

Project 1

Following are the steps for implementing this project:

Action Points:

1. Create an EC2 instance with the following specifications:

- AMI: Amazon Linux
- Instance Type: T2.nano
- Volume Type: 8GB Magnetic

To create an instance, you need to complete the following steps:

1. From the EC2 dashboard select "Launch Instance".
2. Select "Amazon Linux AMI".
3. Select "T2.nano" instance type and click "Next".
4. Launch the instance into your default VPC and enable the "Auto-assign Public IP" option, then click "Next".
5. Set the root volume to 8GB in size and the volume type to "Magnetic", then click "Next".
6. Tag the instance with a name so you can easily locate it.
7. Choose a security group that allows SSH access to port 22. If you don't have a security group with this configuration, just accept the default and AWS will create one for you.
8. Click "Review and Launch".
9. You will see a warning message about using a magnetic drive as a root volume. Select "Continue with Magnetic as the boot volume for this instance" and click "Next".

Boot from General Purpose (SSD)



General Purpose (SSD) volumes provide the ability to burst to 3000 IOPS per volume, independent of volume size, to meet the performance needs of most applications and also deliver a consistent baseline of 3 IOPS/GiB.

- ☐ Make General Purpose (SSD) the default boot volume for all instance launches from the console going forward (recommended).
- ☐ Make General Purpose (SSD) the boot volume for this instance.
- ☒ Continue with Magnetic as the boot volume for this instance.

Free tier eligible customers can get up to 30GB of General Purpose (SSD) storage.

☐ Don't show again

Next

10. Review the instance specifications to ensure they are correct, click “Launch”, select a known keypair and then click “Launch Instances”.

AMI Details

Amazon Linux AMI 2016.03.1 (HVM), SSD Volume Type - ami-f5f41398
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.nano	Variable	1	0.5	EBS only	-	Low to Moderate

Security Groups

Security Group ID	Name	Description
sg-2469d55f	DATABASABLE_WEBSERVER	www.databasesable.com webserver security group

All selected security groups inbound rules

Security Group ID	Type	Protocol	Port Range	Source
sg-2469d55f	HTTP	TCP	80	0.0.0.0/0
sg-2469d55f	SSH	TCP	22	0.0.0.0/0
sg-2469d55f	HTTPS	TCP	443	0.0.0.0/0

Instance Details

Storage

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/xvda	snap-a9b8c94e	8	standard	N/A	N/A	Yes	Not Encrypted

11. On the EC2 dashboard, under the description tag, verify that the Instance Type is T2.nano and make note of the Instance ID and Availability Zone.

Description	Status Checks	Monitoring	Tags
Instance ID	i-6a8953f6	Public DNS	ec2-52-87-187-11.compute-1.amazonaws.com
Instance state	running	Public IP	52.87.187.11
Instance type	t2.nano	Elastic IP	-
Private DNS	ip-172-31-54-250.ec2.internal	Availability zone	us-east-1b

2. Reconfigure the instance to achieve the following specification:

- Instance Type: Scale to a T2.small
- Volume Type: Increase to 12GB General Purpose SSD

To reconfigure the instance, you need to complete the following steps:

1. To resize the instance, first shut it down by selecting Actions > Instance State > Stop.
2. When the instance has shutdown, click Actions > Instance Settings > Change Instance Type.
3. Change the Instance Type to "T2.micro" and click "Apply".

Change Instance Type

Instance ID

i-6a8953f6

Instance Type

t2.micro

☐ EBS-optimized

Cancel

Apply

4. Restart the instance and then under the description tag verify that the Instance Type is "T2.micro"

Description	Status Checks	Monitoring	Tags
Instance ID	i-6a8953f6	Public DNS	-
Instance state	pending	Public IP	-
Instance type	t2.micro	Elastic IP	-
Private DNS	ip-172-31-54-250.ec2.internal	Availability zone	us-east-1b

5. To change the size of the root volume you need to shut down the instance again.

6. When the instance has been stopped, go to the Volumes dashboard and locate the root volume for your instance. To make it easier to locate, enter the Instance ID, which you recorded earlier, into the search box.
7. Highlight the root volume and click Actions > Create Snapshot.
8. Give the snapshot a "Name" and "Description" and click "Create"

Create Snapshot ✕

Volume	i	vol-56087d86
Name	i	<input type="text" value="PROJECT_1_ROOTVOL_SNAP"/>
Description	i	<input type="text" value="Project_1 snapshot of 8GB root volume"/>
Encrypted	i	No

Cancel Create

9. Go to the "Snapshots" dashboard and wait for the snapshot creation to complete.
10. When the snapshot is in a completed state, highlight it and select Actions > Create Volume.

<input type="checkbox"/>	Name	Snapshot ID	Size	Description	Status
<input checked="" type="checkbox"/>	PROJECT_1_ROOTVOL_SNAP	snap-d386fb2a	8 GiB	Project_1 snapshot of 8GB root volume	completed

11. In the "Create Volume" box, change the "Volume Type" to "General Purpose SSD", the "Size" to 12GB and make sure that the "Availability Zone" is the same as you recorded in Step 11. Then click "Create".

Create Volume

Snapshot ID ⓘ

snap-d386fb2a
(PROJECT_1_ROOTVOL_SNAP)

Volume Type ⓘ

General Purpose SSD (GP2)

Size (GiB) ⓘ

12

(Min: 8 GiB, Max: 16384 GiB)

IOPS ⓘ

100 / 3000

(Baseline of 100 IOPS per GiB)

Throughput (MB/s) ⓘ

Not Applicable

Availability Zone ⓘ

us-east-1b

Encryption ⓘ

Not Encrypted

Cancel

Create

12. Go to the “Volumes” dashboard and you should be able to see your existing volume (with a “State” of “in-use” and the new volume (with a “State” of “available”).

Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone	State
	vol-3e6316ee	12 GiB	gp2	36 / 3000	snap-d386fb2a	June 3, 2016 at 12:32:08 PM UTC-4	us-east-1b	available
	vol-56087d86	8 GiB	standard	-	snap-a9b8c94e	June 3, 2016 at 12:13:52 PM UTC-4	us-east-1b	in-use

13. Make a note of the new and old Volume IDs.

14. Highlight the old volume and select Actions > Detach Volume.

15. When prompted, select “Yes, Detach”.

Detach Volume

Are you sure you want to detach this volume?
vol-56087d86

Cancel

Yes, Detach

16. Both volumes will now have a “State” of “Available”

	Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone	State
<input type="checkbox"/>		vol-3e6316ee	12 GiB	gp2	36 / 3000	snap-d386fb2a	June 3, 2016 at 12:32:08 PM UTC-4	us-east-1b	available
<input checked="" type="checkbox"/>		vol-56087d86	8 GiB	standard	-	snap-a9b8c94e	June 3, 2016 at 12:13:52 PM UTC-4	us-east-1b	available

17. Highlight the new volume and click Actions > Attach Volume.
18. In the "Instance" box, enter the Instance ID you recorded in Step 11 or simply select the correct instance from the dropdown list. Change the "Device" to be `/dev/xvda`. Click "Attach"

Attach Volume

Volume ⓘ

vol-3e6316ee in us-east-1b

Instance ⓘ

in us-east-1b

Device ⓘ

Linux Devices: /dev/sdf through /dev/sdp

Note: Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.

Cancel

Attach

19. The new volume will now be in a "State" of "in-use".

<input type="checkbox"/>	Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone	State
<input checked="" type="checkbox"/>		vol-3e6316ee	12 GiB	gp2	36 / 3000	snap-d386fb2a	June 3, 2016 at 12:32:08 PM UTC-4	us-east-1b	in-use
<input type="checkbox"/>		vol-56087d86	8 GiB	standard	-	snap-a9b8c94e	June 3, 2016 at 12:13:52 PM UTC-4	us-east-1b	available

20. Restart the instance from the EC2 dashboard and verify whether it has started.

Name	Instance ID	Instance Type	Availability Zone	Instance State
PROJECT_1	i-6a8953f6	t2.micro	us-east-1b	running

3. Verify that the root volume on the EC2 instance is displaying the correct size

To verify the root volume of the EC2 instance, complete the following steps:

1. Login to the EC2 instance using an SSH client. You can review Lesson 5 Demo 1 for details on how to connect to a Linux instance.

```
ec2-user@ip-172-31-54-250:~
Using username "ec2-user".
Authenticating with public key "imported-openssh-key"

  _ | _ | _ )
  _ | ( _ | /   Amazon Linux AMI
  _ | \ _ | _ |

https://aws.amazon.com/amazon-linux-ami/2016.03-release-notes/
9 package(s) needed for security, out of 17 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-54-250 ~]$
```

2. Run "df -h" to confirm that the root volume is 12GB in size.

```
ec2-user@ip-172-31-54-250:~
[ec2-user@ip-172-31-54-250 ~]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/xvda1      12G   1.2G   11G  10% /
devtmpfs        490M   56K  490M   1% /dev
tmpfs           498M    0   498M   0% /dev/shm
[ec2-user@ip-172-31-54-250 ~]$
```

3. Return to the Volumes dashboard and delete the old volume by clicking on Actions > Delete Volume.
4. Go to the Snapshots dashboard and delete the snapshot of the old root volume by clicking on Actions > Delete.

When you have finished, be sure to shut down and terminate any instances used during this project.