

AWS - EXERCISE 1

1. Create a new EC2 instance. Name it "UbuntuDockerAWS".

Launch instance

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

Launch instance ▲

Migrate a server ↗

Launch instance

Launch instance from template on

Name and tags Info

Name

UbuntuDockerAWS

Add additional tags

▼ 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

vockey ▼

↻ Create new key pair

1 / 9

▼ Network settings Info

Edit

Network Info

vpc-0319a0fe077aa36dc

Subnet Info

No preference (Default subnet in any availability zone)

Auto-assign public IP Info

Enable

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group

☐ Select existing security group

We'll create a new security group called 'launch-wizard-2' with the following rules:

☒ Allow SSH traffic from

Helps you connect to your instance


Anywhere
0.0.0.0/0

☒ Allow HTTPS traffic from the internet

To set up an endpoint, for example when creating a web server

☒ Allow HTTP traffic from the internet

To set up an endpoint, for example when creating a web server

 Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

×

▼ Summary

Number of instances Info

1

Software Image (AMI)

Canonical, Ubuntu, 22.04 LTS, ...read more
ami-00874d747dde814fa

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

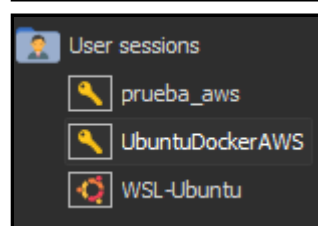
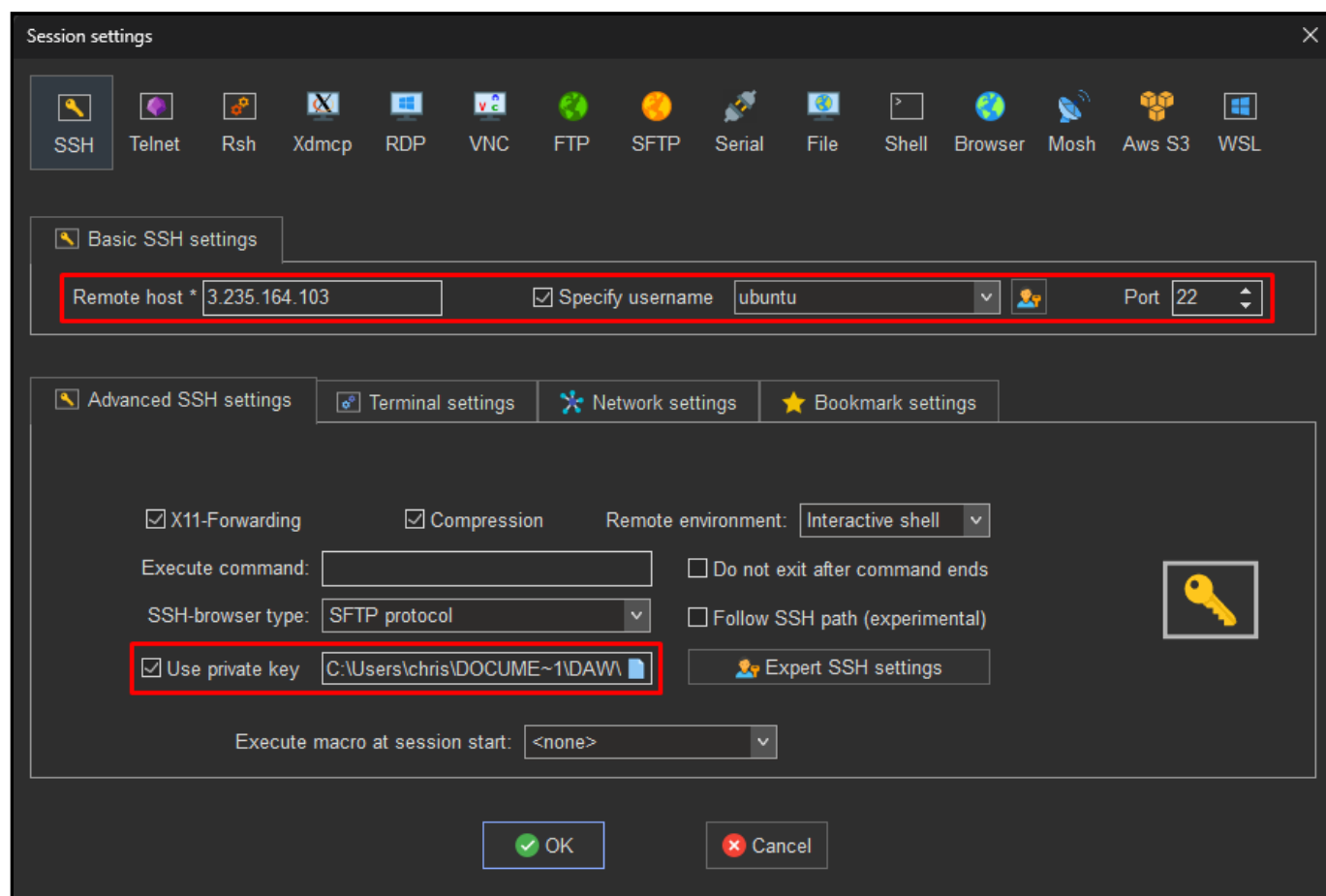
Cancel

Launch instance

2. Use this EC2 instance to do the following tasks:

a. Access to this instance using SSH client. Create a new profile.

First, I create a new session and configure it to use my new instance's host and the default user "ubuntu". Also, I downloaded the "PPK" file, since I configured it to use a vockey.



b. Update the Ubuntu packages.

```
sudo apt update -y && sudo apt upgrade -y && sudo apt auto-remove -y
```

```

3.235.164.103 (ubuntu)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...
User sessions
  prusba_aws
  UbuntuDockerAWS
  WSL-Ubuntu

ubuntu@ip-172-31-11-232:~$ sudo apt update -y && sudo apt upgrade -y && sudo apt auto-remove -y
Hit:1 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [107 kB]
Get:4 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-universe amd64 Packages [14.1 MB]
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:6 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy/universe Translation-en [5892 kB]
Get:7 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 c-n-f Metadata [288 kB]
Get:8 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 Packages [217 kB]
Get:9 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy/multiverse Translation-en [112 kB]
Get:10 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy/multiverse amd64 c-n-f Metadata [8372 B]
Get:11 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [874 kB]
Get:12 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [192 kB]
Get:13 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [13.2 kB]
Get:14 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 Packages [587 kB]
Get:15 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted Translation-en [90.9 kB]
Get:16 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/restricted amd64 c-n-f Metadata [559 B]
Get:17 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [801 kB]
Get:18 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en [144 kB]
Get:19 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [15.1 kB]
Get:20 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 Packages [9364 B]
Get:21 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse Translation-en [3168 B]
Get:22 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 c-n-f Metadata [456 B]
Get:23 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 Packages [40.7 kB]
Get:24 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-backports/main Translation-en [9800 B]
Get:25 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-backports/main amd64 c-n-f Metadata [116 B]
Get:26 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-backports/restricted amd64 c-n-f Metadata [116 B]
Get:27 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 Packages [19.5 kB]
Get:28 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-backports/universe Translation-en [13.8 kB]
Get:29 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 c-n-f Metadata [392 B]
Get:30 http://us-east-1-ec2.archive.ubuntu.com/ubuntu jammy-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:31 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [622 kB]
Get:32 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [130 kB]
Get:33 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [8184 B]
Get:34 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [550 kB]
Get:35 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [84.7 kB]
Get:36 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 c-n-f Metadata [556 B]
Get:37 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [639 kB]
Get:38 http://security.ubuntu.com/ubuntu jammy-security/universe Translation-en [97.9 kB]
Get:39 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 c-n-f Metadata [11.3 kB]
Get:40 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 Packages [4960 B]
Get:41 http://security.ubuntu.com/ubuntu jammy-security/multiverse Translation-en [996 B]
Get:42 http://security.ubuntu.com/ubuntu jammy-security/multiverse amd64 c-n-f Metadata [240 B]
Fetched 254.7 MB in 4s (6258 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
33 packages can be upgraded. Run 'apt list --upgradable' to see them.
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
#
# News about significant security updates, features and services will
# appear here to raise awareness and perhaps tease r/r/linux :)
# Use 'pro config set apt_news=false' to hide this and future APT news.
#
The following packages have been kept back:

```

c. Install Docker in this server.

```
sudo apt install docker.io
```

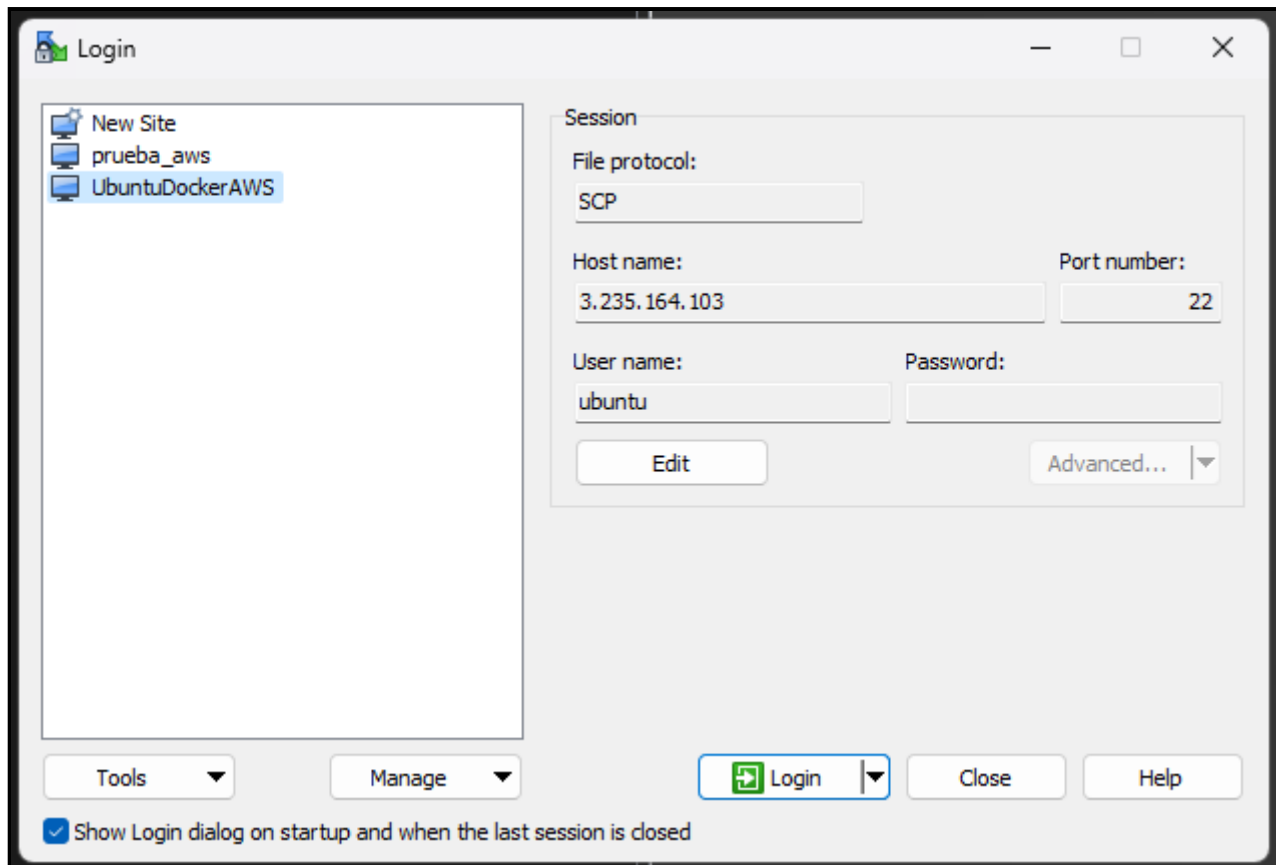
```

ubuntu@ip-172-31-11-232:~$ sudo apt install docker.io
Reading package lists ... Done
Building dependency tree ... Done
Reading state information ... Done
The following additional packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base pigz runc ubuntu-fan
Suggested packages:
  ifupdown aufs-tools cgroupfs-mount | cgroup-lite debootstrap docker-doc rinse zfs-fuse | zfsutils
The following NEW packages will be installed:
  bridge-utils containerd dns-root-data dnsmasq-base docker.io pigz runc ubuntu-fan
0 upgraded, 8 newly installed, 0 to remove and 6 not upgraded.
Need to get 66.8 MB of archives.
After this operation, 287 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 pigz amd64 2.6-1 [63.6 kB]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 bridge-utils amd64 1.7-1ubuntu3 [34.4 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 runc amd64 1.1.0-0ubuntu1.1 [4242 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 containerd amd64 1.5.9-0ubuntu3.1 [28.1 MB]
Get:5 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/main amd64 dns-root-data all 2021011101 [5256 B]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 dnsmasq-base amd64 2.86-1.1ubuntu0.1 [354 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 docker.io amd64 20.10.12-0ubuntu4 [34.0 MB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 ubuntu-fan all 0.12.16 [35.2 kB]
Fetched 66.8 MB in 2s (40.3 MB/s)
Preconfiguring packages ...
Selecting previously unselected package pigz.
(Reading database ... 63571 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.6-1_amd64.deb ...
Unpacking pigz (2.6-1) ...
Selecting previously unselected package bridge-utils.
Preparing to unpack .../1-bridge-utils_1.7-1ubuntu3_amd64.deb ...
Unpacking bridge-utils (1.7-1ubuntu3) ...
Selecting previously unselected package runc.
Preparing to unpack .../2-runc_1.1.0-0ubuntu1.1_amd64.deb ...
Unpacking runc (1.1.0-0ubuntu1.1) ...
Selecting previously unselected package containerd.
Preparing to unpack .../3-containerd_1.5.9-0ubuntu3.1_amd64.deb ...
Unpacking containerd (1.5.9-0ubuntu3.1) ...
Selecting previously unselected package dns-root-data.
Preparing to unpack .../4-dns-root-data_2021011101_all.deb ...
Unpacking dns-root-data (2021011101) ...
Selecting previously unselected package dnsmasq-base.
Preparing to unpack .../5-dnsmasq-base_2.86-1.1ubuntu0.1_amd64.deb ...
Unpacking dnsmasq-base (2.86-1.1ubuntu0.1) ...
Selecting previously unselected package docker.io.
Preparing to unpack .../6-docker.io_20.10.12-0ubuntu4_amd64.deb ...
Unpacking docker.io (20.10.12-0ubuntu4) ...
Selecting previously unselected package ubuntu-fan.
Preparing to unpack .../7-ubuntu-fan_0.12.16_all.deb ...
Unpacking ubuntu-fan (0.12.16) ...
Setting up dnsmasq-base (2.86-1.1ubuntu0.1) ...
Setting up runc (1.1.0-0ubuntu1.1) ...
Setting up dns-root-data (2021011101) ...
Setting up bridge-utils (1.7-1ubuntu3) ...
Setting up pigz (2.6-1) ...
Setting up containerd (1.5.9-0ubuntu3.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /lib/systemd/system/containerd.service.

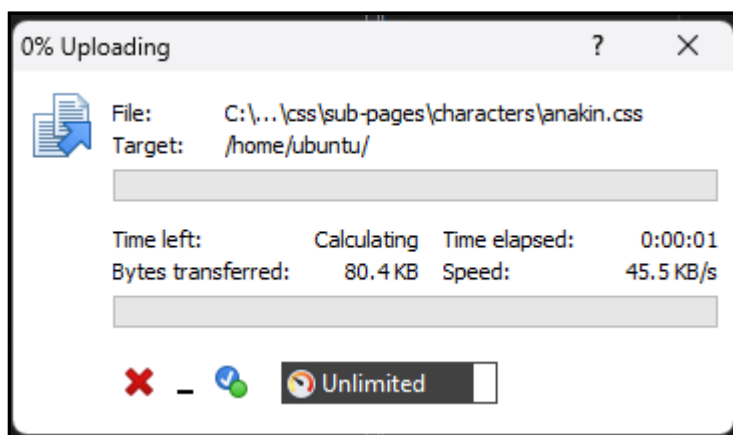
```

d. Use WinSCP to transfer the content of a static web page to home directory.

I create a new SCP connection with the host in WinSCP.



And now I can transfer my static project to the server home directory.

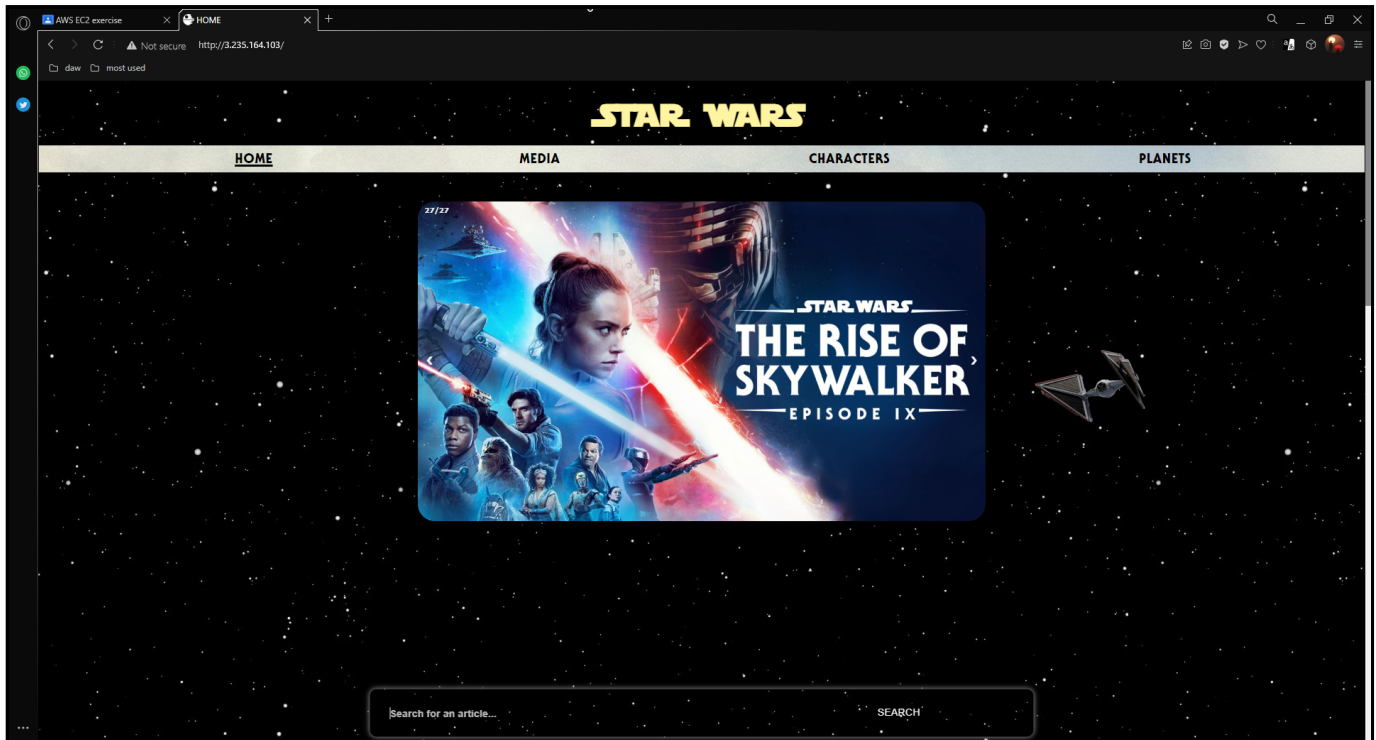


e. Run a "nginx:1.22.1" docker to publish this static web page (port 80).

```
sudo docker run -d -p 80:80 -v ~/fin_1er_trimestre:/usr/share/nginx/html
nginx:1.22.1
```

```
ubuntu@ip-172-31-11-232:~$ sudo docker run -d -p 80:80 -v ~/fin_1er_trimestre:/usr/share/nginx/html nginx:1.22.1
Unable to find image 'nginx:1.22.1' locally
1.22.1: Pulling from library/nginx
bb263680fed1: Pull complete
c13df232596d: Pull complete
2b1f6cfd11a1: Pull complete
cef27009be5d: Pull complete
9317a4486630: Pull complete
023932eaae7e: Pull complete
Digest: sha256:6b9d1c6e9826964d65710927416b526ec5939545e66ad42326ccb338880f2c5d
Status: Downloaded newer image for nginx:1.22.1
00e308bf23a5d4e5731d1f58345314df83074606ce599cdfc3c8ea476e37256
```

It is now possible to visit "3.235.164.103:80" and visit the page, located on the docker nginx server.



3. Now consider you are not using Windows but an Ubuntu console:

a. Access to previous "UbuntuDockerAWS" EC2 instance.

To be able to do this, I first need to download the "PEM" vockey file for the instance.

```
chmod 400 labsuser.pem
```

```
christian@christianms13:/mnt/c/Users/chris/Documents/DAW/.extra/aws_ej1$ chmod 400 labsuser.pem
christian@christianms13:/mnt/c/Users/chris/Documents/DAW/.extra/aws_ej1$ ls -la
total 8
drwxrwxrwx 1 christian christian 512 Feb  9 17:57 
drwxrwxrwx 1 christian christian 512 Feb  9 17:24 
-r-xr-xr-x 1 christian christian 1678 Feb  9 17:57 labsuser.pem
-rwxrwxrwx 1 christian christian 1438 Feb  9 17:24 labsuser.ppk
```

Once I have this file, I need to change it's permissions:

```
ssh -i "labsuser.pem" ubuntu@ec2-3-235-164-103.compute-1.amazonaws.com
```

```
christian@christianms13:~$ ssh -i "vockey.pem" ubuntu@ec2-3-235-164-103.compute-1.amazonaws.com
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-1028-aws x86_64)

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

System information as of Thu Feb  9 17:55:48 UTC 2023

System load:  0.0               Processes:            106
Usage of /:   29.1% of 7.57GB   Users logged in:     0
Memory usage: 27%              IPv4 address for docker0: 172.17.0.1
Swap usage:   0%               IPv4 address for eth0:  172.31.11.232

0 updates can be applied immediately.

Last login: Thu Feb  9 17:45:24 2023 from 46.37.76.3
ubuntu@ip-172-31-11-232:~$
```

b. Copy using "scp" command a directory with another static web page to the "UbuntuDockerAWS" EC2 instance.

First of all, since I am going to use the same web page, I need to create an additional directory in the user home of "UbuntuDockerAWS" to locate the page in there.

```
mkdir auxiliar
```

Now that I have a place to copy the page in, I can use the SCP command:

```
scp -i "vockey.pem"
/mnt/c/Users/chris/Documents/DAW/lenguajes_de_marcas/fin_1er_trimestre/*
ubuntu@ec2-3-235-164-103.compute-1.amazonaws.com:/home/ubuntu/auxiliar
```



```
christian@christians13:~$ scp -i "vockey.pem" -r /mnt/c/Users/chris/Documents/DAW/lenguajes_de_marcas/fin_1er_trimestre/* ubuntu@ec2-3-235-164-103.compute-1.amazonaws.com:/home/ubuntu/auxiliar
characters.style.css 100% 14KB 76.8KB/s 00:00
main_style.css 100% 38KB 203.5KB/s 00:00
media_style.css 100% 16KB 172.1KB/s 00:00
planets_style.css 100% 12KB 132.5KB/s 00:00
anakin.css 100% 12KB 127.2KB/s 00:00
finn.css 100% 12KB 127.1KB/s 00:00
han.css 100% 12KB 122.3KB/s 00:00
leia.css 100% 12KB 126.4KB/s 00:00
luke.css 100% 12KB 127.6KB/s 00:00
obi.css 100% 12KB 124.4KB/s 00:00
padme.css 100% 12KB 126.6KB/s 00:00
poe.css 100% 12KB 127.0KB/s 00:00
rey.css 100% 12KB 127.7KB/s 00:00
episod1.css 100% 12KB 127.4KB/s 00:00
episod2.css 100% 12KB 127.3KB/s 00:00
episod3.css 100% 12KB 127.6KB/s 00:00
episod4.css 100% 12KB 127.6KB/s 00:00
episod5.css 100% 12KB 125.8KB/s 00:00
episod6.css 100% 12KB 125.7KB/s 00:00
episod7.css 100% 12KB 127.4KB/s 00:00
episod8.css 100% 12KB 126.5KB/s 00:00
episod9.css 100% 12KB 125.6KB/s 00:00
rogue_one.css 100% 12KB 127.5KB/s 00:00
solo.css 100% 12KB 126.2KB/s 00:00
tcw.css 100% 12KB 127.5KB/s 00:00
coruscant.css 100% 12KB 123.6KB/s 00:00
dagobah.css 100% 12KB 126.7KB/s 00:00
geonosis.css 100% 12KB 126.4KB/s 00:00
jakku.css 100% 12KB 126.5KB/s 00:00
kamino.css 100% 12KB 128.4KB/s 00:00
tatooine.css 100% 12KB 128.3KB/s 00:00
riccione-serial-medium-regular.ttf 100% 52KB 547.5KB/s 00:00
Aurebesh Bold Italic.otf 100% 78KB 416.8KB/s 00:00
Aurebesh Bold.otf 100% 77KB 419.1KB/s 00:00
Aurebesh Condensed Bold Italic.otf 100% 78KB 828.3KB/s 00:00
Aurebesh Condensed Bold.otf 100% 77KB 823.1KB/s 00:00
Aurebesh Condensed Italic.otf 100% 78KB 841.0KB/s 00:00
Aurebesh Condensed.otf 100% 77KB 827.1KB/s 00:00
Aurebesh Italic.otf 100% 81KB 869.1KB/s 00:00
Aurebesh.otf 100% 88KB 851.3KB/s 00:00
SF Distant Galaxy Alternate Italic.ttf 100% 59KB 609.7KB/s 00:00
SF Distant Galaxy Alternate.ttf 100% 59KB 616.9KB/s 00:00
SF Distant Galaxy AltOutline Italic.ttf 100% 89KB 938.8KB/s 00:00
SF Distant Galaxy AltOutline.ttf 100% 84KB 848.0KB/s 00:00
SF Distant Galaxy Italic.ttf 100% 58KB 618.5KB/s 00:00
SF Distant Galaxy Outline Italic.ttf 100% 89KB 941.4KB/s 00:00
SF Distant Galaxy Outline.ttf 100% 83KB 877.9KB/s 00:00
SF Distant Galaxy Symbols Italic.ttf 100% 42KB 453.5KB/s 00:00
SF Distant Galaxy Symbols.ttf 100% 48KB 483.7KB/s 00:00
```

c. Run a "nginx:perl" docker to publish this static web page in port 8080.

Now from the "UbuntuDockerAWS" instance:

```
sudo docker run -d -p 8080:8080 -v
~/auxiliar/fin_1er_trimestre:/usr/share/nginx/html nginx:perl
```

```
ubuntu@ip-172-31-11-232:~$ sudo docker run -d -p 8080:8080 -v ~/auxiliar/fin_1er_trimestre:/usr/share/nginx/html nginx:perl
Unable to find image 'nginx:perl' locally
perl: Pulling from library/nginx
bb263680fed1: Already exists
258f176fd226: Pull complete
a0bc35e70773: Pull complete
077b9569ff86: Pull complete
3082a16f3b61: Pull complete
7e9b29976cce: Pull complete
00559ba6ebd1: Pull complete
Digest: sha256:58be63045ce255b5f1fa93d169e3dc1632e18b6e7bc7f82ad3c77ccf6eae3b80
Status: Downloaded newer image for nginx:perl
66b1ee602f1d033f4c28a5d8807e09c1e8720233e8bbcc74ddf854c7d741ef51
```

And yet again, I'm able to visit the "3.235.164.103:8080" URL.

4. Use "UbuntuDockerAWS" to create a new AMI (Amazon Machine Image). Thus, we can create easily new EC2 instances based in "UbuntuDockerAWS" with all work already done to be reused.