

**TO
THE
NEW™**



Assessment - 10

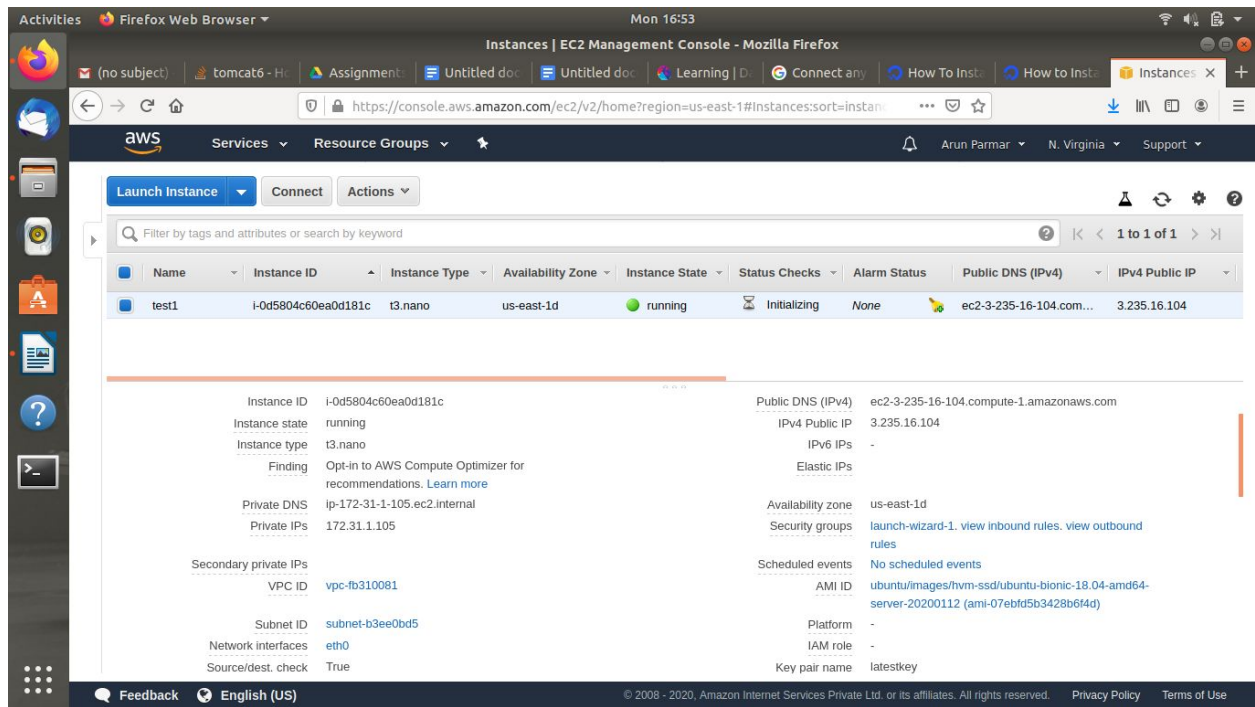
EC2 & EBS

Trainee Name : Arun Parmar

Mentor Name : Ravi Kumar

College: UPES

1. Create an EC2 instance (Ubuntu 18.04, T3 nano).(instance A)

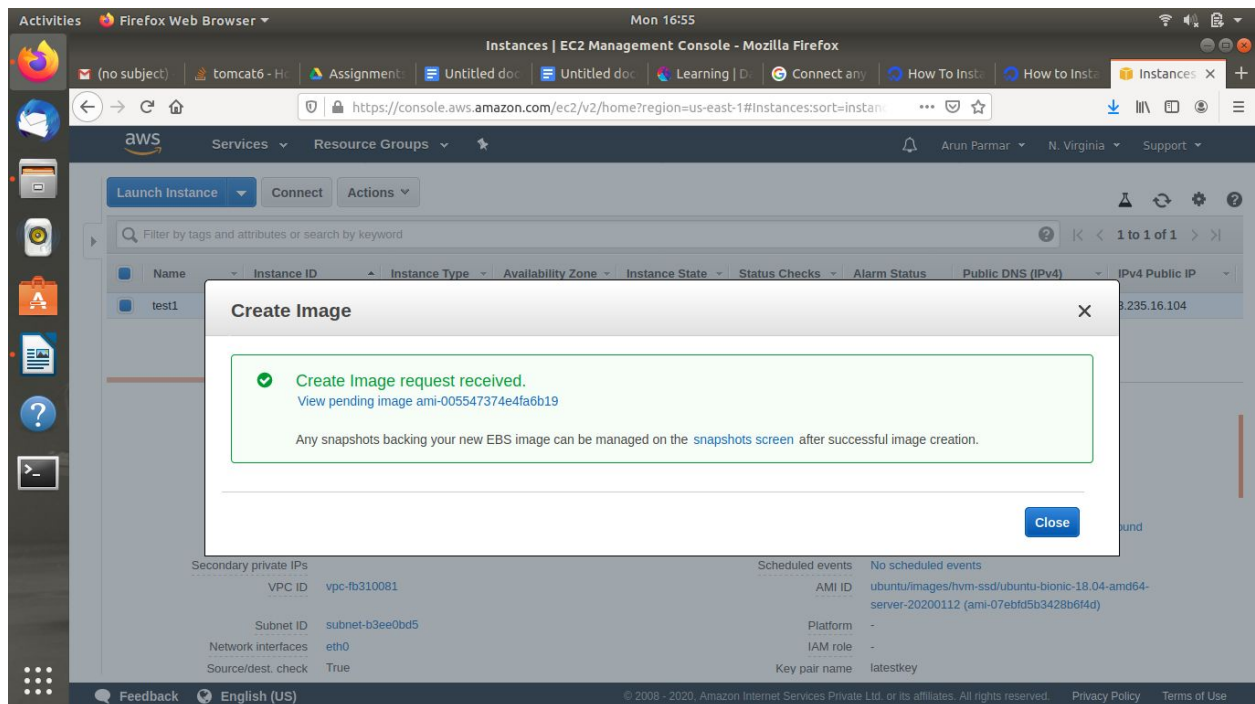


The screenshot displays the AWS Management Console for the EC2 service. At the top, the navigation bar shows the AWS logo, 'Services', 'Resource Groups', and user information. The main header reads 'Instances | EC2 Management Console - Mozilla Firefox'. Below this, a search bar and a table of instances are visible. The table has columns for Name, Instance ID, Instance Type, Availability Zone, Instance State, Status Checks, Alarm Status, Public DNS (IPv4), and IPv4 Public IP. One instance, 'test1', is listed with ID 'i-0d5804c60ea0d181c', type 't3.nano', in the 'us-east-1d' zone, and is in a 'running' state. Below the table, a detailed view of the instance 'test1' is shown, including its Instance ID, Instance state (running), Instance type (t3.nano), Finding (Opt-in to AWS Compute Optimizer for recommendations), Private DNS (ip-172-31-1-105.ec2.internal), Private IPs (172.31.1.105), Secondary private IPs, VPC ID (vpc-fb310081), Subnet ID (subnet-b3ee0bd5), Network interfaces (eth0), Source/dest. check (True), Public DNS (IPv4) (ec2-3-235-16-104.compute-1.amazonaws.com), IPv4 Public IP (3.235.16.104), IPv6 IPs (-), Elastic IPs, Availability zone (us-east-1d), Security groups (launch-wizard-1), Scheduled events (No scheduled events), AMI ID (ubuntu/images/hvm-ssd/ubuntu-bionic-18.04-amd64-server-20200112 (ami-07ebfd5b3428b6f4d)), Platform (-), IAM role (-), and Key pair name (latestkey).

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
test1	i-0d5804c60ea0d181c	t3.nano	us-east-1d	running	Initializing	None	ec2-3-235-16-104.com...	3.235.16.104

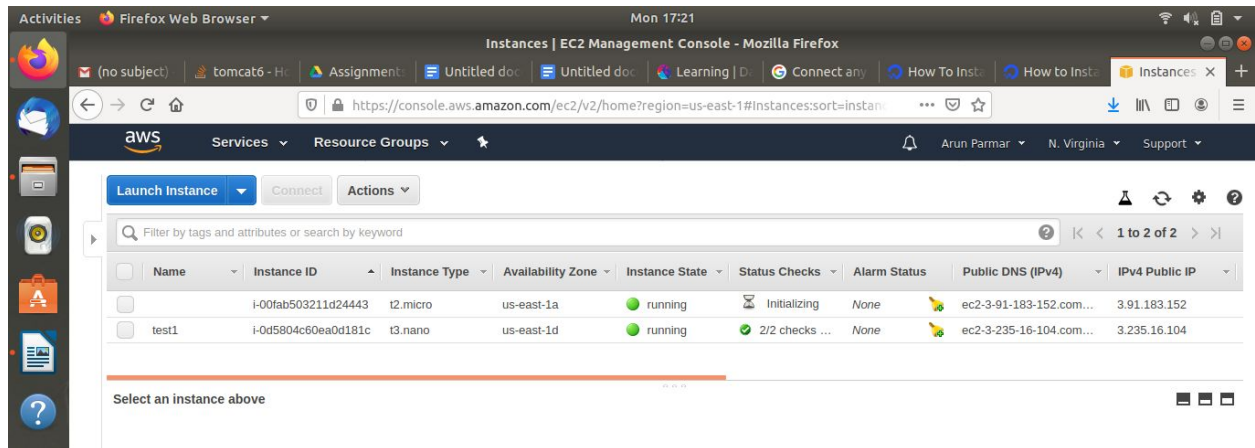
Instance ID: i-0d5804c60ea0d181c
Instance state: running
Instance type: t3.nano
Finding: Opt-in to AWS Compute Optimizer for recommendations. [Learn more](#)
Private DNS: ip-172-31-1-105.ec2.internal
Private IPs: 172.31.1.105
Secondary private IPs: -
VPC ID: vpc-fb310081
Subnet ID: subnet-b3ee0bd5
Network interfaces: eth0
Source/dest. check: True
Public DNS (IPv4): ec2-3-235-16-104.compute-1.amazonaws.com
IPv4 Public IP: 3.235.16.104
IPv6 IPs: -
Elastic IPs: -
Availability zone: us-east-1d
Security groups: launch-wizard-1. [view inbound rules](#). [view outbound rules](#)
Scheduled events: No scheduled events
AMI ID: ubuntu/images/hvm-ssd/ubuntu-bionic-18.04-amd64-server-20200112 (ami-07ebfd5b3428b6f4d)
Platform: -
IAM role: -
Key pair name: latestkey

2. Create AMI of above instance and launch it. (instance B)

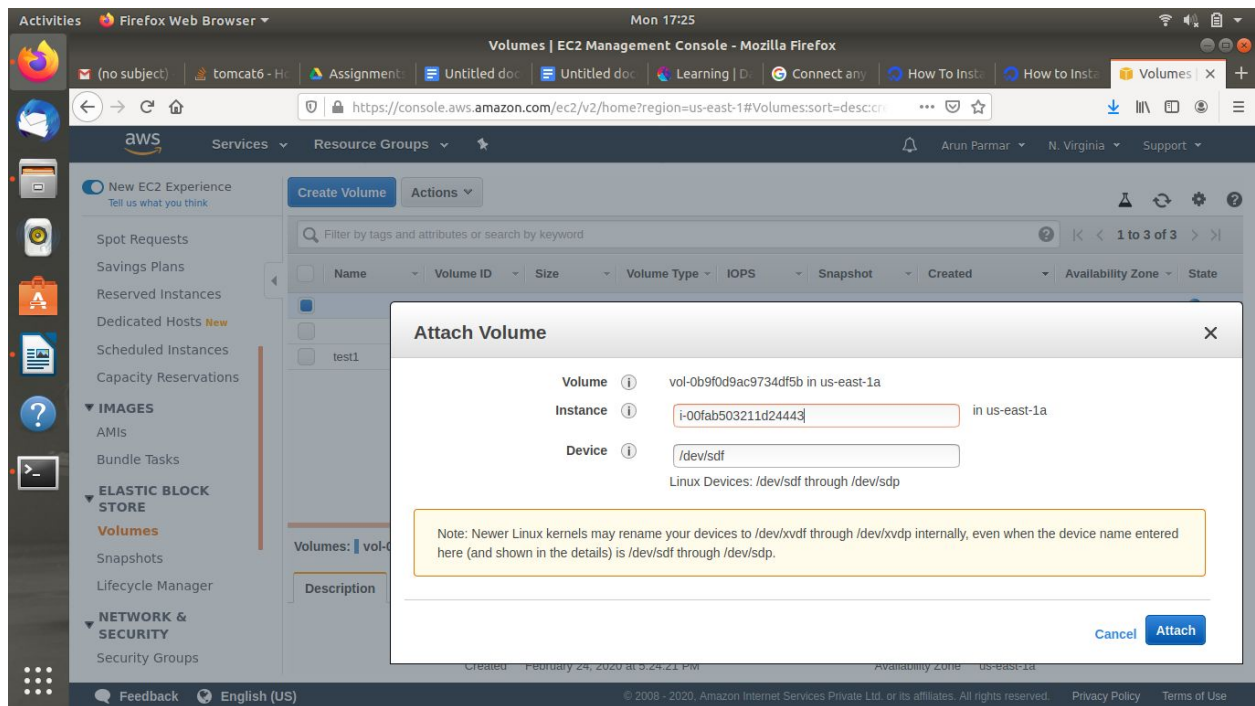


The screenshot shows the same AWS Management Console interface as before, but with a 'Create Image' dialog box open in the foreground. The dialog box has a green checkmark icon and the text 'Create Image request received.' followed by 'View pending image ami-005547374e4fa6b19'. Below this, it says 'Any snapshots backing your new EBS image can be managed on the [snapshots screen](#) after successful image creation.' and a 'Close' button is at the bottom right.

Create Image request received.
View pending image ami-005547374e4fa6b19
Any snapshots backing your new EBS image can be managed on the [snapshots screen](#) after successful image creation.
Close



3. Attach EBS (8 GB) on that running instance.



Activities Firefox Web Browser Mon 17:26

Instances | EC2 Management Console - Mozilla Firefox

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#instances:sort=instance...

aws Services Resource Groups

New EC2 Experience Tell us what you think

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
arun	i-00fab503211d24443	t2.micro	us-east-1a	running	2/2 checks ...	None	ec2-3-91-183-152.0
test1	i-0d5804c60ea0d181c	t3.nano	us-east-1d	running	2/2 checks ...	None	ec2-3-235-16-104.0

Network interfaces eth0

Source/dest. check True

T2/T3 Unlimited Disabled

EBS-optimized False

Root device type ebs

Root device /dev/sda1

Block devices /dev/sda1 /dev/sdf

Elastic Graphics ID -

Elastic Inference accelerator ID -

Capacity Reservation -

IAM role -

Key pair name latestkey

Owner 094528668892

Launch time February 24, 2020 at 4:58:16 PM UTC+5:30 (less than one hour)

Termination protection False

Lifecycle normal

Monitoring basic

Alarm status None

Kernel ID -

RAM disk ID -

Feedback English (US)

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Activities Terminal Mon 21:49

ubuntu@ip-172-31-92-189: ~ / arun

```

File Edit View Search Terminal Help

ubuntu@ip-172-31-92-189:~/arun$ ls
ubuntu@ip-172-31-92-189:~/arun$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            481M   0  481M   0% /dev
tmpfs           99M   0   99M   0% /run
/dev/xvda1      7.7G  1.1G   6.7G  14% /
tmpfs           492M   0   492M   0% /dev/shm
tmpfs           5.0M   0    5.0M   0% /run/lock
tmpfs           492M   0   492M   0% /sys/fs/cgroup
/dev/loop0      18M   18M   0 100% /snap/amazon-ssm-agent/1480
/dev/loop1      90M   90M   0 100% /snap/core/8268
tmpfs           99M   0   99M   0% /run/user/1000
ubuntu@ip-172-31-92-189:~/arun$ ls -a
.
..
ubuntu@ip-172-31-92-189:~/arun$ sudo mount /dev/xvdf /ubuntu/home/Volume
mount: /ubuntu/home/Volume: mount point does not exist.
ubuntu@ip-172-31-92-189:~/arun$ sudo mount /dev/xvdf /ubuntu/home/arun
mount: /ubuntu/home/arun: mount point does not exist.
ubuntu@ip-172-31-92-189:~/arun$ pwd
/home/ubuntu/arun
ubuntu@ip-172-31-92-189:~/arun$ sudo mount /dev/xvdf /home/ubuntu/arun
ubuntu@ip-172-31-92-189:~/arun$ ls
ubuntu@ip-172-31-92-189:~/arun$ ls -a
.
..
ubuntu@ip-172-31-92-189:~/arun$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            481M   0  481M   0% /dev
tmpfs           99M   0   99M   0% /run
/dev/xvda1      7.7G  1.1G   6.7G  14% /
tmpfs           492M   0   492M   0% /dev/shm
tmpfs           5.0M   0    5.0M   0% /run/lock
tmpfs           492M   0   492M   0% /sys/fs/cgroup
/dev/loop0      18M   18M   0 100% /snap/amazon-ssm-agent/1480
/dev/loop1      90M   90M   0 100% /snap/core/8268
tmpfs           99M   0   99M   0% /run/user/1000
/dev/xvdf       7.9G  36M   7.4G   1% /home/ubuntu/arun
ubuntu@ip-172-31-92-189:~/arun$

```

4. Stop, Start, Restart that EBS (EBS must be auto-attached).

Activities Firefox Web Browser Mon 21:51

Instances | EC2 Management Console - Mozilla Firefox

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#instances:sort=instance...

aws Services Resource Groups

New EC2 Experience Tell us what you think

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
arun	i-00fab503211d24443	t2.micro	us-east-1a	running	2/2 checks ...	None	ec2-3-91-183-152.c...
test1	i-0d5804c60ea0d181c	t3.nano	us-east-1d	running	2/2 checks ...	None	ec2-3-235-16-104.c...

Instance: i-00fab503211d24443 (arun) Public DNS: ec2-3-91-183-152.compute-1.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID i-00fab503211d24443 Public DNS (IPv4) ec2-3-91-183-152.compute-1.amazonaws.com

Instance state running IPv4 Public IP 3.91.183.152

Instance type t2.micro IPv6 IPs -

Finding Opt-in to AWS Compute Optimizer for recommendations. [Learn more](#) Elastic IPs

Private DNS ip-172-31-92-189.ec2.internal Availability zone us-east-1a

Private IPs 172.31.92.189 Security groups [launch-wizard-2: view inbound rules.](#)
[view outbound rules](#)

Scheduled events No scheduled events

Secondary private IPs

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Activities Firefox Web Browser Mon 21:52

Instances | EC2 Management Console - Mozilla Firefox

https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#instances:sort=instance...

aws Services Resource Groups

New EC2 Experience Tell us what you think

Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
arun	i-00fab503211d24443	t2.micro	us-east-1a	running	Initializing	None	ec2-3-95-28-26.c...
test1	i-0d5804c60ea0d181c	t3.nano	us-east-1d	running	2/2 checks ...	None	ec2-3-235-16-104.c...

Instance: i-00fab503211d24443 (arun) Public DNS: ec2-3-95-28-26.compute-1.amazonaws.com

Description Status Checks Monitoring Tags

Instance ID i-00fab503211d24443 Public DNS (IPv4) ec2-3-95-28-26.compute-1.amazonaws.com

Instance state running IPv4 Public IP 3.95.28.26

Instance type t2.micro IPv6 IPs -

Finding Opt-in to AWS Compute Optimizer for recommendations. [Learn more](#) Elastic IPs

Private DNS ip-172-31-92-189.ec2.internal Availability zone us-east-1a

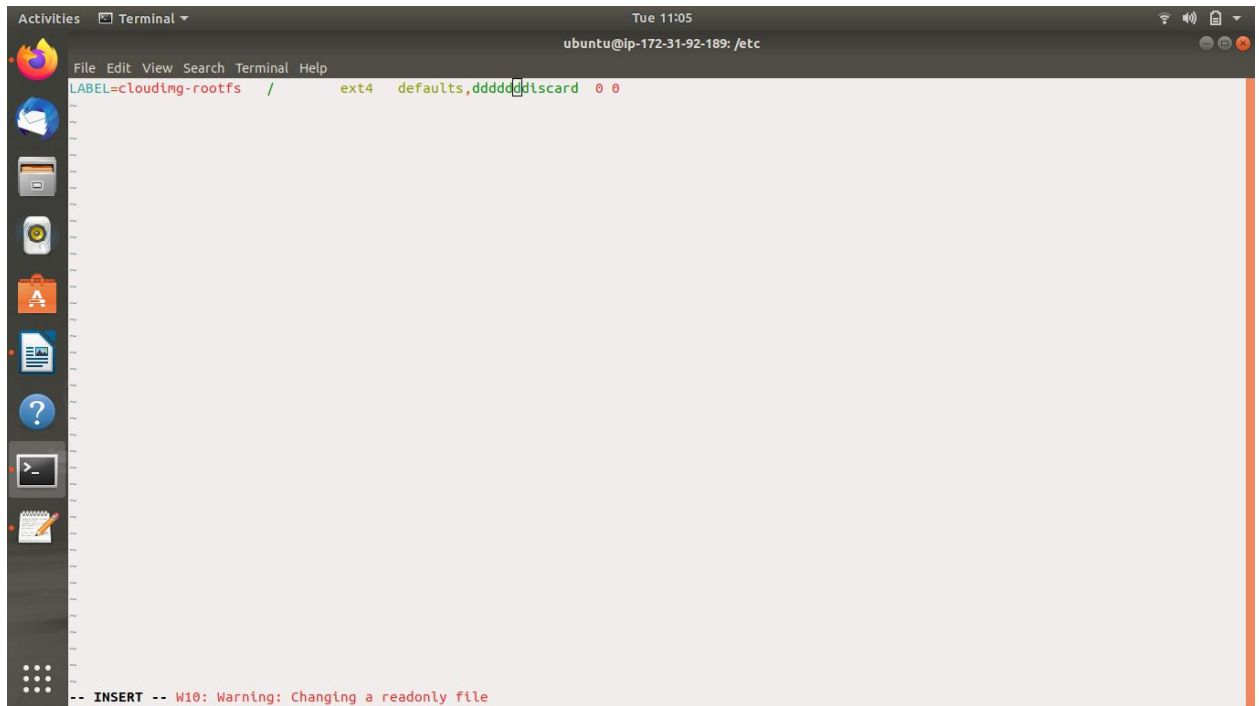
Private IPs 172.31.92.189 Security groups [launch-wizard-2: view inbound rules.](#)
[view outbound rules](#)

Scheduled events No scheduled events

Secondary private IPs

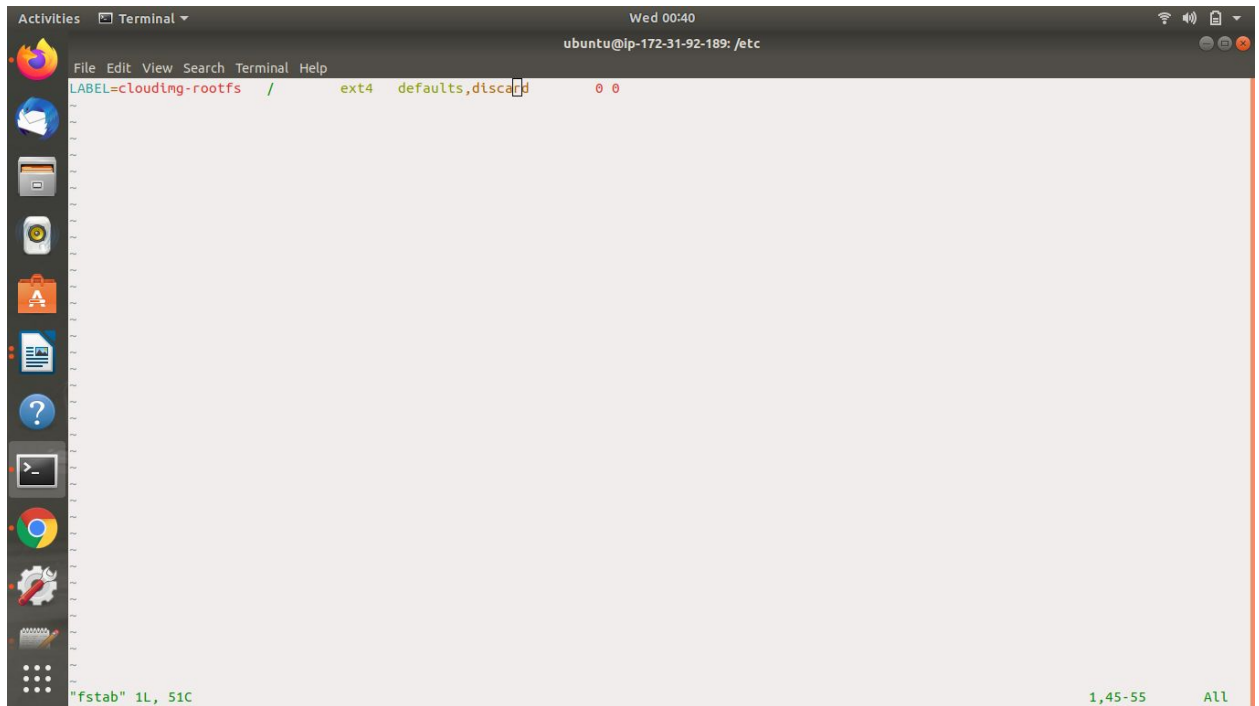
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- Make some mistake in fstab file, stop and start the instance, then troubleshoot it.
 - None of the files will be edited in filesystem, they will be readonly.

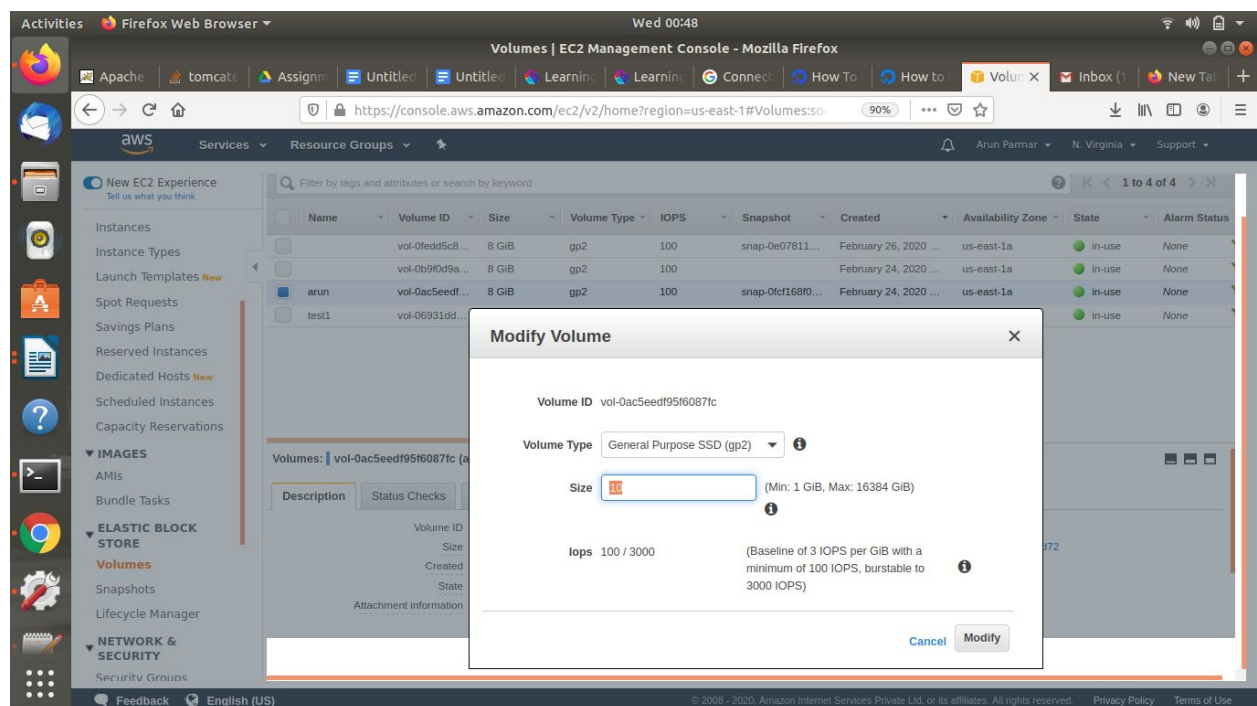


The screenshot shows a terminal window titled 'Terminal' with a menu bar (File, Edit, View, Search, Terminal, Help) and a status bar (Tue 11:05, ubuntu@ip-172-31-92-189: /etc). The terminal content shows a command to edit the /etc/fstab file: `LABEL=cloudimg-rootfs / ext4 defaults,dddsdiscard 0 0`. The command is partially executed, with the cursor at the end of the line. At the bottom of the terminal, there is a red warning message: `-- INSERT -- W10: Warning: Changing a readonly file`.

- Detach the root volume from Instance
- Create a maintenance instance
- Attach root volume of main instance to maintenance instance
- Mount the volume
- Correct the fstab file
- Detach the volume
- Attach the root volume to main instance again, restart.



6. Resize the EBS from 8 to 10GB

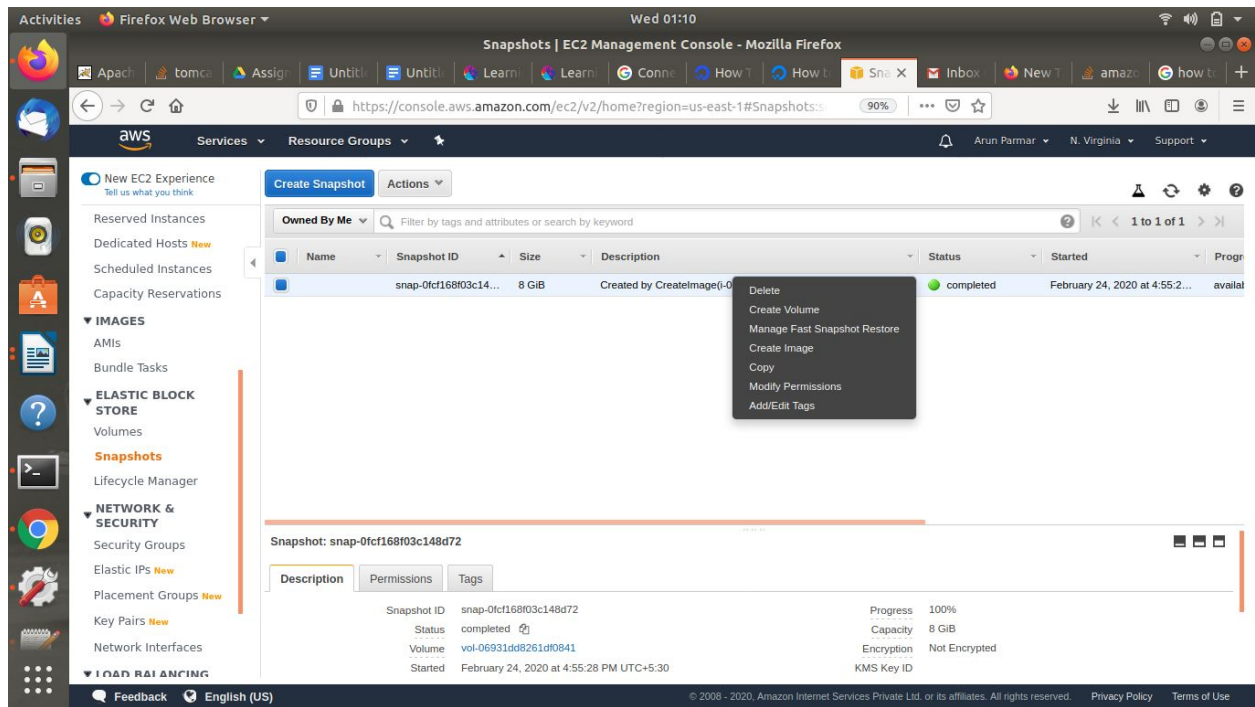


7. SSH from one instance A to instance B.

- Generate key for Instance 1 with ssh-keygen

- Copy this key to authorized keys of Instance B
- SSH from B to A.

8. Copy the EBS in different region(oregon).

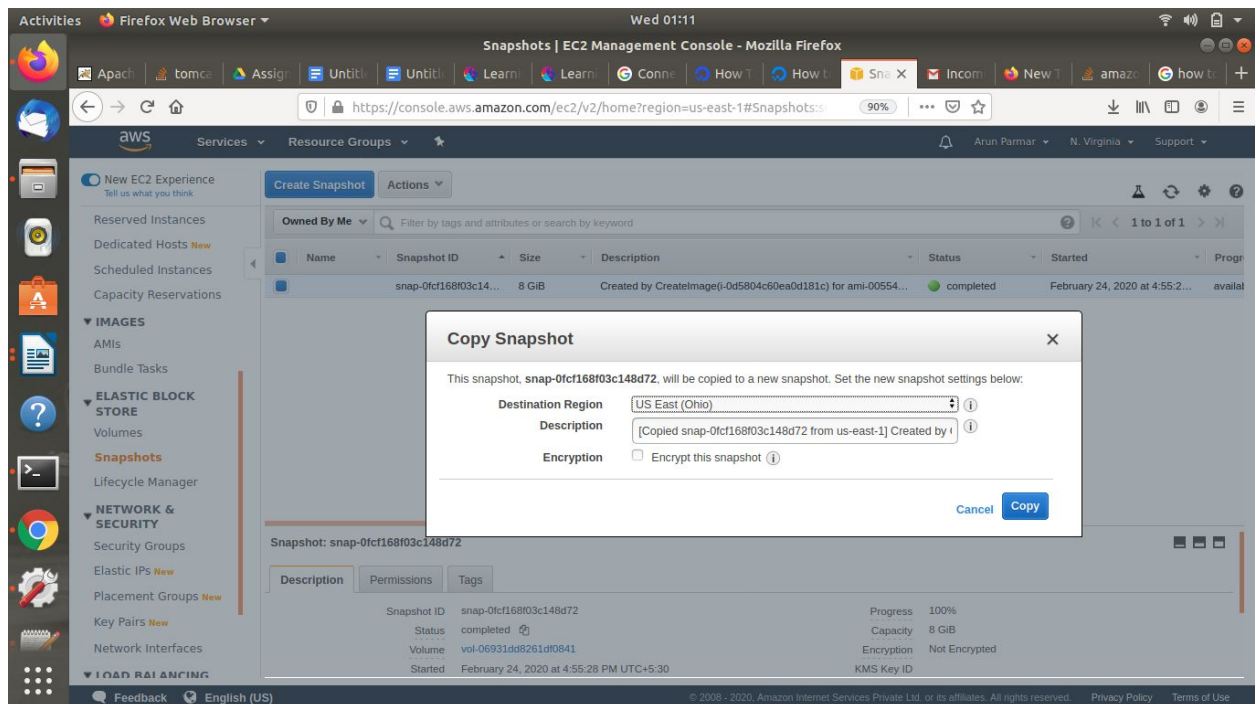


The screenshot shows the AWS Management Console in the EC2 Management Console view. A context menu is open over a snapshot named 'snap-0fc168f03c148d72'. The menu options include: Delete, Create Volume, Manage Fast Snapshot Restore, Create Image, Copy, Modify Permissions, and Add/Edit Tags. The 'Copy' option is highlighted.

Name	Snapshot ID	Size	Description	Status	Started	Progress
snap-0fc168f03c148d72	snap-0fc168f03c148d72	8 GiB	Created by CreateImage(i-0d5804c60ea0d181c) for ami-00554...	completed	February 24, 2020 at 4:55:28 PM UTC+5:30	100%

Snapshot: snap-0fc168f03c148d72

Description	Permissions	Tags
Snapshot ID: snap-0fc168f03c148d72	Status: completed	Progress: 100%
Volume: vol-06931dd8261d0841	Capacity: 8 GiB	Encryption: Not Encrypted
Started: February 24, 2020 at 4:55:28 PM UTC+5:30	KMS Key ID	



The screenshot shows the AWS Management Console with a 'Copy Snapshot' dialog box open. The dialog box contains the following information:

This snapshot, snap-0fc168f03c148d72, will be copied to a new snapshot. Set the new snapshot settings below:

Destination Region: US East (Ohio)

Description: [Copied snap-0fc168f03c148d72 from us-east-1] Created by i

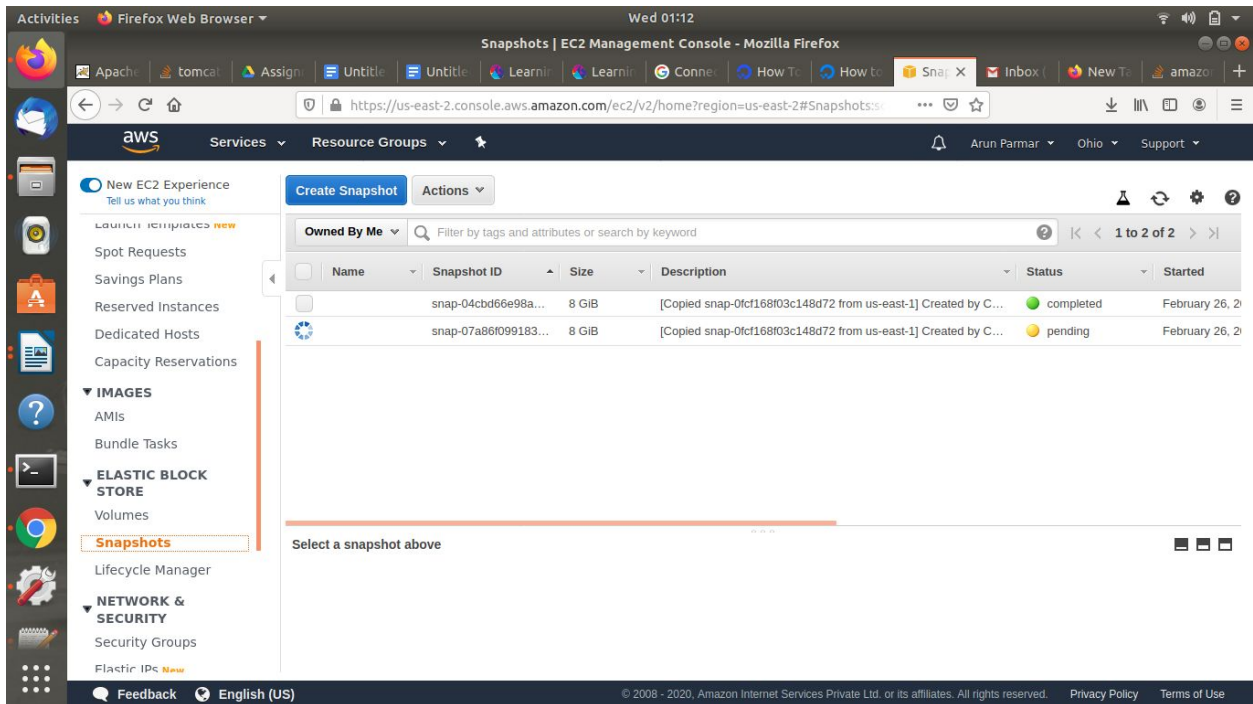
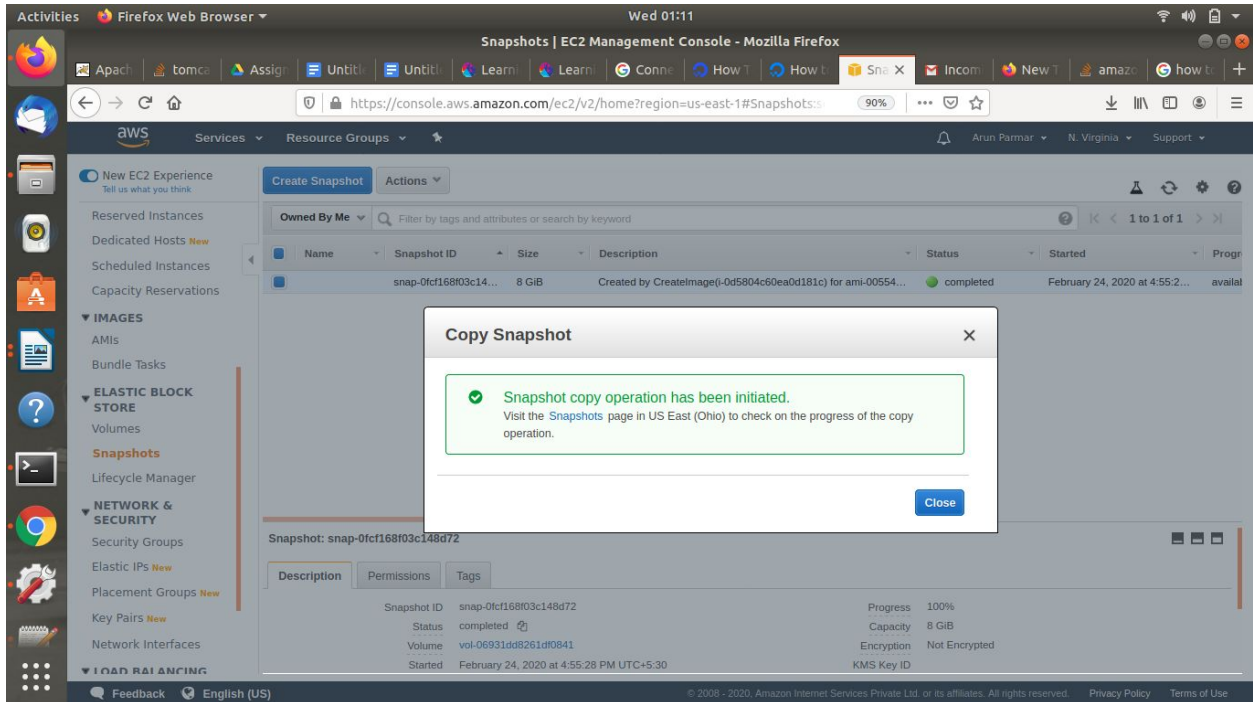
Encryption: ☐ Encrypt this snapshot

Buttons: Cancel, Copy

Name	Snapshot ID	Size	Description	Status	Started	Progress
snap-0fc168f03c148d72	snap-0fc168f03c148d72	8 GiB	Created by CreateImage(i-0d5804c60ea0d181c) for ami-00554...	completed	February 24, 2020 at 4:55:28 PM UTC+5:30	100%

Snapshot: snap-0fc168f03c148d72

Description	Permissions	Tags
Snapshot ID: snap-0fc168f03c148d72	Status: completed	Progress: 100%
Volume: vol-06931dd8261d0841	Capacity: 8 GiB	Encryption: Not Encrypted
Started: February 24, 2020 at 4:55:28 PM UTC+5:30	KMS Key ID	

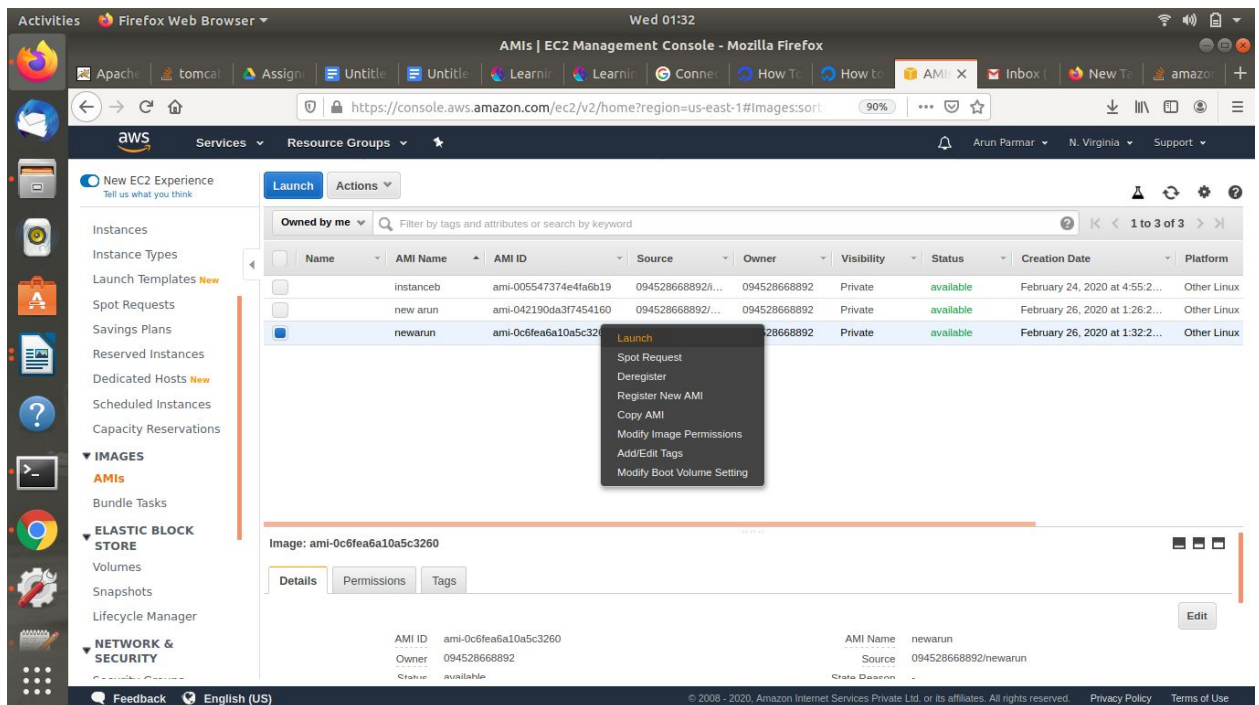


9. Detach the root EBS, create its snapshot, then create the AMI and run it as instance such that nginx should be preinstalled at the boot time of instance.

- Stop Instance B and detach the root volume.
- Create snapshot for root volume of B.
- Create image

- Launch an instance from the AMI
- Add user data as follows

```
#!/bin/bash
Sudo apt-get update
Sudo apt-get install nginx
Sudo service nginx restart
```
- Once the instance is launched, ssh into the instance and check nginx status using “sudo service nginx status”



```
Activities  Terminal  Wed 01:36
ubuntu@ip-172-31-41-192: ~

File Edit View Search Terminal Help

Warning: Permanently added '34.201.221.160' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

System information as of Tue Feb 25 20:05:44 UTC 2020

System load:  0.57               Processes:    92
Usage of /:   15.9% of 7.69GB    Users logged in: 0
Memory usage: 14%               IP address for eth0: 172.31.41.192
Swap usage:   0%

54 packages can be updated.
32 updates are security updates.

Last login: Tue Feb 25 19:34:42 2020 from 45.251.50.168
ubuntu@ip-172-31-41-192:~$ service nginx status
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2020-02-25 20:05:18 UTC; 40s ago
     Docs: man:nginx(8)
   Process: 1143 ExecStop=/sbin/start-stop-daemon --quiet --stop --retry QUIT/5 --pidfile /run/nginx.pid (code=exited, status=0/SUCCESS)
   Process: 1157 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
   Process: 1146 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Main PID: 1158 (nginx)
    Tasks: 2 (limit: 1152)
   CGroup: /system.slice/nginx.service
           └─1158 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
             └─1162 nginx: worker process

Feb 25 20:05:18 ip-172-31-41-192 systemd[1]: Starting A high performance web server and a reverse proxy server...
Feb 25 20:05:18 ip-172-31-41-192 systemd[1]: nginx.service: Failed to parse PID from file /run/nginx.pid: Invalid argument
Feb 25 20:05:18 ip-172-31-41-192 systemd[1]: Started A high performance web server and a reverse proxy server.
ubuntu@ip-172-31-41-192:~$
```