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Using AWS Academy Learner Lab

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1 Introduction

This article explains how to use *AWS Academy Learner Lab (AWS Lab)* to carry out the lab work in this course. You will be mainly using AWS Lab to consume different Amazon Web Services (AWSs) as part of different course assignments.

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 log in, you should see the AWS Lab dashboard, which looks like the following. Select **AWS Academy Learner Lab - Foundation Services**.

Step 3: It will take you to the course homepage. Select **Modules**.

Step 4: Select **Learner Lab**

Step 5: 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 6: Select **Start Lab** to start the lab.

Step 7: Select **AWS** after the circle next to it has turned green.

AWS Management Console opens on a new browser tab.

Step 8: To create a new virtual machine, scroll down and select **Launch a virtual machine** under **Build a solution**.

Step 9: 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.

Step 10: Next, scroll down and choose the instance type. Select **t2.large** which would give you 8GB memory.

Step 11: Next, click on **Create a new key pair**.

Step 12: Enter a name for the key pair and click **Create key pair**. This will download the private key (For Mac - [Key pair name].pem/ [Key pair name].cer, For Windows - [Key pair name].ppk) that is required to securely connect to your virtual machine, from your local computer. Important: Do not lose or damage this private key. Without it, you cannot connect to your virtual machine, and you WILL NOT be able to download this key file again.

Step 13: Select **Launch Instances** to start your virtual machine from the right sidebar.

Step 14: Select the instance identifier when you get to **Launch Status** page. Or you can select **View all instances**.

Step 15: 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.

Step 16: 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 17: 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.

NOTES:

(1) If error shows for not publicly viewable key, run the **chmod 400** command.

(2) Also make sure to run the ssh command from the same directory where you saved your key pair.

Step 18: When you see the following prompt on the terminal the *first time* you run the ssh command, type in **yes** and hit **return**.

```
(base) ksolaima@KMAs-MacBook-Pro ~ % ssh -i "cs536_aws_keys.pem" ubuntu@ec2-44-204-164-88.compute-1.amazonaws.com
Warning: Identity file cs536_aws_keys.pem not accessible: No such file or directory.
The authenticity of host 'ec2-44-204-164-88.compute-1.amazonaws.com (44.204.164.88)' can't be established.
ED25519 key fingerprint is SHA256:mhaDCnE5ynKKFxc+FaPtd9+x7scSvJGMB8NLwVNmXM4.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])?
```

Step 19: Voila! Now you are on your remote virtual machine and can (responsibly) use it!

```
(base) ksolaima@KMAs-MacBook-Pro teaching_cs536 % chmod 400 cs536_key_pairs.cer
(base) ksolaima@KMAs-MacBook-Pro teaching_cs536 % ssh -i "cs536_key_pairs.cer" ubuntu@ec2-44-200-245-249.compute-1.amazonaws.com
The authenticity of host 'ec2-44-200-245-249.compute-1.amazonaws.com (44.200.245.249)' can't be established.
ED25519 key fingerprint is SHA256:EizngkzdhkLYKePLsC74mtZq9cRDQFoMin9SI9v4+DM.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-44-200-245-249.compute-1.amazonaws.com' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04 LTS (GNU/Linux 5.15.0-1011-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Thu Aug 18 22:57:48 UTC 2022

  System load:  0.06689453125     Processes:             115
  Usage of /:   19.0% of 7.58GB   Users logged in:       0
  Memory usage: 3%                IPv4 address for eth0: 172.31.2.89
  Swap usage:   0%

0 updates can be applied immediately.


The list of available updates is more than a week old.
To check for new updates run: sudo apt update


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-172-31-2-89:~$
```

You can test the connection by pinging the public google DNS server at IP address **8.8.4.4**

```
ubuntu@ip-172-31-2-89:~$ ping 8.8.4.4
PING 8.8.4.4 (8.8.4.4) 56(84) bytes of data.
64 bytes from 8.8.4.4: icmp_seq=1 ttl=46 time=1.05 ms
64 bytes from 8.8.4.4: icmp_seq=2 ttl=46 time=1.01 ms
64 bytes from 8.8.4.4: icmp_seq=3 ttl=46 time=0.970 ms
64 bytes from 8.8.4.4: icmp_seq=4 ttl=46 time=0.975 ms
64 bytes from 8.8.4.4: icmp_seq=5 ttl=46 time=1.01 ms
64 bytes from 8.8.4.4: icmp_seq=6 ttl=46 time=0.971 ms
64 bytes from 8.8.4.4: icmp_seq=7 ttl=46 time=0.976 ms
64 bytes from 8.8.4.4: icmp_seq=8 ttl=46 time=0.979 ms
^C
--- 8.8.4.4 ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7008ms
rtt min/avg/max/mdev = 0.970/0.991/1.045/0.024 ms
ubuntu@ip-172-31-2-89:~$
```

Exit the SSH session once you are able to verify the connection.

Step 20: 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 15 to Step 17 above, to connect to your virtual machine(s) every time you reboot them as a result of restarting an AWS Lab.

NOTE: If you want to terminate any virtual machine, you can select them from Instances list and can select **terminate/stop instance** from **instance state** drop-down menu.

3 Acknowledgements

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