

In-Class Exercises and Homework

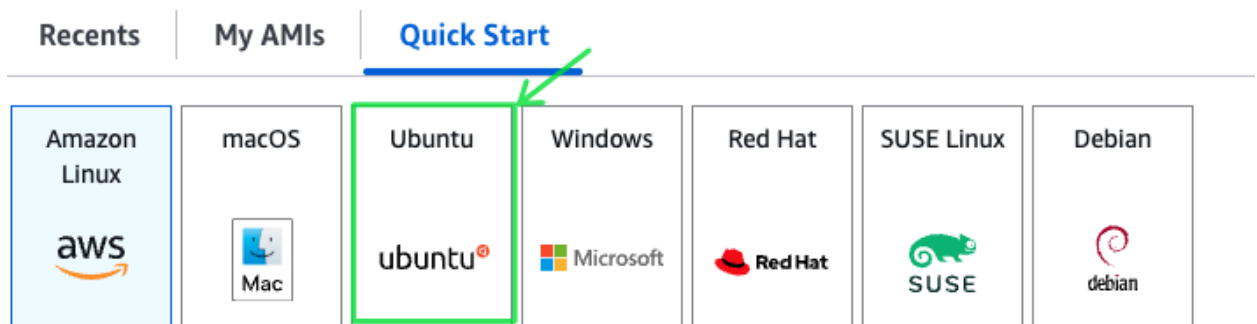
Week 4 - EC2

In-class Exercise

Start an EC2 instance.

Follow the same steps we did in class, with these modifications:

- You already have the security group and key pairs on AWS. No need to recreate those
- Instance: ARM / t4g.nano
- Create an Ubuntu instance (and not “Amazon Linux”)



- Unprotected Private Key? `chmod 600 my_keypair`
- Connect from the codespace to your instance using the following command (*replace <<>> with the actual values, and type out the command into a single line*):

```
ssh -i <<path to your private key, like my_keypair.pub>>  
ubuntu@<<the public ip of the instance you started>>
```
- Update the system by executing the following command:

```
sudo apt-get update
```

Once you are done, follow the next step to keep you entertained until everyone is up and running:

Install Moon Buggy

Execute the following commands one at a time:

```
sudo apt-get install moon-buggy  
moon-buggy
```

STOP HERE

Installing the Streamlit

Execute the following commands to install Streamlit on the instance:

First, we need to install pip for Python package management

```
sudo apt-get install -y python3-pip
```

Then, we install the Streamlit app. Using the break-system-packages flag, we can install Streamlit to be available globally on the system

```
sudo pip3 install streamlit --break-system-packages
```

Run the Streamlit demo app:

```
sudo streamlit hello --server.port 80 --server.address 0.0.0.0
```

Before you can access Streamlit, you will need to allow incoming HTTP connections for this instance:

- 1) Find the security group connected to this instance (a.k.a. Your security group)
- 2) Add a new inbound rule:
 - a) Service/Protocol: HTTP (not HTTPS)
 - b) Source: All IPv4
- 3) Save the security group configuration

Now you can access the Streamlit app at `http://<<your public IP>>` in a browser. (you will need to spell out "http://" in your browser explicitly)

Creating a subdomain for our service

- We'll use Route53 on AWS for that. Instruction will be IRL during the course

Homework

Replicate the work we did in the class and **screenshot (the result of) every step below** to demonstrate you have done the work:

1. Log in to AWS, screenshot the AWS landing page (the page you see after login)
2. Create a Security Group and configure it (add SSH and HTTP ports). Call the group "secgroup-<your student id>-homework"
3. Upload your public key.
4. Start creating a t4g.nano instance using the Ubuntu AMI we used in the class.
5. Check the price of this instance on ec2instances.info
6. On the *Create Instance Page*: Select your security group
7. *Create Instance Page*: Select your key pairs and start the instance
8. Go to the instance page of your instance (screenshot the page showing the instance's details)
9. Use Codespace to SSH into your instance (create a screenshot of the Codespace terminal once you are logged in)
10. Update the system, install, and execute Streamlit. Screenshot the terminal (Codespace) once Streamlit has started
11. Create a subdomain for this website with your name or any other name you like (like zoltan.ceu-data.com), in Route 53, in my case. **Don't use the domain name you created in the class, as non-authoritative DNS servers might keep the old IP associated with it in their cache for up to a day.**
12. Open a browser and open your EC2 instance by connecting to its domain (the screenshot must show both the URL and the streamlit page)
13. Delete the record in Route 53
14. Terminate the instance
15. Delete the security group
16. Delete the key pair

Grading

Completing and documenting a step (out of 16 steps) counts as (100/16) % in your delivery

Delivery

Please deliver the following files:

1. In a single PDF:
 - a. The screenshots of every step outlined above prove that you went through the process. **You need to include 16 screenshots!**
2. Call this PDF <your-student-id>.pdf
3. Upload the PDF to S3 and make sure it is publicly available. (test: Download it in an incognito window)

4. Send the S3 HTTPS URL that links to the PDF, to ceu-data@googlegroups.com

It will look something like this:

Object URL
 <https://ceu-zoltan-2021.s3.eu-west-1.amazonaws.com/document.pdf>

Ensure you add your CEU student ID to the PDF and the email.

Getting help

Message Naida and me on Teams.

Deadline: 2 Dec, 11:59 pm

Late submissions

1% of “homework completeness” points are deducted every hour between the deadline and the submission date.