Lab D

Create an EC2 instance running nginx to create a web server.

1. Open the Learner Lab

Choose the 'Learner Lab' course, **not** 'Cloud Foundations Lab'

In the modules click 'Launch AWS Academy Learner Lab'

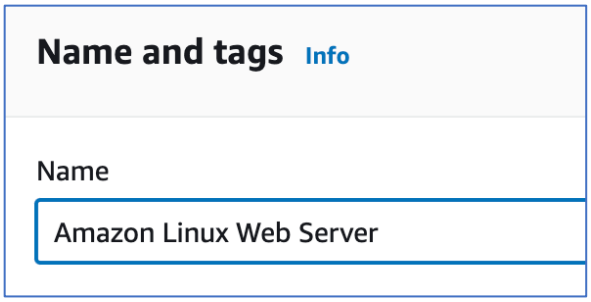
Click Start Lab – then click AWS link when ready (green)

From AWS console. Change to the region US West Oregon.

2. Create the instance

Open EC2 service.

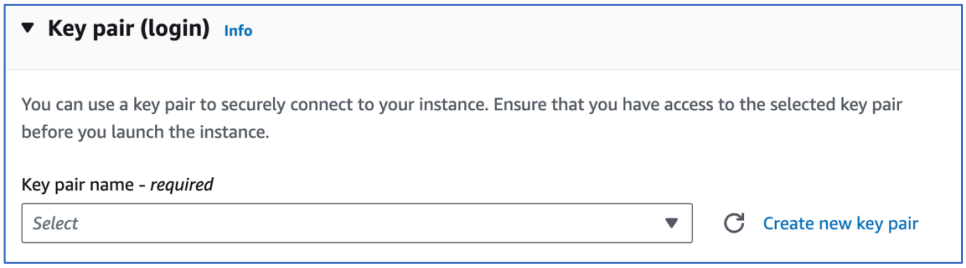
Launch Instance – Give it a name



Select the Amazon Linux

Leave architecture at 64-bit (x86) and the instance type of t2.micro.

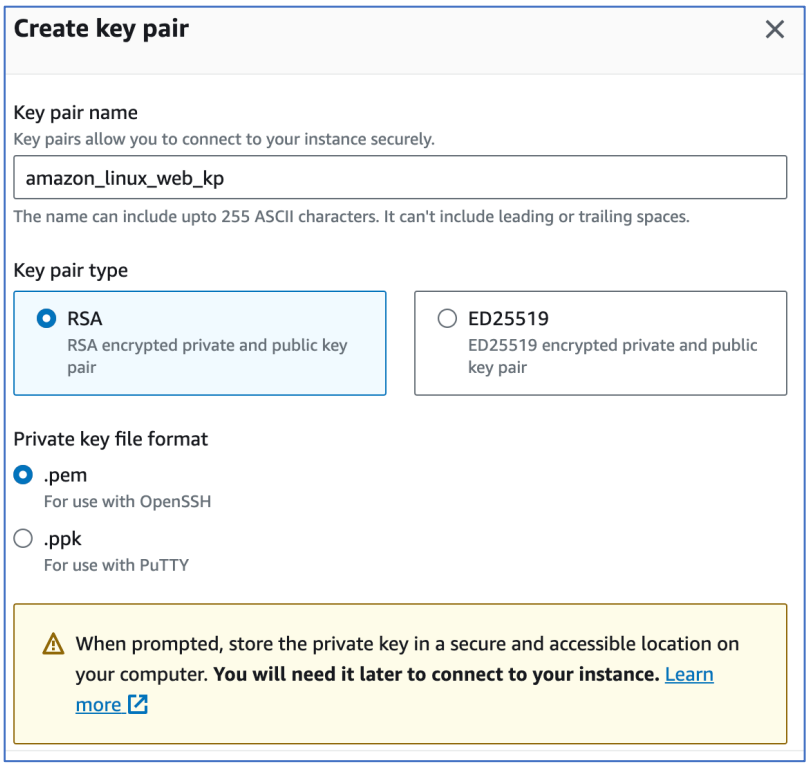
Click the ‘Create new key pair’ link. Even if you already have some, we want to create one that is unique for this server.



Give it a name, leave the key pair type as RSA

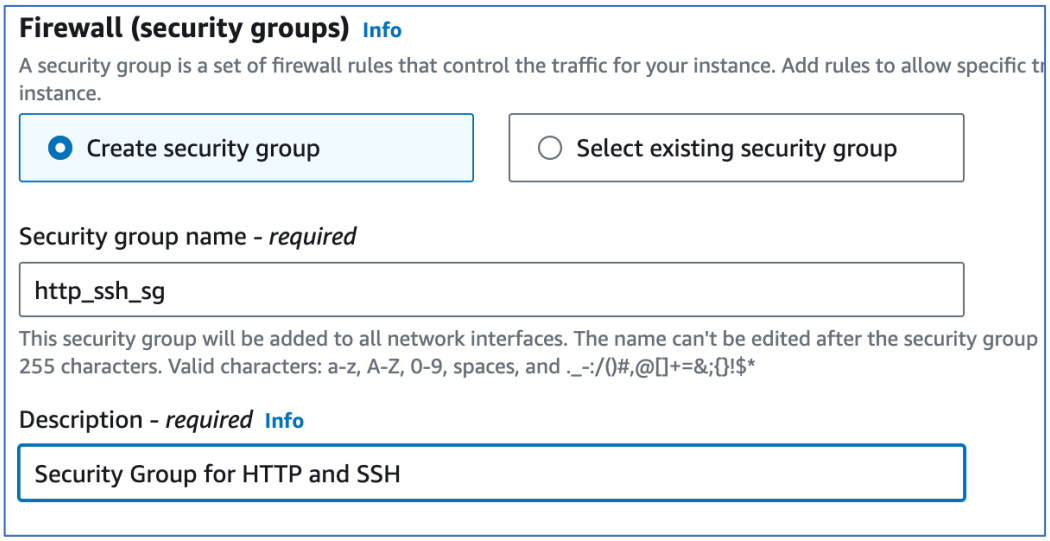
Everyone use the .pem OpenSSH (For those with windows less than version 10 you would need to use PuTTY—this is how you do SSH on older windows 7 and 8. See step 3 later.)

Click create key pair and use the key pair name shown

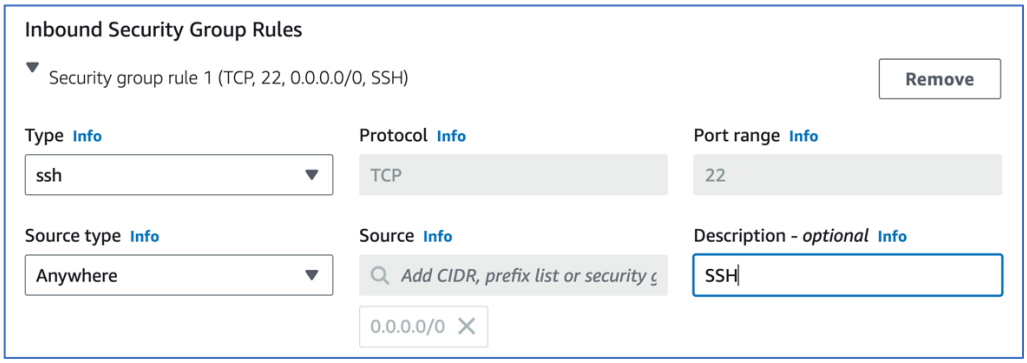


A file will download with your key. Open that up in file management. You will want to place it somewhere other than ‘Downloads’. So, move it where you want it. You will navigate to this location later in command line interface.

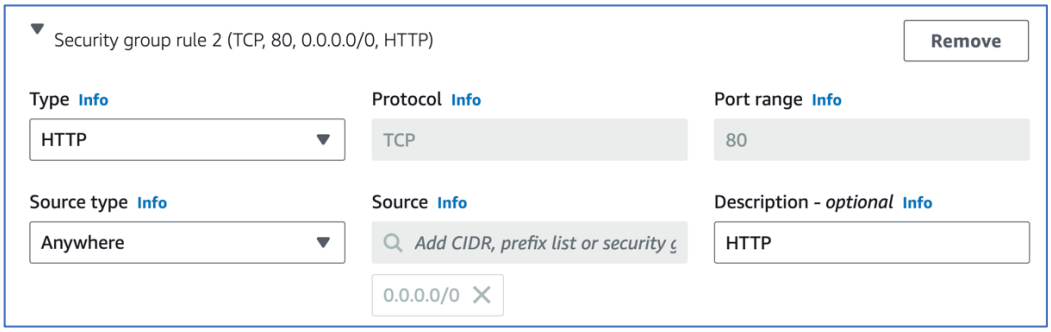
In the ‘Network settings’ make sure it’s on ‘Create security group’ and click Edit in the upper right of that Network settings section. Give ‘Security group name’ a name (replace what was there if anything). Give it a description.



‘Type’ should be ssh and ‘Source type’ is Anywhere. Can give it a description of SSH and leave all other defaults.



Add another security group rule. This one is HTTP



Scroll down to the next section and leave the storage default of 8GB.

Click the expand triangle next to ‘Advanced details’ and enable ‘Termination protection’. This keeps it from being accidentally terminated.

Click Launch instance.

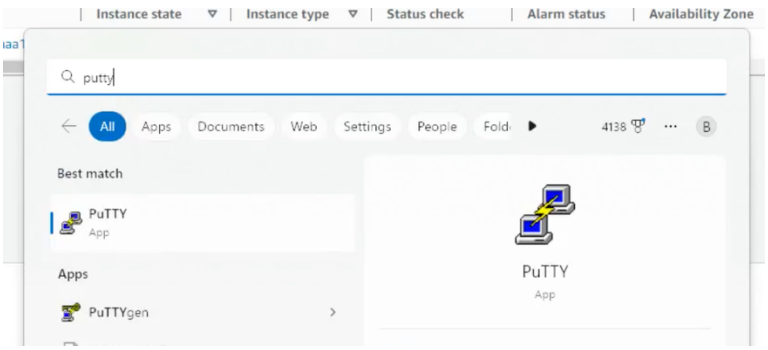
Wait for the Instance state to go from ‘Pending’ to ‘Running’.

Open the instance we just created. It might be pending in the ‘Instance state’ and take a little while for it to get started. Click the check mark next to your instance.

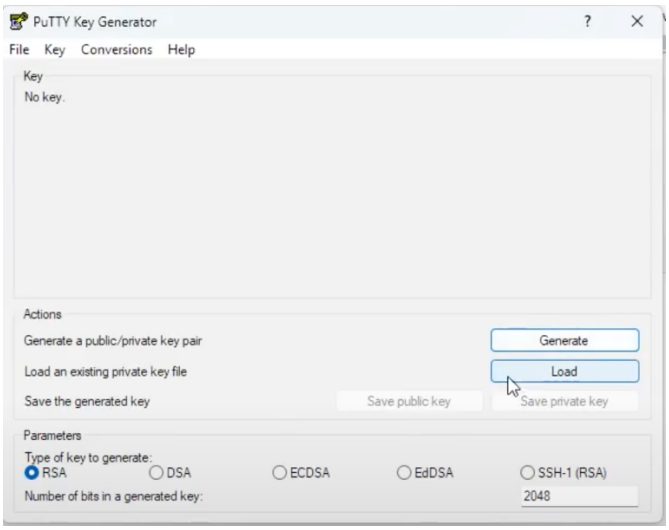
Under the ‘Details’ tab notice the Public IPv4 address available to us we will be viewing it later.

3. **Windows Users of version 7 and 8 only** – prepare your key file (*skip to step 4 if not using an older version of Windows*)

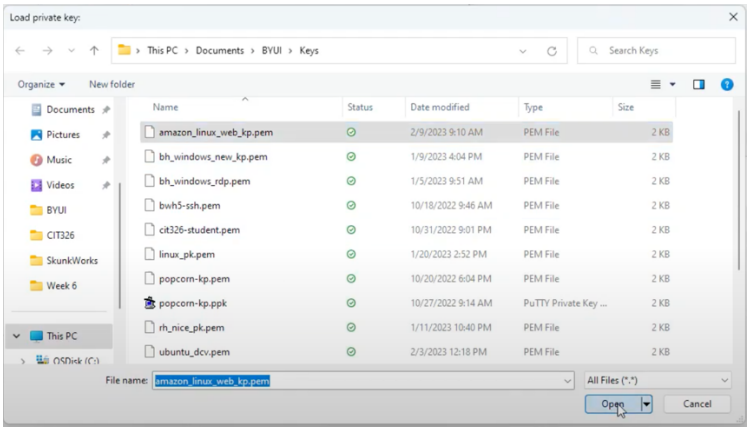
Windows users open up PuTTY (download it if you don’t have it). Windows user will use the PuTTYgen which is the key generator.



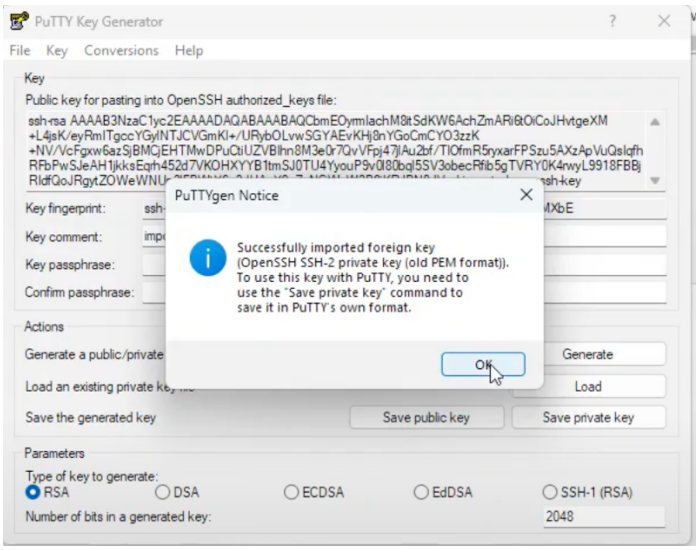
Run the PuTTYgen that comes up. It opens the PuTTY Key Generator



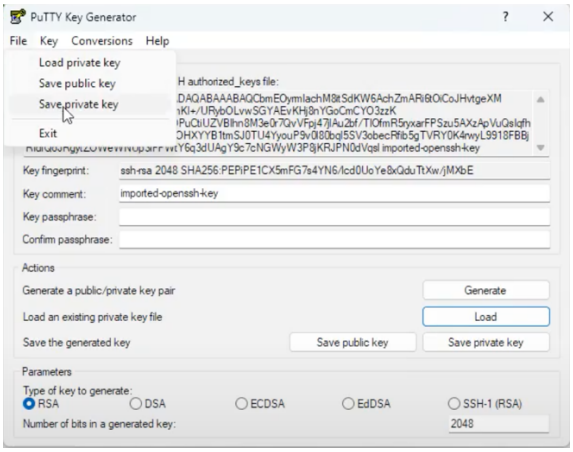
Click ‘Load’ and go to where you stored your .pem key file earlier. If it doesn’t show show All Files. Select that file and open.



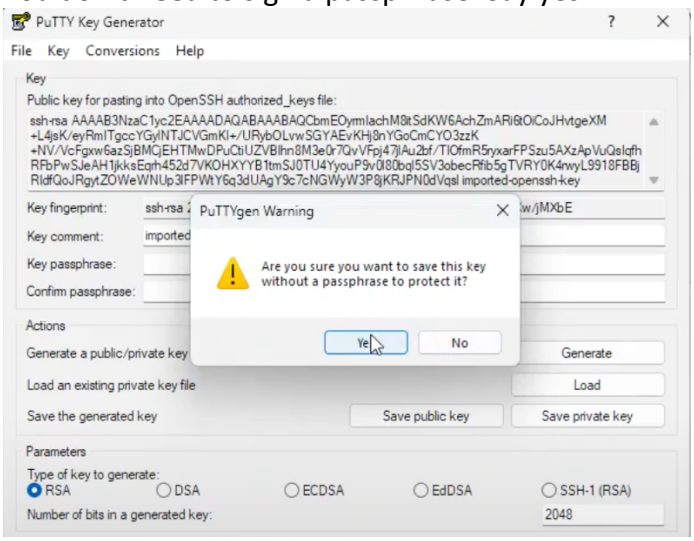
It imports that in by clicking OK



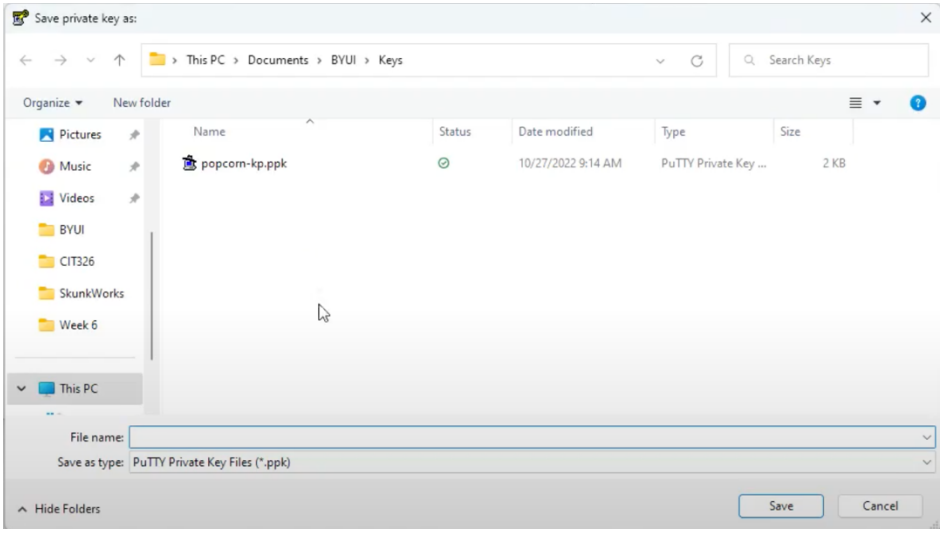
Under the file menu Save a private key.



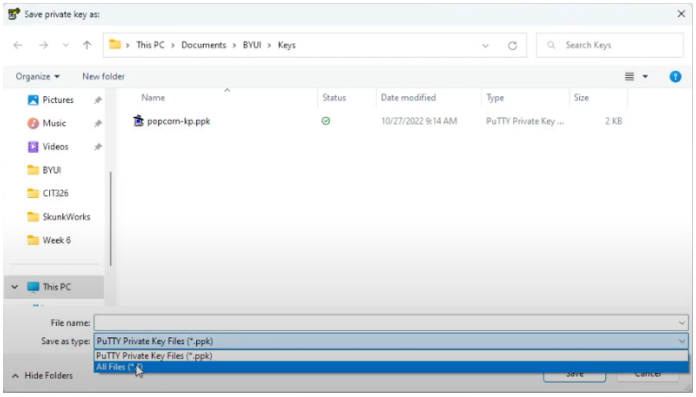
You don’t need to sign a passphrase. Say yes



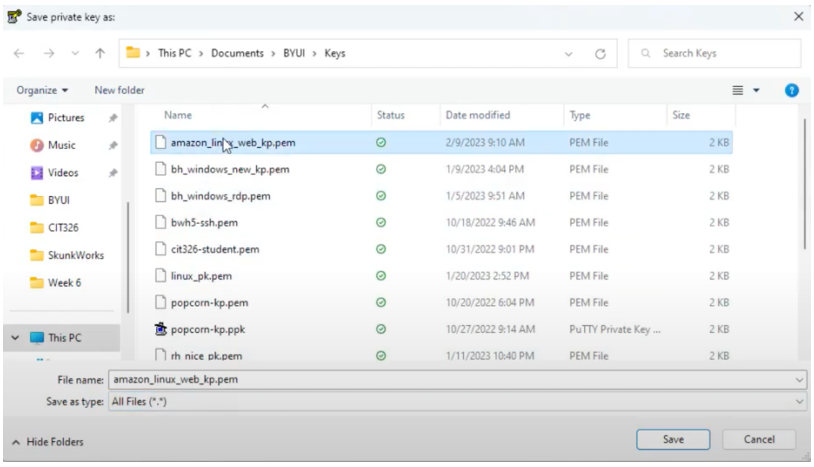
It will open up the Save dialog window and the key will be in putty form.



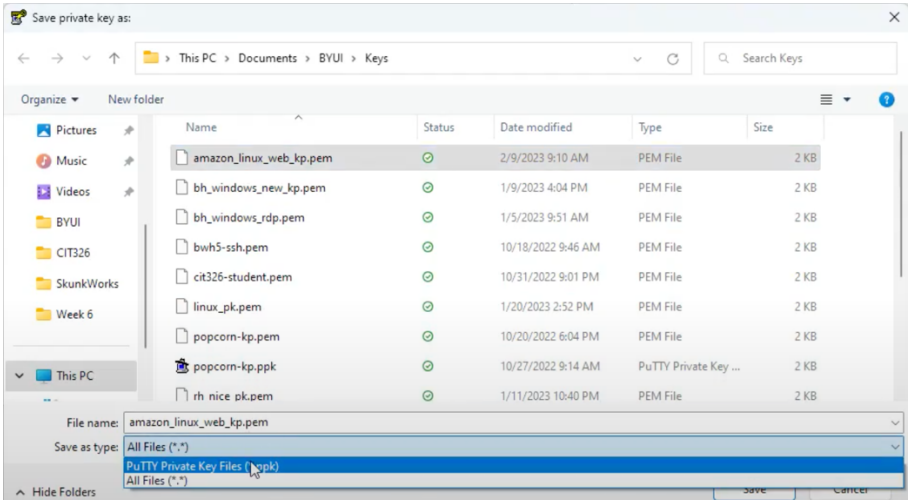
You can select all files again.



and select the .pem file again.

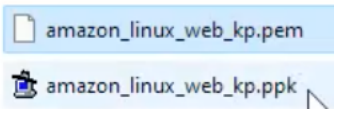


Change the Save as type to ‘PuTTY PrivateKeyFiles(*.ppk)



Take off the .pem of the File name so it’s a .ppk file and click Save

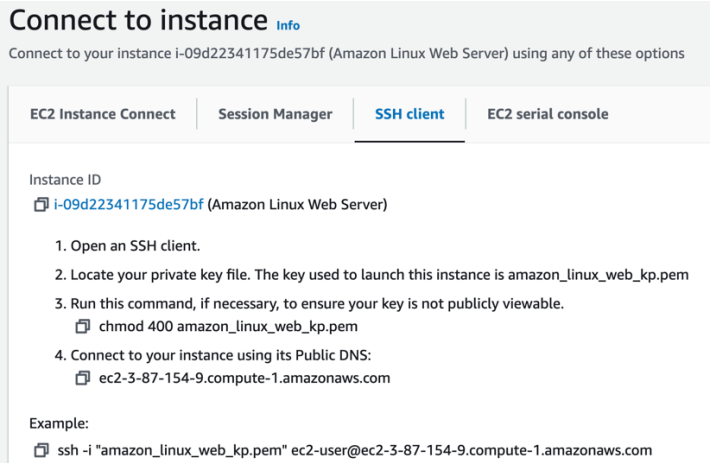
So now where you’ve saved your keys you should have the open ssh format and the putty format.



4. Connect to your instance.

Go back to your Instance and check the box next to the instance. Click ‘Connect’.

Click on the SSH client tab



Copy the Example command line command given near the bottom that will allow you to connect to this instance. We will use it a bit later.

Open up your terminal. Not cmd for windows users, windows users use PowerShell.

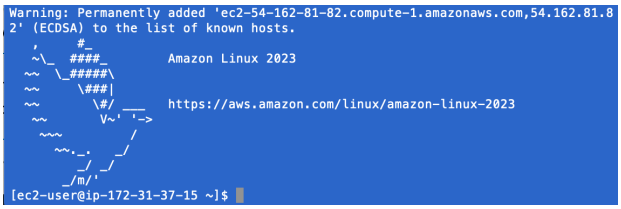
Navigate your prompt to the directory where your keys are stored.

Copy your .pem file with cp.

Paste in the command we copied from our instance:

Say yes:

Then you should get connected. It will look like this:



If you get this:

```
Warning: Permanently added 'ec2-35-161-82-30.us-west-2.compute.amazonaws.com' (ED25519) to the list of known hosts.
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@         WARNING: UNPROTECTED PRIVATE KEY FILE!          @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
Permissions 0644 for 'amazon_linux_web_kp.pem' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "amazon_linux_web_kp.pem": bad permissions
ec2-user@ec2-35-161-82-30.us-west-2.compute.amazonaws.com: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
```

Then copy and run the chmod command from AWS:

3. Run this command, if necessary, to ensure your key is not publicly viewable.

   chmod 400 amazon_linux_web_kp.pem

5. Install nginx

Install nginx with this command: (that last character is a 1) not an l

```
]$ sudo amazon-linux-extras install -y nginxl
```

Or

```
sudo yum install nginx
```

```
y
```

Start the engine with this command: (that is systemctl, not a number 1)

```
]$ sudo systemctl start nginx
```

To verify everything is up and running:

```
$ wget http://localhost
```

And we have an index.html file there.

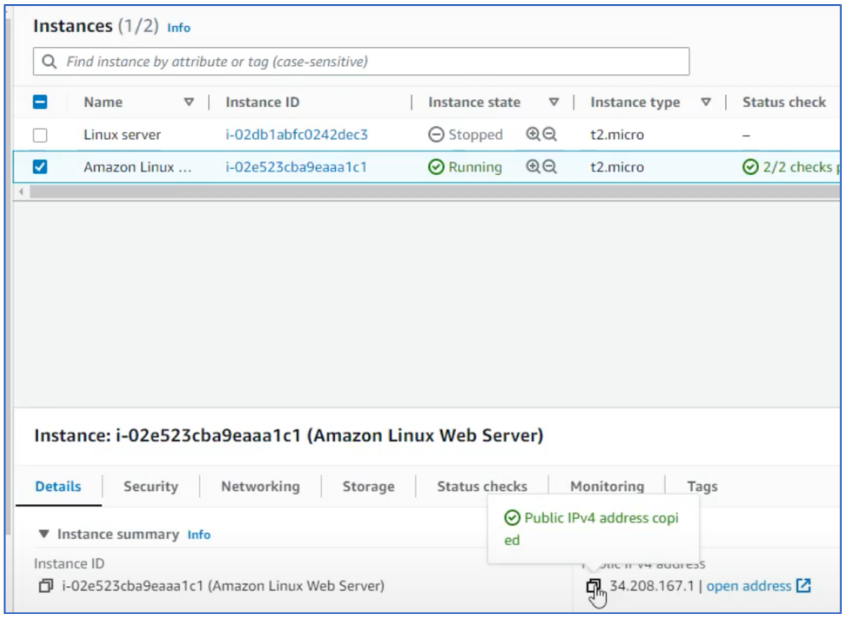
```
2023-02-09 16:28:20 (119 MB/s) - 'index.html' saved [615/615]
```

Go back to our instance get out of the 'Connect to instance' window by clicking cancel

And check the instance again.

6. To view the index.html of our new web server.

Grab the IP address



And paste it into a browser tab http://xx.xxx.xxx.1

And you should be able to get into your nginx page:

Let's find where that file is. Go to where nginx was installed

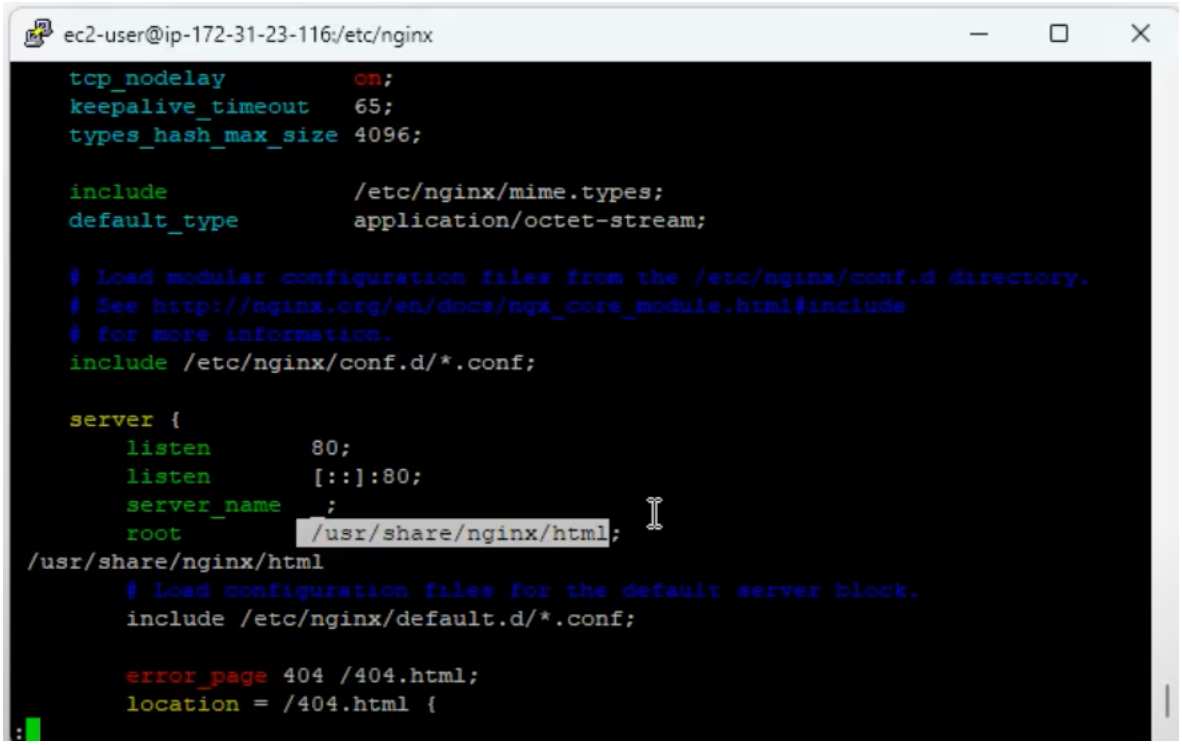
```
$ cd /etc/nginx/
```

The ls command there will show the files

Edit the configuration file with:

```
$ vi nginx.conf
```

Arrow down to the server root and copy this path:



Don’t save it and get out of the editor Shift+Q+Z and go to that directory.

```
$ cd  /usr/share/nginx/html
```

The ls command will now show the index.html file.

Type this to edit that file:

```
$ sudo nano index.html
```

Use the arrow keys to edit the <h1> for example. Use your name, not mine.

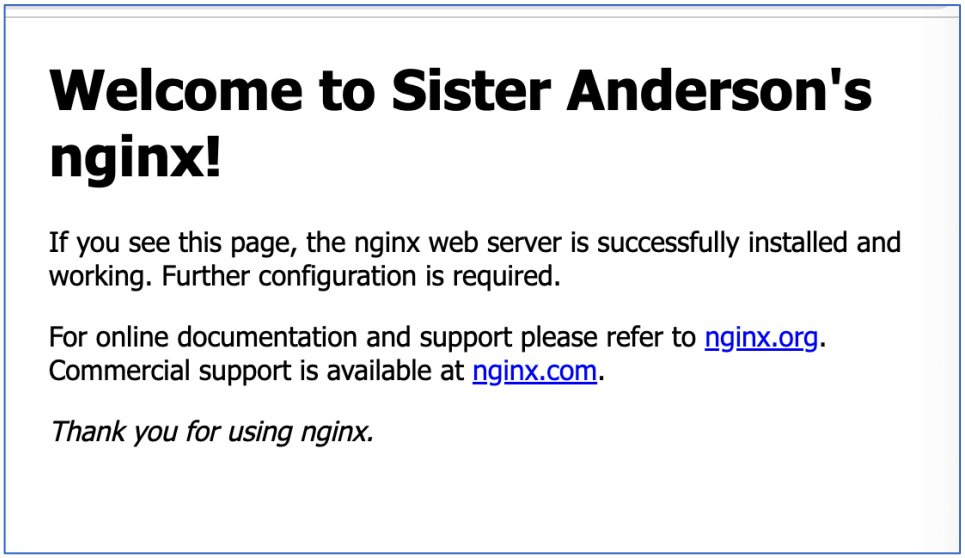
```
<!DOCTYPE html>
<html>
<head>
<title>Welcome to nginx!</title>
<style>
html { color-scheme: light dark; }
body { width: 35em; margin: 0 auto;
font-family: Tahoma, Verdana, Arial, sans-serif; }
</style>
</head>
<body>
<h1>Welcome to Sister Anderson's nginx!</h1>
<p>If you see this page, the nginx web server is successfully installed and
working. Further configuration is required.</p>

<p>For online documentation and support please refer to
<a href="http://nginx.org/">nginx.org</a>.<br/>
Commercial support is available at
<a href="http://nginx.com/">nginx.com</a>.</p>
```

Ctrl-O then enter, to write. Should see something like ‘Wrote out 23 lines’

Ctrl-X to exit

Refresh your browser page and it should show the changes.



Screenshot this index.html page for submission.