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# Amazon Elastic Compute Cloud

## Getting Started Guide

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# Amazon Elastic Compute Cloud: Getting Started Guide

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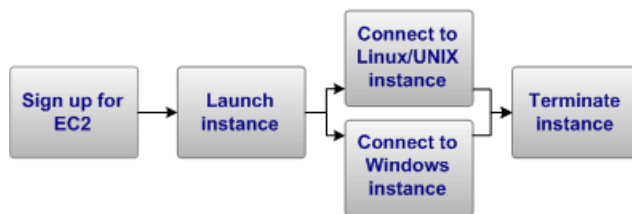
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# Get Started with EC2

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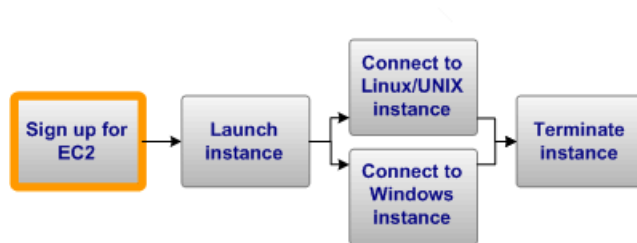
Amazon Elastic Compute Cloud (Amazon EC2) is a web service that enables you to launch and manage Linux/UNIX and Windows server instances in Amazon's data centers. You can get started with Amazon EC2 by following the tasks shown in the following diagram. You'll primarily use the AWS Management Console, a point-and-click web-based interface.



This guide walks you through launching and connecting to your first Amazon EC2 instance.

# Sign Up for EC2

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If you already have an AWS account, skip to the next procedure. If you don't already have an AWS account, use the following procedure to create one.



## Note

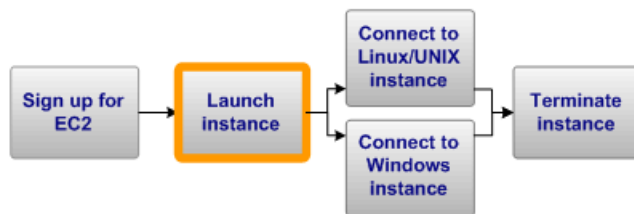
When you create an account, AWS automatically signs up the account for all services. You are charged only for the services you use.

## To create an AWS account

1. Go to <http://aws.amazon.com>, and click **Create an AWS Account**.
2. Follow the on-screen instructions.  
Part of the sign-up procedure involves receiving a phone call and entering a PIN using the phone keypad.

# Launch an Instance

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Now that you're signed up for Amazon EC2, you're ready to launch an instance using the AWS Management Console.

You can either leverage the Free Usage Tier to launch and use a free Amazon EC2 Micro Instance for 12 months or launch a regular instance. For more information about the Free Usage Tier, go to the [AWS Free Usage Tier product page](#) and [Getting Started with AWS Free Usage Tier](#).



## Important

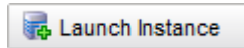
The instance you're about to launch will be live (and not running in a sandbox). If you choose an instance that is not in the free tier, you will incur the standard Amazon EC2 usage fees for the instance until you terminate it in the last task in this tutorial. The total charges will be minimal (typically less than a dollar). For more information about Amazon EC2 usage rates, go to the [Amazon EC2 product page](#).

## To launch an instance

1. Start the launch wizard:
  - a. From [the AWS Management Console](#), click **Sign in to the AWS Console** and log in with the email address and password you used when signing up for Amazon EC2.



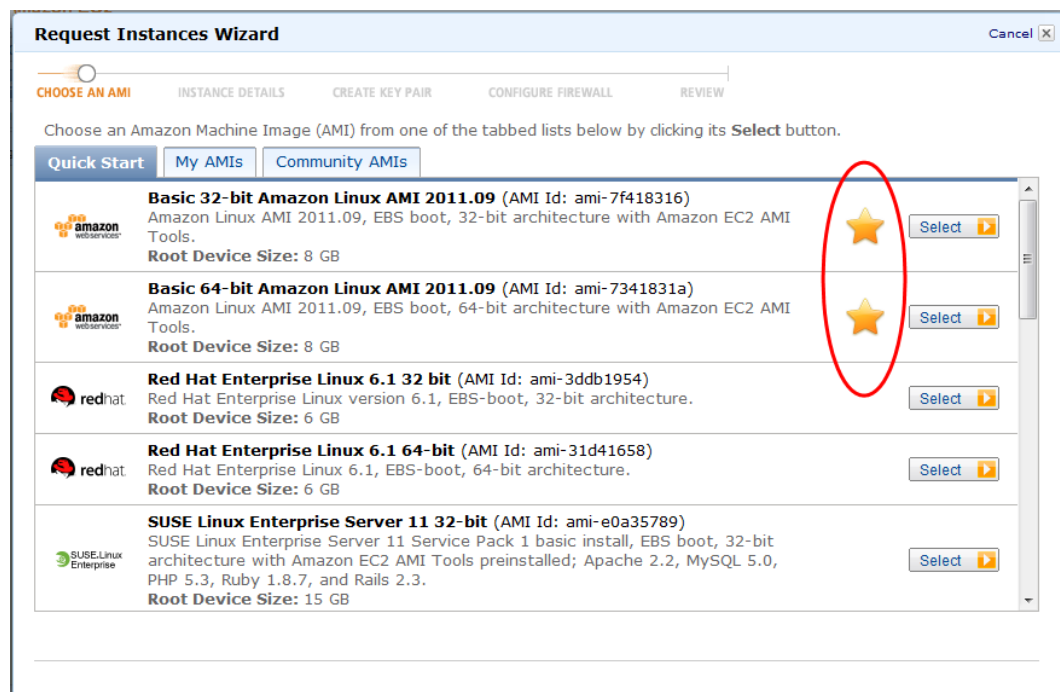
- b. From the Amazon EC2 Console Dashboard, click **Launch Instance** to start the Request Instances Wizard.



The first page of the wizard displays a list of basic AMIs on the **Quick Start** tab.

An *Amazon Machine Image (AMI)* contains all the information needed to create a new instance of a server. For example, an AMI might contain all the software to act as a web server (e.g., Linux, Apache, and your web site), or all the software to act as a Windows database server (e.g., Windows and SQL Server). To keep things simple, AWS marks the AMIs that are available in the free tier with a star.

2. Choose an AMI: Select either the *Basic 32-bit Amazon Linux AMI*, or a *Windows* AMI from the list.



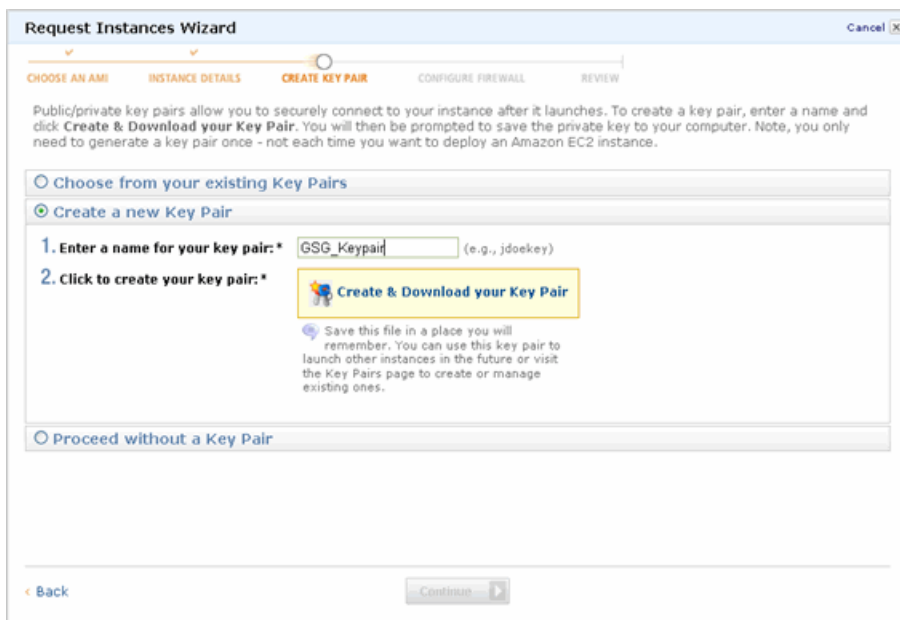
After you select an AMI, the wizard steps to the **Instance Details** page. This is where you control settings such as the number and size of instances to launch (in this tutorial you'll launch a single small instance).

3. The default settings on this page of the wizard and the next two pages are what you want, so just click **Continue** on each page.

The wizard displays the **Create Key Pair** page.

A *key pair* is a security credential similar to a password, which you use to securely connect to your instance after it's running. If you're new to Amazon EC2 and haven't created any key pairs yet, when the wizard displays the **Create Key Pair** page, the **Create a new Key Pair** button is selected by default. We assume you'll want a new key pair.

4. Create a key pair:
  - a. On the **Create Key Pair** page, enter a name for your key pair (e.g., GSG\_Keypair). This will be the name of the private key file associated with the pair (with a `.pem` extension).



- b. Click **Create & Download your Key Pair**.  
You're prompted to save the private key from the key pair to your system.
    - c. Save the private key in a safe place on your system. Note the location because you'll need to use the key soon to connect to the instance.

The wizard displays the **Configure Firewall** page, where you create a *security group*.

5. Create a security group:

A security group defines firewall rules for your instances. These rules specify which incoming network traffic should be delivered to your instance (e.g., accept web traffic on port 80). All other traffic is ignored. You can modify rules for a group at any time. The new rules are automatically enforced for all running instances.

If you're new to Amazon EC2 and haven't set up any security groups yet, you need to understand how the wizard handles them. When the wizard displays the **Configure Firewall** page, the **Create a new Security Group** button is selected by default, and a security group has already been defined for you. The name and description for the group is *quick-start-x*. You can change the name and description if you want. The group already has basic firewall rules that enable you to connect to the type of instance you've chosen. The following image shows the rules for the quick-start group if you're launching the *Basic 32-bit Amazon Linux AMI 1.0*. The rule enables SSH access to the instance from anywhere.



**Request Instances Wizard** Cancel

CHOOSE AN AMI    INSTANCE DETAILS    CREATE KEY PAIR    **CONFIGURE FIREWALL**    REVIEW

Security groups determine whether a network port is open or blocked on your instances. You may use an existing security group, or we can help you create a new security group to allow access to your instances using the suggested ports below. Add additional ports now or update your security group anytime using the Security Groups page.

Choose one or more of your existing Security Groups

Create a new Security Group

**Group Name**

**Group Description**

**Inbound Rules**

Create a new rule:

Port range:   
(e.g., 80 or 49152-65535)

Source:   
(e.g., 192.168.2.0/24, sg-47ad482e, or 1234567890/default)

TCP	Port (Service)	Source	Action
	22 (SSH)	0.0.0.0/0	Delete

< Back Continue >

The following image shows the rules for the quick-start group if you're launching the *Getting Started on Microsoft Windows Server 2008* AMI. The rules enable Remote Desktop (RDP), MS SQL, and HTTP access to the instance from anywhere.

**Request Instances Wizard** Cancel X

CHOOSE AN AMI    INSTANCE DETAILS    CREATE KEY PAIR    **CONFIGURE FIREWALL**    REVIEW

Security groups determine whether a network port is open or blocked on your instances. You may use an existing security group, or we can help you create a new security group to allow access to your instances using the suggested ports below. Add additional ports now or update your security group anytime using the Security Groups page.

Choose one or more of your existing Security Groups

Create a new Security Group

**Group Name**  ←

**Group Description**

**Inbound Rules**

Create a new rule:  ▼

Port range:   
(e.g., 80 or 49152-65535)

Source:   
(e.g., 192.168.2.0/24, sg-47ad482e, or 1234567890/default)

Port (Service)	Source	Action
3389 (RDP)	0.0.0.0/0	Delete
1433 (MS SQL)	0.0.0.0/0	Delete
80 (HTTP)	0.0.0.0/0	Delete

↑



### Caution

The quick-start security group enables *all* IP addresses to access your instance over the specified ports (e.g., SSH). This is acceptable for the short exercise in this tutorial, but it's unsafe for production environments. In production, you'll authorize only a specific IP address or range of addresses to access your instance.



### Tip

If your AWS account isn't new and has security groups already, the Request Instances Wizard looks for a security group that has rules that might match the type of instance you're launching and preselects that group. You can select a different group or create a new group to launch the instance into.




If the wizard doesn't find an existing group to use, it displays a prepopulated quick-start security group like the ones shown in the preceding images.

Make any changes you want to the security group name or description, and click **Continue**.

The security group is created and assigned an ID (e.g., sg-b1784ec5). Your instance will be launched into this new security group. The wizard steps to the **Review** page where you can review the settings and launch the instance.

6. Review your settings and launch the instance:
  - a. Click **Launch**.  
A confirmation page is displayed to let you know your instance is launching.

- b. Click **Close** to close the confirmation page, and then click **Instances** in the navigation pane to view your instance's status. It takes a short time for an instance to launch. The instance's status will be *pending* while it's launching.

	Instance	Root Device	Type	Status	Public DNS
	 i-8b9824e7	ebs	m1.small	 pending	

After a short period, your instance's status switches to *running*. You can click **Refresh** to refresh the display.

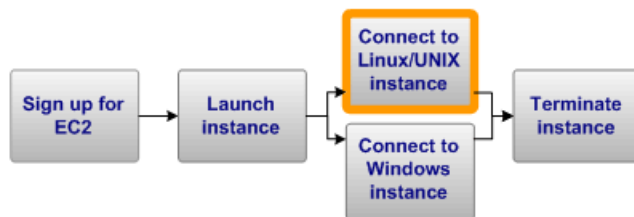
	Instance	Root Device	Type	Status	Public DNS
<input type="checkbox"/>	 i-8b9824e7	ebs	m1.small	 running	ec2-50-16-143-56.compute-1.amazonaws.com

- c. Record the public DNS name for your instance because you'll need it for the next task. If you select the instance, its details (including the public DNS name) are displayed in the lower pane. You can also click **Show/Hide** in the top right corner of the page to select which columns to display.

When your instance's status is *running*, you can connect to it. If you launched a Linux/UNIX instance, see [Connect to Your Linux/UNIX Instance \(p. 9\)](#). If you launched a Windows instance, see [Connect to Your Windows Instance \(p. 17\)](#).

# Connect to Your Linux/UNIX Instance

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## Topics

- [Connecting from a Linux/UNIX Machine \(p. 10\)](#)
- [Connecting from a Windows Machine \(p. 12\)](#)

# Connecting from a Linux/UNIX Machine

Use the `ssh` command to connect to your Linux/UNIX instance from a Linux/UNIX machine.



## Note

Most Linux and UNIX machines include an SSH client by default. If yours doesn't, the OpenSSH project provides a free implementation of the full suite of SSH tools. For more information, go to <http://www.openssh.org>.

## To use SSH to connect

1. In a command line shell, change directories to the location of the private key file that you created when you launched the instance.
2. Use the `chmod` command to make sure your private key file isn't publicly viewable. For example, if your file were `GSG_Keypair.pem`, you would enter:

```
chmod 400 GSG_Keypair.pem
```

3. Connect to your instance using the instance's public DNS name (which you should have recorded earlier). For example, if the key file is `GSG_Keypair.pem` and the instance's DNS name is `ec2-184-72-204-112.compute-1.amazonaws.com`, use the following command.

```
ssh -i GSG_Keypair.pem ec2-user@ec2-184-72-204-112.compute-1.amazonaws.com
```



## Tip

The AMI we launched in this exercise requires you to log in to your instance as `ec2-user`. Some AMIs let you log in as `root`.

You'll see a response like the following.

```
The authenticity of host 'ec2-184-72-204-112.compute-1.amazonaws.com
(10.254.142.33)'
can't be established.
RSA key fingerprint is fc:8d:0c:eb:0e:a6:4a:6a:61:50:00:c4:d2:51:78:66.
Are you sure you want to continue connecting (yes/no)? yes
```

4. Enter **yes**.

You'll see a response like the following.

```
Warning: Permanently added 'ec2-184-72-204-112.compute-1.amazonaws.com'
(RSA)
to the list of known hosts.
```



**Note**

If you can't connect, check that SSH traffic is enabled for your instance. For more information, go to [Authorize Network Access to Your Instances](#) in the *Amazon Elastic Compute Cloud User Guide*.

You're now logged in as `ec2-user` and can work with the instance like you would any normal server. If you need to run a command as root, you must prefix the command with `sudo`. For example:

```
sudo /bin/cat /etc/image-id
```

Normally you'd continue using the instance. However, for the purposes of this tutorial, we're going to show you how to terminate the instance immediately. Jump to [Terminate Your Instance \(p. 20\)](#).

## Connecting from a Windows Machine

To connect to your Linux/UNIX instance from a Windows machine, you use an SSH client. The following instructions assume that you're using PuTTY, a free SSH client for Windows machines.

### Getting PuTTY

#### To download and install PuTTY

- Go to <http://www.chiark.greenend.org.uk/~sgtatham/putty/> and follow the instructions there.



#### Note

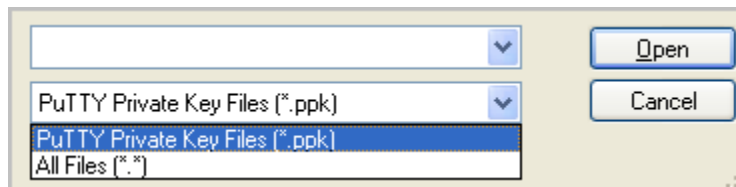
Other tools in the PuTTY suite are PuTTYgen, a key generation program, and pscp, a secure copy command line tool. The different PuTTY tools are separate applications. You can install them separately or install the entire suite with a simple Windows installer. The following instructions assume you've installed the entire suite and can access all the components from the Windows Start menu.

### Converting Your Private Key

PuTTY does not natively support the private key format generated by Amazon EC2. Fortunately, PuTTY has a tool called PuTTYgen, which can convert keys to the required PuTTY format.

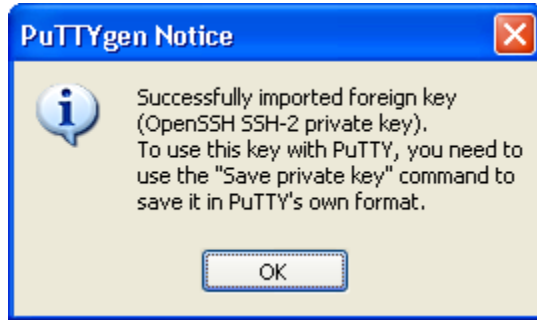
#### To convert your private key

- Start PuTTYgen (e.g., from the **Start** menu, click **All Programs > PuTTY > PuTTYgen**).
- Click **Load** and browse to the location of the private key file that you want to convert (e.g., `GSG_Keypair.pem`). By default, PuTTYgen displays only files with extension `.ppk`; you'll need to change that to display files of all types in order to see your `.pem` key file. The private key file must end with a newline character or PuTTYgen cannot load it correctly.



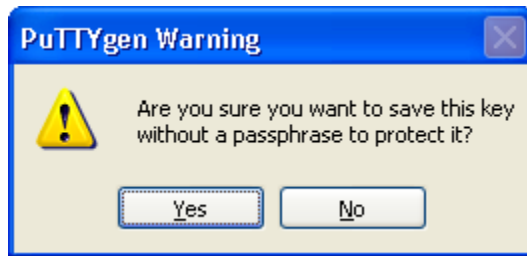
- Select your `.pem` key file and click **Open**.

PuTTYgen displays the following message.



When you click OK, PuTTYgen displays a dialog box with information about the key you loaded, such as the public key and the fingerprint. The keys that Amazon EC2 generates are 1024-bit SSH-2 RSA keys.

4. Click **Save private key** to save the key in PuTTY's format. PuTTYgen asks if you want to save the key without a passphrase.



5. Click **Yes**.



**Note**

A passphrase on a private key is an extra layer of protection, so even if your private key is discovered, it will not be usable without the passphrase. The downside to using a passphrase is that it makes automation harder because human intervention is needed to log on to an instance, or copy files to an instance. For this exercise, we're not using a passphrase.

6. Name the key with the same name you used for the key pair (e.g., GSG\_Keypair). PuTTY automatically adds the `.ppk` file extension.

Your private key is now in the correct format for use with PuTTY. You can now connect to your instance using PuTTY's SSH client.

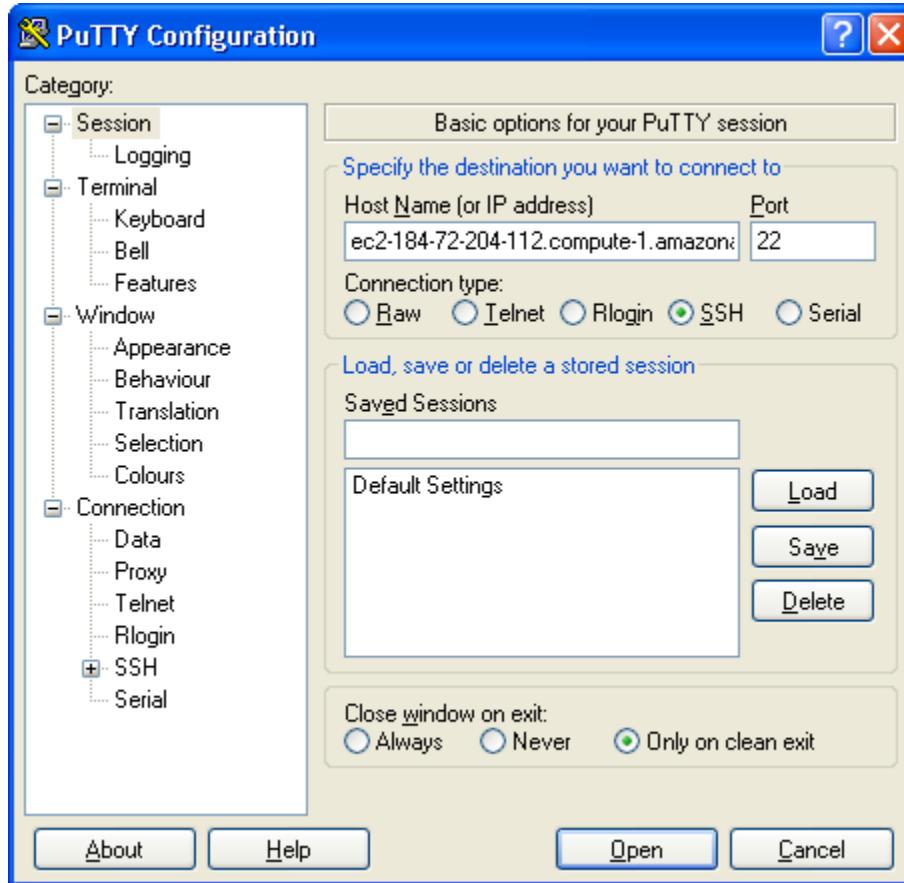
## Connecting Using PuTTY SSH

You'll connect by starting a PuTTY SSH session.

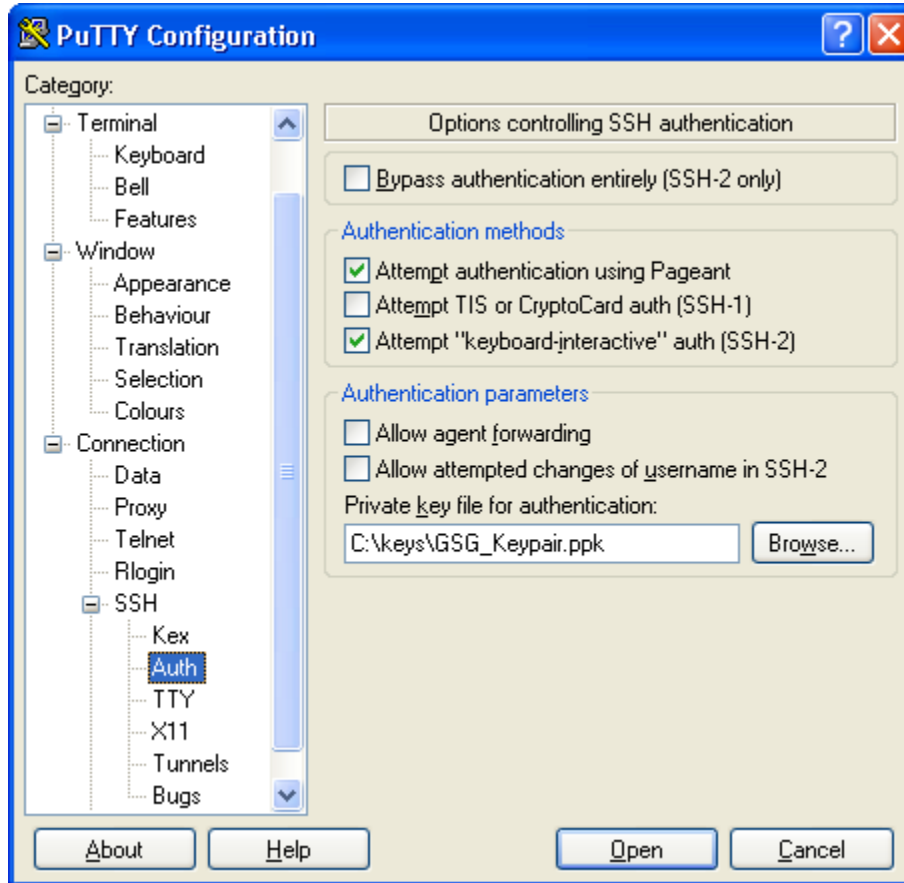
### To use SSH to connect

1. Start PuTTY (e.g., from the **Start** menu, click **All Programs > PuTTY > PuTTY**). A dialog box opens with a **Category** menu on the left side. On the right side, the basic options for your PuTTY session are displayed.
2. In the **Host Name** field, enter the public DNS name of your instance (which you should have recorded earlier). You can optionally prefix the DNS name with `ec2-user@` to automatically log in as `ec2-user` when the session opens.





3. In the **Category** menu, under **Connection**, click **SSH**, and then **Auth**. The options controlling SSH authentication are displayed.
4. Click **Browse** and navigate to the PuTTY private key file you generated in the preceding section.



5. Click **Open**.  
An SSH session window opens and PuTTY displays a security alert asking if you trust the host you're connecting to.
6. Click **Yes**.



**Note**

If you can't connect, check that SSH traffic is enabled for your instance. For more information, go to [Authorize Network Access to Your Instances](#) in the *Amazon Elastic Compute Cloud User Guide*.

7. In the SSH session window, log in as ec2-user if you didn't as part of starting the SSH session.



**Tip**

The AMI we launched in this exercise requires you to log in to your instance as ec2-user. Some AMIs let you log in as root.



**Note**

If you specified a passphrase when you converted your private key to PuTTY's format, you must provide that passphrase when you log in to the instance.

## Amazon Elastic Compute Cloud Getting Started Guide

### Connecting Using PuTTY SSH

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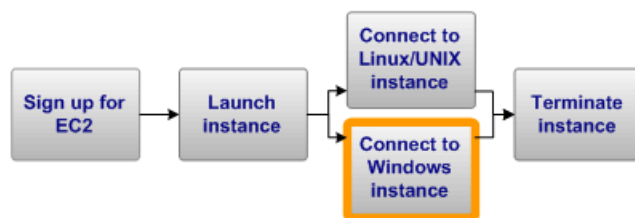
You're now logged in as `ec2-user` and can work with the instance like you would any normal server. If you need to run a command as root, you must prefix the command with `sudo`. For example:

```
sudo /bin/cat /etc/image-id
```

Normally you'd continue using the instance. However, for the purposes of this guide, we're going to show you how to terminate the instance immediately. Jump to [Terminate Your Instance \(p. 20\)](#).

# Connect to Your Windows Instance

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To connect to a Windows instance, you must retrieve the initial administrator password first, and then use it with Remote Desktop. You'll need the contents of the private key file that you created when you launched the instance (e.g., `GSG_Keypair.pem`).

## To connect to your Windows instance

1. Retrieve the initial administrator password:
  - a. Navigate to the directory where you stored the private key file when you launched the instance.
  - b. Open the file in a text editor and copy the entire contents (including the first and last lines, which contain `BEGIN RSA PRIVATE KEY` and `END RSA PRIVATE KEY`).
  - c. Go to the AWS Management Console and locate the instance on the **Instances** page.
  - d. Right-click the instance and select **Get Windows Password**.  
The **Retrieve Default Windows Administrator Password** dialog box is displayed (it might take a few minutes after the instance is launched before the password is available).



- e. Paste the contents of the private key file into the **Private Key** field.



- f. Click **Decrypt Password**.  
The console returns the default administrator password for the instance.
- g. Save the password. You will need it to connect to the instance.

2. Connect to the instance using Remote Desktop:
  - a. Start the Remote Desktop application (e.g., from the **Start** menu, point to **All Programs > Accessories**, and then click **Remote Desktop Connection**).



### Note

Most modern Windows operating systems from Windows XP onward already include the Remote Desktop application. If you're using an old version of Windows, you can download the Remote Desktop application from the [Microsoft web site](#).

- b. Enter the public DNS name of the instance (which you should have recorded earlier) and click **Connect**.
- c. Log in using `Administrator` as the username and the administrator password you got in the previous task as the password.

You're now connected to your instance. You can work with it like you would any Windows server.



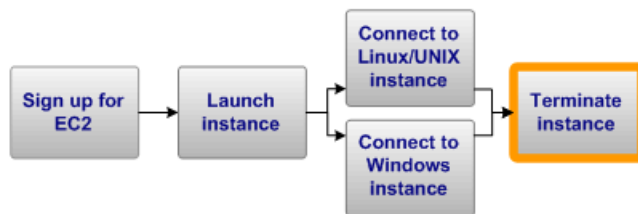
### Caution

After you connect to any new Windows instance you've just launched, we recommend you change the Windows administrator password from the default value.

Normally you'd continue using the instance. However, for the purposes of this tutorial, we're going to show you how to terminate the instance immediately. Jump to [Terminate Your Instance \(p. 20\)](#).

# Terminate Your Instance

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As soon as your instance starts to boot, you're billed for each hour or partial hour that you keep the instance running (even if the instance is idle). When you've decided that you no longer need the instance, you can terminate it.



## Note

You cannot restart a terminated instance. However, you can launch additional instances of the same AMI.

## To terminate an instance

1. In the [AWS Management Console](#), locate the instance in your list of instances on the **Instances** page.
2. Right-click the instance, and then click **Terminate**.
3. Click **Yes, Terminate** when prompted for confirmation.  
Amazon EC2 begins terminating the instance. As soon as the instance status changes to `shutting down` or `terminated`, you stop incurring charges for that instance.

Congratulations! You successfully launched, connected to, and terminated an instance. For more information about Amazon EC2 and how to continue, see [Where Do I Go from Here? \(p. 21\)](#).

Your input is important to us. Help make our documentation helpful and easy to use. Please take a minute to provide feedback on your getting started experience with Amazon EC2. To begin the survey, see [Please Provide Feedback \(p. 27\)](#). Thank you.

# Where Do I Go from Here?

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## Topics

- [AWS Account and Security Credentials](#) (p. 21)
- [Other Ways to Access Amazon EC2](#) (p. 21)
- [Designing Your Application for the Cloud](#) (p. 22)
- [Learn More about Amazon EC2](#) (p. 22)
- [Amazon EC2 Resources](#) (p. 25)

Amazon EC2 is a rich service offering many things we haven't covered in this guide, such as creating your own AMIs, using persistent file storage, monitoring instance health, load balancing, and virtual private networking. This section provides links to additional resources, which will help you deepen your understanding and use of Amazon EC2.

## AWS Account and Security Credentials

So far you signed up for the service, got an AWS account and security credentials, and then completed a short exercise covering the essential product functions. Now that you're finished with the exercise, we recommend that you check with an administrator or coworker in your organization to determine if he or she already has an AWS account and security credentials for you to use in future interactions with AWS.

If you're an account owner or administrator and want to know more about AWS Identity and Access Management, go to the product description at <http://aws.amazon.com/iam> or to the technical documentation at [Using AWS Identity and Access Management](#).

## Other Ways to Access Amazon EC2

This guide has shown you how to launch and terminate an instance using the AWS Management Console. You can continue using Amazon EC2 through the console, or try one of the other interfaces.

### Continue Using the Console

The AWS Management Console includes many other functions besides just launching and terminating instances. To learn more about how to use Amazon EC2 through the console, go to the [Amazon Elastic](#)



[Compute Cloud User Guide](#). The console also has online Help to assist you (just click the **Help** button in the console).

## Use the Command Line Interface

To get started with Amazon EC2's Java-based command line interface, go to the Getting Started section in the [Amazon Elastic Compute Cloud User Guide](#). These command line tools are a fast way to execute all the EC2 functions without coding to the API or using a library.

## Use an Existing Library

If you prefer to use Amazon EC2 through a programmatic interface, there are libraries and resources available for the following languages:

- [Java](#)
- [PHP](#)
- [Python](#)
- [Ruby](#)
- [Windows and .NET](#)

For libraries and sample code in all languages, go to [Amazon EC2 Sample Code & Libraries](#).

## Code Directly to the Web Service API

If you want to write code directly to the Amazon EC2 SOAP or Query API, go to [Making API Requests](#) in the *Amazon Elastic Compute Cloud User Guide*. The guide describes how to create and authenticate API requests, and how to use Amazon EC2 through the APIs. For a complete description of all the API actions, go to the [Amazon Elastic Compute Cloud API Reference](#).

# Designing Your Application for the Cloud

AWS solutions architects and evangelists have written white papers to help you design your application so it's fault tolerant, scalable, and elastic. For more information, go to [AWS Cloud Computing Whitepapers](#).

# Learn More about Amazon EC2

This section lists additional features of Amazon EC2 and where to get more information. You can also find additional information about Amazon EC2 in the [Amazon EC2 Articles & Tutorials](#) area of the AWS web site.

## Amazon Virtual Private Cloud

You can use Amazon EC2 with Amazon Virtual Private Cloud, a service that enables you to create an isolated portion of the AWS cloud called a *VPC*. With Amazon VPC, you can create a virtual network topology—including subnets and route tables—for your EC2 resources. For more information, go to the [Amazon VPC product page](#) and the [Amazon Virtual Private Cloud User Guide](#).

## Creating Your Own AMIs

Amazon and other reputable sources offer AMIs that you can launch. However, you might want to create your own custom AMIs. You can modify instances of Amazon AMIs or other reputable public AMIs as needed and create your own custom AMIs from them. For general information about AMIs, go to [AMIs](#) and to [Creating Your Own AMIs](#) in the *Amazon Elastic Compute Cloud User Guide*.

You can choose between Amazon S3 or Amazon Elastic Block Store as the root device for your AMI (for a brief description of Amazon EBS, see [Amazon Elastic Block Store \(p. 24\)](#) later in this section). We recommend using instances backed by Amazon EBS, because they launch faster and use persistent storage. For more information, go to [AMIs Backed by Amazon EBS](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Importing Your Own Virtual Machines

You can import a virtual machine or volume from your own data center into Amazon EC2. For more information, go to [Importing Your Virtual Machines and Volumes into Amazon EC2](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Instance Types

To meet the needs of different organizations and applications, Amazon EC2 instances are available in different sizes and CPU/memory configurations. For more information, go to [Instances](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Tags

You can add optional metadata to your instances, AMIs, and other EC2 resources to help you categorize and manage them. For more information, go to [Using Tags](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Elastic IP Addresses

You might want to have static IP addresses for your instances. Amazon EC2 provides *elastic IP addresses* that can be dynamically remapped to different instances. For more information, go to [Elastic IP Addresses](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Security Groups

You might be concerned about keeping others from accessing your instances, both inside and outside the Amazon network. You can create other security groups (beyond the basic group we used in this guide) to meet your security requirements. For more information, go to [Network Security Concepts](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Availability Zones

You might want to build a geographically dispersed, fault tolerant architecture on Amazon EC2. You can place instances in different geographic regions and isolate instances within those regions using Availability Zones. This provides geographic flexibility and affordable fault tolerance. For more information, go to [Region and Availability Zone Concepts](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Amazon Linux

AWS provides Amazon Linux AMIs, which are supported and maintained Linux images optimized for the EC2 environment. For more information, go to [Amazon Linux AMI](#).

## Amazon EC2 Running Windows

Amazon EC2 can run Microsoft Windows Server, with or without Microsoft SQL Server. For more information, go to the [Amazon EC2 Running Microsoft Windows Server and SQL Server page](#). Also, go to [Instance Families and Types](#) and look for Windows Instance Types in the *Amazon Elastic Compute Cloud User Guide*.

## Reserved Instances

You might want to run a set of full-time or nearly full-time instances but also bring down your costs. Amazon EC2 supports an additional pricing option that enables you to make a low one-time payment for each instance to reserve and receive a significant discount on the hourly usage charge for that instance. For more information, go to [On-Demand and Reserved Instances](#) and to [Reserving Amazon EC2 Instances](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Spot Instances

If you're flexible about when you need instances and want to bring down your costs, Amazon EC2 lets you bid for unused Amazon EC2 capacity and run your instances for as long as your bid exceeds the current *Spot Price*. For more information, go to the [Amazon EC2 Spot Instances product page](#) and [Introduction to Spot Instances](#).

## Amazon Elastic Block Store

You might need more space than is provided on the instance, or you might need a permanent storage solution. Amazon Elastic Block Store enables you to create volumes that can be mounted as block devices by Amazon EC2 instances. Amazon EBS volumes behave like raw unformatted external block devices, and they persist past the life of an Amazon EC2 instance. For more information, go to the [Amazon Elastic Block Store product page](#). Also go to [Amazon Elastic Block Store](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Monitoring Instances

You might need a solution for monitoring your instances. Amazon CloudWatch is a monitoring service for Amazon EC2 that is designed to gather, aggregate, store, and retrieve metrics. For more information, go to the [Amazon CloudWatch product page](#) and the [Amazon CloudWatch Developer Guide](#).

## Load Balancing

You might need a solution for load balancing requests to your instances. Elastic Load Balancing offers the ability to evenly spread requests across your running Amazon EC2 instances. For more information, go to the [Elastic Load Balancing product page](#) and the [Elastic Load Balancing Developer Guide](#).

## Automatically Scaling Instances

You might want to automatically scale up and down the number of instances you use. Auto Scaling enables you to automatically increase or decrease the number of running Amazon EC2 instances in

response to your web application's usage and the configuration you define. For more information, go to the [Auto Scaling product page](#) and the [Amazon Auto Scaling Developer Guide](#).

## Micro Instances

Amazon EC2 offers micro instances, which provide a small amount of consistent CPU resources and allow you to burst CPU capacity when additional cycles are available. They are well suited for lower throughput applications and web sites that consume significant compute cycles periodically. For more information, go to [Micro Instance Concepts](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Cluster Instances

Amazon EC2 offers cluster instances for your High-Performance Computing (HPC) applications. These instances provide you with high-bandwidth, low-latency inter-node communications for advanced computational applications such as computational fluid dynamics, computational biology, and materials research. For more information, go to [Using Cluster Instances](#) in the *Amazon Elastic Compute Cloud User Guide*.

## Public Data Sets

Amazon EC2 provides a repository of public data sets, such as the mapping of the human genome and the US census data, that you can seamlessly integrate into your AWS cloud-based applications. For more information, go to the [Public Data Sets on AWS page](#). Also go to [Using Public Data Sets](#) in the *Amazon Elastic Compute Cloud User Guide*.

# Amazon EC2 Resources

The following table lists related resources that you'll find useful as you work with this service.

Resource	Description
<a href="#">Amazon Elastic Compute Cloud User Guide</a>	Provides conceptual information about Amazon EC2 and describes how to use Amazon EC2 features using the AWS Management Console, command line tools, and Query API.
<a href="#">Amazon Elastic Compute Cloud API Reference</a>	Contains a comprehensive description of the API actions, data types, and errors.
<a href="#">Amazon Elastic Compute Cloud Command Line Reference</a>	Contains a comprehensive description of all the command line tools and their options.
<a href="#">Amazon EC2 Technical FAQ</a>	Covers the top questions developers have asked about this product.
<a href="#">Amazon EC2 Release Notes</a>	Give a high-level overview of the current release. They specifically note any new features, corrections, and known issues.
<a href="#">AWS Developer Resource Center</a>	A central starting point to find documentation, code samples, release notes, and other information to help you build innovative applications with AWS.
<a href="#">AWS Management Console</a>	The console lets you perform most of the functions of Amazon EC2 and other AWS products without programming.

## Amazon Elastic Compute Cloud Getting Started Guide

### Amazon EC2 Resources

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Resource	Description
<a href="#">Discussion Forums</a>	A community-based forum for developers to discuss technical questions related to Amazon Web Services.
<a href="#">AWS Support Center</a>	The home page for AWS Technical Support, including access to our Developer Forums, Technical FAQs, Service Status page, and AWS Premium Support (if you are subscribed to this program).
<a href="#">AWS Premium Support Information</a>	The primary web page for information about AWS Premium Support, a one-on-one, fast-response support channel to help you build and run applications on AWS Infrastructure Services.
<a href="#">Amazon EC2 Product Information</a>	The primary web page for information about Amazon EC2.
Form for questions related to your AWS account: <a href="#">Contact Us</a>	This form is <i>only</i> for account questions. For technical questions, use the Discussion Forums.
<a href="#">Terms of Use</a>	Detailed information about the copyright and trademark usage at Amazon.com and other topics.

Your input is important to us. Help make our documentation helpful and easy to use. Please take a minute to provide feedback on your getting started experience with Amazon EC2. To begin the survey, see [Please Provide Feedback \(p. 27\)](#). Thank you.

# Please Provide Feedback

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Your input is important to help make our documentation helpful and easy to use. Please tell us about your experience getting started with Amazon EC2 by completing our [Getting Started Survey](#).

Thank you.

# Document History

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This documentation is associated with the 2011-12-01 release of Amazon Elastic Compute Cloud (Amazon EC2). This guide was last updated on 29 December 2011.

The following table describes the important changes since the last release of the *Amazon Elastic Compute Cloud Getting Started Guide*.

Change	Description	Release Date
Public Release	This is the first release of the <i>Amazon Elastic Compute Cloud Getting Started Guide</i> .	In this release

# About This Guide

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This is the *Amazon Elastic Compute Cloud Getting Started Guide*. It was last updated on December 29, 2011.

Amazon Elastic Compute Cloud is often referred to within this guide as "Amazon EC2" or simply "EC2"; likewise the Amazon Simple Storage Service is referred to in this guide as "Amazon S3"; all copyrights and legal protections still apply.