Introduction to the OpenStack Dashboard

An overview of the Red Hat OpenStack Platform Dashboard graphical user interface
Red Hat OpenStack Platform 16.2 Introduction to the OpenStack Dashboard

An overview of the Red Hat OpenStack Platform Dashboard graphical user interface

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Abstract

This guide provides an outline of the options available in the Red Hat OpenStack Platform Dashboard user interface.
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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. THE RED HAT OPENSTACK PLATFORM DASHBOARD SERVICE (HORIZON)

The Red Hat OpenStack Platform (RHOSP) Dashboard (horizon) is a web-based graphical user interface that you can use to manage RHOSP services.

To access the browser dashboard, you must install the Dashboard service, and you must know the dashboard host name, or IP, and login password. The dashboard URL is:

```
http://HOSTNAME/dashbord/
```

1.1. THE ADMIN TAB

In the Admin tab you can view usage and manage instances, volumes, flavors, images, projects, users, services, and quotas.

**NOTE**

The Admin tab displays in the main window when you log in as an admin user.

The following options are available in the Admin tab:

**Table 1.1. System Panel**

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>View basic reports.</td>
</tr>
<tr>
<td>Resource Usage</td>
<td>Use the following tabs to view the following usages:</td>
</tr>
<tr>
<td></td>
<td>- <strong>Usage Report</strong> - View the usage report.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Stats</strong> - View the statistics of all resources.</td>
</tr>
<tr>
<td>Hypervisors</td>
<td>View the hypervisor summary.</td>
</tr>
<tr>
<td>Host Aggregates</td>
<td>View, create, and edit host aggregates. View the list of availability zones.</td>
</tr>
<tr>
<td>Instances</td>
<td>View, pause, resume, suspend, migrate, soft or hard reboot, and delete running instances that belong to users of some, but not all, projects. Also, view the log for an instance or access an instance with the console.</td>
</tr>
<tr>
<td>Volumes</td>
<td>View, create, edit, and delete volumes, and volume types.</td>
</tr>
<tr>
<td>Flavors</td>
<td>View, create, edit, view extra specifications for, and delete flavors. Flavors are the virtual hardware templates in Red Hat OpenStack Platform (RHOSP).</td>
</tr>
</tbody>
</table>
### 1.1.1. Viewing allocated floating IP addresses

You can use the **Floating IPs** panel to view a list of allocated floating IP addresses. You can access the same information from the command line with the `nova list --all-projects` command.

### 1.2. THE PROJECT TAB

In the **Project** tab you can view and manage project resources. Set a project as active in **Identity > Projects** to view and manage resources in that project.

The following options are available in the **Project** tab:

#### Table 1.2. The Compute tab

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>View reports for the project.</td>
</tr>
<tr>
<td>Instances</td>
<td>View, launch, create a snapshot from, stop, pause, or reboot instances, or connect to them through the console.</td>
</tr>
<tr>
<td>Parameter name</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Volumes</strong></td>
<td>Use the following tabs to complete these tasks:</td>
</tr>
<tr>
<td></td>
<td>- <strong>Volumes</strong> - View, create, edit, and delete volumes.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Volume Snapshots</strong> - View, create, edit, and delete volume snapshots.</td>
</tr>
<tr>
<td><strong>Images</strong></td>
<td>View images, instance snapshots, and volume snapshots that project users create, and any images that are publicly available. Create, edit, and delete images, and launch instances from images and snapshots.</td>
</tr>
<tr>
<td><strong>Access &amp; Security</strong></td>
<td>Use the following tabs to complete these tasks:</td>
</tr>
<tr>
<td></td>
<td>- <strong>Security Groups</strong> - View, create, edit, and delete security groups and security group rules.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Key Pairs</strong> - View, create, edit, import, and delete key pairs.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Floating IPs</strong> - Allocate an IP address to or release it from a project.</td>
</tr>
<tr>
<td></td>
<td>- <strong>API Access</strong> - View API endpoints, download the OpenStack RC file, download EC2 credentials, and view credentials for the current project user.</td>
</tr>
</tbody>
</table>

**Table 1.3. The Network tab**

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network Topology</strong></td>
<td>View the interactive topology of the network.</td>
</tr>
<tr>
<td><strong>Networks</strong></td>
<td>Create and manage public and private networks and subnets.</td>
</tr>
<tr>
<td><strong>Routers</strong></td>
<td>Create and manage routers.</td>
</tr>
<tr>
<td><strong>Trunks</strong></td>
<td>Create and manage trunks. Requires the <em>trunk</em> extension enabled in OpenStack Networking (neutron).</td>
</tr>
</tbody>
</table>

**Table 1.4. The Object Store tab**

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Containers</strong></td>
<td>Create and manage storage containers. A container is a storage compartment for data, and provides a way for you to organize your data. It is similar to the concept of a Linux file directory, but it cannot be nested.</td>
</tr>
</tbody>
</table>
Table 1.5. The Orchestration tab

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stacks</td>
<td>Orchestrate multiple composite cloud applications with templates, through both an OpenStack-native REST API and a CloudFormation-compatible Query API.</td>
</tr>
</tbody>
</table>

1.3. THE IDENTITY TAB

In the Identity tab you can view and manage projects and users.

The following options are available in the Identity tab:

- **Projects** - View, create, edit, and delete projects, view project usage, add or remove users as project members, modify quotas, and set an active project.

- **Users** - View, create, edit, disable, and delete users, and change user passwords. The **Users** tab is available when you log in as an admin user.

For more information about managing your cloud with the Red Hat OpenStack Platform dashboard, see the following guides:

- Creating and Managing Instances
- Creating and Managing Images
- Networking guide
- Users and Identity Management guide
CHAPTER 2. CUSTOMIZING THE DASHBOARD

The Red Hat OpenStack Platform (RHOSP) dashboard (horizon) uses a default theme (RCUE), which is stored inside the horizon container. You can add your own theme to the container image and customize certain parameters to change the look and feel of the following dashboard elements:

- Logo
- Site colors
- Stylesheets
- HTML title
- Site branding link
- Help URL

NOTE
To ensure continued support for modified RHOSP container images, the resulting images must comply with the Red Hat Container Support Policy.

2.1. OBTAINING THE HORIZON CONTAINER IMAGE

To obtain a copy of the horizon container image, pull the image either into the undercloud or a separate client system that is running podman.

Procedure

- Pull the horizon container image:
  
  $ sudo podman pull registry.redhat.io/rhosp-rhel8/openstack-horizon:16.2

You can use this image as a basis for a modified image.

2.2. OBTAINING THE RCUE THEME

The horizon container image uses the Red Hat branded RCUE theme by default. You can use this theme as a basis for your own theme and extract a copy from the container image.

Procedure

1. Create a directory for your theme:

   $ mkdir ~/horizon-themes
   $ cd ~/horizon-themes

2. Start a container that executes a null loop. For example, run the following command:

   $ sudo podman run --rm -d --name horizon-temp registry.redhat.io/rhosp-rhel8/openstack-horizon /usr/bin/sleep infinity
3. Copy the RCUE theme from the container to your local directory:

   ```bash
   $ sudo podman cp -a horizon-temp:/usr/share/openstack-dashboard/openstack_dashboard/themes/rcue .
   ```

4. Kill the container:

   ```bash
   $ sudo podman kill horizon-temp
   ```

   **Result:** You now have a local copy of the RCUE theme.

## 2.3. CREATING YOUR OWN THEME BASED ON RCUE

To use RCUE as a basis, copy the entire RCUE theme directory rcue to a new location. This procedure uses `mytheme` as an example name.

### Procedure

- Copy the theme:

  ```bash
  $ cp -r rcue mytheme
  ```

To change the colors, graphics, fonts, and other elements of a theme, edit the files in mytheme. When you edit this theme, check for all instances of rcue including paths, files, and directories to ensure that you change them to the new mytheme name.

## 2.4. CREATING A FILE TO ENABLE YOUR THEME AND CUSTOMIZE THE DASHBOARD

To enable your theme in the dashboard container, you must create a file to override the `AVAILABLE_THEMES` parameter.

### Procedure

1. Create a new file called `_12_mytheme_theme.py` in the `horizon-themes` directory and add the following content:

   ```python
   AVAILABLE_THEMES = [('mytheme', 'My Custom Theme', 'themes/mytheme')]
   
   The 12 in the file name ensures this file is loaded after the RCUE file, which uses 11, and overrides the `AVAILABLE_THEMES` parameter.
   
2. Optional: You can also set custom parameters in the `_12_mytheme_theme.py` file. Use the following examples as a guide:

   ```python
   SITE_BRANDING
   
   Set the HTML title that appears at the top of the browser window.

   ```

   ```python
   SITE_BRANDING = "Example, Inc. Cloud"
   ```

   ```python
   SITE_BRANDING_LINK
   ```
2.5. GENERATING A MODIFIED HORIZON IMAGE

When your custom theme is ready, you can create a new container image that uses your theme.

Procedure

1. Use a **dockerfile** to generate a new container image using the original **horizon** image as a basis, as shown in the following example:

```plaintext
FROM registry.redhat.io/rhosp-rhel8/openstack-horizon
MAINTAINER Acme
LABEL name="rhosp-rhel8/openstack-horizon-mytheme" vendor="Acme" version="0"
release="1"
COPY mytheme /usr/share/openstack-dashboard/openstack_dashboard/themes/mytheme
COPY _12_mytheme_theme.py /var/lib/config-data/horizon/etc/openstack-dashboard/local_settings.d/_12_mytheme_theme.py
RUN sudo chown horizon:horizon /var/lib/config-data/horizon/etc/openstack-dashboard/local_settings.d/_12_mytheme_theme.py

$ sudo podman build . -t "172.24.10.10:8787/rhosp-rhel8/openstack-horizon:0-5" --log-level debug
```

2. Save this file in your **horizon-themes** directory as **dockerfile**.

3. Use the dockerfile to generate the new image:

```plaintext
$ sudo podman build . -t "172.24.10.10:8787/rhosp-rhel8/openstack-horizon:0-5" --log-level debug
```

The `-t` option names and tags the resulting image. It uses the following syntax:

`[LOCATION]/[NAME]:[TAG]`

**LOCATION**

This is usually the location of the container registry that the overcloud eventually uses to pull images. In this instance, you push this image to the container registry of the undercloud, so set this to the undercloud IP and port.

**NAME**

For consistency, this is usually the same name as the original container image followed by the name of your theme. In this instance, it is `rhosp-rhel8/openstack-horizon-mytheme`.

**TAG**

The tag for the image. Red Hat uses the **version** and **release** labels as a basis for this tag. If you generate a new version of this image, increment the **release**, for example, `0-2`.

4. Push the image to the container registry of the undercloud:

```plaintext
$ sudo openstack tripleo container image push --local 172.24.10.10:8787/rhosp-rhel8/openstack-horizon:0-5
```
5. Verify that the image has uploaded to the local registry:

```bash
[stack@director horizon-themes]$ curl http://172.24.10.10:8787/v2/_catalog | jq .repositories[] | grep -i hori "rhosp-rhel8/openstack-horizon"
[stack@director horizon-themes]$

[stack@director ~]$ sudo openstack tripleo container image list | grep hor
<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<,Uploaded
[stack@director ~]$
```

**IMPORTANT**

If you update or upgrade Red Hat OpenStack Platform, you must reapply the theme to the new `horizon` image and push a new version of the modified image to the undercloud.

### 2.6. USING THE MODIFIED CONTAINER IMAGE IN THE OVERCLOUD

To use the container image that you modified with your overcloud deployment, edit the environment file that contains the list of container image locations. This environment file is usually named `overcloud-images.yaml`.

**Procedure**

1. Edit the `DockerHorizonConfigImage` and `DockerHorizonImage` parameters to point to your modified container image:

```yaml
parameter_defaults:
...  
...  
```

2. Save this new version of the `overcloud-images.yaml` file.

### 2.7. EDITING PUPPET PARAMETERS

Director provides a set of dashboard parameters that you can modify with environment files.

**Procedure**

- Use the `ExtraConfig` parameter to set Puppet hieradata. For example, the default help URL points to `https://access.redhat.com/documentation/en/red-hat-openstack-platform`. To modify this URL, use the following environment file content and replace the URL:

```yaml
parameter_defaults:
  ExtraConfig:
    horizon::help_url: "http://openstack.example.com"
```
2.8. DEPLOYING AN OVERCLOUD WITH A CUSTOMIZED DASHBOARD

Procedure

- To deploy the overcloud with your dashboard customizations, include the following environment files in the `openstack overcloud deploy` command:
  - The environment file with your modified container image locations.
  - The environment file with additional dashboard modifications.
  - Any other environment files that are relevant to your overcloud configuration.

```
$ openstack overcloud deploy --templates
    -e /home/stack/templates/overcloud-images.yaml
    -e /home/stack/templates/help_url.yaml
    [OTHER OPTIONS]
```