

Assignment-2,

EC2

Problem Statement:

You work for XYZ Corporation. Your corporation wants to launch a new web-based application using AWS Virtual Machines. Configure the resources accordingly for the tasks.

Tasks to Be Performed:

1. Create an instance in the US-East-1 (N. Virginia) region with an Ubuntu OS and install Nginx for making them web servers.
2. Change the default website with a page displaying the message: “Hello World”

Solution:

Created new Instance, EC2 – Launch Instance

Name: ruchhi-instance

Machine: Ubuntu

Instance Type: t2micro





Keypair and Security group: create/ add existed one

Network setting, Type: All traffic

VPC- Select default one

If you create new one: -

Create VPC, Subnet, Internetgateway, Route Table(public) and then attach RT with the subnet and update internet gateway.

Your VPCs (1/2) Info						Add
<input type="text" value="Search"/>						
	Name	VPC ID	State	IPv4 CIDR		
<input type="checkbox"/>	-	vpc-07b58ff0917c64fcd	 Available	172.31.0.0/16		
<input checked="" type="checkbox"/>	my-vpc-	vpc-02624f1fddaf8cdea	 Available	10.10.0.0/16		

Subnets (3) Info

Find resources by attribute or tag

<1>

Name

▼

Subnet ID

▼

State

▼

VPC

▼

IPv4 CIDR

my-subnet-03

[subnet-0c4b6c520135c012c](#)

✔

Available

[vpc-02624f1fddaf8cdea | my-vpc-](#)

10.10.1.0/26

my-subnet-01

[subnet-0b38a4f68a78172f0](#)

✔

Available

[vpc-07b58ff0917c64fcd](#)

172.31.0.0/25

my-subnet-02

[subnet-0d933f529314aa1e8](#)

✔

Available

[vpc-02624f1fddaf8cdea | my-vpc-](#)

10.10.0.0/26

Internet gateways (1) Info						Actions ▾	Create internet gateway
<input type="text" value="Search"/>					< 1 >		
<input type="checkbox"/>	Name ▾	Internet gateway ID ▾	State ▾	VPC ID			
<input type="checkbox"/>	My-IGW	igw-094a3a52185994fab	✔ Attached	vpc-02624f1fddaf8cdea my-vpc-			

Route tables (1/3) Info							Actions ▾	Create route
<input type="text" value="Find resources by attribute or tag"/>						< 1		
	Name ▾	Route table ID ▾	Explicit subnet associ... ▾	Edge associations ▾	Ma			
<input type="checkbox"/>	-	rtb-08b56cb3358a6b118	-	-	Yes			
<input type="checkbox"/>	-	rtb-06a3a2696b5a3bbd9	-	-	Yes			
<input checked="" type="checkbox"/>	my-RT	rtb-083a1b0c3eb634ede	subnet-0d933f529314aa...	-	No			

rtb-083a1b0c3eb634ede / my-RT

Details | **Routes** | Subnet associations | Edge associations | Route propagation | Tags

Routes (2)

Both ▾

Edit routes

🔍 Filter routes

< 1 >

⚙️

Destination ▾	Target ▾	Status ▾	Propagated ▾
0.0.0.0/0	igw-094a3a52185994fab	✔ Active	No
10.10.0.0/16	local	✔ Active	No

rtb-083a1b0c3eb634ede / my-RT

Details | Routes | **Subnet associations** | Edge associations | Route propagation | Tags

Explicit subnet associations (1)					Edit subnet associations
<input type="text" value="Find subnet association"/>					< 1 >
Name ▾	Subnet ID ▾	IPv4 CIDR ▾	IPv6 CIDR ▾		
my-subnet-02	subnet-0d933f529314aa1e8	10.10.0.0/26	-		

Instances (1/2) Info							
<input type="text" value="Find Instance by attribute or tag (case-sensitive)"/>				All states ▾		< 1 > ⚙	
<input type="checkbox"/>	Name ✎	Instance ID	Instance state ▾	Instance type ▾	Status check	Alarm status	Availability
<input checked="" type="checkbox"/>	ruchi-instance	i-09b334b096c81219b	Running 🔍 🔍	t2.micro	2/2 checks passed	View alarms +	us-east-1e
<input type="checkbox"/>	ruchitaa-insta...	i-01e2cc179978f88fb	Terminated 🔍 🔍	t2.micro	-	View alarms +	us-east-1e

```

aws  Services  Search [Alt+S]

Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1014-aws x86_64)

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

System information as of Fri Mar 22 08:27:27 UTC 2024

System load:  0.63916015625   Processes:            101
Usage of /:   20.4% of 7.57GB   Users logged in:      0
Memory usage: 21%             IPv4 address for eth0: 10.10.0.28
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

```

Run the following commands:

1. `sudo apt-get update -y`
2. `sudo apt-get install nginx -y`
3. `cd /var/www/html`
4. `sudo rm index.nginx-debian.html`
5. `sudo nano index.html`

Type- Hello World

Save and exit (ctrl+s and ctrl+x)

Result:

←

→

🔄

⚠️ Not secure

34.207.63.29

Hello World

EBS

Problem Statement:

You work for XYZ Corporation. Your corporation wants to launch a new web-based application using AWS Virtual Machines. Configure the resources accordingly with appropriate storage for the tasks.

Tasks to Be Performed:

1. Launch a Linux EC2 instance.
2. Create an EBS volume with 20 GB of storage and attach it to the created EC2 instance.
3. Resize the attached volume and make sure it reflects in the connected instance.

Solution:

Step1) Created volume of size 20GB of storage and attached to created EC2 instance

EC2 > Volumes > Create volume

Create volume [Info](#)

Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.

Volume settings

Volume type [Info](#)

General Purpose SSD (gp3) ▼

i General Purpose SSD gp3 is now the default selection. gp3 provides up to 20% lower cost per GB than gp2. [Learn More](#)

Size (GiB) [Info](#)

20

Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

To Check the volume attached, enter the command- lsblk

```
ubuntu@ip-10-10-0-46:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0      0 24.9M  1 loop /snap/amazon-ssm-agent
loop1        7:1      0 55.7M  1 loop /snap/core18/2812
loop2        7:2      0 63.9M  1 loop /snap/core20/2182
loop3        7:3      0  87M   1 loop /snap/lxd/27037
loop4        7:4      0 40.4M  1 loop /snap/snapd/20671
xvda        202:0     0   8G   0 disk
├─xvda1      202:1     0  7.9G  0 part /
├─xvda14     202:14    0    4M  0 part
└─xvda15     202:15    0 106M  0 part /boot/efi
xvdf        202:80    0  20G   0 disk
```

Enter the following command for the extension of Ubuntu machine

```
sudo mkfs -t ext4 /dev/xvdf
```

Step2) Now resize the Volume from 20GB to 24GB

Volumes (2)

Info

Search

<div></div>	Name	Volume ID	Type	Size	IOPS	Throughput
<div></div>	-	vol-0a616133bacdfbf7	gp2	8 GiB	100	-
<div></div>	-	vol-0e5170e23eecefcc1	gp3	24 GiB	3000	125

Run the following command to mount and verify

1. `sudo mkdir ebsvolume` (create new directory to mount)
2. `sudo mount /dev/xvdf ebsvolume`
3. `sudo resize2fs /dev/xvdf`
4. `lsblk`

```

ubuntu@ip-10-10-0-46:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0      0 24.9M  1 loop /snap/amazon-ssm-agent/7628
loop1        7:1      0 55.7M  1 loop /snap/core18/2812
loop2        7:2      0 63.9M  1 loop /snap/core20/2182
loop3        7:3      0  87M   1 loop /snap/lxd/27037
loop4        7:4      0 40.4M  1 loop /snap/snapd/20671
xvda         202:0     0   8G   0 disk
├─xvda1      202:1     0  7.9G  0 part /
├─xvda14     202:14    0   4M   0 part
└─xvda15     202:15    0 106M  0 part /boot/efi
xvdf         202:80     0  24G   0 disk /home/ubuntu/ebsvolume

```

Verified that the volume that is resized to 24GB reflects in the connected instance.

EC2 & EFS

Task to be performed:

Create an EFS and connect it to 3 different EC2 instances. Make sure that all instances have different operating systems. For instance, Ubuntu, Red Hat Linux and Amazon Linux 2.

Solution:-

Created EFS

Amazon EFS > File systems							
File systems (1)					View details	Delete	Create file system
<input type="text" value="Filter by property values"/>				< 1 >			
	Name ▾	File system ID ▾	Encrypte d ▾	Total size ▾	Size in Standard ▾	Size in IA ▾	Size in Archive ▾
<input type="radio"/>	my-efs	fs-06a802d95b693c606	Encrypted	6.00 KiB	6.00 KiB	0 Bytes	0 Bytes

Created 3 instances

Instances (3) Info

Refresh

Connect

Instance state ▾

Actions ▾

Launch instances ▾

Find Instance by attribute or tag (case-sensitive)

All states ▾

< 1 >

⚙

<input type="checkbox"/>	Name <div>✎</div> ▾	Instance ID	Instance state ▾	Instance type ▾	Status check	Alarm status	Availability
<input type="checkbox"/>	Red Hat	i-02c4b5497e9b69c7a	<div>✔ Running</div> <div>🔍 🔍</div>	t2.micro	<div>✔ 2/2 checks passed</div> <div>View alarms +</div>	ap-south-1	
<input type="checkbox"/>	Amazon Linux	i-0ef8f399b31cdb539	<div>✔ Running</div> <div>🔍 🔍</div>	t2.micro	<div>✔ 2/2 checks passed</div> <div>View alarms +</div>	ap-south-1	
<input type="checkbox"/>	Ubuntu OS	i-02df724391d097661	<div>✔ Running</div> <div>🔍 🔍</div>	t2.micro	<div>✔ 2/2 checks passed</div> <div>View alarms +</div>	ap-south-1	

Connected ubuntu machine to EC2

```

24 updates can be applied immediately.
15 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Sun Mar 24 07:11:41 2024 from 13.233.177.4
ubuntu@ip-172-31-13-146:~$ ls
efs
ubuntu@ip-172-31-13-146:~$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz=1048576,hard
.efs.ap-south-1.amazonaws.com:/ efs
ubuntu@ip-172-31-13-146:~$ df -h
Filesystem                                Size  Used Avail Use% Mounted on
/dev/root                                7.6G  1.8G  5.9G  24% /
tmpfs                                     475M   0  475M   0% /dev/shm
tmpfs                                     190M  876K  189M   1% /run
tmpfs                                     5.0M   0   5.0M   0% /run/lock
/dev/xvda15                              105M   6.1M   99M   6% /boot/efi
tmpfs                                     95M   4.0K   95M   1% /run/user/1000
fs-06a802d95b693c606.efs.ap-south-1.amazonaws.com:/ 8.0E   0   8.0E   0% /home/ubuntu/efs
ubuntu@ip-172-31-13-146:~$

```

Connected Amazon linux to EC2


```

Installing      : quota-1:4.06-6.el9.x86_64
Installing      : libev-4.33-5.el9.x86_64
Installing      : libverto-libev-0.3.2-3.el9.x86_64
Installing      : gssproxy-0.8.4-6.el9.x86_64
Running scriptlet: gssproxy-0.8.4-6.el9.x86_64
Running scriptlet: nfs-utils-1:2.5.4-20.el9.x86_64
Installing      : nfs-utils-1:2.5.4-20.el9.x86_64
Running scriptlet: nfs-utils-1:2.5.4-20.el9.x86_64
Installing      : sssd-nfs-idmap-2.9.1-4.el9_3.5.x86_64
Running scriptlet: sssd-nfs-idmap-2.9.1-4.el9_3.5.x86_64
Verifying       : libev-4.33-5.el9.x86_64
Verifying       : libverto-libev-0.3.2-3.el9.x86_64
Verifying       : quota-1:4.06-6.el9.x86_64
Verifying       : quota-nls-1:4.06-6.el9.noarch
Verifying       : rpcbind-1.2.6-5.el9.x86_64
Verifying       : keyutils-1.6.3-1.el9.x86_64
Verifying       : gssproxy-0.8.4-6.el9.x86_64
Verifying       : libnfsidmap-1:2.5.4-20.el9.x86_64
Verifying       : libtirpc-1.3.3-2.el9.x86_64
Verifying       : nfs-utils-1:2.5.4-20.el9.x86_64
Verifying       : sssd-nfs-idmap-2.9.1-4.el9_3.5.x86_64
Installed products updated.

Installed:
  gssproxy-0.8.4-6.el9.x86_64      keyutils-1.6.3-1.el9.x86_64      lib
  libnfsidmap-1:2.5.4-20.el9.x86_64  libtirpc-1.3.3-2.el9.x86_64      lib
  nfs-utils-1:2.5.4-20.el9.x86_64    quota-1:4.06-6.el9.x86_64        qu
  rpcbind-1.2.6-5.el9.x86_64        sssd-nfs-idmap-2.9.1-4.el9_3.5.x86_64

Complete!

```

```

[ec2-user@ip-172-31-41-35 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsiz=1048576 fs-06a802d95b693c606.efs.ap-south-1.amazonaws.com:/ efs2
[ec2-user@ip-172-31-41-35 ~]$ df -h

```

Filesystem	Size	Used	Avail	Use%	Mounted on
devtmpfs	4.0M	0	4.0M	0%	/dev
tmpfs	377M	0	377M	0%	/dev/shm
tmpfs	151M	6.4M	145M	5%	/run
/dev/xvda4	9.2G	1.6G	7.7G	17%	/
/dev/xvda3	536M	254M	283M	48%	/boot
/dev/xvda2	200M	7.0M	193M	4%	/efi
tmpfs	76M	0	76M	0%	/run/user/1000
fs-06a802d95b693c606.efs.ap-south-1.amazonaws.com:/	8.0E	0	8.0E	0%	/home/ec2-user

Commands Used to connect Ec2 through NFS path

For Ubuntu, command is `sudo apt-get update -y`

For Redhat or Amazon Linux, `sudo yum update -y`

1. For Ubuntu, `sudo apt-get install nfs-common -y`

For Redhat and Amazon Linux, `sudo yum install nfs-utils -y`

2. `sudo mkdir efs`

3. paste command from efs nfs client attach

4. `df -h` (check mounting status)
