

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,wsz=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

```

EOF

```
tags = {
```

Name = "task1-inst"

```
}  
}
```

The screenshot shows the AWS Management Console for the 'File systems' page. The browser address bar indicates the URL: `ap-south-1.console.aws.amazon.com/efs/home?region=ap-south-1#/fileystems/fs-5b850a8a`. The page title is 'File systems'. Below the title, there is a 'Create file system' button and an 'Actions' dropdown. A table lists the file system details:

	Name	File system ID	Metered size	Number of mount targets	Creation date
Selected	allow-nfs	fs-36850ae7	6.0 KiB	1	06/19/2020, 20:08:43 UTC

Below the table, there are sections for 'Other details' and 'Tags'. The 'Other details' section includes:

- Owner ID: 410914255776
- File system state: Available
- Performance mode: General Purpose
- Throughput mode: Bursting
- Encrypted: No
- Lifecycle policy: None

The 'Tags' section shows a single tag: 'Name: allow-nfs'. There are also links for 'Manage tags', 'Manage network access', and 'Manage client access'. The 'File system access' section shows the 'DNS name' as `fs-36850ae7.efs.ap-south-1.amazonaws.com`. At the bottom, there are links for 'Amazon EC2 mount instructions (from local VPC)', 'Amazon EC2 mount instructions (across VPC peering connection)', and 'On-premises mount instructions'.

This screenshot shows the 'Mount targets' section of the AWS Management Console for the 'allow-nfs' file system. The 'File system state' is 'Available'. The 'Performance mode' is 'General Purpose', 'Throughput mode' is 'Bursting', 'Encrypted' is 'No', and 'Lifecycle policy' is 'None'. The 'DNS name' is `fs-36850ae7.efs.ap-south-1.amazonaws.com`. The 'Mount targets' section contains a table with the following data:

VPC	Availability Zone	Subnet	IP address	Mount target ID	Network interface ID	Security groups	Mount target state
vpc-15f8e57d (default)	ap-south-1a	subnet-041596e240d2296d2	172.31.53.184	fsmt-80e73351	eni-047a9216481903cbd	sg-02ef3aed108cb4bb8 - nfs-sg	Available

At the bottom of the console, there is a footer with 'Feedback', 'English (US)', and copyright information: '© 2008 - 2020, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved.' There are also links for 'Privacy Policy' and 'Terms of Use'.

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ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:sort=desc:tag:Name

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	Name	App	Env	Instance ID	Instance Type	Availability Zone	Instance State	Status
				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	2%

Instance: i-0ff86169de25b6ea4 (task1-inst) Private IP: 172.31.55.138

Description Status Checks Monitoring Tags

Instance ID i-0ff86169de25b6ea4 Public DNS (IPv4) -
Instance state running IPv4 Public IP -
Instance type t2.micro IPv6 IPs -
Finding Opt-in to AWS Compute Optimizer for recommendations. Learn more Elastic IPs

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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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Filter by tags and attributes or search by keyword

NAME	Name	App	Env	Instance ID	Instance Type	Availability Zone	Instance State	Status
				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	2%

Instance state running IPv4 Public IP -
Instance type t2.micro IPv6 IPs -
Finding Opt-in to AWS Compute Optimizer for recommendations. Learn more Elastic IPs

Private DNS ip-172-31-55-138.ap-south-1.compute.internal Availability zone ap-south-1a
Private IPs 172.31.55.138 Security groups nfs-sg. view inbound rules. view outbound rules
Secondary private IPs 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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Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

1 to 4 of 4

NAME	Name	App	Env	Instance ID	Instance Type	Availability Zone	Instance State	Status
				i-0c658798806a999d4	t2.micro	ap-south-1a	terminated	
	task1-inst			i-0b6a76d18c261479	t2.micro	ap-south-1a	terminated	
	task1-inst			i-0e6cf9a0d9aca31e6	t2.micro	ap-south-1a	terminated	
	task1-inst			i-0f86169de25b6ea4	t2.micro	ap-south-1a	running	2%

IAM role - Source/dest. check True
Key pair name mykey1111.pem T2/T3 Unlimited
Owner 410914255776 EBS-optimized False
Launch time June 20, 2020 at 1:38:48 AM UTC+5:30 Root device type ebs
(less than one hour)
Termination protection False Root device /dev/xvda
Lifecycle normal Block devices /dev/xvda
Monitoring basic
Alarm status None

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ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:sort=desc:tag:Name

Services Resource Groups

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Launch Instance Connect Actions

Filter by tags and attributes or search by keyword

1 to 4 of 4

NAME	Name	App	Env	Instance ID	Instance Type	Availability Zone	Instance State	Status
				i-0c658798806a999d4	t2.micro	ap-south-1a	terminated	
	task1-inst			i-0b6a76d18c261479	t2.micro	ap-south-1a	terminated	
	task1-inst			i-0e6cf9a0d9aca31e6	t2.micro	ap-south-1a	terminated	
	task1-inst			i-0f86169de25b6ea4	t2.micro	ap-south-1a	running	2%

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

Services Resource Groups

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Launch Instance Connect Actions

Filter by tags and attributes or search

NAME Name

task1-inst

task1-inst

task1-inst

task1-inst

task1-inst

Connect
Get Windows Password
Create Template From Instance
Launch More Like This
Instance State
Instance Settings
Image
Networking
CloudWatch Monitoring

Instance ID	Instance Type	Availability Zone	Instance State	Status
i-0c658798806a999d4	t2.micro	ap-south-1a	terminated	
i-045d38d4bbd5f9272	t2.micro	ap-south-1a	running	2/2
i-0b6a76d18c6261479	t2.micro	ap-south-1a	terminated	
i-0e6c9a0d9aca31e6	t2.micro	ap-south-1a	terminated	
i-0f86169de25b6ea4	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
Finding: Opt-in to AWS Compute Optimizer for recommendations. [Learn more](#)

Public DNS (IPv4)
IPv4 Public IP
IPv6 IPs
Elastic IPs

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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

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

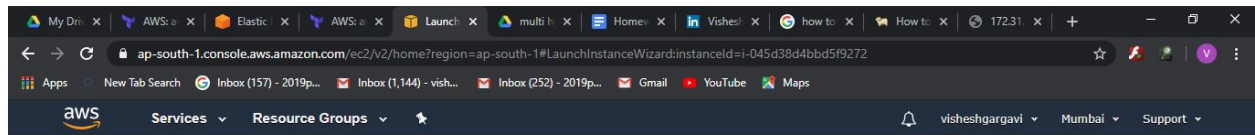
IAM role None Create new IAM role

Cancel Previous Review and Launch Next: Add Storage

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Step 3: Configure Instance Details

eth0 New network interface subnet-04601807 Auto-assign Add IP

Add Device

▼ Advanced Details

Metadata accessible ⓘ Enabled

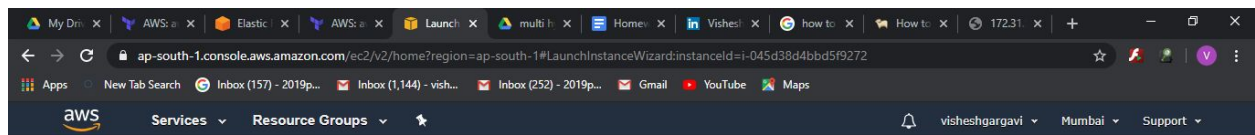
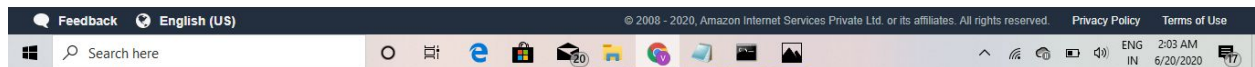
Metadata version ⓘ V1 and V2 (token optional)

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 Next: Add Storage



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](#)

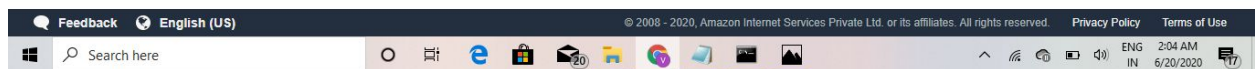
▼ AMI Details Edit AMI

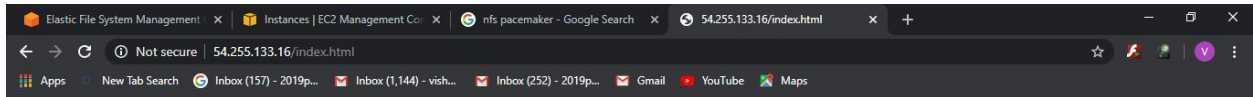
amzn-ami-hvm-2018.03.0.20200514.0-x86_64-gp2 - ami-005956c5f0f757d37
Amazon Linux AMI 2018.03.0.20200514.0 x86_64 HVM gp2
Root Device Type: ebs Virtualization type: hvm

▼ Instance Type Edit instance type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GiB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

Cancel Previous Launch





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