EC2-ELASTIC COMPUTE CLOUD=VIRTUAL MACHINE

4 kind machine(capability of machine is same for all)

On Demand - get it immediately but it will charge costly(compute bill + storage bill)- Dev team and Test team and Staging team.

Spot - auction or bid price (when price meets your expectation price they will give you),use not for primary server but for secondary server.

Reserved- for long term like 1-3 year and paying for 1 or 3 years only based on the lease you use it or not (save 60%) (staging and production team)

Dedicated -An Amazon EC2 Dedicated host is a physical server with EC2 instance capacity dedicated for your use and allows you to reliably launch EC2 instances on the same Dedicated host over time. You have visibility over how your Dedicated hosts are utilized and you can determine how many sockets and cores are installed on the server. These features allow you to minimize licensing costs in a bring-your-own-license (BYOL) scenario and help you address corporate compliance and regulatory requirements.

Price calculator based on organization

https://calculator.s3.amazonaws.com/index.html

Launch Instance 7 Steps:-

1.Choose 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.)

2.Choose 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)

3. Configure instance

4. Add storage (hard disk- You can attach additional EBS volumes and instance store volumes to your instance)

5. Add tag

6. Configure security group

7. Review and create key pair(public and private)

5 Instance Type:(185 instance type available)

General Purpose - very good for dev/test/poc-ok performance

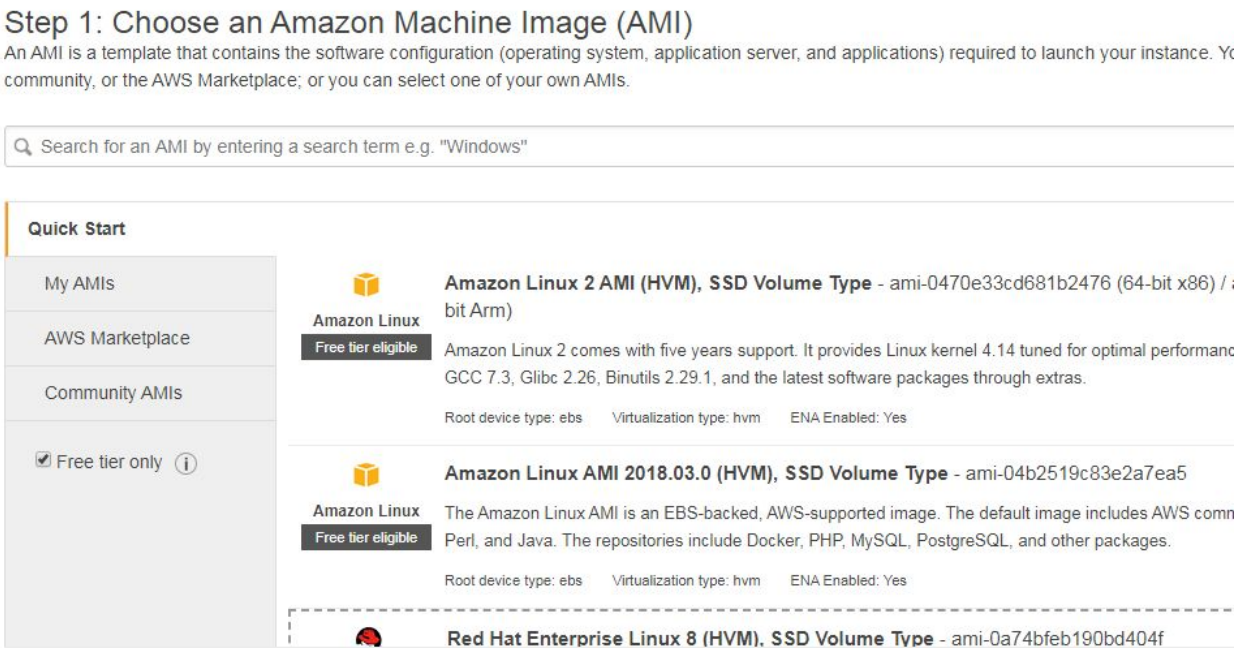
Compute Optimized - use for cpu / processing / Analytics/middleware

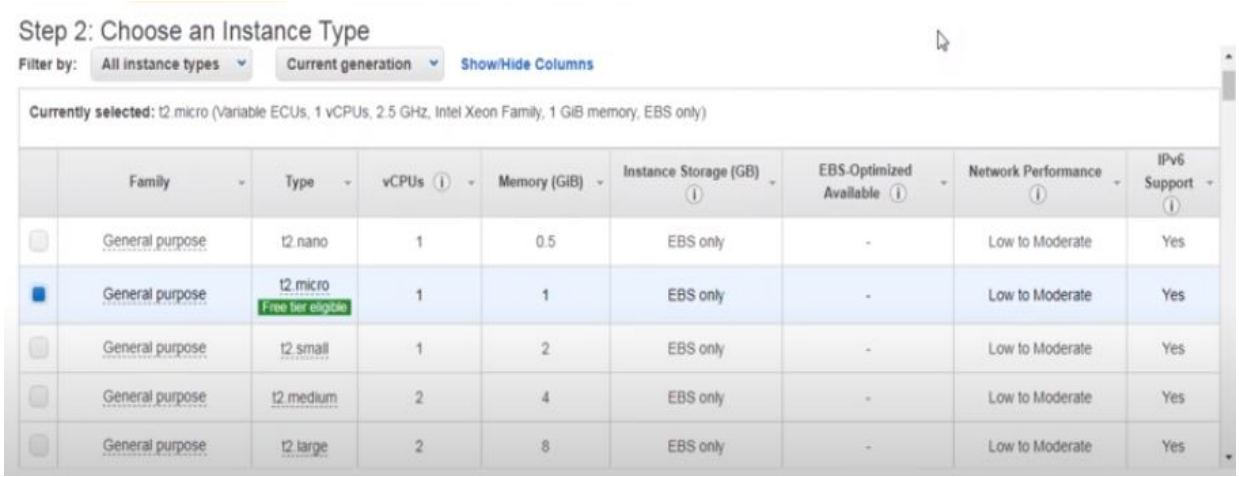
GPU instance - very good parallel process/gaming/hadoop

Memory Optimized - very gud for ram/cache server

Storage Optimized - i/o performance / production/database server

Mostly we use compute optimized(middleware like tomcat web server) and storage optimized(db server).





EC2 STATE	RUNNING STOP	network interface(eth0)
PUBLIC IP	yes	no
PRIVATE IP	yes	yes

Copy Image tar file to aws server using scp

1. **mkdir app_folder (create a directory)**
2. **chmod 777 app_folder (permission to folder)**

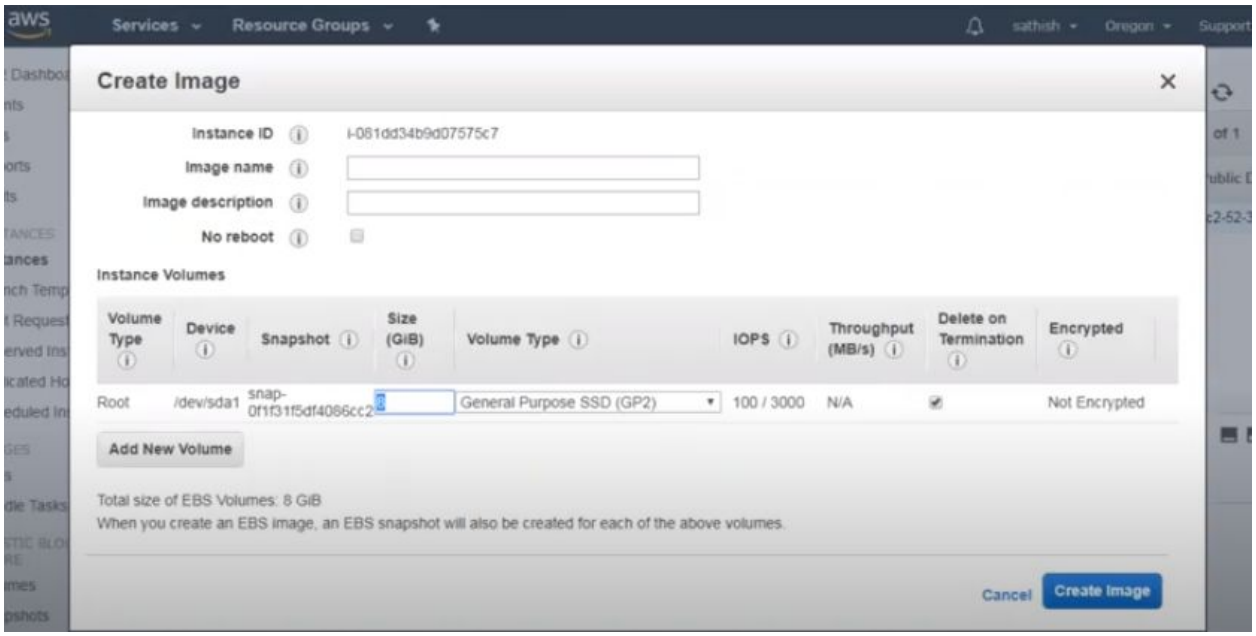
3. **Run from local machine to transfer image file:**

```
scp -i "simpdd.pem"
/home/simsol/Downloads/Junk/nginx_stack_080
120.tar
ec2-user@ec2-13-232-230-74.ap-south-1.compu
te.amazonaws.com:app
```

Transfer file from ec2 machine to local

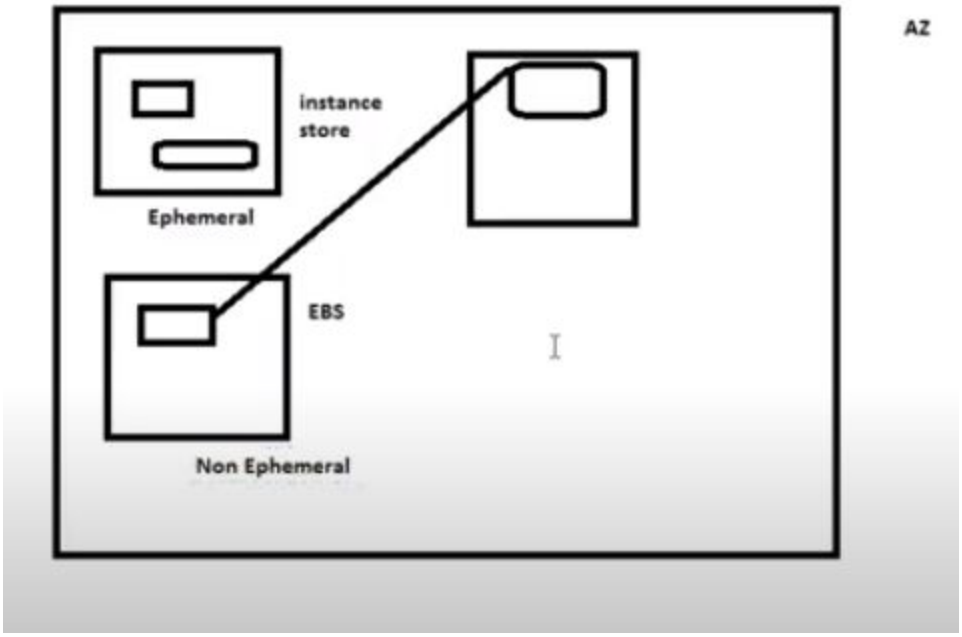
```
scp -i simpdd.pem
ec2-user@ec2-13-232-230-74.ap-south-1.compu
te.amazonaws.com:app/apache_simdox.tar . or
/path
```

Create AMI



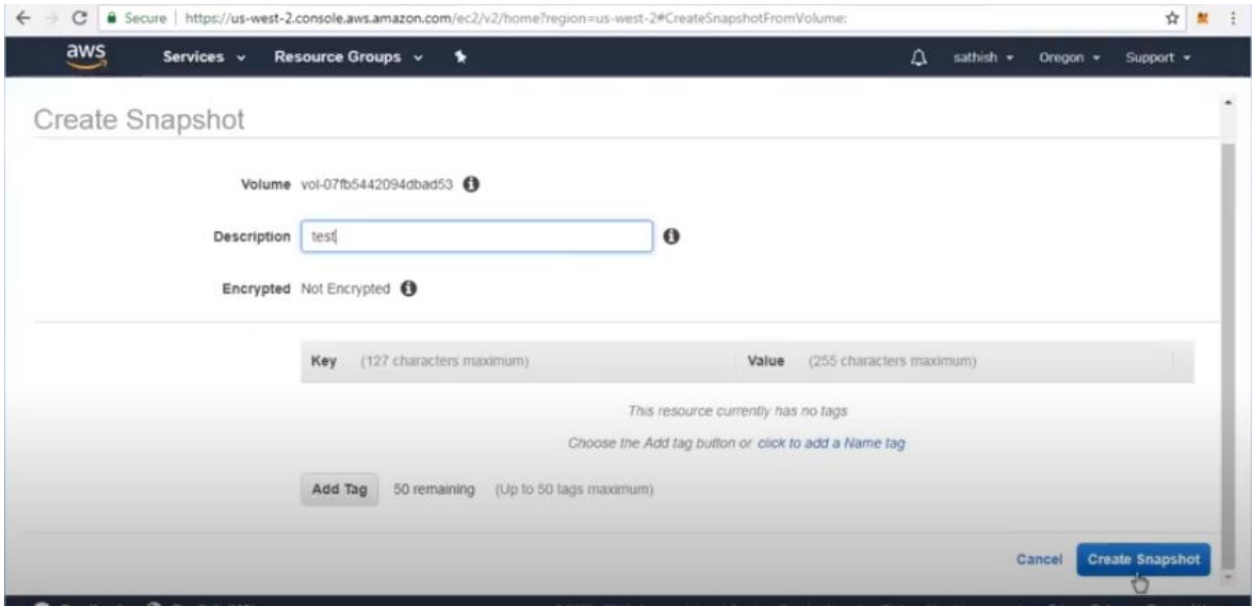
Lamp server
https://www.digitalocean.com/community/tutorials/how-to-install-linux-apache-mysql-php-lamp-stack-on-ubuntu-16-04

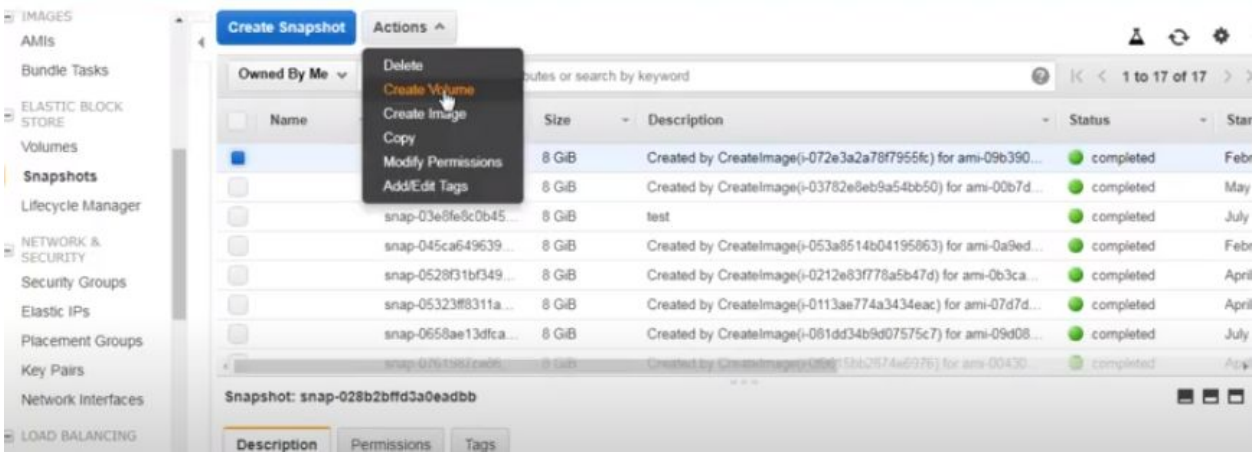
Hard disk(volume) in aws 2 type EBS AND INSTANCE STORE
When instance lost and hard disk also lost is called instance store
When instance lost but hard disk is still there available in same AZ is called EBS

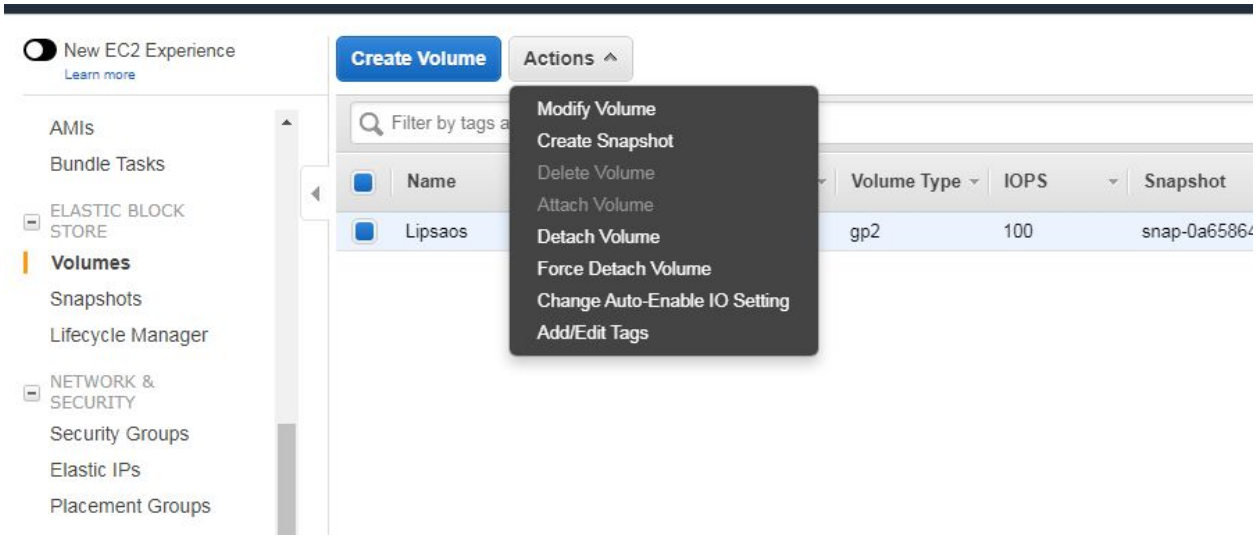


Root volume is always ebs(delete on termination selected)
Additional volume may be ebs or ephemeral

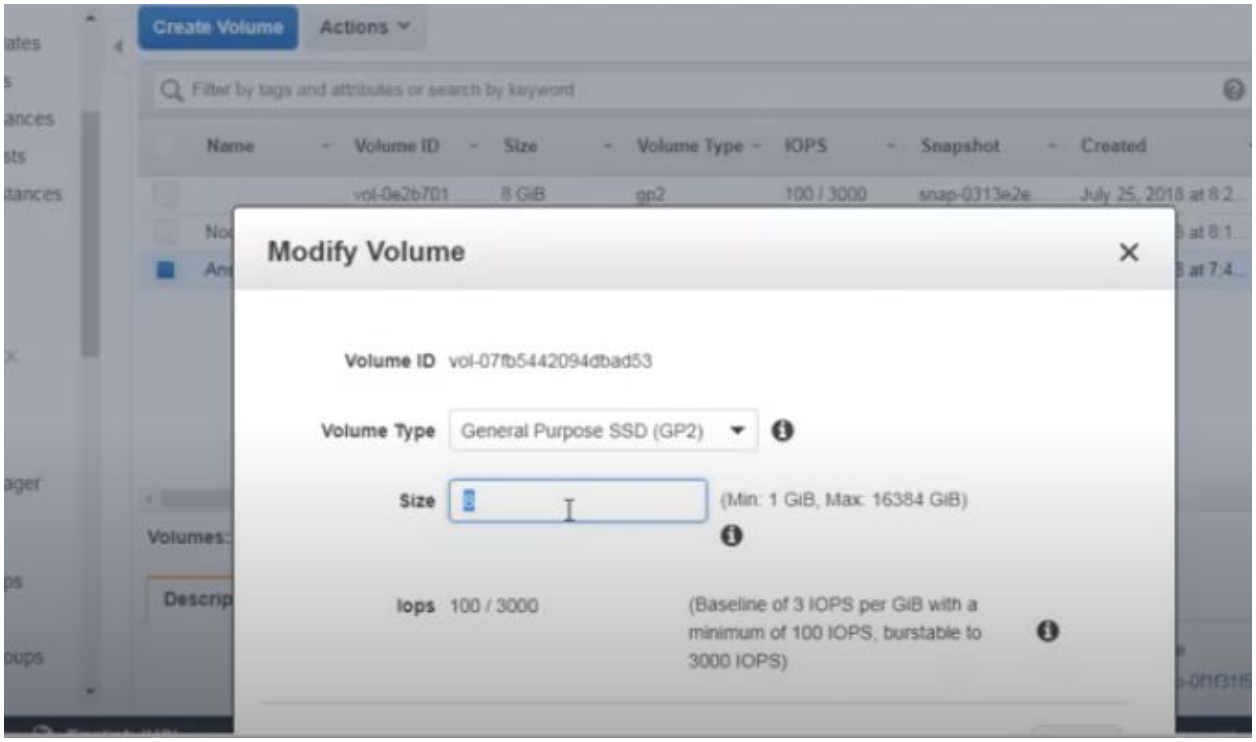
Hard disk is volume
Backup of volume is called snapshot



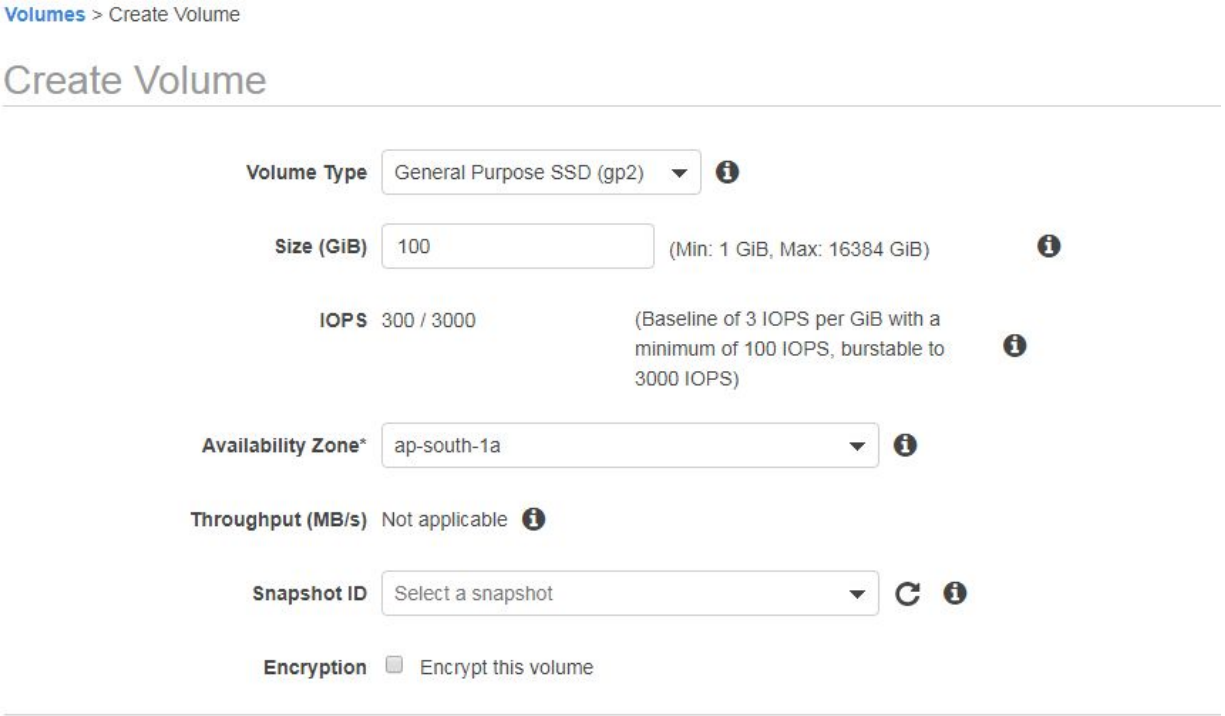




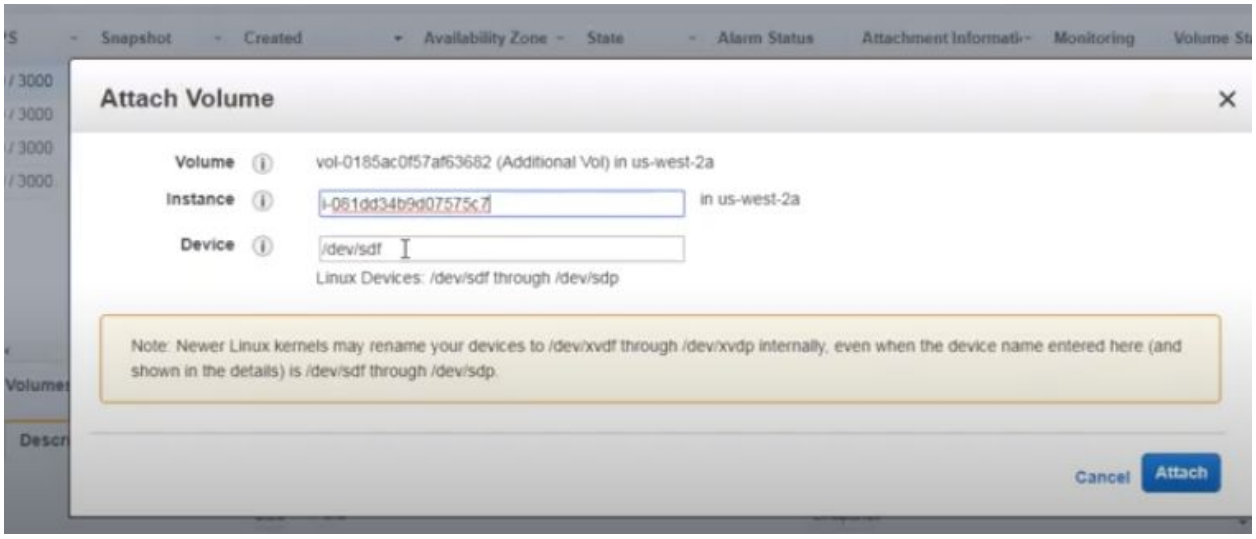
Modify volume to increase the size



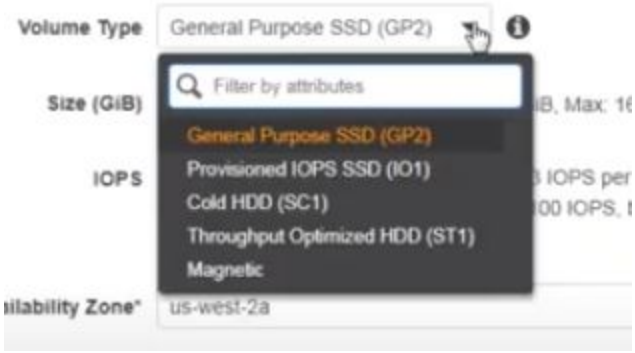
Create volume



Attach volume to new instance (status available)



Types of volumes



GP2- Solid state disk up to that fast iops (dev,test)
IO1 - Guaranteed speed iops (use in db/ production server)
Cold hard disk drive

Volume-

Create volume and attach to the running ec2 instance.(lsblk)

My ec2 instance is running and i am unable to detach my root volume

When instance is stopped, State I am able to detach extra ebs volume also we can detach the root volume.

Root volume is detached and we are trying to start ec2 instance it wont start and throw error Error starting instances Invalid value 'i-024f640e8695e57e6' for instanceId. Instance does not have a volume attached at root (/dev/xvda)

Attached root volume and starting stopped ec2 instance so the result is its not starting because the root volume is not attached to ec2 because of the stopped state.

Warning

On an EBS-backed instance, the default action is for the root EBS volume to be deleted when the instance is terminated. Storage on any local drives will be lost.

STATUS Check - 2/2 check

Check 1- System Status Check - need to contact aws support

These checks monitor the AWS systems required to use this instance and ensure they are functioning properly.This check verifies that your instance is reachable. We test that we are able to get network packets to your instance.

If this check fails, there may be an issue with the infrastructure hosting your instance (such as AWS power, networking or software systems). You may need to restart or replace the instance, wait for our systems to resolve the issue, or seek technical support.

This check does not validate that your operating system and applications are accepting traffic

Check 2- Instance Status Check - we need to do reboot

These checks monitor your software and network configuration for this instance.This check verifies that your instance's operating system is accepting traffic.

If this check fails, you may need to reboot your instance or make modifications to your operating system configuration.