AWS PROJECT

NAME -- HARSH SINGH

COURSE -- B.TECH

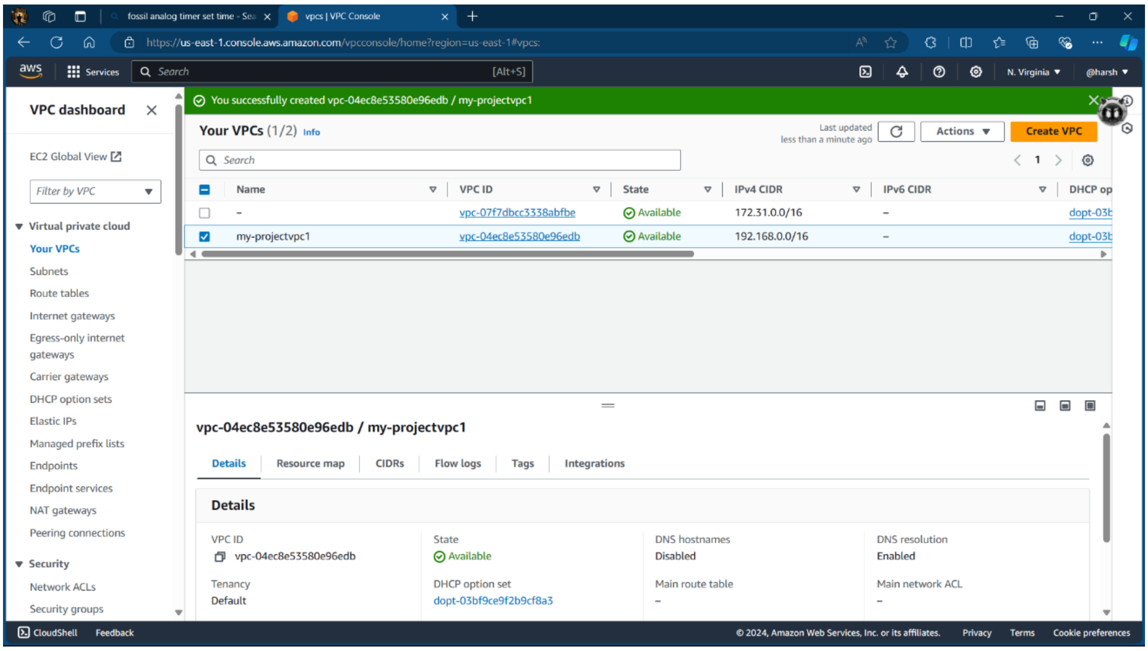
BRANCH -- CSE-CCML3

ROLL NO.-- 1210438031

TOPIC- TO DEMONSTRATE THE ALL THE SMALL SCENARIO OF AN ORGANIZATIOM BY CREATE THE PUBLIC AND PRIVATE NETWORK AND CONFIGURING IT WITH THE DIFFERENT AWS SERVICES.

Starting with all the services here are the following steps:

STEP 1 : In this step we will create one VPC to create an instances.



You successfully created vpc-04ec8e53580e96edb / my-projectvpc1

Your VPCs (1/2) Info

Last updated less than a minute ago

	Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP op
□	-	vpc-07f7dbcc3338abfbe	Available	172.31.0.0/16	–	dopt-03b
☑	my-projectvpc1	vpc-04ec8e53580e96edb	Available	192.168.0.0/16	–	dopt-03b

vpc-04ec8e53580e96edb / my-projectvpc1

Details

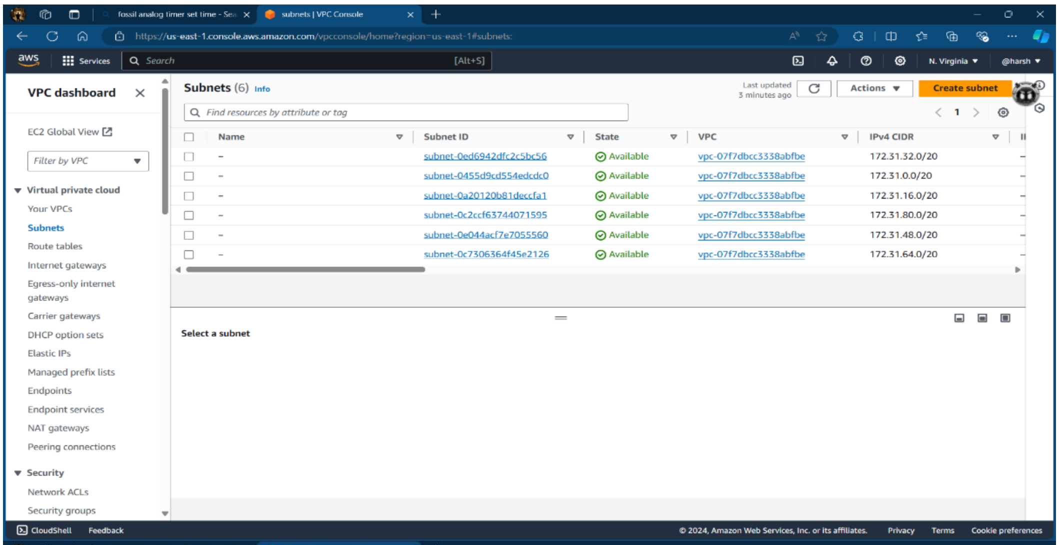
VPC ID	State	DNS hostnames	DNS resolution
vpc-04ec8e53580e96edb	Available	Disabled	Enabled
Tenancy	**DHCP option set**	**Main route table**	**Main network ACL**
Default	dopt-03bf9ce9f2b9cf8a3	–	–

STEP 2 : After creating an VPC we required the subnets.

So in this step we create two subnets for public and private.

Public Subnet: This subnet is designed to host resources that need to be accessible from the internet.

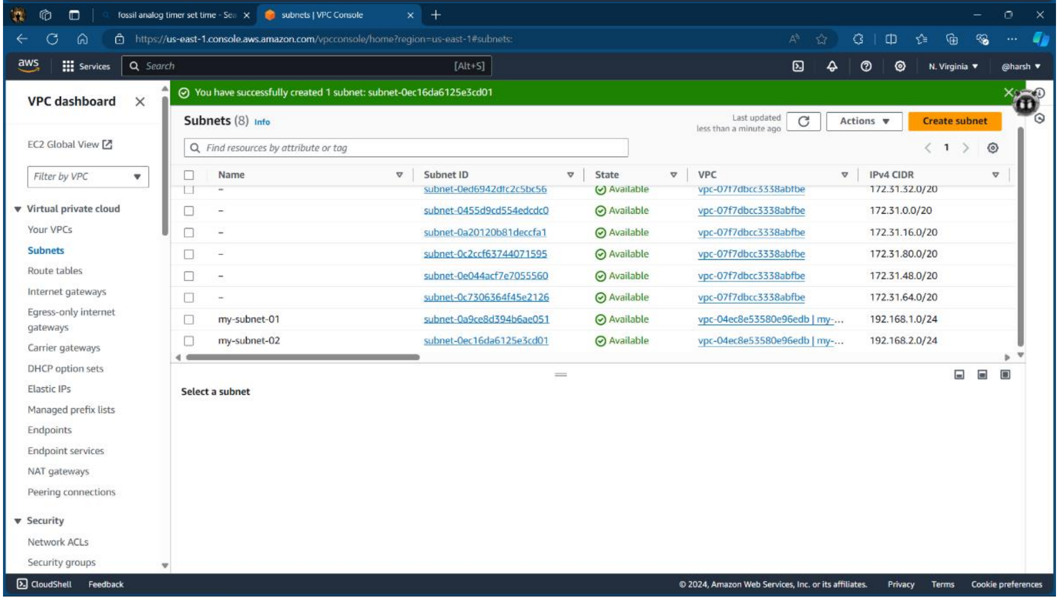
Public Subnet: This subnet is designed for resources that should not be directly accessible from the internet.



Subnets (6) Info

	Name	Subnet ID	State	VPC	IPv4 CIDR
□	–	subnet-0ed6942dfc2c5bc56	Available	vpc-07f7dbcc3338abfbe	172.31.32.0/20
□	–	subnet-0455d9cd554edcdc0	Available	vpc-07f7dbcc3338abfbe	172.31.0.0/20
□	–	subnet-0a20120b81deccfa1	Available	vpc-07f7dbcc3338abfbe	172.31.16.0/20
□	–	subnet-0c2ccf63744071595	Available	vpc-07f7dbcc3338abfbe	172.31.80.0/20
□	–	subnet-0e044acf7e7055560	Available	vpc-07f7dbcc3338abfbe	172.31.48.0/20
□	–	subnet-0c7306364f45e2126	Available	vpc-07f7dbcc3338abfbe	172.31.64.0/20

Select a subnet



You have successfully created 1 subnet: subnet-0ec16da6125e3cd01

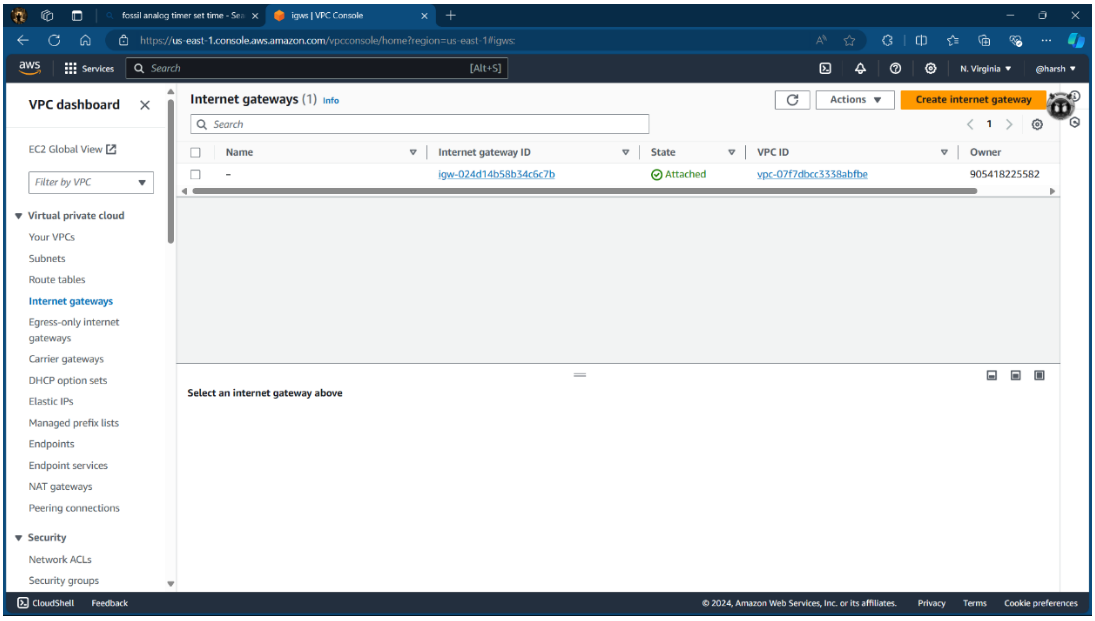
Subnets (8) Info

	Name	Subnet ID	State	VPC	IPv4 CIDR
□	–	subnet-0ed6942dfc2c5bc56	Available	vpc-07f7dbcc3338abfbe	172.31.32.0/20
□	–	subnet-0455d9cd554edcdc0	Available	vpc-07f7dbcc3338abfbe	172.31.0.0/20
□	–	subnet-0a20120b81deccfa1	Available	vpc-07f7dbcc3338abfbe	172.31.16.0/20
□	–	subnet-0c2ccf63744071595	Available	vpc-07f7dbcc3338abfbe	172.31.80.0/20
□	–	subnet-0e044acf7e7055560	Available	vpc-07f7dbcc3338abfbe	172.31.48.0/20
□	–	subnet-0c7306364f45e2126	Available	vpc-07f7dbcc3338abfbe	172.31.64.0/20
□	my-subnet-01	subnet-0a9ce8d394b6ae051	Available	vpc-04ec8e53580e96edb | my-...	192.168.1.0/24
□	my-subnet-02	subnet-0ec16da6125e3cd01	Available	vpc-04ec8e53580e96edb | my-...	192.168.2.0/24

Select a subnet

STEP 3 : Now we will create the Internet gateway by which we will get connect to our instances.

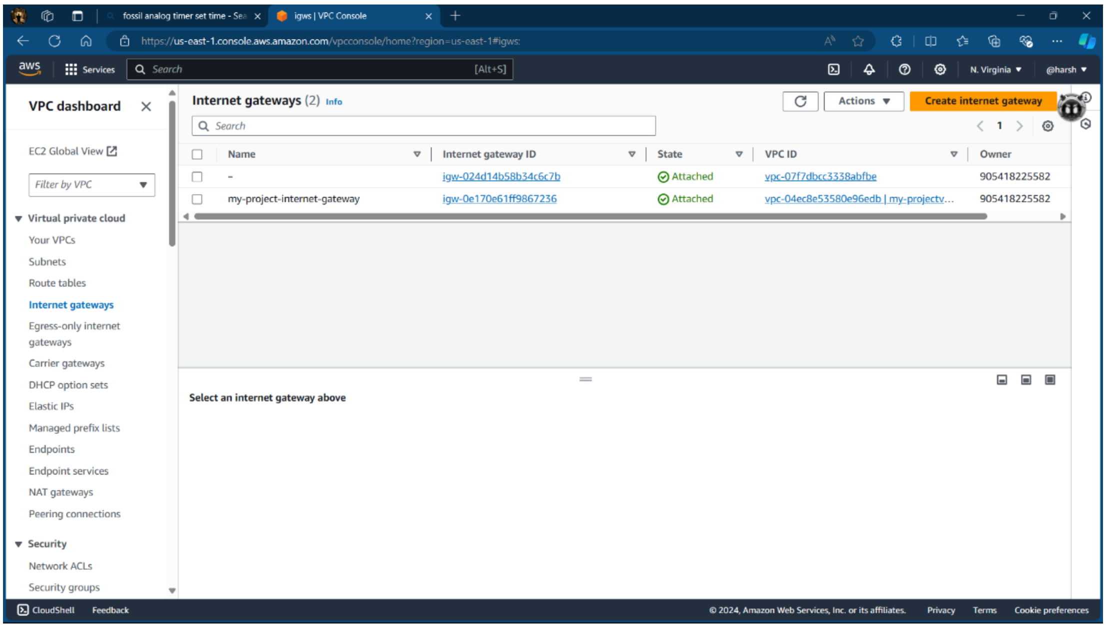
Secondly we need to attach to our VPC which we had created earlier.



Internet gateways (1) Info

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-024d14b58b34c6c7b	Attached	vpc-07f7dbcc3338abfbe	905418225582

Select an internet gateway above



Internet gateways (2) Info

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-024d14b58b34c6c7b	Attached	vpc-07f7dbcc3338abfbe	905418225582
my-project-internet-gateway	igw-0e170e61ff9867236	Attached	vpc-04ec8e53580e96edb | my-projectv...	905418225582

Select an internet gateway above

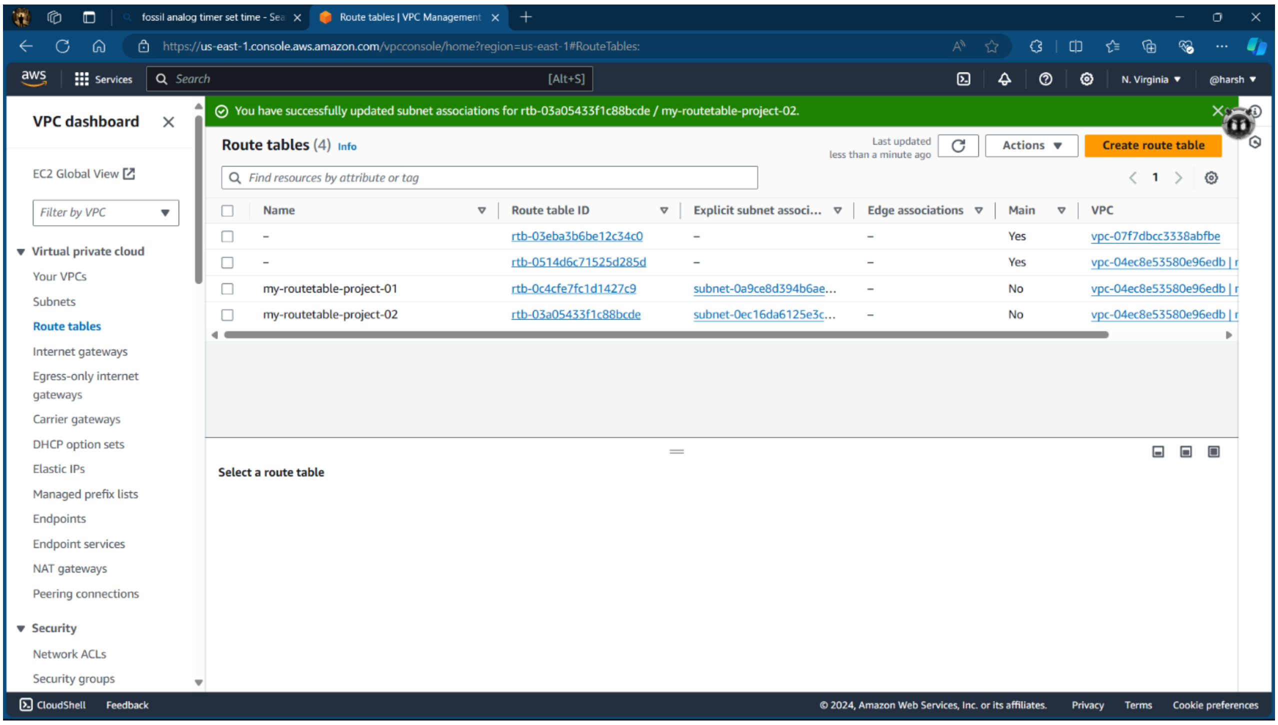
STEP 4 : In this step, we will create the routing table .

After creating the routing table in subnet associations we will edit for public subnet and add routes to it.
For private subnet we will simply edit subnet associations and save it changes.

1. Route Table 1 (public subnet):

   Added a route to the route table with the following details:
   - Destination: 0.0.0.0/0
   - Target Internet Gateway (IGW)

2. Route Table 2 (private subnet):
   - No routes were added to this table initially, ensuring that the private subnet remains isolated from the internet.



You have successfully updated subnet associations for rtb-03a05433f1c88bcde / my-routetable-project-02.

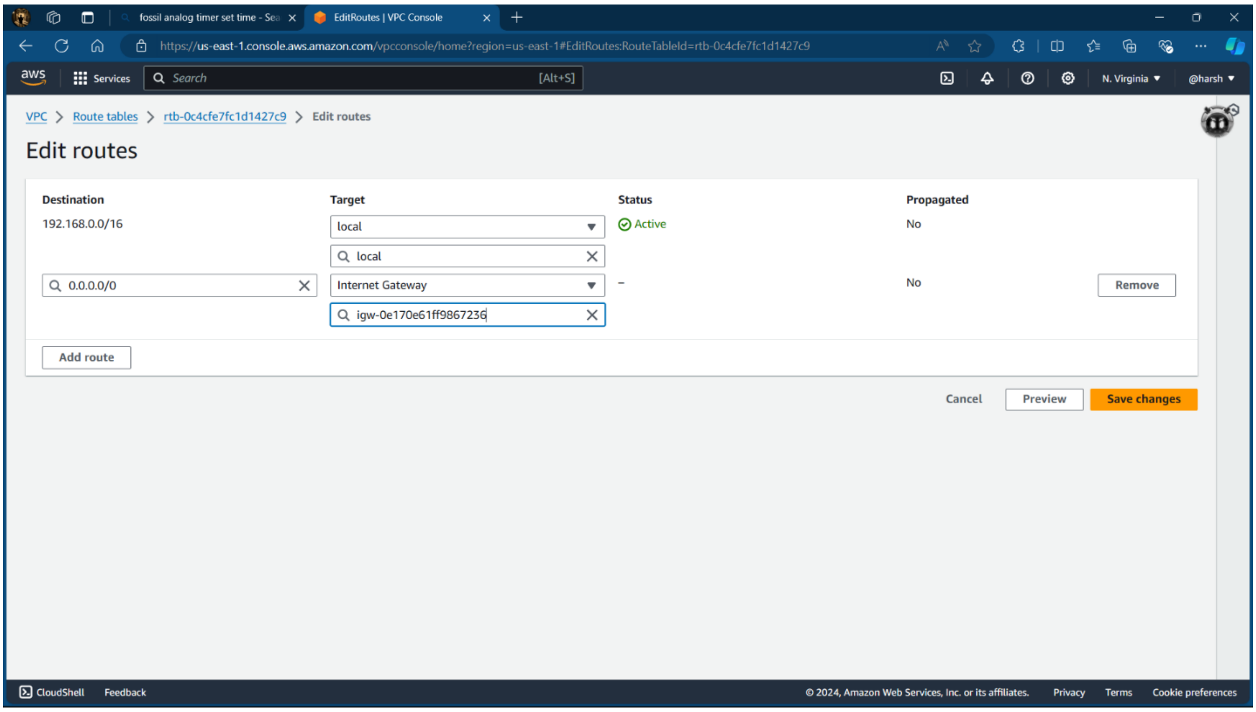
Route tables (4) Info

□	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
□	-	rtb-03eba3b6be12c34c0	–	–	Yes	vpc-07f7dbcc3338abfbe
□	-	rtb-0514d6c71525d285d	–	–	Yes	vpc-04ec8e53580e96edb | r
□	my-routetable-project-01	rtb-0c4cfe7fc1d1427c9	subnet-0a9ce8d394b6ae...	–	No	vpc-04ec8e53580e96edb | r
□	my-routetable-project-02	rtb-03a05433f1c88bcde	subnet-0ec16da6125e3c...	–	No	vpc-04ec8e53580e96edb | r

Select a route table

STEP 5 : In this step we will create two instances using EC2 services as public instance and private instance.

While creating we uses the RedHat webservice



fossil analog timer set time - Sea
EditRoutes | VPC Console
https://us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#EditRoutes:RouteTableId=rtb-0c4cfe7fc1d1427c9
aws
Services
Search
[Alt+S]
N. Virginia
@harsh
VPC > Route tables > rtb-0c4cfe7fc1d1427c9 > Edit routes

Edit routes

Destination	Target	Status	Propagated	
192.168.0.0/16	local local	Active	No	
0.0.0.0/0	Internet Gateway igw-0e170e61ff9867236	-	No	Remove

Add route
Cancel
Preview
Save changes
CloudShell
Feedback
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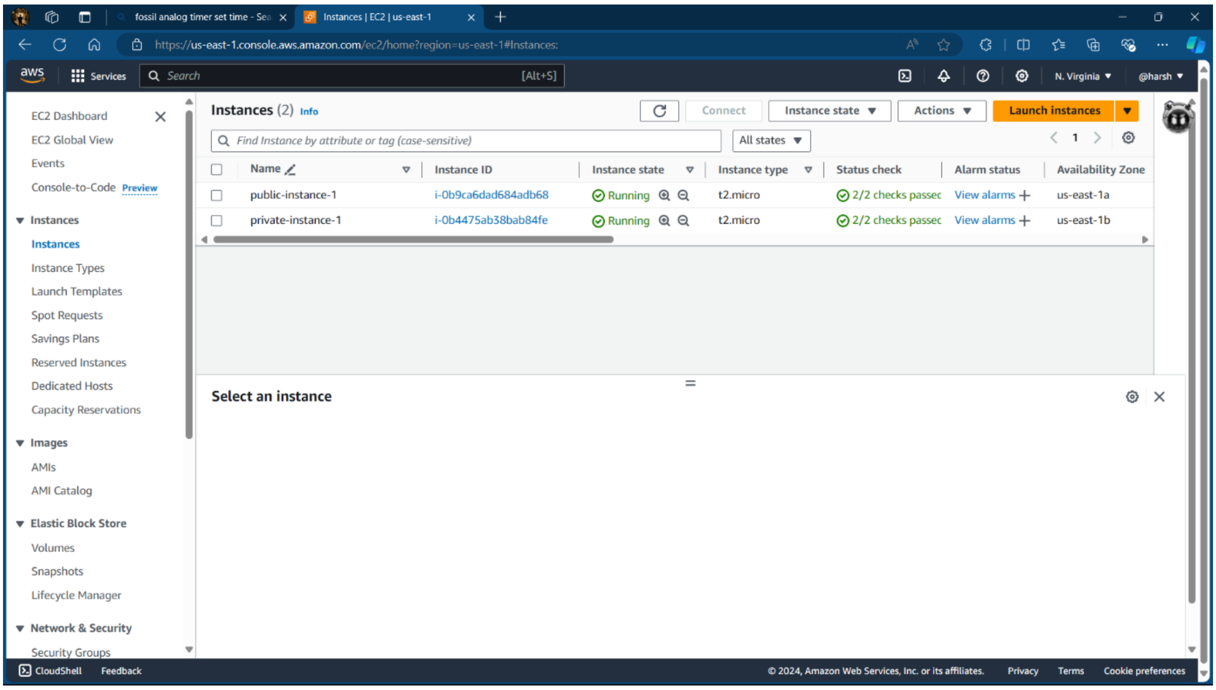
Privacy
Terms
Cookie preferences

For public instance we will enable the public IP address for access the website.

1. Instance 1 (Public):
   - Launched a RedHat Linux Instance and associated it with the public subnet.
   - Configured security group rules to allow traffic on port 80 (HTTP) for both IPv4 and IPv6.
2. Instance 2 (Private):
   - Launched another RedHat Linux instance and associated it with the private subnet.

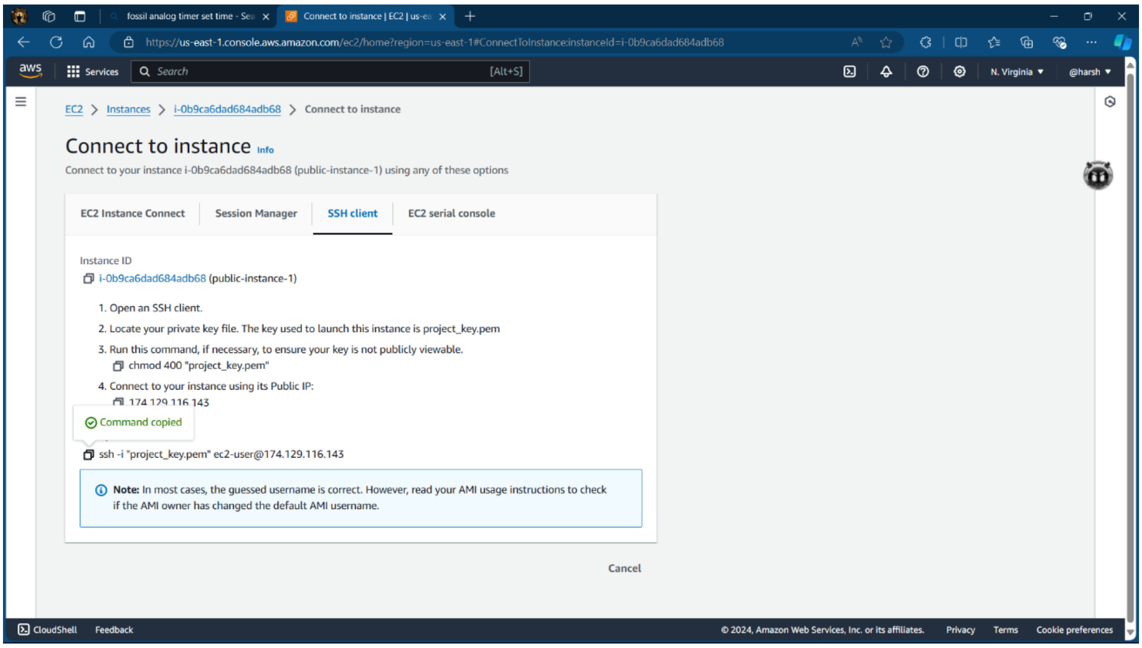


Instances (2)

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
□	public-instance-1	i-0b9ca6dad684adb68	Running	t2.micro	2/2 checks passec	View alarms +	us-east-1a
□	private-instance-1	i-0b4475ab38bab84fe	Running	t2.micro	2/2 checks passec	View alarms +	us-east-1b

Select an instance

STEP 6: Select public instance and connect to the server using cmd…


fossil analog timer set time - Sea
Connect to instance | EC2 | us-ea
https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#ConnectToInstance:instanceId=i-0b9ca6dad684adb68
aws
Services
Search
[Alt+S]
N. Virginia
@harsh
EC2 > Instances > i-0b9ca6dad684adb68 > Connect to instance

Connect to instance Info

Connect to your instance i-0b9ca6dad684adb68 (public-instance-1) using any of these options

EC2 Instance Connect
Session Manager
SSH client
EC2 serial console

Instance ID

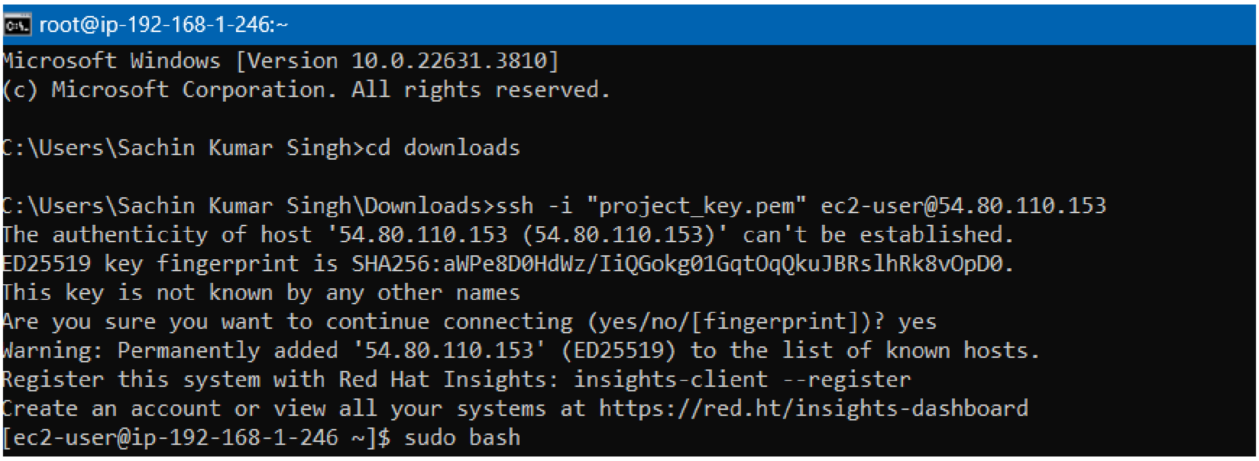
i-0b9ca6dad684adb68 (public-instance-1)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is project_key.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.
   `chmod 400 "project_key.pem"`
4. Connect to your instance using its Public IP:
   174.129.116.143

Command copied

```
ssh -i "project_key.pem" ec2-user@174.129.116.143
```

Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.

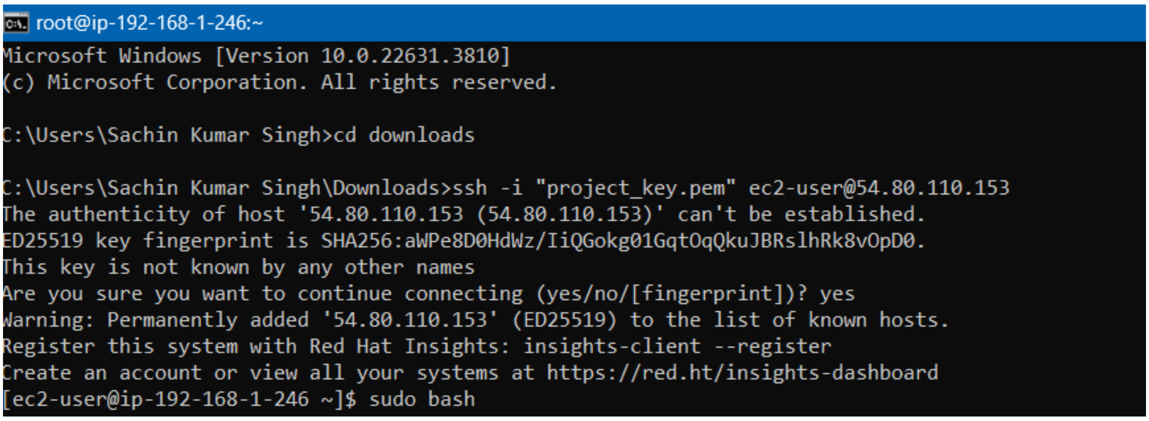


```
Microsoft Windows [Version 10.0.22631.3810]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Sachin Kumar Singh>cd downloads

C:\Users\Sachin Kumar Singh\Downloads>ssh -i "project_key.pem" ec2-user@54.80.110.153
The authenticity of host '54.80.110.153 (54.80.110.153)' can't be established.
ED25519 key fingerprint is SHA256:aWPe8D0HdWz/IiQGokg01GqtOqQkuJBRslhRk8vOpD0.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '54.80.110.153' (ED25519) to the list of known hosts.
Register this system with Red Hat Insights: insights-client --register
Create an account or view all your systems at https://red.ht/insights-dashboard
[ec2-user@ip-192-168-1-246 ~]$ sudo bash
```

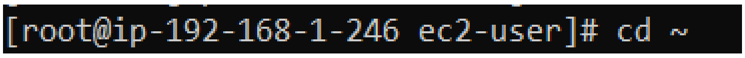
Hosting Websites:

Website hosting commands:

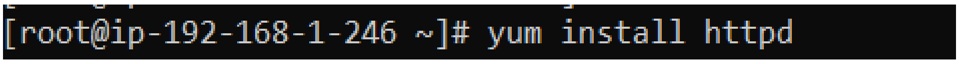
Now performing these commands to host public and private websites in this instance…



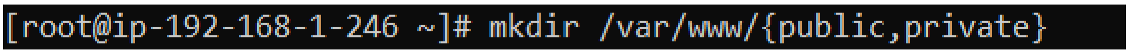
```
Microsoft Windows [Version 10.0.22631.3810]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Sachin Kumar Singh>cd downloads

C:\Users\Sachin Kumar Singh\Downloads>ssh -i "project_key.pem" ec2-user@54.80.110.153
The authenticity of host '54.80.110.153 (54.80.110.153)' can't be established.
ED25519 key fingerprint is SHA256:aWPe8D0HdWz/IiQGokg01GqtOqQkuJBRslhRk8vOpD0.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '54.80.110.153' (ED25519) to the list of known hosts.
Register this system with Red Hat Insights: insights-client --register
Create an account or view all your systems at https://red.ht/insights-dashboard
[ec2-user@ip-192-168-1-246 ~]$ sudo bash
```



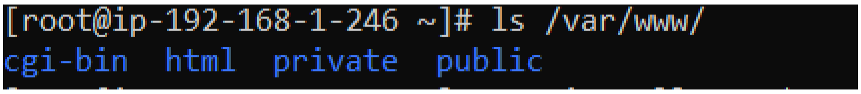
```
[root@ip-192-168-1-246 ec2-user]# cd ~
```



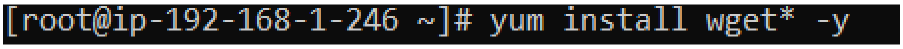
```
[root@ip-192-168-1-246 ~]# yum install httpd
```



```
[root@ip-192-168-1-246 ~]# mkdir /var/www/{public,private}
```



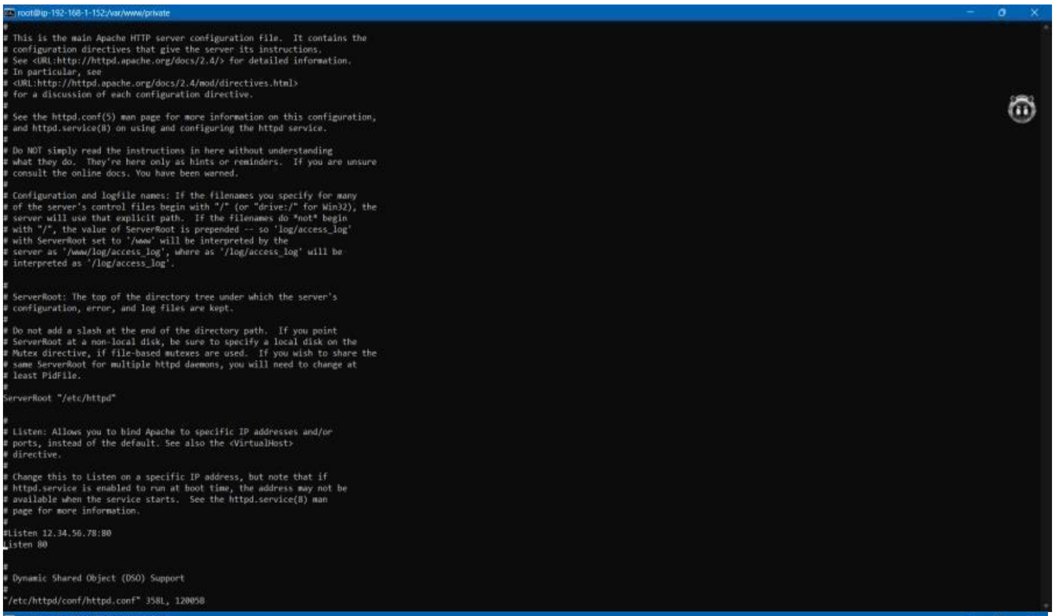
```
[root@ip-192-168-1-246 ~]# ls /var/www/
cgi-bin  html  private  public
```



```
[root@ip-192-168-1-246 ~]# yum install wget* -y
```

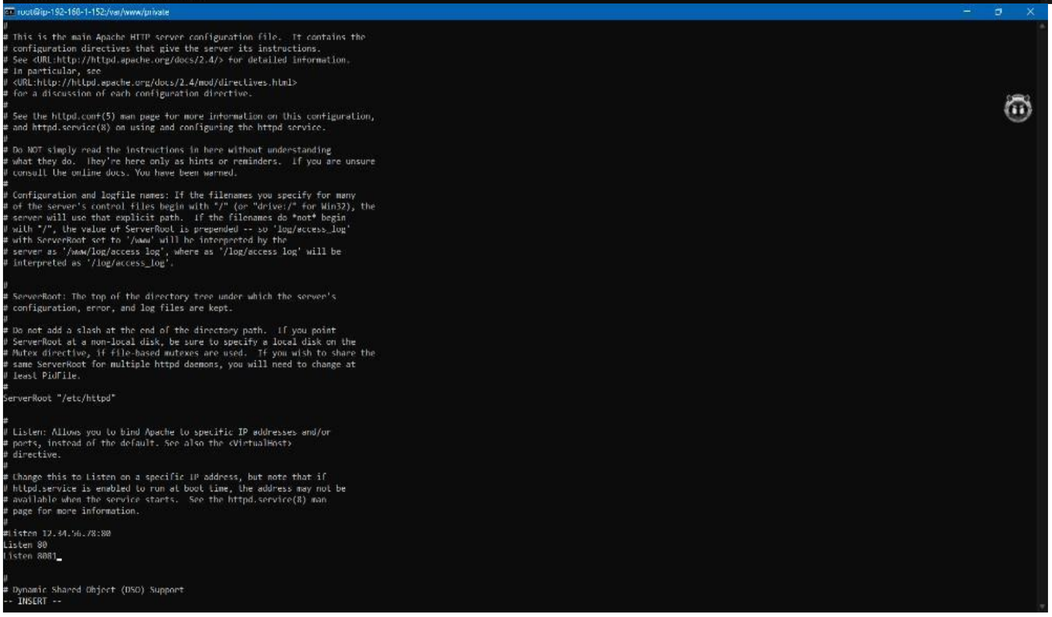
After this command we need to change some settings like;

1. Allow port 8081 so we write Listen 8081 in it.
2. We need to summit our changes name of html file.



root@ip-192-168-1-152:/var/www/private

```
#
# This is the main Apache HTTP server configuration file.  It contains the
# configuration directives that give the server its instructions.
# See <URL:http://httpd.apache.org/docs/2.4/> for detailed information.
# In particular, see
# <URL:http://httpd.apache.org/docs/2.4/mod/directives.html>
# for a discussion of each configuration directive.
#
# See the httpd.conf(5) man page for more information on this configuration,
# and httpd.service(8) on using and configuring the httpd service.
#
# Do NOT simply read the instructions in here without understanding
# what they do.  They're here only as hints or reminders.  If you are unsure
# consult the online docs. You have been warned.
#
# Configuration and logfile names: If the filenames you specify for many
# of the server's control files begin with "/" (or "drive:/" for Win32), the
# server will use that explicit path.  If the filenames do *not* begin
# with "/", the value of ServerRoot is prepended -- so 'log/access_log'
# with ServerRoot set to '/www' will be interpreted by the
# server as '/www/log/access_log', where as '/log/access_log' will be
# interpreted as '/log/access_log'.

#
# ServerRoot: The top of the directory tree under which the server's
# configuration, error, and log files are kept.
#
# Do not add a slash at the end of the directory path.  If you point
# ServerRoot at a non-local disk, be sure to specify a local disk on the
# Mutex directive, if file-based mutexes are used.  If you wish to share the
# same ServerRoot for multiple httpd daemons, you will need to change at
# least PidFile.
#
ServerRoot "/etc/httpd"

#
# Listen: Allows you to bind Apache to specific IP addresses and/or
# ports, instead of the default. See also the <VirtualHost>
# directive.
#
# Change this to Listen on a specific IP address, but note that if
# httpd.service is enabled to run at boot time, the address may not be
# available when the service starts.  See the httpd.service(8) man
# page for more information.
#
#Listen 12.34.56.78:80
Listen 80

#
# Dynamic Shared Object (DSO) Support
#
"/etc/httpd/conf/httpd.conf" 358L, 12005B
```



root@ip-192-168-1-152:/var/www/private

```
#
# This is the main Apache HTTP server configuration file.  It contains the
# configuration directives that give the server its instructions.
# See <URL:http://httpd.apache.org/docs/2.4/> for detailed information.
# In particular, see
# <URL:http://httpd.apache.org/docs/2.4/mod/directives.html>
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#
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# available when the service starts.  See the httpd.service(8) man
# page for more information.
#
#Listen 12.34.56.78:80
Listen 80
Listen 8081

#
# Dynamic Shared Object (DSO) Support
-- INSERT --
```
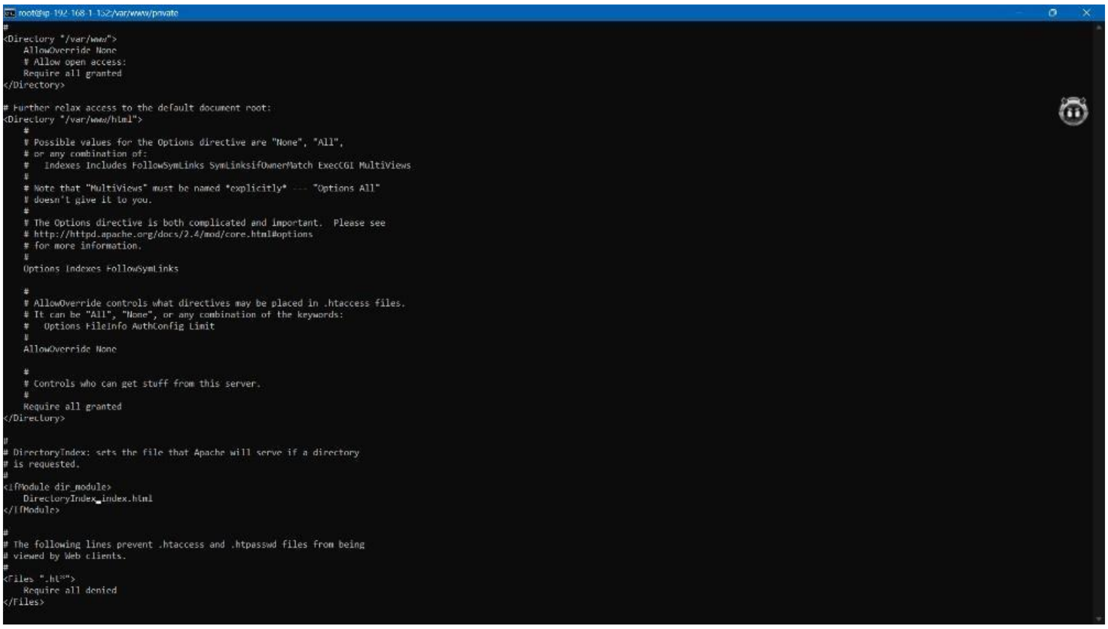
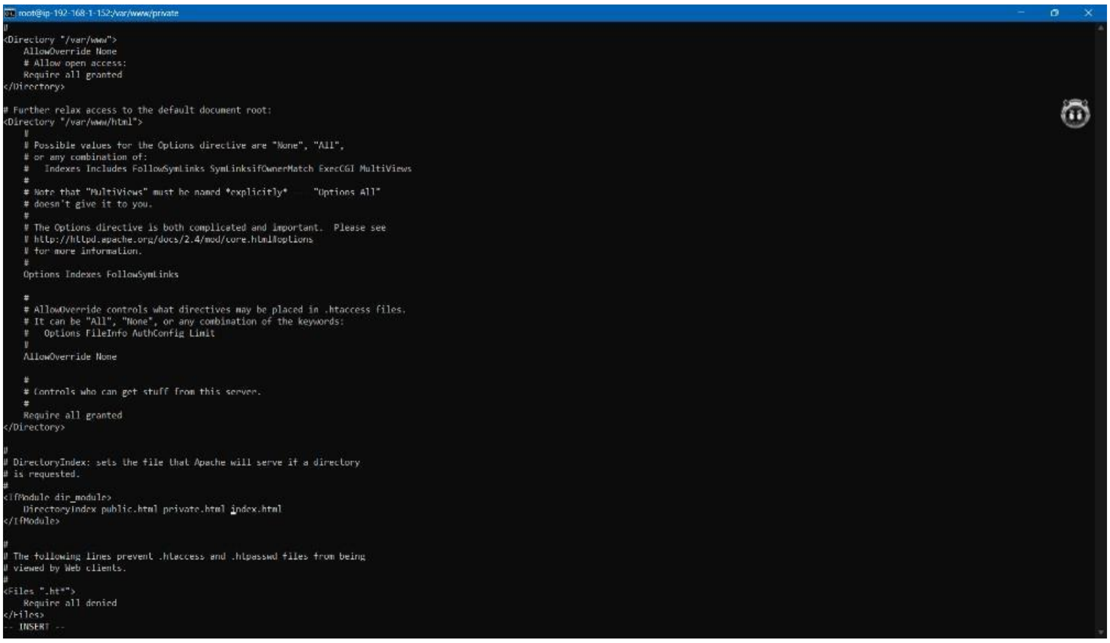



```
#
<Directory "/var/www">
    AllowOverride None
    # Allow open access:
    Require all granted
</Directory>

# Further relax access to the default document root:
<Directory "/var/www/html">
    #
    # Possible values for the Options directive are "None", "All",
    # or any combination of:
    #   Indexes Includes FollowSymLinks SymLinksifOwnerMatch ExecCGI MultiViews
    #
    # Note that "MultiViews" must be named *explicitly* --- "Options All"
    # doesn't give it to you.
    #
    # The Options directive is both complicated and important.  Please see
    # http://httpd.apache.org/docs/2.4/mod/core.html#options
    # for more information.
    #
    Options Indexes FollowSymLinks

    #
    # AllowOverride controls what directives may be placed in .htaccess files.
    # It can be "All", "None", or any combination of the keywords:
    #   Options FileInfo AuthConfig Limit
    #
    AllowOverride None

    #
    # Controls who can get stuff from this server.
    #
    Require all granted
</Directory>

#
# DirectoryIndex: sets the file that Apache will serve if a directory
# is requested.
#
<IfModule dir_module>
    DirectoryIndex index.html
</IfModule>

#
# The following lines prevent .htaccess and .htpasswd files from being
# viewed by Web clients.
#
<Files ".ht*">
    Require all denied
</Files>
```



```
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<Directory "/var/www">
    AllowOverride None
    # Allow open access:
    Require all granted
</Directory>

# Further relax access to the default document root:
<Directory "/var/www/html">
    #
    # Possible values for the Options directive are "None", "All",
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    # for more information.
    #
    Options Indexes FollowSymLinks

    #
    # AllowOverride controls what directives may be placed in .htaccess files.
    # It can be "All", "None", or any combination of the keywords:
    #   Options FileInfo AuthConfig Limit
    #
    AllowOverride None

    #
    # Controls who can get stuff from this server.
    #
    Require all granted
</Directory>

#
# DirectoryIndex: sets the file that Apache will serve if a directory
# is requested.
#
<IfModule dir_module>
    DirectoryIndex public.html private.html index.html
</IfModule>

#
# The following lines prevent .htaccess and .htpasswd files from being
# viewed by Web clients.
#
<Files ".ht*">
    Require all denied
</Files>
-- INSERT --
```
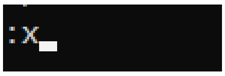
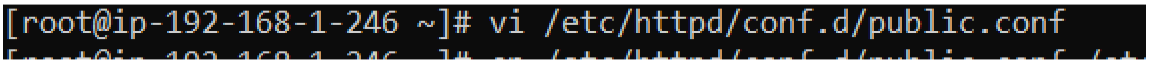

For exit use this command.

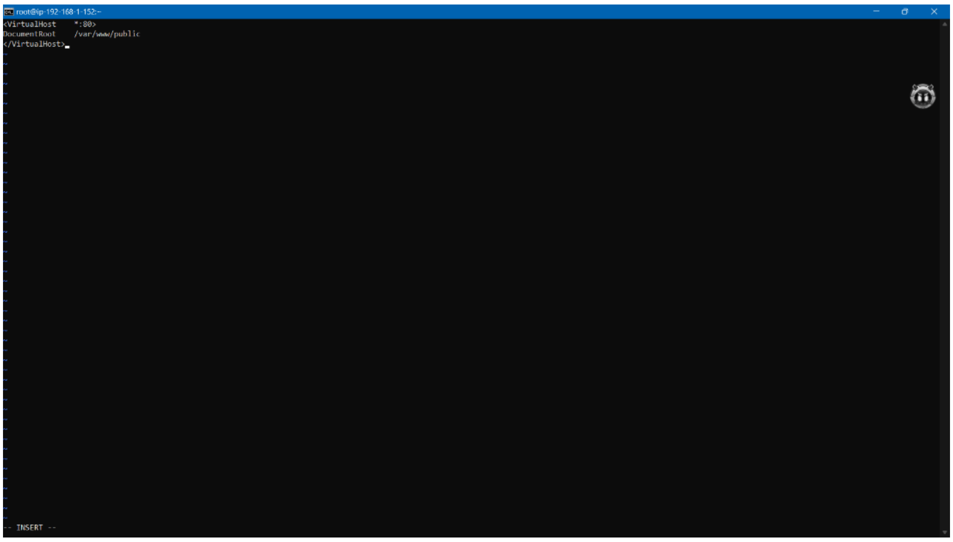


```
:x
```



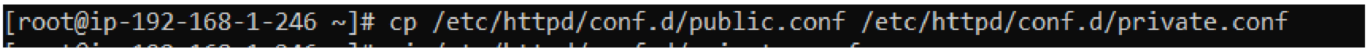
```
[root@ip-192-168-1-246 ~]# vi /etc/httpd/conf.d/public.conf
```

Type these steps in console…

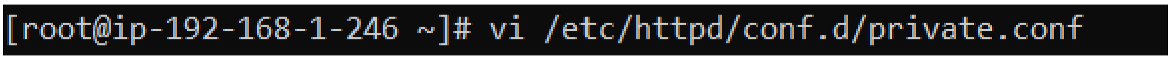


```
<VirtualHost    *:80>
DocumentRoot    /var/www/public
</VirtualHost>
-- INSERT --
```

Then exit.

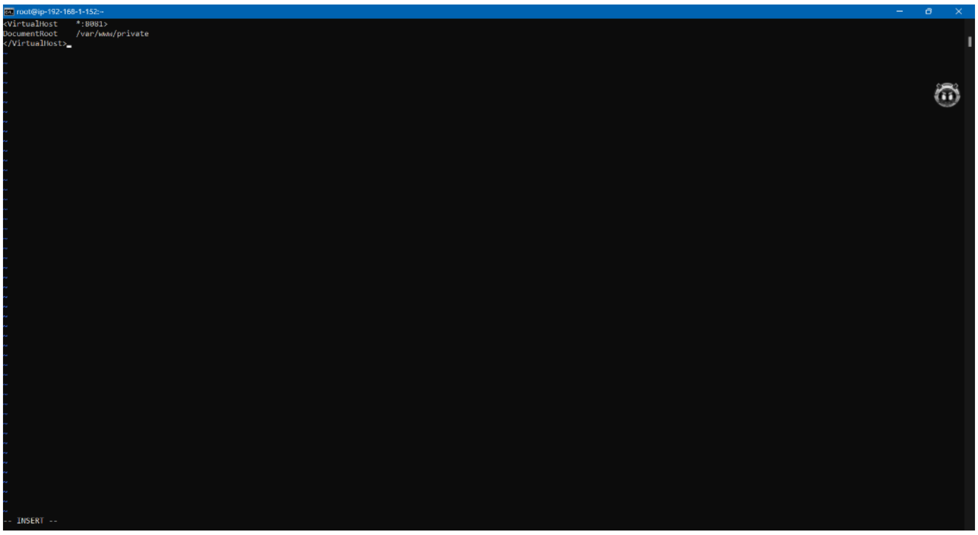


```
[root@ip-192-168-1-246 ~]# cp /etc/httpd/conf.d/public.conf /etc/httpd/conf.d/private.conf
```

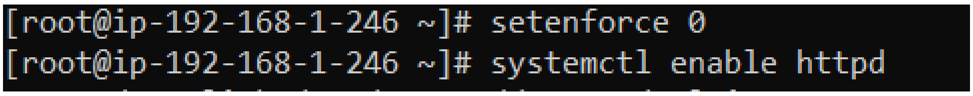


```
[root@ip-192-168-1-246 ~]# vi /etc/httpd/conf.d/private.conf
```

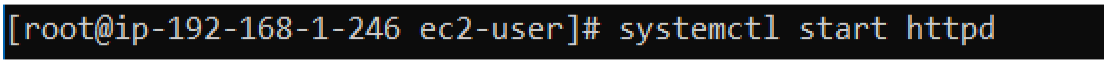
Edit this console…



```
<VirtualHost    *:8081>
DocumentRoot    /var/www/private
</VirtualHost>
-- INSERT --
```

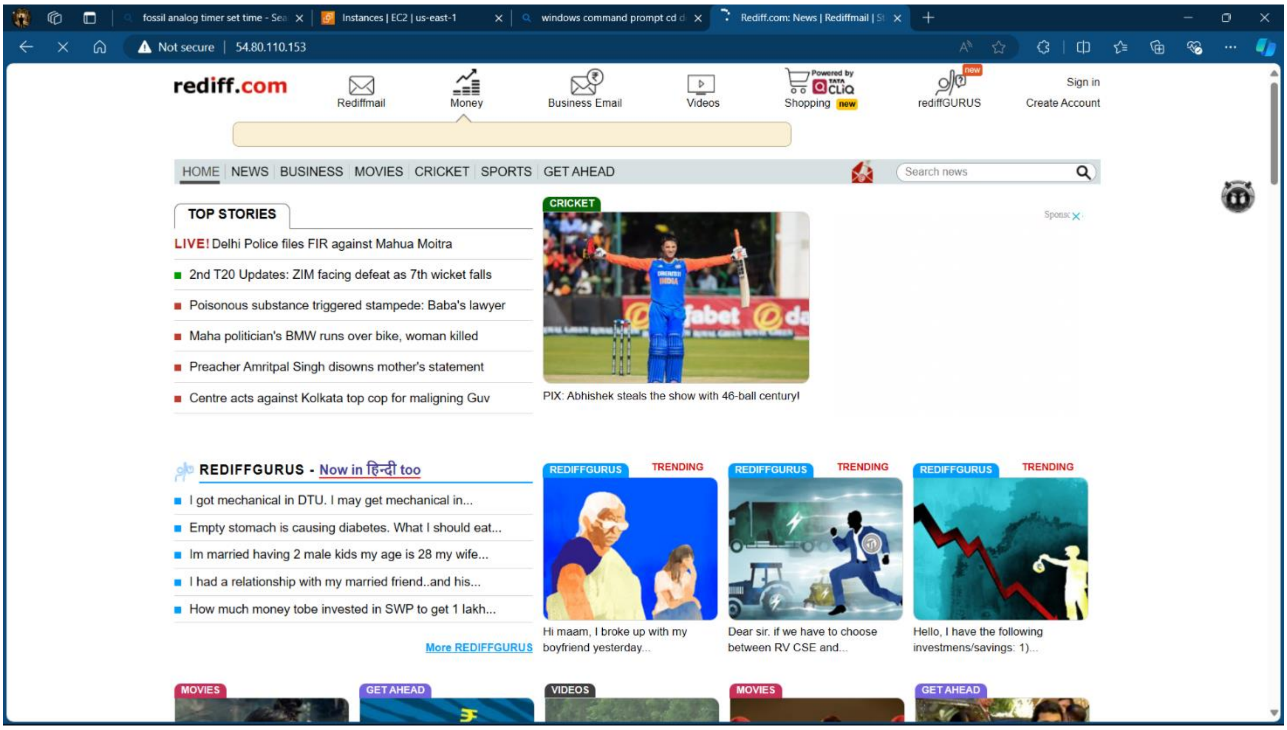


```
[root@ip-192-168-1-246 ~]# setenforce 0
[root@ip-192-168-1-246 ~]# systemctl enable httpd
```



```
[root@ip-192-168-1-246 ec2-user]# systemctl start httpd
```

Then for public website running copy public instance public Ip and run on your browser…



LIVE! Delhi Police files FIR against Mahua Moitra
- 2nd T20 Updates: ZIM facing defeat as 7th wicket falls
- Poisonous substance triggered stampede: Baba's lawyer
- Maha politician's BMW runs over bike, woman killed
- Preacher Amritpal Singh disowns mother's statement
- Centre acts against Kolkata top cop for maligning Guv

PIX: Abhishek steals the show with 46-ball century!

- I got mechanical in DTU. I may get mechanical in...
- Empty stomach is causing diabetes. What I should eat...
- Im married having 2 male kids my age is 28 my wife...
- I had a relationship with my married friend..and his...
- How much money tobe invested in SWP to get 1 lakh...

Hi maam, I broke up with my boyfriend yesterday...

Dear sir, if we have to choose between RV CSE and...

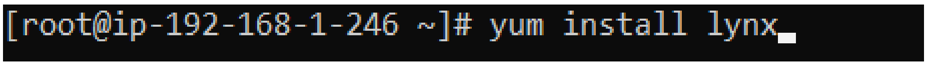
Hello, I have the following investmens/savings: 1)...

For running private website we need to install private browser in our public instance…

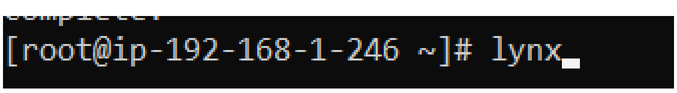
For installation of using command

- ➢ yum install lynx
- ➢ lynx

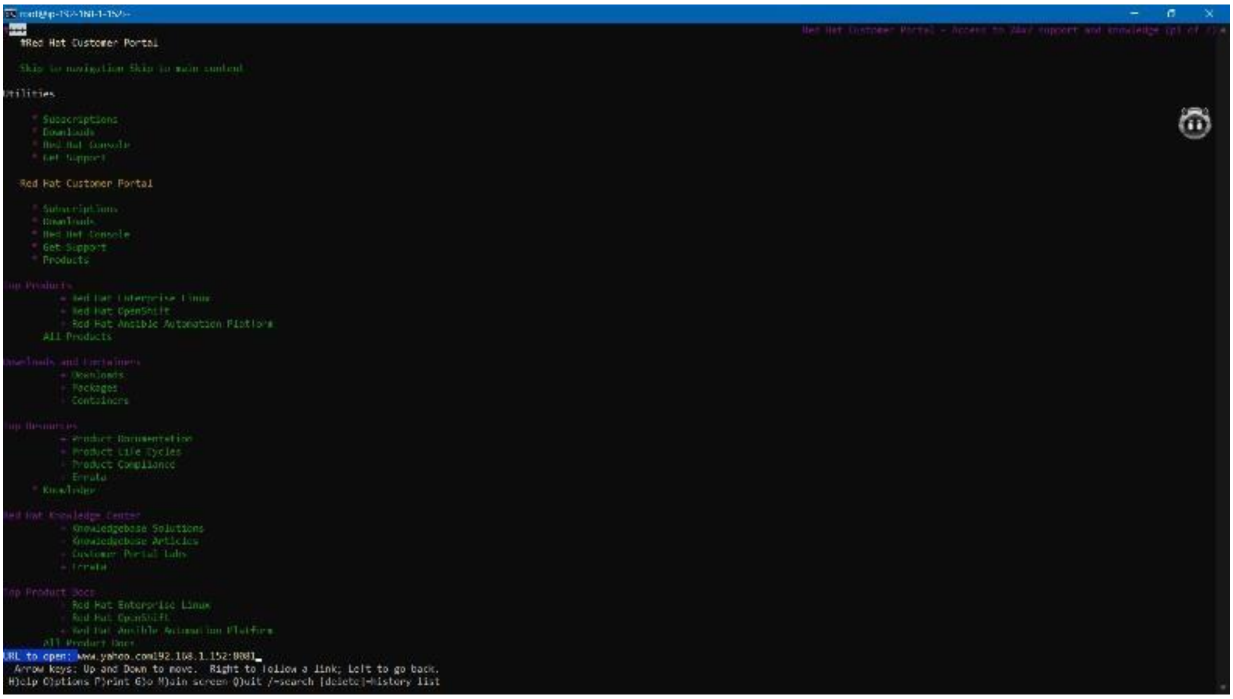
Then host you private website…



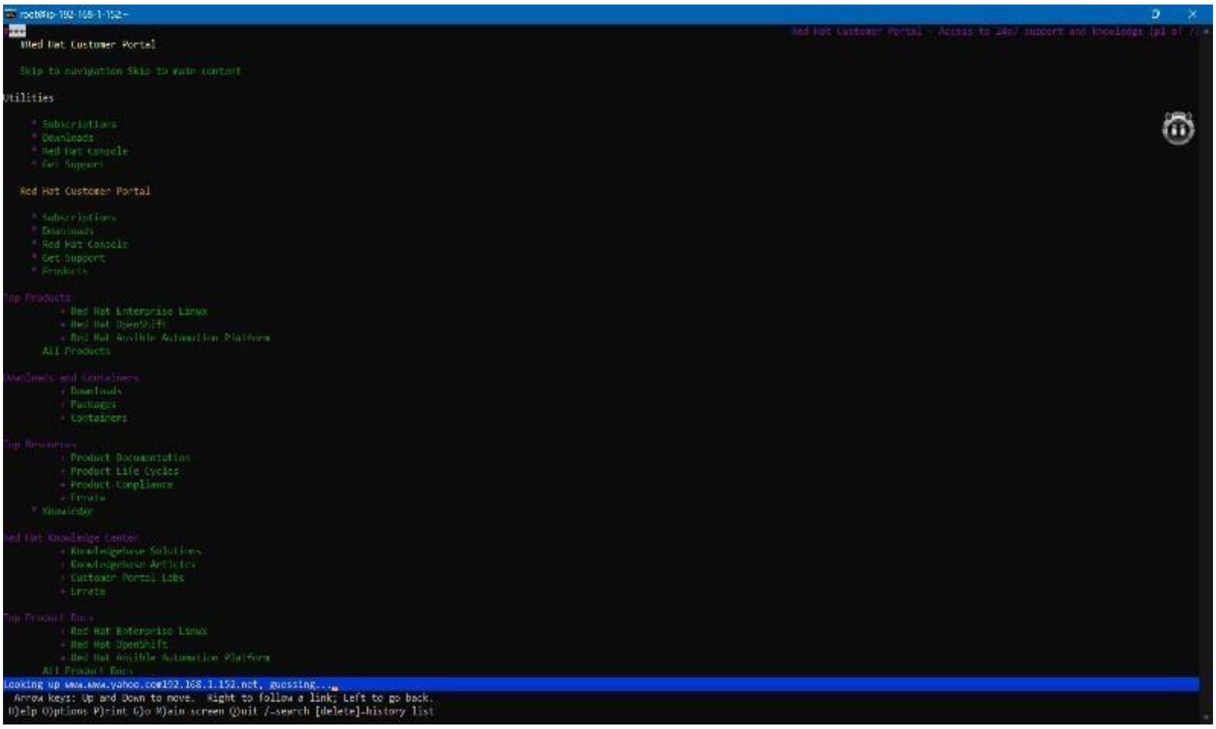
```
[root@ip-192-168-1-246 ~]# yum install lynx
```



```
Complete!
[root@ip-192-168-1-246 ~]# lynx
```



```
root@ip-192-168-1-152:~
                                      Red Hat Customer Portal - Access to 24x7 support and knowledge (p1 of 7)
   #Red Hat Customer Portal

   Skip to navigation Skip to main content

Utilities

     * Subscriptions
     * Downloads
     * Red Hat Console
     * Get Support

   Red Hat Customer Portal

     * Subscriptions
     * Downloads
     * Red Hat Console
     * Get Support
     * Products

Top Products
          + Red Hat Enterprise Linux
          + Red Hat OpenShift
          + Red Hat Ansible Automation Platform
       All Products

Downloads and Containers
          + Downloads
          + Packages
          + Containers

Top Resources
          + Product Documentation
          + Product Life Cycles
          + Product Compliance
          + Errata
     * Knowledge

Red Hat Knowledge Center
          + Knowledgebase Solutions
          + Knowledgebase Articles
          + Customer Portal Labs
          + Errata

Top Product Docs
          + Red Hat Enterprise Linux
          + Red Hat OpenShift
          + Red Hat Ansible Automation Platform
       All Product Docs
URL to open: www.yahoo.com192.168.1.152:8081
  Arrow keys: Up and Down to move.  Right to follow a link; Left to go back.
 H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list
```



```
root@ip-192-168-1-152:~
                                      Red Hat Customer Portal - Access to 24x7 support and knowledge (p1 of 7)
   #Red Hat Customer Portal

   Skip to navigation Skip to main content

Utilities

     * Subscriptions
     * Downloads
     * Red Hat Console
     * Get Support

   Red Hat Customer Portal

     * Subscriptions
     * Downloads
     * Red Hat Console
     * Get Support
     * Products

Top Products
          + Red Hat Enterprise Linux
          + Red Hat OpenShift
          + Red Hat Ansible Automation Platform
       All Products

Downloads and Containers
          + Downloads
          + Packages
          + Containers

Top Resources
          + Product Documentation
          + Product Life Cycles
          + Product Compliance
          + Errata
     * Knowledge

Red Hat Knowledge Center
          + Knowledgebase Solutions
          + Knowledgebase Articles
          + Customer Portal Labs
          + Errata

Top Product Docs
          + Red Hat Enterprise Linux
          + Red Hat OpenShift
          + Red Hat Ansible Automation Platform
       All Product Docs
Looking up www.www.yahoo.com192.168.1.152.net, guessing...
  Arrow keys: Up and Down to move.  Right to follow a link; Left to go back.
 H)elp O)ptions P)rint G)o M)ain screen Q)uit /=search [delete]=history list
```

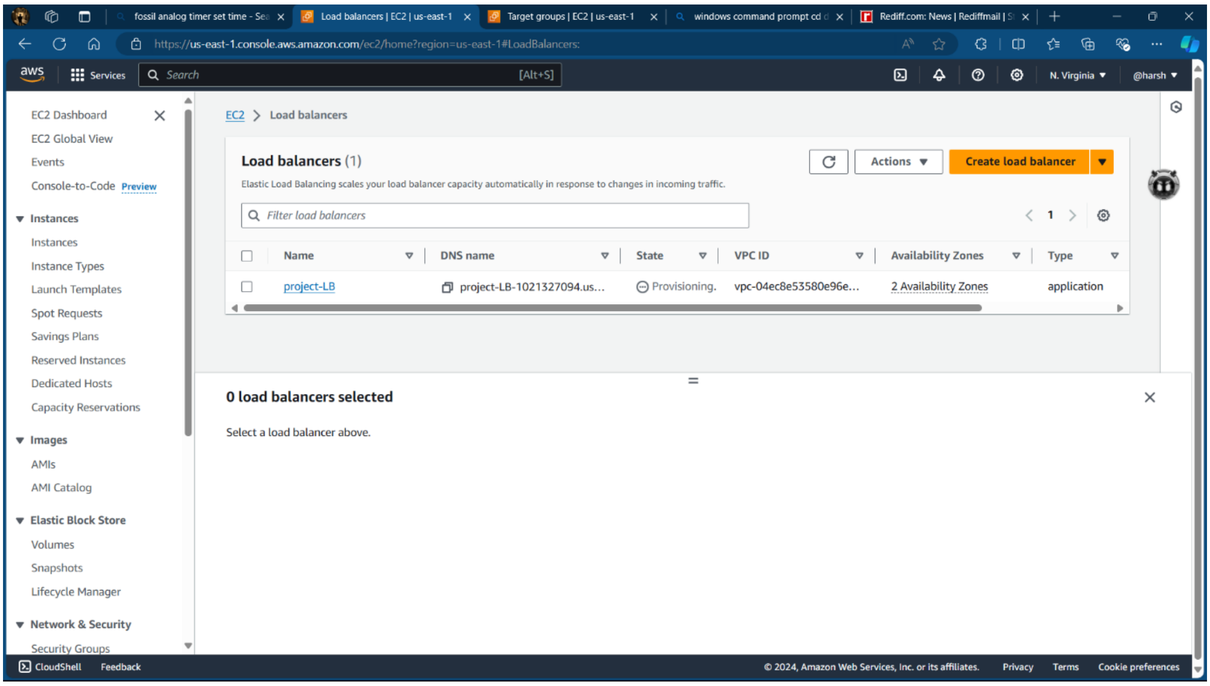
CONFIGURING A LOAD BALANCER

Load Balancer Creation:

Created an application load balancer (ALB) to distribute incoming traffic across multiple instances.

Configured the ALB to listen on port 80 and route traffic to the target group containing the public instance.

- Created a target group and added the public instance (public instance) to this group.



EC2 > Load balancers

Load balancers (1)

Actions ▼ | Create load balancer ▼

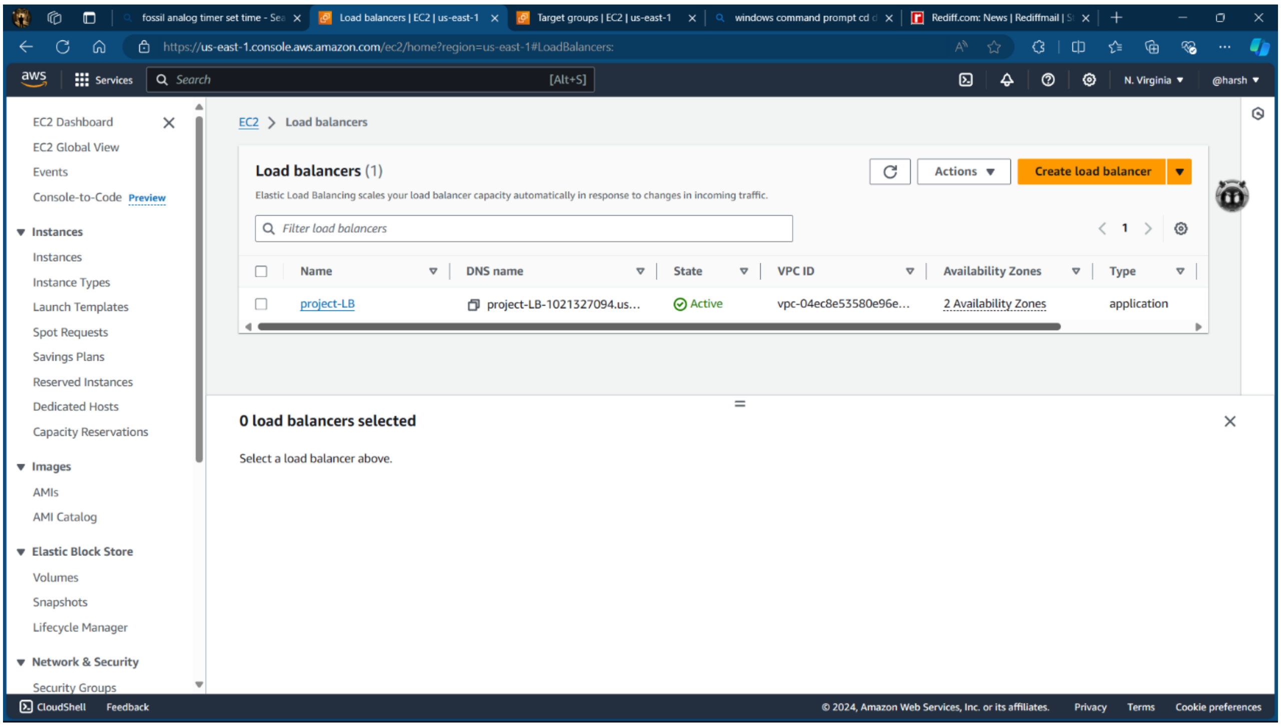
Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter load balancers

□	Name	DNS name	State	VPC ID	Availability Zones	Type
□	project-LB	project-LB-1021327094.us...	Provisioning.	vpc-04ec8e53580e96e...	2 Availability Zones	application

0 load balancers selected

Select a load balancer above.



EC2 > Load balancers

Load balancers (1)

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

□	Name	DNS name	State	VPC ID	Availability Zones	Type
□	project-LB	project-LB-1021327094.us...	Active	vpc-04ec8e53580e96e...	2 Availability Zones	application

0 load balancers selected

Select a load balancer above.

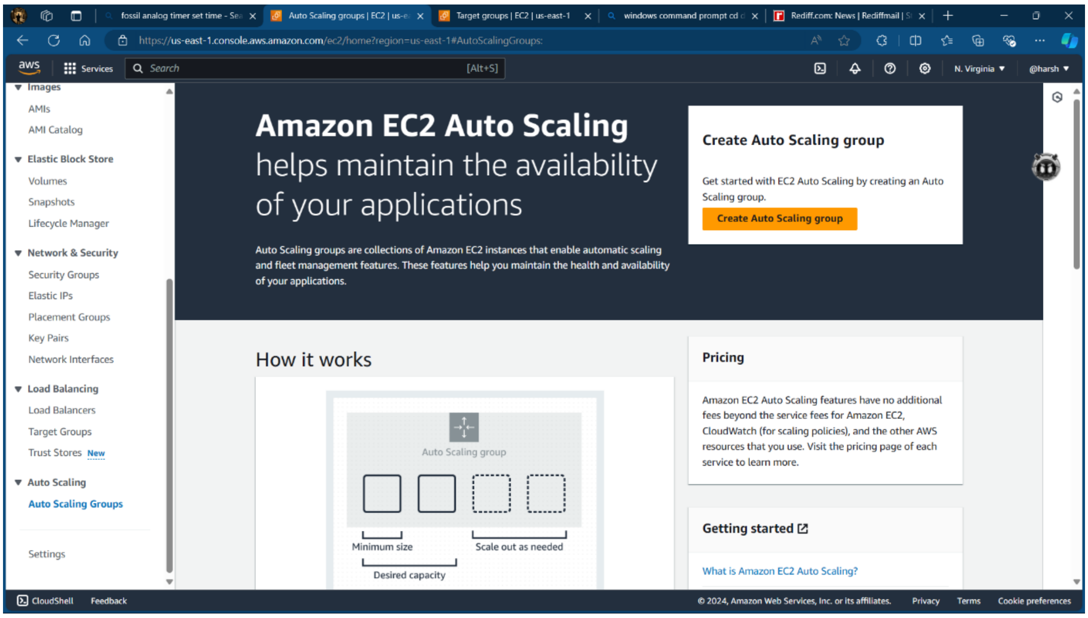
SETTING UP AUTO SCALING

- Launch Configuration/Template:

Created a launch configuration/template specifying the AMI ID, instance, and security groups to be used for auto-scaling.

Auto Scaling Group:

Created an auto-scaling group using the launch configuration/template.
Defined the minimum, maximum, and desired number of instances.
Configured scaling policies based on CPU utilization to automatically scale the number of instances.



Amazon EC2 Auto Scaling helps maintain the availability of your applications

Auto Scaling groups are collections of Amazon EC2 instances that enable automatic scaling and fleet management features. These features help you maintain the health and availability of your applications.

Create Auto Scaling group

Get started with EC2 Auto Scaling by creating an Auto Scaling group.

Create Auto Scaling group

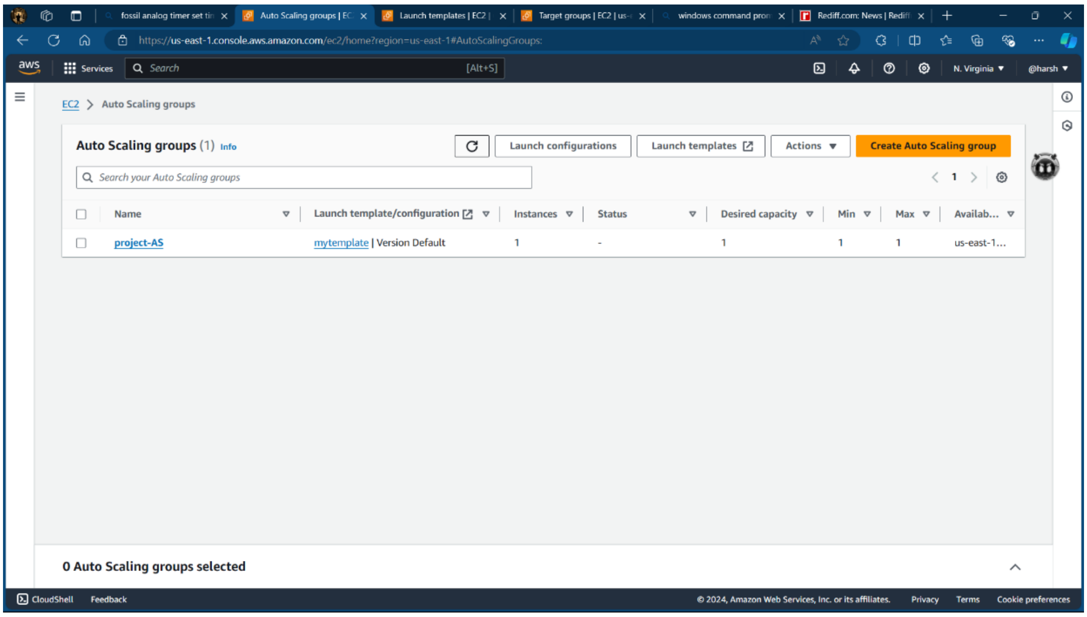
How it works

Pricing

Amazon EC2 Auto Scaling features have no additional fees beyond the service fees for Amazon EC2, CloudWatch (for scaling policies), and the other AWS resources that you use. Visit the pricing page of each service to learn more.

Getting started

What is Amazon EC2 Auto Scaling?


fossil analog timer set ti
Auto Scaling groups | EC
Launch templates | EC2 |
Target groups | EC2 | us-
windows command prom
Rediff.com: News | Rediff
https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AutoScalingGroups:
aws
Services
Search
[Alt+S]
N. Virginia
@harsh
EC2
Auto Scaling groups
Launch configurations
Launch templates
Actions
Create Auto Scaling group
Search your Auto Scaling groups
1
CloudShell
Feedback
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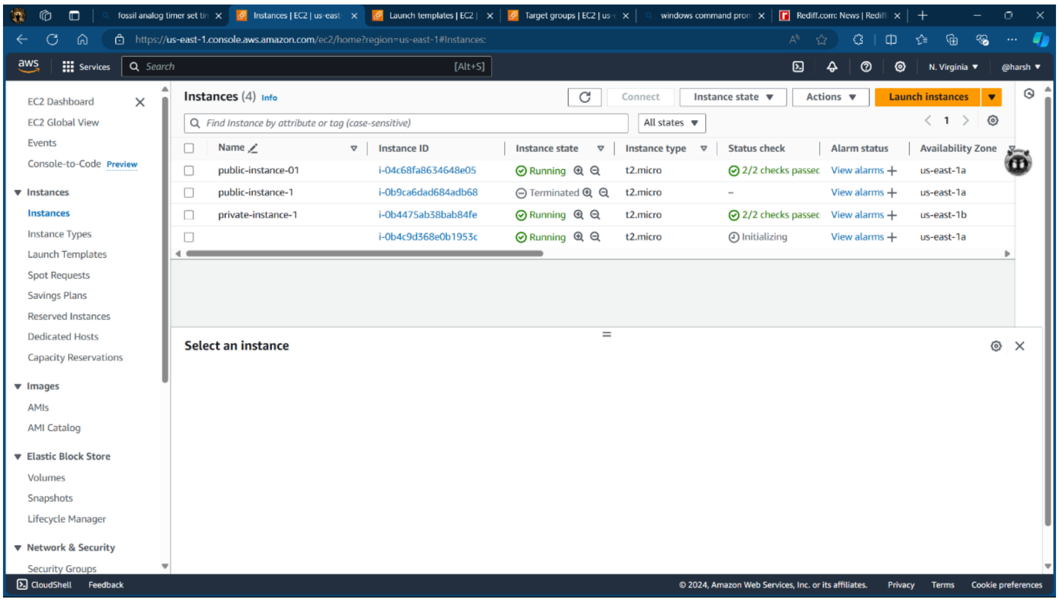
Privacy
Terms
Cookie preferences

Auto Scaling groups (1) Info

□	Name	Launch template/configuration	Instances	Status	Desired capacity	Min	Max	Availab...
□	project-AS	mytemplate | Version Default	1	-	1	1	1	us-east-1...

0 Auto Scaling groups selected

Auto Scaling plays a crucial roe in maintaining the availability and performance of my application. By automatically adjusting the number of EC2 instances in response to traffic patterns and demand.



https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:

Instances (4)

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
□	public-instance-01	i-04c68fa8634648e05	Running	t2.micro	2/2 checks passec	View alarms +	us-east-1a
□	public-instance-1	i-0b9ca6dad684adb68	Terminated	t2.micro	–	View alarms +	us-east-1a
□	private-instance-1	i-0b4475ab38bab84fe	Running	t2.micro	2/2 checks passec	View alarms +	us-east-1b
□		i-0b4c9d368e0b1953c	Running	t2.micro	Initializing	View alarms +	us-east-1a

Select an instance

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CONFIGURING EFS (ELASTIC FILE SYSTEM)

EFS Creation:
Created an Elastic File System (EFS) to provide a shared file system that can be accessed by both EC2 instances.
Mount Targets Creation:
Configured mount targets for the EFS in both subnets to allow the instances in the public and private subnets to access the EFS.

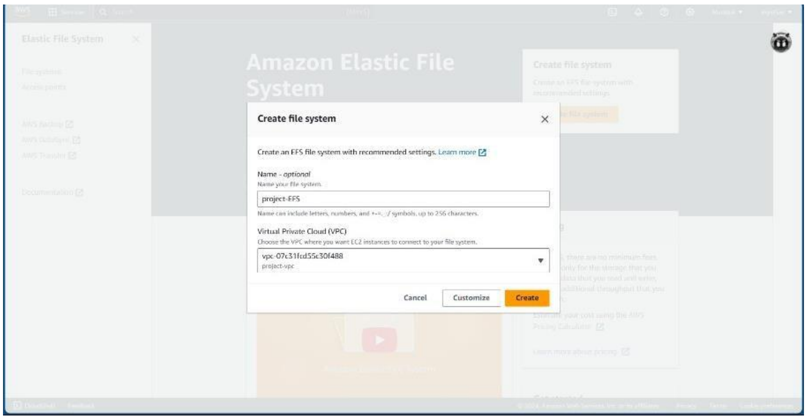
Security Group Configuration for EFS:

Configured the security group for the EFS to allow inbound traffic on port 2049, which is the NFS(Network File System) port used by EFS.

- Mounting EFS on instances:

Mounted the EFS on both the public and private instances

Verified the both instances can read and write to the shared file system.

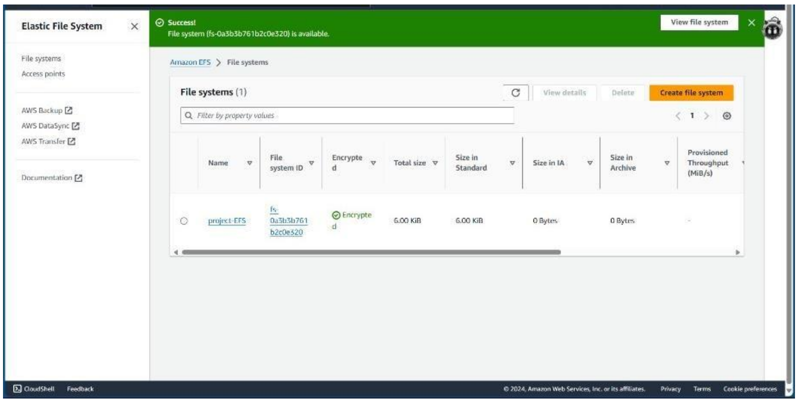


Create file system

Create an EFS file system with recommended settings. Learn more

Name - *optional*
Name your file system.
project-EFS
Name can include letters, numbers, and +-=._:/ symbols, up to 256 characters.

Virtual Private Cloud (VPC)
Choose the VPC where you want EC2 instances to connect to your file system.
vpc-07c31fcd55c30f488
project-vpc



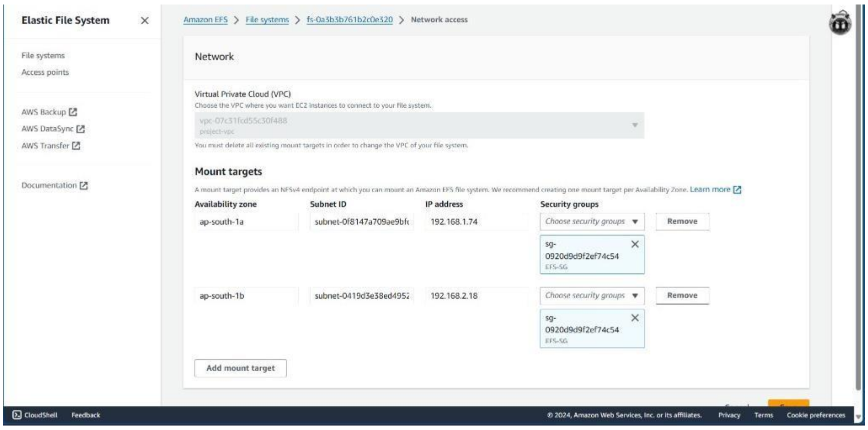
Success!
File system (fs-0a3b3b761b2c0e320) is available.

Amazon EFS > File systems

File systems (1)

	Name	File system ID	Encrypted	Total size	Size in Standard	Size in IA	Size in Archive	Provisioned Throughput (MiB/s)
○	project-EFS	fs-0a3b3b761b2c0e320	Encrypted	6.00 KiB	6.00 KiB	0 Bytes	0 Bytes	-

Edit EFS network access locate your EFS security group on both availability zones…



Amazon EFS > File systems > fs-0a3b3b761b2c0e320 > Network access

Network

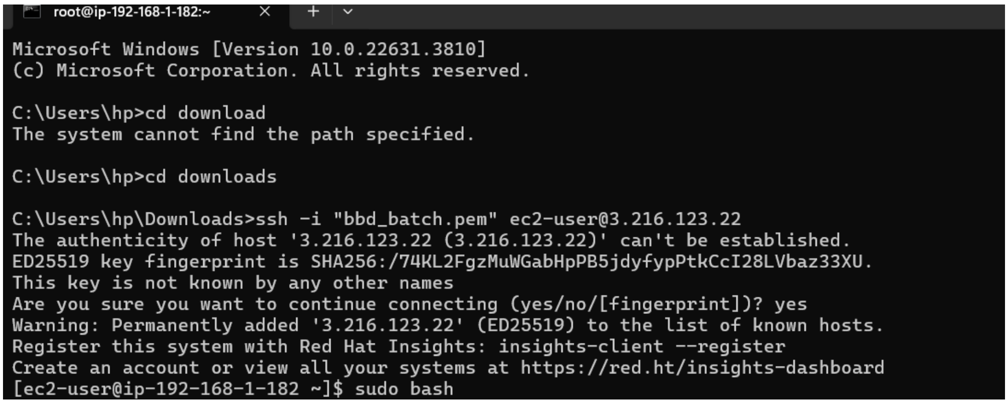
Virtual Private Cloud (VPC)
Choose the VPC where you want EC2 instances to connect to your file system.
vpc-07c31fcd55c30f488
project-vpc
You must delete all existing mount targets in order to change the VPC of your file system.

Mount targets

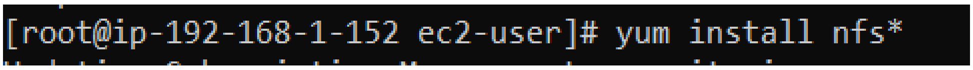
A mount target provides an NFSv4 endpoint at which you can mount an Amazon EFS file system. We recommend creating one mount target per Availability Zone. Learn more

Availability zone	Subnet ID	IP address	Security groups
ap-south-1a	subnet-0f8147a709ae9bfc	192.168.1.74	sg-0920d9d9f2ef74c54 EFS-SG
ap-south-1b	subnet-0419d3e38ed4952	192.168.2.18	sg-0920d9d9f2ef74c54 EFS-SG

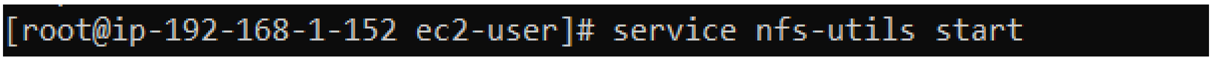
Then execute commands and mount both instances and perform tasks…



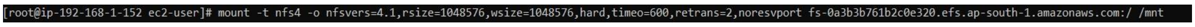
```
Microsoft Windows [Version 10.0.22631.3810]
(c) Microsoft Corporation. All rights reserved.

C:\Users\hp>cd download
The system cannot find the path specified.

C:\Users\hp>cd downloads

C:\Users\hp\Downloads>ssh -i "bbd_batch.pem" ec2-user@3.216.123.22
The authenticity of host '3.216.123.22 (3.216.123.22)' can't be established.
ED25519 key fingerprint is SHA256:/74KL2FgzMuWGabHpPB5jdyfypPtkCcI28LVbaz33XU.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '3.216.123.22' (ED25519) to the list of known hosts.
Register this system with Red Hat Insights: insights-client --register
Create an account or view all your systems at https://red.ht/insights-dashboard
[ec2-user@ip-192-168-1-182 ~]$ sudo bash
```



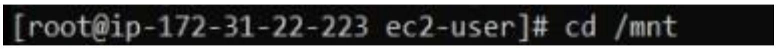
```
[root@ip-192-168-1-152 ec2-user]# yum install nfs*
```



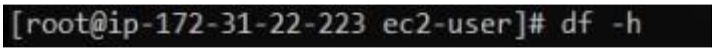
```
[root@ip-192-168-1-152 ec2-user]# service nfs-utils start
```



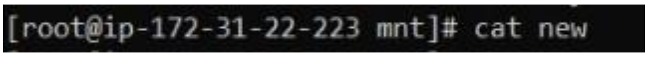
```
[root@ip-192-168-1-152 ec2-user]# mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-0a3b3b761b2c0e320.efs.ap-south-1.amazonaws.com:/ /mnt
```



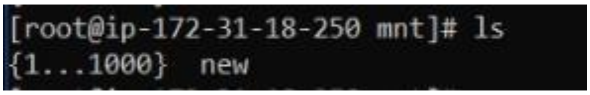
```
[root@ip-172-31-22-223 ec2-user]# cd /mnt
```



```
[root@ip-172-31-22-223 ec2-user]# df -h
```

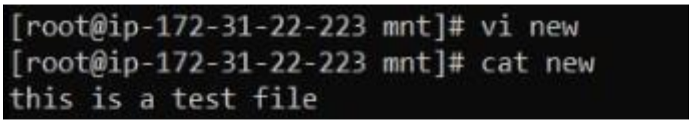


```
[root@ip-172-31-22-223 mnt]# cat new
```

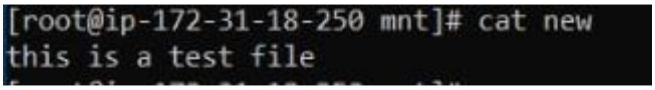


```
[root@ip-172-31-18-250 mnt]# ls
{1...1000}  new
```

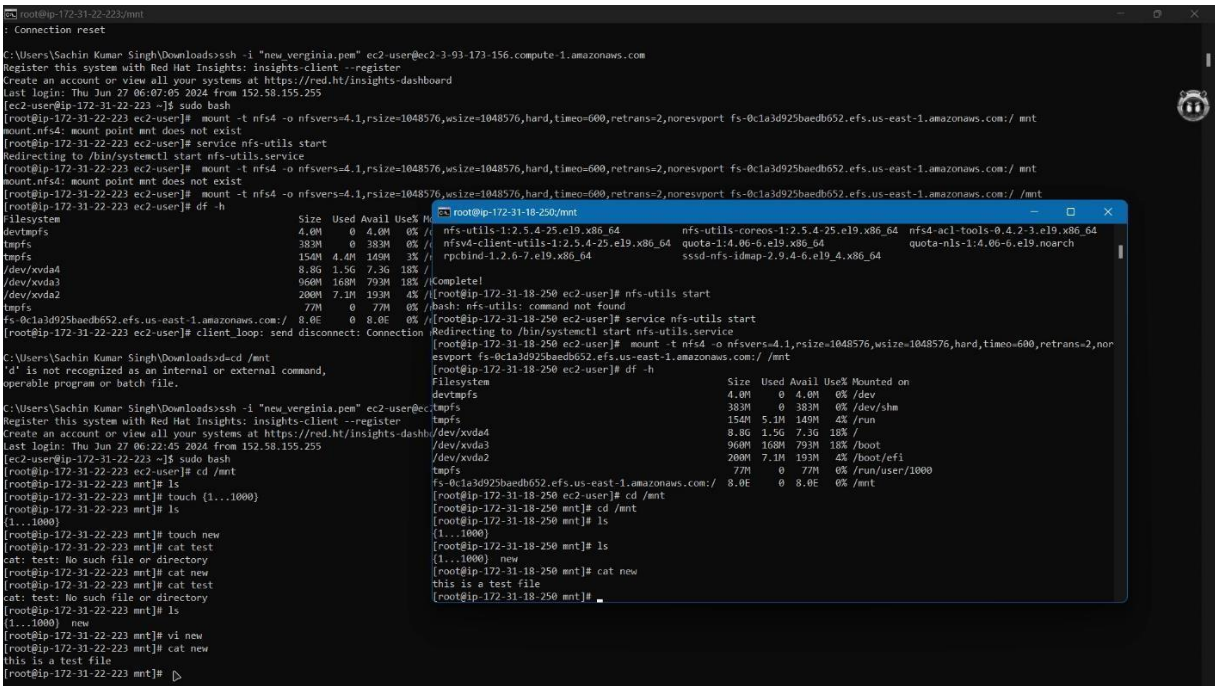
Check these files on private instances its shows same file in private… before check connect and run same commands on private instance.



```
[root@ip-172-31-22-223 mnt]# vi new
[root@ip-172-31-22-223 mnt]# cat new
this is a test file
```



```
[root@ip-172-31-18-250 mnt]# cat new
this is a test file
```



```
: Connection reset

C:\Users\Sachin Kumar Singh\Downloads>ssh -i "new_verginia.pem" ec2-user@ec2-3-93-173-156.compute-1.amazonaws.com
Register this system with Red Hat Insights: insights-client --register
Create an account or view all your systems at https://red.ht/insights-dashboard
Last login: Thu Jun 27 06:07:05 2024 from 152.58.155.255
[ec2-user@ip-172-31-22-223 ~]$ sudo bash
[root@ip-172-31-22-223 ec2-user]#  mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-0c1a3d925baedb652.efs.us-east-1.amazonaws.com:/ mnt
mount.nfs4: mount point mnt does not exist
[root@ip-172-31-22-223 ec2-user]# service nfs-utils start
Redirecting to /bin/systemctl start nfs-utils.service
[root@ip-172-31-22-223 ec2-user]#  mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-0c1a3d925baedb652.efs.us-east-1.amazonaws.com:/ mnt
mount.nfs4: mount point mnt does not exist
[root@ip-172-31-22-223 ec2-user]#  mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-0c1a3d925baedb652.efs.us-east-1.amazonaws.com:/ /mnt
[root@ip-172-31-22-223 ec2-user]# df -h
Filesystem                                      Size  Used Avail Use% Mo
devtmpfs                                        4.0M     0  4.0M   0% /
tmpfs                                           383M     0  383M   0% /
tmpfs                                           154M  4.4M  149M   3% /
/dev/xvda4                                      8.8G  1.5G  7.3G  18% /
/dev/xvda3                                      960M  168M  793M  18% /
/dev/xvda2                                      200M  7.1M  193M   4% /
tmpfs                                            77M     0   77M   0% /
fs-0c1a3d925baedb652.efs.us-east-1.amazonaws.com:/  8.0E     0  8.0E   0% /
[root@ip-172-31-22-223 ec2-user]# client_loop: send disconnect: Connection

C:\Users\Sachin Kumar Singh\Downloads>d=cd /mnt
'd' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Sachin Kumar Singh\Downloads>ssh -i "new_verginia.pem" ec2-user@ec
Register this system with Red Hat Insights: insights-client --register
Create an account or view all your systems at https://red.ht/insights-dashb
Last login: Thu Jun 27 06:22:45 2024 from 152.58.155.255
[ec2-user@ip-172-31-22-223 ~]$ sudo bash
[root@ip-172-31-22-223 ec2-user]# cd /mnt
[root@ip-172-31-22-223 mnt]# ls
[root@ip-172-31-22-223 mnt]# touch {1...1000}
[root@ip-172-31-22-223 mnt]# ls
{1...1000}
[root@ip-172-31-22-223 mnt]# touch new
[root@ip-172-31-22-223 mnt]# cat test
cat: test: No such file or directory
[root@ip-172-31-22-223 mnt]# cat new
[root@ip-172-31-22-223 mnt]# cat test
cat: test: No such file or directory
[root@ip-172-31-22-223 mnt]# ls
{1...1000}  new
[root@ip-172-31-22-223 mnt]# vi new
[root@ip-172-31-22-223 mnt]# cat new
this is a test file
[root@ip-172-31-22-223 mnt]#
```

```
 nfs-utils-1:2.5.4-25.el9.x86_64          nfs-utils-coreos-1:2.5.4-25.el9.x86_64  nfs4-acl-tools-0.4.2-3.el9.x86_64
 nfsv4-client-utils-1:2.5.4-25.el9.x86_64 quota-1:4.06-6.el9.x86_64               quota-nls-1:4.06-6.el9.noarch
 rpcbind-1.2.6-7.el9.x86_64               sssd-nfs-idmap-2.9.4-6.el9_4.x86_64

Complete!
[root@ip-172-31-18-250 ec2-user]# nfs-utils start
bash: nfs-utils: command not found
[root@ip-172-31-18-250 ec2-user]# service nfs-utils start
Redirecting to /bin/systemctl start nfs-utils.service
[root@ip-172-31-18-250 ec2-user]#  mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,nor
esvport fs-0c1a3d925baedb652.efs.us-east-1.amazonaws.com:/ /mnt
[root@ip-172-31-18-250 ec2-user]# df -h
Filesystem                                          Size  Used Avail Use% Mounted on
devtmpfs                                            4.0M     0  4.0M   0% /dev
tmpfs                                               383M     0  383M   0% /dev/shm
tmpfs                                               154M  5.1M  149M   4% /run
/dev/xvda4                                          8.8G  1.5G  7.3G  18% /
/dev/xvda3                                          960M  168M  793M  18% /boot
/dev/xvda2                                          200M  7.1M  193M   4% /boot/efi
tmpfs                                                77M     0   77M   0% /run/user/1000
fs-0c1a3d925baedb652.efs.us-east-1.amazonaws.com:/  8.0E     0  8.0E   0% /mnt
[root@ip-172-31-18-250 ec2-user]# cd /mnt
[root@ip-172-31-18-250 mnt]# cd /mnt
[root@ip-172-31-18-250 mnt]# ls
{1...1000}
[root@ip-172-31-18-250 mnt]# ls
{1...1000}  new
[root@ip-172-31-18-250 mnt]# cat new
this is a test file
[root@ip-172-31-18-250 mnt]#
```

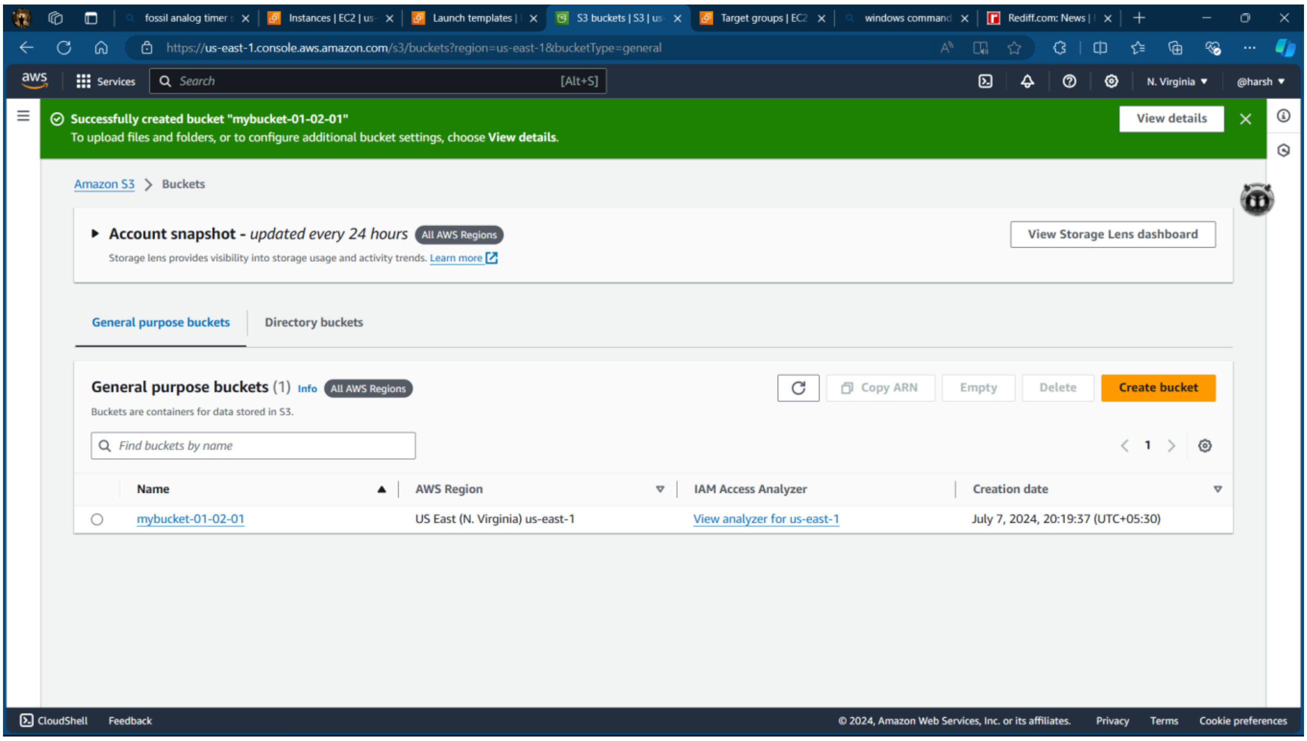
Implemented an EFS to establish a shared file system accessible by multiple RedHat Linux instances within the VPC. Configured mount targets in both public and private subnets and allowed inbound traffic on port 2049 in the EFS security group to facilitate NFS access. Mounted the EFS on instances using appropriate commands and verified seamless file access across instances.

- S3 BUCKET CONFIGURATION ON PRIVATE NETWORK:

Implemented on Amazon S3 bucket within the private subnet of the AWS Virtual Private Cloud (VPC) to securely store and manage object data.
Configured the following settings:

Bucket Creation:

Created an S3 bucket within the private subnet using the Aws management console.



https://us-east-1.console.aws.amazon.com/s3/buckets?region=us-east-1&bucketType=general

Successfully created bucket "mybucket-01-02-01"
To upload files and folders, or to configure additional bucket settings, choose **View details**.

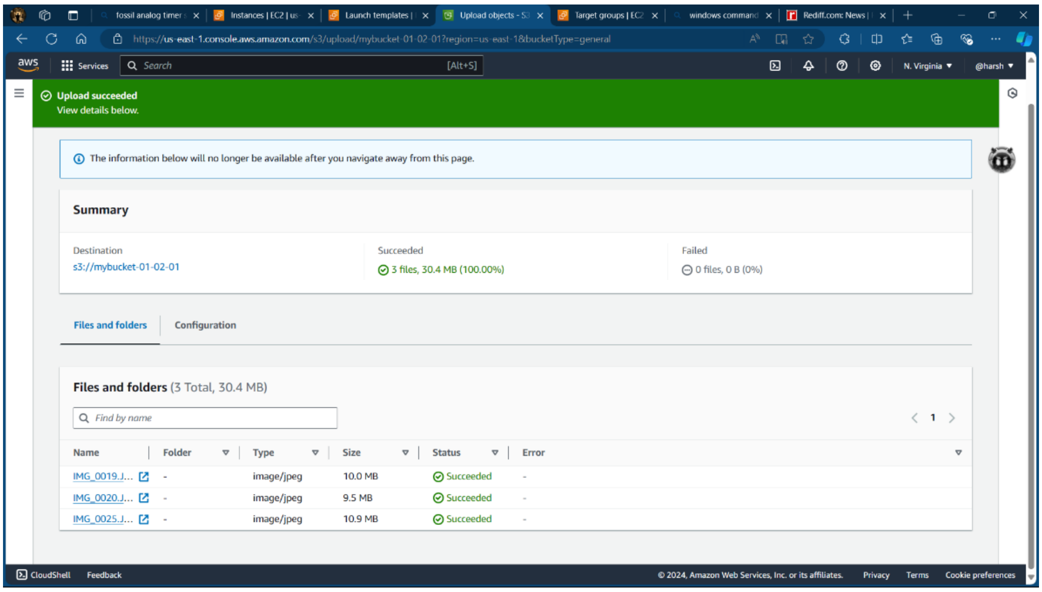
Amazon S3 > Buckets

Account snapshot - *updated every 24 hours* All AWS Regions
Storage lens provides visibility into storage usage and activity trends. Learn more

General purpose buckets (1) Info All AWS Regions
Buckets are containers for data stored in S3.

	Name	AWS Region	IAM Access Analyzer	Creation date
○	mybucket-01-02-01	US East (N. Virginia) us-east-1	View analyzer for us-east-1	July 7, 2024, 20:19:37 (UTC+05:30)

© 2024, Amazon Web Services, Inc. or its affiliates.



Upload succeeded
View details below.

The information below will no longer be available after you navigate away from this page.

Summary

Destination	Succeeded	Failed
s3://mybucket-01-02-01	3 files, 30.4 MB (100.00%)	0 files, 0 B (0%)

Files and folders (3 Total, 30.4 MB)

Name	Folder	Type	Size	Status	Error
IMG_0019.J...	-	image/jpeg	10.0 MB	Succeeded	-
IMG_0020.J...	-	image/jpeg	9.5 MB	Succeeded	-
IMG_0025.J...	-	image/jpeg	10.9 MB	Succeeded	-

https://us-east-1.console.aws.amazon.com/s3/upload/mybucket-01-02-01?region=us-east-1&bucketType=general
Services
Search
[Alt+S]
N. Virginia
@harsh
Files and folders
Configuration
Find by name
1
CloudShell
Feedback
© 2024, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

Bucket properties:

Set up bucket properties such as region selection, ensuring it resides within the private subnet for enhanced security and access control.

- Access Control:

Defined bucket policies and access control lists (ACLs) to restrict access to authorized entities only, utilizing IAM roles and policies for granular permissions management.

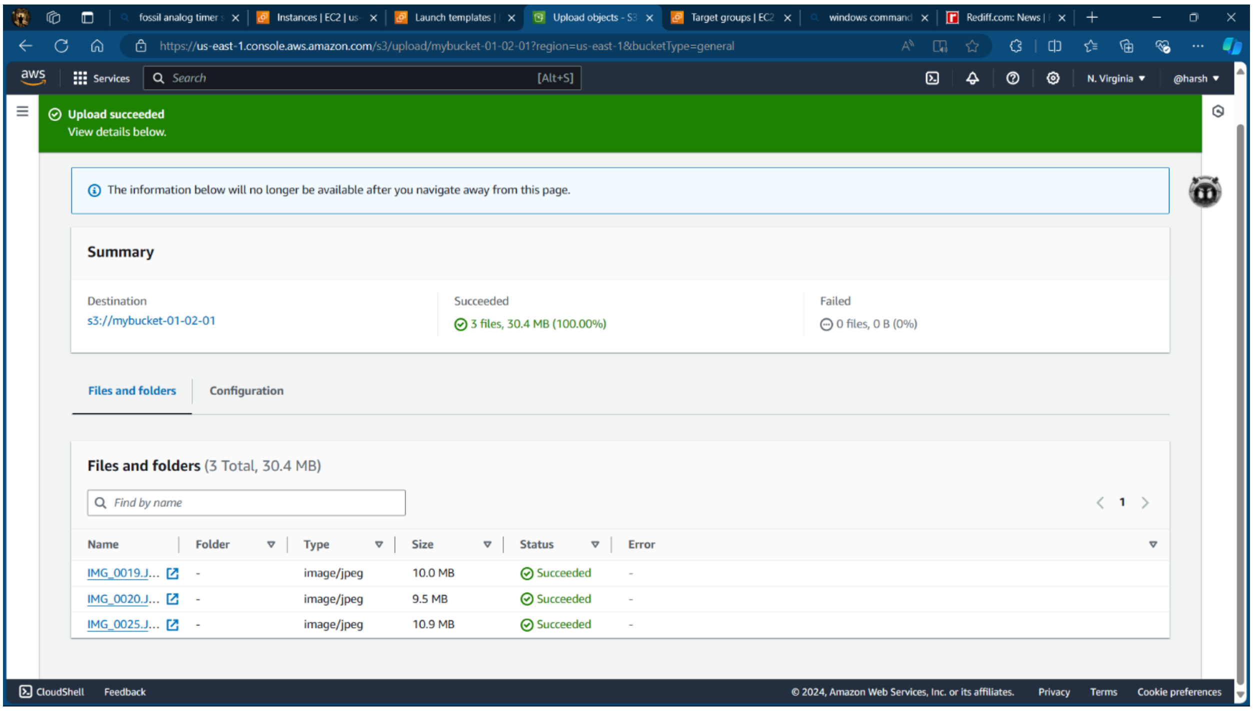
- Encryption:

Implemented encryption at rest using Amazon S3 server-side encryption (SSE) with AWS managed keys (SSE-S3) to protect data within the bucket.

OBJECT UPLOAD:

Uploaded a JPG file into the S3 bucket, ensuring it is securely stored and accessible only within the private network.

Accessing Object through Object URL:
Accessed the uploaded JPG file through the Object URL utilizing secure access mechanisms such as signed URLs or VPC endpoint to maintain data privacy.



✓ Upload succeeded
View details below.

ⓘ The information below will no longer be available after you navigate away from this page.

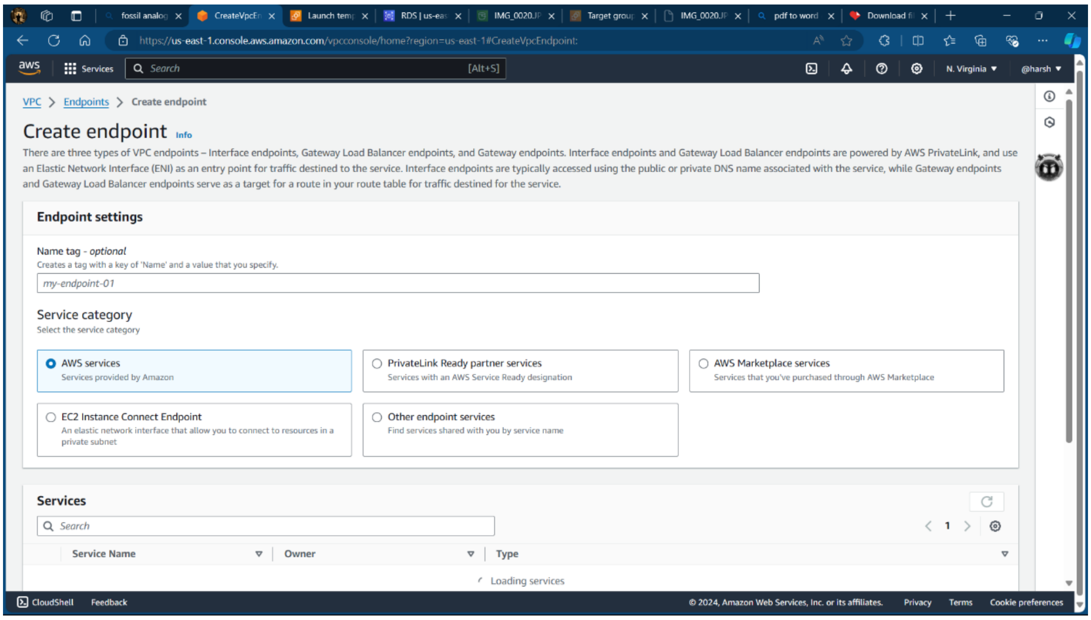
Summary

Destination	Succeeded	Failed
s3://mybucket-01-02-01	✓ 3 files, 30.4 MB (100.00%)	⊖ 0 files, 0 B (0%)

Files and folders (3 Total, 30.4 MB)

Name	Folder	Type	Size	Status	Error
IMG_0019.J...	-	image/jpeg	10.0 MB	✓ Succeeded	-
IMG_0020.J...	-	image/jpeg	9.5 MB	✓ Succeeded	-
IMG_0025.J...	-	image/jpeg	10.9 MB	✓ Succeeded	-

Using this step to connect to the private network…for using s3 services.



VPC > Endpoints > Create endpoint

Create endpoint Info

There are three types of VPC endpoints – Interface endpoints, Gateway Load Balancer endpoints, and Gateway endpoints. Interface endpoints and Gateway Load Balancer endpoints are powered by AWS PrivateLink, and use an Elastic Network Interface (ENI) as an entry point for traffic destined to the service. Interface endpoints are typically accessed using the public or private DNS name associated with the service, while Gateway endpoints and Gateway Load Balancer endpoints serve as a target for a route in your route table for traffic destined for the service.

Endpoint settings

Name tag - *optional*
Creates a tag with a key of 'Name' and a value that you specify.
my-endpoint-01

Service category
Select the service category

● AWS services
Services provided by Amazon

○ PrivateLink Ready partner services
Services with an AWS Service Ready designation

○ AWS Marketplace services
Services that you've purchased through AWS Marketplace

○ EC2 Instance Connect Endpoint
An elastic network interface that allow you to connect to resources in a private subnet

○ Other endpoint services
Find services shared with you by service name

Services

Search

Service Name	Owner	Type

Loading services

Amazon S3 (Simple Storage Service) provides scalable object storage that enables businesses to store and retrieves any amount of data from anywhere on the web.

Amazon S3 remains a fundamental component in our architecture providing scalable, secure, and highly available object storage for our applications and data management needs.

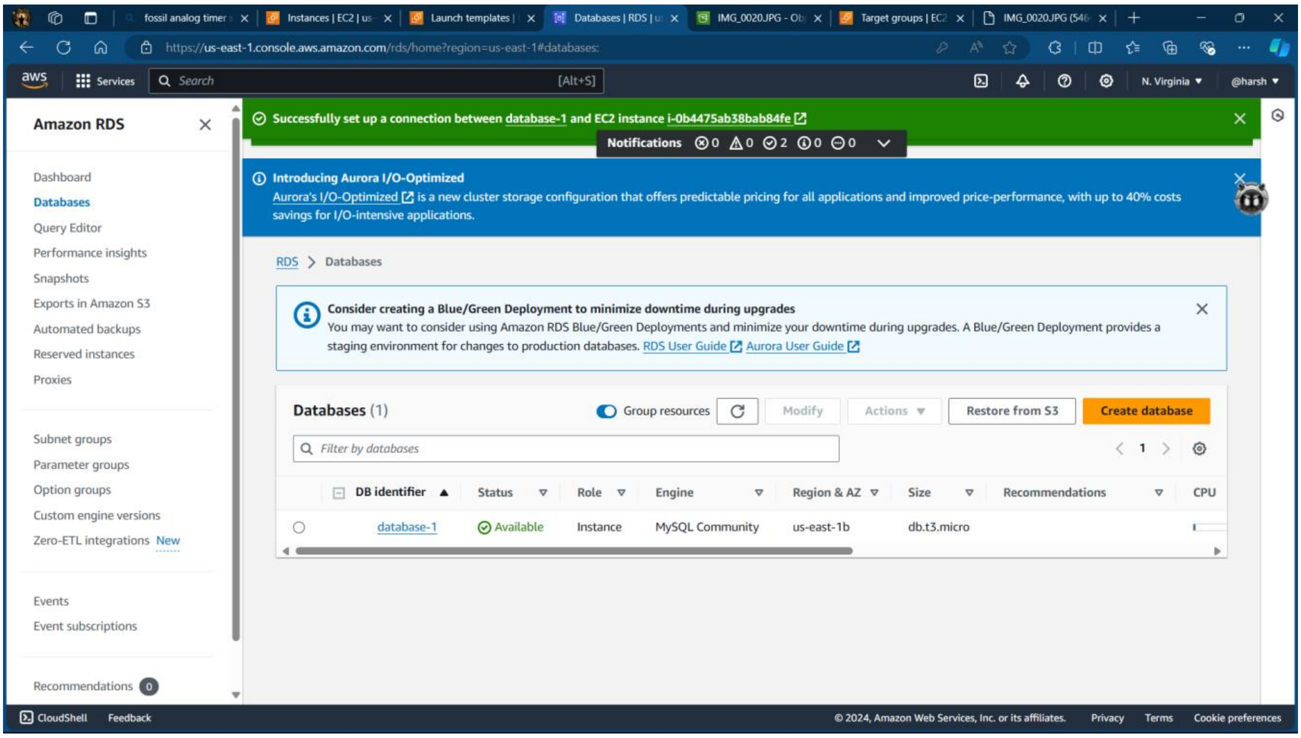
- **RDS CONFIGURATION ON PRIVATE NETWORK:**

Deployed an Amazon RDS instance within the private subnet of our AWS Virtual Private Cloud (VPC) to host a relational database securely.

Configured the following steps:

RDS Instance Creation:
Created an RDS instances names within the private subnet using the AWS management Console.

Chosen the appropriate database engine MySQL, and configured instance specifications such as instance class, storage, and allocated storage.



Successfully set up a connection between database-1 and EC2 instance i-0b4475ab38bab84fe

Introducing Aurora I/O-Optimized
Aurora's I/O-Optimized is a new cluster storage configuration that offers predictable pricing for all applications and improved price-performance, with up to 40% costs savings for I/O-intensive applications.

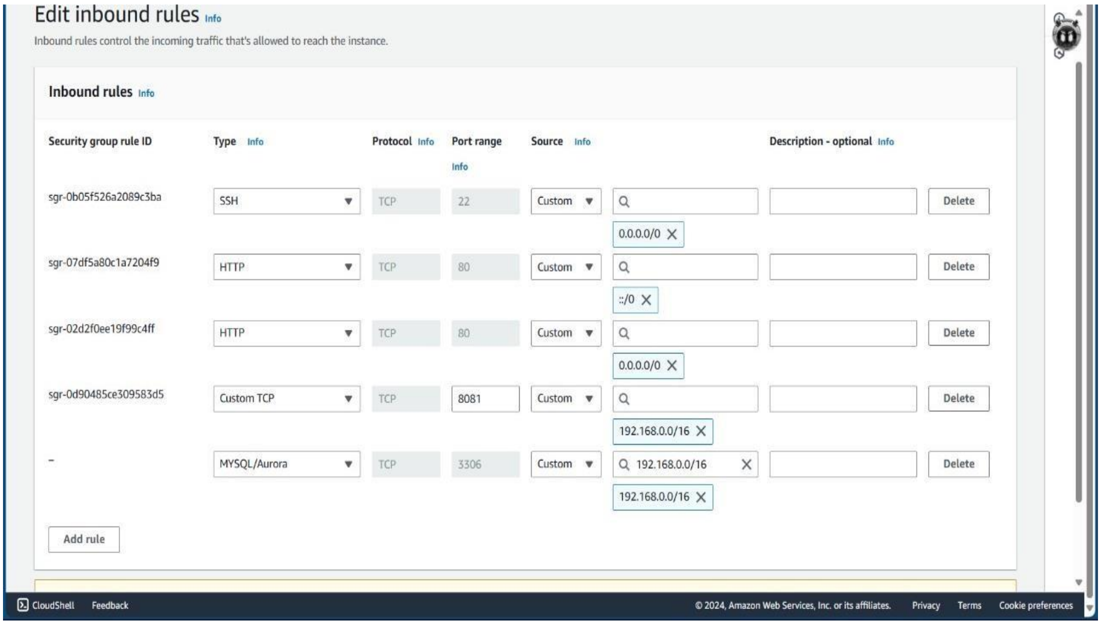
Consider creating a Blue/Green Deployment to minimize downtime during upgrades
You may want to consider using Amazon RDS Blue/Green Deployments and minimize your downtime during upgrades. A Blue/Green Deployment provides a staging environment for changes to production databases. RDS User Guide Aurora User Guide

Databases (1)

	DB identifier	Status	Role	Engine	Region & AZ	Size	Recommendations	CPU
○	database-1	Available	Instance	MySQL Community	us-east-1b	db.t3.micro		

Security Group Configuration:

Configured the security group associated with the RDS instances to allow inbound traffic on port 3306 from the private subnet this ensures that only resources within the VPC can access the database.



Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

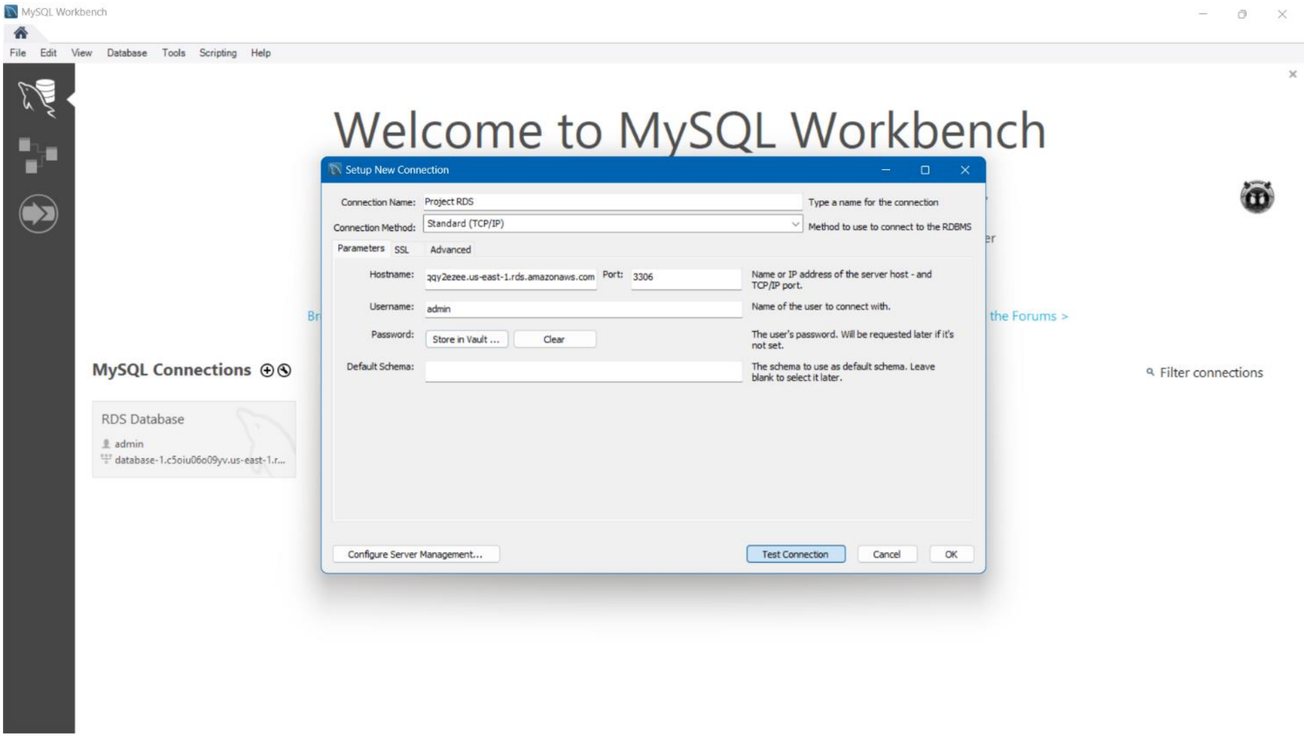
Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info		Description - optional Info	
sgr-0b05f526a2089c3ba	SSH	TCP	22	Custom	0.0.0.0/0		Delete
sgr-07df5a80c1a7204f9	HTTP	TCP	80	Custom	::/0		Delete
sgr-02d2f0ee19f99c4ff	HTTP	TCP	80	Custom	0.0.0.0/0		Delete
sgr-0d90485ce309583d5	Custom TCP	TCP	8081	Custom	192.168.0.0/16		Delete
-	MYSQL/Aurora	TCP	3306	Custom	192.168.0.0/16 192.168.0.0/16		Delete

Database Endpoint:

Obtained the endpoint ([your-db-endpoint]) of the RDS instance, which serves as the endpoint for database connections within the private network.

Testing Connection:

Verified connectivity by connecting to the RDS instance using MYSQL Workbench or any MySQL client tool. Used the RDS endpoint, database credentials, and port 3306 to establish a connection.



Connection Name: Project RDS — Type a name for the connection

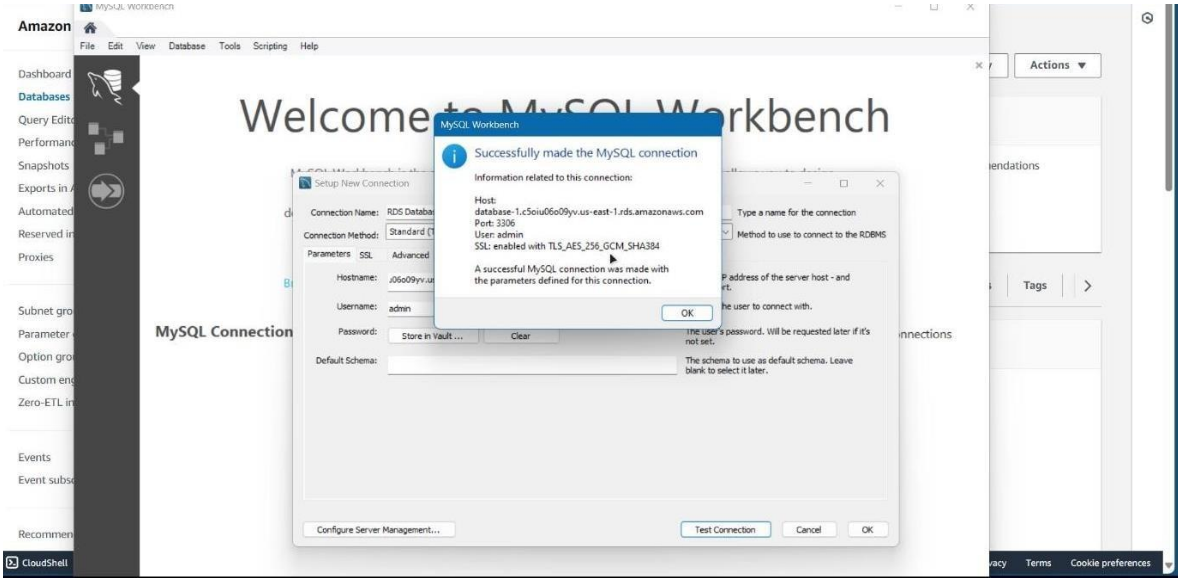
Connection Method: Standard (TCP/IP) — Method to use to connect to the RDBMS

Hostname: qqy2ezee.us-east-1.rds.amazonaws.com Port: 3306 — Name or IP address of the server host - and TCP/IP port.

Username: admin — Name of the user to connect with.

Password: — The user's password. Will be requested later if it's not set.

Default Schema: — The schema to use as default schema. Leave blank to select it later.



MySQL Workbench

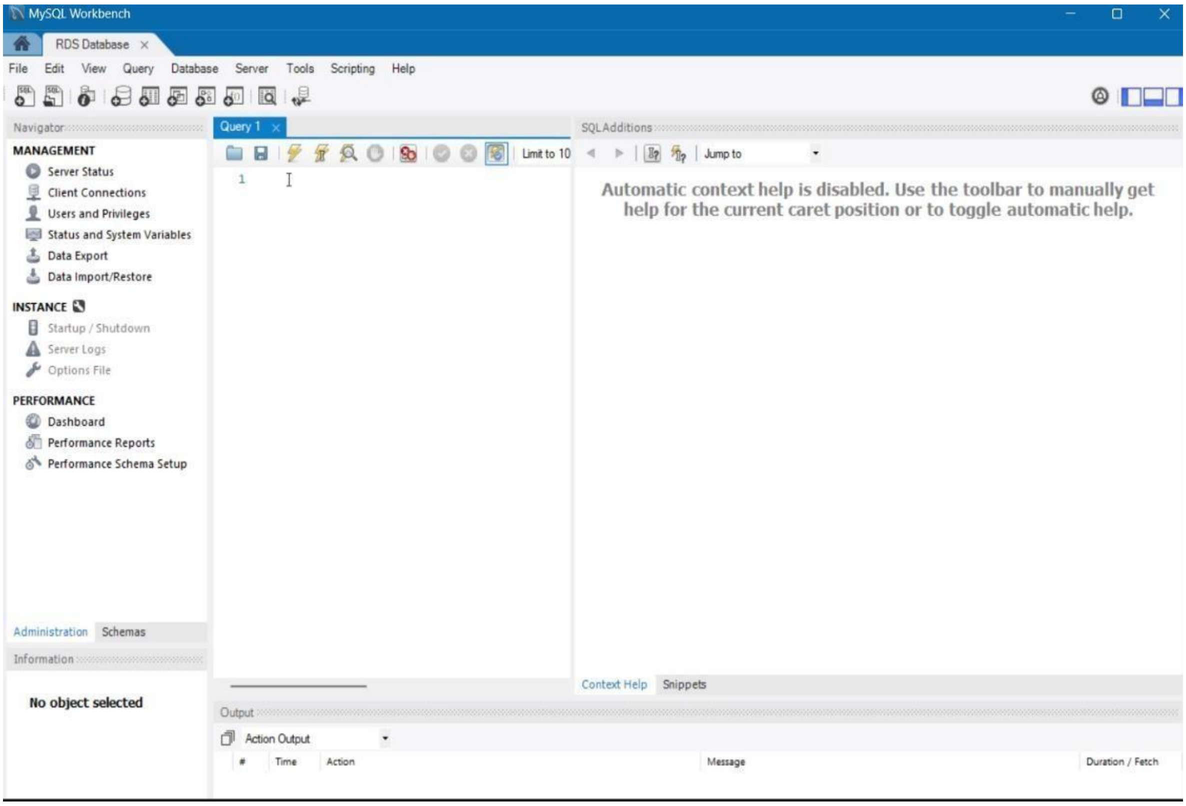
Successfully made the MySQL connection

Information related to this connection:

Host:
database-1.c5oiu06o09yv.us-east-1.rds.amazonaws.com
Port: 3306
User: admin
SSL: enabled with TLS_AES_256_GCM_SHA384

A successful MySQL connection was made with the parameters defined for this connection.

OK



Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

No object selected