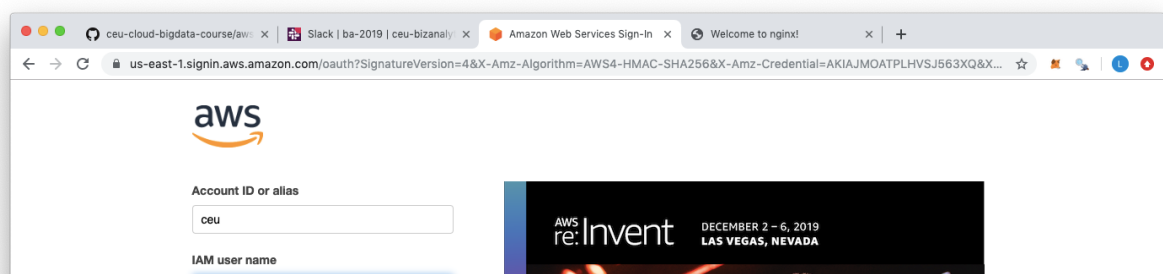


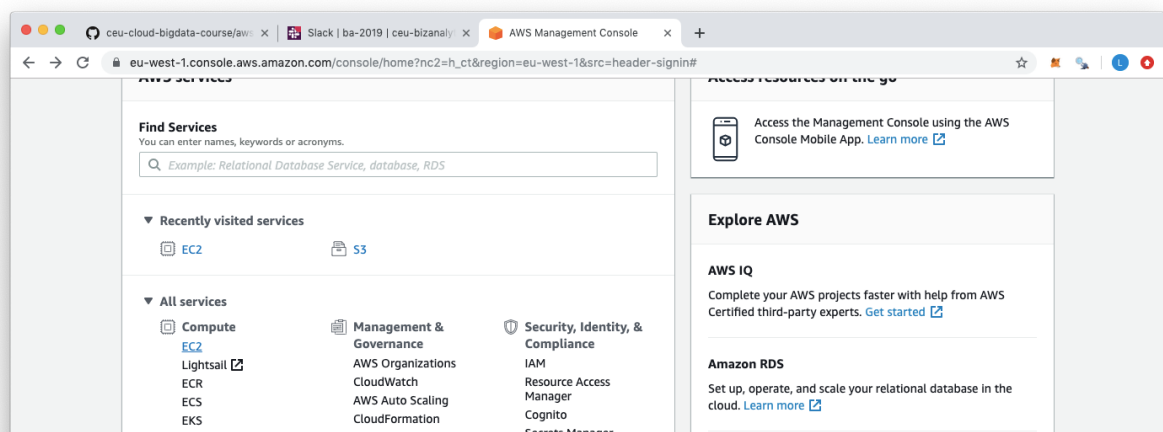
Homework - Week 2 - EC2 (1902224)

Homework - Week 2 - EC2 (1902224)	1
Log in to AWS	1
Create a Security Group + Configure the Security group	2
Create a t2.nano instance	3
Continue with t2.nano instance	5
Attach your security group	6
Generate a set of keypairs, call it "<your student id>-homework"	7
SSH into the instance	9
Update the OS	10
Install nginx	11
Modify the nginx default HTML page	12
Visit your instance's site in a browser	13

Log in to AWS



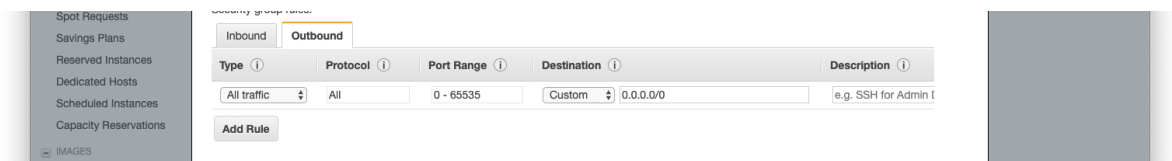
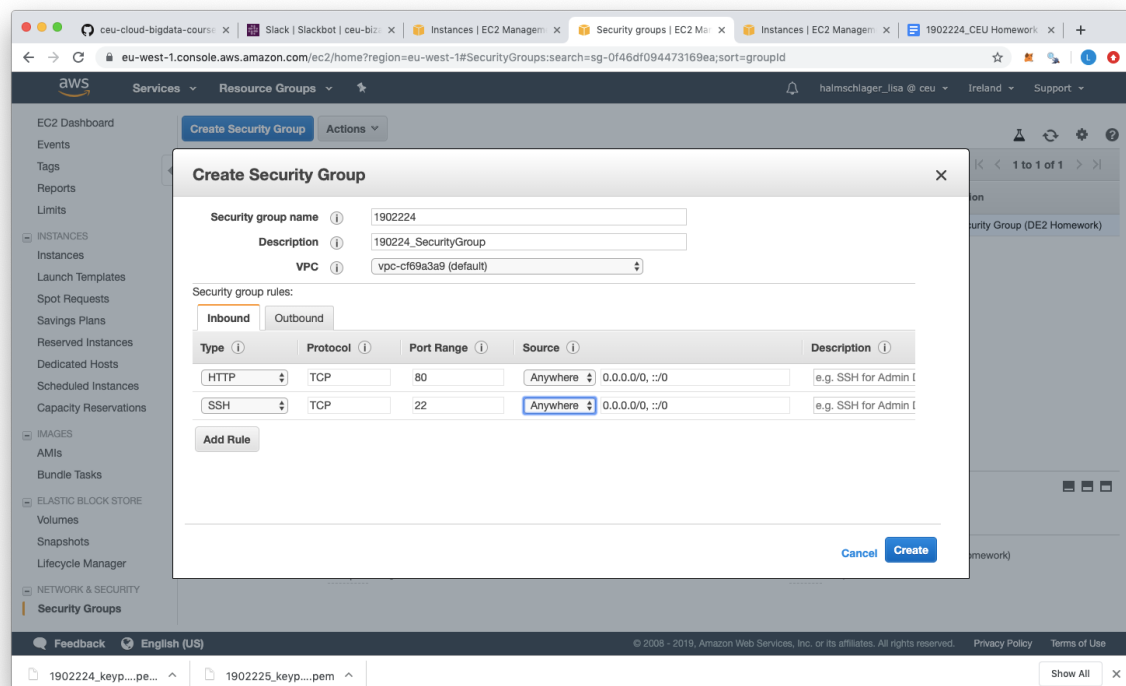
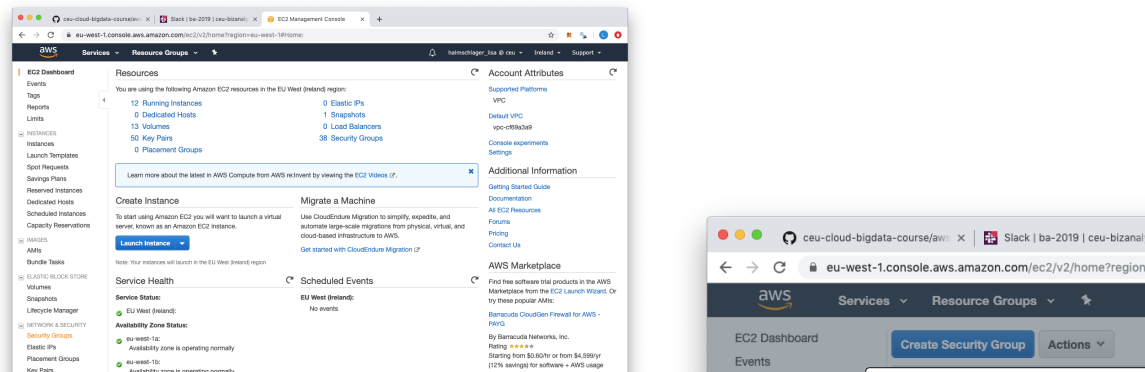
Select EC2 from AWS Service menu



Create a Security Group + Configure the Security group

Select Security Group on the left hand side menu

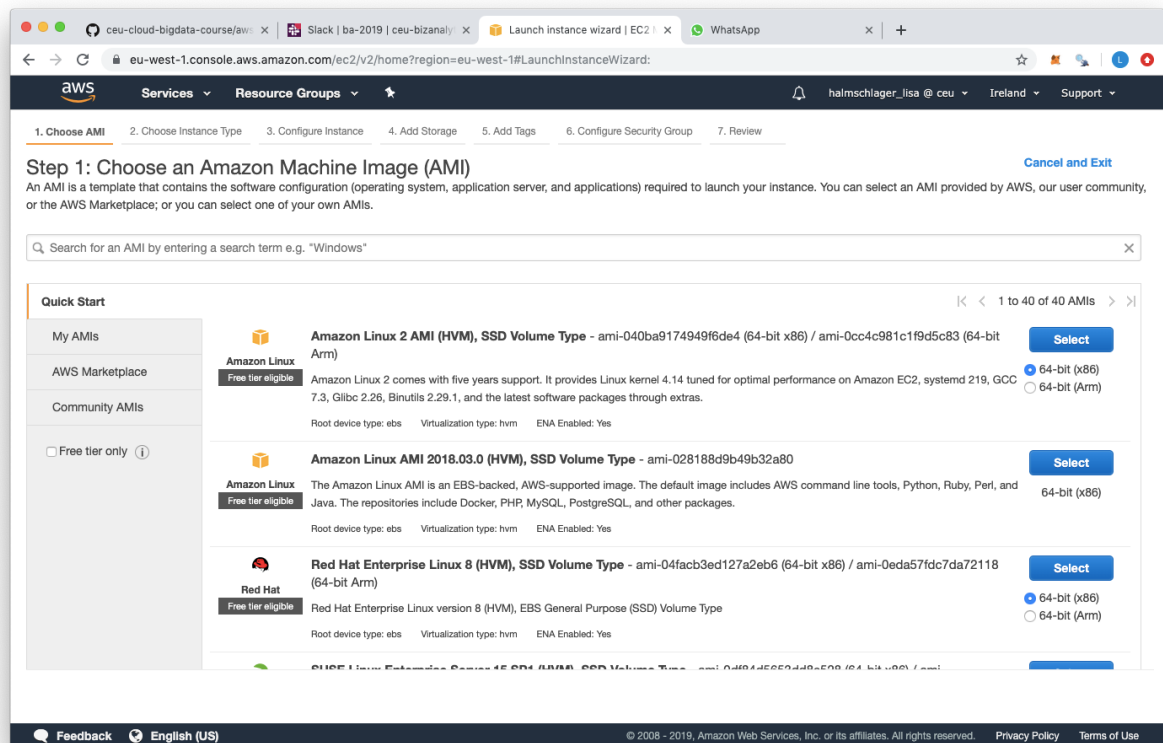
Click CREATE SECURITY GROUP, configure it and click CREATE.



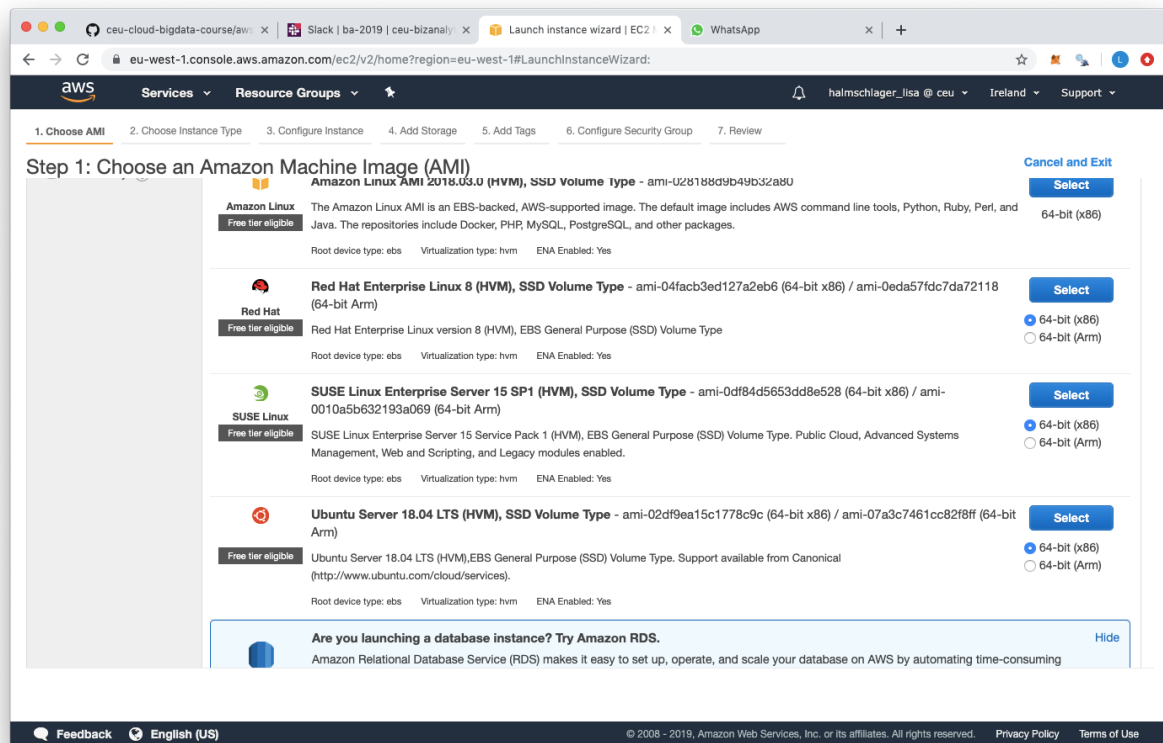
Create a t2.nano instance

Click INSTANCES on the left-hand-side menu

STEP 1: Choose AMI

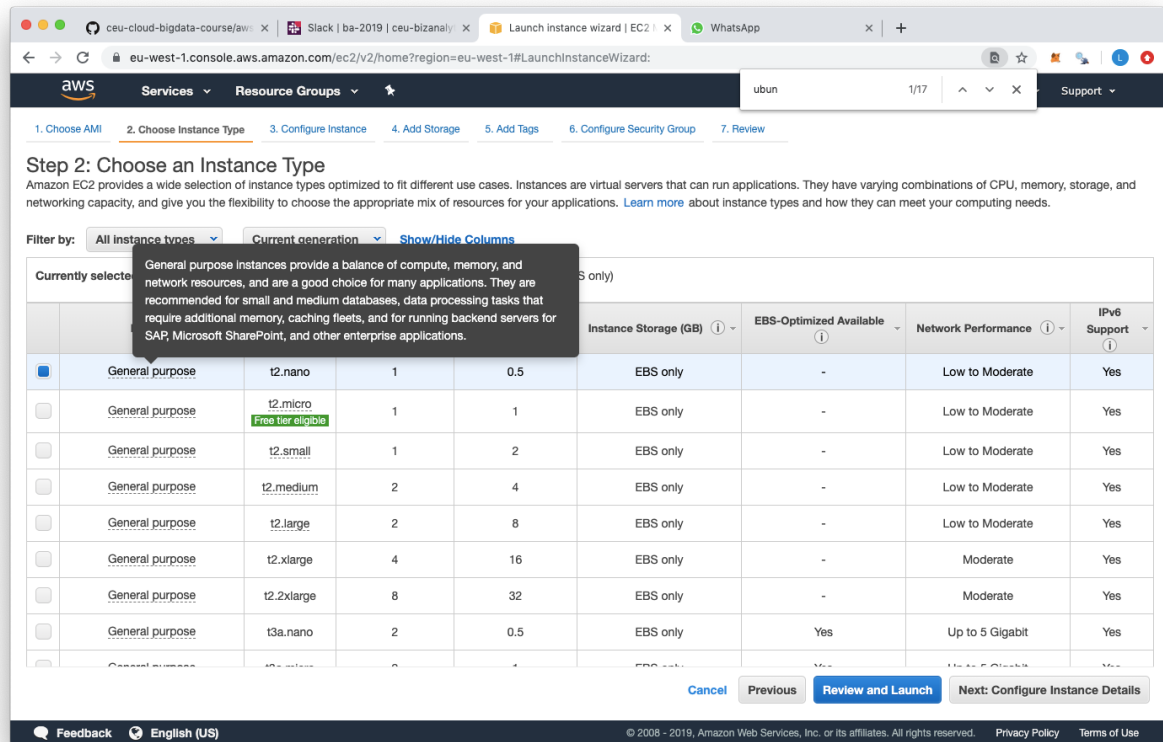


Scroll through options in QUICK START menu, select preferred AMI and click SELECT

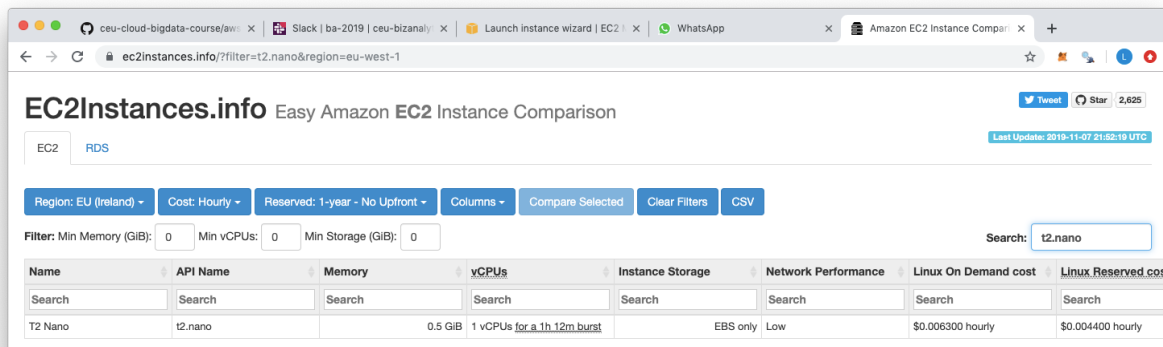


STEP 2: Choose an Instance Type

Select t2.nano and click NEXT



Check the price of this instance on ec2instances.info
Go to website www.ec2instances.info and search for t2.nano



Price:

Search:

Linux On Demand cost	Linux Reserved cost	Windows On Demand cost	Windows Reserved cost
<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Search"/>
\$0.006300 hourly	\$0.004400 hourly	\$0.008600 hourly	\$0.006700 hourly

Continue with t2.nano instance

Step 3: Configure Instance Details and click NEXT

Step 3: Configure Instance Details
Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of Instances 1 [Launch into Auto Scaling Group](#)

Purchasing option ☐ Request Spot instances

Network vpc-cf69a3a9 (default) [Create new VPC](#)

Subnet No preference (default subnet in any Availability Zone) [Create new subnet](#)

Auto-assign Public IP Use subnet setting (Enable)

Placement group ☐ Add instance to placement group

Capacity Reservation Open [Create new Capacity Reservation](#)

IAM role None [Create new IAM role](#)

Shutdown behavior Stop

Enable termination protection ☐ Protect against accidental termination

Monitoring ☐ Enable CloudWatch detailed monitoring
[Additional charges apply.](#)

Tenancy Shared - Run a shared hardware instance
[Additional charges will apply for dedicated tenancy.](#)

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Storage](#)

Step 4: Add Storage and click NEXT

Step 4: Add Storage
Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-0c53d8ed6cc8ae943	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

[Add New Volume](#)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Tags](#)

Step 5: Add Tags and click NEXT

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver. A copy of a tag can be applied to volumes, instances or both. Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances	Volumes
Name	DE2-Homework_1902224	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

[Add another tag](#) (Up to 50 tags maximum)

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Security Group](#)

Attach your security group

Step 6: Configure Security Group

Select security group and click REVIEW AND LAUNCH

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: ☐ Create a new security group ☒ Select an existing security group

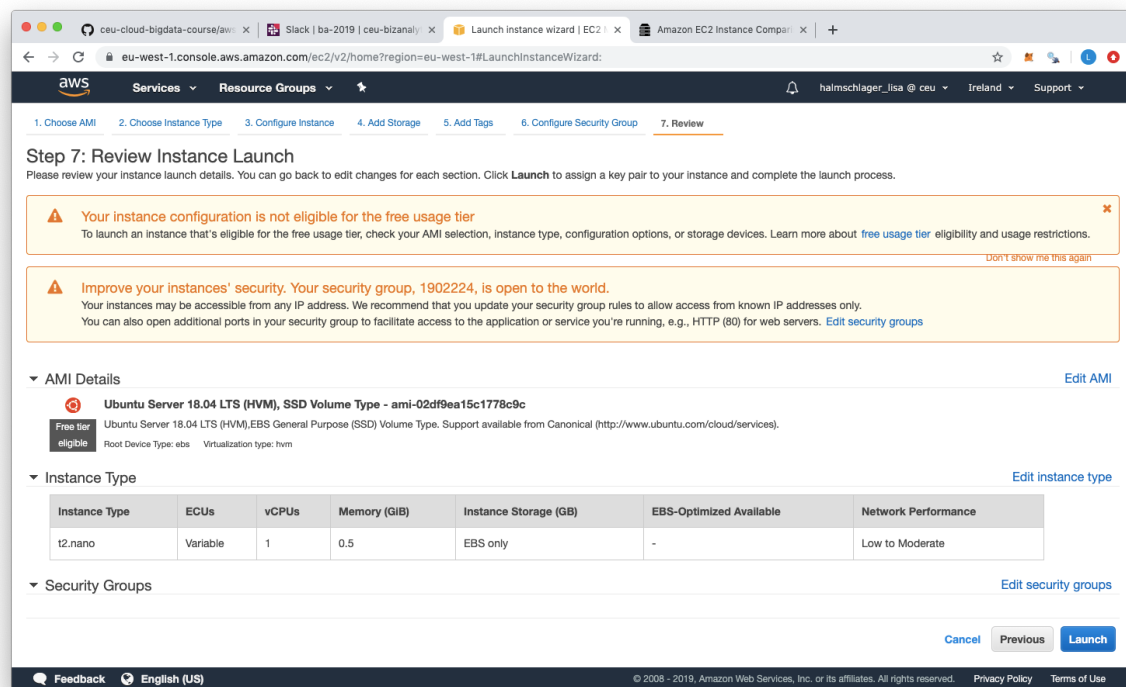
Security Group ID	Name	Description	Actions
<input type="checkbox"/> sg-0fbcdd98a06dfada3	1902201-homework	DE2-Homework_Riaz_Muhammad_Faez	Copy to new
<input checked="" type="checkbox"/> sg-0f46df094473169ea	1902224	Lisas Security Group (DE2 Homework)	Copy to new
<input type="checkbox"/> sg-07c8ef3464636ebd0	1902302	1902302	Copy to new
<input type="checkbox"/> sg-0668b31bd466f9a18	1902450-Homework	Hassaan_Ahmed_siddiqui_Homework 2	Copy to new
<input type="checkbox"/> sg-00df185104dc33a45	1902727	1902727	Copy to new
<input type="checkbox"/> sg-08d609439270e6e21	andras_somkuti_hw2	Security Group for HW2	Copy to new
<input type="checkbox"/> sg-0fb016ed38fb74ce4	aronpalkovics	aronpalkovics	Copy to new

Inbound rules for sg-0f46df094473169ea (Selected security groups: sg-0f46df094473169ea)

Type	Protocol	Port Range	Source	Description
HTTP	TCP	80	0.0.0.0/0	Allows inbound HTTP
HTTP	TCP	80	:::0	Allows inbound HTTP
SSH	TCP	22	0.0.0.0/0	SSH for Admin
SSH	TCP	22	:::0	SSH for Admin

[Cancel](#) [Previous](#) [Review and Launch](#)

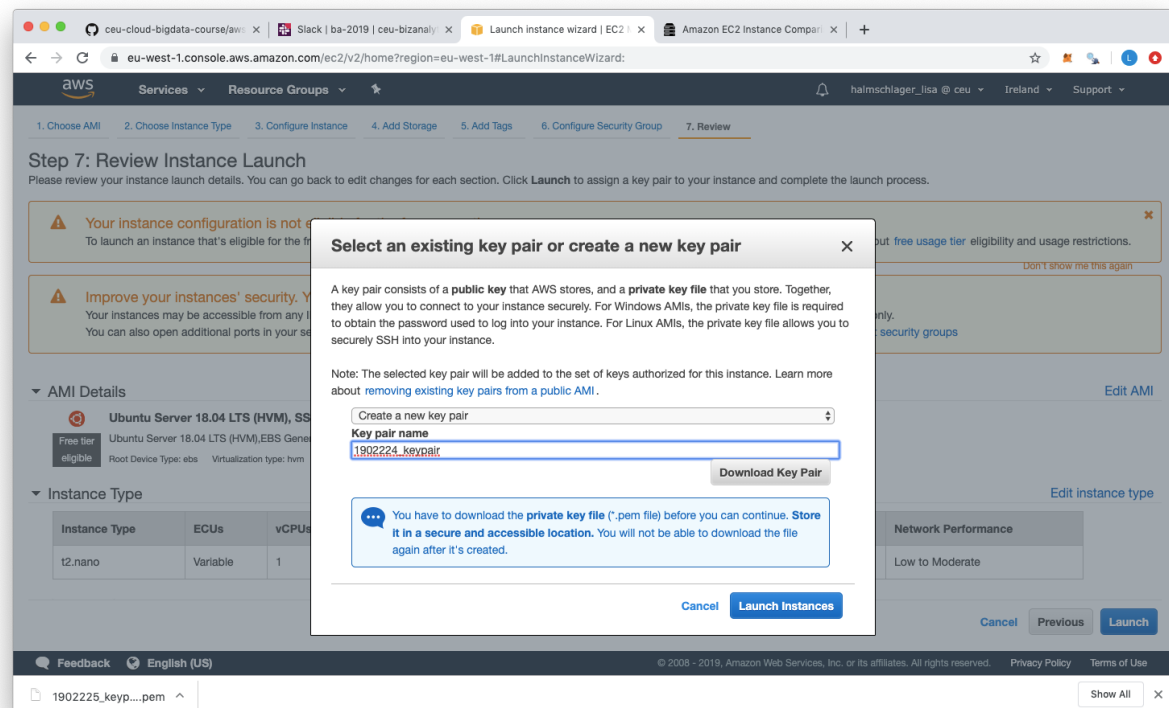
A few warnings appear. Ignore and press LAUNCH

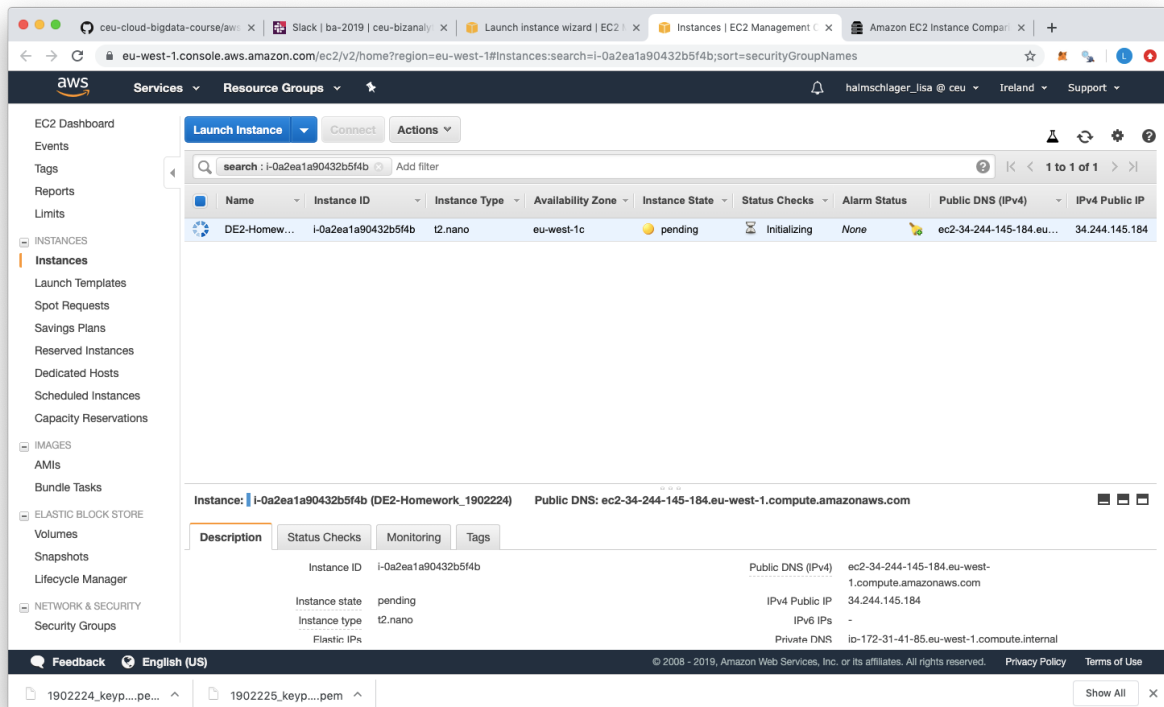
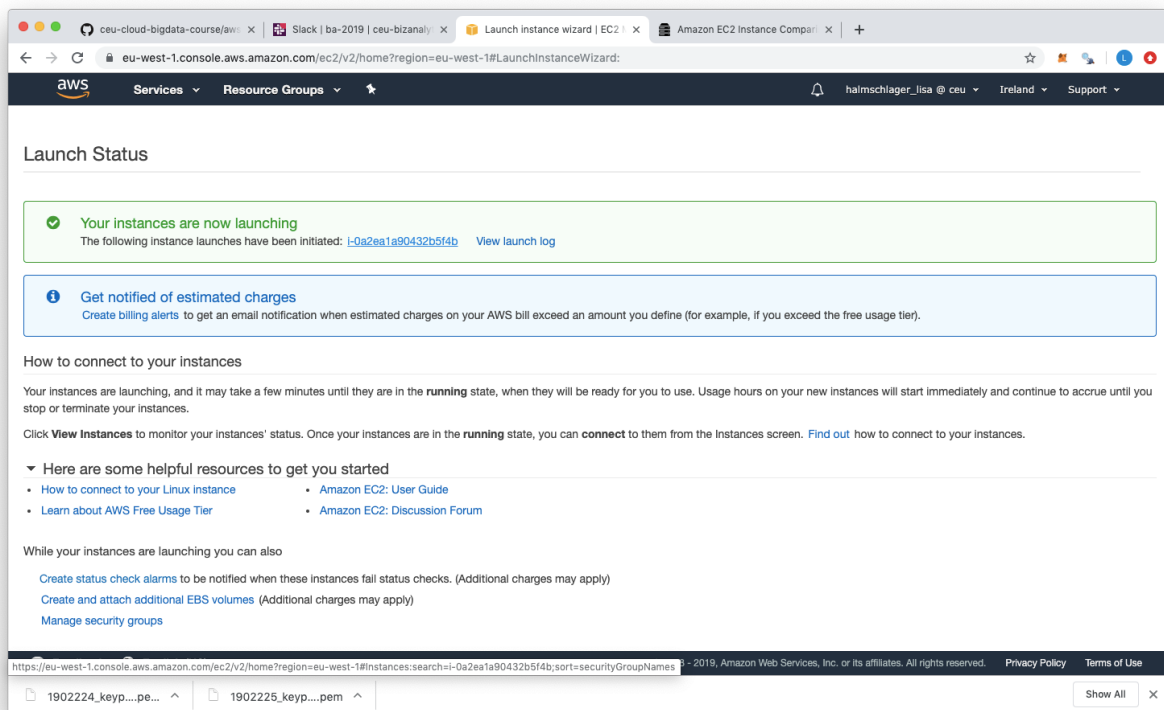


Generate a set of keypairs,
call it "<your student id>-homework"

Sorry I named it "<your student id>_keypair", hope that's ok

Create a new key pair and click LAUNCH INSTANCES





IPv4 Public IP	Instance ID
34.244.145.184	i-0a2ea1a90432b5f4b

SSH into the instance

Copy Paste the .pem file into home folder

Run chmod command

```
lisahlsch — ubuntu@ip-172-31-41-85: ~ — ssh -i 1902224_keypair.pem -p 2...
[lihsch ~ $ cp Downloads/1902224_keypair.pem .
[lihsch ~ $ chmod 600 1902224_keypair.pem
```

Log into Instance

```
lisahlsch — ubuntu@ip-172-31-41-85: ~ — ssh -i 1902224_key...
lihsch ~ $ ssh -i 1902224_keypair.pem -p 22 ubuntu@34.244.145.184
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1051-aws x86_64)

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

System information as of Fri Nov  8 20:05:11 UTC 2019

System load:  0.0               Processes:    85
Usage of /:   14.9% of 7.69GB   Users logged in:  0
Memory usage: 30%              IP address for eth0: 172.31.41.85
Swap usage:  0%

 * Kata Containers are now fully integrated in Charmed Kubernetes 1.16!
   Yes, charms take the Krazy out of K8s Kata Kluster Konstruktion.

   https://ubuntu.com/kubernetes/docs/release-notes

0 packages can be updated.
0 updates are security updates.

Failed to connect to https://changelogs.ubuntu.com/meta-release-lts. Check your
Internet connection or proxy settings

Last login: Fri Nov  8 12:21:41 2019 from 213.142.96.208
ubuntu@ip-172-31-41-85:~$
```

Update the OS

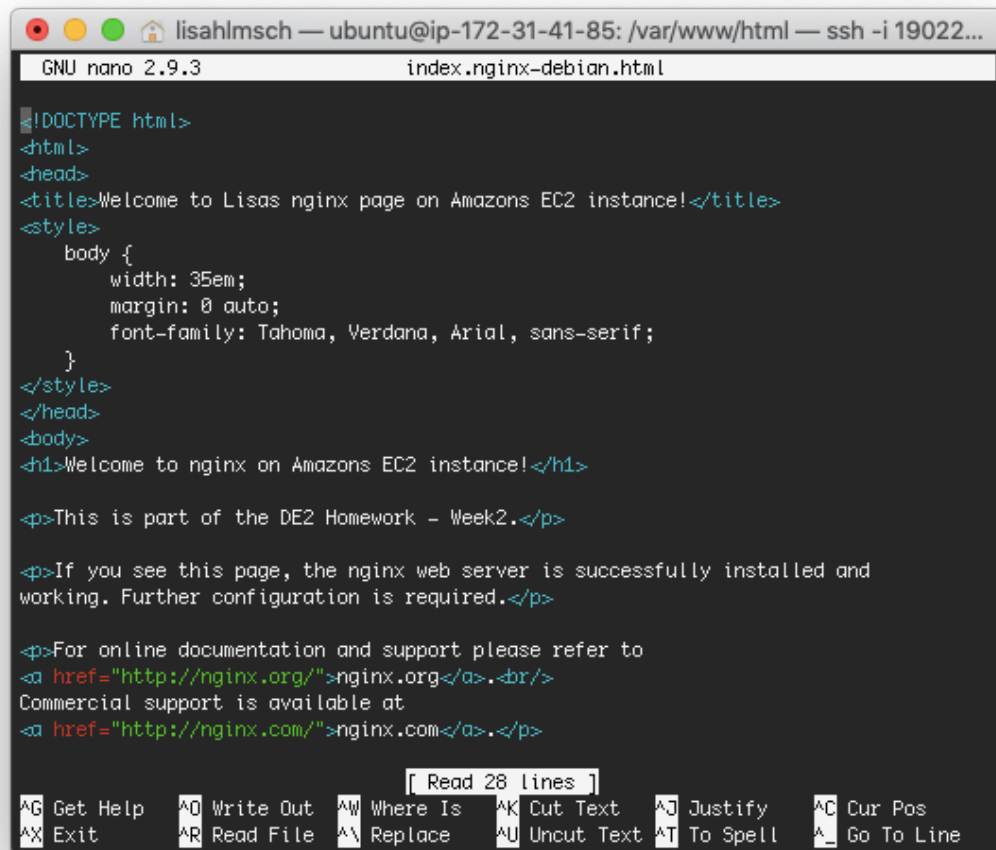
```
lisahlmisch — ubuntu@ip-172-31-41-85: ~ — ssh -i 1902224_keypair.pem -p 22 ubuntu...
ubuntu@ip-172-31-41-85:~$ sudo apt update
Hit:1 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic InRelease
Get:2 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates InRelease [88.7 kB]
Get:3 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-backports InRelease [74.6 kB]
Get:4 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:5 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/universe amd64 Packages [8570 kB]
Get:6 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/universe Translation-en [4941 kB]
Get:7 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/multiverse amd64 Packages [151 kB]
Get:8 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/multiverse Translation-en [108 kB]
Get:9 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 Packages [768 kB]
Get:10 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main Translation-en [275 kB]
Get:11 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/restricted amd64 Packages [18.7 kB]
Get:12 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/restricted Translation-en [5328 B]
Get:13 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/universe amd64 Packages [1023 kB]
Get:14 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/universe Translation-en [315 kB]
Get:15 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/multiverse amd64 Packages [8096 B]
Get:16 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/multiverse Translation-en [3972 B]
Get:17 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-backports/main amd64 Packages [2512 B]
Get:18 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-backports/main Translation-en [1644 B]
Get:19 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-backports/universe amd64 Packages [4024 B]
Get:20 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-backports/universe Translation-en [1856 B]
Get:21 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [545 kB]
Get:22 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [182 kB]
Get:23 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Packages [9856 B]
Get:24 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-en [3480 B]
Get:25 http://security.ubuntu.com/ubuntu bionic-security/universe amd64 Packages [617 kB]
Get:26 http://security.ubuntu.com/ubuntu bionic-security/universe Translation-en [206 kB]
Get:27 http://security.ubuntu.com/ubuntu bionic-security/multiverse amd64 Packages [5476 B]
Get:28 http://security.ubuntu.com/ubuntu bionic-security/multiverse Translation-en [2500 B]
Fetched 18.0 MB in 4s (4841 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
47 packages can be upgraded. Run 'apt list --upgradable' to see them.
ubuntu@ip-172-31-41-85:~$
```

Install nginx

```
lisahmsch — ubuntu@ip-172-31-41-85: ~ — ssh -i 1902224_keypair.pem -p 22 ubuntu...
ubuntu@ip-172-31-41-85:~$ sudo apt install nginx
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  fontconfig-config fonts-dejavu-core libfontconfig1 libgd3 libjpeg-turbo8 libjpeg8
  libnginx-mod-http-geoip libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libtiff5 libwebp6 libxpm4 nginx-common nginx-core
Suggested packages:
  libgd-tools fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  fontconfig-config fonts-dejavu-core libfontconfig1 libgd3 libjpeg-turbo8 libjpeg8
  libnginx-mod-http-geoip libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter
  libnginx-mod-mail libnginx-mod-stream libtiff5 libwebp6 libxpm4 nginx nginx-common nginx-core
0 upgraded, 18 newly installed, 0 to remove and 47 not upgraded.
Need to get 2461 kB of archives.
After this operation, 8210 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libjpeg-turbo8 amd64 1.5.2-0ubuntu5.18.04.1 [110 kB]
Get:2 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 fonts-dejavu-core all 2.37-1 [1041 kB]
Get:3 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 fontconfig-config all 2.12.6-0ubuntu2 [55.8 kB]
Get:4 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 libfontconfig1 amd64 2.12.6-0ubuntu2 [137 kB]
Get:5 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 libjpeg8 amd64 8c-2ubuntu8 [2194 B]
Get:6 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 libjpeg-turbo8 amd64 2.1-3.1build1 [26.7 kB]
Get:7 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libtiff5 amd64 4.0.9-5ubuntu0.3 [153 kB]
Get:8 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 libwebp6 amd64 0.6.1-2 [185 kB]
Get:9 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 libxpm4 amd64 1:3.5.12-1 [34.0 kB]
Get:10 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libgd3 amd64 2.2.5-4ubuntu0.3 [119 kB]
Get:11 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 nginx-common all 1.14.0-0ubuntu1.6 [37.3 kB]
Get:12 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libnginx-mod-http-geoip amd64 1.14.0-0ubuntu1.6 [11.2 kB]
Get:13 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libnginx-mod-http-image-filter amd64 1.14.0-0ubuntu1.6 [14.5 kB]
Get:14 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libnginx-mod-http-xslt-filter amd64 1.14.0-0ubuntu1.6 [12.9 kB]
Get:15 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libnginx-mod-mail amd64 1.14.0-0ubuntu1.6 [41.7 kB]
Get:16 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 libnginx-mod-stream amd64 1.14.0-0ubuntu1.6 [63.6 kB]
Get:17 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 nginx-core amd64 1.14.0-0ubuntu1.6 [413 kB]
Get:18 http://eu-west-1.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 nginx all 1.14.0-0ubuntu1.6 [3596 B]
Fetched 2461 kB in 0s (37.3 MB/s)
Preconfiguring packages ...
Selecting previously unselected package libjpeg-turbo8:amd64.
(Reading database ... 56531 files and directories currently installed.)
Preparing to unpack .../00-libjpeg-turbo8_1.5.2-0ubuntu5.18.04.1_amd64.deb ...
Unpacking libjpeg-turbo8:amd64 (1.5.2-0ubuntu5.18.04.1) ...
Selecting previously unselected package fonts-dejavu-core.
```

Modify the nginx default HTML page

```
ubuntu@ip-172-31-41-85:/var/www/html$ sudo nano index.nginx-debian.html
ubuntu@ip-172-31-41-85:/var/www/html$
```



```
lisahllmsch — ubuntu@ip-172-31-41-85: /var/www/html — ssh -i 19022...
GNU nano 2.9.3 index.nginx-debian.html

<!DOCTYPE html>
<html>
<head>
<title>Welcome to Lisas nginx page on Amazons EC2 instance!</title>
<style>
  body {
    width: 35em;
    margin: 0 auto;
    font-family: Tahoma, Verdana, Arial, sans-serif;
  }
</style>
</head>
<body>
<h1>Welcome to nginx on Amazons EC2 instance!</h1>

<p>This is part of the DE2 Homework - Week2.</p>

<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>

[ Read 28 lines ]
^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify   ^C Cur Pos
^X Exit      ^R Read File  ^_ Replace   ^U Uncut Text ^T To Spell  ^_ Go To Line
```

Visit your instance's site in a browser

