IT00CE11-3005

Cloud Computing

Assignment # 1

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Launching an AWS VM | STUDENT NO-2402262

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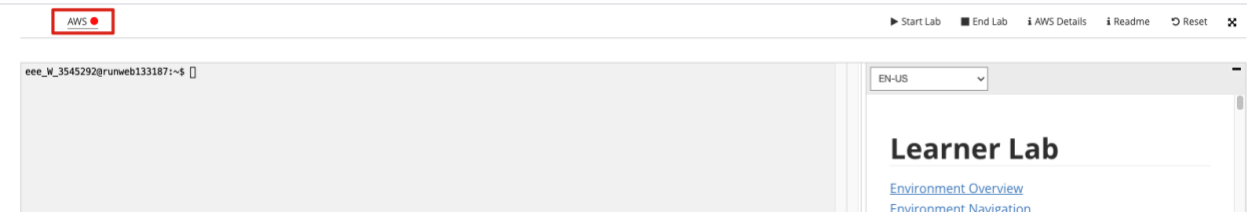
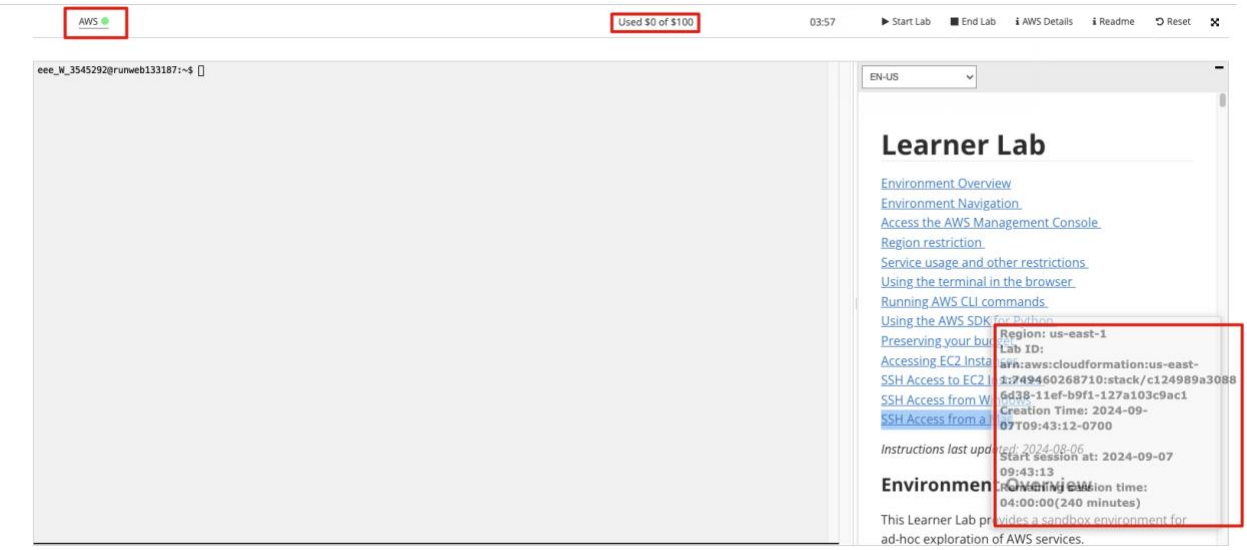
Launching an AWS VM

Step 1: Log in to the AWS console.

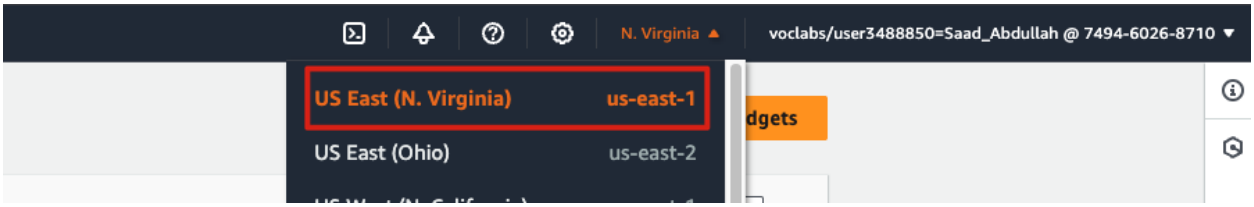
To log into the AWS console, I first accepted the AWS Academy course invitation and then headed over to the AWS Learner LAB.



Then I started the LAB after clicking the Start Lab button.

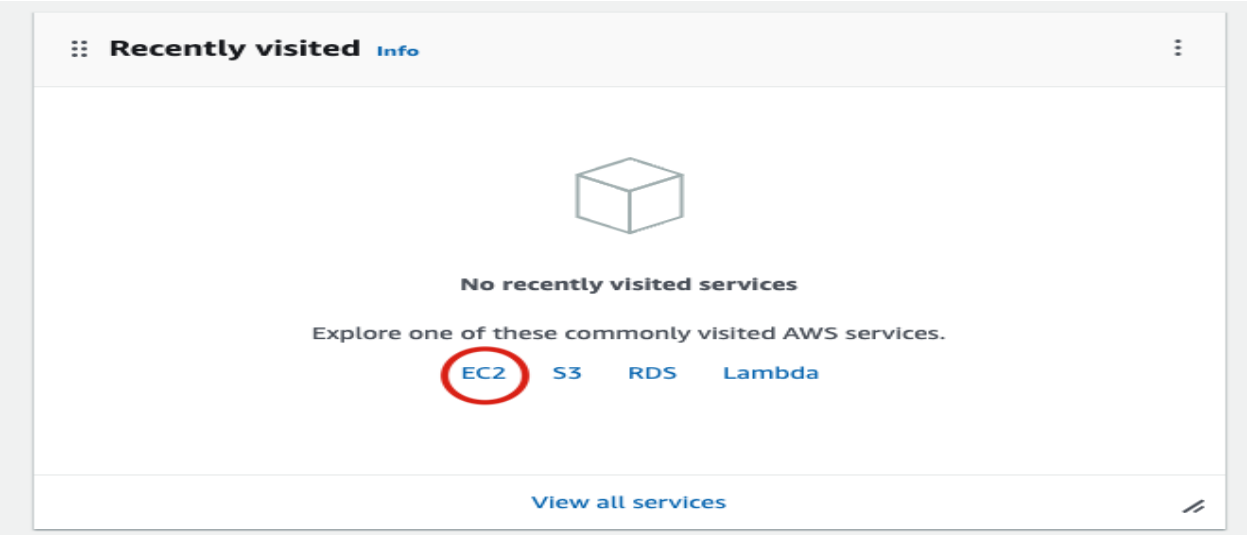


It took around 4 minutes to start the LAB session, afterwards, I clicked the AWS link with the green circle to access the AWS console.

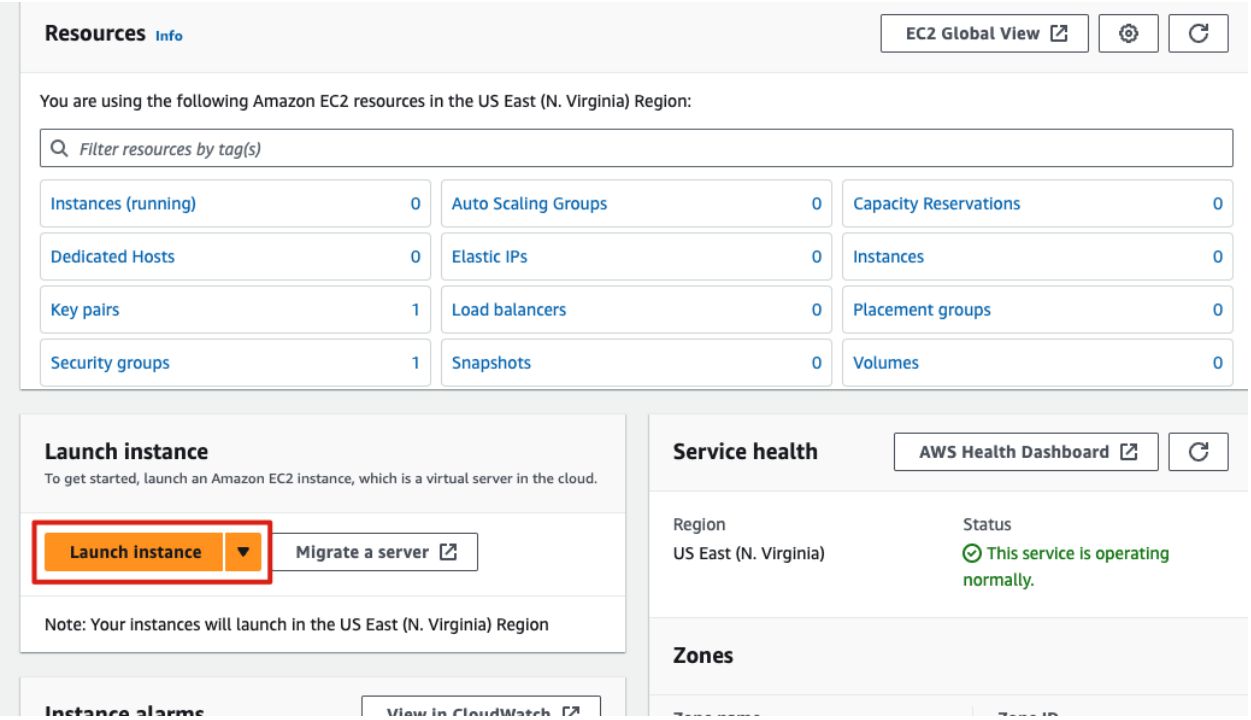


Step 2: Launch an instance (Virtual machine-VM) via console.

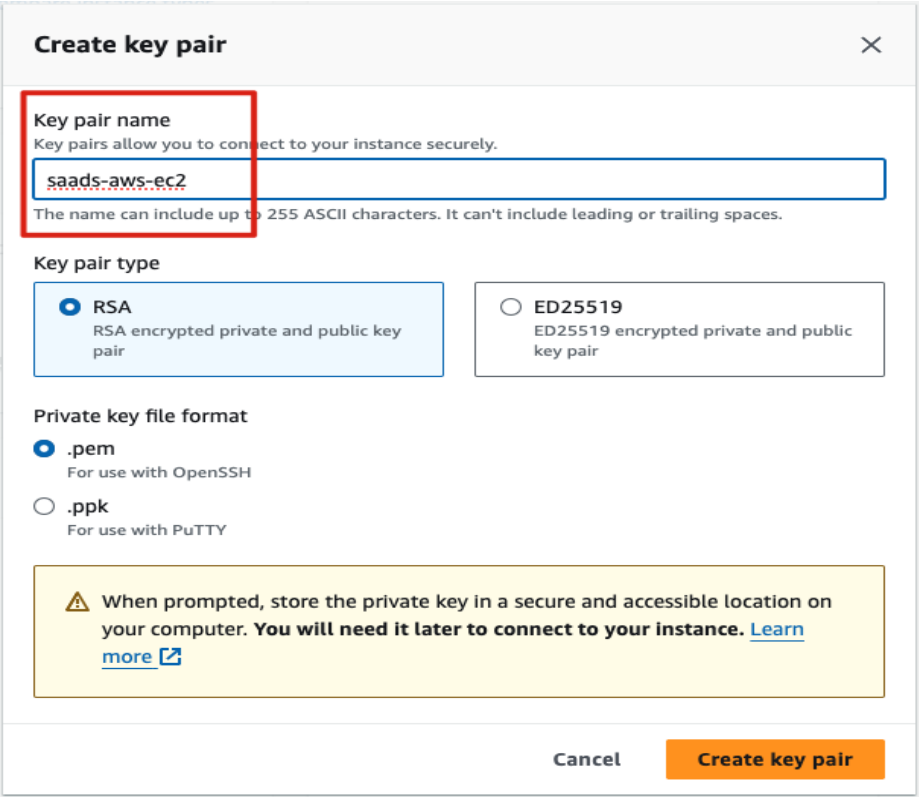
I clicked on EC2 to explore more options like launching instances with it.



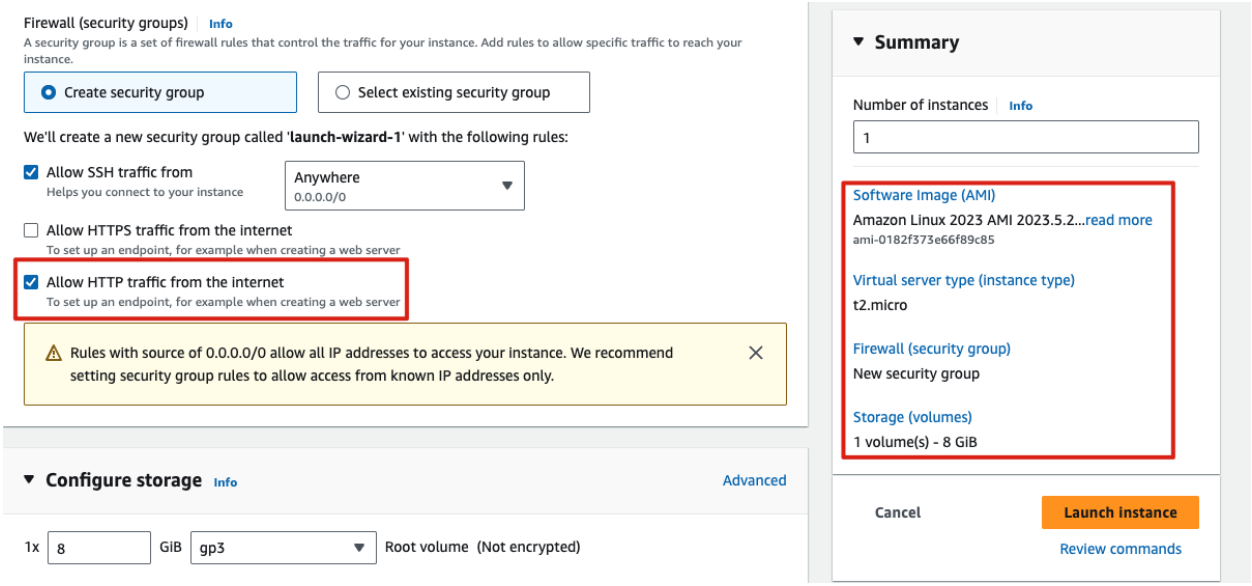
Then I clicked on the launch instance button for EC2.



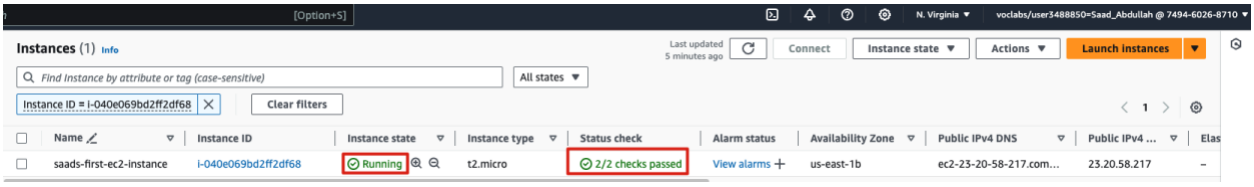
Then I created an RSA key pair to access this instance from the local machine.



Launched this instance with the configurations recommended in the LAB manual. Allow HTTP for the curl request for the LAB task to work properly.

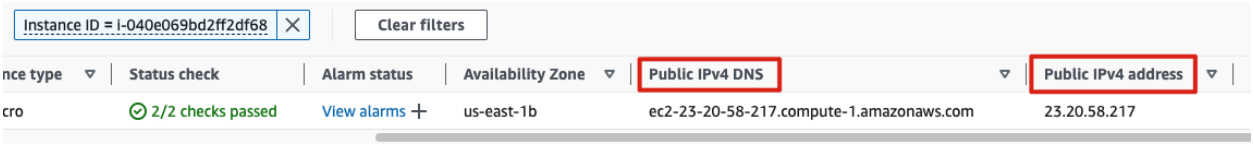


Instance is running now.



Step 3: Check the public IP & DNS of the newly created VM also connect to it from the local machine using SSH.

Below are the public IP and DNS for the newly created VM.



Then I used the following command from the local machine terminal to access the VM.

```
ssh -i saads-aws-ec2.pem ec2-user@ec2-54-147-150-141.compute-1.amazonaws.com
```

```
└─(13:21:38)──> ssh -i saads-aws-ec2.pem ec2-user@ec2-54-147-150-141.compute-1.amazonaws.com        ──(Sun,Sep08)─┘
       ,     #_
       ~\_  ####_        Amazon Linux 2023
      ~~  \_#####\
      ~~     \###|
      ~~       \#/ ___   https://aws.amazon.com/linux/amazon-linux-2023
       ~~       V~' '->
        ~~~         /
          ~~._.   _/
             _/ _/
           _/m/'
[ec2-user@ip-172-31-25-18 ~]$ whoami
ec2-user
[ec2-user@ip-172-31-25-18 ~]$
```

Step 4: Check if the Linux distribution contains packages to be updated.

Firstly, I used the following command to check which distribution I was using.

```
cat /etc/system-release
```

I was sure about the distribution but was reconfirming it.

```
[ec2-user@ip-172-31-25-18 ~]$ cat /etc/os-release
NAME="Amazon Linux"
VERSION="2023"
ID="amzn"
ID_LIKE="fedora"
VERSION_ID="2023"
PLATFORM_ID="platform:al2023"
PRETTY_NAME="Amazon Linux 2023.5.20240903"
ANSI_COLOR="0;33"
CPE_NAME="cpe:2.3:o:amazon:amazon_linux:2023"
HOME_URL="https://aws.amazon.com/linux/amazon-linux-2023/"
DOCUMENTATION_URL="https://docs.aws.amazon.com/linux/"
SUPPORT_URL="https://aws.amazon.com/premiumsupport/"
BUG_REPORT_URL="https://github.com/amazonlinux/amazon-linux-2023"
VENDOR_NAME="AWS"
VENDOR_URL="https://aws.amazon.com/"
SUPPORT_END="2028-03-15"
[ec2-user@ip-172-31-25-18 ~]$
```

Then, I checked which packages needed to be updated using the following command.

```
sudo yum update
```

```
~/Downloads — ec2-user@ip-172-31-25-18:~ — ssh -i saads-aws-ec2.pem ec2-user@ec2
[ec2-user@ip-172-31-25-18 ~]$ sudo yum update
Last metadata expiration check: 17:28:31 ago on Sat Sep  7 17:02:06 2024.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-25-18 ~]$
```

Everything was already updated.

Step 5: Get the following information from VM.

I used the following command for CPU model name, clock frequency, and cache size.

```
cat /proc/cpuinfo
```

```
[ec2-user@ip-172-31-25-18 ~]$ cat /proc/cpuinfo
processor       : 0
vendor_id       : GenuineIntel
cpu family      : 6
model           : 79
model name      : Intel(R) Xeon(R) CPU E5-2686 v4 @ 2.30GHz
stepping        : 1
microcode       : 0xb000040
cpu MHz         : 2300.108
cache size      : 46080 KB
physical id     : 0
siblings        : 1
core id         : 0
cpu cores       : 1
apicid          : 0
initial apicid  : 0
fpu             : yes
fpu_exception   : yes
cpuid level     : 13
wp              : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmo
good nopl xtopology cpuid tsc_known_freq pni pclmulqdq ssse3 fma cx16 pcid sse
ervisor lahf_lm abm cpuid_fault invpcid_single pti fsgsbase bmi1 avx2 smep bmi
bugs            : cpu_meltdown spectre_v1 spectre_v2 spec_store_bypass l1tf md
bogomips        : 4600.01
clflush size    : 64
cache_alignment : 64
address sizes   : 46 bits physical, 48 bits virtual
power management:

[ec2-user@ip-172-31-25-18 ~]$
```

For the CPU vendor and hypervisor vendor, I used the following command:

```
lscpu
```

```
[[ec2-user@ip-172-31-25-18 ~]$ lscpu
Architecture:                    x86_64
  CPU op-mode(s):                32-bit, 64-bit
  Address sizes:                 46 bits physical, 48 bits virtual
  Byte Order:                    Little Endian
CPU(s):                          1
  On-line CPU(s) list:           0
Vendor ID:                       GenuineIntel
  Model name:                    Intel(R) Xeon(R) CPU E5-2686 v4 @ 2.30GHz
    CPU family:                  6
    Model:                       79
    Thread(s) per core:          1
    Core(s) per socket:          1
    Socket(s):                   1
    Stepping:                    1
    BogoMIPS:                    4600.01
    Flags:                       fpu vme de pse tsc msr pae mce cx8 apic sep mt
                                 tsc rep_good nopl xtopology cpuid tsc_known_fr
                                 imer aes xsave avx f16c rdrand hypervisor lahf
                                 eopt
Virtualization features:
  Hypervisor vendor:             Xen
  Virtualization type:           full
Caches (sum of all):
  L1d:                           32 KiB (1 instance)
  L1i:                           32 KiB (1 instance)
  L2:                            256 KiB (1 instance)
  L3:                            45 MiB (1 instance)
NUMA:
  NUMA node(s):                  1
  NUMA node0 CPU(s):             0
Vulnerabilities:
```

Step 6: Execute the special command from VM

I used:

```
curl "vm4460.kaj.pouta.csc.fi/logs.php?name=saad_abdullah" > log.dat
```

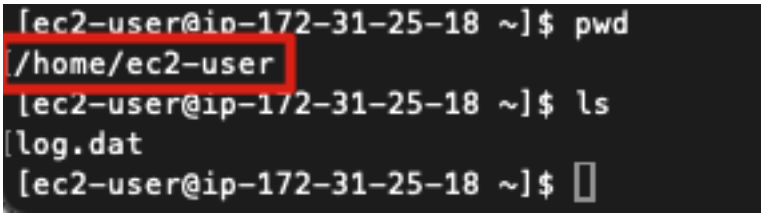
```
[[ec2-user@ip-172-31-25-18 ~]$ curl "vm4460.kaj.pouta.csc.fi/logs.php?name=saad_abdullah" > log.dat
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   128  100   128    0     0    313      0 --:--:-- --:--:-- --:--:--   312
[[ec2-user@ip-172-31-25-18 ~]$ cat log.dat

[[ec2-user@ip-172-31-25-18 ~]$ cat log.dat

Name: saad_abdullah -- 54.147.150.141 -- ec2-54-147-150-141.compute-1.amazonaws.com -- 192.168.1.14 -- 1725795776 -- curl/8.5.0 ec2-user@ip-172-31-
25-18 ~]$
```

Step 7: Download log.dat to local machine using scp

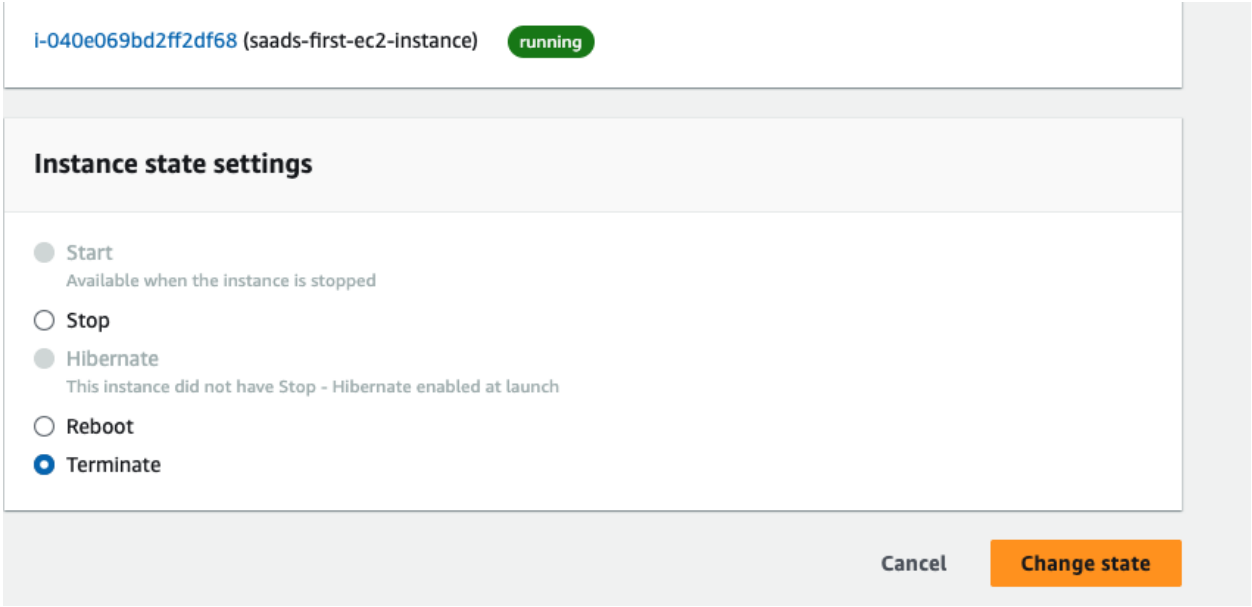
First, I checked the location of the log.dat file in my VM using pwd command.



Then I googled about scp and made the following command to download the log.dat file, and it worked for me: (the . in the end means to download the file in the current directory which was Downloads for me)

```
scp -i saads-aws-ec2.pem ec2-user@ec2-54-147-150-141.compute-1.amazonaws.com:/home/ec2-user/log.dat
.
```

Step 8: Kill the VM!



Step 9: Content for log.dat file:

Name: saad_abdullah -- 54.147.150.141 -- ec2-54-147-150-141.compute-1.amazonaws.com -- 192.168.1.14 -- 1725795776 -- curl/8.5.0

What would happen if you lost the private key provided when you instantiated your VM?

So, for security purposes, the private key is not stored in AWS. We can only have it during the instantiation of the VM and in case of losing it, we won't be able to do ssh into our VM which ultimately means we can't access our VM. But there are some workarounds to recover the instance, I found these workarounds in AWS Forum and in a medium article.

Do you have any idea where was the physical server on which your VM was running?

AWS keeps this information private and we can't know the exact location of the physical server where our VM is running, but we can make a guess about the region where it is running like my VM was in us-east-1 which means it was somewhere in Virginia.

How long was the "waiting time" (approximately) between requesting a VM and having it up and running?

It took me around 2-3 minutes for my VM to be up and running using Amazon Linux AMI.

Reflection:

Have you learned anything completely new?

Some commands were familiar to me as I have been using Linux for quite some time now, but I had never made an AWS instance from scratch. So, instantiating the instance was new for me.

Did anything surprise you?

No, there wasn't anything surprising.

Did you find anything challenging? Why?

No.

Did you find anything satisfying? Why?

Given that it was our first assignment, the flow was quite good to get some confidence at the start of the course.