

Experiment : 5

Title : Automation and Optimization with Amazon S3

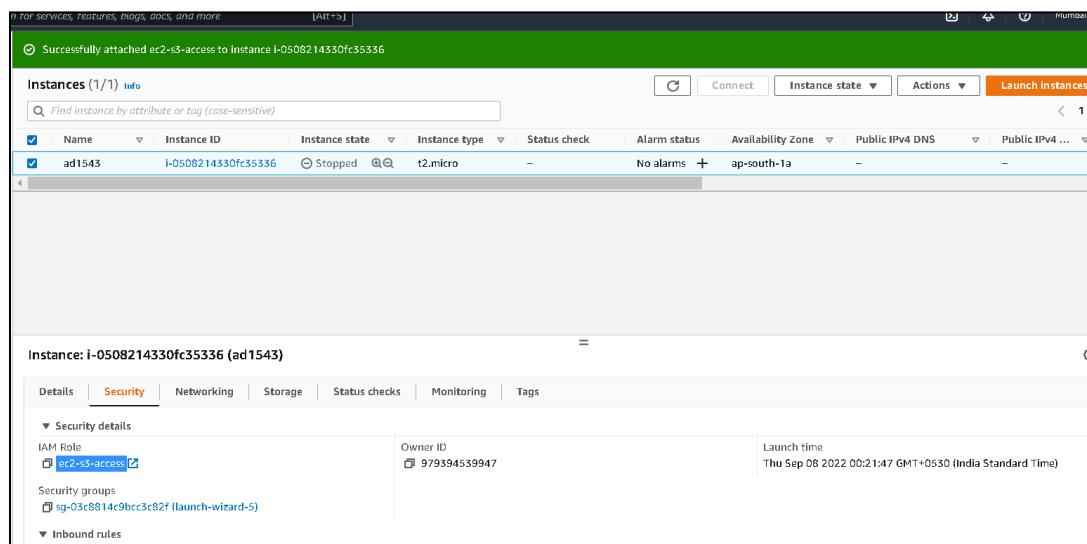
Aim : Automate Files backup to aws S3 bucket on Linux machine.

Pre-requisites : AWS Console, Amazon S3, crontab, aws cli

Procedure :

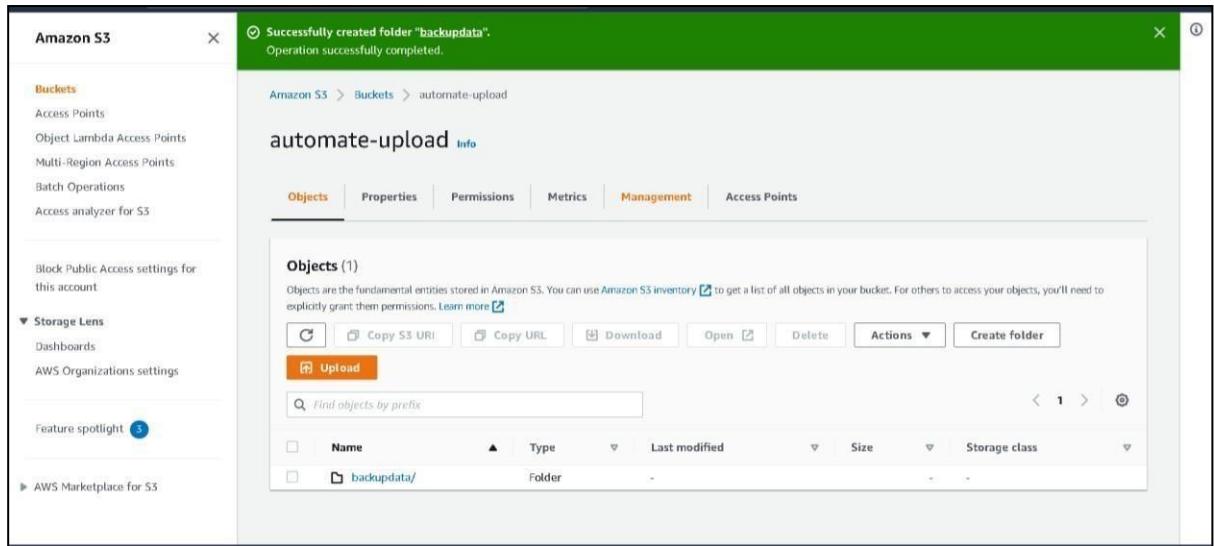
Steps:

1. Create a S3 bucket.
2. Create a EC2 instance.
3. Give EC2 instance Role to access S3.



(or you may also grant access to your local linux machine using aws configure cmd and entering your IAM user credentials over there)

4. Connect to your EC2 instance CLI.
5. Type “sudo su” to give access root directory.



6. Create a directory “backup”.

Type: `mkdir backup`

7. Go inside the “backup” directory.

8. Make some test files.

Type : `touch a`

```
2022-09-19 08:27:17 paint-ad1543
[root@ip-172-31-32-239 ~]# aws s3 ls automate-upload
  PRE backupdata/
[root@ip-172-31-32-239 ~]# mkdir backup
[root@ip-172-31-32-239 ~]# cd backup
[root@ip-172-31-32-239 backup]# touch a
[root@ip-172-31-32-239 backup]# touch b
[root@ip-172-31-32-239 backup]# touch c
[root@ip-172-31-32-239 backup]# ls
a  b  c
[root@ip-172-31-32-239 backup]# aws s3 sync /root/backup s3://automate-upload
The user-provided path '/root/backup' does not exist.
[root@ip-172-31-32-239 backup]# aws s3 /backup s3://automate-upload
Note: AWS CLI version 2, the latest major version of the AWS CLI, is now stable and recommended for general use. For more information, see the AWS CLI version 2 installation instructions at
: https://docs.aws.amazon.com/cli/latest/userguide/install-cliv2.html
usage: aws [options] <command> <subcommand> [<subcommand> ...] [parameters]
To see Help text, you can run:
  aws help
  aws <command> help
  aws <command> <subcommand> help
aws: error: argument subcommand: Invalid choice, valid choices are:
ls
cp
rm
mb
presign
  website
  mv
  sync
  rb
[root@ip-172-31-32-239 backup]# pwd
/home/ec2-user/backup
[root@ip-172-31-32-239 backup]# aws s3 sync /home/ec2-user/backup s3://automate-upload
upload: ./c to s3://automate-upload/c
upload: ./b to s3://automate-upload/b
upload: ./a to s3://automate-upload/a
[root@ip-172-31-32-239 backup]#
```

9. List them by cmd – ls

The screenshot shows the AWS S3 console interface. At the top, there's a green banner indicating 'Successfully deleted objects'. Below it, the path 'Amazon S3 > Buckets > automate-upload' is shown. The main area displays the 'automate-upload' bucket with three objects: 'a', 'b', and 'c'. A table lists these objects with their details: Name, Type, Last modified, Size, and Storage class. All objects are of type '-' (directory), last modified on September 22, 2022, at 09:34:00 (UTC+05:30), have a size of 0 B, and are stored in the Standard storage class.

10. Now to sync these files of backup directory on the S3 bucket.

Cmd : aws s3 sync localfilepath s3://bucketname

11. Now, we are going to create a cron job in order to automate this process. Cmd : crontab -e

Enter the cmd : cron code aws s3 sync /directory s3://bucketname

For e.g. : cron code for 1 min is * * * * *

(you may use crontab.guru to create your own job expression)

URL : <https://crontab.guru/>

```
* * * * * aws s3 sync /home/ec2-user/backup s3://automate-upload
```

```
[root@ip-172-31-32-239 backup]# touch a
[root@ip-172-31-32-239 backup]# touch b
[root@ip-172-31-32-239 backup]# touch c
[root@ip-172-31-32-239 backup]# ls
a b c
[root@ip-172-31-32-239 backup]# aws s3 sync /root/backup s3://automate-upload
the user-provided path /root/backup does not exist.
[root@ip-172-31-32-239 backup]# aws s3 sync /home/ec2-user/backup s3://automate-upload
Note: AWS CLI version 2, the latest major version of the AWS CLI, is now stable and recommended for general use. For more information, see the AWS CLI version 2 installation instructions at: https://docs.aws.amazon.com/cli/latest/userguide/install-cliv2.html
usage: aws [options] <command> <subcommand> [<subcommand> ...] [parameters]
to see help text, you can run:
    aws help
    aws <command> help
    aws <command> <subcommand> help
aws: error: argument subcommand: Invalid choice, valid choices are:
ls
cp
rm
mb
presign
[root@ip-172-31-32-239 backup]# pwd
/home/ec2-user/backup
[root@ip-172-31-32-239 backup]# aws s3 sync /home/ec2-user/backup s3://automate-upload
upload: ./ to s3://automate-upload/c
upload: ./a to s3://automate-upload/b
upload: ./a to s3://automate-upload/a
[root@ip-172-31-32-239 backup]#
[root@ip-172-31-32-239 backup]# crontab -e
no crontab for root - using an empty one
crontab: installing new crontab
[root@ip-172-31-32-239 backup]#
```

12.Restart the Crond service

Run “systemctl restart/stop/start cornd.service” to restart/stop/start your cron jobs respectively.

13.Now, we are going to create some test files to check if they are uploaded every minute or not.

14.File d and file e have been updated.

Name	Type	Last modified	Size	Storage class
a	-	September 22, 2022, 09:34:00 (UTC+05:30)	0 B	Standard
b	-	September 22, 2022, 09:34:00 (UTC+05:30)	0 B	Standard
c	-	September 22, 2022, 09:34:00 (UTC+05:30)	0 B	Standard
d	-	September 22, 2022, 09:43:03 (UTC+05:30)	0 B	Standard
e	-	September 22, 2022, 09:43:03 (UTC+05:30)	0 B	Standard

Result:

We have successfully automated our local files/directory backup on Amazon S3 buckets using crontab.