Homework 3:

(task1 updated version using efs)

> creating a aws_security group(ingress- ssh,http,nfs and egress-all)
> creating a efs_file_system
> mount the efs using efs_mount_target
> creating a subnet
> launching the instance and mounting the efs using user_data
> creating a replica of an instance and access the webpage (using webui)

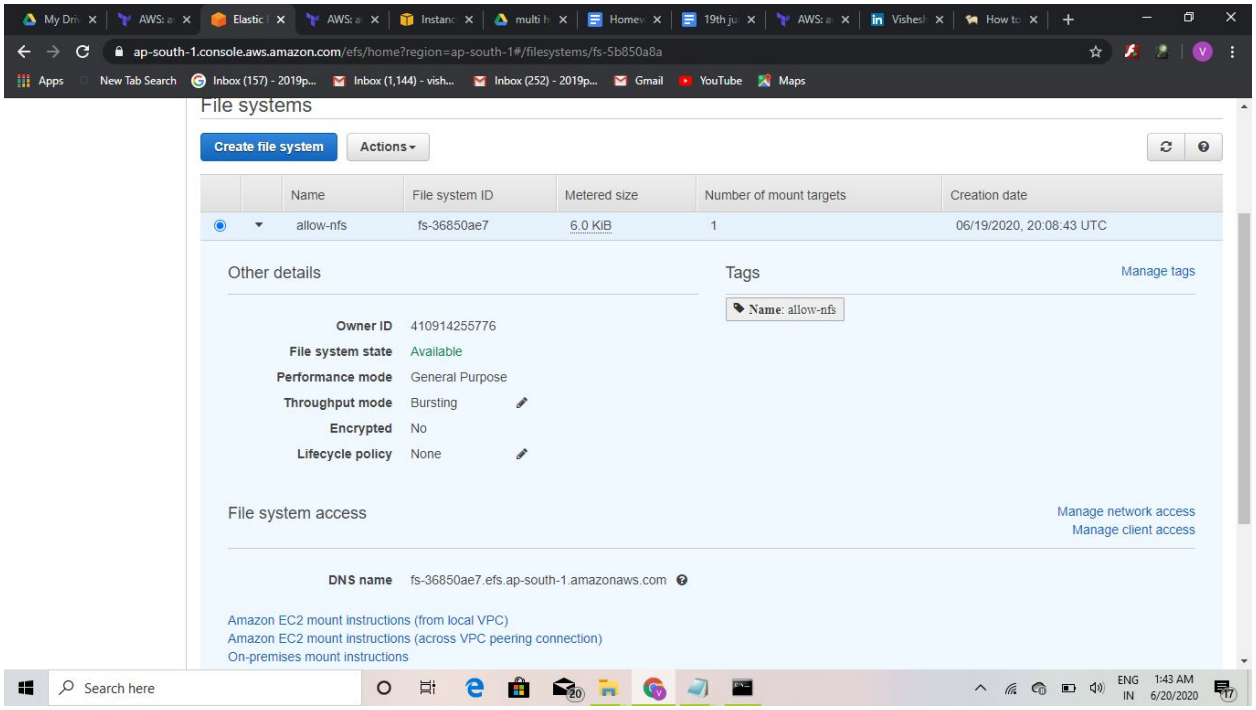
CODE:

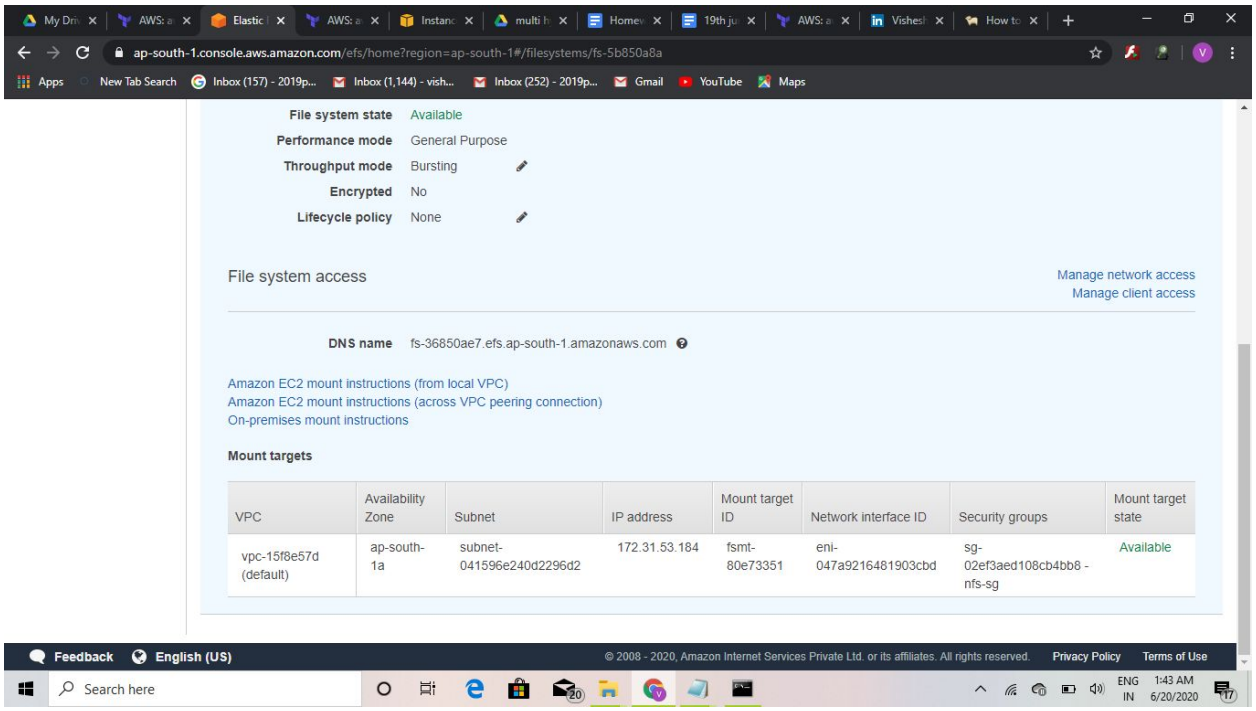
```
provider "aws" {
  region   = "ap-south-1"
  profile  = "myvishesh"
}


resource "aws_security_group" "nfs-sg" {
  name        = "nfs-sg"
  description = "Allow TLS inbound traffic"
  vpc_id      = "vpc-15f8e57d"

  ingress {
    description = "SSH"
    from_port   = 22
    to_port     = 22
    protocol    = "tcp"
    cidr_blocks = [ "0.0.0.0/0" ]
  }
  ingress {
    description = "HTTP"
    from_port   = 80
    to_port     = 80
    protocol    = "tcp"
    cidr_blocks = [ "0.0.0.0/0" ]
  }
```

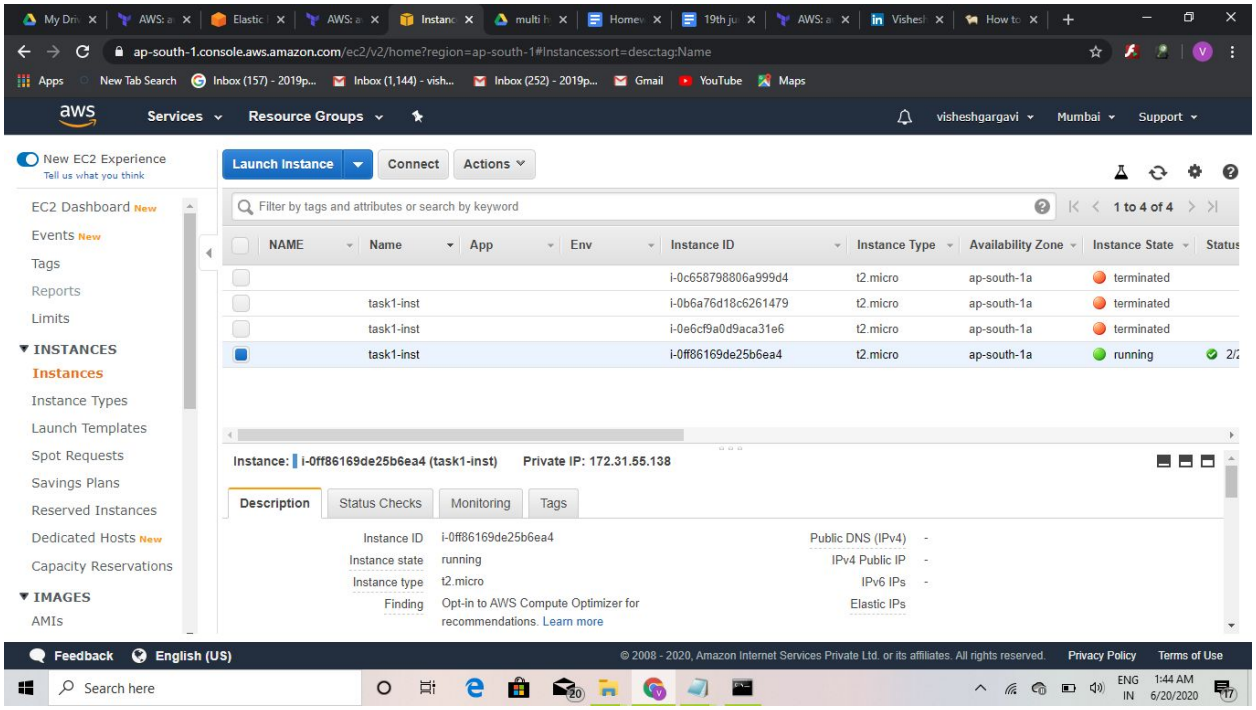
```
  ingress {
    description = "NFS"
    from_port   = 2049
    to_port     = 2049
    protocol    = "tcp"
    cidr_blocks = [ "0.0.0.0/0" ]
  }

  egress {
    from_port   = 0
    to_port     = 0
    protocol    = "-1"
    cidr_blocks = ["0.0.0.0/0"]
  }

  tags = {
    Name = "task1-sg"
  }
}
resource "aws_efs_file_system" "allow-nfs" {
  creation_token = "allow-nfs"

  tags = {
    Name = "allow-nfs"
  }
}
resource "aws_efs_mount_target" "alpha" {
  file_system_id = "${aws_efs_file_system.allow-nfs.id}"
  subnet_id      = "${aws_subnet.alpha.id}"
  security_groups = [ "${aws_security_group.nfs-sg.id}" ]
}


resource "aws_subnet" "alpha" {
  vpc_id            = "${aws_security_group.nfs-sg.vpc_id}"
  availability_zone = "ap-south-1a"
  cidr_block = "172.31.48.0/20"
}
```

```
resource "aws_instance" "task1-inst" {
  ami           = "ami-005956c5f0f757d37"
  instance_type = "t2.micro"
  availability_zone = "ap-south-1a"
  key_name      = "mykey1111.pem"
  subnet_id     = "${aws_subnet.alpha.id}"
  vpc_security_group_ids = [ "${aws_security_group.nfs-sg.id}" ]
  user_data = <<-EOF
                #! /bin/bash
                #cloud-config
                repo_update: true
                repo_upgrade: all
                sudo yum install httpd -y
                sudo systemctl start httpd
                sudo systemctl enable httpd
                yum install -y amazon-efs-utils
                 apt-get -y install amazon-efs-utils
                 yum install -y nfs-utils
                 apt-get -y install nfs-common
                 file_system_id_1="${aws_efs_file_system.allow-nfs.id}"
                 efs_mount_point_1="/var/www/html"
                 mkdir -p "$efs_mount_point_1"
                 test -f "/sbin/mount.efs" && echo "$file_system_id_1:/
                 $efs_mount_point_1 efs tls,_netdev" >> /etc/fstab || echo
                 "$file_system_id_1.efs.ap-south-1.amazonaws.com:/
                 $efs_mount_point_1 nfs4
                 nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,
                 noresvport,_netdev 0 0" >> /etc/fstab
                 test -f "/sbin/mount.efs" && echo -e "\n[client-info]\nsource=liw" >>
                 /etc/amazon/efs/efs-utils.conf
                 mount -a -t efs,nfs4 defaults
                 sudo yum install git -y
                  cd /var/www/html
                  git clone https://github.com/visheshgargavi/hybrid-task1


  EOF

  tags = {
```

```
  Name = "task1-inst"
 }
}
```






ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:sort=desc:tag:Name
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NAME
Name
App
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Instance ID
Instance Type
Availability Zone
Instance State
i-0c658798806a999d4 t2.micro ap-south-1a terminated
task1-inst i-0b6a76d18c6261479 t2.micro ap-south-1a terminated
task1-inst i-0e6cf9a0d9aca31e6 t2.micro ap-south-1a terminated
task1-inst i-0ff86169de25b6ea4 t2.micro ap-south-1a running
Instance: i-0ff86169de25b6ea4 (task1-inst) Private IP: 172.31.55.138
Description
Status Checks
Monitoring
Tags
Instance ID i-0ff86169de25b6ea4
Instance state running
Instance type t2.micro
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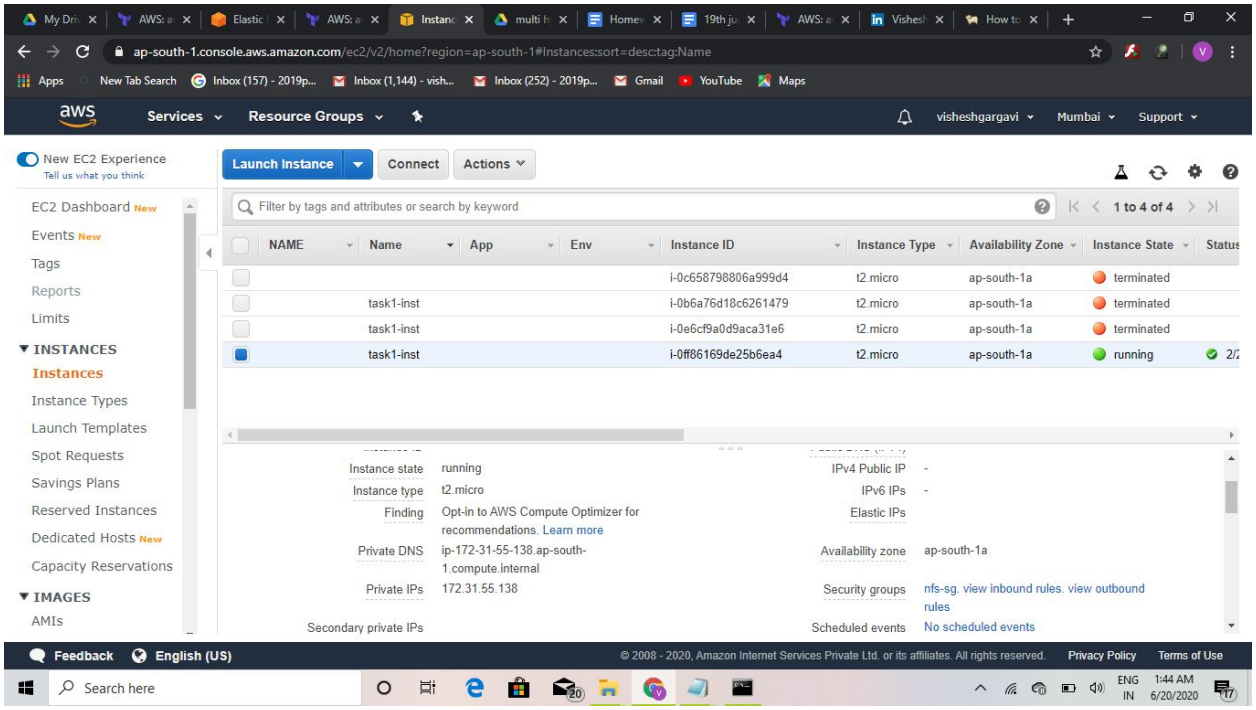
ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:sort=desc:tag:Name
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Instance Type
Availability Zone
Instance State
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task1-inst i-0b6a76d18c6261479 t2.micro ap-south-1a terminated
task1-inst i-0e6cf9a0d9aca31e6 t2.micro ap-south-1a terminated
task1-inst i-0ff86169de25b6ea4 t2.micro ap-south-1a running
Instance state running
Instance type t2.micro
Finding Opt-in to AWS Compute Optimizer for recommendations. Learn more
Private DNS ip-172-31-55-138.ap-south-1.compute.internal
Private IPs 172.31.55.138
Secondary private IPs
IPv4 Public IP -
IPv6 IPs -
Elastic IPs
Availability zone ap-south-1a
Security groups nfs-sg. view inbound rules. view outbound rules
Scheduled events No scheduled events
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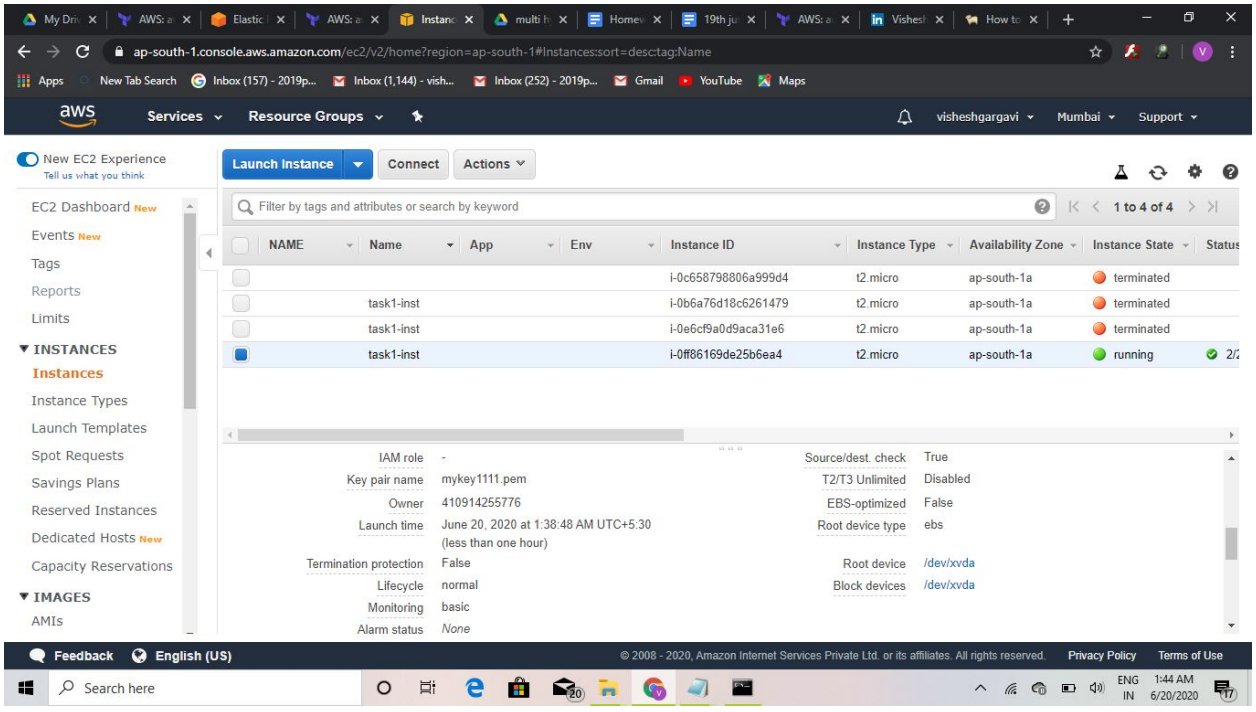
ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:sort=desc:tag:Name
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task1-inst i-0e6cf9a0d9aca31e6 t2.micro ap-south-1a terminated
task1-inst i-0ff86169de25b6ea4 t2.micro ap-south-1a running
IAM role -
Key pair name mykey1111.pem
Owner 410914255776
Launch time June 20, 2020 at 1:38:48 AM UTC+5:30 (less than one hour)
Termination protection False
Lifecycle normal
Monitoring basic
Alarm status None
Source/dest. check True
T2/T3 Unlimited Disabled
EBS-optimized False
Root device type ebs
Root device /dev/xvda
Block devices /dev/xvda
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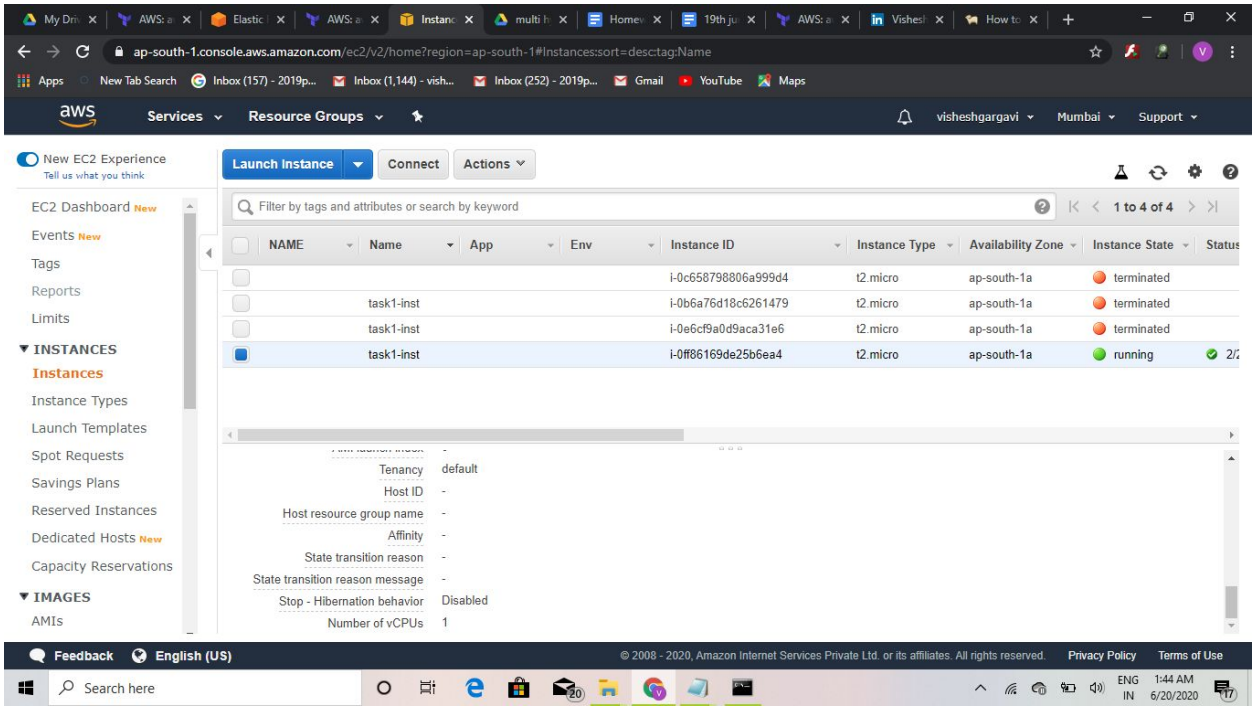
ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:sort=desc:tag:Name
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task1-inst i-0e6cf9a0d9aca31e6 t2.micro ap-south-1a terminated
task1-inst i-0ff86169de25b6ea4 t2.micro ap-south-1a running
Tenancy default
Host ID -
Host resource group name -
Affinity -
State transition reason -
State transition reason message -
Stop - Hibernation behavior Disabled
Number of vCPUs 1
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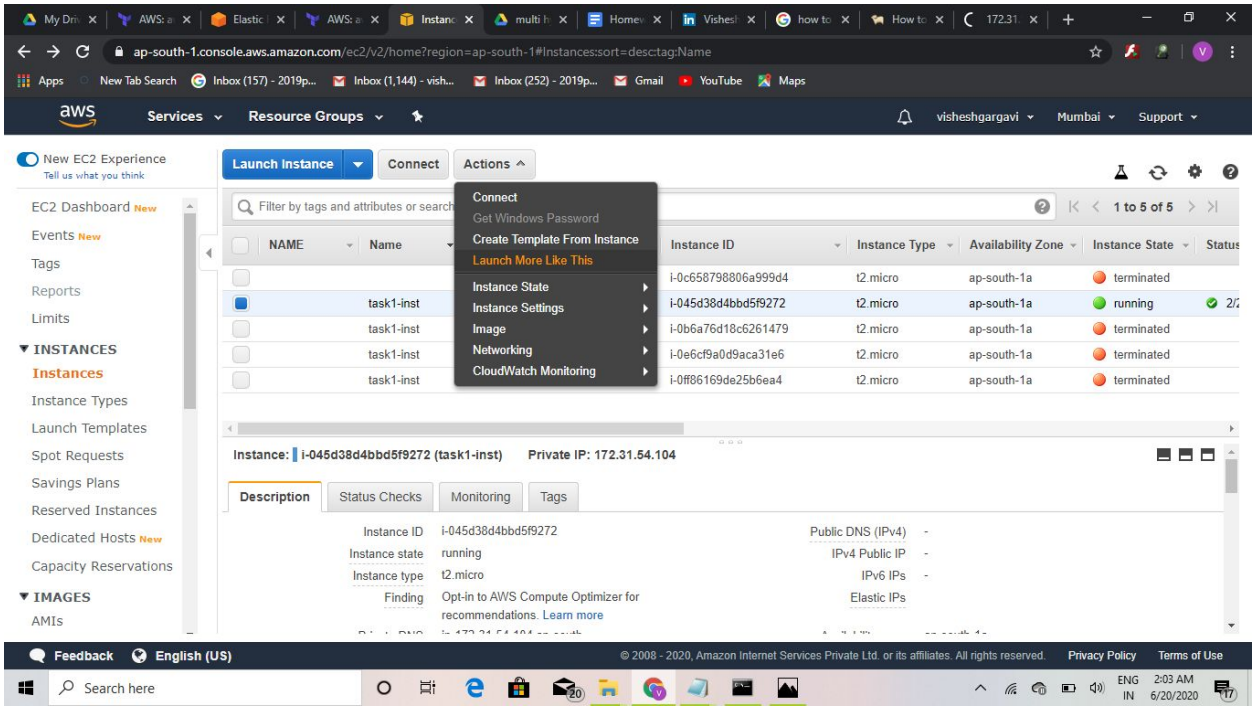
ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:sort=desc:tag:Name
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New EC2 Experience
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Connect
Actions
Connect
Get Windows Password
Create Template From Instance
Launch More Like This
Instance State
Instance Settings
Image
Networking
CloudWatch Monitoring
EC2 Dashboard
Events
Tags
Reports
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INSTANCES
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Reserved Instances
Dedicated Hosts
Capacity Reservations
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Filter by tags and attributes or search
1 to 5 of 5
NAME
Name
Instance ID
Instance Type
Availability Zone
Instance State
i-0c658798806a999d4 t2.micro ap-south-1a terminated
task1-inst i-045d38d4bbd5f9272 t2.micro ap-south-1a running
task1-inst i-0b6a76d18c6261479 t2.micro ap-south-1a terminated
task1-inst i-0e6cf9a0d9aca31e6 t2.micro ap-south-1a terminated
task1-inst i-0ff86169de25b6ea4 t2.micro ap-south-1a terminated
Instance: i-045d38d4bbd5f9272 (task1-inst)
Private IP: 172.31.54.104
Description
Status Checks
Monitoring
Tags
Instance ID i-045d38d4bbd5f9272
Instance state running
Instance type t2.micro
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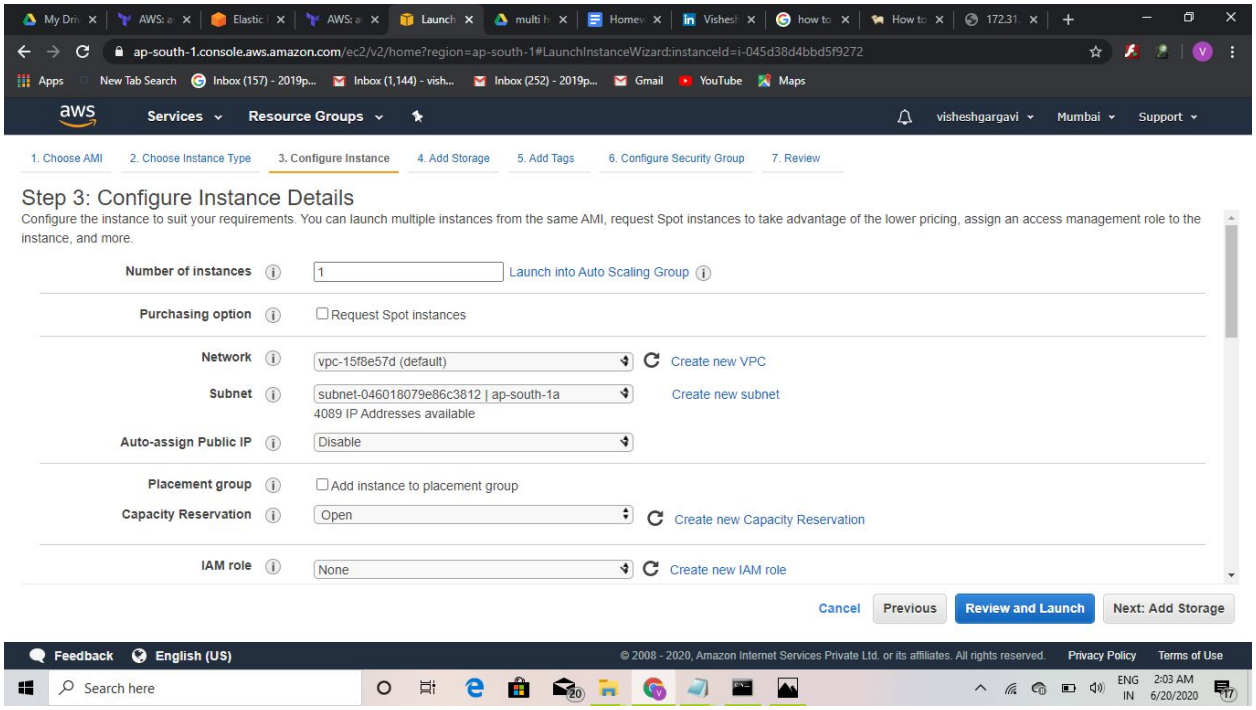
ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:instanceId=i-045d38d4bbd5f9272
Services
Resource Groups
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Support
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 3: Configure Instance Details
Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.
Number of instances 1 Launch into Auto Scaling Group
Purchasing option Request Spot instances
Network vpc-15f8e57d (default) Create new VPC
Subnet subnet-046018079e86c3812 | ap-south-1a Create new subnet
4089 IP Addresses available
Auto-assign Public IP Disable
Placement group Add instance to placement group
Capacity Reservation Open Create new Capacity Reservation
IAM role None Create new IAM role
Cancel
Previous
Review and Launch
Next: Add Storage
Feedback
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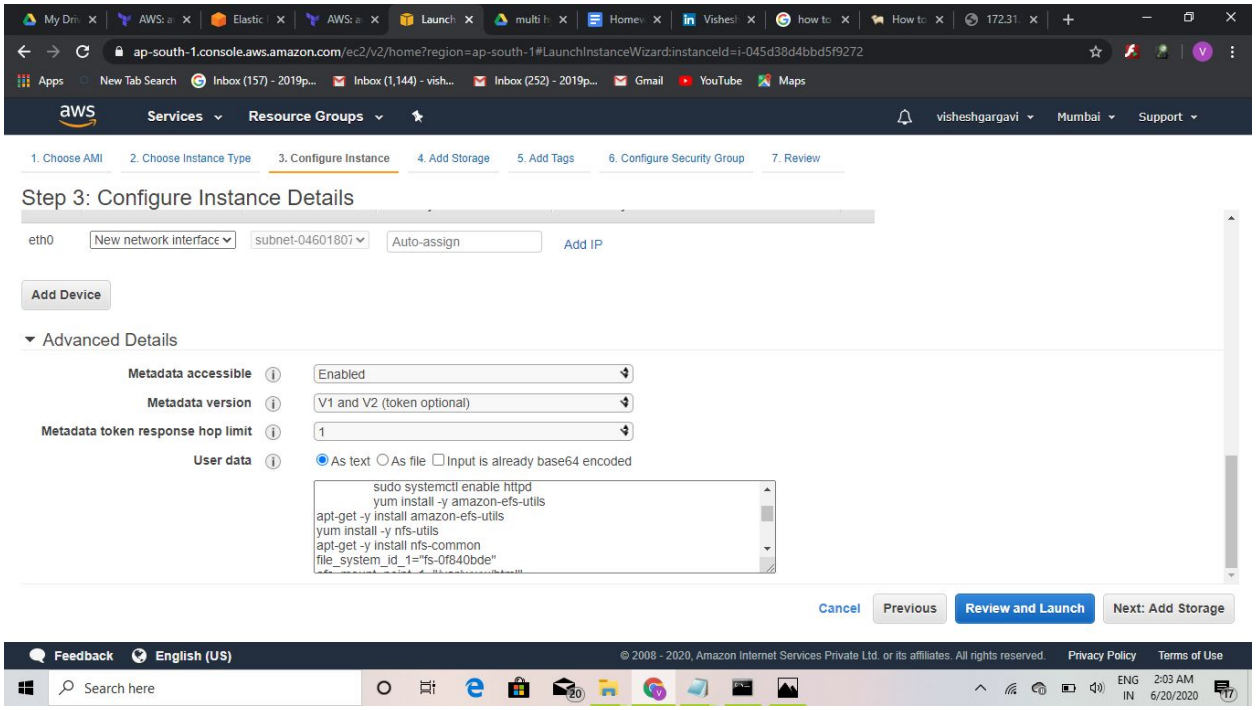
ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:instanceId=i-045d38d4bbd5f9272
Services
Resource Groups
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Support
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 3: Configure Instance Details
eth0
New network interface
Auto-assign
Add IP
Add Device
Advanced Details
Metadata accessible
Enabled
Metadata version
V1 and V2 (token optional)
Metadata token response hop limit
1
User data
As text
As file
Input is already base64 encoded
sudo systemctl enable httpd
yum install -y amazon-efs-utils
apt-get -y install amazon-efs-utils
yum install -y nfs-utils
apt-get -y install nfs-common
file_system_id_1="fs-0f840bde"
Cancel
Previous
Review and Launch
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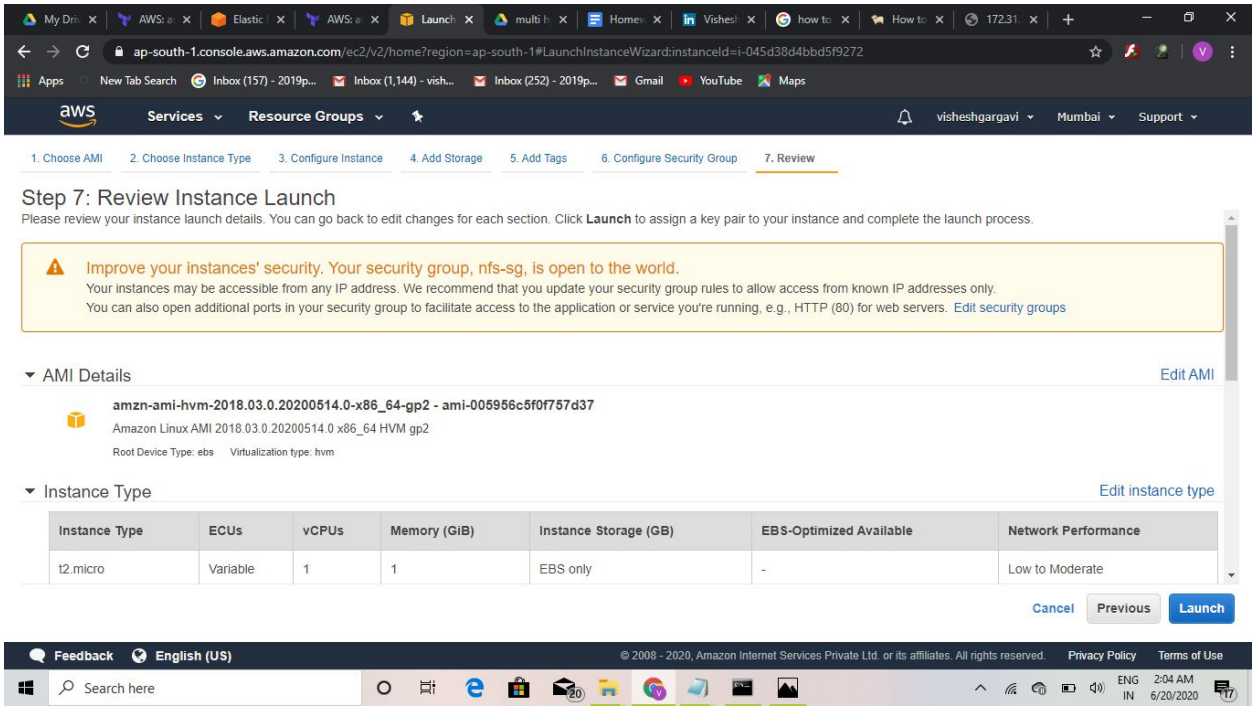
ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:instanceId=i-045d38d4bbd5f9272
Services
Resource Groups
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Support
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 7: Review Instance Launch
Please review your instance launch details. You can go back to edit changes for each section. Click Launch to assign a key pair to your instance and complete the launch process.
Improve your instances' security. Your security group, nfs-sg, is open to the world.
Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.
You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. Edit security groups
AMI Details
Edit AMI
amzn-ami-hvm-2018.03.0.20200514.0-x86_64-gp2 - ami-005956c5f0f757d37
Amazon Linux AMI 2018.03.0.20200514.0 x86_64 HVM gp2
Root Device Type: ebs
Virtualization type: hvm
Instance Type
Edit instance type
Instance Type
ECUs
vCPUs
Memory (GiB)
Instance Storage (GB)
EBS-Optimized Available
Network Performance
t2.micro
Variable
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1
EBS only
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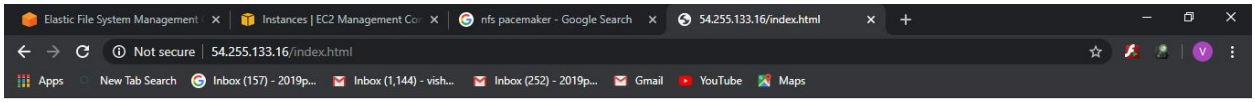

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```
yum install -y amazon-efs-utils
apt-get -y install amazon-efs-utils
yum install -y nfs-utils
apt-get -y install nfs-common
file_system_id_1="${aws_efs_file_system.allow-nfs.id}"
efs_mount_point_1="/var/www/html"
mkdir -p "${efs_mount_point_1}"
test -f "/sbin/mount.efs" && echo "$file_system_id_1:/ $efs_mount_point_1 efs tls,_netdev" >> /etc/fstab ||
echo "$file_system_id_1.efs.ap-south-1.amazonaws.com:/ ${efs_mount_point_1}
nfs4 nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport,_netdev 0 0" >> /etc/fstab

test -f "/sbin/mount.efs" && echo -e "\n[client-info]\nsource=liw" >> /etc/amazon/efs/efs-utils.conf
mount -a -t efs,nfs4 defaults
```