



Red Hat OpenShift AI Cloud Service 1

Managing resources

Manage cluster resources, Jupyter notebooks, and data backup in OpenShift AI

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Abstract

Manage cluster resources, Jupyter notebooks, and data backup in OpenShift AI.

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PREFACE

As an OpenShift AI administrator, you can manage the following resources:

- The dashboard interface, including the visibility of navigation menu options
- Applications that show in the dashboard
- Cluster resources to support compute-intensive data science work
- Jupyter notebook servers
- Data storage backup

You can also specify whether to allow Red Hat to collect data about OpenShift AI usage in your cluster.

CHAPTER 1. CUSTOMIZING THE DASHBOARD

The OpenShift AI dashboard provides features that are designed to work for most scenarios. These features are configured in the **OdhDashboardConfig** custom resource (CR) file.

To see a description of the options in the OpenShift AI dashboard configuration file, see [Dashboard configuration options](#).

As an administrator, you can customize the interface of the dashboard, for example to show or hide some of the dashboard navigation menu options. To change the default settings of the dashboard, edit the **OdhDashboardConfig** custom resource (CR) file as described in [Editing the dashboard configuration file](#).

1.1. EDITING THE DASHBOARD CONFIGURATION FILE

As an administrator, you can customize the interface of the dashboard by editing the dashboard configuration file.

Prerequisites

- You have cluster administrator privileges for your OpenShift cluster.

Procedure

1. Log in to the OpenShift console as a cluster administrator.
2. In the **Administrator** perspective, click **Home** → **API Explorer**.
3. In the search bar, enter **OdhDashboardConfig** to filter by kind.
4. Click the **OdhDashboardConfig** custom resource (CR) to open the resource details page.
5. Select the **redhat-ods-applications** project from the **Project** list.
6. Click the **Instances** tab.
7. Click the **odh-dashboard-config** instance to open the details page.
8. Click the **YAML** tab. Here is an example **OdhDashboardConfig** file showing default values:

```
apiVersion: opendatahub.io/v1alpha
kind: OdhDashboardConfig
metadata:
  name: odh-dashboard-config
spec:
  dashboardConfig:
    enablement: true
    disableBYONImageStream: false
    disableClusterManager: false
    disableISVBadges: false
    disableInfo: false
    disableSupport: false
    disableTracking: true
    disableProjects: true
    disablePipelines: true
```



```
disableModelServing: true
disableProjectSharing: true
disableCustomServingRuntimes: false
disableAcceleratorProfiles: true
modelMetricsNamespace: ""
disablePerformanceMetrics: false
notebookController:
  enabled: true
notebookSizes:
- name: Small
  resources:
    limits:
      cpu: '2'
      memory: 2Gi
    requests:
      cpu: '1'
      memory: 1Gi
- name: Medium
  resources:
    limits:
      cpu: '4'
      memory: 4Gi
    requests:
      cpu: '2'
      memory: 2Gi
- name: Large
  resources:
    limits:
      cpu: '8'
      memory: 8Gi
    requests:
      cpu: '4'
      memory: 4Gi
modelServerSizes:
- name: Small
  resources:
    limits:
      cpu: '2'
      memory: 8Gi
    requests:
      cpu: '1'
      memory: 4Gi
- name: Medium
  resources:
    limits:
      cpu: '8'
      memory: 10Gi
    requests:
      cpu: '4'
      memory: 8Gi
- name: Large
  resources:
    limits:
      cpu: '10'
      memory: 20Gi
    requests:
```

```

cpu: '6'
memory: 16Gi
groupsConfig:
  adminGroups: 'odh-admins'
  allowedGroups: 'system:authenticated'
templateOrder:
  - 'ovms'
templateDisablement:
  - 'ovms'

```

9. Edit the values of the options that you want to change.
10. Click **Save** to apply your changes and then click **Reload** to make sure that your changes are synced to the cluster.

Verification

Log in to OpenShift AI and verify that your dashboard configurations apply.

1.2. DASHBOARD CONFIGURATION OPTIONS

The OpenShift AI dashboard includes a set of core features enabled by default that are designed to work for most scenarios. Administrators can configure the OpenShift AI dashboard from the **OdhDashboardConfig** custom resource (CR) in OpenShift.

Table 1.1. Dashboard feature configuration options

Feature	Default	Description
dashboardConfig: enablement	true	Enables admin users to add applications to the OpenShift AI dashboard Application → Enabled page. To disable this ability, set the value to false .
dashboardConfig: disableInfo	false	On the Applications → Explore page, when a user clicks on an application tile, an information panel opens with more details about the application. To disable the information panel for all applications on the Applications → Explore page, set the value to true .
dashboardConfig: disableSupport	false	Shows the Support menu option when a user clicks the Help icon in the dashboard toolbar. To hide this menu option, set the value to true .
dashboardConfig: disableClusterManager	false	Shows the Settings → Cluster settings option in the dashboard navigation menu. To hide this menu option, set the value to true .
dashboardConfig: disableTracking	true	Allows Red Hat to collect data about OpenShift AI usage in your cluster. To enable data collection, set the value to false . You can also set this option in the OpenShift AI dashboard interface from the Settings → Cluster settings navigation menu.

dashboardConfig: disableBYONImageStream	false	Shows the Settings → Notebook images option in the dashboard navigation menu. To hide this menu option, set the value to false .
dashboardConfig: disableISVBadges	false	Shows the label on a tile that indicates whether the application is “Red Hat managed”, “Partner managed”, or “Self-managed”. To hide these labels, set the value to true .
dashboardConfig: disableUserManagement	false	Shows the Settings → User management option in the dashboard navigation menu. To hide this menu option, set the value to true .
dashboardConfig: disableProjects	false	Shows the Data Science Projects option in the dashboard navigation menu. To hide this menu option, set the value to true .
dashboardConfig: disablePipelines	false	Shows the Data Science Pipelines option in the dashboard navigation menu. To hide this menu option, set the value to true .
dashboardConfig: disableModelServing	false	Shows the Model Serving option in the dashboard navigation menu and in the list of components for the data science projects. To hide Model Serving from the dashboard navigation menu and from the list of components for data science projects, set the value to true .
dashboardConfig: disableProjectSharing	false	Allows users to share access to their data science projects with other users. To prevent users from sharing data science projects, set the value to true .
dashboardConfig: disableCustomServingRuntimes	false	Shows the Serving runtimes option in the dashboard navigation menu. To hide this menu option, set the value to true .
dashboardConfig: disableKServe	false	Enables the ability to select KServe as a Serving Platform. To disable this ability, set the value to true .
dashboardConfig: disableModelMesh	false	Enables the ability to select ModelMesh as a Serving Platform. To disable this ability, set the value to true .
dashboardConfig: disableAcceleratorProfiles	false	Shows the Accelerator profiles option in the dashboard navigation menu. To hide this menu option, set the value to true .
dashboardConfig: modelMetricsNamespace	false	Enables the namespace in which the Model Serving Metrics' Prometheus Operator is installed.
dashboardConfig: disablePerformanceMetrics	false	Shows the Endpoint Performance tab on the Model Serving page. To hide this tab, set the value to true .

notebookController: enabled	true	Controls the Notebook Controller options, such as whether it is enabled in the dashboard and which parts are visible.
notebookSizes		Allows you to customize names and resources for notebooks. The Kubernetes-style sizes are shown in the dropdown menu that appears when spawning notebooks with the Notebook Controller. Note: These sizes must follow conventions. For example, requests must be smaller than limits.
ModelServerSizes		Allows you to customize names and resources for model servers.
groupsConfig		Controls access to dashboard features, such as the spawner for allowed users and the cluster settings UI for admin users.
templateOrder		Specifies the order of custom Serving Runtime templates. When the user creates a new template, it is added to this list.

CHAPTER 2. MANAGING APPLICATIONS THAT SHOW IN THE DASHBOARD

2.1. ADDING AN APPLICATION TO THE DASHBOARD

If you have installed an application in your OpenShift cluster, you can add a tile for that application to the OpenShift AI dashboard (the **Applications** → **Enabled** page) to make it accessible for OpenShift AI users.

Prerequisites

- You have cluster administrator privileges for your OpenShift cluster.
- The dashboard configuration enablement option is set to **true** (the default). Note that an admin user can disable this ability as described in [Preventing users from adding applications to the dashboard](#).

Procedure

1. Log in to the OpenShift console as a cluster administrator.
2. In the **Administrator** perspective, click **Home** → **API Explorer**.
3. On the **API Explorer** page, search for the **OdhApplication** kind.
4. Click the **OdhApplication** kind to open the resource details page.
5. On the **OdhApplication** details page, select the **redhat-ods-applications** project from the **Project** list.
6. Click the **Instances** tab.
7. Click **Create OdhApplication**.
8. On the **Create OdhApplication** page, copy the following code and paste it into the YAML editor.

```
apiVersion: dashboard.opendatahub.io/v1
kind: OdhApplication
metadata:
  name: exemplename
  namespace: redhat-ods-applications
labels:
  app: odh-dashboard
  app.kubernetes.io/part-of: odh-dashboard
spec:
  enable:
    validationConfigMap: exemplename-enable
  img: >-
    <svg width="24" height="25" viewBox="0 0 24 25" fill="none"
xmlns="http://www.w3.org/2000/svg">
  <path d="path data" fill="#ee0000"/>
</svg>
  getStartedLink: 'https://example.org/docs/quickstart.html'
```

```

route: exemplerroutename
routeNamespace: examplnamespace
displayName: Example Name
kfdefApplications: []
support: third party support
csvName: "
provider: example
docsLink: 'https://example.org/docs/index.html'
quickStart: "
getStartedMarkDown: >-
  # Example

Enter text for the information panel.

description: >-
  Enter summary text for the tile.
category: Self-managed | Partner managed | {org-name} managed

```

9. Modify the parameters in the code for your application.

TIP

To see example YAML files, click **Home** → **API Explorer**, select **OdhApplication**, click the **Instances** tab, select an instance, and then click the **YAML** tab.

10. Click **Create**. The application details page appears.
11. Log in to OpenShift AI.
12. In the left menu, click **Applications** → **Explore**.
13. Locate the new tile for your application and click it.
14. In the information pane for the application, click **Enable**.

Verification

- In the left menu of the OpenShift AI dashboard, click **Applications** → **Enabled** and verify that your application is available.

2.2. PREVENTING USERS FROM ADDING APPLICATIONS TO THE DASHBOARD

By default, admin users are allowed to add applications to the OpenShift AI dashboard **Application** → **Enabled** page.

You can disable the ability for admin users to add applications to the dashboard.

Note: The Jupyter tile is enabled by default. To disable it, see [Hiding the default Jupyter application](#).

Prerequisite

- You have cluster administrator privileges for your OpenShift cluster.

Procedure

1. Log in to the OpenShift console as a cluster administrator.
2. Open the dashboard configuration file:
 - a. In the **Administrator** perspective, click **Home → API Explorer**.
 - b. In the search bar, enter **OdhDashboardConfig** to filter by kind.
 - c. Click the **OdhDashboardConfig** custom resource (CR) to open the resource details page.
 - d. Select the **redhat-ods-applications** project from the **Project** list.
 - e. Click the **Instances** tab.
 - f. Click the **odh-dashboard-config** instance to open the details page.
 - g. Click the **YAML** tab.
3. In the **spec:dashboardConfig** section, set the value of **enablement** to **false** to disable the ability for dashboard users to add applications to the dashboard.
4. Click **Save** to apply your changes and then click **Reload** to make sure that your changes are synced to the cluster.

Verification

Open the OpenShift AI dashboard **Application → Enabled** page.

2.3. SHOWING OR HIDING INFORMATION ABOUT ENABLED APPLICATIONS

If you have installed another application in your OpenShift cluster, you can add a tile for that application to the OpenShift AI dashboard (the **Applications → Enabled** page) to make it accessible for OpenShift AI users.

Prerequisites

- You have cluster administrator privileges for your OpenShift cluster.

Procedure

1. Log in to the OpenShift console as a cluster administrator.
2. In the **Administrator** perspective, click **Home → API Explorer**.
3. On the **API Explorer** page, search for the **OdhApplication** kind.
4. Click the **OdhApplication** kind to open the resource details page.
5. On the **OdhApplication** details page, select the **redhat-ods-applications** project from the **Project** list.
6. Click the **Instances** tab.
7. Click **Create OdhApplication**.

- On the **Create OdhApplication** page, copy the following code and paste it into the YAML editor.

```

apiVersion: dashboard.opendatahub.io/v1
kind: OdhApplication
metadata:
  name: exemplename
  namespace: redhat-ods-applications
  labels:
    app: odh-dashboard
    app.kubernetes.io/part-of: odh-dashboard
spec:
  enable:
    validationConfigMap: exemplename-enable
  img: >-
    <svg width="24" height="25" viewBox="0 0 24 25" fill="none"
xmlns="http://www.w3.org/2000/svg">
    <path d="path data" fill="#ee0000"/>
    </svg>
  getStartedLink: 'https://example.org/docs/quickstart.html'
  route: exemplerroutename
  routeNamespace: exemplenamespace
  displayName: Example Name
  kfdefApplications: []
  support: third party support
  csvName: "
  provider: example
  docsLink: 'https://example.org/docs/index.html'
  quickStart: "
  getStartedMarkDown: >-
    # Example

    Enter text for the information panel.

description: >-
  Enter summary text for the tile.
category: Self-managed | Partner managed | Red Hat managed

```

- Modify the parameters in the code for your application.

TIP

To see example YAML files, click **Home** → **API Explorer**, select **OdhApplication**, click the **Instances** tab, select an instance, and then click the **YAML** tab.

- Click **Create**. The application details page appears.
- Log in to OpenShift AI.
- In the left menu, click **Applications** → **Explore**.
- Locate the new tile for your application and click it.
- In the information pane for the application, click **Enable**.

Verification

- In the left menu of the OpenShift AI dashboard, click **Applications** → **Enabled** and verify that your application is available.

2.4. HIDING THE DEFAULT JUPYTER APPLICATION

The OpenShift AI dashboard includes Jupyter as an enabled application by default.

To hide the Jupyter tile from the list of Enabled applications, edit the dashboard configuration file.

Prerequisite

- You have cluster administrator privileges for your OpenShift cluster.

Procedure

1. Log in to the OpenShift console as a cluster administrator.
2. Open the dashboard configuration file:
 - a. In the **Administrator** perspective, click **Home** → **API Explorer**.
 - b. In the search bar, enter **OdhDashboardConfig** to filter by kind.
 - c. Click the **OdhDashboardConfig** custom resource (CR) to open the resource details page.
 - d. Select the **redhat-ods-applications** project from the **Project** list.
 - e. Click the **Instances** tab.
 - f. Click the **odh-dashboard-config** instance to open the details page.
 - g. Click the **YAML** tab.
3. In the **spec:notebookController** section, set the value of **enabled** to **false** to hide the Jupyter tile from the list of Enabled applications.
4. Click **Save** to apply your changes and then click **Reload** to make sure that your changes are synced to the cluster.

Verification

In the OpenShift AI dashboard, select **Applications** > **Enabled**. You should not see the Jupyter tile.

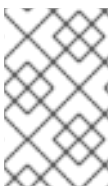
CHAPTER 3. MANAGING CLUSTER RESOURCES

3.1. CONFIGURING THE DEFAULT PVC SIZE FOR YOUR CLUSTER

To configure how resources are claimed within your OpenShift AI cluster, you can change the default size of the cluster's persistent volume claim (PVC) ensuring that the storage requested matches your common storage workflow. PVCs are requests for resources in your cluster and also act as claim checks to the resource.

Prerequisites

- You have logged in to Red Hat OpenShift AI.
- You are part of the administrator group for OpenShift AI in OpenShift.



NOTE

Changing the PVC setting restarts the Jupyter pod and makes Jupyter unavailable for up to 30 seconds. As a workaround, it is recommended that you perform this action outside of your organization's typical working day.

Procedure

1. From the OpenShift AI dashboard, click **Settings** → **Cluster settings**.
2. Under **PVC size**, enter a new size in gibibytes. The minimum size is 1 GiB, and the maximum size is 16384 GiB.
3. Click **Save changes**.

Verification

- New PVCs are created with the default storage size that you configured.

Additional resources

- [Understanding persistent storage](#)

3.2. RESTORING THE DEFAULT PVC SIZE FOR YOUR CLUSTER

To change the size of resources utilized within your OpenShift AI cluster, you can restore the default size of your cluster's persistent volume claim (PVC).

Prerequisites

- You have logged in to Red Hat OpenShift AI.
- You are part of the administrator group for OpenShift AI in OpenShift.

Procedure

1. From the OpenShift AI dashboard, click **Settings** → **Cluster settings**.

2. Click **Restore Default** to restore the default PVC size of 20GiB.
3. Click **Save changes**.

Verification

- New PVCs are created with the default storage size of 20 GiB.

Additional resources

- [Understanding persistent storage](#) (OpenShift Dedicated)
- [Understanding persistent storage](#) (Red Hat OpenShift Service on AWS)

3.3. OVERVIEW OF ACCELERATORS

If you work with large data sets, you can use accelerators to optimize the performance of your data science models in OpenShift AI. With accelerators, you can scale your work, reduce latency, and increase productivity. You can use accelerators in OpenShift AI to assist your data scientists in the following tasks:

- Natural language processing (NLP)
- Inference
- Training deep neural networks
- Data cleansing and data processing

OpenShift AI supports the following accelerators:

- NVIDIA graphics processing units (GPUs)
 - To use compute-heavy workloads in your models, you can enable NVIDIA graphics processing units (GPUs) in OpenShift AI.
 - To enable GPUs on OpenShift, you must install the [NVIDIA GPU Operator](#).
- Habana Gaudi devices (HPUs)
 - Habana, an Intel company, provides hardware accelerators intended for deep learning workloads. You can use the Habana libraries and software associated with Habana Gaudi devices available from your notebook.
 - Before you can enable Habana Gaudi devices in OpenShift AI, you must install the necessary dependencies and the version of the HabanaAI Operator that matches the Habana version of the HabanaAI workbench image in your deployment. For more information about how to enable your OpenShift environment for Habana Gaudi devices, see [HabanaAI Operator v1.10 for OpenShift](#) and [HabanaAI Operator v1.13 for OpenShift](#).
 - You can enable Habana Gaudi devices on-premises or with AWS DL1 compute nodes on an AWS instance.

Before you can use an accelerator in OpenShift AI, your OpenShift instance must contain an associated accelerator profile. For accelerators that are new to your deployment, you must configure an accelerator profile for the accelerator in context. You can create an accelerator profile from the **Settings** →

Accelerator profiles page on the OpenShift AI dashboard. If your deployment contains existing accelerators that had associated accelerator profiles already configured, an accelerator profile is automatically created after you upgrade to the latest version of OpenShift AI.

Additional resources

- [HabanaAI Operator v1.10 for OpenShift](#)
- [HabanaAI Operator v1.13 for OpenShift](#)
- [Habana, an Intel Company](#)
- [Amazon EC2 DL1 Instances](#)
- [lspci\(8\) - Linux man page](#)

3.3.1. Enabling GPU support in OpenShift AI

Optionally, to ensure that your data scientists can use compute-heavy workloads in their models, you can enable graphics processing units (GPUs) in OpenShift AI.



IMPORTANT

The NVIDIA GPU add-on is no longer supported. Instead, enable GPUs by installing the NVIDIA GPU Operator. If your deployment has a previously-installed NVIDIA GPU add-on, before you install the NVIDIA GPU Operator, use Red Hat OpenShift Cluster Manager to uninstall the NVIDIA GPU add-on from your cluster.

Prerequisites

- You have logged in to your OpenShift cluster.
- You have the **cluster-admin** role in your OpenShift cluster.

Procedure

1. To enable GPU support on an OpenShift cluster, follow the instructions here: [NVIDIA GPU Operator on Red Hat OpenShift Container Platform](#) in the NVIDIA documentation.
2. Delete the **migration-gpu-status** ConfigMap.
 - a. In the OpenShift web console, switch to the **Administrator** perspective.
 - b. Set the **Project** to **All Projects** or **redhat-ods-applications** to ensure you can see the appropriate ConfigMap.
 - c. Search for the **migration-gpu-status** ConfigMap.
 - d. Click the action menu (:) and select **Delete ConfigMap** from the list. The **Delete ConfigMap** dialog appears.
 - e. Inspect the dialog and confirm that you are deleting the correct ConfigMap.
 - f. Click **Delete**.
3. Restart the dashboard replicaset.

- a. In the OpenShift web console, switch to the **Administrator** perspective.
- b. Click **Workloads** → **Deployments**.
- c. Set the **Project** to **All Projects** or **redhat-ods-applications** to ensure you can see the appropriate deployment.
- d. Search for the **rhods-dashboard** deployment.
- e. Click the action menu (⋮) and select **Restart Rollout** from the list.
- f. Wait until the **Status** column indicates that all pods in the rollout have fully restarted.

Verification

- The NVIDIA GPU Operator appears on the **Operators** → **Installed Operators** page in the OpenShift web console.
- The reset **migration-gpu-status** instance is present in the **Instances** tab on the **AcceleratorProfile** custom resource definition (CRD) details page.

After installing the NVIDIA GPU Operator, create an accelerator profile as described in [Working with accelerator profiles](#).

3.3.2. Enabling Habana Gaudi devices

Before you can use Habana Gaudi devices in OpenShift AI, you must install the necessary dependencies and deploy the HabanaAI Operator.

Prerequisites

- You have logged in to OpenShift.
- You have the **cluster-admin** role in OpenShift.

Procedure

1. To enable Habana Gaudi devices in OpenShift AI, follow the instructions at [HabanaAI Operator for OpenShift](#).
2. From the OpenShift AI dashboard, click **Settings** → **Accelerator profiles**.
The **Accelerator profiles** page appears, displaying existing accelerator profiles. To enable or disable an existing accelerator profile, on the row containing the relevant accelerator profile, click the toggle in the **Enable** column.
3. Click **Create accelerator profile**.
The **Create accelerator profile** dialog opens.
4. In the **Name** field, enter a name for the Habana Gaudi device.
5. In the **Identifier** field, enter a unique string that identifies the Habana Gaudi device, for example, **habana.ai/gaudi**.
6. Optional: In the **Description** field, enter a description for the Habana Gaudi device.

7. To enable or disable the accelerator profile for the Habana Gaudi device immediately after creation, click the toggle in the **Enable** column.
8. Optional: Add a toleration to schedule pods with matching taints.
 - a. Click **Add toleration**.
The **Add toleration** dialog opens.
 - b. From the **Operator** list, select one of the following options:
 - **Equal** - The **key/value/effect** parameters must match. This is the default.
 - **Exists** - The **key/effect** parameters must match. You must leave a blank value parameter, which matches any.
 - c. From the **Effect** list, select one of the following options:
 - **None**
 - **NoSchedule** - New pods that do not match the taint are not scheduled onto that node. Existing pods on the node remain.
 - **PreferNoSchedule** - New pods that do not match the taint might be scheduled onto that node, but the scheduler tries not to. Existing pods on the node remain.
 - **NoExecute** - New pods that do not match the taint cannot be scheduled onto that node. Existing pods on the node that do not have a matching toleration are removed.
 - d. In the **Key** field, enter the toleration key **habana.ai/gaudi**. The key is any string, up to 253 characters. The key must begin with a letter or number, and may contain letters, numbers, hyphens, dots, and underscores.
 - e. In the **Value** field, enter a toleration value. The value is any string, up to 63 characters. The value must begin with a letter or number, and may contain letters, numbers, hyphens, dots, and underscores.
 - f. In the **Toleration Seconds** section, select one of the following options to specify how long a pod stays bound to a node that has a node condition.
 - **Forever** - Pods stays permanently bound to a node.
 - **Custom value** - Enter a value, in seconds, to define how long pods stay bound to a node that has a node condition.
 - g. Click **Add**.
9. Click **Create accelerator profile**.

Verification

- From the **Administrator** perspective, the following Operators appear on the **Operators** → **Installed Operators** page.
 - HabanaAI
 - Node Feature Discovery (NFD)
 - Kernel Module Management (KMM)

- The **Accelerator** list displays the Habana Gaudi accelerator on the **Start a notebook server** page. After you select an accelerator, the **Number of accelerators** field appears, which you can use to choose the number of accelerators for your notebook server.
- The accelerator profile appears on the **Accelerator profiles** page
- The accelerator profile appears on the **Instances** tab on the details page for the **AcceleratorProfile** custom resource definition (CRD).

Additional resources

- [HabanaAI Operator v1.10 for OpenShift.](#)
- [HabanaAI Operator v1.13 for OpenShift.](#)

3.4. ALLOCATING ADDITIONAL RESOURCES TO OPENSIFT AI USERS

As a cluster administrator, you can allocate additional resources to a cluster to support compute-intensive data science work. This support includes increasing the number of nodes in the cluster and changing the cluster's allocated machine pool.

Prerequisites

- You have credentials for administering clusters in OpenShift Cluster Manager (<https://console.redhat.com/openshift/>). For more information about configuring administrative access in OpenShift Cluster Manager, see [Configuring access to clusters in OpenShift Cluster Manager](#).
- If you intend to increase the size of a machine pool by using accelerators, you have ensured that your OpenShift cluster supports them.
- You have an AWS or GCP instance with the capacity to create larger container sizes. For compute-intensive operations, your AWS or GCP instance has enough capacity to accommodate the largest container size, **XL**.

Procedure

1. Log in to OpenShift Cluster Manager (<https://console.redhat.com/openshift/>).
2. Click **Clusters**.
The **Clusters** page opens.
3. Click the name of the cluster you want to allocate additional resources to.
4. Click **Actions** → **Edit node count**.
5. Select a **Machine pool** from the list.
6. Select the number of nodes assigned to the machine pool from the **Node count** list.
7. Click **Apply**.

Verification

- The additional resources that you allocated to the cluster appear on the **Machine Pools** tab.

CHAPTER 4. MANAGING JUPYTER NOTEBOOK SERVERS

4.1. ACCESSING THE JUPYTER ADMINISTRATION INTERFACE

You can use the Jupyter administration interface to control notebook servers in your Red Hat OpenShift AI environment.

Prerequisite

- You are part of the OpenShift Dedicated or Red Hat OpenShift Service on AWS (ROSA) administrator group. For more information, see [Adding administrative users](#).

Procedure

- To access the Jupyter administration interface from OpenShift AI, perform the following actions:
 - In OpenShift AI, in the **Applications** section of the left menu, click **Enabled**.
 - Locate the Jupyter tile and click **Launch application**.
 - On the page that opens when you launch Jupyter, click the **Administration** tab. The **Administration** page opens.
- To access the Jupyter administration interface from JupyterLab, perform the following actions:
 - Click **File** → **Hub Control Panel**
 - On the page that opens in OpenShift AI, click the **Administration** tab. The **Administration** page opens.

Verification

- You can see the Jupyter administration interface.

The screenshot displays the Jupyter Administration interface. The left sidebar contains 'Applications', 'Resources', and 'Settings'. The main content area is titled 'Administration' and includes a 'Stop all servers (1)' button. Below this is a section for 'Manage users in OpenShift' with a link to 'Learn more about OpenShift user management'. The 'Users' section contains a table with the following data:

User	Privilege	Last activity	Server status
htpasswd-cluster-admin-user	User	12 hours ago	Start server
ldap-admin1	Admin	21 hours ago	Start server
ldap-admin10	Admin	12 hours ago	Start server
ldap-admin15	Admin	10 minutes ago	Stop server
ldap-admin2	Admin	6 hours ago	Start server
ldap-admin20	Admin	3 hours ago	Start server

4.2. STARTING NOTEBOOK SERVERS OWNED BY OTHER USERS

Administrators can start a notebook server for another existing user from the Jupyter administration interface.

Prerequisites

- You are part of the OpenShift Dedicated or Red Hat OpenShift Service on AWS (ROSA) administrator group. For more information, see [Adding administrative users](#).
- You have launched the Jupyter application, as described in [Launching Jupyter and starting a notebook server](#).

Procedure

1. On the page that opens when you launch Jupyter, click the **Administration** tab.
2. On the **Administration** tab, perform the following actions:
 - a. In the **Users** section, locate the user whose notebook server you want to start.
 - b. Click **Start server** beside the relevant user.
 - c. Complete the **Start a notebook server** page.
 - d. Optional: Select the **Start server in current tab** checkbox if necessary.
 - e. Click **Start server**.

After the server starts, you see one of the following behaviors:

 - If you previously selected the **Start server in current tab** checkbox, the JupyterLab interface opens in the current tab of your web browser.
 - If you did not previously select the **Start server in current tab** checkbox, the **Starting server** dialog box prompts you to open the server in a new browser tab or in the current tab.

The JupyterLab interface opens according to your selection.

Verification

- The JupyterLab interface opens.

Additional resources

- [Options for notebook server environments](#)

4.3. ACCESSING NOTEBOOK SERVERS OWNED BY OTHER USERS

Administrators can access notebook servers that are owned by other users to correct configuration errors or to help them troubleshoot problems with their environment.

Prerequisites

- You are part of the OpenShift Dedicated or Red Hat OpenShift Service on AWS (ROSA) administrator group. For more information, see [Adding administrative users](#).

- You have launched the Jupyter application, as described in [Launching Jupyter and starting a notebook server](#).
- The notebook server that you want to access is running.

Procedure

1. On the page that opens when you launch Jupyter, click the **Administration** tab.
2. On the **Administration** page, perform the following actions:
 - a. In the **Users** section, locate the user that the notebook server belongs to.
 - b. Click **View server** beside the relevant user.
 - c. On the **Notebook server control panel** page, click **Access notebook server**.

Verification

- The user's notebook server opens in JupyterLab.

4.4. STOPPING NOTEBOOK SERVERS OWNED BY OTHER USERS

Administrators can stop notebook servers that are owned by other users to reduce resource consumption on the cluster, or as part of removing a user and their resources from the cluster.

Prerequisites

- If you are using specialized OpenShift AI groups, you are part of the administrator group (for example, **rhoai-admins**). If you are not using specialized groups, you are part of the OpenShift Dedicated or Red Hat OpenShift Service on AWS (ROSA) administrator group. For more information, see [Adding administrative users](#).
- You have launched the Jupyter application, as described in [Launching Jupyter and starting a notebook server](#).
- The notebook server that you want to stop is running.

Procedure

1. On the page that opens when you launch Jupyter, click the **Administration** tab.
2. Stop one or more servers.
 - If you want to stop one or more specific servers, perform the following actions:
 - i. In the **Users** section, locate the user that the notebook server belongs to.
 - ii. To stop the notebook server, perform one of the following actions:
 - Click the action menu (**:**) beside the relevant user and select **Stop server**.
 - Click **View server** beside the relevant user and then click **Stop notebook server**. The **Stop server** dialog box appears.
 - iii. Click **Stop server**.

- If you want to stop all servers, perform the following actions:
 - i. Click the **Stop all servers** button.
 - ii. Click **OK** to confirm stopping all servers.

Verification

- The **Stop server** link beside each server changes to a **Start server** link when the notebook server has stopped.

4.5. STOPPING IDLE NOTEBOOKS

You can reduce resource usage in your OpenShift AI deployment by stopping notebook servers that have been idle (without logged in users) for a period of time. This is useful when resource demand in the cluster is high. By default, idle notebooks are not stopped after a specific time limit.



NOTE

If you have configured your cluster settings to disconnect all users from a cluster after a specified time limit, then this setting takes precedence over the idle notebook time limit. Users are logged out of the cluster when their session duration reaches the cluster-wide time limit.

Prerequisites

- You have logged in to Red Hat OpenShift AI.
- You are part of the administrator group for OpenShift AI in OpenShift.

Procedure

1. From the OpenShift AI dashboard, click **Settings** → **Cluster settings**.
2. Under **Stop idle notebooks**, select **Stop idle notebooks after**.
3. Enter a time limit, in **hours** and **minutes**, for when idle notebooks are stopped.
4. Click **Save changes**.

Verification

- The **notebook-controller-culler-config** ConfigMap, located in the **redhat-ods-applications** project on the **Workloads** → **ConfigMaps** page, contains the following culling configuration settings:
 - **ENABLE_CULLING**: Specifies if the culling feature is enabled or disabled (this is **false** by default).
 - **IDLENESS_CHECK_PERIOD**: The polling frequency to check for a notebook's last known activity (in minutes).
 - **CULL_IDLE_TIME**: The maximum allotted time to scale an inactive notebook to zero (in minutes).

- Idle notebooks stop at the time limit that you set.

4.6. CONFIGURING A CUSTOM NOTEBOOK IMAGE

In addition to notebook images provided and supported by Red Hat and independent software vendors (ISVs), you can configure custom notebook images that cater to your project's specific requirements.

Red Hat supports you in adding custom notebook images to your deployment of OpenShift AI and ensuring that they are available for selection when creating a notebook server. However, Red Hat does not support the contents of your custom notebook image. That is, if your custom notebook image is available for selection during notebook server creation, but does not create a usable notebook server, Red Hat does not provide support to fix your custom notebook image.

Prerequisites

- You have logged in to Red Hat OpenShift AI.
- You are part of the **cluster-admins** or **dedicated-admins** user group in your OpenShift cluster. The **dedicated-admins** user group applies only to OpenShift Dedicated.
- Your custom notebook image exists in an image registry and is accessible.
- You can access the **Settings → Notebook images** dashboard navigation menu option.

Procedure

1. From the OpenShift AI dashboard, click **Settings → Notebook images**.





The **Notebook images** page appears. Previously imported notebook images are displayed. To enable or disable a previously imported notebook image, on the row containing the relevant notebook image, click the toggle in the **Enable** column.



NOTE

If you have already configured an accelerator identifier for a notebook image, you can specify a recommended accelerator for the notebook image by creating an associated accelerator profile. To do this, click **Create profile** on the row containing the notebook image and complete the relevant fields. If the notebook image does not contain an accelerator identifier, you must manually configure one before creating an associated accelerator profile.

2. Click **Import new image**. Alternatively, if no previously imported images were found, click **Import image**.
The **Import Notebook images** dialog appears.
3. In the **Image location** field, enter the URL of the repository containing the notebook image. For example: **quay.io/my-repo/my-image:tag**, **quay.io/my-repo/my-image@sha256:xxxxxxxxxxxxx**, or **docker.io/my-repo/my-image:tag**.
4. In the **Name** field, enter an appropriate name for the notebook image.
5. Optional: In the **Description** field, enter a description for the notebook image.
6. Optional: From the **Accelerator identifier** list, select an identifier to set its accelerator as recommended with the notebook image. If the notebook image contains only one accelerator identifier, the identifier name displays by default.

7. Optional: Add software to the notebook image. After the import has completed, the software is added to the notebook image's meta-data and displayed on the Jupyter server creation page.
 - a. Click the **Software** tab.
 - b. Click the **Add software** button.
 - c. Click **Edit** ().
 - d. Enter the **Software** name.
 - e. Enter the software **Version**.
 - f. Click **Confirm** () to confirm your entry.
 - g. To add additional software, click **Add software**, complete the relevant fields, and confirm your entry.
8. Optional: Add packages to the notebook images. After the import has completed, the packages are added to the notebook image's meta-data and displayed on the Jupyter server creation page.
 - a. Click the **Packages** tab.
 - b. Click the **Add package** button.
 - c. Click **Edit** ().
 - d. Enter the **Package** name.
 - e. Enter the package **Version**.
 - f. Click **Confirm** () to confirm your entry.
 - g. To add an additional package, click **Add package**, complete the relevant fields, and confirm your entry.
9. Click **Import**.

Verification

- The notebook image that you imported is displayed in the table on the **Notebook images** page.
- Your custom notebook image is available for selection on the **Start a notebook server** page in Jupyter.

Additional resources

- [Managing image streams](#)
- [Understanding build configurations](#)

CHAPTER 5. BACKING UP DATA

5.1. BACKING UP STORAGE DATA FROM AMAZON EBS

Red Hat recommends that you back up the data on your persistent volume claims (PVCs) regularly. Backing up your data is particularly important before deleting a user and before uninstalling OpenShift AI, as all PVCs are deleted when OpenShift AI is uninstalled.

Prerequisites

- You have credentials for Red Hat OpenShift Cluster Manager (<https://console.redhat.com/openshift/>).
- You have administrator access to the OpenShift Dedicated cluster.
- You have credentials for the Amazon Web Services (AWS) account that the OpenShift Dedicated cluster is deployed under.

Procedure

1. Determine the IDs of the persistent volumes (PVs) that you want to back up.
 - a. In the OpenShift Dedicated web console, change into the **Administrator** perspective.
 - b. Click **Home** → **Projects**.
 - c. Click the **rhods-notebooks** project.
The **Details** page for the project opens.
 - d. Click the **PersistentVolumeClaims** in the **Inventory** section.
The **PersistentVolumeClaims** page opens.
 - e. Note the ID of the persistent volume (PV) that you want to back up.



NOTE

The persistent volumes (PV) that you make a note of are required to identify the correct EBS volume to back up in your AWS instance.

2. Locate the EBS volume containing the PVs that you want to back up.
See [Amazon Web Services documentation: Create Amazon EBS snapshots](#) for more information.
 - a. Log in to AWS (<https://aws.amazon.com>) and ensure that you are viewing the region that your OpenShift Dedicated cluster is deployed in.
 - b. Click **Services**.
 - c. Click **Compute** → **EC2**.
 - d. Click **Elastic Block Storage** → **Volumes** in the side navigation.
The **Volumes** page opens.
 - e. In the search bar, enter the ID of the persistent volume (PV) that you made a note of earlier.

The **Volumes** page reloads to display the search results.

- f. Click on the volume shown and verify that any **kubernetes.io/created-for/pvc/namespace** tags contain the value **rhods-notebooks**, and any **kubernetes.io/created-for/pvc/name** tags match the name of the persistent volume that the EC2 volume is being used for, for example, **jupyter-nb-user1-pvc**.
3. Back up the EBS volume that contains your persistent volume (PV).
 - a. Right-click on the volume that you want to back up and select **Create Snapshot** from the list.
The **Create Snapshot** page opens.
 - b. Enter a **Description** for the volume.
 - c. Click **Create Snapshot**.
The snapshot of the volume is created.
 - d. Click **Close**.

Verification

- The snapshot that you created is visible on the **Snapshots** page in AWS.

Additional resources

- [Amazon Web Services documentation: Create Amazon EBS snapshots](#)

5.2. BACKING UP STORAGE DATA FROM GOOGLE PERSISTENT DISK

Red Hat recommends that you back up the data on your persistent volume claims (PVCs) regularly. Backing up your data is particularly important before deleting a user and before uninstalling OpenShift AI, as all PVCs are deleted when OpenShift AI is uninstalled.

Prerequisites

- You have credentials for Red Hat OpenShift Cluster Manager (<https://console.redhat.com/openshift/>).
- You have administrator access to the OpenShift Dedicated cluster.
- You have credentials for the Google Cloud Platform (GCP) account that the OpenShift Dedicated cluster is deployed under.

Procedure

1. Determine the IDs of the persistent volumes (PVs) that you want to back up.
 - a. In the OpenShift Dedicated web console, change into the **Administrator** perspective.
 - b. Click **Home** → **Projects**.
 - c. Click the **rhods-notebooks** project.
The **Details** page for the project opens.
 - d. Click the **PersistentVolumeClaims** in the **Inventory** section.

The **PersistentVolumeClaims** page opens.

- e. Note the ID of the persistent volume (PV) that you want to back up.
The persistent volume (PV) IDs are required to identify the correct persistent disk to back up in your GCP instance.
2. Locate the persistent disk containing the PVs that you want to back up.
 - a. Log in to the Google Cloud console (<https://console.cloud.google.com>) and ensure that you are viewing the region that your OpenShift Dedicated cluster is deployed in.
 - b. Click the navigation menu (≡) and then click **Compute Engine**.
 - c. From the side navigation, under **Storage**, click **Disks**.
The **Disks** page opens.
 - d. In the **Filter** query box, enter the ID of the persistent volume (PV) that you made a note of earlier.
The **Disks** page reloads to display the search results.
 - e. Click on the disk shown and verify that any **kubernetes.io/created-for/pvc/namespace** tags contain the value **rhods-notebooks**, and any **kubernetes.io/created-for/pvc/name** tags match the name of the persistent volume that the persistent disk is being used for, for example, **jupyterhub-nb-user1-pvc**.
 3. Back up the persistent disk that contains your persistent volume (PV).
 - a. Select **CREATE SNAPSHOT** from the top navigation.
The **Create a snapshot** page opens.
 - b. Enter a unique **Name** for the snapshot.
 - c. Under **Source disk**, verify the persistent disk you want to back up is displayed.
 - d. Change any optional settings as needed.
 - e. Click **CREATE**.
The snapshot of the persistent disk is created.

Verification

- The snapshot that you created is visible on the **Snapshots** page in GCP.

Additional resources

- [Google Cloud documentation: Create and manage disk snapshots](#)

CHAPTER 6. USAGE DATA COLLECTION

Red Hat OpenShift AI administrators can choose whether to allow Red Hat to collect data about OpenShift AI usage in their cluster. Collecting this data allows Red Hat to monitor and improve our software and support. For further details about the data Red Hat collects, see [Usage data collection notice for OpenShift AI](#).

Usage data collection is enabled by default when you install OpenShift AI on your OpenShift cluster.

See [Disabling usage data collection](#) for instructions on disabling the collection of this data in your cluster. If you have disabled data collection on your cluster, and you want to enable it again, see [Enabling usage data collection](#) for more information.

6.1. USAGE DATA COLLECTION NOTICE FOR OPENSIFT AI

In connection with your use of this Red Hat offering, Red Hat may collect usage data about your use of the software. This data allows Red Hat to monitor the software and to improve Red Hat offerings and support, including identifying, troubleshooting, and responding to issues that impact users.

What information does Red Hat collect?

Tools within the software monitor various metrics and this information is transmitted to Red Hat. Metrics include information such as:

- Information about applications enabled in the product dashboard.
- The deployment sizes used (that is, the CPU and memory resources allocated).
- Information about documentation resources accessed from the product dashboard.
- The name of the notebook images used (that is, Minimal Python, Standard Data Science, and other images.).
- A unique random identifier that generates during the initial user login to associate data to a particular username.
- Usage information about components, features, and extensions.

Third Party Service Providers

Red Hat uses certain third party service providers to collect the telemetry data.

Security

Red Hat employs technical and organizational measures designed to protect the usage data.

Personal Data

Red Hat does not intend to collect personal information. If Red Hat discovers that personal information has been inadvertently received, Red Hat will delete such personal information and treat such personal information in accordance with Red Hat's Privacy Statement. For more information about Red Hat's privacy practices, see Red Hat's [Privacy Statement](#).

Enabling and Disabling Usage Data

You can disable or enable usage data by following the instructions in [Disabling usage data collection](#) or [Enabling usage data collection](#).

6.2. ENABLING USAGE DATA COLLECTION

Red Hat OpenShift AI administrators can choose whether to allow Red Hat to collect data about OpenShift AI usage in their cluster. Usage data collection is enabled by default when you install OpenShift AI on your OpenShift cluster. If you have disabled data collection previously, you can re-enable it by following these steps.

Prerequisites

- You have logged in to Red Hat OpenShift AI.
- You are part of the administrator group for OpenShift AI in your OpenShift Cluster.

Procedure

1. From the OpenShift AI dashboard, click **Settings** → **Cluster settings**.
2. Locate the **Usage data collection** section.
3. Select the **Allow collection of usage data** checkbox.
4. Click **Save changes**.

Verification

- A notification is shown when settings are updated: **Settings changes saved**.

Additional resources

- [Usage data collection notice for OpenShift AI](#)

6.3. DISABLING USAGE DATA COLLECTION

Red Hat OpenShift AI administrators can choose whether to allow Red Hat to collect data about OpenShift AI usage in their cluster. Usage data collection is enabled by default when you install OpenShift AI on your OpenShift cluster.

You can disable data collection by following these steps.

Prerequisites

- You have logged in to Red Hat OpenShift AI.
- You are part of the administrator group for OpenShift AI in your OpenShift cluster.

Procedure

1. From the OpenShift AI dashboard, click **Settings** → **Cluster settings**.
2. Locate the **Usage data collection** section.
3. Deselect the **Allow collection of usage data** checkbox.
4. Click **Save changes**.

Verification

- A notification is shown when settings are updated: **Settings changes saved.**

Additional resources

- [Usage data collection notice for OpenShift AI](#)