

Assignment 1 - Paul Chien

Instructions:

1. Logging into AWS account with non-root user
2. Create a EC2 instance
3. Logging with new *.pem/*.ser
 - a. `ssh -i "XXXXXXXXXX.pem" ec2-user@eXXXXXXXXXXXXXXXXXXXXX.compute-1.amazonaws.com`
4. `sudo -i`
5. Install tree
6. `cd /opt`
7. tree
8. Capture output and keep it.

1. Use link to sign in as non-root user (<https://211043690232.signin.aws.amazon.com/console>)

Sign in as IAM user

Account ID (12 digits) or account alias

211043690232

IAM user name

PaulChien_AWS_SRE

Password

☒ Remember this account

Sign in

2. Launch instance

Instances (1) Info

Search

Connect Instance state Actions Launch Instances

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DN
------	-------------	----------------	---------------	--------------	--------------	-------------------	----------------

- select free tier eligible items

Recents Quick Start

Amazon Linux Ubuntu Windows Red Hat SUSE Linux

Amazon Machine Image (AMI)

Amazon Linux 2 AMI (HVM) - Kernel 5.10, 55D Volume Type
ami-002f774911c1d690 (64-bit x86) / ami-0e449176cecc3e577 (64-bit ARM)
Virtualization: hvm ENA enabled: true Root device type: xbs

Free tier eligible

Description
Amazon Linux Kernel 5.10 AMI 2.0.20220426.0 x86_64 HVM gp2

Architecture AMI ID
64-bit (x86) ami-002f774911c1d690

▼ Instance type Info

Instance type

t2.micro

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

Free tier eligible

[Compare instance types](#)

- Create new key pair (save in .ssh folder in user)

▼

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](#)

- Launch instance

3. Go into instance/ click instance ID

☐ Assignment1
 [i-0722158fda2b0f2cd](#)
Running

 t2.micro
 Initializing
No alarms
+
 us-east-1b
 [ec2-54-227-48](#)

- Click connect

Instance summary for i-0722158fda2b0f2cd (Assignment1)

Info

Updated less than a minute ago

↻

Connect

Instance state ▼

Actions ▼

- Copy item to use to SSH to virtual machine instance

```
ssh -i "Assignment1.pem" ec2-user@ec2-54-227-48-187.compute-1.amazonaws.com
```

- SSH into virtual machine: Go to git bash, change directory to the .ssh directory, paste copied item.

```

Paul Chien@DESKTOP-57IIEP5 MINGW64 ~/.ssh
$ ssh -i "Assignment1.pem" ec2-user@ec2-54-227-48-187.compute-1.amazonaws.com
The authenticity of host 'ec2-54-227-48-187.compute-1.amazonaws.com (54.227.48.187)' can't be established.
ED25519 key fingerprint is SHA256:gyunvtw9gxqI1P3+jL17Nug9lP37Pcw/9q6av1lemk.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-227-48-187.compute-1.amazonaws.com' (ED25519) to the list of known hosts.

  _ _ _ _ _
 _ |   _ |   )
 _ |  (  _ |  /
 _ | \ _ | _ |

Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
2 package(s) needed for security, out of 2 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-25-170 ~]$
  
```

4 & 5. Log in as superuser and install tree

```
[ec2-user@ip-172-31-25-170 ~]$ sudo -i
[root@ip-172-31-25-170 ~]# yum install tree
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
--> Package tree.x86_64 0:1.6.0-10.amzn2.0.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository Size
=====
Installing:
tree x86_64 1.6.0-10.amzn2.0.1 amzn2-core 47 k
=====

Transaction Summary
=====
Install 1 Package
=====
Total download size: 47 k
Installed size: 83 k
Is this ok [y/d/N]: cd /opt
Is this ok [y/d/N]: N
Exiting on user command
Your transaction was saved, rerun it with:
yum load-transaction /tmp/yum_save_tx.2022-05-10.04-23.SziCLI.yumtx
[root@ip-172-31-25-170 ~]# sudo -i
[root@ip-172-31-25-170 ~]# yum install tree
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 3.7 kB 00:00:00
Resolving Dependencies
--> Running transaction check
--> Package tree.x86_64 0:1.6.0-10.amzn2.0.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository Size
=====
```

6 – 8. Change directory to /opt and use tree

```
[root@ip-172-31-25-170 ~]# cd /opt
[root@ip-172-31-25-170 opt]# tree
.
├── aws
│   ├── apitools
│   │   ├── cfn-init -> ./cfn-init-2.0-10
│   │   └── cfn-init-2.0-10
│   │       ├── bin
│   │       │   ├── cfn-elect-cmd-leader
│   │       │   ├── cfn-get-metadata
│   │       │   ├── cfn-hup
│   │       │   ├── cfn-init
│   │       │   ├── cfn-send-cmd-event
│   │       │   ├── cfn-send-cmd-result
│   │       │   └── cfn-signal
│   │       ├── init
│   │       │   ├── redhat
│   │       │   │   └── cfn-hup
│   │       │   ├── systemd
│   │       │   │   └── cfn-hup.service
│   │       │   └── ubuntu
│   │       │       └── cfn-hup
│   │       └── share
│   │           └── doc
│   │               └── aws-cfn-bootstrap-2.0
│   │                   ├── CHANGELOG.txt
│   │                   ├── LICENSE.txt
│   │                   └── NOTICE.txt
│   └── bin
│       ├── cfn-elect-cmd-leader -> ../apitools/cfn-init/bin/cfn-elect-cmd-leader
│       ├── cfn-get-metadata -> ../apitools/cfn-init/bin/cfn-get-metadata
│       ├── cfn-hup -> ../apitools/cfn-init/bin/cfn-hup
│       ├── cfn-init -> ../apitools/cfn-init/bin/cfn-init
│       ├── cfn-send-cmd-event -> ../apitools/cfn-init/bin/cfn-send-cmd-event
│       ├── cfn-send-cmd-result -> ../apitools/cfn-init/bin/cfn-send-cmd-result
│       ├── cfn-signal -> ../apitools/cfn-init/bin/cfn-signal
│       ├── ec2-metadata -> /usr/bin/ec2-metadata
│       ├── eic_curl_authorized_keys
│       ├── eic_harvest_hostkeys
│       ├── eic_parse_authorized_keys
│       └── eic_run_authorized_keys
└── rh

14 directories, 25 files
[root@ip-172-31-25-170 opt]#
```

Assignment 2:

1. Logging into EC2 with new *.pem/*.ser
2. `sudo -i`
3. Erase tree **`sudo yum erase -y`**
4. `tree`
5. Capture output and keep it.

1. Log in to EC2 and uninstall tree as superuser.

```
Paul Chien@DESKTOP-57IIEP5 MINGW64 ~  
$ cd .ssh  
  
Paul Chien@DESKTOP-57IIEP5 MINGW64 ~/.ssh  
$ ssh -i "Assignment1.pem" ec2-user@ec2-18-215-164-32.compute-1.amazonaws.com  
The authenticity of host 'ec2-18-215-164-32.compute-1.amazonaws.com (18.215.164.32)' can't be established.  
ED25519 key fingerprint is SHA256:/gyunvtw9gxqIIp3+jL17Nug9lP37PCw/9q6avllemk.  
This host key is known by the following other names/addresses:  
~/.ssh/known_hosts:4: ec2-54-227-48-187.compute-1.amazonaws.com  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added 'ec2-18-215-164-32.compute-1.amazonaws.com' (ED25519) to the list of known hosts.  
Last login: Tue May 10 04:22:47 2022 from bb115-66-135-72.singnet.com.sg  
  
      _ |    _ |   )  
     _| /___/_|_/\  Amazon Linux 2 AMI  
    _||_____|__|\_  
  
https://aws.amazon.com/amazon-linux-2/  
2 package(s) needed for security, out of 2 available  
Run "sudo yum update" to apply all updates.  
[ec2-user@ip-172-31-25-170 ~]$ sudo yum erase -y tree  
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd  
Resolving Dependencies  
--> Running transaction check  
---> Package tree.x86_64 0:1.6.0-10.amzn2.0.1 will be erased  
--> Finished Dependency Resolution  
  
Dependencies Resolved  
  
=====
```

Package	Arch	Version	Repository	Size
Removing:				
tree	x86_64	1.6.0-10.amzn2.0.1	@amzn2-core	83 k

```
Transaction Summary  
-
```

2. Try to use tree (that has been uninstalled), receive “command not found” message

```
Dependencies Resolved

=====
Package                Arch                Version              Repository            Size
=====
Removing:
tree                   x86_64              1.6.0-10.amzn2.0.1  @amzn2-core          83 k

Transaction Summary

=====
Remove 1 Package

Installed size: 83 k
Downloading packages:
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Erasing      : tree-1.6.0-10.amzn2.0.1.x86_64                1/1
  Verifying    : tree-1.6.0-10.amzn2.0.1.x86_64                1/1

Removed:
tree.x86_64 0:1.6.0-10.amzn2.0.1

Complete!
[ec2-user@ip-172-31-25-170 ~]$ tree
-bash: tree: command not found
[ec2-user@ip-172-31-25-170 ~]$ |
```

Assignment 3:

1. Logging into EC2 with new *.pem/*.ser
2. sudo -i
3. cd /opt
4. mkdir demolinux
5. cd demolinux
6. echo "abc" > abc.txt
7. ls
8. cat abc.txt
9. ls
10. echo "abc1" > abc1.txt
11. ls
12. cat abc1.txt

```
root@ip-172-31-25-170:/opt/demolinux

Paul Chien@DESKTOP-57IIEP5 MINGW64 ~
$ cd .ssh

Paul Chien@DESKTOP-57IIEP5 MINGW64 ~/.ssh
$ ssh -i "Assignment1.pem" ec2-user@ec2-18-215-164-32.compute-1.amazonaws.com
Last login: Tue May 10 06:44:26 2022 from bb115-66-16-71.singnet.com.sg

      _| _| _| _|
      _| ( _| _| /
      _| \ _| _| _|
             Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
2 package(s) needed for security, out of 2 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-25-170 ~]$ sudo -i
[root@ip-172-31-25-170 ~]# cd /opt
[root@ip-172-31-25-170 opt]# mkdir demolinux
[root@ip-172-31-25-170 opt]# cd demolinux
[root@ip-172-31-25-170 demolinux]# echo "abc" > abc.txt
[root@ip-172-31-25-170 demolinux]# ls
abc.txt
[root@ip-172-31-25-170 demolinux]# cat abc.txt
abc
[root@ip-172-31-25-170 demolinux]# ls
abc.txt
[root@ip-172-31-25-170 demolinux]# echo "abc1">abc1.txt
[root@ip-172-31-25-170 demolinux]# ls
abc1.txt abc.txt
[root@ip-172-31-25-170 demolinux]# cat abc1.txt
abc1
[root@ip-172-31-25-170 demolinux]# |
```

Assignment 4:

1. Logging into EC2 with new *.pem/*.ser
2. sudo -i
3. cd /opt
4. mkdir demolinux
5. cd demolinux
6. echo "abc" > abc.txt
7. ls -ltr
8. cat abc.txt
9. ls -ltra
10. echo "abc1" > abc1.txt
11. ls
12. cat abc1.txt

```
root@ip-172-31-25-170:/opt/demolinux

Paul Chien@DESKTOP-57IIEP5 MINGW64 ~
$ cd .ssh

Paul Chien@DESKTOP-57IIEP5 MINGW64 ~/.ssh
$ ssh -i "Assignment1.pem" ec2-user@ec2-18-215-164-32.compute-1.amazonaws.com
Last login: Tue May 10 07:00:25 2022 from bb115-66-16-71.singnet.com.sg

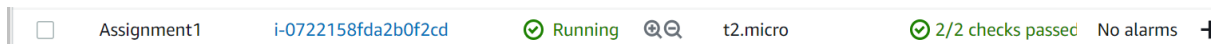
      _|  _|  _|  )
      _| (  _|  /   Amazon Linux 2 AMI
      _|\__|__|

https://aws.amazon.com/amazon-linux-2/
2 package(s) needed for security, out of 2 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-25-170 ~]$ sudo -i
[root@ip-172-31-25-170 ~]# cd /opt
[root@ip-172-31-25-170 opt]# mkdir demolinux
[root@ip-172-31-25-170 opt]# cd demolinux
[root@ip-172-31-25-170 demolinux]# echo "abc">abc.txt
[root@ip-172-31-25-170 demolinux]# ls -ltr
total 4
-rw-r--r-- 1 root root 4 May 10 07:01 abc.txt
[root@ip-172-31-25-170 demolinux]# cat abc.txt
abc
[root@ip-172-31-25-170 demolinux]# ls -ltra
total 4
drwxr-xr-x 5 root root 44 May 10 07:01 ..
-rw-r--r-- 1 root root 4 May 10 07:01 abc.txt
drwxr-xr-x 2 root root 21 May 10 07:01 .
[root@ip-172-31-25-170 demolinux]# echo "abc1">abc1.txt
[root@ip-172-31-25-170 demolinux]# ls
abc1.txt  abc.txt
[root@ip-172-31-25-170 demolinux]# cat abc1.txt
abc1
[root@ip-172-31-25-170 demolinux]# |
```

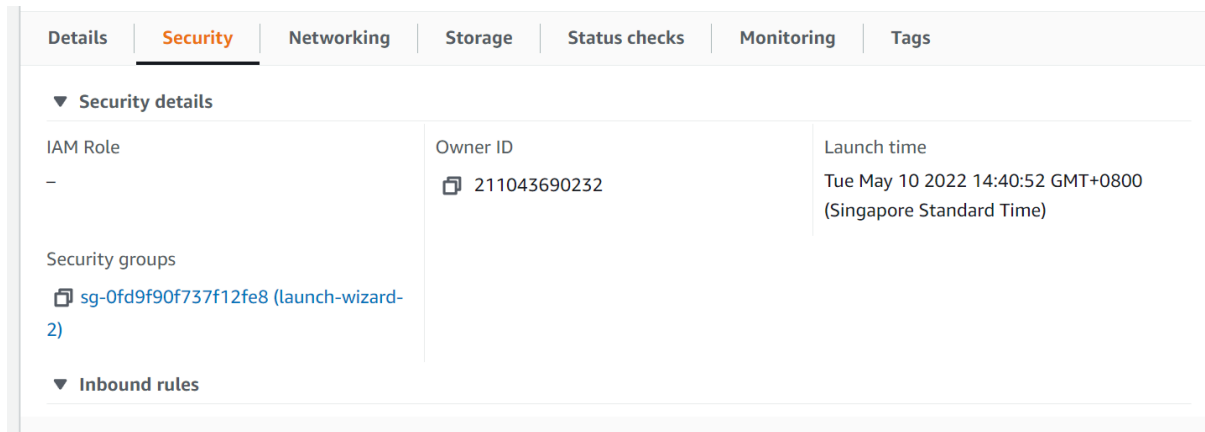
Assignment 5:

1. Logging into EC2 with new *.pem/*.ser
2. `sudo -i`
3. `sudo yum install -y httpd`
4. `echo "<html><body><h1>Welcome! </br> Design & Developed by Kumar</h1></body></html>" > /var/www/html/index.html`
5. `sudo service httpd start`
6. `sudo chkconfig httpd on`
7. From AWS Console refer the public IP
8. Open the new browser and paste in address bar
9. Capture output

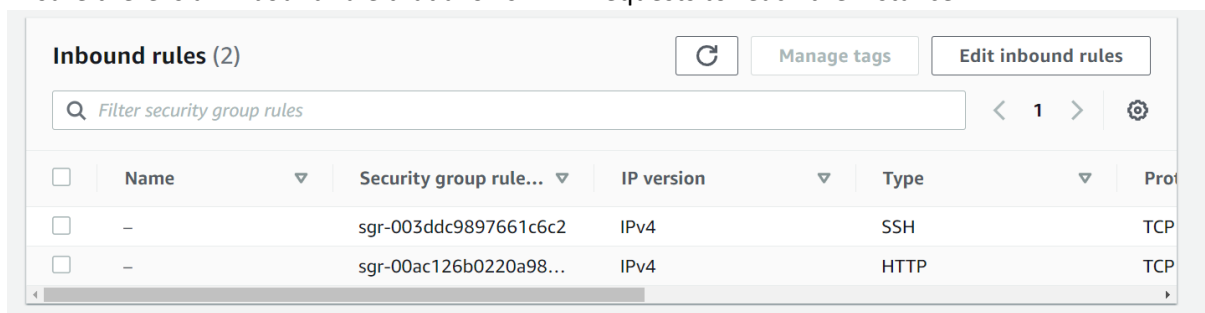
First select instance



Go into security groups under the security tab



Ensure there is an inbound rule that allows HTTP requests to reach the instance



1,2,3. SSH into the VM instance, log in as the superuser and install httpd

```
root@ip-172-31-25-170:~
Paul Chien@DESKTOP-57IIEP$ MINGW64 ~
$ cd .ssh
Paul Chien@DESKTOP-57IIEP$ MINGW64 ~/.ssh
$ ssh -i "Assignment1.pem" ec2-user@ec2-18-215-164-32.compute-1.amazonaws.com
Last login: Tue May 10 07:00:59 2022 from bb115-66-16-71.singnet.com.sg

      _ _ _ _ _
     /  _  _  _  \
    /  _  _  _  \
   /  _  _  _  \
  /  _  _  _  \
 /  _  _  _  \
/  _  _  _  \
Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
2 package(s) needed for security, out of 2 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-25-170 ~]$ sudo -i
[root@ip-172-31-25-170 ~]# yum install -y httpd
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core | 3.7 kB 00:00:00
Resolving Dependencies
--> Running transaction check
--> Package httpd.x86_64 0:2.4.53-1.amzn2 will be installed
--> Processing Dependency: httpd-tools = 2.4.53-1.amzn2 for package: httpd-2.4.53-1.amzn2.x86_64
--> Processing Dependency: httpd filesystem = 2.4.53-1.amzn2 for package: httpd-2.4.53-1.amzn2.x86_64
--> Processing Dependency: system-logos-httpd for package: httpd-2.4.53-1.amzn2.x86_64
--> Processing Dependency: mod_http2 for package: httpd-2.4.53-1.amzn2.x86_64
--> Processing Dependency: httpd filesystem for package: httpd-2.4.53-1.amzn2.x86_64
--> Processing Dependency: /etc/mime.types for package: httpd-2.4.53-1.amzn2.x86_64
--> Processing Dependency: libaprutil-1.so.0(64bit) for package: httpd-2.4.53-1.amzn2.x86_64
--> Processing Dependency: libapr-1.so.0(64bit) for package: httpd-2.4.53-1.amzn2.x86_64
--> Running transaction check
--> Package apr.x86_64 0:1.7.0-9.amzn2 will be installed
--> Package apr-util.x86_64 0:1.6.1-5.amzn2.0.2 will be installed
--> Processing Dependency: apr-util-bdb(x86-64) = 1.6.1-5.amzn2.0.2 for package: apr-util-1.6.1-5.amzn2.0.2.x86_64
--> Package generic-logos-httpd.noarch 0:18.0.0-4.amzn2 will be installed
--> Package httpd filesystem.noarch 0:2.4.53-1.amzn2 will be installed
--> Package httpd-tools.x86_64 0:2.4.53-1.amzn2 will be installed
--> Package mailcap.noarch 0:2.1.41-2.amzn2 will be installed
--> Package mod_http2.x86_64 0:1.15.19-1.amzn2.0.1 will be installed
```

4,5,6. Create html file, run html file on instance

```
[root@ip-172-31-25-170 ~]# echo "<html><body><h1>welcome! </br> Designed & Developed by Paul</h1></body></html>" > /var/www/html/index.html
[ec2-user@ip-172-31-25-170 ~]# service httpd start
Redirecting to /bin/systemctl start httpd.service
[ec2-user@ip-172-31-25-170 ~]# chkconfig httpd on
Note: Forwarding request to 'systemctl enable httpd.service'.
[ec2-user@ip-172-31-25-170 ~]#
```

7. Locate public IP address of VM instance

EC2 > Instances > i-0722158fda2b0f2cd

Instance summary for i-0722158fda2b0f2cd (Assignment1) Info

Updated less than a minute ago

Refresh

Connect

Instance state ▼

Actions ▼

Instance ID	Public IPv4 address	Private IPv4 addresses
i-0722158fda2b0f2cd (Assignment1)	18.215.164.32 open address	172.31.25.170

8. Use personal computer to access the HTML file on the instance and run in browser



Assignment 6 (Engage):

```
[ec2-user@ip-172-31-25-170 var]$ ls
account  cache  empty  gopher  lib    lock  mail  opt      preserve  spool  www
adm      db     games  kerberos  local  log   nis   paul.100522.module2  run      tmp    yp
[ec2-user@ip-172-31-25-170 var]$ cat paul.100522.module2
1  pwd
2  cd /var/log
3  cd ..
4  pwd
5  ls
6  ls -l
7  ls -ltr
8  cd /
9  cd ~
10 cd ..
11 man ls
12 cd /var
13 ls -Sr
14 uname -am
15 history > paul.100522.module2
[ec2-user@ip-172-31-25-170 var]$
```

Thank you 😊