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2KE20CS032

Assignment 45

Understood. To follow the provided instructions and create the files/directory using the same name and case as provided in the task steps, please provide me with the specific names and case instructions for the files/directory you want to create.

AWS

Assignment: 11 : Create an Amazon EFS File System and Mount to an EC2 Instance

Overview:

Creating EFS file system

Mounting it with two instances (you can have it mounted with 2 public instances that we have launched

METHOD-01

Steps:

1 Navigate to EFS service page and click on "create file system"

2. Provide the Name, select the VPC and click on "create" and file system is created

The screenshot shows the AWS EFS service page. At the top, a green banner displays the message "Success! File system (fs-00fb2f5105c983282) is available." On the right, there is a "View file system" button. Below the banner, the page title is "Amazon EFS > File systems". A header bar includes "File systems (1)" and a "Create file system" button. The main table lists one file system entry:

Name	File system ID	Encrypted	Total size	Size in Standard	Size in IA	Size in Archive	Provisioned Throughput (MiB/s)	File system state	Creation time	Availability Z
amz-efs-01	fs-00fb2f5105c983282	Encrypte d	6.00 KiB	6.00 KiB	0 Bytes	0 Bytes	-	Available	Thu, 07 Dec 2023 02:17:01 GMT	Regi

You need to have specific security groups to perform the mount, follow the document attached with the assignment and configure

Security Group configuration for EFS

1. Create a new security group name it EFS Target, and leave all the rules blank and save it (There will be no inbound or outbound rules)

The screenshot shows the AWS Security Groups list. There is one item in the table:

Name	Security group ID	Security group name	VPC ID	Description
-	sg-07456bc3880288d4b	EFS target	vpc-0e190ca43b317839f	This is a security group for EFS assign...

2. Create another security group named EFS Mount, and in this one add the inbound rule for NFS. Set the SOURCE for this rule to the EFS Target security group

The screenshot shows the 'Create security group' wizard. The 'Basic details' step is selected.

Basic details

Security group name [Info](#)
EFS mount
Name cannot be edited after creation.

Description [Info](#)
This is a security group for EFS mount

VPC [Info](#)
vpc-0e190ca43b317839f (my-vpc-01)

The screenshot shows the 'Outbound rules' configuration screen.

Type Info	Protocol Info	Port range Info	Destination Info	Description - optional Info
NFS	TCP	2049	Custom	sg-07456bc3880288d4b

Add rule

Security Groups (2) Info					Actions ▾	Export security groups to CSV ▾			
<input type="text"/> Find resources by attribute or tag					Clear filters				
<input type="checkbox"/>	Name	▼	Security group ID	▼	Security group name	▼	VPC ID	▼	Description
<input type="checkbox"/>	-		sg-04a6b2e370b2e1356		EFS mount		vpc-0e190ca43b317839f 		This is a security group for EFS
<input type="checkbox"/>	-		sg-07456bc3880288d4b		EFS target		vpc-0e190ca43b317839f 		This is a security group for EFS

3. Add the EFS Target group to your EC2 instance, follow the screenshots

Instances (1/7) Info							Actions	Launch instances
<input type="text"/> Find Instance by attribute or tag (case-sensitive)		Instance ID	Instance state	Instance type	Status check	A	Connect	Instance state
Name	Instance ID	Instance state	Instance type	Status check	A	Actions	Launch instances	Actions
public-inst(a/nginx)-2	i-05a4e1f88e7ed4668	Stopped	t2.micro	-	A	Connect	View details	
private-inst(a/appserver)-2	i-0afa5896198d39468	Stopped	t2.micro	-	N	Manage instance state	Instance settings	
autoscaling-02	i-0902b8f9089bcf2b4	Stopped	t2.micro	-	N	Networking		
public-inst(a/nginx)-1	i-059f3bb15a76aad7d	Stopped	t2.micro	-	A	Change security groups	Security	
private-inst(a/appserver)-1	i-0e7568659b5b24589	Stopped	t2.micro	-	N	Get Windows password	Image and templates	
private-inst(a/dbserver)	i-a6d610ce310ab3bf	Stopped	t2.micro	-	N	Modify IAM role	Monitor and troubleshoot	
private-inst(a/dbserver)-tire	i-0898c865452d4facf	Stopped	t2.micro	-	A	No alarms	+	ap-south-1a

[EC2](#) > [Instances](#) > [i-059f3bb15a76aad7d](#) > Change security groups

Change security groups Info

Amazon EC2 evaluates all the rules of the selected security groups to control inbound and outbound traffic to and from your instance. You can use this window to add and remove security groups.

Instance details

Instance ID	Network interface ID
<input type="checkbox"/> i-059f3bb15a76aad7d (public-instanceninx)-1	<input type="checkbox"/> eni-0c9b327be6ac74ffd

Associated security groups

Add one or more security groups to the network interface. You can also remove security groups.

X Add security group

Use: "efs"

- EFS target** (sg-07456bc3880288d4b)
- EFS target**
- EFS mount** (sg-04a6b2e370b2e1356)
- EFS mount**

launch-wizard-29	sg-064109a86a47d8945	Remove
------------------	----------------------	---------------------

4. Go to the EFS dashboard navigate to the network tab for each EFS Mount Target (availability zone), you need to add the EFS Mount security group and remove the

Metered size	Monitoring	Tags	File system policy	Access points	Network	Replication
Network						
Availability zone	Mount target ID	Subnet ID	Mount target state	IP address	Network interface ID	Security groups
ap-south-1a	fsmt-0082be0f56f66a315	subnet-01fd6175ad052e506	Available	10.0.85.24	eni-04d30315f4558f9cc	sg-025e3c77b92134dee (default)
ap-south-1b	fsmt-014d8ec91d720db98	subnet-01e1b5812ebecfe9	Available	10.0.4.143	eni-00c9f54f27b6ccfb0	sg-025e3c77b92134dee (default)

VPC Default group

3. Navigate to your instance where you added the security group you need to create a directory where you will mount the EFS. Navigate to /mnt and run
sudo mkdir efs

```
ec2-user@ip-10-0-1-178.ap-south-1.compute.internal:~ (0.162s)

A newer release of "Amazon Linux" is available.
Version 2023.2.20231113:
Run "/usr/bin/dnf check-release-update" for full release and version update info

ec2-user@ip-10-0-1-178.ap-south-1.compute.internal ~ (0.158s)
sudo mkdir efs

ec2-user@ip-10-0-1-178.ap-south-1.compute.internal ~ (0.106s)
cd efs

ec2-user@ip-10-0-1-178.ap-south-1.compute.internal ~/efs (0.185s)
sudo mkdir fs2
```

cd efs
sudo mkdir fs2

4. Now, you need to install the amazon efs utils library, which will allow us to run the

```
ec2-user@ip-10-0-1-178.ap-south-1.compute.internal ~/efs (2.719s)
sudo yum install -y amazon-efs-utils

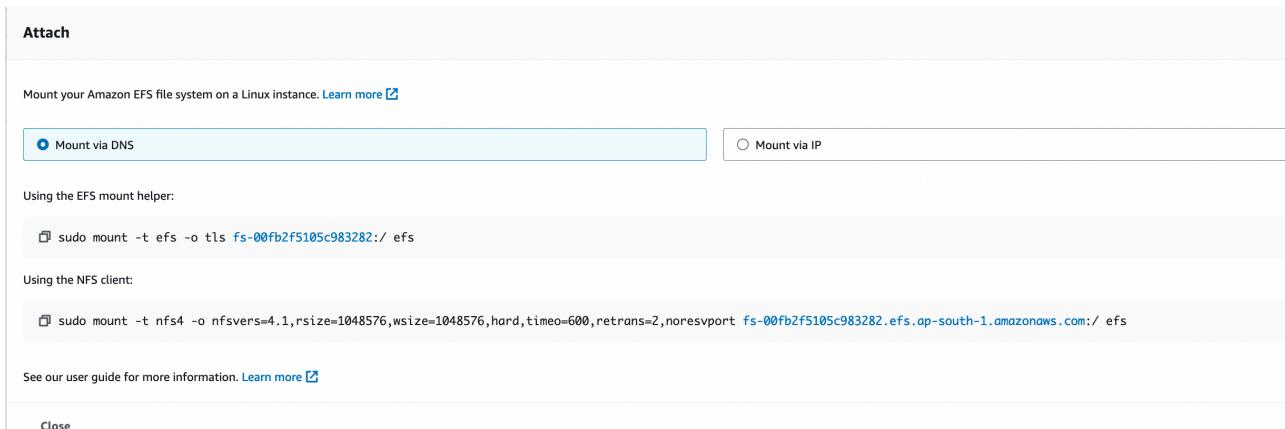
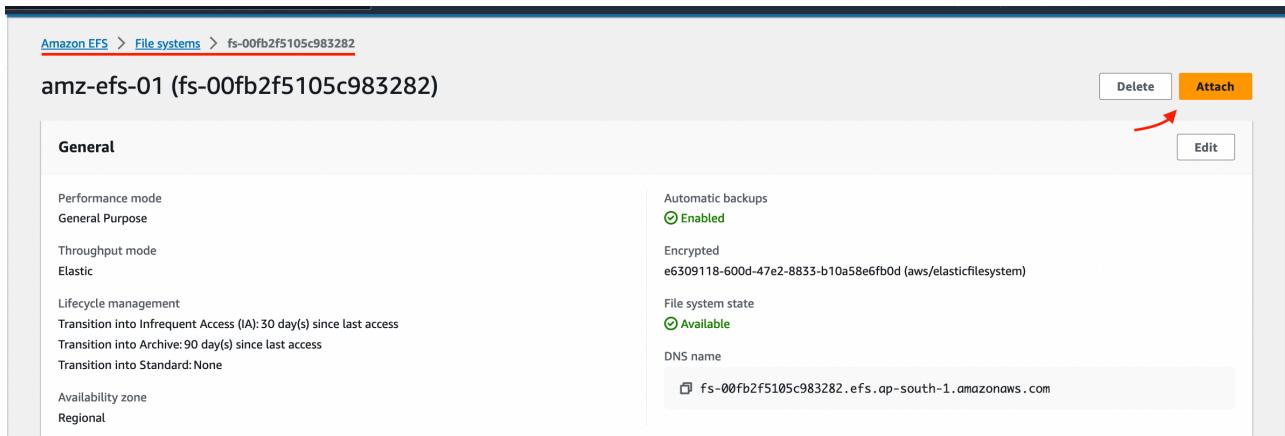
nginx repo
Errors during downloading metadata for repository 'nginx':
- Status code: 404 for http://nginx.org/packages/centos/2023.2.20231030/x86_64/repodata/repomd.xml
Error: Failed to download metadata for repo 'nginx': Cannot download repomd.xml: Cannot
mirrors were tried
Ignoring repositories: nginx
Last metadata expiration check: 0:03:24 ago on Thu Dec 7 02:31:39 2023.
Dependencies resolved.
=====
 Package                               Architecture      Version
=====
Installing:
amazon-efs-utils                      noarch          1.35.0-1.amzn2023
Installing dependencies:
stunnel                                x86_64          5.58-1.amzn2023.0.2

Transaction Summary
```

connection command and mount the EFS. Run the command

sudo yum install -y amazon-efs-utils

5. Access the file system that you created, and click on the button "Attach."



Now you can mount and enjoy the EFS

```
ec2-user@ip-10-0-1-132.ap-south-1.compute.internal /efs (0.682s)
sudo mount -t efs -o tls fs-0c0f51d2b600d1bdc:/ /efs/fs2

ec2-user@ip-10-0-1-132.ap-south-1.compute.internal /efs
```

```
ec2-user@ip-10-0-1-132.ap-south-1.compute.internal /efs (0.166s)
```

```
df -h
```

Filesystem	Size	Used	Avail	Use%	Mounted on
devtmpfs	4.0M	0	4.0M	0%	/dev
tmpfs	475M	0	475M	0%	/dev/shm
tmpfs	190M	3.0M	188M	2%	/run
/dev/xvda1	8.0G	1.6G	6.4G	20%	/
tmpfs	475M	0	475M	0%	/tmp
/dev/xvda128	10M	1.3M	8.7M	13%	/boot/efi
tmpfs	95M	0	95M	0%	/run/user/1000
127.0.0.1:/	8.0E	0	8.0E	0%	/efs
127.0.0.1:/	8.0E	0	8.0E	0%	/efs/fs2

METHOD-02

1: I have created my new instance for c= test the file system

<input type="checkbox"/>	public-inst(nginx)-1	i-059f3bb15a76aad7d	Stopped	Q Q	t2.micro
<input type="checkbox"/>	private-inst(appserver)-1	i-0e7568659b5b24589	Stopped	Q Q	t2.micro
<input type="checkbox"/>	private-inst(dbserver)	i-0a6d610ce310ab3bf	Stopped	Q Q	t2.micro
<input type="checkbox"/>	private-inst(dbserver)-tire	i-0898c865452d4facf	Stopped	Q Q	t2.micro
<input type="checkbox"/>	<u>efs-server</u>	i-0fce9807752b7fa85	Running	Q Q	t2.micro

2: creating the security group

Basic details

Security group name [Info](#)

Name cannot be edited after creation.

Description [Info](#)

VPC [Info](#)

3: creating the inbound rules

VPC > Security Groups > sg-0fbca66a413fb6b5 - efs-mount > Edit inbound rules

Edit inbound rules [Info](#)

Inbound rules [Info](#)

Security group rule ID Type [Info](#) Protocol [Info](#) Port range [Info](#) Source [Info](#) Description - optional [Info](#)

sgr-06cef6b7fd8ae6aa NFS TCP 2049 Custom Delete

Add rule This is my instance id

Cancel Preview changes Save rules

Details Security Networking Storage Status checks Monitoring Tags

▼ Security details

IAM Role Owner ID

- 405819896469

Security groups

sg-004e2700a205d766b (launch-wizard-49)

for same security group i have attached

▼ Inbound rules

Filter rules

4: network access

Network access

Network

Virtual Private Cloud (VPC) [Learn more](#) Choose the VPC where you want EC2 instances to connect to your file system.

vpc-0e190ca43b317839f my-vpc-01

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-01fd6175ad052e506	Automatic	Choose security groups sg-0fbca66a413fb6b5 X efs-mount

Add mount target Cancel Previous Next

5: creating the file system

File systems (1)										
<input type="button" value="Create file system"/> View details Delete										
Name	File system ID	Encrypted	Total size	Size in Standard	Size in IA	Size in Archive	Provisioned Throughput (MiB/s)	File system state	Creation time	Activity
efs-server01	fs-0c0f51d2b600d1bdc	Encrypted	6.00 KiB	6.00 KiB	0 Bytes	0 Bytes	-	Available	Sat, 16 Dec 2023 04:35:10 GMT	Re

6:login to your instance

```
ec2-user@ip-10-0-1-132.ap-south-1.compute.internal ~ (2.606s)
sudo yum install -y amazon-efs-utils
Last metadata expiration check: 0:13:59 ago on Sat Dec 16 04:22:15 2023.
Dependencies resolved.
=====
 Package           Architecture      Version            Repository
=====
 Installing:
  amazon-efs-utils        noarch        1.35.0-1.amzn2023    amazonlinux
 Installing dependencies:
  stunnel              x86_64        5.58-1.amzn2023.0.2    amazonlinux

Transaction Summary
=====
 Install 2 Packages

Total download size: 212 k
Installed size: 556 k
Downloading Packages:
(1/2): amazon-efs-utils-1.35.0-1.amzn2023.noarch.rpm          591 kB/s |  56
(2/2): stunnel-5.58-1.amzn2023.0.2.x86_64.rpm                1.1 MB/s | 156
-----
Total                                         1.0 MB/s | 212

Running transaction check
Transaction check succeeded.
Running transaction test
```

7:creating the mount point directory

```
ec2-user@ip-10-0-1-132.ap-south-1.compute.internal ~ (0.15s)
sudo mkdir /efs
```

8: mount using if file-system id

```
ec2-user@ip-10-0-1-132.ap-south-1.compute.internal ~ (1.512s)
sudo mount -t efs -o tls fs-0c0f51d2b600d1bdc:/ /efs

ec2-user@ip-10-0-1-132.ap-south-1.compute.internal ~
```

9: verify and enjoy the EFS

```
ec2-user@ip-10-0-1-132.ap-south-1.compute.internal ~ (0.163s)
df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.0M    0  4.0M   0% /dev
tmpfs          475M    0  475M   0% /dev/shm
tmpfs          190M  2.9M 188M   2% /run
/dev/xvda1       8.0G  1.6G 6.4G  20% /
tmpfs          475M    0  475M   0% /tmp
/dev/xvda128     10M  1.3M  8.7M  13% /boot/efi
tmpfs          95M    0  95M   0% /run/user/1000
127.0.0.1:/     8.0E    0  8.0E   0% /efs
```

10. Similarly you can access another instance and mount the efs using the same command (create file directory structure /mnt/efs/fs2 before running)

(you need to add the EFS Target group to this EC2 instance)

```
sudo mount -t efs -o tls fs-Oc77a4451ef72ee: / /mnt/efs/fs2
```

(Note: you need to copy the highlighted command from your efs mount)

11. Run the command in your instance and successful mount will return no error

12. Verify you have successfully mounted using the command df-h

13. Now create any file say in any one of the instance in the path /mnt/efs/fs2, it should be reflected in the other instance as well

Instance Type	Instance ID	Status	Action
efs-server-1	i-0fce9807752b7fa85	Stopped	
efs-server-2	i-0208da1874279c646	Running	

Edit inbound rules Info

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

Inbound rules Info **attach your security group to new ec2-instance**

Security group rule ID	Type	Info	Protocol	Info	Port range	Info	Source	Info	Description - optional	Info
sgr-09804cbfb7b3be386	SSH		TCP		22		Custom		<input type="text" value="0.0.0.0/0"/>	
-	NFS		TCP		2049		Custom		<input type="text" value="sg-004e2700a205d766b"/>	

Add rule

⚠ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Cancel

In-first image I have created a file(to check weather It is reflecting or not)

```
efs 1
ec2-user@ip-10-0-1-132.ap-south-1.compute.internal /efs/efs2 (0.115s)
touch karti.txt

Insert suggested command: sudo touch karti.txt

ec2-user@ip-10-0-1-132.ap-south-1.compute.internal /efs/efs2 (0.181s)
sudo touch karti.txt

ec2-user@ip-10-0-1-132.ap-south-1.compute.internal /efs/efs2 (0.109s)
ls
fs2 karti.txt

ec2-user@ip-10-0-1-132.ap-south-1.compute.internal:/efs/efs2 (0.1s)
```

```
ec2-user@ip-10-0-1-132.ap-south-1.compute.internal:/efs/fs2 (0.077s)

ec2-user@ip-10-0-1-132.ap-south-1.compute.internal /efs/fs2 (39.982s)
vi karti.txt      Created the test file

ec2-user@ip-10-0-1-132.ap-south-1.compute.internal /efs/fs2 (11.72s)
sudo vi karti.txt

ec2-user@ip-10-0-1-132.ap-south-1.compute.internal /efs/fs2 (0.096s)
cat karti.txt
test EFS
```

In second machine

```
ec2-user@ip-10-0-1-191.ap-south-1.compute.internal ~ (0.658s)
sudo yum install -y amazon-efs-utils      Verified

ec2-user@ip-10-0-1-191.ap-south-1.compute.internal ~ (1.058s)
sudo mount -t efs -o tls fs-0c0f51d2b600d1bdc:/ /efs/fs2

ec2-user@ip-10-0-1-191.ap-south-1.compute.internal ~ (0.107s)
ls

ec2-user@ip-10-0-1-191.ap-south-1.compute.internal ~ (0.09s)
cd /efs/fs2

ec2-user@ip-10-0-1-191.ap-south-1.compute.internal /efs/fs2 (0.074s)
```

Yes it is reflecting

```
ec2-user@ip-10-0-1-191.ap-south-1.compute.internal /efs/fs2 (0.107s)
cat karti.txt
test EFS

ec2-user@ip-10-0-1-191.ap-south-1.compute.internal /efs/fs2
|
```