



Bundling EBS-Backed AMIs

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Introduction

In this Lab you will be using both the AWS Management Console as well as the EC2 Command Line Interface to bundle custom EBS-backed AMIs. You will learn how to map additional EBS and/or ephemeral volumes in your AMI. Lastly we will look at some security best practices to create AMIs that are suitable for public sharing.

What is an EBS-backed AMI?

An AMI contains all information necessary to boot an Amazon EC2 instance with your software. An AMI is like a template of a computer's root volume. For example, an AMI might contain the software to act as a web server (Linux, Apache, and your web site) or it might contain the software to act as a Hadoop node (Linux, Hadoop, and a custom application). You launch one or more instances from an AMI. An instance might be one web server within a web server cluster or one Hadoop node.

Creating your own AMI helps you make the most of Amazon EC2. Your AMI becomes the basic unit of deployment; it enables you to rapidly boot new custom instances as you need them.

All AMIs are categorized as either backed by Amazon EBS or backed by instance store. The former means that the root device for an instance launched from the AMI is an Amazon EBS volume created from an Amazon EBS snapshot. The latter means that the root device for an instance launched from the AMI is an instance store volume created from a template stored in Amazon S3. For more information, see Root Device Volume here: <http://docs.amazonwebservices.com/AWSEC2/latest/UserGuide/RootDeviceStorage.html>

You can implement Amazon EBS backed AMIs by creating a set of snapshots and registering an AMI that uses those snapshots. The AMI publisher controls the default size of the root device through the size of the snapshot. The default size can be increased up to 1TiB to accommodate the requirements of the application either at the time you register the EBS-backed AMI or while you launch the EBS-backed instance.

Start your *qwikLAB*™

1. Start your *qwikLAB*™

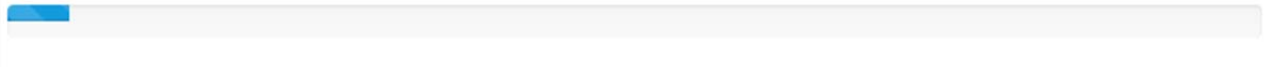
Use the 'Start Lab' button to start your lab.

(Hint: If you are prompted for a token, please use one you've been given or have purchased.)



You will see the lab creation in progress.

 *Create in progress...*

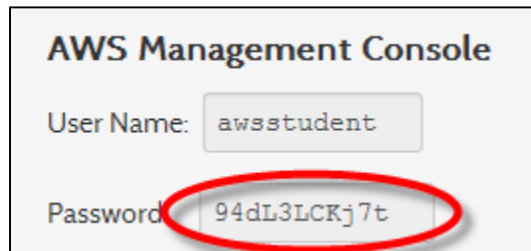


2. Note a few properties of the lab.

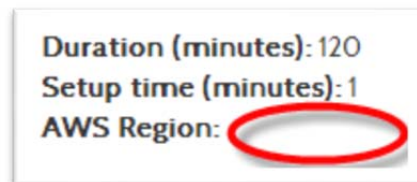
- a. **Duration** - The time the lab will run for before shutting itself down.
- b. **Setup Time** - The estimated lab creation time on starting the lab.
- c. **AWS Region** - The AWS Region the lab resources are being created in.

3. Copy the Password provided.

- a. Hint: selecting the value shown and using Ctrl+C works best



4. Note the AWS Region set for your lab in *qwikLAB*™



5. Click the 'Open Console' button.



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6. Make sure that you are not logged into any other instances of the AWS console (in a student account or your own account), as this may cause conflicts when you open the console and log in below for this lab.
7. Login to the AWS Management Console

Enter the User Name '**awsstudent**' and paste the password you copied from the lab details in *qwikLAB™* into the Password field.

Click on the 'Sign in using our secure server' button.

In this step you logged into the AWS Management Console using login credentials for a user provisioned via AWS Identity Access Management in an AWS account by *qwikLAB™*.

Amazon Web Services Sign In

Please enter the AWS Identity & Access Management (IAM) User name and password assigned by your system administrator to sign in.

AWS Account: 832809622232

User Name:

Password:

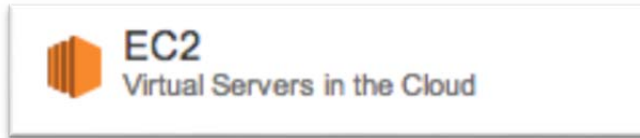
[Sign in using our secure server](#)

Please contact your system administrator if you have forgotten your user credentials.

[Sign in using AWS Account credentials](#)

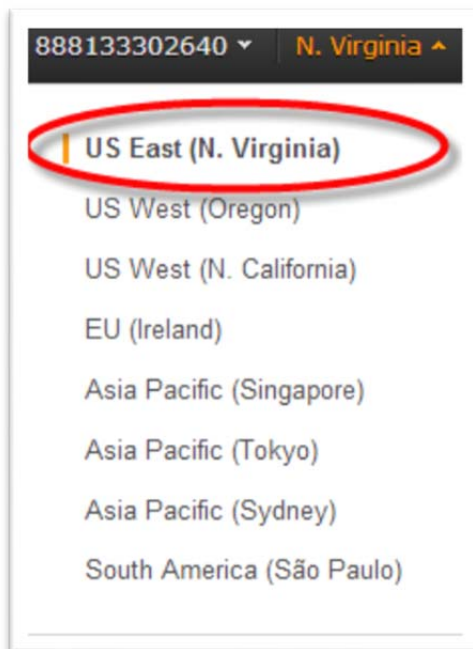
Open the AWS Management Console

1. Select "EC2" from the Console Home.



Confirm your AWS Region

2. Select or confirm that the same AWS Region is already set in the AWS Management Console



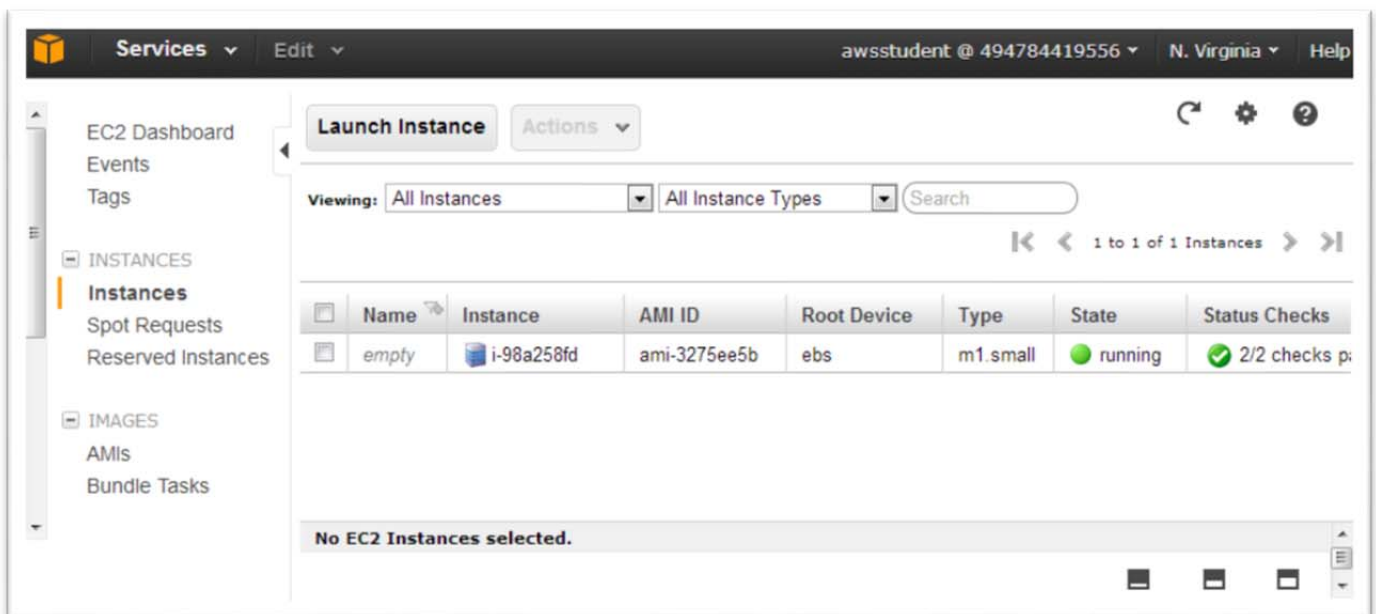
Create an AMI from a Running Instance using the Management Console

In this section we will create a new AMI from the same Linux instance through the AWS Management Console, and will add some mappings with ephemeral and EBS volumes.

All new instances created from this new AMI will include these additional mappings.

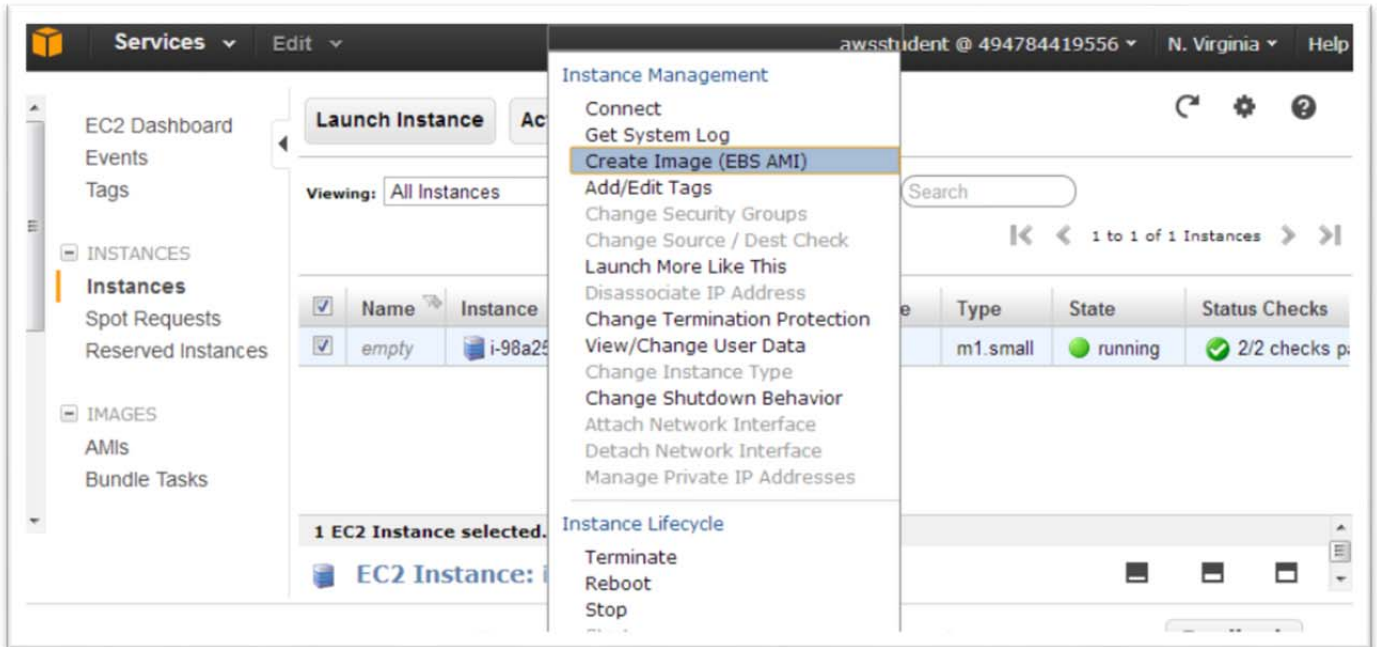
Create a new AMI using the Console

1. Go to the Instances section of the EC2 Console.
2. Click on the instance and locate your instance id. Click on "Instance Actions".



3. In the menu, click on "Create Image (EBS AMI)".

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4. First enter the new AMI name "My-AMI" and the AMI description "My AMI". Then click on "EBS Volumes" tab. We will add a 100 GiB EBS volume to the AMI. Enter "100" in the Volume Size field and click on "Add".

Create Image Cancel X

Instance ID: ami-xxxxxx

Image Name:

Image Description:

No Reboot: ☐

☐ Root Volume
 ☒ **EBS Volumes**
☐ Instance Store Volumes

Create and map an EBS volume to the specified device. [Increasing EBS Performance.](#)

Snapshot: None

Volume Size: GiB **Volume Type:** Standard **IOPS:**

Device: /dev/sdc **Delete on Termination:** ☒

+ Add

Type	Device	Snapshot ID	Size	Volume Type	IOPS	Delete on Termination
Root	/dev/sda1		8	standard		true
EBS	/dev/sdb		100	standard		true Remove

1 EBS Volume 0 Ephemerals

Total size of EBS volumes: 108 GB.

When you create an EBS image an EBS snapshot will also be created for each of the above volumes.

Cancel Yes, Create

- Then click on the "Instance Store Volumes" tab. Let the default values "Instance store" at 0 (this refers to the first volume). Click the "Add" button. Click the "Yes, Create" button.

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Create Image

Cancel

Instance ID: i-98a258fd

Image Name*: My-AMI

Image Description: My AMI

No Reboot: ☐

☐ Root Volume

☐ EBS Volumes

☒ Instance Store Volumes

Map an instance store volume to the specified device.

Instance Store: 0

Device: /dev/ sdc

Add

Type	Device	Snapshot ID	Size	Volume Type	IOPS	Delete on Termination
Root	/dev/sda1		8	standard		true
EBS	/dev/sdb		100	standard		true

1 EBS Volume

0 Ephemerals

Total size of EBS volumes: 108 GB.

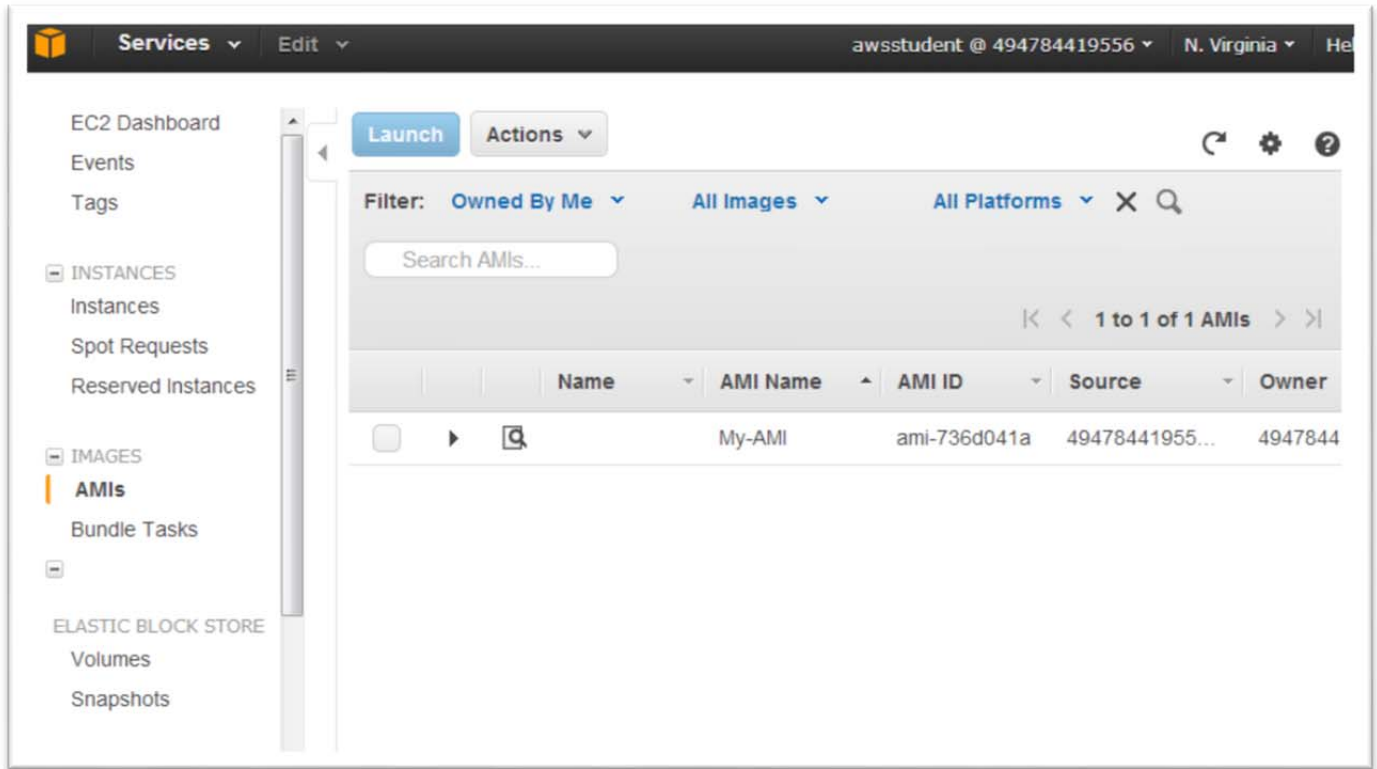
When you create an EBS image an EBS snapshot will also be created for each of the above volumes.


Cancel

Yes, Create

Bundling EBS-Backed AMIs

- Then wait for a few minutes. The instance will be rebooted, a snapshot created and the new AMI packaged.
- After a few minutes, you will see your newly created AMI by navigating to the AMIs left menu. On the newly created AMI, Click on the Go to Details icon.



- Select the AMI, and then click the Details Icon ().
- Inspect the Block Devices.

Details

Edit

AMI ID:	ami-736d041a	AMI Name:	My-AMI
Owner:	494784419556	Source:	494784419556/My-AMI
Status:	available	State Reason:	-
Platform:	Other Linux	Architecture:	x86_64
Image Type:	machine	Description:	My AMI
Root Device Name:	/dev/sda1	Root Device Type:	ebs
RAM disk ID:	-	Kernel ID:	aki-88aa75e1
Product Codes:	-	Block Devices:	/dev/sda1=snap-a1f038fc:8:true:standard, /dev/sdb=:100:true:standard

Launch a new instance from your AMI

1. Click on the AMIs left menu and click on your custom AMI.
2. Click on the Launch button.

Services

Edit

awsstudent @ 494784419556

N. Virginia

Help

EC2 Dashboard

Events

Tags

INSTANCES

Instances

Spot Requests

Reserved Instances

Launch

Actions




Filter: Owned By Me

All Images

All Platforms

Search AMIs...

1 to 1 of 1 AMIs

Name	AMI Name	AMI ID	Source	Owner
  	My-AMI	ami-736d041a	49478441955...	494784419556

3. Choose the "M1 Small (m1.small, 1.7 GiB)" instance type, click Continue.

Bundling EBS-Backed AMIs

The screenshot shows the 'Request Instances Wizard' in the AWS Management Console. The wizard has five steps: CHOOSE AN AMI, INSTANCE DETAILS, CREATE KEY PAIR, CONFIGURE FIREWALL, and REVIEW. The 'INSTANCE DETAILS' step is currently active. It prompts the user to provide details for their instance(s), including the number of instances (set to 1) and the instance type (M1 Small (m1.small, 1.7 GiB)). There is a checkbox for 'Launch as an EBS-Optimized instance (additional charges apply):' which is currently unchecked. Below this, there are two radio buttons for 'Launch into:': 'EC2-Classic' (selected) and 'EC2-VPC'. An 'Availability Zone' dropdown menu is set to 'No Preference'. At the bottom, there are 'Back' and 'Continue' buttons.

Services ▾ Edit ▾ awsstudent @ 494784419556 ▾ N. Virginia ▾ Help ▾

Request Instances Wizard Cancel X

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

Provide the details for your instance(s). You may also decide whether you want to launch your instances as "on-demand" or "spot" instances.

Number of Instances: **Instance Type:**

Launch as an EBS-Optimized instance (additional charges apply): ☐ Not supported for this instance type

☒ **Launch Instances**

EC2 Instances let you pay for compute capacity by the hour with no long term commitments. This transforms what are commonly large fixed costs into much smaller variable costs.

Launch into: ☒ EC2-Classic ☐ EC2-VPC

Availability Zone:

☐ **Request Spot Instances**

[< Back](#) [Continue](#)

4. Click Continue on the "Launch Instances" screen.
5. Click Continue on the "Advanced Instance Options" screen.
6. Click Continue on the "Storage Device Configuration" screen.

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7. Enter New AMI for the Name tag and click Continue.

Request Instances Wizard [Cancel X]

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

Add tags to your instance to simplify the administration of your EC2 infrastructure. A form of metadata, tags consist of a case-sensitive key/value pair, are stored in the cloud and are private to your account. You can create user-friendly names that help you organize, search, and browse your resources. For example, you could define a tag with key = Name and value = Webserver. You can add up to 10 unique keys to each instance along with an optional value for each key. For more information, go to [Tagging Your Amazon EC2 Resources](#) in the *EC2 User Guide*.

Key (127 characters maximum)	Value (255 characters maximum)	Remove
Name	New AMI	X
		X

Add another Tag. (Maximum of 10)

< Back Continue >

8. The default *qwikLAB™* EC2 Key Pair will be selected. Click Continue.

Request Instances Wizard [Cancel X]

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

Public/private key pairs allow you to securely connect to your instance after it launches. For Windows Server instances, a Key Pair is required to set and deliver a secure encrypted password. For Linux server instances, a key pair allows you to SSH into your instance. To create a key pair, enter a name and click **Create & Download Your Key Pair**. You will be prompted to save the private key to your computer. Note: You only need to generate a key pair once - not each time you want to deploy an Amazon EC2 instance.

Choose from your existing Key Pairs

Your existing Key Pairs*: qwiklab-133-5023

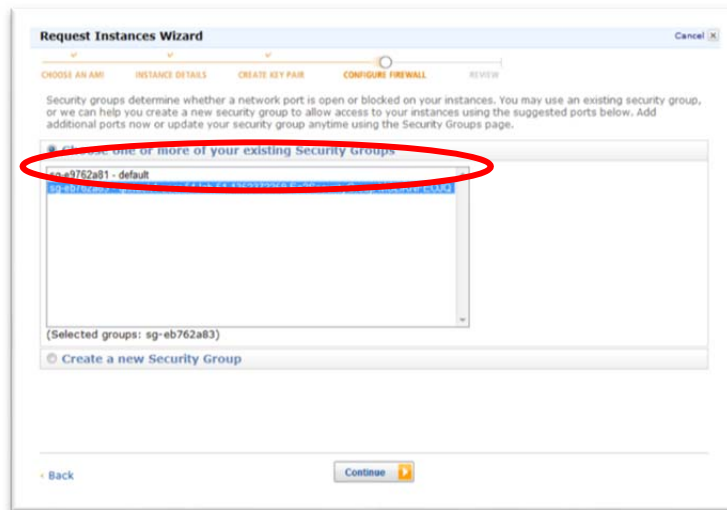
☐ Create a new Key Pair

☐ Proceed without a Key Pair

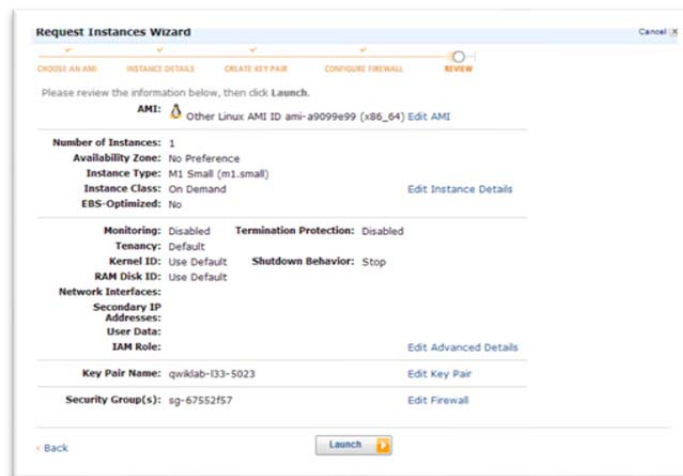
< Back Continue >

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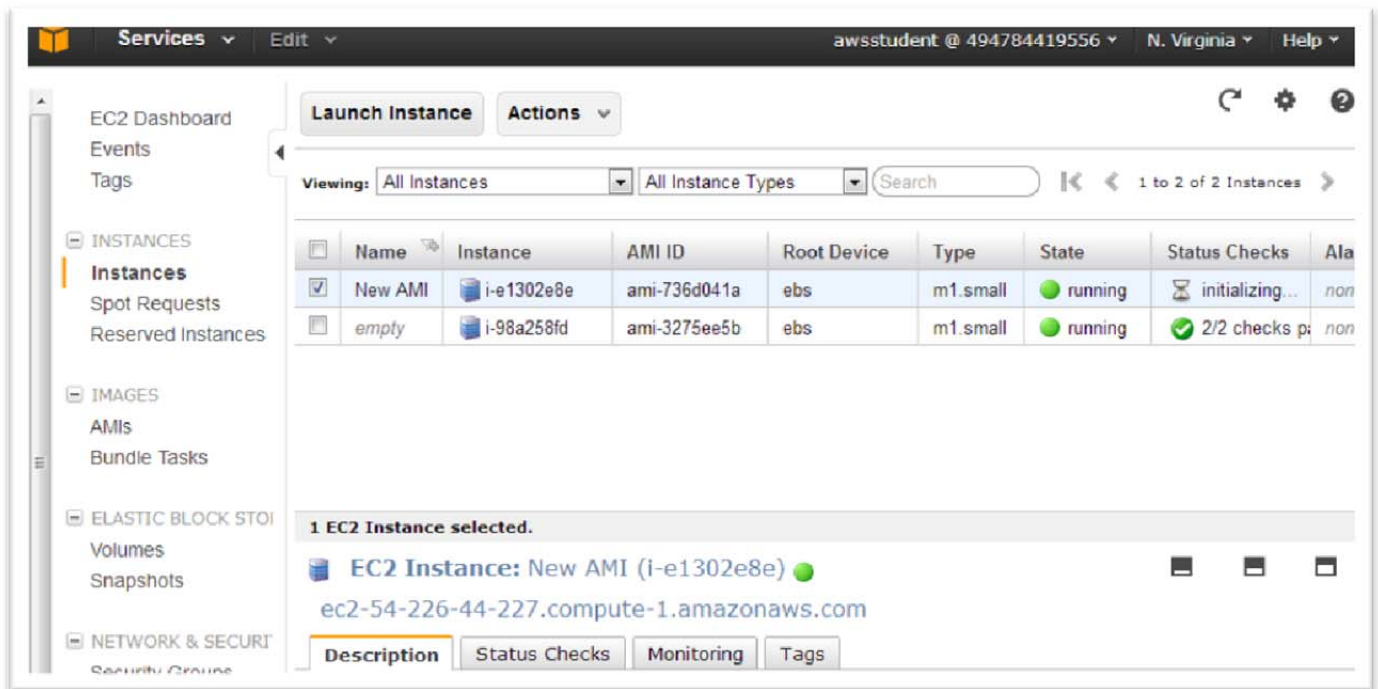
9. Select the Lab's EC2 Security Group, click Continue.



10. Click Launch.




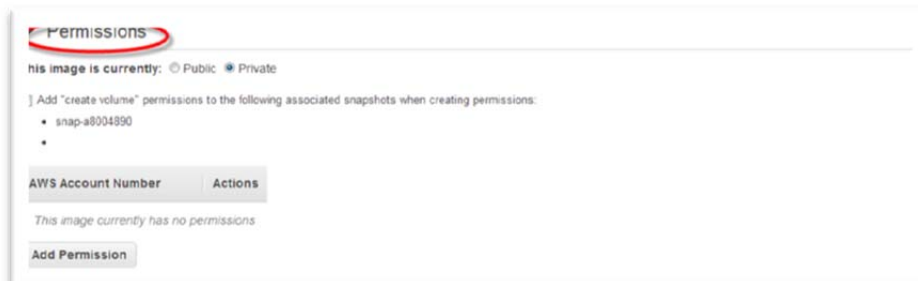
11. After around 1-2 minutes, the new instance is ready to go.



Share your AMI or make it public

AMIs are private by default. You can share AMIs to other AWS accounts or make them public.

1. Click the AMIs link to return to the AMI screen.
2. Select your AMI and click the Details Icon ().
3. Expand the Permissions section. Notice that you can keep an AMI private, share it with one or more AWS accounts, or make it public to anyone.



You can find additional information about AMI sharing in the EC2 online documentation:

<http://docs.amazonwebservices.com/AWSEC2/latest/UserGuide/AESDG-chapter-sharingamis.html>

Important: If you plan to share publicly AMIs, we strongly recommend that you read and apply all recommendations from the EC2 documentation and from the following article:

Public AMI Publishing: Hardening and Clean-up Requirements

<http://aws.amazon.com/articles/Amazon-EC2/9001172542712674>

End Lab

Sign-out of the AWS Management Console.

Click the End Lab button in *qwikLAB*™.



Give the lab a thumbs-up/down, or enter a comment and click Submit

A feedback form with a white background and a light gray border. At the top, there are three icons: a thumbs-up, a thumbs-down, and a square box, all enclosed in a red oval. Below these icons is a text input field labeled "Comment". To the right of the text input field is a large, empty rectangular box for entering a comment. At the bottom right of the form, there is a "Submit" button, which is also enclosed in a red oval.

Any errors in this document can be reported to aws-course-feedback@amazon.com.