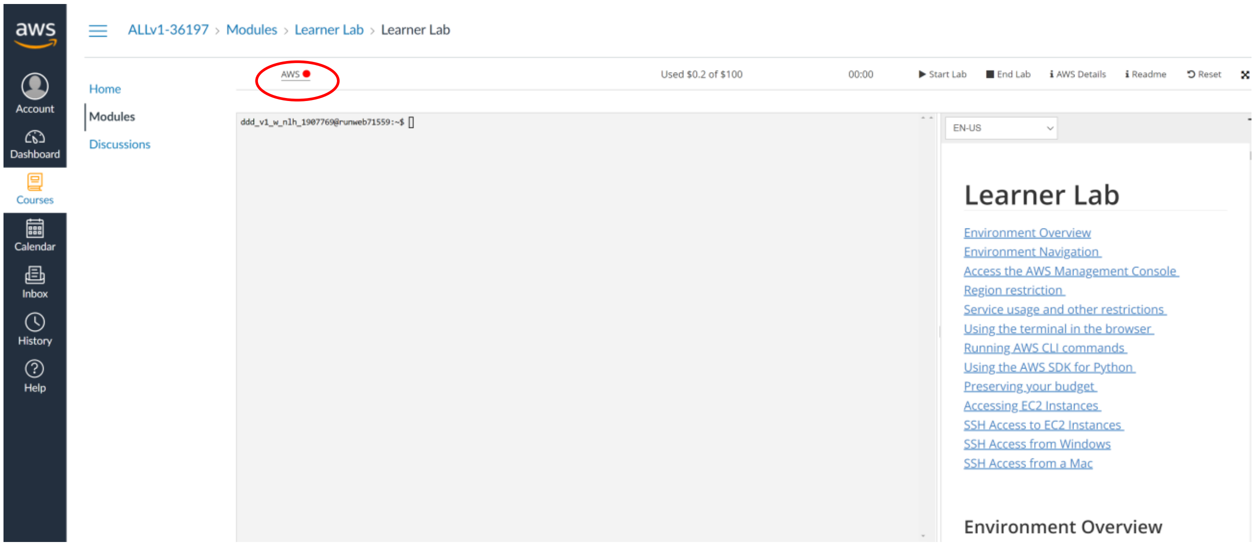
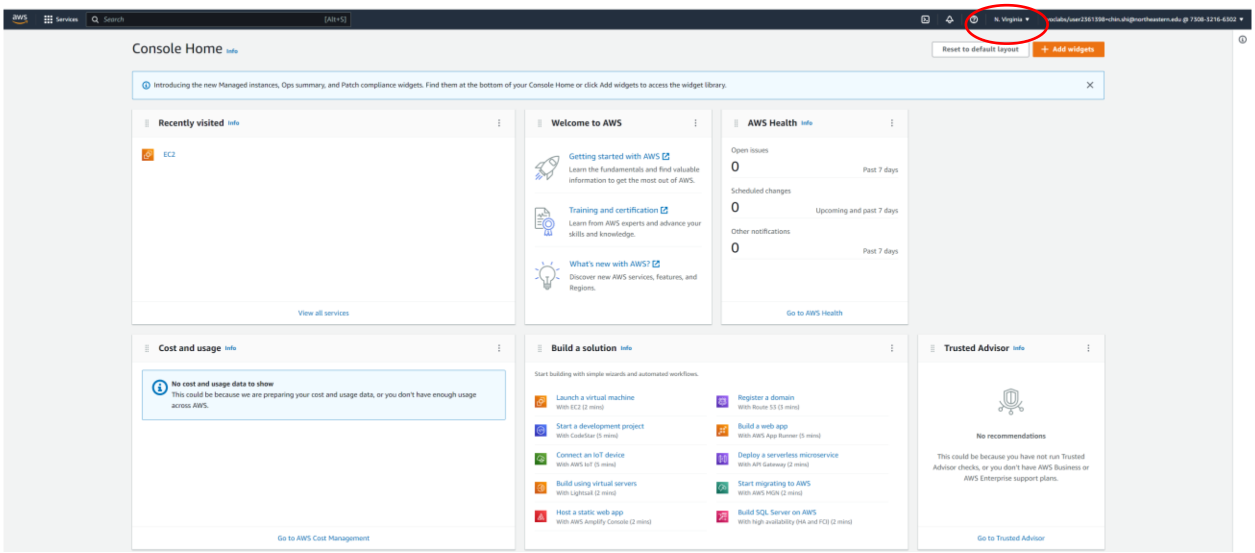
Set Up AWS EC2

1. Open AWS Learner Lab. Click the Start Lab button



```
ddd_v1_w_nlh_1907769@runweb71559:~$ 
```

2. Wait for the dot right of AWS turn green. Click on it will bring you to the AWS console page. Remember to switch your region to US West (Oregon) which is the closest region to Seattle



Introducing the new Managed instances, Ops summary, and Patch compliance widgets. Find them at the bottom of your Console Home or click Add widgets to access the widget library.

Learn the fundamentals and find valuable information to get the most out of AWS.

Learn from AWS experts and advance your skills and knowledge.

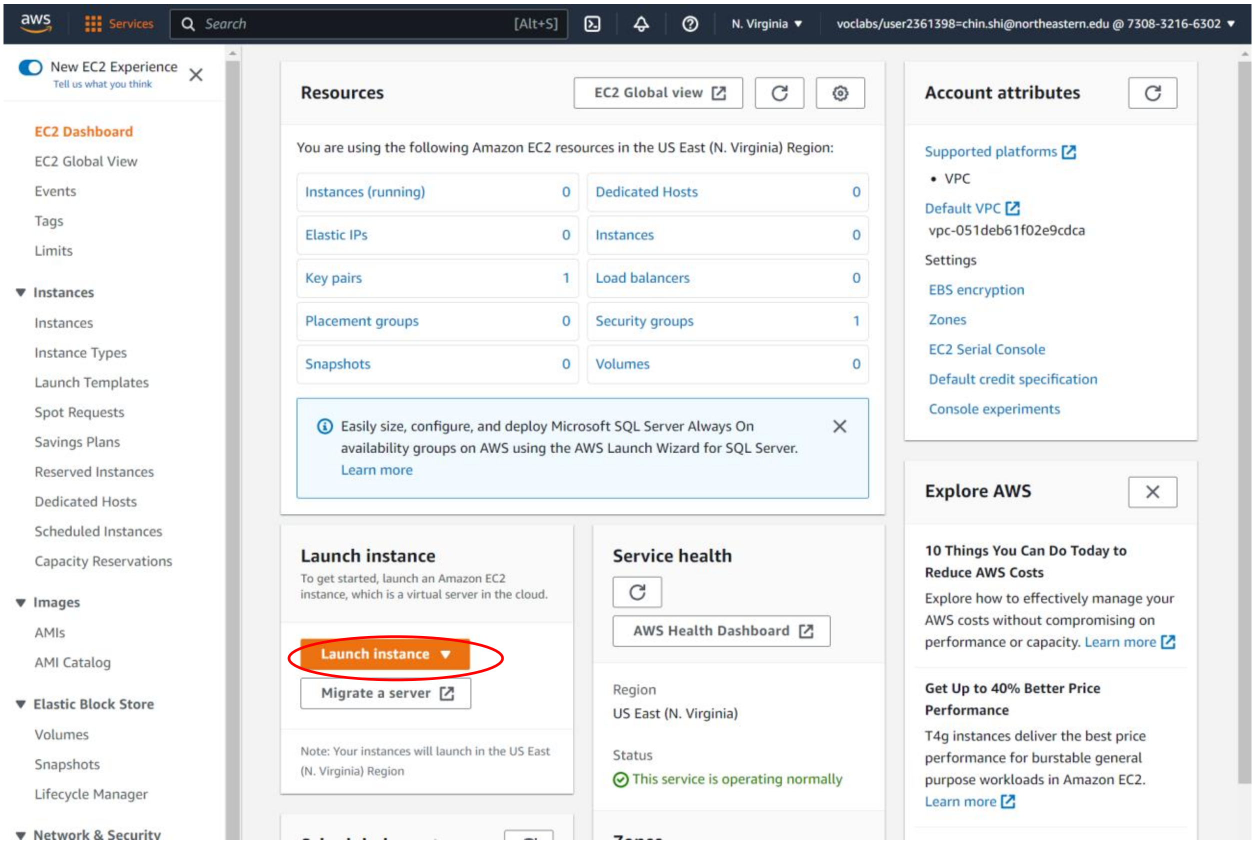
Discover new AWS services, features, and Regions.

This could be because we are preparing your cost and usage data, or you don't have enough usage across AWS.

Start building with simple wizards and automated workflows.

This could be because you have not run Trusted Advisor checks, or you don't have AWS Business or AWS Enterprise support plans.

3. Go to EC2 Dashboard. Click Launch an instance



Resources

You are using the following Amazon EC2 resources in the US East (N. Virginia) Region:

Instances (running)	0	Dedicated Hosts	0
Elastic IPs	0	Instances	0
Key pairs	1	Load balancers	0
Placement groups	0	Security groups	1
Snapshots	0	Volumes	0

Easily size, configure, and deploy Microsoft SQL Server Always On availability groups on AWS using the AWS Launch Wizard for SQL Server. Learn more

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Note: Your instances will launch in the US East (N. Virginia) Region

Service health

Region
US East (N. Virginia)

Status
This service is operating normally

Account attributes

Supported platforms
- VPC

Default VPC
vpc-051deb61f02e9cdca

Settings
EBS encryption
Zones
EC2 Serial Console
Default credit specification
Console experiments

Explore AWS

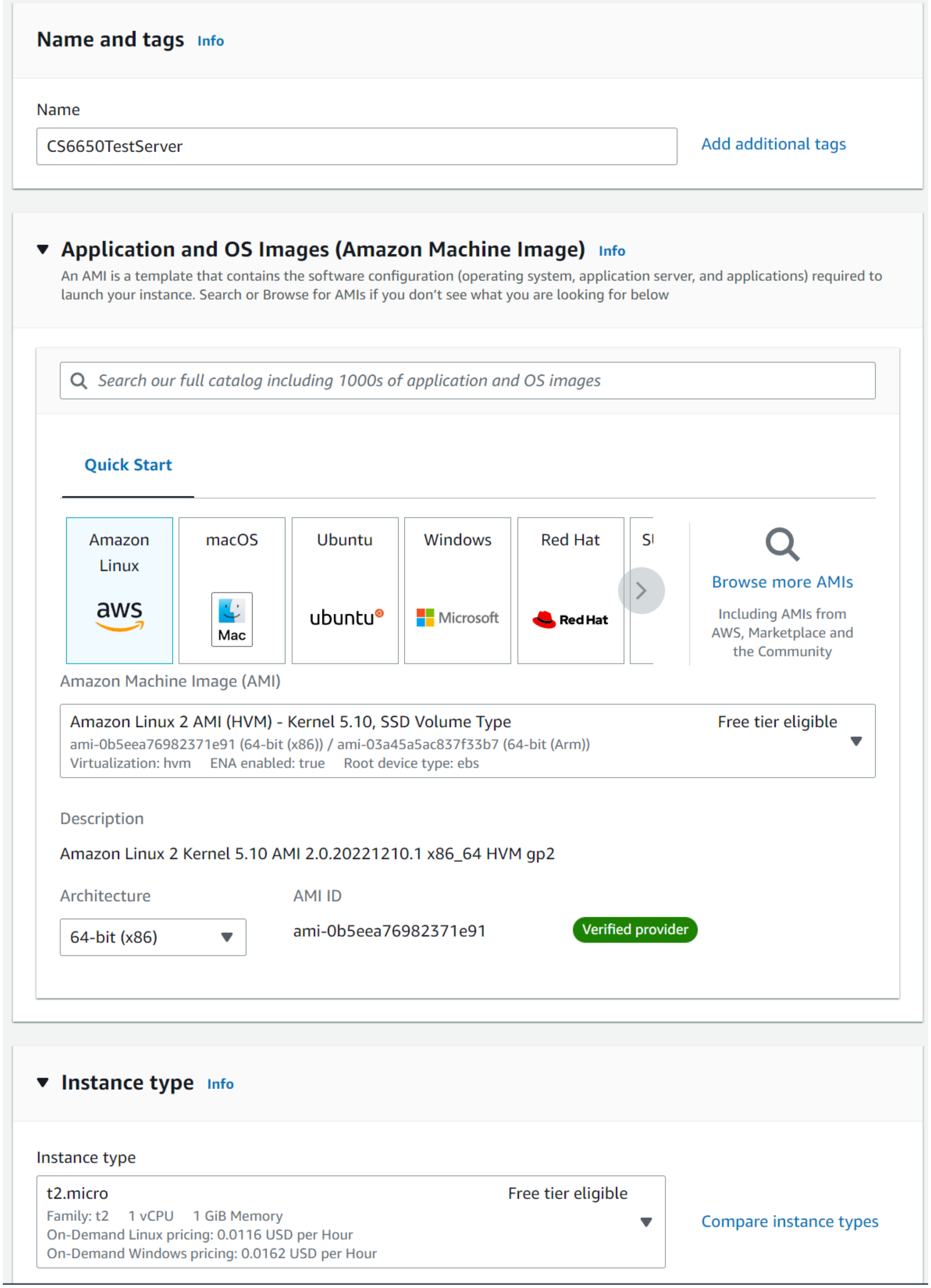
10 Things You Can Do Today to Reduce AWS Costs

Explore how to effectively manage your AWS costs without compromising on performance or capacity. Learn more

Get Up to 40% Better Price Performance

T4g instances deliver the best price performance for burstable general purpose workloads in Amazon EC2. Learn more

4. Select Amazon Linus as AMI. Select t2.micro as start



Name and tags Info

Name

CS6650TestServer

Add additional tags

▼ 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

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type — Free tier eligible
ami-0b5eea76982371e91 (64-bit (x86)) / ami-03a45a5ac837f33b7 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2 Kernel 5.10 AMI 2.0.20221210.1 x86_64 HVM gp2

Architecture: 64-bit (x86)

AMI ID: ami-0b5eea76982371e91

Verified provider

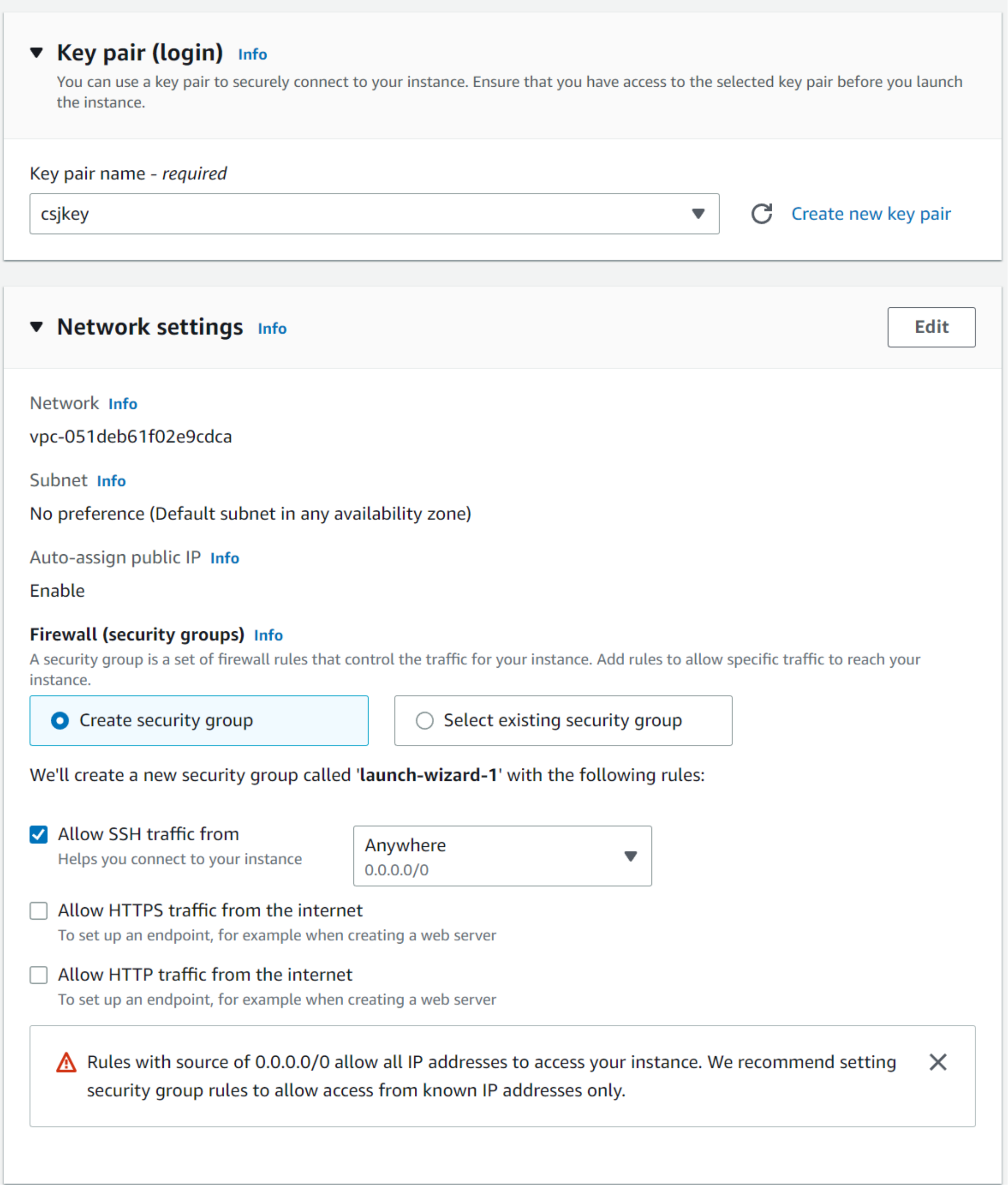
▼ Instance type Info

Instance type

t2.micro — Free tier eligible
Family: t2 1 vCPU 1 GiB Memory
On-Demand Linux pricing: 0.0116 USD per Hour
On-Demand Windows pricing: 0.0162 USD per Hour

Compare instance types

5. Select the key value pair for SSH. You need to create new one if you don’t have



Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

csjkey

Network settings Info

Network Info

vpc-051deb61f02e9cdca

Subnet Info

No preference (Default subnet in any availability zone)

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

We'll create a new security group called '**launch-wizard-1**' with the following rules:

☑ Allow SSH traffic from — Anywhere 0.0.0.0/0
Helps you connect to your instance

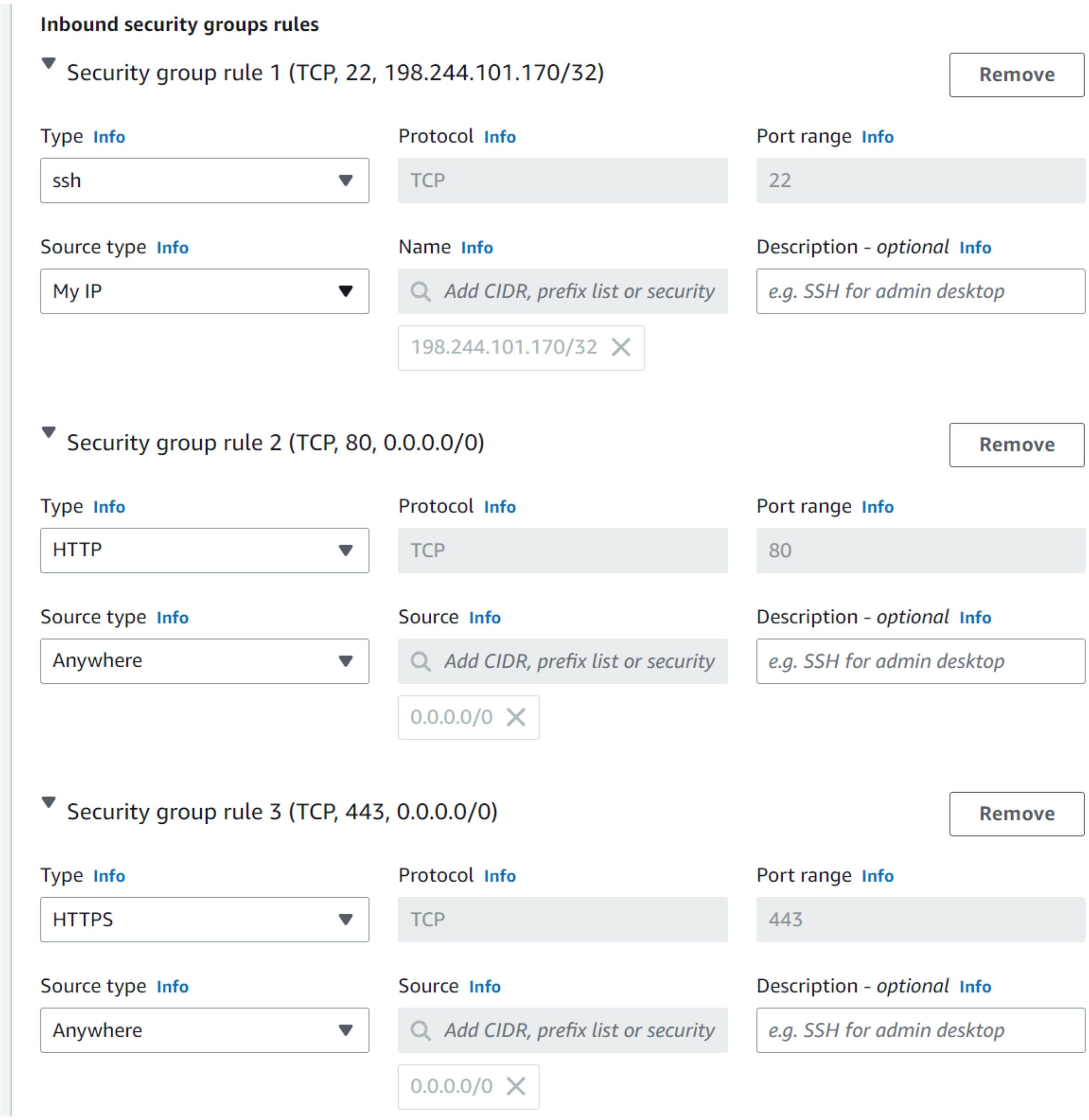
□ Allow HTTPS traffic from the internet
To set up an endpoint, for example when creating a web server

□ Allow HTTP traffic from the internet
To set up an endpoint, for example when creating a web server

⚠ Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

6. Customize your security group setting. Note below only shows three rules being configured. But for the assignments, you will need to allow inbound traffic for
    - port 22 for ssh
    - port 80 for http
    - port 8080 for Tomcat
    - other new ports for applications (RabbitMQ etc)

   For the traffic sources, always try to limit to My IP address first.



Inbound security groups rules

▼ Security group rule 1 (TCP, 22, 198.244.101.170/32) — Remove

Type Info: ssh ▼
Protocol Info: TCP
Port range Info: 22
Source type Info: My IP ▼
Name Info: *Add CIDR, prefix list or security*
198.244.101.170/32 ✕
Description - *optional* Info: *e.g. SSH for admin desktop*

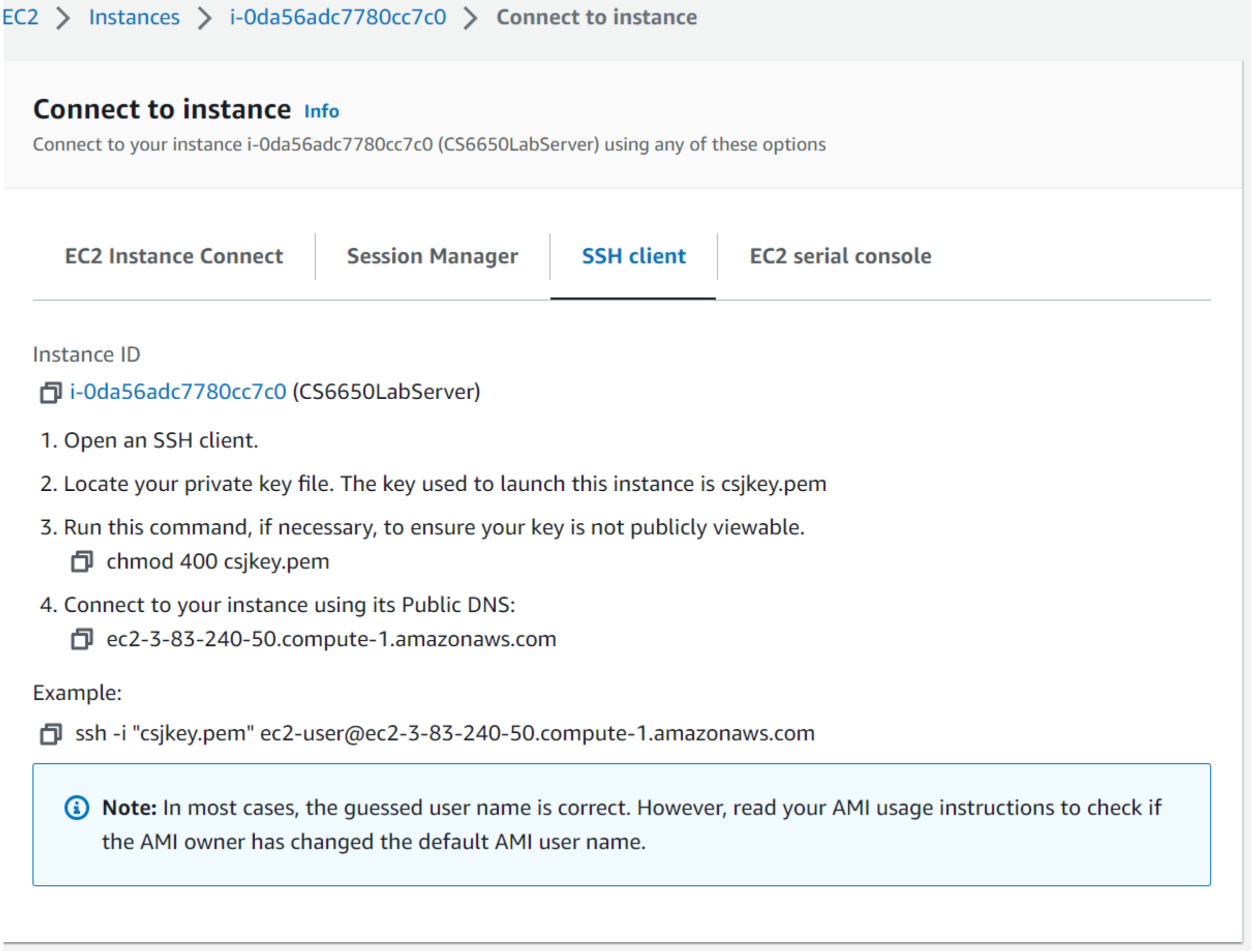
▼ Security group rule 2 (TCP, 80, 0.0.0.0/0) — Remove

Type Info: HTTP ▼
Protocol Info: TCP
Port range Info: 80
Source type Info: Anywhere ▼
Source Info: *Add CIDR, prefix list or security*
0.0.0.0/0 ✕
Description - *optional* Info: *e.g. SSH for admin desktop*

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

Type Info: HTTPS ▼
Protocol Info: TCP
Port range Info: 443
Source type Info: Anywhere ▼
Source Info: *Add CIDR, prefix list or security*
0.0.0.0/0 ✕
Description - *optional* Info: *e.g. SSH for admin desktop*

7. Once you launch the instance. See how to connect to the instance using SSH



EC2 > Instances > i-0da56adc7780cc7c0 > Connect to instance

Connect to instance Info

Connect to your instance i-0da56adc7780cc7c0 (CS6650LabServer) using any of these options

Instance ID

i-0da56adc7780cc7c0 (CS6650LabServer)

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is csjkey.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.

```
chmod 400 csjkey.pem
```

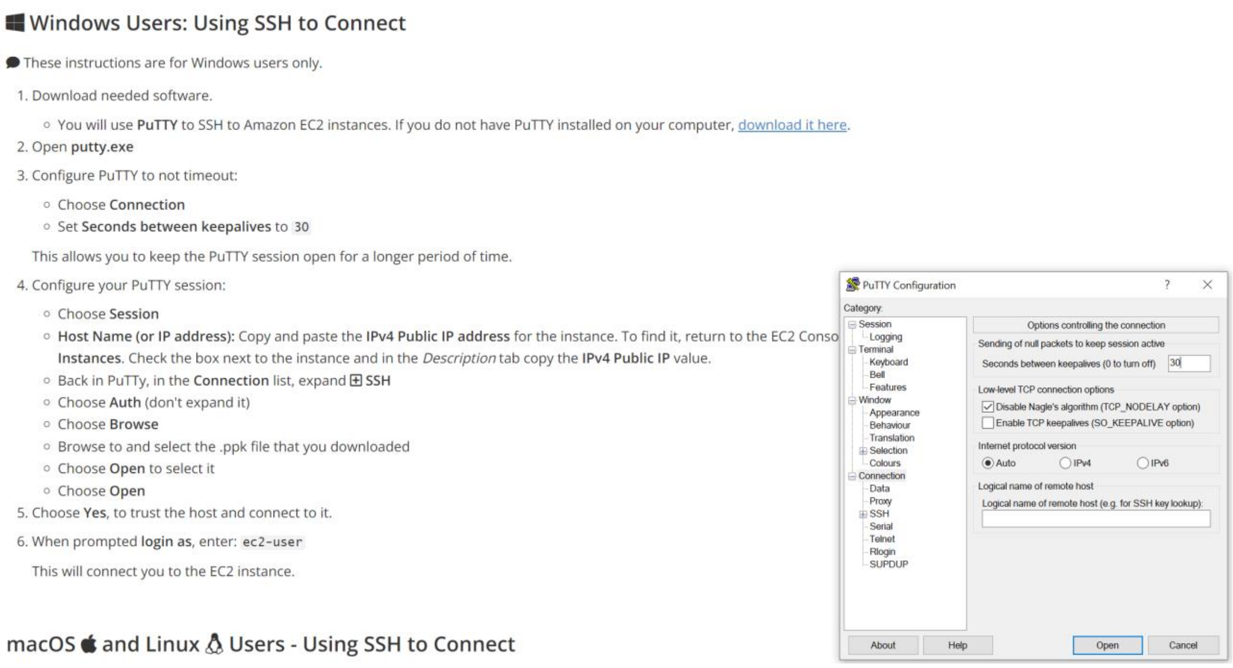
4. Connect to your instance using its Public DNS:

```
ec2-3-83-240-50.compute-1.amazonaws.com
```

Example:

```
ssh -i "csjkey.pem" ec2-user@ec2-3-83-240-50.compute-1.amazonaws.com
```

Note: In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.



Windows Users: Using SSH to Connect

These instructions are for Windows users only.

1. Download needed software.
   - You will use **PuTTY** to SSH to Amazon EC2 instances. If you do not have PuTTY installed on your computer, download it here.
2. Open **putty.exe**
3. Configure PuTTY to not timeout:
   - Choose **Connection**
   - Set **Seconds between keepalives** to `30`

   This allows you to keep the PuTTY session open for a longer period of time.
4. Configure your PuTTY session:
   - Choose **Session**
   - **Host Name (or IP address):** Copy and paste the **IPv4 Public IP address** for the instance. To find it, return to the EC2 Conso **Instances**. Check the box next to the instance and in the *Description* tab copy the **IPv4 Public IP** value.
   - Back in PuTTy, in the **Connection** list, expand ⊞ **SSH**
   - Choose **Auth** (don't expand it)
   - Choose **Browse**
   - Browse to and select the .ppk file that you downloaded
   - Choose **Open** to select it
   - Choose **Open**
5. Choose **Yes**, to trust the host and connect to it.
6. When prompted **login as**, enter: `ec2-user`

   This will connect you to the EC2 instance.

PuTTY Configuration

Options controlling the connection

Sending of null packets to keep session active

Seconds between keepalives (0 to turn off) 30

Low-level TCP connection options

☑ Disable Nagle's algorithm (TCP_NODELAY option)

☐ Enable TCP keepalives (SO_KEEPALIVE option)

Internet protocol version

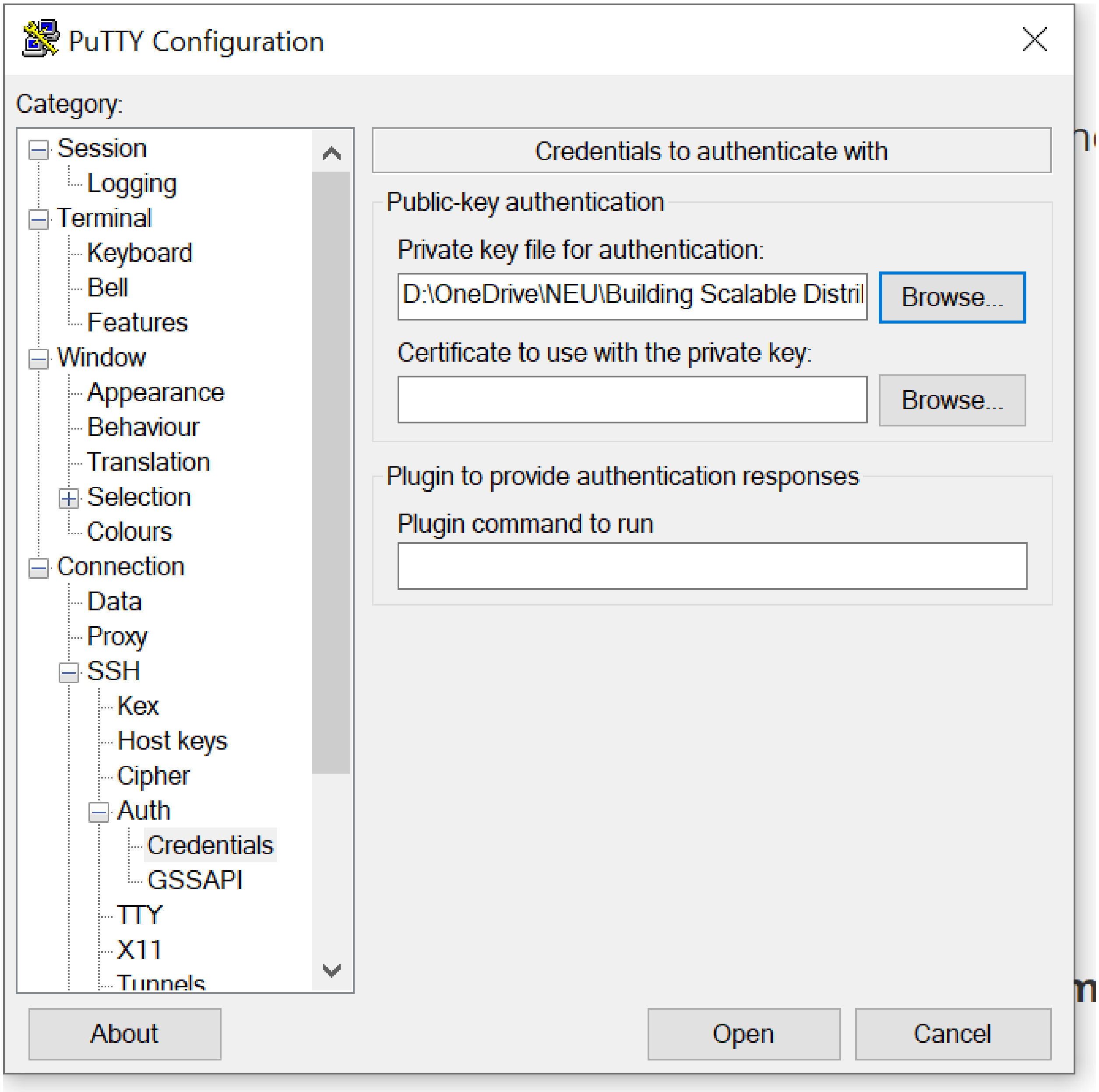
● Auto ○ IPv4 ○ IPv6

Logical name of remote host

Logical name of remote host (e.g. for SSH key lookup):

macOS and Linux Users - Using SSH to Connect

8. Example for SSH from Window machine, in PuTTY Configuration program, load your private key under Connection -> SSH -> Auth -> Credentials

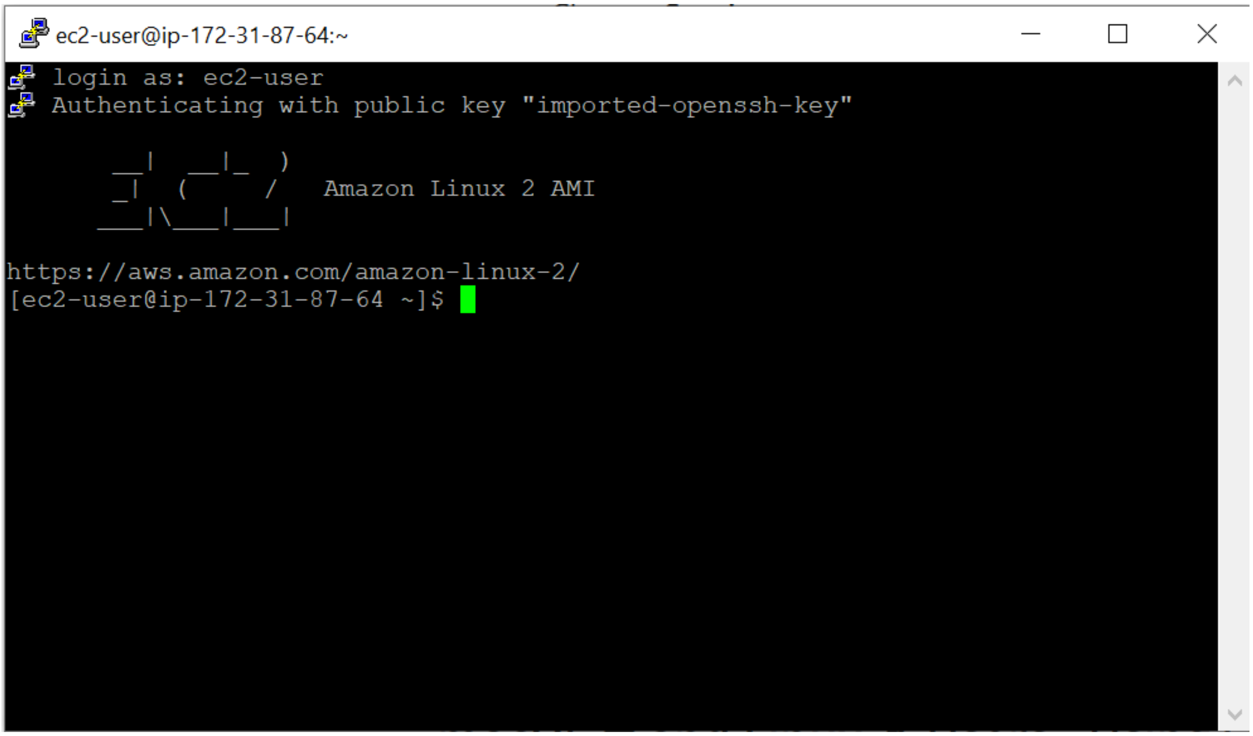


Private key file for authentication:
D:\OneDrive\NEU\Building Scalable Distril

Certificate to use with the private key:

Plugin command to run

9. Sample for successful SSH into your EC2 instance via Putty

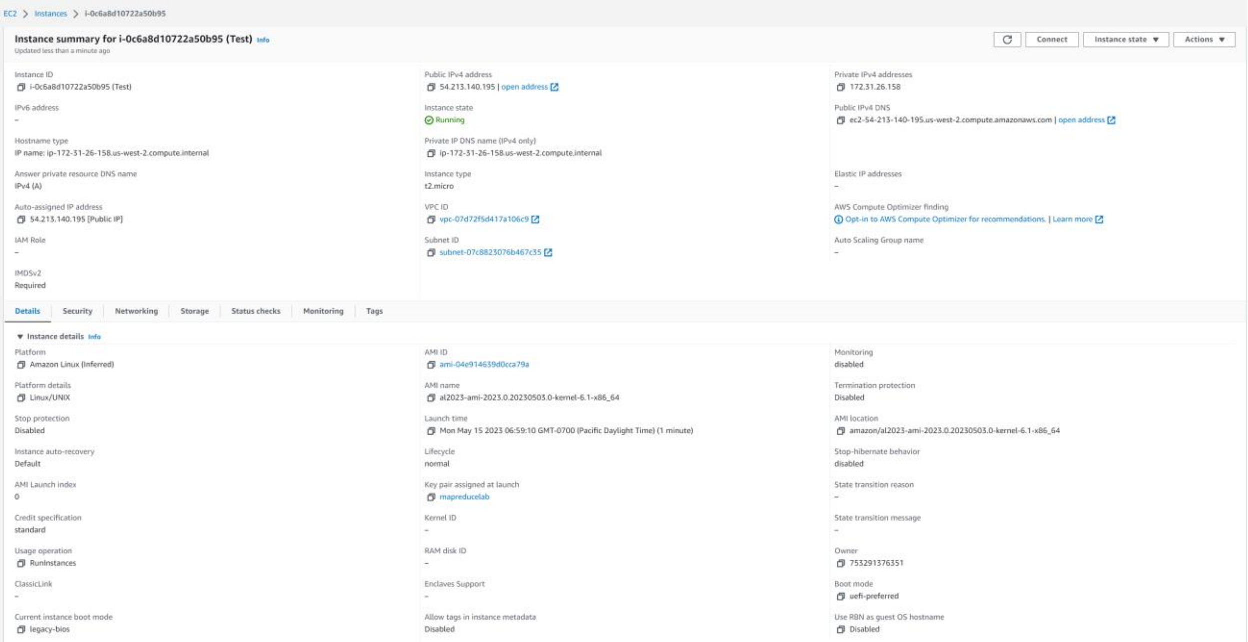


```
login as: ec2-user
Authenticating with public key "imported-openssh-key"

       __|  __|_  )
       _|  (     /   Amazon Linux 2 AMI
      ___|\___|___|

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-87-64 ~]$
```

10. Sample for successfully launched EC2 instances



Instance summary for i-0c6a8d10722a50b95 (Test) Info

Updated less than a minute ago

Instance ID
i-0c6a8d10722a50b95 (Test)

IPv6 address
–

Hostname type
IP name: ip-172-31-26-158.us-west-2.compute.internal

Answer private resource DNS name
IPv4 (A)

Auto-assigned IP address
54.213.140.195 [Public IP]

IAM Role
–

IMDSv2
Required

Public IPv4 address
54.213.140.195 | open address

Instance state
Running

Private IP DNS name (IPv4 only)
ip-172-31-26-158.us-west-2.compute.internal

Instance type
t2.micro

VPC ID
vpc-07d72f5d417a106c9

Subnet ID
subnet-07c8823076b467c35

Private IPv4 addresses
172.31.26.158

Public IPv4 DNS
ec2-54-213-140-195.us-west-2.compute.amazonaws.com | open address

Elastic IP addresses
–

AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more

Auto Scaling Group name
–

▼ Instance details Info

Platform
Amazon Linux (Inferred)

Platform details
Linux/UNIX

Stop protection
Disabled

Instance auto-recovery
Default

AMI Launch index
0

Credit specification
standard

Usage operation
RunInstances

ClassicLink
–

Current instance boot mode
legacy-bios

AMI ID
ami-04e914639d0cca79a

AMI name
al2023-ami-2023.0.20230503.0-kernel-6.1-x86_64

Launch time
Mon May 15 2023 06:59:10 GMT-0700 (Pacific Daylight Time) (1 minute)

Lifecycle
normal

Key pair assigned at launch
mapreducelab

Kernel ID
–

RAM disk ID
–

Enclaves Support
–

Allow tags in instance metadata
Disabled

Monitoring
disabled

Termination protection
Disabled

AMI location
amazon/al2023-ami-2023.0.20230503.0-kernel-6.1-x86_64

Stop-hibernate behavior
disabled

State transition reason
–

State transition message
–

Owner
753291376351

Boot mode
uefi-preferred

Use RBN as guest OS hostname
Disabled