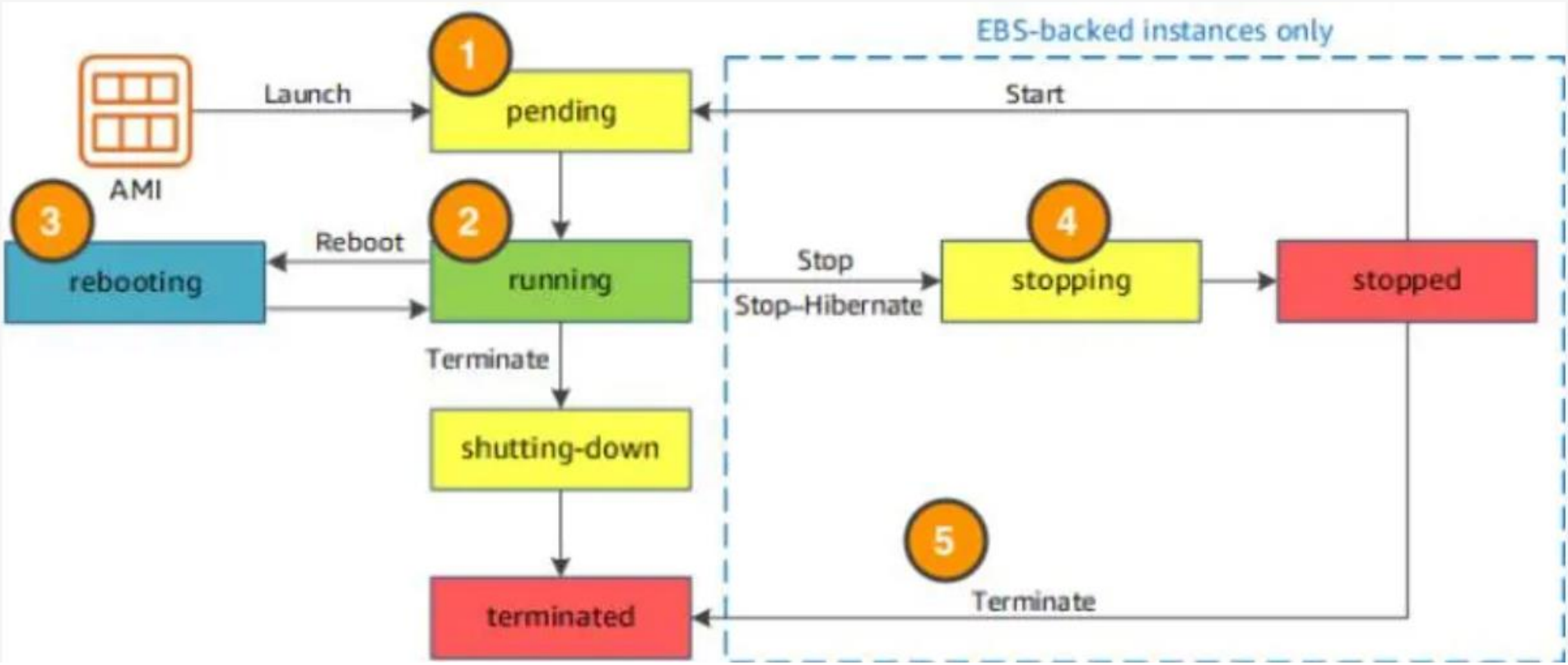
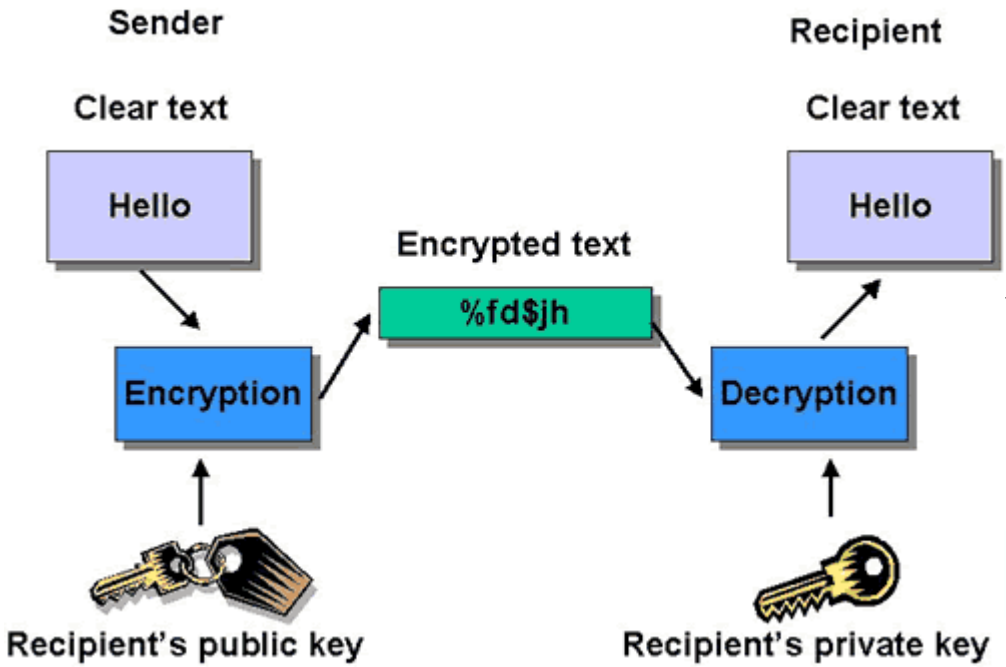
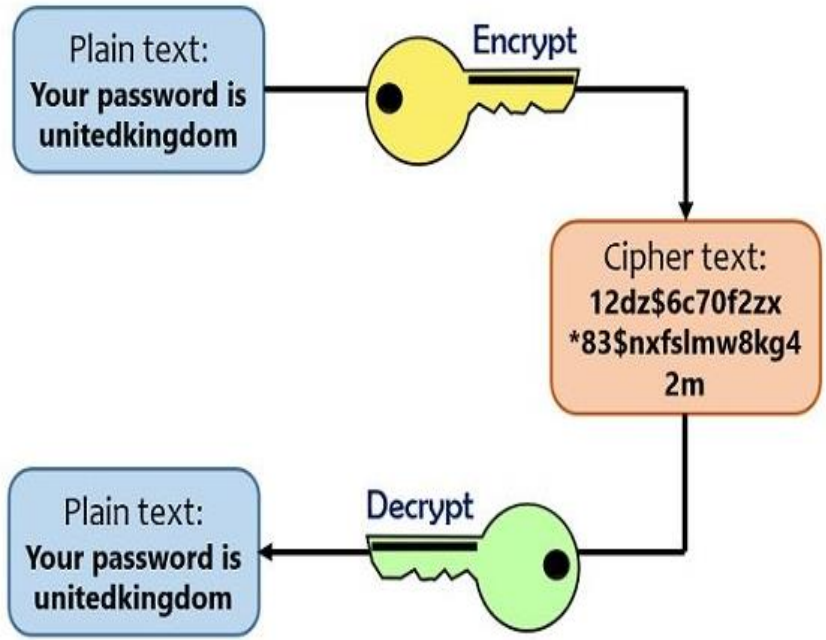
Life Cycle of instance





So, in this way encryption prevents loss of information because of unauthorized access of data.



Process of Encryption and Decryption

A key pair, consisting of a public key and a private key, is a set of security credentials that you use to prove your identity when connecting to an Amazon EC2 instance. Amazon EC2 stores the public key on your instance, and you store the private key.

To create your key pair

2.In the navigation pane, under **Network & Security**, choose **Key Pairs**.

1.Open the Amazon EC2 console at https://console.aws.amazon.com/ec2/.

3.Choose **Create key pair**.

4.For **Name**, enter a descriptive name for the key pair. Amazon EC2 associates the public key with the name that you specify as the key name. A key name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

5.For **Key pair type**, choose either **RSA** or **ED25519**. Note that **ED25519** keys are not supported for Windows instances, EC2 Instance Connect, or EC2 Serial Console.

6.For **Private key file format**, choose the format in which to save the private key. To save the private key in a format that can be used with OpenSSH, choose **pem**. To save the private key in a format that can be used with PuTTY, choose **ppk**.

If you chose **ED25519** in the previous step, the **Private key file format** options do not appear, and the private key format defaults to **pem**.

7.To add a tag to the public key, choose **Add tag**, and enter the key and value for the tag. Repeat for each tag.

8.Choose **Create key pair**.

9.The private key file is automatically downloaded by your browser. The base file name is the name that you specified as the name of your key pair, and the file name extension is determined by the file format that you chose. Save the private key file in a safe place.

Important

This is the only chance for you to save the private key file.

10.If you will use an SSH client on a macOS or Linux computer to connect to your Linux instance, use the following command to set the permissions of your private key file so that only you can read it.

chmod 400 ***my-key-pair*****.pem**

If you do not set these permissions, then you cannot connect to your instance using this key pair. For more information, see Error: Unprotected private key file.

Amazon Elastic Compute Cloud (EC2)

Amazon Machine Images (**AMIs**) are the basic building blocks of Amazon EC2

An AMI is a template that contains a software configuration (operating system, application server and applications) that can run on Amazon's computing environment

AMIs can be used to launch an ***instance***, which is a copy of the AMI running as a virtual server in the cloud.

Getting Started with Amazon EC2

Step 1: Sign up for Amazon EC2

Step 2: Create a key pair

Step 3: Launch an Amazon EC2 instance

Step 4: Connect to the instance

Step 5: Customize the instance

Step 6: Terminate instance and delete the volume created

Creating a key pair

AWS uses public-key cryptography to encrypt and decrypt login information.

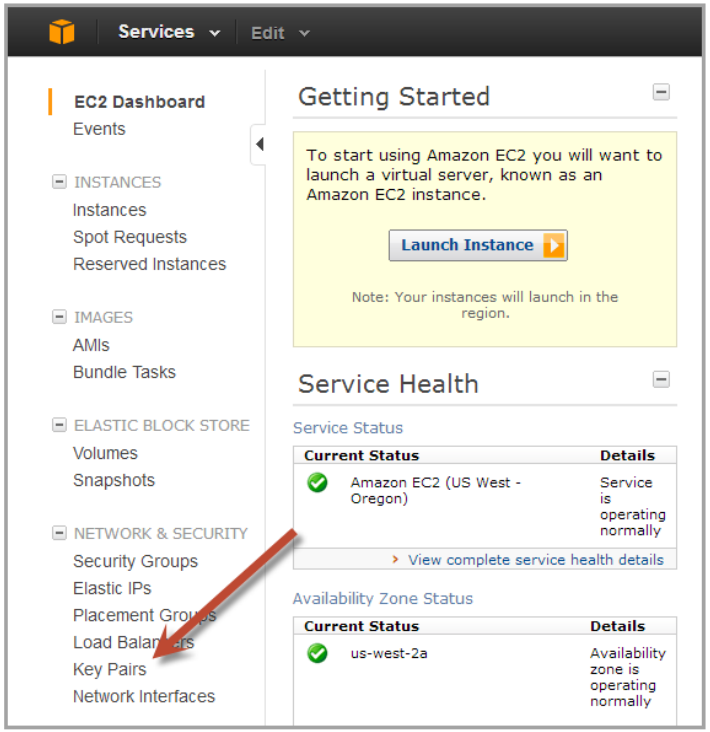
AWS only stores the public key, and the user stores the private key.

There are two options for creating a key pair:

- Have Amazon EC2 generate it for you
- Generate it yourself using a third-party tool such as OpenSSH, then import the public key to Amazon EC2

Generating a key pair with Amazon EC2

1. Open the Amazon EC2 console at http://console.aws.amazon.com/ec2/
2. On the navigation bar select region for the key pair
3. Click **Key Pairs** in the navigation pane to display the list of key pairs associated with the account

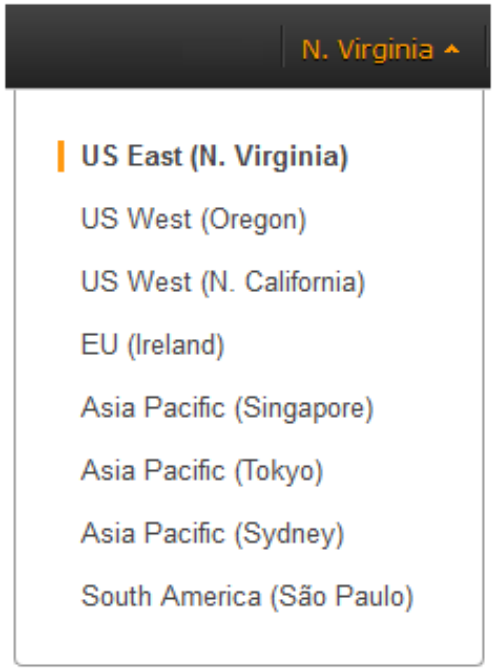


Generating a key pair with EC2 (cont.)

4. Click **Create Key Pair**
5. Enter a name for the key pair in the **Key Pair Name** field of the dialog box and click **Create**
6. The private key file, with .pem extension, will automatically be downloaded by the browser.

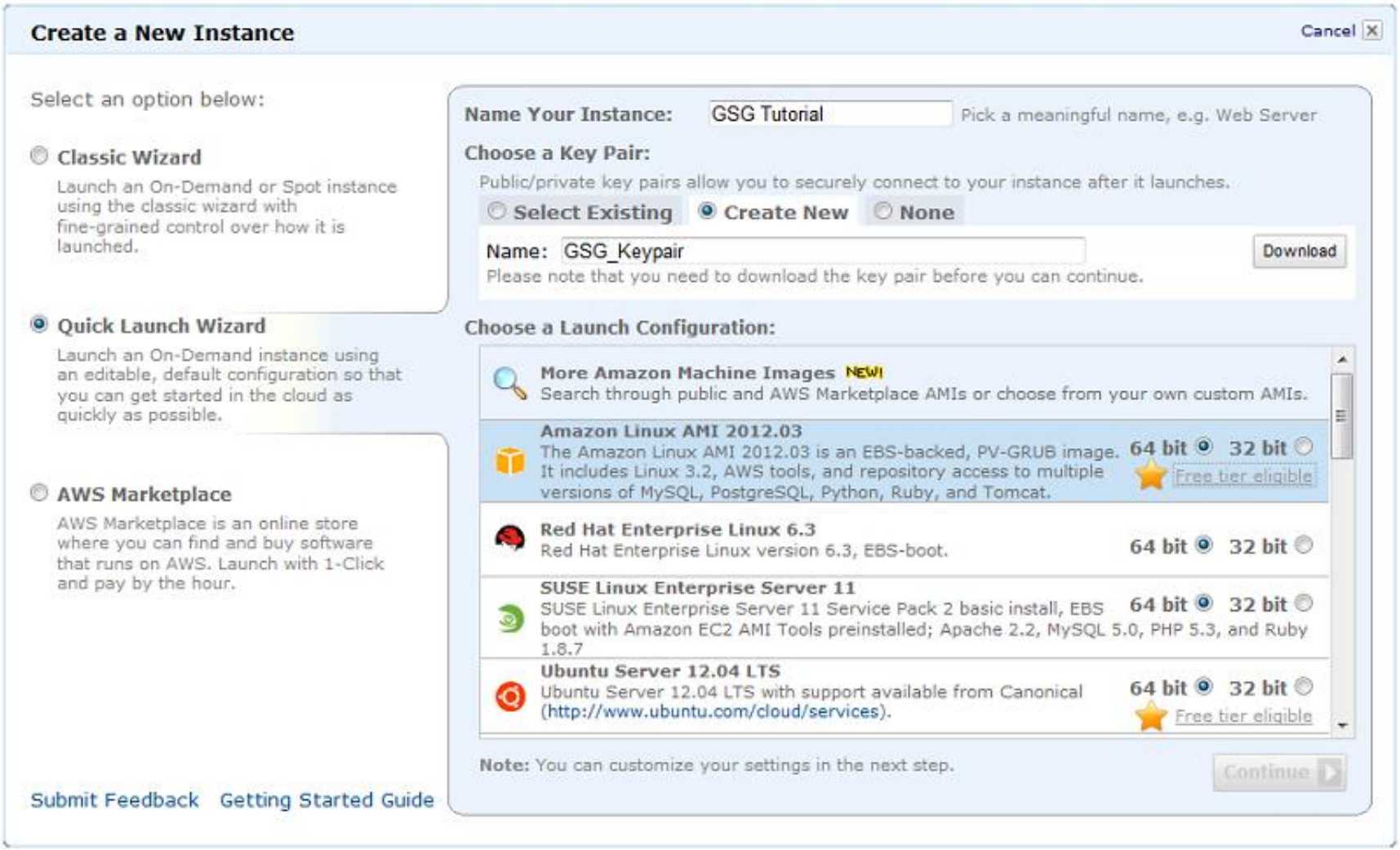
Launching an Amazon EC2 instance

1. Sign in to AWS Management Console and open the Amazon EC2 console at http://console.aws.amazon.com/ec2/
2. From the navigation bar select the region for the instance



Launching an Amazon EC2 instance (cont.)

3. From the Amazon EC2 console dashboard, click **Launch Instance**

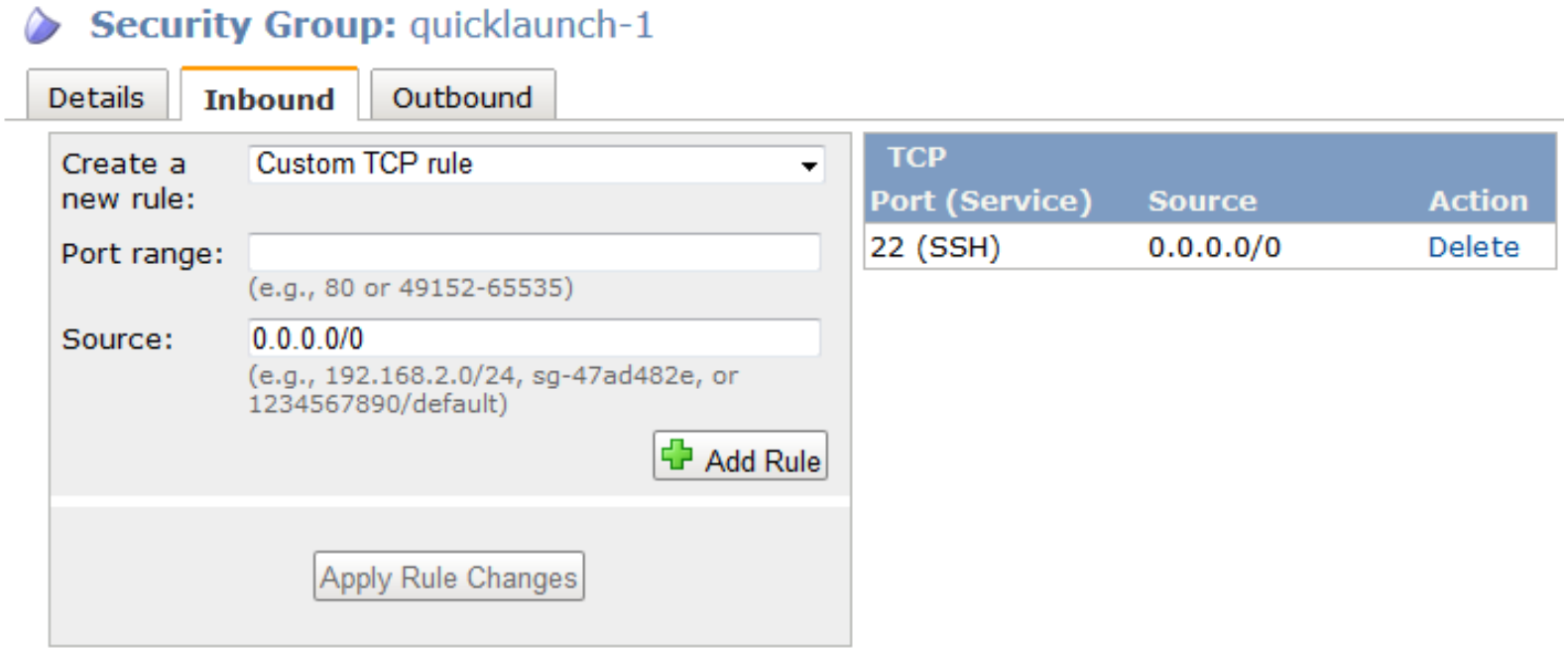


Launching an Amazon EC2 instance (cont.)

4. On the **Create a New Instance** page, click **Quick Launch Wizard**
5. In **Name Your Instance**, enter a name for the instance
6. In **Choose a Key Pair**, choose an existing key pair, or create a new one
7. In Choose a Launch Configuration, a list of basic machine configurations are displayed, from which an instance can be launched
8. Click continue to view and customize the settings for the instance

Launching an Amazon EC2 instance (cont.)

9. Select a security group for the instance. A **Security Group** defines the firewall rules specifying the incoming network traffic delivered to the instance. Security groups can be defined on the Amazon EC2 console, in **Security Groups** under **Network and Security**



Launching an Amazon EC2 instance (cont.)

10. Review settings and click **Launch** to launch the instance
11. Close the confirmation page to return to EC2 console
12. Click **Instances** in the navigation pane to view the status of the instance. The status is **pending** while the instance is launching

After the instance is launched, its status changes to **running**

	Name	Instance	AMI ID	Root Device	Type	State	Public DNS
	GSG Tutorial	i-e1ab569a	ami-aecd60c7	ebs	t1.micro	pending	

	Name	Instance	AMI ID	Root Device	Type	State	Public DNS
	GSG Tutorial	i-e1ab569a	ami-aecd60c7	ebs	t1.micro	running	ec2-50-19-54-72.compute-1.amazonaws.com

Connecting to an Amazon EC2 instance

There are several ways to connect to an EC2 instance once it's launched.

Remote Desktop Connection is the standard way to connect to Windows instances.

An **SSH client** (standalone or web-based) is used to connect to Linux instances.

Connecting to Linux/UNIX Instances from Linux/UNIX with SSH

Prerequisites:

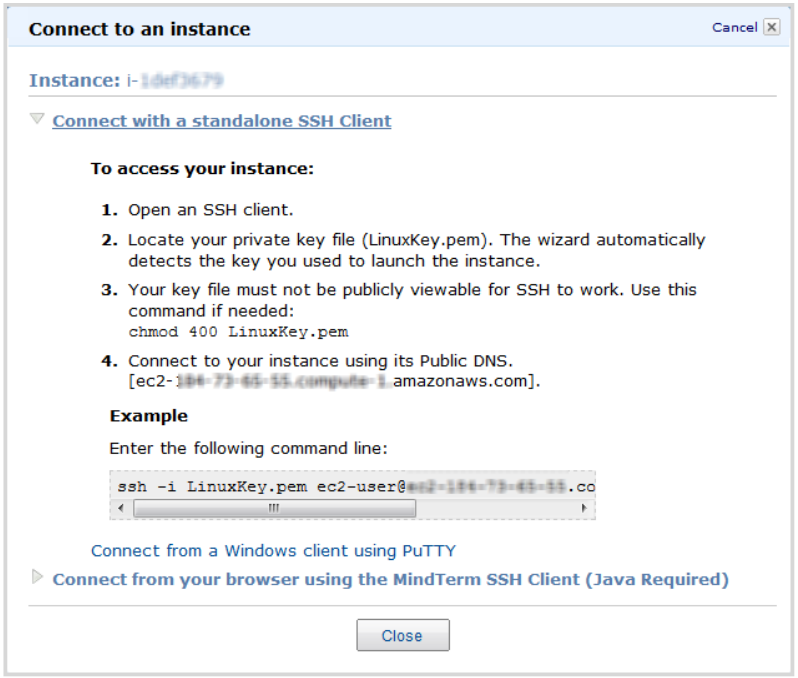
- Most Linux/UNIX computers include an SSH client by default, if not it can be downloaded from openssh.org
- Enable SSH traffic on the instance (using security groups)
- Get the path the private key used when launching the instance

1. In a command line shell, change directory to the path of the private key file
2. Use the **chmod** command to make sure the private key file isn't publicly viewable

```
chmod 400 My_Keypair.pem
```

Connecting to Linux/UNIX Instances(cont.)

3. Right click on the instance to connect to on the AWS console, and click **Connect**.
4. Click **Connect using a standalone SSH client.**
5. Enter the example command provided in the Amazon EC2 console at the command line shell




```
ssh -i <your key a name>.pem ec2-user@ec2-184-72-204-112.compute-1.amazonaws.com
```

Transfering files to Linux/UNIX instances from Linux/UNIX with SCP

Prerequisites:

- Enable SSH traffic on the instance
- Install an SCP client (included by default mostly)
- Get the ID of the Amazon EC2 instance, public DNS of the instance, and the path to the private key

If the key file is My_Keypair.pem, the file to transfer is samplefile.txt, and the instance's DNS name is ec2-184-72-204-112.compute-1.amazonaws.com, the command below copies the file to the ec2-user home

```
scp -i My_Keypair.pem samplefile.txt ec2-user@ec2-184-72-204-112.compute-1.amazonaws.com:~
```

Terminating Instances

- If the instance launched is not in the free usage tier, as soon as the instance starts to boot, the user is billed for each hour the instance keeps running.

- A terminated instance cannot be restarted.

- To terminate an instance:
    1. Open the Amazon EC2 console
    2. In the navigation pane, click **Instances**
    3. Right-click the instance, then click **Terminate**
    4. Click **Yes, Terminate** when prompted for confirmation