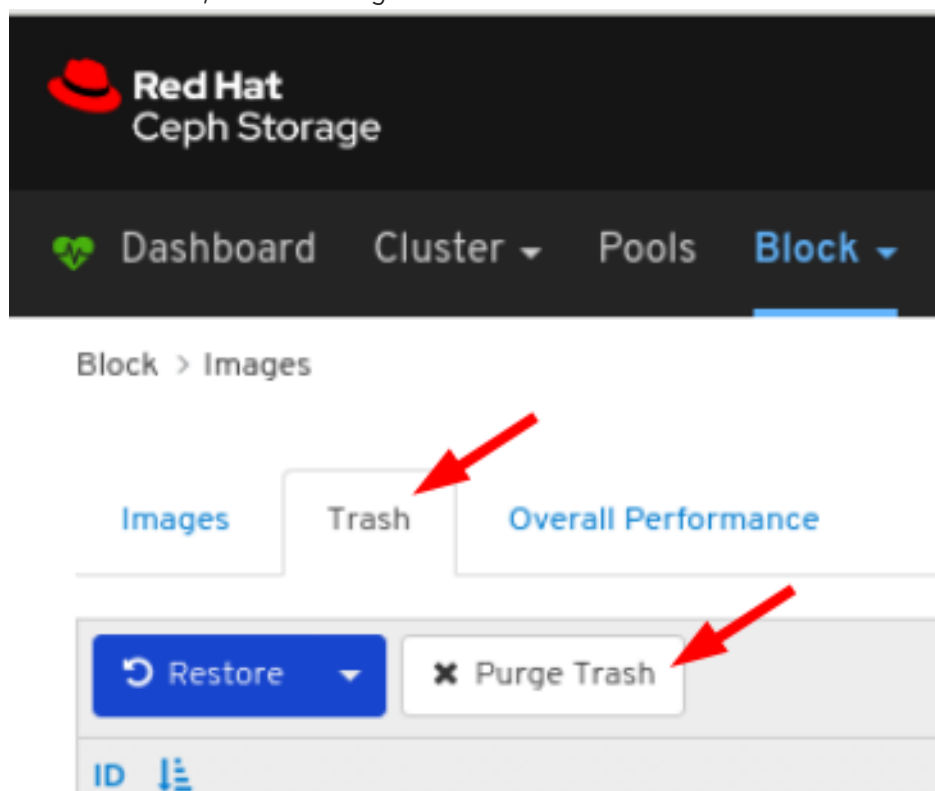
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



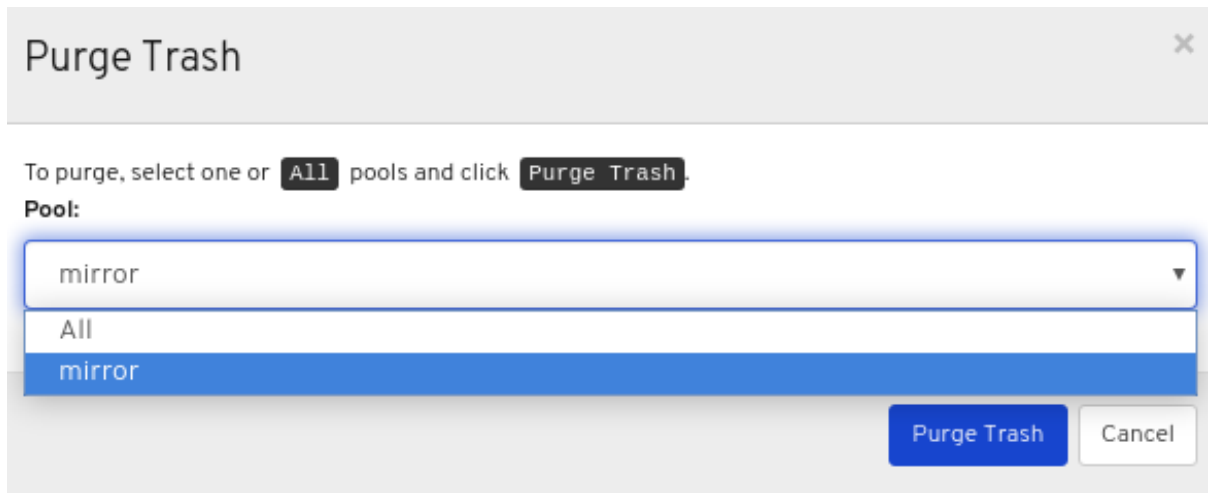
3. Select *Images* from the drop-down:



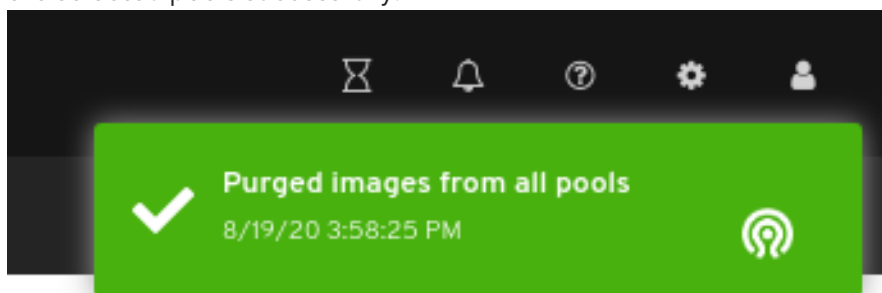
4. In the *Trash* tab, click the *Purge Trash* button:



5. In the *Purge Trash* window, select the pool, and then click the *Purge Trash* button:



6. A notification towards the top right corner of the page indicates the images were purged from the selected pools successfully.



#### Additional resources

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

### 9.2.8. Restoring images from trash

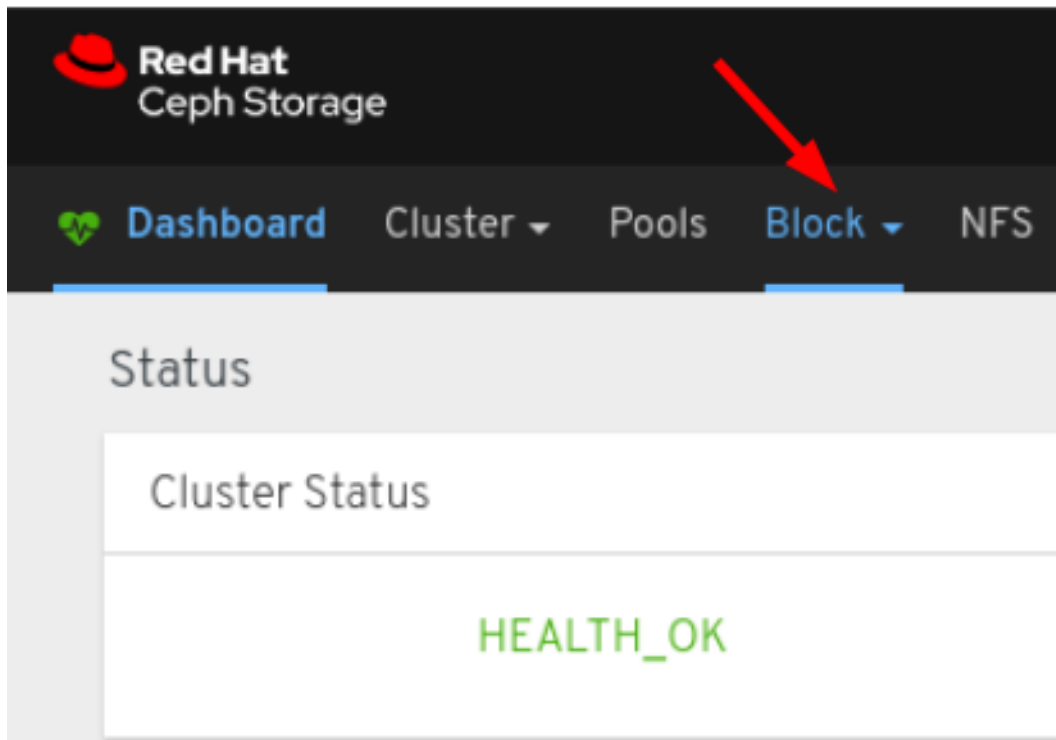
The dashboard allows you to restore images from trash.

#### Prerequisites

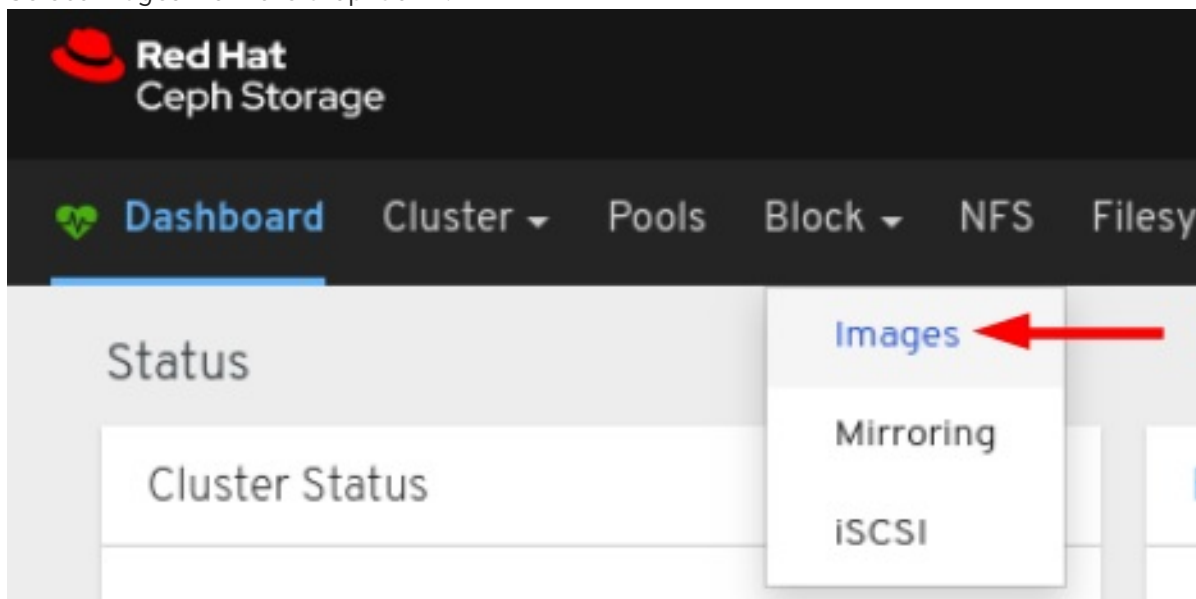
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is trashed.

#### Procedure

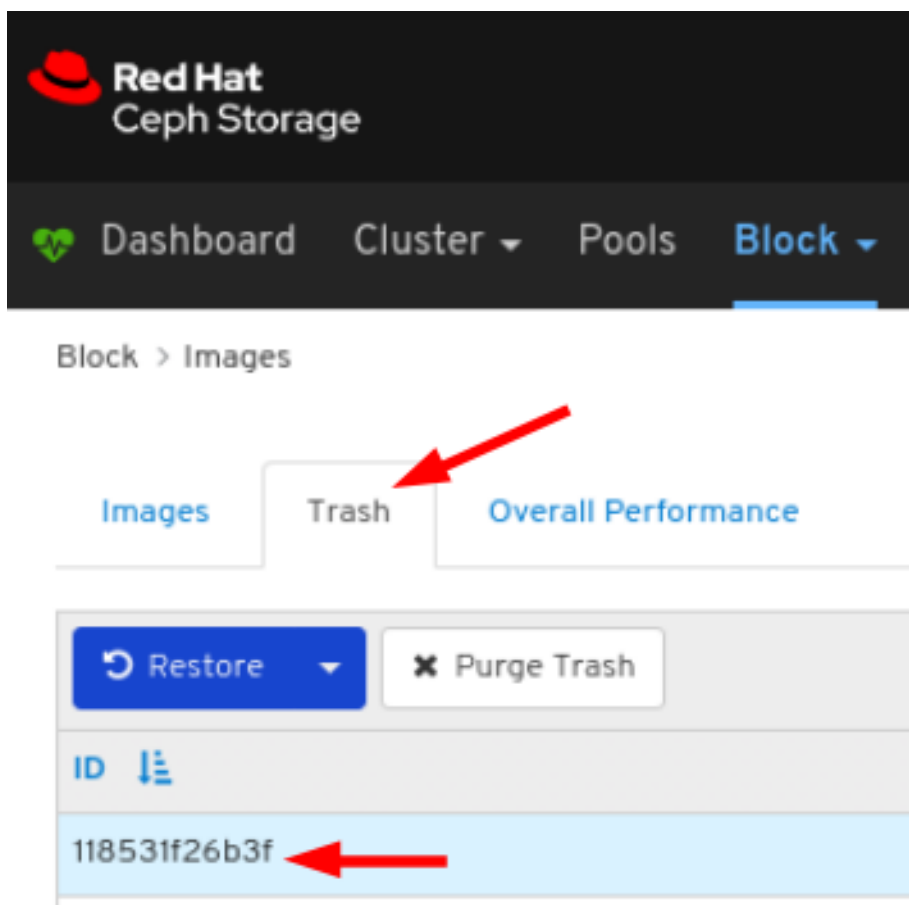
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



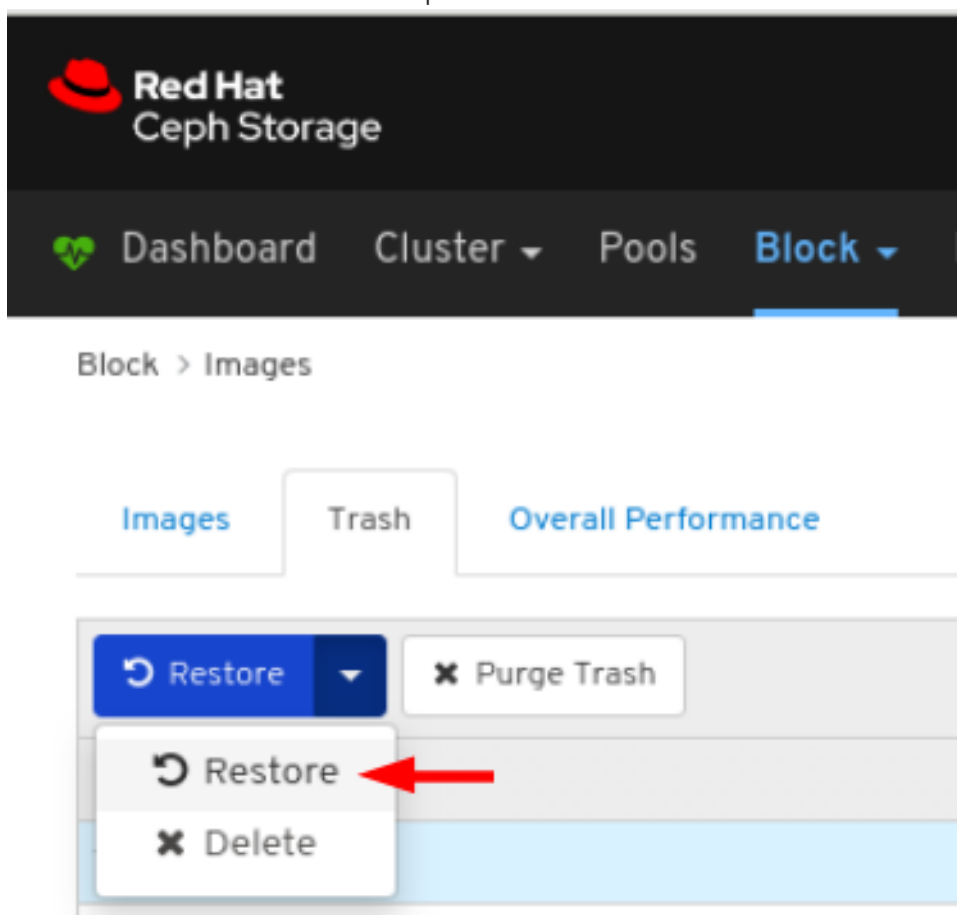
3. Select *Images* from the drop-down:



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 name of the image, and then click the *Restore Image* button:

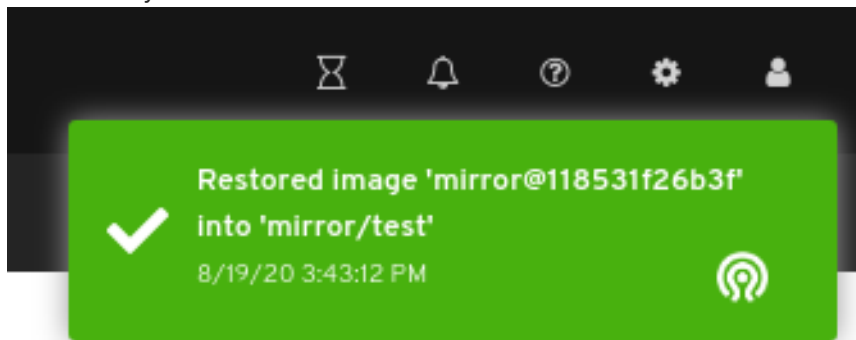
## Restore Image ✕

To restore `mirror/test@118531f26b3f`, type the image's new name and click `Restore Image`.

**New Name**

Restore Image
Cancel

7. Notification towards the top right corner of the page indicate the image was restored from trash 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.

## 9.2.9. Deleting images

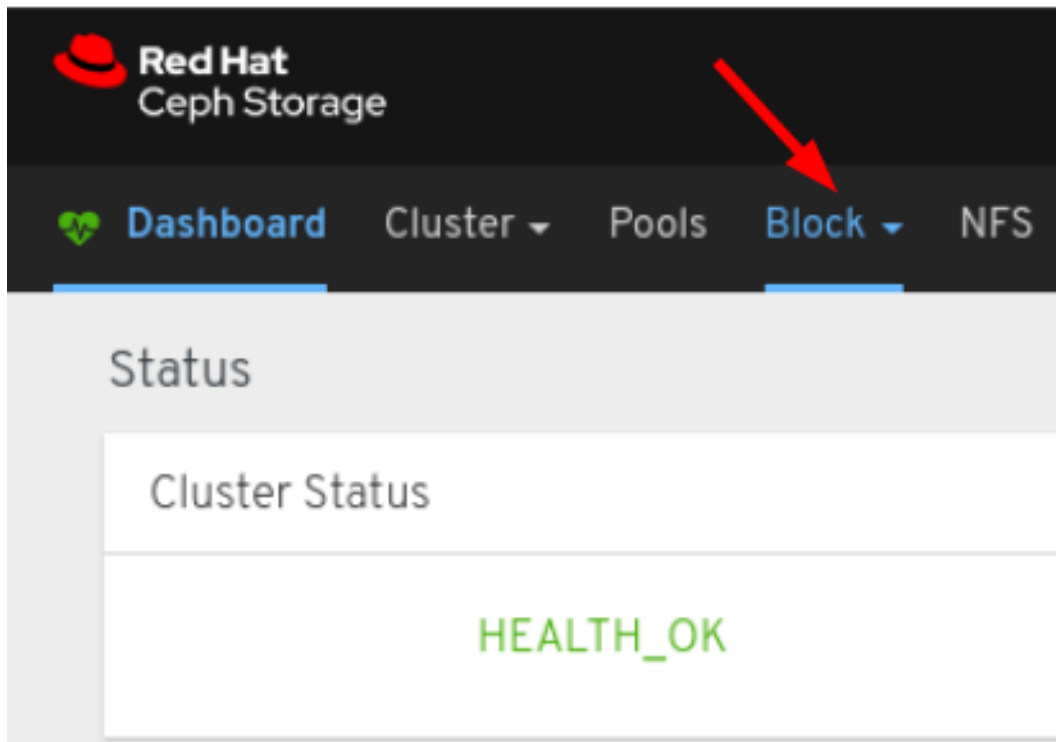
The dashboard allows you to delete images.

### Prerequisites

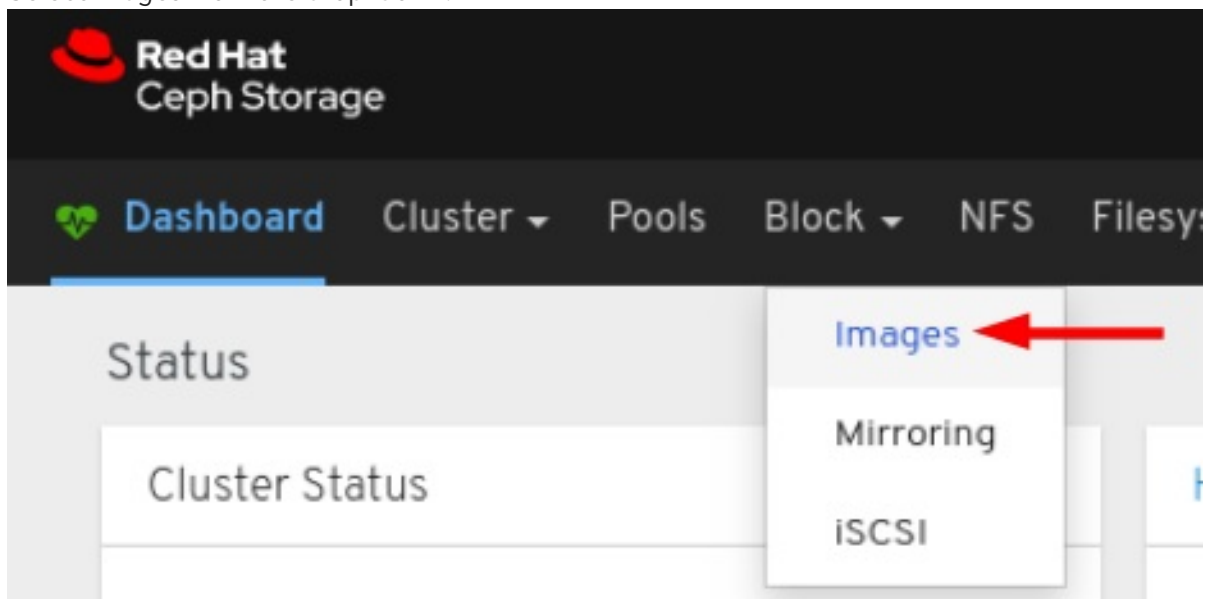
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rbd` application enabled is created.
- An image is created.

### Procedure

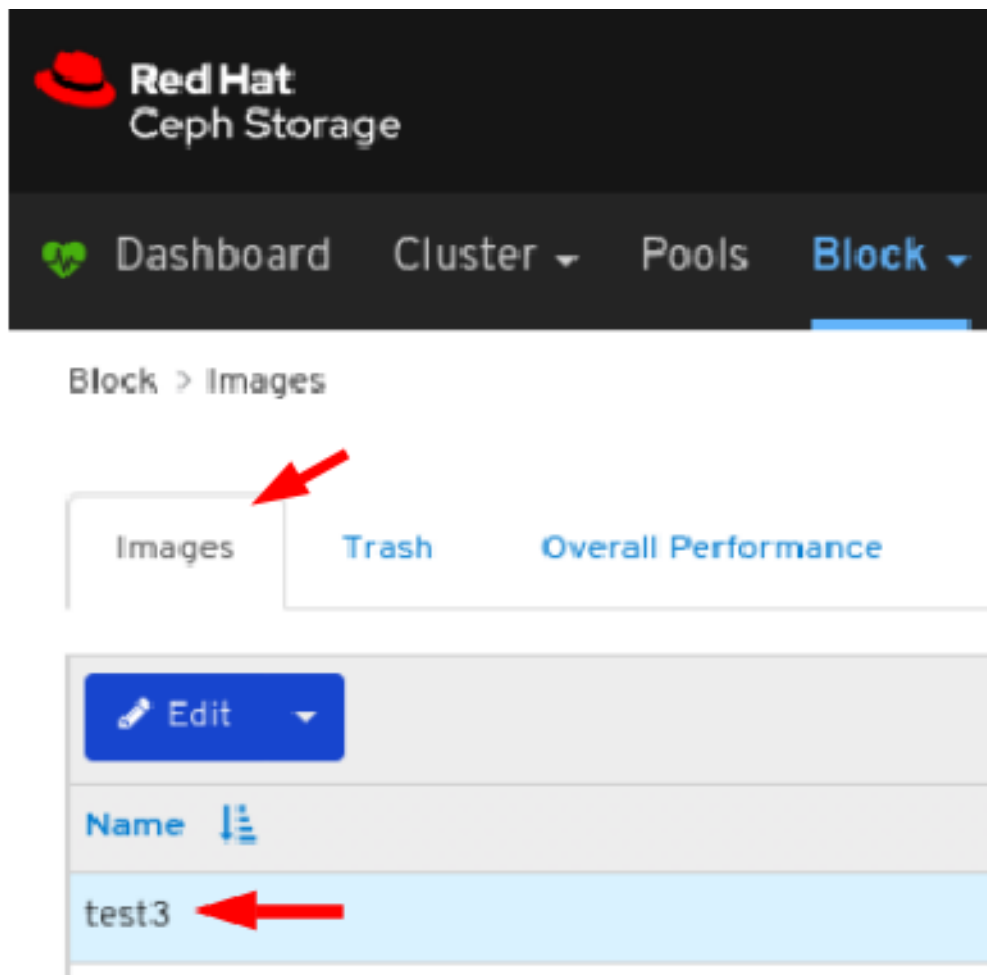
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



3. Select *Images* from the drop-down:

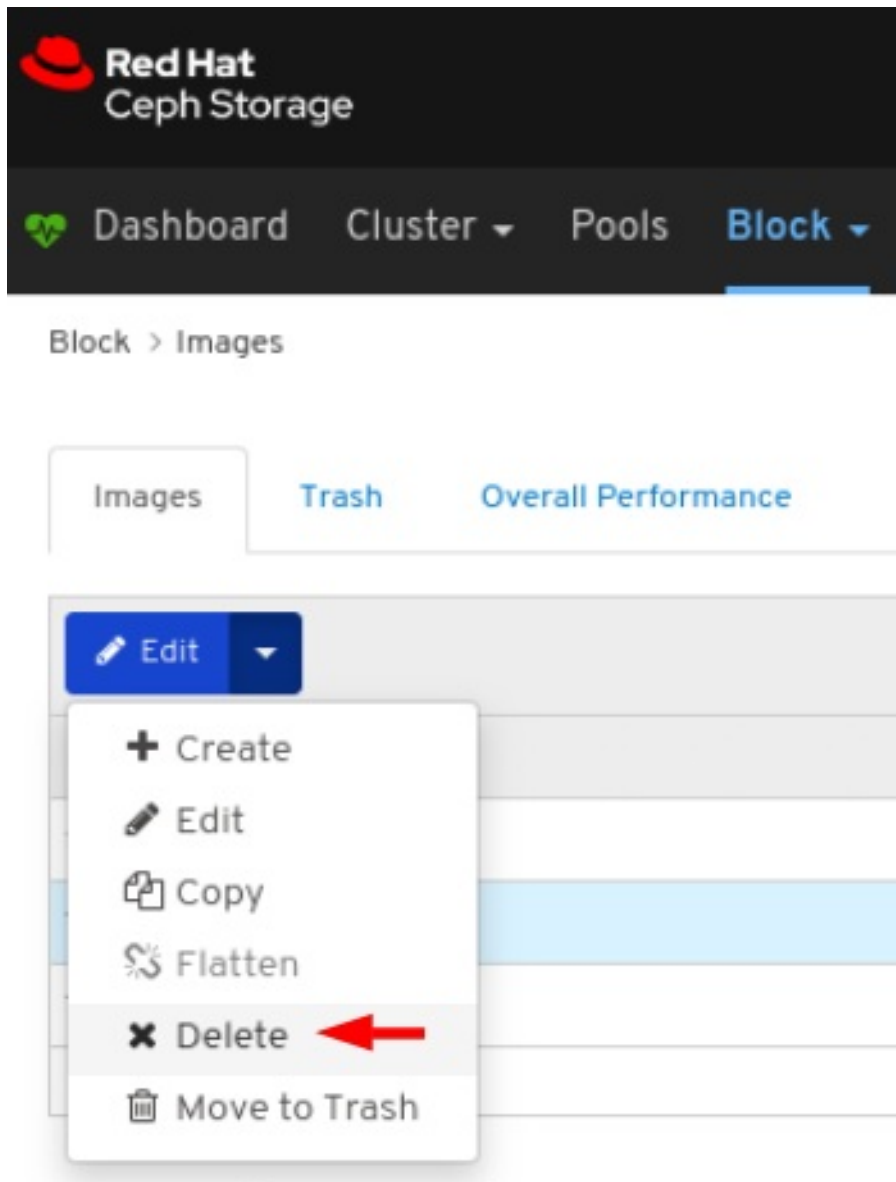


4. To edit the image, in the *Images* tab, click its row:



5. Select *Delete* in the *Edit* drop-down:

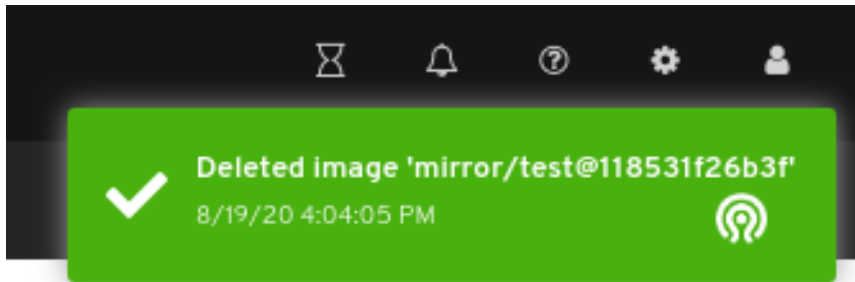




- In the *Delete RBD* dialog window, Click the *Yes, I am sure* box and then Click *Delete RBD* to save the settings:



- A notification towards the top right corner of the page indicates the image was moved to trash successfully.



### 9.2.10. Creating snapshots of images

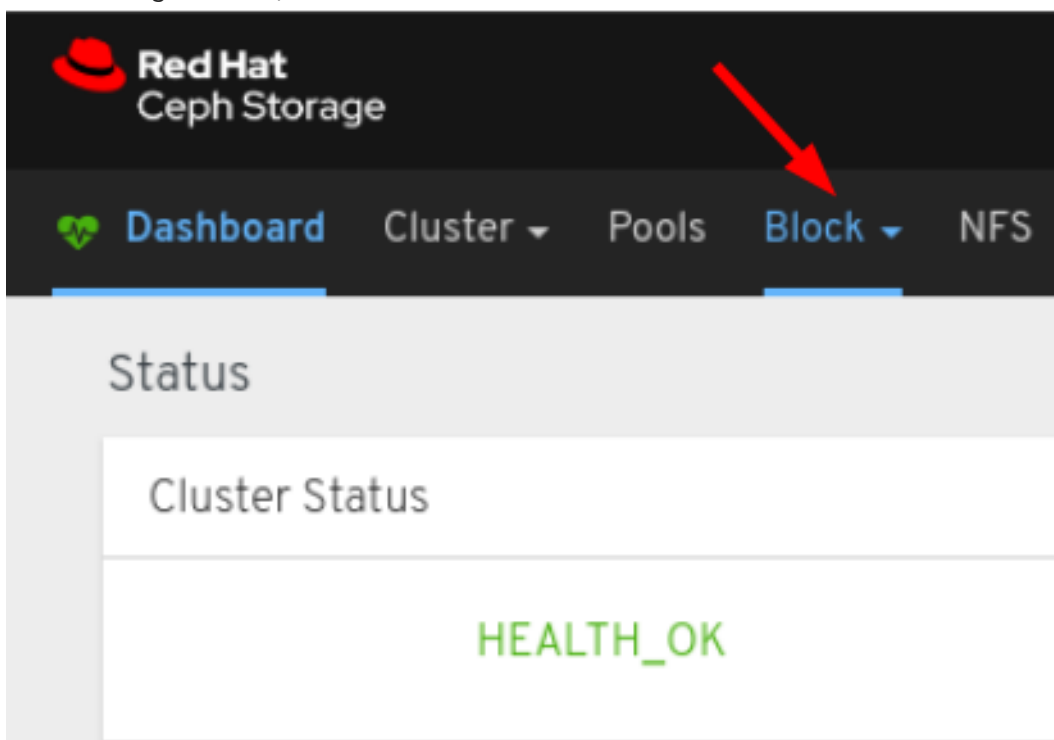
The dashboard allows you to take snapshots of Ceph block device images.

#### Prerequisites

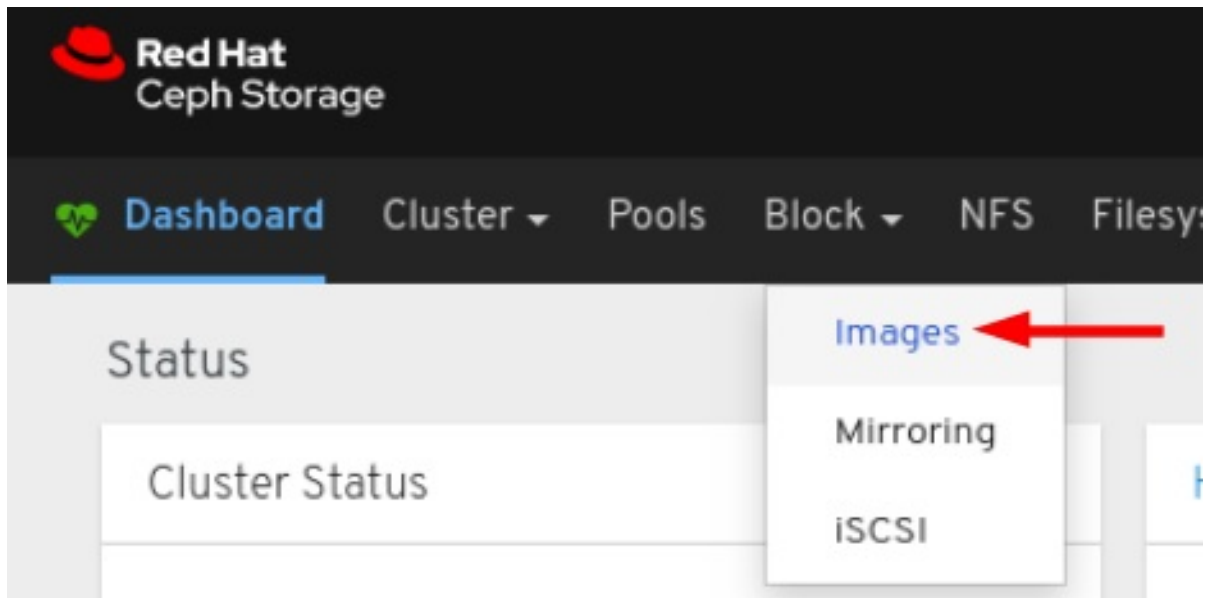
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is created.

#### Procedure

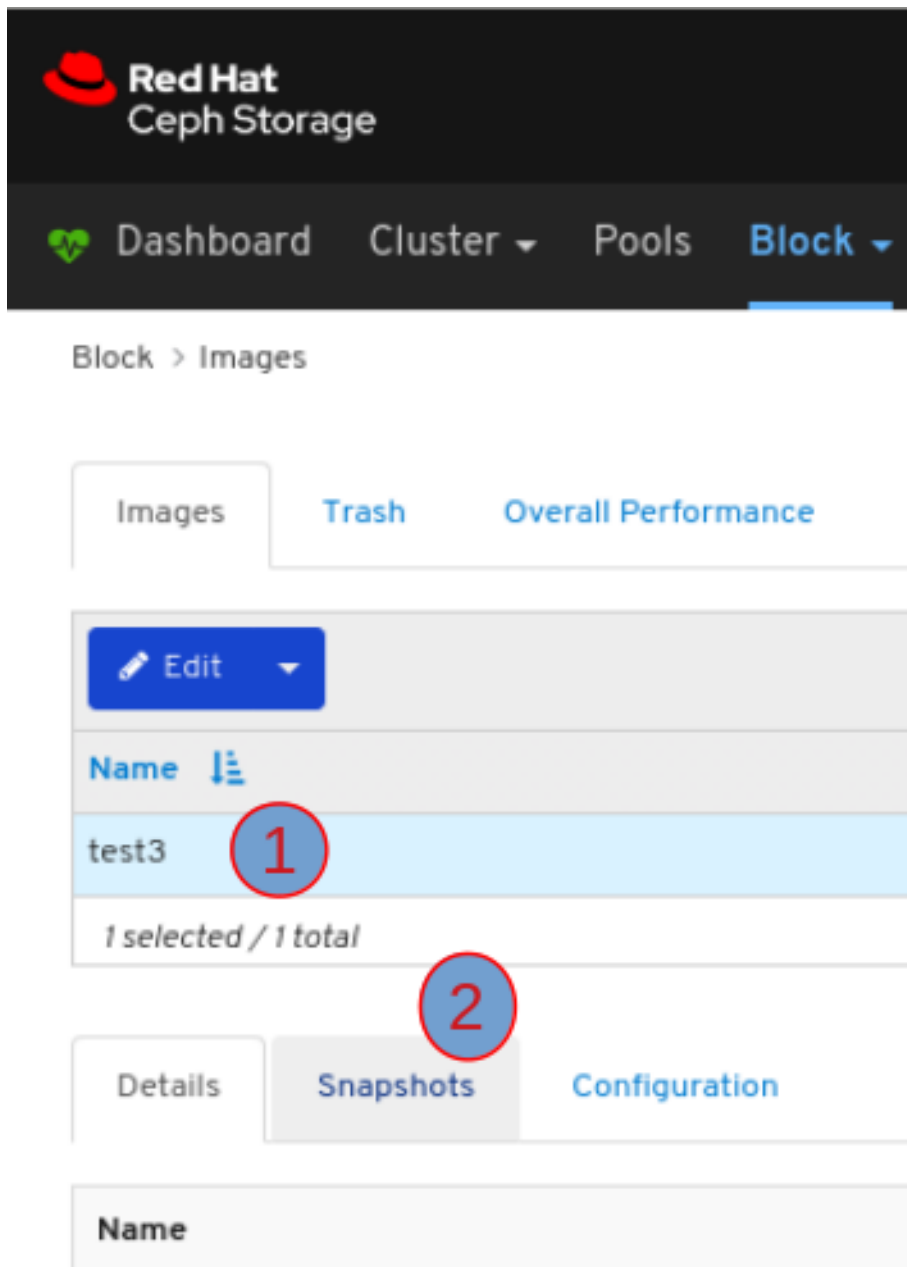
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



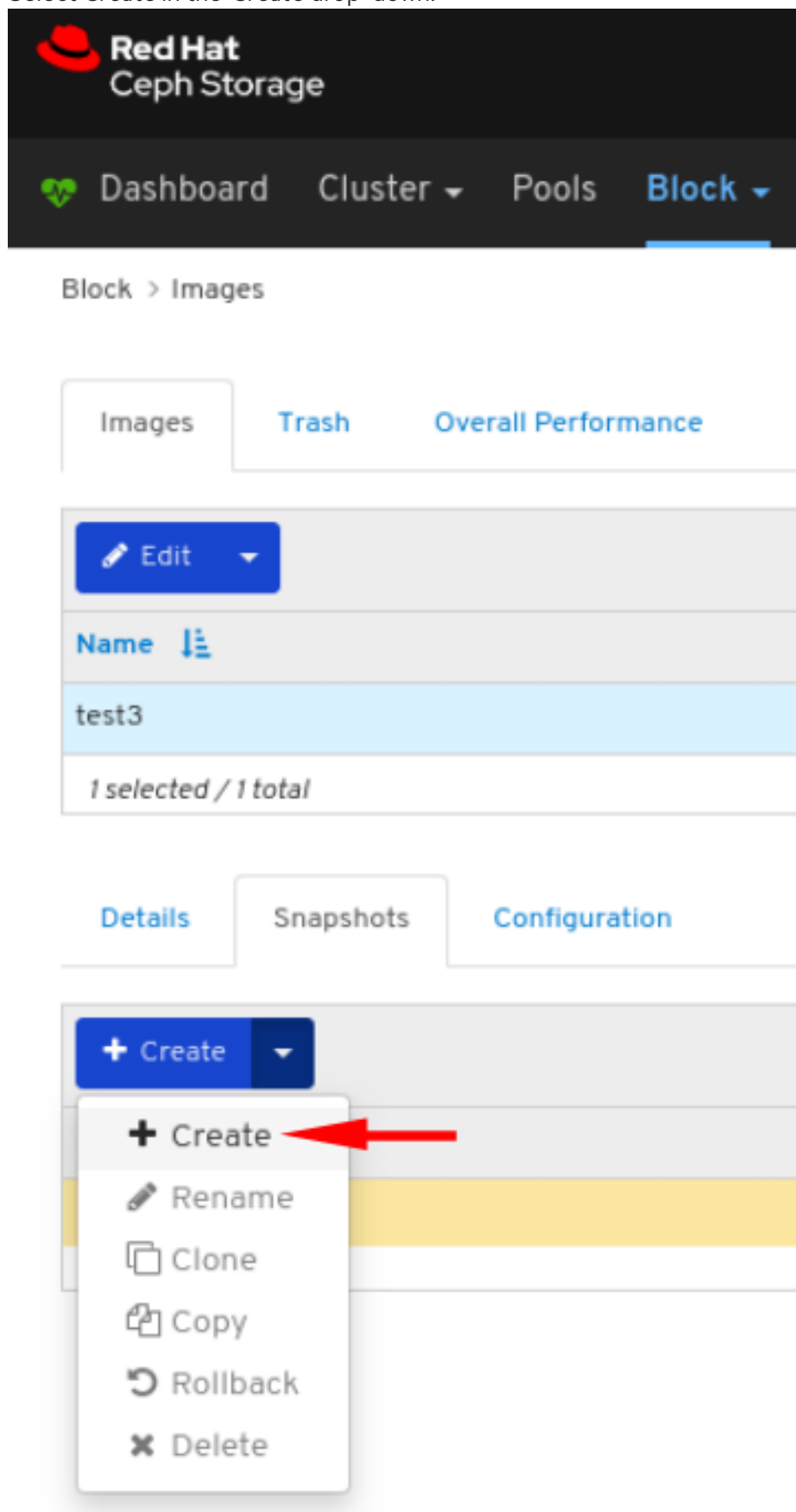
3. Select *Images* from the drop-down:



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 *CreateRBD Snapshot* dialog, enter the parameters and click the *CreateRBD Snapshot* button:

## CreateRBD Snapshot ✕

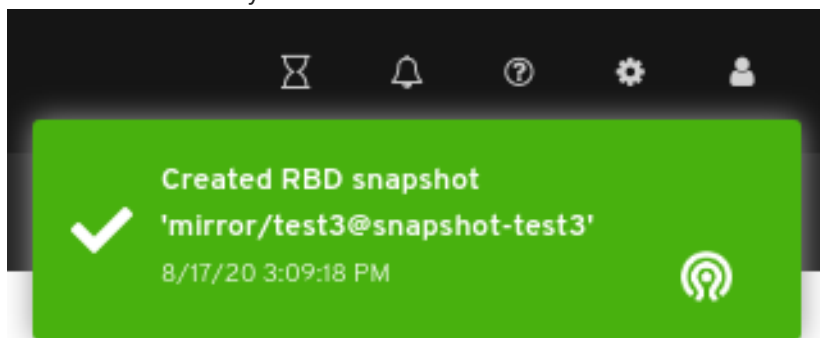
Name \*

snapshot-test3

CreateRBD Snapshot

Close

7. A notification towards the top right corner of the page indicates the snapshot of the image 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](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details on creating RBD pools.
- See the [Creating images](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details.

### 9.2.11. Renaming snapshots of images

The dashboard allows you to rename snapshots of Ceph block device images.

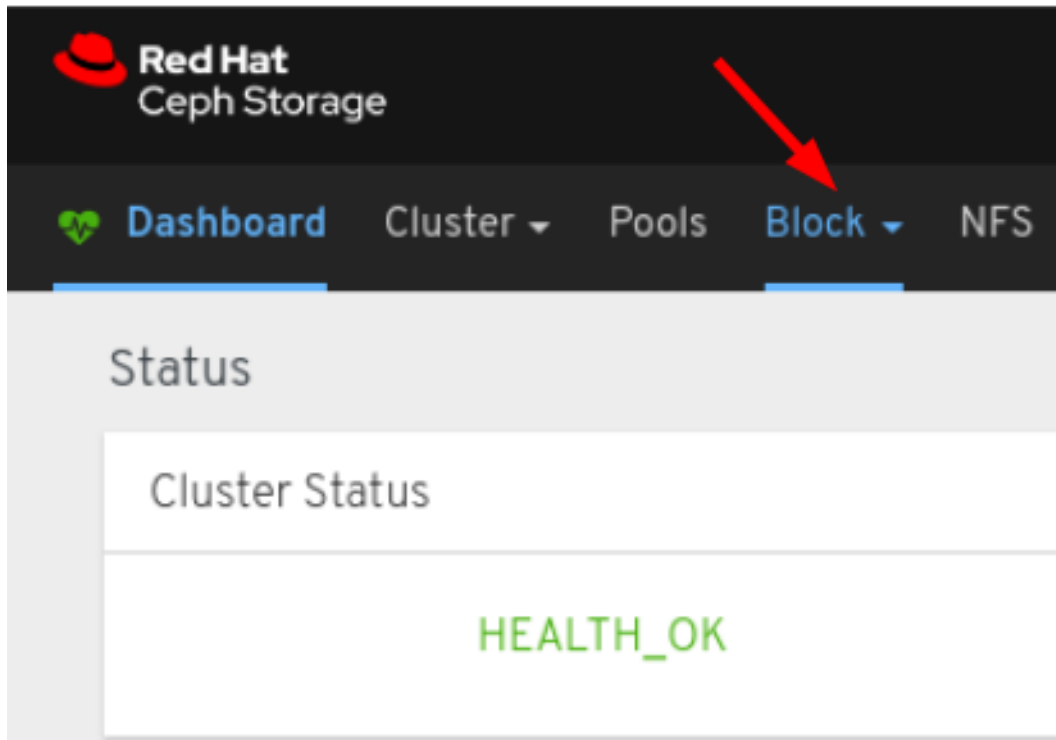
#### Prerequisites

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

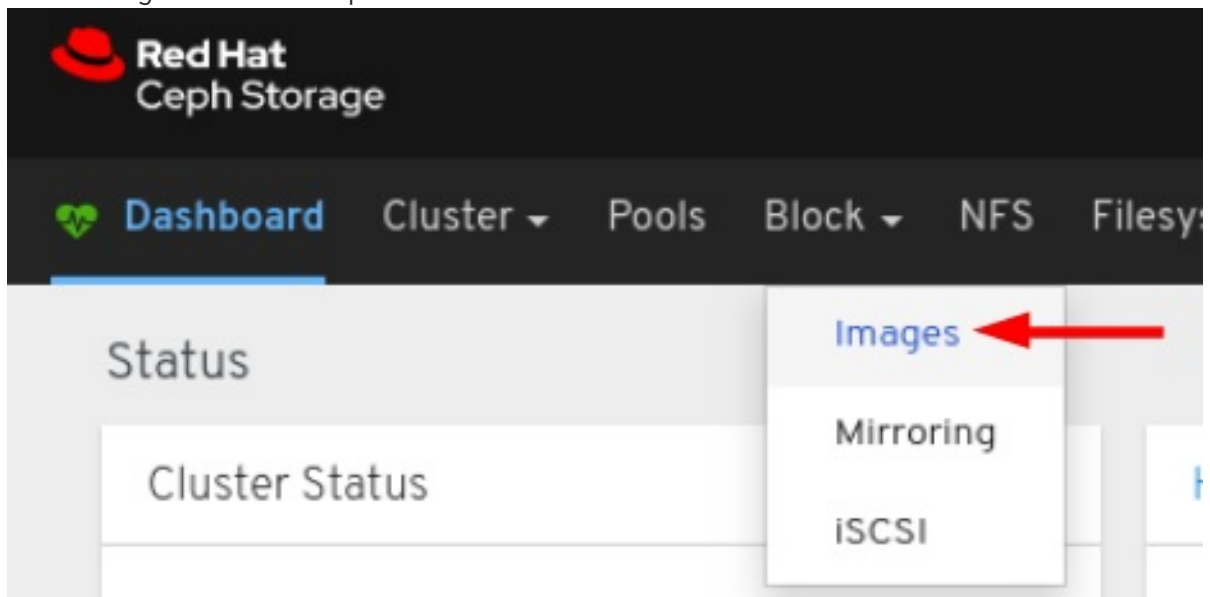
#### Procedure

1. Log in to the Dashboard.

2. On the navigation bar, click *Block*:



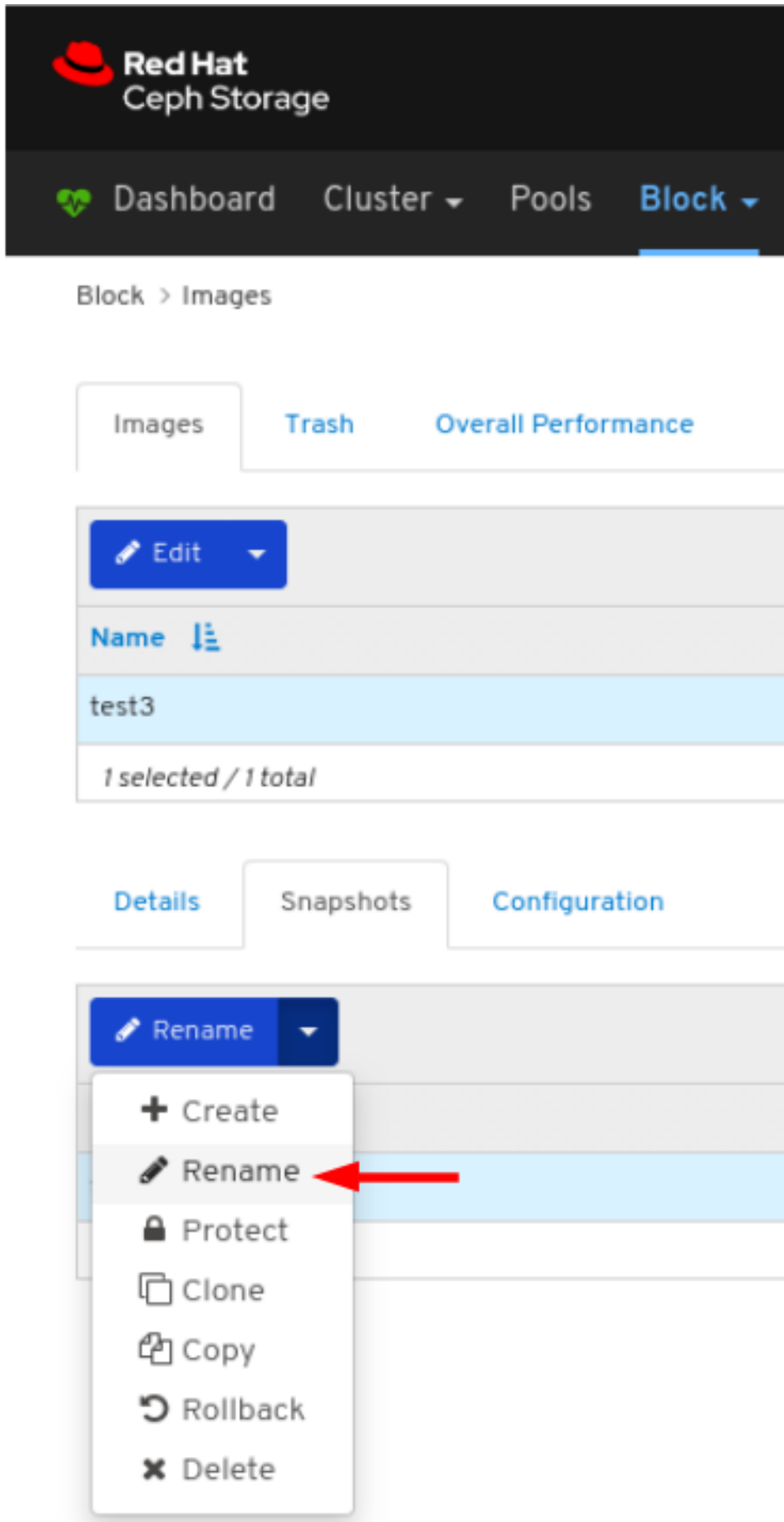
3. Select *Images* from the drop-down:



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

The screenshot shows the Red Hat Ceph Storage web interface. At the top, the navigation bar includes 'Dashboard', 'Cluster', 'Pools', and 'Block'. Below this, the breadcrumb 'Block > Images' is visible. The main content area has three tabs: 'Images', 'Trash', and 'Overall Performance'. The 'Images' tab is active, showing a table with one entry: 'test3'. A red circle with the number '1' highlights the 'test3' text. Above the table is an 'Edit' button with a dropdown arrow. Below the table, it says '1 selected / 1 total'. Below the table, there are three tabs: 'Details', 'Snapshots', and 'Configuration'. The 'Snapshots' tab is active, and a red circle with the number '2' highlights it. Below the tabs, there is a section titled 'Name'.

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



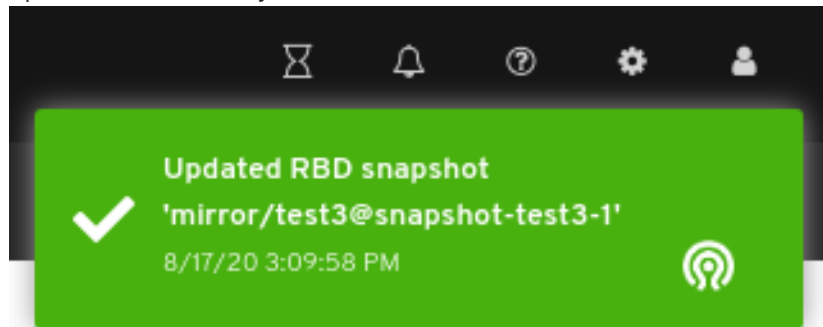
6. In the *RenameRBD Snapshot* dialog, enter the parameters and click the *RenameRBD Snapshot* button:



## RenameRBD Snapshot ×

**Name \***

7. A notification towards the top right corner of the page indicates the snapshot of the image was updated successfully.



### 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](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details on creating RBD pools.
- See the [Creating images](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details on creating images in an RBD pool.

### 9.2.12. Protecting snapshots of images

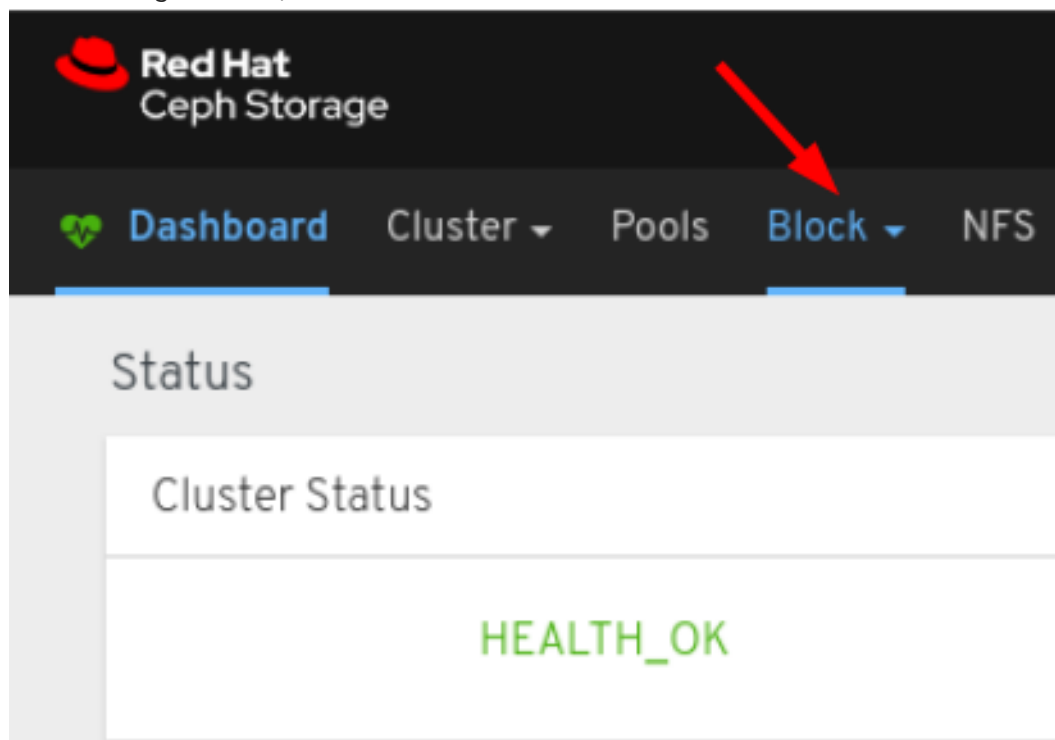
The dashboard allows you to protect snapshots of Ceph block device images. This is required when you need to clone the snapshots.

#### Prerequisites

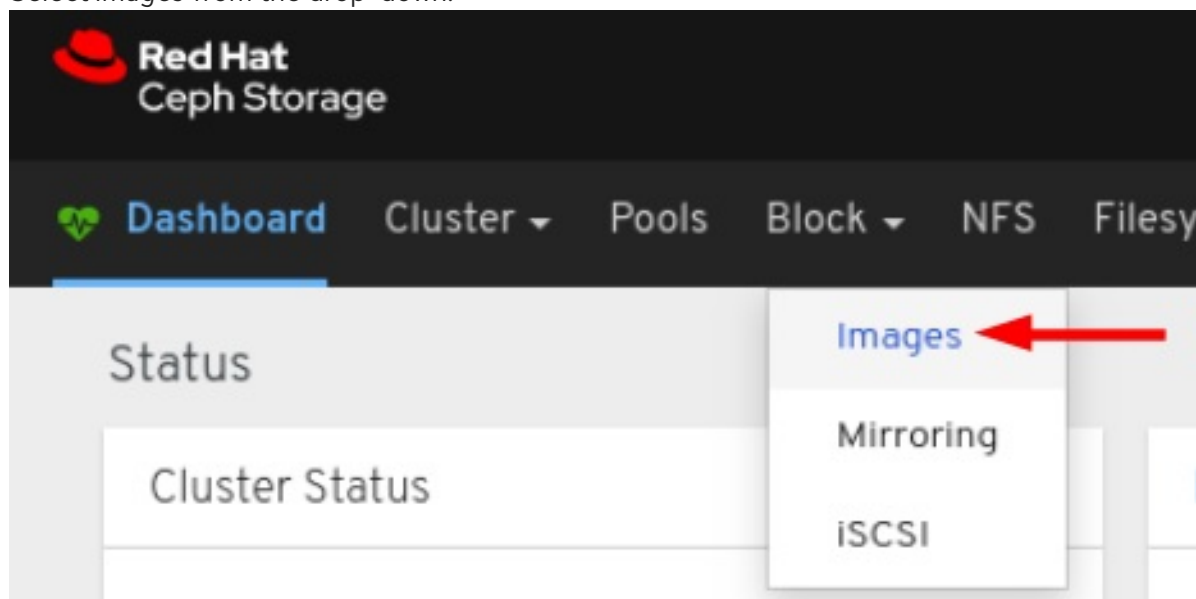
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is created.
- A snapshot of the image is created.

#### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



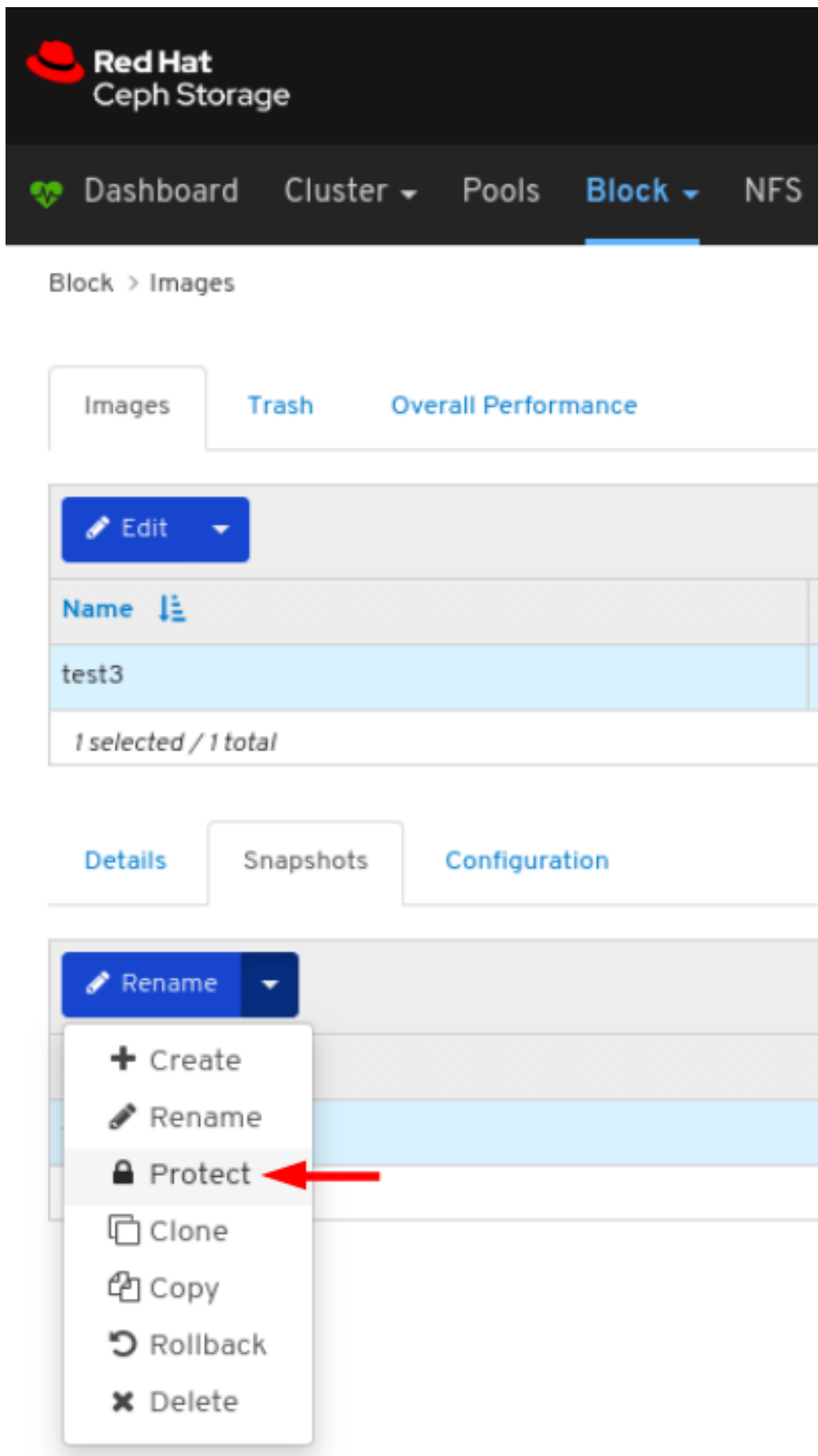
3. Select *Images* from the drop-down:



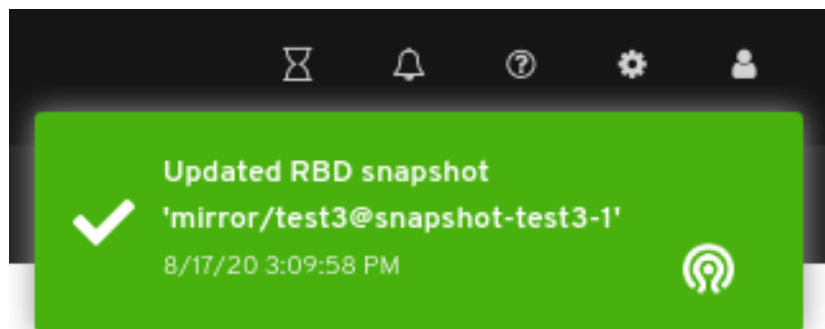
4. To protect the snapshot of the image, in the *Images* tab, click its row, and then click the *Snapshots* tab:

The screenshot shows the Red Hat Ceph Storage web interface. At the top, the navigation bar includes 'Dashboard', 'Cluster', 'Pools', and 'Block'. Below this, the breadcrumb 'Block > Images' is visible. The main content area has three tabs: 'Images', 'Trash', and 'Overall Performance'. An 'Edit' button is located above a table. The table has a header 'Name' and one row with the value 'test3'. A red circle with the number '1' is placed over the 'test3' text. Below the table, it says '1 selected / 1 total'. There are three tabs below the table: 'Details', 'Snapshots', and 'Configuration'. A red circle with the number '2' is placed over the 'Snapshots' tab. Below the tabs, a table header 'Name' is visible.

5. Select *Protect* in the the *Rename* drop-down:



6. A notification towards the top right corner of the page indicates the snapshot of the image was updated successfully.



### Additional Resources

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

### 9.2.13. Cloning snapshots of images

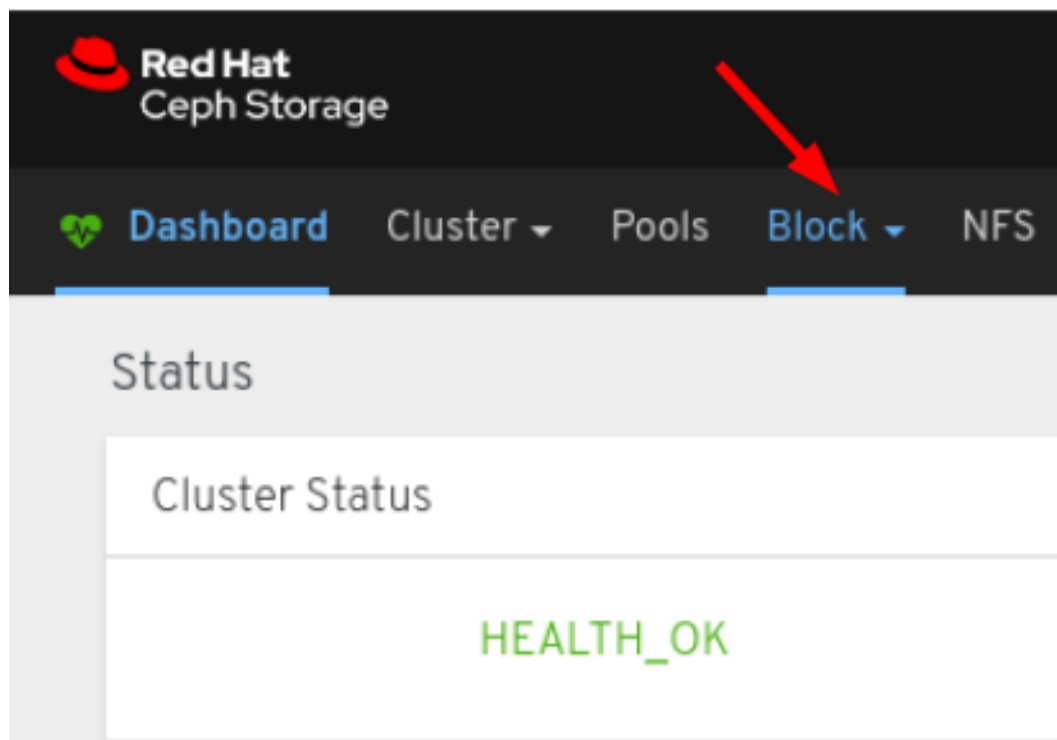
The dashboard allows you to clone snapshots of Ceph block device images.

#### Prerequisites

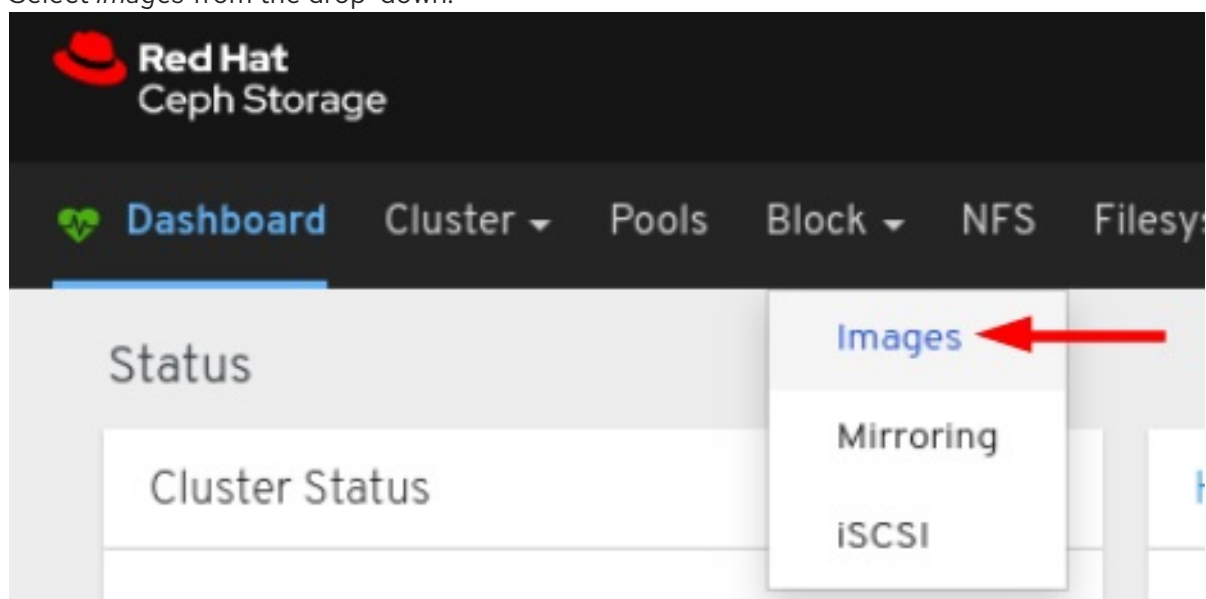
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is created.
- A snapshot of the image is created.
- A snapshot of the image is protected.

#### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



3. Select *Images* from the drop-down:



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

Red Hat  
Ceph Storage

Dashboard Cluster Pools **Block**

Block > Images

Images Trash Overall Performance

Edit

Name

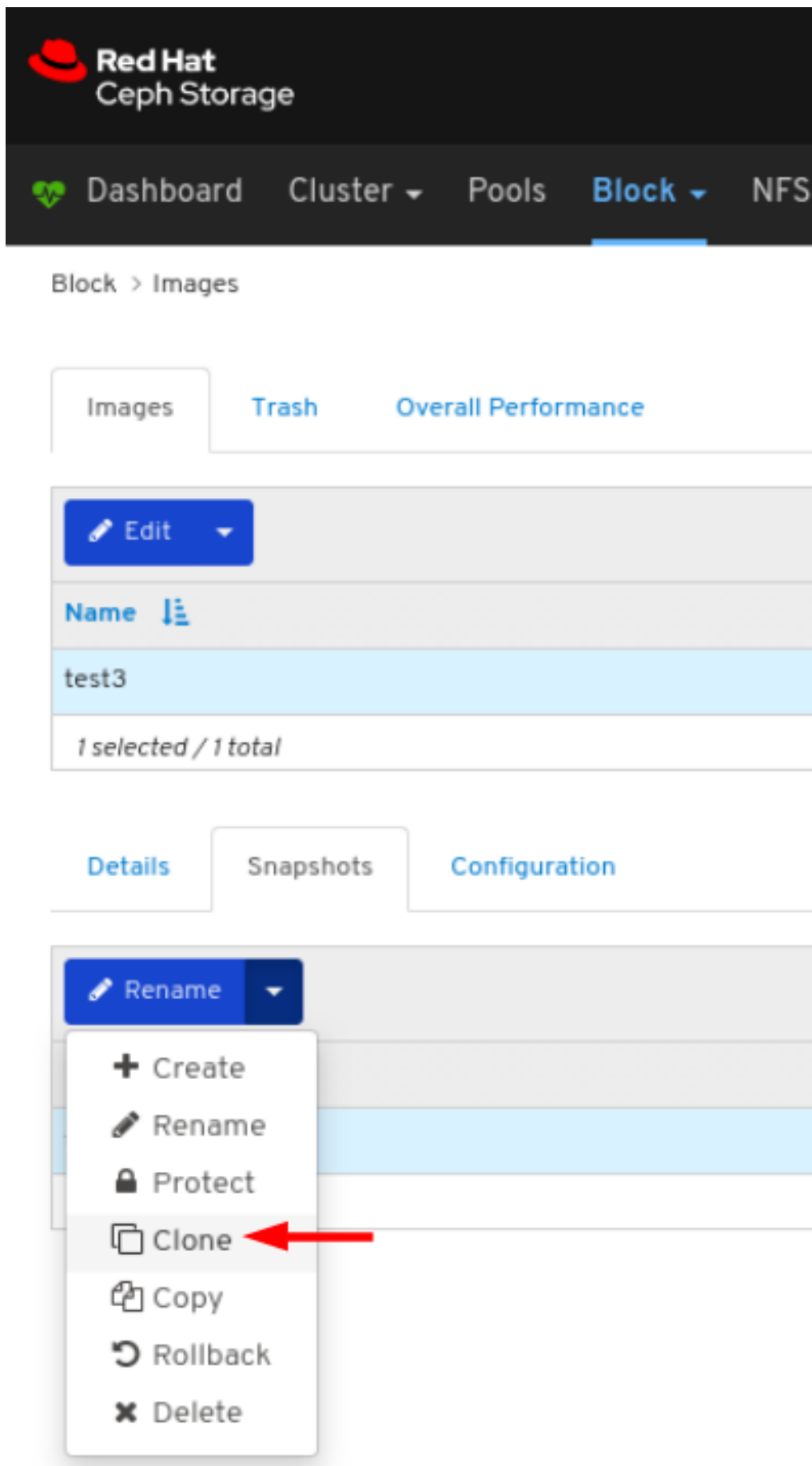
test3

1 selected / 1 total

Details Snapshots Configuration

Name

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



6. In the *CloneRBD* dialog, enter the parameters and click the *CloneRBD* button:



Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > Images > Clone

### CloneRBD

Clone from: mirror/test3@snapshot-test3-1

Name \* : test33

Pool \* : mirror

Use a dedicated data pool

Size \* : 10 GiB

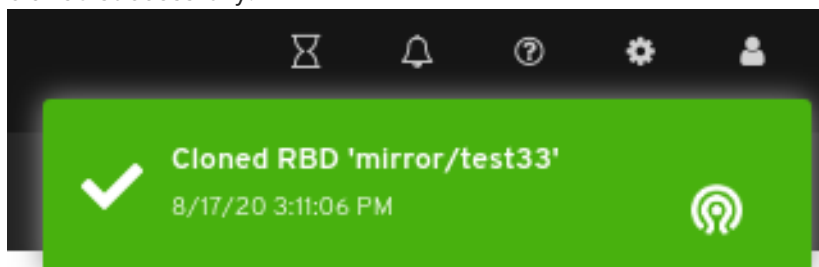
Features:

- Deep flatten
- Layering
- Exclusive lock
- Object map (requires exclusive-lock)
- Journaling (requires exclusive-lock)
- Fast diff (interlocked with object-map)

[Advanced...](#)

**CloneRBD** Cancel

7. A notification towards the top right corner of the page indicates the snapshot of the image was cloned successfully.



### Additional Resources

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

## 9.2.14. Copying snapshots of images

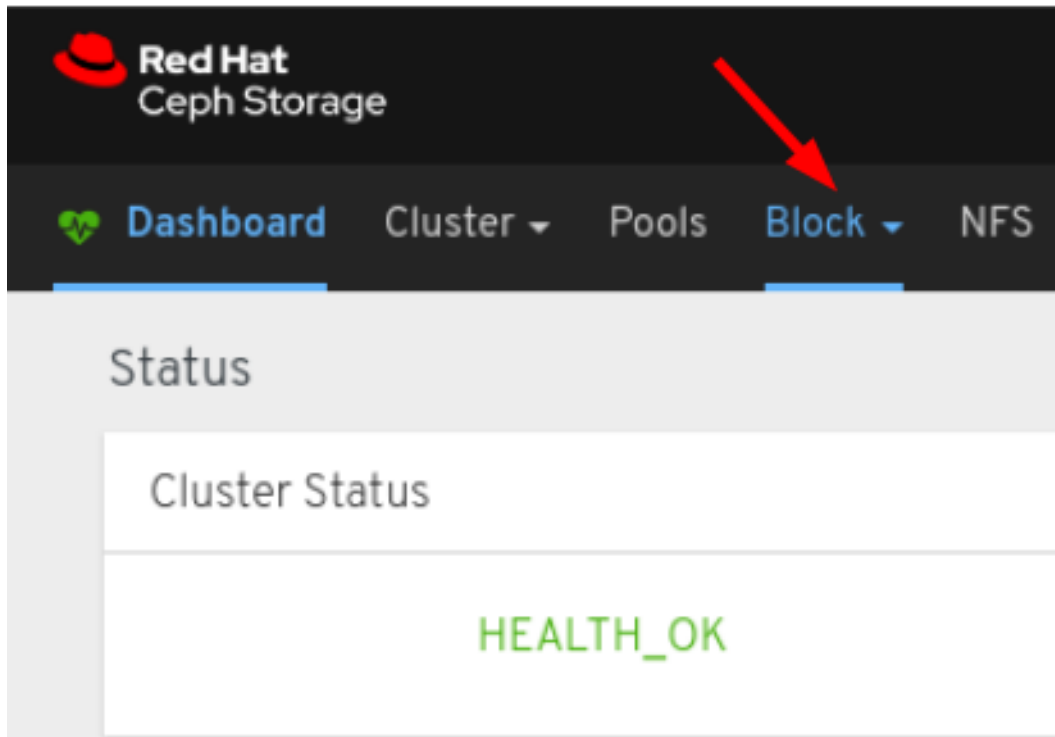
The dashboard allows you to copy snapshots of Ceph block device images.

### Prerequisites

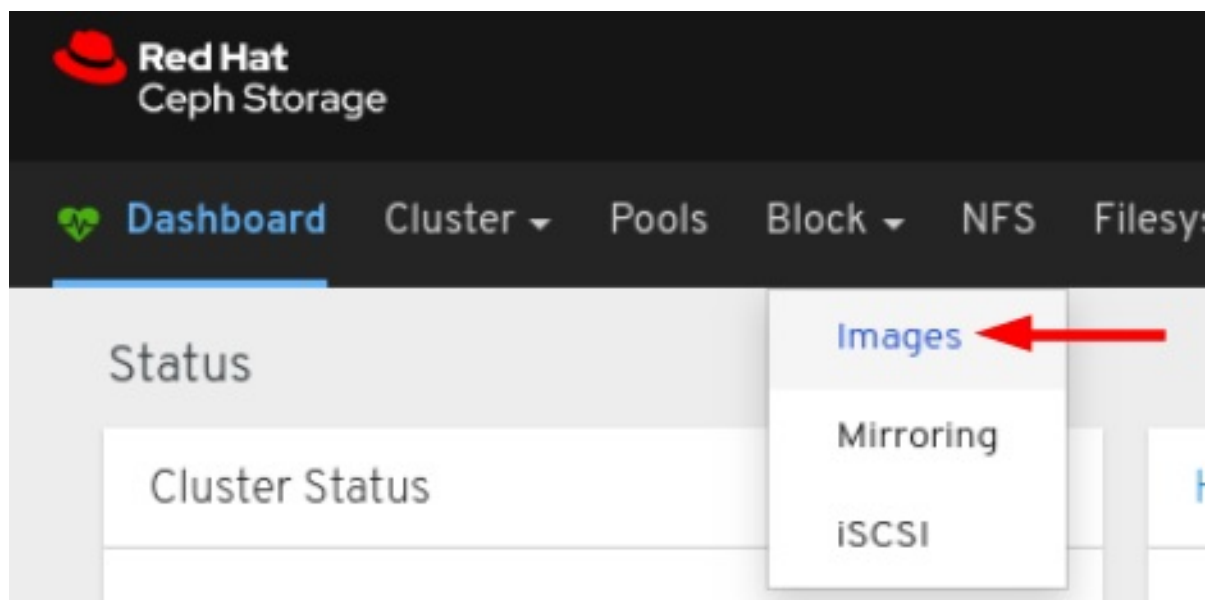
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is created.
- A snapshot of the image is created.

### Procedure

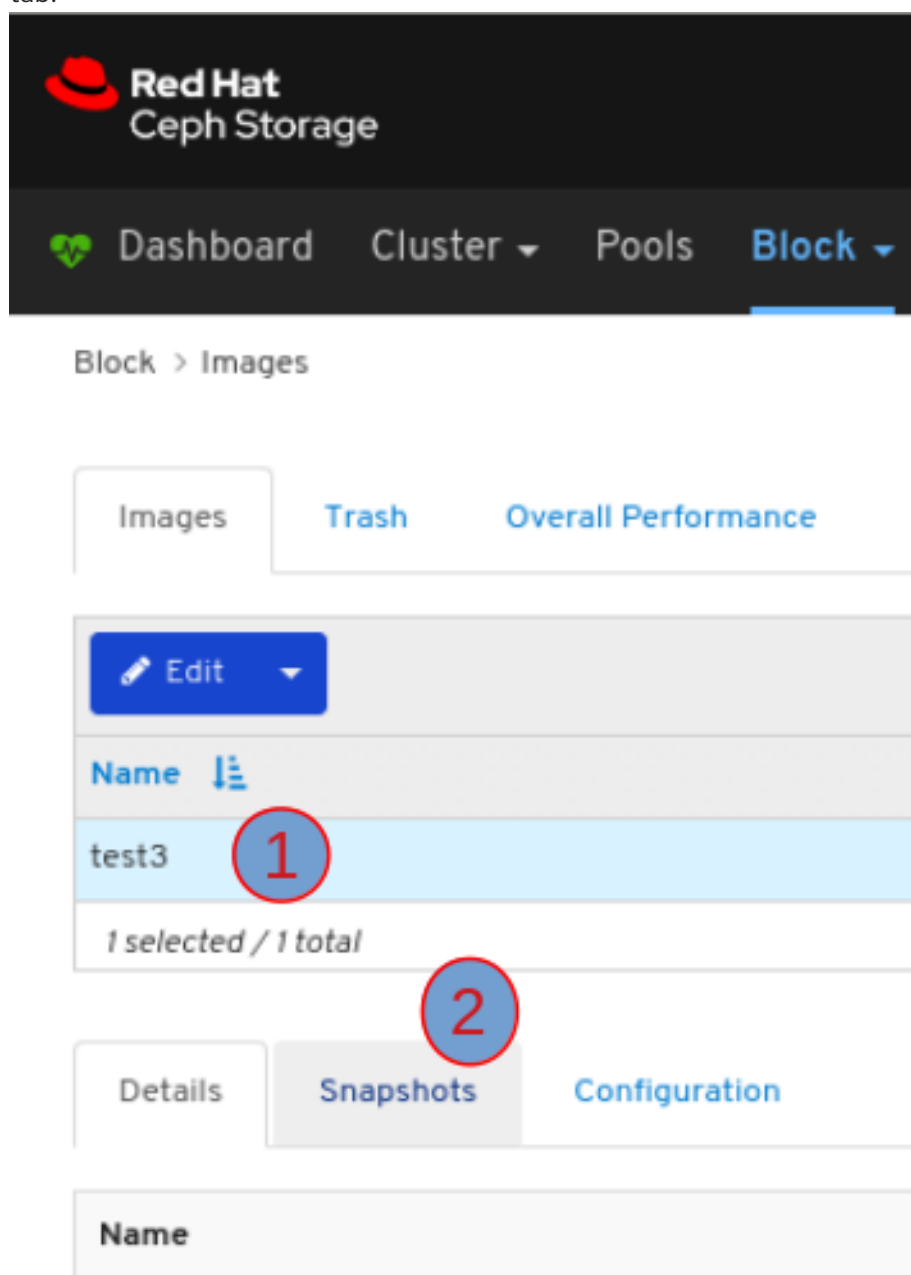
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



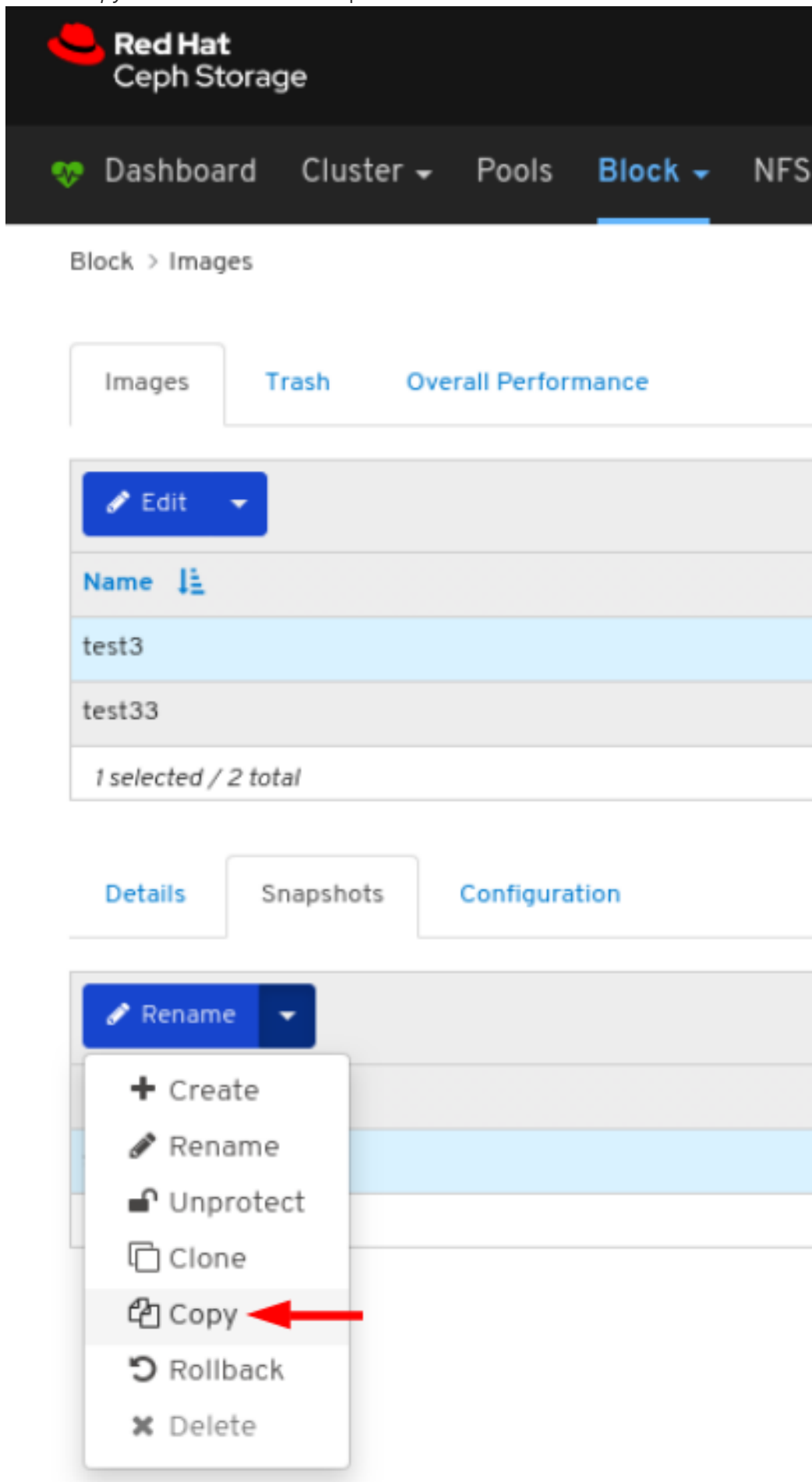
3. Select *Images* from the drop-down:



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



5. Select *Copy* in the the *Rename* drop-down:



The screenshot shows the Red Hat Ceph Storage dashboard. At the top, the navigation bar includes 'Dashboard', 'Cluster', 'Pools', 'Block', and 'NFS'. The 'Block' menu is expanded, showing 'Images', 'Trash', and 'Overall Performance'. The 'Images' tab is active, displaying a table with two rows: 'test3' (selected) and 'test33'. Below the table, there are tabs for 'Details', 'Snapshots', and 'Configuration'. A 'Rename' dropdown menu is open, showing options: '+ Create', 'Rename', 'Unprotect', 'Clone', 'Copy' (highlighted with a red arrow), 'Rollback', and 'Delete'.

6. In the *CopyRBD* dialog, enter the parameters and click the *CopyRBD* button:

Red Hat  
Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > Images > Copy

### CopyRBD

Copy from: mirror/test3@snapshot-test3-1

Name: test44

Pool: mirror

Use a dedicated data pool

Size: 10 GiB

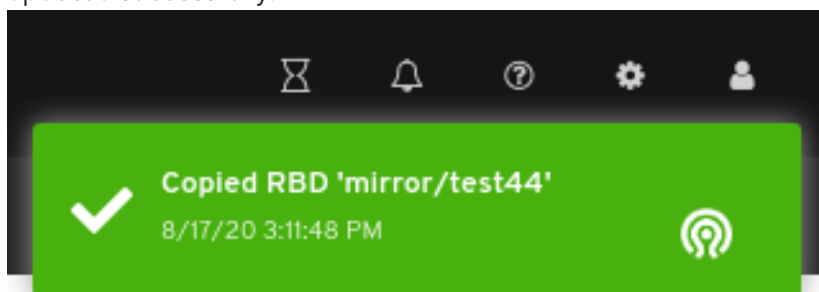
Features:

- Deep flatten
- Layering
- Exclusive lock
- Object map (requires exclusive-lock)
- Journaling (requires exclusive-lock)
- Fast diff (interlocked with object-map)

[Advanced...](#)

**CopyRBD** Cancel

- A notification towards the top right corner of the page indicates the snapshot of the image was updated successfully.



### Additional Resources

- See the [Creating pools](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details on creating RBD pools.
- See the [Creating images](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details on creating images in an RBD pool.

### 9.2.15. Rolling back snapshots of images

The dashboard allows you to rollback snapshots of Ceph block device images.

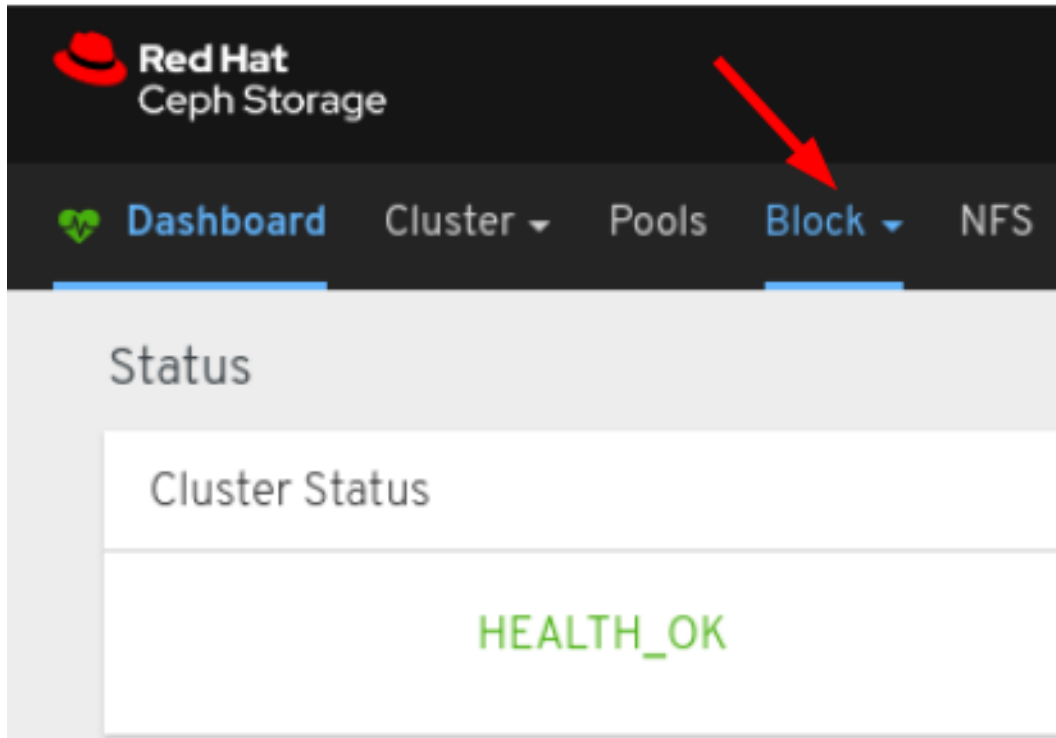
### Prerequisites

- A running Red Hat Ceph Storage cluster.

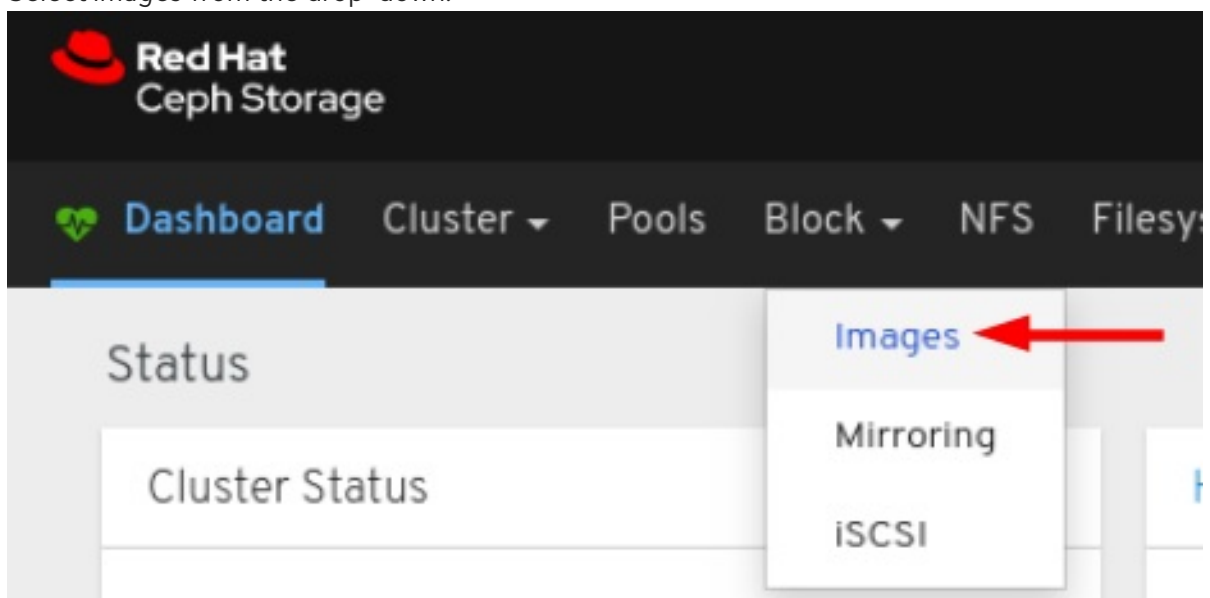
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is created.
- A snapshot of the image is created.

### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



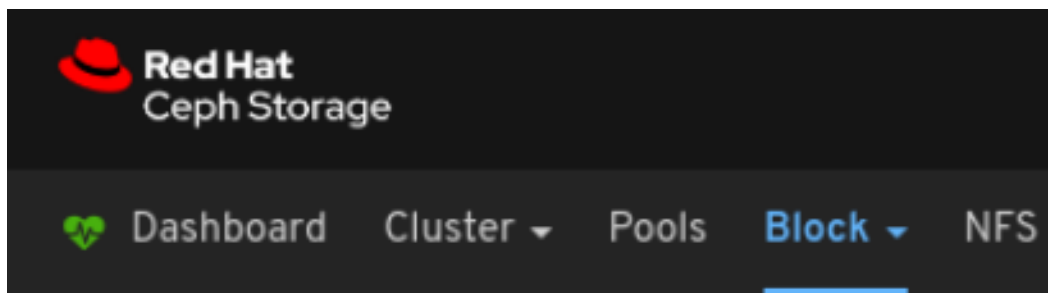
3. Select *Images* from the drop-down:



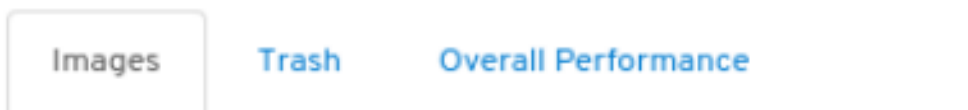
4. To rollback the snapshot of the image, in the *Images* tab, click its row, and then click the *Snapshots* tab:

The screenshot shows the Red Hat Ceph Storage web interface. At the top, the navigation bar includes 'Dashboard', 'Cluster', 'Pools', and 'Block'. Below this, the breadcrumb 'Block > Images' is visible. The main content area has three tabs: 'Images', 'Trash', and 'Overall Performance'. The 'Images' tab is active, showing a table with one entry, 'test3', which is highlighted in blue. A red circle with the number '1' is placed over the 'test3' text. Above the table is an 'Edit' button with a dropdown arrow. Below the table, the text '1 selected / 1 total' is displayed. Below the table, there are three tabs: 'Details', 'Snapshots', and 'Configuration'. The 'Snapshots' tab is active and highlighted in grey, with a red circle and the number '2' placed over it. Below the tabs, a table header with the text 'Name' is visible.

5. Select *Rollback* in the the *Rename* drop-down:



Block > Images



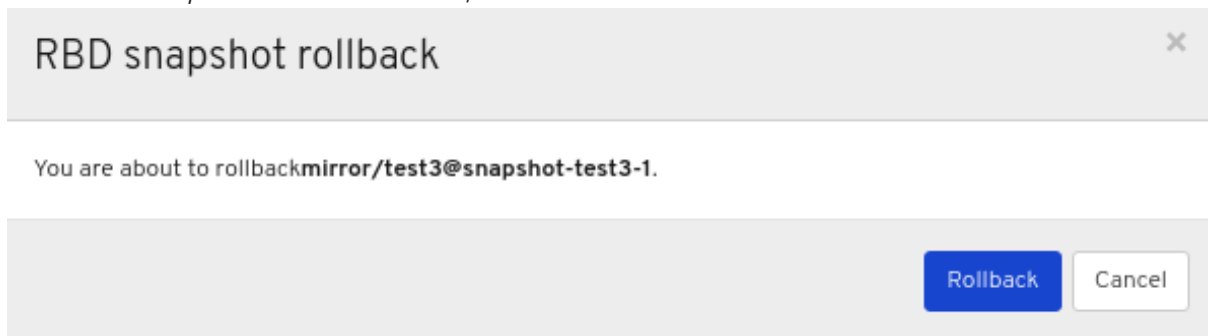
1 selected / 3 total

A table listing three images: "test3", "test33", and "test44". The "test3" row is selected. Above the table is a blue "Edit" button with a pencil icon and a dropdown arrow. Below the table, it indicates "1 selected / 3 total".

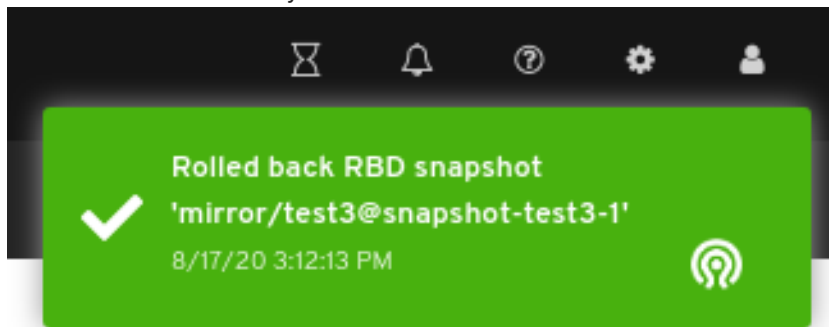
A context menu is open over the selected "test3" image. The menu items are: "Rename" (with a pencil icon and a dropdown arrow), "Create" (with a plus icon), "Rename" (with a pencil icon), "Unprotect" (with a lock icon), "Clone" (with a document icon), "Copy" (with a document icon), "Rollback" (with a circular arrow icon, highlighted by a red arrow), and "Delete" (with an 'X' icon).



6. In the *RBD snapshot rollback* window, click the *Rollback* button:



7. A notification towards the top right corner of the page indicates the snapshot of the image was rolled back successfully.



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

### 9.2.16. Unprotecting snapshots of images

The dashboard allows you to unprotect snapshots of Ceph block device images. This is required when you need to delete the snapshots.

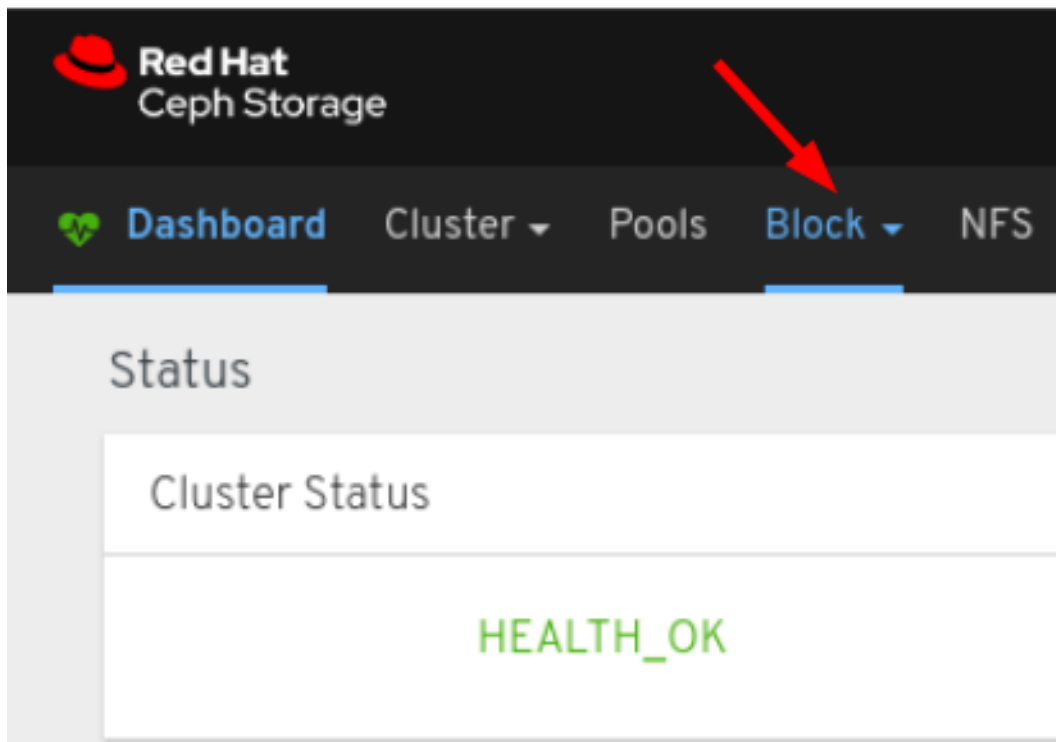
#### Prerequisites

- 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.
- A snapshot of the image is protected.

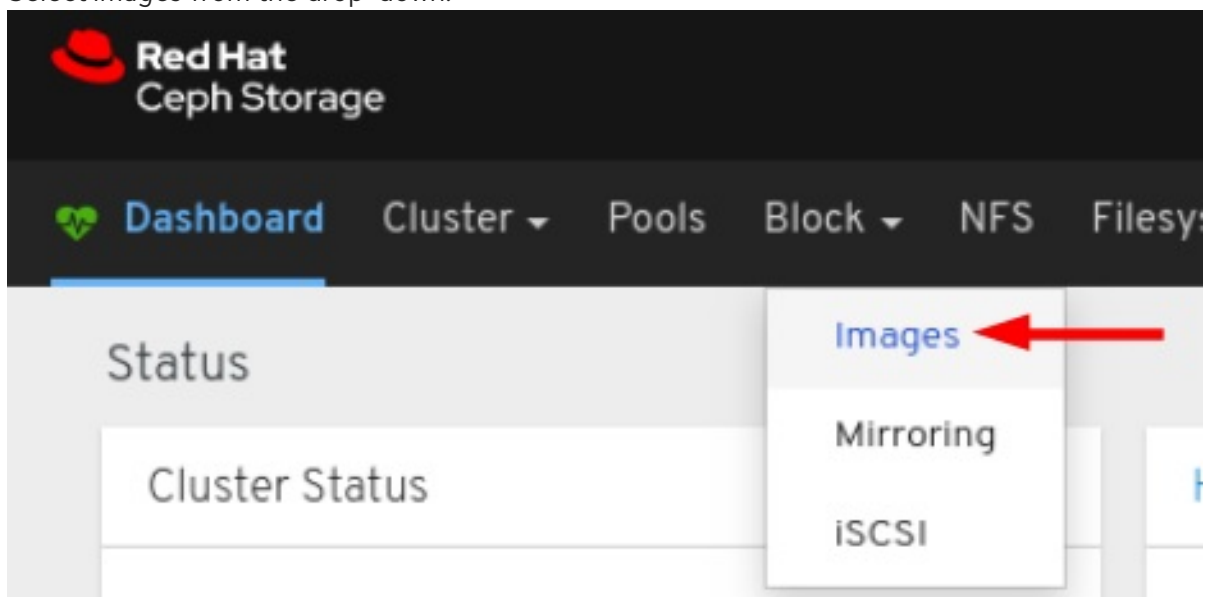
#### Procedure

1. Log in to the Dashboard.

2. On the navigation bar, click *Block*:



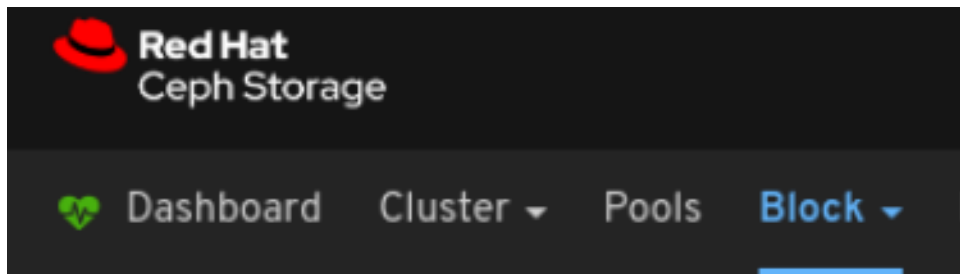
3. Select *Images* from the drop-down:



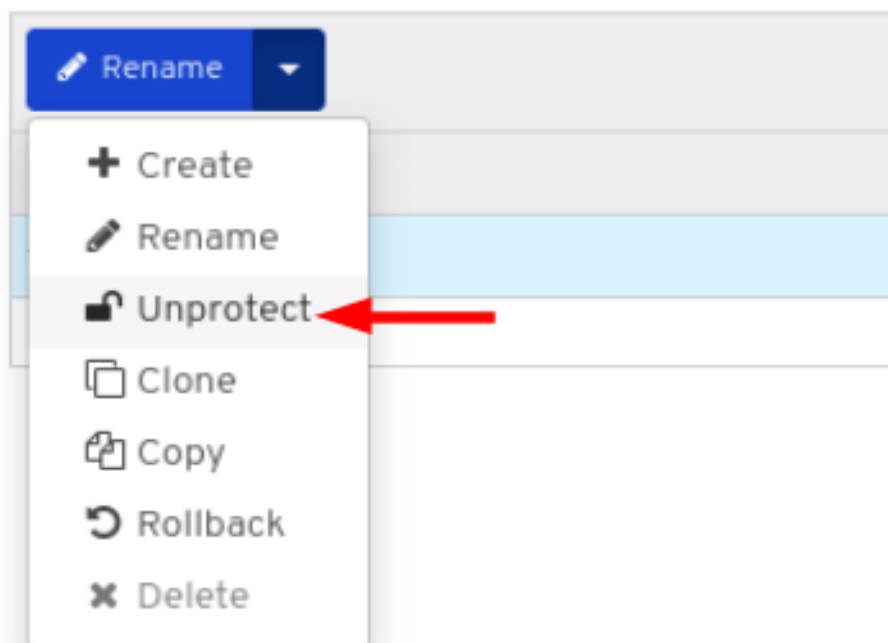
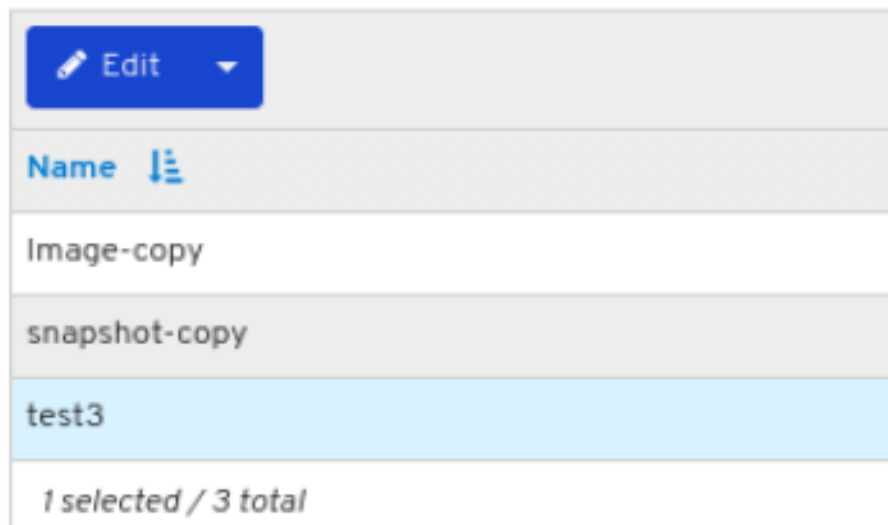
4. To unprotect the snapshot of the image, in the *Images* tab, click its row, and then click the *Snapshots* tab:

The screenshot shows the Red Hat Ceph Storage web interface. At the top, the navigation bar includes 'Dashboard', 'Cluster', 'Pools', and 'Block'. Below this, the breadcrumb 'Block > Images' is visible. The main content area has three tabs: 'Images', 'Trash', and 'Overall Performance'. The 'Images' tab is active, showing a table with one entry, 'test3', which is highlighted in blue. A red circle with the number '1' is placed over the 'test3' text. Above the table is an 'Edit' button with a dropdown arrow. Below the table, the text '1 selected / 1 total' is displayed. Below the table, there are three tabs: 'Details', 'Snapshots', and 'Configuration'. The 'Snapshots' tab is active and highlighted in grey, with a red circle and the number '2' placed over it. Below the tabs, a section titled 'Name' is visible.

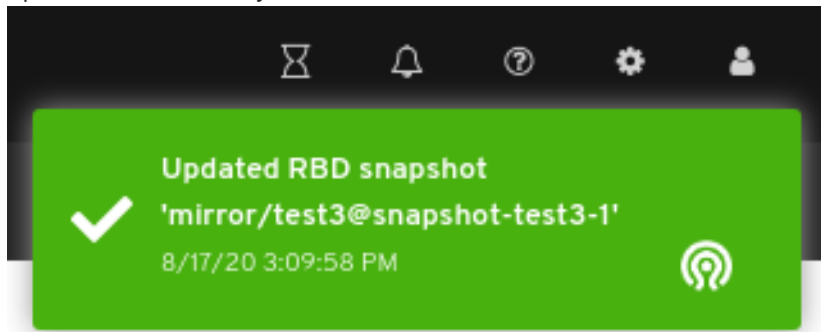
5. Select *UnProtect* in the the *Rename* drop-down:



Block > Images



6. A notification towards the top right corner of the page indicates the snapshot of the image was updated successfully.



### Additional Resources

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

### 9.2.17. Deleting snapshots of images

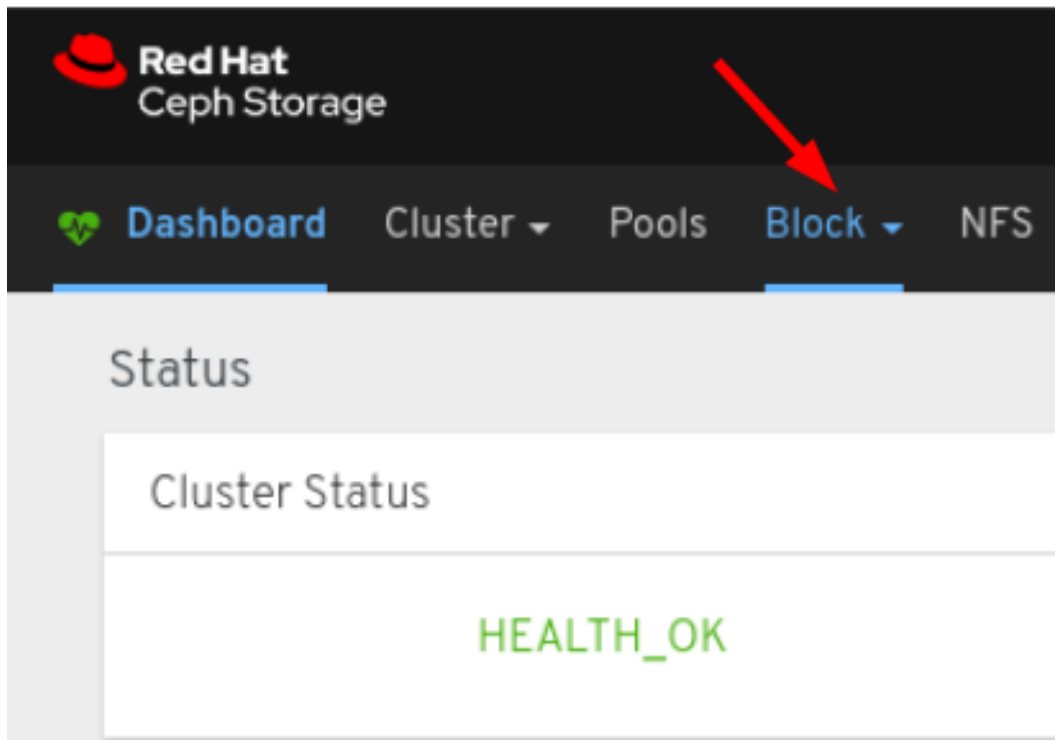
The dashboard allows you to delete snapshots of Ceph block device images.

#### Prerequisites

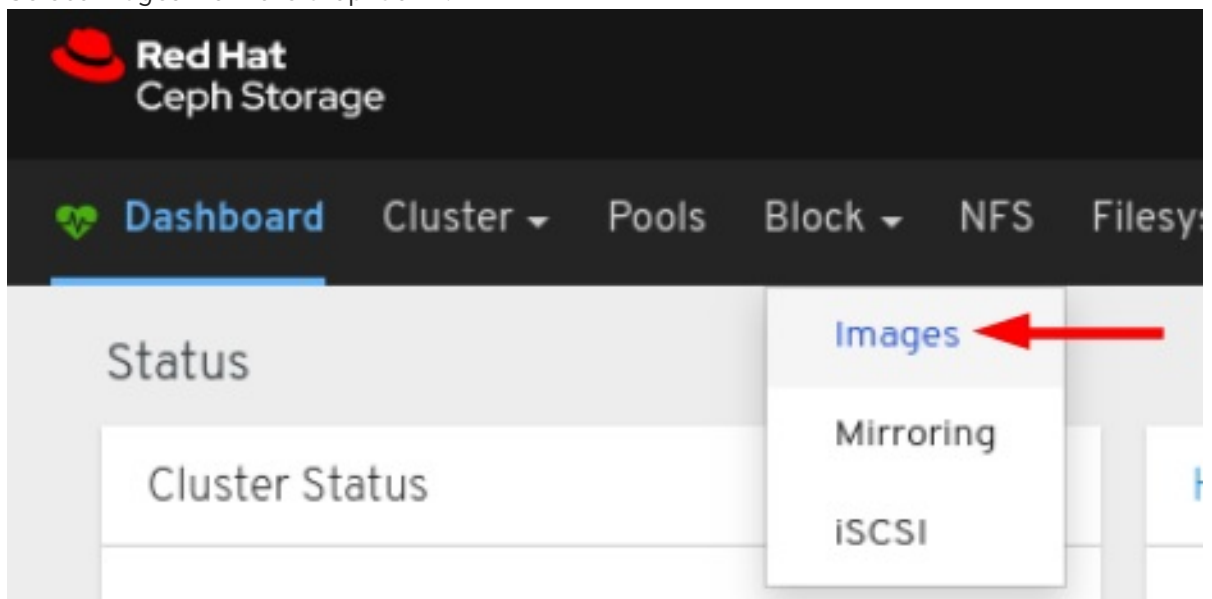
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is created.
- A snapshot of the image is created.
- A snapshot of the image is unprotected.

#### Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



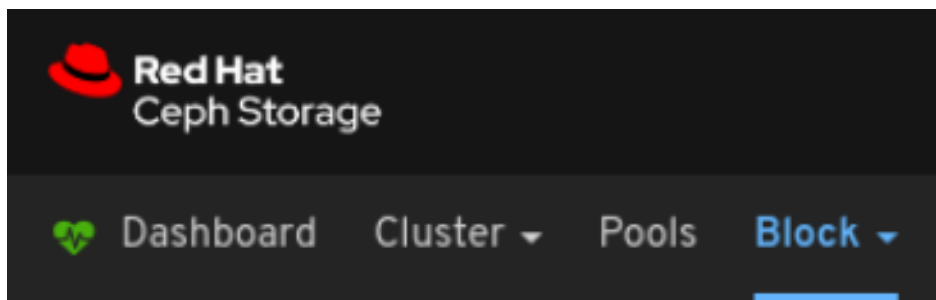
3. Select *Images* from the drop-down:



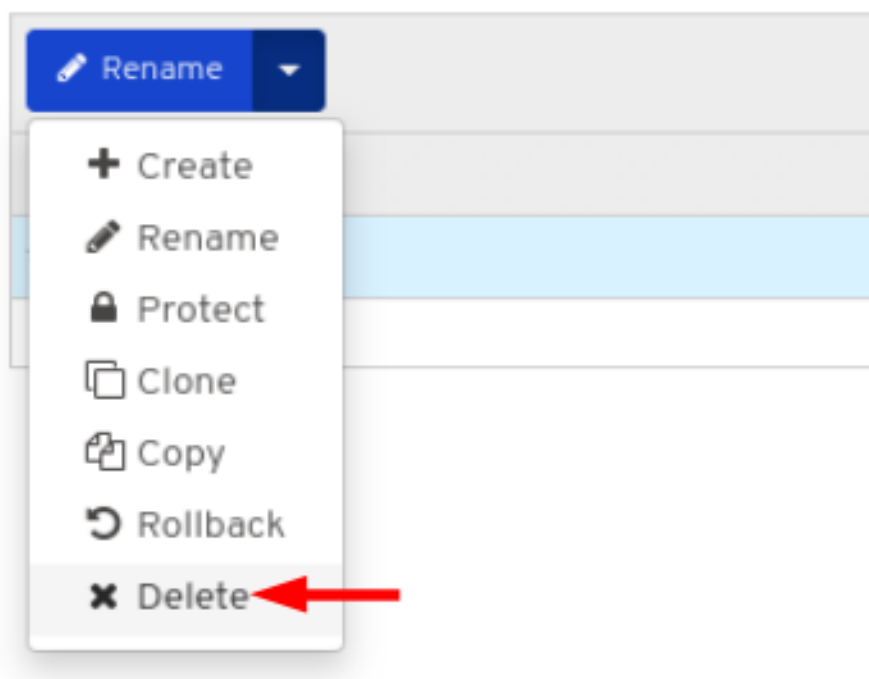
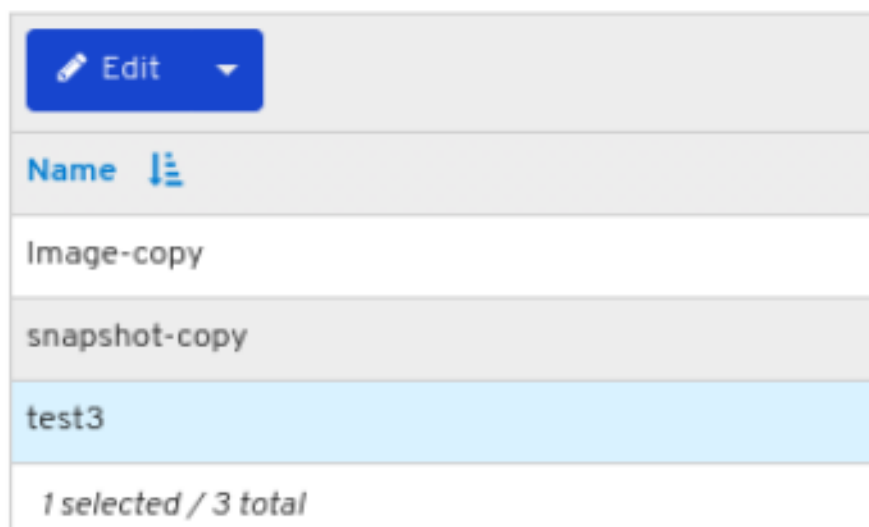
4. To delete the snapshot of the image, in the *Images* tab, click its row, and then click the *Snapshots* tab:

The screenshot shows the Red Hat Ceph Storage web interface. At the top, the navigation bar includes 'Dashboard', 'Cluster', 'Pools', and 'Block'. Below this, the breadcrumb 'Block > Images' is visible. The main content area has three tabs: 'Images', 'Trash', and 'Overall Performance'. The 'Images' tab is active, showing a table with one entry, 'test3', which is highlighted in blue. A red circle with the number '1' is placed over the 'test3' text. Above the table is an 'Edit' button with a dropdown arrow. Below the table, the text '1 selected / 1 total' is displayed. Below the table, there are three tabs: 'Details', 'Snapshots', and 'Configuration'. The 'Snapshots' tab is active and highlighted in grey, with a red circle and the number '2' placed over it. Below the tabs, a table header with the text 'Name' is visible.

5. Select *Delete* in the the *Rename* drop-down:

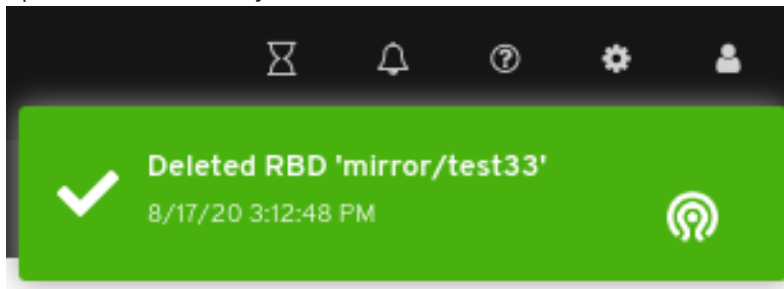


Block > Images





6. A notification towards the top right corner of the page indicates the snapshot of the image was updated 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](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more details.

## 9.3. MIRRORING FUNCTIONS

The dashboard allows you to manage and monitor mirroring functions.

### 9.3.1. Prerequisites

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

### 9.3.2. Mirroring view

The dashboard allows you to view the overall state of mirroring functions.

#### 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 bar, click *Block*.
3. Click *Mirroring*:

Block > Mirroring

**Daemons**

Instance	ID	Hostname	Version	Health
344136	magna019	magna019	14.2.4-40.el8cp	OK
1 total				

**Pools**

Name	Mode	Leader	# Local	# Remote	Health
data	pool	344136	1	1	Warning
poolB	disabled				Disabled
rbd	disabled				Disabled
rbd-bench-10-rep	disabled				Disabled
rep_pool	disabled				Disabled
test1	disabled				Disabled
testSnapPool	disabled				Disabled
0 selected / 7 total					

**Images**

Issues: Syncing Ready

Pool	Image	Issue	State
data	mirror1		Unknown
1 total			

In the above example, you can see mirroring information categorized into tables labeled *Daemons*, *Pools*, and *Images*.

## Additional Resources

- For more information on mirroring, see [Block Device Mirroring](#) in the [Block Device Guide](#).

### 9.3.3. Editing mode

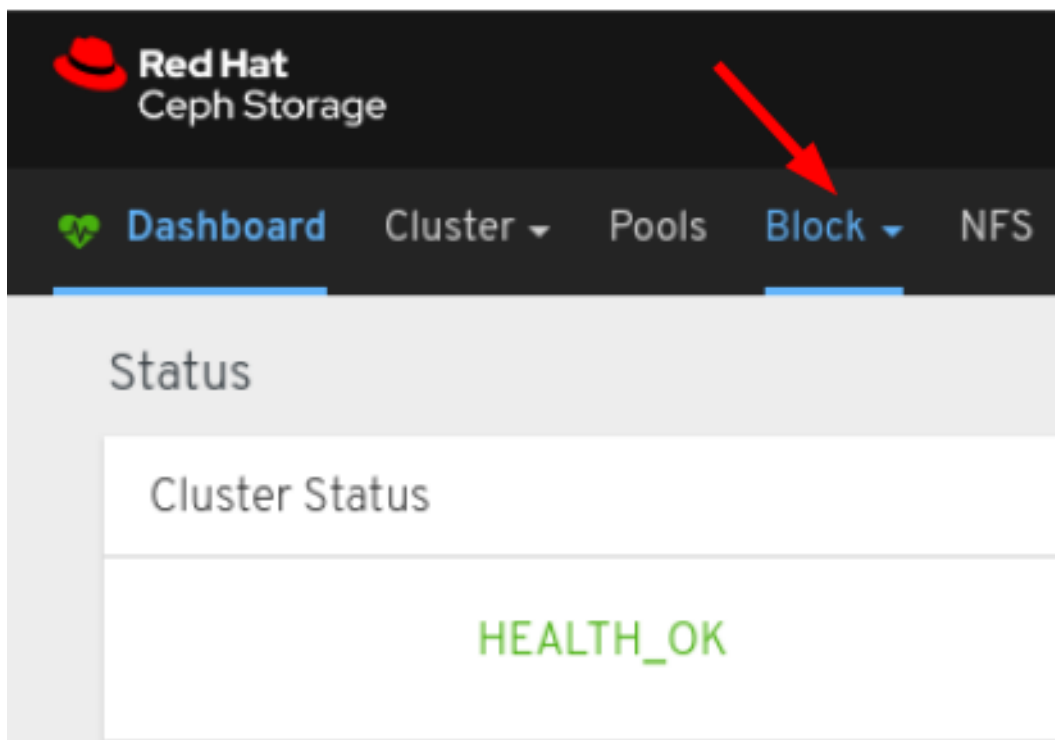
The dashboard allows you to edit mode of the overall state of mirroring functions, which includes pools and images.

#### Prerequisites

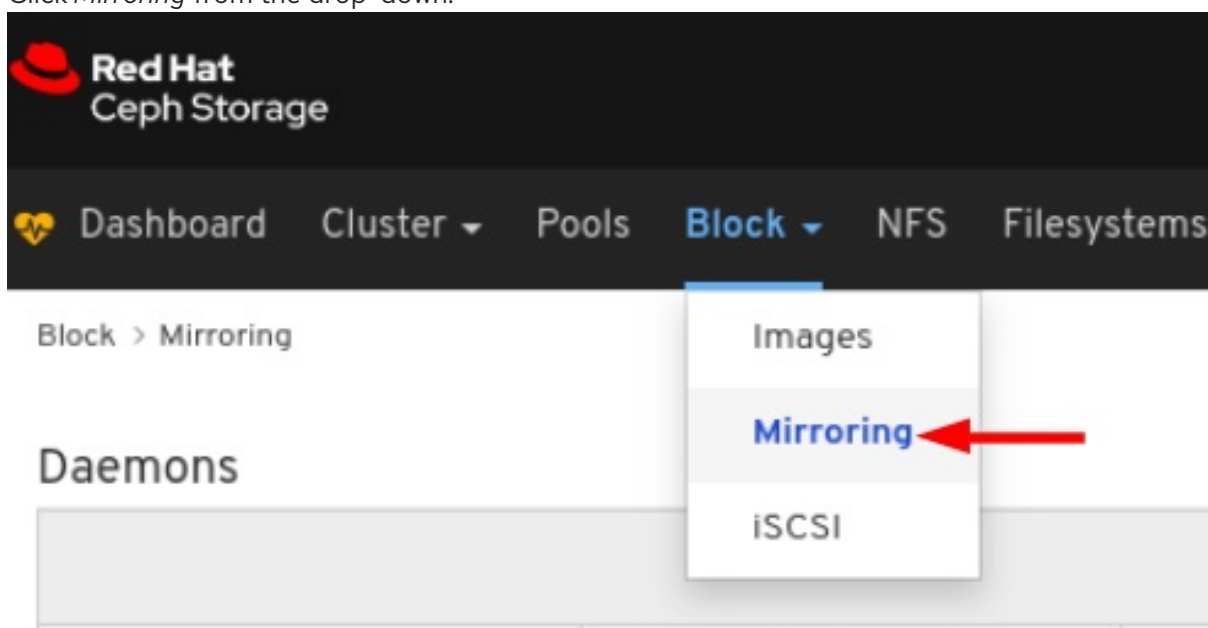
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is created.
- Mirroring is configured.

#### Procedure

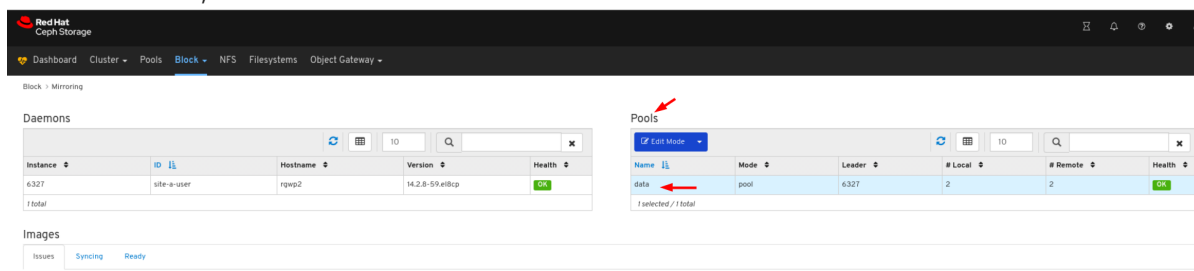
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



3. Click *Mirroring* from the drop-down:

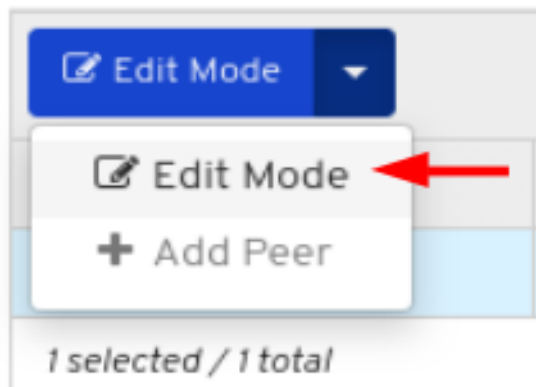


4. In the *Pools* tab, click the row:

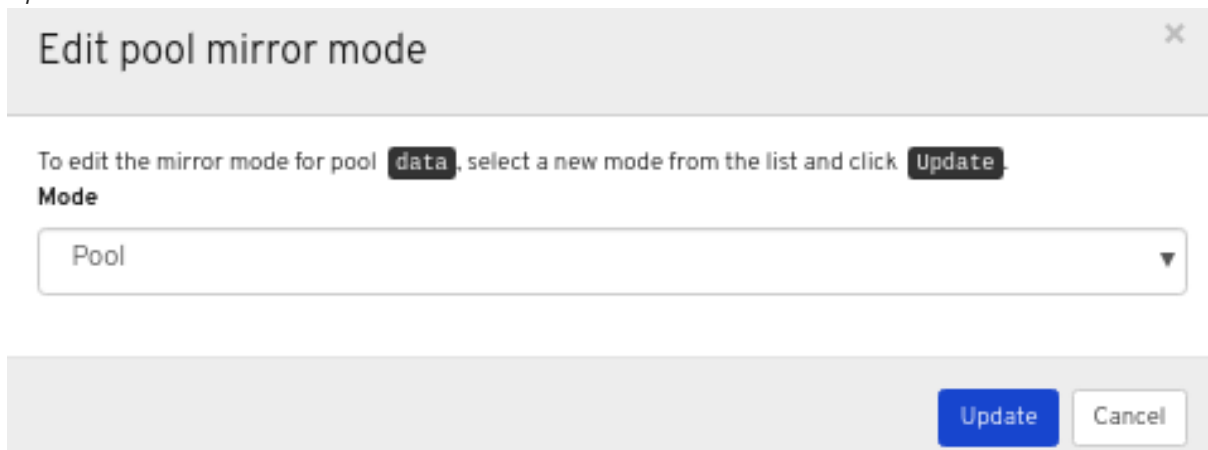


5. In the *Edit Mode* drop-down, select *Edit Mode*:

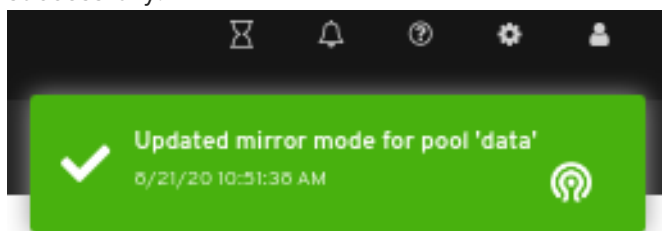
## Pools



- In the *Edit Pool mirror mode* window, select the mode from the drop-down, and then click the *Update* button:



- A notification towards the top right corner of the page indicates the mirror mode was updated successfully.



### Additional Resources

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

### 9.3.4. Adding peer in mirroring

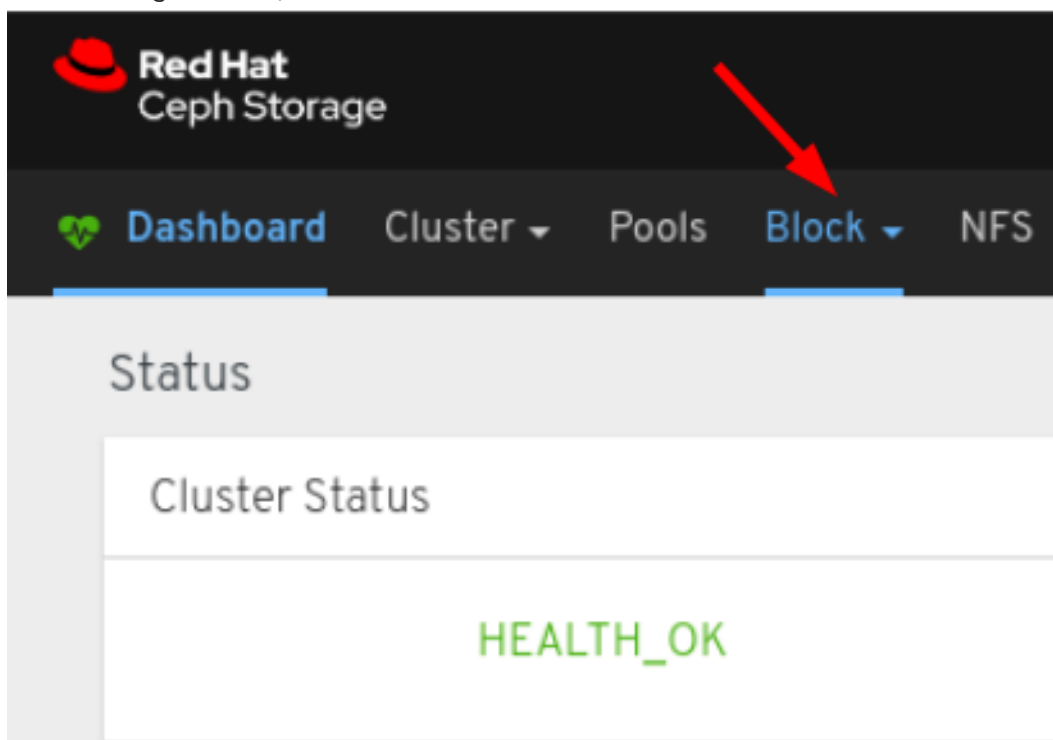
The dashboard allows you to add storage cluster peer for the `rbd-daemon` mirror to discover its peer storage cluster.

### Prerequisites

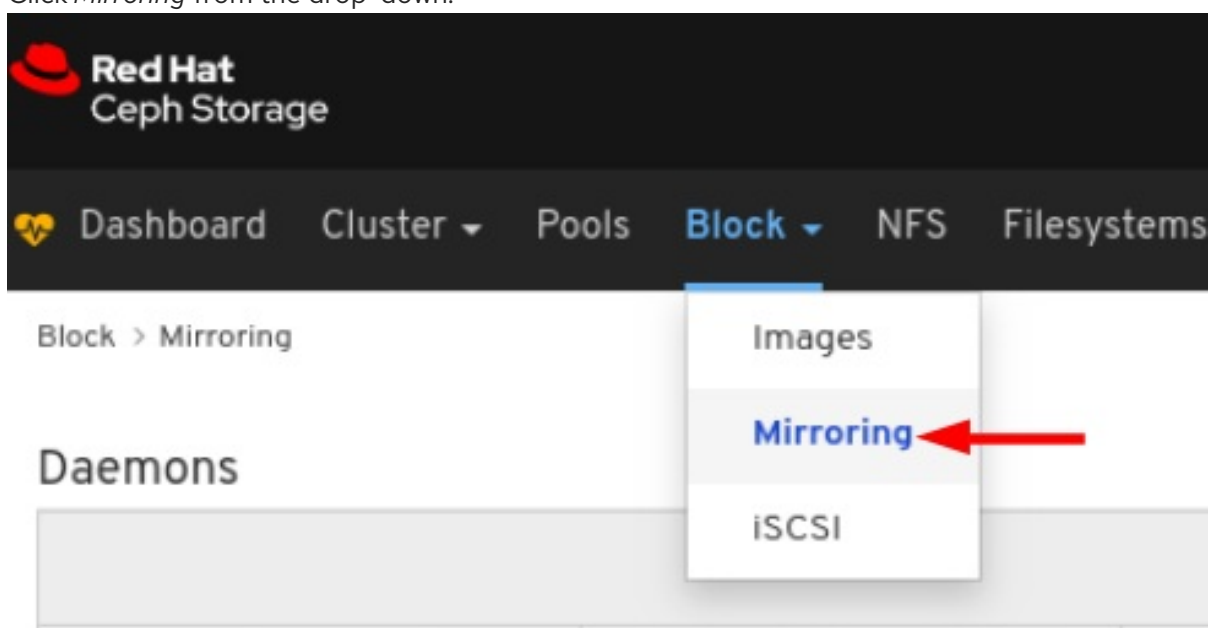
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the *rbd* application enabled is created.
- An image is created.
- Mirroring is configured.

### Procedure

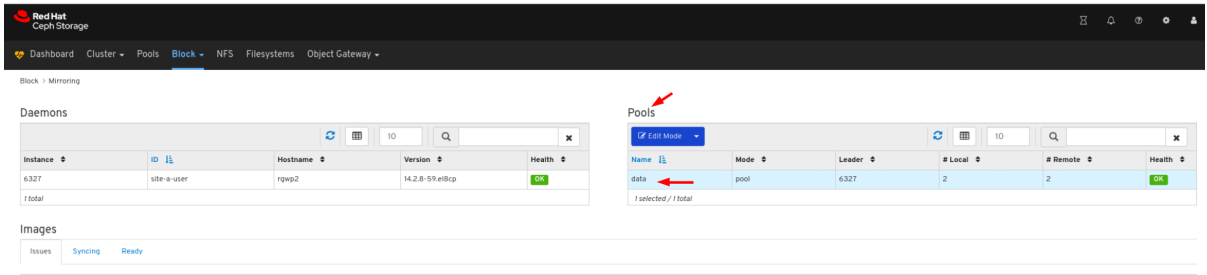
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*:



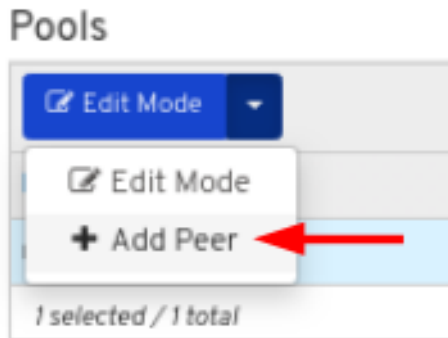
3. Click *Mirroring* from the drop-down:



- In the *Pools* tab, click the row



- In the *Edit Mode* drop-down, select *Add peer*:



- In the *Add pool mirror peer* window, enter the parameters, and then click the *Submit* button:

### Add pool mirror peer

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

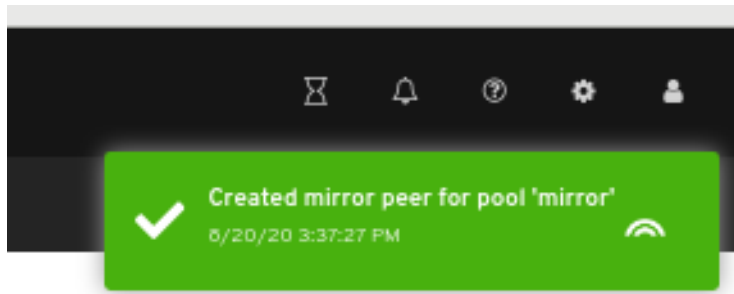
**Cluster Name \***

**CephX ID \***

**Monitor Addresses**

**CephX Key**

- A notification towards the top right corner of the page indicates the mirror 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.

### 9.3.5. Editing peer in mirroring

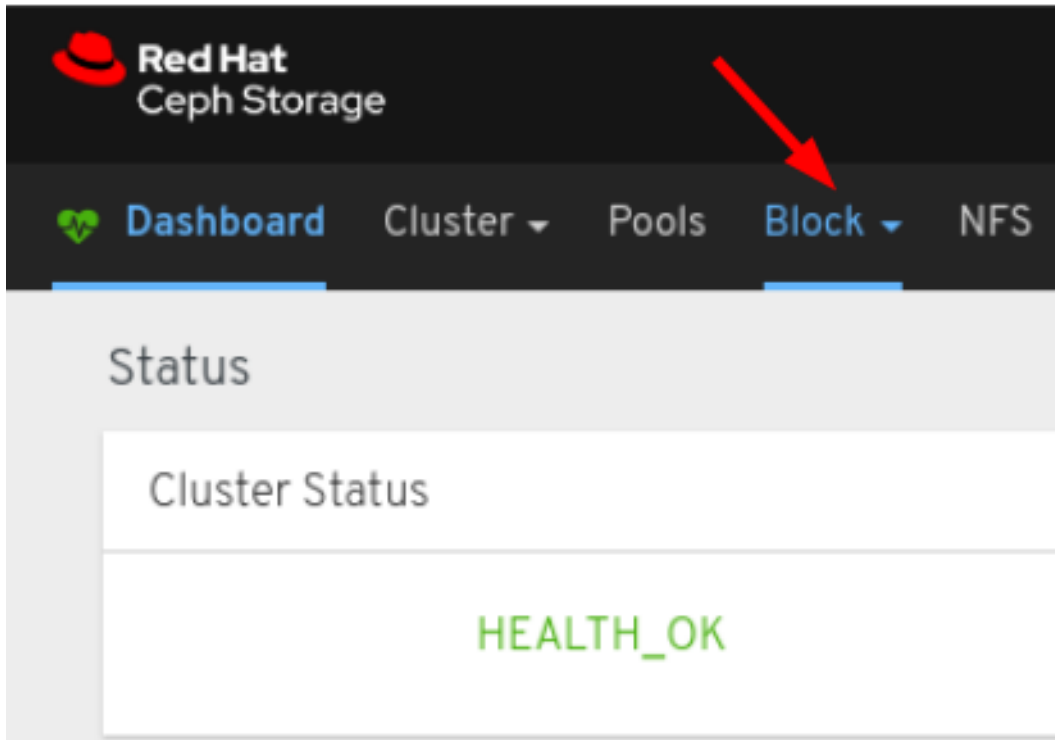
The dashboard allows you to edit storage cluster peer for the `rdm-daemon` mirror` to discover its peer storage cluster.

#### Prerequisites

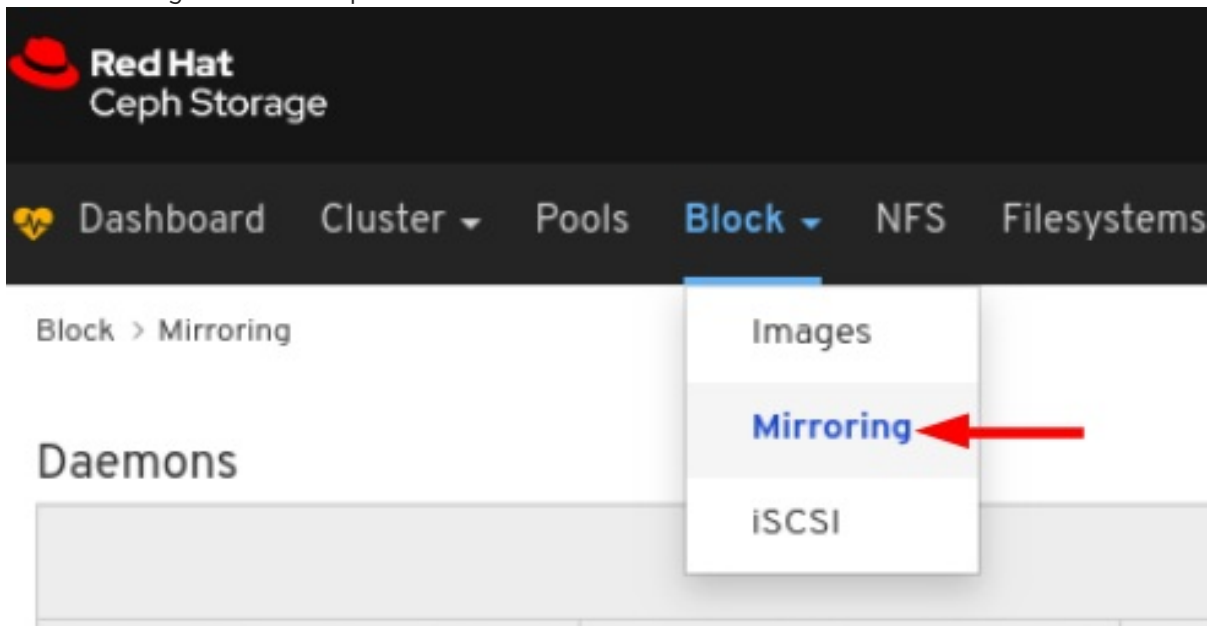
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rdm` application enabled is created.
- An image is created.
- Mirroring is configured.
- A peer is added.

#### Procedure

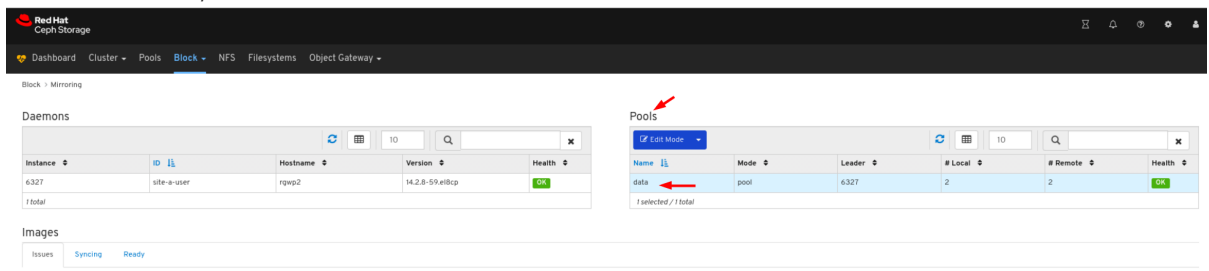
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*.



3. Click *Mirroring* from the drop-down:



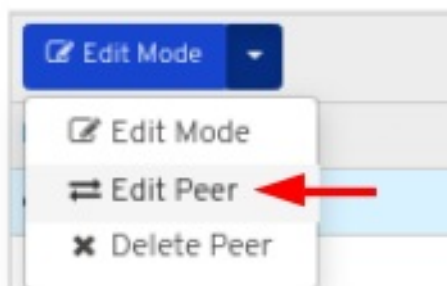
4. In the *Pools* tab, click the row



5. In the *Edit Mode* drop-down, select *Edit peer*:



## Pools



6. In the *Edit pool mirror peer* window, edit the parameters, and then click the *Submit* button:

## Edit pool mirror peer ✕

Edit the pool mirror peer attributes for pool `data` and click `Submit`.

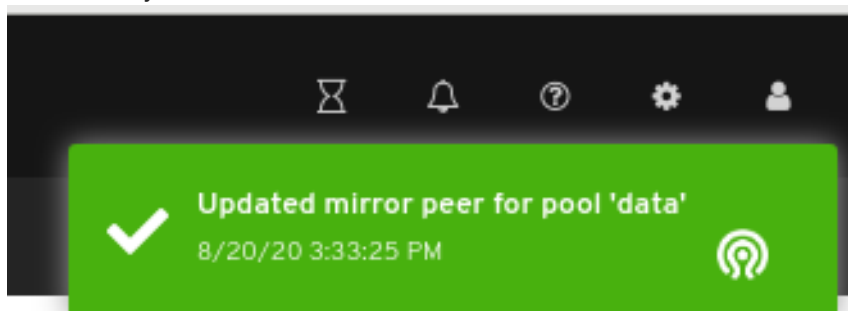
**Cluster Name \***

**CephX ID \***

**Monitor Addresses**

**CephX Key**

7. A notification towards the top right corner of the page indicates the mirror peer was updated successfully.



## Additional Resources

- See the [Adding peer in mirroring](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more information.

### 9.3.6. Deleting peer in mirroring

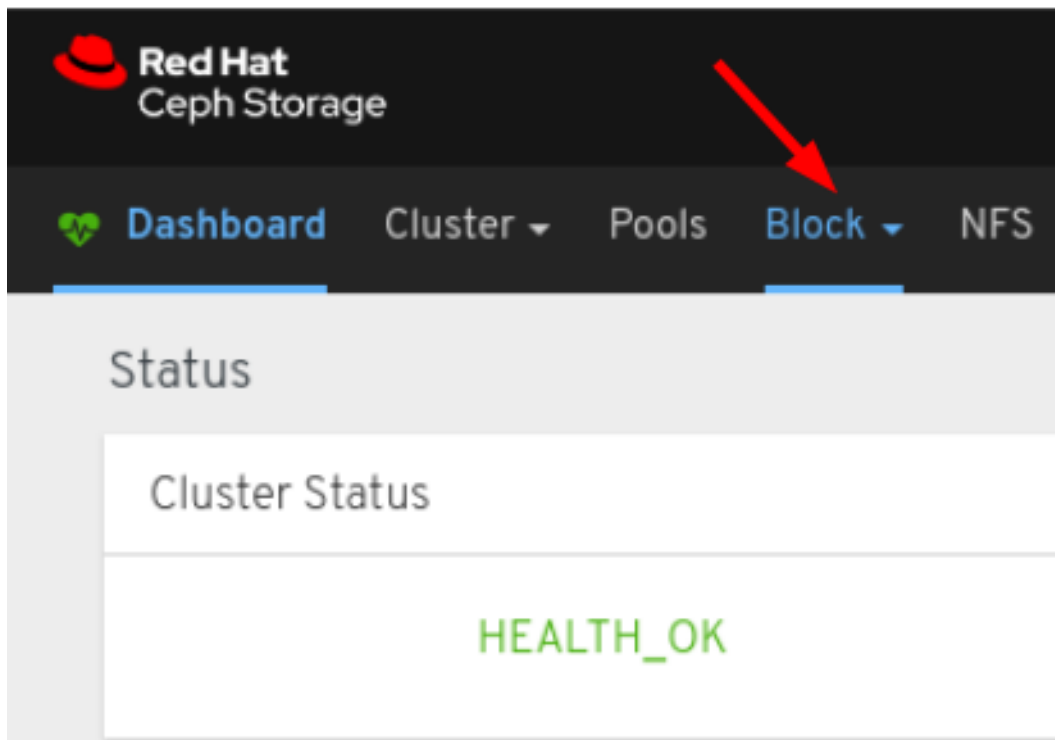
The dashboard allows you to edit storage cluster peer for the `rbd-daemon`` mirror to discover its peer storage cluster.

#### Prerequisites

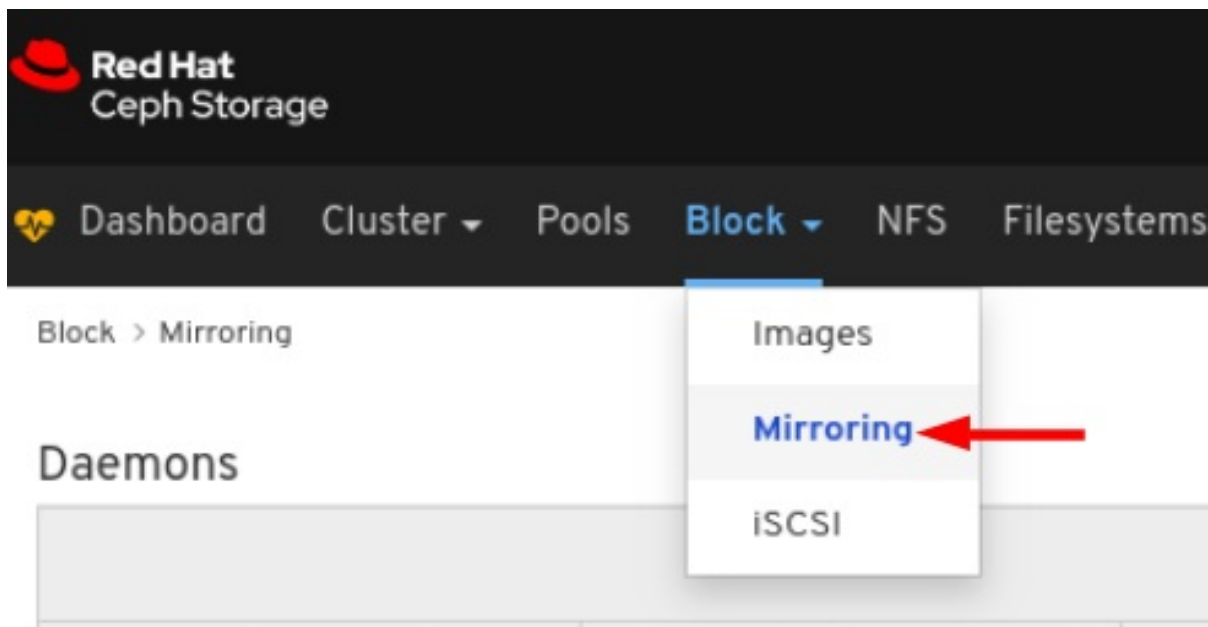
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A pool with the `rbd` application enabled is created.
- An image is created.
- Mirroring is configured.
- A peer is added.

#### Procedure

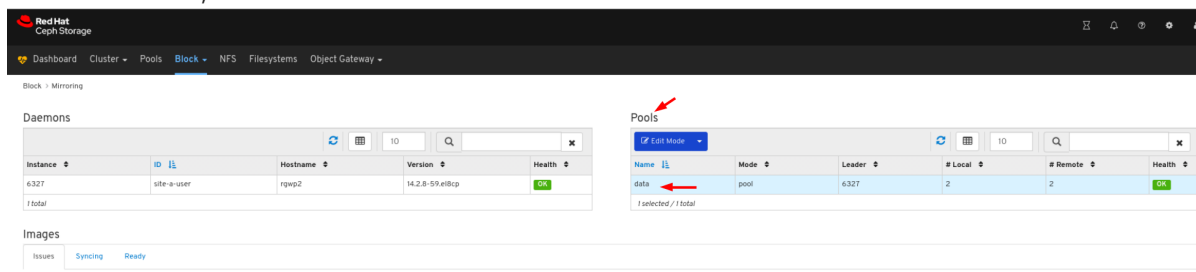
1. Log in to the Dashboard.
2. On the navigation bar, click *Block*.



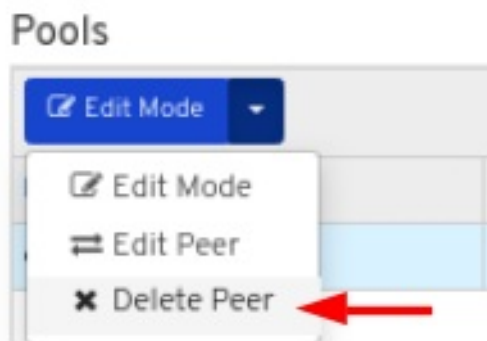
3. Click *Mirroring* from the drop-down:



4. In the *Pools* tab, click the row:



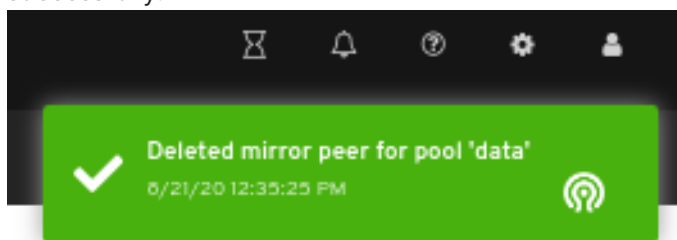
5. In the *Edit Mode* drop-down, select *Delete peer*:



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:



7. A notification towards the top right corner of the page indicates the image was moved to trash successfully.



### Additional Resources

- See the [Adding peer in mirroring](#) section in the *Red Hat Ceph Storage Dashboard Guide* for more information.

## 9.4. ISCSI FUNCTIONS (LIMITED AVAILABILITY)

The dashboard allows you to manage and monitor iSCSI images and targets. 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.



### NOTE

This technology is Limited Availability. See the [Deprecated functionality](#) chapter for additional information.

### 9.4.1. Prerequisites

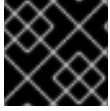
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- iSCSI gateways are [added to the dashboard](#).

### 9.4.2. Manually adding iSCSI gateways to the dashboard

The Red Hat Ceph Storage Dashboard 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 Gateway is installed.



### IMPORTANT

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

## Procedure

1. Log in to a Monitor node.
2. Optional: 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.

```
# ceph dashboard set-iscsi-api-ssl-verification false
```

Example:

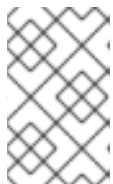
```
[root@mon ~]# ceph dashboard set-iscsi-api-ssl-verification false
Option ISCSI_API_SSL_VERIFICATION updated
```

3. Create two files for the gateways:

```
# echo "SCHEME :// USERNAME : PASSWORD @ HOST [: PORT ]" >
FILE_CONTAINING_GATEWAY_URL
```

Example:

```
[root@mon ~]# echo "http://admin:admin@192.168.122.157:5000" > /tmp/first_gateway
[root@mon ~]# echo "http://admin:admin@192.168.122.193:5000" > /tmp/second_gateway
```



### NOTE

The *USERNAME* and *PASSWORD* were set when you [configured the iSCSI target](#). The credentials can be retrieved from the **iscsi-gateway.cfg** file on the iSCSI Gateway node.

4. Add the two gateways to the dashboard:

```
# ceph dashboard iscsi-gateway-add -i FILE_CONTAINING_GATEWAY_URL
```

Example:

```
[root@mon ~]# ceph dashboard iscsi-gateway-add -i /tmp/first_gateway
Success
[root@mon ~]# ceph dashboard iscsi-gateway-add -i /tmp/second_gateway
Success
```

5. Verify the gateways were added correctly:

```
# ceph dashboard iscsi-gateway-list
```

Example:

```
[root@mon ~]# ceph dashboard iscsi-gateway-list
{"gateways": {"ceph4": {"service_url": "http://admin:admin@192.168.122.193:5000"}, "ceph4": {"service_url": "http://admin:admin@192.168.122.193:5000"}}
```

6. Optional: If you make a mistake adding a gateway you can remove it by specifying its hostname as mentioned in the command **iscsi-gateway-list**:

```
# ceph dashboard iscsi-gateway-rm GATEWAY_NAME
```

Example:

```
[root@mon ~]# ceph dashboard iscsi-gateway-rm ceph4
Success
```

### Additional Resources

- For information on how to install the Ceph iSCSI Gateway, see [Installing the iSCSI gateway](#) in the [Block Device Guide](#).

### 9.4.3. iSCSI overview

The dashboard provides an overview that displays iSCSI gateway hosts and images exported over iSCSI.

#### 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 bar, click *Block*.
3. Click *iSCSI*:

Block > iSCSI > Overview

Overview Targets

### Gateways

Name	State	# Targets	# Sessions
jb-ceph4-osd1	up	0	0
jb-ceph4-rgw	up	0	0

2 total

### Images

Pool	Image	Backstore	Read Bytes	Write Bytes	Read Ops	Write Ops	A/O Since
No data to display							

0 total

## Additional Resources

- For information on how to install the Ceph iSCSI Gateway, see [Installing the iSCSI gateway](#) in the [Block Device Guide](#).
- For information on how to add iSCSI gateways to the dashboard, see [Manually adding iSCSI gateways to the dashboard](#) in the [Dashboard Guide](#).
- For information on how to enable the dashboard iSCSI feature see [Enabling the dashboard iSCSI feature in the dashboard](#) in the [Dashboard Guide](#).

### 9.4.4. Creating iSCSI targets

The dashboard allows you to create iSCSI targets.

#### 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 bar, click *Block*.
3. Click *iSCSI*:

Block > iSCSI > Overview

Overview **Targets**

### Gateways

Name	State	# Targets	# Sessions
jb-ceph4-osd1	up	0	0
jb-ceph4-rgw	up	0	0

2 total

### Images

Pool	Image	Backstore	Read Bytes	Write Bytes	Read Ops	Write Ops	A/O Since
No data to display							

0 total

4. Towards the upper left corner of the page, click the *Targets* tab:

Block > iSCSI > Targets

Overview **Targets**

**+ Add** Discovery authentication

Target	Portals	Images	# Sessions
No data to display			

0 selected / 0 total

5. Towards the upper left corner of the page, click the *Add* button:



The screenshot shows the 'Create Target' form in the Red Hat Ceph Storage interface. The breadcrumb navigation is 'Block > iSCSI > Targets > Add'. The form contains the following fields and controls:

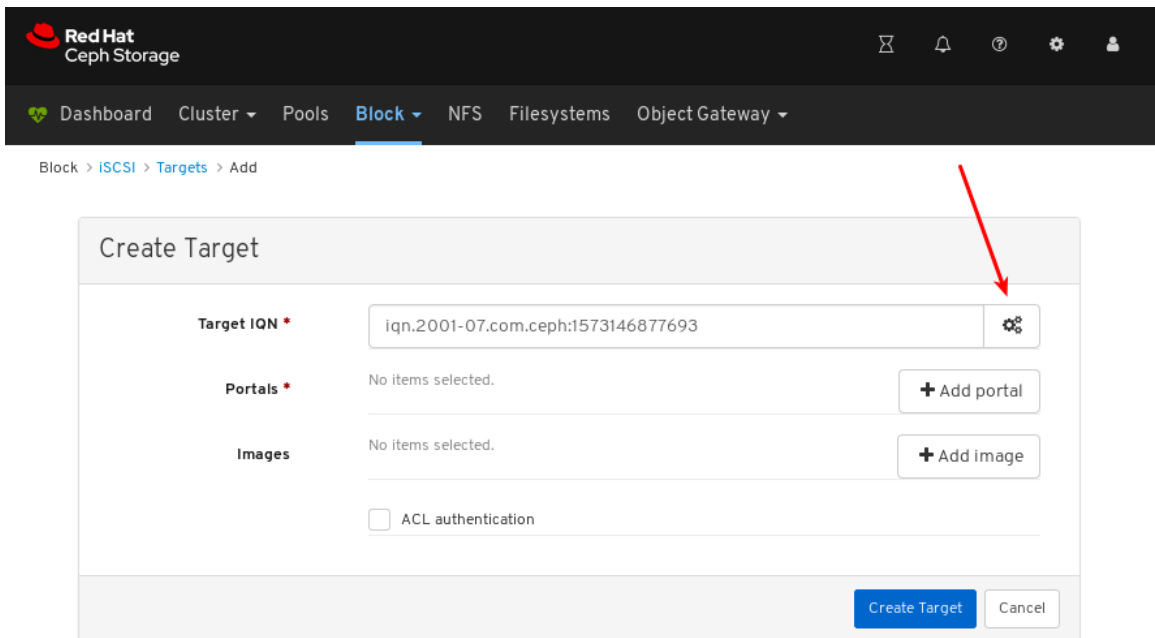
- Target IQN \***: A text input field containing 'iqn.2001-07.com.ceph:1573146877693' with a gear icon for advanced settings.
- Portals \***: A section with 'No items selected.' and a '+ Add portal' button.
- Images**: A section with 'No items selected.' and a '+ Add image' button.
- ACL authentication
- Buttons: 'Create Target' (blue) and 'Cancel' (white).

6. Optional: Modify the Target IQN.

This screenshot is identical to the previous one, but with a red arrow pointing to the 'Target IQN \*' input field, highlighting it for modification.

7. Optional: Set advanced settings for the target.

- a. Click the gear to set advanced settings for the target.




Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > iSCSI > Targets > Add

### Create Target

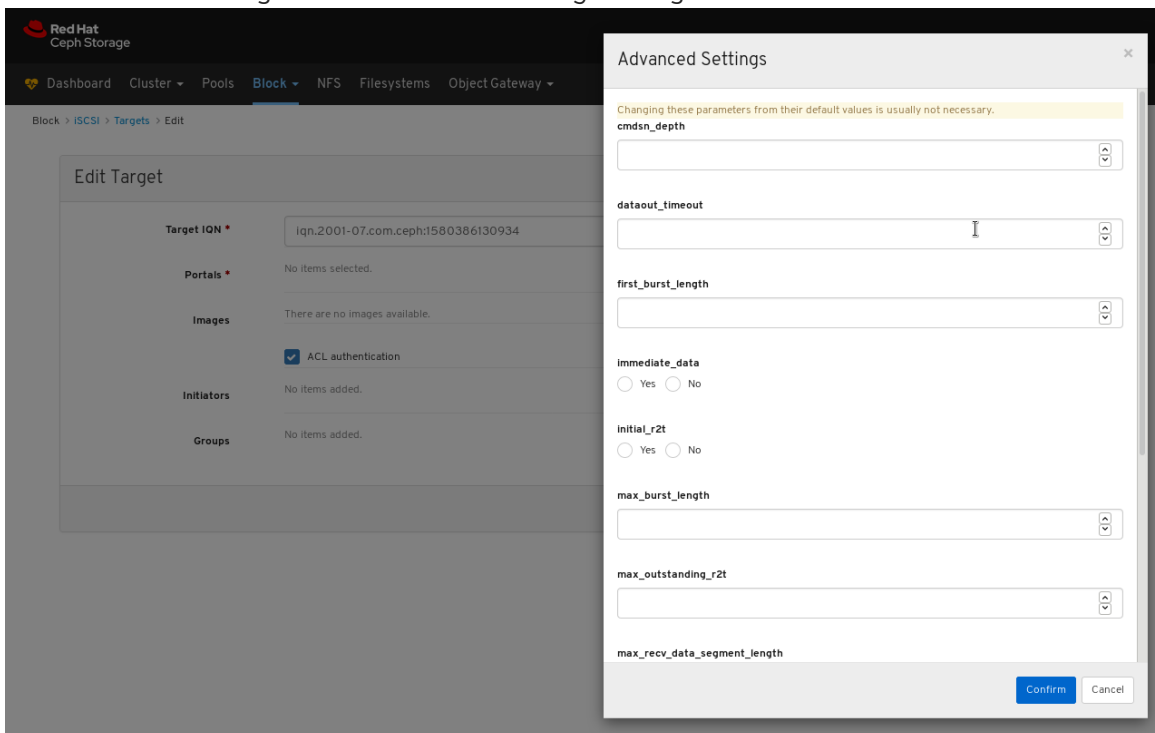
**Target IQN \***  

**Portals \*** No items selected.

**Images** No items selected.

ACL authentication

- b. Set advanced settings in the *Advanced Settings* dialog window.



Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > iSCSI > Targets > Edit

### Edit Target

**Target IQN \***

**Portals \*** No items selected.

**Images** There are no images available.

ACL authentication

**Initiators** No items added.

**Groups** No items added.

### Advanced Settings

Changing these parameters from their default values is usually not necessary.

**cmds\_n\_depth**

**dataout\_timeout**

**first\_burst\_length**

**immediate\_data**  
 Yes  No

**initial\_r2t**  
 Yes  No

**max\_burst\_length**

**max\_outstanding\_r2t**

**max\_recv\_data\_segment\_length**

- c. Click *Confirm* to save the settings.

8. Click the *Add portal* button and select the first of at least two gateways:

**Create Target**

**Target IQN \***

**Portals \*** No items selected. 1 + Add portal

**Images** No items selected.

ACL authentication

2 Filter tags  
jb-ceph4-osd1:192.168.122.157  
jb-ceph4-rgw:192.168.122.193

Create Target Cancel

9. Click the *Add portal* button and select the second of at least two gateways:

**Create Target**

**Target IQN \***

**Portals \***  x

**Images** No items selected.

ACL authentication

1 + Add portal

2 Filter tags  
✓ jb-ceph4-osd1:192.168.122.157  
jb-ceph4-rgw:192.168.122.193

Repeat this step for any additional gateways.

10. Click the *Add image* button and select an image to be exported by the target:

**Create Target**

**Target IQN \***

**Portals \***  x  
 x

+ Add portal

**Images** No items selected.

ACL authentication

1 + Add image

2 Filter tags  
rbd/disk\_1

Create Target Cancel

Repeat this step for any additional images.

11. Optional: Modify the Images.
- a. Click the gear to the right of the image

### Create Target

**Target IQN \***

**Portals \***

- 
- 

**Images**

- 

ACL authentication

**Initiators** No items added.

**Groups** No items added.

b. Modify image settings in the *Configure* dialog window:

The screenshot shows the 'Edit Target' page in the Red Hat Ceph Storage dashboard. The 'Images' section is set to 'rbd/iscsvol1'. A 'Configure' dialog window is open, showing settings for the image. The 'Identifier' section includes 'lun' (0) and 'wwn' (c8dc9476-b94d-40c2-addc-dff9fb28d89f). The 'Settings' section includes 'Backstore' (user:rbd (tcmu-runner)), 'hw\_max\_sectors', 'max\_data\_area\_mb', 'osd\_op\_timeout', and 'qfull\_timeout'. The 'Confirm' button is highlighted.

c. Click *Confirm* to save the settings.

12. Click the *ACL authentication* box and then click the *Add initiator* button:

### Create Target

**Target IQN \***

**Portals \***

Add portal

**Images**

Add image

**ACL authentication**

**Initiators** No items added. Add initiator

**Groups** No items added. Add group

13. Enter the IQN from your client in the first text box:

ACL authentication

**Initiators**

Initiator: iqn.1994-05.com.redhat:c1acc398c15b ✕

**Client IQN \***

**User**

**Password**

**Mutual User**

**Mutual Password**

**Images** No items selected.

**Groups** No items added.

Retrieve the client IQN from the system where the initiator software runs. See [Configuring the iSCSI initiator](#) in the [Block Device Guide](#) for more information.

14. Enter a user name and password details for the target:

ACL authentication

**Initiators**

Initiator: iqn.1994-05.com.redhat:clacc398c15b ✕

**Client IQN \***

**User** 1

**Password** 2

**Mutual User**

**Mutual Password**

**Images** No items selected.

**Groups** No items added.

15. Click *Add image* and select an image:

ACL authentication

**Initiators**

Initiator: iqn.1994-05.com.redhat:c1acc398c15b ✕

**Client IQN \***

**User**

**Password**  👁 📄

**Mutual User**

**Mutual Password**  👁 📄

**Images** No items selected. 1

**Groups** No items added.

2   
rbd/disk\_1

Repeat this step for any additional images.

16. Finish the procedure by clicking the *Create Target* button:



17. Verify the target was added by looking for it on the *Targets* page.

To locate the *Targets* page, follow the procedure [Viewing iSCSI targets](#) in the [Dashboard guide](#).

### Additional Resources

- For information on how to install the Ceph iSCSI Gateway, see [Installing the iSCSI gateway](#) in the [Block Device Guide](#).
- For information on how to add iSCSI gateways to the dashboard, see [Manually adding iSCSI gateways to the dashboard](#) in the [Dashboard Guide](#).
- For information on how to enable the dashboard iSCSI feature see [Enabling the dashboard iSCSI feature in the dashboard](#) in the [Dashboard Guide](#).
- For information on how to create a pool with the RBD application enabled, see [Creating Block Device Pools](#) in the [Block Device Guide](#)
- For information on how to create images see [Creating block device images](#) in the [Block Device Guide](#).

### 9.4.5. Viewing iSCSI targets

The dashboard allows you to view iSCSI targets.

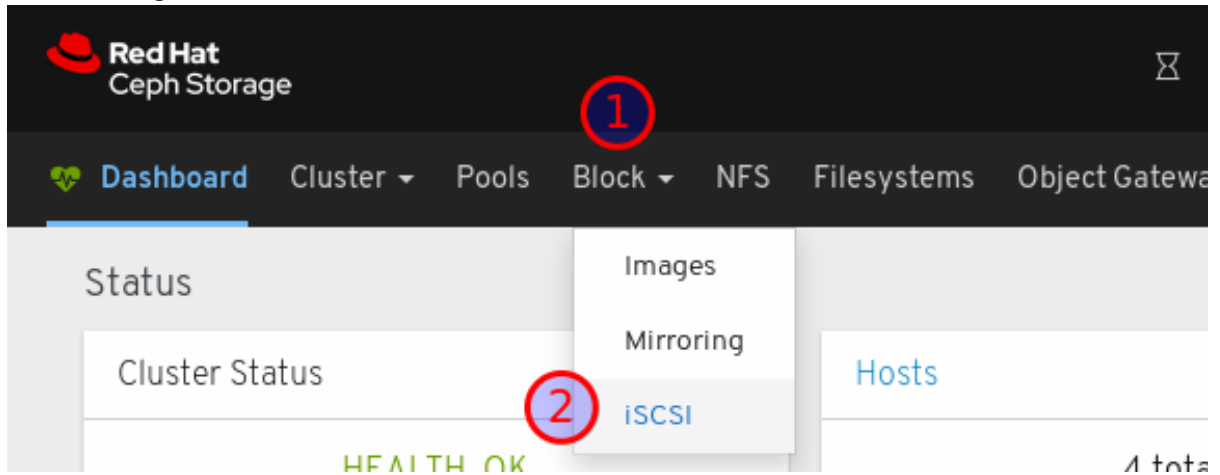
#### Prerequisites

- A running Red Hat Ceph Storage cluster.

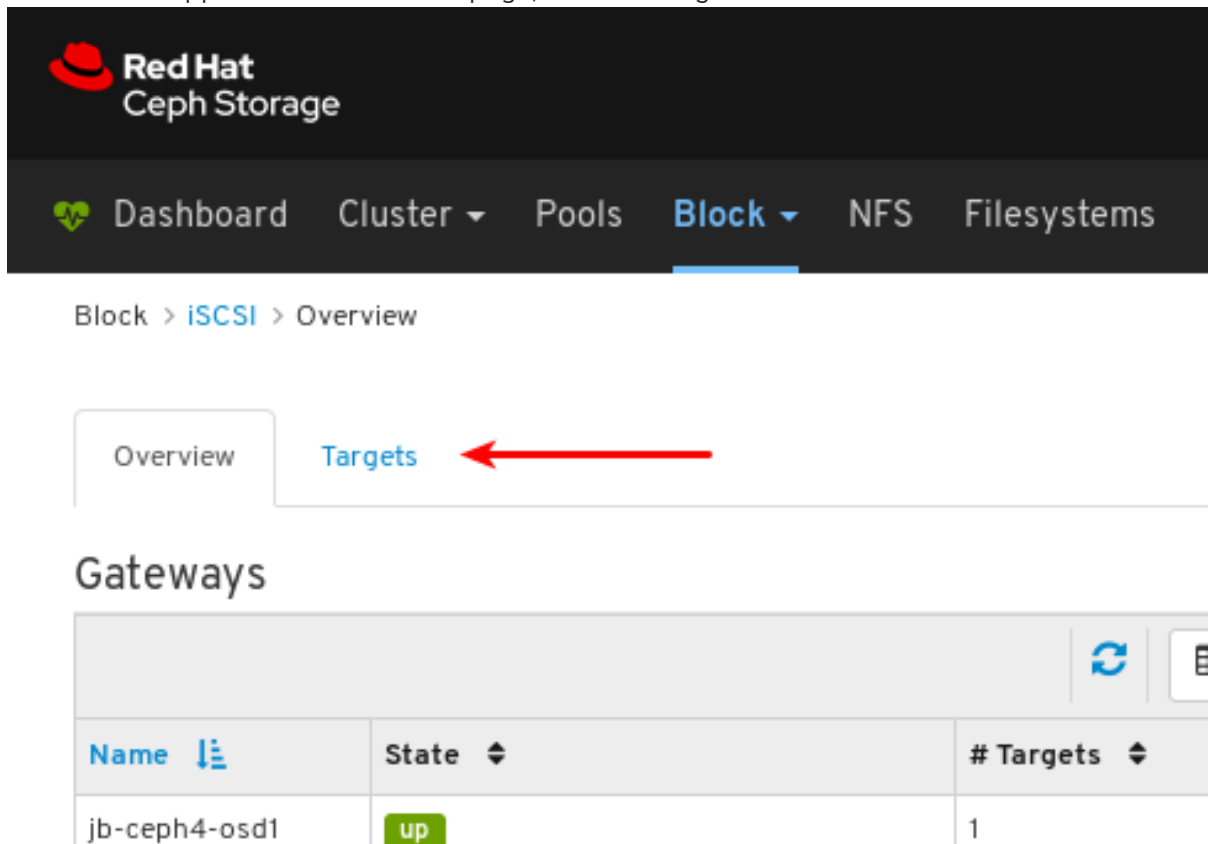
- Dashboard is installed.
- The Ceph iSCSI gateway is installed.
- An iSCSI target is created.

## Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Block* and then click *iSCSI*:



3. Towards the upper left corner of the page, click the *Targets* tab:



4. To view details about a target, click on its row:

Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > iSCSI > Targets

Overview Targets

+ Add Discovery authentication 10

Target	Portals	Images	# Sessions
iqn.2001-07.com.ceph:1573146877693	jb-ceph4-osd1:192.168.122.157, jb-ceph4-rgw:192.168.122.193	rbd/disk_1	2

0 selected / 1 total

5. You can see the iSCSI topology, including whether an initiator is logged in:

Overview Targets

Edit Discovery authentication 10

Target	Portals	Images	# Sessions
iqn.2001-07.com.ceph:1573146877693	jb-ceph4-osd1:192.168.122.157, jb-ceph4-rgw:192.168.122.193	rbd/disk_1	2

1 selected / 1 total

### iSCSI Topology

- iqn.2001-07.com.ceph:1573146877693
  - Disks
    - rbd/disk\_1
  - Portals
    - jb-ceph4-osd1:192.168.122.157
    - jb-ceph4-rgw:192.168.122.193
  - Initiators
    - iqn.1994-05.com.redhat:c1acc398c15b **logged\_in**
    - rbd/disk\_1
  - Groups

6. Click an object to view detailed information about it:

The screenshot displays the 'Targets' tab in the dashboard. At the top, there are tabs for 'Overview' and 'Targets', with 'Targets' selected. Below the tabs is a toolbar with an 'Edit' button, a search bar for 'Discovery authentication', a grid icon, a page size selector set to '10', and a search icon. The main content area shows a table with columns: 'Target', 'Portals', 'Images', and '# Sessions'. One target is listed: 'iqn.2001-07.com.ceph:1573146877693' with two portals, one image 'rbd/disk\_1', and two sessions. Below the table, it says '1 selected / 1 total'.

Below the table, there are two panels. The left panel is titled 'iSCSI Topology' and shows a tree view of the selected target. It includes sections for 'Disks' (rbd/disk\_1), 'Portals' (jb-ceph4-osd1:192.168.122.157 and jb-ceph4-rgw:192.168.122.193), 'Initiators' (iqn.1994-05.com.redhat:c1acc398c15b, logged in), and 'Groups'. Red arrows point from the target name in the table to the target name in the topology, and from the portals in the topology to the portal configuration table on the right.

The right panel is titled 'iqn.2001-07.com.ceph:1573146877693' and shows a table of configuration parameters. The table has columns 'Name', 'Current', and 'Default'. The parameters are:

Name	Current	Default
cmds_n_depth	128	128
dataout_timeout	20	20
first_burst_length	262144	262144
immediate_data	Yes	Yes
initial_r2t	Yes	Yes
max_burst_length	524288	524288
max_outstanding_r2t	1	1
max_recv_data_segment_length	262144	262144
max_xmit_data_segment_length	262144	262144
nopin_response_timeout	5	5
nopin_timeout	5	5

At the bottom of the table, it says '11 total'.

Note: Only some objects display detailed information when clicked.

## Additional Resources

- For information on how to install the Ceph iSCSI gateway, see [Installing the iSCSI gateway](#) in the [Block Device Guide](#).
- For information on how to create iSCSI targets in dashboard, see [Creating iSCSI targets](#) in the [Dashboard guide](#).

## 9.4.6. Editing iSCSI targets

The dashboard allows you to edit iSCSI targets.

### 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 bar, click *Block*.
3. Click *iSCSI*:

Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > iSCSI > Overview

Overview **Targets**

### Gateways

Name	State	# Targets	# Sessions
jb-ceph4-osd1	up	0	0
jb-ceph4-rgw	up	0	0

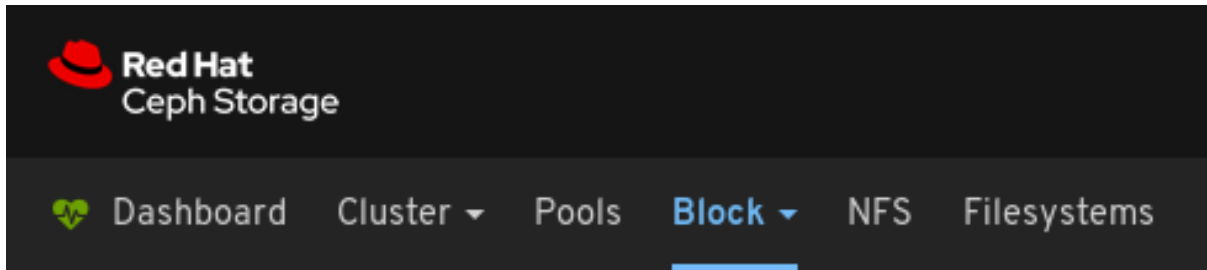
2 total

### Images

Pool	Image	Backstore	Read Bytes	Write Bytes	Read Ops	Write Ops	A/O Since
No data to display							

0 total

4. Towards the upper left corner of the page, click the *Targets* tab:



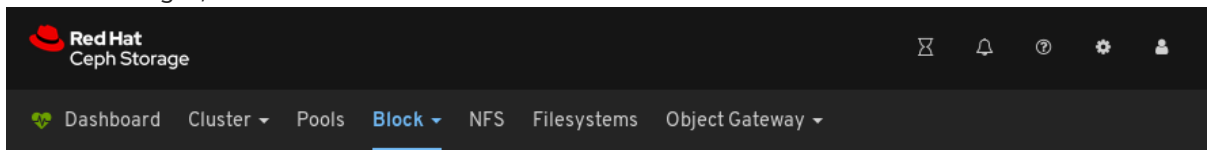
Block > [iSCSI](#) > Overview



## Gateways

Name	State	# Targets
jb-ceph4-osd1	up	1

5. To edit a target, click on its row:



Block > [iSCSI](#) > Targets

Target	Portals	Images	# Sessions
iqn.2001-07.com.ceph:1573146877693	jb-ceph4-osd1:192.168.122.157, jb-ceph4-rgw:192.168.122.193	rbd/disk_1	2

0 selected / 1 total

6. Towards the upper left corner of the page, click the *Edit* button.

The screenshot shows the Red Hat Ceph Storage web interface. At the top, there is a navigation bar with the following items: Dashboard, Cluster, Pools, Block (highlighted), NFS, Filesystems, and Object Gateway. Below the navigation bar, the breadcrumb path is "Block > iSCSI > Targets". There are two tabs: "Overview" and "Targets". The "Targets" tab is active. Below the tabs, there is a toolbar with an "Edit" button and a "Discovery authentication" button. A table with the following structure is shown:

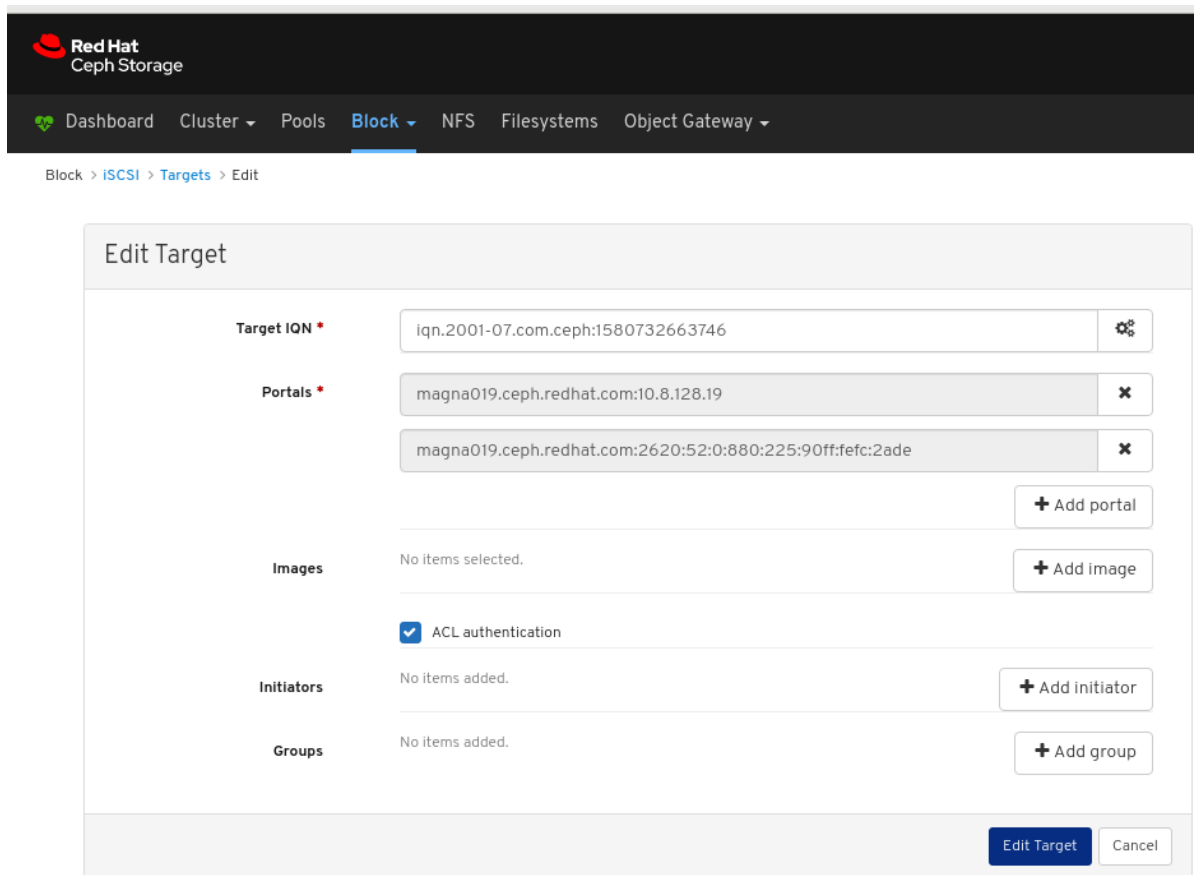
Target	Portals
iqn.2001-07.com.ceph:1580732663746	

Below the table, it says "1 selected / 1 total".

### iSCSI Topology

- © iqn.2001-07.com.ceph:1580732663746
  - ▶ Disks
  - ▶ Portals
  - ▶ Initiators
  - ▶ Groups

7. Edit the parameters and click the *Edit Target* button.



- Verify the target was edited by looking for it on the *Targets* page. To locate the *Targets* page, follow the procedure [Viewing iSCSI targets](#) in the [Dashboard guide](#).

### Additional Resources

- For information on how to install the Ceph iSCSI Gateway, see [Installing the iSCSI gateway](#) in the [Block Device Guide](#).
- For information on how to add iSCSI gateways to the dashboard, see [Manually adding iSCSI gateways to the dashboard](#) in the [Dashboard Guide](#).
- For information on how to enable the dashboard iSCSI feature see [Enabling the dashboard iSCSI feature in the dashboard](#) in the [Dashboard Guide](#).
- For information on how to create a pool with the RBD application enabled, see [Creating Block Device Pools](#) in the [Block Device Guide](#)
- For information on how to create images see [Creating block device images](#) in the [Block Device Guide](#).

### 9.4.7. Deleting iSCSI targets

The dashboard allows you to delete iSCSI targets.

#### 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. See [Disconnecting iSCSI initiators](#).

## Procedure

1. Log in to the Dashboard.
2. On the navigation bar, click *Block*.
3. Click *iSCSI*:

Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > iSCSI > Overview

Overview **Targets**

### Gateways

Name	State	# Targets	# Sessions
jb-ceph4-osd1	up	0	0
jb-ceph4-rgw	up	0	0

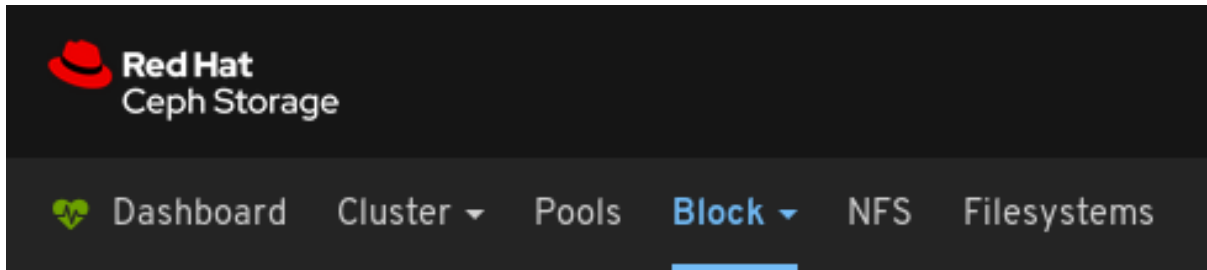
2 total

### Images

Pool	Image	Backstore	Read Bytes	Write Bytes	Read Ops	Write Ops	A/O Since
No data to display							

0 total

4. Towards the upper left corner of the page, click the *Targets* tab:



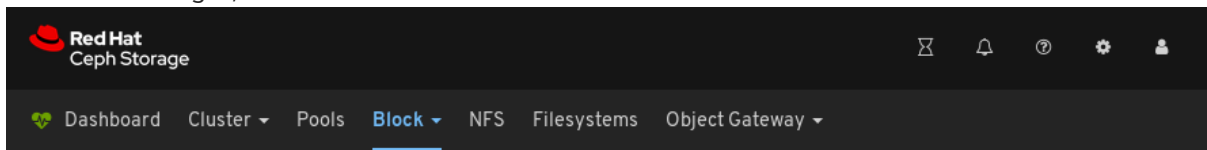
Block > [iSCSI](#) > Overview



## Gateways

Name	State	# Targets
jb-ceph4-osd1	up	1

5. To delete a target, click on its row:



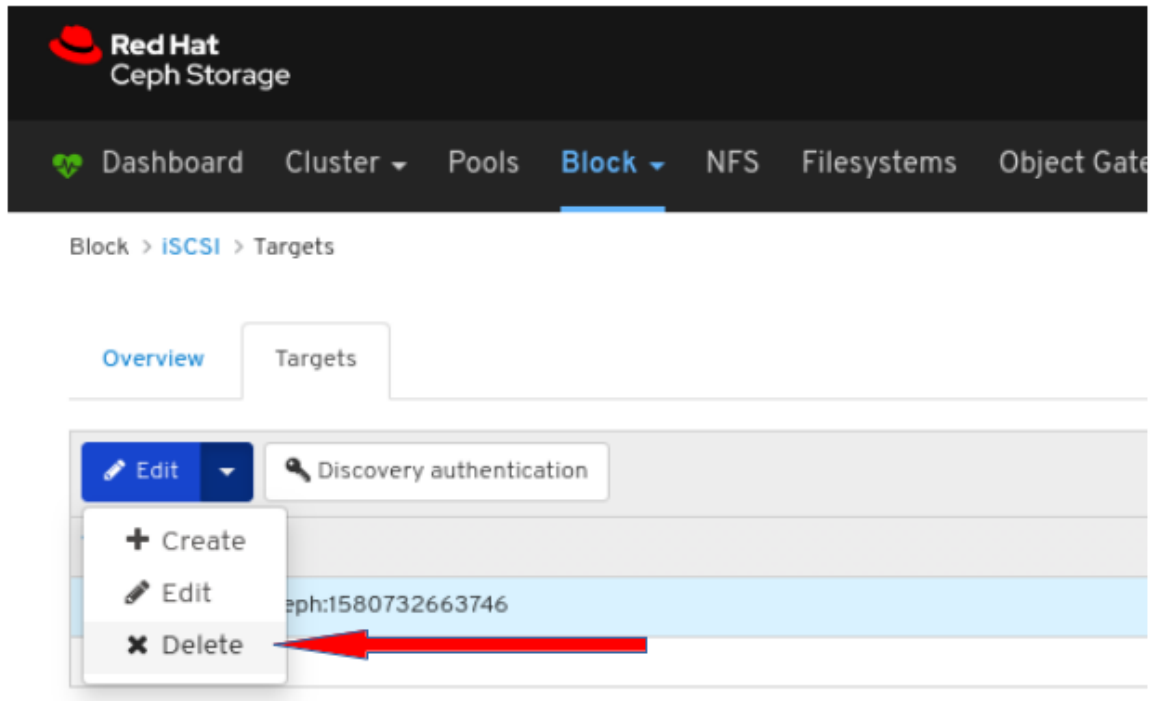
Block > [iSCSI](#) > Targets

Target	Portals	Images	# Sessions
iqn.2001-07.com.ceph:1573146877693	jb-ceph4-osd1:192.168.122.157, jb-ceph4-rgw:192.168.122.193	rbd/disk_1	2

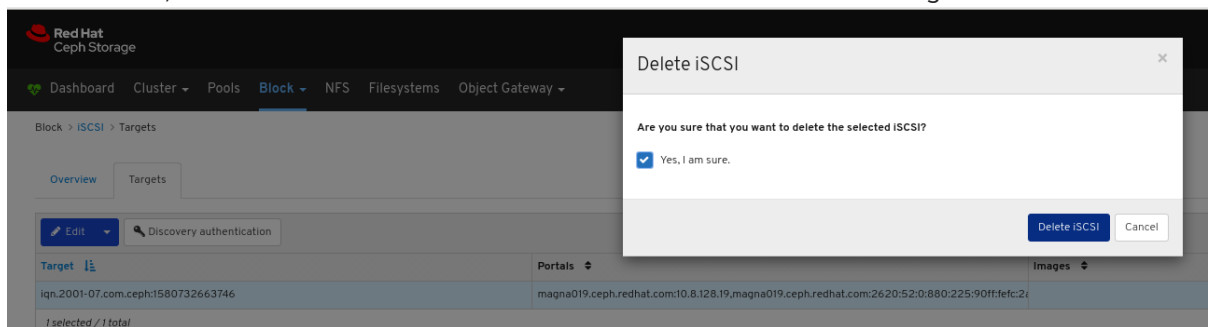
0 selected / 1 total

6. Towards the upper left corner of the page, click the *Edit* drop down.

7. From the drop-down, select *Delete*:



- Click the *Yes, I am sure* box and then Click *Delete iSCSI* to save the settings.



### Additional Resources

- For information on how to install the Ceph iSCSI Gateway, see [Installing the iSCSI gateway](#) in the [Block Device Guide](#).
- For information on how to add iSCSI gateways to the dashboard, see [Manually adding iSCSI gateways to the dashboard](#) in the [Dashboard Guide](#).
- For information on how to disconnect iSCSI initiators see [Disconnecting iSCSI initiators](#) in the [Block Device Guide](#).

### 9.4.8. Setting Discovery Authentication

The dashboard allows Discovery Authentication by using CHAP/CHAP\_MUTUAL.

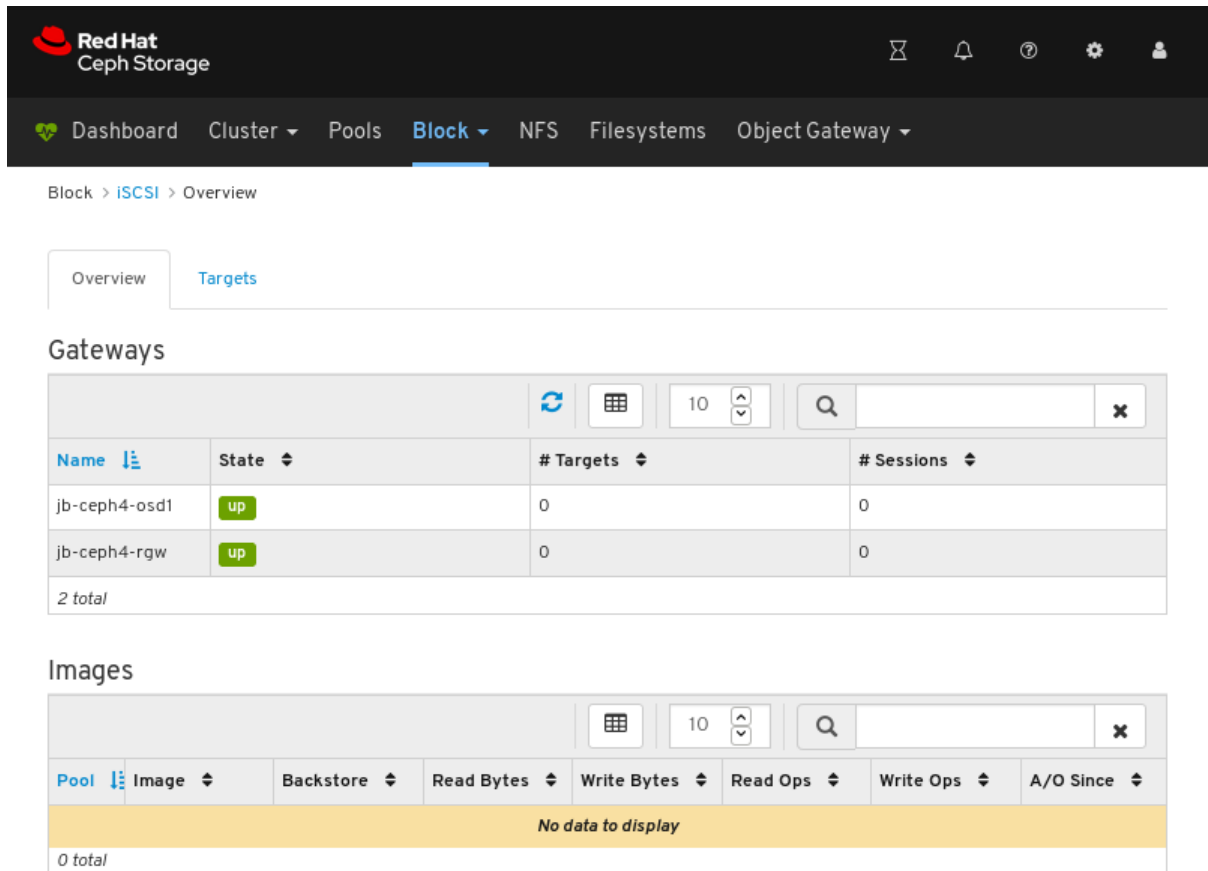
#### Prerequisites

- 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.
- 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 bar, click *Block*.
3. Click *iSCSI*:



The screenshot shows the Red Hat Ceph Storage 4 Dashboard interface. The navigation bar includes 'Dashboard', 'Cluster', 'Pools', 'Block', 'NFS', 'Filesystems', and 'Object Gateway'. The breadcrumb trail is 'Block > iSCSI > Overview'. The 'Targets' tab is selected. The 'Gateways' section displays a table with two entries: 'jb-ceph4-osd1' and 'jb-ceph4-rgw', both with a state of 'up'. The 'Images' section displays a table with columns for Pool, Image, Backstore, Read Bytes, Write Bytes, Read Ops, Write Ops, and A/O Since, and shows 'No data to display'.

Block > iSCSI > Overview

Overview Targets

### Gateways

Name	State	# Targets	# Sessions
jb-ceph4-osd1	up	0	0
jb-ceph4-rgw	up	0	0

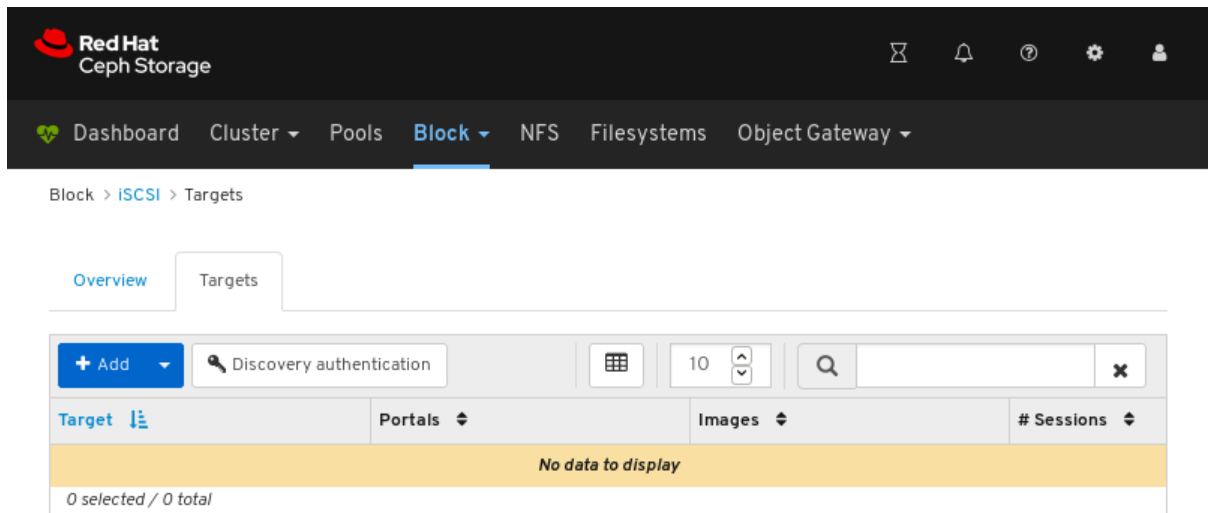
2 total

### Images

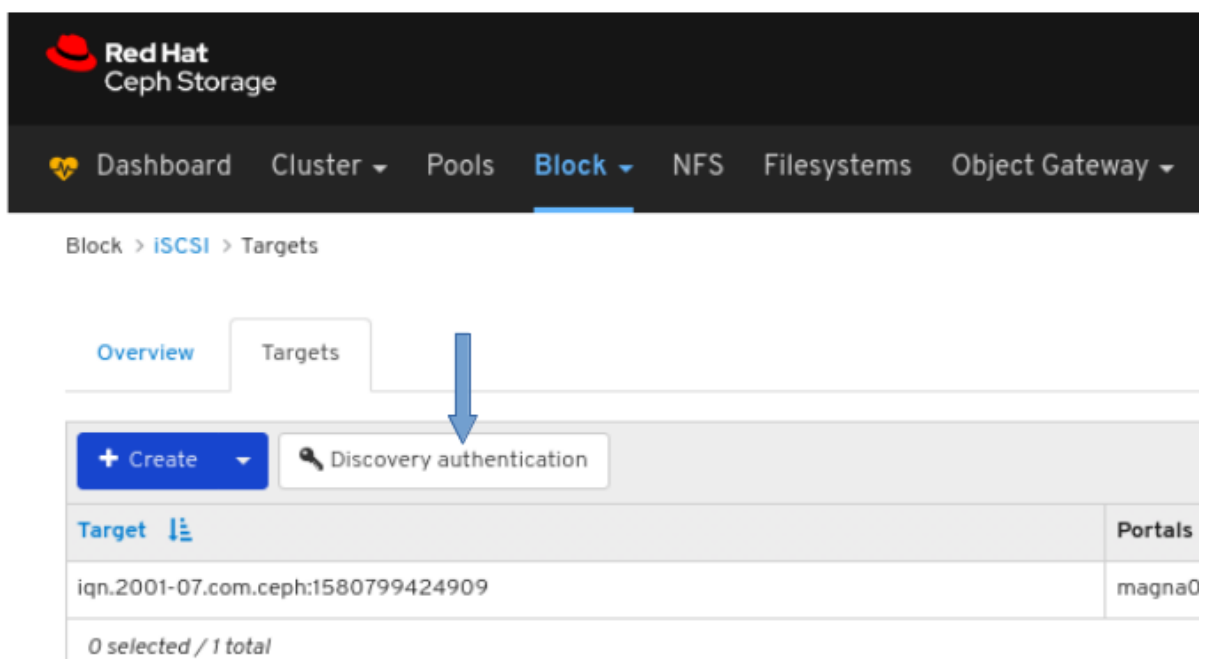
Pool	Image	Backstore	Read Bytes	Write Bytes	Read Ops	Write Ops	A/O Since
No data to display							

0 total

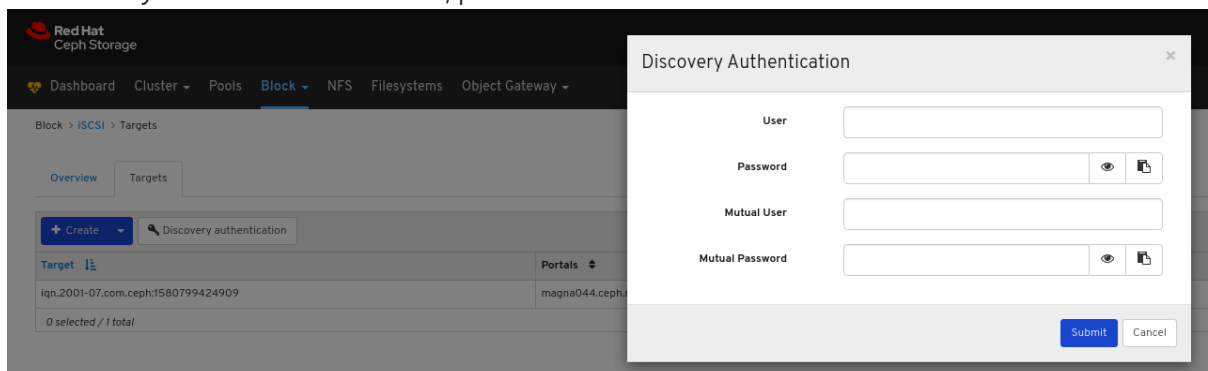
4. Towards the upper left corner of the page, click the *Targets* tab.



5. Towards the upper left corner of the page, click the *Discovery authentication* button.



6. in *Discovery Authentication* window, provide the details and then Click the *Submit* button.



## 9.5. QUALITY OF SERVICE CONFIGURATION

As a storage administrator, you can use Quality of Service (QoS) limits to prioritize or deprioritize the performance of pools or images so all images get the resources they need to meet specific business needs.

### 9.5.1. Prerequisites

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

### 9.5.2. Configuring Quality of Service on an existing image

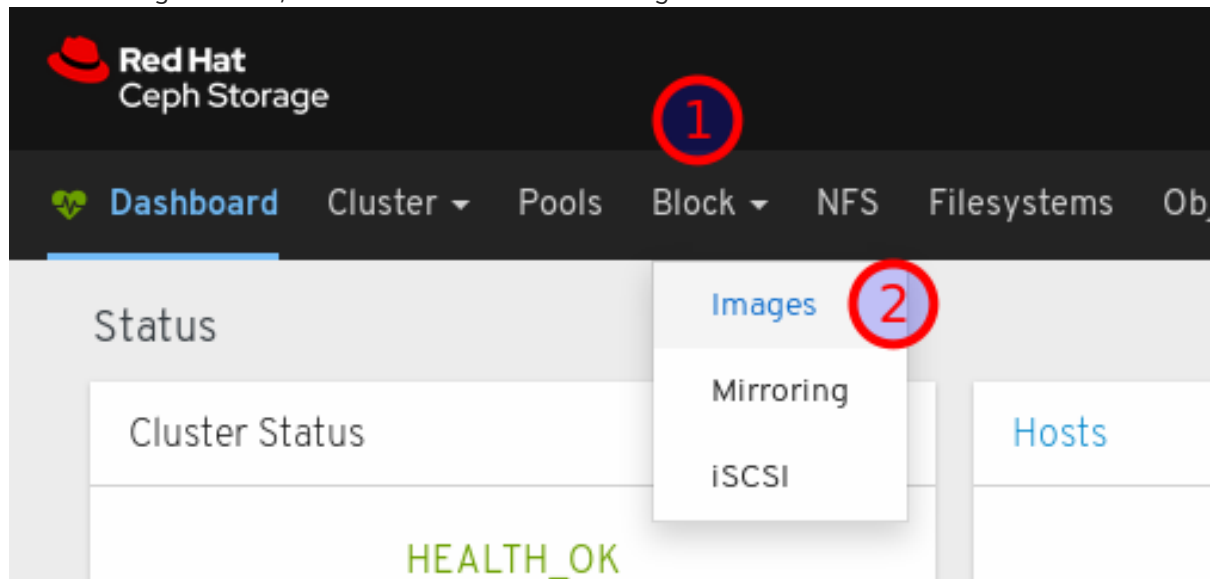
As a storage administrator, you can use Quality of Service (QoS) limits to prioritize or deprioritize the performance of an existing image.

#### Prerequisites

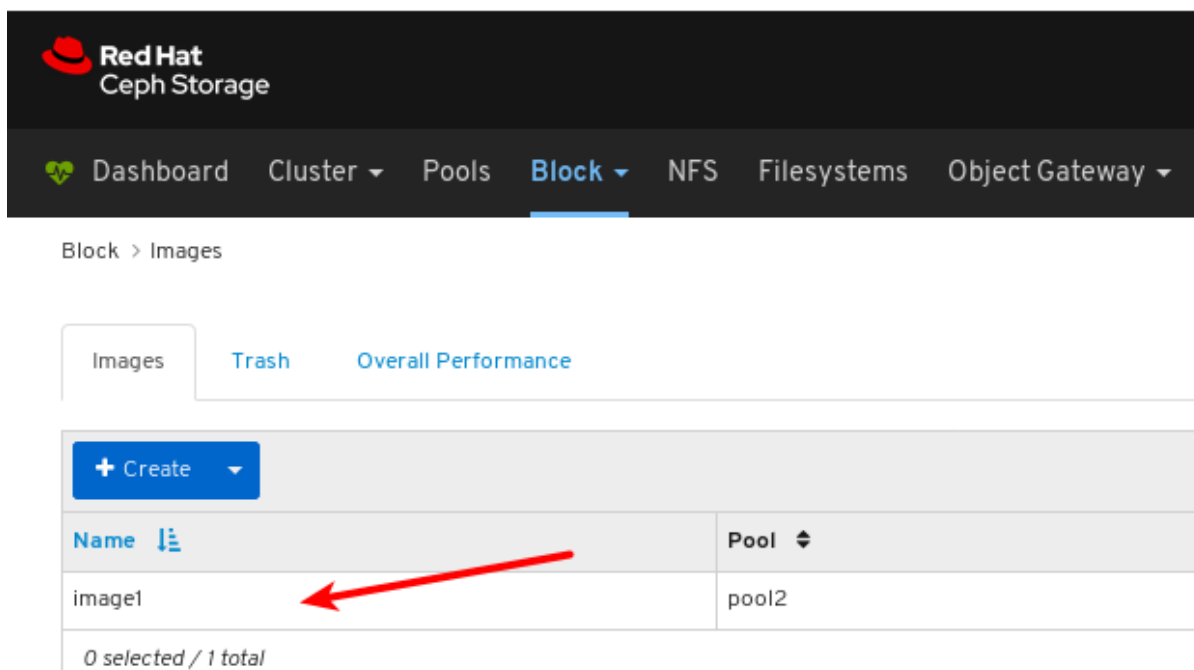
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A replicated pool with the RBD application enabled.
- An erasure coded pool with the RBD application enabled.
- An existing image.

#### Procedure

1. Log in to the dashboard.
2. On the navigation bar, click *Block* and then click *Images*:



3. Click the row of an image to select it for editing:



Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > Images

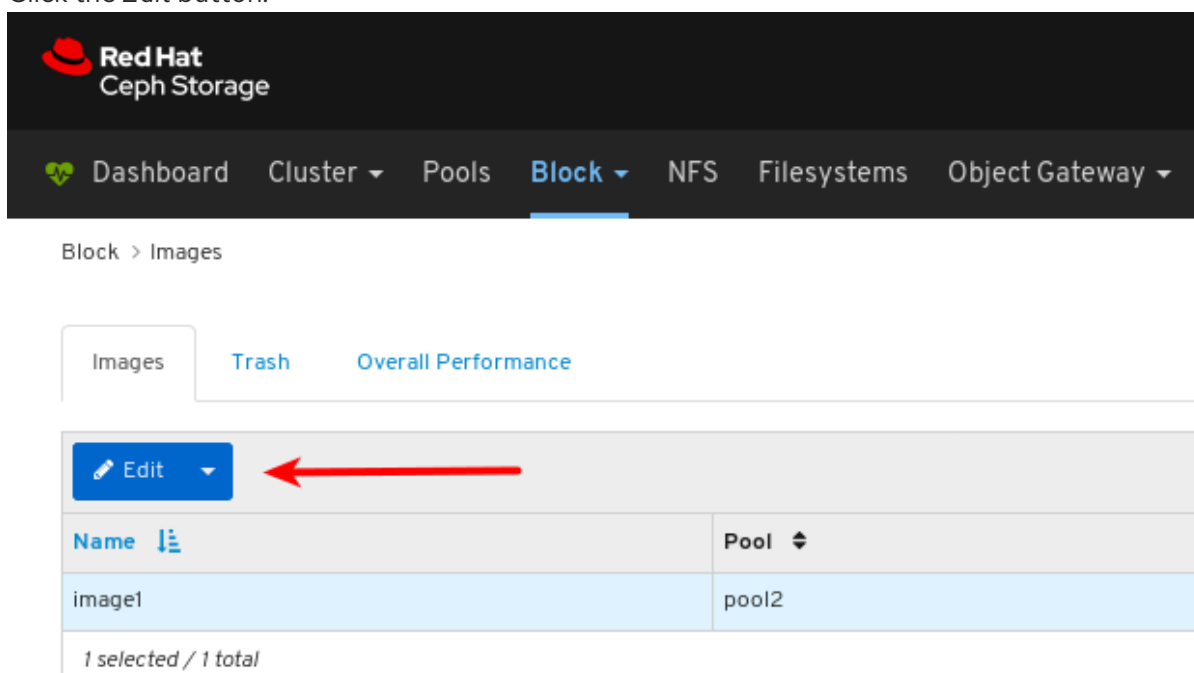
Images Trash Overall Performance

+ Create

Name	Pool
image1	pool2

0 selected / 1 total

4. Click the *Edit* button:



Red Hat Ceph Storage

Dashboard Cluster Pools **Block** NFS Filesystems Object Gateway

Block > Images

Images Trash Overall Performance

Edit

Name	Pool
image1	pool2

1 selected / 1 total

5. Click *Advanced* towards the bottom right corner of the dialog:

**Edit RBD**

**Name \***

**Pool**

Use a dedicated data pool

**Size \***

**Features**

- Deep flatten
- Layering
- Exclusive lock
- Object map (requires exclusive-lock)
- Journaling (requires exclusive-lock)
- Fast diff (interlocked with object-map)

[Advanced...](#)

6. Click the plus symbol next to *Quality of Service* to open the QoS settings:

**Advanced**

**Striping**

**Object size**

**Stripe unit \***

**Stripe count \***

**RBD Configuration**

**Quality of Service +** ←

7. Optional: Click the question mark symbol next to an individual setting to find out more about it.




### RBD Configuration

























Quality of Service ⊖

BPS Limit <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
IOPS Limit <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>
Read BPS Limit <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
Write BPS Limit <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
Write IOPS Limit <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>
BPS Burst <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
IOPS Burst <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>
Read BPS Burst <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
Read IOPS Burst <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>
Write BPS Burst <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
Write IOPS Burst <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>

[Edit RBD](#) [Cancel](#)


8. Enter or edit values for the QoS settings you want to change:

























Quality of Service 


BPS Limit 	<input type="text" value="2 GB/s"/>	
IOPS Limit 	<input type="text" value="500 IOPS"/>	
Read BPS Limit 	<input type="text" value="1 GB/s"/>	
Read IOPS Limit 	<input type="text" value="0 IOPS"/>	
Write BPS Limit 	<input type="text" value="500 MB/s"/>	
Write IOPS Limit 	<input type="text" value="0 IOPS"/>	
BPS Burst 	<input type="text" value="0 B/s"/>	
IOPS Burst 	<input type="text" value="0 IOPS"/>	
Read BPS Burst 	<input type="text" value="0 B/s"/>	
Read IOPS Burst 	<input type="text" value="0 IOPS"/>	
Write BPS Burst 	<input type="text" value="0 B/s"/>	
Write IOPS Burst 	<input type="text" value="0 IOPS"/>	

[Edit RBD](#) [Cancel](#)

- Optional: Click the eraser symbol for any setting to remove the local value and inherit the value from the parent pool or global configuration.


Quality of Service 

























BPS Limit 	<input type="text" value="2 GB/s"/>	
IOPS Limit 	<input type="text" value="500 IOPS"/>	
Read BPS Limit 	<input type="text" value="1 GB/s"/>	
Read IOPS Limit 	<input type="text" value="0 IOPS"/>	
Write BPS Limit 	<input type="text" value="500 MB/s"/>	
Write IOPS Limit 	<input type="text" value="0 IOPS"/>	
BPS Burst 	<input type="text" value="0 B/s"/>	
IOPS Burst 	<input type="text" value="0 IOPS"/>	
Read BPS Burst 	<input type="text" value="0 B/s"/>	
Read IOPS Burst 	<input type="text" value="0 IOPS"/>	
Write BPS Burst 	<input type="text" value="0 B/s"/>	
Write IOPS Burst 	<input type="text" value="0 IOPS"/>	



[Edit RBD](#) [Cancel](#)





The field for the setting is disabled to indicate it is inheriting the value from the parent.


Quality of Service 

BPS Limit 	2 GB/s	
IOPS Limit 	500 IOPS	
Read BPS Limit 	1 GB/s	
Read IOPS Limit 	0 IOPS	
Write BPS Limit 		
Write IOPS Limit 	0 IOPS	
BPS Burst 	0 B/s	
IOPS Burst 	0 IOPS	
Read BPS Burst 	0 B/s	
Read IOPS Burst 	0 IOPS	
Write BPS Burst 	0 B/s	
Write IOPS Burst 	0 IOPS	

[Edit RBD](#) [Cancel](#)

10. Click the *Edit* button to save the changes.

Write BPS Burst 	0 B/s	
Write IOPS Burst 	0 IOPS	

 [Edit RBD](#) [Cancel](#)

### 9.5.3. Configuring Quality of Service on an existing pool

As a storage administrator, you can configure Quality of Service (QoS) on an existing pool.

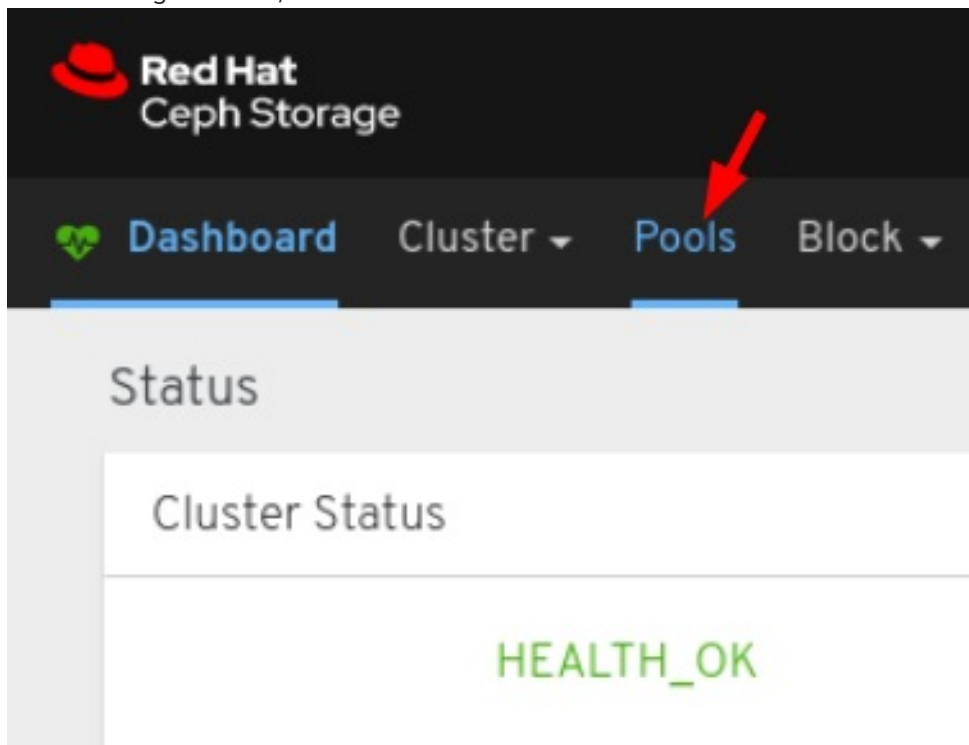
#### Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A replicated pool with the RBD application enabled.
- An erasure coded pool with the RBD application enabled.

#### Procedure

1. Log in to the dashboard.

- On the navigation bar, click *Pools*.



- Click the row of a replicated pool with the RBD application to select it for editing:

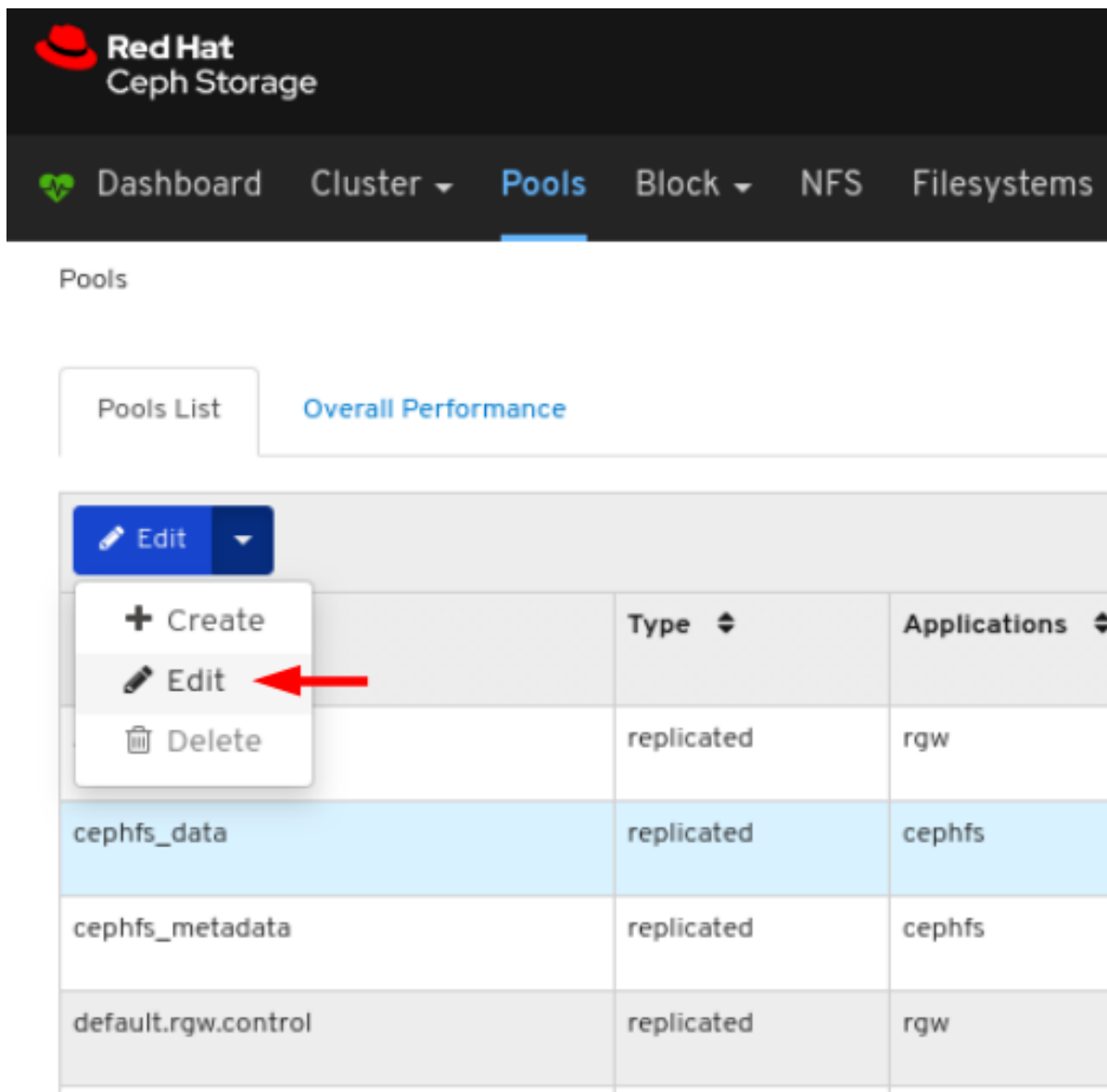
Pools List [Overall Performance](#)

[+ Create](#)

Name	Type	Application	PG Status	Repli Size	Last Chan	Erasure Coded Profile	Crush Ruleset
.rgw.root	replicated	rgw	8 active+clean	3	14		replicated_rule
default.rgw.control	replicated	rgw	8 active+clean	3	16		replicated_rule
default.rgw.log	replicated	rgw	8 active+clean	3	20		replicated_rule
default.rgw.meta	replicated	rgw	8 active+clean	3	18		replicated_rule
pool1	erasure	rbd	8 active+clean	3	87	default	erasure-code
pool2	replicated	rbd	8 active+clean	3	85		replicated_rule

0 selected / 6 total

- Click the *Edit* button:



Red Hat Ceph Storage

Dashboard Cluster ▾ **Pools** Block ▾ NFS Filesystems

Pools

Pools List Overall Performance

	Type ↕	Applications ↕
	replicated	rgw
cephfs_data	replicated	cephfs
cephfs_metadata	replicated	cephfs
default.rgw.control	replicated	rgw

Context menu options: Edit, Create, Edit (highlighted), Delete

5. Click the plus symbol next to *Quality of Service* to open the QoS settings:

### Edit Pool

**Name \***

**Pool type \***

**Placement groups \***  [Calculation help](#)

**Replicated size \***

**Applications**


---

**Compression**

**Mode**

---












**RBD Configuration**


**Quality of Service +** 

6. Optional: Click the question mark symbol next to an individual setting to find out more about it.

### RBD Configuration


**Quality of Service -**

























<b>BPS Limit ?</b>	<input type="text" value="0 B/s"/>	
<b>IOPS Limit ?</b>	<input type="text" value="0 IOPS"/>	
<b>Read BPS Limit ?</b>	<input type="text" value="0 B/s"/>	
<b>Write BPS Limit ?</b>	<input type="text" value="0 B/s"/>	
<b>Write IOPS Limit ?</b>	<input type="text" value="0 IOPS"/>	
<b>BPS Burst ?</b>	<input type="text" value="0 B/s"/>	
<b>IOPS Burst ?</b>	<input type="text" value="0 IOPS"/>	
<b>Read BPS Burst ?</b>	<input type="text" value="0 B/s"/>	
<b>Read IOPS Burst ?</b>	<input type="text" value="0 IOPS"/>	
<b>Write BPS Burst ?</b>	<input type="text" value="0 B/s"/>	
<b>Write IOPS Burst ?</b>	<input type="text" value="0 IOPS"/>	



**The desired limit of read bytes per second.**


7. Enter or edit values for the QoS settings you want to change:

























Quality of Service 


BPS Limit 	<input type="text" value="2 GB/s"/>	
IOPS Limit 	<input type="text" value="500 IOPS"/>	
Read BPS Limit 	<input type="text" value="1 GB/s"/>	
Read IOPS Limit 	<input type="text" value="0 IOPS"/>	
Write BPS Limit 	<input type="text" value="500 MB/s"/>	
Write IOPS Limit 	<input type="text" value="0 IOPS"/>	
BPS Burst 	<input type="text" value="0 B/s"/>	
IOPS Burst 	<input type="text" value="0 IOPS"/>	
Read BPS Burst 	<input type="text" value="0 B/s"/>	
Read IOPS Burst 	<input type="text" value="0 IOPS"/>	
Write BPS Burst 	<input type="text" value="0 B/s"/>	
Write IOPS Burst 	<input type="text" value="0 IOPS"/>	

8. Optional: Click the eraser symbol for any setting to remove the local value and inherit the value from the parent global configuration.




Quality of Service 

























BPS Limit 	<input type="text" value="2 GB/s"/>	
IOPS Limit 	<input type="text" value="500 IOPS"/>	
Read BPS Limit 	<input type="text" value="1 GB/s"/>	
Read IOPS Limit 	<input type="text" value="0 IOPS"/>	
Write BPS Limit 	<input type="text" value="500 MB/s"/>	
Write IOPS Limit 	<input type="text" value="0 IOPS"/>	
BPS Burst 	<input type="text" value="0 B/s"/>	
IOPS Burst 	<input type="text" value="0 IOPS"/>	
Read BPS Burst 	<input type="text" value="0 B/s"/>	
Read IOPS Burst 	<input type="text" value="0 IOPS"/>	
Write BPS Burst 	<input type="text" value="0 B/s"/>	
Write IOPS Burst 	<input type="text" value="0 IOPS"/>	



[Edit Pool](#) [Cancel](#)





The field for the setting is disabled to indicate it is inheriting the value from the parent.


Quality of Service 

BPS Limit 	2 GB/s	
IOPS Limit 	500 IOPS	
Read BPS Limit 	1 GB/s	
Read IOPS Limit 	0 IOPS	
Write BPS Limit 		
Write IOPS Limit 	0 IOPS	
BPS Burst 	0 B/s	
IOPS Burst 	0 IOPS	
Read BPS Burst 	0 B/s	
Read IOPS Burst 	0 IOPS	
Write BPS Burst 	0 B/s	
Write IOPS Burst 	0 IOPS	

[Edit Pool](#) [Cancel](#)

9. Click the *Edit* button to save the changes.

Write BPS Burst 	0 B/s	
Write IOPS Burst 	0 IOPS	

 [Edit Pool](#) [Cancel](#)

### 9.5.4. Configuring Quality of Service when creating an image

As a storage administrator, you can configure Quality of Service (QoS) limits when creating an image.

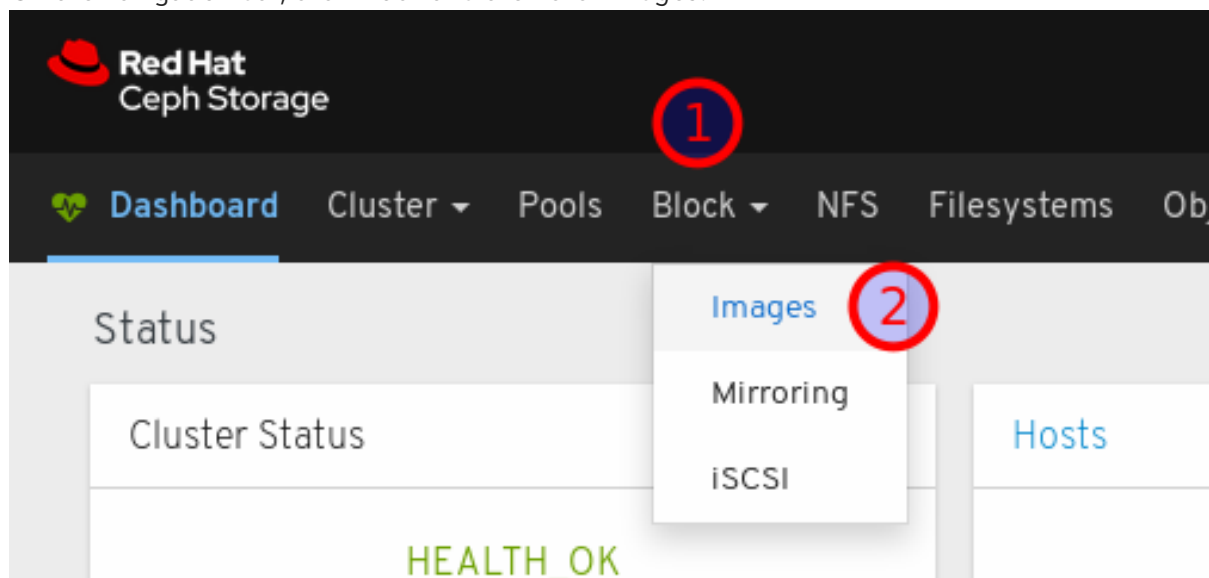
#### Prerequisites

- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A replicated pool with the RBD application enabled.
- An erasure coded pool with the RBD application enabled.

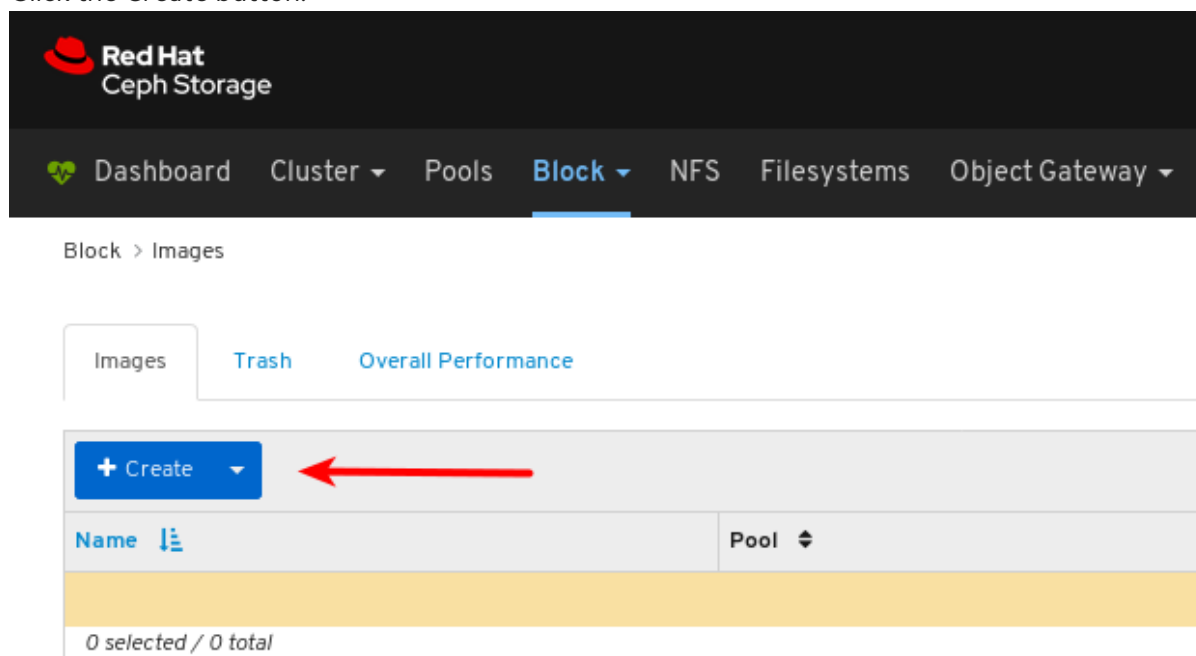
#### Procedure

1. Log in to the dashboard.

2. On the navigation bar, click *Block* and then click *Images*:



3. Click the *Create* button:



4. At 1, set the name, at 2, set the pool, at 3, set the size, and at 4, click *Advanced*.

Create RBD

1 Name \* image1

2 Pool \* pool2

Use a dedicated data pool

3 Size \* 1 GiB

Features

- Deep flatten
- Layering
- Exclusive lock
- Object map (requires exclusive-lock)
- Journaling (requires exclusive-lock)
- Fast diff (interlocked with object-map)

4 Advanced...

Create RBD Cancel

5. Click the plus symbol next to *Quality of Service* to open the QoS settings:

Advanced

Striping

Object size 4 MiB

Stripe unit -- Select stripe unit --

Stripe count

RBD Configuration













Quality of Service + ←

Create RBD Cancel

6. Optional: Click the question mark symbol next to an individual setting to find out more about it.


### RBD Configuration

























Quality of Service ⊖

BPS Limit <span>?</span>	<input type="text" value="0 B/s"/>	
IOPS Limit <span>?</span>	<input type="text" value="0 IOPS"/>	
Read BPS Limit <span>?</span>	<input type="text" value="0 B/s"/>	
<div style="border: 1px solid gray; padding: 2px; display: inline-block;">The desired limit of read bytes per second.</div>	<input type="text" value="0 IOPS"/>	
Write BPS Limit <span>?</span>	<input type="text" value="0 B/s"/>	
Write IOPS Limit <span>?</span>	<input type="text" value="0 IOPS"/>	
BPS Burst <span>?</span>	<input type="text" value="0 B/s"/>	
IOPS Burst <span>?</span>	<input type="text" value="0 IOPS"/>	
Read BPS Burst <span>?</span>	<input type="text" value="0 B/s"/>	
Read IOPS Burst <span>?</span>	<input type="text" value="0 IOPS"/>	
Write BPS Burst <span>?</span>	<input type="text" value="0 B/s"/>	
Write IOPS Burst <span>?</span>	<input type="text" value="0 IOPS"/>	


Create RBD Cancel

























7. Enter or edit values for the QoS settings you want to change:


Quality of Service 

BPS Limit 	<input type="text" value="2 GB/s"/>	
IOPS Limit 	<input type="text" value="500 IOPS"/>	
Read BPS Limit 	<input type="text" value="1 GB/s"/>	
Read IOPS Limit 	<input type="text" value="0 IOPS"/>	
Write BPS Limit 	<input type="text" value="500 MB/s"/>	
Write IOPS Limit 	<input type="text" value="0 IOPS"/>	
BPS Burst 	<input type="text" value="0 B/s"/>	
IOPS Burst 	<input type="text" value="0 IOPS"/>	
Read BPS Burst 	<input type="text" value="0 B/s"/>	
Read IOPS Burst 	<input type="text" value="0 IOPS"/>	
Write BPS Burst 	<input type="text" value="0 B/s"/>	
Write IOPS Burst 	<input type="text" value="0 IOPS"/>	


- Optional: Click the eraser symbol for any setting to remove the local value and inherit the value from the parent pool configuration.

























Quality of Service 

BPS Limit 	<input type="text" value="2 GB/s"/>	
IOPS Limit 	<input type="text" value="500 IOPS"/>	
Read BPS Limit 	<input type="text" value="1 GB/s"/>	
Read IOPS Limit 	<input type="text" value="0 IOPS"/>	
Write BPS Limit 	<input type="text" value="500 MB/s"/>	
Write IOPS Limit 	<input type="text" value="0 IOPS"/>	
BPS Burst 	<input type="text" value="0 B/s"/>	
IOPS Burst 	<input type="text" value="0 IOPS"/>	
Read BPS Burst 	<input type="text" value="0 B/s"/>	
Read IOPS Burst 	<input type="text" value="0 IOPS"/>	
Write BPS Burst 	<input type="text" value="0 B/s"/>	
Write IOPS Burst 	<input type="text" value="0 IOPS"/>	







The field for the setting is disabled to indicate it is inheriting the value from the parent.

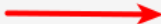
Quality of Service 

BPS Limit 	2 GB/s	
IOPS Limit 	500 IOPS	
Read BPS Limit 	1 GB/s	
Read IOPS Limit 	0 IOPS	
Write BPS Limit 		
Write IOPS Limit 	0 IOPS	
BPS Burst 	0 B/s	
IOPS Burst 	0 IOPS	
Read BPS Burst 	0 B/s	
Read IOPS Burst 	0 IOPS	
Write BPS Burst 	0 B/s	
Write IOPS Burst 	0 IOPS	

[Create RBD](#) [Cancel](#)

9. Click the *Create RBD* button:

Write BPS Burst 	0 B/s	
Write IOPS Burst 	0 IOPS	

 [Create RBD](#) [Cancel](#)

### 9.5.5. Configuring Quality of Service when creating a pool

As a storage administrator, you can configure Quality of Service (QoS) when creating a pool.

#### Prerequisites

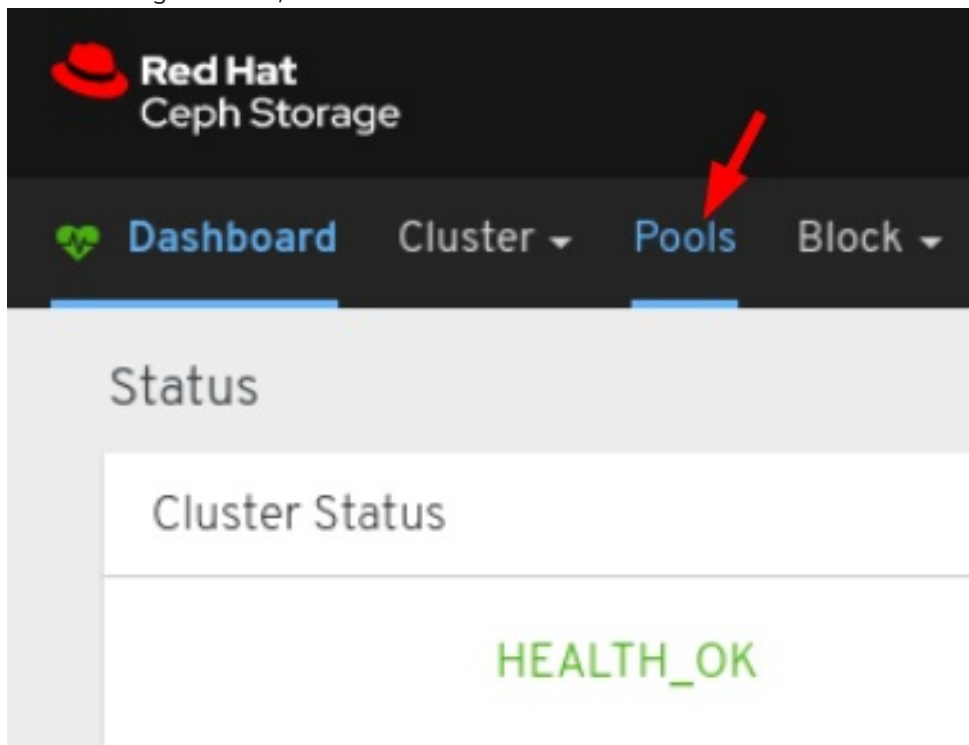
- A running Red Hat Ceph Storage cluster.
- Dashboard is installed.
- A replicated pool with the RBD application enabled.
- An erasure coded pool with the RBD application enabled.

#### Procedure

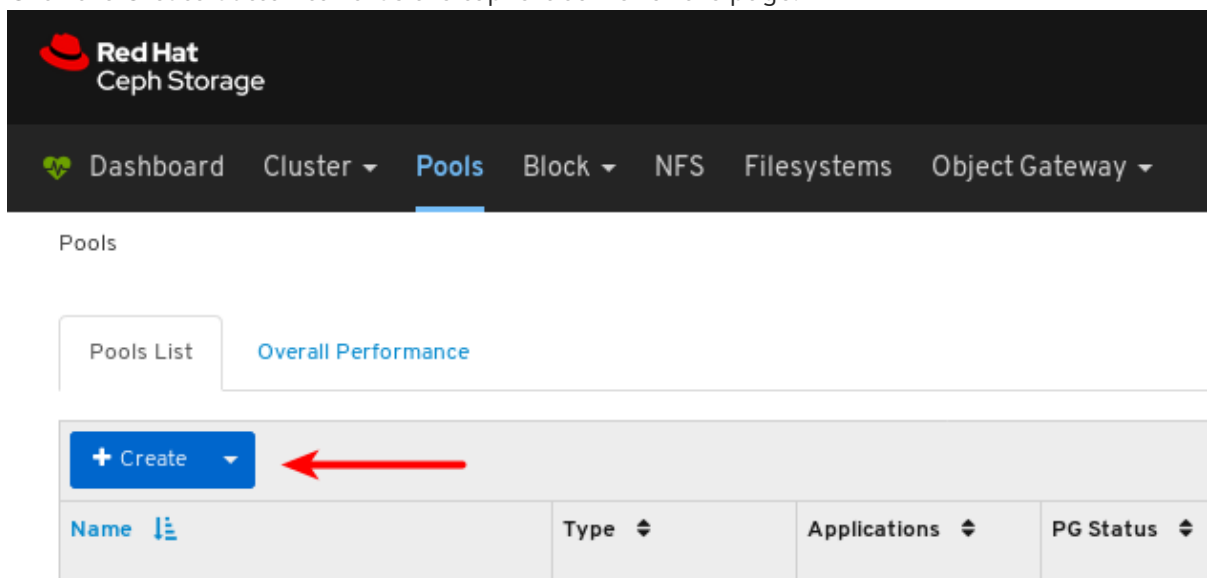
1. Log in to the dashboard.



- On the navigation bar, click *Pools*.



- Click the *Create* button towards the top left corner of the page:



- In the dialog box, at *1*, set the pool name, at *2*, set the pool type to *erasure*, at *3*, set the number of placement groups, at *4*, enable *EC Overwrites*, at *5*, set the *rd* application, finally, at *6*, click *Create Pool*.

Create Pool

1 Name \* pool1

2 Pool type \* erasure

3 Placement groups \* 8  
[Calculation help](#)

Crush ruleset erasure-code

Erasure code profile default

4 Flags  EC Overwrites

5 Applications [rbd](#)

Compression

Mode none

6 Create Pool Cancel

5. Create another pool but this time set its type to *replicated*:

Create Pool

Name \* pool2

Pool type \* replicated

Placement groups \* 8  
[Calculation help](#)

Crush ruleset replicated\_rule

Replicated size \* 3

Applications [rbd](#)

Compression

Mode none

RBD Configuration

Quality of Service **+**

Create Pool Cancel

6. Click the plus symbol next to *Quality of Service* to open the QoS settings:

### Create Pool

**Name \***

**Pool type \***

**Placement groups \***  Calculation help

**Crush ruleset**  ?

**Replicated size \***

**Applications**


---

#### Compression

**Mode**

---

#### RBD Configuration

**Quality of Service +** 

- Optional: Click the question mark symbol next to an individual setting to find out more about it.


### RBD Configuration

























Quality of Service ⊖

BPS Limit <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
IOPS Limit <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>
Read BPS Limit <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
Write BPS Limit <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
Write IOPS Limit <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>
BPS Burst <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
IOPS Burst <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>
Read BPS Burst <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
Read IOPS Burst <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>
Write BPS Burst <a href="#">?</a>	<input type="text" value="0 B/s"/>	<a href="#">✎</a>
Write IOPS Burst <a href="#">?</a>	<input type="text" value="0 IOPS"/>	<a href="#">✎</a>

[Create Pool](#) [Cancel](#)













8. Enter or edit values for the QoS settings you want to change:

Quality of Service 

BPS Limit 	<input type="text" value="2 GB/s"/>	
IOPS Limit 	<input type="text" value="500 IOPS"/>	
Read BPS Limit 	<input type="text" value="1 GB/s"/>	
Read IOPS Limit 	<input type="text" value="0 IOPS"/>	
Write BPS Limit 	<input type="text" value="500 MB/s"/>	
Write IOPS Limit 	<input type="text" value="0 IOPS"/>	
BPS Burst 	<input type="text" value="0 B/s"/>	
IOPS Burst 	<input type="text" value="0 IOPS"/>	
Read BPS Burst 	<input type="text" value="0 B/s"/>	
Read IOPS Burst 	<input type="text" value="0 IOPS"/>	
Write BPS Burst 	<input type="text" value="0 B/s"/>	
Write IOPS Burst 	<input type="text" value="0 IOPS"/>	


- Optional: Click the eraser symbol for any setting to remove the local value and inherit the value from the parent global configuration.

























Quality of Service ⊖

BPS Limit <a href="#">?</a>	<input type="text" value="2 GB/s"/>	
IOPS Limit <a href="#">?</a>	<input type="text" value="500 IOPS"/>	
Read BPS Limit <a href="#">?</a>	<input type="text" value="1 GB/s"/>	
Read IOPS Limit <a href="#">?</a>	<input type="text" value="0 IOPS"/>	
Write BPS Limit <a href="#">?</a>	<input type="text" value="500 MB/s"/>	
Write IOPS Limit <a href="#">?</a>	<input type="text" value="0 IOPS"/>	
BPS Burst <a href="#">?</a>	<input type="text" value="0 B/s"/>	
IOPS Burst <a href="#">?</a>	<input type="text" value="0 IOPS"/>	
Read BPS Burst <a href="#">?</a>	<input type="text" value="0 B/s"/>	
Read IOPS Burst <a href="#">?</a>	<input type="text" value="0 IOPS"/>	
Write BPS Burst <a href="#">?</a>	<input type="text" value="0 B/s"/>	
Write IOPS Burst <a href="#">?</a>	<input type="text" value="0 IOPS"/>	

[Create Pool](#) [Cancel](#)





The field for the setting is disabled to indicate it is inheriting the value from the parent.


Quality of Service 

BPS Limit 	2 GB/s	
IOPS Limit 	500 IOPS	
Read BPS Limit 	1 GB/s	
Read IOPS Limit 	0 IOPS	
Write BPS Limit 		
Write IOPS Limit 	0 IOPS	
BPS Burst 	0 B/s	
IOPS Burst 	0 IOPS	
Read BPS Burst 	0 B/s	
Read IOPS Burst 	0 IOPS	
Write BPS Burst 	0 B/s	
Write IOPS Burst 	0 IOPS	

[Create Pool](#) [Cancel](#)

10. Click the *Create Pool* button:

Write BPS Burst 	0 B/s	
Write IOPS Burst 	0 IOPS	

 [Create Pool](#) [Cancel](#)

### 9.5.6. Additional Resources

- For more information on block devices, see the [Block Device guide](#).

## APPENDIX A. TROUBLESHOOTING

This section provides the multiple troubleshooting scenarios while using the dashboard.

### A.1. DASHBOARD RESPONSE IS SLOW

If the dashboard response is slow, clear the browser cache and reload the dashboard.

### A.2. DASHBOARD SHOWS A SERVICE IS DOWN

Dashboard is only a replica of the cluster. If the service is down, check the service status on the node as dashboard displays information collected via `node-exporter` running on the node. The issue may be in the cluster, configuration, or network.

### A.3. TASK FAILURE ON DASHBOARD

While performing any task on the dashboard, if there is any failure, check the respective Ceph daemons. For more information refer to the [Troubleshooting Guide](#)

### A.4. IMAGES CANNOT BE VIEWED

An image can only be viewed under *Block > Images* if the pool it is in has the RBD application enabled on it.





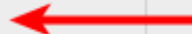


## Pools

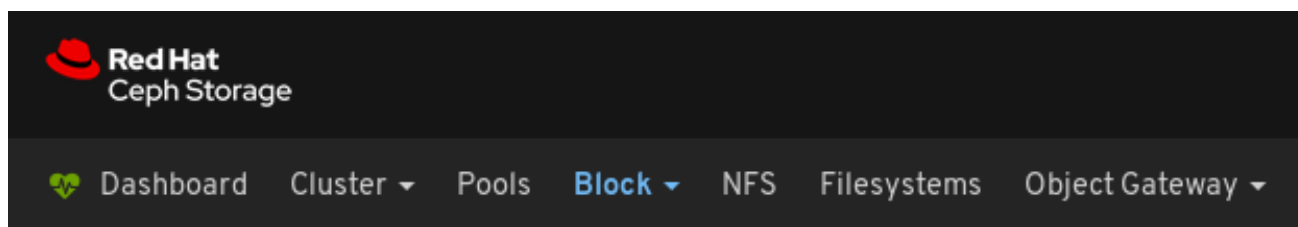
Pools List

[Overall Performance](#)

[+ Create](#)

Name 	Type 	Applications 	PG Status 	Repl Size
.rgw.root	replicated	rgw	8 active+clean	
default.rgw.control	replicated	rgw	8 active+clean	
default.rgw.log	replicated	rgw	8 active+clean	
default.rgw.meta	replicated	rgw	8 active+clean	
pool1	erasure	rbd	8 active+clean	
pool2	replicated	rbd 	8 active+clean	




0 selected / 6 total



Block > Images

Images    Trash    Overall Performance

+ Create ▾

Name 	Pool 	Size 
image1	pool2	

0 selected / 1 total

### Additional resources

For more information, refer to the [Troubleshooting Guide](#)