

MSDS 7346

Cloud Computing

Mini Project 2 – Compute

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The objective of this lab is to dig deeper into AWS EC2. This is continuation of what we did in the class. Please complete the following steps and take screenshots at each of the steps to

submit:

1. Create and launch an instance on EC2 with termination protection enabled against accidental termination, naming your instance “My Web Server”

Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of

Number of instances Launch into Auto Scaling Group

Purchasing option ☐ Request Spot instances

Network Create new VPC

Subnet Create new subnet

Auto-assign Public IP

IAM role Create new IAM role

Shutdown behavior

Enable termination protection ☒ Protect against accidental termination

'Enable termination protection' can be enabled by checking on the check box above. An instance with this feature turned on cannot be terminated until this feature turned off.

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.
A copy of a tag can be applied to volumes, instances or both.
Tags will be applied to all instances and volumes. Learn more about tagging your Amazon EC2 resources.

Key (127 characters maximum)	Value (255 characters maximum)	Instances	Volumes
Name	My Web Server	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Add another tag (Up to 50 tags maximum)

The name of the instance can be changed from 'Add Tags' step as shown above. Type 'Name' and change the value by typing a value in the 'Value' cell.

2. Insert the following script so that it is executed as EC2 instance is created

```
#!/bin/bash
yum -y update
yum -y install httpd
chkconfig httpd on
service httpd start
echo "<html><h1>Hello my name is INSERT YOUR NAME</h1>
</html>" > /var/www/html/index.html
```

The image shows two screenshots of the AWS Management Console during the EC2 instance launch process.

Top Screenshot: Step 3: Configure Instance Details

This screen allows configuring the instance details. The 'Number of instances' is set to 1. The 'Purchasing option' is 'Request Spot instances'. The 'Network' is set to 'vpc-9fd9a7f7 (default)'. The 'Subnet' is set to 'No preference (default subnet in any Availability Zone)'. The 'Auto-assign Public IP' is set to 'Use subnet setting (Enable)'. The 'IAM role' is set to 'None'. The 'Shutdown behavior' is set to 'Stop'. 'Enable termination protection' is checked. 'Monitoring' is unchecked. 'Tenancy' is set to 'Shared - Run a shared hardware instance'. 'T2 Unlimited' is unchecked.

Advanced Details

The 'User data' section is expanded, showing the script to be executed on the instance:

```
#!/bin/bash
yum -y update
yum -y install httpd
chkconfig httpd on
service httpd start
echo "<html><h1>Hello my name is INSERT YOUR NAME</h1>
</html>" > /var/www/html/index.html
```

Bottom Screenshot: Step 6: Configure Security Group

This screen shows the configuration for the security group. The 'Assign a security group' section is expanded, showing the 'Security group name' as 'launch-wizard-9' and the 'Description' as 'launch-wizard-9 created 2018-05-23T14:04:47.357-05:00'.

The 'Rules' section shows the following rules:

Type	Protocol	Port Range	Source
SSH	TCP	22	Custom 0.0.0.0/0
HTTP	TCP	80	Anywhere 0.0.0.0/0::/0

The 'Add Rule' button is visible at the bottom left of the rules section.

Any code typed in the 'User data' area will run when instance start.
In order to be accessible from web browser, add 'HTTP' protocol and let the connection source to be 'Anywhere'.

3. Try to access the Web Server (Note: may need to update your security group setting)



Public DNS (IPv4) ec2-18-191-39-148.us-east-2.compute.amazonaws.com
IPv4 Public IP 18.191.39.148

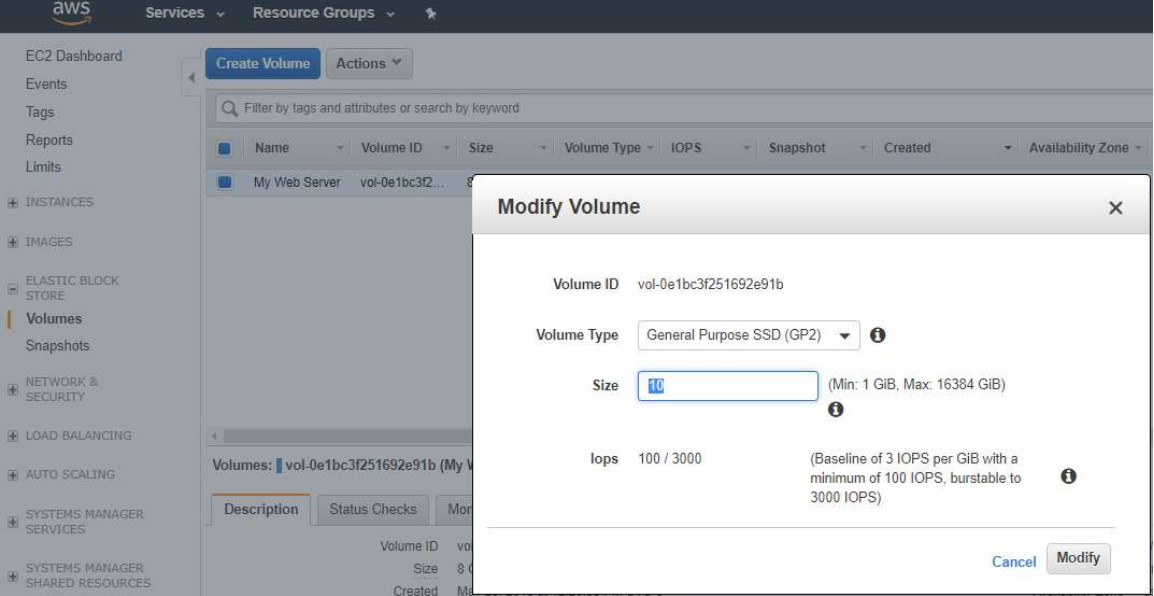
← → ↻ ⓘ 18.191.39.148

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Hello my name is Mooyoung Lee

Web server can be accessed by typing the public IP address on a web browser.
Unfortunately, the connection was not successful at this time.

4. Resize your instance type and EBS volume (change the volume size from 8 GiB to 10 GiB and instance type to t2.small)



aws Services Resource Groups

EC2 Dashboard
Events
Tags
Reports
Limits

INSTANCES
IMAGES
ELASTIC BLOCK STORE
Volumes
Snapshots
NETWORK & SECURITY
LOAD BALANCING
AUTO SCALING
SYSTEMS MANAGER SERVICES
SYSTEMS MANAGER SHARED RESOURCES

Create Volume Actions

Filter by tags and attributes or search by keyword

Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone
My Web Server	vol-0e1bc3f2...	8 GiB	General Purpose SSD (GP2)	100 / 3000			

Modify Volume

Volume ID vol-0e1bc3f251692e91b

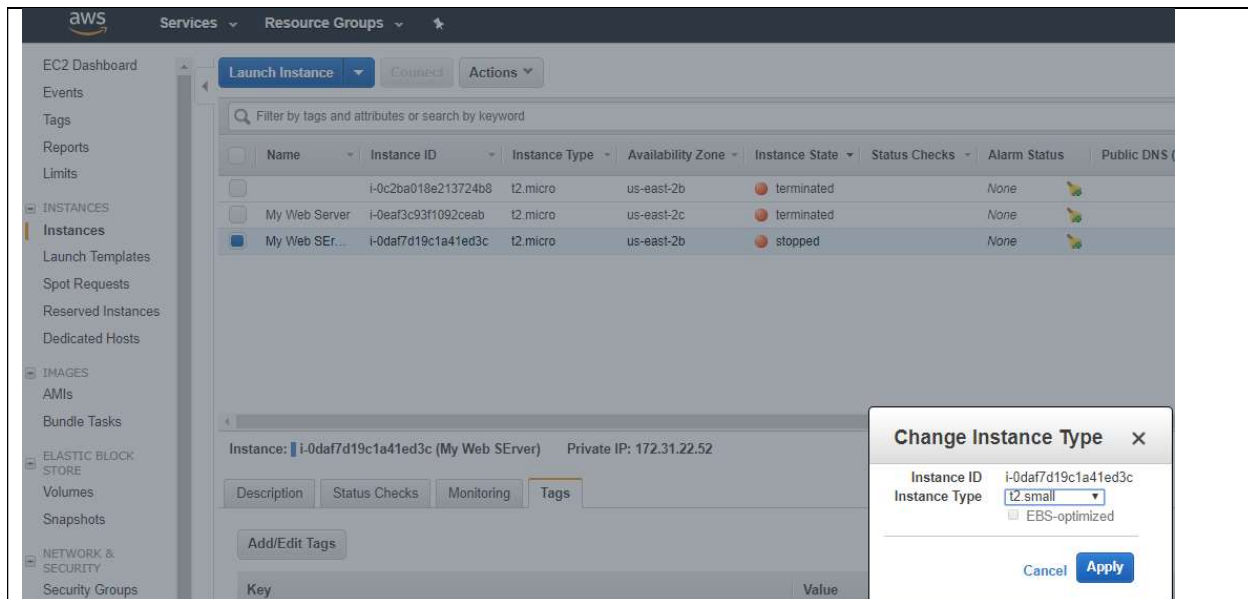
Volume Type General Purpose SSD (GP2) ⓘ

Size 10 (Min: 1 GiB, Max: 16384 GiB) ⓘ

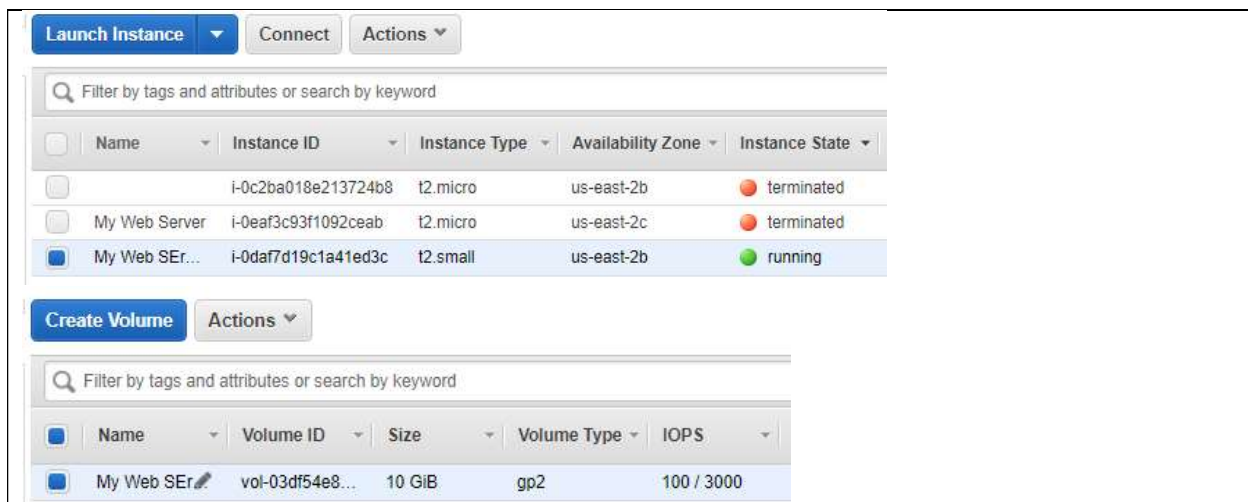
IOPS 100 / 3000 (Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS) ⓘ

Cancel Modify

Go to: Volume/ Action/ Modified Volume
EBS volume can be edited by typing size value on the 'modified volume' window.



In order to change the instance type, a running instance need to be stopped first.
Once the instance stopped, go to 'instance setting/ change instance type'
Them, start the instance again.



Changed to t2.small and 10GB of space.

5. Create a custom image

The screenshot shows the AWS Management Console interface. In the foreground, the 'Create Image' dialog box is open, showing the 'Instance ID' as 'i-0daf7d19c1a41ed3c' and the 'Image name' as 'CustomWebServer01'. The 'Instance Volumes' section shows a single volume 'Root' with a size of 10 GiB and a volume type of 'General Purpose SSD (GP2)'. The 'Create Image' button is highlighted.

In the background, the 'Snapshots' window is visible, showing a table of snapshots. The table has columns: Name, Snapshot ID, Size, Description, Status, Started, and Progress. One snapshot is listed: 'snap-02a25df7a7b2...' with a size of 10 GiB, description 'Created by CreateImage(i-0daf7d19c1a41ed3c) for ami-0e506...', status 'completed', and progress 'available (100%)'.


Go to Actions/ Image/ Create Image.

The created image can be found from 'Snapshots' window.

6. Launch EC2 instance using the custom image

The screenshot shows the 'Step 1: Choose an Amazon Machine Image (AMI)' screen in the AWS Management Console. The screen has a progress bar at the top with steps: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. The 'Step 1' is highlighted.

The main content area shows 'My AMIs' with a search bar. A search result is displayed: 'CustomWebServer01 - ami-0e5d66018e7f8a22c'. Below the search result, it shows 'Root device type: ebs', 'Virtualization type: hvm', and 'Owner: 149598897850'.



Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
My Web Server	i-0217a8b9363eb41f7	t2.micro	us-east-2c	terminated		None		-
My Web Server	i-0b1ba7ea0101356c9	t2.micro	us-east-2b	terminated		None		-
	i-0c38084df68278a5a	t2.micro	us-east-2c	terminated		None		-
My Web SER...	i-0daf7d19c1a41ed3c	t2.small	us-east-2b	terminated		None		-
	i-0db27c1f6e6761774	t2.micro	us-east-2c	running	Initializing	None	ec2-18-221-141-221.us...	18.221.141.221

Go to 'Launch Instance/ My AMIs' and click 'select' & 'review/launch'
 Make sure to establish 'HTTP' protocol running to be able to connect.

7. Launch Web Server on the custom image



When creating an instance from an image, the bash code is not needed to be typed again.
 The server was running automatically, and the webserver was connected by typing a new address.

Please submit screenshots for each steps.

Collaborator: None.

Reference: None.