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# **AWS Billing and Cost Management**

**User Guide**

**Version 2.0**



## AWS Billing and Cost Management: User Guide

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# What is AWS Billing and Cost Management?

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AWS Billing and Cost Management is the service that you use to pay your AWS bill, monitor costs, and visualize your AWS spend.

## Topics

- [Features in Billing and Cost Management \(p. 1\)](#)
- [Are You A First-Time Billing User? \(p. 2\)](#)
- [Related Services \(p. 2\)](#)

## Features in Billing and Cost Management

The Billing and Cost Management service provides features you can use to estimate and plan your AWS costs, receive alerts if your costs exceed a threshold that you set, assess your biggest investments in AWS resources, and, if you work with multiple AWS accounts, provide options that will help simplify your accounting:

### Cost Visualization

The AWS Billing and Cost Management console includes the no-cost [Cost Explorer \(p. 20\)](#) tool for viewing your AWS spend data as a graph. With Cost Explorer you can filter graphs by resource tags, by services in AWS, or, if you use Consolidated Billing, by linked account. For information, see [Use Cost Explorer for Custom Spend Analysis \(p. 22\)](#).

### Alerts on Spending Limits

You can use Amazon CloudWatch to create billing alerts when your AWS spending exceeds specified thresholds. For information, see [Monitor Charges with Alerts and Notifications \(p. 50\)](#).

### Detailed Billing Reports

You can choose to have AWS publish detailed billing reports to an Amazon Simple Storage Service (Amazon S3) bucket that you specify. You can choose to receive reports that break down your costs by the hour or month, or by product or product resource, by tags that you define yourself, or, if you use Consolidated Billing, by each AWS account. AWS publishes the reports to your bucket several times a day in comma-separated value (CSV) format.

The topic [Understand Your Usage with Detailed Billing Reports \(p. 35\)](#) describes each of these reports and how to configure them.

When you elect to receive detailed billing reports, you also create an Amazon Simple Storage Service bucket that you can access from an application using the Amazon S3 application programming interfaces (API). In addition, detailed billing reports are provided in the comma-separated value (CSV) format, which you can open with spreadsheet software such as Microsoft Excel or Apache OpenOffice Calc.

### **Consolidated Billing**

The AWS platform is designed to accommodate every size of organization, from small start ups to enterprises. If your organization is large, or likely to grow, you might want to set up multiple AWS accounts that reflect your organization's structure.

If you set up multiple AWS accounts, you can choose to have each account receive a bill (that is, function as a *payer account*), or you can use the *Consolidated Billing* feature to consolidate multiple *linked accounts* under one payer account. Consolidated Billing is designed to simplify your accounting and let you take advantage of lower-priced usage tiers for many AWS services.

To learn more, see [Pay Bills for Multiple Accounts with Consolidated Billing \(p. 51\)](#).

## **Are You A First-Time Billing User?**

If you're new to the AWS Billing and Cost Management service, we recommend that you begin with the [Getting Started \(p. 3\)](#) section, which introduces working in the **Billing** console.

If you're new to AWS altogether, we recommend that you review [Getting Started with AWS](#). This guide has useful general information about using AWS and managing your account.

## **Related Services**

The Billing and Cost Management service is most tightly integrated with the AWS Identity and Access Management service. You use the IAM service in conjunction with Billing and Cost Management to ensure that other people who work in your account have only as much access as they need to get their job done.

For information on how to allow or deny access to your billing information, see [Controlling Access to Your Billing Information \(p. 11\)](#).

The IAM service is also how you control access to all of your AWS resources, not just your billing information, so it's important to familiarize yourself with the basic concepts and best practices of IAM before you get too far along in setting up the structure of your AWS account.

For details about how to work with IAM and why it is important to do so, see [IAM Concepts](#) and [IAM Best Practices](#) in *Using IAM*.

# Getting Started

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The AWS Billing and Cost Management service automatically charges the credit card you provided when you signed up for a new account with AWS. Charges appear on your credit card bill monthly. You can view or update credit card information, including the designation of a different credit card for payment, on the [Payment Methods](#) page in the Billing and Cost Management console.

This getting started section provides steps for a few of the most common tasks you're likely to want to perform using Billing and Cost Management.

## Topics

- [Step 1: Review Your Charges](#) (p. 3)
- [Step 2: Turn on Detailed Billing Reports](#) (p. 4)
- [Step 3: Download or Print Your Bill](#) (p. 4)
- [Step 4: Set up Alerts to Monitor Charges to Your Account](#) (p. 4)
- [Step 5: Get Answers to Questions About Your Bill](#) (p. 5)
- [Where Do I Go From Here?](#) (p. 5)

## Step 1: Review Your Charges

Billing and Cost Management offers you a number of different ways to view and monitor your AWS costs. Here's how to quickly check to see what you've spent so far in the current month.

### To open the Billing console and review your charges

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at [https://console.aws.amazon.com/billing/home#/.](https://console.aws.amazon.com/billing/home#/)

The console opens to the **Dashboard**, where you can see your current month-to-date balance.

2. Click **Payment History** in the left navigation pane to see your past payment transactions.
3. Click **Bills** in the left navigation pane to see details about your current charges.

## Step 2: Turn on Detailed Billing Reports

In addition to what's available in the console, AWS Billing and Cost Management offers a set of detailed billing reports on your AWS usage, which include the AWS products you use, the amount of time you used them, the amount of data you transferred in and out of storage, the average storage space you use, and so on. To receive them, you must have an Amazon S3 bucket available in your account. (Have the name of your bucket available before you begin this procedure).

### To turn on detailed billing reports

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Preferences** in the left navigation pane.
3. Check the **Receive Billing Reports** checkbox.
4. Type the name of the Amazon S3 bucket where you want AWS to publish your detailed billing reports.
5. Click **Save preferences**.

## Step 3: Download or Print Your Bill

AWS Billing and Cost Management closes the billing period at midnight on the last day of each month and then calculates your bill. Most bills are ready for you to download by the third accounting day of the month.

### To download

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Bills** in the left navigation pane.
3. Select the month of the bill you want to work with from the **Date** dropdown box.
4. Click **Download CSV** to download a comma-separated variable file, or click **Print**.

## Step 4: Set up Alerts to Monitor Charges to Your Account

You can use Amazon CloudWatch to create and email alerts to you when your monthly charges for using an AWS product reach a threshold that you set.

### To turn on billing alerts

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Preferences** in the left navigation pane.
3. Check the **Receive Billing Alerts** checkbox.
4. Click **Save preferences**.

For more information, see [Monitor Your Estimated Charges Using Amazon CloudWatch](#) in the Amazon CloudWatch Developer Guide.

## Step 5: Get Answers to Questions About Your Bill

If you have questions about your bill, you can refer to the Billing and Cost Management Frequently Asked Questions pages, which you can find here: <http://aws.amazon.com/billing/faqs/>.

If you don't find the answer you're looking for in the Frequently Asked Questions, you can access account and billing support free of charge. For information about AWS Support or to learn how to close your AWS account, see [Get Answers to Questions About Your Bill](#) (p. 8).

## Where Do I Go From Here?

Now that you've toured the top-level billing features, you can explore some of the features designed to help you dig a little deeper and streamline your accounting practices.

- [Use Cost Explorer for Custom Spend Analysis](#) (p. 22)
- [Pay Bills for Multiple Accounts with Consolidated Billing](#) (p. 51)

# Get Your Monthly Bill and View Your AWS Charges

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You receive AWS invoices monthly for usage charges and recurring fees; for one-time fees, such as for purchasing reserved instances or an AWS support plan, you are charged immediately.

You can view both your estimated charges for the current month and final charges for previous months at any time. This section describes how to view your your monthly bill and past bills.

## Topics

- [View Your Monthly Charges \(p. 6\)](#)
- [Viewing Your AWS Usage Reports \(p. 7\)](#)
- [Getting an Invoice Emailed to You \(p. 7\)](#)

## View Your Monthly Charges

At the end of a billing cycle or at the time you choose to incur a one-time fee, AWS charges the credit card you have on file and issues your invoice as a PDF file. You can download the PDF from the **Account Activity** page using the following steps.

### Note

IAM users need explicit permission to see some of the pages in the Billing and Cost Management console. For more information, see [Controlling Access to Your Billing Information \(p. 11\)](#).

### To view your charges for the current month

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Bills** in the left navigation pane.
3. The **Summary** section displays a summary and details of your charges by service for the month you select in the **Date** drop-down menu. It is not an invoice, however, until the month's activity closes and AWS calculates final charges.

For Consolidated Billing customers, the **Bills** page lists totals for all accounts on the **Consolidated Bill Details** tab. Click the **Bill Details by Account** tab to see the activity for each account in the Consolidated Billing account family.

### To view your charges for a different month

- On the **Bills** page, select the month you want from the **Date** dropdown menu.

### To download a copy of your charges as a PDF document

1. On the **Bills** page, select a month from the **Date** drop-down menu for which all activity is closed.
2. On the **Summary** tab, click **Usage Charges and Recurring Fees**.
3. Click the **Invoice <invoiceID>** link.

### To download a monthly report

- Click the **Download CSV** button, and then click the appropriate option.>

## Viewing Your AWS Usage Reports

You can generate detailed usage reports of your usage by each service in your AWS account.

### To retrieve your AWS usage reports:

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Reports** on the left side of the page.
3. Click **AWS Usage Reports**.

The **Usage Reports** page opens.

4. Select a service from the **Service** drop-down menu. New drop-down options appear momentarily.
5. Follow the instructions on the page and make your selections from the **Usage Types**, **Operation**, **Time Period**, and **Report Granularity** drop-down menus.
6. Click the appropriate **Download report** button for the type of report you want to generate and download.

## Getting an Invoice Emailed to You

Follow these steps to have a PDF copy of your monthly invoice sent to the email address associated with your account.

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Preferences** in the left navigation page.
3. Check the **Receive PDF Invoice by Email** checkbox.
4. Click **Save preferences**.

# Get Answers to Questions About Your Bill

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The quickest way to find answers to questions about your bill might be to start with the Billing and Cost Management Frequently Asked Questions pages, which you can find here: <http://aws.amazon.com/billing/faqs/>.

In addition, all AWS account owners have access to account and billing support free of charge. Only personalized technical support requires a support plan. For more information, visit the [AWS Support web site](#).

This section guides you through contacting AWS Support and opening a support case for your billing inquiry, which is the fastest and most direct method for communicating with AWS Support. AWS Support does not publish a direct phone number for reaching a support representative.

## Contacting AWS Support

1. Sign in and navigate to the [AWS Support Center](#). If prompted, enter the email address and password for your account.
2. Click **Open a new case**.
3. On the **Open a new case** page, select **Account and Billing Support** and fill in the required fields on the form.

After you complete the form, you can click **Web** for an email response, or **Phone** to request a telephone call from an AWS Support representative. Instant messaging support is not available for billing inquiries.

This section explains how to close your AWS account.

## Closing your AWS Account

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Account Settings**.
3. Scroll to the end of the page, check the check box under Close Account, and then click **Close Account**.

# Manage Account and Payment Information

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You can edit the following information about your AWS account and payment method:

- User name and password
- Your contact information, including mailing address, telephone number, email address, and website address
- Credit card details
- Alternate contacts for your account, including contacts for operations, billing, and security issues

You can edit your account information on the **Account Settings** page in the Billing and Cost Management console.

## To edit your AWS account information

1. Sign in to the AWS Management Console and open the Billing and Cost Management [console](#).
2. Click **Account Settings** in the navigation pane.
3. Click **Edit**, make your changes, and then click **Done** for each of the sections you want to update.

### Note

You can choose to add an email address for billing in the Alternate Contacts section to have AWS send a copy of billing-related emails to that email address. For example, AWS sends your Billing contact address a copy of your monthly bill. AWS uses the Operations and Security alternate contacts only if necessary.

## Managing Your Payment Methods

Use the [Payment Methods](#) page of the Billing and Cost Management console to perform the following tasks:

- Add a credit card to your AWS account.
- View credit cards that AWS has on file for your account.
- Set a credit card as the default payment method for your AWS charges.

- Edit the name or expiration date for a credit card.
- If you have questions about payment methods, please contact [Customer Support](#).

### To view credit cards associated with your AWS account

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click [Payment Methods](#) in the left navigation pane.

### To add a credit card to your AWS account

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click [Payment Methods](#) in the left navigation pane.
3. Click **Add a card** and then provide the information requested and follow the instructions onscreen.

### To designate a credit card as the default payment method

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click [Payment Methods](#) in the left navigation pane.
3. Click **Make Default** in the row that shows the credit card you want to designate as the default payment method.

## Removing a Payment Method

Use the following steps to remove a credit from the list of payment methods displayed on the **Payment Methods** page.

### To update your credit card

1. Navigate to the [www.amazon.com](http://www.amazon.com) page and sign in using the email address and password associated with your AWS account.
2. Click **Your Account** and then click **Your Account**.
3. In the **Payment** section, click **Manage Payment Options**.
4. Next to the card you want to remove from the list of payment methods, click **Delete** and then follow the instructions onscreen.

#### Note

When you click **Delete**, AWS stops displaying the credit card and marks it inactive in Amazon's records. The deleted card can still be charged for any remaining AWS balance. If you close your AWS account, make sure to also cancel your AWS subscriptions; AWS continues to charge you for usage accrued through the time you cancel your subscriptions.

# Controlling Access to Your Billing Information

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AWS Billing and Cost Management integrates with the AWS Identity and Access Management (IAM) service so that you can control who in your organization has access to specific pages on the [AWS Billing and Cost Management console](#). You can control access to invoices and detailed information about charges and account activity, payment methods, and credits.

## Topics

- [Granting Access to Your Billing Information and Tools \(p. 11\)](#)
- [Billing and Cost Management Permissions Reference \(p. 12\)](#)

## Granting Access to Your Billing Information and Tools

The AWS account owner can access billing information and tools by signing in to the AWS Management Console using the account password. However, we recommend that you not use the account password for everyday access to the account, and especially that you not share account credentials with others to give them access to your account.

Instead, you should create IAM users for anyone who might need access to the account. This provides individual sign-in information for each user, and you can grant each user only the permissions that he or she needs to work with your account. For example, you can grant some users limited access to some of your billing information and tools, and grant others complete access to all of the information and tools. (We recommend that the account owner use an IAM user for everyday access also.)

### Note

IAM is a feature of your AWS account. If you are already signed up for a product that is integrated with IAM, you don't need to do anything else to sign up for IAM, nor will you be charged for using it.

By default, IAM users do not have access to the [AWS Billing and Cost Management console](#). You or your account administrator must grant users access. Do this by creating custom policies and activating access to the AWS website. You can assign IAM policies to either a single user or a group of users.

You control your users' access to your account billing information and tools by following these steps:

1. Grant users access to the Billing and Cost Management console using IAM policies. You can assign IAM policies to either a single user or a group of users. For instructions on assigning policies, go to [Managing IAM Policies](#) in *Using IAM*. For examples of policies you can use to grant access, see [Billing and Cost Management Permissions Reference](#) (p. 12).
2. Activate IAM user access to the AWS website as described in the following section, [Activate Access to the AWS Website](#) (p. 12).

## Activate Access to the AWS Website

To grant your IAM users access to your account's billing information and tools, you need to activate the functionality.

### To activate access to the AWS website

1. Log in to the AWS Management Console as the AWS account owner. (Not as an IAM user.) Then go to the Billing and Cost Management [Account Settings](#) console page.
2. Next to **IAM User Access to Billing Information**, click **Edit**, and then select the check box to activate access to the Billing and Cost Management console pages. You use IAM policies to control which console pages a user can access.

For more information about using policies to grant users billing permissions, see [Billing and Cost Management Permissions Reference](#) (p. 12).

#### Note

By activating IAM user access to the AWS website, you have granted full access to the AWS website to all users who already have full access to the AWS APIs. You can restrict their access by applying a more constrained set of permissions. See [Example 4: Allow full access to AWS services but deny users access to the Billing and Cost Management console](#) (p. 17).

## Billing and Cost Management Permissions Reference

This topic summarizes the default actions permitted in Billing and Cost Management for each type of billing user, the billing permissions you can apply to your IAM users, and shows examples of policies you can use to allow or deny user access to your billing information and tools.

### Topics

- [User Types and Billing Permissions](#) (p. 12)
- [Billing Permissions Descriptions](#) (p. 13)
- [Billing and Cost Management Policy Examples](#) (p. 15)

For a full discussion of AWS accounts and IAM users, see [What is IAM?](#) in *Using IAM*.

## User Types and Billing Permissions

This table summarizes the default actions permitted in Billing and Cost Management for each type of billing user.

User Type	Description	Billing Permissions
Account owner	The person or entity in whose name your AWS account is set up.	<ul style="list-style-type: none"> <li>• Has full control of all Billing and Cost Management resources.</li> <li>• Receives a monthly invoice of AWS charges.</li> </ul>
IAM user	A person or application defined as a user in an AWS account by an account owner or administrative user. Accounts can contain multiple IAM users.	<ul style="list-style-type: none"> <li>• Has permissions specifically granted to the user or a group that includes the user.</li> <li>• Can be granted permission to view Billing and Cost Management console pages. For more information, see <a href="#">Controlling Access to Your Billing Information (p. 11)</a>.</li> </ul>
Consolidated Billing payer account owner	The person or entity in whose name an AWS account is set up, when that account pays for the AWS usage of multiple accounts in an organization.	<ul style="list-style-type: none"> <li>• Has full control of all Billing and Cost Management resources for the payer account only.</li> <li>• Receives a monthly invoice of AWS charges for both the payer account and linked accounts.</li> <li>• Views the activity of linked accounts in the detailed billing reports for the payer account.</li> </ul>
Consolidated Billing linked account owner	An AWS account that has its usage paid for by a Consolidated Billing payer account.	<ul style="list-style-type: none"> <li>• Does not have permission to review any usage reports or account activity except for its own. Does not have access to other linked accounts in the family or to the payer account.</li> <li>• Does not have permission to view detailed billing reports.</li> <li>• Has permission to update account information for itself only; cannot access other linked accounts or payer accounts.</li> </ul>

## Billing Permissions Descriptions

This table summarizes the permissions you use to allow or deny IAM users access to your billing information and tools. For examples of policies that use these permissions, see [Billing and Cost Management Policy Examples \(p. 15\)](#).

**AWS Billing and Cost Management User Guide**  
**Billing Permissions Descriptions**

Permission Name	Description
ViewBilling	<p>Allow or deny users permission to view the following Billing and Cost Management console pages:</p> <ul style="list-style-type: none"> <li>• <a href="#">Billing Dashboard</a></li> <li>• <a href="#">Bills</a></li> <li>• <a href="#">Cost Explorer</a></li> <li>• <a href="#">Payment History</a></li> <li>• <a href="#">Consolidated Billing</a></li> <li>• <a href="#">Preferences</a></li> <li>• <a href="#">Credits</a></li> <li>• <a href="#">Advance Payment</a> (For more information about advance payments, see <a href="#">Understanding Blended Rates (p. 59)</a>.)</li> </ul>
ModifyBilling	<p>Allow or deny users permission to modify the following Billing and Cost Management console pages:</p> <ul style="list-style-type: none"> <li>• <a href="#">Consolidated Billing</a></li> <li>• <a href="#">Preferences</a></li> <li>• <a href="#">Credits</a></li> </ul> <p>Note that to allow users to modify these console pages, you must allow both <code>ModifyBilling</code> and <code>ViewBilling</code>. For an example policy, see <a href="#">Example 6: Allow users to modify billing information (p. 18)</a>.</p>
ViewAccount	<p>Allow or deny users permission to view <a href="#">Account Settings</a>.</p>
ModifyAccount	<p>Allow or deny users permission to modify <a href="#">Account Settings</a>.</p> <p>Note that to allow users to modify Account Settings, you must allow both <code>ModifyAccount</code> and <code>ViewAccount</code>.</p> <p>For an example of a policy that explicitly denies a user access to the Account Settings console page, see <a href="#">Example 7: Deny access to Account Settings, but allow full access all other billing and usage information (p. 19)</a>.</p>
ViewPaymentMethods	<p>Allow or deny users to view <a href="#">Payment Methods</a>.</p>
ModifyPaymentMethods	<p>Allow or deny users permission to modify <a href="#">Payment Methods</a>.</p> <p>Note that to allow users to modify Payment Methods, you must allow both <code>ModifyPaymentMethods</code> and <code>ViewPaymentMethods</code>.</p>

Permission Name	Description
ViewUsage	<p>Allow or deny users to view AWS usage <a href="#">Reports</a>.</p> <p>Note that to allow users to view usage reports, you must allow both ViewUsage and ViewBilling.</p> <p>For an example policy, see <a href="#">Example 2: Allow users to access the Reports console page (p. 16)</a>.</p>

## Billing and Cost Management Policy Examples

This topic contains example policies that you can attach to your IAM user or group to control access to your account's billing information and tools. The following basic rules apply to IAM policies:

- `Version` is always 2012-10-17
- `Effect` is always Allow or Deny
- `Action` indicates access, and it can take a wild card (\*)
- `Resource` is always \*
- It's possible to have multiple statements in one policy

### Note

These policies require that you activate IAM user access to the AWS Billing and Cost Management console on the [Account Settings](#) console page. For information about activating user access, see [Activate Access to the AWS Website \(p. 12\)](#).

### Example Topics

- [Example 1: Allow users to view your billing information \(p. 16\)](#)
- [Example 2: Allow users to access the Reports console page \(p. 16\)](#)
- [Example 3: Deny users access to the Billing and Cost Management console \(p. 17\)](#)
- [Example 4: Allow full access to AWS services but deny users access to the Billing and Cost Management console \(p. 17\)](#)
- [Example 5: Allow users to view the Billing and Cost Management console, except Account Settings \(p. 18\)](#)
- [Example 6: Allow users to modify billing information \(p. 18\)](#)
- [Example 7: Deny access to Account Settings, but allow full access all other billing and usage information \(p. 19\)](#)

### Example 1: Allow users to view your billing information

To allow a user to view your billing information without giving the user access to sensitive account information, such as your password and account activity reports, you could use a policy similar to this example policy. This policy allows users to view the following Billing and Cost Management console pages, without giving them access to the Account Settings or Reports console pages:

- **Dashboard**
- **Cost Explorer**
- **Bills**
- **Payment History**
- **Consolidated Billing**
- **Preferences**
- **Credits**
- **Advance Payment**

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "aws-portal:ViewBilling",
      "Resource": "*"
    }
  ]
}
```

### Example 2: Allow users to access the Reports console page

To allow a user to access the **Reports** console page and to view the usage reports that contain account activity information, you would use a policy similar to this example policy.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "aws-portal:ViewUsage",
        "aws-portal:ViewBilling"
      ],
      "Resource": "*"
    }
  ]
}
```

### Example 3: Deny users access to the Billing and Cost Management console

If you want to explicitly deny a user access to the all Billing and Cost Management console pages, you could use a policy similar to this example policy.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Deny",
      "Action": "aws-portal:*",
      "Resource": "*"
    }
  ]
}
```

### Example 4: Allow full access to AWS services but deny users access to the Billing and Cost Management console

This policy enables full access to all AWS services but denies the user access to everything on the Billing and Cost Management console. In this case, you should also deny user access to AWS Identity and Access Management (IAM), so that the users cannot access the policies that control access to billing information and tools.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "*",
      "Resource": "*"
    },
    {
      "Effect": "Deny",
      "Action": [
        "aws-portal:*",
        "iam:*"
      ],
      "Resource": "*"
    }
  ]
}
```

### Example 5: Allow users to view the Billing and Cost Management console, except Account Settings

To protect your account password, contact information, and security questions, you can deny user access to **Account Settings**, while still enabling read-only access to the rest of the functionality in the Billing and Cost Management console. Applying this policy to a user enables the user to view all the Billing and Cost Management console pages, including the **Payments Method** and **Reports** console pages, but denies the user access to **Account Settings**.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "aws-portal:View*",
      "Resource": "*"
    },
    {
      "Effect": "Deny",
      "Action": "aws-portal:*Account",
      "Resource": "*"
    }
  ]
}
```

### Example 6: Allow users to modify billing information

To allow users to modify account billing information in the Billing and Cost Management console, you must also allow users to view your billing information. The following policy example allows a user to modify the **Consolidated Billing**, **Preferences**, and **Credits** console pages. It also allows a user to view the following Billing and Cost Management console pages:

- **Dashboard**
- **Cost Explorer**
- **Bills**
- **Payment History**
- **Advance Payment**

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "aws-portal:*Billing",
      "Resource": "*"
    }
  ]
}
```

### Example 7: Deny access to Account Settings, but allow full access all other billing and usage information

To protect your account password, contact information, and security questions, you can deny user access to **Account Settings**, while still enabling full access to the rest of the functionality in the Billing and Cost Management console.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "aws-portal:*Billing",
        "aws-portal:*Usage",
        "aws-portal:*PaymentMethods"
      ],
      "Resource": "*"
    },
    {
      "Effect": "Deny",
      "Action": "aws-portal:*Account",
      "Resource": "*"
    }
  ]
}
```

# Manage Your Spend Data with Cost Explorer

---

You can use Cost Explorer to visualize patterns in your spending on AWS resources over time. You can quickly identify areas that need further inquiry, and see trends that you can use to understand spend and to predict future costs.

With Cost Explorer, you can filter your view by service, by [linked account \(p. 51\)](#), or by your own [custom tags \(p. 42\)](#). In addition, Preconfigured Views display at-a-glance information about your spending trends and give you a head start on customizing views that suit your needs. Cost Explorer is available in any AWS account for no cost.

**Note**

Each time you apply filters to your spend data, Cost Explorer creates a new graph. You can, however, use your browser's bookmark feature to [save configuration settings \(p. 30\)](#) for repeated use.

Cost Explorer displays data from the current month and the previous four months. When you first sign up for Cost Explorer, the current month's data is available for viewing in about 24 hours. The rest of your data takes a few days longer. Cost Explorer updates your spend data at least once every 24 hours.

**Topics**

- [Cost Explorer and Preconfigured Views \(p. 20\)](#)
- [Access Management for Cost Explorer \(p. 21\)](#)
- [Enable Cost Explorer \(p. 22\)](#)
- [Use Cost Explorer for Custom Spend Analysis \(p. 22\)](#)
- [Cost Explorer Reference \(p. 31\)](#)

## Cost Explorer and Preconfigured Views

Cost Explorer uses the same detailed data set used to generate detailed billing reports with resources and tags. Using this data, it displays a graph based that you customize by applying filters and specifying date ranges. For an exhaustive review of the data, you can download the figures in a comma-separated value (CSV) file.

The Cost Explorer preconfigured views display graphs based on fixed filter settings. They are intended to provide quick access to information that is most commonly useful to an organization. All the preconfigured views display a graph. Beneath the graph, the page shows a *data table* that displays the cost figures used to create the graph. You can also download a CSV report that contains the line items used to generate the views. For information, see [Using Preconfigured Views \(p. 30\)](#).

**Note**

Charges for your current billing period shown on these reports are estimated charges. Estimated charges shown on this page, or shown on any notifications that we send to you, may differ from your actual charges for this statement period. This is because estimated charges presented on this page do not include usage charges accrued during this statement period after the date you view this page. One-time fees and subscription charges are assessed separately from usage and reoccurring charges, on the date that they occur.

For more information about the data table, see [About the Cost Explorer Data Table \(p. 32\)](#). For more information about the graph, see [About the Cost Explorer Graph \(p. 33\)](#).

## Access Management for Cost Explorer

How you manage access to the information in Cost Explorer depends on how your AWS account is set up. Your account might be set up to use the AWS Identity and Access Management service to grant different levels of access to different IAM users. Your account might be part of a Consolidated Billing family, in which case it is either a *paying account* or a *linked account*. For information about managing access to Billing and Cost Management pages, see [Controlling Access to Your Billing Information \(p. 11\)](#).

### Granting Cost Explorer Access

You can enable Cost Explorer if and only if you are the owner of the AWS account and you are using your root credentials. If you are a paying account owner, you enable the Cost Explorer for the entire Consolidated Billing family. After you grant access to the paying account, all linked accounts in the family are granted access. You cannot grant or deny access individually.

### Cost Explorer And IAM Users

An AWS account owner who is not using Consolidated Billing has full access to all Billing and Cost Management information, including Cost Explorer. After you enable Cost Explorer, you should interact with Cost Explorer as an IAM user. If you have permission to view the Billing and Cost Management console, you can use Cost Explorer.

An IAM user must be granted explicit permission to view pages in the Billing and Cost Management console, and, with appropriate permissions, can view spend data for the AWS account that owns the IAM user. For the policy that grants the necessary permission to an IAM user, see [Controlling Access to Your Billing Information \(p. 11\)](#).

### Consolidated Billing Considerations

A Consolidated Billing paying account owner has full access to all Billing and Cost Management information for costs incurred under the paying account and under linked accounts, and can view their spend data in Cost Explorer.

The owner of a linked account can see spend data for that linked account, but cannot see spend data for any other account in the Consolidated Billing family.

## Enable Cost Explorer

Cost Explorer is available for your AWS account at no cost. Follow these steps to enable Cost Explorer for your account. After you enable Cost Explorer, AWS prepares the current month and the last four months of your spend data for use. The current month's data is available for viewing in about 24 hours. The rest of your data takes a few days longer. Cost Explorer updates your spend data at least once every 24 hours.

### Note

If you are signed up to receive detailed billing report with resources and tags through programmatic billing access, Cost Explorer is enabled for your account automatically. Enabling Cost Explorer, however, does not enable programmatic billing access.

### To sign up for Cost Explorer

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. In the left navigation pane, click **Cost Explorer**.
3. On the **Welcome to Cost Explorer** page, click **Enable Cost Explorer**.

### Note

If your account is a linked account in a Consolidated Billing family, the payer account must enable Cost Explorer. For information about Consolidated Billing, see [Pay Bills for Multiple Accounts with Consolidated Billing \(p. 51\)](#).

## Use Cost Explorer for Custom Spend Analysis

Cost Explorer is a tool that you can use to visualize your spend data for up to the last 13 months. You can filter how you view your spend by cost allocation tags, AWS services, and linked accounts, and by subsets of those filters. You can specify time ranges for the data you want to see, and you can view time data by day or by month.

### Topics

- [Start Cost Explorer \(p. 23\)](#)
- [Choose Time Ranges for the Data You Want to View \(p. 23\)](#)
- [Filter the Data You Want to View \(p. 24\)](#)
- [Group Data By Linked Accounts or Services \(p. 28\)](#)
- [Advanced Options \(p. 28\)](#)
- [Select a Style for your Graph \(p. 29\)](#)
- [Download CSV \(p. 30\)](#)
- [Save Your Cost Explorer Configuration with Bookmarks or Favorites \(p. 30\)](#)
- [Using Preconfigured Views \(p. 30\)](#)

### Note

Certain Cost Explorer features are only relevant to Consolidated Billing customers. For example, only the owner of the payer account in a Consolidated Billing account family can view spend data across multiple linked accounts in the account family. Also, while default views in Cost Explorer use unblended costs for graphs that include Consolidated Billing linked accounts, you can use the [Advanced Options \(p. 28\)](#) in Cost Explorer to omit subscription charges or to view spend using blended costs.

## Start Cost Explorer

### To start Cost Explorer

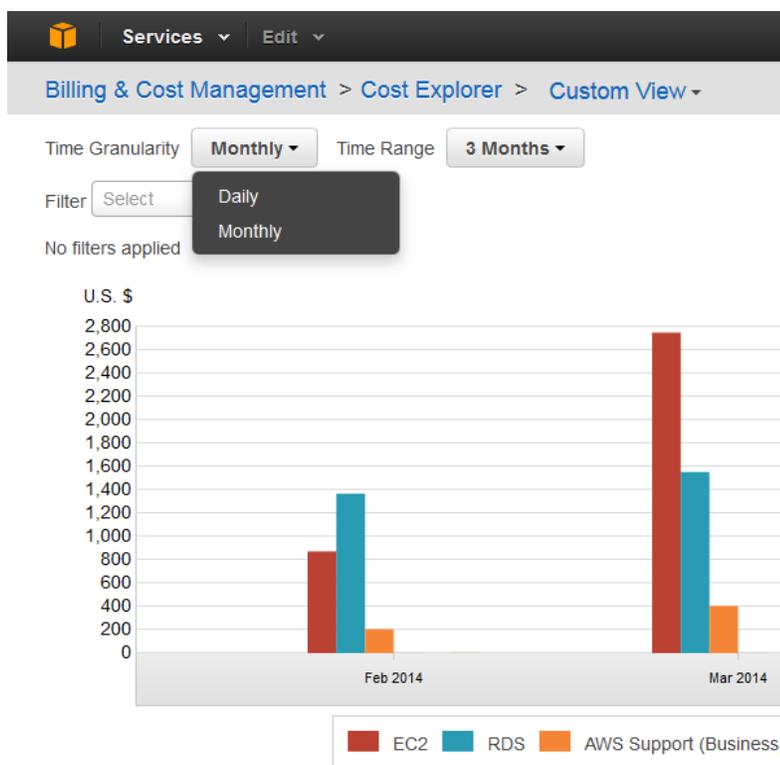
1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. In the left navigation pane, click **Cost Explorer**.

## Choose Time Ranges for the Data You Want to View

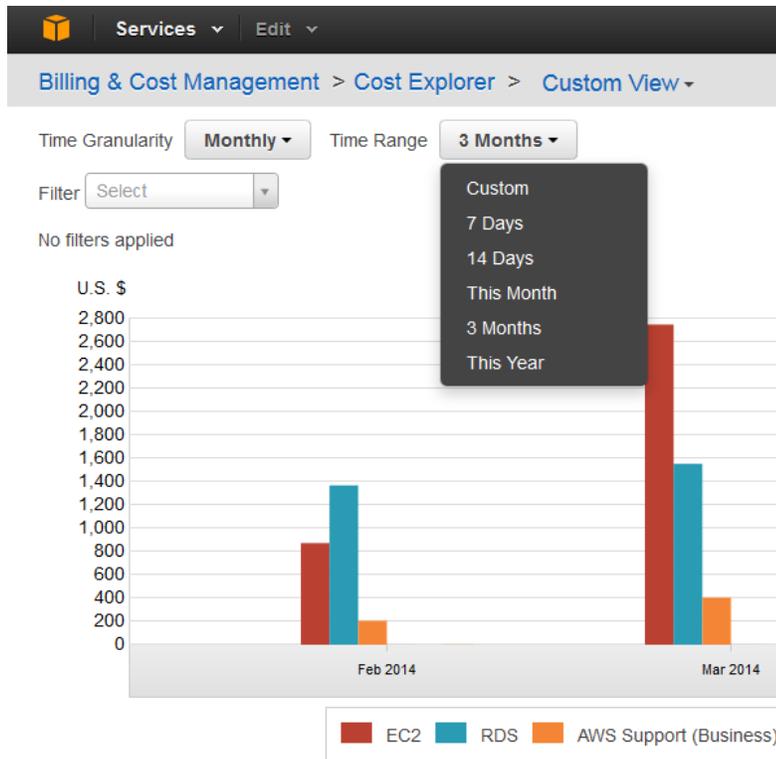
You can choose to view your spend data in monthly or daily *levels of granularity*, and you can use pre-configured time ranges or set custom start and end dates.

### To set the granularity and time range for your data

1. [Start Cost Explorer \(p. 23\)](#).
2. Set **Time Granularity** to **Monthly** or **Daily**.



3. For **Time Range**, select the time period for which you want to view your spend data. For detailed information about available time ranges, see [Time Range Options \(p. 32\)](#).
4. (Optional) For a custom time range, select **Custom** and then use the calendar controls to set a start date and an end date for your custom time range.



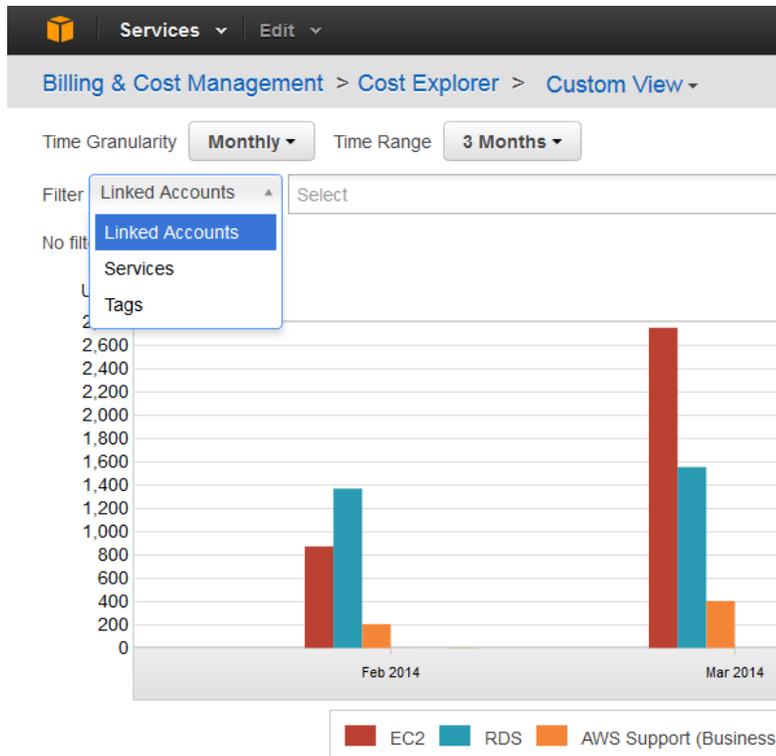
## Filter the Data You Want to View

With Cost Explorer you can filter how you view your AWS spend by AWS service, linked account, and custom cost allocation tags.

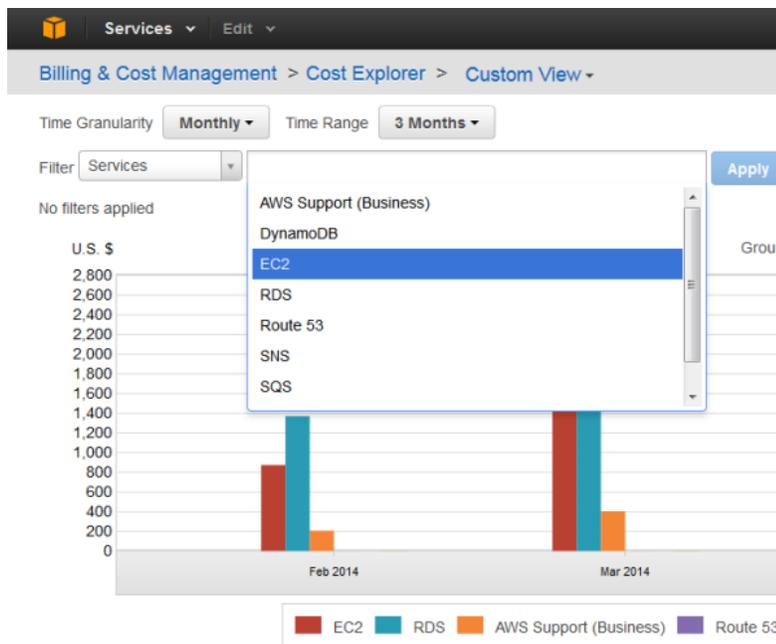
You can apply multiple filters to look at intersecting data sets. For example, you can use the **Linked Account** and **Services** filters to identify the linked account that spent the most money on Amazon EC2.

### To filter your data

1. [Start Cost Explorer \(p. 23\)](#).
2. For **Filter**, select **Linked Accounts**, **Services**, or **Tags**.



After you make a selection, a new control appears with additional options.



3. Select the items from each list that you want to display in the graph, or, start typing the name of a linked account, service, or tag to have Cost Explorer auto-complete your selection.

You can select multiple services and linked accounts, but you can only select one tag at a time.

Continue refining your analysis of spend data using one or more of the following three methods.

## Combine Filters to Show Data in Common

Cost Explorer displays a graph that represents the data in common to the filters you've selected, which means that you can use filters together to analyze subsets of spend data. For example, if you set the **Service** filter to show spend on Amazon EC2 and Amazon RDS services, and then select linked accounts using the **Linked Account** filter, the spend graph shows how much money the account named **Server Operations** spent on these two services for each of the three months specified, as shown in the following image.



## Filters and Logical Operations (AND/OR)

When you select multiple filters, and values for each filter, Cost Explorer applies rules that emulate the logical AND and OR operators to your selections. Within each filter, Cost Explorer emulates the logical OR filter to your selections of services, linked accounts, or tags. In other words, the graph it displays adds the aggregate spend for each item together. Using the previous example, you see bars for both of the selected services, Amazon EC2 and Amazon RDS.

When you select multiple filters, Cost Explorer applies the logical AND operator to your selections. In other words, if you use the **Services** filter and specify Amazon EC2 and Amazon RDS costs for inclusion, and then also apply the **Linked Account** filter to select a single account, you see *only* the Amazon EC2 and Amazon RDS charges incurred by that account.

## View Spend by Specific Linked Accounts

The paying account owner in a Consolidated Billing family can view AWS spend for any linked account within the family. Owners of linked accounts can see the spend for their own account, but cannot view any other accounts in the Consolidated Billing family. For more information about Consolidated Billing, see [Pay Bills for Multiple Accounts with Consolidated Billing \(p. 51\)](#).

**Note**

If you are logged in as a linked account or an IAM user within a linked account, you do not see this option. Only the paying account can select linked accounts.

**To filter by specific linked accounts**

1. Set the **Filter** to **Linked Accounts**.

Another filter appears to the right.

2. Click in the **Select linked accounts** filter.

A list of your linked accounts appears. The graph displays the costs associated with each account.

3. Click the linked accounts for which you want to see spending.

After you click them, they appear in the filter.

4. Click **Apply**.

Cost Explorer creates the graph based on your selections and displays the cost figures in the table beneath the graph.

## Filter Spend by AWS Services

Use the following steps to filter your spend by services in AWS.

**To filter by services**

1. Set the **Filter** to **Services**. Another filter appears to the right.
2. Click in the **Select services** filter. A list of your most-used services appears.
3. Click the service labels for which you want to see spending. After you click them, they appear in the filter.
4. Click **Apply**. Cost Explorer creates the graph based on your selections and displays the cost figures in the table beneath the graph.

## Filter Spend by Tags

You can filter your spend by the [cost allocation tags \(p. 42\)](#) you assign to your resources using the tagging features of many services in AWS. For an example of resource tagging, see the topic [Tagging Your Amazon EC2 Resources](#) in the Amazon Elastic Compute Cloud User Guide. Then to track costs by these tags, you select them in the Billing and Cost Management console as described in the topic [Setting Up Your Monthly Cost Allocation Report \(p. 45\)](#).

**Note**

In Cost Explorer, you can only work with one tag key at a time, although you can select multiple values for that key.

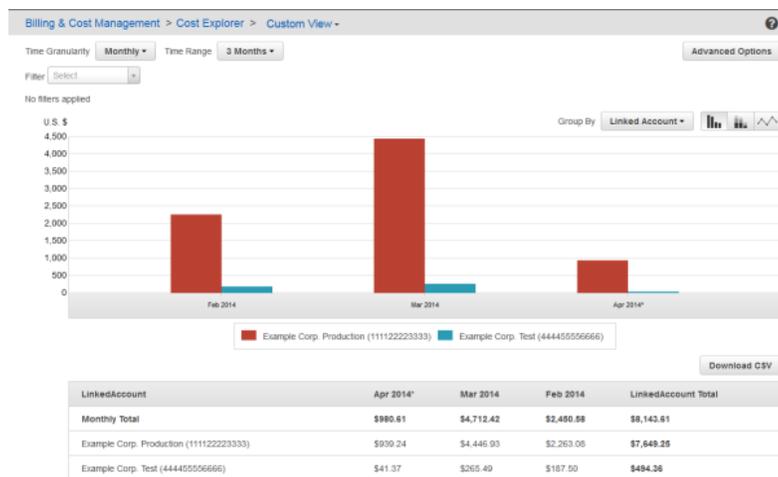
**To filter by cost allocation tags**

1. Set the **Filter** to **Tags**. Another filter appears to the right.
2. Click the next filter to display your tag *keys*. A label corresponding to your selection appears in the filter box. Another filter appears to the right.
3. Click the next filter to display your tag *values*.
4. Click **Apply**. The values you select then appear as labels beneath the **Filter** selector.

Cost Explorer then creates your spend graph based on your selections, and displays the cost figures in the table beneath the graph.

## Group Data By Linked Accounts or Services

The **Group By** button specifies that you want Cost Explorer to show you spend data groups by linked accounts, services, or tags. By default, Cost Explorer groups by services. If you do not select a **Group By** option, Cost Explorer displays total costs for the specified date range. In the following image, the graph displays the costs incurred by two linked accounts for Amazon EC2 and Amazon RDS usage:



### To group your data by linked account or service

1. [Start Cost Explorer \(p. 23\)](#).
2. (Optional) Use the **Filter** controls to configure a view of your spend data.
3. Click **Group By** to group by the option you want.

The data table beneath the graph also groups your cost figures by the option you selected.

## Advanced Options

You can customize how you view your data in Cost Explorer using advanced options to show or hide specific types of data, such as blended rates, or Reserved Instance purchases, or to move between graph styles or download comprehensive CSV files of your data.

### Topics

- [Show Blended Rates \(p. 28\)](#)
- [Omit Subscription Charges from your Graph \(p. 29\)](#)
- [Exclude Taxes in Your Graph \(p. 29\)](#)

## Show Blended Rates

Consolidated Billing customers can view spend using *blended rates*, either for payer accounts or linked accounts. Blended rates average the benefit of volume discounts and reserved capacity purchase across the accounts in the Consolidated Billing family. For more information, see [Understanding Blended Rates \(p. 59\)](#).

### To display spend using blended rates

1. [Start Cost Explorer \(p. 23\)](#).
2. Click **Advanced Options**.
3. Select **Show blended rate**.
4. Click **Save**.

## Omit Subscription Charges from your Graph

When you purchase a Reserved Instance from AWS, you pay an up-front fee in exchange for a lower rate for using the instance. By default, Cost Explorer includes subscription charges when it calculates your AWS spend, which can result in spikes for the days or months when you made your purchases. You can display spend data based on usage only by omitting subscription charges.

### To omit subscription charges from your graph

1. [Start Cost Explorer \(p. 23\)](#).
2. Click **Advanced Options**.
3. Select **Omit subscription charges**.
4. Click **Save**.

## Exclude Taxes in Your Graph

By default, Cost Explorer includes taxes in your spend graph. Cost Explorer does not differentiate between different kinds of taxes and adds them together as a single component of customer costs. For more information about the rules for including taxes in spend graphs, see [How Cost Explorer Handles Taxes \(p. 33\)](#).

### To exclude taxes in your spend graph

1. [Start Cost Explorer \(p. 23\)](#).
2. Click **Advanced Options**.
3. Select **Exclude taxes**.
4. Click **Save**.

## Select a Style for your Graph

Cost Explorer provides three styles for graphing your spend data. Using the **View By** buttons, you can view spend data as:

- Grouped bars
- Stacked bars
- Plot lines

### To change the graph view style

1. [Start Cost Explorer \(p. 23\)](#).
2. In the left navigation pane, click **Cost Insights**.
3. Click the **View By** button that corresponds to the graph style you want to see:
  - Click the first button for solid bars.



- Click the second button for stacked bars.



- Click the third button for plot lines.



## Download CSV

When you want to review comprehensive detail, you can download a CSV file of the spend data that Cost Explorer uses to generate the graph, which is the same data that appears in the data table under the graph. The data table sometimes does not display the complete data set used for the graph. The CSV file contains the complete data set. For more information, see [About the Cost Explorer Data Table \(p. 32\)](#).

### To download a CSV file

1. [Start Cost Explorer \(p. 23\)](#).
2. Configure Cost Explorer to use the options that you want to see in the CSV.
3. Click **Download CSV**.

## Save Your Cost Explorer Configuration with Bookmarks or Favorites

You can save your date, filter, chart style, group by, and advanced settings by saving the Cost Explorer URLs as favorites or bookmarks in your browser. When you return to the link you saved, Cost Explorer refreshes the page using current spend data for time range you selected. This feature makes it easy to save a configuration you're likely to refresh and return to often, such as "Spend Report - Last Seven Days." You can also save a configuration for a specific, unchanging range of time (such as "Spend Report, First Week of June") by using the **Custom** time range and setting fixed start and end dates for your graph.

### Warning

If you want to save a number of configurations, make sure to give each bookmark or favorite a unique name, so that you don't overwrite older configurations when you save a new URL.

## Using Preconfigured Views

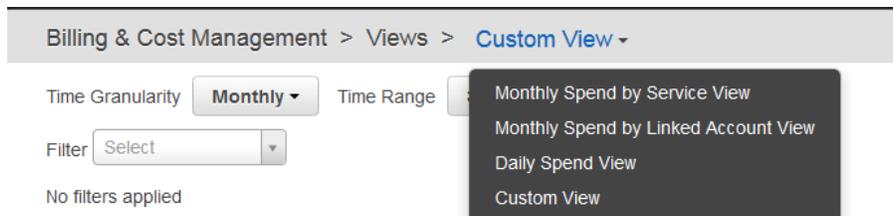
Cost Explorer provides three preconfigured views designed to give you at-a-glance visibility into how your costs are distributed by service. Use these views to quickly identify unusual spending, and then click **Customize View** to make a more detailed investigation.

Preconfigured views are available for monthly and daily time ranges. For Consolidated Billing customers, view by linked accounts is available in a monthly time-range format. You access the preconfigured reports through the Billing and Cost Management console.

The preconfigured reports are essentially specifically set Cost Explorer views. For information about how the graph displays services and the data table displays cost figures, see [About the Cost Explorer Graph \(p. 33\)](#) and [About the Cost Explorer Data Table \(p. 32\)](#), respectively.

### To open the Preconfigured Views

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. In the left navigation pane, click **Cost Explorer**.
3. Click the link shown in the following image to select the view you want:



In all the preconfigured views, a data table below the graph displays the actual figures used to generate the graph.

#### Note

Charges for your current billing period shown on these reports are estimated charges. Estimated charges shown on this page, or shown on any notifications that we send to you, may differ from your actual charges for this statement period. This is because estimated charges presented on this page do not include usage charges accrued during this statement period after the date you view this page. One-time fees and subscription charges are assessed separately from usage and reoccurring charges, on the date that they occur.

## Daily Spend View

Daily Spend View displays your total spend for each of the last 30 days.

## Monthly Spend by Service View

Monthly Spend by Service View displays the distribution of an account's spending by AWS service for the previous 90 days, listed by month.

## Monthly Spend by Linked Account View

Monthly Spend by Linked Account View displays how your costs were distributed among the linked accounts in a consolidated billing account family.

# Cost Explorer Reference

This topic contains information about how Cost Explorer defines time intervals and displays spend data.

#### Topics

- [Time Range Options \(p. 32\)](#)
- [About the Cost Explorer Data Table \(p. 32\)](#)
- [About the Cost Explorer Graph \(p. 33\)](#)

- [How Cost Explorer Handles Taxes \(p. 33\)](#)
- [How Cost Explorer Handles Refunds \(p. 34\)](#)

## Time Range Options

In Cost Explorer, months are defined as calendar months. Days are defined as 12:00:00 AM to 11:59:59 PM. Based on these definitions, when you select **Three months** for a date range, you see spend data for the present month and for the two previous months. For example, if you view your graph on March 6, 2014 and select three months, your graph includes data for January, February, and March 2014. All times are in Universal Coordinated Time (UTC).

The following list defines each time range option in Cost Explorer.

- Custom  
Displays data for the time range for the **Start** and **End** dates that you specify with calendar controls in the following format: mm/dd/yyyy. You can specify daily or monthly **Start** and **End** values.
- 7 Days  
Displays spend data from the current day and the previous six days.
- 14 Days  
Displays spend data from the current day and the previous 13 days.
- This Month  
Displays spend data for the current calendar month. You can specify daily or monthly values.
- 3 Months  
Includes spend data from the current month and the previous two months. You can specify daily or monthly granularity. If you specify daily granularity, the first date displayed is the first day of the month prior to last, and the end date will be today. If you choose 3 months on April 8, for example, you see bars for each day starting on February 1.
- This Year  
Displays spend data from the current calendar year. You can specify monthly values.

## About the Cost Explorer Data Table

Below each Cost Explorer graph is a data table, which displays the cost figures that the graph represents. The table displays the aggregate amounts for the linked accounts, services, or tags that you choose for your graph. The maximum table size is 20 rows by 30 columns. If the data exceeds the maximum table size, it appears in a truncated form. You can [download \(p. 30\)](#) the CSV file that contains the complete data set for your graph.

In the data table, each row is a value for one of the options — services, tags, or linked accounts. The columns represent time intervals. For example, the following example data table shows the account's spend for selected services for the last three months, with an aggregated total for the three months in the last column:

[Download CSV](#)

Service	Apr 2014*	Mar 2014	Feb 2014	Jan 2014	Service Total
Monthly Total	\$66,289.01	\$136,453.67	\$107,762.20	\$104,113.92	\$414,598.80
EC2	\$45,351.88	\$53,661.21	\$45,988.85	\$54,961.09	\$199,963.02
RDS	\$8,308.30	\$45,680.58	\$35,254.09	\$31,524.16	\$120,767.13
Redshift	\$5,068.35	\$5,751.12	\$5,194.56	\$5,137.42	\$21,151.45
AWS Support (Business)	\$4,595.96	\$8,265.75	\$6,912.30	\$7,164.16	\$26,938.16
ElastiCache	\$2,646.27	\$20,329.58	\$12,042.54	\$11,481.41	\$46,499.80
S3	\$218.41	\$2,303.58	\$2,178.63	\$2,186.52	\$6,887.14
DynamoDB	\$67.78	\$430.87	\$162.77	\$0.05	\$661.47
Kinesis	\$8.20	\$18.32	\$17.36	\$3.57	\$47.45
Route 53	\$3.50	\$10.74	\$10.75	\$10.87	\$35.86
SNs	\$0.35	\$1.91	\$0.32	\$0.25	\$2.83
SWF	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
SES	\$0.00	\$0.01	\$0.03	\$0.07	\$0.10
SimpleDB	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
SQS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
CloudFront	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Refund	\$0.00	\$0.00	\$0.00	(\$8,355.63)	(\$8,355.63)

**Note**

Data transfer costs are included in the services with which they are associated, such as Amazon EC2 or Amazon S3. They are not represented as either a separate line item in the data table or a bar in the graph.

## About the Cost Explorer Graph

The Cost Explorer graph displays data for up to six services, linked accounts, or cost allocation tags. If you choose seven or more of these entities, the graph displays five bars, stacks, or lines, and then aggregates all remaining items in a sixth. The data table below the graph, however, breaks out the data for individual services that are aggregated in the graph.

## How Cost Explorer Handles Taxes

By default, your spend graph includes taxes. If you have selected five or fewer services for display, tax expenses display as a single bar. With six or more services displayed, taxes are aggregated into a sixth bar, stack slice, or plot line that is labeled **Other**. To exclude taxes from your spend graph, see [the section called “Exclude Taxes in Your Graph” \(p. 29\)](#).

If you choose to omit subscription charges from your graph, Cost Explorer continues to include any taxes associated with the subscription charge.

Tax costs are only included in the display when you select monthly granularity for your spend graph. When you filter your spend graph, the following rules govern the inclusion of taxes:

1. Taxes are excluded if you select the **Service** or **Tags** filters, either singly or in combination with other filters.
2. Taxes are included if you select the **Linked Accounts** filters.

## How Cost Explorer Handles Refunds

By default, Cost Explorer includes refunds in spend graphs. Refunds are included as subscription charges, so if you choose to omit subscription charges in the **Advanced Options** dialog, refunds are also excluded. Refunds are listed as a separate line item in the data table. They do not appear as an item in the graph as they represent a negative value in the calculation of your spend. The graph displays only positive values.

# Understand Your Usage with Detailed Billing Reports

---

You can have AWS generate detailed billing reports that break down your costs by the hour, day, or month; or by each account in your organization; or by product or product resource, or by tags that you define yourself.

You might choose to receive detailed billing reports in order to do any of the following:

- Bring your billing data into an application that can read a CSV file.
- Build an application that uses your billing data.
- Monitor your month-to-date charges.
- Forecast your monthly charges.
- Share your data with a partner.
- Import your billing data into your accounting system.
- Retrieve your bill for multiple accounts.

You can customize these reports to list the AWS resources that generate the included charges, and create tags for your AWS resources to add your own labels to nearly every line item in your reports. You can view these reports in applications that can read CSV files, such as Microsoft Excel, or you can write custom applications that import the billing data from the file for analysis.

AWS publishes these reports up to several times a day in comma-separated value (CSV) format to an Amazon S3 bucket that you specify. After you set up your account to receive detailed billing reports in an Amazon S3 bucket, AWS starts to write reports to the bucket several times each day. You can get these reports using the Amazon S3 console, application programming interface (API), and command line interface (CLI). The file contains charges for the account, broken down by AWS product and individual type of usage.

## Topics

- [Turning On Detailed Billing Reports \(p. 36\)](#)
- [Select the Detailed Billing Reports You Want to Receive \(p. 36\)](#)
- [Referencing Your Detailed Billing Report Data \(p. 36\)](#)
- [Controlling Access to Your Billing Report Files \(p. 38\)](#)
- [Turning Off Detailed Billing Reports \(p. 38\)](#)
- [Types of Detailed Billing Reports \(p. 38\)](#)

## Turning On Detailed Billing Reports

You can turn on detailed billing reports for no cost. You must also designate an Amazon S3 bucket in which to store the reports, however, and storing the detailed billing reports data in your Amazon S3 bucket is billed at standard Amazon S3 rates.

Before you take the following steps, you must have an Amazon S3 bucket in your AWS account ready to store the reports in. You can designate an existing bucket or create a new one. To create a new bucket, see [Creating a Bucket](#) in the [Amazon Simple Storage Service Console User Guide](#).

You must also apply a resource-based permissions policy to your Amazon S3 bucket to allow Billing and Cost Management to write files to the bucket. For information on how to apply a policy to a bucket, see [Editing Bucket Permissions](#) in the [Amazon Simple Storage Service Console User Guide](#).

### To turn on detailed billing reports

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click the **Preferences** link in the navigation pane on the left.
3. Check the **Receive Billing Reports** checkbox.
4. Designate the Amazon S3 bucket where you want AWS to publish your detailed billing reports.
5. Click **Save preferences**.

#### Note

It can take up to 24 hours for AWS to start delivering detailed billing report files to your Amazon S3 bucket. After delivery starts, AWS delivers new files multiple times per day.

## Select the Detailed Billing Reports You Want to Receive

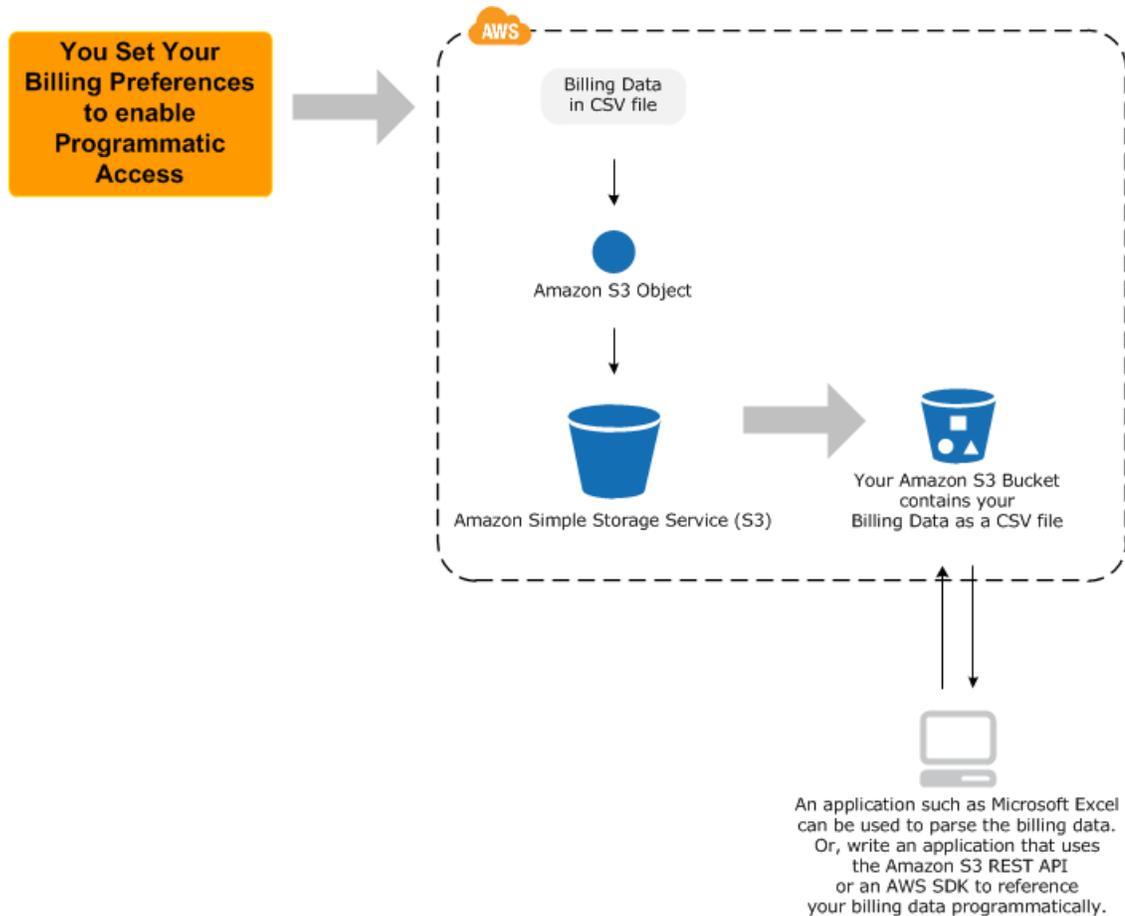
AWS Billing and Cost Management provides four different types of report.

### To select detailed billing reports

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click the **Preferences** link in the navigation pane on the left.
3. Under **Reports**, check the boxes for the reports you want to receive.
4. Click **Save preferences**.

## Referencing Your Detailed Billing Report Data

The following illustration shows how AWS makes your detailed billing reports available to you in your Amazon S3 bucket. If you are the account owner, you can retrieve these reports programmatically, or you can download them using the Amazon S3 console. Because these files are written in a common format, you can open them in industry-standard spreadsheet applications such as Microsoft Excel, OpenOffice.org Calc, or Apple iWorks Numbers. It is possible, however, for some billing reports to grow big enough to exceed the file size limitations of these programs.



Billing reports are stored as CSV files using the following naming convention.

```
123456789012-aws-billing-csv-yyyy-mm.csv
```

123456789012 = account ID

y = year

m = month

**Note**

During the current billing period (monthly), AWS generates estimated billing reports. The current month's reports are overwritten throughout the billing period until final reports are generated at the end of the billing period. Then, new files are created for the next billing period. The reports for the previous months will remain in the designated Amazon S3 bucket.

If you want to write a program to access the data from your detailed billing reports, see the AWS SDKs for developing applications in specific languages. For links to the complete set of AWS SDKs, see [Sample Code & Libraries](#).

## Controlling Access to Your Billing Report Files

Keep in mind that anyone who has the correct permissions to access the designated Amazon S3 bucket can see your billing report files. Make sure that only people who have a business need to see your billing report files have this access. If necessary, you can edit the bucket policy to control access to the contents of the bucket. For more information on editing bucket policies, see [Access Control](#).

## Turning Off Detailed Billing Reports

At any time, the payer account can choose to stop receiving detailed billing reports.

### To turn off detailed billing reports

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Preferences** in the left navigation pane.
3. Clear the checkbox for **Receive Billing Reports**.
4. Click **Save preferences**.

### Note

If you turn off detailed billing reports, you can no longer download the monthly report from the [Bills](#) page.

## Types of Detailed Billing Reports

The following table lists the detailed billing reports you can obtain for your AWS account usage. Each entry links to more detailed descriptions. Any discontinued names of each report appear under the current names.

### Available Billing Reports

Report Name	Description	File Name Format
Monthly report	Lists AWS usage for each product dimension used by an account and its IAM users in monthly line items. Can be downloaded from the <a href="#">Bills</a> page of the Billing and Cost Management console.	<AWS account number>-aws-billing-csv-yyyy-mm.csv
Detailed billing report	Lists AWS usage for each product dimension used by an account and its IAM users in hourly line items. Must be obtained from Amazon S3 bucket that you specify. Standard AWS storage rates apply.	<AWS account number>-aws-billing-detailed-usage-yyyy-mm-csv.zip

Report Name	Description	File Name Format
Monthly cost allocation report	Contains the same data as the monthly report, but also includes any cost allocation tags that you've created. Must be obtained from Amazon S3 bucket that you specify. Standard AWS storage rates apply.	<AWS account number>aws-cost-allocation-yyyymm.csv
Detailed billing report with resources and tags	Contains the same data as the detailed billing report, but also includes any cost allocation tags you've created and ResourceIDs for the AWS resources used by your account. Must be obtained from Amazon S3 bucket that you specify. Standard AWS storage rates apply.	<AWS account number>detailed-billing-resources-yyyymm.csv

#### Note

The detailed billing report is not a bill, but an estimate of costs and charges for AWS usage. Only the monthly invoice you receive each month contains your actual charges.

## Monthly Report

You can download a monthly report of your estimated AWS charges from the Billing and Cost Management console **Bills** page. For Consolidated Billing customers, this report is available only to the payer accounts and includes activity for all the accounts linked to the payer account. Linked account owners can obtain the monthly report only from the payer account owner.

The report contains line items for each unique combination of AWS product, usage type, and operation the account uses. The estimated report is updated up to several times per day. You can get monthly reports for previous months by selecting the statement period.

## Detailed Billing Report

The detailed billing report provides line items for every hour (or partial hour) of AWS activity for an account. For Consolidated Billing customers, the report displays a line item for all AWS usage by linked accounts and the payer account. The term for this set of accounts linked to a payer account is the Consolidated Billing *account family*. You see two line items for all usage in the detailed billing reports for consolidated billing accounts. One line belongs to the payer and represents the charge for the usage. The other line belongs to the linked account and is an *allocation* of cost from the payer account charges to the linked account. The topic [Understanding Blended Rates \(p. 59\)](#) explains this allocation process in detail.

You choose to have the detailed billing report generated on the **Preferences** page of the Billing and Cost Management console, as with the monthly report. Unlike the monthly report, however, you cannot download it from the **Bills** page. Instead, it is delivered to the same Amazon S3 bucket as the monthly report as a ZIP file. These reports are only available starting with the date at which you chose to receive detailed billing reports on the **Preferences** page of the Billing and Cost Management console.

The size of the detailed billing report can grow to more than a gigabyte, and may exceed the capacity of desktop spreadsheet applications to display every line. Your database administrator may need to import it into a database for analysis. To reduce its size, detailed billing report contains only a subset of fields in the monthly report. For example, it does not display fields that would be the same for every record, such as **Invoice Date** or **Billing Period Start Date**.

**Blended and Unblended Rates:** The detailed billing report enables customers to perform detailed cost analyses on their usage. AWS meters usage in hourly increments; for each product resource in use, a rate is applied for operations performed by usage type in that hour, with each operation comprising a line item. The detailed billing report shows both blended and unblended rates for each line item. An unblended rate is the cost per hour for a product, usage type, and the operation performed. A blended rate is an average rate calculated for identical instance usage in an Availability Zone for members of a Consolidated Billing family.

The following list describes the primary uses that AWS intends for the detailed billing report:

- Making both the blended and unblended rates and costs for every hour of usage transparent. Unblended costs correspond to the published rate for a product and operation in a region with no discounts applied for eligible Reserved Instances in the account family. For more information about blended and unblended rates, see [Understanding Blended Rates \(p. 59\)](#)
- Enabling you to locate the exact time at which usage switched to lower costs pricing tiers based on volume. Lower rates apply automatically when usage reaches the next tier of volume rates. You can tell when a transition to a lower-priced tier occurs because two line items appear for two partial hours of usage, one each for the higher and lower rate, respectively.
- Making visible the way that Reserved Instance discounts are applied first to the linked accounts that purchased a Reserved Instance, and then to other accounts in the family running the same products in the same Availability Zone.

To learn more about Consolidated Billing and the potential savings that apply when you purchase Reserved Instances, see the following topics:

- [Pay Bills for Multiple Accounts with Consolidated Billing \(p. 51\)](#)
- [Understanding the Pricing Benefit and Consolidated Billing](#) in the *Amazon Elastic Compute Cloud Developer Guide*

## Monthly Cost Allocation Report

You can create custom cost allocation tag sets for your AWS resources that can describe the business dimensions of your AWS usage. These tag sets enable you to organize and track your AWS costs. Many AWS services expose tagging in their feature sets. You create the tags within those services, whether by API, command line interface (CLI), or AWS Management Console for the service. The topic [Use Cost Allocation Tags for Custom Billing Reports \(p. 42\)](#) describes how to create and use cost allocation tags in detail. When you have created these tags, you can then obtain a monthly cost allocation report, which is essentially the monthly report with your cost allocation tag sets included.

## Detailed Billing Report with Resources and Tags

The detailed billing report with resources and tags adds additional dimensions by which you can view your AWS charges. This report includes resource identifiers for many of the AWS services. Amazon EC2, for example, provides a ResourceID value for each Amazon EC2 instance run under your account. You can use this field to view your charges for each AWS resource, as well as for data filtering and aggregation.

In addition, any cost allocation tags you have applied to your resources are appended to each line item in the report. You can filter or aggregate on these tags too. For information about creating these tags, see [Use Cost Allocation Tags for Custom Billing Reports \(p. 42\)](#). You are not required to create and use cost allocation tags to get the detailed billing report with resources and tags.

### Note

This report contains line items for every hour of operation for every resource and can grow quite large. The report is compressed into a ZIP file, but may exceed the maximum number of rows you can display in a desktop spreadsheet application.

As with the other reports, you can sign up for this report on the Billing and Cost Management console [Preferences](#) page.

## Amazon EC2 Usage and Reserved Instance Utilization Reports

The Billing and Cost Management console provides links to two Amazon EC2 reports designed to help you analyze your usage of Amazon EC2 resources and Reserved Instances.

### **Instance Usage Report**

The instance usage report displays data about your Amazon EC2 instances. For detailed information, see the [Instance Usage Reports](#) in the [Amazon Elastic Compute Cloud User Guide](#).

### **Reserved Instance Utilization Report**

The Reserved Instance utilization report displays data about how an account utilized its Reserved Instances. For detailed information, see [Reserved Instance Utilization Report](#) in the [Amazon Elastic Compute Cloud User Guide](#).

# Use Cost Allocation Tags for Custom Billing Reports

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## Topics

- [What Is a Tag? \(p. 43\)](#)
- [How to Apply Tags \(p. 43\)](#)
- [Setting Up Your Monthly Cost Allocation Report \(p. 45\)](#)

You can use cost allocation tags to categorize and track your AWS costs. When you apply tags to your AWS resources (such as Amazon EC2 instances or Amazon S3 buckets), AWS generates a cost allocation report as a comma-separated value (CSV file) with your usage and costs aggregated by your tags. You can apply tags that represent business categories (such as cost centers, application names, or owners) to organize your costs across multiple services.

This topic discusses how to structure and receive cost allocation reports. For information on how to get a detailed billing report that includes your cost allocation tags, use the procedures in [Monthly Cost Allocation Report \(p. 40\)](#).

## Note

AWS writes detailed billing reports to an Amazon S3 bucket that you create and own. You can retrieve these reports from the bucket using the Amazon S3 API, AWS Management Console for Amazon S3, or the Amazon S3 command line interface (CLI). The cost allocation report cannot be downloaded from the [Account Activity](#) page of the Billing and Cost Management console.

The cost allocation report includes all of your AWS costs for each billing period. The report includes both tagged and untagged resources, so you can clearly organize the charges for resources. For example, if you tag resources with an application name, you can track the total cost of a single application that runs on those resources. The following shows a partial report with columns for each tag.

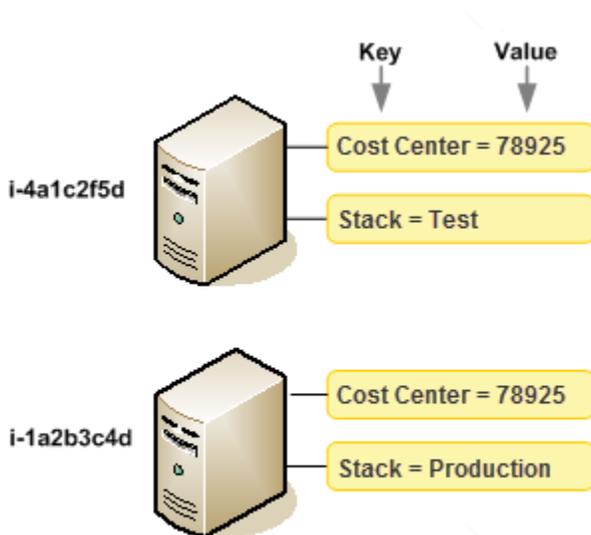
Total Cost	user:Owner	user:Stack	user:Cost Center	user:Application
0.95	DbAdmin	Test	80432	Widget2
0.01	DbAdmin	Test	80432	Widget2
3.84	DbAdmin	Prod	80432	Widget2
6.00	DbAdmin	Test	78925	Widget1
234.63	SysEng	Prod	78925	Widget1
0.73	DbAdmin	Test	78925	Widget1
0.00	DbAdmin	Prod	80432	Portal
2.47	DbAdmin	Prod	78925	Portal

At the end of the billing cycle, the total charges (tagged and untagged) on the detailed billing report with cost allocation tags reconciles with the total charges on your [Bills](#) page total and other detailed billing reports for the same period.

## What Is a Tag?

A tag is a label you assign to an AWS resource. Each tag consists of a *key* and a *value*, both of which you define. AWS uses tags as a mechanism to organize your resource costs on your cost allocation report.

The following diagram illustrates the concept. In the diagram, you've assigned tags to two Amazon EC2 instances, one called Cost Center and another called Stack. Each of the tags also has an associated value.



## How to Apply Tags

You apply tags to resources through API requests or through the AWS Management Console for services that support tagging. Each AWS service has its own implementation of tags. The following is a current list of services that support tags.

AWS Product	For more information, see...
Amazon Elastic Block Store (Amazon EBS)	Amazon EBS <i>volume</i> charges can be allocated, but Amazon EBS <i>snapshot</i> charges cannot. See <a href="#">Tagging Your Resources</a> in the <i>Amazon Elastic Compute Cloud User Guide</i> .
Amazon Elastic Compute Cloud (Amazon EC2)	<a href="#">Tagging Your Resources</a> in the <i>Amazon Elastic Compute Cloud User Guide</i> .
Amazon Elastic MapReduce	<a href="#">Tagging Amazon EMR Clusters</a> in the Amazon Elastic MapReduce Developer Guide.
Amazon Relational Database Service (Amazon RDS)	<a href="#">Tagging Amazon RDS Resources</a> in the <i>Amazon Relational Database Service User Guide</i> .
Amazon Route 53	<a href="#">Naming Health Checks and Tagging Them for Cost Allocation</a> in the <i>Amazon Route 53 Developer Guide</i> .
Amazon Simple Storage Service (Amazon S3)	<a href="#">Billing and Reporting of Buckets</a> in the <i>Amazon Simple Storage Service Developer Guide</i> .
Amazon Virtual Private Cloud (Amazon VPC)	Amazon VPC and Amazon EC2 resources that can be tagged are listed in <a href="#">Tagging Your Resources</a> in the <i>Amazon Elastic Compute Cloud User Guide</i> .
Auto Scaling	<a href="#">Tagging Auto Scaling Groups and Amazon EC2 Instances</a> in the <i>Auto Scaling Developer Guide</i> .
AWS CloudFormation	<a href="#">Tagging Your Member Resources</a> in the <i>AWS CloudFormation User Guide</i> .
AWS Elastic Beanstalk	<a href="#">Tagging Your Environments and Applications</a> in the <i>AWS Elastic Beanstalk Developer Guide</i> .

**Note**

For services that launch "underlying" resources supporting tagging, such as Amazon Elastic MapReduce or AWS Marketplace, you can tag the underlying resources (such as the associated Amazon EC2 instance) for your report.

It's a good idea to devise a set of tag keys that represent how you want to organize your costs. If you use a consistent set of tag keys to track your costs, your detailed billing report with cost allocation tags will display the keys as additional columns with applicable values for each row.

For an example of how tags appear in your detailed billing report with cost allocation tags, see [Viewing a Cost Allocation Report \(p. 47\)](#).

## Tag Restrictions

The following basic restrictions apply to tags:

- Maximum key length: 128 Unicode characters
- Maximum value length: 256 Unicode characters
- Maximum number of tags per resource: 10
- Reserved prefix—aws :

AWS-assigned tag names and values are automatically assigned the `aws:` prefix, which the user cannot assign. AWS-assigned tag names do not count towards the tag limit of 10. User-assigned tag names have the prefix `user:` in the Cost Allocation Report.

- Use each key only once for each resource. If you attempt to use the same key twice on the same resource, your request will be rejected.
- You cannot tag a resource at the same time you create it. Tagging requires a separate action after the resource is created.
- You cannot backdate the application of a tag.
- Allowed characters are letters, whitespace, and numbers, plus the following special characters: `+ - = . _ : /`

**Note**

If you need characters outside this allowed set, you can apply standard base-64 encoding to your tag.

## Setting Up Your Monthly Cost Allocation Report

### Setting Up a Monthly Cost Allocation Report

The cost allocation report includes the same line items as the detailed billing report (see [Understand Your Usage with Detailed Billing Reports \(p. 35\)](#)), *plus* additional columns you've selected to include in the report identified by your tag keys.

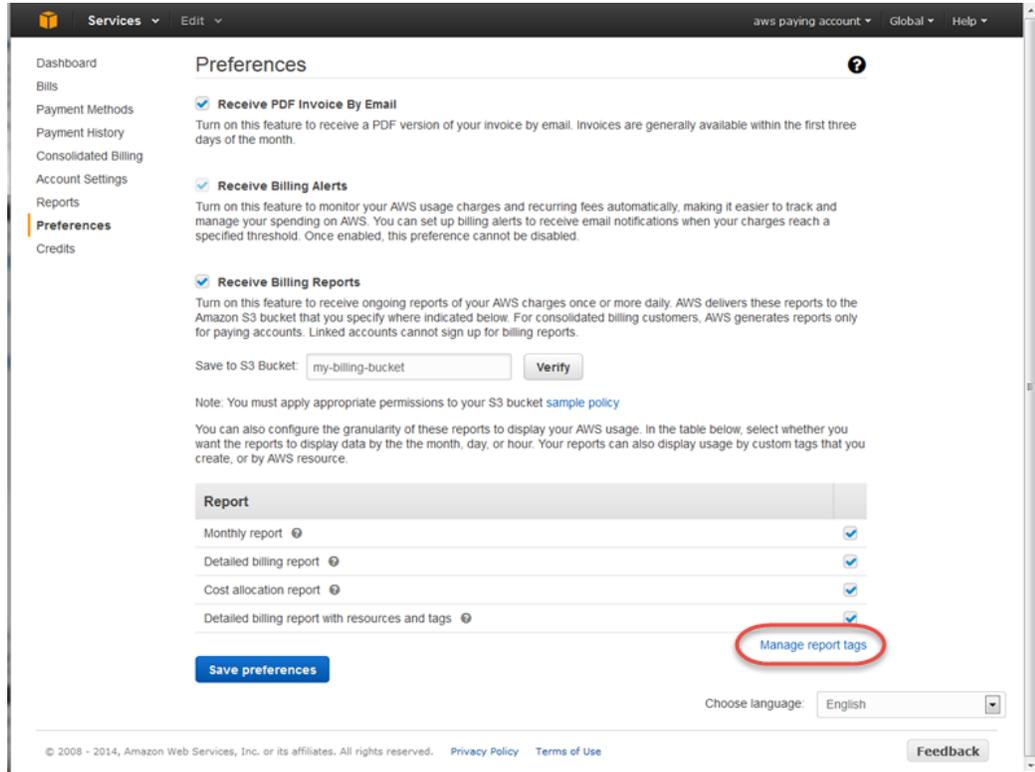
By default, new tag keys that you add using the API or the AWS Management Console are automatically excluded from the cost allocation report. You can add them using the procedures described in this topic.

When you select tag keys to include in your cost allocation report, each key becomes an additional column that lists the value for each corresponding line item. Since you might use tags for more than just your cost allocation report (e.g., tags for security or operational reasons), you can include or exclude individual tag keys for the report. This ensures that you're seeing meaningful billing information that helps organize your costs. A small number of consistent tag keys makes it easier to track your costs. For more information, see [Viewing a Cost Allocation Report \(p. 47\)](#).

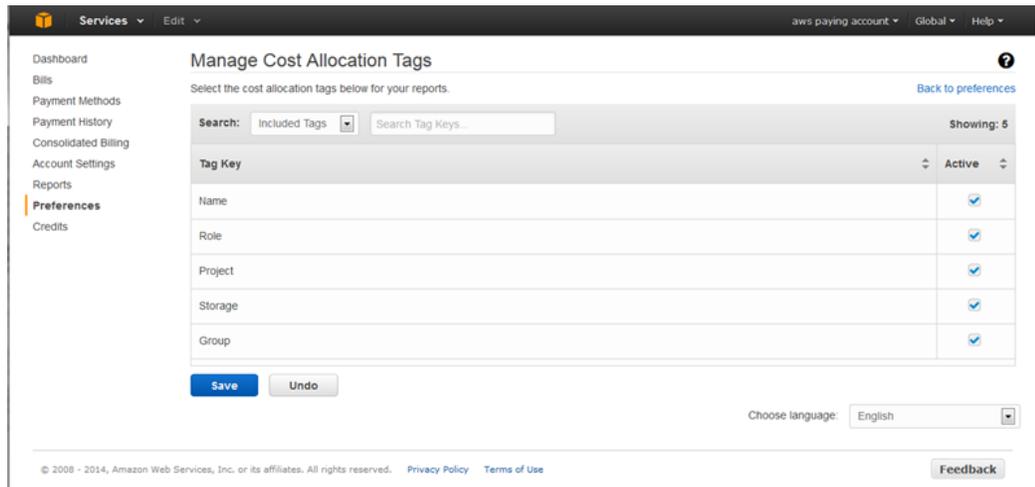
#### To create the keys that appear in the cost allocation report

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Select **Preferences** in the navigation panel on the left.
3. Underneath the **Detailed Billing Reports** selection grid, click **Manage report tags**, as shown in the following image:

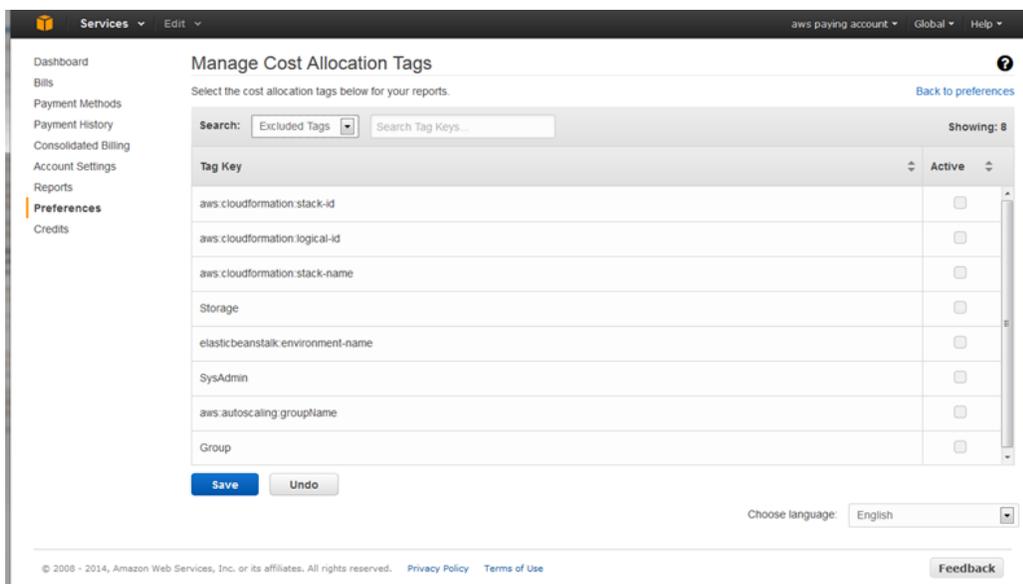
## AWS Billing and Cost Management User Guide Setting Up a Monthly Cost Allocation Report



- The page displays a list of tags you've created using either the API or the console for the applicable AWS service. Tag keys that currently appear in the report are selected, while the check boxes for excluded tag keys are cleared. Use the **Search** drop-down box to switch display excluded tags, as shown in Step 5.



- Select **Excluded Tags** in the **Search** column.  
Select any check boxes for tags that you want to add to the report.



6. Click **Save** after you make your changes.

For Consolidated Billing customers, your cost allocation report includes all the usage, costs, and tags for your linked accounts. By default, all keys registered by linked accounts where you are the *payer* are available for you to include or exclude from your report. The detailed billing report with resources and tags also includes any cost allocation tag keys that you select using the preceding steps.

## Getting an Hourly Cost Allocation Report

The cost allocation report is one of several that AWS publishes to an Amazon S3 bucket several times a day.

### Note

During the current billing period (monthly), AWS generates an estimated Cost Allocation Report. The current month's file is overwritten throughout the billing period until a final report is generated at the end of the billing period. Then, a new file is created for the next billing period. The reports for the previous months will remain in the designated Amazon S3 bucket.

## Viewing a Cost Allocation Report

The following example tracks the charges for several cost centers and applications. Resources (such as Amazon EC2 instances and Amazon S3 buckets) are assigned tags like "Cost Center"="78925" and "Application"="Widget1". In the Cost Allocation Report, the user-assigned tag keys have the prefix "user", such as "user:Cost Center" and "user:Application". AWS-assigned tag keys have the prefix "aws". The keys are column headings identifying each tagged line item's value, such as "78925".

Total Cost	user:Owner	user:Stack	user:Cost Center	user:Application
0.95	DbAdmin	Test	80432	Widget2
0.01	DbAdmin	Test	80432	Widget2
3.84	DbAdmin	Prod	80432	Widget2
6.00	DbAdmin	Test	78925	Widget1
234.63	SysEng	Prod	78925	Widget1
0.73	DbAdmin	Test	78925	Widget1
0.00	DbAdmin	Prod	80432	Portal
2.47	DbAdmin	Prod	78925	Portal

You can use a desktop spreadsheet application to create pivot tables that group the keys and the values for each key so you can see combined values for tagged resources. The following example organizes information first by "Cost Center" and within each cost center further organizes the information by the "Application" tag.

COST CENTER	Usage	Before Tax
78925	62369611	\$1,008.23
Widget1	2256	\$240.63
AmazonEC2	300	\$6.00
\$0.02 per Micro Instance (t1.micro) instance-hour (or partial hour)	300	\$6.00
AWSDataTransfer	1956	\$234.63
\$0.000 per GB - first 1 GB of data transferred out per month	1956	\$234.63
Widget2	36337396	\$690.97
AmazonEC2	72160	\$10.87
\$0.020 per Micro Instance (t1.micro) instance-hour (or partial hour)	543	\$10.86
\$0.10 per 1 million I/O requests	71617	\$0.01
\$0.10 per GB-month of provisioned storage	0	\$0.01
AmazonRDS	36146062	\$679.97
\$0.10 per 1 million I/O requests	36140859	\$3.61
\$0.20 per GB-month of provisioned storage for Multi-AZ deployments	1673	\$334.68

Pick your keys carefully so you have a consistent hierarchy of values; otherwise, your report won't aggregate costs effectively, and you'll have many line items.

**Note**

If you add or change the tags on a resource part way through a billing period, costs will be split into before and after the update as two separate lines in your Cost Allocation Report.

## Unallocated Resources in Your Report

Any charges that cannot be allocated by tags in your Cost Allocation Report default to the standard billing aggregation (organized by Account/Product/Line Item) and are included in your report. Situations where you can have unallocated costs include:

- You signed up for a Cost Allocation Report mid-month.
- Some resources aren't tagged for part, or all, of the billing period.
- You are using services that currently do not support tagging.
- Subscription-based charges, such as Premium Support and AWS Marketplace monthly fees, cannot be allocated.
- One-time fees, such as Amazon EC2 Reserved Instance upfront charges, cannot be allocated.

- Amazon Elastic Block Store (Amazon EBS) *snapshot* charges cannot be allocated, even though Amazon EBS *volume* charges can be allocated.

# Monitor Charges with Alerts and Notifications

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You can monitor your AWS costs using Amazon CloudWatch. You can create billing alerts that notify you when your usage of AWS services exceeds thresholds. You specify these threshold amounts when you create the billing alerts. When your usage exceeds these amounts, AWS sends you an email notification.

To create billing alerts and register for notifications, you must first turn them on in the Billing and Cost Management console using the following procedure:

## To turn on AWS Billing and Cost Management alerts

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Preferences** in the left navigation pane.
3. Check the **Receive Billing Alerts** check box.
4. Click **Save Preferences**.

After you turn on billing alerts, you can set them up and subscribe to notifications using the steps in the topic [Monitor Your Estimated Charges Using Amazon Cloudwatch](#) in the [Amazon CloudWatch Developer Guide](#).

# Pay Bills for Multiple Accounts with Consolidated Billing

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You can use the Consolidated Billing feature to consolidate payment for multiple Amazon Web Services (AWS) accounts within your organization by designating one of them to be the payer account. With Consolidated Billing, you can see a combined view of AWS charges incurred by all accounts, as well as get a detailed cost report for each individual AWS accounts associated with your payer account. Consolidated Billing is offered at no additional charge.

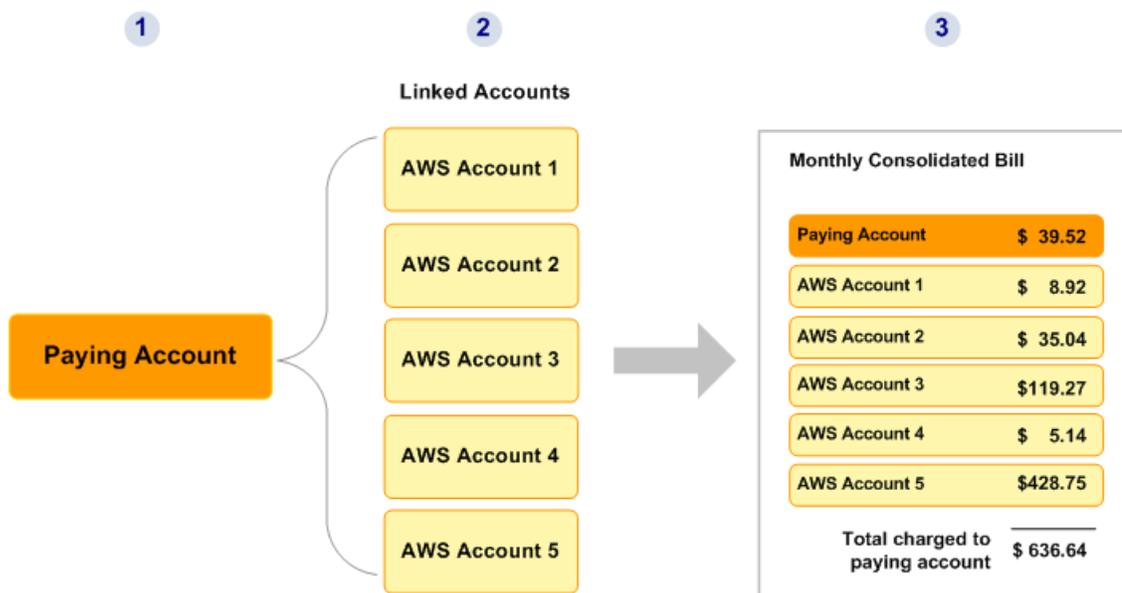
## Topics

- [When to Use Consolidated Billing \(p. 52\)](#)
- [Effective Date \(p. 53\)](#)
- [Billing and Account Activity \(p. 53\)](#)
- [Volume Discounts \(p. 53\)](#)
- [Consolidated Billing Non-usage Charges \(p. 54\)](#)
- [Create and Edit Consolidated Billing Account Families \(p. 56\)](#)
- [Understanding Blended Rates \(p. 59\)](#)

Here's an overview of how you use the Consolidated Billing feature:

## Consolidated Billing Process

1. You sign up for Consolidated Billing in the AWS Billing and Cost Management console, and designate your account as a *payer account*. Now your account can pay the charges of the other accounts, which are called *linked accounts*. The payer account and the accounts linked to it are called a Consolidated Billing *account family*.
2. You add linked accounts to the consolidated bill.
3. Each month AWS charges your payer account for all the linked accounts you added to the consolidated bill.



The payer account is billed for all charges of the linked accounts. However, each linked account is completely independent in every other way (signing up for services, accessing resources, using AWS Premium Support, etc.). The payer account owner cannot access data belonging to the linked account owners (e.g., their files in Amazon S3). Each account owner uses their own IAM user name and password, with account permissions assigned independently of any other account in the Consolidated Billing family.

For more information about IAM, see the following:

- [Identity and Access Management \(IAM\)](#)
- [IAM Getting Started Guide](#)
- [Using IAM](#)

Owners of payer accounts are advised to secure their accounts by using [AWS Multi-Factor Authentication](#) and a strong password. For more information, see [Securing the Consolidated Billing Payer's Account \(p. 57\)](#).

### Benefits of Consolidated Billing

- **One Bill**—You get one bill for multiple accounts.
- **Easy Tracking**—You can easily track each account's charges and download the cost data in CSV format.
- **Combined Usage**—If you have multiple accounts today, your charges might actually decrease because AWS combines usage from all the accounts to qualify you for volume pricing discounts (for more information, see [Volume Discounts \(p. 53\)](#)).

## When to Use Consolidated Billing

The Consolidated Billing feature is probably a good option for you in any of the following scenarios:

- You have multiple accounts today and want to get a single bill and track each account's charges (e.g., you might have multiple projects, each with its own AWS account).

- You have multiple cost centers to track.
- You've acquired a project or company that has its own existing AWS account and you want to consolidate it on the same bill with your other AWS accounts.

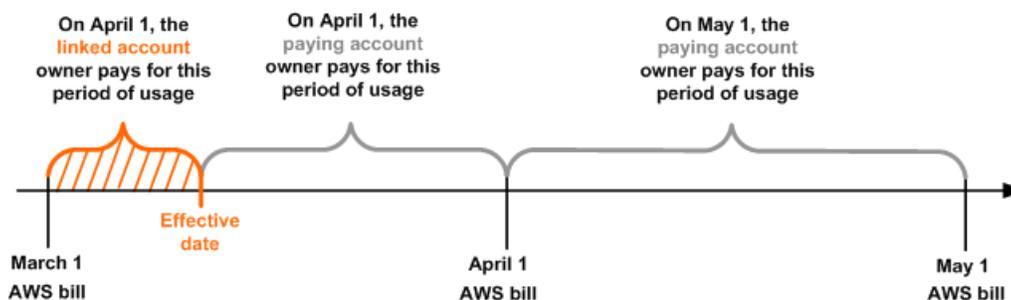
Consolidated Billing is strictly an accounting and billing feature. It is not a method for controlling accounts, or provisioning resources for accounts. It doesn't change how the accounts function or how they are accessed. Consolidated Billing, therefore, cannot be used for sharing computing resources between accounts.

**Note**

You can also use cost allocation tagging to create a custom tag set that maps to your organization's cost centers. For more information, see [Use Cost Allocation Tags for Custom Billing Reports](#) (p. 42).

## Effective Date

When the linked account owner accepts your request to pay the charges for the account, you immediately become responsible for the linked account's charges going forward. If that happens somewhere in the middle of the month, you're billed only for the latter part of the month. The linked account owner is still billed for the first part of the month, as shown in the following diagram.



## Billing and Account Activity

Each month, AWS charges the payer account owner, and not the owners of the linked accounts. The paying account's AWS **Bills** page shows the total usage and charges across all the accounts on the bill. That page is updated multiple times each day. Each day, AWS makes a downloadable cost report available.

Although the owners of the linked accounts aren't charged, they can still see their usage and charges by going to their AWS **Bills** pages. They can't view or obtain data for the paying account or any other linked accounts on the bill.

## Volume Discounts

For billing purposes, AWS treats all the accounts on the consolidated bill as if they were one account. Some services such as Amazon EC2 and Amazon S3 have volume pricing tiers across certain usage dimensions that give you lower prices when you use the service more. With consolidated billing, AWS combine the usage from all accounts to determine which volume pricing tiers to apply, giving you a lower

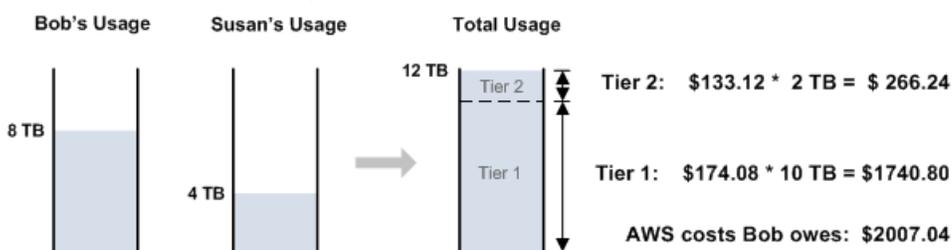
overall price whenever possible. AWS then allocates each linked account a portion of the overall volume discount based on the account's usage.

The **Bills** page for each linked account displays an average tiered rate that is calculated across all the accounts on the consolidated bill. For example, let's say that Bob's consolidated bill includes both Bob's own account and Susan's account. Bob's account is the paying account, so he pays the charges for both himself and Susan.

As shown in the following figure, Bob uses 8 TB of data transfer out during the month, and Susan uses 4 TB (for a total of 12 TB used).

For the purposes of this example, AWS charges \$0.17 per GB for the first 10 TB of data transfer out used, and \$0.13 per GB for the next 40 TB used. This translates into \$174.08 per TB for the first 10 TB, and \$133.12 per TB for the next 40 TB (remember that 1 TB = 1024<sup>4</sup> bytes).

This means for the 12 TB total that Bob and Susan used, following is the total amount that Bob's paying account is charged:  $(\$174.08 * 10 \text{ TB}) + (\$133.12 * 2 \text{ TB}) = \$1740.80 + \$266.24 = \$2007.04$ .



The cost-per-unit of data transfer out for the month is therefore  $\$2007.04 / 12 \text{ TB} = \$167.25$  per TB. That is the average tiered rate shown on the **Bills** page for each linked account on the consolidated bill, and in the downloadable cost report.

Without the benefit of tiering across the entire consolidated bill, AWS would have charged Bob and Susan each \$174.08 per TB for their usage, for a total of \$2088.96.

Note that Amazon SimpleDB in particular has a free tier, so we apply that free tier to the total usage across all the accounts; we don't apply the free tier to each account's usage. For more information about Amazon SimpleDB billing tiers, go to the [Amazon SimpleDB product page](#).

## Consolidated Billing Non-usage Charges

### Topics

- [Amazon EC2 Reserved Instances \(p. 55\)](#)
- [Amazon RDS Reserved DB Instances \(p. 55\)](#)
- [AWS Credits \(p. 56\)](#)
- [AWS Support Charges for Consolidated Billing Accounts \(p. 56\)](#)

There are a few other things to know about how consolidated billing works with other parts of AWS.

## Amazon EC2 Reserved Instances

For billing purposes, Consolidated Billing treats all the accounts on the consolidated bill as one account. This means that all accounts on a consolidated bill can receive the hourly cost benefit of Amazon EC2 Reserved Instances purchased by any other account.

For example, Bob and Susan each have an account on Bob's consolidated bill. Susan has 5 Reserved Instances of the same type, and Bob has none. During one particular hour, Susan uses 3 instances and Bob uses 6, for a total of 9 instances used on Bob's consolidated bill. We bill 5 as Reserved Instances, and the remaining 4 as normal instances.

Let's say the Reserved Instances cost \$0.02 per instance-hour. For these instances, we charge  $5 \times \$0.02 = \$0.10$ .

Let's say the normal Amazon EC2 rate is \$0.10 per instance-hour. For the remaining 4 instances, we charge  $4 \times \$0.10 = \$0.40$ .

So, the total amount Bob is charged for the 9 instances is  $\$0.10 + \$0.40 = \$0.50$ . If we hadn't applied the cost benefit of Susan's 5 Reserved Instances to the 9 instances on Bob's consolidated bill, he would have instead paid \$0.64 total.

In terms of cost attribution, we attribute a dollar amount to Bob and Susan based on each person's usage. Susan used 3 of the 9 instances (one-third), and Bob used 6 (two-thirds). Therefore on the bill, one-third of the \$0.50 is attributed to Susan, and the other two-thirds is attributed to Bob.

Bob receives the cost benefit from Susan's Reserved Instances only if he launches his instances in the Availability Zone where Susan purchased her Reserved Instances. For example, if Susan specified us-east-1a when she purchased her Reserved Instances, Bob must specify us-east-1a when he launches his instances in order to get the cost benefit on his consolidated bill. However, the actual locations of Availability Zones are independent from one account to another. For example, the us-east-1a Availability Zone for Bob's account might be in a different location than for Susan's account.

## Amazon RDS Reserved DB Instances

For billing purposes, Amazon RDS Reserved DB Instances are treated in a manner similar to Amazon EC2 Reserved Instances. For example, let's use a scenario that's like the one described previously, where Bob and Susan each have an account on Bob's consolidated bill. Susan has 5 Reserved DB Instances, and Bob has none. During one particular hour, Susan uses 3 DB Instances and Bob uses 6, for a total of 9 DB Instances used on Bob's consolidated bill. We bill 5 as Reserved DB Instances, and the remaining 4 as On-Demand DB Instances (for Amazon RDS Reserved DB Instance charges, go to the [pricing page](#)). Bob receives the cost benefit from Susan's Reserved DB Instances only if he launches his DB Instances in the same Region where Susan purchased her Reserved DB Instances.

Also, all the attributes of Susan's Reserved DB Instances (DB Engine, DB Instance class, Deployment type, and License Model) should match the attributes of the DB Instances launched by Bob. For example, let's say Susan purchased a Reserved DB Instance in us-east-1 with the following attributes

- DB Engine: MySQL
- DB Instance Class: m1.xlarge
- Deployment Type: Multi-AZ
- License Model: General Public License

This means that Bob must launch his DB Instances in us-east-1 with the exact same attributes in order to get the cost benefit on his consolidated bill.

## AWS Credits

To give the payer account owner the lowest bill, any AWS credits on the payer and linked accounts are applied to the consolidated bill. If you remove a linked account from a consolidated bill, any unused credits belonging to the linked account go with it. For the month in which you remove the linked account, however, the credits for that linked account go only to the payer account, not to the consolidated bill.

For example, if the credit has a start date before the date of the linkage, the credit is applied to the linked account. If the credit has a start date after the linkage, the credit will be applied to the payer account for the linked account.

## AWS Support Charges for Consolidated Billing Accounts

AWS calculates AWS Support fees independently for each linked account. An AWS Support subscription for the payer account does not apply to the entire account family. Each account must subscribe independently.

Likewise, any AWS Support fees associated with Reserved Instance purchases apply only to the individual accounts that made the purchase.

# Create and Edit Consolidated Billing Account Families

The sections in this topic describe how to sign up for consolidated billing and how to add an AWS account to a consolidated billing account family.

### Topics

- [Signing Up for Consolidated Billing \(p. 56\)](#)
- [Adding an Account to a Consolidated Billing Family \(p. 57\)](#)
- [Securing the Consolidated Billing Payer's Account \(p. 57\)](#)
- [Removing an Account from a Consolidated Bill \(p. 58\)](#)
- [Moving an Account to a Different Consolidated Bill \(p. 58\)](#)
- [Converting a Payer Account to a Linked Account \(p. 58\)](#)

## Signing Up for Consolidated Billing

### To sign up for consolidated billing

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click **Consolidated Billing** and follow the instructions on the page.

### Note

You only need to sign up the *payer* account for consolidated billing. You don't need to sign up any of the accounts that you want to add to your consolidated bill.

You must have a valid payment method on file with AWS. You can use any form of payment that AWS supports. You must also have a valid phone number on file with AWS in case we ever need to contact

you. Verifying your phone number takes only a couple of minutes and involves receiving a phone call during the sign-up process and entering a PIN number using the phone keypad.

We recommend you secure your payer account by using AWS Multi-Factor Authentication and a strong password. For more information, see [Securing the Consolidated Billing Payer's Account \(p. 57\)](#).

## Adding an Account to a Consolidated Billing Family

### Adding an Account to a Consolidated Bill

The following steps are performed by the owner of the payer account. Linked accounts cannot be linked to a payer account by the non-linked account owner. Only payer account owners can send the email requesting a link to the account.

To link an account to the consolidated bill, you need the email address of that account.

#### Important

You don't need to sign up linked accounts for consolidated billing. The owner of the paying account simply needs to send a request to the account owner from the **Consolidated Bill** page. If you accidentally signed a non-paying account up for consolidated billing, see [How the linked account owner removes the linked account \(p. 58\)](#). Once the account is converted back, you can then link it to a payer account.

#### To add an account

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click [Consolidated Billing](#) in the navigation pane on the left.
3. On the **Manage Requests and Accounts** page, click **Send a Request**.
4. On the **Send a Consolidated Billing Request** page, enter email addresses for the accounts that you would like to link to your paying account. If you choose, you can add notes that will be added to the email body.
5. Click **Send**.
6. The linked account owner clicks a hyperlink in the email, logs in to the AWS website when prompted, and accepts or denies the request.

If the linked account owner accepts the request, the linked account becomes part of the consolidated bill. You can add up to 20 linked accounts to the consolidated bill. If you need to add more, contact us at <https://aws-portal.amazon.com/gp/aws/html-forms-controller/contactus/aws-account-and-billing>.

## Securing the Consolidated Billing Payer's Account

Your payer account can pay the charges for and have information about multiple (or all) AWS accounts within your organization. Because the payer account has access to billing data for all linked accounts and sets payment methods, you should secure it. We recommend you use AWS multi-factor authentication (MFA). For more information, go to <http://aws.amazon.com/mfa>. We also recommend you use a strong password that is at least 8 characters long, with uppercase and lowercase letters, at least one number, and at least one special character. You can change your password on the [AWS Security Credentials](#) page.

## Removing an Account from a Consolidated Bill

At any time, the payer account or linked account owner can end the relationship between the accounts. The account separation takes effect immediately and the linked account owner is billed for that account going forward. If the separation occurs somewhere in the middle of the month, the payer account owner is billed only for the earlier part of the month, and the linked account owner is billed for the latter part.

### How the payer account owner removes the linked account

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click [Consolidated Billing](#) in the navigation pane on the left.
3. On the **Manage Requests and Accounts** page, find the account that you want to remove on the **Linked Accounts** tab.
4. Click **Remove from bill**.

### How the linked account owner removes the linked account

1. Sign in to the AWS Management Console and open the Billing and Cost Management console at <https://console.aws.amazon.com/billing/home#/>.
2. Click [Consolidated Billing](#) in the left navigation pane and verify that the page lists a valid credit card.
3. Click **Remove your account from the Consolidated Bill**.

## Moving an Account to a Different Consolidated Bill

A linked account can move from one consolidated bill to another. Following is the overall process. In this example, Bob is the payer account owner, Susan is the linked account owner, and Vicky is the new payer account owner.

1. Either Bob or Susan removes Susan's account from Bob's consolidated bill.
2. Vicky sends a request to put Susan's account on her consolidated bill.
3. Susan receives the request and accepts it.
4. Susan's account becomes part of Vicky's consolidated bill.

After Susan's account is removed from Bob's consolidated bill, there might be a short period before Susan accepts Vicky's request. During the interim period, Susan is responsible for any charges she incurs (and so must have a valid payment method on file with AWS). Any charges she incurs during the interim period can't be charged to Vicky's account.

## Converting a Payer Account to a Linked Account

A former payer account can become a linked account. You just need to make sure the payer account doesn't have any other accounts on its consolidated bill or any outstanding requests to invite other accounts.

### To change a former paying account to a linked account

1. Ensure the paying account has no other accounts on its consolidated bill (see [How the linked account owner removes the linked account](#) (p. 58)).
2. Cancel any pending requests to invite other accounts to be on the bill, which you can do from the [Consolidated Billing](#) page.

3. When you receive the request to add your account to a consolidated bill, accept it.

Your account is added to the payer account's consolidated bill.

## Understanding Blended Rates

To ensure that you pay the lowest available prices for AWS products and services, AWS offers pricing tiers that reward higher usage with lower prices and discounted rates for purchasing in advance.

### Topics

- [Pricing Tiers and Reserved Instances \(p. 59\)](#)
- [Blended Rate Examples \(p. 60\)](#)
- [Calculating Blended Rates for Amazon EC2 \(p. 62\)](#)

## Pricing Tiers and Reserved Instances

AWS Billing and Cost Management includes two features designed to ensure that you pay the lowest available prices for AWS products and services:

- *Pricing tiers.* Pricing tiers reward higher usage with lower unit prices for services.
- *Capacity reservations.* Rates are discounted when you purchase some services in advance for a specific period of time.

### Pricing Tiers

Some AWS services are priced in *tiers*, which specify unit costs for defined amounts of AWS usage. As your usage increases, you cross thresholds into new pricing tiers that specify lower unit costs for additional usage in a month. Each AWS service publishes its pricing information independently. You can access all pricing pages from the [AWS Service Pricing Overview](#) page.

The AWS whitepaper [How AWS Pricing Works](#) also discusses usage scenarios and pricing options.

Your AWS usage is measured every month. To measure usage, AWS treats all accounts linked under consolidated billing—that is, each *account family*—as a single account. Linked accounts do not reach tier thresholds individually. Instead, all usage in the account family is aggregated for each service, which ensures faster access to lower-priced tiers. As each month begins, your service usage is reset to zero. For an example, see [Calculating Blended Rates For Amazon S3 Standard Storage \(p. 60\)](#) later in this topic.

### Reserved Instances: Capacity Reservations

AWS also offers discounted hourly rates in exchange for an upfront fee and term contract. Services such as Amazon Elastic Compute Cloud ([Amazon EC2](#)) and Amazon Relational Database Service ([Amazon RDS](#)) use this approach to sell reserved capacity for hourly use of *Reserved Instances*. For more information, see [Reserved Instances](#) in the *Amazon Elastic Compute Cloud Developer Guide* and [Working with Reserved DB Instances](#) in the *Amazon Relational Database Service Developer Guide*.

When you reserve capacity with Reserved Instances, your hourly usage is calculated at a discounted rate for instances of the same usage type in the same Availability Zone. When you exceed the number of instances in your reservation and launch additional instances of the same instance type in the same Availability Zone, AWS averages the rates of the Reserved Instances and the on-demand instances to give you a *blended rate*.

## Reserved Instances and Consolidated Billing

This section explains how AWS determines the blended price for customers who use consolidated billing.

Here is how consolidated billing bills are calculated:

1. A Reserved Instance is a capacity reservation. It is not a virtual machine. It is a commitment by a customer to pay in advance for specific Amazon EC2 or Amazon RDS instance capacity. In return, the customer gets a discounted rate over the cost of an on-demand instance that is created or deleted in response to application load. From a technical perspective, there is no difference between a Reserved Instance and an on-demand instance. When a customer launches an instance, AWS checks the account records for Reserved Instance purchases that can be applied to that instance.
2. Consolidated Billing customers have multiple accounts that roll up into a single account that is designated as the payer account. This group of accounts is often called an *account family*. Owners of payer accounts see all usage incurred by the account family. This activity is aggregated to the payer account, and then *allocated* to the linked accounts that generated the charge in proportion to the linked account's usage. In other words, the linked account line items that you see in monthly and detailed billing (hourly) reports and on the **Account Activity** page are calculated recursively: The charges are calculated at the payer level and then allocated to linked accounts. Blended rates appear only on linked account line items.

### Tip

As a best practice, consider not running any AWS services under the account you designate as the payer account. This practice reduces confusion that can arise because payer account usage appears twice in detailed billing reports. It appears once as an aggregated line item and again as an allocated line item.

3. Estimated charges for all accounts are calculated several times each day. Because blended prices are an average for variable usage across an account family, they are dynamic, and vary with each set of calculations. If you look at each iteration of your daily reports, you will probably see different values each time in the Blended Rate column for your discount-eligible usage. Blended rates are finalized for the last detailed billing report for the month, and for your AWS invoice. For information about the monthly and detailed billing (hourly) reports, see [Understand Your Usage with Detailed Billing Reports](#) (p. 35).

## Blended Rate Examples

This section contains examples of how blended rates are calculated for two types of operations:

- Usage of Amazon S3 for Standard Storage.
- Usage of small Linux/Unix Amazon EC2 instances.

## Calculating Blended Rates For Amazon S3 Standard Storage

Blended rates for Amazon S3 Standard Storage are calculated by taking the amount of data stored per month and dividing by the total cost of storage as the account becomes eligible for lower-cost tiers. For a hypothetical example, standard storage is available at the pricing tiers listed below:

### Amazon S3 Pricing Tiers

Tier Description	Price per GB
First 1 TB/month	\$0.10
Next 49 TB/month	\$0.08
Next 450 TB/month	\$0.06

The following table lists Amazon Simple Storage Service (Amazon S3) usage of type standard storage for a Consolidated Billing account family that includes a payer account and three linked accounts.

**Example Standard Storage Usage Blended Cost**

Account	Tier	Storage Amount	Unit Rate	Unblended Cost	Blended Cost	Blended Rate
Payer	First 1 TB / month	1 TB	\$0.10	\$100		
	Next 49 TB / month	49 TB	\$0.08	\$3920		
	Next 450 TB / month	45 TB	\$0.06	\$2700		
Linked 1	First 1 TB / month	1 TB	\$0.10	\$100	70.737	0.070737
	Next 49 TB / month	14 TB	\$0.08	\$1120	990.318	0.070737
	Next 450 TB / month	15 TB	\$0.06	\$900	1061.055	0.070737
Linked 2	Next 49 TB / month	20 TB	\$0.08	\$1600	1414.74	0.070737
	Next 450 TB / month	15 TB	\$0.06	\$900	1061.055	0.070737
Linked 3	Next 49 TB / month	15 TB	\$0.08	\$1200	1061.055	0.070737
	Next 450 TB / month	15 TB	\$0.06	\$900	1061.055	0.070737

The costs in the preceding table are calculated as follows:

1. All usage for the linked account family adds up to 95 TB (95,000 GB).
2. The total cost is calculated by adding the cost of the first TB (1,000 GB x \$0.10 = 100) to the cost of the next 49 TB (49,000 GB x \$0.08 = \$3920) and the cost of the remaining 45 TB (45,000 GB x \$0.06 = \$2700), for a total cost of \$6720.
3. The blended rate is calculated by dividing the total cost (\$6720) by the amount of storage (95,000 GB), to produce a blended rate of \$0.070737/GB.
4. Last, the cost for each linked account is allocated by multiplying the blended rate by the total usage, resulting in the amounts listed in the Blended Cost column.

The example shows how using Consolidated Billing helps lower the overall monthly cost of storage. If you calculate the cost for each linked account separately, the total cost is \$6780. By aggregating the usage of the three accounts, you reach the lower-priced tiers sooner. The most expensive storage, the first terabyte, is charged at the highest price just once, rather than three times. Three TB of storage at the most expensive rate of \$0.10/GB results in charges of \$300. Charging this storage as 1 TB (\$100) and 2 additional TB at \$0.08/GB (\$16) results in a total charge of \$260.

## Calculating Blended Rates for Amazon EC2

Keep in mind that blended rates apply only to Consolidated Billing customers.

### Calculation Process

Here's how AWS calculates blended rates for Amazon EC2 instances for Consolidated Billing account families:

1. AWS aggregates usage for all accounts in the consolidated billing account family for the month or partial month and calculates costs based on unblended rates. Line items for these costs are created for the payer account. This bill computation model aims to apply the lowest unblended rates for which each line item is eligible. The allocation logic first applies free tier hours, then Reserved Instance hours, and then applies on-demand rates to any remaining usage. In the monthly report, you can see line items for these aggregated costs; the detailed billing (hourly) [report \(p. 35\)](#) does not distinguish between payer and linked accounts.
2. AWS identifies each Amazon EC2 usage type in each region and allocates cost from the aggregated payer costs to the corresponding linked account line items for identical usage types in the same region. In the [detailed billing report \(p. 39\)](#), you can see which rate is applied for each line item in the Unblended Rate column.

#### Note

When AWS assigns Reserved Instance hours to linked accounts, it always starts first with the linked account that purchased the reservation, which is sometimes called Reserved Instance affinity. If there are hours from the capacity reservation left over, they are applied to other accounts operating identical usage types in the same Availability Zone. Again, this allocation always occurs using unblended rates.

3. Last, AWS calculates an average cost for all identical usage, which can include both on-demand and Reserved Instance rates, in the Availability Zone and lists the result in each line item in the Blended Rate column of the detailed billing (hourly) report. The calculation of this average can result in lines where the unblended cost for the hour is \$0.00, but the Blended Rate indicates an allocated cost. In such cases, the Unblended Cost column represents what you actually paid for that specific line item of usage.

### Blended Rate Example

The example in this section shows how the Consolidated Billing logic aggregates cost to payer accounts and then allocates it to the linked accounts based on proportional usage. For this example, all usage is of the same usage type and occurs in the same Availability Zone.

The following table lists the rate for Reserved Instance and on-demand instance usage for the example.

#### Example Amazon EC2 Hourly Rates

Rate Type	Hourly Rate
Reserved Instance	\$0.025
On-demand Instance	\$0.10

The following table shows line items that represent the calculation of line items for Amazon EC2 usage for a 720-hour (30-day) month. Each instance is of the same usage type running in the same Availability Zone. This Consolidated Billing account family has purchased four Reserved Instances; see the line items listed in the table for the distribution among linked accounts. Linked Account 1 has three Reserved Instances; Linked Account 2 has one Reserved Instance.

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**Calculating Blended Rates for Amazon EC2**

In this example, Linked Account 1 has experienced fluctuations in application load that have produced both a 60-hour under-utilization of Reserved Instance resources and a need for 40 additional hours of on-demand usage.

**Example Amazon EC2 Hourly Rates**

Line Item Account	Billing Type	Unblended Rate	Usage Type	Usage Qty	Unblended Cost	Blended Rate	Blended Cost
Payer Acct	Reserved Instance	\$0.025	Reserved Instance	2880	\$72		
Payer Acct	On Demand	\$0.10	On Demand	1280	\$128		
Linked Acct 1	Reserved Instance	\$0.025	Reserved Instance	2100	\$52.50	0.048077	\$100.96
Linked Acct 1	On Demand	\$0.10	On Demand	40	\$4.00	0.048077	\$1.92
Linked Acct 2	Reserved Instance	\$0.025	Reserved Instance	720	\$18	0.048077	\$34.62
Linked Acct 2	On Demand	\$0.10	On Demand	100	\$10	0.048077	\$4.81
Linked Acct 3	Reserved Instance	\$0.025	Reserved Instance	60	\$1.50	0.048077	\$2.88
Linked Acct 3	On Demand	\$0.10	On Demand	490	\$49	0.048077	\$23.56
Linked Acct 4	On Demand	\$0.10	On Demand	650	\$65	0.048077	\$31.26

The data in the preceding table presents the following information:

- The Consolidated Billing family has purchased 2,880 hours of capacity at a Reserved Instance rate.
- Linked Account 1 has purchased three Reserved Instances and has used 2,100 hours of the reservation. Due to fluctuations in application load, 60 reserved instance hours remain, which can be applied to other eligible usage in the account family. In addition, application load when all three reserved instances were already running has necessitated an additional 40 hours of on-demand usage.
- Linked Account 2 has purchased a Reserved Instance and used the full 720 hours. In addition, this account needed 100 additional hours of on-demand hours to meet application load requirements.
- Linked Accounts 3 and 4 operated with on-demand hours alone.
- Actual usage of Reserved Instance hours totals 2,880 hours.
- Actual usage of on-demand hours totals 1,280 hours.
- Aggregate usage at the payer level incurs \$200 of charges. After dividing this amount by the total hours of usage (4,160) a blended rate of \$0.048077 per hour is obtained.
- Aggregating the blended costs results in a total of \$200.01.
- Using the total blended cost at the payer level, blended costs are then allocated to line items for the linked accounts.
- To reconcile the linked account line item totals with the payer account line items requires adding a line item for a rounding error of \$0.01 (not shown in example).
- The 60 Reserved Instance hours that Linked Account 1 did not use were applied to 60 hours of Amazon EC2 usage by Linked Account 3. This reduced the number of on-demand hours used by the account from 550 to 490.

You can check that your monthly or detailed billing report is balanced by ensuring that the sum of the blended costs of each linked account line item and the rounding error line item equals the total of all payer account line items.

**Tip**

Using an Excel spreadsheet to read the detailed billing (hourly) report, you can find the linked account line items to balance against payer line items by filtering on the following columns in the specified order:

1. Product Name
2. Usage Type
3. Operation

**Note**

You can control the Availability Zone and usage type of your instances using the RunInstances action of the Amazon EC2 API. For more information, see [Launching an Instance from an AMI](#) in the Amazon Elastic Compute Cloud Developer Guide.

# Understanding the AWS Free Tier

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With the AWS Free Tier, you can test drive several AWS products at no cost. With the features available in the free tier, you can use AWS for many purposes, such as:

- To investigate AWS as a platform for your business.
- To complete a project for school or a hobby.
- To experiment with a variety of technologies to expand your skill set.

You are eligible for the free tier for one year after you open your AWS account. After one year has passed, you are no longer eligible for the free tier, and you are charged for continuing to use AWS. You receive email notification when your free tier eligibility is coming to an end, but unless you take action your account will remain open and active.

If you exceed the usage limits of the free tier or you use a service that is not part of the free tier, you will be charged at the usual AWS billing rates.

For information about how to get started using the AWS Free Tier and whether it might meet your needs, see [Getting Started with AWS Free Usage Tier](#).

## Avoid Inadvertent Charges When You Use the Free Tier

Sometimes free tier customers receive an unexpected bill from AWS. Here are some ways to avoid accruing unexpected charges when you use the free tier:

- Make sure you use only services or offerings that are included in the [AWS Free Tier](#).
- Stay within the usage limits defined by the free tier. Set an alert to notify you if your usage level gets close to the free tier limits. For more information, see [Monitor Charges with Alerts and Notifications](#) (p. 50).
- Note the date you open your free tier account. Free tier eligibility lasts one year from the day you create your account. After that you will receive bills for AWS usage.
- Keep in mind that third-party applications or services from AWS Marketplace are not included in the free tier.

For more tips for avoiding unexpected charges, see [Checklist: Avoid Unexpected Charges \(p. 67\)](#).

Contact [AWS Customer Service](#) for information about unexpected charges that don't fall into one of these categories or if you require additional explanation of unwanted charges on your bill.

# Checklist: Avoid Unexpected Charges

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Here is a checklist to help you avoid unexpected charges on your bill. The first three items are for those who are using the one-year AWS Free Tier. The following items address specific features or behaviors within individual services from AWS that can sometimes result in unexpected charges, particularly if you unsubscribe from the service or close your account.

## Note

If you close your account or unsubscribe from a service, make sure that you take the appropriate steps for every region in which you've allocated AWS resources.

## Topics

- [AWS Free Tier Expired](#) (p. 67)
- [Bill Received After Account Closure](#) (p. 68)
- [Usage Exceeds Free Tier](#) (p. 68)
- [AWS Elastic Beanstalk Environments](#) (p. 68)
- [Elastic Load Balancing \(ELB\)](#) (p. 68)
- [Services Started in AWS OpsWorks](#) (p. 68)
- [Amazon EC2 Instances](#) (p. 68)
- [Amazon Elastic Block Store Volumes](#) (p. 69)
- [Elastic IP Addresses](#) (p. 69)
- [Services Launched by Other Services](#) (p. 69)
- [Storage Services](#) (p. 69)

## AWS Free Tier Expired

If you receive unexpected charges after a period of inactivity, your free tier period might have expired. Any resources allocated to your account after your free tier period expires begin to incur charges. To check for resources in use, open the [AWS Management Console](#). **Be sure to check each region where you have allocated resources.**

For more information about free tier offerings and terms, see [AWS Free Tier](#).

## Bill Received After Account Closure

Each month's usage is calculated and billed at the beginning of the following month. If you close your account, but use opt-in services during the month, you receive a bill for the opt-in service usage at the beginning of the following month.

## Usage Exceeds Free Tier

If you are using the free tier, make sure that your usage does not exceed the allowances specified at [AWS Free Tier](#). You are charged On Demand rates for any usage that exceeds the free tier allowances.

## AWS Elastic Beanstalk Environments

AWS Elastic Beanstalk is designed to ensure that all the resources you need are running, which means that it automatically relaunches any services that you stop. To avoid this, you must terminate your AWS Elastic Beanstalk environment before you terminate resources that AWS Elastic Beanstalk has created. For more information, see [Terminating an Environment](#) in the *AWS Elastic Beanstalk Developer Guide*.

## Elastic Load Balancing (ELB)

Like AWS Elastic Beanstalk environments, ELB load balancers are designed to keep a minimum number of Amazon Elastic Compute Cloud (Amazon EC2) instances running. You must terminate your load balancer before you delete the Amazon EC2 instances registered with it. For more information, see [Delete Your Load Balancer](#) in the *Elastic Load Balancing Developer Guide*.

## Services Started in AWS OpsWorks

If you use the AWS OpsWorks environment to create AWS resources, you must use AWS OpsWorks to terminate those resources, or AWS OpsWorks will restart them. For example, if you use AWS OpsWorks to create an Amazon EC2 instance, but then terminate it by using the Amazon EC2 console, the AWS OpsWorks auto healing feature categorizes the instance as failed and restarts it. For more information, see [AWS OpsWorks User Guide](#).

## Amazon EC2 Instances

After you remove load balancers and Elastic Load Balancing environments, you can stop or terminate Amazon EC2 instances. Stopping an instance allows you to start it again later, but you might be charged for storage. Terminating an instance permanently deletes it. For more information, see [Instance Lifecycle](#) in the *Amazon Elastic Compute Cloud User Guide*, particularly [Stop and Start Your Instance](#) and [Terminate Your Instance](#).

### Note

Amazon EC2 instances serve as the foundation for multiple AWS services. They can appear in the Amazon EC2 console Instances list even if they were started by other services. For example, Amazon Relational Database Service (Amazon RDS) instances run on Amazon EC2 instances. If you terminate an underlying Amazon EC2 instance, the service that started it might interpret

the termination as a failure and restart the instance. For example, the AWS OpsWorks service has a feature called *auto healing* that restarts resources when it detects failures. In general, it is a best practice to delete resources through the services that started them.

Additionally, if you create Amazon EC2 instances from an Amazon Machine Image (AMI) that is backed by an instance store, check Amazon S3 for the related bundle. Deregistering an AMI does not delete the bundle. For more information, see [Deregistering Your AMI](#).

## Amazon Elastic Block Store Volumes

Most Amazon EC2 instances are configured so that their associated Amazon EBS volumes are deleted when they are terminated, but it is possible to set up an instance that preserves its volume and the data. Check the Volumes pane in the Amazon EC2 console for volumes that you don't need anymore. For more information, see [Deleting an Amazon EBS Volume](#) in the *Amazon Elastic Compute Cloud User Guide*.

If you have stored snapshots of your Amazon EBS volumes and no longer need them, you should delete them as well. Deleting a volume does not automatically delete the associated snapshots. For more information, see [Deleting an Amazon EBS Snapshot](#).

## Elastic IP Addresses

Any Elastic IP addresses that are attached to an instance that you terminate are unattached, but they are still allocated to you. If you don't need that IP address anymore, release it to avoid additional charges. For more information, see [Releasing an Elastic IP Address](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Services Launched by Other Services

A number of AWS services can launch resources, so be sure to check for anything that might have launched through any service you've used. .

## Storage Services

When you are minimizing costs for AWS resources, be sure to keep in mind any services that might incur storage costs, such as Amazon RDS and Amazon S3.

# Document History

The following table describes the documentation for this release of the *AWS Billing and Cost Management* guide.

- **Version:** 2.0
- **Last documentation update:** August 19, 2014

Change	Description	Release Date
Avoiding Unexpected Charges	Revised and expanded <a href="#">Checklist: Avoid Unexpected Charges (p. 67)</a> and <a href="#">Understanding the AWS Free Tier (p. 65)</a> .	August 19, 2014
IAM User Permissions	Now you can enable AWS Identity and Access Management (IAM) users and federated users to access and manage your account settings, view your bills, and perform cost management. For example, you can grant people in your finance department full access to the financial setup and control of your AWS account, without having to give them access to your production AWS environment. To learn more about managing access to account settings, billing, and cost management, see <a href="#">Controlling Access to Your Billing Information (p. 11)</a> . If you're not using IAM to secure your account yet, we encourage you to <a href="#">learn more about IAM</a> and the benefits it provides.	July 07, 2014
Cost Explorer launched.	Cost Explorer provides a visualization of your AWS spend that enables you to analyze your costs in multiple ways. To learn more, see <a href="#">Manage Your Spend Data with Cost Explorer (p. 20)</a> .	April 8, 2014
Version 2.0 published.	The AWS Billing and Cost Management User Guide has been reorganized and rewritten to use the new Billing and Cost Management AWS Management Console.	October 25, 2013

# AWS Glossary

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For the latest AWS terminology, see the [AWS Glossary](#) in the *AWS General Reference*.