

Sri Lanka Institute of Information Technology



Enterprise Standards and Best Practices for IT Infrastructure

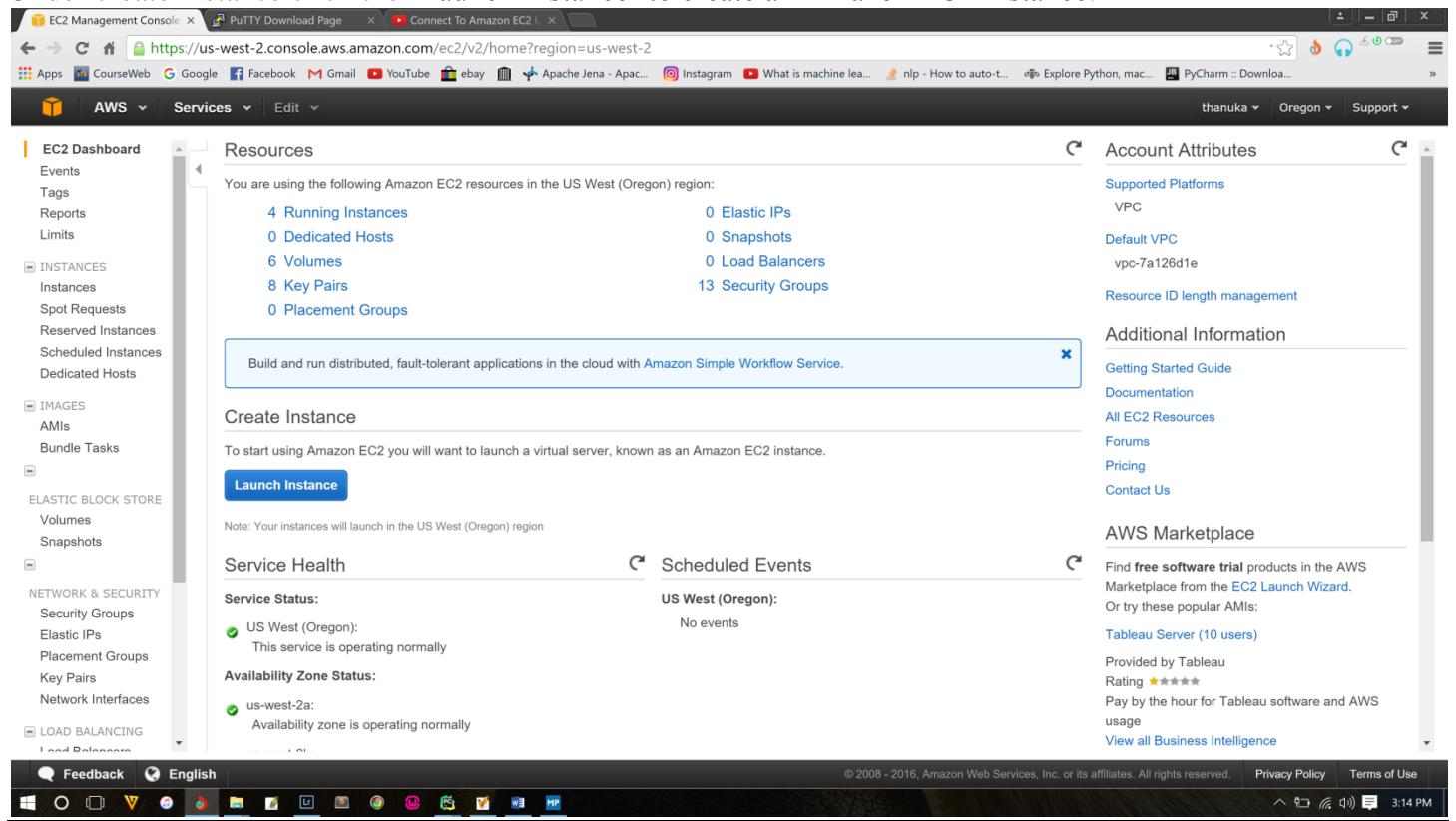
4th Year 2nd Semester

**AWS Instances Summary
Labs 1 & 2**

**Name: S.U.K. Hingalagoda
Registration No: IT 13 0568 58**

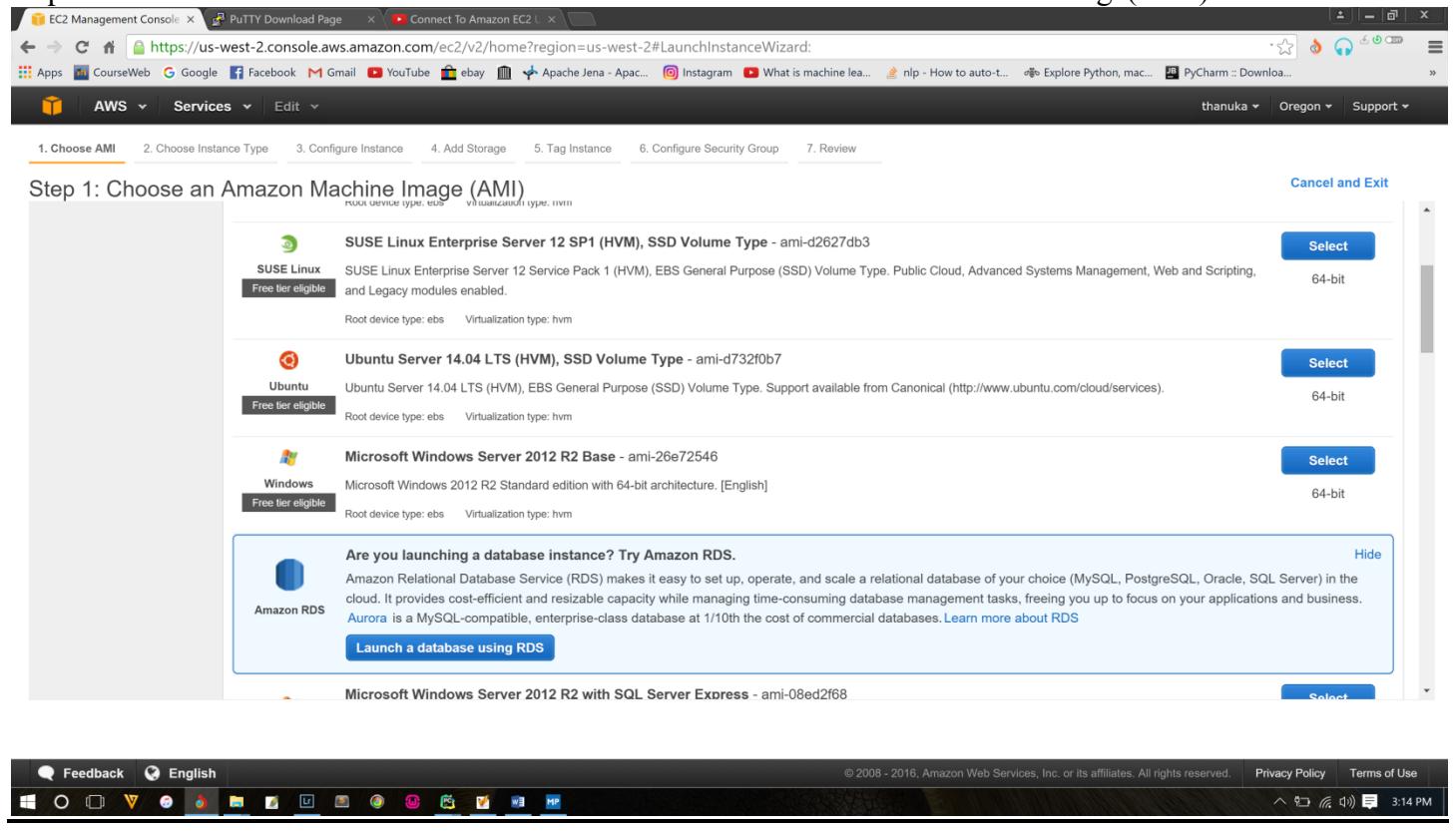
Creating an Amazon EBS-Backed Windows AMI

Step1: Select EC2 web service from Amazon Web Services. Then it will be directed to the EC2 dashboard. Under create instance click the 'Launch Instance' to create an Amazon EC2 instance.



The screenshot shows the AWS EC2 Management Console. On the left, a sidebar lists navigation options: EC2 Dashboard, Events, Tags, Reports, Limits, Instances, Spot Requests, Reserved Instances, Scheduled Instances, Dedicated Hosts, Images, AMIs, Bundle Tasks, Elastic Block Store, Volumes, Snapshots, Network & Security, Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces, and Load Balancing. The main content area is titled 'Create Instance' and contains the following sections: 'Service Health' (Service Status: US West (Oregon) is operating normally, Availability Zone Status: us-west-2a is operating normally), 'Scheduled Events' (US West (Oregon): No events), and a note that instances will launch in the US West (Oregon) region. A 'Launch Instance' button is prominently displayed. To the right, 'Account Attributes' include Supported Platforms (VPC), Default VPC (vpc-7a126d1e), and Resource ID length management. 'Additional Information' links include Getting Started Guide, Documentation, All EC2 Resources, Forums, Pricing, and Contact Us. A 'AWS Marketplace' section is also present. The bottom of the screen shows the Windows taskbar with various pinned icons.

Step2: Choose the 'Microsoft Windows Server 2012 R2 Base' Amazon Machine Image(AMI)



The screenshot shows the 'Choose an Amazon Machine Image (AMI)' step of the EC2 wizard. The top navigation bar shows steps 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Tag Instance, 6. Configure Security Group, and 7. Review. The main content area lists three AMI options: 1. SUSE Linux Enterprise Server 12 SP1 (HVM), SSD Volume Type - ami-d2627db3 (Select button, 64-bit), 2. Ubuntu Server 14.04 LTS (HVM), SSD Volume Type - ami-d732f0b7 (Select button, 64-bit), and 3. Microsoft Windows Server 2012 R2 Base - ami-26e72546 (Select button, 64-bit). Below the list, a callout box for 'Amazon RDS' encourages users to try it, mentioning that it makes it easy to set up, operate, and scale a relational database. The bottom of the screen shows the Windows taskbar with various pinned icons.

Step3: Select an Instance Type and click on 'Review and Launch' button.

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate
General purpose	t2.small	1	2	EBS only	-	Low to Moderate
General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
General purpose	t2.large	2	8	EBS only	-	Low to Moderate
General purpose	m4.large	2	8	EBS only	Yes	Moderate
General purpose	m4.xlarge	4	16	EBS only	Yes	High
General purpose	m4.2xlarge	8	32	EBS only	Yes	High

Cancel Previous Review and Launch Next: Configure Instance Details

Step4: Review Instance Launch and click on 'Launch' button.

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

AMI Details [Edit AMI](#)

Instance Type [Edit instance type](#)

Security Groups [Edit security groups](#)

Launch [Cancel](#) [Previous](#)

Step5: A popup window will appear whether to select an existing key pair or to create a new key pair. Select 'Create a new key pair' and give a key pair name. Then Click on 'Download key pair'. After that click on 'Launch Instance'.

Step6: View Instance after launching.

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click [View Instances](#) to monitor your instances' status. Once your instances are in the **running** state, you can [connect](#) to them from the Instances screen. [Find out](#) how to connect to your instances.

Here are some helpful resources to get you started

- [Amazon EC2: User Guide](#)
- [How to connect to your Windows instance](#)
- [Amazon EC2: Microsoft Windows Guide](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

Step7: Select the created instance and connect. (Here it's still pending)

The screenshot shows the AWS EC2 Management Console. The left sidebar is collapsed. The main area displays a table of instances. One instance, with the ID i-0c4fd33b15d284800, is in a 'pending' state (yellow dot). Other instances are in 'running' (green dot) or 'stopped' (red dot) states. The table includes columns for Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, Public DNS, Public IP, and Key Name. A message 'Select an instance above' is displayed below the table. The bottom of the screen shows a Windows taskbar with various icons and the time 3:16 PM.

Step8: The launched instance is running.

The screenshot shows the AWS EC2 Management Console. The left sidebar is collapsed. The main area displays a table of instances. All instances are now in a 'running' state (green dot). The table includes columns for Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, Public DNS, Public IP, and Key Name. A message 'Select an instance above' is displayed below the table. The bottom of the screen shows a Windows taskbar with various icons and the time 3:17 PM.

Step9: Click on 'Get Password' to connect to your instance.

The screenshot shows the AWS EC2 Management Console. In the center, a modal window titled "Connect To Your Instance" is displayed. It contains the following text and buttons:

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

Download Remote Desktop File

When prompted, connect to your instance using the following details:

Public DNS ec2-54-187-210-3.us-west-2.compute.amazonaws.com
User name Administrator
Password **Get Password**

If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.
If you need any assistance connecting to your instance, please see our [connection documentation](#).

At the bottom right of the modal is a "Close" button. The background of the console shows a list of instances with their Public DNS, Public IP, and Key Name. The instance selected in the list is "i-0c4fd33b15d284800".

Step10: Give the path of the previously downloaded key.

The screenshot shows the AWS EC2 Management Console. A modal window titled "Connect To Your Instance > Get Password" is open. It contains the following text and fields:

The following Key Pair was associated with this instance when it was created.
Key Name shamilka_windows.pem

In order to retrieve your password you will need to specify the path of this Key Pair on your local machine:
Key Pair Path **Choose File** No file chosen

Or you can copy and paste the contents of the Key Pair below:

At the bottom right of the modal are "Back" and "Close" buttons. The background shows the same instance details and list as in the previous screenshot.

Step11: Decrypt the password.

The following Key Pair was associated with this instance when it was created.
Key Name shaminka_windows.pem

In order to retrieve your password you will need to specify the path of this Key Pair on your local machine:
Key Pair Path shaminka_windows.pem

Or you can copy and paste the contents of the Key Pair below:

```
-----BEGIN RSA PRIVATE KEY-----  
MIIEpAIBAAKCAQEaQzjyVNErCHOS/FcE2ysb4OMFJT5Qrl4YqWLWoNlScWpTZQe7NeFyNuYdQV  
L  
laisfGy56M+HH2mwAjV82h7i8PynMfEoSdM6g+wCwJztXB/SvncgeMGGmtG2dM/lW1U/LmyNA3  
jHoqoE8uO6RFp8OGdxG/Y0Xnok2/yXbJ6Bq57ce0ugQhxrqZ2scL61mT4nx6CGn7BNm6Q2nawJXZ
```

Instance: i-0c4fd33b15d284800

Description Status Check

Instance ID	i-0c4fd33b15d284800	Public DNS	ec2-54-187-210-3.us-west-2.compute.amazonaws.com
Instance state	running	Public IP	54.187.210.3
Instance type	t2.micro	Elastic IPs	
Private DNS	in-172-24-22-215.us-west-2.compute.internal	Availability zone	us-west-2b

Back Close

Step12: Note down the user name and the decrypted password.

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

When prompted, connect to your instance using the following details:

Public DNS ec2-54-187-210-3.us-west-2.compute.amazonaws.com
User name Administrator
Password **Cgu*6-eL

If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.
If you need any assistance connecting to your instance, please see our [connection documentation](#).

Instance: i-0c4fd33b15d284800

Description Status Check

Instance ID	i-0c4fd33b15d284800	Public DNS	ec2-54-187-210-3.us-west-2.compute.amazonaws.com
Instance state	running	Public IP	54.187.210.3
Instance type	t2.micro	Elastic IPs	
Private DNS	in-172-24-22-215.us-west-2.compute.internal	Availability zone	us-west-2b

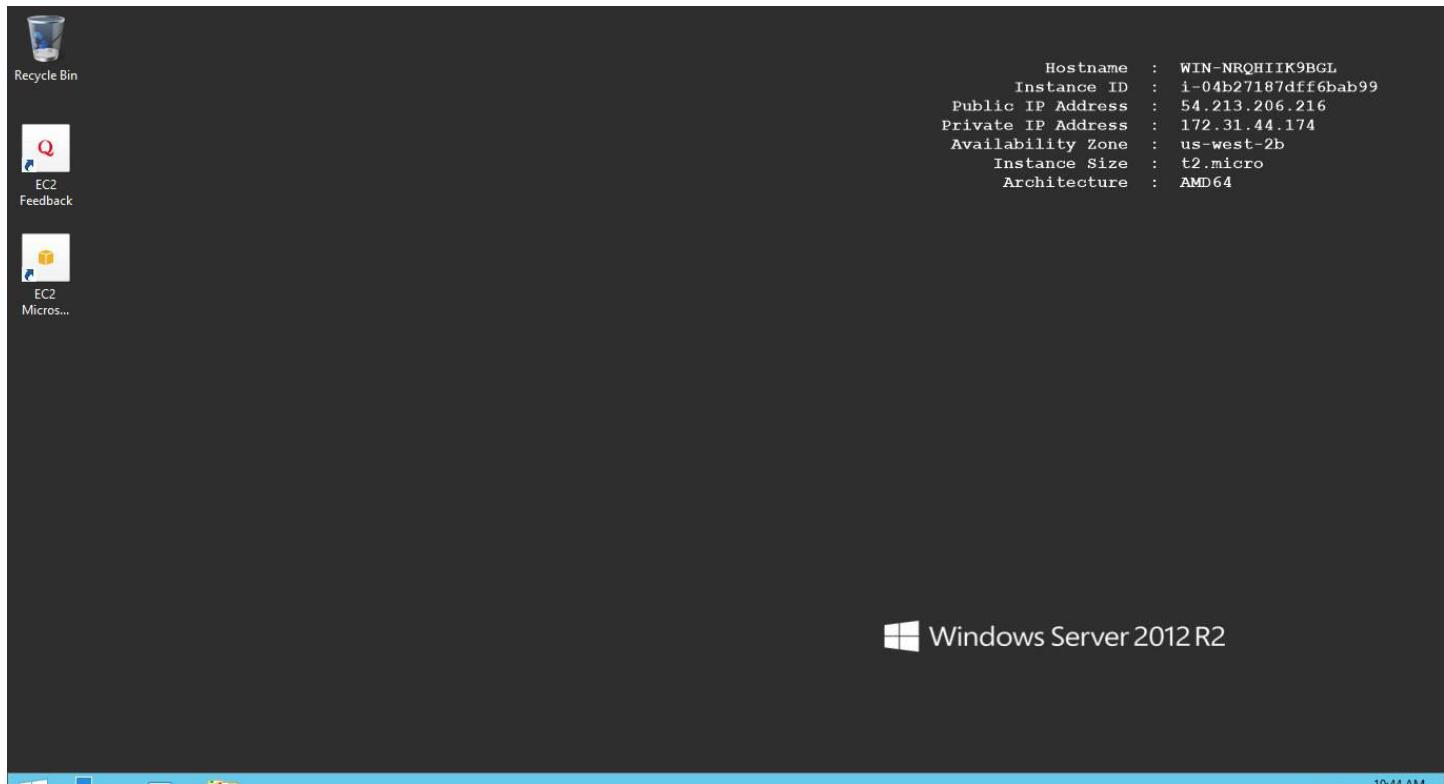
https://docs.aws.amazon.com/console/ec2/instances/connect/windows

shamilka_windows.pem

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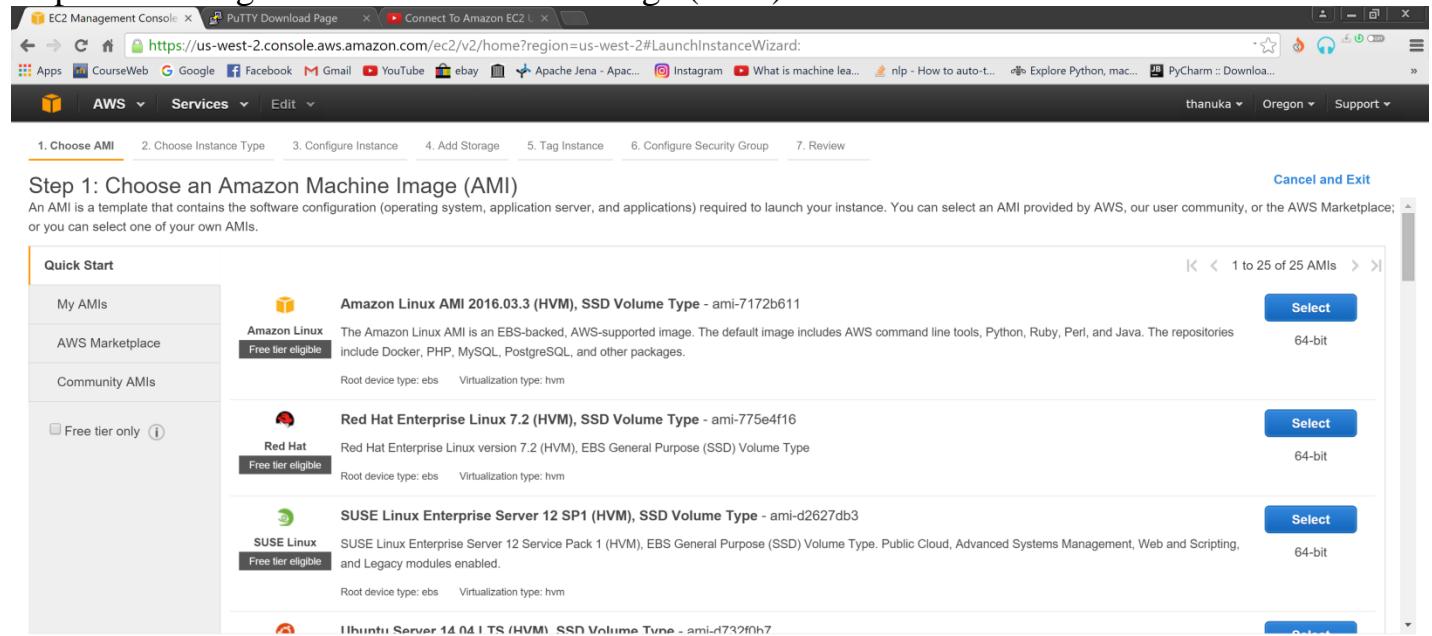
Show torrents... Show all downloads... 3:18 PM

Step13: Open Remote Desktop Connection. Provide the public IP of the launched instance. Then log in to Windows Server 2012 R2 using the given user name and the decrypted password.



Creating an Amazon EBS-Backed Linux AMI

Step1: Choosing an Amazon Machine Image (AMI)

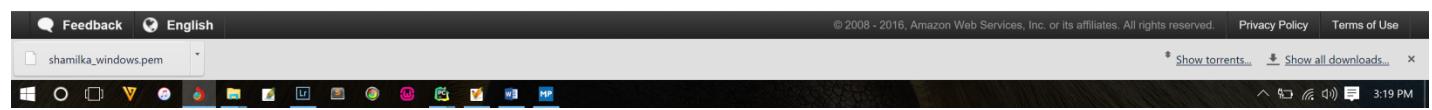


Step 1: Choose an Amazon Machine Image (AMI)

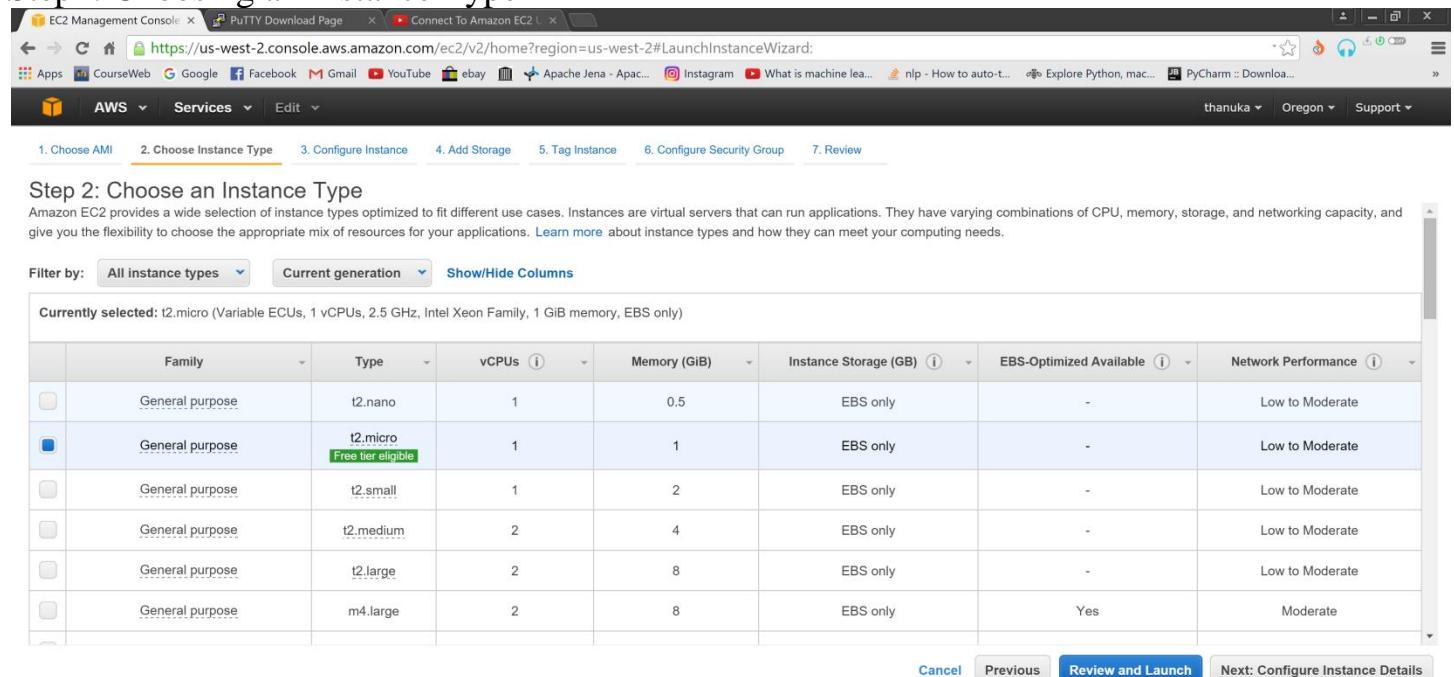
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start

Category	AMI Name	Description	Root device type	Virtualization type	Action
My AMIs	Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type - ami-7172b611	The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.	Root device type: ebs	Virtualization type: hvm	Select
AWS Marketplace	Red Hat Enterprise Linux 7.2 (HVM), SSD Volume Type - ami-775e4f16	Red Hat Enterprise Linux version 7.2 (HVM), EBS General Purpose (SSD) Volume Type	Root device type: ebs	Virtualization type: hvm	Select
Community AMIs	SUSE Linux Enterprise Server 12 SP1 (HVM), SSD Volume Type - ami-d2627db3	SUSE Linux Enterprise Server 12 Service Pack 1 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.	Root device type: ebs	Virtualization type: hvm	Select
Free tier only	Ubuntu Server 14.04 LTS (HVM), SSD Volume Type - ami-d732f0h7	Ubuntu Server 14.04 LTS (HVM), EBS General Purpose (SSD) Volume Type	Root device type: ebs	Virtualization type: hvm	Select



Step2: Choosing an Instance Type



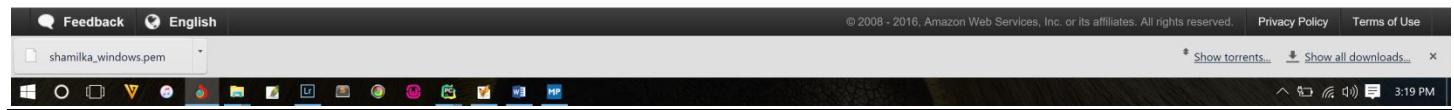
Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

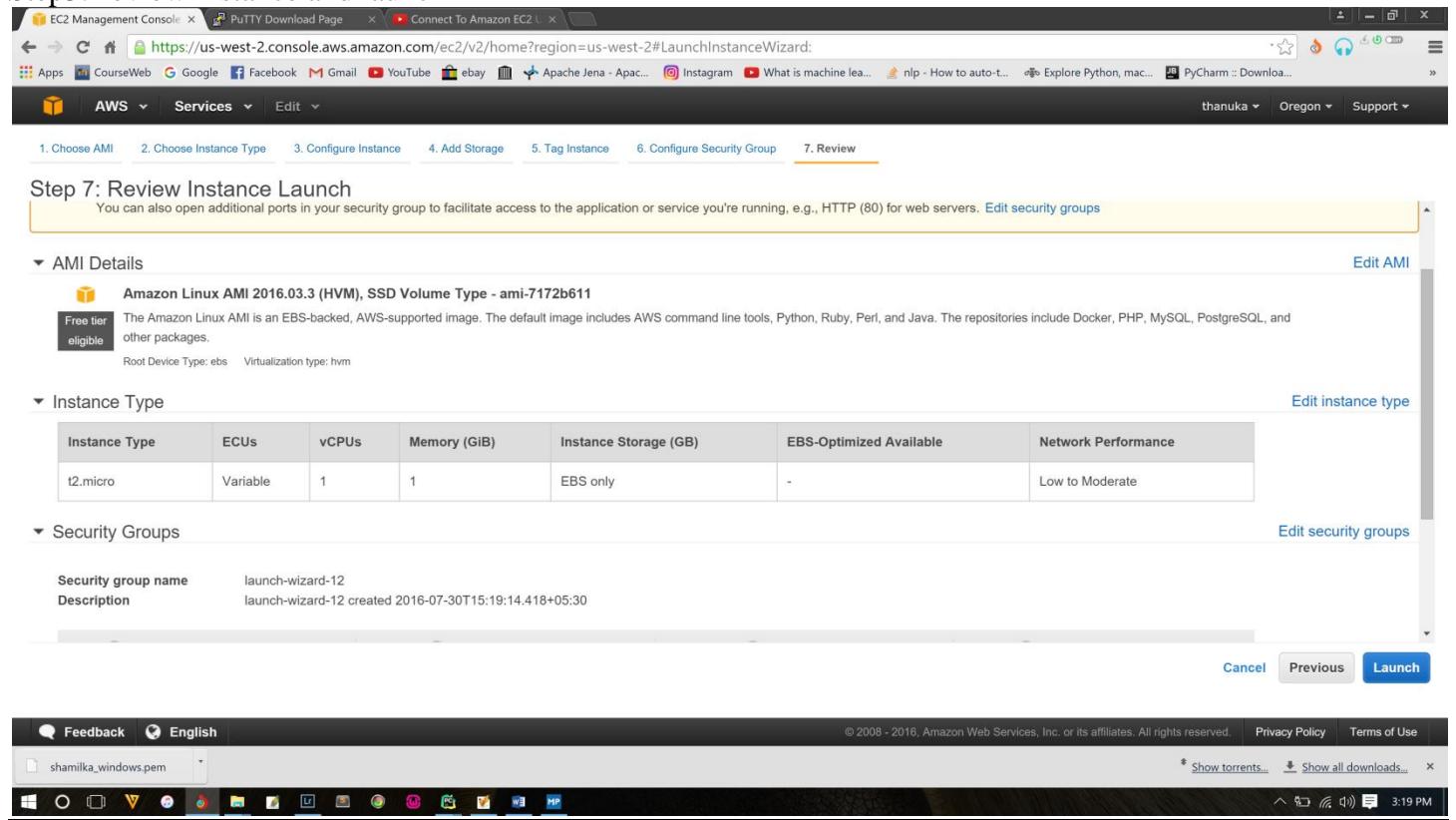
Filter by: All Instance types Current generation Show/Hide Columns

Family	Type	vCPUs	Memory (GiB)	Instance Storage (GiB)	EBS-Optimized Available	Network Performance
General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate
General purpose	t2.micro	1	1	EBS only	-	Low to Moderate
General purpose	t2.small	1	2	EBS only	-	Low to Moderate
General purpose	t2.medium	2	4	EBS only	-	Low to Moderate
General purpose	t2.large	2	8	EBS only	-	Low to Moderate
General purpose	m4.large	2	8	EBS only	Yes	Moderate

Cancel Previous Review and Launch Next: Configure Instance Details



Step3:Review instance and launch



Step 7: Review Instance Launch

You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

AMI Details

Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type - ami-7172b611

Free tier eligible

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root Device Type: ebs Virtualization type: hvm

Instance Type

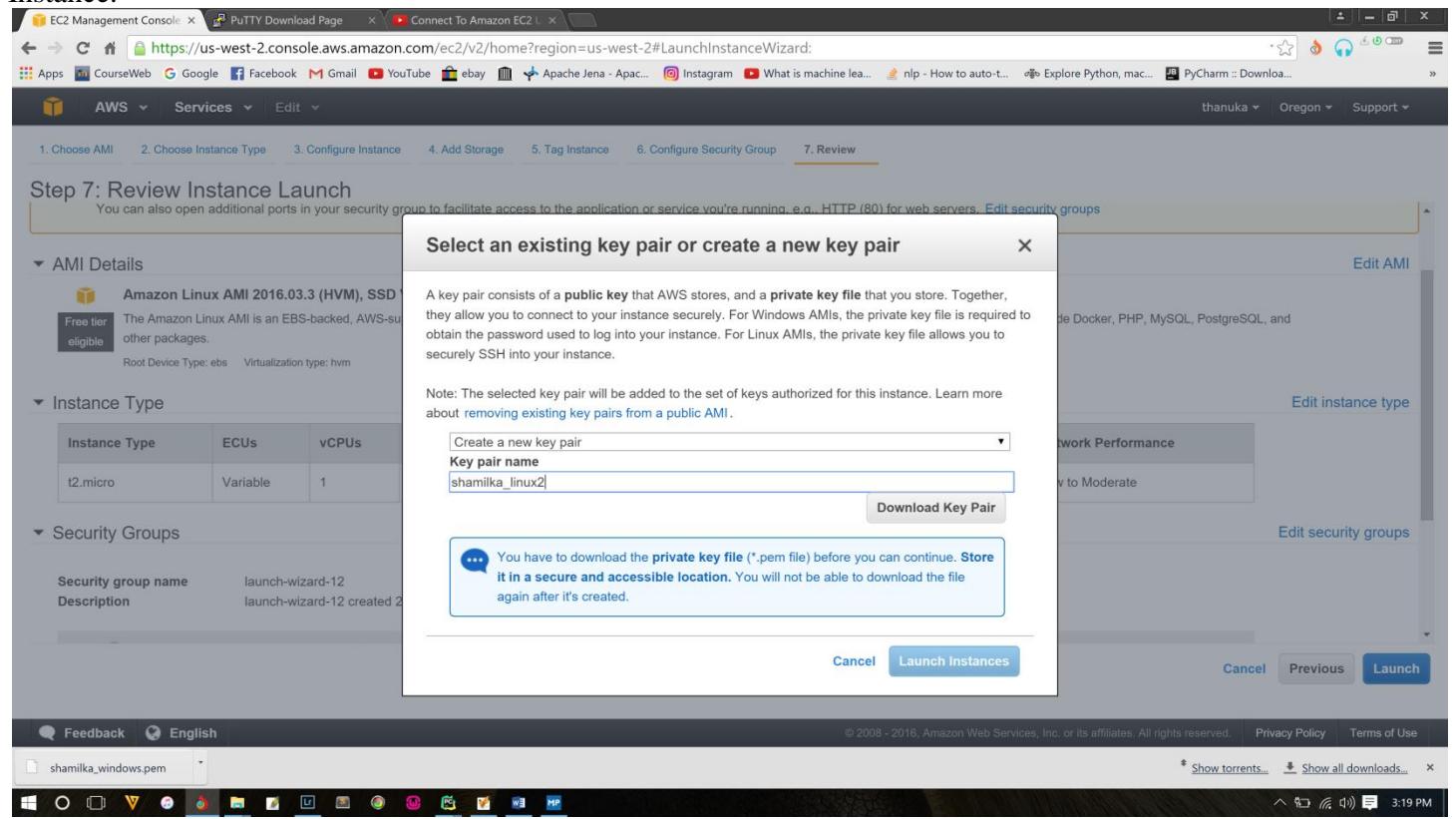
Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

Security Groups

Security group name: launch-wizard-12
Description: launch-wizard-12 created 2016-07-30T15:19:14.418+05:30

Cancel Previous Launch

Step4: Choose create a new key pair to download a new key pair. Then give a key pair name. Then select Launch Instance.



Step 7: Review Instance Launch

You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

AMI Details

Amazon Linux AMI 2016.03.3 (HVM), SSD Volume Type - ami-7172b611

Free tier eligible

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root Device Type: ebs Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs
t2.micro	Variable	1

Security Groups

Security group name: launch-wizard-12
Description: launch-wizard-12 created 2016-07-30T15:19:14.418+05:30

Select an existing key pair or create a new key pair

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Create a new key pair

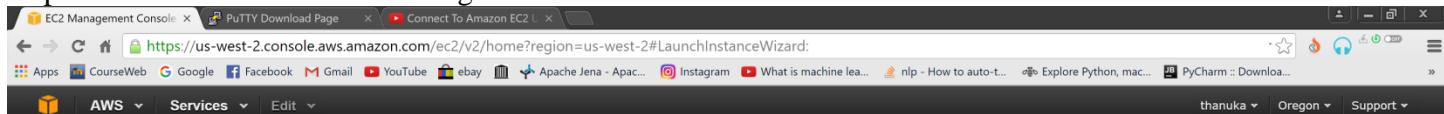
Key pair name: shamilka_linux2

Download Key Pair

You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel Launch Instances

Step5: View Instances after launching.



Launch Status

Your instances are now launching
The following instance launches have been initiated: [i-045d135b35426aea5](#) [View launch log](#)

Get notified of estimated charges
Create [billing alerts](#) to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

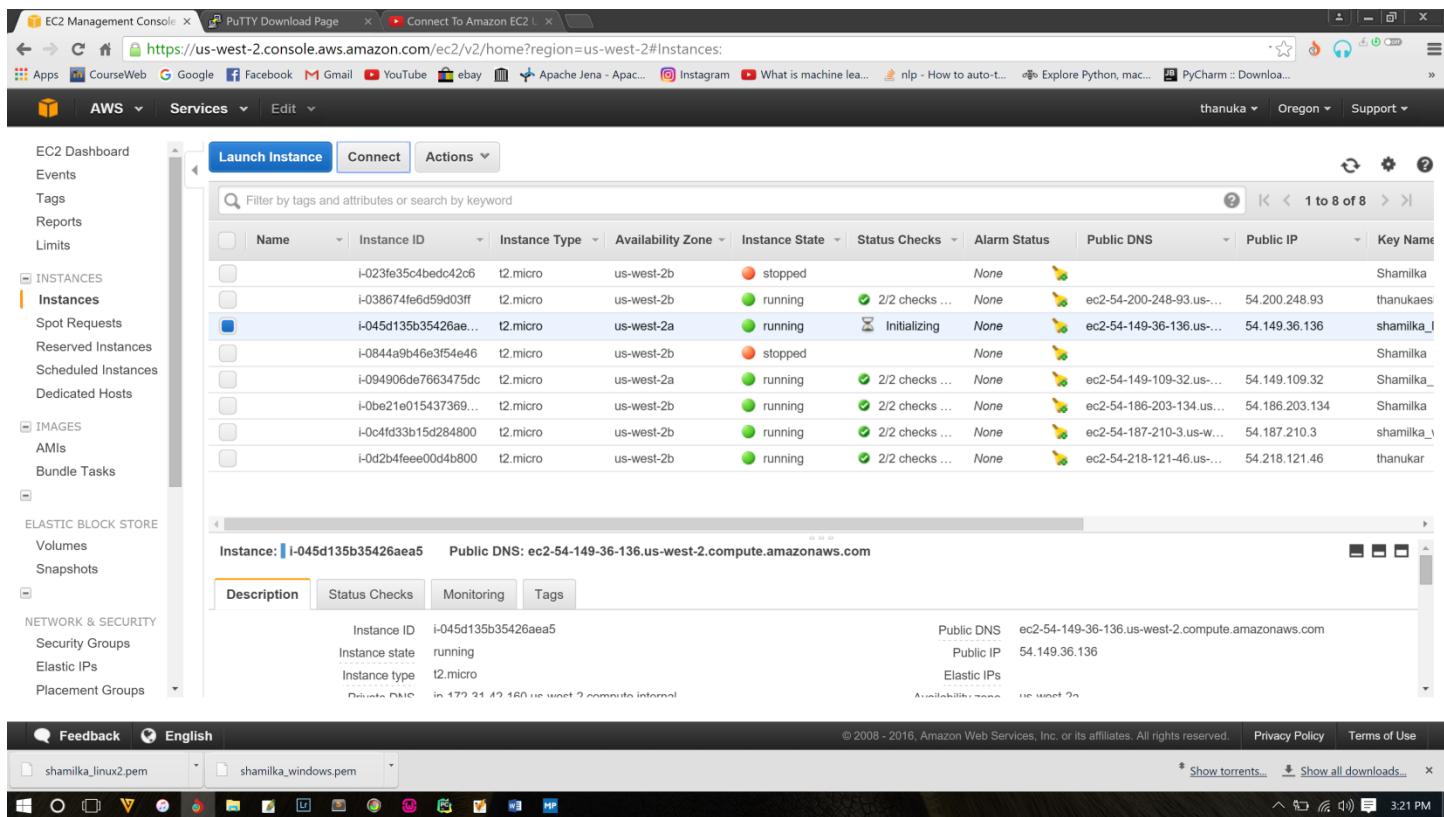
Click [View Instances](#) to monitor your instances' status. Once your instances are in the **running** state, you can [connect](#) to them from the Instances screen. [Find out](#) how to connect to your instances.

Here are some helpful resources to get you started

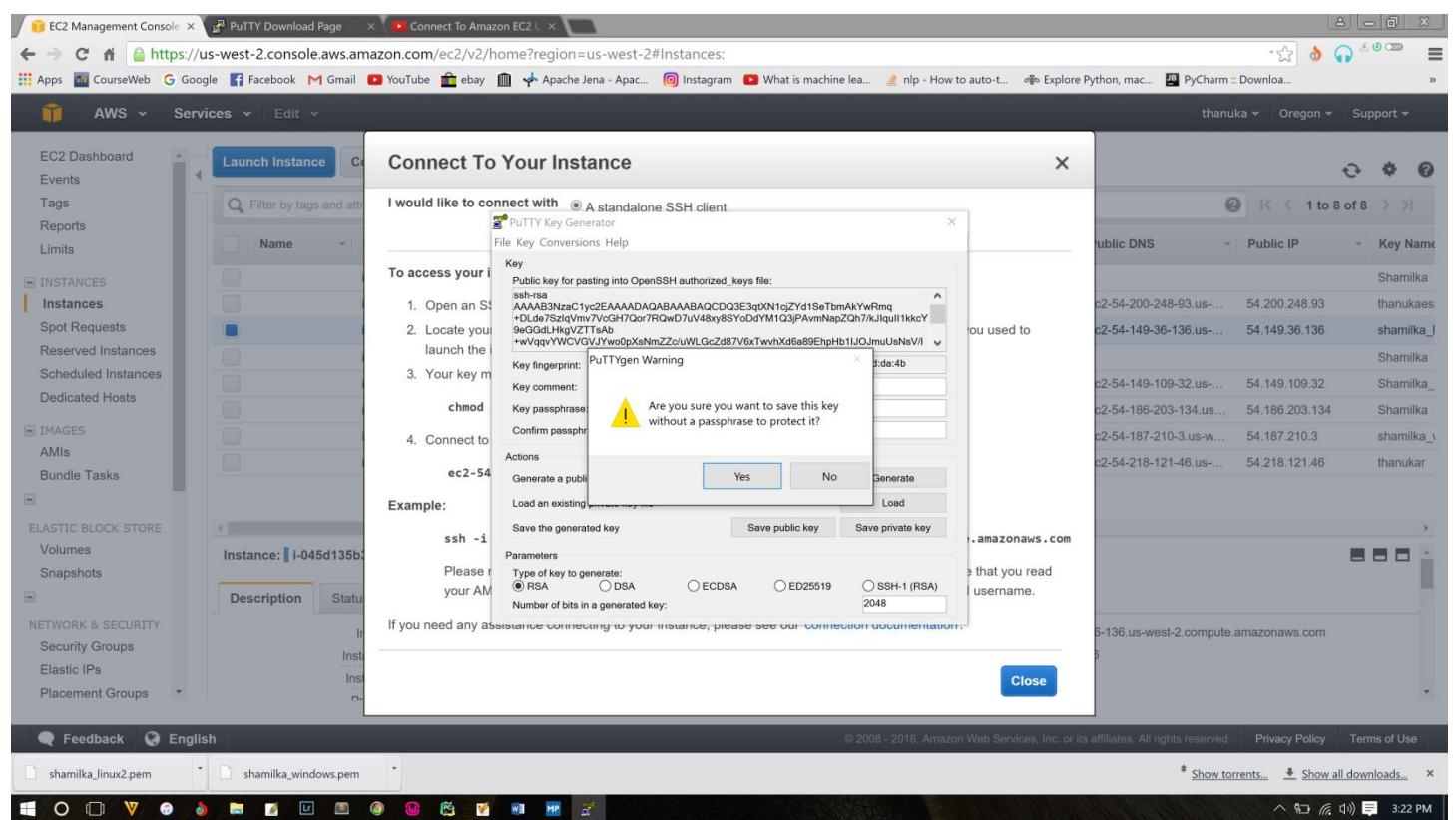
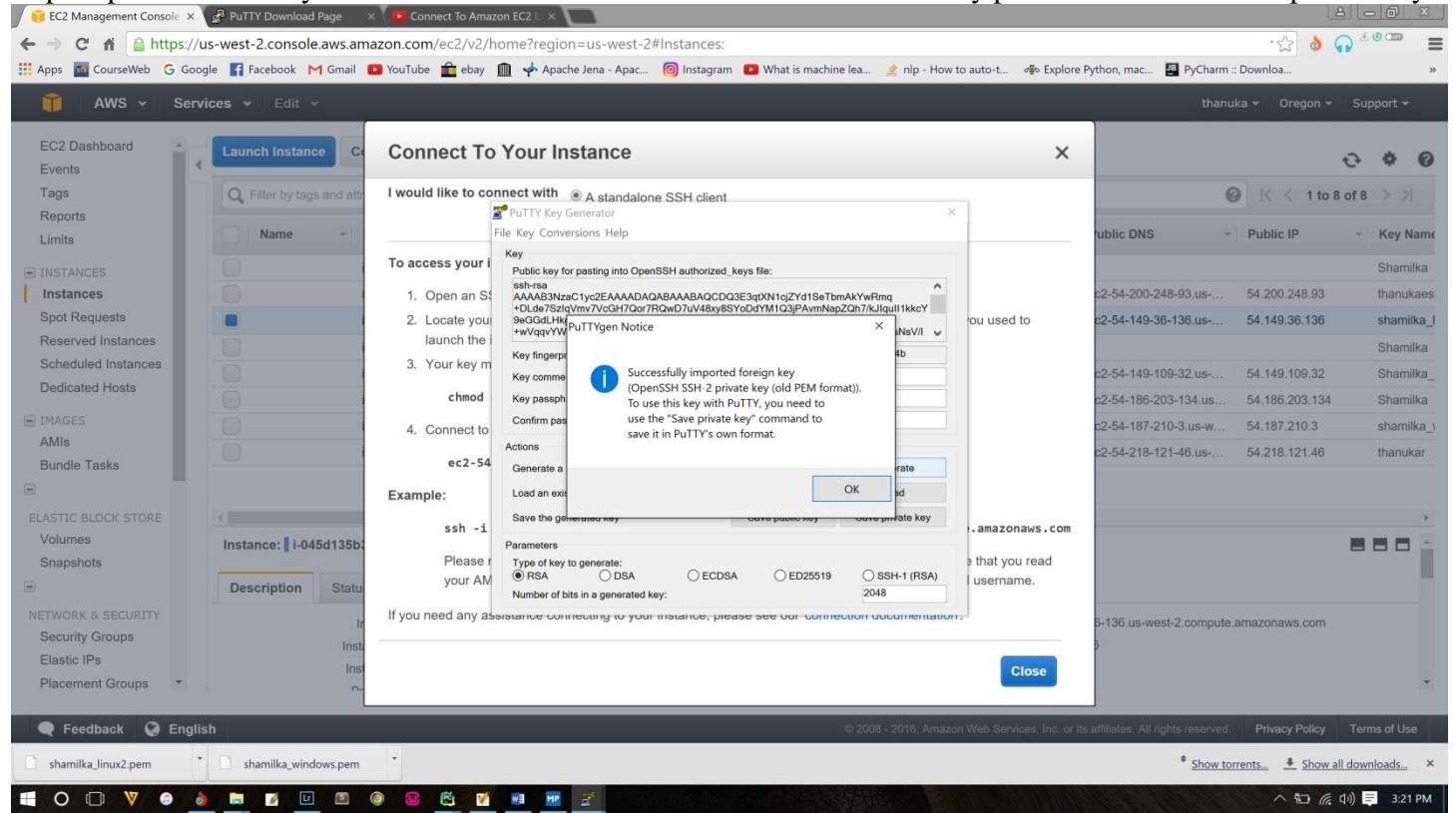
- [How to connect to your Linux instance](#)
- [Amazon EC2: User Guide](#)
- [Learn about AWS Free Usage Tier](#)
- [Amazon EC2: Discussion Forum](#)

While your instances are launching you can also

[Create status check alarms](#) to be notified when these instances fail status checks. (Additional charges may apply)



Step6:Open PUTTY Key Generator. Then browse and load the downloaded key pair file and save it as a private key.



Step7: Open PUTTY Configuration. Go to Connection category for SSH authentication.

Step8: Go back to Session category in PUTTY Configuration. Copy the Public DNS of created instance and paste it under Host Name.

Screenshot of the AWS EC2 Management Console showing the Putty Configuration dialog and the Instances list.

Putty Configuration Dialog:

- Category:** Terminal
- Options controlling SSH authentication:**
 - Bypass authentication entirely (SSH-2 only)
 - Display pre-authentication banner (SSH-2 only)
- Authentication methods:**
 - Attempt authentication using Pageant
 - Attempt TIS or CryptoCard auth (SSH-1)
 - Attempt "keyboard-interactive" auth (SSH-2)
- Authentication parameters:**
 - Allow agent forwarding
 - Allow attempted changes of username in SSH-2
- Private key file for authentication:** C:\Users\Thanuka\Desktop\shamilka2.ppk

Instances List:

Name	Instance ID	Alarm Status	Public DNS	Public IP	Key Name
i-023fe35c4bedc42c6		None	ec2-54-200-248-93.us...	54.200.248.93	thanukaes
i-038674fe6d59d03f		None	ec2-54-149-36-136.us...	54.149.36.136	shamilka_
i-045d135b35426aea5		None	ec2-54-149-109-32.us...	54.149.109.32	Shamilka
i-0844a9b46e3f54e46		None	ec2-54-186-203-134.us...	54.186.203.134	Shamilka
i-094906de7663475dc		None	ec2-54-187-210-3.us...	54.187.210.3	shamilka_
i-0be21e015437369...		None	ec2-54-218-121-46.us...	54.218.121.46	thanukar
i-0c4fd3b15d284800					
i-0d2b4fee00d4b800					

Instance Details: Instance: i-045d135b35426aea5 Public DNS: ec2-54-149-36-136.us-west-2.compute.amazonaws.com

Instance State: stopped

Public DNS: ec2-54-149-36-136.us-west-2.compute.amazonaws.com

Public IP: 54.149.36.136

Elastic IPs: None

Feedback: English

Downloads: shaminka_linux2.pem, shaminka_windows.pem

Screenshot of the AWS EC2 Management Console showing a Putty Security Alert dialog and the Instances list.

Putty Security Alert:

The server's host key is not cached in the registry. You have no guarantee that the server is the computer you think it is.

The server's rsa2 key fingerprint is:
ssh-rsa 2048 1fc:0:aa:01:f0:2d8:e4:96:58:1e:3fc:c4:1f:e5:e0

If you trust this host, hit Yes to add the key to Putty's cache and carry on connecting.

If you want to carry on connecting just once, without adding the key to the cache, hit No.

If you do not trust this host, hit Cancel to abandon the connection.

Instances List:

Name	Instance ID	Alarm Status	Public DNS	Public IP	Key Name
None	None	None	ec2-54-200-248-93.us...	54.200.248.93	thanukaes
None	None	None	ec2-54-149-36-136.us...	54.149.36.136	shamilka_
None	None	None	ec2-54-149-109-32.us...	54.149.109.32	Shamilka
None	None	None	ec2-54-186-203-134.us...	54.186.203.134	Shamilka
None	None	None	ec2-54-187-210-3.us...	54.187.210.3	shamilka_
None	None	None	ec2-54-218-121-46.us...	54.218.121.46	thanukar

Instance Details: Instance: i-045d135b35426aea5 Public DNS: ec2-54-149-36-136.us-west-2.compute.amazonaws.com

Instance State: stopped

Public DNS: ec2-54-149-36-136.us-west-2.compute.amazonaws.com

Public IP: 54.149.36.136

Elastic IPs: None

Feedback: English

Downloads: shaminka_linux2.pem, shaminka_windows.pem

Step9: Log in to Linux by giving user name in the kernel. Type some Linux commands to check.

The screenshot shows the AWS Management Console with the EC2 Instances page open. The terminal window in the foreground shows a successful SSH connection to an Amazon Linux AMI instance, with the user 'ec2-user' logging in. The terminal session displays the message 'Authenticating with public key "imported-openssh-key"'. Below the terminal, the instance details for 'i-045d135b35426aea5' are shown, including its Public DNS (ec2-54-149-36-136.us-west-2.compute.amazonaws.com), Public IP (54.149.36.136), and Instance ID (i-045d135b35426aea5). The instance is listed as 'running'. The taskbar at the bottom shows the AWS Management Console, Putty, and a browser tab for the EC2 Management Console.

The screenshot shows the AWS Management Console with the EC2 Instances page open. The terminal window in the foreground shows a successful SSH connection to an Amazon Linux AMI instance, with the user 'ec2-user' logging in. The terminal session displays the message 'Authenticating with public key "imported-openssh-key"'. Below the terminal, the instance details for 'i-045d135b35426aea5' are shown, including its Public DNS (ec2-54-149-36-136.us-west-2.compute.amazonaws.com), Public IP (54.149.36.136), and Instance ID (i-045d135b35426aea5). The instance is listed as 'running'. The taskbar at the bottom shows the AWS Management Console, Putty, and a browser tab for the EC2 Management Console.