Integrating Amazon Web Services (AWS) data into cost management

Learn how to add and configure your AWS integrations
Cost Management Service 1-latest

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Learn how to add and configure your AWS integrations
Abstract

This guide describes how to add an Amazon Web Services (AWS) 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. INTEGRATING AMAZON WEB SERVICES DATA INTO COST MANAGEMENT

To add an Amazon Web Services (AWS) account to cost management, you must configure your AWS account to provide metrics, then add your AWS account as a cloud integration from the cost management user interface.

**NOTE**

You must have a Red Hat account user with Integrations Administrator entitlements before you can add integrations to cost management.

When you add your AWS account as an integration, this creates a read-only connection to AWS to collect cost information hourly in cost management, but does not make any changes to the AWS account.

Before you can add your AWS account to cost management as a data integration, you must configure the following services on your AWS account to allow cost management access to metrics:

1. An S3 bucket to store cost and usage data reporting for cost management
2. An Identity Access Management (IAM) policy and role for cost management to process the cost and usage data

As you will complete some of the following steps in the AWS console, and some steps in the cost management user interface, keep both applications open in a web browser.

Add your AWS integration to cost management from the Integrations page.

**NOTE**

As non-Red Hat products and documentation can change without notice, instructions for configuring the third-party integrations provided in this guide are general and correct at the time of publishing. See the AWS documentation for the most up-to-date and accurate information.

1.1. CREATING AN S3 BUCKET FOR REPORTING

Cost management requires an Amazon S3 bucket with permissions configured to store billing reports.

Log in to your AWS account to begin configuring cost and usage reporting:

1. In the AWS S3 console, create a new S3 bucket or use an existing bucket. If you are configuring a new S3 bucket, accept the default settings.

2. In the AWS Billing console, create a Cost and Usage Report that will be delivered to your S3 bucket. Specify the following values (and accept the defaults for any other values):
   - Report name: `<any-name>` (note this name as you will use it later)
   - Additional report details: Include resource IDs
   - S3 bucket: `<the S3 bucket you configured previously>`
- Time granularity: Hourly
- Enable report data integration for: Amazon Redshift, Amazon QuickSight (do not enable report data integration for Amazon Athena)
- Compression type: GZIP
- Report path prefix: cost

**NOTE**
See the AWS Billing and Cost Management documentation for more details on configuration.

3. From Red Hat Hybrid Cloud Console, go to the Integrations page to begin adding an AWS integration to cost management:

   a. In the global navigation, click to Integrations.

   b. On the Cloud tab, click Add source to open the Add a cloud source wizard.

   c. In the Add a cloud source wizard, select Amazon Web Services (AWS) as the integration type. Click Next.

   d. Enter a name for your integration and click Next.

   e. On the Select configuration page, select how you want to connect to your AWS integration. Select Account authorization to provide your AWS account credentials and let Red Hat configure and manage your integration for you.

   f. Select Cost Management as the application. Click Next.

   g. Paste the name of your S3 bucket and click Next.

1.2. ACTIVATING AWS TAGS

To use tags to organize your AWS resources in the cost management application, activate your tags in AWS to allow them to be imported automatically.

**Procedure**

1. In the AWS Billing console:

   a. Open the Cost Allocation Tags section.

   b. Select the tags you want to use in the cost management application, and click Activate.

2. In the Red Hat Hybrid Cloud Console Sources wizard, click Next to move to the next screen.

1.3. CONFIGURE AN IAM POLICY TO ENABLE MINIMAL ACCOUNT ACCESS FOR COST AND USAGE CONSUMPTION

To provide data within the web interface and API, cost management needs to consume the Cost and Usage Reports produced by AWS. For cost management to obtain this data with a minimal amount of access, create an IAM policy and role for cost management to use. This configuration provides access to
the stored information and nothing else.

**Procedure**

1. From the AWS Identity and Access Management (IAM) console, create a new IAM policy for the S3 bucket you configured previously.
   - a. Select the JSON tab and paste the following content in the JSON policy text box:
     ```json
     {
     "Version": "2012-10-17",
     "Statement": [
     {
     "Sid": "VisualEditor0",
     "Effect": "Allow",
     "Action": [
     "s3:Get*",
     "s3:List*"
     ],
     "Resource": [
     "arn:aws:s3::<your_bucket_name>",
     "arn:aws:s3::<your_bucket_name>/*"
     ]
     },
     {
     "Sid": "VisualEditor1",
     "Effect": "Allow",
     "Action": [
     "s3:ListBucket",
     "cur:DescribeReportDefinitions"
     ],
     "Resource": "*"
     }
     ]
     }
     ```
   - Replace `<your_bucket_name>` in both locations with the name of the Amazon s3 bucket you configured previously.
   - b. Provide a name for the policy and complete the creation of the policy. Keep the AWS IAM console open as you will need it for the next step.

2. In the Red Hat Hybrid Cloud Console Add a cloud source wizard, click Next to move to the next screen.

3. In the AWS IAM console, create a new IAM role:
   - a. For the type of trusted entity, select Another AWS account
   - b. Enter 589173575009 as the Account ID to provide the cost management application with read access to the AWS account cost data.
   - c. Attach the IAM policy you just configured.
d. Enter a role name (and description if desired) and finish creating the role.

4. In the Red Hat Hybrid Cloud Console Add a cloud source wizard, click Next to move to the next screen.

5. In the AWS IAM console under Roles, open the summary screen for the role you just created and copy the Role ARN (a string beginning with arn:aws:).

6. In the Red Hat Hybrid Cloud Console Add a cloud source wizard, paste your Role ARN and click Next.

7. Review the details and click Finish to add the AWS account to cost management.

Cost management will begin collecting cost and usage data from your AWS account and any linked AWS accounts.

The data can take a few days to populate before it shows on the cost management dashboard.

1.3.1. Enabling additional account access for cost and usage consumption

Cost management can display additional data that might be useful. For example:

- Include the Action `iam:ListAccountAliases` to display an AWS account alias rather than an account number in cost management.

- Include the Actions `organization:List*` and `organizations:Describe*` to obtain the display names of AWS member accounts if you are using consolidated billing rather than the account ID.

The following configuration provides access to additional stored information and nothing else.

**Procedure**

1. From the AWS Identity and Access Management (IAM) console, create a new IAM policy for the S3 bucket you configured before.

2. Select the JSON tab and paste the following content in the JSON policy text box:

```json
{
   "Version": "2012-10-17",
   "Statement": [
   {
      "Sid": "VisualEditor0",
      "Effect": "Allow",
      "Action": [
         "s3:Get*",
         "s3:List*"
      ],
      "Resource": [
         "arn:aws:s3:::<your_bucket_name>",
         "arn:aws:s3::<your_bucket_name>/*"
      ]
   },
   {
      "Sid": "VisualEditor1",
      "Effect": "Allow",
      "Action": [
         "s3:Get*",
         "s3:List*"
      ],
      "Resource": [
         "arn:aws:s3::<your_bucket_name>"
      ]
   }
}
```
"iam:ListAccountAliases",
"s3:ListBucket",
"cur:DescribeReportDefinitions",
"organizations:List**",
"organizations:Describe**
}
"Resource": "*
}
}

Replace `<your_bucket_name>` in both locations with the name of the Amazon S3 bucket you configured before.

The remainder of the configuration steps are the same as in Section 1.3, “Configure an IAM policy to enable minimal account access for cost and usage consumption”

1.4. CONFIGURING AWS BILLING PLANS

By default, cost management calculates AWS cost according to your usage cost for that date. If you have a special billing arrangement with AWS such as amortized billing or blended rates, you can configure these calculations from the cost management settings page. This allows your cost reports to more accurately reflect your AWS billing.

For more information about AWS billing, see Understanding Consolidated Bills in the AWS documentation.

Cost management supports three cost calculation options to accommodate AWS billing plans:

**Unblended**

Your costs are calculated according to your usage cost for that date.

**Amortized (Default)**

Your recurring and upfront costs will be distributed evenly throughout the billing period.

**Blended**

Your costs are calculated according to AWS blended rates.

This procedure describes how to set your cost calculation to Amortized or Blended from the default Unblended.

**Prerequisites**

- AWS integration added to cost management.
- Access to Red Hat Hybrid Cloud Console as an Organization Administrator.

**Procedure**

1. From Red Hat Hybrid Cloud Console, navigate to the cost management settings page.
2. Under Show cost as select Amortized or Blended.
3. Click Save.
CHAPTER 2. NEXT STEPS FOR MANAGING YOUR COSTS

After adding your OpenShift Container Platform and Amazon Web Services data, in addition to showing cost data by integration, cost management will automatically show AWS cost and usage related to running your OpenShift Container Platform clusters on their platform.

On the cost management Overview page, your cost data will be sorted into OpenShift and Infrastructure tabs. From here, you can use Perspective to select different views of your cost data.

You can also use the left navigation menu to view the additional details of your costs by service.

Additional resources

- Adding an OpenShift Container Platform integration to cost management
- Adding a Google Cloud integration to cost management
- Adding a Microsoft Azure integration to cost management
- [link-adding-oracle]

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. USE THE COST EXPLORER TO VISUALIZE YOUR COSTS

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

See Visualizing your costs using Cost Explorer to learn more about:

- 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.
CHAPTER 3. UPDATING AN INTEGRATION

If you have added an integration to cost management and want to make changes to it, you can add or remove the applications associated with your integrations in Red Hat Hybrid Cloud Console.

**Procedure**

1. From Red Hat Hybrid Cloud Console, click Settings.
2. Click Integrations.
3. Select your integration.
4. From the integration detail page, you can add or remove services associated with your integration. For AWS integrations, you can select Include RHEL usage data to activate RHEL metering.

3.1. ADDING RHEL METERING TO AN INTEGRATION

If you have converted from a compatible third-party Linux distribution to Red Hat Enterprise Linux (RHEL) and purchased the RHEL for 3rd party migration listing in Amazon Web Services (AWS), you can update an AWS integration you created to add RHEL metering.

Add RHEL metering to your AWS integration after you create your integration.

**Procedure**

1. In AWS, tag your instances of RHEL that you want to meter. For more information about tagging your instances of RHEL in AWS, see Adding tags to an AWS resource.
2. From Red Hat Hybrid Cloud Console, click Settings.
3. Click Integrations.
4. Select your integration.
5. On the integration detail page, select Include RHEL usage data to include RHEL metering.
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!