Table of contents

Introduction to Amazon EC2 :

EC2 is one of the most popular service from IAAS (Infrastructure as a service) category

- What IAAS generally stands for is , the hardware part is taken care by the vendor. We as the consumers will just have to use it.
- We have already seen what is EC2 and what all things can be done theoretically.
- Let us now launch an EC2 and see the application deployment

Launching an EC2

- Log in to the AWS console and click on EC2 from the services tab
- Click on launch instance from the EC2 dashboard
- We will now follow the 7 steps necessary to configure and launch an instance

1. Choose an Amazon Machine Image (AMI)

- Amazon Machine Image dictates which operating system we'll be getting along with additional packages if any . for ex- aws cli,python etc
- We generally recomend using Amazon linux , as the support is easily available in a centralised dashboard
- if the OS we need is not available in the dashboard , we can check in amazon marketplace option on the left hand side .
- Marketplace is a platform where vendord create their own AMIs and put it up for paid use. For ex- Palo alto
- We also have an option of Community AMIs , it is a platform where AWS users create their own AMIs and share it with the community for free use
- The last option is our own AMIs . If we want to avoid doing reduntant work, we can create an AMI and use it to launch new instances . This saves a lot of time . AMIs can also be used to take backups and can be used to restore in case of a disaster.
- For now we will go with the default quickstart option and select Amazon linux 2 . (Amazon linux one is set to expire soon)

2. Choose an Instance Type

- Instance type decides the CPU,memory and Network capacity of the instance.
- There are variety of types available to suit every use case
- For now we will go with t2.micro , which is a free tier eligible instance type (750 hours per month for the first 1 months)

3. Configure Instance Details

- The pane allows us to select major details as the number of instances ,VPC ,subnet, spot price , tenancy and userdata(bootstrap)
- Options like VPC, IAM role we will be exploring in later sessions
- For now we will go with default options and click on next

4. Add Storage

- AWS offers 3 types of storages for root volume and 5 types for addtional EBS volume to suit various use cases
- One disc can be scaled uptil 16384 Gbs and we can attach multiple discs to an instance. Minimum we can keep 8 in order for OS to run.
- These discs are by default terminated when instance is terminated , but we can choose to keep them from this screen
- We always recomend having the volumes encrypted

5. Add Tags

- Tags give us information about the resoruces . This is something that we keep to know the prupose behind the instance
- It can have the provisioner team name , project name and the purpose
- Should be written in key-value pair. ex:- Team-Developers

6. Configure Security Group

- Security group is the firewall to your instance
- It dictates , which IPs can reach the instance over the network.
- we can choose the protocol , port and the source from which we want our instance to be accessible
- for now let us select Type as ssh and source as myip

7. Review Instance Launch

- review screen is for us to check an dverify the details before we launch the instance .
- Click on launch , we'll receive a popup for a key . Click on create new key pair (for first launch, later we can use the same key) , click on download and then launch

Connecting to the EC2

For Windows

1. We will first convert the key to suitable ppk file.
2. Download putty.exe and open puttygen once it is installed
3. Click on load , select all files from the bottom riht corner , and select the key which we downloaded.
4. Click on save private key . Save without passphrase.

5. Open putty
6. in hostname copy and paste the public ip from the instance details from aws console
7. Expand ssh on the left index and click on auth . Load the ppk file and click on open
8. When you receive username prompt , enter 'ec2-user' and press enter

- If ou receive connection timed out error : check the security group
- If server refused key error is received , check the username and key
-

For Linux

1. Navigate to the folder in which key is stored and use

```
sudo chmod 400 *keyname*.pem
```

2. Use below command to connect to instance

```
sudo ssh -i *keyname*.pem ec2-user@*publicipoftheinstance*
```

Testing the EC2

- Once we are connected to the server , we can test out some linux commands like below

```
free -h

lsblk

df -h
```

- Above commands give us insights into the memory and storage available

Installing apache web server

- We will now install a web server on the EC2 for testing

1. Install apache web server package

```
sudo yum install httpd -y
```

2. Navigate to the home directory file and create index.html file for home page

```
sudo su -
cd /var/www/html/
touch index.html
echo "this is our homepage" >> index.html
```

3. Let us start the web server

```
service httpd start
service httpd status
```

4. Once the service is started , navigate to the ec2 dashboard in aws console .
5. Select the security group associated with the instance
6. Add inbount rule for http type and source as anywhere
7. Paste the public ip of the instance in another tab in the browser

EC2 cheat codes

- Region : A geogrphical location wherein multiple avalability zones are present
- Availability zone(AZ): Data cennter consisiting of large network of physical servers
- Instance : A virtual server launched in AWS's region inside a avalability zone
- AMI : Amazon Machine Image , Consider them as OS + additional package bundle
- EBS : Elastic Block Storage , Hard disc or storage option for your EC2 . Can be scaled up but cant be scaled down
- Root volume : disc on which the operating system will run.
- Security Group : Firewall to your insance. First thing to check if we are receiving connection related issues
- Snapshot - Cold backup of your EBS volume . In the background stored in S3 , but cant be seen in the bucket by us
- Key pair - Private key , need to be used to login to your instance. Can only be downloaded once
- Tags - Used to add information about the AWS resource