

Getting Started with Amazon Web Services (AWSs)

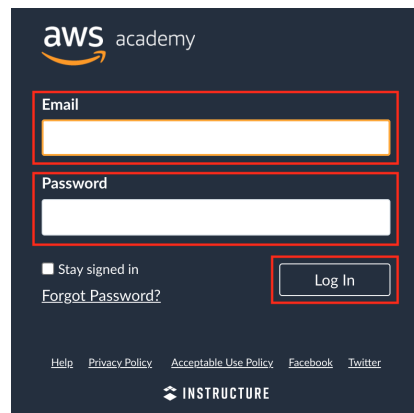
August 25, 2024

1 Introduction

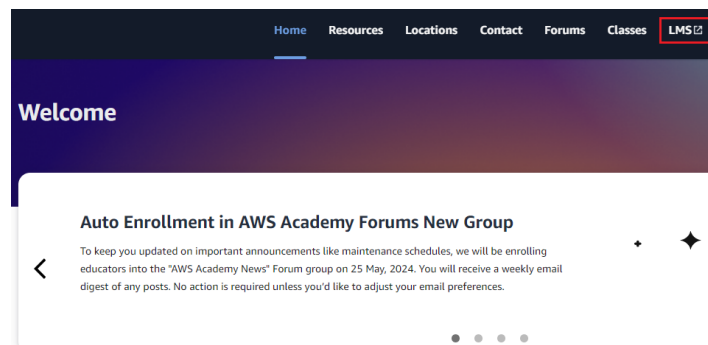
This article explains how get access to a Linux environment using AWSs through *AWS Academy Learner Lab (AWS Lab)*. You will use this platform to work on your assignments for EECS 489 during this semester.

2 Using AWS Academy Learner Lab

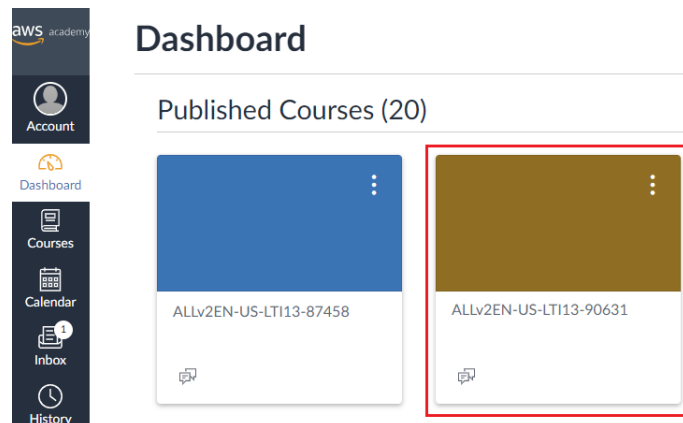
Step 1: You should have received an email invitation that explains how to set up your AWS Lab account. Once you have set it up, go to AWS Lab portal at https://www.awsacademy.com/LMS_Login. Select **Student Login**. Type in your email and password to log in.



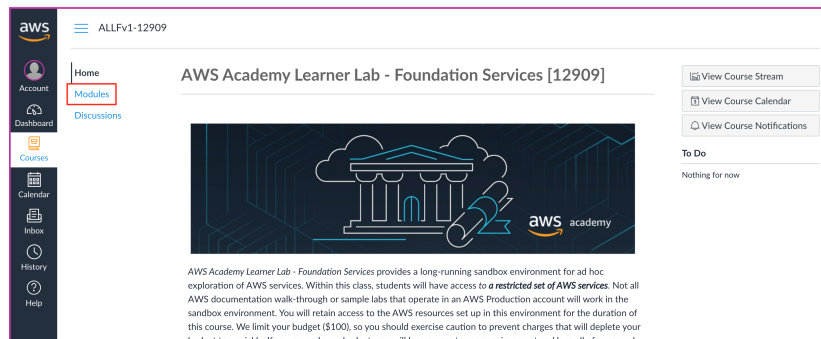
Step 2: Once you have logged in, you should see a welcome screen as given below. Click on the LMS link given at the top right corner



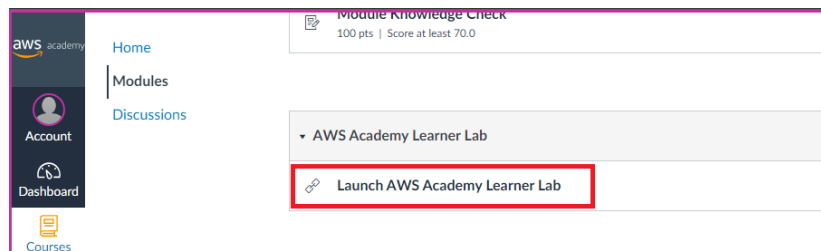
Step 3: This will take you to the AWS Lab dashboard, which looks like the following. You will see a list of courses. Select the one as highlighted below (90631).



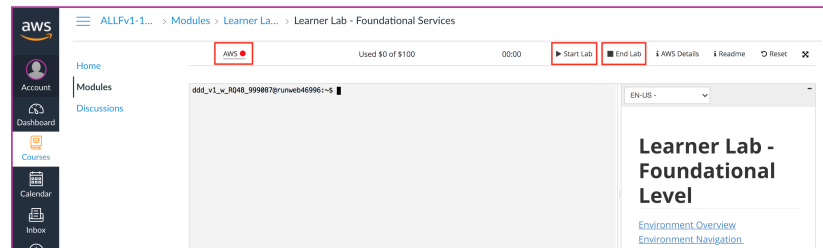
Step 4: It will take you to the course homepage. Select **Modules**.



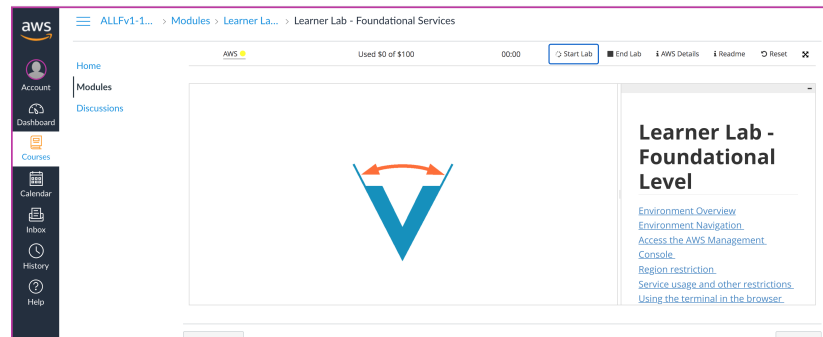
Step 5: Select **Learner Lab - Foundational Services**



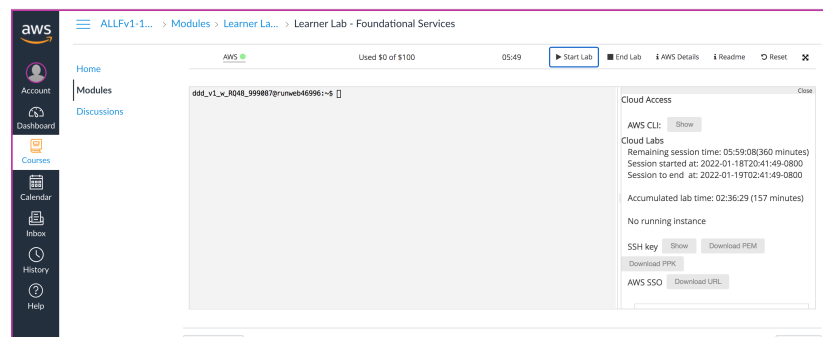
Step 6: This is your lab interface, where the important dials are highlighted using red boxes. The *Readme* includes a collection of helpful documentation on using the lab environment.



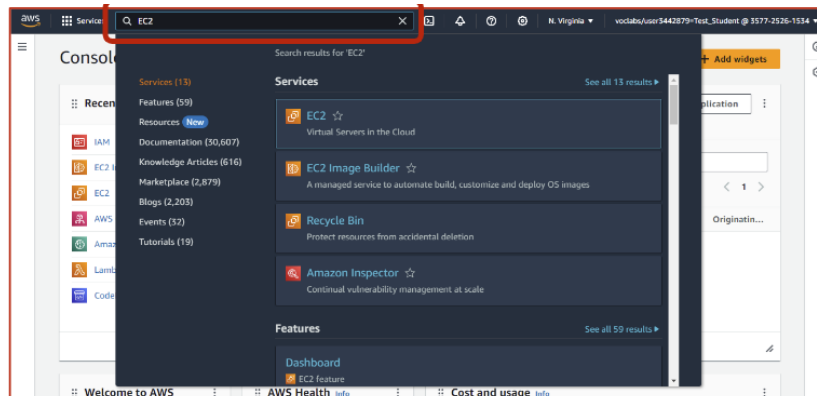
Step 7: Select **Start Lab** to start the lab. This may take several minutes the first time..



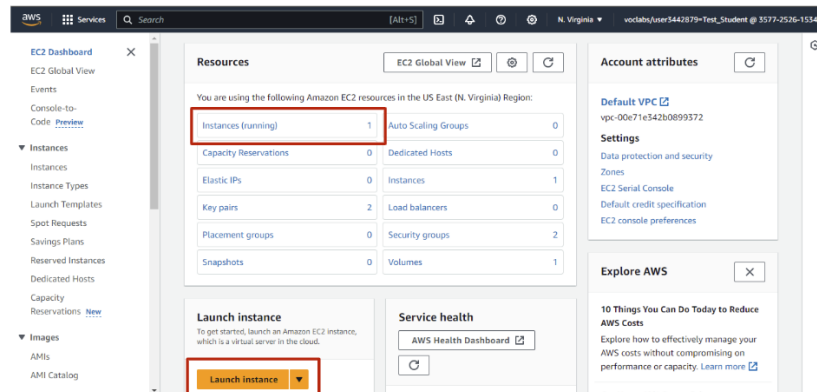
Step 8: Click on **AWS** after the circle next to it has turned **green**.



Step 9: AWS Console Home opens on a new browser tab. After you are in the AWS console, search for “EC2” in the search bar, and then click on it.



Step 10: this will take you to the following screen. To create a new virtual machine, select **Launch an instance**



Step 11: To follow the virtual machine creation workflow, first choose an Amazon Machine Image (AMI), which is a blueprint of a preconfigured machine that is ready to run, when instantiated. Pick the Ubuntu 22.04 “Free tier eligible” AMI.

aws

Services

Search

[Alt+S]

EC2 > Instances > Launch an instance

Launch an instance

Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags

Info

Name

e.g. My Web Server

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

Recents

My AMIs

Quick Start

Amazon Linux

aws

macOS

Mac

Ubuntu

ubuntu

Windows

Microsoft

Red Hat

Red Hat

SUSE Linux

SUS

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Ubuntu Server 22.04 LTS (HVM), SSD Volume Type

Free tier eligible

ami-0a0e5d9c7acc336f1 (64-bit (x86)) / ami-070f589e4b4a3fece (64-bit (Arm))

Virtualization: hvm ENA enabled: true Root device type: ebs

Step 12: Choose the instance type. Select *t3.large*.

▼ Instance type [Info](#) | [Get advice](#)

Instance type

t3.large
Family: t3 2 vCPU 8 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0832 USD per Hour
On-Demand Windows base pricing: 0.1108 USD per Hour
On-Demand RHEL base pricing: 0.1112 USD per Hour
On-Demand SUSE base pricing: 0.1395 USD per Hour

☐ All generations

[Compare instance types](#)

Additional costs apply for AMIs with pre-installed software

Step 13: Scroll down to **Configure storage** and type 32 in the window highlighted.

▼ Configure storage [Info](#) [Advanced](#)

1x **32** GiB **gp2** Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Step 14: From *Key pair (login)* section, select **Create a key pair** if you do not have an existing key pair.

▼ 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

Select [Create new key pair](#)

Step 15: From the pop-up, give your key pair a name and select **Create key pair**. This will download the public key ([Key pair name].pem) that is required to securely connect to your virtual machine. **Important: Do not lose or damage this public key. Without it, you cannot connect to your virtual machine, and you WILL NOT be able to download this key file again.**

Create key pair

Key pair name

Key pairs allow you to connect to your instance securely.

Enter key pair name

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

Private key file format

☒ .pem
For use with OpenSSH

☐ .ppk
For use with PuTTY

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](#)

Cancel Create key pair

Step 16: From *Summary* section, select **Launch Instance** to start your virtual machine.

The screenshot shows the 'Summary' section of the 'Launch Instance' wizard. It includes a 'Number of instances' field set to 1, a 'Software Image (AMI)' dropdown showing 'Canonical, Ubuntu, 22.04 LTS', a 'Virtual server type (instance type)' dropdown showing 't2.xlarge', a 'Firewall (security group)' dropdown showing 'New security group', and a 'Storage (volumes)' section showing '1 volume(s) - 8 GiB'. At the bottom, there is a 'Free tier' notification and two buttons: 'Cancel' and 'Launch instance'.

▼ Summary

Number of instances [Info](#)

1

Software Image (AMI)
Canonical, Ubuntu, 22.04 LTS, ...[read more](#)
ami-053b0d53c279acc90

Virtual server type (instance type)
t2.xlarge

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

Cancel Launch instance

[Review commands](#)

Step 17: Select the instance identifier when you get to **Launch Status** page.

The screenshot shows the 'Launch Status' page. A green banner at the top indicates 'Success: Successfully initiated launch of instance (i-02459c207f589c4b)'. Below this, there are several 'Next Steps' cards: 'Create billing and free tier usage alerts', 'Connect to your instance', 'Connect an RDS database', and 'Create EBS snapshot policy'. Each card has a 'Learn more' link and a button to perform the action.

EC2 > Instances > Launch an Instance

Success
Successfully initiated launch of instance (i-02459c207f589c4b)

Launch log

Next Steps

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](#)
[Learn more](#)

Connect an RDS database
Configure the connection between an EC2 instance and a database to allow traffic flow between them.
[Connect an RDS database](#)
[Create a new RDS database](#)
[Learn more](#)

Create EBS snapshot policy
Create a policy that automates the creation, retention, and deletion of EBS snapshots.
[Create EBS snapshot policy](#)

Step 18: The instance status is **Running**. If not, it may take a little while to get to that state. Select the instance identifier from the **Instances** view.

The screenshot shows the 'Instances' view in the AWS Management Console. A table lists the instances, with the first instance 'i-02459c207f589c4b' highlighted in red. The 'Instance state' column shows 'Running'. Below the table, there is a 'Select an instance' dropdown menu.

Instances (1) info

Find instance by attribute or tag (case-sensitive)

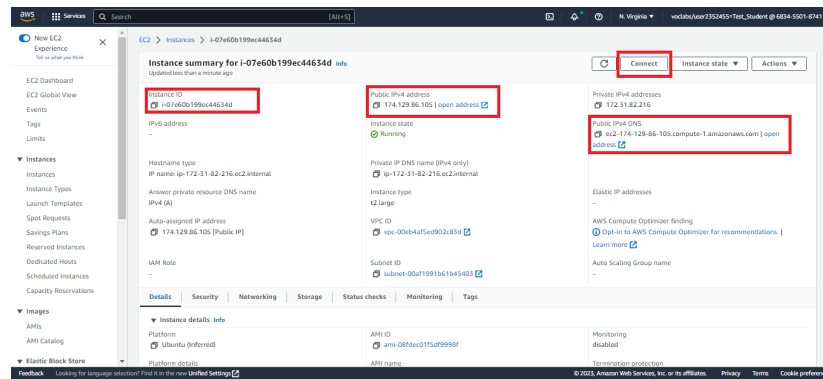
Instance ID = i-02459c207f589c4b

Clear filters

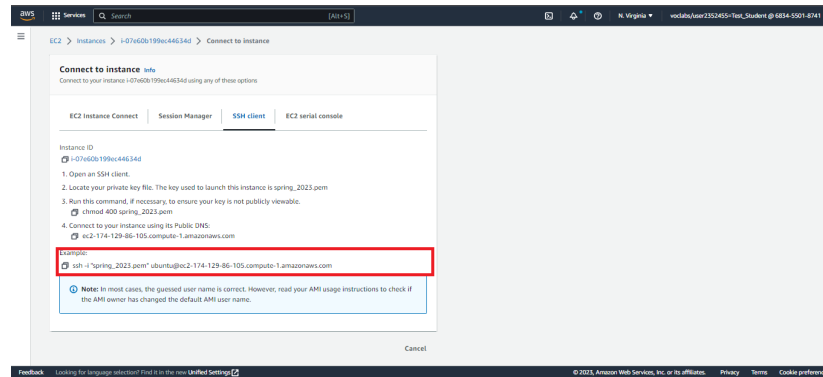
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4
-	i-02459c207f589c4b	Running	t2.xlarge	Initializing	No alarms	us-east-1d	ec2-174-129-86-105.co...	174.129.86...

Select an instance

Step 19: Here, you can see some vital information about your new EC2 machine instance such as, its id, public IPv4 address, public IPv4 DNS, etc. Select **Connect** to see how to connect to your virtual machine from your local computer.



Step 20: Under **SSH client** you can find the steps that you have to follow to connect to your virtual machine. You can copy and paste the highlighted `ssh` command into the terminal to initiate the connection.



Step 21: When you see the following prompt on the terminal the *first time* you run the `ssh` command, type in **yes** and hit **return**. You should make sure that you give the full path to the `.pem` file you have saved.

```
Rakin@LAPTOP-I3UM4DUG MINGW64 ~/Desktop
$ ssh -i "spring_2023.pem" ubuntu@ec2-174-129-86-105.compute-1.amazonaws.com
The authenticity of host 'ec2-174-129-86-105.compute-1.amazonaws.com (174.129.86.105)' can't be established.
ECDSA key fingerprint is SHA256:5A0haUuCPmHgE0LE+Zs7tYrXwt11b+XxyLLF/Vw+9Lc.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
```


Step 22: Voila! Now you are on your remote virtual machine and can (responsibly) use it!

```
* Support:      https://ubuntu.com/advantage

System information as of Sun Jan 15 16:23:42 UTC 2023

System load:  0.0           Processes:           104
Usage of /:   16.4% of 7.57GB Users logged in:       0
Memory usage: 2%           IP address for eth0: 172.31.82.216
Swap usage:   0%

0 updates can be applied immediately.

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-82-216:~$
```

Step 23: It is very important to keep in mind that you must end your lab on AWS Lab when you do not use it. You can use the **End Lab** button on the lab console to end a lab. When a lab ends, AWS Lab shuts down all the AWS services (e.g., virtual machines) associated with the lab. However, when you start the lab again, AWS Lab brings up the AWS services as well. With regards to virtual machines, every time AWS Lab boots them up, they might get new network vitals, even though their PKI key pairs remain unchanged. You can follow [Step 19:](#) to [Step 22:](#) above, to connect to your virtual machine(s) every time you reboot them as a result of restarting an AWS Lab.