# Cost Management Service 1-latest

# Integrating OpenShift Container Platform data into cost management

Learn how to add and configure your OpenShift Container Platform integrations

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Learn how to add and configure your OpenShift Container Platform integrations

## Legal Notice

## Abstract

Learn how to add an OpenShift Container Platform integration to cost management. Cost management is part of the Red Hat Insights portfolio of services. The Red Hat Insights suite of advanced analytical tools helps you to identify and prioritize impacts on your operations, security, and business.

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# CHAPTER 1. CREATING AN OPENSHIFT CONTAINER PLATFORM INTEGRATION

## 1.1. INSTALLATION TASKS SUMMARY

Whether you are replacing a prior cost management operator with the **Cost Management Metrics Operator** or installing it for the first time, the basic tasks are the same.

Operator installation, configuration, and integration management can all be performed from the OpenShift Container Platform web console.

You will perform the following tasks to install the **Cost Management Metrics Operator** and begin using the cost management application in OpenShift Container Platform.

> **NOTE**
>
> To install and configure Cost Management Metrics Operator from the OpenShift Container Platform web console, you must use an account with cluster administrator privileges.

**Prerequisites**

- The OpenShift Container Platform cluster is installed.

- You can access the OpenShift Container Platform web console using an account that has cluster administrator privileges.

- You can access Red Hat Hybrid Cloud Console with the correct privileges for the cost management service. See, Limiting access to cost management resources for more information.

**Task summary**

- Install the Cost Management Metrics Operator (**costmanagement-metrics-operator**) and use the default token authentication.

- Create a CostManagementMetricsConfig YAML file that configures **costmanagement-metrics-operator**

- Create a cost management OpenShift Container Platform integration with a new installation, or confirm an existing integration with a replacement installation.

- After installing the Cost Management Metrics Operator, delete the old cost operator. This task is required only when a previous cost management operator is installed.

If you use Basic authentication, additional steps are required to configure the Secret that holds username and password credentials.

## 1.2. INSTALLING THE COST OPERATOR

Learn how to install the **Cost Management Metrics Operator** from the OpenShift Container Platform web console.

### Prerequisites

- You logged in to the OpenShift Container Platform web console and have cluster administrator privileges.

### Procedure

1. Log in to the OpenShift Container Platform web console and click **Operators > OperatorHub**.

2. Click **Cost Management Metrics Operator**.

3. When the **Install Operator** window appears, select the **costmanagement-metrics-operator** namespace. If the namespace does not exist, we create it for you.

4. Click **Install**. After a short wait, **Cost Management Metrics Operator** appears in the **Installed Operators** tab under **Project: all projects** or **Project: costmanagement-metrics-operator**.

> **IMPORTANT**
>
> If a proxy with a custom CA certificate is configured, additional configuration is required to inject this certificate into Cost Management Metrics Operator. For more details, see *Injecting a custom CA certificate* in the OpenShift Container Platform documentation.

## 1.3. CONFIGURING THE OPERATOR INSTANCE FOR A NEW INSTALLATION

After you install the **costmanagement-metrics-operator** instance, you can configure it in the OpenShift Container Platform web console.

### Prerequisites

- You logged in to the OpenShift Container Platform web console and have cluster administrator privileges.

- **Cost Management Metrics Operator** appears in the **Installed Operators** tab.

### Procedure

1. From **Name** in the list of installed operators, click **Cost Management Metrics Operator**. An **Installed Operators > Operator Details** window appears.

2. From **Details**, click **+ Create Instance**. An **Cost Management Metrics Operator > Create CostManagementMetricsConfig** window appears.

3. Select **YAML view** to view and modify the contents of the YAML configuration file.

4. Create a cost management instance for the Cost Management Metrics Operator by editing the following two lines in the YAML file:

   ```
   create_source: false
   name: "
   ```

   a. Change **false** to **true**.

b. Change **"** to the name of your integration. If a name is not provided, the operator defaults to using the cluster ID as the name when creating the integration.

**Example**

```
create_source: true
name: my-openshift-cost-source
```

5. Click **Create**.

## 1.4. REPLACING AN OPERATOR

Learn how to replace an existing cost management operator with the Cost Management Metrics Operator by editing your YAML configuration file.

**Prerequisites**

- You logged in to the OpenShift Container Platform web console and have cluster administrator privileges.

- You can access Red Hat Hybrid Cloud Console and view existing cost management integrations.

**Procedure**

1. From the **Name** heading in the list of installed operators, click **Cost Management Metrics Operator**. An **Installed Operators > Operator Details** window appears.

2. From **Details**, click **+ Create Instance**. An **Cost Management Metrics Operator > Create CostManagementMetricsConfig** window appears.

3. Click **YAML view** to view and edit the contents of the **CostManagementMetricsConfig** YAML file.

4. In another tab, open Red Hat Hybrid Cloud Console and log in with your Organization Administrator account:

   a. Click **Settings** ⚙ .

   b. Click the **Integrations** tab to display existing integrations.

   c. Select an existing cost management integration and copy its name.

5. Return to the CostManagementMetricsConfig YAML file. Replace the empty string in **name: "** with the integration name that you copied from cost management.

```
create_source: false
name: "    <<<< replace this string
```

Do not edit **create_source: false**.

6. Click **Create**.

**IMPORTANT**

When you replace an existing cost management operator with the **Cost Management Metrics Operator**, and you want to use an existing integration, you must make sure that **name: ''** in the YAML file **exactly** matches your existing integration.

## 1.5. REMOVING A COST OPERATOR

After you install the **costmanagement-metrics-operator**, you must uninstall the existing cost management operator.

To avoid disruption in your cost management reports, you can wait 24 to 48 hours before you remove the existing operator to verify that **costmanagement-metrics-operator** is working correctly.

### Prerequisites

- You installed a cost management operator.

- You installed the **Cost Management Metrics Operator**.

- You logged in to the OpenShift Container Platform web console and have cluster administrator privileges.

- You can view the operators in the **Installed Operators** tab.

### Procedure

1. From **Installed Operators**, select the operator that you want to remove.

2. Click **Options**     in the operator's row.

3. Click **Uninstall Operator** and then click **Confirm**.

4. In a new tab, open the OpenShift Container Platform web console:

   a. Go to **Administration > Custom Resource Definitions**

   b. In the window that displays the custom resource definitions (CRD), locate the **CostManagement** CRD and the **CostManagementData** CRD for **cost-mgmt-operator** or the **KokuMetricsConfig** CRD for **koku-metrics-operator**.

   c. For each CRD, click **Options** > **Delete Custom Resource Definition** Click **Confirm**.

After you delete all of the CRDs, the operator is fully uninstalled.

## 1.6. TROUBLESHOOTING ISSUES WITH YOUR COST OPERATOR

To verify that the cost management operator is functioning correctly, check that your YAML file is properly configured.

### Prerequisites

- You have access to the OpenShift Container Platform web console .

- You can view the content in the **Installed Operators** tab.

**Procedure**

1. Click the **Installed Operators** tab.

2. In the list of installed operators, click **Cost Management Metrics Operator**. A **metrics operator** window opens.

3. Click the **CostManagementMetricsConfig** tab to show a list of the configuration file names.

4. In the file name list, click the configuration file that you want to verify. In the default installation, the file name is **costmanagementmetricscfg-sample**. A **Details** window opens.

5. Click **YAML** and check the following items:

   - **prometheus_configured** and **prometheus_connected** should be set to **true**:

     ```
     prometheus:
       last_query_start_time: '2021-01-25T20:59:06Z'
       last_query_success_time: '2021-01-25T20:59:06Z'
       prometheus_configured: true
       prometheus_connected: true
       service_address: 'https://thanos-querier.openshift-monitoring.svc:9091'
       skip_tls_verification: false
     ```

   - **ingress_path**, **last_successful_upload_time**, **last_upload_status**, and **last_upload_time** should all have content:

     ```
     upload:
       ingress_path: /api/ingress/v1/upload
       last_successful_upload_time: '2021-01-25T20:59:35Z'
       last_upload_status: 202 Accepted
       last_upload_time: '2021-01-25T20:59:35Z'
       upload: true
       upload_cycle: 360
       upload_wait: 28
       validate_cert: true
     ```

> **NOTE**
>
> To collect data, cost management uses Prometheus queries that you can find in the source code.

## 1.7. CONFIGURING BASIC AUTHENTICATION FOR COST OPERATOR

You can configure the cost operator to use basic authentication. By default, the cost operator uses token authentication.

There are two procedures required when you configure basic authentication.

- Creating the secret key/value pair for basic authentication

- Modifying the YAML file

### 1.7.1. Creating the secret key/value pair for basic authentication

### Prerequisites

- You are logged into the OpenShift Container Platform web console with cluster administrator privileges.

- The **Cost Management Metrics Operator** appears in the **Installed Operators** tab.

- You have a username and password for your Red Hat Hybrid Cloud Console account.

### Procedure

This procedure describes setting up basic authentication using the OpenShift Container Platform web console.

1. In the OpenShift Container Platform web console, click on the **Workloads > Secrets** tab.

2. In the **Secrets** window, select **Project:costmanagement-metrics-operator** from the dropdown.

3. Click the **Create > Key/Value Secret** selection.

4. In the **Create Key/Value Secret** window enter the following information to create a new secret that contains a username key and a password key and a value for each key.

   a. Enter a name for your secret in the **Secret Name** field.

      > basic-auth-secret

   b. In the **Key** field, enter **username**.

      > username

   c. In the **Value** field for the key **username**, enter the actual username for your authorized Red Hat Hybrid Cloud Console user account.

      **Value for username key**

      > *your_red_hat_username*

   d. Click the **Add Key/Value** link to add the required password key name and value.

   e. In the **Key** field, enter **password**.

      > password

   f. In the **Value** field for the key **password**, enter the actual password for your authorized Red Hat Hybrid Cloud Console user account.

      **Value for password key**

      > *your_red_hat_password*

   g. Click the **Create** button to complete the creation of your basic authorization secret.

   h. After you click the **Create** button, you can verify the key/value details for the secret.

## 1.7.2. Modifying the YAML file

Modify the Cost Management Metrics Operator API YAML file to use basic authentication with a secret username and password key/value pair.

**Prerequisites**

- You are logged into the OpenShift Container Platform web console with cluster administrator privileges.

- You created a secret name for the username and password key/value pair.

- The Cost Management Metrics Operator is installed.

**Procedure**

1. Click on the **Operators > Installed Operators** tab.

2. Locate the row that contains **Cost Management Metrics Operator** and click on the **Cost Management Metrics Operator** link that is under the **Provided APIs** heading.

3. When the **CostManagementMetricsConfig** window appears, click on the configuration file listed in the **Name** column.
   The default name is **costmanagementmetricscfg-sample**.

4. When the **costmanagementmetricscfg-sample** window appears, click in the **YAML** tab to open an edit and view window.

5. Locate the following lines in the YAML view.

   ```
   authentication:
     type: token
   ```

6. Change **type: token** to **type: basic**.

7. Insert a new line for **secret_name**. Enter the value for **secret_name**, which is the name you previously created.

   **Example**

   ```
   authentication:
     secret_name: basic-auth-secret
     type: basic
   ```

8. Click the **Save** button. A confirmation message appears.

## 1.8. CONFIGURING SERVICE ACCOUNT AUTHENTICATION FOR THE COST OPERATOR

To configure service account authentication, complete the following two tasks:

- Creating the secret key/value pair for authentication

- Modifying the YAML file

### 1.8.1. Creating the secret key/value pair for service account authentication

**Prerequisites**

- You are logged into the OpenShift Container Platform web console and have cluster administrator privileges.

- The **Cost Management Metrics Operator** appears in the **Installed Operators** tab.

- You have a **client_id** and **client_secret** for your Red Hat Hybrid Cloud Console account.

**Procedure**

The following procedure outlines how to set up service account authentication with the OpenShift Container Platform web console:

1. In the OpenShift Container Platform web console, click **Workloads > Secrets**

2. In the **Secrets** window, select **Project:costmanagement-metrics-operator** from the drop-down.

3. Click **Create > Key/Value Secret**

4. To create a new secret with a **client_id** key and a **client_secret** key, enter the following information in the **Create Key/Value Secret** window:

   a. In **Secret Name**, enter a name for your secret:

      ```
      service-account-auth-secret
      ```

   b. In **Key**, enter **client_id**.

      ```
      client_id
      ```

   c. In the **Value** field for the key **client_id**, enter the Client ID for your authorized Red Hat Hybrid Cloud Console user account:

      ```
      red_hat_service_account_client_id
      ```

   d. Click **Add Key**/**Value** to add the **client_secret** for the key name and value.

   e. In **Key**, enter **client_secret**:

      ```
      client_secret
      ```

   f. In the **Value** field for the key **client_secret**, enter the Client secret for your authorized Red Hat Hybrid Cloud Console user account:

      ```
      red_hat_service_account_client_secret
      ```

   g. Click **Create** to complete the creation of your service account authorization secret.

   h. Verify that the key/value details for the secret are correct.

### 1.8.2. Modifying the YAML file

To use authentication with a Client ID and Client secret key/value pair, you must modify the Cost Management Metrics Operator API YAML file.

**Prerequisites**

- You are logged into the OpenShift Container Platform web console and have cluster administrator privileges.

- You created a secret name for the Client ID and Client secret key/value pair.

- The Cost Management Metrics Operator is installed.

**Procedure**

1. Click **Operators > Installed Operators**.

2. Locate the row that contains **Cost Management Metrics Operator** and click the **Cost Management Metrics Operator** link that is under the **Provided APIs** heading.

3. When the **CostManagementMetricsConfig** window appears, click the configuration file in **Name**.
   The default name is **costmanagementmetricscfg-sample**.

4. When the **costmanagementmetricscfg-sample** window appears, click the **YAML** tab to edit and view the content.

5. Locate the following lines in the YAML window that you opened in the previous step:

   ```
   authentication:
     type: token
   ```

6. Change **type: token** to **type: service-account**.

7. Insert a new line for **secret_name**. Enter the value for **secret_name**, which is the name you previously created.

   **Example**

   ```
   authentication:
     secret_name: service-account-auth-secret
     type: service-account
   ```

8. Click **Save**. A confirmation message appears.

## 1.9. MANUALLY CREATING AN OPENSHIFT CONTAINER PLATFORM INTEGRATION

You can automatically create your OpenShift Container Platform integration by following the steps in Installing a cost operator . However, some situations, such as restricted network installations, require that you create an OpenShift Container Platform integration manually on Red Hat Hybrid Cloud Console .

**Prerequisites**

- You have an OpenShift Container Platform cluster installed.

- You are logged into the OpenShift Container Platform web console and have cluster administrator privileges.

**Procedure**

1. From Red Hat Hybrid Cloud Console , click **Settings Menu** ⚙ > **Integrations**.

2. Click the **Red Hat** tab.

3. Click **Add integration**, which opens the **Add a cloud integration** wizard.

4. In **Select your integration type**, click **Red Hat OpenShift Container Platform**.

5. In **Application**, click **cost management**. Then click **Next**.

6. Enter a name in **Integration name**. Then click **Next**.

7. In a new tab, access the OpenShift Container Platform web console . Go to **Home > Overview** and copy your **Cluster Identifier**.

8. Back in cost management, enter your **Cluster Identifier**. Then click **Next**.

9. Review the details and click **Add** to create the integration.

## 1.10. UPDATING OPERATOR RESOURCES

The **Cost Management Metrics Operator** comes with a finite amount of resources. On larger clusters, the **Cost Management Metrics Operator** might run out of memory when it processes all of the metric data from Prometheus.

### 1.10.1. Default resources

The **Cost Management Metrics Operator** has the following resources by default:

Limits:

- CPU: 500m

- memory: 500Mi

Requests:

- CPU: 100m

- memory: 20Mi

### 1.10.2. Increasing resources

If the standard resources do not meet your needs, complete the following steps to increase the resources that are available to the operator:

- Go to the OpenShift Container Platform web console .

- From **Installed Operators**, click **Cost Management Metrics Operator**.

- Click the **Subscription** tab. Then click the **Actions** drop-down and select **Edit Subscription**.

- In the YAML file that appears, edit the deployment resources with values that meet the CPU and memory needs of your cluster:

```
kind: Subscription
metadata:
...
spec:
 ...
 config:
  resources: <<<<<
   limits:
     cpu: 500m
     memory: 500Mi
   requests:
     cpu: 200m
     memory: 100Mi
```

The operator is now redeployed and **Deployment** shows the new resources.

For more information about **.spec.config.resources**, see the API documentation.

## 1.11. ADDING A RESTRICTED NETWORK INTEGRATION

You can install OpenShift Container Platform on a restricted network that does not have access to the internet.

The procedure to add an OpenShift Container Platform cluster operating on a restricted network as a cost management integration is different in the following ways:

1. Operator Lifecycle Manager is configured to install and run local integrations.

2. The **costmanagement-metrics-operator** is configured to store cost report CSV files locally using a persistent volume claim (PVC).

3. Cost reports stored in the PVC are downloaded to a workstation.

4. An OpenShift Container Platform integration is created manually.

5. Cost reports are uploaded to Red Hat Hybrid Cloud Console from your workstation.

### 1.11.1. Installing the cost management operator on a restricted network

Operator Lifecycle Manager (OLM) cannot access the OpenShift Container Platform clusters that are installed on restricted networks because remote integrations require full Internet connectivity. In these situations, you must install and configure OLM to run locally.

**Prerequisites**

- You installed an OpenShift Container Platform cluster.

- You have a workstation with unrestricted network access.

- You logged in to the OpenShift Container Platform web console and have cluster administrator privileges.

**Procedure**

1. Complete the following OpenShift Container Platform procedure to create a local mirror of the **costmanagement-metrics-operator**: Using Operator Lifecycle Manager on restricted networks.
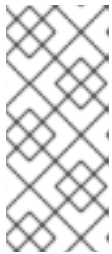
   > **NOTE**
   >
   > The **costmanagement-metrics-operator** is in the **redhat-operators** catalog in the **registry.redhat.io/redhat/redhat-operator-index:v4.11** index.
   >
   > Prune unwanted objects from the index before you push to the mirrored registry, but do **not** delete the **costmanagement-metrics-operator** package.

2. Log in to the OpenShift Container Platform web console and click **Operators > OperatorHub**.

3. Click **Cost Management Metrics Operator**.

4. The **Install Operator** window should open. Select the **costmanagement-metrics-operator** namespace that you want to install. If the namespace does not exist, it gets created.

5. Click **Install**.

**Verification steps**

- After a short wait, **Cost Management Metrics Operator** appears in the **Installed Operators** tab in **Project: all projects** or **Project: costmanagement-metrics-operator**.

**Additional resources**

- For more details on the Operator Lifecycle Manager, see What is Operator Lifecycle Manager?

## 1.11.2. Configuring the Cost Operator on a restricted network

Learn how to run the **costmanagement-metrics-operator** on a restricted network.

**Prerequisites**

- You installed **costmanagement-metrics-operator**.

- You logged into the OpenShift Container Platform web console and have cluster administrator privileges.

**Procedure**

1. From the OpenShift Container Platform web console, select **Operators > Installed Operators > costmanagement-metrics-operator > CostManagementMetricsConfig > Create Instance**

2. Set a storage amount. If you do not specify an amount, the operator creates a default persistent volume claim (PVC) called **costmanagement-metrics-operator-data** with **10Gi** of storage.

**NOTE**

To configure the **costmanagement-metrics-operator** to use a different PVC, edit **volume_claim_template** in YAML view.

3. Select **YAML view**.

4. Enter a value in **max_reports_to_store** to set the maximum number of reports that you want to store.

5. Enter a value in **upload_cycle** to set how many minutes you want to pass between each report generation.

```
packaging:
  max_reports_to_store: 30
  max_size_MB: 100
```

```
upload:
  upload_cycle: 360
```
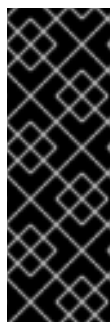
**IMPORTANT**

The **costmanagement-metrics-operator** creates one report every 360 minutes by default. The default value of 30 reports and 360 minutes gives you 7.5 days of reports.

After the maximum number of reports generate, any subsequent reports replace the oldest report in storage. To avoid losing reports, download them from your PVC.

6. Set **upload_toggle** to **false**:

```
upload:
  upload_cycle: 360
  upload_toggle: false
```

7. Set **source** to empty braces:

```
source: {}
```

8. Set **authentication** to empty braces:

```
authentication: {}
```

9. Click **Create**.

**Verification steps**

1. Select the **CostManagementMetricsConfig** that you created.

2. Click **YAML view**.

3. Verify that a report was created by viewing the data in **packaging**:

```
    packaging:
      last_successful_packaging_time: `current date and time`
      max_reports_to_store: 30
      max_size_MB: 100
      number_of_reports_stored: 1
      packaged_files:
        - >-
          /tmp/costmanagement-metrics-operator-reports/upload/YYYYMMDDTHHMMSS-cost-
mgmt.tar.gz
```
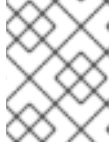
> **NOTE**
>
> After configuration, **costmanagement-metrics-operator** generates an initial report. These reports are in **packaged_files**.

## 1.11.3. Downloading cost reports

If you configured the **costmanagement-metrics-operator** to run on a restricted network, the reports from the persistent volume claims (PVC) are temporarily stored in a workstation. Copy the reports to an unrestricted network.

The default configuration saves one week of reports. To avoid losing metrics data, download the reports locally and upload them to Red Hat Hybrid Cloud Console weekly.

You can configure any PVC, but by default, most PVCs are **ReadWriteOnce**. For **ReadWriteOnce** PVCs, the **volume-shell** must be attached to the same node as the operator pod.

**Prerequisites**

- You have a workstation with unrestricted network access.

- **costmanagement-metrics-operator** reports in your PVC.

**Procedure**

1. Create the following pod and set **claimName** to the PVC with the report data:

```
kind: Pod
apiVersion: v1
metadata:
  name: volume-shell
  namespace: costmanagement-metrics-operator
spec:
  volumes:
  - name: costmanagement-metrics-operator-reports
    persistentVolumeClaim:
      claimName: costmanagement-metrics-operator-data
  containers:
  - name: volume-shell
    image: busybox
    command: ['sleep', '3600']
    volumeMounts:
    - name: costmanagement-metrics-operator-reports
      mountPath: /tmp/costmanagement-metrics-operator-reports
```

2. Run **rsync** to copy all of the files from the PVC to a local folder:

```
$ oc rsync volume-shell:/tmp/costmanagement-metrics-operator-reports/upload
local/path/to/save/folder
```

3. Confirm that the files were copied.

4. Run the following command to connect to the pod and delete the contents of the upload folder:

```
$ oc rsh volume-shell
$ rm /tmp/costmanagement-metrics-operator-reports/upload/*
```

5. (Optional) Run the following command to delete the pod that you used to connect to the PVC:

```
$ oc delete -f volume-shell.yaml
```

## Viewing your PVC usage

In the **OpenShift** tab in Red Hat Hybrid Cloud Console , your PVCs with the highest usage automatically populate under **Persistent Volume Claims** To view all PVCs, click **more** at the end of the section.

You can filter your PVC data by the following fields: * Persistent volume claim * Cluster * StorageClass

## Additional resources

- For more information about PVCs, see Understanding persistent storage .

## 1.11.4. Uploading cost reports to console.redhat.com

You must manually upload locally stored cost reports from a restricted network to Red Hat Hybrid Cloud Console.

> **NOTE**
>
> The default configuration saves one week of reports. Download the reports locally and upload them to Red Hat Hybrid Cloud Console weekly to avoid losing metrics data.

## Prerequisites

- You have **costmanagement-metrics-operator** reports downloaded locally.

- You created an integration on Red Hat Hybrid Cloud Console . For more information, see Manually creating an Openshift Container Platform integration .

- You are a Red Hat account user with Organization Administrator entitlements.

- You have a workstation with unrestricted network access.

## Procedure

To upload your reports to Red Hat Hybrid Cloud Console , make the following edit:

- Set **USERNAME** and **PASSWORD** to your Red Hat Hybrid Cloud Console login credentials and set **FILE_NAME** to the report that you want to upload:

```
$ curl -vvvv -F "file=@FILE_NAME.tar.gz;type=application/vnd.redhat.hccm.tar+tgz"
https://cloud.redhat.com/api/ingress/v1/upload -u USERNAME:PASS
```

**Verification steps**

1. From cost management, click **OpenShift**.

2. On the **OpenShift details** page, confirm that you have OpenShift usage data for your cluster.

# CHAPTER 2. NEXT STEPS FOR MANAGING YOUR COSTS

After adding your OpenShift Container Platform and cloud infrastructure integrations, in addition to showing cost data by integration, cost management will automatically show AWS and Microsoft Azure cost and usage related to running your OpenShift Container Platform clusters on their platforms.

On the cost management **Overview** page, your cost data is sorted into **OpenShift** and **Infrastructure** tabs. Select **Perspective** to toggle through different views of your cost data.

You can also use the global navigation menu to view additional details about your costs by cloud provider.

**Additional resources**

- *Integrating Amazon Web Services (AWS) data into cost management*

- *Integrating Google Cloud data into cost management*

- *Integrating Microsoft Azure data into cost management*

- *Integrating Amazon Web Services (AWS) data into cost management*

## 2.1. LIMITING ACCESS TO COST MANAGEMENT RESOURCES

After you add and configure integrations in cost management, you can limit access to cost data and resources.

You might not want users to have access to all of your cost data. Instead, you can grant users access only to data that is specific to their projects or organizations. With role-based access control, you can limit the visibility of resources in cost management reports. For example, you can restrict a user's view to only AWS integrations, rather than the entire environment.

To learn how to limit access, see the more in-depth guide *Limiting access to cost management resources* .

## 2.2. CONFIGURING TAGGING FOR YOUR INTEGRATIONS

The cost management application tracks cloud and infrastructure costs with tags. Tags are also known as labels in OpenShift.

You can refine tags in cost management to filter and attribute resources, organize your resources by cost, and allocate costs to different parts of your cloud infrastructure.

> **IMPORTANT**
>
> You can only configure tags and labels directly on an integration. You can choose the tags that you activate in cost management, however, you cannot edit tags and labels in the cost management application.

To learn more about the following topics, see *Managing cost data using tagging* :

- Planning your tagging strategy to organize your view of cost data

- Understanding how cost management associates tags

- Configuring tags and labels on your integrations

## 2.3. CONFIGURING COST MODELS TO ACCURATELY REPORT COSTS

Now that you configured your integrations to collect cost and usage data in cost management, you can configure cost models to associate prices to metrics and usage.

A cost model is a framework that uses raw costs and metrics to define calculations for the costs in cost management. You can record, categorize, and distribute the costs that the cost model generates to specific customers, business units, or projects.

In Cost Models, you can complete the following tasks:

- Classifying your costs as infrastructure or supplementary costs

- Capturing monthly costs for OpenShift nodes and clusters

- Applying a markup to account for additional support costs

To learn how to configure a cost model, see *Using cost models*.

## 2.4. VISUALIZING YOUR COSTS WITH COST EXPLORER

Use cost management Cost Explorer to create custom graphs of time-scaled cost and usage information and ultimately better visualize and interpret your costs.

To learn more about the following topics, see *Visualizing your costs using Cost Explorer*:

- Using Cost Explorer to identify abnormal events

- Understanding how your cost data changes over time

- Creating custom bar charts of your cost and usage data

- Exporting custom cost data tables

# PROVIDING FEEDBACK ON RED HAT DOCUMENTATION

If you found an error or have a suggestion on how to improve these guidelines, open an issue in the cost management Jira board and add the **Documentation** label.

We appreciate your feedback!