AWS Session 11
Summary 03-03-2023

- If we want to configure any system then there are mainly 3 ways available such as **manual way**, **centralized way** and **cloud-init way**.

- Manual way means go to the system and manually type commands whichever we want. Centralized way means use some tool eg. System manager and using this tool we can configure many more systems. But these 2 ways work only after OS launching/booting is done.

- If we want our system to be configured at the time of booting then cloud-init comes into the picture.

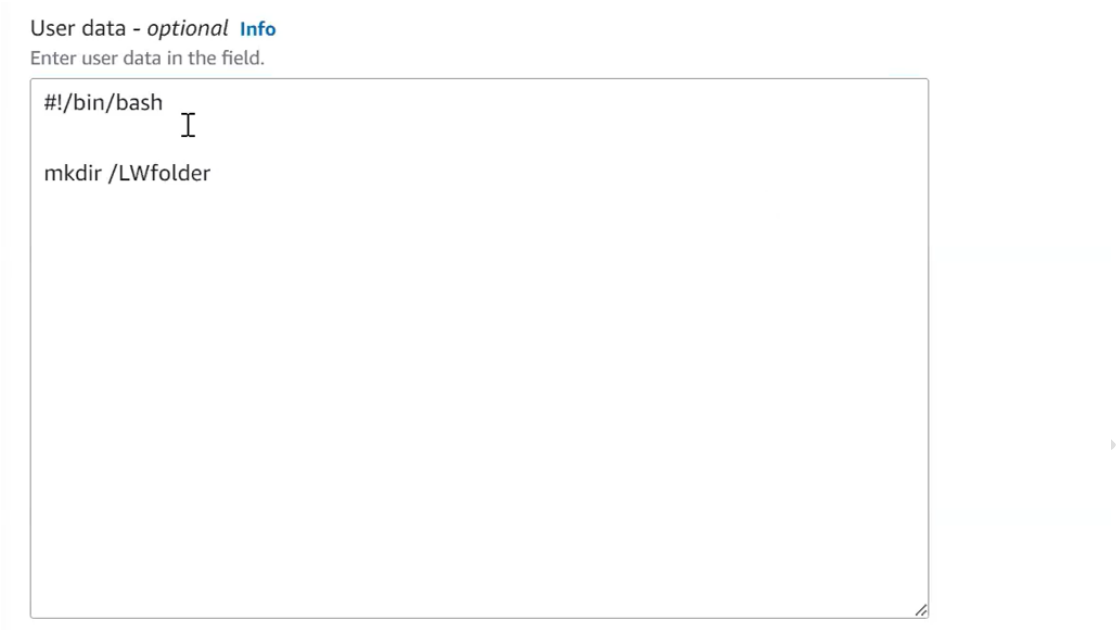
- An **Amazon Machine Image (AMI)** is a supported and maintained image provided by AWS that provides the information required to launch an instance.

- AMI gives one program which runs at the time of booting the OS and that program is known as **cloud-init**.

- Every cloud provides one centralized storage which is managed by the cloud. At the time of booting, a cloud-init program will go to that storage and run whatever they provide(commands, script, instruction) in the instance. This storage is managed by a server and that server is known as **metadata server**.

- AWS **user data** is the set of commands/data you can provide to an instance at launch time.

- Provide user data at the time of instance launching.



- Instance **metadata** is data about our instance. Instance metadata is divided into categories, for example, host name, events, and security groups which are stored in the metadata server.
- When we launch an aws instance then aws creates a metadata server for that instance. And only that instance has capability to connect that metadata server.
- Metadata server contains meta-data and user-data. For this connecting metadata server:

```
[root@ip-172-31-10-161 ~]# curl  http://169.254.169.254/latest
dynamic
meta-data
user-data[root@ip-172-31-10-161 ~]#
```

- Get the user data:

```
user-data[root@ip-172-31-10-161 ~]# curl  http://169.254.169.254/latest/user-data
#!/bin/bash

mkdir /LWfolder[root@ip-172-31-10-161 ~]#
```

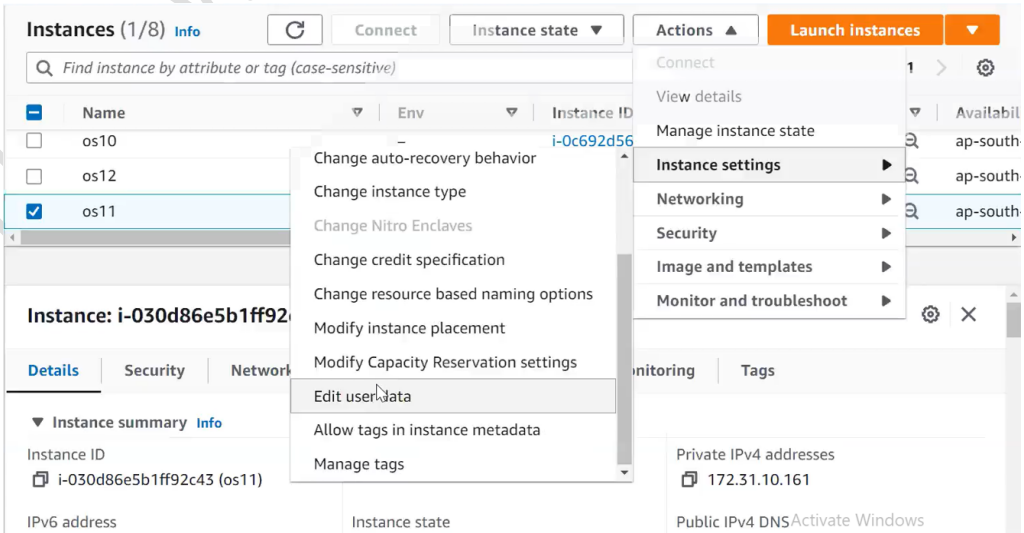
- Get the metadata:

```
[root@ip-172-31-10-161 ~]# curl  http://169.254.169.254/latest/meta-data
```

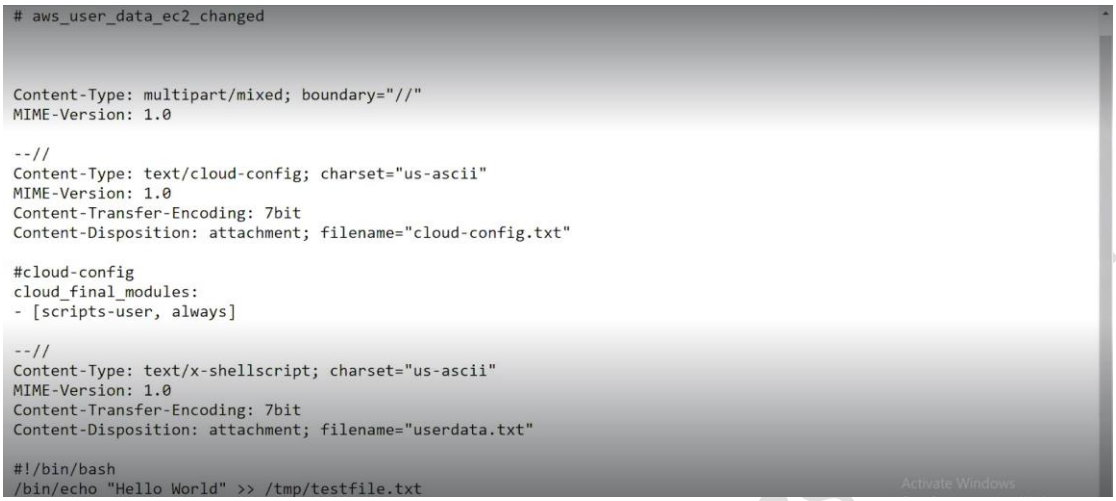
- Get the public ip from metadata server:

```
system[root@ip-172-31-10-161 ~]# curl  http://169.254.169.254/latest/meta-data/public-ipv4
3.109.158.163[root@ip-172-31-10-161 ~]#
```

- If we write user data without headers then they are treated as text.
- If we want to change user data then the condition is that the instance should be stopped.
- If we change user data and when we check in the metadata server using *"http://169.254.169.254/latest/user-data"* then we can see changes but we can see they don't perform provided updated instructions in instance.
- When we add user data at the first time when we launch an instance then the cloud init program will download the user data and perform that instruction. But when we modify user data that time cloud init program fills that they already have user data therefore they don't download user data and due to this reason cloud init program will not run.
- If we want to run a cloud init program always means when we boot then cloud init program always runs then we have to tell in user data.
- Modify user data :



- Copy the below content in user data with our instructions what we want:



```
# aws_user_data_ec2_changed



Content-Type: multipart/mixed; boundary="//"
MIME-Version: 1.0

--//
Content-Type: text/cloud-config; charset="us-ascii"
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit
Content-Disposition: attachment; filename="cloud-config.txt"

#cloud-config
cloud_final_modules:
- [scripts-user, always]

--//
Content-Type: text/x-shellscript; charset="us-ascii"
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit
Content-Disposition: attachment; filename="userdata.txt"

#!/bin/bash
/bin/echo "Hello World" >> /tmp/testfile.txt
```