

AWS Assignment

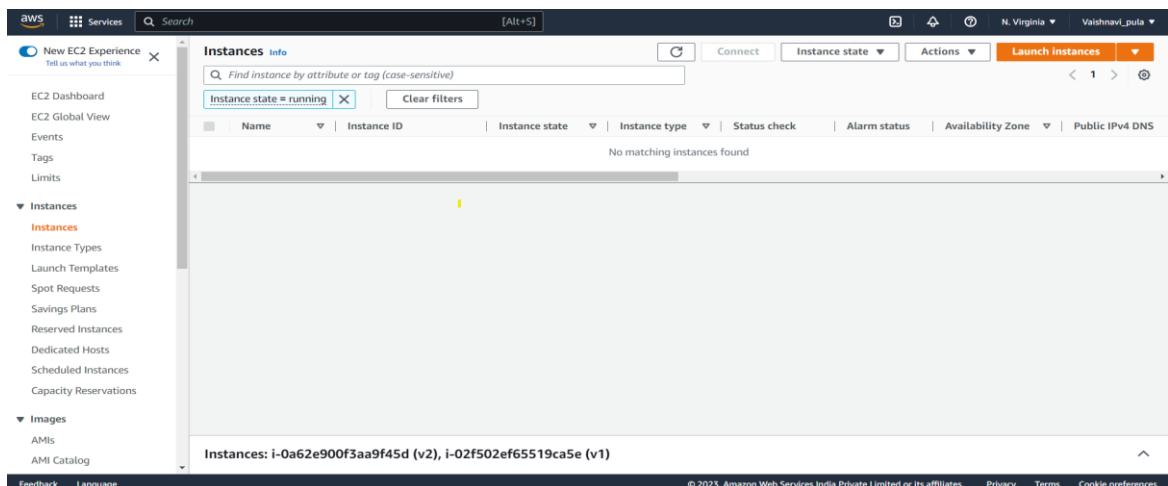
This assignment is deployed below Architecture AWS account to all learners which follow user connect to, and use a Linux instance. An instance is a virtual server/machine (VM) in the AWS Cloud running a specific operating system and can be used to host applications and databases.

The goal

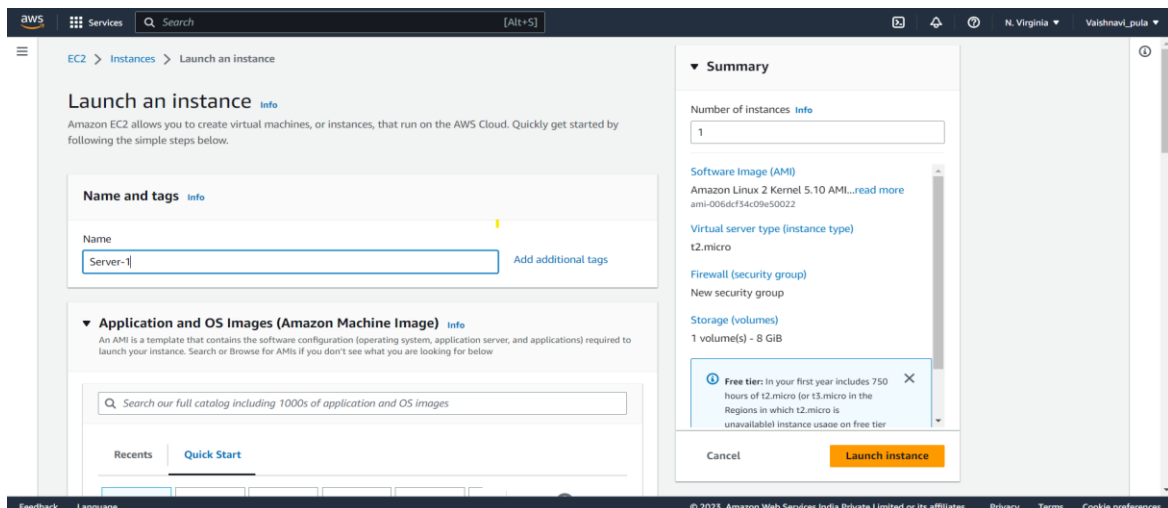
The following are the goals of this hands-on:

1. Understand the process of launching an instance
2. Install a simple http webserver
3. Access the site from a browser
4. Connect to the instance via SSH (optional for non-technical learners)
5. Terminate an instance

1. EC2 Instance Launch Page



2. EC2 Name and Tag Creation



3. EC2 AMI Selection

Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

Recents Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat S Browse more AMIs

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type
ami-006dcf34c09e50022 (64-bit x86) / ami-0f25a6bdc5bda58 (64-bit Arm)
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2 Kernel 5.10 AMI 2.0.20230221.0 x86_64 HVM gp2

Architecture AMI ID

64-bit (x86) ami-006dcf34c09e50022 Verified provider

Summary

Number of instances Info

1

Software Image (AMI)

Amazon Linux 2 Kernel 5.10 AMI...read more
ami-006dcf34c09e50022

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier

Cancel Launch instance

4. EC2 Key Pair Creation

Create key pair

Key pairs allow you to connect to your instance securely.

Enter the name of the key pair below. When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. [Learn more](#)

Key pair name

key-V1

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

☒ RSA
RSA encrypted private and public key pair

☐ ED25519
ED25519 encrypted private and public key pair (Not supported for Windows instances)

Private key file format

☒ .pem
For use with OpenSSH

☐ .ppk
For use with PuTTY

Cancel Create key pair

5. EC2 Security Group Creation (SSH ,HTTP ,HTTPS)

VPC - required Info

vpc-072d21b6f9f1abc68 (default) 172.31.0.0/16

Subnet Info

subnet-0978db24e81f4e103 sub1-default VPC: vpc-072d21b6f9f1abc68 Owner: 467953945382 Availability Zone: us-east-1a IP addresses available: 249 CIDR: 172.31.0.0/24

Auto-assign public IP Info

Enable

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group ☐ Select existing security group

Security group name - required

launch-wizard-1

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, 0-9, spaces, and _-~[!@#%&*~]~[!@#%&*~]

Description - required Info

launch-wizard-1 created 2023-03-04T16:00:55.191Z

Inbound security groups rules

Summary

Number of instances Info

1

Software Image (AMI)

Amazon Linux 2 Kernel 5.10 AMI...read more
ami-006dcf34c09e50022

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier

Cancel Launch instance

Security group rule 2 (TCP, 80, 0.0.0.0/0)

Type	Protocol	Port range
HTTP	TCP	80

Security group rule 3 (TCP, 443, 0.0.0.0/0)

Type	Protocol	Port range
HTTPS	TCP	443

Summary

- Number of instances: 1
- Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro) in the Regions in which t2.micro is unavailable instance usage on free tier

Launch instance

6. EC2 VPC and Subnet Selection

VPC - required

vpc-072d21b6f9f1abc68 (default)

Subnet

subnet-0978db24e81f4e103 sub-1-default

Auto-assign public IP

Enable

Firewall (security groups)

Create security group

Security group name - required

launch-wizard-1

Description - required

launch-wizard-1 created 2023-03-04T16:00:55.191Z

Summary

- Number of instances: 1
- Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro) in the Regions in which t2.micro is unavailable instance usage on free tier

Launch instance

7. EC2 EBS Volume Selection

Storage (volumes)

EBS Volumes

Volume 1 (AMI Root)

Storage type	Device name - required	Snapshot
EBS	/dev/xvda	snap-0d521a3c01cf13eee

Size (GiB)

8

Volume type

gp2

IOPS

100 / 3000

Delete on termination

Yes

Encrypted

Not encrypted

KMS key info

Select

Summary

- Number of instances: 1
- Software Image (AMI): Amazon Linux 2 Kernel 5.10 AMI
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro) in the Regions in which t2.micro is unavailable instance usage on free tier

Launch instance

8. User Data Insertion Page with below command

```
#!/bin/bash
```

```
yum update -y
```

```
yum install httpd -y
```

```
service httpd start
```

```
chkconfig httpd on
```

```
IP_ADDR=$(curl http://169.254.169.254/latest/meta-data/public-ipv4)
```

```
echo "Manual instance with IP $IP_ADDR" > /var/www/html/index.html
```

The screenshot shows the AWS 'Launch Instance' wizard. The 'User data' field contains the following commands:

```
#!/bin/bash
yum update -y
yum install httpd -y
service httpd start
chkconfig httpd on
IP_ADDR=$(curl http://169.254.169.254/latest/meta-data/public-ipv4)
echo "Manual instance with IP $IP_ADDR" > /var/www/html/index.html
```

The 'Summary' section on the right displays the following configuration:

- Number of instances: 1
- Software Image (AMI): Amazon Linux 2 Kernel 5.10 AML...
ami-006d6f34c09e50022
- Virtual server type (instance type): t2.micro
- Firewall (security group): New security group
- Storage (volumes): 1 volume(s) - 8 GiB

A 'Free tier' notification states: 'Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier'.

9. EC2 Launch Logs

The screenshot shows the 'Launch Instance' page with a 'Success' status. The 'Launch log' section shows the following steps and their status:

- Initializing requests: Succeeded
- Creating security groups: Succeeded
- Creating security group rules: Succeeded
- Launch initiation: Succeeded

The 'Next Steps' section provides guidance on how to proceed:

- Create billing and free tier usage alerts: To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds. [Create billing alerts](#)
- Connect to your instance: Once your instance is running, log into it from your local computer. [Connect to instance](#)
- Connect an RDS database: Configure the connection between an EC2 instance and a database to allow traffic flow between them. [Connect an RDS database](#)

10. EC2 Instance Running State

The screenshot shows the AWS Management Console interface for the EC2 service. The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, Events, Tags, Limits, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations, Images, AMIs, and AMI Catalog. The main content area displays the 'Instances (4) Info' page. A search bar at the top allows filtering by attribute or tag. Below the search bar, a filter 'Instance state = running' is applied. A table lists four instances, all in a 'Running' state. The table columns include Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, and Public IPv4 DNS. The instances are: Server-1 (i-0f391b676b64089c2), 1 (i-02f09e690465a7f47), 3 (i-03beaba32adb11641), and 2 (i-0bf937f3639e733e). All instances are t2.micro type and have 2/2 checks passed. The bottom of the console shows the footer with copyright information and links to Privacy, Terms, and Cookie preferences.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
Server-1	i-0f391b676b64089c2	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	ec2-3-88-138-18
1	i-02f09e690465a7f47	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	-
3	i-03beaba32adb11641	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	ec2-184-72-190-
2	i-0bf937f3639e733e	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	-

11. EC2 Summary Page with Public and Private IP

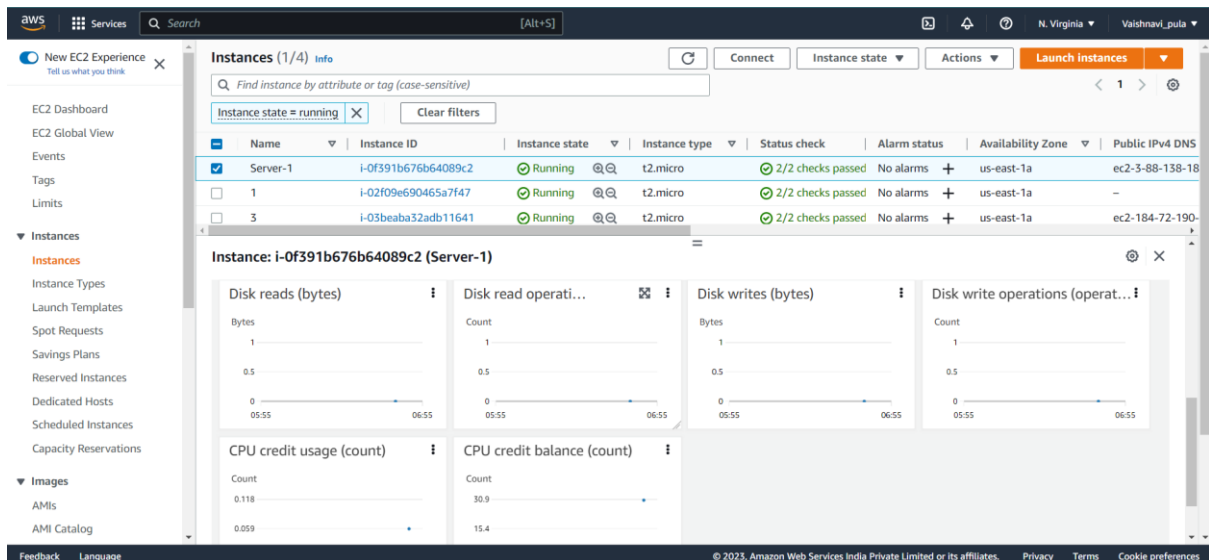
The screenshot shows the AWS Management Console interface for the EC2 service, displaying the 'Instance: i-0f391b676b64089c2 (Server-1)' summary page. The left sidebar is the same as in the previous screenshot. The main content area shows the instance details. The 'Details' tab is selected, showing the instance ID, name, and various addresses. The 'Instance summary' section includes the instance ID, name, and various addresses. The 'Public IPv4 address' is 3.88.138.18. The 'Private IPv4 addresses' are 172.31.1.121. The 'Public IPv4 DNS' is ec2-3-88-138-18.compute-1.amazonaws.com. The 'Private IP DNS name (IPv4 only)' is ip-172-31-1-121.ec2.internal. The 'Elastic IP addresses' section is empty. The bottom of the console shows the footer with copyright information and links to Privacy, Terms, and Cookie preferences.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
Server-1	i-0f391b676b64089c2	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	ec2-3-88-138-18
1	i-02f09e690465a7f47	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	-
3	i-03beaba32adb11641	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	ec2-184-72-190-
2	i-0bf937f3639e733e	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	-

12. EC2 Instance Monitoring Page

The screenshot shows the AWS Management Console interface for the EC2 service, displaying the 'Instance: i-0f391b676b64089c2 (Server-1)' monitoring page. The left sidebar is the same as in the previous screenshots. The main content area shows the instance monitoring metrics. The 'CPU utilization (%)' chart shows a peak of 39%. The 'Status check failed (any)' chart shows 1 failure. The 'Status check failed (system)' chart shows 1 failure. The 'Network in (bytes)' chart shows 93.5M bytes. The 'Network out (bytes)' chart shows 115K bytes. The 'Network packets in (count)' chart shows 7.75K packets. The 'Network packets out (count)' chart shows 1.86K packets. The bottom of the console shows the footer with copyright information and links to Privacy, Terms, and Cookie preferences.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
Server-1	i-0f391b676b64089c2	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	ec2-3-88-138-18
1	i-02f09e690465a7f47	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	-
3	i-03beaba32adb11641	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	ec2-184-72-190-



13. SSH Access of EC2 instance in Local Machine.

```

ec2-user@ip-172-31-1-121:~
Microsoft Windows [Version 10.0.22621.1265]
(c) Microsoft Corporation. All rights reserved.

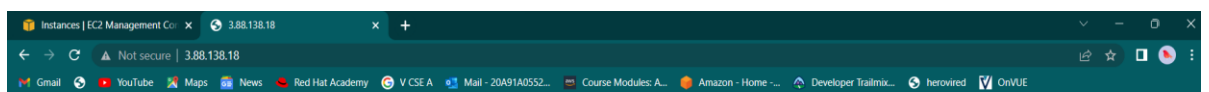
C:\Users\vaishnavi\Documents\A_Herowired\Activities\Assignment-4>ssh -i "key-V1.pem" ec2-user@ec2-3-88-138-18.compute-1.
amazonaws.com
The authenticity of host 'ec2-3-88-138-18.compute-1.amazonaws.com (3.88.138.18)' can't be established.
ED25519 key fingerprint is SHA256:5WjEkLWkxZZD/aPha9OD2Wv6DrE6zp9/NtFf6fyN70k.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-3-88-138-18.compute-1.amazonaws.com' (ED25519) to the list of known hosts.

    __|__|_ )
    _| ( _| /  Amazon Linux 2 AMI
    ---\____|

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-1-121 ~]$

```

14. Browsing EC2 instance in the Browser Local Machine.



Manual instance with IP 3.88.138.18

15. Terminating the Resource.

The screenshot shows the AWS Management Console interface. On the left, the navigation pane includes 'New EC2 Experience', 'EC2 Dashboard', 'EC2 Global View', 'Events', 'Tags', 'Limits', and a list of services under 'Instances' and 'Images'. The main content area is titled 'Instances (1/4) Info'. A search bar at the top allows filtering by attribute or tag. A filter is applied: 'Instance state = running'. Below the search bar, a table lists three instances. The first instance, 'Server-1' (ID: i-0f391b676b64089c2), is selected. A context menu is open over this instance, showing options: 'Stop instance', 'Start instance', 'Reboot instance', 'Hibernate instance', and 'Terminate instance'. The 'Terminate instance' option is highlighted. Below the table, the details for the selected instance 'i-0f391b676b64089c2 (Server-1)' are displayed, including tabs for 'Details', 'Security', 'Networking', 'Storage', 'Status checks', 'Monitoring', and 'Tags'. The 'Details' tab is active, showing the instance ID, IP addresses, hostname type, and other configuration details.

Name	Instance ID	Instance state	Instance type	Status	Availability Zone	Public IPv4 DNS
Server-1	i-0f391b676b64089c2	Running	t2.micro	2/2 checks passed	us-east-1a	ec2-3-88-138-18
1	i-02f09e690465a7f47	Running	t2.micro	2/2 checks passed	us-east-1a	-
3	i-03beaba32adb11641	Running	t2.micro	2/2 checks passed	us-east-1a	ec2-184-72-190

Instance: i-0f391b676b64089c2 (Server-1)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

Instance summary Info

Instance ID: i-0f391b676b64089c2 (Server-1)

Public IPv4 address: 3.88.138.18 | [open address](#)

Private IPv4 addresses: 172.31.1.121

Public IPv4 DNS: ec2-3-88-138-18.compute-1.amazonaws.com | [open address](#)

Instance state: Running

Private IP DNS name (IPv4 only): ip-172-31-1-121.ec2.internal

Instance type: t2.micro

The screenshot shows the AWS Management Console interface after the termination of the instance. The main content area is titled 'Instances (5) Info'. The filter 'Instance state = running' is still applied. The table now shows only one instance, 'Server-1' (ID: i-0ac1ce91880265d6e), which is in the 'Terminated' state. Below the table, a message says 'Select an instance'.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
Server-1	i-0ac1ce91880265d6e	Terminated	t2.micro	-	No alarms	us-east-1a	-

Select an instance