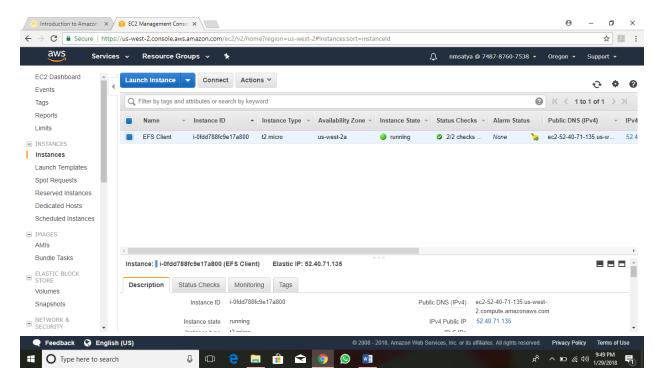
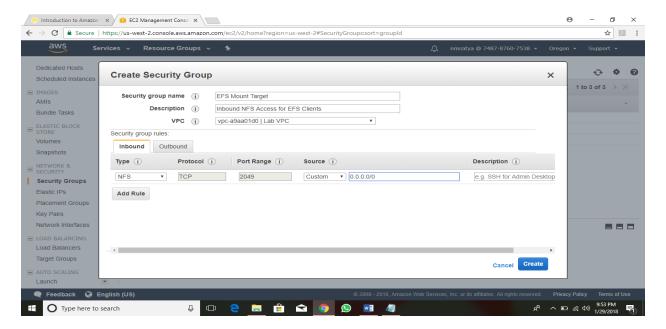
Configure EFS & IAM & Cloud Trail

Logged into AWS Account and create one Linux instance as usual steps



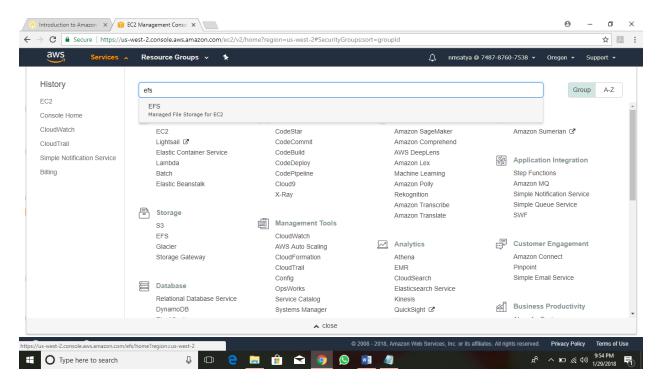
Task-1 - Create a Security Group to Access your Amazon EFS File System

Go the EC2 and select security group and create a new security group.

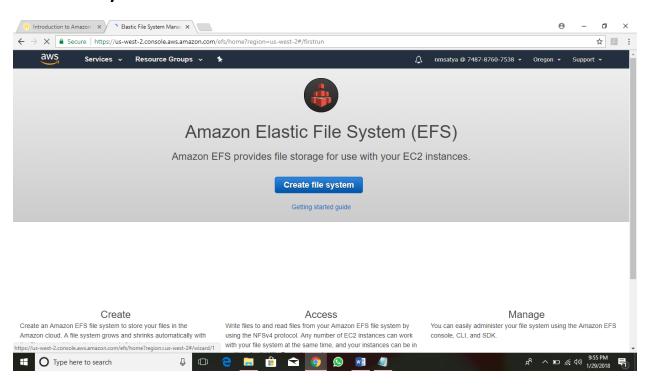


Task-2 – Create an Amazon EFS File System

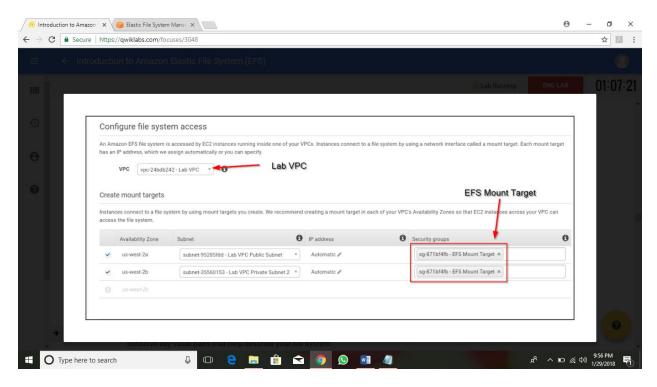
Go to Services and select EFS



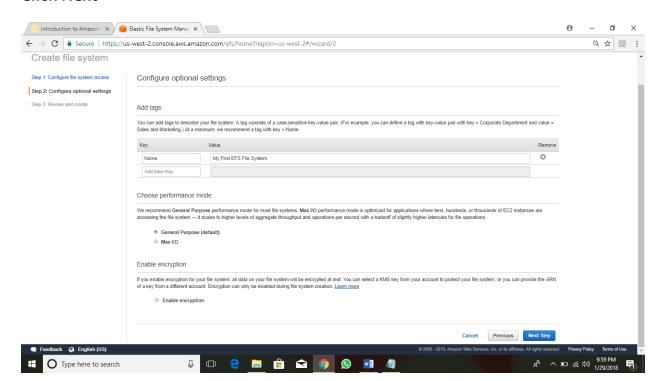
Create File System

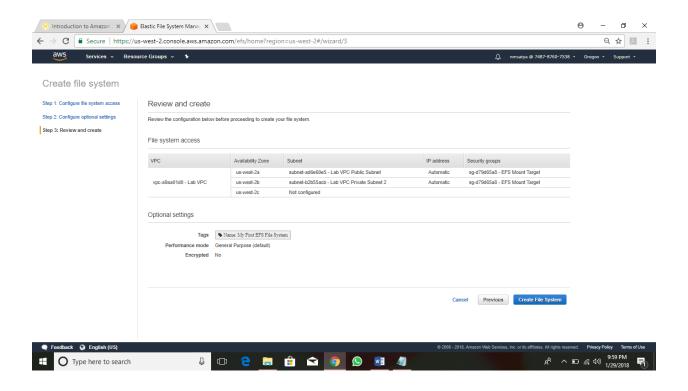


Select VPC and configure our security group EFS mount Target

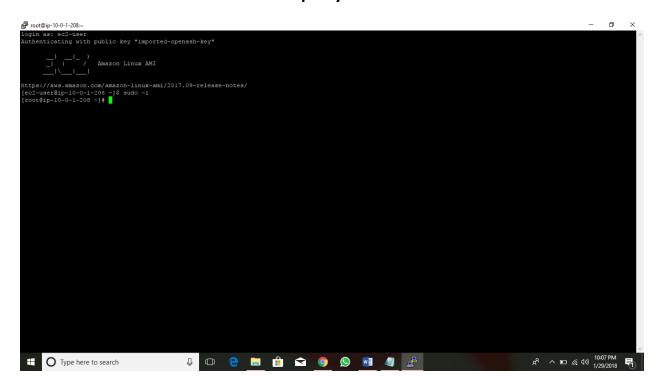


Click Next





Task -3 Connect a Linux instance via putty as-usual



Task -4 Create a New Directory And Mount the EFS File System.

login as: ec2-user
Authenticating with public key "imported-openssh-key"

__| __| __| __| / Amazon Linux AMI
___|__| | __| | | |

https://aws.amazon.com/amazon-linux-ami/2017.09-release-notes/
[ec2-user@ip-10-0-1-208 ~]\$ sudo -i
[root@ip-10-0-1-208 ~]# sudo mkdir efs
[root@ip-10-0-1-208 ~]# ls
efs

```
[root@ip-10-0-1-208 ~]# sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2 fs-f784075e.efs.us-west-2.amazonaws.com:/ efs
[root@ip-10-0-1-208 ~]#
```

```
[root@ip-10-0-1-208 ~]# df _-hT
                                                 Size Used Avail Use% Mounted on
Filesystem
                                       Type
devtmpfs
                                       devtmpfs
                                                 488M
                                                       60K 488M 1% /dev
tmpfs
                                       tmpfs
                                                 497M
                                                        0 497M
                                                                  0% /dev/shm
                                       ext4
/dev/xvda1
                                                 7.8G 1.2G 6.6G 15% /
fs-f784075e.efs.us-west-2.amazonaws.com:/ nfs4
                                                 8.0E
                                                         0 8.0E
                                                                   0% /root/efs
[root@ip-10-0-1-208 ~]#
```

Examine The Performance Behavior Of Your New EFS File System

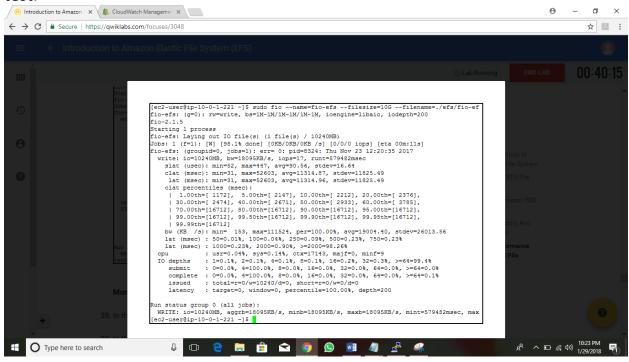
Examine Performance Using Flexible IO

Flexible IO (fio) is a synthetic IO benchmarking utility for Linux which is used to benchmark and test Linux IO subsystems. *Fio* was automatically installed on your EC2 instance during boot.

37. Examine the write performance characteristics of your file system by entering:

sudo fio --name=fio-efs --filesize=10G --filename=./efs/fio-efs-test.img --bs=1M -- nrfiles=1 --direct=1 --sync=0 --rw=write --iodepth=200 --ioengine=libaio

The *fio* command will take a 3-5 minutes to complete and the output should look something like the screenshot below. Please examine the output of your *fio* command, specifically the summary status information for this WRITE test.



Monitor Performance using Cloud Watch

- 38.In the **AWS Management Console**, on the **Services** menu, click **CloudWatch**.
- 39.In the navigation pane on the left, click Metrics.
- 40.In the **All metrics** tab, click **EFS**.
- 41. Click File System Metrics.
- 42. Check the **FileSystemID** for **PermittedThroughput**.

you may need to wait 2-3 minutes and refresh the screen several times for all the available metrics, including **PermittedThroughput**, to calculate and populate.

43.On the graph above, click and drag (up or down) the line just above the elipsis mark ... to adjust the size of the pane.



44. Hover your mouse over the data line in the graph. The value should be 105M.

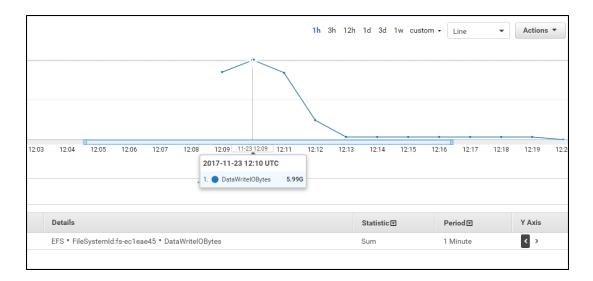


Throughput of Amazon EFS scales as the file system grows. Because file-based workloads are typically spiky, driving high levels of throughput for short periods of time and low levels of throughput the rest of the time, Amazon EFS is designed to burst to high throughput levels for periods of time. All file systems, regardless of size, can burst to 100 MiB/s of throughput. For more information about performance characteristics of your EFS file system,

see http://docs.aws.amazon.com/efs/latest/ug/performance.html.

- 45. Uncheck the **FileSystemID** for **PermittedThroughput**.
- 46. Check the **FileSystemID** for **DataWriteIOBytes**.
- 47. Click the **Graphed metrics** tab.
- 48.On the **Statistics** column, select **Sum**.

- 49.On the **Period** column, select **1 Minute**.
- 50. Hover over the peak of the line graph. Take this number (in bytes) and divide it by the duration in seconds (60 seconds). This will give you the write throughput (B/s) of your file system during your test.



The throughput available to a file system scales as a file system grows. All file systems deliver a consistent baseline performance of 50 MiB/s per TiB of storage and all file systems (regardless of size) can burst to 100 MiB/s. File systems larger than 1TB can burst to 100 MiB/s per TiB of storage. As you add data to your file system, the maximum throughput available to the file system scales linearly and automatically with your storage.

File system throughput is shared across all Amazon EC2 instances connected to a file system. For example, a 1 TiB file system that can burst to 100 MiB/s of throughput can drive 100 MiB/s from a single Amazon EC2 instance, or 10 Amazon EC2 instances can collectively drive 100 MiB/s. For more information about performance characteristics of your EFS file system.

Cloud Trial - Auditing

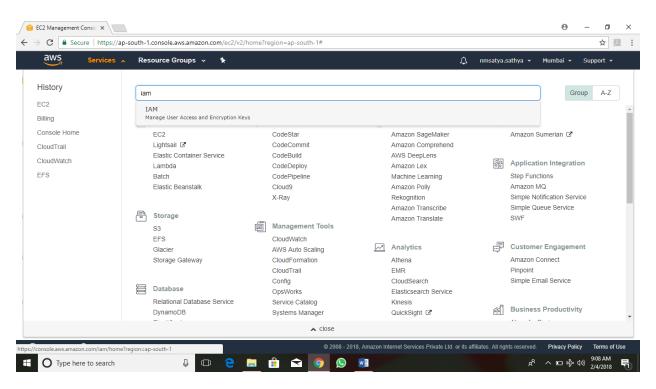
AWS cloud trial to get history of AWS API calls and related events for your account. This history includes calls made with the AWS management console, AWS CLI, AWS SDK's and other AWS services. It is a logging service from AWS.

<u>IAM</u>

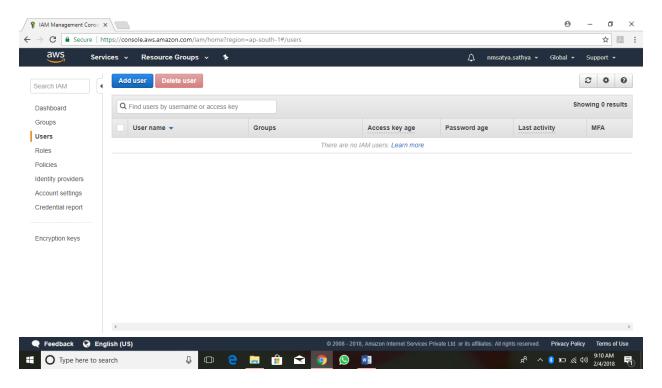
Identity and Access Management

LAB-

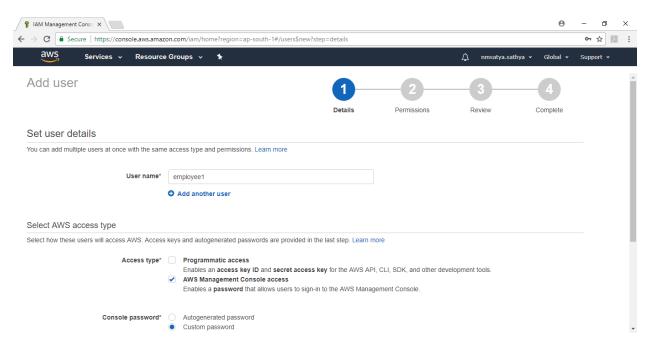
Search from console IAM and click



Create a New User

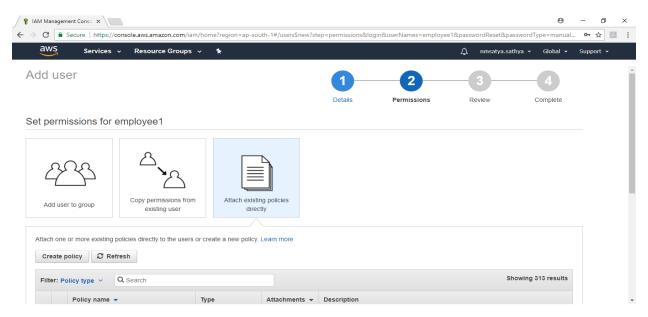


Select Access Type – AWS management Console Acess and select custom password

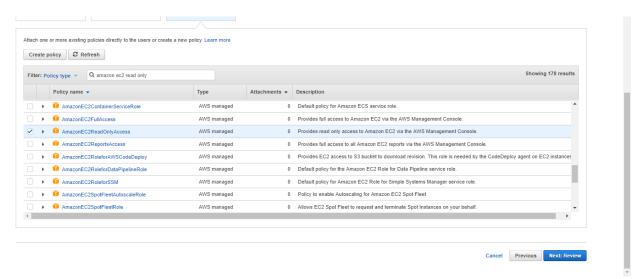




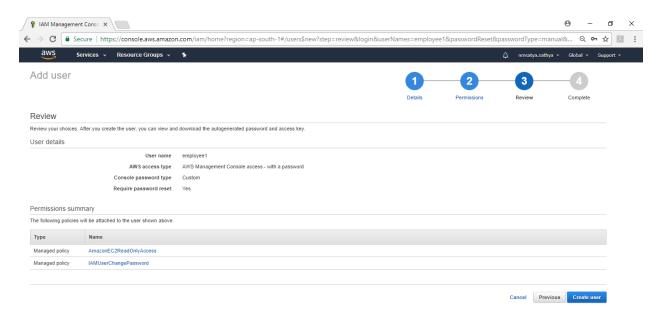
Go the next option and select attach existing Policies if you want copy permission from existing user in this case let me choose attach existing policies directly



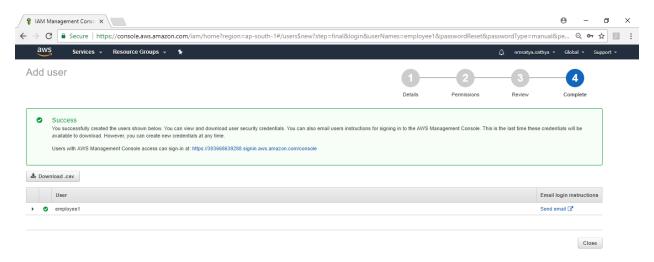
Select a role employee1 what can access, I choose AmazonEC2ReadOnlyAccess



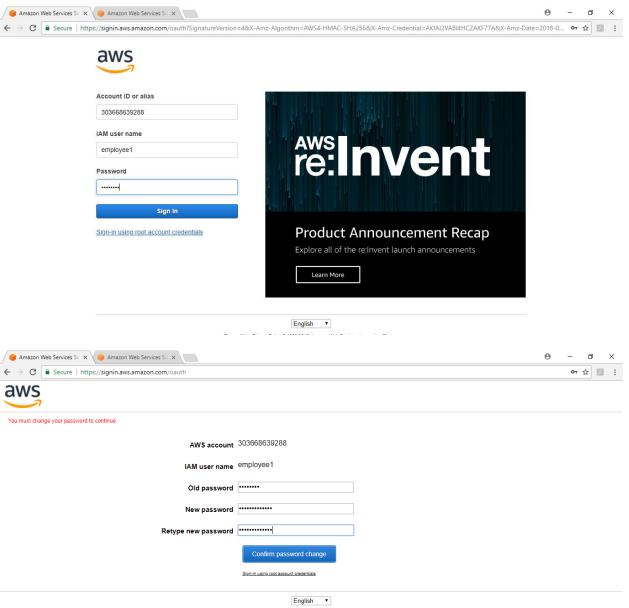
Create a user and finish



Once you create a user you can see the URL below screenshot share this url to employee1

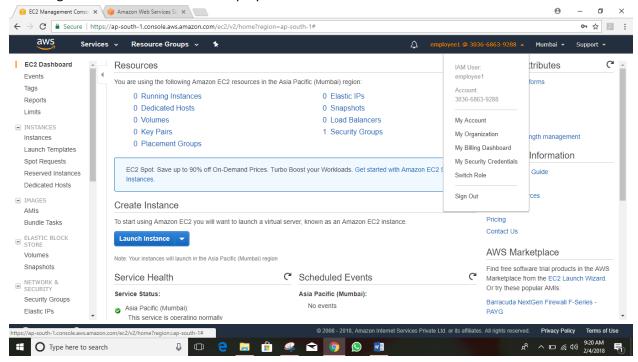


Now employee1 can login and change the password and login

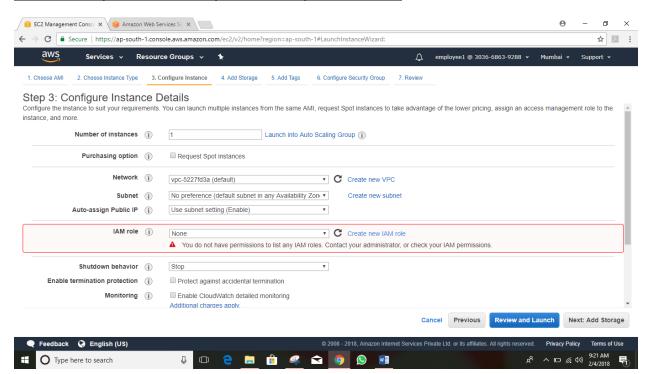


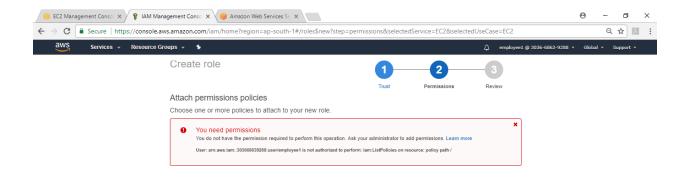
<u>Terms of Use Privacy Policy</u> © 1996-2018, Amazon Web Services, Inc. or its affiliates.

After Login see the user account is employee1



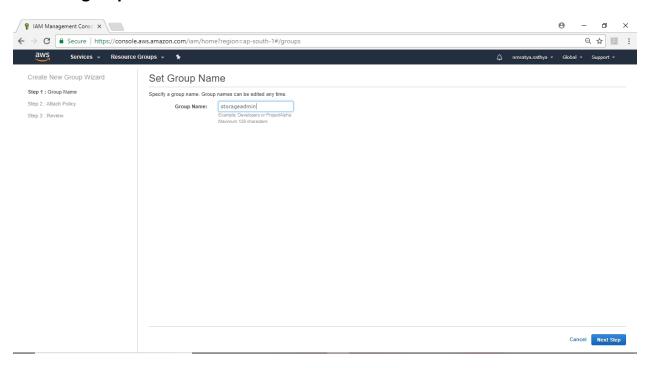
See the result you cant create any instanse / any other services.



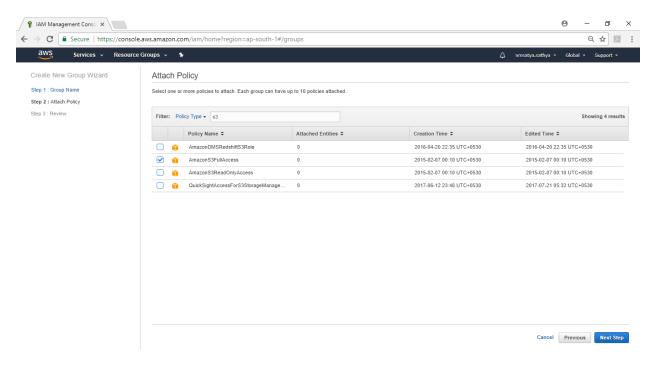


Now you can Cloud Trial Audit

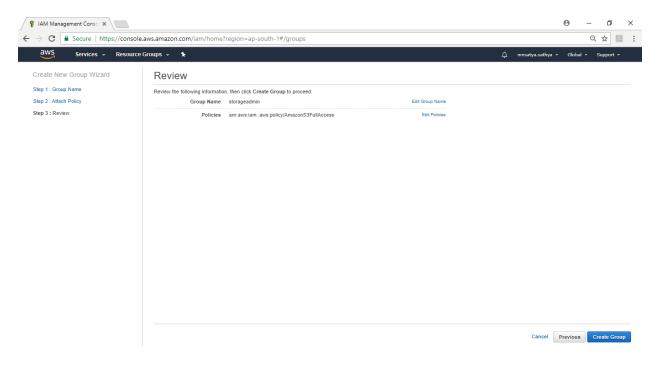
Create a group from IAM



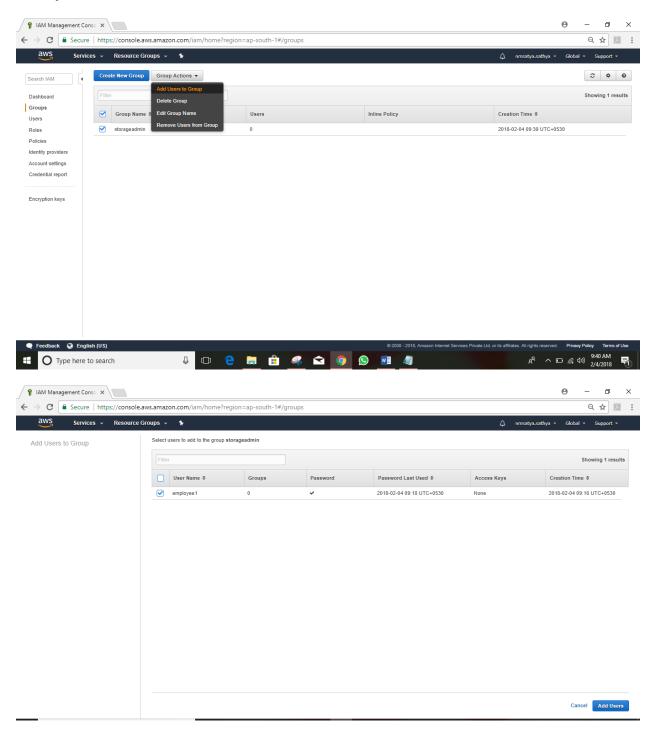
Select the AmazonS3FullAccess and next step



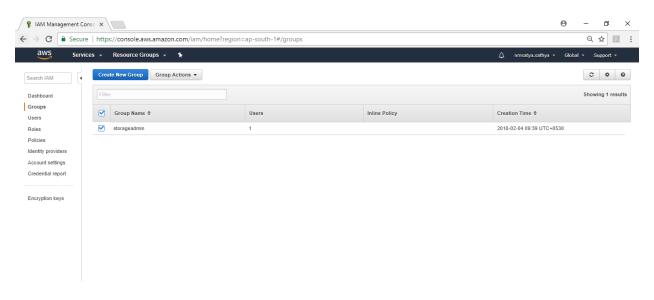
Complete the step to create a group



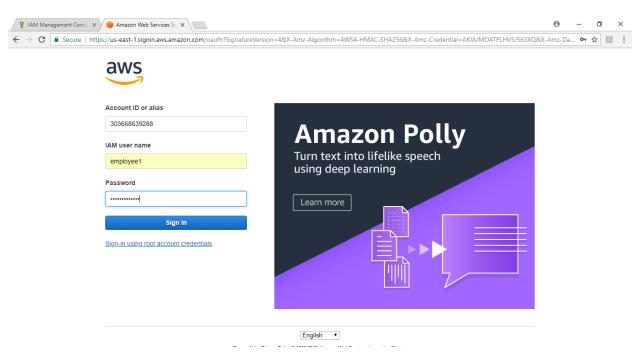
Click and select storage admin and go to Group Actions and select Add Users to Group



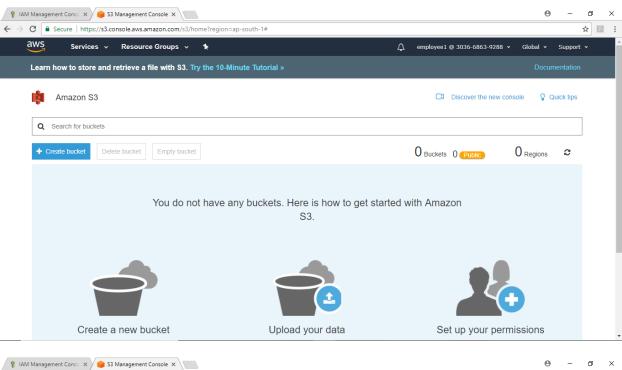
You can see now one users have visible

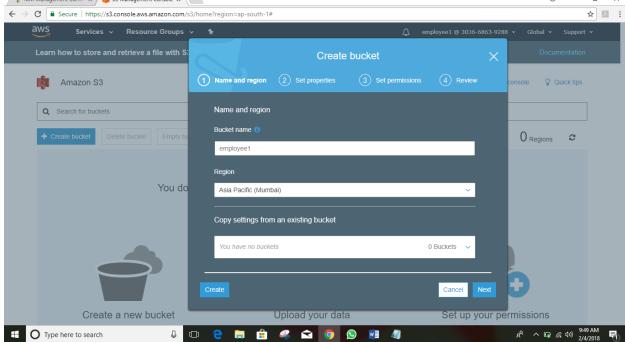


Login again from employee1

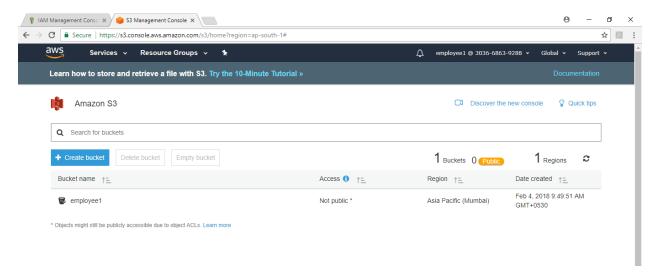


Go to S3 and create a one bucket

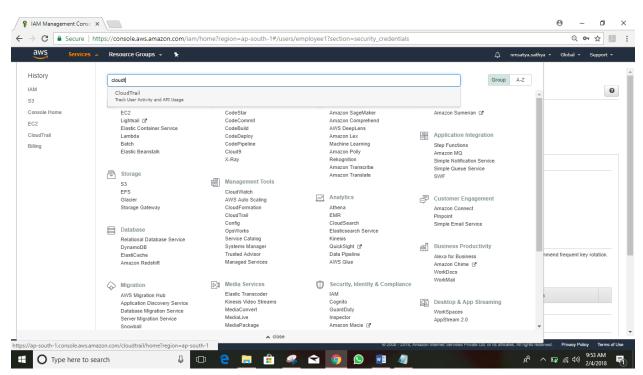


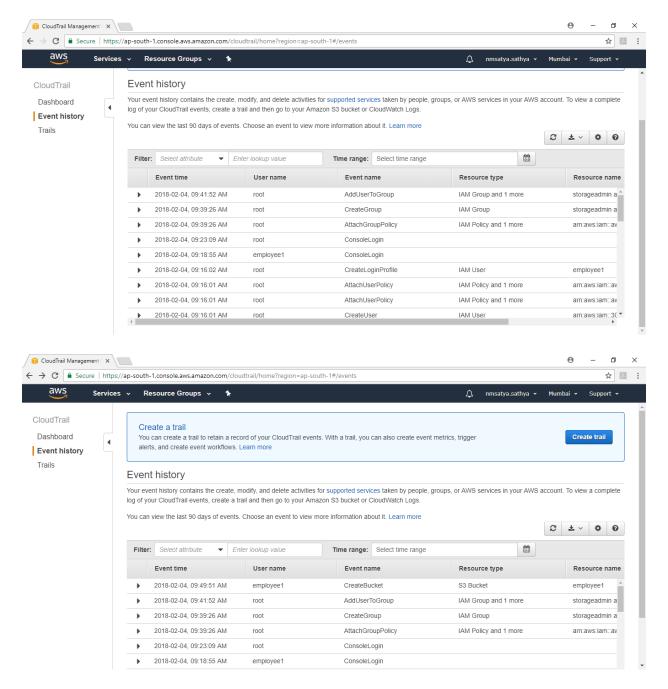


See now bucket are created because of full permission of s3 services given already to employee1 user.

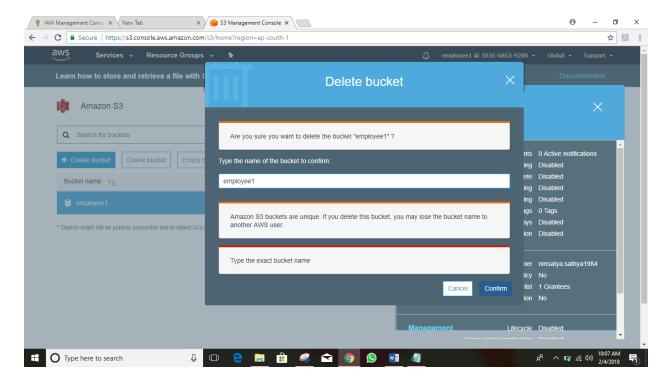


Now you can see cloud trail audit from root account for employee1 activity.





Now you can delete the s3 bucket from employee1 login which is created already.



Ultimate result is you can see all event viewer (Cloudtrail)

