

Amazon EC2 Lab

AWS Essentials - Windows Version

Version 3.1

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Introduction

Overview

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. EC2 reduces the time required to obtain and boot new server instances to minutes, allowing you to quickly scale capacity, both up and down, as your computing requirements change.

Topics Covered

The following Amazon EC2 topics will be covered in this lab:

- Overview of the EC2 Management Console
- · Creating an EC2 key pair and a security group to allow RDP
- · Choosing a correct Windows AMI and launching an instance
- Creating an AMI with customizations
- Modifying object metadata
- Creating, attaching, detaching and migrating an EBS volume
- Managing an instance's lifecycle, including: Termination protection, starting, stopping, resizing and terminating the instance

The Scenario

As the operations focused individual in the start-up business, Asperatus Tech, you have created a distribution point within Amazon S3. Your next job is to deploy a web server presence within Amazon EC2, to begin to host your content.

Using Amazon EC2

The AWS Management Console

Please review the instructions included within the first lab for opening and configuring the console

Amazon EC2 Key Pairs and Security Groups

Your operations hat now requires you to deploy a server to host your website. In this section, you access the Amazon EC2 Management Console, create a new key pair, and create a security group to allow RDP access to your new web server. The key pair will be used to retrieve your administrator account password. For Windows systems, this key pair is only used to retrieve your password and is required to do so. If it is not open, click the **EC2** link to open the EC2 Management Console.

Note: Mac users will need to download RDC.

1. Open the EC2 Management console by clicking the EC2 link in the navigation bar you created previously.



2. In the left navigation pane, click on Key Pairs listed under the Network & Security.



- 3. Click Create Key Pair.
- 4. In the "Create Key Pair" dialog, type a key pair name such as **asperatus _key_pair** and then click **Yes**. This will download a [key pair name].pem file to your computer, where [key pair name] is the name you typed in the "Create Key Pair" dialog.
- 5. Click **OK** to save the file to the /Downloads folder when the file is generated and then click **Close**. *Note: Do not open the pem file.*
- 6. Next, you will look at Security Groups and their usage. Click **Security Groups** under **Network & Security** to create a new group.



7. Click Create Security Group.

- 8. In the "Create Security Group" dialog:
 - (1) Type a group Name such as remote access.
 - (2) Type a **Description** such as **allows access to server**. *Note: Do not change the VPC.*

Create Security Group Cancel X		
Name:	remote access	
Description:	allows access to the serve	
VPC:	vpc-40b3ea2b* =	
	* denotes default VPC	

(3) Click Yes, Create.

- 9. In the EC2 Management Console:
 - (1) If not already checked, click the check box to select the newly created security group.
 - (2) Click the Inbound tab to show the properties in the lower panel.
 - (3) In the Port range field, type 3389 (or use the Create a new rule drop down box and select RDP).
 - (4) Click Add Rule, and repeat the previous step to add port 80 (or use the Create a new rule drop down box and choose http).
 - (5) Click Apply Rule Changes.



This shows how to utilize security groups to allow inbound connections to your instances. In this example, you allowed 3389 (RDP) and 80 (http) to your Asperatus Windows server. You are now ready to retrieve your Windows Administrator password and to use RDC to connect to the Windows instance you create in the next step.

Note: It is a best practice to not enable RDP directly to production servers. Rather, to use a bastion server (or jump server) as the entry point for RDP and SSH connections.

Launching an Amazon EC2 Windows Instance

Now that you have your key pair and security groups defined, it's time to launch your web server. In this section, you will launch a Windows instance from an AMI, apply user data to customize and bootstrap the launching of the instance with tools you need to manage your Asperatus web server, and connect to the instance and validate that the instance launched with Asperatus customizations applied.

- 1. In the EC2 Management Console, click Instances listed under Instances.
- 2. Click Launch Instance.



 At the first screen, Step 1:Choose an Amazon Machine Image (AMI) panel, scroll to Microsoft Windows Server 2008 R2 Base and click Select, located to the right of the instance name. This instance only supports 64 bit architectures.



4. Then, at Step 2: Choose an Instance Type, ensure that Micro instances, t1.micro is selected, and click Next: Configure Instance Details.

All instance types	Micro ins	stances			
Micro instances Free tier eligible	Micro instances are a low-cost instance option, providing a small amount of CPU resources. The require additional compute cycles periodically, but are not appropriate for applications that require include low traffic websites or blogs, small administrative applications, bastion hosts, and free tri				
General purpose	Size ECUs (i) vCPUs (i) Memory (GiB) Instance Storage (G				
Memory optimized	t1.micro	up to 2	1	0.613	EBS only

- 5. Next, Step 3: Configure Instance Details. Here,
 - (1) Ensure the number of instances is set to 1.
 - (2) Scroll down to ensure the checkbox for Automatically assign a public IP address to your instances is checked.
 - (3) Input the following data into the user data section by expanding the Advanced Details to expose the input. These customizations install MySQL Workbench, and the IIS packages to run a website. Just what you need to test connectivity to your database and get this web server running!

```
<powershell>
# Install MySQL Workbench
Set-ExecutionPolicy Unrestricted
iex ((new-object net.webclient).DownloadString("http://bit.ly/psChocInstall"))
cinst vcredist2010
cinst mysql.workbench
# Enable IIS
$packages = "IIS-WebServerRole;" +
   "IIS-WebServer;" +
   "IIS-CommonHttpFeatures;" +
   "IIS-StaticContent;" +
   "IIS-DefaultDocument;" +
"IIS-ManagementConsole;" +
   "IIS-ManagementService;" +
   "IIS-LegacySnapIn;" +
   "WAS-NetFxEnvironment;" +
    "WAS-ConfigurationAPI"
Start-Process "pkgmgr" "/iu:$packages"
(servermanagercmd -install Web-Server -restart)
</powershell>
```

Number of instances	()	1
Purchasing option	(i)	Request Spot Instances
Network	(i)	vpc-dc7c20b7 (172.31.0.0/16) (default) Create new VPC
Subnet	(i)	No preference (default subnet in any Availability Zone) Create new subnet
Public IP	(i)	Automatically assign a public IP address to your instances
IAM role	(i)	None ÷
Shutdown behavior	(i)	Stop \$
Enable termination protection	(j)	Protect against accidental termination
Monitoring	(j)	Enable CloudWatch detailed monitoring
		Additional charges apply.
Tenancy	(i)	Shared tenancy (multi-tenant hardware) \$
		Additional charges will apply for dedicated tenancy.
 Advanced Details 		
User data	(j)	●As text As file Input is already base64 encoded
		<pre><pre><pre><pre><pre><pre><pre><pre></pre></pre></pre></pre></pre></pre></pre></pre>

- 6. After the customizations are complete, click **Next: Add Storage**.
- 7. At Step 4: Add Storage, accept the default values by clicking Next: Tag Instance.
- 8. In **Step 5: Tag Instance**, type a meaningful name in the **Value** field.

Value	(255 characters maximum)
Web Serv	ver 1

- 9. Then click Next: Configure Security Group.
- 10. You will configure the security group that the instance operates within in **Step 6: Configure Security Group**.
 - (1) Select the radio button for Select an existing security group.

(2) Place a check mark next to the security group you created earlier.

Assign a security group: Oreate a new security group	
Select an existing security group	
Security Group ID	Name
sg-695d560b 😕	remote access
sg-1f0dfd70	default

Click Review and Launch.

- 11. At **Step 7: Review Instance Launch**, you can review all of the settings that you have configured through this wizard. Click **Launch** to continue.
- 12. You are presented with a window Select an existing key pair or create a new key pair.
 - (1) Ensure Choose an existing key pair is selected and that
 - (2) [your_keypair_name] is selected,
 - (3) And then check the box stating you have the private key.
 - (4) Click, Launch Instances.

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 require to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you securely SSH into your instance.	id
Choose an existing key pair Select a key pair asperatus_key_pair Choose that I have access to the selected private key file (asperatus_key_pair.pem), and that without this file, I won't be able to log into my instance.	to

- 13. In the, Launch Status window, click View Instances to return to the instances view of the EC2 control panel.
- 14. When the instance is fully provisioned, you will be able to select the newly created Windows instance in the EC2 console. To retrieve instance information:
 - (1) Right-click the instance name.
 - (2) Choose **Get Windows Password** to retrieve your logon information. This will also give you the external DNS name to use in the remote desktop client.

Note: It can take 15-30 minutes, so now may be a good time to skip below to the **Using EBS Volumes** section while you wait for the instance to provision.

Web Server 1	Instance Management
	Launch More Like This
	Add/Edit Tags
	Change Instance Type
	Create Image
	Bundle Instance (instance store AMI)
	Change Termination Protection
	View/Change User Data
	Change Shutdown Behavior
	Get Windows Password

- 15. This option launches a wizard to retrieve the default windows administrator password, account name, and instance connection link. The wizard requires the .pem file you created previously. In the wizard:
 - (1) Ensure Choose an existing key pair is selected.
 - (2) Ensure the key pair you created is selected (not the *qwik*LAB[™] keypair).
 - (3) Check the box acknowledging that you have access to the private key.

Note: This is the file ye	ou downloaded earlier in	this lab!
---------------------------	--------------------------	-----------

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 require to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you securely SSH into your instance.	ed i to
Select a key pair asperatus_key_pair acknowledge that I have access to the selected private key file (asperatus_key_pair.pem), and that without this file, I won't be able to log into my instance.)

Next, click Decrypt Password.

- 16. The **Retrieve Default Windows Administrator Password** dialog displays the information used by the remote desktop client to connect to your image. Type or copy the information using a text editor such as Notepad:
 - (1) The public IP address of the instance
 - (2) The administrator password (make note of this, as you will need it later!)



- 17. Click **Close** when you are finished reviewing the information.
- 18. Using Remote Desktop Connection and the information from the previous steps, connect to your instance. You may get an invalid server certificate warning while connecting; this error can be safely ignored at this time.
- 19. Once connected to the instance using the remote desktop client, verify the MySQL tools are installed by clicking Start > All Programs > MySQL. Also, verify the IIS roles by clicking Start > Administrative Tools > Server Manager > Roles. This is also a good time to change your administrator account password. This process demonstrates how you can use scripts to easily install tools and services at instance creation.

		Server Manager	
		File Action View Help	
Recycle Bin		(= 🔿 🔰 🖬 🛛	
Recycle Bin EC2ConfigService Settings EC2ConfigService Settings Internet Explorer Windows Update Accessories Administrative Tools Amazon Web Services Maintenance MSQL MySQL Workbench 5.2 CE Starkey	Administrator Documents Computer Network Control Panel Devices and Printers	Hie Action View Help	Roles Image: Noise Summary Roles Summary Roles: 1 of 17 installed Image: Web Server (IIS) Provides a reliable, manageable, and Role Status
	Administrative Tools		System Services: 3 Runnin
			Events: None in the last 24
	Help and Support		tile on this role's homepage
	Run		
Back	Windows Security		Role Services: 16 installed
Search programs and files	Log off		😯 Last Refresh: Today at 10:29 PM
🍂 🛃 🖓			

- 20. From your local computer's web browser, input the IP address of your instance that you collected in the previous steps. You should see the Welcome to IIS default Windows website.
- 21. When you are finished, close Remote Desktop Connection.

Creating an AMI

You successfully started your Windows instance and validated its functionality! Great! Now, you will need to make this a "golden image" to allow for quick and easy deployments in the future. That's where the custom AMI comes into play. In this section you use the Amazon EC2 management console to create an AMI from your existing EC2 instance. Using this process, the AMI you generate becomes a template for generating future EC2 instances with IIS and MySQL Workbench pre-installed. You also learn some of the use cases for building custom AMIs.

- 1. Using the instance created in the previous section, "Launching an Instance", create an AMI. In the EC2 Management Console:
 - (1) In the left navigation pane, expand **Instances** and click **Instances**.
 - (2) Right-click your instance name.
 - (3) Choose Create Image.



- 2. In the "Create Image" dialog:
 - (1) Type a name in the Image Name field such as asperatus-webserver-ami.
 - (2) Type an optional description in the Image Description field such as Asperatus web server ami.
 - (3) Click the No Reboot box.
 - (4) Accept the remaining default values and click Yes, Create.

Create Image			
Instance ID Image name	() ()	i-1337df24 asperatus_webserver_ami	1
Image description No reboot	() ()	Asperatus webserver image	2

 Creating the image takes 5-15 minutes to complete. In the "Create Image" dialog, click the View pending image... link to view AMI creation progress. Alternatively, click Images > AMIs in the EC2 management console and notice the Status. It will change from pending to available.

AMI Name	Ŧ	AMI ID	Ŧ	Source	Ŧ	Owner	Ŧ	Visibility	Ŧ	Status	Ŧ
asperatus_webserver_ami		ami-72af3742		991995651107/a		991995651107		Private		pending	

- 4. Next, you will terminate your current EC2 instance and re-deploy using the AMI you created. Be sure you have the Windows Administrator password handy for the following step! This demonstrates that the AMI image behaves like a template containing the configuration you specified using the Powershell script (pasted into the "User Data as text" field). To terminate the existing EC2 instance and re-deploy an instance from the AMI that includes the IIS roles and MySQL tools:
 - (1) In the EC2 Management Console, click Instances > Instances.
 - (2) Select the box to the left of the Windows instance you created to select it.
 - (3) Right click the instance.
 - (4) Choose Terminate from the drop-down list.



- 5. In the "Terminate instances" dialog, click Yes, Terminate.
- 6. To launch the AMI:
 - (1) In the EC2 Management Console, click Images > AMIs.
 - (2) Select the new image by clicking the box to the left of the image name.
 - (3) Click Launch.

EC2 Dashboard	Launch Actions 💌
Events	
Tags	Filter: Owned by me 👻 All images 👻 All
 INSTANCES Instances 	Name AMI Name asperatus_webserver_ami
Spot Requests	
Reserved Instances	
IMAGES AMIs Bundle Tasks	

- 7. Use the default options for all screens until **Step 6:Configure Security Group.**
- 8. At **Step 6**, choose **Select an existing security group**, and pick the remote access security group you created.
- 9. Click Review and Launch.
- 10. Click Launch.
- 11. Similarly to how you selected your key pair when you launched the instance in previous steps, select your asperatus_key_pair in the **Select an existing key pair** dialogue window.
- 12. Click View your instances on the Instances page.
- 13. When complete, a terminated instance and your newly deployed AMI appear in the EC2 management console. Note: Your instance names and AMI IDs may differ from the image below.

	Asperatus Web Server	i-7b081f4f	t1.micro	us-west-2b	🥚 running	🤣 2/2 checks
	Asperatus Web Server	i-41081f75	t1.micro	us-west-2b	terminated	
Insta	nce: i-7b081f4f (/ spera	tus Web Server)	Public DN	IS: ec2-54-200-110-30.u	s-west-2.compute.a	mazonaws.com

- 14. After a few minutes, click the new instance. Retrieve the DNS name from the lower pane.
- 15. Connect to the instance via Remote Desktop Connection using the password from the previous instance, and confirm that the MySQL tools and IIS roles are both present and that IIS is running properly (use previous steps as a guide if you need assistance).

- 16. When you are finished, close Remote Desktop Connection.
- 17. Repeat the process for deploying an AMI to create a second instance.

Using EBS Volumes

Now that you, the Asperatus employee in charge of spearheading the infrastructure, have a pair of web servers, and S3 buckets configured, you will take a look at EBS volumes and some ways in which they are used. In this section you use the Amazon EC2 management console and Windows disk management utility to create, attach, detach, migrate and manipulate an EBS volume.

- 1. In the EC2 Management Console:
 - (1) In the left navigation pane, click Volumes under Elastic Block Store.
 - (2) Note the pre-existing volume from the Windows server instance you created earlier (specifically the Zone) and click **Create Volume**.

🎁 Services 🗸	\$ S 3	E 🛑 E	C2 🔋 RDS	Edit 🗸				awsstud
EC2 Dashboard Events Tags	Crea	ate Volume	e Actions 👻	\$ (Search				
INSTANCES		Name 👒	Volume ID	Capacity	Volume Type	Snapshot	Created	Zone s
Instances		empty	vol-cf2b27f7	30 GiB	standard	snap-7d054b46	2013-06-20T17:06:00	us-west-2b
Spot Requests Reserved Instances					<u> </u>		II	
IMAGES		•						
AMIs		×.						
Bundle Tasks								
ELASTIC BLOCK STORE Volumes								

- 2. In the "Create Volume" dialog:
 - (1) For Volume Type, choose Standard.
 - (2) For Size, type 10 and choose GiB from the drop-down list.
 - (3) Choose an **Availability Zone** value <u>that differs</u> from the zone for your EC2 instance (noted in the previous step).
 - (4) Accept the remaining default values and click Yes, Create.

Create Volume		Cancel 🗙
Volume Type:	Standard +	
2 Size:	10 GiB 🗧 (Min: 1 GiB, Max: 1TiB)	
IOPS:	(Max: 4000 IOPS)	
Availability Zone:	us-west-2a 💠	
Snapshot:	No Snapshot	\$
	Cancel Yes	3, Create

- 3. Name your new volume:
 - (1) Check the box to the left of the volume name to select it, if it is not already selected.

- (2) Click the Tags tab.
- (3) Click Add/Edit Tags.



- 4. In the "Tag EBS Volume" dialog:
 - (1) For the Name key, type Asperatus ebs volume in the Value column.
 - (2) Click Save Tags.

Tag EBS Volume		Cancel 🗙
Add tags to your volume to simplify the adr metadata, tags consist of a case-sensitive k your account. You can create user-friendly resources. For example, you could define a add up to 10 unique keys to each volume al information, go to Tagging Your Amazon EC	ministration of your EC2 infrastructure. A form key/value pair, are stored in the cloud and an names that help you organize, search, and bi tag with key = Name and value = CRMwebr long with an optional value for each key. For 2 Resources in the EC2 User Guide.	m of re private to rowse your oot. You can more
Key (127 characters maximum)	Value (255 characters maximum)	Remove
Name	Asperatus ebs volume	×
		×

Note:	The name wil	ll now be di	splayed in the	"Name"	column in the	EC2 Manad	gement Console.

Viewing:	All Volumes	\$ Search
Na	ame 🖓	Volume ID
I As	speratus ebs volume) vol-53746e6b

"Availability zones" also called "zones", define EC2 instances and EBS volumes. By separating zones, you can provide fault tolerance, high availability and segmentation. However, if your volume is in a different zone than the

instance using it, the EC2 instance will not be able to attach to the volume. In the previous steps, the volume you created was placed in a different zone from the instance.

In the example shown in this section, the EC2 instance is running in us-west-2c, but the EBS volume is running in us-west-2a. Because the volume is in a different zone from the instance, the volume must be migrated to the same zone as the instance. The following example shows how to take a snapshot of a volume, deploy that snapshot, and migrate it. To migrate your volume:

- 1. First, verify the zone for your instance.
 - (1) In the EC2 Management Console, click Instances > Instances.
 - (2) Select your running instance, and in the **Description** tab below, note the **zone**.
- 2. Next, take a snapshot of the volume.
 - (1) Right-click the essentials lab ebs volume.
 - (2) Click Snapshots listed under Elastic Block Store.
 - (3) Choose Create Snapshot.



- 3. In the "Create Snapshot" dialog:
 - (1) Verify the correct volume is selected.
 - (2) For Name, type a value such as snap-for-migrating.
 - (3) Type a **Description** such as migrating to us-west-2c.
 - (4) Click Yes, Create. The snapshot will take some time to complete.



- 4. Click Elastic Blockstore > Snapshots.
- 5. Click the **Refresh** icon and verify the Status is "completed" before continuing.

Cre	ate Snapshot	Delete	Create	• Volume Create Image Copy		(ہ ج
Viewi	ing: Owned By Me	¢)(Search				≪ ≪ 11	to 1 of 1 Items 📎
	Name 👒	Snapshot ID	Capacity	Description	Status	Started	Progress
	snap-for-migrating	snap-fd612fc6	10 GiB	migrating to us-west-2c	completed	2013-06-20 12:11 PDT	available (100%)
					/		

- 6. Deploy the snapshot to a new volume in the proper zone.
 - (1) Click Snapshots listed under Elastic Block Store.
 - (2) Right-click the snap-for-migrating snapshot.
 - (3) Choose Create Volume from Snapshot.

		Name 🐄	Snapshot I	D	Capacity	Description
Instances Spot Requests	≤	snap-for-migrating	snap-fd	612fc6	10 GiB	migrating to
Reserved Instances		2		Delete Sr Snapshol	hapshot t Permissions	
IMAGES			0	Create Vo Create In	nage from Sn	apshot
AMIs Bundle Tasks	1 EI	lastic Block Store Vo	ume Snapsl	Add/Edit Copy Sna	Tags apshot	
	۲	Elastic Block	Store Vol	ume Sr	napshot: s	map-fd612
ELASTIC BLOCK STORE	D	escription Tage				
Volumes	9	Snapshot ID:		snap-fd6	12fc6	
	5	Status:	com	pleted		

- 7. In the "Create Volume" dialog:
 - (1) For Volume Type, choose Standard.
 - (2) For **Availability Zone**, choose the zone that matches your EC2 instance's zone. Note: An example would be us-west-2c.
 - (3) Click Yes, Create.

Create Volume		Cancel 🗙
Snapshot:	snap-fd612fc6 migrating to us-west-2c	
Volume Type:	Standard +	
Size:	10 GiB ‡ (Min: 10 GiB, Max: 1TiB)	
IOPS:	(Max: 4000 IOPS)	
Availability Zone:	✓ us-west-2a us-west-2b us-west-2c	
	Cancel Yes	, Create

18

8. There are now 2 volumes in different zones. Delete the volume in the incorrect zone:

- (1) Right-click the volume and choose **Delete Volume**.
- (2) Click Yes, Delete to confirm.

Volume ID	Volume Type	Snapshot	Created	Zone
🍉 vol-53 🔆 e6b	standard	-	2013-06-29T07:39:01	us-west-2a
🕪 vol-4b945422	standard	snap-2723f74f	2013-07-10T17:15:(C	us-west-2c
🕥 vol-bfa664d6	standard	snap-05b26b3f	2013-07-15T21:53:14	us-west-2c

- 9. Attach the remaining volume to the instance.
 - (1) Click Elastic Block Store > Volumes.
 - (2) Select the new volume available.
 - (3) Click Actions.
 - (4) Click Attach Volume.

Viewing: All Volume		💥 Delete Volume
		🖘 Attach Volume
	Name	Notach Volume
empty	empty	Force Detach
◙	new ebs volum	Change Auto-Enable IO Setting

- 10. In the "Attach Volume" dialog:
 - (1) Select your instance
 - (2) Click Yes, Attach.

Volume: Select Instance Select Instance / i-182d022d (running) Device: xvdf Windows Devices: xvdf through xvdp	Attach Volu	ume	Cancel 🗙
Device: xvdf Windows Devices: xvdf through xvdp	Volume: Instances:	Select Instance ✓ i-182d022d (running)	
Windows Devices: xvdf through xvdp	Device:	xvdf	
		Windows Devices: xvdf through xvdp	

11. Validate the volume is attached to the instance by viewing the Attachment Information column in the Volumes view.



12. In Remote Desktop Connection, log on to Windows, open the disk management utility, and add and format the new disk. Further test the disk by creating a file on it.



- 13. Using previous steps, create a new snapshot of the disk and deploy a new volume from the snapshot. Increase the volume size to 20GB. Attach the new volume to your instance.
- 14. Logon to your Windows instance using Remote Desktop Connection and view the new volume in the disk management utility.

Basic	ik 0				
30.00 GB	GB 30.00 GB NTFS				
Online	Healthy (System, Boot, Page File, Active, Crash Dump, Primary Partition)				
Basic	New Yolume (D:)				
10.00 GB	10.00 GB NTF5				
Online	Healthy (Primary Partition)				
CeDisk 2 Basic 20,00 GB Offline (1) Help	10.00 GB	10.00 GB Unallocated			

15. Extend the volume and explore it.



The Instance Lifecycle

Now that you, an Asperatus engineer, have your instances created and configured, images created and EBS volumes ready, you will need to know how to keep those instances from being deleted by accident. You will also want to know how to change the instance type, should you need to increate the amount of CPU and memory available to your server. In this section you change the EC2 Instance Type and protect it from termination.

- 1. If powered on, power off your instance either by shutting down from within Windows or by right-clicking your instance and choosing **Stop**.
- 2. Click Yes, Stop to confirm.
- 3. Right-click the instance, or click **Actions** with the instance selected, and click **Change Termination Protection**.



4. In the "Termination Protection" dialog, click Yes, Enable to enable termination protection.

1	Enable Termination Protection		×
	Are you sure that you would like to enable termination pr Instance ID: Current Setting:	otection for the instance with the following details: i-7b081f4f Disabled	
		Cancel Yes, Enabi	e

- 5. In the EC2 Management Console, select your instance and switch to the **Description** tab in the lower pane.
- 6. Note that **Termination Protection** is set to **Enabled**. Tip: You may need to scroll through the "Description" tab to view the termination protection settings.

Townsingtion	Ducto attant	Enchlad
Termination	Protection:	Enabled

Now, you are noticing that the instance is not as responsive as you would like. You need to increase it's performance. To do so, increase the instance size from micro to small:

7. Right-click your instance and choose **Actions > Stop**, (or log in to the instance using previous steps as a guide, and shut it down within the operating system).

- 8. Again, right-click your instance and choose **Instance Management > Change Instance Type**.
- 9. In the "Change Instance Type" dialog:

- (1) For Instance Type, choose m1.small.
- (2) Click Apply.

Change Ins	tance Type	×
Instance ID Instance Type	i-7b081f4f m1.small : EBS-optimized (Additional	charges apply.)
	C	ancel Apply

10. In the EC2 Management Console, verify the **Type** column value is **m1.small**.



- 11. Right-click your instance and choose Actions > Start.
- 12. On the subsequent window, choose Yes, Start.
- 13. Also, in the EC2 Management Console, note the new instance DNS name.

Asperatus Web Server i-7b081f4f m1.small us-west-2b orunning 🤣 2/2 ch						🤣 2/2 checks
Instance: i-7b081f4f (Asperatus Web Server)		Public DNS	ec2-54-201-8-103.us	s-west-2.compute.an	nazonaws.com	

Conclusion

Congratulations! You now have successfully:

- Created custom key pairs and security groups.
- Deployed a preexisting AMI with customizations and attached to it via remote desktop.
- Created a custom AMI.
- Created, attached, detached, migrated and took snapshots of EBS volumes.
- Modified an instance type, and worked with instance core functionality.

Please return to the course to complete the online training module.

For feedback, suggestions, or corrections, please email: <u>aws-course-feedback@amazon.com</u>.