

# Amazon Data Exports



# Amazon Data Exports: User Guide

# Table of Contents

<b>What is Amazon Data Exports?</b> .....	<b>1</b>
<b>Migrating from CUR to Data Exports CUR 2.0</b> .....	<b>3</b>
Creating an export using the CUR schema .....	5
Creating an export of CUR 2.0 with its new schema .....	7
<b>Creating data exports</b> .....	<b>9</b>
Setting up an Amazon S3 bucket for data exports .....	10
Creating a standard export .....	12
Creating a cost and usage dashboard .....	15
Creating a Legacy CUR export .....	17
Data query–SQL query and table configurations .....	20
SQL query .....	20
Table configurations .....	23
<b>Viewing and managing data exports</b> .....	<b>24</b>
Understanding export delivery .....	25
Export S3 parent directory structure .....	25
Export refreshing .....	26
Export overwriting and create new .....	27
Export data file names and chunks .....	28
Summary .....	28
Editing export details .....	29
Editing export tags .....	30
Deleting exports .....	30
Using Data Exports with Amazon Organizations .....	31
<b>Data Exports table dictionary</b> .....	<b>33</b>
Cost and Usage Report (CUR) 2.0 .....	33
Table configurations .....	34
Amazon Organizations support .....	36
CUR 2.0 column groups .....	37
Bill columns .....	37
Cost category columns .....	39
Discount columns .....	40
Identity columns .....	43
Line item columns .....	44
Pricing columns .....	56

Product columns .....	58
Reservation columns .....	63
Resource tags columns .....	72
Savings plan columns .....	73
Split line item columns .....	76
Cost optimization recommendations .....	81
Table configurations .....	82
Service-linked role .....	84
Amazon Organizations support .....	84
Cost optimization recommendations columns .....	84
FOCUS 1.0 with Amazon columns .....	88
Table configurations .....	88
Amazon Organizations support .....	88
FOCUS 1.0 with Amazon columns .....	88
FOCUS 1.0 with Amazon columns conformance gaps .....	97
FOCUS 1.0 with Amazon columns (preview) .....	100
Preview notes .....	100
Table configurations .....	100
Amazon Organizations support .....	100
FOCUS 1.0 with Amazon columns (preview) columns .....	101
FOCUS 1.0 with Amazon columns (preview) conformance gaps .....	110
Cost and usage dashboard .....	116
Table configurations .....	116
Amazon Organizations support .....	116
Cost and usage dashboard columns .....	117
Carbon emissions .....	129
Historical data .....	129
Table configurations .....	129
Permissions .....	129
Model versions .....	129
Amazon Organizations support .....	130
Carbon emissions columns .....	131
<b>Processing data exports .....</b>	<b>135</b>
Configuring Amazon Athena .....	135
Configuring Amazon Redshift .....	136
Recommended SQL queries for processing CUR 2.0 .....	136

Recommended SQL queries for processing carbon emissions data exports .....	136
<b>Understanding the Cost and Usage Dashboard .....</b>	<b>138</b>
<b>Understanding the Cost and Usage Report (CUR) .....</b>	<b>140</b>
<b>Understanding the carbon emissions data export .....</b>	<b>141</b>
<b>Security and permissions .....</b>	<b>142</b>
Identity and access management for Data Exports .....	142
Sample policy .....	146
Data protection in Data Exports .....	147
S3 security best practices .....	147
Data encryption in S3 .....	147
<b>Quotas and restrictions .....</b>	<b>148</b>
<b>Troubleshooting .....</b>	<b>149</b>
General troubleshooting .....	149
Why is my export unhealthy? .....	149
Why is my SQL statement not being accepted by Data Exports? .....	151
Why can't I locate a predefined SQL script for configuring Athena within Data Exports? ....	151
Why is one of my export partitions empty? .....	151
Why are there no report files in the Amazon S3 bucket? .....	151
Troubleshooting CUR 2.0 .....	151
Why are some columns that were available in CUR not appearing in CUR 2.0? .....	152
What will happen to legacy Cost and Usage Reports; will it be deprecated? .....	152
Does creating an export of CUR 2.0 affect my legacy CUR? .....	153
Why can't I create an export of CUR 2.0 even though I have IAM permissions to use Data Exports and the CUR table? .....	153
When attempting to create a data export with the same CSV format as the legacy CUR columns, I get an "Invalid QueryStatement" error. How can I resolve this? .....	153
After migrating to Data Exports CUR 2.0, can I have a legacy CUR export and a CUR 2.0 export at the same time? .....	153
When attempting to create an export of CUR 2.0, I get the error "This account is unable to create an export against this table". Why can't I create a CUR 2.0 export? .....	153
Troubleshooting the cost and usage dashboard .....	154
Why did my cost and usage dashboard export fail right after I created it? .....	154
Why can't I access the dashboard? .....	154
Why am I being taken to the console admin page to unsubscribe the QuickSight account when I try to view the dashboard? .....	155
Why don't I see any data in the cost and usage dashboard that I just created? .....	155

Why can't I see historical data in the cost and usage dashboard? .....	155
Why did my QuickSight dashboard link disappear from the Data Exports console page? ...	156
How can I configure Amazon QuickSight to visualize resource tags in CUR 2.0? .....	156
Troubleshooting Cost and Usage Reports .....	156
Why does my Cost and Usage Report data not match the data shown in other Billing and Cost Management features? .....	157
How can I backfill data after changing my report settings? .....	157
Why is my report file folder in Amazon S3 stored in an unnamed folder? .....	158
Why can't I select the option to include resource IDs on my report? .....	158
Why don't my Cost and Usage Report queries for Amazon Athena work on Amazon Redshift, or my Amazon Redshift queries on Amazon Athena? .....	158
Why have the columns included in my report changed from a previous month .....	158
Why don't my queries or tables work after the columns in my report changed? .....	160
How do I query my report? .....	160
Where can I find the billing data for my Amazon EC2 Dedicated Host? .....	160
How do I interpret the billing data for my Amazon EC2 Elastic IP addresses? .....	160
How do unblended and blended rates or costs differ in consolidated billing? .....	160
Why do some line items in my report have a blended rate or blended cost of 0? .....	161
How are All Upfront Reserved Instances amortized in my report? .....	161
Troubleshooting carbon emissions data exports .....	161
Why can't I create an export of the Carbon emissions table even though I have IAM permissions to use Data Exports and the CUR 2.0 table? .....	162
Why can't I see carbon emissions data for some member accounts in my organization? ....	162
Why is one of the files in my S3 bucket empty? .....	162
Why does my S3 export show zero carbon emissions for some Regions and services when there is usage data? .....	163
Is historical data backfill available in Data Exports for carbon emissions? .....	163
Why can't I see historical data in my S3 bucket? .....	163
I changed the settings of my report; can I backfill the data with the new settings? .....	163
<b>Amazon Cost and Usage Reports .....</b>	<b>164</b>
What are Amazon Cost and Usage Reports? .....	164
How Cost and Usage Reports work .....	164
Report timeline .....	165
Report files .....	165
Report columns .....	166
Using your report .....	166

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Creating Cost and Usage Reports .....	167
Setting up an Amazon S3 bucket for Cost and Usage Reports .....	167
Creating reports .....	169
Viewing and managing reports .....	171
Viewing the latest report version .....	172
Viewing your finalized report .....	173
Understanding your report versions .....	174
Editing reports .....	178
Using Cost and Usage Reports for Amazon Organizations .....	180
Querying reports using Athena .....	181
Setting up Athena with CloudFormation .....	182
Setting up Athena manually .....	185
Running Athena queries .....	187
Other resources .....	188
Configuring Amazon CUR using Billing Conductor .....	191
Differences between Billing Conductor Amazon CUR and standard Amazon CUR .....	192
Create pro forma Cost and Usage Reports for a billing group .....	192
Data dictionary .....	193
Identity details .....	194
Billing details .....	195
Line item details .....	197
Reservation details .....	204
Pricing details .....	215
Product details .....	216
Resource tags details .....	248
Savings Plans details .....	248
Cost Categories details .....	254
Discount details .....	255
Split line item details .....	256
Use cases .....	260
Understanding Savings Plans .....	260
Understanding reservations .....	264
Understanding data transfer charges .....	277
Understanding split cost allocation data .....	280
Understanding legacy billing reports .....	298
Detailed Billing Reports .....	298

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Migrating From DBR to Amazon CUR .....	299
Understanding unused reservation costs .....	304
Monthly report .....	314
Monthly cost allocation report .....	314
Amazon Usage Report .....	315
Troubleshooting .....	316
There are no report files in the Amazon S3 bucket .....	316
One of my report data partitions is empty .....	317
My Cost and Usage Report data doesn't match the data in other Billing and Cost Management features .....	317
I want to backfill data because I changed the settings of my report .....	317
My report file folder in Amazon S3 is in an unnamed folder .....	318
I can't select the option to include resource IDs on my report .....	318
My Cost and Usage Report queries for Amazon Athena don't work on Amazon Redshift, or my Amazon Redshift queries don't work on Amazon Athena .....	318
The columns included in my report have changed from a previous month .....	318
The queries or tables based on my report don't work because the columns in my report have changed .....	320
I need help querying my report .....	320
I can't find the billing data for my Amazon EC2 Dedicated Host .....	320
I don't understand the billing data for my Amazon EC2 Elastic IP addresses .....	320
I use consolidated billing and I don't understand the difference between unblended and blended rates or costs .....	320
Some line items in my report have a blended rate or blended cost of 0 .....	321
I don't understand how All Upfront Reserved Instances are amortized in my report .....	321
Security and permissions .....	322
Quotas and restrictions .....	322
Cost and Usage Reports .....	322
<b>Getting help .....</b>	<b>323</b>
<b>Document history .....</b>	<b>325</b>



# What is Amazon Data Exports?

Amazon Data Exports enables you to create billing and cost management data exports and carbon emissions data exports using basic SQL, and visualize data by integrating with Amazon QuickSight.

You can create exports using the Amazon Billing and Cost Management console, Amazon CLI, or Amazon SDK. In the console, you can use custom column selections. In the Amazon CLI or Amazon SDK, you can write SQL queries, select columns, filter rows, and rename columns. This allows you to select only the data you want to process, remove any sensitive cost information, and control the output schema of your exports.

There are three export types:

- **Standard data export**, with four different tables to choose from:
  - Cost and Usage Report 2.0 (CUR 2.0)

## Note

Cost and Usage Report 2.0 (CUR 2.0) is the new and recommended way to receive your detailed Amazon cost and usage data. CUR 2.0 has several improvements over the previous Cost and Usage Reports (CUR). For more information, see [Migrating from CUR to CUR 2.0 in Data Exports](#).

- Cost optimization recommendations (from Cost Optimization Hub)
- FOCUS 1.0 with Amazon columns
- Carbon emissions
- **Cost and usage dashboard:** An export and integration to Amazon QuickSight to deploy a pre-built cost and usage dashboard.
- **Legacy data export:** An export of the Legacy Cost and Usage Reports (CUR). However, Legacy CUR is accessed with a different set of actions (see [CUR actions reference](#)) compared to the Data Exports actions (see [Data Exports actions reference](#)).

Data Exports includes the following benefits:

- Create recurring exports with the most granular data available, and store them in Amazon S3.
- Customize your data exports with SQL queries using column selections and row filters.

- Create exports with consistent schemas including only the columns you want.
- Remove sensitive cost data or charges associated with certain linked Amazon account IDs.
- Reduce the size of your exports by selecting only the columns or rows that you need.
- Automate exporting of cost data and carbon footprint data to support downstream analysis.

## To get started with Data Exports

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Data Exports**.

From the **Data Exports** page, you can create new exports, manage existing exports, and create an export that integrates with Amazon QuickSight and deploys a pre-built cost and usage dashboard.

You can also access the [Customer Carbon Footprint Tool](#) and the [Amazon Usage Report](#) from the **Data Exports** page.

## Migrating from CUR to Data Exports CUR 2.0

Amazon Data Exports allows you to create exports of Cost and Usage Report 2.0 (CUR 2.0). The CUR 2.0 table provides the same information as Cost and Usage Reports (CUR) along with some improvements. Data Exports enables you to create a CUR 2.0 export that is backwards compatible with the data pipelines you've been using to process CUR.

CUR 2.0 provides the following improvements over CUR:

- **Consistent schema:** CUR 2.0 contains a fixed set of columns, whereas the columns included for CUR can vary monthly depending on your usage of Amazon services, cost categories, and resource tags.
- **Nested data:** CUR 2.0 reduces data sparsity by collapsing certain columns from CUR into individual columns with key-value pairs of the collapsed columns. Optionally, you can query the nested keys in Data Exports as separate columns to match the original CUR schema and data.
- **Additional columns:** CUR 2.0 contains two additional columns: **bill\_payer\_account\_name** and **line\_item\_usage\_account\_name**.

The following table outlines the differences between CUR 2.0 and legacy CUR in more detail:

	CUR 2.0	Legacy CUR
<b>Data schema</b>	Fixed schema.  For the complete column list, see <a href="#">Cost and Usage Report (CUR) 2.0</a> .	Dynamic schema based on Amazon usage and activity.  For the partial column list, see <a href="#">Data dictionary</a> .
<b>Exclusive columns</b>	bill_payer_account_name  line_item_usage_account_name	None
<b>Export customization</b>	Enables basic SQL for column selections, row filtering, and column aliasing (renaming).	Not supported. You must manually set up Athena/Qu

	<b>CUR 2.0</b>	<b>Legacy CUR</b>
	For details about the supported SQL syntax, see <a href="#">Data query</a> .	QuickSight to create the view you require.
<b>Nested columns with key-value pairs</b>	resource_tags cost_category product discount	No nested columns.  The four nested columns in CUR 2.0 are split into separate columns in legacy CUR (for example, resource_tags_user_creator ).
<b>File delivery destination</b>	S3 bucket	S3 bucket
<b>File output formats</b>	GZIP, Parquet	ZIP, GZIP, Parquet
<b>Integration with other Amazon services</b>	Amazon QuickSight	Amazon Athena, Amazon Redshift, Amazon QuickSight
<b>Amazon CloudFormation support</b>	Yes  For details, see <a href="#">Amazon Data Exports resource type reference</a> in the <i>Amazon CloudFormation User Guide</i> .	Yes  For details, see <a href="#">Amazon Cost and Usage Report resource type reference</a> in the <i>Amazon CloudFormation User Guide</i> .

	CUR 2.0	Legacy CUR
<b>Tag and cost category data</b>	<p>Tag and cost category names are normalized to remove special characters and spaces. In the event that there are conflicting tags or cost categories after normalization, only one value is kept. For more information, see <a href="#">Column names</a>.</p>	<p>The behavior is different between legacy CUR Parquet and CSV file formats.</p> <p><b>Legacy CUR Parquet:</b> Tag and cost category names are normalized to remove special characters and spaces. In the event that there are conflicting tags or cost categories after normalization, only one value is kept. For more information, see <a href="#">Column names</a>.</p> <p><b>Legacy CUR CSV:</b> Tag and cost category names are not changed.</p>

For more detailed information about the schema of CUR 2.0, see the [Data Exports table dictionary](#).

You can migrate to CUR 2.0 in Data Exports in two ways:

- [Method one: Create an export with an SQL query using the CUR schema](#)
- [Method two: Create an export of CUR 2.0 with its new schema](#)

## Method one: Create an export with an SQL query using the CUR schema

You can create an export with an SQL query. The export schema matches what you receive today in CUR. You do this using the Amazon API or SDK.

1. Determine (a) the list of columns and (b) the CUR content settings (**Include resource IDs, Split cost allocation data, and Time granularity**) needed in order to match your CUR today.

1. You can determine the list of columns either by viewing the schema of one of your CUR files or going to the manifest file and extracting the list of columns from there.
2. You can determine the CUR content settings by going to Data Exports in the console and choosing your CUR export to view its details.
2. Write an SQL query that selects the columns you identified from the CUR 2.0 table named `COST_AND_USAGE_REPORT`.
  1. All column names in the CUR 2.0 table are in snake case (for example, `line_item_usage_amount`). For your SQL statement, you might need to convert the previous column names to snake case.
  2. For your SQL statement, you need to convert all `resource_tag` and `cost_category` columns, and certain `product` and `discount` columns, to have the dot operator in order to select the nested columns in CUR 2.0. For example, to select the `product_from_location` column in CUR 2.0, write an SQL statement selecting `product.from_location`.

Example: `SELECT product.from_location FROM COST_AND_USAGE_REPORT`

This selects the `from_location` column of the `product` map column.

3. By default, the column selected with a dot operator is named by the attribute (for example, `from_location`). To match your existing CUR, you'll need to declare an alias for the column in order to have the same as before.

Example: `SELECT product.from_location AS product_from_location FROM COST_AND_USAGE_REPORT`

For more details on nested columns, see the [Data Exports table dictionary](#).

3. Write the CUR content settings, identified in step 1, into the table configuration format for the `CreateExport` API. You need to provide these table configurations with your data query in the next step.
4. In the Amazon SDK/CLI for Data Exports, use the `CreateExport` API to input your SQL query and table configurations into the `data-query` field.
  1. Specify delivery preferences, such as the target Amazon S3 bucket and the overwrite preference. We recommend choosing the same delivery preferences you had before. For more information on the required fields, see [Amazon Data Exports](#) in the *Amazon Billing and Cost Management API Reference*.

2. Update the permissions of the target Amazon S3 bucket to allow Data Exports to write to the bucket. For more information, see [Setting up an Amazon S3 bucket for data exports](#).
5. Direct your data ingestion pipeline to read data from the directory in the Amazon S3 bucket where your CUR 2.0 is being delivered.

## Method two: Create an export of CUR 2.0 with its new schema

You can create an export of CUR 2.0 with its new schema of nested columns and additional columns. However, you'll need to adjust your current data pipeline to process these new columns. You do this using the console, the Amazon API, or SDK.

1. Determine the CUR content settings (**Include resource IDs**, **Split cost allocation data**, and **Time granularity**) needed in order to match your CUR today.
  - You can determine the CUR content settings by going to Data Exports in the console and choosing your CUR export to view its details.
2. Using either the Data Exports console page (**Option A**) or the Amazon SDK/CLI (**Option B**), create an export of CUR 2.0 that selects all columns from the "Cost and usage report" table.
3. (**Option A**) To create the export in the console:
  1. In the navigation pane, choose **Data Exports**.
  2. On the **Data Exports** page, choose **Create**.
  3. Choose **Standard data export**.

For the **Cost and Usage Report (CUR 2.0)** table, all columns are selected by default.
4. Specify the CUR content settings that you identified in step 1.
5. Under **Data table delivery options**, choose your options.
6. Choose **Create**.
4. (**Option B**) To create the export using the Amazon API/SDK, first write a query that selects all columns in the COST\_AND\_USAGE\_REPORT table.
  1. Use the `GetTable` API to determine the complete list of columns and receive the full schema.
  2. Write the CUR content settings, identified in step 1, into the table configuration format for the `CreateExport` API.

3. Use the CreateExport API to input your SQL query and table configurations into the data-query field.
4. Specify delivery preferences, such as the target Amazon S3 bucket and the overwrite preference. We recommend choosing the same delivery preferences you had before. For more information on the required fields, see [Amazon Data Exports](#) in the *Amazon Billing and Cost Management API Reference*.
5. Update the permissions of the target Amazon S3 bucket to allow Data Exports to write to the bucket. For more information, see [Setting up an Amazon S3 bucket for data exports](#).
5. Direct your data ingestion pipeline to read data from the directory in the Amazon S3 bucket where your CUR 2.0 is being delivered.

You also need to update your data ingestion pipeline and your business intelligence tools to process the following new columns with nested key-values: `product`, `resource_tags`, `cost_category`, and `discounts`.



# Creating data exports

You can use the **Data Exports** page in the Billing and Cost Management console to create data exports of three different types: standard exports, cost and usage dashboard exports, and legacy exports.

There are the following limits on the number of exports you can create per table:

- **Cost and Usage Report 2.0 (CUR 2.0):** 5 exports
- **Cost optimization recommendations:** 2 exports
- **FOCUS 1.0 with Amazon columns:** 2 exports
- **Cost and usage dashboard:** 2 exports
- **Carbon emissions:** 2 exports

For more information, see [Quotas and restrictions](#).

Set up an export in minutes by either creating an export in the console and selecting the table you want to export, or creating an export in the Amazon SDK/CLI and defining an SQL query of column selections and row filters from the data table you want.

When creating an export in the console, you can create an Amazon S3 bucket for your data export storage. When creating an export in the Amazon SDK/CLI, you need to create an Amazon S3 bucket with the correct bucket policy in advance. For more information, see [Setting up an Amazon S3 bucket for data exports](#).

Once you create a new data export, Data Exports starts to export the data to the Amazon S3 bucket.

## Note

It can take up to 24 hours for Amazon to start delivering exports to your Amazon S3 bucket. Once delivery starts, Amazon refreshes the billing and cost management export output at least once a day and the carbon emissions export output at least once a month in your S3 bucket. The actual refresh rate may be different due to various factors.

## Topics

- [Setting up an Amazon S3 bucket for data exports](#)
- [Creating a standard export](#)
- [Creating a cost and usage dashboard](#)
- [Creating a Legacy CUR export](#)
- [Data query–SQL query and table configurations](#)

## Setting up an Amazon S3 bucket for data exports

You must have an Amazon S3 bucket in your Amazon account to receive and store your data exports. When creating an export in the console, you can select an existing S3 bucket that you own, or you can create a new bucket. In either case, you need to review and confirm the application of the following default S3 bucket policy. Editing this policy in the Amazon S3 console or changing the S3 bucket owner after you've created an export prevents Data Exports from delivering your exports. Storing the exports data in your S3 bucket is billed at standard Amazon S3 rates. For more information, see [Quotas and restrictions](#).

### Note

The account that creates the export must also own the S3 bucket that Amazon sends the exports to. You cannot configure an export to deliver to an S3 bucket owned by another account.

The following policy is applied to every S3 bucket when creating a data export:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "EnableAWSDataExportsToWriteToS3AndCheckPolicy",
      "Effect": "Allow",
      "Principal": {
        "Service": [
          "billingreports.amazonaws.com",
          "bcm-data-exports.amazonaws.com"
        ]
      },
      "Action": [
```

```

        "s3:PutObject",
        "s3:GetBucketPolicy"
    ],
    "Resource": [
        "arn:aws:s3:::${bucket_name}/*",
        "arn:aws:s3:::${bucket_name}"
    ],
    "Condition": {
        "StringLike": {
            "aws:SourceAccount": "${accountId}",
            "aws:SourceArn": [
                "arn:aws:cur:us-east-1:${accountId}:definition/*",
                "arn:aws:bcm-data-exports:us-east-1:${accountId}:export/*"
            ]
        }
    }
}

```

This S3 bucket policy ensures that Data Exports can only deliver exports to the S3 bucket on behalf of the account that created the export. It also allows Data Exports to verify that the S3 bucket is still owned by the account that created the export.

- To deliver exports to your S3 bucket, Amazon needs write permissions for that S3 bucket. To do this, the S3 bucket policy grants the Data Exports service (`bcm-data-exports.amazonaws.com`) permission to deliver (`s3:PutObject`) reports to the S3 bucket you own (`arn:aws:s3:::<EXAMPLE-BUCKET>/*`).
- Every time Data Exports makes the request to write to the S3 bucket, it must provide the account ID of the account that created the export. The condition keys `aws:SourceArn` and `aws:SourceAccount` enforce this.
- This S3 bucket policy does not give Amazon permissions to read or delete any objects in your S3 bucket, including the Cost and Usage Reports after they've been delivered.

For an Amazon S3 bucket that has access control list (ACL) enabled, Data Exports applies a `BucketOwnerFullControl` ACL to the reports when delivering them. By default, Amazon S3 objects, such as these reports, can only be read by the user or service principal who wrote them. To provide you or the S3 bucket owner with permission to read the reports, Amazon needs to apply the `BucketOwnerFullControl` ACL. The ACL grants the S3 bucket owner

Permission .FullControl for these reports. However, it's recommended to disable ACL and use an S3 bucket policy to control access.

**Note**

For newly-created S3 buckets, ACLs are disabled by default. For more information, see [Controlling ownership of objects and disabling ACLs for your bucket](#).

If you see an **Invalid bucket** error in the **Data Exports** console page, verify that the policy and S3 bucket ownership haven't changed since report setup.

## Creating a standard export

You can create a standard data export that you can analyze using other processing tools (Amazon Athena, for example).

### To create a standard data export

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Data Exports**.
3. Choose **Create export**.
4. On the **Create export** page, under **Export type**, choose **Standard data export**.
5. For **Export name**, enter a name for your export.

Export names can have up to 128 characters and must be unique. Valid characters are a-z, A-Z, 0-9, - (hyphen), and \_ (underscore).

6. Under **Data table configurations**, you can specify the table and columns to be contained within your export. First, select the table you want to export.

**Note**


Exporting the Cost optimization recommendations table requires a service-linked role. For more information, see [Service-linked roles for Data Exports](#).

Exporting the Carbon emissions table requires the IAM permission `sustainability:GetCarbonFootprintSummary` to access the Customer Carbon Footprint Tool and data.

With the exception of FOCUS 1.0 with Amazon columns and Carbon emissions, there are different table configurations to add data to your export.


1. For **CUR 2.0**:

- a. Select **Include resource IDs** to include the IDs of each individual resource in the export.

 **Note**


Including resource IDs creates individual line items for each of your resources. This might increase the size of your export significantly, based on your Amazon usage.

- b. Select **Split cost allocation data** to include detailed cost and usage for shared resources (Amazon ECS and Amazon EKS).

 **Note**

Including split cost allocation data creates individual line items for each of your resources (that is, ECS tasks and Kubernetes pods). This might increase the size of your Cost and Usage Report significantly, based on your Amazon usage.

- c. Select **Enable manual discount format** to convert your discounts so that they appear in the Cost and Usage Report in the manual discount format instead of the standard automated format.

 **Note**

This option only appears if you are on the discount automation program.

- d. For **Time granularity**, choose between hourly, daily, or monthly to have the line items in the export aggregated by that time granularity.

2. For **FOCUS 1.0 with Amazon columns**, there are no table configurations.

3. For **Carbon emissions**, there are no table configurations.

#### 4. For **Cost optimization recommendations**:

- a. Select **Include all recommendations** to remove the lowest savings value recommendation of recommendations that are incompatible with one another.
- b. Add **Recommendation filters** if you want certain types of recommendations to be filtered out before incompatible recommendations are removed.

#### **Note**


If you specified these settings in the Cost Optimization Hub console, they will be carried over to Data Exports when you choose **Create an export** in Cost Optimization Hub.

7. For **Column selection**, select the columns you want to include in your export. If unsure, select all columns by selecting the first check box at the top of the table. Selecting more columns may increase the file size of your export.
8. Under **Data table delivery options**, for **Data export refresh cadence**:
  - For billing and cost management data exports, the only option available is **Daily - export is refreshed up to one time per day**.
  - For carbon emissions data exports, the only option available is **Monthly - export is refreshed once per month**. Each update provides the carbon emissions data from three months ago (for example, an April update contains January data).
9. For **Compression type and file format**, choose between the following for your export:
  - Parquet – Parquet
  - gzip – text/csv
10. For **File versioning**, choose between the following which determines whether your export is overwritten with each update:
  - **Overwrite existing data export file**: Each export refresh overwrites the previous delivery within the data partition (for example, billing periods). Overwriting exports can save on Amazon S3 storage costs.

#### **Note**

Overwrite is not supported for exports of cost optimization recommendations.

- **Create new data export file:** Each export refresh is written to a separate directory, even for deliveries of the same partition (for example, billing period). Creating new export versions allows you to track the changes in cost and usage data over time.
11. Under **Data export storage settings**, for **S3 bucket** name, choose **Configure**.
  12. In the **Configure S3 bucket** dialog box, do one of the following:
    - Select existing bucket.
    - Choose **Create a bucket**, enter an **S3 bucket name**, and then choose the **Region** where you want to create a new bucket.
  13. Review the **Bucket policy**. If you're selecting an existing bucket, you need to acknowledge that Data Exports will overwrite you existing S3 bucket policy. The new policy will allow both CUR and Data Exports to deliver exports.
  14. For **S3 path prefix**, enter a name for the directory that will be created in your S3 bucket to store all the export data.
  15. Under **Tags**, you can choose to add up to 50 tags in order to search and filter your resources or track your Amazon costs.

 **Note**

Adding tags is optional.

16. Choose **Create** to complete the creation of your export.

## Creating a cost and usage dashboard

You can visualize your billing and cost management data by deploying a pre-built Cost and Usage Dashboard powered by Amazon QuickSight.


### To create a cost and usage dashboard

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Data Exports**.
3. On the **Data Exports** page, choose either **Create** or the **Cost and usage dashboard** tile.
4. On the **Create** page, under **Export type**, choose **Cost and usage dashboard powered by QuickSight**.

5. For **Export name**, enter a name for your dashboard.

Export names can have up to 128 characters and must be unique. Valid characters are a-z, A-Z, 0-9, - (hyphen), and \_ (underscore).

6. For **QuickSight dashboard settings** your QuickSight account details such as **account name**, **account ID**, **account edition**, and **authentication method** are automatically populated.
  1. If the QuickSight account details don't populate automatically, choose **Create account** to sign up if you're new to QuickSight, or log in to your QuickSight account if you're an existing QuickSight customer.
  2. Once you successfully create or log in to your QuickSight account, you'll see a success message. Close the window and return to **Data Exports**.
  3. Under **QuickSight dashboard settings**, choose **Refresh**.

 **Note**

This feature requires [Enterprise Edition](#).

7. For **QuickSight namespace**, enter your [namespace](#).
8. For **QuickSight username**, enter the details for the user who has permissions to access the QuickSight dashboard.
9. For **QuickSight region**, choose the Amazon Region where you want to create the QuickSight dashboard.
10. The **Data table content settings** and **Data table delivery options** are preset and can't be edited.
11. Under **Data export storage settings**, for **S3 bucket name**, choose **Configure**.
12. In the **Configure S3 bucket** dialog box, do one of the following:
  - Select existing bucket.
  - Choose **Create a bucket**, enter an **S3 bucket name**, and then choose the **Region** where you want to create a new bucket.
13. Review the **Bucket policy**, and then choose **Create bucket**.
14. For **S3 path prefix**, enter the S3 path prefix that you want prepended to the name of your export.
15. Under **Service access**, choose a method to authorize QuickSight:



- Create a new service role (default)
  - Use an existing service role
16. Under **Tags**, you can choose to add up to 50 tags in order to search and filter your resources or track your Amazon costs.

 **Note**

Adding tags is optional.

17. Choose **Create**.

You can always return to the **Data Exports** page of the Amazon Billing and Cost Management console to see when your Cost and Usage Dashboard was last updated.

## Creating a Legacy CUR export

You can create a data export of your legacy Cost and Usage Report (CUR). This workflow uses the legacy `cur` APIs and doesn't allow you to use SQL to define your export contents. CUR 2.0 with its additional columns and SQL access is only available as a standard data export.

### To create a legacy data export

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Data Exports**.
3. Choose **Create**.
4. On the **Create** page, under **Export type**, choose **Legacy CUR export**.
5. For **Export name**, enter a name for your export.
6. Under **Export content**, select the data to include in your CUR export.
  - For **Additional export content**, select **Include resource IDs** to include the IDs of each individual resource in the export.

**Note**

Including resource IDs creates individual line items for each of your resources. This might increase the size of your export significantly, based on your Amazon usage.

- Select **Split cost allocation data** to include detailed cost and usage for shared resources (Amazon ECS and Amazon EKS).

**Note**

Including split cost allocation data creates individual line items for each of your resources (that is, ECS tasks and Kubernetes pods). This might increase the size of your Cost and Usage Report significantly, based on your Amazon usage.


- Select **Enable manual discount format** to convert your discounts so that they appear in the Cost and Usage Report in the manual discount format instead of the standard automated format.

**Note**

This is only available for customers on Discount Automation.

7. Under **Data table delivery options**, for **Time granularity**, choose one of the following:
  - **Hourly** if you want the line items in the export to be aggregated by the hour.
  - **Daily** if you want the line items in the export to be aggregated by the day.
  - **Monthly** if you want the line items in the export to be aggregated by month.
8. For **Report versioning**, choose between the following:
  - **Create new report version**: Each report refresh will be written to a separate directory, even for deliveries of the same billing period. Choose this to improve the ability to audit your exports over time.
  - **Overwrite existing report**: Each report refresh will overwrite the previous delivery within the same billing period. Deliveries of new billing periods be delivered as new files and directories. Choose this to save on Amazon S3 storage costs.

9. For **Report data integration**, choose whether you want to enable your Cost and Usage Reports to integrate with Amazon Athena, Amazon Redshift, or Amazon QuickSight. The report is compressed in the following formats:
  - **Amazon Athena:** Selects the delivery options optimal for Amazon Athena which are Parquet file format and overwrite existing report. Also delivers a script that can be used to set up the integration.
  - **Amazon Redshift:** Selects the delivery option optimal for Amazon Redshift which is gzip/csv file format. Also delivers a script that can be used to set up the integration.
  - **Amazon QuickSight:** Selects the delivery option optimal for Amazon QuickSight which is gzip/csv file format.
10. For **Compression type and file format**, choose between the following:
  - Parquet – Parquet
  - gzip – text/csv
  - zip – text/csv
11. Under **Data export storage settings**, for **S3 bucket** name, choose **Configure**.
12. In the **Configure S3 bucket** dialog box, do one of the following:
  - Select existing bucket.
  - Choose **Create a bucket**, enter an **S3 bucket name**, and then choose the **Region** where you want to create a new bucket.
13. Review the **Bucket policy**, and then choose **Create bucket**.
14. For **S3 path prefix**, enter the S3 path prefix that you want prepended to the name of your export.
15. Under **Tags**, you can choose to add up to 50 tags in order to search and filter your resources or track your Amazon costs.

 **Note**

Adding tags is optional.

16. Choose **Create report**.

## Data query–SQL query and table configurations

Data Exports enables you to write SQL queries (column selections, row filtering, column aliasing) that are executed against the tables provided–CUR 2.0, for example. Each table might also have table configurations that alter the data contained within the table. For example, with CUR 2.0, you can specify a configuration to choose a time granularity of hourly, daily, or monthly, or a configuration to add cost and usage data at resource-level granularity.

For an export data query to be fully defined, you must specify the following two attributes:

- **SQL query:** The SQL statement is executed against a table and determines what data is returned by the export.
- **Table configurations:** The table configuration settings change what data is contained within the table before the SQL query is executed against it.

In the **Data Exports** console page, you can use the workflow that builds the SQL statement and table configurations based on your selections. In the Data Exports SDK/CLI, you can write your own SQL statement and table configurations.

Data Exports SQL statements (`QueryStatement`) use the following syntax:

```
SELECT <column_name_a>, <column_name_b>.<attribute_name> AS <new_name>, ...
FROM <TABLE_NAME>
[ WHERE <column_name> OPERATOR <value> AND|OR ... ]
[ LIMIT number ]
```

Data Exports table configurations (`TableConfigurations`) use the following syntax:

```
{"<TABLE_NAME>":
  {"<CONFIGURATION_NAME_A>": "<value>",
    "<CONFIGURATION_NAME_B>": "<value>",
    ...}
}
```

### SQL query

The SQL query is executed against a table and determines what data is returned in an export. The SQL statement can be altered after an export has been created, but the table selected can't be changed.

SQL statements (in the QueryStatement field) can have a maximum of 36,000 characters.

The possible keywords in a Data Exports SQL query are as follows.

**Note**

The keywords are not case-sensitive. The column names and table names are case-sensitive.

## SELECT

Required.

Specifies which columns are to be selected from the table. There can only be one SELECT statement per query.

Use the dot operator `.` to specify selecting an attribute of a MAP or STRUCT column as a separate column. The name of the resulting column in the SQL output is the attribute name by default.

For example, you can select attributes from the product MAP column.

```
SELECT product.from_location FROM COST_AND_USAGE_REPORT
```

This selects the `from_location` attribute from the product column and creates a new column with the attribute's data. By default, in the output, this column's name will be `from_location`. However, it can be renamed with AS.

For more information on the MAP and STRUCT columns available in each table, and the attributes these columns have, see the [Data Exports table dictionary](#).

## AS

Optional.

Enables renaming of the column being selected. The new column name can't have spaces or characters other than alphanumeric characters (a-z, A-Z, and 0-9) and underscores (`_`). You can't use quotes when defining the column alias in order to use other characters.

Aliasing can be useful when selecting an attribute of a MAP or STRUCT column to rename the resulting column to match the schema of the CUR. For example, to match how the CUR shows

the `product_from_location` column, write the following query in Data Exports with the CUR 2.0 table.

```
SELECT product.from_location AS product_from_location FROM
COST_AND_USAGE_REPORT
```

This creates an export with a column named `product_from_location`.

## FROM

Required.

Specifies the table to be queried. There can only be one FROM statement per query.

## WHERE

Optional.

Filters the rows to only those that match your specified clause.

The WHERE clause supports the following operators:

- **=** Value must match the string or number.
- **!= and <>** Value must not match the specified string or number.
- **<, <=, >, and >=** Value must be less than, less than or equal to, greater than, or greater than or equal to the number.
- **AND** Both conditions that are specified must be true to match. You can use multiple **AND** keywords to specify two or more conditions.
- **OR** Either conditions that are specified must be true to match. You can use multiple **OR** keywords to specify two or more conditions.
- **NOT** The condition specified must not be true to match.
- **IN** Any of the values specified within the parentheses after the keyword must be true to match.
- Parentheses can be used to construct multi-conditional WHERE clauses

### Note

When expressing strings as the value following an operator, use single quotes ' instead of double quotes. You don't need to escape the single quotes. For example you can write the following WHERE statement:

```
WHERE line_item_type = 'Discount' OR line_item_type = 'Usage'
```

## LIMIT

Optional.

Limits the number of rows returned by the query to the value that you specify.

## Table configurations

Table configurations are user-controlled properties that a user can set to change the data or schema of a table before it's queried in Data Exports. The table configurations are saved as a JSON statement and are either specified through user input in the Amazon SDK/CLI or user selections in the console.

For example, CUR 2.0 has table configurations to change data granularity (hourly, daily, monthly), whether resource-level granular data is included, and whether split cost allocation data is included. Not all tables have configurations. For more information on the configurations available for each table, see the [Data Exports table dictionary](#).

Each table configuration parameter has a default value that is assumed if a table configuration is not specified by the user. Table configurations can't be changed after an export is created.

# Viewing and managing data exports

To view details about your exports, use the **Data Exports** page in the Amazon Billing and Cost Management console. To view your export files, use the S3 console link for your Amazon S3 bucket on the **Data Exports** page. To view your export dashboards, use the QuickSight link on the **Data Exports** page, or go directly to the QuickSight console and find your dashboard.

## To view your export details, files, and dashboards

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Data Exports**.
3. In the **Exports and dashboards** list, find the name of the export that you want to view.
4. To view the export details, choose the link in the **Export name** column to view the summary page describing the export settings.
5. To view the export files, choose the link in the **S3 bucket** column to be brought to the S3 console for your bucket.
6. To view the QuickSight dashboard, choose the **Cost and usage dashboard** link in the **Export type** column.

The following is an overview of the columns in the **Exports and Dashboards** list:

- **Export name:** The name you chose when creating the export.
- **Status:** The health of your export. It can have two values:
  - **Healthy:** This status indicates that the most recent export delivery was successful.

### Note

Your Cost and Usage Dashboard could be missing the data for the current month because it can take up to 24 hours for all your data to be populated in your dashboard. If the export status says “Healthy”, allow 24 hours for your dashboard to update with the current month's data.

- **Unhealthy:** This status indicates that the most recent export delivery failed.
- **Export type:** The type of export created. Data Exports has three types of exports:



- **Standard data export:** A customized export of a table that delivers to Amazon S3 on a recurring basis.
- **Cost and usage dashboard:** An export and integration to Amazon QuickSight that deploys a pre-built cost and usage dashboard. This becomes a link to a dashboard.
- **Legacy CUR export:** An export of the Legacy Cost and Usage Report (CUR).
- **Data table:** The table that your export is querying.
- **Date created:** The time and date when your export was created.
- **Date last refreshed:** The time and date when your export was last refreshed.
- **S3 bucket:** The S3 bucket to which your export is being delivered to.

## Understanding export delivery

In the following sections, you'll find information about your export delivery.

- **Export S3 parent directory structure:** How export data is structured in the S3 directory to which your export is delivered to.
- **Export refreshing:** How often your export updates in your S3 directory.
- **Export overwriting and create new:** How your export delivery changes with overwriting and creates new delivery preferences.
- **Export data file names and chunks:** How the export files (gzip/csv or Parquet) are named.

### Export S3 parent directory structure

Each export delivers the data from the query to S3 (as one or more gzip/csv or Parquet files) and a `Manifest.json` metadata file containing information about the export definition at the time the export was executed.

#### Data

The data resulting from the export query is stored in the following S3 file path:

```
s3://<bucket-name>/<prefix>/<export-name>/data/<partition>/
```

The partition corresponds to the table that is being queried. For CUR 2.0, the partition corresponds to the “billing period” of a given CUR 2.0 export.

`prefix`: The S3 file prefix that you assign to the export.

`export-name`: The name that you assign to the export.

`partition`: The partition describes how a single table is partitioned into separate tables for delivery. For CUR 2.0, the partition corresponds to the “billing period” in the format `BILLING_PERIOD=YYYY-MM`. For example, the partition for November 2023 is `2023-11`.

The following is an example of an S3 file path:

```
s3://my-data-export-s3-bucket/my-cur-files/business_group_a_cur/data/  
BILLING_PERIOD=2023-11
```

## Metadata

The `Manifest.json` metadata file for the query is stored in the following S3 file path:

```
s3://<bucket-name>/<prefix>/<export-name>/metadata/<partition>/<export-  
name>-Manifest.json
```

The `Manifest.json` file is updated each time the export is refreshed. A new `Manifest.json` file is created for each new partition created by the export. For CUR 2.0, this means a new `Manifest.json` file is generated when a new billing period begins.

Manifest files contain the following information:

- All of the columns that are included in the export.
- A list of the export files and their file path. We recommend identifying which files to ingest by programmatically reading this list.
- The time period covered by the export.

The `Manifest.json` is only delivered once all of the export data files have been delivered to S3.

## Export refreshing

Data Exports refreshes your exports each time the source data is updated. For CUR 2.0, this occurs at least once a day. The current billing period (partition) is refreshed until the billing period ends, at which point deliveries of the next billing period begin. Deliveries of the next billing period only contain charges and billing data for that billing period. After the billing period ends, Amazon may update the export delivery for the previous billing period within the first two weeks after it ended.

## Export overwriting and create new

When you create an export, you can choose to either create new export files or overwrite the existing export files with each refresh.

### Create new

Creating new export files uses more S3 storage because all export refreshes are kept. Overwriting the previous export files uses less S3 storage because only the latest version of each billing period refresh is kept.

When in “create new” mode, the export files are delivered to the following S3 path:

```
s3://<bucket-name>/<prefix>/<export-name>/data/<partition>/<timestamp>-<execution-id>
```

The timestamp is the date and time when the export was executed. The execution-id is the unique ID assigned to the execution.

For “create new”, two Manifest.json files are delivered with each export execution. One is stored in the metadata/<partition>/<timestamp>-<execution-id> directory, and the other is overwritten in the metadata/<partition> directory. The manifest in the metadata/<partition> directory always represents the most recent refresh and its data is used to identify the location of the most recently refreshed export files.

### Overwrite

Overwriting only applies for refreshes of the same partition (that is, billing period). Once a new billing period begins, the export creates a new S3 directory with a name based on the latest partition or billing period, and begins delivering the new export partition there. The export of the previous partition is not overwritten unless the data for that specific partition is updated.

When in “overwrite” mode, the export files are delivered to the following S3 path:

```
s3://<bucket-name>/<prefix>/<export-name>/data/<partition>/
```

The export files in this file directory are overwritten with each delivery of the same partition (that is, billing period).

Export files are delivered as multiple “chunks” (separate gzip/csv or Parquet files) when the export becomes sufficiently big. If the export ever decreases in size during the month (due to a changed query or correction to data), fewer chunks may be needed to deliver the export

refresh. In this case, Data Exports overwrites any extra chunks from the last refresh with empty data.

For overwriting, one `Manifest.json` file is delivered with each export execution. It is stored in the `metadata/<partition>` directory and is overwritten with each refresh.

## Export data file names and chunks

Exports either deliver the results of one execution as one file (gzip/csv or Parquet) or in multiple “chunks” (separate gzip/csv or Parquet files) when the export becomes sufficiently big.

Exports are named as follows for the gzip/csv file format:

```
<export-name>-<chunk-number>.csv.gz
```

Exports are named as follows for the Parquet format:

```
<export-name>-<chunk-number>.snappy.parquet
```

Chunk numbers always have five digits. Chunk numbers are enumerated starting at 00001.

## Summary

### Export data file names with directory for create new

Parquet:

```
s3://<bucket-name>/<prefix>/<export-name>/data/<partition>/<timestamp>-<execution-id>/<export-name>-<chunk-number>.snappy.parquet
```

gzip/csv:

```
s3://<bucket-name>/<prefix>/<export-name>/data/<partition>/<timestamp>-<execution-id>/<export-name>-<chunk-number>.csv.gz
```

### Export data file names with directory for overwrite

Parquet:

```
s3://<bucket-name>/<prefix>/<export-name>/data/<partition>/<export-name>-<chunk-number>.snappy.parquet
```

gzip/csv:

```
s3://<bucket-name>/<prefix>/<export-name>/data/<partition>/<export-name>-<chunk-number>.csv.gz
```

### Manifest file names with directory for create new

The “create new” mode delivers Manifest.json to two locations.

The first location is in a folder representing a specific execution of an export (named by timestamp and execution-id). This Manifest corresponds to that specific execution. The file path is as follows:

```
s3://<bucket-name>/<prefix>/<export-name>/metadata/<partition>/<timestamp>-<execution-id>
```

The second location is in a partition folder containing all executions. This Manifest is the same file from the most recent execution of the export. You can read this Manifest to identify the exact file paths of all recent export files. The file path is as follows:

```
s3://<bucket-name>/<prefix>/<export-name>/metadata/<partition>/Manifest.json
```

### Manifest file names with directory for overwrite

The “overwrite” mode delivers Manifest.json to one location.

```
s3://<bucket-name>/<prefix>/<export-name>/metadata/<partition>
```

The Manifest in this directory is overwritten with each refresh of a given partition (that is, billing period).

## Editing export details

You can use the **Data Exports** page in the Amazon Billing and Cost Management console to edit your export details.

### To edit your export details

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Data Exports**.
3. From your list of exports, choose the name of the export that you want to edit.

4. On the **Export details** page, choose **Edit**.
5. In **Edit** mode, you can update the column selection for your export and the export overwrite preference.

You can't update the data table, the additional export content (table configurations), or the compression type and file format for an existing export. To change these details, you need to create a new export.

## Editing export tags

You can use the **Data Exports** page in the Amazon Billing and Cost Management console to edit your export tags.

### To edit your export tags

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Data Exports**.
3. From your list of exports, choose the name of the export that you want to edit.
4. In the **Tags** section at the bottom of the page, choose **Manage tags**.
5. On the **Manage tags** page, do the following:
  - To add a new tag, choose **Add new tag**. You can add up to 50 tags to search and filter your resources or track your Amazon costs.
  - To delete an existing tag, choose **Remove** beside the entry you want to remove.
6. Choose **Save**.

## Deleting exports

You can use the **Data Exports** page in the Amazon Billing and Cost Management console to delete your exports.

### To delete an export

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.

2. In the navigation pane, choose **Data Exports**.
3. From your list of exports, choose the name of the export that you want to delete.
4. On the **Export details** page, choose **Delete**.
5. Choose **Delete** once more to confirm that you want to delete the export.

### **Note**

This procedure deletes your export from Data Exports. However, it doesn't delete the objects stored in your Amazon S3 bucket.

For a Cost and Usage Dashboard, the above procedure deletes the Cost and Usage Dashboard from Data Exports. However, it doesn't delete the objects stored in your S3 bucket, QuickSight dashboard, and additional QuickSight resources. To delete your Cost and Usage Dashboard from QuickSight, see [Deleting an Amazon QuickSight dashboard](#). When you delete an Amazon QuickSight dashboard, the dashboard is permanently removed from your account and all folders the dashboard was a part of. You'll no longer be able to access the deleted dashboard. You can only delete dashboards that you own or co-own.


## Using Data Exports with Amazon Organizations

Data Exports can work with Amazon Organizations so that management accounts can generate exports with data for all accounts in your organization. Member accounts can also create data exports, but these exports only contain the billing and cost management data for that specific member account. The settings that control whether the management account receives data for all member accounts varies across the Data Exports tables. Refer to the following sections for information about how it is determined whether to include member account data for each table.

- [Cost and usage report 2.0 \(CUR 2.0\)](#)
- [Cost optimization recommendations \(from Cost Optimization Hub\)](#)
- [FOCUS 1.0 with Amazon columns](#)
- [Cost and usage dashboard](#)
- [Carbon emissions](#)

The IAM policies that allow or restrict the ability to create an export are the same for both management and member accounts.

If you are an administrator of an Amazon Organizations management account and you don't want member accounts to create an export, you can apply a service control policy (SCP) that prevents member accounts from creating exports. While the SCP prevents member accounts from creating new exports, it doesn't delete previously created exports.

 **Note**

SCPs apply only to member accounts. To prevent a management account from creating an export, modify the IAM policies attached to the user roles in the management account.



# Data Exports table dictionary

Data Exports provides several tables that you can query when creating an export.

The following topics describe the schema for each available table with definitions for each column present.

## Topics

- [Cost and Usage Report \(CUR\) 2.0](#)
- [Cost optimization recommendations \(from Cost Optimization Hub\)](#)
- [FOCUS 1.0 with Amazon columns](#)
- [FOCUS 1.0 with Amazon columns \(preview\)](#)
- [Cost and usage dashboard](#)
- [Carbon emissions](#)

## Cost and Usage Report (CUR) 2.0

The CUR 2.0 table provides the same information as Cost and Usage Reports (CUR) with a few improvements.

Cost and Usage Reports 2.0 provides the following improvements over Cost and Usage Reports:

- **Consistent schema:** CUR 2.0 contains a fixed set of columns, whereas the columns included for CUR can vary monthly depending on your usage of Amazon services, cost categories, and resource tags.
- **Nested data:** CUR 2.0 reduces data sparsity by collapsing certain columns from CUR into individual columns with key-value pairs of the collapsed columns. The nested keys can optionally be queried in Data Exports as separate columns to match the original CUR schema and data.
- **Additional columns:** CUR 2.0 contains two additional columns: **bill\_payer\_account\_name** and **line\_item\_usage\_account\_name**.

The SQL table name for CUR 2.0 is `COST_AND_USAGE_REPORT`.

## Table configurations

Table configurations are user-controlled properties that a user can set to change the data or schema of a table before it's queried in Data Exports. The table configurations are saved as a JSON statement and are either specified through user input in the Amazon SDK/CLI or user selections in the console.

CUR 2.0 has the following table configurations:

Configuration name	Description	Valid values
TIME_GRANULARITY	<p>This configuration changes the cost and usage line items in the CUR 2.0 table to have different time granularities.</p> <p>For example, selecting "HOURLY" will make all line items represent a single hour of usage.</p>	HOURLY, DAILY, MONTHLY
INCLUDE_RESOURCES	<p>This configuration changes the cost and usage line items in the CUR 2.0 table to have resource-level granularity and adds the "line_item_resource_id" column to the table schema.</p> <p>Enabling this configuration causes the CUR 2.0 table to have a line item for each resource that incurred usage for a given service, instead of showing combined total usage for that service.</p>	TRUE, FALSE

Configuration name	Description	Valid values
	Enabling this configuration can greatly increase the number of rows, and also the file size of your export.	
INCLUDE_SPLIT_COST_ALLOCATION_DATA	<p>This configuration adds split cost allocation data and columns (split_line_item_* ) to the CUR 2.0 table. This data indicates how the usage of certain Amazon resources can be allocated to different business units or teams.</p> <p>Enabling this configuration can add additional rows and columns which show how an EC2 instance can be allocated to different containers running in that instance. For more information, see <a href="#">Understanding split cost allocation data</a>.</p>	TRUE, FALSE

Configuration name	Description	Valid values
INCLUDE_MANUAL_DISCOUNT_COMPATIBILITY	<p><b>Note:</b> This configuration only applies to Amazon customers who have onboarded to the Discount Automation program where discounts are computed automatically.</p> <p>This configuration changes the discounts in the CUR 2.0 table to appear as when they were added "manually" to the CUR, usually as separate line items, and removes two columns from the schema ("discount" and "total_discount").</p>	TRUE, FALSE

## Amazon Organizations support

The CUR 2.0 table inherits the settings you made in the consolidated billing feature in Amazon Organizations. When consolidated billing is enabled, there are different behaviors for management and member accounts. If you're using a management account, your CUR 2.0 table includes cost and usage data for the management account and all member accounts in your organization. If you're using a member account, your CUR 2.0 table only includes cost and usage data for that member account.

After joining an organization, a member account can only export data for the time that the account has been a member of the organization. For example, let's say that a member account leaves organization A and joins organization B on the 15th of the month. Then, the member account creates an export. Because the member account created an export after joining organization B, the member account's export of CUR 2.0 for the month only includes cost and usage data for the time that the account has been a member of organization B.

After a member account joins a new organization, the member account's cost and usage data is recorded in the new organization's exports. This is the same outcome for a management account that converts to a member account and joins a new organization.

When a member account leaves an organization or converts to a standalone account, the member account can still access previous exports as long as they have permissions to the Amazon S3 bucket where the previous exports are stored.

For more information, see [Consolidated billing for Amazon Organizations](#) in the *Amazon Billing User Guide*.

## CUR 2.0 column groups

There are 125 possible columns in the CUR 2.0 table, grouped as follows:

- **Bill:** Data about your bill for the billing period.
- **Cost category:** Data about cost categories that apply to the line item.
- **Discount:** Data about any discounts you are receiving.
- **Identity:** Data to identify a line item.
- **Line item:** Data about cost, usage, type of usage, pricing rates, product name, and more.
- **Pricing:** Data about the pricing for a line item.
- **Product:** Data about the product that is being charged in the line item.
- **Reservation:** Data about a reservation that applies to the line item.
- **Resource tags:** Data about resource tags that apply to the line item.
- **Savings plan:** Data about savings plans that apply to the line item.
- **Split line item:** Data about split cost allocation for another line item.

## Bill columns

Bill columns contain data about your bill for the billing period.

Column name	Description	Data type
bill_bill_type	The type of bill that this report covers. There are three bill types:	string

Column name	Description	Data type
	<ul style="list-style-type: none"> <li>• <b>Anniversary:</b> Line items for services that you used during the month.</li> <li>• <b>Purchase:</b> Line items for upfront service fees.</li> <li>• <b>Refund:</b> Line items for refunds.</li> </ul>	
bill_billing_entity	Helps you identify whether your invoices or transactions are for Amazon Marketplace or for purchases of other Amazon services.	string
bill_billing_period_end_date	The end date of the billing period that is covered by this report, in UTC. The format is YYYY-MM-DDTHH:mm:ssZ .	timestamp
bill_billing_period_start_date	The start date of the billing period that is covered by this report, in UTC. The format is YYYY-MM-DDTHH:mm:ssZ .	timestamp
bill_invoice_id	The ID associated with a specific line item. Until the report is final, the InvoiceId is blank.	string

Column name	Description	Data type
bill_invoicing_entity	The Amazon entity that issues the invoice.	string
bill_payer_account_id	The account ID of the paying account. For an organization in Amazon Organizations, this is the account ID of the management account.	string
bill_payer_account_name	The account name of the paying account. For an organization in Amazon Organizations, this is the name of the management account.	string

## Cost category columns

Cost category columns contain data about cost categories that apply to the line item.

Column name	Description	Data type
cost_category	A map column containing key-value pairs of the cost categories and their values for a given line item. These keys and values are populated based on the categorization rules you create in the cost categories feature.	map <string, string>

Column name	Description	Data type
	<p>A cost category key only appears in the map column if it has a value that applies to the specific line item.</p> <p>The keys of this column can be queried as individual columns using the dot operator. For more information, see <a href="#">Data query</a>.</p>	

## Discount columns

Discount columns contain data about any discounts you are receiving.

Column name	Description	Data type
discount	<p><b>Table configuration:</b> Removed by: INCLUDE MANUAL DISCOUNT COMPATIBILITY</p> <p>A "struct" column containing key-value pairs of any specific discounts that apply to this line item. The keys correspond to a discount type and the values correspond to either the discount value or other information. The values in this column are either data type "numeric" or "string" depending on the specific key.</p>	map <string, double>



Column name	Description	Data type
	<p>The keys of this column can be queried as individual columns by using the dot operator. For more information, see <a href="#">Data query</a>.</p> <p>This column is not available when "Manual discount compatibility" is enabled. When it's enabled, discounts are populated as separate line items and not in this column.</p>	

Column name	Description	Data type
discount_bundled_discount	<p>The bundled discount applied to the line item. A bundled discount is a usage-based discount that provides free or discounted usage of a service or feature based on the usage of another service or feature. The following are examples of bundled discounts:</p> <ul style="list-style-type: none"><li data-bbox="591 772 1027 1266">• If you use Amazon Shield Advanced, then you don't have to pay for Amazon WAF separately. Amazon WAF usage is bundled with Amazon Shield Advanced. For more information about Amazon Shield Advanced, see <a href="#">Amazon CloudFront pricing</a>.</li><li data-bbox="591 1293 1027 1831">• If you create a NAT gateway with Amazon Network Firewall, then the standard NAT gateway processing and per-hour usage charges are waived on a one-to-one basis with the firewall's processing per GB and usage hours. For more information, see <a href="#">Amazon Network Firewall pricing</a>.</li></ul>	double

Column name	Description	Data type
	<ul style="list-style-type: none"> <li>With Amazon Interactive Video Service (IVS) Chat, for every hour of video input sent, you get 2,700 sent messages and 270,000 delivered messages at no additional cost. For more information, see <a href="#">Amazon Interactive Video Service pricing</a>.</li> </ul>	
discount_total_discount	<p><b>Table configuration:</b> Removed by: INCLUDE MANUAL DISCOUNT COMPATIBILITY</p> <p>The sum of all the discount columns for the corresponding line item.</p> <p>This column is not available when "Manual discount compatibility" is enabled. When it's enabled, discounts are populated as separate line items and not in this column.</p>	double

## Identity columns

Identity columns contain data to identify a line item.

Column name	Description	Data type
identity_line_item_id		string

Column name	Description	Data type
	This field is generated for each line item and is unique in a given partition. This does not guarantee that the field will be unique across an entire delivery (that is, all partitions in an update) of the Amazon CUR. The line item ID isn't consistent between different Cost and Usage Reports and can't be used to identify the same line item across different reports.	
identity_time_interval	The time interval that this line item applies to, in the following format: YYYY-MM-DDTHH:mm:ssZ/YYYY-MM-DDTHH:mm:ssZ. The time interval is in UTC and can either be daily or hourly, depending on the report granularity.	string

## Line item columns

Line item columns contain data about cost, usage, type of usage, pricing rates, product name, and more.

Column name	Description	Data type
line_item_usage_account_name		string

Column name	Description	Data type
	The name of the account that used this line item. For organizations, this can be either the management account or a member account. You can use this field to track costs or usage by account.	
line_item_availability_zone	The Availability Zone that hosts this line item. For example, us-east-1a or us-east-1b .	string
line_item_blended_cost	<p>The BlendedRate multiplied by the UsageAmount .</p> <p><b>BlendedCost</b> is blank for line items that have a <b>LineItemType</b> of <b>Discount</b>. Discounts are calculated using only the unblended cost of a member account, aggregated by member account and SKU. As a result, <b>BlendedCost</b> is not available for discounts.</p>	double

Column name	Description	Data type
line_item_blended_rate	<p>The <code>BlendedRate</code> is the average cost incurred for each SKU across an organization.</p> <p>For example, the Amazon S3 blended rates are the total cost of storage divided by the amount of data stored per month. For accounts with RIs, the blended rates are calculated as the average costs of the RIs and the On-Demand Instances.</p> <p>Blended rates are calculated at the management account level, and used to allocate costs to each member account. For more information, see <a href="#">Blended Rates and Costs</a> in the <i>Amazon Billing User Guide</i>.</p>	string
line_item_currency_code	<p>The currency that this line item is shown in. All Amazon customers are billed in US dollars by default. To change your billing currency, see <a href="#">Changing which currency you use to pay your bill</a> in the <i>Amazon Billing User Guide</i>.</p>	string

Column name	Description	Data type
line_item_legal_entity	<p>The Seller of Record of a specific product or service. In most cases, the invoicing entity and legal entity are the same. The values might differ for third-party Amazon Marketplace transactions. Possible values include:</p> <ul style="list-style-type: none"><li>• <b>Amazon Web Services, Inc.:</b> The entity that sells Amazon services.</li><li>• <b>Amazon Web Services India Private Limited:</b> The local Indian entity that acts as a reseller for Amazon services in India.</li></ul>	string

Column name	Description	Data type
line_item_line_item_description	<p>The description of the line item type. For example, the description of a usage line item summarizes the type of usage incurred during a specific time period.</p> <p>For size-flexible RIs, the description corresponds to the RI the benefit was applied to. For example, if a line item corresponds to a t2.micro and a t2.small RI was applied to the usage, the <b>line_item_line_item_description</b> displays t2.small.</p> <p>The description for a usage line item with an RI discount contains the pricing plan covered by the line item.</p>	string



Column name	Description	Data type
line_item_line_item_type	<p>The type of charge covered by this line item. The possible types are as follows:</p> <ul style="list-style-type: none"><li data-bbox="591 443 1027 785">• <b>BundledDiscount:</b> A usage-based discount that provides free or discounted usage of a service or feature based on the usage of another service or feature.</li><li data-bbox="591 821 1027 1297">• <b>Credit:</b> Any credits that Amazon applied to your bill. See the <b>Description</b> column for details. Amazon might update reports after they've been finalized, if Amazon applies a credit to your account for the month after finalizing your bill.</li><li data-bbox="591 1333 1027 1772">• <b>Discount:</b> Any discounts that Amazon applied to your usage. This specific line item name may vary and require parsing based on the discount. For more information, refer to the <b>lineItem/LineItemDescription</b> column.</li><li data-bbox="591 1801 605 1829">•</li></ul>	string

Column name	Description	Data type
	<p><b>DiscountedUsage:</b> The rate of any instances for which you had Reserved Instance (RI) benefits.</p> <ul style="list-style-type: none"> <li>• <b>Fee:</b> Any upfront annual fee that you paid for subscriptions. For example, the upfront fee that you paid for an <b>All Upfront RI</b> or a <b>Partial Upfront RI</b>.</li> <li>• <b>Refund:</b> The negative charges that Amazon refunded money for. Review the <b>Description</b> column for details. Amazon might update reports after they've been finalized, if Amazon applies a refund to your account for the month after finalizing your bill.</li> <li>• <b>RIFee:</b> The monthly recurring fee for subscriptions. For example, the recurring fee for <b>Partial Upfront RIs, No Upfront RIs, and All Upfronts</b> that you pay every month. Although the RIFee might be \$0 for all upfront reservations, this line is</li> </ul>	

Column name	Description	Data type
	<p>still populated for those r            eservation types to provide            other columns such as  <b>reservation/Amorti            zedUpfrontFeeForBi            llingPeriod</b> and <b>reservati            on/ReservationARN</b>.</p> <ul style="list-style-type: none"> <li>• <b>Tax:</b> Any taxes that Am              azon applied to your bill.              For example, VAT or US              sales tax.</li> <li>• <b>Usage:</b> Any usage that is              charged at On-Demand              Instance rates.</li> <li>• <b>SavingsPlanUpfrontFee:</b>              Any one-time upfront              fee from your purchase of              an All Upfront or Partial              Upfront Savings Plan.</li> <li>• <b>SavingsPlanRecurringFee:</b>              Any recurring hourly              charges that correspond              with your No Upfront or              Partial Upfront Savings              Plan. The Savings Plan              recurring fee is initially              added to your bill on the              day that you purchase a No              Upfront or Partial Upfront              Savings Plan. After the              initial purchase, Amazon</li> </ul>	

Column name	Description	Data type
	<p>adds the recurring fee to the first day of each billing period thereafter.</p> <ul style="list-style-type: none"> <li>• <b>SavingsPlanCoveredUsage:</b> Any On-Demand cost that is covered by your Savings Plan. Savings Plan covered usage line items are offset by the corresponding Savings Plan negation items.</li> <li>• <b>SavingsPlanNegation –</b> Any offset cost through your Savings Plan benefit that's associated with the corresponding Savings Plan covered usage item.</li> </ul>	
line_item_net_unblended_cost	The actual after-discount cost that you're paying for the line item. This column is only included in your report when your account has a discount in the applicable billing period.	double
line_item_net_unblended_rate	The actual after-discount rate that you're paying for the line item. This column is only included in your report when your account has a discount in the applicable billing period.	string

Column name	Description	Data type
line_item_normalization_factor	As long as the instance has shared tenancy, Amazon can apply all Regional Linux or Unix Amazon EC2 and Amazon RDS RI discounts to all instance sizes in an instance family and Amazon Region. This also applies to RI discounts for member accounts in an organization. All new and existing Amazon EC2 and Amazon RDS size-flexible RIs are sized according to a normalization factor, based on the instance size.	double
line_item_normalized_usage_amount	The amount of usage that you incurred, in normalized units, for size-flexible RIs. The <b>NormalizedUsageAmount</b> is equal to <b>UsageAmount</b> multiplied by <b>NormalizationFactor</b> .	double
line_item_operation	The specific Amazon operation covered by this line item. This describes the specific usage of the line item. For example, a value of <code>RunInstances</code> indicates the operation of an Amazon EC2 instance.	string

Column name	Description	Data type
line_item_product_code	The code of the product measured. For example, Amazon EC2 is the product code for Amazon Elastic Compute Cloud.	string
line_item_resource_id	<p><b>Table configuration:</b> Added by: INCLUDE RESOURCES</p> <p>(Optional) If you chose to include individual resource IDs in your report, this column contains the ID of the resource that you provisioned. For example, an Amazon S3 storage bucket, an Amazon EC2 compute instance, or an Amazon RDS database can each have a resource ID. This field is blank for usage types that aren't associated with an instantiated host, such as data transfers and API requests, and line item types such as discounts, credits, and taxes.</p>	string
line_item_tax_type	The type of tax that Amazon applied to this line item.	string
line_item_unblended_cost	The UnblendedCost is the UnblendedRate multiplied by the UsageAmount .	double

Column name	Description	Data type
line_item_unblended_rate	<p>In consolidated billing for accounts using Amazon Organizations, the unblended rate is the rate associated with an individual account's service usage.</p> <p>For Amazon EC2 and Amazon RDS line items that have an RI discount applied to them, the <code>UnblendedRate</code> is 0. Line items with an RI discount have a <code>LineItemType</code> of <code>DiscountedUsage</code>.</p>	string
line_item_usage_account_id	<p>The account ID of the account that used this line item. For organizations, this can be either the management account or a member account. You can use this field to track costs or usage by account.</p>	string

Column name	Description	Data type
line_item_usage_amount	<p>The amount of usage that you incurred during the specified time period. For size-flexible Reserved Instances, use the <b>reservation/TotalReservedUnits</b> column instead.</p> <p>Certain subscription charges will have a <b>UsageAmount</b> of 0.</p>	double
line_item_usage_end_date	The end date and time for the corresponding line item in UTC, exclusive. The format is YYYY-MM-DDTHH:mm:ssZ .	timestamp
line_item_usage_start_date	The start date and time for the line item in UTC, inclusive . The format is YYYY-MM-DDTHH:mm:ssZ .	timestamp
line_item_usage_type	The usage details of the line item. For example, USW2-BoxUsage:m2.2xlarge describes an M2 High Memory Double Extra Large instance in the US West (Oregon) Region.	string

## Pricing columns

Pricing columns contain data about the pricing for a line item.



Column name	Description	Data type
pricing_currency	The currency that the pricing data is shown in.	string
pricing_lease_contract_length	The length of time that your RI is reserved for.	string
pricing_offering_class	The offering class of the Reserved Instance.	string
pricing_public_on_demand_cost	The total cost for the line item based on public On-Demand Instance rates. If you have SKUs with multiple On-Demand public costs, the equivalent cost for the highest tier is displayed. For example, services offering free-tiers or tiered pricing.	double
pricing_public_on_demand_rate	The public On-Demand Instance rate in this billing period for the specific line item of usage. If you have SKUs with multiple On-Demand public rates, the equivalent rate for the highest tier is displayed. For example, services offering free-tiers or tiered pricing.	string
pricing_purchase_option	How you chose to pay for this line item. Valid values are	string

Column name	Description	Data type
	All Upfront, Partial Upfront, and No Upfront.	
pricing_rate_code	A unique code for a product/offer/pricing-tier combination. The product and term combinations can have multiple price dimensions, such as a free tier, low-use tier, and high-use tier.	string
pricing_rate_id	The ID of the rate for a line item.	string
pricing_term	Whether your Amazon usage is Reserved or On-Demand.	string
pricing_unit	The pricing unit Amazon used to calculate your usage cost. For example, the pricing unit for Amazon EC2 instance usage is in hours.	string

## Product columns

Product columns contain data about the product that is being charged in the line item.

Column name	Description	Data type
product	A map column containing key-value pairs of multiple	map <string, string>

Column name	Description	Data type
	<p>product attributes and their values for a given line item.</p> <p>A product attribute only appears in the map column if it has a value that applies to the specific line item.</p> <div data-bbox="591 558 1029 1016" style="border: 1px solid #add8e6; border-radius: 10px; padding: 10px; margin: 10px 0;"> <p><b>Note</b></p> <p>Any product column that appeared in legacy CUR, but is not part of the CUR 2.0 static schema, appears in this map column.</p> </div> <p>The keys of this column can be queried as individual columns by using the dot operator. For more information, see <a href="#">Data query</a>.</p>	
product_comment	A comment regarding the product.	string
product_fee_code	The code that refers to the fee.	string
product_fee_description	The description for the product fee.	string

Column name	Description	Data type
product_from_location	Describes the location where the usage originated from.	string
product_from_location_type	Describes the location type where the usage originated from.	string
product_from_region_code	Describes the source Region code for the Amazon service.	string
product_instanceSKU	The SKU of the product instance	string
product_instance_family	Describes your Amazon EC2 instance family. Amazon EC2 provides you with a large number of options across 10 different instance types, each with one or more size options, organized into distinct instance families optimized for different types of applications.	string
product_instance_type	Describes the instance type, size, and family, which define the CPU, networking, and storage capacity of your instance.	string

Column name	Description	Data type
product_location	Describes the Region that your Amazon S3 bucket resides in.	string
product_location_type	Describes the endpoint of your task.	string
product_operation	Describes the specific Amazon operation that this line item covers.	string
product_pricing_unit	The smallest billing unit for an Amazon service. For example, 0.01c per API call.	string
product_product_family	The category for the type of product.	string

Column name	Description	Data type
product_region_code	<p>A Region is a physical location around the world where data centers are clustered . Amazon calls each group of logical data centers an Availability Zone (AZ). Each Amazon Region consists of multiple, isolated, and physically separate AZs within a geographical area. The Region code attribute has the same name as an Amazon Region, and specifies where the Amazon service is available.</p>	string
product_sku	<p>A unique code for a product. The SKU is created by combining the ProductCode , UsageType , and Operation . For size-flexible RIs, the SKU uses the instance that was used. For example, if you used a t2.micro instance and Amazon applied a t2.small RI discount to the usage, the line item SKU is created with the t2.micro.</p>	string

Column name	Description	Data type
product_servicecode	This identifies the specific Amazon service to the customer as a unique short abbreviation.	string
product_to_location_type	Describes the destination location of the service usage.	string
product_to_location	Describes the location usage destination.	string
product_to_region_code	Describes the source Region code for the Amazon service.	string
product_usagetype	Describes the usage details of the line item.	string

## Reservation columns

Reservation columns contain data about a reservation that applies to the line item.

Column name	Description	Data type
reservation_amortized_upfront_cost_for_usage	The initial upfront payment for all upfront RIs and partial upfront RIs amortized for usage time. The value is equal to: <code>RIAmortizedUpfrontFeeForBillingPeriod * The normalized usage amount for Discounte</code>	double

Column name	Description	Data type
	<p>dUsage line items /</p> <p>The normalized usage amount for the RIFee. Because there are no upfront payments for no upfront RIs, the value for a no upfront RI is 0. We don't provide this value for Dedicated Host reservations at this time. The change will be made in a future update.</p>	
reservation_amortized_upfront_fee_for_billing_period	<p>Describes how much of the upfront fee for this reservation is costing you for the billing period. The initial upfront payment for all upfront RIs and partial upfront RIs, amortized over this month. Because there are no upfront fees for no upfront RIs, the value for no upfront RIs is 0. We don't provide this value for Dedicated Host reservations at this time. The change will be made in a future update.</p>	double
reservation_availability_zone	<p>The Availability Zone of the resource that is associated with this line item.</p>	string



Column name	Description	Data type
reservation_effective_cost	The sum of both the upfront and hourly rate of your RI, averaged into an effective hourly rate. Effective Cost is calculated by taking the amortized UpfrontCostForUsage and adding it to the recurringFeeForUsage .	double
reservation_end_time	The end date of the associated RI lease term.	string
reservation_modification_status	Shows whether the RI lease was modified or if it is unaltered.  <b>Original:</b> The purchased RI was never modified.  <b>System:</b> The purchased RI was modified using the console or API.  <b>Manual:</b> The purchased RI was modified using Amazon Support assistance.  <b>ManualWithData:</b> The purchased RI was modified using Amazon Support assistance, and Amazon calculated estimates for the RI.	string

Column name	Description	Data type
reservation_net_amortized_upfront_cost_for_usage	The initial upfront payment for All Upfront RIs and Partial Upfront RIs amortized for usage time, if applicable. This column is included in your report only when your account has a discount in the applicable billing period.	double
reservation_net_amortized_upfront_fee_for_billing_period	The cost of the reservation's upfront fee for the billing period. This column is included in your report only when your account has a discount in the applicable billing period.	double
reservation_net_effective_cost	The sum of both the upfront fee and the hourly rate of your RI, averaged into an effective hourly rate. This column is included in your report only when your account has a discount in the applicable billing period.	double
reservation_net_recurring_fee_for_usage	The after-discount cost of the recurring usage fee. This column is included in your report only when your account has a discount in the applicable billing period.	double

Column name	Description	Data type
reservation_net_unused_amortized_upfront_fee_for_billing_period	The net unused amortized upfront fee for the billing period. This column is included in your report only when your account has a discount in the applicable billing period.	double
reservation_net_unused_recurring_fee	The recurring fees associated with unused reservation hours for Partial Upfront and No Upfront RIs after discounts. This column is included in your report only when your account has a discount in the applicable billing period.	double
reservation_net_upfront_value	The upfront value of the RI with discounts applied. This column is included in your report only when your account has a discount in the applicable billing period.	double
reservation_normalized_units_per_reservation	The number of normalized units for each instance of a reservation subscription.	string

Column name	Description	Data type
reservation_number_of_reservations	The number of reservations that are covered by this subscription. For example, one RI subscription might have four associated RI reservations.	string
reservation_recurring_fee_for_usage	The recurring fee amortized for usage time, for partial upfront RIs and no upfront RIs. The value is equal to: The unblended cost of the RIFee * The sum of the normalized usage amount of Usage line items / The normalized usage amount of the RIFee for size flexible Reserved Instances . Because all upfront RIs don't have recurring fee payments greater than 0, the value for all upfront RIs is 0.	double

Column name	Description	Data type
reservation_reservation_a_r_n	The Amazon Resource Name (ARN) of the RI that this line item benefited from. This is also called the "RI Lease ID". This is a unique identifier of this particular Amazon Reserved Instance. The value string also contains the Amazon service name and the Region where the RI was purchased.	string
reservation_start_time	The start date of the term of the associated Reserved Instance.	string
reservation_subscription_id	A unique identifier that maps a line item with the associated offer. We recommend you use the RI ARN as your identifier of an Amazon Reserved Instance, but both can be used.	string

Column name	Description	Data type
reservation_total_reserved_normalized_units	The total number of reserved normalized units for all instances for a reservation subscription. Amazon computes total normalized units by multiplying the reservation/NormalizedUnitsPerReservation with reservation/NumberOfReservations .	string
reservation_total_reserved_units	TotalReservedUnits populates for both Fee and RIFee line items with distinct values.	string
reservation_units_per_reservation	UnitsPerReservation populates for both Fee and RIFee line items with distinct values.	string

Column name	Description	Data type
reservation_unused_amortized_upfront_fee_for_billing_period	The amortized-upfront-fee-for-billing-period-column amortized portion of the initial upfront fee for all upfront RIs and partial upfront RIs. Because there are no upfront payments for no upfront RIs, the value for no upfront RIs is 0. We don't provide this value for Dedicated Host reservations at this time. The change will be made in a future update.	double
reservation_unused_normalized_unit_quantity	The number of unused normalized units for a size-flexible Regional RI that you didn't use during this billing period.	double
reservation_unused_quantity	The number of RI hours that you didn't use during this billing period.	double
reservation_unused_recurring_fee	The recurring fees associated with your unused reservation hours for partial upfront and no upfront RIs. Because all upfront RIs don't have recurring fees greater than 0, the value for All Upfront RIs is 0.	double

Column name	Description	Data type
reservation_upfront_value	The upfront price paid for your Amazon Reserved Instance. For no upfront RIs, this value is 0.	double

## Resource tags columns

Resource tags columns contain data about resource tags that apply to the line item.

Column name	Description	Data type
resource_tags	<p>A map column containing key-value pairs of resource tags and their values for a given line item. The values in this column are all of data type "string".</p> <p>Resource tag keys only appear in this column if they've been enabled as cost allocation tags in the Billing console. After being enabled, a particular key only appears in the map column if it has a value that applies to the specific line item.</p> <p>The keys of this column can be queried as individual columns using the dot operator. For more information, see <a href="#">Data query</a>.</p>	map <string, string>



## Savings plan columns

Saving Plan columns contain data about savings plans that apply to the line item.

Column name	Description	Data type
savings_plan_amortized_upfront_commitment_for_billing_period	The amount of upfront fee a Savings Plan subscription is costing you for the billing period. The initial upfront payment for <b>All Upfront Savings Plan</b> and <b>Partial Upfront Savings Plan</b> amortized over the current month. For <b>No Upfront Savings Plan</b> , the value is 0.	double
savings_plan_end_time	The expiration date for the Savings Plan agreement.	string
savings_plan_instance_type_family	The instance family that is associated with the specified usage.	string
savings_plan_net_amortized_upfront_commitment_for_billing_period	The cost of a Savings Plan subscription upfront fee for the billing period. This column is included in your report only when your account has a discount in the applicable billing period.	double
savings_plan_net_recurring_commitment_for_billing_period	The net unblended cost of the Savings Plan fee. This column is included in your report	double

Column name	Description	Data type
	only when your account has a discount in the applicable billing period.	
savings_plan_net_savings_plan_effective_cost	The effective cost for Savings Plans, which is your usage divided by the fees. This column is included in your report only when your account has a discount in the applicable billing period.	double
savings_plan_offering_type	Describes the type of Savings Plan purchased.	string
savings_plan_payment_option	The payment options available for your Savings Plan.	string
savings_plan_purchase_term	Describes the duration, or term, of the Savings Plan.	string
savings_plan_recurring_commitment_for_billing_period	The monthly recurring fee for your Savings Plan subscriptions. For example, the recurring monthly fee for a <b>Partial Upfront Savings Plan</b> or <b>No Upfront Savings Plan</b> .	double

Column name	Description	Data type
savings_plan_region	The Amazon Region (geographic area) that hosts your Amazon services. You can use this field to analyze spend across a particular Amazon Region.	string
savings_plan_savings_plan_id	The unique Savings Plan identifier.	string
savings_plan_savings_plan_effective_cost	The proportion of the Savings Plan monthly commitment amount (upfront and recurring) that is allocated to each usage line.	double
savings_plan_savings_plan_rate	The Savings Plan rate for the usage.	double
savings_plan_start_time	The start date of the Savings Plan agreement.	string
savings_plan_total_commitment_to_date	The total amortized upfront commitment and recurring commitment to date, for that hour.	double
savings_plan_used_commitment	The total dollar amount of the Savings Plan commitment used. (SavingsPlanRate multiplied by usage)	double

## Split line item columns

Columns under the **split\_line\_item** header are fields that appear in Data Exports if you've opted in to the split cost allocation data feature. For more information, see [Understanding split cost allocation data](#). The feature is limited to Amazon ECS (including Fargate), Amazon Batch, and Amazon EKS only.

Column name	Description	Data type
split_line_item_actual_usage	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The usage for vCPU or memory (based on lineItem/ UsageType) you incurred for the specified time period for the Amazon ECS task or Kubernetes pod.</p>	double
split_line_item_net_split_cost	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The effective cost for Amazon ECS tasks or Kubernetes pods after all discounts have been applied. This column is included in your report only when your account has a discount in the applicable billing period.</p>	double
split_line_item_net_unused_cost	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p>	double

Column name	Description	Data type
	<p>The effective unused cost for Amazon ECS tasks or Kubernetes pods after all discounts have been applied. This column is included in your report only when your account has a discount in the applicable billing period.</p>	
split_line_item_parent_resource_id	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The resource ID of the parent EC2 instance associated with the Amazon ECS task or Amazon EKS pod (referenced in the lineItem/ResourceID column). The parent resource ID implies that the ECS task or Kubernetes pod workload for the specified time period ran on the parent EC2 instance.</p> <p>This applies only for Amazon ECS tasks or Kubernetes pods with EC2 launch type.</p>	string

Column name	Description	Data type
split_line_item_public_on_demand_split_cost	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The cost for vCPU or memory (based on lineItem/UsageType) allocated for the time period to the Amazon ECS task or Kubernetes pod based on public On-Demand Instance rates (referenced in the pricing/public OnDemandRate column).</p>	double
split_line_item_public_on_demand_unused_cost	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The unused cost for vCPU or memory (based on lineItem/UsageType) allocated for the time period to the Amazon ECS task or Kubernetes pod based on public On-Demand Instance rates. Unused costs are costs associated with resources (CPU or memory) on the EC2 instance (referenced in the splitLineItem/ParentResourceIdcolumn) that were not utilized for the specified time period.</p>	double

Column name	Description	Data type
split_line_item_reserved_usage	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The usage for vCPU or memory (based on lineItem/ UsageType) that you configured for the specified time period for the Amazon ECS task or Kubernetes pod.</p>	double
split_line_item_split_cost	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The cost for vCPU or memory (based on lineItem/ UsageType) allocated for the time period to the Amazon ECS task or Kubernetes pod. This includes amortized costs if the EC2 instance (referenced in the splitLineItem/ parentResourceId column) has upfront or partial upfront charges for reservations or Savings Plans.</p>	double

Column name	Description	Data type
split_line_item_split_usage	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The usage for vCPU or memory (based on lineItem/UsageType) allocated for the specified time period to the Amazon ECS task or Kubernetes pod. This is defined as the maximum usage of splitLineItem/ReservedUsage or splitLineItem/ActualUsage.</p>	double
split_line_item_split_usage_ratio	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The ratio of vCPU or memory (based on lineItem/UsageType) allocated to the Amazon ECS task or Kubernetes pod compared to the overall CPU or memory available on the EC2 instance (referenced in the splitLineItem/ParentResourceId column).</p>	double



Column name	Description	Data type
split_line_item_unused_cost	<p><b>Table configuration:</b> Added by: INCLUDE SPLIT COST ALLOCATION DATA</p> <p>The unused cost for vCPU or memory (based on lineItem/UsageType) allocated for the time period to the Amazon ECS task or Kubernetes pod. Unused costs are costs associated with resources (CPU or memory) on the EC2 instance (referenced in the splitLineItem/ParentResourceId column) that were not utilized for the specified time period. This includes amortized costs if the EC2 instance (splitLineItem/parentResourceId) has upfront or partial upfront charges for reservations or Savings Plans.</p>	double

## Cost optimization recommendations (from Cost Optimization Hub)

The cost optimization recommendations table contains your cost optimization recommendations from Cost Optimization Hub. Cost Optimization Hub recommendations are consolidated from Amazon Compute Optimizer and consist of over 15 types of optimizations, such as resource rightsizing, idle resource deletion, Savings Plans, and Reserved Instances. For more detailed information, see [Cost Optimization Hub](#) in the *Amazon Cost Management User Guide*.

The SQL table name for cost optimization recommendations is `COST_OPTIMIZATION_RECOMMENDATIONS`.

## Table configurations

Table configurations are user-controlled properties that a user can set to change the data or schema of a table before it's queried in Data Exports. The table configurations are saved as a JSON statement and are either specified through user input in the Amazon SDK/CLI or user selections in the console.

Cost optimization recommendations has the following table configurations:

Configuration name	Description	Valid values
<code>INCLUDE_ALL_RECOMMENDATIONS</code>	<p>When set to "FALSE", only the highest savings value recommendation is kept in the table from any set of recommendations that are incompatible with one another. For example, only "Terminate instance" is kept from a recommendation to terminate an instance and a recommendation to rightsize the same instance.</p> <p>When set to "TRUE", all recommendations are kept in the table.</p> <p>This is also known as <b>Group related recommendations</b> in the Cost Optimization Hub console. For more information, see <a href="#">Grouping related recommendations</a> in the</p>	TRUE, FALSE

Configuration name	Description	Valid values
	<p><i>Amazon Cost Management User Guide.</i></p>	
FILTER	<p>This allows you to filter recommendations based on different recommendation attributes. Filters are applied to the table before the savings deduplication algorithm is applied.</p> <p>You can filter using the same parameters as in the Cost Optimization Hub console. For more information, see <a href="#">Prioritizing your cost optimization opportunities</a> in the <i>Amazon Cost Management User Guide</i>.</p> <p>Filter statements are provided for this configuration using the same JSON structure that is used in the <code>filter</code> parameter in the Cost Optimization Hub <code>list-recommendations</code> API. It must be provided as a JSON string. For details, see the <a href="#">list-recommendations structure</a>.</p>	Any JSON string that is valid for the Cost Optimization Hub <code>list-recommendations</code> API.

## Service-linked role

A service-linked role for Data Exports is required to create an export of the cost optimization recommendations table. For information on how to create the service-linked role, see [Service-linked roles for Data Exports](#) in the *Amazon Cost Management User Guide*.

## Amazon Organizations support

Cost Optimization Hub integrates with Amazon Organizations to control whether a management account can see member account recommendations in Cost Optimization Hub. For more information, see [Getting started with Cost Optimization Hub](#) in the *Amazon Cost Management User Guide*.

The cost optimization recommendations table for a given Amazon account inherits the same Amazon Organizations settings you configured for Cost Optimization Hub. This means the content of the cost optimization recommendations table matches the recommendations that appear in Cost Optimization Hub for each Amazon account.

## Cost optimization recommendations columns

Column name	Description	Data type	Null value allowed
account_ID	The account that the recommendation is for.	string	No
action_type	The type of action you can take by adopting the recommendation.	string	No
currency_code	The currency code used for the recommendation.	string	No
current_resource_details	The details for the resource in JSON string format.	string	Yes

Column name	Description	Data type	Null value allowed
current_resource_summary	A description of the current resource.	string	Yes
current_resource_type	The type of resource.	string	Yes
estimated_monthly_cost_after_discount	The estimated monthly cost of the current resource after discounts. For Reserved Instances and Savings Plans, it refers to the cost for eligible usage.	double	Yes
estimated_monthly_cost_before_discount	The estimated monthly cost of the current resource before discounts. For Reserved Instances and Savings Plans, it refers to the cost for eligible usage.	double	No
estimated_monthly_savings_after_discount	The estimated monthly savings amount for the recommendation after discounts.	double	Yes
estimated_monthly_savings_before_discount	The estimated monthly savings amount for the recommendation before discounts.	double	No

Column name	Description	Data type	Null value allowed
estimated_savings_percentage_after_discount	The estimated savings percentage after discounts relative to the total cost over the cost calculation lookback period.	double	Yes
estimated_savings_percentage_before_discount	The estimated savings percentage before discounts relative to the total cost over the cost calculation lookback period.	double	No
implementation_effort	The effort required to implement the recommendation.	string	No
last_refresh_timestamp	The time when the recommendation was last generated.	timestamp	No
recommendation_ID	The ID for the recommendation.	string	No
recommendation_lookback_period_in_days	The lookback period that's used to generate the recommendation.	integer	No
recommendation_source	The source of the recommendation.	string	No

Column name	Description	Data type	Null value allowed
recommended_resource_details	The details about the recommended resource in JSON string format.	string	Yes
recommended_resource_summary	A description of the recommended resource.	string	Yes
recommended_resource_type	The resource type of the recommendation.	string	Yes
region	The Amazon Region of the resource.	string	Yes
resource_arn	The Amazon Resource Name (ARN) of the resource.	string	Yes
restart_needed	Whether or not implementing the recommendation requires a restart.	boolean	No
rollback_possible	Whether or not implementing the recommendation can be rolled back.	boolean	No
tags	A list of tags associated with the resource for which the recommendation exists.	map	Yes

## FOCUS 1.0 with Amazon columns

The FOCUS 1.0 with Amazon columns table contains your cost and usage data formatted with FinOps Open Cost and Usage Specification (FOCUS) 1.0, along with five additional columns from Amazon that contain proprietary billing data. These columns are **x\_CostCategories**, **x\_Discounts**, **x\_Operation**, **x\_ServiceCode**, and **x\_UsageType**. For more information about the FOCUS open-source specification, refer to the [FOCUS](#) website.

The SQL table name for FOCUS 1.0 with Amazon columns is FOCUS\_1\_0\_AWS

### Table configurations

There are no table configurations for the FOCUS 1.0 with Amazon columns table.

### Amazon Organizations support

The FOCUS 1.0 with Amazon columns table inherits the settings you made in the consolidated billing feature in Amazon Organizations. When consolidated billing is enabled, there are different behaviors for management and member accounts. If you're using a management account, your FOCUS 1.0 with Amazon columns table includes cost and usage data for the management account and all member accounts in your organization. If you're using a member account, your FOCUS 1.0 with Amazon columns table only includes cost and usage data for that member account.

After joining an organization, a member account can only export data for the time that the account has been a member of the organization. For example, let's say that a member account leaves organization A and joins organization B on the 15th of the month. Then, the member account creates an export. Because the member account created an export after joining organization B, the member account's export of FOCUS 1.0 with Amazon columns for the month only includes cost and usage data for the time that the account has been a member of organization B.

### FOCUS 1.0 with Amazon columns

Column name	Description	Data type	Null value allowed
AvailabilityZone	A provider-assigned identifier for a physically separated and isolated area	string	Yes



Column name	Description	Data type	Null value allowed
	within a Region that provides high availability and fault tolerance.		
BilledCost	A charge that is the basis for invoicing , inclusive of all reduced rates and discounts while excluding the amortization of relevant purchases paid to cover future eligible charges.	double	No
BillingAccountId	A provider-assigned identifier for a billing account.	string	No
BillingAccountName	A provider-assigned name for a billing account.	string	Yes
BillingCurrency	An identifier that represents the currency that a charge for resources or services was billed in.	string	No
BillingPeriodEnd	The end date and time of the billing period.	timestamp_milliseconds	No

Column name	Description	Data type	Null value allowed
BillingPeriodStart	The start date and time of the billing period.	timestamp_milliseconds	No
ChargeCategory	An indicator of whether the row represents an upfront or recurring fee, cost of usage that already occurred, an after-the-fact adjustment (for example, credits), or taxes.	string	No
ChargeClass	An indicator of whether the row represents a regular charge, or a correction to one or more previous charges.	string	Yes
ChargeDescription	A high-level context of a row without requiring additional discovery.	string	Yes
ChargeFrequency	An indicator of how often a charge will occur.	string	No
ChargePeriodEnd	The end date and time of the charge period.	timestamp_milliseconds	No

Column name	Description	Data type	Null value allowed
ChargePeriodStart	The start date and time of the charge period.	timestamp_milliseconds	No
CommitmentDiscountCategory	An indicator of whether the commitment-based discount identified in the CommitmentDiscountId column is based on usage quantity or cost (that is, spend).	string	Yes
CommitmentDiscountId	A provider-assigned identifier for a commitment-based discount.	string	Yes
CommitmentDiscountName	The display name assigned to a commitment-based discount.	string	Yes
CommitmentDiscountStatus	An indicator of whether the charge corresponds to a used or unused commitment discount.	string	Yes
CommitmentDiscountType	A provider-assigned name to identify the type of commitment-based discount applied to the row.	string	Yes

Column name	Description	Data type	Null value allowed
ConsumedQuantity	The volume of a given resource or service used or purchased based on the ConsumedUnit.	double	Yes
ConsumedUnit	A provider-assigned measurement unit indicating how a provider measures usage of a given SKU associated with a resource or service.	string	Yes
ContractedCost	The cost calculated by multiplying ContractedUnitPrice and the corresponding PricingQuantity.	double	No
ContractedUnitPrice	The agreed-upon unit price for a single PricingUnit of the associated SKU, inclusive of any negotiated discounts while excluding negotiated commitment-based discounts or any other discounts.	double	Yes

Column name	Description	Data type	Null value allowed
EffectiveCost	A cost that includes all reduced rates and discounts, augmented with the amortization of relevant purchases (one-time or recurring) paid to cover future eligible charges.	double	No
InvoicelssuerName	An entity responsible for invoicing the sources or services consumed. It is commonly used for cost analysis and reporting scenarios.	string	No
ListCost	The cost calculated by multiplying ListUnitPrice and the corresponding PricingQuantity.	double	No
ListUnitPrice	The suggested unit price, published by the provider, for a single PricingUnit of the associated SKU, excluding any discounts.	double	Yes

Column name	Description	Data type	Null value allowed
PricingCategory	The pricing model used for a charge at the time of use or purchase.	string	Yes
PricingQuantity	The volume of a given SKU associated with a resource or service used or purchased, based on the PricingUnit.	double	Yes
PricingUnit	A provider-assigned measurement unit for determining unit prices, indicating how the provider rates measured usage and purchase quantities after applying pricing rules such as block pricing.	string	Yes
ProviderName	The entity that made the resources or services available for purchase.	string	No
PublisherName	The entity that produced the resources or services that were purchased.	string	No

Column name	Description	Data type	Null value allowed
RegionId	A provider-assigned identifier for an isolated geographic area where a <i>resource</i> is provisioned or a <i>service</i> is provided.	string	Yes
RegionName	The name of an isolated geographic area where a <i>resource</i> is provisioned or a <i>service</i> is provided.	string	Yes
ResourceId	A provider-assigned identifier for a resource.	string	Yes
ResourceName	A display name assigned to a resource.	string	Yes
ResourceType	The type of resource the charge applies to.	string	Yes
ServiceCategory	The highest-level classification of a service based on the core function of the service.	string	No
ServiceName	A display name for the offering that was purchased.	string	No

Column name	Description	Data type	Null value allowed
Skuld	A unique identifier that defines a provider-supported construct for organizing properties that are common across one or more SKU prices.	string	Yes
SkuPriceld	A unique identifier that defines the unit price used to calculate the charge.	string	Yes
SubAccountId	An ID assigned to a grouping of resources or services, often used to manage access and/or cost.	string	Yes
SubAccountName	A name assigned to a grouping of resources or services, often used to manage access and/or cost.	string	Yes
Tags	The set of tags assigned to tag sources that also account for potential provider-defined or user-defined tag evaluations.	map <string, string>	Yes



Column name	Description	Data type	Null value allowed
x_CostCategories	A map column containing key-value pairs of the cost categories and their values for a given line item.	map <string, string>	Yes
x_Discounts	A map column containing key-value pairs of any specific discounts that apply to this line item.	map <string, double>	Yes
x_Operation	The specific Amazon operation covered by this line item. This describes the specific usage of the line item.	string	Yes
x_ServiceCode	The code of the service used in this line item.	string	Yes
x_UsageType	The usage details of the line item.	string	Yes

## FOCUS 1.0 with Amazon columns conformance gaps

The following table provides all of the conformance gaps that might exist in an export of the FOCUS 1.0 with Amazon columns table. A particular conformance gap will not apply to your export if you're not receiving cost and usage data for the related scenario.

Conformance gap type	Affected column	FOCUS 1.0 requirement	Conformance gap description
Missing data	ContractedUnitPrice	ContractedUnitPrice <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	ContractedUnitPrice might be null for certain product offerings.
	InvoiceIssuerName	InvoiceIssuerName <b>must not</b> be null.	InvoiceIssuerName might be null for certain charges.
	ListUnitPrice	ListUnitPrice <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	ListUnitPrice might be null for certain product offerings.
	PricingUnit	PricingUnit <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	PricingUnit might be null for certain product offerings.
	PublisherName	PublisherName <b>must not</b> be null.	PublisherName may be null for certain charges.
	Skuld	Skuld <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	Skuld might be null for certain product offerings.

Conformance gap type	Affected column	FOCUS 1.0 requirement	Conformance gap description
	SkuPriceld	SkuPriceld <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	SkuPriceld might be null for certain line items when it should not be.
<b>Incorrect data</b>	ConsumedQuantity	ConsumedQuantity is a required column for showing the amount of usage you actually used.	<p>ConsumedQuantity will contain the amount of usage you were charged for. This means that ConsumedQuantity could be incorrect in situations where a minimum charge quantity applied for a particular service.</p> <p>For example, there is a 10MB minimum for an Athena query and a 10 minute minimum Glue crawler run. For these services, ConsumedQuantity will show the value that includes the minimum charged quantity.</p>

## FOCUS 1.0 with Amazon columns (preview)

### Note

FOCUS 1.0 with Amazon columns has now been released in General Availability (GA) in a new Data Exports table. This page is for the *preview* release of FOCUS 1.0 with Amazon columns. Use the GA table in [FOCUS 1.0 with Amazon columns](#).

The FOCUS 1.0 with Amazon columns (preview) table contains your cost and usage data formatted with FinOps Open Cost and Usage Specification (FOCUS) 1.0, along with five additional columns from Amazon that contain proprietary billing data. These columns are **x\_CostCategories**, **x\_Discounts**, **x\_Operation**, **x\_ServiceCode**, and **x\_UsageType**. For more information about the FOCUS open-source specification, refer to the [FOCUS](#) website.

The SQL table name for FOCUS 1.0 with Amazon columns (preview) is FOCUS\_1\_0\_AWS\_PREVIEW

### Preview notes

The FOCUS 1.0 with Amazon columns (preview) table **will soon be deprecated**.

We advise all customers to use the GA release of FOCUS 1.0 with Amazon columns. If you're currently using the FOCUS 1.0 with Amazon columns (preview) table, you should switch to the GA table as soon as possible. The GA table has a large reduction in the number of specification conformance gaps that make it suitable for production FinOps processes. For a list of the conformance gaps in the GA table, see [FOCUS 1.0 with Amazon columns conformance gaps](#).

We do not recommend FOCUS 1.0 with Amazon columns (preview) for production workloads. For a list of the conformance gaps in the *preview* table, see [FOCUS 1.0 with Amazon columns \(preview\) conformance gaps](#).

### Table configurations

There are no table configurations for the FOCUS 1.0 with Amazon columns (preview) table.

### Amazon Organizations support

The FOCUS 1.0 with Amazon columns (preview) table inherits the settings you made in the consolidated billing feature in Amazon Organizations. When consolidated billing is enabled, there are different behaviors for management and member accounts. If you're using a management

account, your FOCUS 1.0 with Amazon columns (preview) table includes cost and usage data for the management account and all member accounts in your organization. If you're using a member account, your FOCUS 1.0 with Amazon columns (preview) table only includes cost and usage data for that member account.

After joining an organization, a member account can only export data for the time that the account has been a member of the organization. For example, let's say that a member account leaves organization A and joins organization B on the 15th of the month. Then, the member account creates an export. Because the member account created an export after joining organization B, the member account's export of FOCUS 1.0 with Amazon columns (preview) for the month only includes cost and usage data for the time that the account has been a member of organization B.

## FOCUS 1.0 with Amazon columns (preview) columns

### Note

FOCUS 1.0 with Amazon columns has now been released in General Availability (GA) in a new Data Exports table. This page is for the *preview* release of FOCUS 1.0 with Amazon columns. Use the GA table in [FOCUS 1.0 with Amazon columns](#).

Column name	Description	Data type	Null value allowed
AvailabilityZone	A provider-assigned identifier for a physically separated and isolated area within a Region that provides high availability and fault tolerance.	string	Yes
BilledCost	A charge that is the basis for invoicing , inclusive of all reduced rates and discounts while excluding the	double	No

Column name	Description	Data type	Null value allowed
	amortization of relevant purchases paid to cover future eligible charges.		
BillingAccountId	A provider-assigned identifier for a billing account.	string	No
BillingAccountName	A provider-assigned name for a billing account.	string	Yes
BillingCurrency	An identifier that represents the currency that a charge for resources or services was billed in.	string	No
BillingPeriodEnd	The end date and time of the billing period.	timestamp	No
BillingPeriodStart	The start date and time of the billing period.	timestamp	No

Column name	Description	Data type	Null value allowed
ChargeCategory	An indicator of whether the row represents an upfront or recurring fee, cost of usage that already occurred, an after-the-fact adjustment (for example, credits), or taxes.	string	No
ChargeClass	An indicator of whether the row represents a regular charge, or a correction to one or more previous charges.	string	Yes
ChargeDescription	A high-level context of a row without requiring additional discovery.	string	Yes
ChargeFrequency	An indicator of how often a charge will occur.	string	No
ChargePeriodEnd	The end date and time of the charge period.	timestamp	No
ChargePeriodStart	The start date and time of the charge period.	timestamp	No

Column name	Description	Data type	Null value allowed
CommitmentDiscount Category	An indicator of whether the commitment-based discount identified in the CommitmentDiscountId column is based on usage quantity or cost (that is, spend).	string	Yes
CommitmentDiscount Id	A provider-assigned identifier for a commitment-based discount.	string	Yes
CommitmentDiscount Name	The display name assigned to a commitment-based discount.	string	Yes
CommitmentDiscount Status	An indicator of whether the charge corresponds to a used or unused commitment discount.	string	Yes
CommitmentDiscount Type	A provider-assigned name to identify the type of commitment-based discount applied to the row.	string	Yes



Column name	Description	Data type	Null value allowed
ConsumedQuantity	The volume of a given resource or service used or purchased based on the ConsumedUnit.	double	Yes
ConsumedUnit	A provider-assigned measurement unit indicating how a provider measures usage of a given SKU associated with a resource or service.	string	Yes
ContractedCost	The cost calculated by multiplying ContractedUnitPrice and the corresponding PricingQuantity.	double	No
ContractedUnitPrice	The agreed-upon unit price for a single PricingUnit of the associated SKU, inclusive of any negotiated discounts while excluding negotiated commitment-based discounts or any other discounts.	double	Yes

Column name	Description	Data type	Null value allowed
EffectiveCost	A cost that includes all reduced rates and discounts, augmented with the amortization of relevant purchases (one-time or recurring) paid to cover future eligible charges.	double	No
InvoicelssuerName	An entity responsible for invoicing the sources or services consumed. It is commonly used for cost analysis and reporting scenarios.	string	No
ListCost	The cost calculated by multiplying ListUnitPrice and the corresponding PricingQuantity.	double	No
ListUnitPrice	The suggested unit price, published by the provider, for a single PricingUnit of the associated SKU, excluding any discounts.	double	Yes

Column name	Description	Data type	Null value allowed
PricingCategory	The pricing model used for a charge at the time of use or purchase.	string	Yes
PricingQuantity	The volume of a given SKU associated with a resource or service used or purchased, based on the PricingUnit.	double	Yes
PricingUnit	A provider-assigned measurement unit for determining unit prices, indicating how the provider rates measured usage and purchase quantities after applying pricing rules such as block pricing.	string	Yes
ProviderName	The entity that made the resources or services available for purchase.	string	No
PublisherName	The entity that produced the resources or services that were purchased.	string	No

Column name	Description	Data type	Null value allowed
RegionId	A provider-assigned identifier for an isolated geographic area where a <i>resource</i> is provisioned or a <i>service</i> is provided.	string	Yes
RegionName	The name of an isolated geographic area where a <i>resource</i> is provisioned or a <i>service</i> is provided.	string	Yes
ResourceId	A provider-assigned identifier for a resource.	string	Yes
ResourceName	A display name assigned to a resource.	string	Yes
ResourceType	The type of resource the charge applies to.	string	Yes
ServiceCategory	The highest-level classification of a service based on the core function of the service.	string	No
ServiceName	A display name for the offering that was purchased.	string	No

Column name	Description	Data type	Null value allowed
Skuld	A unique identifier that defines a provider-supported construct for organizing properties that are common across one or more SKU prices.	string	Yes
SkuPriceld	A unique identifier that defines the unit price used to calculate the charge.	string	Yes
SubAccountId	An ID assigned to a grouping of resources or services, often used to manage access and/or cost.	string	Yes
SubAccountName	A name assigned to a grouping of resources or services, often used to manage access and/or cost.	string	Yes
Tags	The set of tags assigned to tag sources that also account for potential provider-defined or user-defined tag evaluations.	map	Yes

Column name	Description	Data type	Null value allowed
x_CostCategories	A map column containing key-value pairs of the cost categories and their values for a given line item.	map	Yes
x_Discounts	A map column containing key-value pairs of any specific discounts that apply to this line item.	map	Yes
x_Operation	The specific Amazon operation covered by this line item. This describes the specific usage of the line item.	string	No
x_ServiceCode	The code of the service used in this line item.	string	No
x_UsageType	The usage details of the line item.	string	No

## FOCUS 1.0 with Amazon columns (preview) conformance gaps

### Note

FOCUS 1.0 with Amazon columns has now been released in General Availability (GA) in a new Data Exports table. This page is for the *preview* release of FOCUS 1.0 with Amazon columns. Use the GA table in [FOCUS 1.0 with Amazon columns](#).

The following table provides all of the conformance gaps that might exist in an export of the FOCUS 1.0 with Amazon columns (preview) table. A particular conformance gap will not apply to your export if you're not receiving cost and usage data for the related scenario. For example, if your export doesn't have any line items that are corrections of a previous bill, then the conformance gap for ChargeClass column will not apply.

At this time, you will need to identify whether or not each individual conformance gap is relevant for your cost and usage analysis.

Conformance gap type	Affected column	FOCUS 1.0 requirement	Conformance gap description
Missing data	ChargeClass	ChargeClass is a required column to indicate whether a particular line item is a correction for a past billing period.	No line items will be identifiable as corrections in this column at this time.
	ContractedUnitPrice	ContractedUnitPrice <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	ContractedUnitPrice might be null for certain product offerings.
	InvoiceIssuerName	InvoiceIssuerName <b>must not</b> be null.	InvoiceIssuerName might be null for certain charges.
	ListUnitPrice	ListUnitPrice <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	ListUnitPrice might be null for certain product offerings.

Conformance gap type	Affected column	FOCUS 1.0 requirement	Conformance gap description
	PricingUnit	PricingUnit <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	PricingUnit might be null for certain product offerings.
	ProviderName	ProviderName <b>must not</b> be null.	ProviderName might be null for certain charges.
	PublisherName	PublisherName <b>must not</b> be null.	PublisherName may be null for certain charges.
	ResourceName	ResourceName is a required column for displaying a name that a user assigned to a given resource.	This column will only have EC2 Instance and EBS volume resource names assigned by customers. No other resource names will appear in this column. Any resource names that are assigned as tags will appear in the tags column.
	Skuld	Skuld <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	Skuld might be null for certain product offerings.



Conformance gap type	Affected column	FOCUS 1.0 requirement	Conformance gap description
	SkuPriceld	SkuPriceld <b>must not</b> be null for Usage and Purchase ChargeCategory line items that are not corrections.	SkuPriceld might be null for certain line items when it should not be.
<b>Incorrect data</b>	BilledCost	The sum of BilledCost <b>must</b> match the invoice.	There may be situations when the sum of BilledCost might not match the invoice.

Conformance gap type	Affected column	FOCUS 1.0 requirement	Conformance gap description
	ConsumedQuantity	ConsumedQuantity is a required column for showing the amount of usage you actually used.	<p>ConsumedQuantity will contain the amount of usage you were charged for. This means that ConsumedQuantity could be incorrect in situations where a minimum charge quantity applied for a particular service.</p> <p>For example, there is a 10MB minimum for an Athena query and a 10 minute minimum Glue crawler run. For these services, ConsumedQuantity will show the value that includes the minimum charged quantity.</p>
	ContractedCost	ContractedCost <b>must</b> equal ContractedUnitPrice x PricingQuantity for charges that are not corrections.	ContractedCost might not be consistent with ListUnitPrice and PricingQuantity for certain charges, such as credits.

Conformance gap type	Affected column	FOCUS 1.0 requirement	Conformance gap description
	ContractedCost	ContractedCost <b>must</b> reflect any agreed pricing with a provider.	For any Usage line items covered by Savings Plans or Reserved Instances, ContractedCost will be equal to ListCost even if discounts apply.
	ContractedUnitPrice	ContractedUnitPrice <b>must</b> reflect any agreed pricing with a provider.	For any Usage line items covered by Savings Plans or Reserved Instances, ContractedUnitPrice will be equal to ListUnitPrice even if discounts apply.
	ListCost	ListCost <b>must</b> equal ListUnitPrice x PricingQuantity for charges that are not corrections.	ListCost might not be consistent with ListUnitPrice and PricingQuantity for certain charges, such as credits.
	ListCost	ListCost <b>must</b> equal BilledCost for ChargeCategory of Credit.	ListCost might not equal BilledCost for ChargeCategory of Credit.
	PricingCategory	PricingCategory <b>must</b> be "Dynamic" for all Spot charges.	PricingCategory might be incorrect for certain EC2 Spot line items.

Conformance gap type	Affected column	FOCUS 1.0 requirement	Conformance gap description
	Tags	<p>Tags is a required column for displaying tags applicable to a given line item.</p> <p>This column requires that a provider (i) adds a prefix to the keys of provider-created tags only, and (ii) <b>does not</b> modify tag names.</p>	<p>There are two gaps:</p> <p>(i) User-created tag keys will have a prefix to indicate that it is a user-created tag.</p> <p>(ii) Provider and user tag key names are normalized to have no capitalization, no spaces, and no special characters other than "_". When normalization causes tag key conflicts, only one tag value is kept.</p>

## Cost and usage dashboard

The SQL table name for cost and usage dashboard is COST\_AND\_USAGE\_DASHBOARD.

### Table configurations

Table configurations are user-controlled properties that a user can set to change the data or schema of a table before it's queried in Data Exports.

The Cost and Usage Dashboard does not have any modifiable table configurations.

### Amazon Organizations support

The cost and usage dashboard table is generated from CUR 2.0 data, which means that it inherits the same Amazon Organizations settings that apply to CUR 2.0 and the same behavior applies. To

understand how Amazon Organizations applies to the cost and usage dashboard, refer to [Amazon Organizations support](#) in the CUR 2.0 section.

## Cost and usage dashboard columns

Column name	Description
amortized_cost	<p>The effective cost of the upfront and monthly reservation fees spread across the billing period. This is the sum of costs based on the type of line item. The cost is determined as follows:</p> <ul style="list-style-type: none"><li>• If the line item type is 'SavingsPlanCoveredUsage', the cost is the effective cost of the savings plan.</li><li>• If the line item type is 'SavingsPlanRecurringFee', the cost is the total commitment to date of the savings plan minus the used commitment..</li><li>• If the line item type is 'SavingsPlanNegation' or 'SavingsPlanUpfrontFee', the cost is 0.</li><li>• If the line item type is 'DiscountedUsage', the cost is the effective cost of the reservation.</li><li>• If the line item type is 'RIFee', the cost is the sum of the unused amortized upfront fee for the billing period and the unused recurring fee of the reservation.</li><li>• If the line item type is 'Fee' and there is a reservation ARN, the cost is 0.</li></ul>

Column name	Description
	<ul style="list-style-type: none"> <li>For all other line item types, the cost is the unblended cost of the line item.</li> </ul>
availability_zone	The Availability Zone that hosts this line item. For example, us-east-1a or us-east-1b.
billing_entity	<p>Helps you identify whether your invoices or transactions are for Amazon Marketplace or for purchases of other Amazon services. Possible values include:</p> <p><b>Amazon:</b> Identifies a transaction for Amazon services other than in Amazon Marketplace.</p> <p><b>Amazon Marketplace:</b> Identifies a purchase in Amazon Marketplace.</p>
billing_period	<p>The start date of the billing period that is covered by dashboard, in UTC. The format is YYYY-MM-DDTHH:mm:ssZ .</p> <p><b>Example:</b> 2023-10-01T00:00:00.000Z</p>
charge_category	<p>The category of the charge covered by this line item. The following are the possible categories:</p> <p>Running_usage: When the charge_type is one of the following: 'DiscountedUsage', SavingsPlanCoveredUsage, or 'Usage'.</p> <p>Non_Usage: For everything else under charge_type.</p>

Column name	Description
charge_type	The type of charge covered by this line item. See <code>lineitem/LineItemType</code> here for all the possible values.
current_generation	Helps you identify whether your Amazon RDS instance is of current generation or not.
database_engine	Describes the database engine of your database.  <b>Examples:</b> PostgreSQL, Oracle.
instance_type	Describes the instance type, size, and family, which define the CPU, networking, and storage capacity of your instance.  <b>Examples:</b> t2.small, m4.xlarge, t2.micro, m4.large, t2.large <b>Services:</b> <ul style="list-style-type: none"> <li>• Amazon EC2</li> <li>• Amazon RDS</li> <li>• OpenSearch Service</li> <li>• Amazon ElastiCache</li> <li>• Amazon EMR</li> <li>• For the full service list, download: <a href="#">Column_Attribute_Service.zip</a></li> </ul>

Column name	Description
instance_type_family	<p>The instance family that is associated with the given usage.</p> <p><b>Examples:</b> t2, m4, m3</p> <p><b>Services:</b></p> <ul style="list-style-type: none"><li>• Amazon DocumentDB</li><li>• Amazon RDS</li></ul>
invoice_id	<p>The ID associated with a specific line item. The invoice_id remains blank until the export is final.</p>
item_description	<p>The description of the line item type. For example, the description of a usage line item summarizes what type of usage you incurred during a specific time period.</p> <p>For size-flexible RIs, the description corresponds to the RI the benefit was applied to. For example, if a line item corresponds to a t2.micro and a t2.small RI was applied to the usage, the lineitem/LinItemDescription displays t2.small.</p> <p>The description for a usage line item with an RI discount contains the pricing plan covered by the line item.</p>



Column name	Description
legal_entity	<p>The Seller of Record of a specific product or service. In most cases, the invoicing entity and legal entity are the same. The values might differ for third-party Amazon Marketplace transactions. Possible values include:</p> <p><b>Amazon Web Services, Inc. :</b> The entity that sells Amazon services.</p> <p><b>Amazon Web Services India Private Limited :</b> The local Indian entity that acts as a reseller for Amazon services in India.</p>
linked_account_id	<p>The account ID of the account that used this line item. For organizations, this can be either the management account or a member account. You can use this field to track costs or usage by account.</p>
linked_account_name	<p>The name of the account that used this line item. For organizations, this can be either the management account or a member account. You can use this field to track costs or usage by account.</p>
operation	<p>The specific Amazon operation covered by this line item. This describes the specific usage of the line item. For example, a value of RunInstances indicates the operation of an Amazon EC2 instance.</p>
payer_account_id	<p>The account ID of the paying account. For an organization in Amazon Organizations, this is the account ID of the management account.</p>

Column name	Description
payer_account_name	The account name of the paying account. For an organization in Amazon Organizations, this is the name of the management account.
platform	<p>Describes the operating system of your Amazon EC2 instance.</p> <p><b>Examples:</b> Amazon Linux, Ubuntu, Windows Server, Oracle Linux, FreeBSD</p> <p><b>Services:</b></p> <ul style="list-style-type: none"><li>• Amazon AppStream</li><li>• Amazon EC2</li><li>• Amazon GameLift</li><li>• Amazon Lightsail</li><li>• Amazon WorkSpaces</li><li>• Amazon CodeBuild</li></ul>
pricing_unit	The pricing unit that Amazon used for calculating your usage cost. For example, the pricing unit for Amazon EC2 instance usage is in hours.


Column name	Description
processor	<p>Describes the processor on your Amazon EC2 instance.</p> <p><b>Examples:</b> High Frequency Intel Xeon E7-8880 v3 (Haswell), Intel Xeon E5-2670, AMD EPYC 7571</p> <p><b>Services:</b></p> <ul style="list-style-type: none"><li>• Amazon DocumentDB</li><li>• Amazon EC2</li><li>• Amazon Neptune</li><li>• Amazon RDS</li><li>• Amazon Database Migration Service</li></ul>
processor_features	<p>Describes the processor features of your instances.</p> <p><b>Examples:</b> Intel AVX, Intel AVX2, Intel AVX512, Intel Turbo</p> <p><b>Services:</b></p> <ul style="list-style-type: none"><li>• Amazon Database Migration Service</li><li>• Amazon DocumentDB</li><li>• Amazon EC2</li><li>• Amazon Neptune</li><li>• Amazon RDS</li></ul>

Column name	Description
product_code	The code of the product measured. For example, AmazonEC2 is the product code for Amazon Elastic Compute Cloud.
product_family	The category for the type of product. <b>Examples:</b> Alarm, Amazon Budgets, Stopped Instance, Storage Snapshot, Compute
product_from_location	Describes the location where the usage originated from. <b>Sample values:</b> External, US East (N. Virginia), Global <b>Services:</b> <ul style="list-style-type: none"><li>• Amazon CloudFront</li><li>• Amazon DataTransfer</li></ul>

Column name	Description
product_group	<p>A construct of several products that are similar by definition, or grouped together. For example, the Amazon EC2 team can categorize their products into shared instances, dedicated host, and dedicated usage.</p> <p><b>Services:</b></p> <ul style="list-style-type: none"><li>• Amazon Certificate Manager</li><li>• Amazon CodeCommit</li><li>• Amazon Glue</li><li>• Amazon IoT Analytics</li><li>• Amazon Lambda</li></ul>
product_name	<p>The full name of the Amazon service.</p> <p><b>Examples:</b> Amazon Backup, Amazon Config, Amazon Registrar, Amazon Elastic File System, Amazon Elastic Compute Cloud</p>
product_to_location	<p>Describes the location usage destination.</p> <p><b>Sample values:</b> External, US East (N. Virginia)</p> <p><b>Services:</b></p> <ul style="list-style-type: none"><li>• Amazon CloudFront</li><li>• Amazon DataTransfer</li></ul>

Column name	Description
public_cost	<p>The total cost for the line item based on public On-Demand Instance rates. If you have SKUs with multiple On-Demand public costs, the equivalent cost for the highest tier is displayed. For example, services offering free-tiers or tiered pricing.</p>
purchase_option	<p>The way in which you acquired and paid for the Amazon resource in this line item. The purchase_option column contains 'SavingsPlan', 'Reserved', or 'Spot' for savings plans, reserved instances, and spot instances respectively. The purchase_option column has 'OnDemand' for the remaining records.</p>
region	<p>The geographical area that hosts your Amazon services. Use this field to analyze spend across a particular Region.</p> <p><b>Examples:</b> eu-west-3, us-west-1, us-east-1, ap-northeast-2, sa-east-1</p> <p><b>Services:</b></p> <ul style="list-style-type: none"> <li>• Amazon EC2</li> <li>• Amazon Certificate Manager</li> <li>• Amazon S3</li> <li>• Amazon RDS</li> <li>• Amazon DynamoDB</li> <li>• For the full service list, download: <a href="#">Column_Attribute_Service.zip</a></li> </ul>

Column name	Description
ri_sp_arn	The unique Savings Plan or Reserved Instance identifier. It typically follows the format <code>arn:aws:savingsplans:&lt;region&gt;:&lt;account-id&gt;:savingsplan/&lt;savings-plan-id&gt;</code> or <code>arn:aws:ec2:&lt;region&gt;:&lt;account&gt;reserved-instances/&lt;reserved-instance-id&gt;</code> .
ri_sp_trueup	<p>This is the sum of adjustments based on the type of line item. True-up represents the difference between total upfront fees incurred in the period using an unblended cost, and the smaller portion of upfront fees applicable to the period using an amortized cost. The adjustment is determined as follows:</p> <ul style="list-style-type: none"> <li>• If the line item type is 'SavingsPlanRecurringFee', the adjustment is the negative of the amortized upfront commitment for the billing period of the Savings Plan.</li> <li>• If the line item type is 'RIFee', the adjustment is the negative of the amortized upfront fee for the billing period of the reservation.</li> <li>• For all other line item types, the adjustment is 0.</li> </ul>
ri_sp_upfront_fee	The upfront fee refers to the initial payment you make when you choose certain types of Reserved Instances or Savings Plans.
service	<p>The name of the Amazon service.</p> <p><b>Examples:</b> AmazonVPC, AmazonRDS, AmazonRoute53 etc.</p>

Column name	Description
tenancy	<p>The type of tenancy allowed on the Amazon EC2 instance.</p> <p><b>Examples:</b> Dedicated, Reserved, Shared, NA, Host</p> <p><b>Services:</b></p> <ul style="list-style-type: none"> <li>• Amazon EC2</li> <li>• Amazon ECS</li> </ul>
unblended_cost	<p>The UnblendedCost is the UnblendedRate multiplied by the UsageAmount.</p>
usage_date	<p>The start date and time for the line item in UTC. The format is YYYY-MM-DDTHH:mm:ssZ .</p> <p><b>Example:</b> 2023-10-01T00:00:00.000Z</p>
usage_quantity	<p>The amount of usage that you incurred during the specified time period. For size-flexible Reserved Instances, use the reservation/TotalReservedUnits column instead.</p> <div data-bbox="829 1398 1507 1619" style="border: 1px solid #0070C0; border-radius: 10px; padding: 10px; margin-top: 10px;"> <p> <b>Note</b></p> <p>Certain subscription charges will have a UsageAmount of 0.</p> </div>



Column name	Description
usage_type	The usage details of the line item. For example, USW2-BoxUsage:m2.2xlarge describes an M2 High Memory Double Extra Large instance in the US West (Oregon) Region.

## Carbon emissions

The carbon emissions table contains your estimated carbon emissions. It provides detailed account-level and regional granularity of your carbon emissions data. You can configure automated monthly deliveries to Amazon S3 in either CSV or Parquet format, making it simple to integrate with your existing business intelligence tools and reporting systems. For more detailed information, see [Viewing your carbon footprint](#) in the *Amazon Billing User Guide*.

The SQL table name for carbon emissions is CARBON\_EMISSIONS.

## Historical data

You will receive up to 38 months of historical data within 24 hours of setup, enabling you to perform baseline analysis and trend reporting without manual data gathering.

## Table configurations

There are no table configurations for the Carbon emissions table.

## Permissions

To access data in the Customer Carbon Footprint Tool or the Carbon emissions table, you need the IAM permission `sustainability:GetCarbonFootprintSummary`.

## Model versions

The methodology for calculating your carbon emissions will evolve over time to better reflect your usage and align with carbon accounting best practices. Exports are partitioned in hierarchical order by "model\_version=Y/" and "usage\_period=YYYY-MM/". The "model\_version" partition that an

export is stored under will correspond to the model version used to generate that export, while the “usage\_period” partition corresponds to the dates the carbon emissions were generated. This structure enables you to differentiate between data with the old and new models by viewing the partition names.

After releasing a new model version, Amazon delivers exports for both old and new models for three months so that you can compare the data and adjust to any changes in the methodology.

## Amazon Organizations support

The Carbon emissions table inherits the settings you made in the consolidated billing feature in Amazon Organizations. When consolidated billing is enabled, there are different behaviors for management and member accounts. If you’re using a management account, your Carbon emissions table includes estimated carbon emissions data for the management account and all member accounts in your organization. If you’re using a member account, your Carbon emissions table only includes estimated carbon emissions data for that member account.

After a member account joins a new organization, or a management account converts to a member account and joins a new organization, the account's carbon emissions data is recorded in the new organization's exports. Each management account contains member accounts' data for the time period it was linked to said management account. For example, a member account leaves organization A and joins organization B on the 15th of the month. Then, the member account creates an export. Because the member account created an export after joining organization B, the member account’s export of the Carbon emissions table for the month includes estimated carbon emissions data for the time that the account has been a member of organization B. As with all carbon emissions data exports, each monthly publish contains data for three months prior (for example, an April update contains data for January).

When a member account leaves an organization or converts to a standalone account, the member account can still access previous exports if it has permissions to the Amazon S3 bucket where those exports are stored. Carbon emissions associated with terminated or suspended accounts will appear in the management account data exports for the periods when these accounts were active.

For more information, see [Consolidated billing for Amazon Organizations](#) in the *Amazon Billing User Guide*.

## Carbon emissions columns

Column name	Description	Data type	Null value allowed
last_refresh_timestamp	The time when the carbon footprint value was last generated, in UTC. The format is YYYY-MM-DD HH:mm:ssZ.	timestamp	No
location	Describes the human-readable location where the usage originated from, corresponding to the region_code. For example, US East (N. Virginia). Emissions from Global Services, such as Amazon CloudFront, are reported under Global.	string	Yes
model_version	The version of the methodology the carbon footprint data was calculated with. For example, v2.0.0.	string	No
payer_account_id	The account ID of the paying account. For an organization in Amazon Organizations, this	string	No

Column name	Description	Data type	Null value allowed
	is the account ID of the management account.		
product_code	The code of the product measured. For example, Amazon EC2 is the product code for Amazon Elastic Compute Cloud.	string	Yes
region_code	A Region is a physical location around the world where data centers are clustered. Amazon calls each group of logical data centers an Availability Zone (AZ). Each Amazon Region consists of multiple, isolated, and physically separate AZs within a geographical area. The Region code attribute has the same name as an Amazon Region, and specifies where the Amazon service is available. For example, us-east-1.	string	Yes

Column name	Description	Data type	Null value allowed
total_mbm_emissions_unit	The unit of measure used for market-based method (MBM) emissions. The unit we currently support is metric tons of carbon dioxide-equivalent (MTCO <sub>2</sub> e).	string	Yes
total_mbm_emissions_value	The total estimated market-based method (MBM) emissions value associated with the account. This currently includes Scope 1 and Scope 2, with Scope 3 included in the future.	double	Yes
usage_account_id	The account ID of the account associated with the carbon footprint value. For organizations, this can be either the management account or a member account.	string	No

Column name	Description	Data type	Null value allowed
usage_period_end	The end date of the period that is covered by this report, in UTC. The format is YYYY-MM-DD HH:mm:ssZ .	timestamp	No
usage_period_start	The start date of the period that is covered by this report, in UTC. The format is YYYY-MM-DD HH:mm:ssZ .	timestamp	No

# Processing data exports

In the following sections, you'll find information about processing your data exports.

## Configuring Amazon Athena

Unlike Cost and Usage Reports (CUR), Data Exports doesn't offer an SQL file for setting up Athena to query your exports. You'll need to either use a CloudFormation template for Data Exports (see option 1) or manually configure Athena (see option 2).

**(Option 1) Use a CloudFormation template:** To locate the CloudFormation template and instructions for setting up Athena with Data Exports, refer to [Data Exports in the Cloud Intelligence Dashboards Framework](#).

**(Option 2) Use an Amazon Glue crawler to build your table and partitions for Athena:** When creating CUR or carbon emissions data exports for Athena, we suggest using the Apache Parquet file format; it offers better compression and column-oriented storage which contributes to smaller and less expensive Athena queries. The overwrite delivery preference is required so that each monthly partition always contains only one copy of each file and no duplicate line items appear when you execute queries with Amazon Athena.

We also recommend using Amazon Glue with a Glue crawler to load your data into Athena.

### To build a table and partitions for Athena using an Amazon Glue crawler

1. Create an export of CUR 2.0 or Carbon emissions with the following data export delivery options:
  - Compression type and file format: Parquet - Parquet
  - File versioning: Overwrite existing data export file
2. In Athena, use the notebook editor with Trino SQL and choose **Create** to create a table with "Amazon Glue crawler". Using the Glue crawler workflow, point the Glue crawler to run on the `s3://<bucket-name>/<prefix>/<export-name>/data` folder to automatically load all of the delivered partitions for the specified export to Athena.
3. After the Glue crawler is complete, you can use Athena to write queries on the table created by the Glue crawler.

## Configuring Amazon Redshift

Amazon Redshift is a cloud data warehouse that can be accessed either in a provisioned capacity or serverless model. Amazon Redshift offers fast query performance for processing your data from Data Exports.

Currently, Data Exports doesn't provide the SQL file for setting up Redshift to query your exports like Cost and Usage Reports (CUR) does. However, you can still manually set up Redshift to query your exports. We recommend that you use the gzip/csv compression and file format for Redshift.

For information on setting up Redshift, see the [Amazon Redshift Getting Started Guide](#).

## Recommended SQL queries for processing CUR 2.0

After loading your CUR 2.0 export data into a data analytics tool such as Amazon Athena or Amazon Redshift, you can process it in order to gain cost and usage insights. Amazon Well-Architected Labs provides a CUR query library that you can use to process CUR. For more information, see [Amazon CUR Query Library](#).

Note the following two pieces of information about SQL queries:

- The Well-Architected Labs SQL queries won't work in the data export query field, because Data Exports doesn't support aggregations and some of the other SQL syntax used in these queries.
- The Well-Architected Labs SQL queries will only work if you haven't renamed your columns from the default names. Depending on the query, you may need to query some of the product columns as separate columns using the dot operator. For more information, see [Data query-SQL query and table configurations](#).

## Recommended SQL queries for processing carbon emissions data exports

To get the total carbon emissions per payer\_account\_id:

```
SELECT payer_account_id, SUM(total_mbm_emissions_value) AS total_emissions
FROM "ccft-data-exports"."ccft-data-exports-data" -- change to your table name
GROUP BY payer_account_id
ORDER BY total_emissions DESC;
```



To get the total carbon emissions per payer\_account\_id and per product\_code:

```
SELECT payer_account_id, product_code, SUM(total_mbm_emissions_value) AS
total_emissions
FROM "ccft-data-exports"."ccft-data-exports-data"-- change to your table name
GROUP BY payer_account_id, product_code
ORDER BY total_emissions DESC;
```

To get the total carbon emissions per payer\_account\_id and per region\_code:

```
SELECT payer_account_id, region_code, SUM(total_mbm_emissions_value) AS total_emissions
FROM "ccft-data-exports"."ccft-data-exports-data" -- change to your table name
GROUP BY payer_account_id, region_code
ORDER BY total_emissions DESC;
```

# Understanding the Cost and Usage Dashboard

The Cost and Usage Dashboard is an easy to deploy, secure, and pre-built dashboard powered by Amazon QuickSight, and inspired from the [Cloud Intelligence Dashboards](#) (CID) open source project. The Cost and Usage Dashboard includes a subset of the summary visuals without the resource-level views from the [CUDOS dashboard](#), which is one of the six Cloud Intelligence Dashboards. The Cost and Usage Dashboard brings the benefits of the CUDOS solution into an Amazon Billing and Cost Management console feature that is easy to set up, and frees you from maintaining the underlying infrastructure, such as Amazon Athena views or Amazon Glue crawlers. You can deploy the Cost and Usage Dashboard from the **Data Exports** page in the Amazon Billing and Cost Management console within minutes. CID involves Amazon CloudFormation template-based deployment. For information on setting up the complete CID solution, see [Amazon well architected labs](#).

The following table summarizes the differences between a Cost and Usage Dashboard and Cloud Intelligence Dashboards (CID):

Feature	Cost and Usage Dashboard	Cloud Intelligence Dashboards
Deployment	Seamless deployment from Amazon console	CloudFormation, Command Line, or Terraform
Deployment options for Amazon Organizations	In management account only	In management account or delegated linked account
Multiple Amazon Organizations aggregation	No	Yes
High-level cost and usage insights	Yes	Yes
Resource-level details	No	Yes
Reserved Instances and Savings Plans insights	No	Yes

<b>Feature</b>	<b>Cost and Usage Dashboard</b>	<b>Cloud Intelligence Dashboards</b>
Supported data sources	Cost and Usage Summary (dashboard view)	Cost and Usage Report (CUR), Compute Optimizer, Trusted Advisor, Cost Anomaly Detection

# Understanding the Cost and Usage Report (CUR)

You can use CUR and CUR 2.0 to get the most detailed information about your Amazon cost and usage. For more information on use cases such as tracking your Savings Plans and Reserved Instance (RI) utilization, charges, and split cost allocations, see [Use cases](#).

## Understanding the carbon emissions data export

You can use the carbon emissions data export to get carbon emissions estimates from the Customer Carbon Footprint Tool for all usage accounts linked to your payer account. For more information about how these carbon emissions are calculated and categorized, see [Viewing your carbon footprint](#) in the *Amazon Billing User Guide*.

# Security and permissions

Cloud security at Amazon is the highest priority. As an Amazon customer, you benefit from a data center and network architecture that is built to meet the requirements of the most security-sensitive organizations.

Security is a shared responsibility between Amazon and you. The [shared responsibility model](#) describes this as security *of* the cloud and security *in* the cloud:

**Security of the cloud:** Amazon is responsible for protecting the infrastructure that runs Amazon services in the Amazon Cloud. Amazon also provides you with services that you can use securely. Third-party auditors regularly test and verify the effectiveness of our security as part of the [Amazon Compliance Programs](#). To learn about the compliance programs that apply to Amazon Cost Management, see [Amazon Services in Scope by Compliance Program](#).

**Security in the cloud:** Your responsibility is determined by the Amazon service that you use. You are also responsible for other factors including the sensitivity of your data, your company's requirements, and applicable laws and regulations. This documentation helps you understand how to apply the shared responsibility model when using Billing and Cost Management. The following topics show you how to configure Billing and Cost Management to meet your security and compliance objectives. You also learn how to use other Amazon services that help you to monitor and secure your Billing and Cost Management resources.

## Topics

- [Identity and access management for Data Exports](#)
- [Data protection in Data Exports](#)

## Identity and access management for Data Exports

Amazon Identity and Access Management (IAM) is an Amazon service that helps an administrator securely control access to Amazon resources. IAM administrators control who can be *authenticated* (signed in) and *authorized* (have permissions) to use Billing resources. IAM is an Amazon service that you can use with no additional charge.

To use Data Exports, an IAM user needs to be given access to actions in the `bcm-data-exports` namespace in IAM. See the following table for the available actions.

Data Exports action	Description	Access level	Resource types	Condition keys
CreateExport	Allows user to create an Export and specifies query, delivery configurations, schedule configurations, and content configurations.	Write	export table	aws:RequestTag/ \${TagKey}  aws:TagKeys
UpdateExport	Allows user to update an existing Export.	Write	export table	aws:ResourceTag/\${ TagKey}
DeleteExport	Allows user to delete an existing Export.	Write	export	aws:ResourceTag/\${ TagKey}
GetExport	Allows user to view an existing Export.	Read	export	aws:ResourceTag/\${ TagKey}
ListExports	Allows user to list all existing Exports.	Read		
GetExecution	Allows user to see details of the given Execution , including metadata and schema of the exported data.	Read	export	aws:ResourceTag/\${ TagKey}

Data Exports action	Description	Access level	Resource types	Condition keys
ListExecutions	Allows user to list all Executions of the provided Export identifier.	Read	export	aws:ResourceTag/\${TagKey}
GetTable	Allows user to get the schema of the given table.	Read	table	
ListTables	Allows user to list all available tables.	Read		
TagResource	Allows user to tag an existing Export.	Write	export	aws:ResourceTag/\${TagKey} aws:RequestTag/\${TagKey} aws:TagKeys
UntagResource	Allows user to untag an existing Export.	Write	export	aws:ResourceTag/\${TagKey} aws:TagKeys
ListTagsForResource	Allows user to list tags associated with an existing Export.	Read	export	aws:ResourceTag/\${TagKey}



For more information about how to use these context keys, see [Controlling access to Amazon resources using tags](#) in the *IAM User Guide*.

The following table describes the resource types that are available in Data Exports.

Resource type	Description	ARN
export	An export is the resource created by the CreateExport API. An export generates a billing and cost management query output on a recurring basis.	arn:\${Partition}:bcm-data-exports:\${Region}:\${Account}:export/\${exportName}-{UUID}
table	A table is data in a row-column format that a user queries with an export. Tables are created and managed by Amazon for customers. Tables cannot be deleted by customers.	arn:\${Partition}:bcm-data-exports:\${Region}:\${Account}:table/\${TableName}

To create exports of the `COST_AND_USAGE_REPORT` or `COST_AND_USAGE_DASHBOARD` table resources in Data Exports, IAM users must also have permissions for the respective `cur` action in IAM. This means that if an IAM user is blocked from using `cur` actions for any reason, such as lacking an explicit allow on `cur` or a service control policy (SCP) providing an explicit deny on `cur`, that IAM user will be blocked from creating or updating exports of these two tables.

The following table shows which `cur` action is required for which `bcm-data-exports` actions in Data Exports for these two tables.

Data Exports action	Table resources	Additional required actions in IAM
<code>bcm-data-exports:CreateExport</code>	<code>COST_AND_USAGE_REPORT</code>	<code>cur:PutReportDefinition</code>

Data Exports action	Table resources	Additional required actions in IAM
	COST_AND_USAGE_DAS HBOARD	

## Sample policy

Allow IAM user to have full access to CUR 2.0 exports in Data Exports.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "ViewDataExportsTablesAndExports",
      "Effect": "Allow",
      "Action": [
        "bcm-data-exports:ListTables",
        "bcm-data-exports:ListExports",
        "bcm-data-exports:GetExport"
      ],
      "Resource": "*"
    },
    {
      "Sid": "CreateCurExports",
      "Effect": "Allow",
      "Action": "bcm-data-exports:*",
      "Resource": [
        "arn:aws:bcm-data-exports:*:*:table/COST_AND_USAGE_REPORT",
        "arn:aws:bcm-data-exports:*:*:export/*"
      ]
    },
    {
      "Sid": "CurDataAccess",
      "Effect": "Allow",
      "Action": "cur:PutReportDefinition",
      "Resource": "*"
    }
  ]
}
```

For more information on access control and IAM permissions to use Data Exports in Billing and Cost Management, see [Overview of managing access permissions](#).

## Data protection in Data Exports

Learn how the Amazon shared responsibility model applies to data protection in Data Exports.

### S3 security best practices

Data Exports delivers your billing and cost management data to an Amazon S3 bucket. There are a number of steps you can take to make sure your S3 bucket is secure. For more information, see [Security best practices for Amazon S3](#) in the *Amazon S3 User Guide*.

### Data encryption in S3

By default, your data exports are encrypted using server-side encryption with Amazon S3 managed keys (SSE-S3). If you want to use Amazon Key Management Service (KMS) encryption (SSE-KMS) to encrypt your exports, you need to trigger encryption with KMS after the export has been delivered. For more information, see [Setting default server-side encryption behavior for Amazon S3 buckets](#) in the *Amazon S3 User Guide*.

## Quotas and restrictions

The following table describes the current quotas and restrictions within Data Exports.

Quota type	Quota value
Number of exports of CUR 2.0 ( COST_AND_USAGE_REPORT )	5
Number of exports of Cost Optimization Recommendations table ( COST_OPTIMIZATION_RECOMMENDATIONS )	2
Number of exports of FOCUS 1.0 table ( FOCUS_1_0_AWS )	2
Number of exports of FOCUS 1.0 preview table ( FOCUS_1_0_AWS_PREVIEW )	2
Number of exports of Cost and Usage Dashboard table ( COST_AND_USAGE_DASHBOARD )	2
Number of exports of Carbon emissions table ( CARBON_EMISSIONS )	2

# Troubleshooting

As you use Data Exports or Cost and Usage Reports (CUR), you might encounter certain issues or challenges that require troubleshooting. Use this troubleshooting section for recommendations that help you to resolve common problems quickly and efficiently.

## Topics

- [General troubleshooting](#)
- [Troubleshooting CUR 2.0](#)
- [Troubleshooting the cost and usage dashboard](#)
- [Troubleshooting Cost and Usage Reports](#)
- [Troubleshooting carbon emissions data exports](#)

## General troubleshooting

### Topics

- [Why is my export unhealthy?](#)
- [Why is my SQL statement not being accepted by Data Exports?](#)
- [Why can't I locate a predefined SQL script for configuring Athena within Data Exports?](#)
- [Why is one of my export partitions empty?](#)
- [Why are there no report files in the Amazon S3 bucket?](#)

## Why is my export unhealthy?

An “unhealthy” export is one that encountered an error when it last tried to deliver a refresh to your Amazon S3 bucket. You may see one of the following error messages when hovering your cursor over the “unhealthy” message or by calling the `GetExport` API.

- **Data Exports issues**
  - **Insufficient permission:** This means Data Exports was unable to deliver the export files to your S3 bucket. This can be fixed by updating your S3 bucket policy with the permission listed in [Setting up an Amazon S3 bucket for data exports](#).

- **Bill owner changed:** This error can occur when your Amazon account moves to a new organization or leaves an organization in Amazon Organizations. It can also happen when you're in an organization and your management account changes whether you belong to a billing group in Amazon Billing Conductor. The best way to solve this problem is to create a new CUR and delete your old CUR. If you believe your account should not have changed organizations or billing groups, contact your account admin.
- **Internal failure:** This error is due to an issue with the Data Exports internal infrastructure. Review the Amazon Service Health Dashboard for updates on any service-wide issues that may be affecting Data Exports, or contact Amazon Support for more information or help.
- **QuickSight integration issues**
  - **Insufficient SPICE capacity:** This error means that QuickSight does not have enough processing capacity provisioned to ingest your cost and usage data. For information on how to increase your SPICE capacity, see [Managing SPICE memory capacity](#).
  - **Insufficient permission to access the manifest file:** The service role you assigned to QuickSight to access your S3 bucket is no longer working. Review your service policy to make sure it's giving read permissions to the S3 bucket storing your cost and usage data.
  - **Access denied when trying to access manifest file:** Your IAM role does not have access to the S3 bucket storing your export files to check whether a QuickSight dashboard exists for this export. The dashboard may or may not be working. You need `s3:GetObject` permissions on the S3 bucket storing the export data in order to be able to check for a QuickSight dashboard.
  - **QuickSight CreateBundle failed:** This error means your dashboard failed to be created in QuickSight. This may have happened due to a delay in IAM role propagation if you created a new service role, or if you selected an existing service role that did not have the right permissions. Use the retry action if you created a new service role. If you selected an existing service role, you should delete your export and create a new one with a new service role.
  - **Dashboard does not exist:** This error means your dashboard was deleted in QuickSight. You should delete your existing cost and usage dashboard export in Data Exports and recreate it.
  - **QuickSight account does not exist:** This error means your QuickSight account was deleted. You will need to recreate your QuickSight account to use a dashboard again. After recreating your QuickSight account, you should delete your existing cost and usage dashboard export in Data Exports and recreate it.

## Why is my SQL statement not being accepted by Data Exports?

Data Exports supports a limited set of SQL syntax that is mainly focused on column selections and row filters. Make sure your SQL statement is using only the relevant keywords and operators. For full details, see [Data query](#).

## Why can't I locate a predefined SQL script for configuring Athena within Data Exports?

Unlike Cost and Usage Reports (CUR), Data Exports doesn't offer an SQL file for setting up Athena to query your exports. You'll need to either use a CloudFormation template for Data Exports or manually configure Athena. For more information, see [Configuring Amazon Athena](#).

## Why is one of my export partitions empty?

If an export is larger than most applications can handle, Amazon splits the report into multiple files. If an export update is smaller than the previous export and you're using "overwrite" mode, Amazon overwrites the unneeded partitions with empty data. The export manifest only lists the partitions that have data. Review the report's manifest file to find any empty files that you don't need to ingest.

## Why are there no report files in the Amazon S3 bucket?

Confirm that the Amazon S3 bucket policy grants the **billingreports.amazonaws.com** service permission to put files in the bucket. For more information on the required bucket policy, see [Setting up an Amazon S3 bucket for data exports](#) or [Setting up an Amazon S3 bucket for Cost and Usage Reports](#).

## Troubleshooting CUR 2.0

### Topics

- [Why are some columns that were available in CUR not appearing in CUR 2.0?](#)
- [What will happen to legacy Cost and Usage Reports; will it be deprecated?](#)
- [Does creating an export of CUR 2.0 affect my legacy CUR?](#)
- [Why can't I create an export of CUR 2.0 even though I have IAM permissions to use Data Exports and the CUR table?](#)

- [When attempting to create a data export with the same CSV format as the legacy CUR columns, I get an "Invalid QueryStatement" error. How can I resolve this?](#)
- [After migrating to Data Exports CUR 2.0, can I have a legacy CUR export and a CUR 2.0 export at the same time?](#)
- [When attempting to create an export of CUR 2.0, I get the error "This account is unable to create an export against this table". Why can't I create a CUR 2.0 export?](#)

## Why are some columns that were available in CUR not appearing in CUR 2.0?

In CUR 2.0, four column types became nested into four individual columns. The resulting nested columns are: `product`, `discount`, `resource_tag`, and `cost_category`.

In legacy CUR, there could be hundreds of columns with names that started with these strings. The variations depended on customer usage of Amazon services or agreements with Amazon. This schema design resulted in hundreds of columns that were often sparsely filled. The variability of the columns could also cause problems with SQL queries due to a changing schema.

As a result, the columns that could vary across different Amazon columns were nested together into these four columns. Certain product columns that are commonly used were not nested.

You can recreate the schema of the CUR in your CUR 2.0 export by using the dot operator in SQL. To learn how to do this, see [Migrating from CUR to Data Exports CUR 2.0](#).

## What will happen to legacy Cost and Usage Reports; will it be deprecated?

We currently have no plans to deprecate legacy CUR. However, as CUR 2.0 in Data Exports offers several improvements such as a consistent schema, nested data, and additional columns (`bill_payer_account_name` and `line_item_usage_account_name`), we recommend migrating to CUR 2.0.

While there is no target date, we are planning to eventually deprecate **Cost and Usage Reports** under **Legacy Pages** in the console. However, all of the same functionality to create, update, and delete legacy CUR is available through the **Data Exports** console page.



**Note**

Detailed Billing Reports (DBR), another legacy billing feature, may be deprecated at a later date. The feature has been unavailable for new customers since July 8, 2019.

## Does creating an export of CUR 2.0 affect my legacy CUR?

CUR and CUR 2.0 are two distinct reports. When creating CUR 2.0, there is no impact on your existing CUR settings. You can choose between legacy CUR and CUR 2.0 based on your preferences.

## Why can't I create an export of CUR 2.0 even though I have IAM permissions to use Data Exports and the CUR table?

Make sure you also have IAM permissions for `cur:PutReportDefinition`.

## When attempting to create a data export with the same CSV format as the legacy CUR columns, I get an "Invalid QueryStatement" error. How can I resolve this?

Currently, you can't rename your columns to have special characters such as "/" to match the legacy CUR column names in CSV format. For information about the supported character types, see [SQL query](#).

## After migrating to Data Exports CUR 2.0, can I have a legacy CUR export and a CUR 2.0 export at the same time?

Yes, you can have up to 10 legacy CUR exports and 5 CUR 2.0 exports at the same time.

## When attempting to create an export of CUR 2.0, I get the error "This account is unable to create an export against this table". Why can't I create a CUR 2.0 export?

Unlike legacy CUR, CUR 2.0 does not currently support creating an export of CUR 2.0 with pro forma billing data. If you are part of a billing group in Amazon Billing Conductor, you are only

allowed to receive pro forma billing data. As a result, you receive this error message when trying to create an export of CUR 2.0. You can still create a legacy CUR export.

## Troubleshooting the cost and usage dashboard

### Topics

- [Why did my cost and usage dashboard export fail right after I created it?](#)
- [Why can't I access the dashboard?](#)
- [Why am I being taken to the console admin page to unsubscribe the QuickSight account when I try to view the dashboard?](#)
- [Why don't I see any data in the cost and usage dashboard that I just created?](#)
- [Why can't I see historical data in the cost and usage dashboard?](#)
- [Why did my QuickSight dashboard link disappear from the Data Exports console page?](#)
- [How can I configure Amazon QuickSight to visualize resource tags in CUR 2.0?](#)

### Why did my cost and usage dashboard export fail right after I created it?

Your cost and usage dashboard export may have failed due to a delay in IAM role propagation. If you created a new service role for this export, Amazon QuickSight may not have had permission to access your S3 bucket and create your dashboard. When you see the error “Insufficient permission to access the manifest file” in the Export status, choose Export, and then choose Retry in the table action menu.

If you didn't create a new service role for your cost and usage dashboard export, you may have specified an incorrect service role for QuickSight to use. In this case, you should delete your export and recreate it, while also creating a new service role in the cost and usage dashboard console workflow.

### Why can't I access the dashboard?

You may not be able to access the cost and usage dashboard in Amazon QuickSight if you don't have permission to view it. To troubleshoot, open your export by choosing the export name. Check the QuickSight created by field to see who created the dashboard. Ask the user to give you permission to view the dashboard.

## Why am I being taken to the console admin page to unsubscribe the QuickSight account when I try to view the dashboard?

You may encounter this error if you're using the "Active directory" authentication method. Choose the cost and usage dashboard export name to view the details of your export. Choose **QUICKSIGHT SIGN IN** to sign in to your QuickSight account. You'll be able to see the dashboard if you have permission to view it.

## Why don't I see any data in the cost and usage dashboard that I just created?

Your cost and usage dashboard could be missing the data for the current month because it can take up to 24 hours for all your data to be populated in your dashboard. Check the status of your cost and usage dashboard export. If the export status says "Healthy", allow 24 hours for your dashboard to update with the current month's data. If you don't see the current month's data in your dashboard after 24 hours, contact Amazon Support. You can check the creation time of your cost and usage dashboard in the Exports and Dashboards table on the Data Exports console page.

## Why can't I see historical data in the cost and usage dashboard?

Your cost and usage dashboard might be missing the six months of historical data for any of the following reasons:

- **No historical data exists:** If you have an account without six months of historical spending due to being a new account or recently changing membership in Amazon Organizations, no historical data can populate the dashboard.
- **Historical backfill is still in progress:** Historical data backfill by Data Exports can take up to 24 hours to complete. You can use the SDK/CLI to check if any backfill executions failed with the `ListExecutions` API for this export, or if they are still in progress. Wait a little longer or use `ListExecutions` to ensure the backfill is not in progress.
- **Historical backfill failed:** Historical data backfill may have failed to complete due to an internal error. You can come to this conclusion if it's been more than 24 hours and the backfill is not complete, or you can use the `ListExecutions` API in the SDK/CLI and look for any failed executions for this export. If you believe the backfill has failed, try remaking the cost and usage dashboard in the console. If it fails a second time, we recommend reaching out to Amazon Support.

## Why did my QuickSight dashboard link disappear from the Data Exports console page?

The Data Exports console page reads from a file in your S3 bucket in order to identify the QuickSight dashboard that the export is linked to. If this file is altered or deleted, the console doesn't know that a dashboard exists for this export. While your dashboard still exists in QuickSight, you'll need to repair this file for the link to reappear.

## How can I configure Amazon QuickSight to visualize resource tags in CUR 2.0?

The cost and usage dashboard feature does not support visualizing resource tags. However, you can still receive your resource tag data in the CUR 2.0 export. If you want an Amazon supported QuickSight dashboard for visualizing your cost and usage with tags, refer to the [CUDOS Dashboard from Amazon Well-Architected Labs](#). It currently only uses data from legacy CUR, but will support CUR 2.0 in the future.

## Troubleshooting Cost and Usage Reports

### Topics

- [Why does my Cost and Usage Report data not match the data shown in other Billing and Cost Management features?](#)
- [How can I backfill data after changing my report settings?](#)
- [Why is my report file folder in Amazon S3 stored in an unnamed folder?](#)
- [Why can't I select the option to include resource IDs on my report?](#)
- [Why don't my Cost and Usage Report queries for Amazon Athena work on Amazon Redshift, or my Amazon Redshift queries on Amazon Athena?](#)
- [Why have the columns included in my report changed from a previous month?](#)
- [Why don't my queries or tables work after the columns in my report changed?](#)
- [How do I query my report?](#)
- [Where can I find the billing data for my Amazon EC2 Dedicated Host?](#)
- [How do I interpret the billing data for my Amazon EC2 Elastic IP addresses?](#)
- [How do unblended and blended rates or costs differ in consolidated billing?](#)
- [Why do some line items in my report have a blended rate or blended cost of 0?](#)

- [How are All Upfront Reserved Instances amortized in my report?](#)

## Why does my Cost and Usage Report data not match the data shown in other Billing and Cost Management features?

Other Billing and Cost Management features (Cost Explorer, Detailed Billing Reports, Billing and Cost Management console) might present your costs differently for the following reasons:

- The billing features round cost data in different ways.
- The billing features might have different data refresh settings. For example, you can choose whether or not your Cost and Usage Report automatically refreshes a previously closed bill with any refunds, credits, or Support fees applied after the bill is finalized. Cost Explorer automatically reflects the same items. In this scenario, if you don't activate the automatic refresh on your Cost and Usage Report, then the Cost and Usage Report data won't match the Cost Explorer data.
- The billing features can group charges differently. For example, the **Bills** page in the Billing and Cost Management console shows data transfer charges as a separate **Data Transfer** grouping within your **Amazon Service Charges**. Meanwhile, Cost and Usage Reports and Cost Explorer show data transfer charges as a usage type for each service.

If after reviewing these reasons you still believe you're seeing discrepancies between your Cost and Usage Report and other Billing and Cost Management features, open a support case to request a review of your cost data. In your support case, make sure to provide the report name and the billing period that you would like reviewed. For more information on opening a case, see [Getting help with your exports and reports](#).

## How can I backfill data after changing my report settings?

Open a support case to request a backfill of your cost data. In your support case, make sure to provide the report name and the billing period that you want backfilled. For more information on opening a case, see [Getting help with your exports and reports](#).

Note that you can't get a backfill of cost data for the following scenarios:

- You can't get a backfill for cost data from before the date that you created the account.
- If you use Amazon Organizations and the structure of your organization changed, such as which account is designated the management account, then you can't get a backfill of data with the previous organization structure.

- If you use Amazon Organizations and you change organizations, then you can't get a backfill of data from prior to joining your current organization.

## Why is my report file folder in Amazon S3 stored in an unnamed folder?

Any / character in the **Report path prefix** of your report generates an unnamed folder in your Amazon S3 bucket. To remove the unnamed folder in your next report update, edit your report settings and remove the / character from the **Report path prefix**. For instructions, see [Editing your Cost and Usage Reports configuration](#).

## Why can't I select the option to include resource IDs on my report?

When you create your report, you can select the option to **Include resource ID**. If you create your report with **Report versioning** set to **Overwrite existing report**, then you can't modify your **Include resource ID** selection after you create your report. To include resource IDs, you must create a new report and select the **Include resource ID** option.

## Why don't my Cost and Usage Report queries for Amazon Athena work on Amazon Redshift, or my Amazon Redshift queries on Amazon Athena?

Amazon Athena and Amazon Redshift databases format Cost and Usage Report columns differently. Amazon Athena adds an underscore between words in the column name (line\_item\_normalized\_usage\_amount). Amazon Redshift adds an underscore between the column type and the attribute (lineitem\_normalizedusageamount). Make sure to modify your queries to match the column name format in Amazon Athena or Amazon Redshift.

## Why have the columns included in my report changed from a previous month

The columns that Amazon includes in your report depend on your Amazon usage. Every report includes columns with the **identity/**, **bill/**, and **lineitem/** prefixes:

- identity/LineItemId
- identity/TimeInterval
- bill/InvoiceId

- bill/BillingEntity
- bill/BillType
- bill/PayerAccountId
- bill/BillingPeriodStartDate
- bill/BillingPeriodEndDate
- lineItem/UsageAccountId
- lineItem/LineItemType
- lineItem/UsageStartDate
- lineItem/UsageEndDate
- lineItem/ProductCode
- lineItem/UsageType
- lineItem/Operation
- lineItem/AvailabilityZone
- lineItem/ResourceId
- lineItem/UsageAmount
- lineItem/NormalizationFactor
- lineItem/NormalizedUsageAmount
- lineItem/CurrencyCode
- lineItem/UnblendedRate
- lineItem/UnblendedCost
- lineItem/BlendedRate
- lineItem/BlendedCost
- lineItem/LineItemDescription
- lineItem/TaxType
- lineItem/LegalEntity

All other columns are included only if your monthly Amazon usage generates data to populate those columns.

For example, your report includes **savingsPlan/** columns only if you used Savings Plans during that month.

## Why don't my queries or tables work after the columns in my report changed?

The columns that Amazon includes in your report depend on your Amazon usage for the month. Because the columns included in your report can change, it's a best practice to reference column names instead of column numbers in any custom queries or tables based on your report.

## How do I query my report?

For detailed information about querying your Cost and Usage Report, see [CUR Query Library Help](#) in the Amazon Well-Architected Labs website.

## Where can I find the billing data for my Amazon EC2 Dedicated Host?

In the **ResourceID** column, look for the Dedicated Host ID rather than the instance ID. Because Dedicated Hosts are metered by Dedicated Host running hours, your report shows Dedicated Host usage by metered hours associated with the host ID.

## How do I interpret the billing data for my Amazon EC2 Elastic IP addresses?

Amazon EC2 Elastic IP addresses are metered in aggregate. This means that each line item in your report doesn't correspond with an individual Elastic IP address. Each line item represents the total number of chargeable hours. You can have one Elastic IP address assigned to a running instance at no charge. You're charged per hour on a pro-rata basis for each additional Elastic IP address that you assign to the instance. Additionally, Amazon charges an hourly fee for unassigned Elastic IP addresses.

## How do unblended and blended rates or costs differ in consolidated billing?

With consolidated billing for Amazon Organizations, unblended and blended rates or costs can help you understand how much an account's usage would cost for a standalone account versus a linked account in an organization. Some services offer pricing tiers that can lower unit costs as usage increases. Because Amazon aggregates all usage for a service in an organization, individual accounts might access lower-priced tiers sooner when their usage is aggregated in an organization's monthly usage.



Unblended rates are the rates associated with an individual account's service usage. For a line item, the unblended cost is usage multiplied by the unblended rate. The unblended cost would be the cost of the account's usage if it were a standalone account. Blended rates are the rates associated with total usage in an organization averaged across accounts. For a line item, the blended cost is usage multiplied by the blended rate. The blended cost is the cost attributed to the account's usage as a linked account in an organization.

For more information and examples of calculating unblended and blended costs, see [Understanding Consolidated Bills](#) in the *Amazon Billing User Guide*

## Why do some line items in my report have a blended rate or blended cost of 0?

Amazon EC2 line items with a Reserved Instance discount have an blended rate of zero. For these line items, the **LineItemType** is **Discounted Usage**.

The blended cost is the usage multiplied by the blended rate. If the value for blended rate or usage is zero, then the blended cost is also zero.

## How are All Upfront Reserved Instances amortized in my report?

Because All Upfront Reserved Instances are paid in full upfront, the amortized costs are reflected in your report as the upfront payment divided over the associated time period (one year or three years).

**reservation/AmortizedUpfrontCostForUsage** and **reservation/EffectiveCost** are the same rate for All Upfront Reserved Instances. This is because both columns are an equal division of the upfront payment for the Reserved Instance over the total hours of its term.

It's expected that your report has **RIFee** line items populated for All Upfront Reserved Instances, even though the **RIFee** is \$0.00. These line items represent the recurring hourly costs for the month, and they have additional usage data in other columns. All Reserved Instances generate **RIFee** line items.

## Troubleshooting carbon emissions data exports

### Topics

- [Why can't I create an export of the Carbon emissions table even though I have IAM permissions to use Data Exports and the CUR 2.0 table?](#)

- [Why can't I see carbon emissions data for some member accounts in my organization?](#)
- [Why is one of the files in my S3 bucket empty?](#)
- [Why does my S3 export show zero carbon emissions for some Regions and services when there is usage data?](#)
- [Is historical data backfill available in Data Exports for carbon emissions?](#)
- [Why can't I see historical data in my S3 bucket?](#)
- [I changed the settings of my report; can I backfill the data with the new settings?](#)

## **Why can't I create an export of the Carbon emissions table even though I have IAM permissions to use Data Exports and the CUR 2.0 table?**

To access data in the Customer Carbon Footprint Tool or the Carbon emissions table, you need the IAM permission `sustainability:GetCarbonFootprintSummary`.

## **Why can't I see carbon emissions data for some member accounts in my organization?**

If you're using a management (payer) account, you should automatically see carbon emissions data for your management account and all member (usage) accounts in the Carbon emissions table. No extra configuration is required.

However, there is a 3-month data lag for carbon emissions data. For new member accounts, data won't appear in the management account's carbon emissions data export until the export period that includes when the member account joined the organization. For example, if you linked a new member account in January, its data first appears in the April export.

Similarly, when a member account leaves the organization, its data continues to appear until the export period when it was removed.

## **Why is one of the files in my S3 bucket empty?**

If your account doesn't have carbon emissions data for a given month, you'll receive a file in your S3 bucket for the given carbon model version and usage period, but the file will be empty.

## Why does my S3 export show zero carbon emissions for some Regions and services when there is usage data?

If your total carbon emissions show as zero, it means they are lower than 0.0000005 MTCO<sub>2e</sub>, which is our display threshold.

## Is historical data backfill available in Data Exports for carbon emissions?

Yes, upon creating an export you will receive up to 38 months of historical data with the first delivery and one month of data each month thereafter. If your account was created within the past 38 months, you'll receive carbon emissions estimates from your account creation date onward.

## Why can't I see historical data in my S3 bucket?

Your S3 bucket might be missing historical data for any of the following reasons:

- **No historical data exists:** If you have an account without historical carbon emissions estimates due to being a new account or recently changing membership in Amazon Organizations, no historical data can be populated in your S3 bucket. If your account has been created within the past 38 months, you'll receive the carbon emissions estimates for the entire duration of your account being active.
- **Historical backfill is still in progress:** Historical data backfill by Data Exports can take up to 24 hours to complete. You can use the SDK/CLI to check if any backfill executions failed with the `ListExecutions` API for this export, or if they are still in progress. Wait a little longer or use `ListExecutions` to ensure the backfill is not in progress.
- **Historical backfill failed:** Historical data backfill may have failed to complete due to an internal error. You can come to this conclusion if it's been more than 24 hours and the backfill is not complete, or you can use the `ListExecutions` API in the SDK/CLI and look for any failed executions for this export. If you believe the backfill has failed, try creating a new export. If it fails a second time, we recommend reaching out to Amazon Support.

## I changed the settings of my report; can I backfill the data with the new settings?

No, backfilling data is not currently supported.

# Amazon Cost and Usage Reports

The Amazon Cost and Usage Reports (Amazon CUR) contains the most comprehensive set of cost and usage data available.

## What are Amazon Cost and Usage Reports?

Amazon Cost and Usage Reports (Amazon CUR) contains the most comprehensive set of cost and usage data available. You can use Cost and Usage Reports to publish your Amazon billing reports to an Amazon Simple Storage Service (Amazon S3) bucket that you own. You can receive reports that break down your costs by the hour, day, or month, by product or product resource, or by tags that you define yourself. Amazon updates the report in your bucket once a day in comma-separated value (CSV) format. You can view the reports using spreadsheet software such as Microsoft Excel or Apache OpenOffice Calc, or access them from an application using the Amazon S3 API.

Amazon Cost and Usage Reports tracks your Amazon usage and provides estimated charges associated with your account. Each report contains line items for each unique combination of Amazon products, usage type, and operation that you use in your Amazon account. You can customize the Amazon Cost and Usage Reports to aggregate the information either by the hour, day, or month.

Amazon Cost and Usage Reports can do the following:

- Deliver report files to your Amazon S3 bucket
- Update the report up to three times a day
- Create, retrieve, and delete your reports using the Amazon CUR API Reference

## How Cost and Usage Reports work

After you create a Cost and Usage Report, Amazon sends your report to the Amazon S3 bucket that you specify. Amazon updates your report at least once a day until your charges are finalized.

Your report files consist of a .csv file or a collection of .csv files and a manifest file. You can choose to configure your report data for integration with Amazon Athena, Amazon Redshift, or QuickSight.

## Report timeline

After you create your report, it can take up to 24 hours for Amazon to deliver the first report to your Amazon S3 bucket.

After delivery starts, Amazon updates the report files at least once a day. Each report update in a given month is cumulative, so each version of the report includes all of the billing data for the month to date. The report updates that you receive throughout the month are estimates. The charges are subject to change as you continue to use your Amazon services.

### Note

Different Amazon services provide your usage-based billing information at different times, so you might notice updates to a certain hour or day come in at different times.

Amazon builds on previous reports until the end of the billing period. Amazon finalizes your report's usage charges after issuing an invoice at the end of the month. After the end of the report billing period, Amazon generates a new report for the next month with none of the information from the previous report.

After your report is finalized, Amazon might update the report if Amazon applies refunds, credits, or Amazon Support fees to your usage for the month. Because Developer, Business, and Enterprise Support are calculated based on final usage charges, those are reflected on the sixth or seventh of the month for the prior month's Cost and Usage Report. Amazon applies credits or refunds based on the terms of your agreement or contract with Amazon.

## Report files

Your report is a .csv file or a collection of .csv files stored in an Amazon S3 bucket. The number of files that your report generates depends on your selection for report versioning and the size of your report.

When you create a report, you can choose to create new report versions or overwrite the existing report version with every update. If you choose to create new report versions, then your report generates more files with every update.

The size of an individual report can grow to more than a gigabyte and might exceed the capacity of desktop spreadsheet applications to display every line. If a report is larger than most applications

can handle (around 1 million rows), then Amazon splits the report into multiple files that are stored in the same folder in the Amazon S3 bucket.

Amazon also generates refunds into separate files. Amazon issues refunds after the closing of a monthly bill.

For more information on report files, file-naming conventions, and versioning, see [Understanding your report versions](#).

## Report columns

Each report includes several columns with details about your Amazon costs and usage. The columns that Amazon includes in your report depend on your usage during the month.

Every report includes columns with the **identity/**, **bill/**, and **lineItem/** prefixes. All other columns are included only if your monthly Amazon usage generates data to populate those columns.

For example, your report includes **savingsPlan/** columns only if you used Savings Plans during that month.

To learn more about the columns in your report, see the [Data dictionary](#).

## Using your report

You can download your report from the Amazon S3 console, query the report using Amazon Athena, or upload the report into Amazon Redshift or QuickSight.

- For more information about creating an Amazon S3 bucket and using Athena to query your data, see [Querying Cost and Usage Reports using Amazon Athena](#).
- For more information about uploading to Amazon Redshift, see [Loading report data to Amazon Redshift](#).
- For more information about uploading to QuickSight, see [Loading report data to Amazon QuickSight](#).

# Creating Cost and Usage Reports

## Note

Data Exports enables you to create exports of the Cost and Usage Report (CUR) 2.0. This is the new and recommended way to receive your detailed cost and usage data from Amazon. For more information, see [Migrating from CUR to CUR 2.0 in Data Exports](#).

You can use the **Cost and Usage Reports** page in the Billing and Cost Management console to create Cost and Usage Reports. In the following section, you'll find information on how to get started with Cost and Usage Reports.

## Topics

- [Setting up an Amazon S3 bucket for Cost and Usage Reports](#)
- [Creating reports](#)

## Setting up an Amazon S3 bucket for Cost and Usage Reports

To receive billing reports, you must have an Amazon S3 bucket in your Amazon account to receive and store your reports. When creating a Cost and Usage Report in the billing console, you can select an existing Amazon S3 bucket that you own or create a new bucket. In either case, you'll be asked to review and confirm the application of the following default bucket policy. Editing this policy in the Amazon S3 console or changing the bucket owner after you've created a Cost and Usage Report will prevent Amazon from being able to deliver your reports. Storing the billing reports data in your Amazon S3 bucket is billed at standard Amazon S3 rates. For more information, see [Quotas and restrictions](#).

The following policy is applied to every bucket when creating a Cost and Usage Report:

```
{
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
        "Service": "billingreports.amazonaws.com"
      },
      "Action": [
```

```

        "s3:GetBucketAcl",
        "s3:GetBucketPolicy"
    ],
    "Resource": "arn:aws-cn:s3:::amzn-s3-demo-bucket",
    "Condition": {
        "StringEquals": {
            "aws:SourceArn": "arn:aws-cn:cur:cn-northwest-1:
${AccountId}:definition/*",
            "aws:SourceAccount": "${AccountId}"
        }
    }
},
{
    "Sid": "Stmnt1335892526596",
    "Effect": "Allow",
    "Principal": {
        "Service": "billingreports.amazonaws.com"
    },
    "Action": "s3:PutObject",
    "Resource": "arn:aws-cn:s3:::amzn-s3-demo-bucket/*",
    "Condition": {
        "StringEquals": {
            "aws:SourceArn": "arn:aws-cn:cur:cn-northwest-1:
${AccountId}:definition/*",
            "aws:SourceAccount": "${AccountId}"
        }
    }
}
]
}

```

This default policy helps ensure that the Cost and Usage Report data can be read by the bucket owner and confirms that the bucket is owned by the account that created the Cost and Usage Report. Specifically:

- Every time a Cost and Usage Report is delivered, Amazon first confirms whether the bucket is still owned by the account which setup the report. If the bucket ownership has changed, the report will not be delivered. This helps to ensure the security of the account's billing data. This bucket policy allows Amazon ("Effect": "Allow") to check which account owns the bucket ("Action": ["s3:GetBucketAcl", "s3:GetBucketPolicy"]).
- To deliver reports to your Amazon S3 bucket, Amazon needs write permissions for that bucket. To do this, the bucket policy grants ("Effect": "Allow") the Amazon Cost and Usage



Reports service ("Service": "billingreports.amazonaws.com") permission to deliver ("Action": "s3:PutObject") reports to the bucket you own ("Resource": "arn:aws-cn:s3:::amzn-s3-demo-bucket/\*").

This bucket policy does not give Amazon permissions to read or delete any objects in your bucket, including the Cost and Usage Reports after they've been delivered.

- For an Amazon S3 bucket that has ACL enabled, Amazon further applies a `BucketOwnerFullControl` ACL to the reports when delivering them. By default, Amazon S3 objects, such as these reports, can only be read by the user or service principal who wrote them. To provide you or the bucket owner with permission to read the reports, Amazon must apply the `BucketOwnerFullControl` ACL. The ACL grants the bucket owner `Permission.FullControl` for these reports. However, it's recommended to disable ACL and use an Amazon S3 bucket policy to control access. Note that Amazon S3 has changed the default settings and, for newly created buckets, ACLs are disabled by default. For more information, see [Controlling ownership of objects and disabling ACLs for your bucket](#).

If you see an **Invalid bucket** error in your billing console for Cost and Usage Report, you should verify that this policy and bucket ownership haven't changed after report setup.

## Creating reports

### Note

Data Exports enables you to create exports of the Cost and Usage Report (CUR) 2.0. This is the new and recommended way to receive your detailed cost and usage data from Amazon. For more information, see [Migrating from CUR to CUR 2.0 in Data Exports](#).

You can use the **Cost and Usage Reports** page of the Billing and Cost Management console to create Cost and Usage Reports. You can create up to 10 reports for an individual Amazon account.

### Note

It can take up to 24 hours for Amazon to start delivering reports to your Amazon S3 bucket. After delivery starts, Amazon updates the Amazon Cost and Usage Reports files at least once a day.

## To create Cost and Usage Reports

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Cost and Usage Reports**.
3. Choose **Create report**.
4. For **Report name**, enter a name for your report.
5. For **Report additional content**, select **Include resource IDs** to include the IDs of each individual resource in the report.

### Note

Including resource IDs creates individual line items for each of your resources. This might increase the size of your Cost and Usage Reports files significantly, based on your Amazon usage.

6. Select **Split cost allocation data** to include detailed cost and usage for shared resources (Amazon ECS and Amazon EKS).

### Note

Including split cost allocation data creates individual line items for each of your resources (that is, ECS tasks and Kubernetes pods). This might increase the size of your Cost and Usage Reports files significantly, based on your Amazon usage.

7. For **Data refresh settings**, select whether you want the Amazon Cost and Usage Reports to refresh if Amazon applies refunds, credits, or support fees to your account after finalizing your bill. When a report refreshes, a new report is uploaded to Amazon S3.
8. Choose **Next**.
9. For **S3 bucket**, choose **Configure**.
10. In the **Configure S3 bucket** dialog box, do one of the following:
  - Select an existing bucket.
  - Select **Create a bucket**, enter a bucket name, and then choose the Region where you want to create a new bucket.

11. Review the bucket policy, select **The following default policy will be applied to your bucket**, and then choose **Save**.
12. For **Report path prefix**, enter the report path prefix that you want prepended to the name of your report.
13. For **Time granularity**, choose one of the following:
  - **Hourly** if you want the line items in the report to be aggregated by the hour.
  - **Daily** if you want the line items in the report to be aggregated by the day.
  - **Monthly** if you want the line items in the report to be aggregated by month.
14. For **Report versioning**, choose whether you want each version of the report to overwrite the previous version of the report or to be delivered in addition to the previous versions.

Overwriting reports can save on Amazon S3 storage costs. Delivering new report versions can improve auditability of billing data over time.
15. For **Report data integration**, select whether you want to enable your Cost and Usage Reports to integrate with Amazon Athena, Amazon Redshift, or QuickSight. The report is compressed in the following formats:
  - **Athena**: parquet format
  - **Amazon Redshift or QuickSight**: .gz compression
16. Choose **Next**.
17. After you have reviewed the settings for your report, choose **Review and Complete**.

You can always return to the **Cost and Usage Reports** page in the Billing and Cost Management console to see when your reports were last updated.

## Viewing and managing reports

To view information about your Cost and Usage Report, use the Billing and Cost Management console. To view your report's files, you can use the Amazon S3 console.

Use the following procedures to find your report and report files.

### To view your report details and files

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.

2. In the navigation pane, choose **Cost and Usage Reports**.
3. From your list of reports, choose the name of the report that you want to view.
4. On the **Report Details** page, you can view the report's settings.
5. To view the report's files, note the **Report path prefix** on the **Report Details** page.
6. Choose the bucket name listed under **Amazon S3 bucket**. The link opens this bucket in the Amazon S3 console.
7. From the list of objects in the bucket, choose the folder named with the first part of the **Report path prefix** that you noted in step 5. For example, if your **Report path prefix** is **example-report-prefix/example-report-name**, then choose the folder named **example-report-prefix**.
8. From the list of objects in the folder, choose the folder named with the second part of the **Report path prefix** that you noted in step 5. For example, if your **Report path prefix** is **example-report-prefix/example-report-name**, then choose the folder named **example-report-name**. This folder contains your report files.

## Viewing the latest report version

Amazon updates your Cost and Usage Report at least once a day until your charges are finalized. When you create a report, you can choose to create new report versions or overwrite the existing report version with every update.

If you configured your report to create new report versions with every update, then use the **assemblyId** in the manifest file to find the latest report files.

### To view your latest report files when you have multiple report versions

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Cost and Usage Reports**.
3. From your list of reports, choose the name of the report that you want to view.
4. On the **Report Details** page, note the **Report path prefix**.
5. Choose the bucket name listed under Amazon S3 bucket. The link opens this bucket in the Amazon S3 console.
6. From the list of objects in the bucket, choose the folder named with the first part of the **Report path prefix** that you noted in step 4. For example, if your **Report path prefix** is

- example-report-prefix/example-report-name**, then choose the folder named **example-report-prefix**.
- From the list of objects in the folder, choose the folder named with the second part of the **Report path prefix** that you noted in step 4. For example, if your **Report path prefix** is **example-report-prefix/example-report-name**, then choose the folder named **example-report-name**.
  - Open the folder named with the latest billing period (in the YYYYMMDD-YYYYMMDD format).
  - Open the **example-report-name-Manifest.json** file.
  - At the top of the manifest file, note the **assemblyId**. The **assemblyId** value corresponds to the name of the folder with the latest report files.
  - Return to the Amazon S3 console page where you're viewing the folder named with the latest billing period.
  - Open the folder named with the **assemblyId** value that you noted in step 10. For example, if the **assemblyId** value is **20210129T123456Z**, then open the folder named **20210129T123456Z/**. This folder contains your latest report files.

## Viewing your finalized report

After issuing your invoice at the end of the month, Amazon finalizes your report's usage charges. To determine if a line item on your report is final, review the **bill/InvoiceId** column. If the line item is final, then the **bill/InvoiceId** column is populated with an Amazon invoice ID. If the line item is not yet final, then the **bill/InvoiceId** column is blank.

To determine if your entire report is finalized, review the **bill/InvoiceId** column. If the report is final, then the **bill/InvoiceId** column is populated with invoice ID values. If the report is not yet final, then the **bill/InvoiceId** column is blank.

### Note

After your report is finalized, Amazon might update the report if Amazon applies refunds, credits, or support fees to your usage for the month. Because Developer, Business, and Enterprise Support are calculated based on final usage charges, those are reflected on the sixth or seventh of the month for the prior month's report. Amazon applies credits or refunds based on the terms of your agreement or contract with Amazon.

## Understanding your report versions

Amazon updates your Cost and Usage Report at least once a day until your charges are finalized. When you create a report, you can choose to create new report versions or overwrite the existing report version with every update.

Your report files include a .csv file or a collection of .csv files and the manifest file. Your report can also include any additional files that support your data's integration with Amazon Athena, Amazon Redshift, or QuickSight.

The following sections describe the file organization and naming conventions based on the report versioning that you choose.

### Cost and Usage Reports delivery timeline

During the report period, Amazon delivers a new report and a new manifest file each time Amazon updates the report. Amazon builds on previous reports until the end of the billing period. After the end of the report billing period, Amazon generates a new report with none of the information from the previous report.

### Creating new Cost and Usage Report versions

When you choose to keep your previous Cost and Usage Reports, your Amazon CUR uses the following Amazon S3 organization and naming conventions.

```
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<assemblyId>/<example-report-name>-<file-number>.csv.<zip|gz>
```

- `report-prefix` = The prefix that you assign to the report.
- `report-name` = The name that you assign to the report.
- `yyyymmdd-yyyymmdd` = The range of dates that the report covers. Reports are finalized at the end of the date range.
- `assemblyId` = An ID that Amazon creates each time that the report is updated.
- `file-number` = If the update includes a large file, Amazon might split it into multiple files. The `file-number` tracks the different files in an update.
- `csv` = The format of the report files.
- `zip` or `gz` = The type of compression applied to the report files.

For example, your report could be delivered as a collection of the following files.

```
<example-report-prefix>/<example-report-name>/20160101-20160131/<123456789>/<example-report-name>-<1>.csv.<zip>
<example-report-prefix>/<example-report-name>/20160101-20160131/<123456789>/<example-report-name>-<2>.csv.<zip>
<example-report-prefix>/<example-report-name>/20160101-20160131/<123456789>/<example-report-name>-<3>.csv.<zip>
<example-report-prefix>/<example-report-name>/20160101-20160131/<123456789>/<example-report-name>-Manifest.json
<example-report-prefix>/<example-report-name>/20160101-20160131/<example-report-name>-Manifest.json
```

Amazon delivers all reports in a report date range to the same report-prefix/report-name/yyyymmdd-yyyyymmdd folder. Amazon gives each report a unique ID and delivers it to the assemblyId subfolder in the date range folder. If the report is too large for a single file, the report is split into multiple files and delivered to the same assemblyId folder.

For more information on manifesting files when you keep a previous report, see [Cost and Usage Reports manifest files](#)

## Overwriting previous Cost and Usage Reports

When you choose to overwrite your previous Cost and Usage Reports, your Amazon CUR uses the following Amazon S3 organization and naming conventions.

```
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyyymmdd/<example-report-name>-<file-number>.csv.<zip|gz>
```

- report-prefix = The prefix that you assign to the report.
- report-name = The name that you assign to the report.
- yyyyymmdd-yyyyymmdd = The range of dates that the report covers. Amazon finalizes reports at the end of the date range.
- 
- file-number = If the update includes a large file, Amazon might split it into multiple files. The file-number tracks the different files in an update.
- csv = The format of the report files.
- zip or gz = The type of compression applied to the report files.

For example, your report could be delivered as a collection of the following files.

```
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<example-report-name>-
<1>.csv.<zip>
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<example-report-name>-
<2>.csv.<zip><example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<example-
report-name>-<3>.csv.<zip>
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<example-report-name>-
Manifest.json
```

## Athena specifications

If you chose Athena support when you created your Amazon CUR, the file naming conventions are the same as when you choose to overwrite your Amazon CUR except for the format and compression. Athena Amazon CUR files use `.parquet` instead. For example, your report could be delivered as a collection of the following files.

```
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<example-report-
name>.parquet
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/
<cost_and_usage_data_status>
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<example-report-name>-
Manifest.json
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<example-report-name>-
create-table.sql
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/crawler-cfn.yml
```

## Amazon CloudFormation specifications

In addition to the Amazon CUR files, Amazon also delivers an Amazon CloudFormation template that you can use to set up an Amazon CloudFormation stack that enables you to query Amazon S3 data using Athena. If you don't want to use the Amazon CloudFormation template, you can use the provided SQL to create your own Athena tables. For more information, see [Querying Cost and Usage Reports using Amazon Athena](#).

## Cost and Usage Reports manifest files

When Amazon updates Amazon CUR, Amazon also creates and delivers manifest files that you can use for Amazon Athena, Amazon Redshift, or QuickSight.

Manifest files use the naming conventions, and lists the following:



- All of the detail columns that are included in the report to date
- A list of report files if the report was split into multiple files
- The time period covered by the report, and other information.

```
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<example-report-name>-Manifest.json  
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<assemblyId>/<example-report-name>-Manifest.json  
<example-report-prefix>/<example-report-name>/<example-report-name>/year=2018/month=12/<example-report-name>-Manifest.json
```

## Creating new Cost and Usage Report versions

When you keep the previous Cost and Usage Reports, the manifest file is delivered to both the date range folder and the `assemblyId` folder. Each time Amazon creates a new Amazon CUR for a date range, it overwrites the manifest file stored in the date range folder with an updated manifest file. Amazon delivers the same updated manifest file to the `assemblyId` folder along with the files for that update. Manifest files in the `assemblyId` folder aren't overwritten.

## Overwriting the previous Cost and Usage Reports

When you overwrite the previous Amazon CUR, the manifest file is delivered to the `month=mm` folder. The manifest file is overwritten along with the report files.

## Amazon Redshift specifications

If you chose the option for Amazon Redshift support in your Amazon CUR, Amazon also creates and delivers a file with the SQL commands that you need to upload your report into Amazon Redshift. You can open the SQL file with a regular text editor. The SQL file uses the following naming convention.

```
<example-report-prefix>/<example-report-name>/yyyymmdd-yyyymmdd/<assemblyId>/<example-report-name>-RedshiftCommands.sql
```

If you use the commands in the `RedshiftCommands` file, you don't need to open the `RedshiftManifest` file.

### Important

The manifest file determines which report files the copy command in the RedshiftCommands file uploads. Deleting or removing the manifest file breaks the copy command in the RedshiftCommands file.

## Amazon Athena specifications

If you chose the option for Amazon Athena support in your Amazon CUR, Amazon also creates and delivers multiple files to help set up all of the resources that you need. Amazon delivers a Amazon CloudFormation template, a SQL file with the SQL to create your Athena table manually, and a file with the SQL to check your Amazon CUR refresh status. These files use the following naming conventions.

```
<example-report-prefix>/<example-report-name>/<example-report-name>/yyyymmdd-yyyymmdd/  
crawler-cfn.yml  
<example-report-prefix>/<example-report-name>/<example-report-name>/yyyymmdd-yyyymmdd/  
<example-report-name>-create-table.sql  
<example-report-prefix>/<example-report-name>/<example-report-name>/yyyymmdd-yyyymmdd/  
<cost_and_usage_data_status>
```

## Editing your Cost and Usage Reports configuration

You can use the **Cost and Usage Reports** page in the Billing and Cost Management console to edit Cost and Usage Reports.

### Note

Report names can't be edited. If you chose **Overwrite** for **Report versioning**, you're unable to edit the report name, whether the report includes resource IDs, time granularity, or the report versioning. If you delete a report set to **Overwrite** and create a new report with the same name, Amazon S3 bucket, and path prefix, your data could corrupt and become inaccurate.

## To edit Cost and Usage Reports

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Cost and Usage Reports**.
3. Select the report that you want to edit and choose **Edit report**.
4. (Versioned reports only) For **Report additional content**, select **Include resource IDs** to include the IDs of each individual resource in the report.

### Note

Including resource IDs creates individual line items for each of your resources. This might increase the size of your Cost and Usage Reports files significantly, based on your Amazon usage.

5. Select **Split cost allocation data** to include detailed cost and usage for shared resources (Amazon ECS and Amazon EKS).

### Note

Including split cost allocation data creates individual line items for each of your resources (that is, ECS tasks and Kubernetes pods). This might increase the size of your Cost and Usage Reports files significantly, based on your Amazon usage.

6. For **Data refresh settings**, select whether you want the Amazon Cost and Usage Reports to refresh if Amazon applies refunds, credits, or support fees to your account after finalizing your bill. When a report refreshes, a new report is uploaded to Amazon S3.
7. Choose **Next**.
8. For **S3 bucket**, enter the name of the Amazon S3 bucket where you want the reports delivered.
9. Choose **Verify**.

### Note

The bucket must have appropriate permissions to be valid. For more information on adding permissions to the bucket, see [Setting Bucket and Object Access Permissions](#) in the [Amazon Simple Storage Service User Guide](#).

10. For **Report path prefix**, enter the report path prefix that you want prepended to the name of your report.
11. (Versioned reports only) For **Time granularity**, choose one of the following:
  - **Hourly**: If you want the line items in the report to be aggregated by the hour.
  - **Daily**: If you want the line items in the report to be aggregated by the day.
  - **Monthly** if you want the line items in the report to be aggregated by month.
12. (Versioned reports only) For **Report versioning**, choose whether you want each version of the report to overwrite the previous version of the report, or to be delivered in addition to the previous versions.
13. For **Report data integration**, select whether you want to enable your Amazon CUR to integrate with Amazon Athena, Amazon Redshift, or QuickSight. The report is compressed in the following formats:
  - **Athena**: Parquet format
  - **Amazon Redshift or QuickSight**: .gz compression
14. Choose **Save**.

## Using Cost and Usage Reports for Amazon Organizations

In Amazon Organizations, both management accounts and member accounts can create Cost and Usage Reports. The IAM policies that allow or restrict the ability to create a report are the same for both types of accounts.

### Note

The account that creates the Cost and Usage Report must also own the Amazon S3 bucket that Amazon sends the reports to. You cannot configure a Cost and Usage Report to deliver to an Amazon S3 bucket owned by another account. For more information about Amazon S3 bucket setup requirements, see [Setting up an Amazon S3 bucket for Cost and Usage Reports](#).

## Managing Cost and Usage Reports as a member account

If you have permissions to create a Cost and Usage Report for a member account within an organization, you can create a report for only the member account's cost and usage data. The member account receives reports for its cost and usage during the time that the account has been a member of its current organization.

For example, say a member account leaves organization A and joins organization B on the 15th of the month. Then, the member account creates a report. Because the member account created a report after joining organization B, the member account's report for the month includes billing data for only the time that the account has been a member of organization B.

After a member account joins a new organization, the member account's cost and usage are recorded in the new organization's reports. This is the same outcome for a management account that converts to a member account and joins a new organization.

When a member account leaves an organization or converts into a standalone account, the member account can still access the previous reports as long as they have permissions to the Amazon S3 bucket where the previous reports are stored.

## Managing Cost and Usage Reports as a management account

If you're an administrator of an Amazon Organizations management account and you don't want member accounts to create a report, you can apply a service control policy (SCP) that prevents member accounts from creating reports. The SCP can prevent member accounts from creating new reports, but it doesn't delete reports created previously.

### Note

SCPs apply only to member accounts. To prevent a management account from creating a report, modify the IAM policies attached to the user roles in the management account.

For more information on consolidated billing, see [Consolidated billing for Amazon Organizations](#) in the *Amazon Billing User Guide*.

## Querying Cost and Usage Reports using Amazon Athena

Amazon Athena is a serverless query service that you can use to analyze the data from your Amazon Cost and Usage Reports (Amazon CUR) in Amazon Simple Storage Service (Amazon S3)

using standard SQL. This helps you avoid having to create your own data warehouse solutions to query Amazon CUR data.

We strongly recommend that you create both a new Amazon S3 bucket and a new Amazon CUR report to use with Athena. Amazon CUR supports only the Apache Parquet compression format for Athena and automatically overwrites previous reports that are stored in your S3 bucket.

This section outlines how to use Athena with Cost and Usage Reports. For a full description of the Athena service, see the [Amazon Athena User Guide](#).

## Topics

- [Setting up Athena using Amazon CloudFormation templates](#)
- [Setting up Athena manually](#)
- [Running Amazon Athena queries](#)
- [Loading report data to other resources](#)

For a demonstration of querying reports using Athena, see the following video.

[Analyze Cost and Usage Reports using Amazon Athena](#)

## Setting up Athena using Amazon CloudFormation templates

### Important

Amazon CloudFormation doesn't support cross-Region resources. If you plan to use an Amazon CloudFormation template, you must create all resources in the same Amazon Region. The Region must support the following services:

- Amazon Lambda
- Amazon Simple Storage Service (Amazon S3)
- Amazon Glue
- Amazon Athena

To streamline and automate integration of your Cost and Usage Reports with Athena, Amazon provides an Amazon CloudFormation template with several key resources along with the reports that you set up for Athena integration. The Amazon CloudFormation template includes an Amazon Glue crawler, an Amazon Glue database, and an Amazon Lambda event.

The Athena integration setup process using Amazon CloudFormation removes any Amazon S3 events that your bucket might already have. This can negatively affect any existing event-based processes that you have for an existing Amazon CUR report. We strongly recommend that you create both a new Amazon S3 bucket and a new Amazon CUR report to use with Athena.

Before you can use a CloudFormation template to automate Athena integration, make sure that you do the following:

- Create a new Amazon S3 bucket for your reports. For more information, see [Creating a bucket](#) in the *Amazon S3 User Guide*.
- [Create a new report](#) to use with Athena. During the setup process, for **Report data integration**, choose **Athena**.
- Wait for the first report to be delivered to your Amazon S3 bucket. It can take up to 24 hours for Amazon to deliver your first report.

### To use the Athena Amazon CloudFormation template

1. Open the Amazon S3 console at <https://console.amazonaws.cn/s3/>.
2. From the list of buckets, choose the bucket where you chose to receive your Amazon CUR report.
3. Choose your report path prefix (*your-report-path-prefix/*). Then, choose your report name (*your-report-name/*).
4. Choose the `.yaml` template file.
5. Choose **Object actions**, and then choose **Download as**.
6. Open the Amazon CloudFormation console at <https://console.amazonaws.cn/cloudformation>.
7. If you have never used Amazon CloudFormation before, choose **Create New Stack**. Otherwise, choose **Create Stack**.
8. Under **Prepare template**, choose **Template is ready**.
9. Under **Template source**, choose **Upload a template file**.
10. Choose **Choose file**.
11. Choose the downloaded `.yaml` template, and then choose **Open**.
12. Choose **Next**.
13. For **Stack name**, enter a name for your template and choose **Next**.
14. Choose **Next**.

15. At the bottom of the page, select **I acknowledge that Amazon CloudFormation might create IAM resources**.

This template creates the following resources:

- Three IAM roles
- An Amazon Glue database
- An Amazon Glue crawler
- Two Lambda functions
- An Amazon S3 notification

16. Choose **Create stack**.

### To update the existing Athena Amazon CloudFormation template

1. Open the Amazon S3 console at <https://console.amazonaws.cn/s3/>.
2. From the list of buckets, choose the bucket where you chose to receive your Amazon CUR report.
3. Choose your report path prefix (*your-report-path-prefix/*). Then, choose your report name (*your-report-name/*).
4. Choose the `.yaml` template file.
5. Choose **Object actions**, and then choose **Download as**.
6. Open the Amazon CloudFormation console at <https://console.amazonaws.cn/cloudformation>.
7. Select the stack that was previously created, and then choose **Update**.
8. Under **Prepare template**, choose **Replace current template**.
9. Under **Template source**, choose **Upload a template file**.
10. Choose **Choose file**.
11. Choose the downloaded `.yaml` template, and then choose **Open**.
12. Choose **Next**.
13. On the **Specify stack details** page, modify any details, and then choose **Next**.
14. Choose **Next**.
15. At the bottom of the page, select **I acknowledge that Amazon CloudFormation might create IAM resources**.



## 16. Choose **Update stack**.

### Setting up Athena manually

We strongly recommend that you use the Amazon CloudFormation template to create your table instead of creating it yourself. The provided SQL query creates a table that covers only a single month of data, but the Amazon CloudFormation template creates a table that can include multiple months and that updates automatically. For more information on how to set up the Amazon CloudFormation template, see [the section called “Setting up Athena with CloudFormation”](#).

If you choose not to use the Amazon CloudFormation template to set up your Athena table, manually follow the steps below. You need to create a table before you can run SQL queries on your Amazon CUR data. You will need to do this step at least once a month and the table only includes data from the current Amazon CUR.

As part of the table creation process, Amazon transforms the Amazon CUR column names. For more information about the transformation process, see [the section called “Column names”](#).

- [Creating an Athena table](#)
- [Creating a Cost and Usage Reports status table](#)
- [Uploading your report partitions](#)

### Creating an Athena table

Amazon includes the SQL that you need to run to create this table in your Amazon CUR bucket.

#### To create your Athena table

1. Sign in to the Amazon Web Services Management Console and open the Amazon S3 console at <https://console.amazonaws.cn/s3/>.
2. From the list of buckets, choose the bucket where you chose to receive your Cost and Usage Reports.
3. Navigate the path *your-report-prefix-your-report-name-path-to-report*.

The exact path depends on whether your Amazon CUR is set to overwrite previous versions. For more information, see [Cost and Usage Reports delivery timeline](#).

4. Open the file *my-report-name-create-table.sql*.

5. Copy the SQL from the file, starting with CREATE and ending with LOCATION 's3://*your-report-prefix/your-report-name/the-rest-of-the=path*'. Take note of the first line, as you need the database name and table to create the Athena database.
6. Open the Athena console at <https://console.amazonaws.cn/athena/>.
7. In the **New query 1** query pane, paste the following SQL. For *<database name>.<table name>*, use the database and table name from the first line of the SQL that you copied.

```
CREATE DATABASE <database name>
```

8. Choose **Run query**.
9. In the dropdown menu, choose the database that you just created.
10. In the **New query 1** query pane, paste the rest of the SQL from the SQL file.
11. Choose **Run query**.

After you create your table, you need to load your partitions before you can run a query. For more information, see [Uploading your report partitions](#).

## Creating a Cost and Usage Reports status table

Amazon refreshes your Amazon CUR multiple times a day. There isn't a way for Athena to tell when Amazon is in the process of refreshing your report, which can lead to query results with a combination of old and new data. To mitigate this, create a table to track whether Amazon is refreshing your Cost and Usage Reports and query that table to see if Amazon is refreshing your data. You only need to create this table once. After that, Amazon keeps the table up to date.

### To create your refresh table

1. Open the Athena console at <https://console.amazonaws.cn/athena/>.
2. In the **New query 1** query pane, paste the following SQL.

```
CREATE EXTERNAL TABLE IF NOT EXISTS cost_and_usage_data_status(  
    status STRING)  
ROW FORMAT SERDE  
    'org.apache.hadoop.hive.q1.io.parquet.serde.ParquetHiveSerDe'  
WITH SERDEPROPERTIES (  
    'serialization.format' = '1'  
)  
LOCATION 's3://{S3_Bucket_Name}/{Report_Key}/cost_and_usage_data_status/'
```

### 3. Choose **Run query**.

To check whether Amazon is refreshing your data, use the Athena console to run the following SQL query.

```
select status from cost_and_usage_data_status
```

## Uploading your report partitions

To query your Cost and Usage Reports data, you need to upload the data into your Athena table. You must do this for each new Amazon CUR report that Amazon delivers to you.

### To upload your latest partitions

1. Open the Athena console at <https://console.amazonaws.cn/athena/>.
2. Choose the vertical three dots next to your table name.
3. Choose **Load partitions**.

If you don't upload your partitions, Athena returns either no results or an error message that indicates missing data.

## Running Amazon Athena queries

To run Athena queries on your data, first use the Athena console to check whether Amazon is refreshing your data and then run your query on the Athena console. When you run your SQL, make sure that the correct database is selected from the dropdown list. You can use the following SQL to check the status.

```
select status from cost_and_usage_data_status
```

The two possible results are `READY` and `UPDATING`. If the status is `READY`, then you can query your Athena database. If the status is `UPDATING`, then Athena might return incomplete results.

After you've confirmed that Amazon is refreshing your data, you can run your own queries. For example, the following query shows year-to-date costs by service for each month in the example database called `mycostandusage_parquet`. The following query shows 2018 year-to-date costs. Update the year to see current year-to-date costs.

```
SELECT line_item_product_code,  
sum(line_item_blended_cost) AS cost, month  
FROM mycostandusage_parquet  
WHERE year='2018'  
GROUP BY line_item_product_code, month  
HAVING sum(line_item_blended_cost) > 0  
ORDER BY line_item_product_code;
```

## Column names

Athena column name restrictions are different from the Cost and Usage Reports column name restrictions. This means that when your Amazon CUR data is uploaded into an Athena table, the column names change. Amazon makes the following changes:

- An underscore is added in front of uppercase letters
- Uppercase letters are replaced with lowercase letters
- Any non-alphanumeric characters are replaced with an underscore
- Duplicate underscores are removed
- Any leading and trailing underscores are removed
- If the column name is longer than the allowed length of column names, underscores are removed from left to right

### Note

After applying these rules, some of the resource tag columns will have duplicate names. Amazon merges columns when there are more than one columns with the same name.

As examples, the column name ExampleColumnName becomes example\_column\_name, and the column name Example Column Name becomes example\_column\_name.

## Loading report data to other resources

You can upload Cost and Usage Reports to Amazon Redshift and Amazon QuickSight to analyze your Amazon cost and usage.

### Topics

- [Loading report data to Amazon QuickSight](#)
- [Loading report data to Amazon Redshift](#)

## Loading report data to Amazon QuickSight

You can upload your Cost and Usage Reports into Amazon QuickSight.

For more information about uploading to QuickSight, see [Creating a Data Set Using Amazon S3 Files](#) in the *QuickSight User Guide*.

## Loading report data to Amazon Redshift

This section shows how you can upload Amazon CUR to Amazon Redshift to analyze your Amazon costs and usage.

### Important

Amazon Redshift columns aren't case sensitive and has stricter character limitations than user-defined tags. To prevent conflicts between Amazon Redshift and user-defined tags, Amazon replaces your tags with the tags `userTag0`, `userTag1`, `userTag2`, etc. After you create an Amazon Redshift table and upload your report into it, you can create an Amazon Redshift table that maps the Amazon-defined tags to your user-defined tags. The tag table allows you to look up your original tags.

For example, if you have the tags `OWNER` and `Owner`, Amazon Redshift doesn't allow you to create a table with two columns named "owner". Instead, you create a report table with the columns `userTag0` and `userTag1` instead of `OWNER` and `Owner`, and then create a table with the columns `remappedUserTag` and `userTag`. The `remappedUserTag` column stores the Amazon-defined tags `userTag0` and `userTag1`, and the `userTag` column stores your original tags, `OWNER` and `Owner`.

Amazon provides the commands to create your Amazon Redshift table, upload your report, create your tag table, and insert all of the tag rows into your tag table. The commands are provided to you in the `RedshiftCommands.sql` file that is stored alongside your manifest file in S3, and in the **Redshift file Helper file** in the Billing and Cost Management console. Amazon also provides a `RedshiftManifest` file, which controls which report the commands in the `RedshiftCommand` file uploads. Deleting or removing the `RedshiftManifest` file breaks the copy command in the `RedshiftCommands` file.

## To find the `RedshiftCommands.sql` file in the Billing and Cost Management console

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Cost and Usage Reports**.
3. Choose the report that you want to upload to Amazon Redshift.
4. Next to **You have enabled viewing reports in the following service(s)**, choose **Amazon Redshift**.
5. Copy the commands from the dialog box and paste them into your SQL client.

The following procedure assumes familiarity with databases and Amazon Redshift.

## To upload an Cost and Usage Reports to Amazon Redshift

1. Create an Amazon Redshift cluster.

For more information, see [Creating a Cluster](#) in the *Amazon Redshift Management Guide*.

2. Sign in to the Amazon Web Services Management Console and open the Amazon S3 console at <https://console.amazonaws.cn/s3/>.
3. Navigate to the Amazon S3 location where you store your Amazon CUR.
4. Open the `RedshiftCommands.sql` file.

The file contains customized commands to create an Amazon Redshift table, upload the Amazon CUR from Amazon S3, and create a tag table that allows user-defined tags to be imported into Amazon Redshift.

5. In the copy command, replace `<AWS_ROLE>` with the ARN of an IAM role that has permissions to access the Amazon S3 bucket where you store your Amazon CUR.
6. Replace `<S3_BUCKET_REGION>` with the Region your Amazon S3 bucket is in. For example, `us-east-1`.
7. Use a SQL client to connect to the cluster.

For more information, see [Accessing Amazon Redshift Clusters and Databases](#) in the *Amazon Redshift Management Guide*.

8. Copy the SQL commands from the `RedshiftCommands.sql` file to your SQL client in the following order:

- **create table** - This command creates an Amazon Redshift table with a schema customized to match your report.
  - **copy** - This command uses the provided IAM role to upload the Amazon CUR files from S3 to Amazon Redshift.
  - **create tag table** - This command creates a table that allows you to map Amazon-defined tags to your user-defined tags.
  - **insert** - These commands insert the user-defined tags into the tag table.
9. After you have copied all of the data from your Amazon CUR into Amazon Redshift, you can query the data using SQL. For more information about querying data in Amazon Redshift, see [Amazon Redshift SQL](#) in the *Amazon Redshift Database Developer Guide*.

### Note

The number of columns in Cost and Usage Reports can change from month to month, such as when a new cost allocation tag is created or a service adds a new product attribute. We recommend that you copy the data from your Amazon CUR into a new table every month, and then copy the columns that interest you into a separate month-by-month table.

## Configuring Cost and Usage Reports using Billing Conductor

You can create pro forma Amazon Cost and Usage Reports (Amazon CUR) for each billing group that you create in Billing Conductor. The pro forma Amazon CUR has the same file format, granularity, and columns as the standard Amazon CUR. Pro forma contains the most comprehensive set of cost and usage data available for a given period of time. For more information about Billing Conductor, see the [Billing Conductor User Guide](#).

### Topics

- [Understanding the differences between Billing Conductor Amazon CUR and standard Amazon CUR](#)
- [Create pro forma Cost and Usage Reports for a billing group](#)

## Understanding the differences between Billing Conductor Amazon CUR and standard Amazon CUR

There are a few differences between the standard Cost and Usage Reports and pro forma Amazon CUR created using the Billing Conductor configuration.

- The standard Amazon CUR computes the cost and usage for each account in your consolidated billing family. A pro forma Amazon CUR per billing group only includes the accounts in the billing group at the time of computation.
- The standard Amazon CUR populates the invoice column once an invoice is generated by Amazon. A pro forma Amazon CUR doesn't populate the invoice column. Currently, no invoice is generated, or issued by Amazon based on pro forma billing data.

### Create pro forma Cost and Usage Reports for a billing group

Use the following steps to generate a pro forma Amazon CUR for a billing group.

#### To create pro forma Cost and Usage Reports for a billing group

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Cost and Usage Reports**.
3. On the top right of the **Report table**, choose **Settings**.
4. Turn on the **Pro forma** data view.
5. Choose **Enable**.
6. Choose **Create report**.
7. For **Report name**, enter a name for your report.
8. For **Data view**, choose **pro forma**.
9. Choose a billing group.
10. For **Additional report details**, choose **Include resource IDs** to include the IDs of each individual resource in the report.
11. For **Data refresh settings**, choose if you want Cost and Usage Reports to refresh if Amazon applies refunds, credits, or support fees to your account after finalizing your bill. When a report refreshes, a new report is uploaded to Amazon S3.
12. Choose **Next**.



13. For **S3 bucket**, choose **Configure**.
14. In the **Configure S3 Bucket** dialog box, do one of the following:
  - Choose an existing bucket from the drop down list and choose **Next**.
  - Enter a bucket name and the Amazon Region where you want to create a new bucket and choose **Next**.
15. Review the bucket policy, select **I have confirmed that this policy is correct**, and choose **Save**.
16. For **Report path prefix**, enter the report path prefix that you want prepended to the name of your report.

This step is optional for Amazon Redshift or QuickSight, but required for Amazon Athena. If you don't specify a prefix, the default prefix is the name that you specified for the report in step 7, and the date range for the report in the following format: `/report-name/date-range/`

17. For **Time granularity**, choose one of the following:
  - **Hourly** if you want the line items in the report to be aggregated by the hour.
  - **Daily** if you want the line items in the report to be aggregated by the day.
18. For **Report versioning**, choose whether you want each version of the report to overwrite the previous version of the report, or to be delivered in addition to the previous versions.

Overwriting reports can save on Amazon S3 storage costs. Delivering new report versions can improve auditability of billing data over time.
19. For **Report data integration**, choose whether you want to upload your Cost and Usage Reports to Amazon Athena, Amazon Redshift, or QuickSight. The report is compressed in the following formats:
  - **Athena**: parquet format
  - **Amazon Redshift or QuickSight**: .gz compression
20. Choose **Next**.
21. After you have reviewed the settings for your report, choose **Review and Complete**.

## Data dictionary

Cost and Usage Reports contain details about your usage. The following sections list and describe a subset of columns that you see in your report, and the corresponding definitions.

To download the full list of the columns that can appear in Amazon Cost and Usage Reports (Amazon CUR) and the services that the columns apply to, download [Column\\_Attribute\\_Service.zip](#). This comma-separated values (CSV) list includes **Identity**, **Bill**, **LineItem**, **Reservation**, **Pricing**, and **Product** columns.

Every Cost and Usage Report includes **Identity**, **Bill**, and **LineItem** columns. All other columns are included in your report only if your monthly Amazon usage generates data to populate those columns.

## Topics

- [Identity details](#)
- [Billing details](#)
- [Line item details](#)
- [Reservation details](#)
- [Pricing details](#)
- [Product details](#)
- [Resource tags details](#)
- [Savings Plans details](#)
- [Cost Categories details](#)
- [Discount details](#)
- [Split line item details](#)

## Identity details

Columns under the **identity** header in Amazon Cost and Usage Reports are static fields that appear in all Cost and Usage Reports.

You can use the identity line items in the report to find specific line items that have been split across multiple Amazon CUR files. These include the following columns:

### **identity/LineItemId**

- **Description:** This field is generated for each line item and is unique in a given partition. This does not guarantee that the field will be unique across an entire delivery (that is, all partitions in an

update) of the Amazon CUR. The line item ID isn't consistent between different Cost and Usage Reports and can't be used to identify the same line item across different reports.

- **Example:** A report created for November 29 can be large enough to require multiple files. The **LineItemId** is consistent between the November 29 Amazon CUR files, but doesn't match the **LineItemId** for the same resource in the November 30 report.

## identity/TimeInterval

- **Description:** The time interval that this line item applies to, in the following format: YYYY-MM-DDTHH:mm:ssZ/YYYY-MM-DDTHH:mm:ssZ. The time interval is in UTC and can be either daily or hourly, depending on the granularity of the report.
- **Example:** The **TimeInterval** 2017-11-01T00:00:00Z/2017-12-01T00:00:00Z includes the entire month of November 2017.

## Billing details

Columns under the **bill** header in Amazon Cost and Usage Reports are static fields that appear in all Cost and Usage Reports. You can use the billing line items in the report to find details about the specific bill covered by the report, such as the charge type and the beginning and end of the billing period. This includes the following columns:

A | [B](#) | C | D | E | F | G | H | [I](#) | J | K | L | M | N | O | [P](#) | Q | R | S | T | U | VWXYZ

### B

#### bill/BillingEntity

Helps you identify whether your invoices or transactions are for Amazon Web Services Marketplace or for purchases of other Amazon services. Possible values include:

- **China (Beijing)** – Amazon Web Services China (Beijing) Region operated by Sinnet
- **China (Ningxia)** – Amazon Web Services China (Ningxia) Region operated by NWCD

#### bill/BillingPeriodEndDate

The end date of the billing period that is covered by this report, in UTC. The format is YYYY-MM-DDTHH:mm:ssZ.

## **bill/BillingPeriodStartDate**

The start date of the billing period that is covered by this report, in UTC. The format is YYYY-MM-DDTHH:mm:ssZ.

## **bill/BillType**

The type of bill that this report covers. There are three bill types:

- **Anniversary** – Line items for services that you used during the month
- **Purchase** – Line items for upfront service fees
- **Refund** – Line items for refunds

## **I**

### **bill/InvoiceId**

The ID associated with a specific line item. Until the report is final, the **InvoiceId** is blank.

### **bill/InvoicingEntity**

The Amazon entity that issues the invoice. Possible values include:

- **Amazon Web Services, Inc.** – The entity that issues invoices to customer globally, where applicable.
- **Amazon Web Services India Private Limited** – The entity that issues invoices to customers based in India.
- **Amazon Web Services South Africa Proprietary Limited** – The entity that issues invoices to customers in South Africa.

## **P**

### **bill/PayerAccountId**

The account ID of the paying account. For an organization in Amazon Organizations, this is the account ID of the management account.

## Line item details

Columns under the **lineItem** header in Amazon Cost and Usage Reports are static fields that appear in all Cost and Usage Reports. They cover all of the cost and usage information for your usage. This includes the following columns:

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | VWXYZ

### A

#### lineItem/AvailabilityZone

The Availability Zone that hosts this line item. For example, us-east-1a or us-east-1b.

### B

#### lineItem/BlendedCost

The BlendedRate multiplied by the UsageAmount.

#### Note

**BlendedCost** is blank for line items that have a **LineItemType** of **Discount**. Discounts are calculated using only the unblended cost of a member account, aggregated by member account and SKU. As a result, **BlendedCost** is not available for discounts.

#### lineItem/BlendedRate

The BlendedRate is the average cost incurred for each SKU across an organization.

For example, the Amazon S3 blended rates are the total cost of storage divided by the amount of data stored per month. For accounts with RIs, the blended rates are calculated as the average costs of the RIs and the On-Demand Instances.

Blended rates are calculated at the management account level, and used to allocate costs to each member account. For more information, see [Blended Rates and Costs](#) in the *Amazon Billing User Guide*.

## C

### lineItem/CurrencyCode

The currency that this line item is shown in. All Amazon customers are billed in US dollars by default. To change your billing currency, see [Changing which currency you use to pay your bill](#) in the *Amazon Billing User Guide*.

## L

### lineItem/LegalEntity

The Seller of Record of a specific product or service. In most cases, the invoicing entity and legal entity are the same. The values might differ for third-party Amazon Web Services Marketplace transactions. Possible values include:

- **Amazon Web Services, Inc.** – The entity that sells Amazon services.
- **Amazon Web Services India Private Limited** – The local Indian entity that acts as a reseller for Amazon services in India.

### lineItem/LineItemDescription

The description of the line item type. For example, the description of a usage line item summarizes what type of usage you incurred during a specific time period.

For size-flexible RIs, the description corresponds to the RI the benefit was applied to. For example, if a line item corresponds to a `t2.micro` and a `t2.small` RI was applied to the usage, the **lineItem/LineItemDescription** displays `t2.small`.

The description for a usage line item with an RI discount contains the pricing plan covered by the line item.

### lineItem/LineItemType

The type of charge covered by this line item. Possible types are the following:

- **BundledDiscount** – A usage-based discount that provides free or discounted usage of a service or feature based on the usage of another service or feature.
- **Credit** – Any credits that Amazon applied to your bill. See the **Description** column for details. Amazon might update reports after they have been finalized if Amazon applies a credit to your account for the month after finalizing your bill.

- **Discount** – Any discounts that Amazon applied to your usage. This specific line item name may vary and require parsing based on the discount. For more information, refer to the **lineltem/LineltemDescription** column.
- **DiscountedUsage** – The rate for any instances for which you had Reserved Instance (RI) benefits.
- **Fee** – Any upfront annual fee that you paid for subscriptions. For example, the upfront fee that you paid for an **All Upfront RI** or a **Partial Upfront RI**.
- **Refund** – The negative charges that Amazon refunded money for. Check the **Description** column for details. Amazon might update reports after they have been finalized if Amazon applies a refund to your account for the month after finalizing your bill.
- **RIFee** – The monthly recurring fee for subscriptions. For example, the recurring fee for **Partial Upfront RIs**, **No Upfront RIs**, and **All Upfronts** that you pay every month. Although the RIFee might be \$0 for all upfront reservations, this line is still populated for those reservation types to provide other columns such as **reservation/AmortizedUpfrontFeeForBillingPeriod** and **reservation/ReservationARN**.
- **Tax** – Any taxes that Amazon applied to your bill. For example, VAT or US sales tax.
- **Usage** – Any usage that is charged at On-Demand Instance rates.
- **SavingsPlanUpfrontFee** – Any one-time upfront fee from your purchase of an All Upfront or Partial Upfront Savings Plan.
- **SavingsPlanRecurringFee** – Any recurring hourly charges that correspond with your No Upfront or Partial Upfront Savings Plan. The Savings Plan recurring fee is initially added to your bill on the day that you purchase a No Upfront or Partial Upfront Savings Plan. After the initial purchase, Amazon adds the recurring fee to the first day of each billing period thereafter.
- **SavingsPlanCoveredUsage** – Any on-demand cost that is covered by your Savings Plan. Savings Plan covered usage line items are offset by the corresponding Savings Plan negation items.
- **SavingsPlanNegation** – Any offset cost through your Savings Plan benefit that's associated with the corresponding Savings Plan covered usage item.

For more information and examples of Savings Plans line items, see [Understanding Savings Plans](#).

## N

### **lineltem/NetUnblendedCost**

The actual after-discount cost that you're paying for the line item. This column is included in your report only when your account has a discount in the applicable billing period.

## lineItem/NetUnblendedRate

The actual after-discount rate that you're paying for the line item. This column is included in your report only when your account has a discount in the applicable billing period.

## lineItem/NormalizationFactor

As long as the instance has shared tenancy, Amazon can apply all Regional Linux or Unix Amazon EC2 and Amazon RDS RI discounts to all instance sizes in an instance family and Amazon Region. This also applies to RI discounts for member accounts in an organization. All new and existing Amazon EC2 and Amazon RDS size-flexible RIs are sized according to a normalization factor, based on the instance size. The following table shows the normalization factor that Amazon applies to each instance size.

### Normalization factors for Amazon EC2 size-flexible RIs

Instance size	Normalization factor
nano	0.25
micro	0.5
small	1
medium	2
large	4
xlarge	8
2xlarge	16
4xlarge	32
	64



Instance size	Normalization factor
8xlarge	
10xlarge	80
16xlarge	128
32xlarge	256

### lineltem/NormalizedUsageAmount

The amount of usage that you incurred, in normalized units, for size-flexible RIs. The **NormalizedUsageAmount** is equal to **UsageAmount** multiplied by **NormalizationFactor**.

## O

### lineltem/Operation

The specific Amazon operation covered by this line item. This describes the specific usage of the line item. For example, a value of RunInstances indicates the operation of an Amazon EC2 instance.

## P

### lineltem/ProductCode

The code of the product measured. For example, Amazon EC2 is the product code for Amazon Elastic Compute Cloud.

## R

### lineltem/ResourceId

(Optional) If you chose to include individual resource IDs in your report, this column contains the ID of the resource that you provisioned. For example, an Amazon S3 storage bucket, an Amazon EC2 compute instance, or an Amazon RDS database can each have a resource ID. This field is blank for usage types that aren't associated with an instantiated host, such as data transfers and API

requests, and line item types such as discounts, credits, and taxes. The following table shows a list of resource identifiers for common Amazon services.

### Amazon resource identifiers

Amazon service	Resource identifier
Amazon CloudFront	Distribution ID
Amazon CloudSearch	Search domain
Amazon DynamoDB	DynamoDB table
Amazon Elastic Compute Cloud - Amazon EBS	Amazon EBS volume
Amazon Elastic Compute Cloud	Instance ID
Amazon Elastic Compute Cloud - CloudWatch	CloudWatch charges for an instance ID
Amazon EMR	MapReduce cluster
Amazon ElastiCache	Cache cluster
Amazon OpenSearch Service	Search domain
Amazon S3 Glacier	Vault
Amazon Relational Database Service	Database
Amazon Redshift	Amazon Redshift cluster
Amazon Simple Storage Service	Amazon S3 bucket

Amazon service	Resource identifier
Amazon Virtual Private Cloud	VPN ID
Amazon Lambda	Lambda function name

## T

### **lineitem/TaxType**

The type of tax that Amazon applied to this line item.

## U

### **lineitem/UnblendedCost**

The UnblendedCost is the UnblendedRate multiplied by the UsageAmount.

### **lineitem/UnblendedRate**

In consolidated billing for accounts using Amazon Organizations, the unblended rate is the rate associated with an individual account's service usage.

For Amazon EC2 and Amazon RDS line items that have an RI discount applied to them, the UnblendedRate is zero. Line items with an RI discount have a LineItemType of DiscountedUsage.

### **lineitem/UsageAccountId**

The account ID of the account that used this line item. For organizations, this can be either the management account or a member account. You can use this field to track costs or usage by account.

### **lineitem/UsageAmount**

The amount of usage that you incurred during the specified time period. For size-flexible Reserved Instances, use the **reservation/TotalReservedUnits** column instead.

**Note**

Certain subscription charges will have a **UsageAmount** of 0.

**lineItem/UsageEndDate**

The end date and time for the corresponding line item in UTC, exclusive. The format is YYYY-MM-DDTHH:mm:ssZ.

**lineItem/UsageStartDate**

The start date and time for the line item in UTC, inclusive. The format is YYYY-MM-DDTHH:mm:ssZ.

**lineItem/UsageType**

The usage details of the line item. For example, USW2-BoxUsage:m2.2xlarge describes an M2 High Memory Double Extra Large instance in the US West (Oregon) Region.

**Reservation details**

Columns under the **reservation** header in Amazon Cost and Usage Reports provide details about reserved resources.

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | VWXYZ

**A****reservation/AmortizedUpfrontCostForUsage**

- **Description:** The initial upfront payment for all upfront RIs and partial upfront RIs amortized for usage time. The value is equal to:  $RIAmortizedUpfrontFeeForBillingPeriod * \frac{\text{The normalized usage amount for DiscountedUsage line items}}{\text{The normalized usage amount for the RIFee}}$ . Because there are no upfront payments for no upfront RIs, the value for a no upfront RI is 0. We do not provide this value for Dedicated Host reservations at this time. The change will be made in a future update.
- **Line items applicable:** DiscountedUsage
- **Sample values:** 0.05, 0.17, 0.15

- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

### **reservation/AmortizedUpfrontFeeForBillingPeriod**

- **Description:** Describes how much of the upfront fee for this reservation is costing you for the billing period. The initial upfront payment for all upfront RIs and partial upfront RIs, amortized over this month. Because there are no upfront fees for no upfront RIs, the value for no upfront RIs is 0. We do not provide this value for Dedicated Host reservations at this time. The change will be made in a future update.
- **Line items applicable:** RIFee
- **Sample values:** 29.15, 200.67, 214.43
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

### **reservation/AvailabilityZone**

- **Description:** The Availability Zone of the resource that is associated with this line item.
- **Line items applicable:** Fee, Refund, RIFee
- **Sample values:** us-east-1, us-east-1b, eu-west-1b, ap-southeast-2a
- **Services:**
  - Amazon EC2

## E

### reservation/EffectiveCost

- **Description:** The sum of both the upfront and hourly rate of your RI, averaged into an effective hourly rate. EffectiveCost is calculated by taking the `amortizedUpfrontCostForUsage` and adding it to the `recurringFeeForUsage`. For more information, see [Amazon EC2 Reserved Instances Pricing](#).
- **Line items applicable:** DiscountedUsage
- **Sample values:** 0.23, 0.68, 0.10
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon ElastiCache
  - Amazon RDS

### reservation/EndTime

- **Description:** The end date of the associated RI lease term.
- **Line items applicable:** RIFee
- **Sample values:** 2019-05-15T04:23:14.000Z, 2020-02-08T17:32:15.000Z, 2019-07-14T00:00:33.000Z
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

## M

### reservation/ModificationStatus

- **Description:** Shows whether the RI lease was modified or if it is unaltered.
  - **Original:** The purchased RI was never modified.
  - **System:** The purchased RI was modified using the console or API.
  - **Manual:** The purchased RI was modified using Amazon Web Services Support assistance.
  - **ManualWithData:** The purchased RI was modified using Amazon Web Services Support assistance, and Amazon calculated estimates for the RI.
- **Line items applicable:** RIFee
- **Sample values:** Original, System, Manual, ManualWithData
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

## N

### reservation/NetAmortizedUpfrontCostForUsage

The initial upfront payment for All Upfront RIs and Partial Upfront RIs amortized for usage time, if applicable. This column is included in your report only when your account has a discount in the applicable billing period.

### reservation/NetAmortizedUpfrontFeeForBillingPeriod

The cost of the reservation's upfront fee for the billing period. This column is included in your report only when your account has a discount in the applicable billing period.

**reservation/NetEffectiveCost**

The sum of both the upfront fee and the hourly rate of your RI, averaged into an effective hourly rate. This column is included in your report only when your account has a discount in the applicable billing period.

**reservation/NetRecurringFeeForUsage**

The after-discount cost of the recurring usage fee. This column is included in your report only when your account has a discount in the applicable billing period.

**reservation/NetUnusedAmortizedUpfrontFeeForBillingPeriod**

The net unused amortized upfront fee for the billing period. This column is included in your report only when your account has a discount in the applicable billing period.

**reservation/NetUnusedRecurringFee**

The recurring fees associated with unused reservation hours for Partial Upfront and No Upfront RIs after discounts. This column is included in your report only when your account has a discount in the applicable billing period.

**reservation/NetUpfrontValue**

The upfront value of the RI with discounts applied. This column is included in your report only when your account has a discount in the applicable billing period.

**reservation/NormalizedUnitsPerReservation**

- **Description:** The number of normalized units for each instance of a reservation subscription.
- **Line items applicable:** RIFee
- **Sample values:** 1316, 54.5, 319
- **Services:**
  - Amazon RDS

**reservation/NumberOfReservations**

- **Description:** The number of reservations that are covered by this subscription. For example, one RI subscription might have four associated RI reservations.
- **Line items applicable:** Fee, RIFee, Refund, Credit



- **Sample values:** 5, 50, 500
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

## R

### reservation/RecurringFeeForUsage

- **Description:** The recurring fee amortized for usage time, for partial upfront RIs and no upfront RIs. The value is equal to:  $\frac{\text{The unblended cost of the RI} \times \text{The sum of the normalized usage amount of Usage line items}}{\text{The normalized usage amount of the RI}}$  for size flexible Reserved Instances. Because all upfront RIs don't have recurring fee payments greater than 0, the value for all upfront RIs is 0.
- **Line items applicable:** DiscountedUsage
- **Sample values:** 0.139, 0.729, 0.018
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon ElastiCache
  - Amazon RDS

### reservation/ReservationARN

- **Description:** The Amazon Resource Name (ARN) of the RI that this line item benefited from. This is also called the "RI Lease ID". This is a unique identifier of this particular Amazon Reserved Instance. The value string also contains the Amazon service name and the Region where the RI was purchased.

- **Line items applicable:** Fee, RIFee, DiscountedUsage, Refund, Credit
- **Sample values:** arn:aws:ec2:us-east-1:074108124787:reserved-instances/1d3fbc13-f181-4c40-9dd6-12b345678de9, arn:aws:ec2:us-east-1:499958231354:reserved-instances/be41234c3-b5c0-403e-a80c-1cfd12345678
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

## S

### reservation/StartTime

- **Description:** The start date of the term of the associated Reserved Instance.
- **Line items applicable:** RIFee
- **Sample values:** 2018-07-29T02:56:10.000Z, 2017-08-21T15:58:47.000Z, 2019-02-01T22:01:34.000Z
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

### reservation/SubscriptionId

- **Description:** A unique identifier that maps a line item with the associated offer. We recommend you use the RI ARN as your identifier of an Amazon Reserved Instance, but both can be used.
- **Line items applicable:** Fee, RIFee, DiscountedUsage, Refund, Credit, and Usage

- **Sample values:** 123456789, 111122222, 333344444
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

## T

### reservation/TotalReservedNormalizedUnits

- **Description:** The total number of reserved normalized units for all instances for a reservation subscription. Amazon computes total normalized units by multiplying the reservation/NormalizedUnitsPerReservation with reservation/NumberOfReservations.
- **Line items applicable:** DiscountedUsage
- **Sample values:** 40320, 3647.99, 17928.77
- **Services:**
  - Amazon EC2
  - Amazon RDS

### reservation/TotalReservedUnits

- **Description:** TotalReservedUnits populates for both Fee and RIFee line items with distinct values.
  - **Fee line items:** The total number of units reserved, for the total quantity of leases purchased in your subscription for the entire term.

This is calculated by multiplying the NumberOfReservations with UnitsPerReservation. For example, 5 RIs x 744 hours per month x 12 months = 44,640.
  - **RIFee line items (monthly recurring costs):** The total number of available units in your subscription, such as the total number of Amazon EC2 hours in a specific RI subscription.

For example, 5 RIs x 744 hours = 3,720.

- **Line items applicable:** Fee, RIFee, Refund, Credit
- **Sample values:** 26208, 98.19, 15796
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

## U

### reservation/UnitsPerReservation

- **Description:** UnitsPerReservation populates for both Fee and RIFee line items with distinct values.
  - Fee line items: The total number of units reserved for the subscription, such as the total number of RI hours purchased for the term of the subscription.

For example 744 hours per month x 12 months = 8,928 total hours/units.
  - RIFee line items (monthly recurring costs): The total number of available units in your subscription, such as the total number of Amazon EC2 hours in a specific RI subscription.

For example, 1 unit x 744 hours = 744.
- **Line items applicable:** Fee, RIFee, Refund, Credit
- **Sample values:** 334.0, 486.72, 18455
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon DynamoDB
  - Amazon Redshift
  - Amazon ElastiCache

## reservation/UnusedAmortizedUpfrontFeeForBillingPeriod

- **Description:** The amortized-upfront-fee-for-billing-period-column amortized portion of the initial upfront fee for all upfront RIs and partial upfront RIs. Because there are no upfront payments for no upfront RIs, the value for no upfront RIs is 0. We do not provide this value for Dedicated Host reservations at this time. The change will be made in a future update.
- **Line items applicable:** RIFee
- **Sample values:** 6.05, 1.97, 0.17
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

## reservation/UnusedNormalizedUnitQuantity

- **Description:** The number of unused normalized units for a size-flexible Regional RI that you didn't use during this billing period.
- **Line items applicable:** RIFee
- **Sample values:** 25.00, 3.50, 274.33
- **Services:**
  - Amazon RDS

## reservation/UnusedQuantity

- **Description:** The number of RI hours that you didn't use during this billing period.
- **Line items applicable:** RIFee line item
- **Sample values:** 209.65110408, 191.00000000, 176.00000000
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon Redshift

- Amazon ElastiCache
- Amazon RDS

### reservation/UnusedRecurringFee

- **Description:** The recurring fees associated with your unused reservation hours for partial upfront and no upfront RIs. Because all upfront RIs don't have recurring fees greater than 0, the value for All Upfront RIs is 0.
- **Line items applicable:** RIFee
- **Sample values:** 0.029711114, 0.19190000, 1.37280000
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

### reservation/UpfrontValue

- **Description:** The upfront price paid for your Amazon Reserved Instance. For no upfront RIs, this value is 0.
- **Line items applicable:** RIFee
- **Sample values:** 150.00, 1000.00, 2000.00
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon Redshift
  - Amazon ElastiCache
  - Amazon RDS

## Pricing details

Columns under the **pricing** header in Amazon Cost and Usage Reports contain the prices for a line item. The pricing columns are based off of the Amazon Price List Service API. Amazon Price List Service API doesn't include Free Tier pricing, Spot Instances, products in Amazon Web Services Marketplace, upfront annual subscription fees (Fee), and monthly recurring fees (RIFee). The columns include but are not limited to the following:

A | B | C | D | E | F | G | H | I | J | K | [L](#) | M | N | O | [P](#) | Q | [R](#) | S | [T](#) | [U](#) | VWXYZ

### L

#### **pricing/LeaseContractLength**

The length of time that your RI is reserved for.

### O

#### **pricing/OfferingClass**

- **Description:** Describes the offering class of the Reserved Instance. When you purchase a Reserved Instance, you can choose between a Standard or Convertible offering class.
- **Sample values:** Standard, Convertible
- **Services:**
  - Amazon DynamoDB
  - Amazon EC2
  - Amazon ElastiCache
  - OpenSearch Service
  - Amazon RDS
  - Amazon Redshift

### P

#### **pricing/publicOnDemandCost**

The total cost for the line item based on public On-Demand Instance rates. If you have SKUs with multiple On-Demand public costs, the equivalent cost for the highest tier is displayed. For example, services offering free-tiers or tiered pricing.

**pricing/publicOnDemandRate**

The public On-Demand Instance rate in this billing period for the specific line item of usage. If you have SKUs with multiple On-Demand public rates, the equivalent rate for the highest tier is displayed. For example, services offering free-tiers or tiered pricing.

**pricing/PurchaseOption**

How you chose to pay for this line item. Valid values are All Upfront, Partial Upfront, and No Upfront.

**R****pricing/RateCode**

A unique code for a product/ offer/ pricing-tier combination. The product and term combinations can have multiple price dimensions, such as a free tier, low-use tier, and high-use tier.

**pricing/RateId**

The ID of the rate for a line item.

**T****pricing/term**

Whether your Amazon usage is Reserved or On-Demand.

**U****pricing/unit**

The pricing unit that Amazon used for calculating your usage cost. For example, the pricing unit for Amazon EC2 instance usage is in hours.

**Product details**

The **product** columns provide metadata about the product that incurred the expense, and the line item. The product columns are dynamic, and their visibility in Cost and Usage Reports depends on the usage of product in the billing period. The pricing columns are based off of the Amazon



Price List Service API. Amazon Price List Service API doesn't include free tier pricing, Spot Instances, products in Amazon Marketplace, upfront annual subscription fees (Fee), and monthly recurring fees (RIFee).

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | XYZ

## A

### product/APICalls

- **Description:** Describes the number of APIs the DevOps Guru service uses to enable the DevOps Guru service.
- **Sample values:** 100, 500, 10000
- **Services:**
  - Amazon DevOps Guru

### product/attachmentType

- **Description:** Describes the type of attachment to Transit Gateway or Cloud WAN service.
- **Sample values:** VPC, AWS Site-to-Site VPN, AWS DirectConnect, Connect, Transit Gateway
- **Services:**
  - Amazon Virtual Private Cloud
  - Amazon Web Services Cloud WAN

### product/availability

- **Description:** Describes the availability of your various Amazon storage options.
- **Sample values:** 99.99%, 99.5%
- **Services:**
  - Amazon S3 Glacier
  - Amazon S3
  - AWS Elemental MediaStore
  - Amazon RoboMaker

## C

### product/cacheType

- **Description:** Describes the provision opted by the customer on HDD-based file systems for a read-only SSD cache to improve performance for the frequently read data.

For example, RC20 indicates the presence of a read-only SSD cache that is automatically sized to 20 percent of the file system's HDD storage capacity.

- **Sample values:** RC20, N/A
- **Services:**
  - Amazon FSx

### product/capacitystatus

- **Description:** Describes the status of your capacity reservations.
- **Sample values:** UnusedCapacityReservation, AllocatedCapacityReservation, Used
- **Services:**
  - Amazon EC2

### product/clockspeed

- **Description:** Describes the operating speed of your Amazon instances.
- **Sample values:** 2.4 GHz, 2.6 GHz
- **Services:**
  - Amazon DocumentDB
  - Amazon EC2
  - Amazon MQ
  - Amazon Neptune
  - Amazon RDS
  - Amazon Database Migration Service

### product/component

- **Description:** Maps to features in SageMaker AI.

For example, if a user is running a SageMaker AI notebook, the product will have a component attribute of Notebook. If the user has deployed and hosted their model for inference, they will see product with component attribute of Hosting.

- **Sample values:** Notebook, Hosting
- **Services:**
  - Amazon SageMaker AI

## D

### product/databaseEdition

- **Description:** Describes the database software suitable for different development, deployment scenarios, and specific application purposes.
- **Services:**
  - Amazon RDS

### product/dataTransfer

- **Description:** An Amazon data transfer occurs whenever data is moved to from Amazon to the internet, or moved between Amazon instances across their respective Regions or Availability Zones. Interregional and inter availability zone data transfers incur costs, metered per Gigabyte.
- **Services:**
  - Amazon Systems Manager

### product/dedicatedEbsThroughput

- **Description:** Describes the dedicated throughput between your instances (for example, Amazon EC2 instances and Amazon EBS volumes), with options between 500 and 10,000 megabits per second (Mbps) depending on the instance type used. The dedicated throughput minimizes contention between Amazon EBS I/O and other traffic from your EC2 instance, providing the best performance for your Amazon EBS volumes.
- **Sample values:** 200 Mbps, Upto 5000 Mbps
- **Services:**
  - Amazon EC2

- Amazon Neptune
- Amazon RDS

### product/deploymentoption

- **Description:** Describes where the infrastructure for the environment is located. The deployment models for Amazon cloud are public, on-premise, and hybrid.
- **Sample values:** Multi-AZ, Single-AZ
- **Services:**
  - Amazon MQ
  - Amazon Neptune
  - Amazon RDS

### product/description

- **Description:** The description of the specific Amazon service.
- **Services:**
  - Amazon CodePipeline
  - Amazon Device Farm
  - AWS Elemental MediaConvert
  - AWS Elemental MediaStore

### product/destinationCountryISOCode

- **Description:** Describes the destination Country ISO 3166-1 alpha-2 code to which the SMS was sent to.

For reference, visit [https://en.wikipedia.org/wiki/ISO\\_3166-1\\_alpha-2](https://en.wikipedia.org/wiki/ISO_3166-1_alpha-2).

- **Sample values:** FR, CO, MA, KN, PL, LV, LA, GB, ID, KR, MY, BR, MM, CA, VN, BD, BJ, AU, HK, AM, CZ, UA, PH, TW, ES, DE, NG, FI, SG, TH, IL, TR, JP, IT, PR, RU, EE
- **Services:**
  - Amazon Simple Notification Service

### **product/directconnectlocation**

- **Description:** Specifies the location where a private dedicated network connection from the customer to Amazon exists.
- **Sample values:** Equinix DC1 - DC6, Equinix DC10 - DC11, Global Switch Singapore
- **Services:**
  - Amazon Direct Connect

### **product/directorysize**

- **Description:** The space on the disk that is used to store the meta information for the directory or folder.
- **Services:**
  - Amazon Direct Connect

### **product/directorytype**

- **Description:** Specifies if the directory is a file or another directory.
- **Services:**
  - Amazon Direct Connect

### **product/directorytypedescription**

- **Description:** The meaningful name given to the directory.
- **Services:**
  - Amazon Direct Connect

### **product/disableactivationconfirmationemail**

- **Description:** Active or deactivate the ability to send an email to confirm the activation of a service.

### **product/durability**

- **Description:** Describes the durability of objects over a given year.

- **Sample values:** 99.999999999%, N/A, 99.99%
- **Services:**
  - Amazon S3 Glacier
  - Amazon S3
  - AWS Elemental MediaStore

## E

### product/ebsOptimized

- **Description:** Describes whether your Amazon EC2 instances are Amazon EBS–optimized.
- **Sample values:** Yes, No
- **Services:**
  - Amazon EC2

### product/ecu

- **Description:** Describes the EC2 Compute Unit (ECU) that provides the relative measure of the integer processing power of an Amazon EC2 instance.
- **Sample values:** 9, 100, variable
- **Services:**
  - Amazon EC2
  - OpenSearch Service
  - Amazon GameLift Servers
  - Amazon Redshift

### product/endpointtype

- **Description:** Describes the characteristics of the remote connection that a device connects to.

For example, REST (representational state transfer) endpoints. A REST API (or RESTful API) is an application programming interface that conforms to the constraints of REST architectural style and you can interact with RESTful web services.

- **Sample values:** Ipsec, Amazon SQS, Amazon Lambda

- **Services:**
  - Amazon SNS
  - Amazon VPC
  - Storage Gateway
  - S3 Glacier

### **product/enhancedNetworkingSupported**

- **Description:** Describes whether your instance supports enhanced networking. Enhanced networking uses single root I/O virtualization (SR-IOV) to provide high-performance networking capabilities on supported instance types.
- **Sample values:** Yes, No
- **Services:**
  - Amazon DocumentDB
  - Amazon EC2
  - Amazon Neptune
  - Amazon RDS
  - Amazon Database Migration Service

## **F**

### **product/filesystemtype**

- **Description:** Describes the details of the local or remote storage device, and specifications of the operating system.

### **product/findingGroup**

- **Description:** Specifies whether a finding stored in Security Hub is paid or free. If free, the reason may also be specified.
- **Sample values:** FreeFindingsIngestion-CrossRegion, FreeFindingsIngestion-FreeTier, FreeFindingsIngestion-FreeTrial, PaidFindingsIngestion
- **Services:**
  - Amazon Security Hub

## product/findingSource

- **Description:** Specifies whether a finding was generated by a Security Hub control or by other partner security product.
- **Sample values:** SecurityHubProduct, OtherProduct
- **Services:**
  - Amazon Security Hub

## product/freeUsageIncluded

- **Description:** Free usage under Amazon Free Tier is calculated each month across all Regions, and automatically applied to your bill. For example, you receive 750 Amazon EC2 Linux Micro Instance hours for free across all of the Regions you use. Not 750 hours per Region.
- **Services:**
  - Amazon Inspector

## product/fromLocation

- **Description:** Describes the location where the usage originated from.
- **Sample values:** External, US East (N. Virginia), Global
- **Services:**
  - Amazon CloudFront
  - Amazon DataTransfer

## product/fromRegionCode

- **Description:** Describes the source Region code for the Amazon service. For more information, see [product/regioncode](#).
- **Sample values:** ap-northeast-1
- **Services:**
  - Amazon RDS
  - Amazon EC2
  - Amazon VPC
  - Amazon Direct Connect



## product/fromLocationType

- **Description:** Describes the location type where the usage originated from.
- **Sample values:** Amazon Region, Amazon Edge Location
- **Services:**
  - Amazon Direct Connect
  - AWS Elemental MediaConnect
  - Amazon CloudFront
  - Amazon Lightsail
  - Amazon Shield

## G

### product/gpu

- **Description:** Describes the number of GPUs.
- **Sample values:** 16, 32
- **Services:**
  - Amazon SageMaker AI
  - Amazon EC2

### product/gpuMemory

- **Description:** Describes your GPU memory details.
- **Sample values:** 16, 32
- **Services:**
  - Amazon SageMaker AI
  - Amazon EC2

### product/group

- **Description:** A construct of several products that are similar by definition, or grouped together. For example, the Amazon EC2 team can categorize their products into shared instances, dedicated host, and dedicated usage.

- **Services:**
  - Amazon Certificate Manager
  - Amazon CodeCommit
  - Amazon Glue
  - Amazon IoT Analytics
  - Amazon Lambda

### **product/groupdescription**

- **Description:** A simplified name given to a product group.
- **Services:**
  - Amazon Budgets
  - Amazon Certificate Manager
  - Amazon Lambda
  - Amazon SQS

## **I**

### **product/insightsType**

- **Description:** Indicates the type of Insight event generated.
- **Sample values:** APICallVolume
- **Services:**
  - CloudTrail

### **product/instance**

- **Description:** An Amazon EC2 instance is a virtual server in Amazon Elastic Compute Cloud (Amazon EC2) for running applications on the Amazon infrastructure. You can choose an AMI provided by Amazon, the user community, or through the Amazon Web Services Marketplace.
- **Sample values:** T3
- **Services:**
  - **Amazon EC2**

## product/instanceFamily

- **Description:** Describes your Amazon EC2 instance family. Amazon EC2 provides you with a large number of options across 10 different instance types, each with one or more size options, organized into distinct instance families optimized for different types of applications.
- **Sample values:** General Purpose, Memory Optimized, Accelerated Computing
- **Services:**
  - Amazon EC2
  - Amazon RDS
  - OpenSearch Service
  - Amazon ElastiCache
  - Amazon EMR

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

## product/instanceSize

- **Description:** Indicates the instance size of a resource.
- **Sample values:** 2vCPU, 4vCPU, 8vCPU, 16vCPU
- **Services:**
  - Amazon CodeCatalyst

## product/instanceType

- **Description:** Describes the instance type, size, and family, which define the CPU, networking, and storage capacity of your instance.
- **Sample values:** t2.small, m4.xlarge, t2.micro, m4.large, t2.large
- **Services:**
  - Amazon EC2
  - Amazon RDS
  - OpenSearch Service
  - Amazon ElastiCache
  - Amazon EMR

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

### **product/instanceTypeFamily**

- **Description:** The instance family that is associated with the given usage.
- **Sample values:** t2, m4, m3
- **Services:**
  - Amazon DocumentDB
  - Amazon RDS

### **product/integratingApi**

- **Description:** Application integration on Amazon using service like Amazon API Gateway or no-code integration using Amazon AppFlow.

### **product/integratingService**

- **Description:** Application integration on Amazon is a suite of services used to communicate between decoupled components within micro services, distributed systems, and serverless applications. You don't need to refactor your entire architecture. Decoupling applications at any scale can reduce the impact of changes, making it easier to update, and faster to release new features.

### **product/intelAvxAvailable**

- **Description:** Describes whether your process has the Intel Advanced Vector Extension instruction set.
- **Sample values:** Yes, No.
- **Services:**
  - Amazon EC2

### product/intelAvx2Available

- **Description:** Describes whether your process has the Intel Advanced Vector Extension instruction set two.
- **Sample values:** Yes, No
- **Services:**
  - Amazon EC2

### product/intelTurboAvailable

- **Description:** Describes whether your core is allowed to use Intel Turbo Technology to increase frequency.
- **Sample values:** Yes, No
- **Services:**
  - Amazon EC2

### product/invocation

- **Description:** Describes the invocations that EventBridge Scheduler makes to an API or service.
- **Sample values:** Scheduled Invocation
- **Services:**
  - Amazon CloudWatch Events

## L

### product/licenseModel

- **Description:** Describes the license model for your instance.
- **Sample value:** license-included, bring-your-own-license, general-public-license
- **Services:**
  - Amazon AppStream
  - Amazon EC2
  - Amazon MQ
  - Amazon Neptune

- Amazon RDS

### product/location

- **Description:** Describes the Region that your Amazon S3 bucket resides in.
- **Sample values:** Asia Pacific (Mumbai), Asia Pacific (Seoul), Canada (Central), EU (London), US West (Oregon)
- **Services:**
  - Amazon EC2
  - Amazon Certificate Manager
  - Amazon S3
  - Amazon RDS
  - Amazon DynamoDB

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

### product/locationType

- **Description:** Describes the endpoint of your task.
- **Sample values:** Amazon Region, Amazon Edge Location, Other
- **Services:**
  - Amazon EC2
  - Amazon Certificate Manager
  - Amazon S3
  - Amazon RDS
  - Amazon DynamoDB

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

### product/logsDestination

- **Description:** The `AWS::Logs::Destination` resource specifies a CloudWatch logs destination. A destination includes a physical resource (for example, Amazon Kinesis data stream) and you can subscribe the resource to a stream of log events.

- **Sample values:** Amazon Region, Amazon Edge Location, Other
- **Services:**
  - Amazon EC2
  - Amazon Certificate Manager
  - Amazon S3
  - Amazon RDS
  - Amazon DynamoDB

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

## M

### product/maxIopsBurstPerformance

- **Description:** Describes the max IOPS burst performance of your Amazon EBS volume.
- **Sample value:** 3000 IOPS for volumes <= 1TB
- **Services:**
  - Amazon EC2

### product/maxIopsVolume

- **Description:** Describes maximum input/output per second of your Amazon EBS volume.
- **Sample value:** 16,000 (maxIops for a General Purpose SSD (gp2))
- **Services:**
  - Amazon EC2

### product/maxThroughputVolume

- **Description:** Describes the max network throughput volume of your Amazon EBS volume.
- **Sample values:** 500 MiB/s, 250 MiB/s, 1000 MiB/s, 40 - 90 MB/sec
- **Services:**
  - Amazon EC2
  - Amazon SageMaker AI

## product/memory

- **Description:** The placeholder electronics for instructions and data a computer needs to respond quickly. Computer bytes indicate the storage units.
- **Services:**
  - Amazon Database Migration Service
  - DynamoDB Accelerator
  - Amazon DocumentDB
  - Amazon EC2

## product/messageCountfee

- **Description:** Describes the type of metering usage, denoting whether the usage represents the number of messages or fees charged.
- **Sample values:** CarrierFeeCount, MessageFees, MessageCount, CarrierFees
- **Services:**
  - Amazon Simple Notification Service

## product/messageType

- **Description:** Describes the type of SMS message. Note that SNS supports only Outbound SMS.
- **Sample values:** OutboundSMS
- **Services:**
  - Amazon Simple Notification Service

## N

## product/networkPerformance

- **Description:** Describes the network throughput of your Amazon EC2 instances.
- **Sample values:** moderate, high, up to 10 GB
- **Services:**
  - Amazon EC2
  - Amazon RDS



- Amazon ElastiCache
- Amazon SageMaker AI
- Amazon Database Migration Service

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

### **product/normalizationSizeFactor**

- **Description:** Describes the normalization factor of the instance size.
- **Sample values:** nano - 0.25, micro - 0.5, medium - 2, xlarge - 8, 16xlarge - 128
- **Services:**
  - Amazon DocumentDB
  - Amazon EC2
  - Amazon MQ
  - Amazon Neptune
  - Amazon RDS

## **O**

### **product/operatingSystem**

- **Description:** Describes the operating system of your Amazon EC2 instance.
- **Sample values:** Amazon Linux, Ubuntu, Windows Server, Oracle Linux, FreeBSD
- **Services:**
  - Amazon AppStream
  - Amazon EC2
  - Amazon GameLift Servers
  - Amazon Lightsail
  - Amazon WorkSpaces
  - Amazon CodeBuild

## product/operation

- **Description:** Describes the specific Amazon operation that this line item covers.
- **Sample values:** RunInstances (indicates the operation of an Amazon EC2 instance)
- **Services:**
  - Amazon EC2
  - Amazon S3
  - Amazon RDS
  - Amazon DynamoDB
  - Amazon CloudWatch
  - Amazon Redshift

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

## product/originationIdType

- **Description:** Describes the type of origination ID used when sending SMS messages.
- **Sample values:** Sharedroute
- **Services:**
  - Amazon Simple Notification Service

## product/osType

- **Description:** Describes the operating system of the resource.
- **Sample values:** Dev Environment, Linux, Linux ARM64, Windows
- **Services:**
  - Amazon CodeCatalyst

## P

## product/parameterType

- **Description:** Use parameters in Amazon CloudFormation to enter custom values to your template when you create or update a stack. For Example, InstanceTypeParameter. You

can use this parameter to specify the Amazon EC2 instance type when you create or update the stack.

### **product/physicalCores**

- **Description:** Describes the number of physical cores an instance provides.
- **Sample values:** 4, 8
- **Services:**
  - Amazon EC2

### **product/physicalProcessor**

- **Description:** Describes the processor on your Amazon EC2 instance.
- **Sample values:** High Frequency Intel Xeon E7-8880 v3 (Haswell), Intel Xeon E5-2670, AMD EPYC 7571
- **Services:**
  - Amazon DocumentDB
  - Amazon EC2
  - Amazon Neptune
  - Amazon RDS
  - Amazon Database Migration Service

### **product/platoClassificationType**

- **Description:** Tiered per object pricing for data annotation workflow routing.
- **Sample values:** LabeledObject, 3DLabeledObjectMultiFrame, 3DLabeledObject, Processing:VolumeUsage
- **Services:**
  - Amazon SageMaker AI

### **product/pricingUnit**

- **Description:** The smallest billing unit for an Amazon service. For example, 0.01c per API call.
- **Services:**

- Amazon Directory Service

### **product/primaryplaceofuse**

- **Description:** The primary business or residential street address location where a customer's use of the service primarily occurs.

### **product/processorArchitecture**

- **Description:** Describes your processor architecture.
- **Sample values:** 32-bit, 64-bit
- **Services:**
  - Amazon DocumentDB
  - Amazon EC2
  - Amazon Neptune
  - Amazon RDS
  - Amazon Database Migration Service

### **product/processorFeatures**

- **Description:** Describes the processor features of your instances.
- **Sample values:** Intel AVX, Intel AVX2, Intel AVX512, Intel Turbo
- **Services:**
  - Amazon Database Migration Service
  - Amazon DocumentDB
  - Amazon EC2
  - Amazon Neptune
  - Amazon RDS

### **product/ProductFamily**

- **Description:** The category for the type of product.

- **Sample values:** Alarm, Amazon Budgets, Stopped Instance, Storage Snapshot, Compute
- **Services:**
  - Amazon EC2
  - Amazon Certificate Manager
  - Amazon S3
  - Amazon RDS
  - Amazon DynamoDB

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

### product/ProductName

- **Description:** The full name of the Amazon service. Use this column to filter Amazon usage by Amazon service.
- **Sample values:** Amazon Backup, Amazon Config, Amazon Registrar, Amazon Elastic File System, Amazon Elastic Compute Cloud

### product/productSchemaDescription

- **Description:** A blueprint of how your product is constructed. This contains the various attributes that make up your product.

### product/provisioned

- **Description:** Indicates whether Amazon EBS usage was related to provisioned Amazon EBS storage.
- **Sample values:** Yes, No
- **Services:**
  - Amazon EC2
  - Amazon MQ

### product/provisioningType

- **Description:** Describes whether the resources were deployed on-demand or pre-provisioned.

- **Sample values:** On-Demand, Pre-Provisioned
- **Services:**
  - Amazon CodeCatalyst

### product/PurchaseOption

- **Description:** Describes the available purchasing models for an Amazon service. For example, Amazon provides four main Amazon EC2 instance purchasing options: On-Demand, Reserved Instances, Spot Instances, with the added option of Dedicated Hosts.

### product/purchaseterm

- **Description:** In Amazon EC2, this specifies a commitment to a consistent instance configuration. This includes instance type and Region for a period of 1 to 3 years.

## R

### product/region

- **Description:** The geographical area that hosts your Amazon services. Use this field to analyze spend across a particular Region.
- **Sample values:** eu-west-3, us-west-1, us-east-1, ap-northeast-2, sa-east-1
- **Services:**
  - Amazon EC2
  - Amazon Certificate Manager
  - Amazon S3
  - Amazon RDS
  - Amazon DynamoDB

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

### product/regioncode

- **Description:** A Region is a physical location around the world where data centers are clustered. Amazon calls each group of logical data centers an Availability Zone (AZ). Each Amazon Region

consists of multiple, isolates, and physically separate AZs within a geographical area. The Region code attribute has the same name as an Amazon Region, and specifies where the Amazon service is available.

- **Sample values:** us-west-2, us-east-1, ap-southeast-2
- **Services:**
  - Amazon SageMaker AI

### product/replicationType

- **Description:** Specifies that the service is free to use. For example, Amazon Server Migration Service is free to use, and you only pay for the storage resources used during the migration process.
- **Sample values:** Free
- **Services:**
  - Amazon Application Migration Service

### product/resourceAssessment

- **Description:** A process that collects, stores, and manages evidence. You can use this to assess risk and compliance with industry standards and regulations.
- **Sample values:** All assessment
- **Services:**
  - Amazon Audit Manager

### product/resourcePriceGroup

- **Description:** Describes the resource type, the resource, and the price group (the price we charge for monitoring; there are currently two price classes: A and B). Therefore, as an example, if we were monitoring an RDS resource, the resource type would be RDS (the "product"), the resource would be instance, and the price group would be B.
- **Sample values:** RDS-DBInstance-GroupB
- **Services:**
  - Amazon DevOps Guru

## product/routeType

- **Description:** Describes the type of SMS route used. Only Standard applies for now.
- **Sample values:** Standard
- **Services:**
  - Amazon Simple Notification Service

## S

### product/servicecode

- **Description:** This identifies the specific Amazon service to the customer as a unique short abbreviation.
- **Sample values:** Amazon EC2, Amazon KMS
- **Services:**
  - Amazon Budgets
  - Amazon Backup
  - Amazon Certificate Manager
  - Amazon Cloud Map
  - Amazon CloudTrail

### product/servicename

- **Description:** A simplified description about the Amazon service.
- **Services:**
  - Amazon EC2 Budgets
  - Amazon ECR
  - Amazon ECS
  - Amazon EFS
  - Amazon Elastic Inference
  - Amazon EKS



## product/singleOrDualPass

- **Description:** Terms used to decide the type of encoding that happens for videos. In one-pass encoding, the encoding is done in the first pass itself. For 2-pass encoding, the file is analyzed thoroughly in the first pass, and an intermediate file is created. In the second pass the encoder finds the intermediate file and allocates bits. The actual encoding takes place in the second pass.
- **Services:**
  - AWS Elemental MediaConvert

## product/sizeFlex

- **Description:** Describes whether a normalized benefit of the RI can be applied to other instance sizes within the Region and instance family.
- **Sample values:** true, false
- **Services:**
  - Amazon Elastic Compute Cloud

## product/sku

- **Description:** A unique code for a product. The SKU is created by combining the ProductCode, UsageType, and Operation. For size-flexible RIs, the SKU uses the instance that was used. For example, if you used a t2.micro instance and Amazon applied a t2.small RI discount to the usage, the line item SKU is created with the t2.micro.
- **Sample values:** FFNT87MQSCR328W6, VBYCEU494XUAHCA7
- **Services:**
  - Amazon EC2
  - Amazon Certificate Manager
  - Amazon S3
  - Amazon RDS
  - Amazon DynamoDB

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

## product/storage

- **Description:** Describes the disk storage attached to your instance.
- **Sample values:** 60GB, True, EBS Only, 1 x 900 NVMe SSD, 1 x 150 NVMe SSD
- **Services:**
  - Amazon EC2
  - Amazon RDS
  - Amazon Redshift
  - OpenSearch Service
  - Amazon WorkSpaces

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

## product/storageclass

- **Description:** Describes the storage class of your Amazon S3 bucket.
- **Sample values:** Archive, General Purpose, Infrequent Access, Intelligent-Tiering, Non-Critical Data
- **Services:**
  - AWS Elemental MediaStore
  - Amazon Storage Gateway
  - Amazon Cloud Directory
  - Amazon EFS
  - Amazon MQ
  - Amazon S3

## product/storagemedia

- **Description:** A storage medium is any technology, including device and material used to place, keep, and retrieve electronic data.
- **Services:**
  - Amazon Database Migration Service

- Amazon DocumentDB
- Amazon EC2
- Amazon ES

### product/storageType

- **Description:** Describes how and where the information is stored by a computer. This might be internal or external to a computer, server, or computing device.
- **Sample values:** Amazon S3, SSD, SSD-backed
- **Services:**
  - Amazon Backup
  - Amazon ECR

## T

### product/tenancy

- **Description:** The type of tenancy allowed on the Amazon EC2 instance.
- **Sample values:** Dedicated, Reserved, Shared, NA, Host
- **Services:**
  - Amazon EC2
  - Amazon ECS

### product/throughputCapacity

- **Description:** Describes the Speed at which the file server hosting the file system can serve file data. For Amazon FileCache, the value will be 1000 only.
- **Sample values:** 12, 40, 50, 100, 125, 250, 500, 1000
- **Services:**
  - Amazon FileCache
  - Amazon FSx

## product/tier

- **Description:** With Amazon, you can get volume based discounts and savings as your usage increases. For services like Amazon S3, pricing is tiered. This means the more you use, the less you pay per GB. Amazon provides options to acquire services that assist your business needs.
- **Services:**
  - AWS Elemental MediaConvert

## product/toLocation

- **Description:** Describes the location usage destination.
- **Sample values:** External, US East (N. Virginia)
- **Services:**
  - Amazon CloudFront
  - Amazon Data Transfer

## product/toLocationType

- **Description:** Describes the destination location of the service usage.
- **Sample values:** Amazon Region, Amazon Edge Location
- **Services:**
  - Amazon Direct Connect
  - AWS Elemental MediaConnect
  - Amazon Shield
  - Amazon CloudFront
  - Amazon Lightsail

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

## product/toRegionCode

- **Description:** Describes the source Region code for the Amazon service. For more information, see [product/regioncode](#).
- **Sample values:** eu-west-1

- **Services:**
  - Amazon RDS
  - Amazon EC2
  - Amazon VPC
  - Amazon Direct Connect

### **product/transcodingResult**

- **Description:** The output of decoding an encoded video source to an intermediate uncompressed format, and re-encoding it into the target format.
- **Services:**
  - AWS Elemental MediaConvert

### **product/trialProduct**

- **Description:** Describes if Amazon CloudHSM allows free hours.
- **Services:**
  - Amazon CloudHSM

## **U**

### **product/upfrontCommitment**

- **Description:** Describes if any usage commitment is required for Amazon CloudHSM. You will be charged an hourly fee for each hour (or partial hour) that an HSM is provisioned to a Amazon CloudHSM cluster. A cluster with no HSMs is not billed, and you aren't billed for automatic storage of encrypted backups. For more information, see [Amazon CloudHSM Pricing](#).

Network data transfers to and from your HSMs are charged separately. For more information, see [Amazon EC2 Pricing](#).

- **Services:**
  - Amazon CloudHSM

## product/usagetype

- **Description:** Describes the usage details of the line item.
- **Sample values:** EU-BoxUsage:c5d.9xlarge, EU-BoxUsage:m4.16xlarge, SAE1-InstanceUsage:db.t2.medium, USW2-AW-SW-19, SAE1-BoxUsage:c4.large,
- **Services:**
  - Amazon EC2
  - Amazon Certificate Manager
  - Amazon S3
  - Amazon RDS
  - Amazon DynamoDB

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

## V

### product/vcpu

- **Description:** Describes the number of threads concurrently running on a single CPU core. Amazon EC2 instances support multithreading, which enables multiple threads to run concurrently on a single CPU core. Each thread is represented as a virtual CPU (vCPU) on the instance.
- **Sample values:** 8, 16, 36, 72, 128
- **Services:**
  - Amazon EC2
  - Amazon RDS
  - Amazon Redshift
  - OpenSearch Service
  - Amazon ElastiCache

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

## product/videoCodec

- **Description:** A software or hardware that compresses and decompresses digital video. In the context of video compression, codec is a blending of encoder and decoder. A device that only compresses is typically called an encoder, and one that only decompresses is a decoder.
- **Services:**
  - AWS Elemental MediaConvert;

## product/videoFrameRate

- **Description:** A video frame rate (shown as frames per second (FPS)) is the frequency rate which consecutive images (frames) are captured or displayed by video cameras, computer graphics, and motion capture systems.
- **Services:**
  - AWS Elemental MediaConvert;

## product/videoQualitySetting

- **Description:** Describes the quality setting used for the encode, which impacts the compression efficiency and, therefore, the video quality at a given bitrate.
- **Sample values:** Multi-pass, Multi-pass HQ, NA, Single-pass, Single-pass HQ,
- **Services:**
  - AWS Elemental MediaConvert

## product/volumeType

- **Description:** Describes your Amazon EBS volume types.
- **Sample values:** Standard, General Purpose, General Purpose-Aurora, Amazon Glacier, Amazon SimpleDB - Standard,
- **Services:**
  - Amazon EC2
  - Amazon S3
  - Amazon RDS
  - Amazon DynamoDB

- Amazon S3 Glacier

and more. For the full service list, download [Column\\_Attribute\\_Service.zip](#).

## W

### product/workforceType

- **Description:** The segmentation of the employed or unemployed labour pool. For example, Full Time Employees (FTE), or Temporary.
- **Services:**
  - Amazon SageMaker AI

## Resource tags details

You can use the **resource** columns in Amazon Cost and Usage Reports to find information about the specific resources covered by a line item. These columns include user-defined cost allocation tags. Examples include the following:

### resourceTags/user:creator

Use a **user:Creator** tag to track which user created a resource.

### resourceTags/user:name

Use a **user:Name** tag to track which resources are associated with a specific user.

### resourceTags/user:owner

Use a **user:Owner** tag to track which user owns a resource.

### resourceTags/user:purpose

Use a **user:Purpose** tag to track why a resource was created.

## Savings Plans details

The **SavingsPlan** columns in Amazon Cost and Usage Reports provide details about the Savings Plans. For more information about Savings Plans, see [What are Savings Plans?](#) in the *Savings Plans User Guide*.



[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | VWXYZ

## A

### savingsPlan/AmortizedUpfrontCommitmentForBillingPeriod

- **Description:** The amount of upfront fee a Savings Plan subscription is costing you for the billing period. The initial upfront payment for **All Upfront Savings Plan** and **Partial Upfront Savings Plan** amortized over the current month. For **No Upfront Savings Plan**, the value is 0.
- **Line items applicable:** SavingsPlanRecurringFee
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

## E

### savingsPlan/EndTime

- **Description:** The expiration date for the Savings Plan agreement.
- **Line items applicable:** SavingsPlanCoveredUsage, SavingsPlanNegation, SavingsPlanUpfrontFee, SavingsPlanRecurringFee
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

## I

### savingsPlan/InstanceTypeFamily

- **Description:** The instance family that is associated with the specified usage.
- **Line items applicable:** SavingsPlanCoveredUsage

- **Sample values:** m4, g2
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

## N

### **savingsPlan/NetAmortizedUpfrontCommitmentForBillingPeriod**

The cost of a Savings Plan subscription upfront fee for the billing period. This column is included in your report only when your account has a discount in the applicable billing period.

### **savingsPlan/NetRecurringCommitmentForBillingPeriod**

The net unblended cost of the Savings Plan fee. This column is included in your report only when your account has a discount in the applicable billing period.

### **savingsPlan/NetSavingsPlanEffectiveCost**

The effective cost for Savings Plans, which is your usage divided by the fees. This column is included in your report only when your account has a discount in the applicable billing period.

## O

### **savingsPlan/OfferingType**

- **Description:** Describes the type of Savings Plan purchased.
- **Line items applicable:** SavingsPlanCoveredUsage, SavingsPlanNegation, SavingsPlanUpfrontFee, SavingsPlanRecurringFee
- **Sample values:** ComputeSavingsPlans, EC2InstanceSavingsPlans, SageMakerSavingsPlans
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda

- Amazon SageMaker AI

## P

### savingsPlan/PaymentOption

- **Description:** The payment options available for your Savings Plan.
- **Line items applicable:** SavingsPlanCoveredUsage, SavingsPlanNegation, SavingsPlanUpfrontFee, SavingsPlanRecurringFee
- **Sample values:** Partial Upfront, All Upfront, No Upfront
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

### savingsPlan/PurchaseTerm

- **Description:** Describes the duration, or term, of the Savings Plan.
- **Line items applicable:** SavingsPlanCoveredUsage, SavingsPlanNegation, SavingsPlanUpfrontFee, SavingsPlanRecurringFee
- **Sample values:** 1yr, 3yr
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

## R

### savingsPlan/RecurringCommitmentForBillingPeriod

- **Description:** The monthly recurring fee for your Savings Plan subscriptions. For example, the recurring monthly fee for a **Partial Upfront Savings Plan** or **No Upfront Savings Plan**.

- **Line items applicable:** SavingsPlanRecurringFee
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

### savingsPlan/Region

- **Description:** The Amazon Region (geographic area) that hosts your Amazon services. You can use this field to analyze spend across a particular Amazon Region.
- **Line items applicable:** SavingsPlanCoveredUsage, SavingsPlanNegation, SavingsPlanUpfrontFee, SavingsPlanRecurringFee
- **Sample values:** US East (N. Virginia), US West (N. California), US East (Ohio), Asia Pacific (Mumbai), Europe (Ireland)
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

## S

### savingsPlan/SavingsPlanArn

- **Description:** The unique Savings Plan identifier.
- **Line items applicable:** SavingsPlanUpfrontFee
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

### savingsPlan/SavingsPlanEffectiveCost

- **Description:** The proportion of the Savings Plan monthly commitment amount (upfront and recurring) that is allocated to each usage line.
- **Line items applicable:** SavingsPlanCoveredUsage
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

### savingsPlan/SavingsPlanRate

- **Description:** The Savings Plan rate for the usage.
- **Line items applicable:** SavingsPlanCoveredUsage
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

### savingsPlan/StartTime

- **Description:** The start date of the Savings Plan agreement.
- **Line items applicable:** SavingsPlanCoveredUsage, SavingsPlanNegation, SavingsPlanUpfrontFee, SavingsPlanRecurringFee
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

## T

### savingsPlan/TotalCommitmentToDate

- **Description:** The total amortized upfront commitment and recurring commitment to date, for that hour.
- **Line items applicable:** SavingsPlanRecurringFee
- **Services:**
  - Amazon EC2
  - Fargate
  - Amazon Lambda
  - Amazon SageMaker AI

## U

### savingsPlan/UsedCommitment

- **Description:** The total dollar amount of the Savings Plan commitment used. (SavingsPlanRate multiplied by usage)
- **Line items applicable:** SavingsPlanRecurringFee
- **Services:**
  - Amazon EC2
  - Amazon Lambda
  - Fargate
  - Amazon SageMaker AI

## Cost Categories details

You can use the **Cost Category** columns in Amazon Cost and Usage Reports to find information about the specific line items categorized by the Cost Categories feature. Cost Category columns are automatically populated when you create a Cost Category and categorization rule. These columns include user-defined Cost Category names as the column headers, and corresponding Cost Category values. Examples include the following:

## **costCategory/Project**

Use a **Project** Cost Category to categorize cost and usage information associated with the project. Project names such as "alpha" or "beta" will show as values under **costCategory/Project**.

## **costCategory/Team**

Use a **Team** Cost Category to categorize cost and usage information associated with the team. Team names such as "Marketing" will show as values under **costCategory/Team**.

## **costCategory/Environment**

Use a **Environment** Cost Category to categorize cost and usage information associated with the environment. Environment names such as "Development" will show as values under **costCategory/Environment**.

## **Discount details**

Columns under the **discount** header are included in Amazon Cost and Usage Reports only when the account has a discount applied during the report's billing period. This includes the following columns:

### **discount/BundledDiscount**

The bundled discount applied to the line item. A bundled discount is a usage-based discount that provides free or discounted usage of a service or feature based on the usage of another service or feature. Examples of bundled discounts include:

- If you use Amazon Shield Advanced, then you don't have to pay for Amazon WAF separately. Amazon WAF usage is bundled with Amazon Shield Advanced. For more information about Amazon Shield Advanced, see [Amazon CloudFront pricing](#).
- If you create a NAT gateway with Amazon Network Firewall, then the standard NAT gateway processing and per-hour usage charges are waived on a one-to-one basis with the firewall's processing per GB and usage hours. For more information, see [Amazon Network Firewall pricing](#).
- With Amazon Interactive Video Service (IVS) Chat, for every hour of video input sent, you get 2,700 sent messages and 270,000 delivered messages at no additional cost. For more information, see [Amazon Interactive Video Service pricing](#).

## discount/TotalDiscount

The sum of all the discount columns for the corresponding line item.

## Split line item details

Columns under the **splitLineItem** header in Amazon Cost and Usage Reports are fields that appear in Cost and Usage Reports if you've opted in to the split cost allocation data feature. For more information, see [Understanding split cost allocation data](#). The feature is limited to Amazon ECS (including Fargate), Amazon Batch, and Amazon EKS only.

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [X](#) | [Y](#) | [Z](#)

### A

#### splitLineItem/ActualUsage

- **Description:** The usage for vCPU or memory (based on lineItem/UsageType) you incurred for the specified time period for the Amazon ECS task or Kubernetes pod.
- **Line items applicable:** Usage
- **Sample values:** 0.1, 0.5, 1.3
- **Services:** Amazon ECS, Fargate, Amazon EKS

#### Note

Fargate costs are calculated based on vCPU and memory reservations and reflected in the lineItem/UsageAmount column. Split cost allocation data computes actual Fargate vCPU and memory usage by observing low latency telemetry data and then aggregating it to the hour, day, and month. Therefore splitLineItem/ActualUsage might not be the same as lineItem/UsageAmount.

### N

#### splitLineItem/NetSplitCost

- **Description:** The effective cost for Amazon ECS tasks or Kubernetes pods after all discounts have been applied. This column is included in your report only when your account has a discount in the applicable billing period.



- **Line items applicable:** Usage
- **Sample values:** 1.35, 1.75
- **Services:** Amazon ECS, Fargate, Amazon EKS

### **splitLineItem/NetUnusedCost**

- **Description:** The effective unused cost for Amazon ECS tasks or Kubernetes pods after all discounts have been applied. This column is included in your report only when your account has a discount in the applicable billing period.
- **Line items applicable:** Usage
- **Sample values:** 1.35, 1.75
- **Services:** Amazon ECS, Fargate, Amazon EKS

#### **Note**

Unused costs are proportionately applied to the Amazon ECS task or Kubernetes pod based on splitLineItem/SplitUsage.

## **P**

### **splitLineItem/ParentResourceId**

- **Description:** The resource ID of the parent EC2 instance associated with the Amazon ECS task or Amazon EKS pod (referenced in the lineItem/ResourceId column). The parent resource ID implies that the ECS task or Kubernetes pod workload for the specified time period ran on the parent EC2 instance. This applies only for Amazon ECS tasks or Kubernetes pods with EC2 launch type.
- **Line items applicable:** Usage
- **Services:** Amazon ECS, Amazon EKS

#### **Note**

splitLineItem/ParentResourceId is available only when resource IDs are included in Amazon Cost and Usage Reports.

### **splitLineItem/PublicOnDemandSplitCost**

- **Description:** The cost for vCPU or memory (based on lineItem/UsageType) allocated for the time period to the Amazon ECS task or Kubernetes pod based on public On-Demand Instance rates (referenced in the pricing/publicOnDemandRate column).
- **Line items applicable:** Usage
- **Sample values:** 1.35, 1.75
- **Services:** Amazon ECS, Fargate, Amazon EKS

### **splitLineItem/PublicOnDemandUnusedCost**

- **Description:** The unused cost for vCPU or memory (based on lineItem/UsageType) allocated for the time period to the Amazon ECS task or Kubernetes pod based on public On-Demand Instance rates. Unused costs are costs associated with resources (CPU or memory) on the EC2 instance (referenced in the splitLineItem/ParentResourceIdcolumn) that were not utilized for the specified time period.
- **Line items applicable:** Usage
- **Sample values:** 1.35, 1.75
- **Services:** Amazon ECS, Fargate, Amazon EKS

## **R**

### **splitLineItem/ReservedUsage**

- **Description:** The usage for vCPU or memory (based on lineItem/UsageType) that you configured for the specified time period for the Amazon ECS task or Kubernetes pod.
- **Line items applicable:** Usage
- **Sample values:** 1, 2, 4
- **Services:** Amazon ECS, Fargate, Amazon EKS

## **S**

### **splitLineItem/SplitCost**

- **Description:** The cost for vCPU or memory (based on lineItem/UsageType) allocated for the time period to the Amazon ECS task. This includes amortized costs if the EC2 instance (referenced

in the `splitLineItem/parentResourceId` column) has upfront or partial upfront charges for reservations.

- **Line items applicable:** Usage
- **Sample values:** 1.35, 1.75
- **Services:** Amazon ECS, Fargate, Amazon EKS

### **splitLineItem/SplitUsage**

- **Description:** The usage for vCPU or memory (based on `lineItem/UsageType`) allocated for the specified time period to the Amazon ECS task or Kubernetes pod. This is defined as the maximum usage of `splitLineItem/ReservedUsage` or `splitLineItem/ActualUsage`.
- **Line items applicable:** Usage
- **Sample values:** 1, 1.3
- **Services:** Amazon ECS, Fargate, Amazon EKS

### **splitLineItem/SplitUsageRatio**

- **Description:** The ratio of vCPU or memory (based on `lineItem/UsageType`) allocated to the Amazon ECS task or Kubernetes pod compared to the overall CPU or memory available on the EC2 instance (referenced in the `splitLineItem/ParentResourceId` column).
- **Line items applicable:** Usage
- **Sample values:** 0.25, 0.75
- **Services:** Amazon ECS, Fargate, Amazon EKS

#### **Note**

`splitLineItem/SplitUsageRatio` is only available for Amazon Cost and Usage Reports with a time granularity preference of hourly data.

## U

### splitLineItem/UnusedCost

- **Description:** The unused cost for vCPU or memory (based on lineItem/UsageType) allocated for the time period to the Amazon ECS task or Kubernetes pod. Unused costs are costs associated with resources (CPU or memory) on the EC2 instance (referenced in the splitLineItem/ParentResourceId column) that were not utilized for the specified time period. This includes amortized costs if the EC2 instance (splitLineItem/parentResourceId) has upfront or partial upfront charges for reservations.
- **Line items applicable:** Usage
- **Sample values:** 1.35, 1.75
- **Services:** Amazon ECS, Fargate, Amazon EKS

#### Note

Unused costs are proportionately applied to the Amazon ECS task or Kubernetes pod based on splitLineItem/SplitUsage.

## Use cases

You can use the Amazon Cost and Usage Reports (Amazon CUR) to suit your reports management needs. This section goes in-depth to help you understand use cases such as tracking your Savings Plans and Reserved Instance (RI) utilization, charges, and allocations.

### Topics

- [Understanding Savings Plans](#)
- [Understanding your reservations](#)
- [Understanding data transfer charges](#)
- [Understanding split cost allocation data](#)

## Understanding Savings Plans

You can use Cost and Usage Reports (Amazon CUR) to track your Savings Plans utilization, charges, and allocations.

## Savings Plans line items

Savings Plans provide a flexible pricing model that offers low prices on Amazon EC2, Amazon Fargate, Amazon Lambda, and Amazon SageMaker AI in exchange for a commitment to a consistent amount of usage (measured in \$/hour) for a 1-year or 3-year term.

The following line items in Amazon CUR help you track and manage your spend with Savings Plans.

### Note

In the following tables, the columns and rows from Amazon CUR are transposed for clarity. The values in the first column represent the headers of a report. These examples include only a few key Amazon CUR columns. To learn more about other Amazon CUR columns, see the [Data dictionary](#).

## Upfront fee

The **SavingsPlanUpfrontFee** line item is added to your bill when you purchase an All Upfront or Partial Upfront Savings Plan. The following table shows how this one-time fee appears in some Amazon CUR columns.

lineItem/LineItemType	SavingsPlanUpfrontFee	SavingsPlanUpfrontFee
lineItem/ProductCode	ComputeSavingsPlans	ComputeSavingsPlans
lineItem/UsageStartDate	2019-10-10T00:03:54Z	2019-10-10T00:12:15Z
lineItem/LineItemDescription	USD \$43.80 one-time fee for 1 year All Upfront Compute Savings Plan ID: 70352035	USD \$43.80 one-time fee for 3-year Partial Upfront Any Region M5 Instance Type EC2 Savings Plan ID: 12355516
lineItem/UnblendedCost	43.8	43.8
savingsPlan/SavingsPlanARN	arn:aws:savingsplans::5555555555555555:savingsplan/ bc1d08fd	arn:aws:savingsplans::5555555555555555:savingsplan/ 67b0ef20

## Savings Plans recurring monthly fee

The **SavingsPlanRecurringFee** line item describes the recurring hourly charges that correspond to No Upfront or Partial Upfront Savings Plans. Initially, the **SavingsPlanRecurringFee** is added to your bill on the day of purchase and hourly thereafter.

The **SavingsPlanRecurringFee** allocated to the hour (applicable to Hourly cost and usage) or day (applicable to Daily cost and usage) is added to your bill at the hour of purchase. It is added every hour/day of the billing period subsequently.

For an All Upfront Savings Plan, the line item indicates the portion of the Savings Plan unused during the billing period.

The following table shows how the recurring hourly charges appear in some Amazon CUR columns.

lineltem/LineltemType	SavingsPlanRecurringFee	SavingsPlanRecurringFee
lineltem/UsageStartDate	2019-20-10T00:00:00Z	2019-20-10T00:00:00Z
lineltem/ProductCode	Compute Savings Plans	Compute Savings Plans
lineltem/UsageType	ComputeSP:1yrPartialUpfront	USE2-EC2SP:t3.1yrPartialUpfront
lineltem/UnblendedCost	0.01	0.01
lineltem/LineltemDescription	1 year Partial Upfront Compute Savings Plan	1 year Partial Upfront t3 EC2 Instance Savings Plan in us-east-2
savingsPlan/SavingsPlanARN	arn:aws:savingsplans::5555555555555555:savingsplan/ bc1d08fd	arn:aws:savingsplans::5555555555555555:savingsplan/ bc1d08fd
savingsPlan/PaymentOption	Partial Upfront	Partial Upfront
savingsPlan/OfferingType	ComputeSavingsPlans	EC2InstanceSavingsPlans
savingsPlan/PurchaseTerm	1yr	1yr

**Note**

The `SavingsPlanRecurringFee` is calculated differently than the recurring RI fee. The recurring RI fee is a monthly charge while the `SavingsPlanRecurringFee` is an hourly charge. For information on the recurring RI fee, see [Recurring monthly RI fee](#).

**Savings Plans discount benefits**

The **SavingsPlanCoveredUsage** line item describes the instance usage that received Savings Plans benefits. A **SavingsPlanCoveredUsage** line item shows an unblended cost of what the On-Demand charge would have been without the Savings Plan benefit. This unblended cost is offset by the corresponding **SavingsPlanNegation** line item.

In each **SavingsPlanCoveredUsage** line item, you can see how that usage was billed against your Savings Plans hourly commitment by using the `savingsPlan/SavingsPlanRate` and `savingsPlan/SavingsPlanEffectiveCost` fields.

You'll see a corresponding **SavingsPlanNegation** for each **SavingsPlanCoveredUsage** line item. **SavingsPlanNegation** line items offset the unblended cost of **SavingsPlanCoveredUsage**, and grouped at the hourly level by SavingsPlanARN, Operation, Usage Type, and Availability Zone. Therefore, one **SavingsPlanNegation** line item might correspond to multiple **SavingsPlanCoveredUsage** line items.

The following table shows how the covered usage and the negation line items appear in some Amazon CUR columns.

<code>lineItem/ LineItemType</code>	<code>SavingsPlanCovered Usage</code>	<code>SavingsPlanCovered Usage</code>	<code>SavingsPlanNegation</code>
<code>lineItem/ UsageStartDate</code>	2019-10-10T00:00:00Z	2019-10-10T00:00:00Z	2019-10-10T00:00:00Z
<code>lineItem/ UsageEndDate</code>	2019-10-10T01:00:00Z	2019-10-10T01:00:00Z	2019-10-10T01:00:00Z
<code>lineItem/ ProductCode</code>	AmazonEC2	AmazonEC2	AmazonEC2

<b>lineItem/ UsageType</b>	BoxUsage:t3.nano	BoxUsage:t3.nano	BoxUsage:t3.nano
<b>lineItem/ UsageAmount</b>	1	0.5	-1.5
<b>lineItem/ UnblendedCost</b>	0.0052	0.0026	-0.0078
<b>lineItem/ LineItemDescription</b>	\$0.0052 per On Demand Linux t3.nano Instance Hour	\$0.0052 per On Demand Linux t3.nano Instance Hour	SavingsPlanNegation used by AccountId : 555555555555 and UsageSku : K7ERD2Q28HHU97DT
<b>SavingsPlan/ SavingsPlanARN</b>	arn:aws:savingsplans:: 555555555555:savingsplan/bc1d08fd	arn:aws:savingsplans:: 555555555555:savingsplan/bc1d08fd	arn:aws:savingsplans:: 555555555555:savingsplan/bc1d08fd
<b>savingsPlan/ SavingsPlanRate</b>	0.0026	0.0026	
<b>savingsPlan/ SavingsPlanEffectiveCost</b>	0.0026	0.0013	

When you have more usage than your Savings Plans commitment can cover, your uncovered usage still appears as a Usage Line Item and the covered usage appears as **SavingsPlanCoveredUsage** with the corresponding **SavingsPlanNegation** line items.

## Understanding your reservations

You can use the Amazon Cost and Usage Reports (Amazon CUR) to track your Reserved Instance (RI) utilization, charges, and allocations. This section is an in-depth description to understand your reservations.

### Topics



- [Understanding your reservation line items](#)
- [Understanding your amortized reservation data](#)
- [Monitoring your size flexible reservations for Amazon EC2](#)
- [Monitoring your On-Demand capacity reservations](#)

## Understanding your reservation line items

RIs provide you a significant discount compared to On-Demand Instance pricing. RIs aren't physical instances. They're a billing discount applied to the use of On-Demand Instances in your account. These On-Demand Instances must match certain attributes to benefit from the billing discount.

### Topics

- [Upfront fee](#)
- [True-up fee](#)
- [Recurring monthly RI fee](#)
- [RI discount benefits](#)
- [Reserved Instance type](#)
- [Reserved Instance benefits applied to instance usage](#)

#### Note

In the following tables, the columns and rows from Amazon CUR are transposed for clarity. The values in the first column represent the headers of a report. These examples include only a few key Amazon CUR columns. To learn more about other Amazon CUR columns, see the [Data dictionary](#).

### Upfront fee

The **Fee** line item is added to your bill when you purchase an All Upfront or Partial Upfront RI.

The following table shows how this one-time fee appears in some Amazon CUR columns.

lineltem/LineltemType	Fee
-----------------------	-----

<b>lineltem/ProductCode</b>	AmazonEC2
<b>lineltem/UsageStartDate</b>	2016-01-01T00:00:00Z
<b>lineltem/LineltemDescription</b>	Sign up charge for subscription: 363836886, planId: 1026576
<b>lineltem/UnblendedCost</b>	68
<b>Reservation/ReservationARN</b>	arn:aws:ec2:us-east-1:123456789012:reserved-instances/f8c204c1-dd48-43f1-adb8-f88aa61e0dea

### True-up fee

If you exchange a Convertible Reserved Instance, any cost associated with the exchange of the original Reserved Instance and the new Reserved instance (true-up fee) is also added to your bill as a **Fee** line item. For a true-up fee, the **reservation/ReservationARN** column contains **reserved-instance-exchange/riex**.

The following table shows a true-up fee from exchanging a Convertible Reserved Instance.

<b>lineltem/LineltemType</b>	<b>lineltem/ProductCode</b>	<b>lineltem/UsageStartDate</b>	<b>lineltem/LineltemDescription</b>	<b>lineltem/UnblendedCost</b>	<b>Reservation/ReservationARN</b>
Fee	AmazonEC2	2016-01-01T00:00:00Z			arn:aws:ec2:eu-west-1:012345678901:reserved-instance-exchange/riex-examplef-5d71-4215-886f

lineltem/ Linetype	lineltem/ ProductCode	lineltem/ UsageStar tDate	lineltem/ LineltemD escription	lineltem/ Unblended Cost	Reservati on/Reserv ationARN
					-17a3f64e a972

## Recurring monthly RI fee

The **RI Fee** line item describes the recurring monthly charges that are associated RIs applied that month. The **RI Fee** initially is added to your bill on the day of purchase and on the first day of each billing period thereafter.

The **RI Fee** is calculated by multiplying your discounted hourly rate and the number of hours in the month.

The following table shows how the recurring monthly charges appear in the report.

<b>lineltem/LineltemType</b>	RI fee
<b>lineltem/ProductCode</b>	AmazonEC2
<b>lineltem/UsageStartDate</b>	2016-01-01T00:00:00Z
<b>lineltem/UsageType</b>	HeavyUsage: m4.large
<b>lineltem/LineltemDescription</b>	USD 0.0309 hourly fee per Linux/UNIX (Amazon VPC), m4.large instance
<b>lineltem/NormalizationFactor</b>	4
<b>lineltem/UnblendedCost</b>	23
<b>Reservation/AvailabilityZone</b>	
<b>Reservation/ReservationARN</b>	arn:aws:ec2:us-east-1:123456789012:reserved-instances/f8c204c1-dd48-43f1-adb8-f88aa61e0dea
<b>Reservation/TotalReservedunits</b>	744

**Reservation/TotalReservedNormalizedUnits** 2976

Recurring monthly charges are recorded differently for RIs that have an Availability Zone or Amazon Web Services Region Region scope. For RIs that have an Availability Zone scope, the corresponding Availability Zone is shown in the **reservation/AvailabilityZone** column. For RIs that have a Region scope, the **reservation/AvailabilityZone** column is empty. RIs with a Region scope have values for the **lineitem/NormalizationFactor** and **reservation/TotalReservedNormalizedUnits** columns that show the instance size.

### RI discount benefits

The **Discounted Usage** line item describes the instance usage that received a matching RI discount benefit, and is added to your bill when you have usage that matches one of your RIs. Amazon calculates RI discount benefits based on matching usage: for example, the use of an instance that matches the instance reservation. If you have matching usage, the cost associated with the usage line item is always zero because the charges associated with RIs are already accounted for in the two other line items (the upfront fee and the recurring monthly charges).

The following table shows an example of usage that received an RI discount benefit.

<b>lineitem/LineItemType</b>	DiscountedUsage
<b>lineitem/ProductCode</b>	AmazonEC2
<b>lineitem/UsageStartDate</b>	2016-01-01T00:00:00Z
<b>lineitem/UsageType</b>	BoxUsage:m4.large
<b>lineitem/LineitemDescription</b>	Linux/UNIX (Amazon VPC), m4.large Reserved Instance applied
<b>lineitem/ResourceId</b>	i-1bd250bc
<b>lineitem/AvailabilityZone</b>	us-east-1b
<b>lineitem/NormalizationFactor</b>	4
<b>lineitem/NormalizedUsageAmount</b>	4

<b>lineitem/UnblendedRate</b>	0
<b>lineitem/UnblendedCost</b>	0
<b>Reservation/ReservationARN</b>	arn:aws:ec2:us-east-1:123456789012:reserved-instances/f8c204c1-dd48-43f1-adb8-f88aa61e0dea

The value for **UsageAmount** in the Amazon EC2 **DiscountedUsage** line is the actual number of hours used. The value for **NormalizedUsageAmount** is the value for **UsageAmount** multiplied by the value for **NormalizationFactor**. The value for **NormalizationFactor** is determined by the instance size. When an RI benefit discount is applied to a matching line item of usage, the Amazon Resource Name (ARN) value in the **reservation/ReservationARN** column for the initial upfront fees and recurring monthly charges matches the ARN value in the discounted usage line items.

For more information about mapping instance size to normalization factor, see [Support for modifying instance sizes](#) in the *Amazon EC2 User Guide*.

### Reserved Instance type

To determine if your report line items are associated with a Standard Reserved Instance or a Convertible Reserved Instance, filter the **lineitem/LineItemType** column by **Fee** or **RI fee**. Then, review the **product/OfferingClass** column, which indicates the Reserved Instance type.

To determine if your report line items are associated with a zonal or regional Reserved Instance, review the **reservation/AvailabilityZone** column. For zonal Reserved Instances, this column shows the corresponding Availability Zone. For regional Reserved Instances, this column is empty.

### Reserved Instance benefits applied to instance usage

To understand which instance usage line items benefitted from which Reserved Instances, you can filter your report by one or more of the following columns:

- **reservation/reservationARN**: Filter this column by a reservation ARN to identify which Reserved Instance lease is associated with each line item.
- **lineitem/ResourceId**: Review this column for the ID of the resource that's covered by the Reserved Instance.
- **lineitem/LineItemType**: Filter this column by **Fee**, **RI fee**, or **DiscountedUsage** to determine the associated fees or benefits.

- **lineitem/UsageType:** Filter this column by **HeavyUsage** to identify **RI fee** line items. Or, filter this column by **BoxUsage** to identify **DiscountedUsage** line items.
- **lineitem/UsageAmount:** For **RI fee** line items, this column shows the total number of hours in the month that the Reserved Instance was applied. For **DiscountedUsage** line items, this column shows the total number of hours that the Reserved Instance was applied to a specific instance at the daily or monthly level, depending on how you configured your report.

To understand a size flexible Reserved Instance's number of normalized units applied to instance usage, review the **lineitem/NormalizedUsageAmount** column in your report. The value in this column equals the product of the following columns:

- **lineitem/UsageAmount:** This column shows the metered instance usage measured in hours.
- **lineitem/NormalizationFactor:** For **DiscountedUsage** and **RI fee** line items, this column shows the associated normalization factor of the instance. For more information on the normalization factor, see [Instance size flexibility determined by normalization factor](#) in the *Amazon EC2 User Guide*.

For Amazon Organizations with multiple accounts, to see which accounts purchased or benefitted from a Reserved Instance, review the following columns:

- **reservation/reservationARN:** Review the reservation ARNs to see which accounts purchased the Reserved Instance. The ARN includes the account ID.
- **lineitem/UsageAccountId:** For **DiscountedUsage** line items, this column identifies the account IDs that received benefits from the purchased Reserved Instances.

#### Note

A Reserved Instance is a billing subscription and not a resource like an Amazon EC2 instance. Because of this, Reserved Instances that are tagged don't populate line items like a tagged resource. For line items with **DiscountedUsage**, tags populate for the tagged resources and not for the Reserved Instance.

To identify costs associated with a specific Reserved Instance lease, you can filter **Fee** or **RI fee** line items by the Reserved Instance ARN, which is the lease ID. To organize your cost data for Reserved Instances, consider using Amazon Cost Categories. For more information, see [Managing your costs with Amazon Cost Categories](#) in the *Amazon Billing User Guide*

## Understanding your amortized reservation data

Amortizing is when you distribute one-time reservation costs across the billing period that is affected by that cost. Amortizing enables you to see your costs in accrual-based accounting as opposed to cash-based accounting. For example, if you pay \$365 for an All Upfront RI for one year and you have a matching instance that uses that RI, that instance costs you \$1 a day, amortized.

You can see the data that Billing and Cost Management uses to calculate your amortized costs in the following Cost and Usage Reports columns.

### Topics

- [Reserved Instance inventory](#)
- [Amortization data for the billing period](#)
- [Reserved Instance effective costs](#)

#### Note

Not all **reservation/** columns are populated for every Reserved Instance line item. The **reservation/** columns in your report are populated based on the line item type. For example, **RI fee** line items populate the **reservation/UnusedAmortizedUpfrontFeeForBillingPeriod** column. Meanwhile, **DiscountedUsage** line items populate the **reservation/effectivecost** column.

### Reserved Instance inventory

You can use the following columns to track your RI inventory. The values for these columns appear only for RI subscription line items (also known as RI Fee line items) and not for the actual instances using the RIs.

For more information about column descriptions and sample values, see [the section called "Reservation details"](#).

- reservation/UpfrontValue
- reservation/startTime
- reservation/endTime
- reservation/modificationStatus

## Amortization data for the billing period

You can use the following columns to understand the amortized costs of your RIs for the billing period. The values for these columns appear only for RI subscription line items (also known as RI Fee line items) and not for the actual instances using the RIs.

For more information about column descriptions and sample values, see [the section called "Reservation details"](#).

- reservation/amortizedUpfrontFeeForBillingPeriod
- reservation/unusedQuantity
- reservation/unusedNormalizedUnitQuantity
- reservation/unusedRecurringFee
- reservation/unusedAmortizedUpfrontFeeForBillingPeriod

## Reserved Instance effective costs

You can use the following columns to understand your effective cost at the instance level. The values for these columns appear only for instance usage line items (also known as Discounted Usage boxUsage line items).

For more information about column descriptions and sample values, see [the section called "Reservation details"](#).

- reservation/amortizedUpfrontCostForUsage
- reservation/recurringFeeForUsage
- reservation/effectiveCost

## Monitoring your size flexible reservations for Amazon EC2

Amazon EC2 Reserved Instances that apply to a Region provide Availability Zone flexibility and instance size flexibility. Reserved Instances that provide Availability Zone flexibility provide a discount on usage in any Availability Zone in the Region. Reserved Instances that provide instance size flexibility provide a discount on usage, regardless of instance size in that family. Size flexible Reserved Instances apply to the smallest instance sizes first. For more information, see [How Reserved Instances are applied](#) in the *Amazon EC2 User Guide*.



To understand how instance size flexibility provided by your Reserved Instance is applied to your usage, refer to the **lineItem/NormalizationFactor** and **lineItem/NormalizedUsageAmount** columns.

### Note

Instance size flexibility is supported only by Linux or Unix Reserved Instances with default tenancy that are assigned to a Region. For more information on the limitations of instance size flexibility for Regional Reserved Instances, see [How regional Reserved Instances are applied](#) in the *Amazon EC2 User Guide*.

In a Cost and Usage Report, the Reserved Instance usage is applied by default to the account that purchased the Reserved Instance. Any available Reserved Instance benefit that the purchasing account can't use within the hour is then applied to other linked accounts based on the available matching On-Demand Instance usage.

### Example

You purchase one `m4.xlarge` RI in a given Region. This `m4.xlarge` RI can be applied automatically to all `m4` instance usage in the same Region. In the following table, Amazon applied the `m4.xlarge` to two separate `m4.large` instances.

<b>lineItem/LineItemType</b>	<b>RIFee</b>	<b>Discounted Usage</b>	<b>Discounted Usage</b>
<b>lineItem/ProductCode</b>	AmazonEC2	AmazonEC2	AmazonEC2
<b>lineItem/UsageStartDate</b>	2016-01-01T00:00:00Z	2016-01-01T00:00:00Z	2016-01-01T00:00:00Z
<b>lineItem/UsageType</b>	HeavyUsage:m4.xlarge	BoxUsage:m4.large	BoxUsage:m4.large
<b>lineItem/LineItemDescription</b>	USD 0.0618 hourly fee per Linux/UNIX (Amazon VPC), m4.xlarge instance	Linux/UNIX (Amazon VPC), m4.large Reserved Instance applied	Linux/UNIX (Amazon VPC), m4.large Reserved Instance applied

<b>lineItem/ResourceId</b>		i-1bd250bc	i-1df340ed
<b>lineItem/UsageAmount</b>		1	1
<b>lineItem/NormalizationFactor</b>	4	4	4
<b>lineItem/NormalizedUsageAmount</b>		4	4
<b>lineItem/UnblendedRate</b>		0	0
<b>lineItem/UnblendedCost</b>	46	0	0
<b>Reservation/ReservationARN</b>	arn:aws:ec2:us-east-1:123456789012:reserved-instances /f8c204c1	arn:aws:ec2:us-east-1:123456789012:reserved-instances /f8c204c1	arn:aws:ec2:us-east-1:123456789012:reserved-instances /f8c204c1
<b>Reservation/TotalReservedUnits</b>	744		
<b>Reservation/TotalReservedNormalizedUnits</b>	5952		

The two `m4.large` usage line items have different **ResourceIds**, and both received a discount benefit from the single `m4.xlarge` RI. This is shown by matching the **reservationARN** value across the usage and recurring monthly charge line items.

For more information about RI purchase options, see [How you are billed](#) in the *Amazon EC2 User Guide*.

## Monitoring your On-Demand capacity reservations

Capacity reservations enable you to reserve capacity for your Amazon EC2 instances for any duration in a specific Availability Zone. This enables you to create and manage capacity reservations separately from the billing discounts offered by Regional Reserved Instances (RI). To benefit from billing discounts, you can use Regional RIs in combination with capacity reservations.

### Capacity reservation line items

You can use some columns defined in the Amazon CUR data dictionary to track your capacity reservations. The following columns are also used for capacity reservations.

This section defines these line items with supplementary definitions specific to capacity reservations.

For more information about Cost and Usage Reports column descriptions, see [the section called "Line item details"](#).

A | [B](#) | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | [R](#) | S | T | [U](#) | VWXYZ

#### B

##### lineItem/BlendedRate

For capacity reservations with a **UsageType** of **Reservation** or **DedicatedRes**, the **BlendedRate** is 0. This is because the capacity reservation costs are associated with the instance that provides the capacity, instead of with the capacity reservation itself.

#### R

##### lineItem/ResourceId

If you included `lineItem/ResourceId` when you created your Cost and Usage Reports, you can identify and track your capacity reservations using the **ResourceId** column. The capacity reservation **ResourceId** is captured only for the **UnusedBox**, **UnusedDed**, **Reservation**, and **DedicatedRes UsageTypes**.

Capacity reservations always include a `cr-` in their resource ID, and the resource ID has the following format:

```
arn:aws:ec2:<region>:<account id>:<capacity-reservation>/cr-0be443example1db6f
```

## U

### **lineItem/UnblendedCost**

The **BlendedRate** multiplied by the **UsageAmount**.

### **lineItem/UnblendedRate**

For capacity reservations with a **UsageType** of **Reservation** or **DedicatedRes**, the **UnblendedRate** is 0. This is because the costs for capacity reservations are associated with the instance that provides the capacity, instead of with the capacity reservation itself.

### **lineItem/UsageAmount**

How much of a capacity reservation you've used. Each capacity reservation can have multiple slots for an hour, enabling you to run more than one instance that uses the reservation during an hour. Therefore, it's possible to use more than one instance-hour in an hour. **UsageAmount** is calculated by multiplying the number of instance slots covered by the line item with the number of hours covered by the line item.

### **lineItem/UsageType**

How much of a specific reservation you've used. For Amazon EC2, the options are as follows:

#### **lineItem/lineitemtype = BoxUsage**

For this **UsageType**, the **UsageAmount** column is the amount of instance-hours of an instance you've used.

For example, a report covers 1 hour and has a capacity reservation line item that can cover 10 instances. If you use two instance-slots during the time period covered by the report, the **BoxUsage UsageAmount** covers the number of instance hours that you reserved and used. In this case, this is two (the number of used instance slots) multiplied by 1 hour (the time covered by the report) for a total of two. For a report that covers 1 day, the **UsageAmount** is two multiplied by 24, for a total of 48.

### **DedicatedRes**

For a **UsageType** of **DedicatedRes**, the **UsageAmount** column describes how many instance-hours of a dedicated capacity reservation you reserved.

## Reservation

For a **UsageType** of **Reservation**, the **UsageAmount** column describes how many instance-hours of a capacity reservation you reserved.

For example, if a report covers one hour and has a capacity reservation line item that can cover 10 instances, the **Reservation UsageAmount** covers the number of instance slots that you reserved. In this case, that's 10 (the number of available instance slots) multiplied by 1 hour (the time covered by the report) for a total of 10. For a report that covers 1 day, the **UsageAmount** would be 10 multiplied by 24, for a total of 240.

## UnusedBox

For a **UsageType** of **UnusedBox**, the **UsageAmount** column describes how many instance-hours of a capacity reservation you reserved, but didn't use.

For example, a report covers 1 hour and has a capacity reservation line item that can cover 10 instances. If you didn't use eight instance-slots during the time period covered by the report, the **UnusedBox UsageAmount** covers the number of instance hours that you reserved but didn't use. In this case, that's eight (the number of unused instance slots) multiplied by 1 hour (the time covered by the report) for a total of eight. For a report that covers 1 day, the **UsageAmount** is eight multiplied by 24, for a total of 192.

## UnusedDed

For a **UsageType** of **UnusedDed**, the **UsageAmount** column describes how many instance-hours of a dedicated capacity reservation that you reserved, but didn't use.

## Understanding data transfer charges

You can identify your Amazon data transfer charges using the [lineltem/UsageType](#) column of your Amazon CUR.

### Note

Data transfer charges can vary depending on the services used and the source Amazon Region. For detailed pricing information, refer to the service's pricing page. For example, see [Amazon EC2 On-Demand Pricing](#) for detailed pricing information about Amazon EC2 data transfer.

## Data transfer within an Amazon Region

Data transfer between Availability Zones in the same Amazon Region have a **UsageType** of *Region-DataTransfer-Regional-Bytes*. For example, the *USE2-DataTransfer-Regional-Bytes* usage type identifies charges for data transfer between Availability Zones in the US East (Ohio) Region.

For a given resource, you're charged for both inbound and outbound traffic in a data transfer within an Amazon Region. This means for each resource metered, you'll see two *DataTransfer-Regional-Bytes* line items for each data transfer. Confirm the service's pricing page for more information, because some services have in-Region traffic at no cost.

## Data transfer between Amazon Regions

Data transfer between different Amazon Regions can have the following usage types:

- *Source Region-Destination Region-AWS-In-Bytes*
- *Source Region-Destination Region-AWS-Out-Bytes*
- *Source Region-AWS-In-Bytes*
- *Source Region-AWS-Out-Bytes*

For each resource, data transfer between Amazon Regions corresponds to two line items in your report:

- A line item for the data transferred into the destination Region
- A line item for the data transferred out from the source Region

There's no charge for the data transferred into the destination Region. The data transfer charge is determined by the data transferred out from the source Region.

For example, a data transfer from the USE2 Region to the APS3 Region will have both a *APS3-USE2-AWS-In-Bytes* line item and a *USE2-APS3-AWS-Out-Bytes* line item. The *USE2-APS3-AWS-In-Bytes* line item has no corresponding charge. The data transfer charge is associated with the *USE2-APS3-AWS-Out-Bytes* line item.

## Data transfer out to the internet

Data transfer from Amazon to the internet have a **UsageType** of *Region*-DataTransfer-Out-Bytes. For example, the USE2-DataTransfer-Out-Bytes usage type identifies charges for data transfer from the USE2 Region to the internet.

There's no charge for data transfer from the internet to Amazon.

### Note

Data transfer usage types that don't have the Region prefix, such as DataTransfer-Regional-Bytes or DataTransfer-Out-Bytes, represent data transfer from the US East (N. Virginia) Region.

## Amazon Direct Connect traffic

Amazon Direct Connect data transfer over a public virtual interface have usage types that end with DataXfer-In or DataXfer-Out.

Amazon Direct Connect data transfer over a private or transit virtual interface have usage types that end with DataXfer-In:dc.3 or DataXfer-Out:dc.3.

## S3 Transfer Acceleration traffic

Amazon S3 data transfer using S3 Transfer Acceleration have usage types that contain ABytes:

- Between Amazon S3 and Amazon EC2: Usage types that end with C3DataTransfer-In-ABytes or C3DataTransfer-Out-ABytes
- Between Amazon S3 and the internet: Usage types that end with DataTransfer-In-ABytes or DataTransfer-Out-ABytes
- Between Amazon S3 and CloudFront: Usage types that end with CloudFront-In-ABytes or CloudFront-Out-ABytes
- Between Amazon S3 buckets in different Amazon Regions: Usage type of *Source Region-Destination Region*-AWS-Out-ABytes

## CloudFront traffic

CloudFront data transfer have a usage type of *Region*-DataTransfer-Out-Bytes or *Region*-DataTransfer-Out-0Bytes coupled with the product code AmazonCloudFront. The Region prefix in the usage type refers to the CloudFront Edge location used in the data transfer. For example, the AP-DataTransfer-Out-Bytes usage type identifies charges for data transfer from the AP Region to the internet.

### Tip

Use the [lineitem/ProductCode](#) column to distinguish CloudFront data transfer from data transfer out to the internet. The usage types for these data transfer types look similar.

## Understanding split cost allocation data

You can use Cost and Usage Reports (Amazon CUR) to track your Amazon ECS and Amazon EKS container costs. Using split cost allocation data, you can allocate your container costs to individual business units and teams, based on how your container workloads consume shared compute and memory resources. Split cost allocation data introduces cost and usage data for new container-level resources (that is, ECS tasks and Kubernetes pods) to Amazon CUR. Previously, Amazon CUR only supported costs at the EC2 instance level. Split cost allocation data generates container-level costs by looking at each container's EC2 instance resource consumption, and generates cost based on the amortized cost of the instance and the percentage of CPU and memory resources consumed by the containers that ran on the instance.

Split cost allocation data introduces new usage records and new cost metric columns for each containerized resource ID (that is, ECS task and Kubernetes pod) in Amazon CUR. For more information, see [Split line item details](#).

When including split cost allocation data in Amazon CUR, two new usage records are added for each ECS task and Kubernetes pod per hour in order to reflect the CPU and memory costs. To estimate the number of new line items in Amazon CUR per day, use the following formula:

For ECS:  $(\text{number of tasks} * \text{average task lifetime} * 2) * 24$

For EKS:  $(\text{number of pods} * \text{average pod lifetime} * 2) * 24$

For example, if you have 1,000 pods running each hour across a cluster of 10 EC2 instances and the lifetime for the pod is less than 1 hour, then:



$(1000 * 1 * 2) * 24 = 48,000$  new usage records in Amazon CUR

### Note

For ECS: When it comes to Amazon cost allocation tags, you can use Amazon ECS-managed tags or user-added tags for your Cost and Usage Reports. These tags apply to all new ECS split cost allocation data usage records. For more information, see [Tagging your ECS resources for billing](#).

For EKS: Split cost allocation data creates new cost allocation tags for some Kubernetes attributes. These tags include `aws:eks:cluster-name`, `aws:eks:deployment`, `aws:eks:namespace`, `aws:eks:node`, `aws:eks:workload-name`, and `aws:eks:workload-type`.

- `aws:eks:cluster-name`, `aws:eks:namespace`, and `aws:eks:node` are populated retrospectively with the name of the cluster, namespace, and node.
- `aws:eks:workload-type` is only populated if there is exactly one workload managing the pod, and is one of the built in workloads. Workload types include `ReplicaSet`, `StatefulSet`, `Job`, `DaemonSet`, or `ReplicationController`, and `aws:eks:workload-name` includes the name of the workload. For more information, see [Workloads](#) in the *Kubernetes Documentation*.
- `aws:eks:deployment` is only populated for the workload type `ReplicaSet`. It is the deployment that creates a `ReplicaSet`.

These tags apply to all new EKS split cost allocation data usage records. These tags are enabled for cost allocation by default. If you previously used and disabled the `aws:eks:cluster-name` tag, then split cost allocation data keeps this setting and doesn't enable the tag. You can enable it from the [Cost allocation tags](#) console page.

## Enabling split cost allocation data

### Note

Split cost allocation data is not available in Cost Explorer. It is available in legacy Cost and Usage Reports (CUR) and Cost and Usage Report 2.0 (CUR 2.0) with Data Exports.

It is a prerequisite to opt in to split cost allocation data through the Cost Management preferences.

### To opt in to split cost allocation data

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Cost Management preferences**.
3. Under **General**, in the **Split cost allocation data** section, choose between the following:
  - **Amazon Elastic Container Service (Amazon ECS)** to opt in to Amazon ECS only.
  - **Amazon Elastic Kubernetes Service (Amazon EKS)** to opt in to Amazon EKS only. For Amazon EKS, choose between the following:
    - **Resource requests:** This allocates your Amazon EC2 by Kubernetes pod CPU and memory resources only. This will encourage application teams to only provision what they need.
    - **Amazon Managed Service for Prometheus:** This allocates your Amazon EC2 costs by the higher of Kubernetes pod CPU and memory resource requests and actual utilization. This ensures each application team pays for what they use. To learn more about setting up Amazon Managed Service for Prometheus, see [Setting up](#) in the *Amazon Managed Service for Prometheus user guide*.

Prerequisite: You must enable all features in Amazon Organizations. To learn more, see [Enabling all features in your organization](#) in the *Organizations user guide*.

- **Amazon CloudWatch Container Insights:** This provides more granular cost visibility for your clusters running multiple application containers using shared EC2 instances, enabling better cost allocation for the shared costs of your EKS clusters.

#### Note

- Only regular and payer accounts have access to the Amazon Cost Management preferences and can opt in to split cost allocation data. Once opted in, member accounts can view the data in the Cost and Usage Reports.
- If you choose resource requests, only the pods configured with memory and CPU requests are used by split cost allocation data. Pods that haven't requested any usage won't see any split cost data.

- If you choose Amazon Managed Service for Prometheus, you need to enable all features in Amazon Organizations. For more information, see [Enabling all features in your organization](#). In addition, split cost allocation data creates a new service-linked role, which enables access to Amazon services and resources used or managed by split cost allocation data.

Once you've opted in, you can choose to have cost and usage data for container-level resources included in your report during step one of report creation or later by editing the report details.

### To include cost and usage data in your report

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Cost and Usage Reports**.
3. Whether creating a new report or editing an existing report, in the **Specify report details** page, under **Report content**, select **Split cost allocation data**.

#### Note

You can also use the Amazon CUR API or the Amazon Command Line Interface (CLI) to manage your split cost allocation data preferences.

Split cost allocation data enables cost visibility for all Amazon ECS and Amazon EKS container objects across your entire consolidated billing family (payer and linked accounts). Once activated, split cost allocation data automatically scans for tasks and containers. It ingests the telemetry usage data for your container workloads and prepares the granular cost data for the current month.

#### Note

It can take up to 24 hours for the data to be visible in Amazon CUR.

For information about managing access to Billing and Cost Management console pages, see [Overview of managing access permissions](#).

For information regarding Amazon Cost Management preferences and controlling access to Cost Explorer, see [Controlling access to Cost Explorer](#).

## Example of split cost allocation data

The purpose of the following example is to show you how split cost allocation data is calculated by computing the cost of individual Amazon ECS services, tasks in Amazon ECS clusters, and Kubernetes namespace and pods in Amazon EKS clusters. The rates used throughout the example are for illustrative purposes only.

### Note

The example demonstrates Kubernetes namespace and pods running in Amazon EKS clusters. We can then apply the same cost model to Amazon ECS service and tasks running in a Amazon ECS cluster.

You have the following usage in a single hour:

- Single instance (m5.xlarge) shared cluster with two namespaces and four pods, running for the duration of a full hour.
- Instance configuration is 4 vCPU and 16 GB of memory.
- Amortized cost of the instance is \$1/hr.

Split cost allocation data uses relative unit weights for CPU and memory based on a 9:1 ratio. This is derived from per vCPU per hour and per GB per hour prices in [Amazon Fargate](#).

### Step 1: Compute the unit cost for CPU and memory

$$\text{Unit-cost-per-resource} = \text{Hourly-instance-cost} / ((\text{Memory-weight} * \text{Memory-available}) + (\text{CPU-weight} * \text{CPU-available}))$$

$$= \$1 / ((1 * 16\text{GB}) + (9 * 4\text{vCPU})) = \$0.02$$

$$\text{Cost-per-vCPU-hour} = \text{CPU-weight} * \text{Unit-cost-per-resource}$$

$$= 9 * \$0.02 = \$0.17$$

$$\text{Cost-per-GB-hour} = \text{Memory-weight} * \text{Unit-cost-per-resource}$$

$$= 1 * \$0.02 = \$0.02$$

Instance	Instance type	vCPU-avail lable	Memory- available	Amortized -cost-per- hour	Cost-per- vCPU-hour	Cost-per- GB-hour
Instance1	m5.xlarge	4	16	\$1	\$0.17	\$0.02

## Step 2: Compute the allocated capacity and instance unused capacity

- Allocated capacity: The memory and vCPU allocated to the Kubernetes pod from the parent EC2 instance, defined as the maximum of used and reserved capacity.

### Note

If memory or vCPU usage data is unavailable, reservation data will be used instead. For more information, see [Amazon ECS usage reports](#), or [Amazon EKS cost monitoring](#).

- Instance unused capacity: The unused capacity of vCPU and memory.

$$\text{Pod1-Allocated-vCPU} = \text{Max} (1 \text{ vCPU}, 0.1 \text{ vCPU}) = 1 \text{ vCPU}$$

$$\text{Pod1-Allocated-memory} = \text{Max} (4 \text{ GB}, 3 \text{ GB}) = 4 \text{ GB}$$

$$\text{Instance-Unused-vCPU} = \text{Max} (\text{CPU-available} - \text{SUM}(\text{Allocated-vCPU}), 0) = \text{Max} (4 - 4.9, 0) = 0$$

$$\text{Instance-Unused-memory} = \text{Max} (\text{Memory-available} - \text{SUM}(\text{Allocated-memory}), 0) = \text{Max} (16 - 14, 0) = 2 \text{ GB}$$

In this example, the instance has CPU over subscription, attributed to Pod2 that used more vCPU than what was reserved.

Pod name	Namespace	Reserved-vCPU	Used-vCPU	Allocated -vCPU	Reserved-memory	Used-memory	Allocated - memory
Pod1	Namespace 1	1	0.1	1	4	3	4

Pod name	Namespace	Reserved-vCPU	Used-vCPU	Allocated -vCPU	Reserved-memory	Used-memory	Allocated - memory
Pod2	Namespace 2	1	1.9	1.9	4	6	6
Pod3	Namespace 1	1	0.5	1	2	2	2
Pod4	Namespace 2	1	0.5	1	2	2	2
Unused	Unused			0			2
				4.9			16

### Step 3: Compute the split usage ratios

- Split usage ratio: The percentage of CPU or memory used by the Kubernetes pod compared to the overall CPU or memory available on the EC2 instance.
- Unused ratio: The percentage of CPU or memory used by the Kubernetes pod compared to the overall CPU or memory used on the EC2 instance (that is, not factoring in the unused CPU or memory on the instance).

Pod1-vCPU-split-usage-ratio = Allocated-vCPU / Total-vCPU

= 1 vCPU / 4.9vCPU = 0.204

Pod1-Memory-split-usage-ratio = Allocated-GB / Total-GB

= 4 GB/ 16GB = 0.250

Pod1-vCPU-unused-ratio = Pod1-vCPU-split-usage-ratio / (Total-CPU-split-usage-ratio - Instance-unused-CPU) (set to 0 if Instance-unused-CPU is 0)

= 0 (since Instance-unused-CPU is 0)

Pod1-Memory-unused-ratio = Pod1-Memory-split-usage-ratio / (Total-Memory-split-usage-ratio - Instance-unused-memory) (set to 0 if Instance-unused-memory is 0)

$$= 0.250 / (1-0.125) = 0.286$$

Pod name	Namespace	vCPU-split-usage-ratio	vCPU-unused-ratio	Memory-split-usage-ratio	Memory-unused-ratio
Pod1	Namespace1	0.204	0	0.250	0.286
Pod2	Namespace2	0.388	0	0.375	0.429
Pod3	Namespace1	0.204	0	0.125	0.143
Pod4	Namespace2	0.204	0	0.125	0.143
Unused	Unused	0		0.125	
		1		1	

#### Step 4: Compute the split cost and unused costs

- Split cost: The pay per use cost allocation of the EC2 instance cost based on allocated CPU and memory usage by the Kubernetes pod.
- Unused instance cost: The cost of unused CPU or memory resources on the instance.

Pod1-Split-cost = (Pod1-vCPU-split-usage-ratio \* vCPU-available \* Cost-per-vCPU-hour) + (Pod1-Memory-split-usage-ratio \* Memory-available \* Cost-per-GB-hour)

$$= (0.204 * 4 \text{ vCPU} * \$0.17) + (0.25 * 16\text{GB} * \$0.02) = \$0.22$$

Pod1-Unused-cost = (Pod1-vCPU-unused-ratio \* Instance-vCPU-unused-ratio \* vCPU-available \* Cost-per-vCPU-hour) + (Pod1-Memory-unused-ratio \* Instance-Memory-unused ratio \* Memory-available \* Cost-per-GB-hour)

$$= (0 * 0 * 4 * \$0.17) + (0.286 * 0.125 * 16 * \$0.02) = \$0.01$$

$$\text{Pod1-Total-split-cost} = \text{Pod1-Split-cost} + \text{Pod1-Unused-cost}$$

$$= \$0.23$$

Pod name	Namespace	Split-cost	Unused-cost	Total-split-cost
Pod1	Namespace1	\$0.22	\$0.01	\$0.23
Pod2	Namespace2	\$0.38	\$0.02	\$0.40
Pod3	Namespace1	\$0.18	\$0.01	\$0.19
Pod4	Namespace2	\$0.18	\$0.01	\$0.19
Unused	Unused	\$0.04		
		\$1	\$0.04	\$1

The cost of the service is the sum of the cost of pods associated with each namespace.

$$\text{Total cost of Namespace1} = \$0.23 + \$0.19 = \$0.42$$

$$\text{Total cost of Namespace2} = \$0.40 + \$0.19 = \$0.59$$

### Sample Amazon CUR

If you have an Amazon EC2 instance running at On-Demand rates, then the cost of the instance is computed using `lineitem/UnblendedCost`.

lineitem/ResourceId	lineitem/LineItemType	lineitem/UsageType	lineitem/UnblendedCost	lineitem/NetUnblendedCost	splitLineitem/ParentResourceId	splitLineitem/SplitUsage	splitLineitem/SplitCost	splitLineitem/NetSplitCost	splitLineitem/UnusedCost	splitLineitem/NetUnusedCost
i-12345	Usage	BoxUsage:m5.xlarge	1	0.8						
EC2-Task1	Usage	ECS-EC2-vCPU-Hours			i-12345	1	0.14	0.11	0	0
EC2-Task1	Usage	ECS-EC2-GB-Hours			i-12345	4	0.08	0.06	0.01	0.01
EC2-Task2	Usage	ECS-EC2-vCPU-Hours			i-12345	1.9	0.27	0.21	0	0
EC2-Task2	Usage	ECS-EC2-GB-Hours			i-12345	6	0.12	0.09	0.02	0.01
EC2-Task3	Usage	ECS-EC2-vCPU-Hours			i-12345	1	0.14	0.11	0	0
EC2-Task3	Usage	ECS-EC2-GB-Hours			i-12345	2	0.04	0.03	0.01	0
EC2-Task4	Usage	ECS-EC2-vCPU-Hours			i-12345	1	0.14	0.11	0	0
EC2-Task4	Usage	ECS-EC2-GB-Hours			i-12345	2	0.04	0.03	0.01	0



## Using split cost allocation data with Amazon Managed Service for Prometheus

Splitting the cost data for Amazon EKS requires that you collect and store metrics from your clusters, including memory and CPU usage. Amazon Managed Service for Prometheus can be used for this purpose.

Once you're opted in to split cost allocation data and your Amazon Managed Service for Prometheus workspace starts receiving the two required metrics (`container_cpu_usage_seconds_total` and `container_memory_working_set_bytes`), split cost allocation data recognizes the metrics and uses them automatically.

### Note

The two required metrics (`container_cpu_usage_seconds_total` and `container_memory_working_set_bytes`) are present in the default Prometheus scrape configuration and the default configuration provided with an Amazon managed collector. However, if you customize these configurations, do not relabel, modify, or remove the following labels from the `container_cpu_usage_seconds_total` and `container_memory_working_set_bytes` metrics: `name`, `namespace`, and `pod`. If you relabel, modify, or remove these labels, it can impact the ingestion of your metrics.

You can use Amazon Managed Service for Prometheus to collect EKS metrics from a single usage account, in a single Region. The Amazon Managed Service for Prometheus workspace must be in that account and Region. You need one Amazon Managed Service for Prometheus instance for each usage account and Region for which you want to monitor the costs. You can collect metrics for multiple clusters in the Amazon Managed Service for Prometheus workspace, as long as they're in the same usage account and Region.

The following sections describe how to send the correct metrics from your EKS cluster to the Amazon Managed Service for Prometheus workspace.

### Prerequisites

As prerequisites for using Amazon Managed Service for Prometheus with split cost allocation data:

- You need to enable split cost allocation data in the Amazon Billing and Cost Management console. For details, see [Enabling split cost allocation data](#). Opting in to split cost allocation data creates a service-linked role in each usage account to query Amazon Managed Service

for Prometheus for the Amazon EKS cluster metrics in that account. For more information, see [Service-linked roles for split cost allocation data](#).

- You need an EKS cluster for which you want to track split cost allocation data. This can be an existing cluster, or you can create a new one. For more information, see [Create an Amazon EKS cluster](#) in the *Amazon EKS User Guide*.

**Note**

You will need the EKS cluster ARN, security group IDs, and at least two subnet IDs (in different availability zones) for use in later steps.

(optional) Set your EKS cluster's authentication mode to either API or API\_AND\_CONFIG\_MAP.

- You need an Amazon Managed Service for Prometheus instance in the same account and Region as your EKS cluster. If you do not already have one, you can create one. For more information on creating an Amazon Managed Service for Prometheus instance, see [Create a workspace](#) in the *Amazon Managed Service for Prometheus User Guide*.

**Note**

You will need the Amazon Managed Service for Prometheus workspace ARN for use in later steps.

## Forwarding EKS metrics to Amazon Managed Service for Prometheus

Once you have an EKS cluster and an Amazon Managed Service for Prometheus instance, you can forward the metrics from the cluster to the instance. You can send metrics in two ways.

- [Option 1: Use an Amazon managed collector](#). This is the simplest way to send metrics from an EKS cluster to Amazon Managed Service for Prometheus. However, it does have a limit of only scraping metrics every 30 seconds at most.
- [Option 2: Create your own Prometheus agent](#). In this case, you have more control over the scraping configuration, but you must manage the agent after creating it.

## Option 1: Using an Amazon managed collector

Using an Amazon managed collector (a *scraper*) is the simplest way to send metrics from an EKS cluster to an Amazon Managed Service for Prometheus instance. The following procedure steps you through creating an Amazon managed collector. For more detailed information, see [Amazon managed collectors](#) in the *Amazon Managed Service for Prometheus User Guide*.

### Note

Amazon managed collectors have a minimum scrape interval of 30 seconds. If you have short-lived pods, the recommendation is to set your scraper interval to 15 seconds. To use a 15 second scraper interval, use option 2 to [create your own Prometheus agent](#).

There are three steps to create an Amazon managed collector:

1. Create a scraper configuration.
2. Create the scraper.
3. Configure your EKS cluster to allow the scraper to access metrics.

### *Step 1: Create a scraper configuration*

In order to create a scraper, you must have a scraper configuration. You can use a default configuration, or create your own. The following are three ways to get a scraper configuration:

- Get the default configuration using the Amazon CLI, by calling:

```
aws amp get-default-scraper-configuration
```

- Create your own configuration. For details, see the [Scraper configuration](#) instructions in the *Amazon Managed Service for Prometheus User Guide*.
- Copy the sample configuration provided in that same [Scraper configuration](#) instructions in the *Amazon Managed Service for Prometheus User Guide*.

You can edit the scraper configuration, to modify the scrape interval or to filter the metrics that are scraped, for example.

To filter the metrics that are scraped to just include the two that are needed for split cost allocation data, use the following scraper configuration:

```
global:
  scrape_interval: 30s
  #external_labels:
    #clusterArn: <REPLACE_ME>
scrape_configs:
- job_name: kubernetes-nodes-cadvisor
  scrape_interval: 30s
  scrape_timeout: 10s
  scheme: https
  authorization:
    type: Bearer
    credentials_file: /var/run/secrets/kubernetes.io/serviceaccount/token
  kubernetes_sd_configs:
  - role: node
  relabel_configs:
  - regex: (.+)
    replacement: /api/v1/nodes/$1/proxy/metrics/cadvisor
    source_labels:
    - __meta_kubernetes_node_name
    target_label: __metrics_path__
  - replacement: kubernetes.default.svc:443
    target_label: __address__
  metric_relabel_configs:
  - source_labels: [__name__]
    regex: 'container_cpu_usage_seconds_total|container_memory_working_set_bytes'
    action: keep
```

Once you have the scraper configuration, you must base64 encode it for use in *step 2*.

The configuration is a text YAML file. To encode the file, use a website such as <https://www.base64encode.org/>.

### *Step 2: Create the scraper*

Now that you have a configuration file, you need to create your scraper. Create a scraper using the following Amazon CLI command, based on the variables outlined in the prerequisites section. You must use information from your EKS cluster for the `<EKS-CLUSTER-ARN>`, `<SG-SECURITY-GROUP-ID>`, and `<SUBNET-ID>` fields, replace `<BASE64-CONFIGURATION-BLOB>` with the scraper configuration you created in the previous step, and replace `<AMP_WORKSPACE_ARN>` with your Amazon Managed Service for Prometheus workspace ARN.

```
aws amp create-scraper \
--source eksConfiguration="{clusterArn=<EKS-CLUSTER-ARN>,securityGroupIds=[<SG-SECURITY-GROUP-ID>],subnetIds=[<SUBNET-ID>]}" \
--scrape-configuration configurationBlob=<BASE64-CONFIGURATION-BLOB> \
--destination ampConfiguration={workspaceArn="<AMP_WORKSPACE_ARN>"}
```

Note down the `scrapeId` that is returned for use in *step 3*.

### *Step 3: Configure your EKS cluster to allow the scraper to access metrics*

If your EKS cluster's authentication mode is set to either `API` or `API_AND_CONFIG_MAP`, then your scraper will automatically have the correct in-cluster access policy, and the scrapers will have access to your cluster. No further configuration is required, and metrics should be flowing to Amazon Managed Service for Prometheus.

If your EKS cluster's authentication mode is not set to `API` or `API_AND_CONFIG_MAP`, you will need to manually configure the cluster to allow the scraper to access your metrics through a `ClusterRole` and `ClusterRoleBinding`. To learn how to enable these permissions, see [Manually configuring an EKS cluster for scraper access](#) in the *Amazon Managed Service for Prometheus User Guide*.

Once the scraper is active, verify that both metrics (`container_cpu_usage_seconds_total` and `container_memory_working_set_bytes`) are being pushed to your Amazon Managed Service for Prometheus workspace.

```
aws curl --service="aps" --region="<REGION>" "https://aps-workspaces.<REGION>.amazonaws.com/workspaces/<WorkSpace_ID>/api/v1/label/__name__/values"
```

### Output:

```
{
  "status": "success",
  "data": [
    "container_cpu_usage_seconds_total",
    "container_memory_working_set_bytes",
    "scrape_duration_seconds",
    "scrape_samples_post_metric_relabeling",
    "scrape_samples_scraped",
    "scrape_series_added",
```

```
"up"  
]  
}
```

## Option 2: Creating your own Prometheus agent

If you can't use the Amazon managed collector, or already have your own Prometheus server, you can use your own Prometheus instance as an agent to scrape metrics from your EKS cluster and send them to Amazon Managed Service for Prometheus.

For detailed instructions on how to use your own Prometheus instance as an agent, see [Using a Prometheus instance as a collector](#) in the *Amazon Managed Service for Prometheus User Guide*.

The following is a sample Prometheus scrape configuration that includes the Prometheus server scrape interval and the container metrics required for split cost allocation data. If you have short-lived pods, the recommendation is to lower the default Prometheus server scrape interval from 30 seconds to 15 seconds. Note that this can result in high Prometheus server memory usage.

```
global:  
  scrape_interval: 30s  
  #external_labels:  
    #clusterArn: <REPLACE_ME>  
scrape_configs:  
  - job_name: kubernetes-nodes-cadvisor  
    scrape_interval: 30s  
    scrape_timeout: 10s  
    scheme: https  
    authorization:  
      type: Bearer  
      credentials_file: /var/run/secrets/kubernetes.io/serviceaccount/token  
    kubernetes_sd_configs:  
      - role: node  
    relabel_configs:  
      - regex: (.+)  
        replacement: /api/v1/nodes/$1/proxy/metrics/cadvisor  
        source_labels:  
          - __meta_kubernetes_node_name  
        target_label: __metrics_path__  
      - replacement: kubernetes.default.svc:443  
        target_label: __address__  
    metric_relabel_configs:  
      - source_labels: [__name__]
```

```
regex: 'container_cpu_usage_seconds_total|container_memory_working_set_bytes'  
action: keep
```

If you followed [Set up ingestion from a new Prometheus server using Helm](#) in the *Amazon Managed Service for Prometheus User Guide*, then you can update your scrape configuration.

### To update your scrape configuration

1. Edit `my_prometheus_values.yaml` from the guide and include the sample scrape config in the `server` block.
2. Run the following command, using `prometheus-chart-name` and `prometheus-namespace` from the *Amazon Managed Service for Prometheus User Guide*.

```
helm upgrade prometheus-chart-name prometheus-community/prometheus -n prometheus-  
namespace -f my_prometheus_values.yaml
```

To learn more about `scrape_interval` or how to use a non-global `scrape_interval`, refer to [Prometheus scrape configuration](#).

Alternatively, you can use the Amazon Distro for OpenTelemetry collector that has a Prometheus Receiver, a Prometheus Remote Write Exporter, and the Amazon Sigv4 Authentication Extension to achieve remote write access to Amazon Managed Service for Prometheus.

#### Note

Once you have set up your Prometheus agent, unlike Amazon managed collectors, you are responsible for keeping the agent up to date and running to collect metrics.

### Estimating your Amazon Managed Service for Prometheus costs

You can use Amazon Pricing Calculator to estimate the cost of using Amazon Managed Service for Prometheus for split cost allocation data.

### To configure Amazon Managed Service for Prometheus for your estimate

1. Open Amazon Pricing Calculator at <https://calculator.aws/#/>.
2. Choose **Create estimate**.

3. On the **Add service** page, enter **Amazon Managed Service for Prometheus** in the search field, and then choose **Configure**.
4. In the **Description** field, enter a description for your estimate.
5. Choose a **Region**.
6. Select **Calculate the cost using your infrastructure details**. This option allows you to estimate your ingestion, storage, and query sample costs based on your current or proposed infrastructure setup.
7. For **Number of EC2 instances**, enter the total number of EC2 instances across all your clusters for your entire consolidated billing family (including all accounts and Regions). If you use Amazon Fargate, use the number of Fargate tasks as a proxy for your EC2 instance count.
8. Split cost allocation data requires two metrics: `container_cpu_usage_seconds_total` and `container_memory_working_set_bytes`. For **Prometheus metrics per EC2 instances**, enter 2.
9. Split cost allocation data suggests a scrape interval of 15 seconds. For **Metric collection interval (in seconds)**, enter 15. If you used a different interval (for example, 30 seconds), change this to the interval you set up.
10. Split cost allocation data does not impose any specific requirements for the other parameters so enter appropriate values for the rest of the input parameters as per your business requirements.
11. Choose **Save and add service**.

## Using split cost allocation data with Amazon CloudWatch Container Insights

Splitting the cost data for Amazon EKS requires that you collect and store metrics from your clusters, including memory and CPU usage. Amazon CloudWatch Container Insights can be used for this purpose.

Once you've opted in to split cost allocation data and set up the CloudWatch agent with EKS observability add-on on your EKS cluster, split cost allocation data starts receiving the two required metrics (`pod_cpu_usage_total` and `pod_memory_working_set`) in the `ContainerInsights` namespace and uses them automatically. To view the full set of container metrics for EKS, see [Amazon EKS and Kubernetes Container Insights metrics](#) in the *Amazon CloudWatch User Guide*.

The following sections describe how to send the correct metrics from your EKS cluster to split cost allocation data.



## Prerequisites

As prerequisites for using Amazon CloudWatch Container Insights with split cost allocation data:

- You need to enable split cost allocation data in the Amazon Billing and Cost Management console. For details, see [Enabling split cost allocation data](#).
- You need an EKS cluster for which you want to track split cost allocation data. This can be an existing cluster, or you can create a new one. For more information, see [Create an Amazon EKS cluster](#) in the *Amazon EKS User Guide*.

## Setting up Amazon CloudWatch Container Insights to forward EKS metrics

You need to set up and configure the CloudWatch agent in order to forward EKS metrics. You can use either the [Amazon CloudWatch Observability EKS add-on](#) or the [Amazon CloudWatch Observability Helm chart](#) to install the CloudWatch agent and the Fluent-bit agent on an EKS cluster. For more information on how to install and set up the CloudWatch agent, see [Install the Amazon CloudWatch Observability EKS add-on](#) in the *Amazon CloudWatch User Guide*.

The following are the minimum versions required for the CloudWatch agent and EKS add-on:

- CloudWatch agent version: v1.300045.0
- CloudWatch Observability EKS add-on version: v2.0.1-eksbuild.1

## Estimating your Amazon CloudWatch costs

Enabling the feature to use Amazon CloudWatch Container Insights with split cost allocation data adds two new metrics to Amazon CloudWatch Container Insights: `pod_cpu_usage_total` and `pod_memory_working_set`. For details on these metrics, see [Amazon EKS and Kubernetes Container Insights metrics](#) in the *Amazon CloudWatch User Guide*.

### To understand the costs associated with the feature

1. Open Amazon CloudWatch Pricing at <https://aws.amazon.com/cloudwatch/pricing/>.
2. Navigate to the **Paid tier** section.
3. Choose the **Container Insights** tab.
4. For a detailed calculation of the costs, navigate to the **Pricing examples** section, and refer to **Example 13 - Container Insights for Amazon EKS and Kubernetes**.

# Understanding legacy billing reports

This section describes legacy billing reports offered outside of Amazon Cost and Usage Reports. These pages are available for reference. But, we recommend you use Amazon Cost and Usage Reports because these reporting methods will be unavailable at a later date.

## Topics

- [Using Detailed Billing Reports](#)
- [Migrating from Detailed Billing Reports to Cost and Usage Reports](#)
- [Understanding unused reservation costs](#)
- [Downloading a monthly report](#)
- [Downloading a monthly cost allocation report](#)
- [Downloading an Amazon Usage Report](#)

## Using Detailed Billing Reports

### Important

The Detailed Billing Reports feature is unavailable for new customers as of July 8, 2019.

Detailed Billing Reports (DBR) contain similar information to Amazon Cost and Usage Reports (Amazon CUR) regarding your charges, but calculates the individual line items differently. If you've signed up for both the DBR and Amazon CUR, the line items don't match. However, when the reports are finalized at the end of the month, the total cost will align.

Amazon stores DBR in Amazon S3 as CSV files using the following naming convention:

```
Amazon account number-aws-billing-detailed-line-items-yyyy-mm.csv.zip
```

Amazon recreates Detailed Billing Reports (DBR) multiple times a day, overwriting the reports. When Amazon overwrites reports, line items might be in a different order than they were in previous reports. A final report is created at the end of the month. For the next month, Amazon creates a new report file instead of overwriting the final report from the previous month. Reports for previous months remain in your S3 bucket until you delete them.

For information on how to migrate your DBR to Amazon CUR, see [the section called “Migrating From DBR to Amazon CUR”](#).

## Migrating from Detailed Billing Reports to Cost and Usage Reports

Detailed Billing Reports (DBR) and Amazon Cost and Usage Reports (Amazon CUR) both provide information about your charges. However, if you're using DBR, we recommend you transfer your report to Cost and Usage Reports.

### Topics

- [Comparing benefits of the Cost and Usage Reports \(Amazon CUR\)](#)
- [Key differences between Detailed Billing Reports and Cost and Usage Reports](#)
- [Reporting on advanced charge types](#)

## Comparing benefits of the Cost and Usage Reports (Amazon CUR)

Amazon CUR provides the most comprehensive source of information. You can use Amazon CUR to understand individual costs in depth, and to analyze them in greater detail. This is especially useful at an enterprise scale. Amazon CUR is helpful if you have complex cost management needs and require dedicated query or analytic-based systems. Amazon CUR also provides detailed information about Reserved Instances (RI), including amortized costs.

### Comprehensive reservation information

Reserved Instances (RI), or reservations, offer a discounted hourly rate compared to On-Demand usage in exchange for committing to a one- or three-year term of service. This can result in significant savings. You can use Amazon CUR to monitor and manage your reservation portfolio. Amazon CUR provides you with detailed information, such as reservation Amazon Resource Numbers (ARNs), numbers of reservations, and total RIs. You can track your reservation-related discounts to specific resources to build a better understanding of your savings.

Detail Billing Reports (DBR) provide a subset of this metadata, but work is required to transform the required columns.

Amazon CUR provides additional columns that are not available in DBR, such as information regarding your amortized reservation costs. For more information, see [the section called “Understanding your amortized reservation data”](#).

## On-Demand pricing availability

Amazon CUR provides information regarding the On-Demand rates for each individual line item of usage. You can use this information to quantify your savings by subtracting the amount you paid from the On-Demand rate. This also gives you the flexibility of choosing to allocate your costs using public On-Demand rates.

DBR doesn't contain information for On-Demand rates, but only the billed amount. This makes it difficult to calculate your overall savings or to allocate costs using On-Demand rates.

## Granular breakdown of discounts

Amazon CUR can access a granular view of the usage-based discounts. If discounts were applied, you can use Amazon CUR to view the following:

- Cost before being discounted
- Discounted amount
- Total cost after the discount was applied at the line item level

DBR does not contain a granular breakdown of your discounts.

## Automated data ingestion at scale

When you use Amazon CUR, you can easily configure an event to trigger an automated data ingestion process, streamlining the process of refreshing the billing data in your in-house systems. Amazon CUR data can automatically be refreshed when charges related to previous months are detected.

Additionally, Amazon CUR is generated as multiple files, providing the added benefit of segmenting the data into smaller pieces. This way, you can ingest the data according to the processes used by multiple workers. Moreover, you can retry data downloads in smaller pieces.

Amazon CUR is formatted in a way that enables you to locate and extract data quickly. This report is modeled from a manifest file that contains information for the overall structure of the data. This includes a list of every column that's contained in the report. Using this information, you can extend the report and include new information regarding your usage when it becomes available.

## Cross-product integration

Amazon CUR is integrated with Amazon Redshift, QuickSight, and Amazon Athena. You can use Amazon CUR to build an Amazon-based cost management solution. Amazon CUR also provides

data in Parquet format. This provides you with more options for building out your own cost and usage reporting system. For more information, see [Amazon Cost and Usage Reports Manifest Files](#) in the *Amazon Billing User Guide*.

## Key differences between Detailed Billing Reports and Cost and Usage Reports

There are a few differences between DBR and Amazon CUR to consider after you migrate to Amazon CUR. For example, you might need to adjust how you ingest the data into your systems.

### File structure

Detailed Billing Reports (DBR) are delivered as a single file. In contrast, Amazon CUR are a consolidated set of files. In Amazon CUR, you can view the following files in your Amazon S3 bucket:

- A set of data files that contain all of your usage line items
- A separate data file that contains all of your discounts (if applicable)
- A manifest file that lists all of the data files that belong to a single report


### Column structure

DBR have a fixed list of columns, limiting its flexibility. Amazon CUR don't have a fixed column structure, and instead allow you to freely add or remove columns as needed. When you begin using a new Amazon Web Services service, Amazon CUR can dynamically start to include new data in the report that might be useful in your case. The manifest file provides a map of all columns present in the report.

### Equivalent Column Names for DBR and Amazon CUR

DBR column name	Amazon CUR column name
InvoiceId	bill/InvoiceId
PayerAccountId	bill/PayerAccountId
LinkedAccountId	lineItem/UsageAccountId
ProductName	product/ProductName
SubscriptionId	reservation/subscriptionid

DBR column name	Amazon CUR column name
UsageType	lineltem/UsageType
Operation	lineltem/Operation
AvailabilityZone	lineltem/AvailabilityZone
ReservedInstance	Not Supported
ItemDescription	lineltem/LineltemDescription
UsageStartDate	lineltem/UsageStartDate
UsageEndDate	lineltem/UsageEndDate
UsageQuantity	lineltem/UsageAmount
BlendedRate	lineltem/BlendedRate
BlendedCost	lineltem/BlendedCost
UnBlendedRate	lineltem/UnblendedRate
UnBlendedCost	lineltem/UnblendedCost
ResourceId	lineltem/ResourceId
RecordType	Not Supported
PricingplanId	Not Supported
RateID	pricing/RateId

 **Note**

There's no equivalent for RecordId in Amazon CUR. But, you can gather this information by combining identity/LineltemId, identity/TimeInterval, and bill/BillType.

## Retrieving DBR RecordType values through Amazon CUR

RecordType values in DBR	Syntax to retrieve RecordType through Amazon CUR	Use case
LineItem	<pre>SELECT SUM(line_item_unblended_cost) FROM [CUR] WHERE line_item_line_item_type = 'Usage'</pre>	Usage line item partitions out usage costs from one-time charges (for example, upfront RI payment).
InvoiceTotal	<pre>SELECT (bill_invoice_id), sum(line_item_unblended_cost) FROM [CUR] GROUP BY bill_invoice_id</pre>	You can use invoice total to reconcile your costs between Invoices and Cost and Usage Reports.
AccountTotal	<pre>SELECT line_item_usage_account_id, sum(line_item_unblended_cost) FROM [CUR] GROUP BY line_item_usage_account_id</pre>	You can use account total to isolate costs related to your member accounts for charge back purposes.
StatementTotal	<pre>SELECT SUM(line_item_unblended_cost) FROM [CUR]</pre>	You can use statement total to understand your costs for the billing period.
Discount	<pre>SELECT SUM(line_item_unblended_cost) FROM [CUR] WHERE line_item_line_item_type = 'Discount'</pre>	You can use discount line items to identify all of your discount-related line items.
Rounding	Not yet supported	Not yet supported

## Reporting on advanced charge types

### Refunds

Amazon CUR: Refunds are identified by filtering for the `lineItem/LineItemDescription = 'Refund'` string.

DBR: Refunds are identified by checking the ItemDescription column for the 'Refund' substring.

## Credits

Amazon CUR: Credits are identified by filtering for the lineItem/LineItemDescription = 'Credit' string.

DBR: Credits are identified by checking the ItemDescription column for the 'Credit' substring.

## Taxes

Amazon CUR: Taxes are identified by filtering for the lineItem/LineItemDescription = 'Tax' string.

DBR: Taxes are identified by checking the ItemDescription column for the 'Tax' substring.

## Identifying reservation-related upfront costs

Amazon CUR: Reservation-related upfront costs are identified by filtering for the "lineItem/LineItemType" = 'Fee' string.

DBR: Reservation-related upfront costs are identified by checking the UsageType column for the 'HeavyUsage' substring, and whether the 'SubscriptionId' is null.

## Identifying reservation-related monthly fees

Amazon CUR: Reservation-related monthly fees are identified by filtering for the "lineItem/LineItemType" = 'RIfee' string.

DBR: Reservation-related monthly fees are identified by checking the UsageType column for the 'HeavyUsage' substring.

## Identifying instances that received reserved instance benefits

Amazon CUR: Reservation-related upfront fees are identified by filtering for the "lineItem/LineItemType" = 'DiscountedUsage' string.

DBR: Reservation-related upfront fees are identified by checking the ReservedInstance column for the 'Y' substring.

## Understanding unused reservation costs

You can use Amazon Cost and Usage Reports (Amazon CUR) to understand unused RI costs. The following four scenarios show how.



**Note**

In the following tables, the columns and rows from Amazon CUR and DBR/DBR-RT are transposed for clarity. The values in the first column represent the headers of a report.

**Scenario 1: RI usage is 100%**

RI Fee line item has \$0 unused cost and 0 usage hours.

Using the DBR/DBR-RT, you can understand your unused RI usage and costs by referring to the fields UsageQuantity and UnblendedCosts for RI Fee line items. RI Fee line items can be identified by the existence of 'purchased hours' information in the ItemDescription field. Table 1 illustrates the columns and information used to manage unused RI costs in the DBR and DBR-RT report.

**Table 1 – Unused RI costs for a 100% RI usage in DBR and DBR-RT before June 17, 2019**

<b>ProductName</b>	Amazon Elastic Compute Cloud	Amazon Elastic Compute Cloud
<b>UsageType</b>	HeavyUsage:c3.8xlarge	HeavyUsage:c3.8xlarge
<b>Operation</b>	RunInstances	RunInstances
<b>Availability Zone</b>	us-east-1a	us-east-1a
<b>Reserved Instance</b>	Y	Y
<b>ItemDescription</b>	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge (744 hours purchased, 744 hours used)	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge
<b>Usage Quantity</b>	0	744
<b>Unblended Rate</b>	0.1	0.1

<b>Unblended Cost</b>	0	74.4
-----------------------	---	------

Using Amazon CUR, you can understand your unused RI usage and costs by referring to the fields 'reservation/ UnusedQuantity' and 'reservation/ UnusedRecurringFee' for RI Fee line items. Table 4 below illustrates the current columns and information utilized to manage unused RI costs in Amazon CUR.

**Table 2 – Unused RI costs for a 100% RI usage in Amazon CUR**

<b>lineitem/Productcode</b>	Amazon EC2	Amazon EC2
<b>UsageType</b>	HeavyUsage:c3.8xlarge	USW2-BoxUsage:c3.8xlarge
<b>lineitem/LineItemType</b>	RI Fee	DiscountedUsage
<b>lineitem/LineItemDescription</b>	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge	USD 0.00 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge
<b>lineitem/UsageAmount</b>	744	744
<b>lineitem/NormalizedUsageAmount</b>	47,616	47,616
<b>lineitem/UnblendedRate</b>	0.1	0
<b>lineitem/UnblendedCost</b>	74.4	0
<b>reservation/UnusedQuantity</b>	0	
<b>reservation/UnusedRecurringFee</b>	0	
<b>reservation/UnusedAmortizedUpfrontFeeForBillingPeriod</b>	0	

<b>reservation/RecurringFeeForUsage</b>		74.4
<b>reservation/AmortizedUpfrontCostForUsage</b>		5
<b>reservation/EffectiveCost</b>		79.4

In addition to matching the current functionality supported by DBR/DBR-RT, Amazon CUR has the following advantages:

- Using Amazon CUR, you are able to access information regarding the EffectiveCost for the DiscountedUsage line item, which includes both the recurring and upfront fees. The DBR only accounts for recurring fees.
- In Amazon CUR, the UsageType field is not transformed for the DiscountedUsage line items whereas DBR replaces the information with RI Fee line item information. This is because the user can group line items in Amazon CUR by ReservationARN in order to understand what usage was discounted by which RI.
- In Amazon CUR, the LineltemDescription field is not transformed for the RI Fee line item. DBR appends the hours purchased and hours used.

## Scenario 2: Partial RI usage

RI Fee line item has unused cost and usage.

Using the DBR/DBR-RT, you can understand your unused RI usage and costs by referring to fields UsageQuantity and UnblendedCosts for RI Fee line items. Table 3 illustrates the columns and information used to manage unused RI costs in the DBR and DBR-RT report.

**Table 3 – Unused RI costs for a partial RI usage in DBR and DBR-RT before June 17, 2019**

<b>ProductName</b>	Amazon Elastic Compute Cloud	Amazon Elastic Compute Cloud
<b>UsageType</b>	HeavyUsage:c3.8xlarge	HeavyUsage:c3.8xlarge

<b>Operation</b>	RunInstances	RunInstances
<b>Availability Zone</b>	us-east-1a	us-east-1a
<b>Reserved Instance</b>	Y	Y
<b>ItemDescription</b>	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge (744 hours purchased, 644 hours used)	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge
<b>Usage Quantity</b>	100	644
<b>Unblended Rate</b>	0.1	0.1
<b>Unblended Cost</b>	10	64.4

Using Amazon CUR, you can understand your unused RI usage and costs by referring to fields 'reservation/ UnusedQuantity' and 'reservation/ UnusedRecurringFee' for RI Fee line items. Table 4 illustrates the current columns and information utilized to manage unused RI costs in Amazon CUR.

**Table 4 – Unused RI costs for a partial RI usage in Amazon CUR**

<b>lineitem/Productcode</b>	Amazon EC2	Amazon EC2
<b>UsageType</b>	HeavyUsage:c3.8xlarge	USW2-BoxUsage:c3.8xlarge
<b>lineitem/LineltemType</b>	RI Fee	DiscountedUsage
<b>lineitem/LineltemDescription</b>	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge	USD 0.00 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge
<b>lineitem/UsageAmount</b>	744	644

<b>lineitem/NormalizeUsageAmount</b>	47,616	47,216
<b>lineitem/UnblendedRate</b>	0.1	0
<b>lineitem/UnblendedCost</b>	74.4	0
<b>reservation/UnusedQuantity</b>	100	
<b>reservation/UnusedRecurringFee</b>	0	
<b>reservation/UnusedAmortizedUpfrontFeeForBillingPeriod</b>	10	
<b>reservation/RecurringFeeForUsage</b>		64.4
<b>reservation/AmortizedUpfrontCostForUsage</b>		5
<b>reservation/EffectiveCost</b>		69.4

In addition to matching the current functionality supported by DBR/DBR-RT, Amazon CUR has the following advantages:

- Amazon CUR has a separate column representing UnusedQuantity for the RI Fee line item vs. DBR / DBR-RT which overloads the UsageQuantity column with the unused hours

### Scenario 3: Capacity reservation

DBR/DBR-RT filters out Capacity Reservations related UnusedBox and UnusedDed usage type line items when covered by an RI because the RI Fee line item already covers the unused amount in the UsageQuantity and UnblendedCost fields. Table 5 illustrates the columns and information utilized to manage unused RI costs in the DBR and DBR-RT report.

**Table 5 – Unused RI costs for Capacity Reservation scenario in DBR and DBR-RT prior to June 17 2019**

<b>ProductName</b>	Amazon Elastic Compute Cloud	Amazon Elastic Compute Cloud
<b>UsageType</b>	HeavyUsage:c3.8xlarge	HeavyUsage:c3.8xlarge
<b>Operation</b>	RunInstances	RunInstances
<b>Availability Zone</b>	us-east-1a	us-east-1a
<b>Reserved Instance</b>	Y	Y
<b>ItemDescription</b>	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge (744 hours purchased, 734 hours used)	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge
<b>Usage Quantity</b>	10	734
<b>Unblended Rate</b>	0.1	0.1
<b>Unblended Cost</b>	1	73.4

Amazon CUR shows these line items as DiscountedUsage. Table 6 illustrates the current columns and information utilized to manage unused RI costs in Amazon CUR.

**Table 6 – Unused RI costs for the Capacity Reservation scenario in Amazon CUR**

<b>lineitem/Productcode</b>	Amazon EC2	Amazon EC2	Amazon EC2
<b>UsageType</b>	HeavyUsage:c3.8xlarge	USW2-Reservation:c3.8xlarge	USW2-BoxUsage:c3.8xlarge

<b>lineitem/LineItemType</b>	<b>RI Fee</b>	<b>Usage</b>	<b>DiscountedUsage</b>
<b>lineitem/LineItemDescription</b>	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge	USD 0.00 per Reservation Linux/UNIX (Amazon VPC), c3:8xlarge Instance Hour	USD 0.00 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge
<b>lineitem/UsageAmount</b>	744	744	744
<b>lineitem/NormalizedUsageAmount</b>	47,616		47,216
<b>lineitem/UnblendedRate</b>	0.1	0	0
<b>lineitem/UnblendedCost</b>	74.4	0	0
<b>reservation/RecurringFeeForUsage</b>			64.4
<b>reservation/AmortizedUpfrontCostForUsage</b>			5
<b>reservation/EffectiveCost</b>			69.4

## Scenario 4: Size flexible reservations

Utilizing the DBR/DBR-RT, you can understand your unused RI usage and costs by referring to fields UsageQuantity and UnblendedCosts for RI Fee line items. RI Fee line items can be identified by the existence of 'purchased hours' information in the ItemDescription field. Table 9 illustrates the columns and information utilized to manage unused RI costs in the DBR and DBR-RT report.

**Table 7 – Unused RI costs for a size flex RI scenario in DBR and DBR-RT before June 17, 2019**

<b>ProductName</b>	Amazon Elastic Compute Cloud	Amazon Elastic Compute Cloud
<b>UsageType</b>	HeavyUsage:c3.8xlarge	HeavyUsage:c3.8xlarge
<b>Operation</b>	RunInstances	RunInstances
<b>Availability Zone</b>	us-east-1a	us-east-1a
<b>Reserved Instance</b>	Y	Y
<b>ItemDescription</b>	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge (744 hours purchased, 644 hours used)	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge; UsageType : BoxUsage:c3.large
<b>Usage Quantity</b>	100	644
<b>Unblended Rate</b>	0.1	0.1
<b>Unblended Cost</b>	10	64.4

Using Amazon CUR, you can understand your unused RI usage and costs by referring to fields 'reservation/ UnusedQuantity' and 'reservation/ UnusedRecurringFee' for RI Fee line items. Table 8 illustrates the current columns and information utilized to manage unused RI costs in the Amazon CUR.

**Table 8 – Unused RI costs for a size flex RI scenario in Amazon CUR**

<b>lineitem/Productcode</b>	Amazon EC2	Amazon EC2
<b>UsageType</b>	HeavyUsage:c3.8xlarge	USW2-BoxUsage:c3.8xlarge



<b>lineitem/LinItem</b>	<b>RI Fee</b>	<b>DiscountedUsage</b>
<b>lineitem/LinItemDescription</b>	USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge	USD 0.00 hourly fee per Linux/UNIX (Amazon VPC), c3:8large
<b>lineitem/UsageAmount</b>	744	644
<b>lineitem/NormalizedUsageAmount</b>	47,616	2,576
<b>lineitem/UnblendedRate</b>	0.1	0
<b>lineitem/UnblendedCost</b>	74.4	0
<b>reservation/UnusedQuantity</b>	100	
<b>reservation/UnusedRecurringFee</b>	70.37	
<b>reservation/UnusedAmortizedUpfrontFeeForBillingPeriod</b>	5.5	
<b>reservation/RecurringFeeForUsage</b>		4.03
<b>reservation/AmortizedUpfrontCostForUsage</b>		0.5
<b>reservation/EffectiveCost</b>		4.53

In addition to matching the current functionality supported by DBR/DBR-RT, Amazon CUR has the following advantages:

- Amazon CUR has the NormalizedUsageAmount and quantity. The DBR / DBR-RT do not have columns representing this.

- Amazon CUR UsageType and Operation are not transformed for the DiscountedUsage lineitem. The DBR / DBR-RT replaces these values with the RI Fee line item.
- Amazon CUR LineItemDescription is not transformed for the DiscountedUsage line item. In DBR / DBR-RT, which replaces with the RI Fee line item description and appends the DiscountedUsage line item Usage Type to the end of the string i.e. "USD 0.10 hourly fee per Linux/UNIX (Amazon VPC), c3:8xlarge; UsageType: BoxUsage:c3.large"

## Downloading a monthly report

You can download a monthly report of your estimated Amazon charges from the **Bills** page of the Billing and Cost Management console.

Suppose that you use the consolidated billing feature in Amazon Organizations. Then, this report is available only for a management account and includes activity for all the member accounts. Member account owners can obtain the monthly report only from the management account. For more information, see [Consolidated Billing for Organizations](#) in the *Amazon Billing User Guide*.

The report contains line items for each unique combination of Amazon product, usage type, and operation that the account uses. The estimated report is updated several times per day. You can get reports for previous months by selecting the statement period. Start with the report for the month when you signed up for monthly reports. Reports from before you signed up are not available.

## Downloading a monthly cost allocation report

### Important

The monthly cost allocation report feature will be unavailable at a later date. We recommend that you use the Amazon Cost and Usage Reports instead.

You can create custom cost allocation tag sets for your Amazon resources that can describe the business dimensions of your Amazon usage. You can use these tag sets to organize and track your Amazon costs. Many Amazon Web Services services expose tagging in their feature sets. You create the tags within those services by using the console, API, or the Amazon command line interface (CLI). For more information, see [Using Cost Allocation Tags](#) in the *Amazon Billing User Guide*.

After you create your tags, you can obtain a monthly cost allocation report. This is essentially a monthly report that includes your cost allocation tag sets.

## Downloading an Amazon Usage Report

### Important

On September 15, 2023, the Amazon Usage Report will no longer provide access to usage data older than March 1, 2019. To access such usage data, download historical usage and save it locally before September 15, 2023. The Amazon Usage Report feature will be unavailable at a later date. We recommend that you use Amazon Cost and Usage Reports instead.

You can download a usage report in XML or CSV format. Your report covers a single service, based on usage type, operation, and time period. You can also choose how the data is aggregated.

### To download a usage report

1. Open the Billing and Cost Management console at <https://console.amazonaws.cn/costmanagement/>.
2. In the navigation pane, choose **Cost and Usage Reports**.
3. Under the **Amazon Usage Report** section, choose **Create a Usage Report**.
4. On the **Download usage report** page, under **Services**, choose the service that you want to view usage for.
5. Choose the **Usage type**.
6. Choose the **Operation**.
7. Choose the **Time period** for the report. If you choose **Custom date range**, you need to specify the **Date range** for the report manually.
8. Under **Report granularity**, choose **Hourly**, **Daily**, or **Monthly**.
9. Choose **Download**, and then choose **XML Report** or **CSV Report**.

### Note

If you download a large report, the content of the report might be truncated. Check the last row of the downloaded file for warnings or error messages. If the report is truncated,

download smaller reports by choosing a shorter time period. Another option is to decrease the report granularity from hourly to daily or monthly.

## Troubleshooting Cost and Usage Reports

Use the following topics to help you troubleshoot common issues with Cost and Usage Reports.

### Topics

- [There are no report files in the Amazon S3 bucket](#)
- [One of my report data partitions is empty](#)
- [My Cost and Usage Report data doesn't match the data in other Billing and Cost Management features](#)
- [I want to backfill data because I changed the settings of my report](#)
- [My report file folder in Amazon S3 is in an unnamed folder](#)
- [I can't select the option to include resource IDs on my report](#)
- [My Cost and Usage Report queries for Amazon Athena don't work on Amazon Redshift, or my Amazon Redshift queries don't work on Amazon Athena](#)
- [The columns included in my report have changed from a previous month](#)
- [The queries or tables based on my report don't work because the columns in my report have changed](#)
- [I need help querying my report](#)
- [I can't find the billing data for my Amazon EC2 Dedicated Host](#)
- [I don't understand the billing data for my Amazon EC2 Elastic IP addresses](#)
- [I use consolidated billing and I don't understand the difference between unblended and blended rates or costs](#)
- [Some line items in my report have a blended rate or blended cost of 0](#)
- [I don't understand how All Upfront Reserved Instances are amortized in my report](#)

### There are no report files in the Amazon S3 bucket

Confirm that the Amazon S3 bucket policy grants the **billingreports.amazonaws.com** service permission to put files in the bucket. For more information on the required bucket policy, see [Setting up an Amazon S3 bucket for Cost and Usage Reports](#).

## One of my report data partitions is empty

If a report is larger than most applications can handle, then Amazon splits the report into multiple files. A report update might have fewer individual file partitions than an earlier report version.

Review the report's manifest file to find any empty files that you don't need to ingest.

## My Cost and Usage Report data doesn't match the data in other Billing and Cost Management features

Other Billing and Cost Management features (Cost Explorer, Detailed Billing Reports, Billing and Cost Management console) might present your costs differently for the following reasons:

- The billing features round cost data in different ways.
- The billing features might have different data refresh settings. For example, you can choose whether or not your Cost and Usage Report automatically refreshes a previously closed bill with any refunds, credits, or Support fees applied after the bill is finalized. Cost Explorer automatically reflects the same items. In this scenario, if you don't activate the automatic refresh on your Cost and Usage Report, then the Cost and Usage Report data won't match the Cost Explorer data.
- The billing features can group charges differently. For example, the **Bills** page in the Billing and Cost Management console shows data transfer charges as a separate **Data Transfer** grouping within your **Amazon Service Charges**. Meanwhile, Cost and Usage Reports and Cost Explorer show data transfer charges as a usage type for each service.

If after reviewing these reasons you still believe you're seeing discrepancies between your Cost and Usage Report and other Billing and Cost Management features, open a support case to request a review of your cost data. In your support case, make sure to provide the report name and the billing period that you would like reviewed. For more information on opening a case, see [Getting help with your exports and reports](#).

## I want to backfill data because I changed the settings of my report

Open a support case to request a backfill of your cost data. In your support case, make sure to provide the report name and the billing period that you want backfilled. For more information on opening a case, see [Getting help with your exports and reports](#).

Note that you can't get a backfill of cost data for the following scenarios:

- You can't get a backfill for cost data from before the date that you created the account.
- If you use Amazon Organizations and the structure of your organization changed, such as which account is designated the management account, then you can't get a backfill of data with the previous organization structure.
- If you use Amazon Organizations and you change organizations, then you can't get a backfill of data from prior to joining your current organization.

## My report file folder in Amazon S3 is in an unnamed folder

Any / character in the **Report path prefix** of your report generates an unnamed folder in your Amazon S3 bucket. To remove the unnamed folder in your next report update, edit your report settings and remove the / character from the **Report path prefix**. For instructions, see [Editing your Cost and Usage Reports configuration](#).

## I can't select the option to include resource IDs on my report

When you create your report, you can select the option to **Include resource ID**. If you create your report with **Report versioning** set to **Overwrite existing report**, then you can't modify your **Include resource ID** selection after you create your report. To include resource IDs, you must create a new report and select the **Include resource ID** option.

## My Cost and Usage Report queries for Amazon Athena don't work on Amazon Redshift, or my Amazon Redshift queries don't work on Amazon Athena

Amazon Athena and Amazon Redshift databases format Cost and Usage Report columns differently. Amazon Athena adds an underscore between words in the column name (line\_item\_normalized\_usage\_amount). Amazon Redshift adds an underscore between the column type and the attribute (lineitem\_normalizedusageamount). Make sure to modify your queries to match the column name format in Amazon Athena or Amazon Redshift.

## The columns included in my report have changed from a previous month

The columns that Amazon includes in your report depend on your Amazon usage. Every report includes columns with the **identity/**, **bill/**, and **lineItem/** prefixes:

- identity/LinItemId
- identity/TimeInterval
- bill/InvoiceId
- bill/BillingEntity
- bill/BillType
- bill/PayerAccountId
- bill/BillingPeriodStartDate
- bill/BillingPeriodEndDate
- linItem/UsageAccountId
- linItem/LinItemType
- linItem/UsageStartDate
- linItem/UsageEndDate
- linItem/ProductCode
- linItem/UsageType
- linItem/Operation
- linItem/AvailabilityZone
- linItem/ResourceId
- linItem/UsageAmount
- linItem/NormalizationFactor
- linItem/NormalizedUsageAmount
- linItem/CurrencyCode
- linItem/UnblendedRate
- linItem/UnblendedCost
- linItem/BlendedRate
- linItem/BlendedCost
- linItem/LinItemDescription
- linItem/TaxType
- linItem/LegalEntity

All other columns are included only if your monthly Amazon usage generates data to populate those columns.

For example, your report includes **savingsPlan/** columns only if you used Savings Plans during that month.

## **The queries or tables based on my report don't work because the columns in my report have changed**

The columns that Amazon includes in your report depend on your Amazon usage for the month. Because the columns included in your report can change, it's a best practice to reference column names instead of column numbers in any custom queries or tables based on your report.

### **I need help querying my report**

For detailed information about querying your Cost and Usage Report, see [CUR Query Library Help](#) in the Amazon Well-Architected Labs website.

## **I can't find the billing data for my Amazon EC2 Dedicated Host**

In the **ResourceID** column, look for the Dedicated Host ID rather than the instance ID. Because Dedicated Hosts are metered by Dedicated Host running hours, your report shows Dedicated Host usage by metered hours associated with the host ID.

## **I don't understand the billing data for my Amazon EC2 Elastic IP addresses**

Amazon EC2 Elastic IP addresses are metered in aggregate. This means that each line item in your report doesn't correspond with an individual Elastic IP address. Each line item represents the total number of chargeable hours. You can have one Elastic IP address assigned to a running instance at no charge. You're charged per hour on a pro-rata basis for each additional Elastic IP address that you assign to the instance. Additionally, Amazon charges an hourly fee for unassigned Elastic IP addresses.

## **I use consolidated billing and I don't understand the difference between unblended and blended rates or costs**

With consolidated billing for Amazon Organizations, unblended and blended rates or costs can help you understand how much an account's usage would cost for a standalone account



versus a linked account in an organization. Some services offer pricing tiers that can lower unit costs as usage increases. Because Amazon aggregates all usage for a service in an organization, individual accounts might access lower-priced tiers sooner when their usage is aggregated in an organization's monthly usage.

Unblended rates are the rates associated with an individual account's service usage. For a line item, the unblended cost is usage multiplied by the unblended rate. The unblended cost would be the cost of the account's usage if it were a standalone account. Blended rates are the rates associated with total usage in an organization averaged across accounts. For a line item, the blended cost is usage multiplied by the blended rate. The blended cost is the cost attributed to the account's usage as a linked account in an organization.

For more information and examples of calculating unblended and blended costs, see [Understanding Consolidated Bills](#) in the *Amazon Billing User Guide*

## Some line items in my report have a blended rate or blended cost of 0

Amazon EC2 line items with a Reserved Instance discount have an blended rate of zero. For these line items, the **LineItemType** is **Discounted Usage**.

The blended cost is the usage multiplied by the blended rate. If the value for blended rate or usage is zero, then the blended cost is also zero.

## I don't understand how All Upfront Reserved Instances are amortized in my report

Because All Upfront Reserved Instances are paid in full upfront, the amortized costs are reflected in your report as the upfront payment divided over the associated time period (one year or three years).

**reservation/AmortizedUpfrontCostForUsage** and **reservation/EffectiveCost** are the same rate for All Upfront Reserved Instances. This is because both columns are an equal division of the upfront payment for the Reserved Instance over the total hours of its term.

It's expected that your report has **RIFee** line items populated for All Upfront Reserved Instances, even though the **RIFee** is \$0.00. These line items represent the recurring hourly costs for the month, and they have additional usage data in other columns. All Reserved Instances generate **RIFee** line items.

## Security in Amazon Cost and Usage Reports

Cloud security at Amazon is the highest priority. As an Amazon customer, you benefit from a data center and network architecture that is built to meet the requirements of the most security-sensitive organizations.

Amazon Cost and Usage Reports is a feature in the Amazon Billing and Cost Management console. For details about security considerations, see [Security in Amazon Billing and Cost Management](#) in the *Amazon Billing User Guide*.

For more information on access control and IAM permissions to use Amazon CUR, see [Overview of Managing Access Permissions](#).

## Quotas and restrictions

The following table describes the current quotas and restrictions within Amazon Cost and Usage Reports.

### Cost and Usage Reports

Number of Cost and Usage Reports	10 per account
Rates	Cost and Usage Reports are free of charge, but standard Amazon S3 rates apply.
Number of Free Tier Amazon Cost and Usage Reports	10

# Getting help with your exports and reports

There are many resources available for you to get help with your Amazon Billing and Cost Management, Amazon Data Exports, and Amazon Cost and Usage Reports questions.

- [Amazon Knowledge Center](#): This is the quickest way to find answers to questions about your exports and reports. We recommend you start here.
- Account and billing support: If you're an Amazon account owner, you have access to account and billing support free of charge. Only personalized technical support requires a support plan. For more information, visit [Amazon Web Services Support](#).
- Open a support case: You can contact Amazon Web Services Support and open a support case for your inquiry. This is the most direct method for communicating with Amazon Web Services Support. Amazon Web Services Support does not publish a direct phone number to reach representatives, but instead will call you through the following procedure.

## Note


To open an Amazon Web Services Support case and specify *Regarding: Account and Billing Support*, you must either be signed into Amazon as the root account owner, or have IAM permissions to open a support case. For more information, see [Getting started with Amazon Web Services Support](#) in the *Amazon Web Services Support User Guide*.

If you have closed your Amazon account, you can still sign in to Amazon Web Services Support and view past bills.

## To contact Amazon Web Services Support

1. Sign in and navigate to [Amazon Web Services Support Center](#).
2. Choose **Create case**.
3. On the **Create case** page, select **Account and billing** and fill in the required fields on the form.
4. Choose **Next step: Additional information**.
5. On the **Additional information** page, for **Subject**, enter a title about your issue.
6. For **Description**, describe your question or issue in detail.
7. (Optional) Choose **Attach files** to add any relevant files to your case, such as error logs or screenshots. You can attach up to three files. Each file can be up to 5 MB.

8. Choose **Next step: Solve now or contact us**.
9. On the **Contact us** page, choose your preferred language.
10. Choose your preferred contact method. You can choose one of the following options:
  - **Web:** Receive a reply in Support Center.
  - **Phone:** Receive a phone call from an Amazon Web Services Support representative.

 **Note**

Instant messaging support is not available for billing inquiries.

11. Review your case details and then choose **Submit**. Your case ID number and summary appear.

# Document history

The following table describes the documentation for this release of Amazon Data Exports.

Change	Description	Date
<a href="#">New split cost allocation data</a>	Added a new split cost allocation data feature that introduces cost and usage data for new container-level resources to Amazon CUR. Introduced new split line item entries in the data dictionary.	June 20, 2023
<a href="#">New definitions added to product data dictionary</a>	Added 42 new definitions to the Product details page.	February 23, 2022
<a href="#">New security chapter</a>	Added a new security chapter that provides information about various security controls. Former "Controlling Access" chapter contents have been migrated here.	February 10, 2020
<a href="#">Initial launch</a>	Migrated and reorganized all Amazon CUR content from Billing and Cost Management guide.	January 21, 2020