AWS Pricing Calculator

User Guide

AWS Pricing Calculator: User Guide

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What Is AWS Pricing Calculator?

AWS Pricing Calculator lets you explore AWS services and create an estimate for the cost of your use cases on AWS. You can model your solutions before building them, explore the price points and calculations behind your estimate, and find the available instance types and contract terms that meet your needs. This enables you to make informed decisions about using Amazon EC2. You can plan your AWS costs and usage or price out setting up a new set of instances and services.

AWS Pricing Calculator is useful both for people who have never used AWS and for users who want to reorganize or expand their AWS usage. You don't need any experience with the cloud or AWS to use AWS Pricing Calculator.

Accessing AWS Pricing Calculator

AWS Pricing Calculator provides only an interface. It doesn't provide an API.

Prerequisites for Using AWS Pricing Calculator

You don't need an AWS account or in-depth knowledge of AWS to use AWS Pricing Calculator.

For best results, we suggest that you have a plan for how you want to use AWS before starting your estimate. For example, decide whether you want to break out your estimate by cost center, by product that you run on AWS, or by regional stacks.

AWS Pricing Calculator Regions

AWS Pricing Calculator is available in the following Regions.

Region Name	Region
Asia Pacific (Mumbai) Region	region-ap-south-1
Asia Pacific (Tokyo) Region	region-ap-northeast-1
Asia Pacific (Seoul) Region	region-ap-northeast-2
Asia Pacific (Osaka-Local) Region	region-ap-northeast-3
Asia Pacific (Singapore) Region	region-ap-southeast-1
Asia Pacific (Sydney) Region	region-ap-southeast-2
Canada (Central) Region	region-ca-central-1
EU (Ireland) Region	region-eu-west-1
EU (Frankfurt) Region	region-eu-central-1
EU (London) Region	region-eu-west-2

Region Name	Region
EU (Paris) Region	region-eu-west-3
South America (São Paulo) Region	region-sa-east-1
US East (N. Virginia) Region	region-us-east-1
US East (Ohio) Region	region-us-east-2
US West (N. California) Region	region-us-west-1
US West (Oregon) Region	region-us-west-2

Pricing for AWS Pricing Calculator

AWS Pricing Calculator is free for use. It provides an estimate of your AWS fees and charges, but the estimate doesn't include any taxes that might apply to the fees and charges. AWS Pricing Calculator provides pricing details for your information only. If the prices on the marketing page are different from the prices that AWS Pricing Calculator uses, AWS honors the prices from the marketing pages. For more information about AWS service pricing, see Cloud Services Pricing.

The prices that AWS Pricing Calculator uses for the estimates come from the AWS Price List API. For more information about the AWS Price List API, see Using the AWS Price List API in the *AWS Billing and Cost Management User Guide*.

Getting Started

The Getting Started chapter walks you through a task using AWS Pricing Calculator so that you can get an idea of how AWS Pricing Calculator works. In this case, we walk you through getting an estimate for an Amazon EC2 instance using the **Quick estimate** option. The quick estimate enables you to add an Amazon EC2 instance to your estimate without delving deeply into the different Amazon EC2 options. This enables you to get an estimate without knowing the technical details of all of the Amazon EC2 instance types.

Topics

Overview

When you generate an estimate, you first create a group and then add services to your group.

This tutorial guides you through setting up an Amazon EC2 instance that you can use to perform tasks such as run a small program or host a website.

Tasks

To complete this tutorial, perform the following tasks:

1. Step 1: Add a Group (p. 3)
2. Step 2: Add and Configure a Service (p. 3)

Prerequisites

AWS Pricing Calculator doesn't require any initial setup. You can use it without an AWS account and without committing to anything.

Step 1: Add a Group

To get started generating an estimate, you must first have a group. AWS Pricing Calculator creates your first group for you. A group is assigned to a single Region and enables you to organize services together for that Region. You can have multiple groups that are associated with the same Region. You can add one or more services to each group. Different Regions might have different services available for you to use because not all AWS services are available for all Regions. You can use groups to organize your estimate in different ways, such as by cost center, service stack, product architecture, client, or more.

Step 2: Add and Configure a Service

After you have a group and have assigned your group a Region, add and configure services to your group to generate an estimate.

In this case we're adding Amazon EC2 using the **Quick estimate** option.

To add and configure a service for your estimate

1. Open the AWS Pricing Calculator console at https://calculator.aws/#/.
2. On the **My estimate** page, under **My Service Group** choose **Add service**, which brings you to a page of services that you can add to your estimate.
3. On the **Add service** page, go to **Amazon EC2** and choose **Configure**. This adds Amazon EC2 to your group and takes you to the **Quick estimate** page, where you can configure what you want in an Amazon EC2 instance.

   The **Quick estimate** page is preloaded with default values, enabling you to see a starting estimate without adding or changing any information. You can change any of the values for the following parameters or keep the defaults:

   - The Amazon EC2 operating system
   - The number of Amazon EC2 instances
   - The Amazon EC2 instance search option
   - The pricing strategy
   - The contract terms
   - The payment options
   - The Amazon EBS storage
   - The Amazon EBS storage volume
4. Choose **Add to my estimate**.

   This adds an Amazon EC2 instance with the selected parameters to the group that you created in step one and returns you to the **My estimate** page.

   The **My estimate** page shows you how much the selected default instance would likely cost you. Note that estimates are just that: estimates. AWS charges are calculated using the actual AWS usage for an account.

Generating Your Estimate

AWS Pricing Calculator organizes your estimates into groups. You can add a service to one or more groups to get an estimate for that service.

To generate an estimate, create a group and then add services to your group. AWS Pricing Calculator provides you with an estimate for that group, all of the services in that group, and all of your groups combined.

> **Note**
> AWS provides a free tier that enables you to try some AWS services for free. The free tier covers only certain instances or usage and for only a limited amount of time. AWS Pricing Calculator assumes that you aren't using the free tier and doesn't include any expiring free tiers in your estimate. Non-expiring free tiers are included by default.

Reading an Estimate

Estimates are broken into multiple sections. At the top of the page is your total estimate, which is broken into your **First 12 months total**, your upfront total, and your monthly total. The total for your first 12 months is the total estimate for all of your groups, and it combines the upfront and monthly estimates. The upfront and monthly estimates are how much you are estimated to pay upfront as you set up your AWS stack and how much you're estimated to spend every month while you run your AWS stack.

Within a group, you can see how much each service is estimated to cost. In addition, each group has its own total estimate, upfront estimate, and monthly estimate, which you can use to see how much each particular group might cost. If you want to price out different ways to build your AWS setup, you can use different groups for each variation of your setup and compare the estimates for the different setups.

Showing Calculations

When you add a service to your estimate and choose your parameters, you can see the calculations that AWS Pricing Calculator uses to generate your estimate. Choose the **Show calculation** link to see the exact math.

Best Practices for Generating Estimates

To get the most out of your estimates, you should have a good idea of your basic requirements. For example, if you're going to try Amazon Elastic Compute Cloud (Amazon EC2), it might help if you know what kind of operating system you need, what your memory requirements are, and how much I/O you need. You should also decide whether you need storage, such as if you're going to run a database and how long you intend to use the servers. You don't need to make these decisions before generating an estimate, though. You can play around with the service configuration and parameters to see which options fit your use case and budget best.

Using Groups

You can organize your AWS estimates by groups that you define. A group can reflect how your company is organized, such as providing estimates by cost center, or it can reflect other organization methods,

such as by product stack or product architecture. For example, if you want to price out different ways to build your AWS setup, you can use different groups for each variation of your setup and compare the estimates for the different setups. You can also generate one estimate for how much running a website might cost you and another estimate for how much running a machine learning process might cost you, enabling you to see the combined estimate for your AWS usage.

AWS Pricing Calculator provides estimates for AWS Regions individually. To generate an estimate for multiple Regions, you must create a group for each Region. For example, say that you want to compare the cost of running servers in two different locations, such as US East (N. Virginia) (us-east-1) and Asia Pacific (Seoul) (ap-northeast-2). You can generate an estimate for US East (N. Virginia) (us-east-1) with one group and an estimate for Asia Pacific (Seoul) (ap-northeast-2) with a second group and then compare the two estimates.

> **Note**
> You can't change the Region of a group after you have added a service to it. To change the Region, create a group and then edit it. After you edit the group, you can add services for that Region.

To assign a group to a Region

You can use the following procedure to assign a group to a Region.

1. Open the AWS Pricing Calculator console at https://calculator.aws/#/.
2. In the group that you want to assign to a Region, for **Action**, choose **Edit Region**.
3. Choose the Region that you want to assign this group to.
4. Choose **Apply**.

Generating Amazon EC2 Estimates

There are two ways to generate an Amazon EC2 estimate: the quick estimate path and the advanced estimate path. Use the quick estimate path for a fast route to a rough estimate. Use the advanced estimate path for a more detailed estimate that accounts for workload, data transfer costs, additional storage options, and other, less common instance requirements.

The quick and advanced paths require different information, but the results are identical on the group level. That means that you can use both paths to configure Amazon EC2 in the same group. You can also toggle between quick and advanced. If you have a good idea of which Amazon EC2 instance you need for some parts of your planned AWS usage, but don't know many details about that usage, you can still get an estimate that covers both cases.

> **Note**
> If you toggle between the quick and advanced paths, your estimate might be higher than if you only used the quick path. The advanced path sets defaults that can carry over to the quick path and raise your estimate.

For example, say that Márcia knows that she needs an Amazon EC2 instance with Amazon EBS snapshots taken every hour. She also knows that she needs some Amazon EC2 instances with more flexible snapshot requirements, but she doesn't know how many hours she needs for the more flexible instances. The quick estimate path enables her to generate an estimate for the Amazon EC2 instances that don't have the hourly snapshot requirement and for which she doesn't know how many hours she needs. The advanced estimate path enables her to generate an estimate for the Amazon EC2 instances with an hourly snapshot requirement.

Topics

Quick Estimates

The quick estimate path is designed to give you a ballpark estimate while requiring minimal information and parameters. This way you can get a rough idea of how much AWS might cost you even when you don't have all, or even many, of the details of how you plan to use AWS.

Each parameter has a default setting, so if you don't know what you want for that particular parameter, you can still generate an estimate.

The quick estimate path has the following sections and parameters:

Amazon EC2 Specifications

These settings determine the Amazon EC2 instance that AWS Pricing Calculator uses to generate an estimate for you.

Select your operating system

The default value for the operating system (OS) is Linux.

Number of EC2 instances

The default value is one. AWS Pricing Calculator uses this default because it's the minimum number that you might need.

Enter requirements per instance

To find an instance, search either by minimum requirements or by name. Minimum requirements are most useful when you know the specifications of the instances that you want, and instance name is more useful if you already know the instance family or size of the instance that you want. For example, you can search either for an instance with a minimum of four vCPUs and 16 GB of memory or for a t2 or medium instance.

There are multiple defaults when you search for an instance by instance requirements. The default value for **vCPUs** is four, and the default for **Memory** is 16 (GB). AWS Pricing Calculator uses these defaults because they're the minimum required to do general-purpose processing.

Instance name

To find an instance, search either by minimum requirements or by name. Minimum requirements are most useful when you know the specifications of the instances that you want, and instance name is more useful if you already know the instance family or size of the instance that you want. For example, you can search either for an instance with a minimum of 4 vCPUs and 16 GB of memory or for a t2 or medium instance.

There is no default value for the instance name because AWS Pricing Calculator searches the available instances for the least expensive option, which can change over time.

For information about the available Amazon EC2 instance families, see Instance Type (p. 9).

Pricing Strategy

These settings determine the pricing strategy that AWS Pricing Calculator uses to generate an estimate for you.

Pricing model

The pricing model determines whether you are searching for a pay-as-you-use instance or an instance that you can reserve in advance. Reserving an instance is not the same as paying for the use of an instance. For Reserved Instance (RI) payment options, see Payment options (p. 8).

The default value is Standard Reserved Instances. AWS Pricing Calculator uses this default because they are the most common Amazon EC2 purchase and offer the most flexibility and the highest discount for most use cases.

Contract terms

When you reserve an RI, you purchase a reservation for the period of your contract. Contracts can be for either one or three years.

The default value is one year. AWS Pricing Calculator uses this default because it's the least expensive option for trying out AWS.

Payment options

For RIs, payment options determine when you pay for your reservation. You can pay for the entire reservation upfront, which is a hefty single-time payment but you have no monthly payments. You can pay for the RI with a partial upfront payment and a monthly payment, which gives you a smaller upfront cost but accrues monthly costs. You can also pay with no upfront payment, which means you pay only on a monthly basis. All upfront gives you the best discount, but no upfront and partial upfront spread your costs out over a greater period of time.

The default value for the payment options is No Upfront. AWS Pricing Calculator uses this default because it gives you the least expensive start-up price.

Amazon EBS

These settings determine the Amazon EBS settings that AWS Pricing Calculator uses to generate an estimate for you. Amazon Elastic Block Store (Amazon EBS) is a type of storage that you can connect to your Amazon EC2 instance. It enables you to do things such as back up your instance, create a boot volume, or run a database on your instance. For more information on how you can use Amazon EBS, see the Amazon Elastic Block Store documentation.

Storage volume

The storage volume determines what kind of storage that Amazon EBS assigns to your instance. Different types have different capabilities, such as better I/O, faster calculations, or slower, less expensive options for use cases such as boot volumes and backups.

The default value is the General Purpose SSD. AWS Pricing Calculator uses this default because it's good at both I/O and storage while not being expensive.

Storage amount

The storage amount determines how much storage your Amazon EBS volume has.

The default value is 30 GB. AWS Pricing Calculator uses this default because it's a decent amount of storage for a decent price.

Advanced Estimates

The advanced estimate path is designed to give you a more accurate estimate, more parameter flexibility when generating an estimate, and the ability to fine-tune your estimate. It requires more in-depth knowledge of your Amazon EC2 needs and requirements than an estimate that you generate using the quick estimate path.

Use the advanced estimate path for estimates that need to account for workload, data transfer costs, additional storage options, and other, less common instance requirements. For example, you know that you get a lot of traffic on Mondays but not much traffic throughout the rest of the week, and you want an estimate that accounts for this workload.

The advanced estimate path has the following sections and parameters:

Operating System

This setting is the OS on an Amazon EC2 instance. AWS Pricing Calculator generates your estimate using Amazon Machine Images (AMIs) that match your chosen OS. Choose the OS that best matches your needs.

Linux

AWS Pricing Calculator generates your estimate using a standard Linux AMI.

Linux SQL

AWS Pricing Calculator generates your estimate using a Linux SQL AMI.

Red Hat Enterprise Linux

AWS Pricing Calculator generates your estimate using a Red Hat Enterprise Linux AMI.

SUSE Linux Enterprise Server

AWS Pricing Calculator generates your estimate using a SUSE Linux Enterprise AMI.

Windows Server

AWS Pricing Calculator generates your estimate using a standard Windows Server AMI.

Windows Server Bring Your Own License

AWS Pricing Calculator generates your estimate without including your license costs.

Windows Server with SQL Server Enterprise

AWS Pricing Calculator generates your estimate using a Windows Server with SQL server Enterprise AMI.

Windows Server with SQL Server Standard

AWS Pricing Calculator generates your estimate using a Windows Server with SQL Server Standard AMI.

Windows Server with SQL Server Web

AWS Pricing Calculator generates your estimate using a Windows Server with SQL Server Web AMI.

Instance Type

AWS Pricing Calculator lists all available instance types. AWS Pricing Calculator starts with the default instance type **t2.xlarge** selected. You can use the search bar to filter the instance list by column names. If you don't select a column to filter by, AWS Pricing Calculator uses the **API name** column as the default.

These are the available Amazon EC2 instance families.

T2 Instance Family

T2 instances are Burstable Performance Instances that provide a baseline level of CPU performance with the ability to burst above the baseline.

For more information about this instance family, see **General Purpose** on the Amazon EC2 Instance Types page.

M5 Instance Family

M5 instances are the latest generation of General Purpose Instances. This family provides a balance of compute, memory, and network resources, and it is a good choice for many applications.

For more information about this instance family, see **General Purpose** on the Amazon EC2 Instance Types page.

M4 Instance Family

M4 instances provide a balance of compute, memory, and network resources, and it is a good choice for many applications.

For more information about this instance family, see **General Purpose** on the Amazon EC2 Instance Types page.

C5 Instance Family

C5 instances are optimized for compute-intensive workloads and deliver very cost-effective high performance at a low price per compute ratio.

For more information about this instance family, see **Compute Optimized** on the Amazon EC2 Instance Types page.

C4 Instance Family

C4 instances are optimized for compute-intensive workloads and deliver very cost-effective high performance at a low price per compute ratio.

For more information about this instance family, see **Compute Optimized** on the Amazon EC2 Instance Types page.

X1e Instance Family

X1e instances are optimized for high-performance databases, in-memory databases and other memory intensive enterprise applications. X1e instances offer one of the lowest price per GiB of RAM among Amazon EC2 instance types.

For more information about this instance family, see **Memory Optimized** on the Amazon EC2 Instance Types page.

X1 Instance Family

X1 instances are optimized for large-scale, enterprise-class and in-memory applications, and offer one of the lowest price per GiB of RAM among Amazon EC2 instance types.

For more information about this instance family, see **Memory Optimized** on the Amazon EC2 Instance Types page.

R4 Instance Family

In-memory databases (e.g. SAP HANA), big data processing engines (e.g. Apache Spark or Presto), high performance computing (HPC). Certified by SAP to run Business Warehouse on HANA (BW), Data Mart Solutions on HANA, Business Suite on HANA (SoH), Business Suite S/4HANA.

For more information about this instance family, see **Memory Optimized** on the Amazon EC2 Instance Types page.

P3 Instance Family

P3 instances are the latest generation of general purpose GPU instances.

For more information about this instance family, see **Accelerated Computing** on the Amazon EC2 Instance Types page.

P2 Instance Family

P2 instances are intended for general-purpose GPU compute applications.

For more information about this instance family, see **Accelerated Computing** on the Amazon EC2 Instance Types page.

G3 Instance Family

G3 instances are optimized for graphics-intensive applications.

For more information about this instance family, see **Accelerated Computing** on the Amazon EC2 Instance Types page.

F1 Instance Family

F1 instances offer customizable hardware acceleration with field programmable gate arrays (FPGAs).

For more information about this instance family, see **Accelerated Computing** on the Amazon EC2 Instance Types page.

H1 Instance Family

H1 instances feature up to 16 TB of HDD-based local storage, deliver high disk throughput, and a balance of compute and memory.

For more information about this instance family, see **Storage Optimized** on the Amazon EC2 Instance Types page.

I3 Instance Family

This instance family provides Non-Volatile Memory Express (NVMe) SSD-backed instance storage optimized for low latency, very high random I/O performance, high sequential read throughput and provide high IOPS at a low cost. I3 also offers Bare Metal instances (i3.metal), powered by the Nitro System, for non-virtualized workloads, workloads that benefit from access to physical resources, or workloads that may have license restrictions.

For more information about this instance family, see **Storage Optimized** on the Amazon EC2 Instance Types page.

D2 Instance Family

D2 instances feature up to 48 TB of HDD-based local storage, deliver high disk throughput, and offer the lowest price per disk throughput performance on Amazon EC2.

For more information about this instance family, see **Storage Optimized** on the Amazon EC2 Instance Types page.

For more information about the prices of available instance types, see the Amazon EC2 Pricing page.

Workload

Workloads are the usage patterns that match your Amazon EC2 usage. Choosing the workload that most closely matches what you use reduces the number of On-Demand and unused RI hours that you might purchase by covering your usage with the best combination of RIs and On-Demand Instances. You can define more than one workload for your estimate.

Constant usage

This workload is best for a use case that has a constant, predicable load, such as logging traffic to a website or running a process in the background.

Daily spike

This workload is best for usage patterns that peak once a day, such as running several jobs at midnight or a morning news spike.

Weekly spike

This workload is best for patterns that peak once a week, such as blogs that post once a week or when you air a weekly television show.

Monthly spike

This workload is best for traffic that spikes once a month, such as monthly invoices, payroll, or other monthly reports.

Pricing

The AWS Pricing Calculator advanced estimate path offers three pricing models for Amazon EC2 instances: Cost optimized, On-Demand, or Reserved. Cost optimized combines On-Demand Instances and RIs for the least expensive option.

Pricing model

The pricing model determines whether you are looking for a pay-as-you-use instance, or an instance that you can reserve in advance. Reserving an instance is not the same as using an instance.

Cost optimized

The default value for the pricing model is **Cost optimized**. AWS Pricing Calculator uses **Cost optimized** as the default because it provides a balance between On-Demand Instances and RIs. This means that AWS Pricing Calculator tries to generate an estimate where you aren't buying more RI hours than you need, but you still have the coverage that you need for your peak traffic periods, which your RIs might not cover. AWS Pricing Calculator does this by determining the break-even point between the utilization and prices of On-Demand and Reserved Instances. For example, if RIs provide a 33% discount then any RIs that are utilized less than 67% would be underutilized, and an On-Demand Instance would be more cost-effective.

For example, you might need only two RIs to cover your day-to-day traffic, but every week you expect a period of traffic where you need four instances. AWS Pricing Calculator generates an estimate that assumes that you purchase two instances for use during the entire week and that you use On-Demand Instances to cover your peak traffic. This enables you to take advantage of the RI discount for your normal traffic, but you avoid paying for two instance reservations that go largely unused.

On-Demand

On-Demand Instances let you pay for an instance's compute capacity by the hour or second (for a minimum of 60 seconds) with no long-term commitments. This means that you don't need to plan, purchase, or maintain instances that you don't use often.

For example, you're demoing a program to a friend. You don't need the program to run for long, but your local computer can't handle the load. You can use an On-Demand Instance to run the program and show it off, but you don't need to worry about paying for the server once you're done with it.

Reserved

RIs provide a discount compared to On-Demand Instance pricing and can be purchased for a one-year or three-year term. Depending on the type of RI, you can change your Availability Zone,

instance size, and networking type or your instance family, operating system, and tenancy. This enables you to pay less for instances that you use for long periods of time.

For example, you run a website. You're not going to take down your website often, so you want to leave the server running all of the time. You can purchase a reservation and run your website on the RI.

Dedicated

Dedicated Instances are available for On-Demand and Reserved Instances. You pay the normal hourly usage fee as well as an hourly region fee. Dedicated Instances run in a VPC on hardware that is dedicated to a single customer. They're physically isolated at the host hardware level from instances that belong to other AWS accounts.

For example, you run a server with a server-bound software license. A Dedicated Instance enables you to bind your license to a specific instance and meet corporate compliance and regulatory requirements.

Contract terms

When you purchase an RI, you agree to pay for the entire term of the RI, upfront, monthly, or with a combination of the two options. The terms can last for one or three years. Paying upfront is a bigger one-time cost, but less expensive overall. Paying monthly enables you to spread out your costs over multiple billing periods.

No contract

No contract means that you're using On-Demand Instances instead of an RI. There are no upfront or monthly costs, and you pay only for what you use. However, you pay full price instead of the discounted rate provided by purchasing an RI.

1 YR No Upfront

For a one-year no-upfront term, you agree to purchase an RI for a one-year period. There is no upfront fee, but you pay a monthly fee.

1 YR Partial Upfront

For a one-year partial-upfront term, you agree to purchase an RI for a one-year period. There is an upfront fee, but you also pay a monthly fee. This means that the upfront cost is higher than if you had a no-upfront term, but the monthly cost is lower, and you pay an overall lower price than for a no-upfront RI.

1 YR No Upfront - Convertible Reserved Instances

For a one-year no-upfront term, you agree to purchase an RI for a one-year period. There is no upfront fee, but you pay a monthly fee. For a Convertible RI, you can change the instance families, operating systems, or tenancies of your Convertible RIs over the course of your RI term.

1 YR Partial Upfront - Convertible Reserved Instances

For a one-year partial-upfront term, you agree to purchase an RI for a one-year period. There is an upfront fee, but you also pay a monthly fee. This means that the upfront cost is higher than if you had a no-upfront term, but the monthly cost is lower, and you pay an overall lower price than for a no-upfront RI. For a Convertible RI, you can change the instance families, operating systems, or tenancies of your Convertible RIs over the course of your RI term.

1 YR Full Upfront - Convertible Reserved Instances

For a one-year full-upfront term, you agree to purchase an RI for a one-year period. There is no monthly fee—you pay the entire cost when you purchase the RI. For a Convertible RI, you can change the instance families, operating systems, or tenancies of your Convertible RIs over the course of your RI term.

3 YR No Upfront

For a three-year no-upfront term, you agree to purchase an RI for a three-year period. There is no upfront fee, but you pay a monthly fee.

3 YR Partial Upfront

For a three-year partial-upfront term, you agree to purchase an RI for a three-year period. There is an upfront fee, but you also pay a monthly fee. This means that the upfront cost is higher than if you had a no-upfront term, but the monthly cost is lower, and you pay an overall lower price than for a no-upfront RI.

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Data Transfer

You can accrue additional costs by transferring data into and out of Amazon EC2. If you know how much data you can expect to upload or download in a month, you can add these costs to your estimate. For more information, see the **Data Transfer** section of the On-Demand Pricing page.

Memory (Block Storage)

You can add estimates for storage attached to your instance or for snapshots taken of your instance. Attaching storage to your instance enables you to run databases, store logs, or create boot volumes for your instance. Snapshots create backups of the data on your instance, and you can add estimates for regular snapshots to your main estimate.

Generating Amazon EBS Estimates

You can back up the data on your Amazon EBS volumes to Amazon Simple Storage Service (Amazon S3) by taking point-in-time snapshots. Snapshots are incremental backups, which means that only the blocks on the device that have changed since your most recent snapshot are saved. This minimizes the time required to create the snapshot and saves on storage costs by not duplicating data. When you delete a snapshot, only the data unique to that snapshot is removed. Each snapshot contains all of the information that you need to restore your data (from the moment when the snapshot was taken) to a new Amazon EBS volume.

The total cost for a snapshot is the cost of the initial snapshot plus the incremental snapshots. AWS Pricing Calculator calculates prices with the assumption that you use AWS Step Functions and Amazon CloudWatch to create an automated monthly retention period for your snapshots, meaning that your snapshots are replaced every month.

Calculating Amazon EBS Prices

Snapshots are saved at a specific frequency (monthly, weekly, daily, or hourly), so the retention period of each incremental snapshot for a month decreases as the month progresses. AWS Pricing Calculator tries to estimate the cost of the services that you selected on a monthly basis.

The prices for snapshots reflect the initial snapshot and the incremental snapshots.

Calculating Weekly Incremental Amazon EBS Prices

AWS Pricing Calculator uses 7 to 30 different data points to calculate the estimate for any specific incremental snapshot. We can express the monthly calculation using the following mathematical formula for a snapshot that is scheduled to be taken weekly and has a monthly retention rate.

$$\sum_{i=3}^{i=1} (\text{Cost of each snapshot} * (i / 4)) * \text{storage amount changed}$$

Let's use this formula in an example. For snapshot storage, you specify the frequency as weekly and the storage amount changed as 30 GB. Each snapshot storage costs $0.05/GB.

Week	Snapshot size	Retention length	Cost formula	Snapshot cost
Snapshot for Week 1	30 GB	Three weeks	30 x $0.0375 [$0.05 x ¾]	$1.125
Snapshot for Week 2	30 GB	Two weeks	30 x $0.025 [$0.05 x ½]	$0.75
Snapshot for Week 3	30 GB	One week	30 x $0.0125 [$0.05 x ¼]	$0.375

The total monthly cost of these three incremental snapshots, taking the retention period into consideration, is $2.25.

By comparison, if we don't take the retention period into consideration, the calculation for the snapshot behaves as though each snapshot is stored for the entire duration. We can express this using the following mathematical formula.

$$\sum_{i=3}^{i=1} \text{Cost of each snapshot} * \text{storage amount changed}$$

Let's use the same example as before but without taking the retention period into consideration. For snapshot storage, you specify the frequency as weekly and the storage amount changed as 30 GB. Each snapshot storage costs $0.05/GB.

Week	Snapshot size	Retention length	Cost formula	Snapshot cost
Snapshot for Week 1	30 GB	Not considered	30 x $0.05	$1.50

Week	Snapshot size	Retention length	Cost formula	Snapshot cost
Snapshot for Week 2	30 GB	Not considered	30 x $0.05	$1.50
Snapshot for Week 3	30 GB	Not considered	30 x $0.05	$1.50

In this case, the total monthly cost of these three incremental snapshots, without taking the retention period into consideration, is $4.50.

In other words, the cost of a snapshot calculated with retention is 50% lower than the cost of a snapshot calculated without retention.

Exporting Estimates

You can export your AWS Pricing Calculator estimate as a CSV file. This enables you to save the parameters that AWS Pricing Calculator used to create your estimate so that you can revisit the parameters if you decide to set up AWS services.

To export an AWS Pricing Calculator estimate.

You can use the following procedure to export your AWS Pricing Calculator estimate for later use.

1. Open the AWS Pricing Calculator console at https://calculator.aws/#/.
2. On the **My estimate** page, on the banner, choose **Export**.
3. In the dialog box, choose **Save File** and choose **OK**.

Resources

The following related resources can help you as you work with this service.

Service-specific Resources

Each AWS service has its own documentation that can help you understand the service.

- **Amazon Elastic Compute Cloud documentation** – Provides the documentation for using Amazon Elastic Compute Cloud (Amazon EC2).
- **Elastic Load Balancing documentation** – Provides the documentation for using Elastic Load Balancing.
- **Amazon Elastic Block Store documentation** – Provides the documentation for using Amazon Elastic Block Store.

General AWS Resources

AWS provides several helpful guides, forums, contact info, and other resources for you.

- **AWS Developer Resource Center** – Provides a central starting point to find documentation, code samples, release notes, and other information to help you build innovative applications with AWS.
- **AWS Training and Courses** – Links to role-based and specialty courses and self-paced labs to help sharpen your AWS skills and gain practical experience.
- **AWS Developer Tools** – Links to developer tools and resources that provide documentation, code samples, release notes, and other information to help you build innovative applications with AWS.
- **AWS Support Center** – The hub for creating and managing your AWS Support cases. Also includes links to other helpful resources, such as forums, technical FAQs, service health status, and AWS Trusted Advisor.
- **AWS Support** – The primary web page for information about AWS Support, a one-on-one, fast-response support channel to help you build and run applications in the cloud.
- **Contact Us** – A central contact point for inquiries concerning AWS billing, your account, events, abuse, and other issues.
- **AWS Site Terms** – Detailed information about our copyright and trademark; your account, license, and site access; and other topics.

Document History for User Guide

The following table describes the documentation for this release of AWS Pricing Calculator.

- **Latest documentation update:** October 23, 2018

update-history-change	update-history-description	update-history-date
Initial launch (p. 19)	First publication of the documentation	October 23, 2018

AWS Glossary

For the latest AWS terminology, see the AWS Glossary in the *AWS General Reference*.