

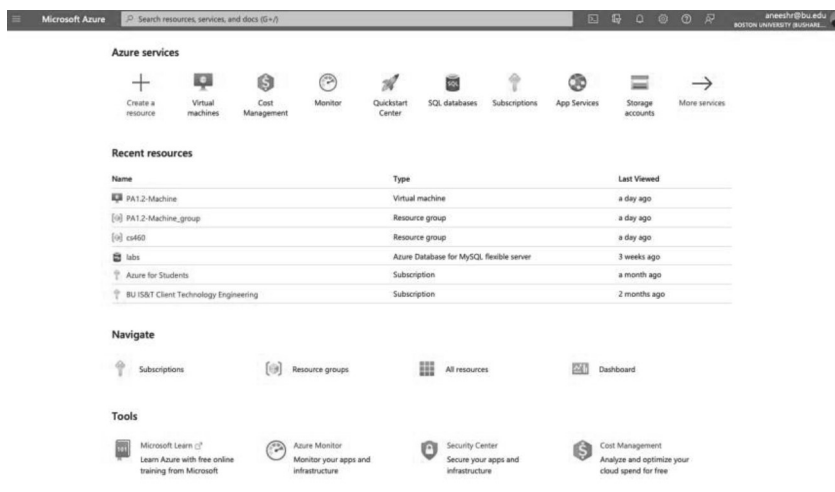
Setting up Azure

1. Go to the following URL in your browser: <https://azure.microsoft.com/en-us/free/students/>
2. Click on the green **Start free** button and follow on-screen instructions to setup your azure account. **Remember** to use your **BU** email id to register.

Login to Azure

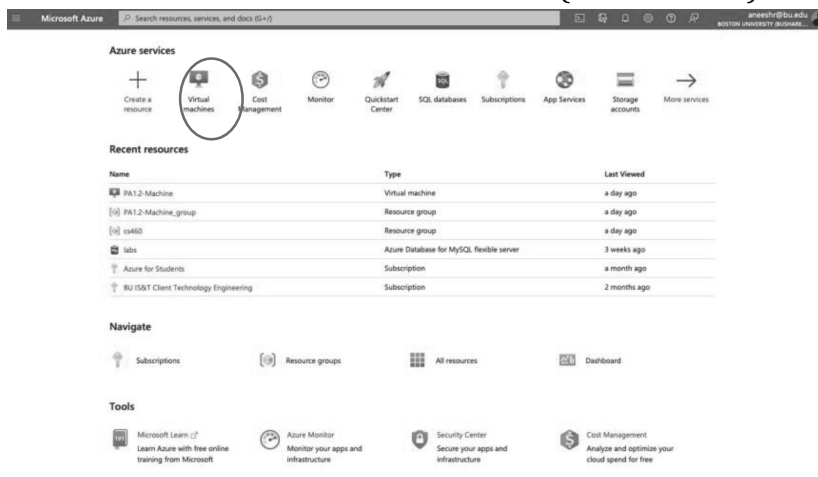
In a web browser of your choice, enter the following URL: <portal.azure.com>

You will see the dashboard as follows:

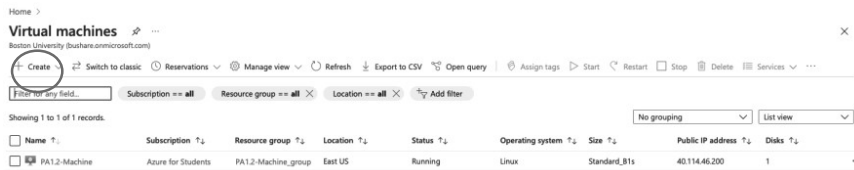


Creating a Virtual Machine

1. Click on the Virtual Machines icon (shown below)



2. Click on the Create button. Select the **Virtual machine** option



3. You will be taken to a **Create a Virtual Machine Window**. Make sure that you choose **Azure for Students** under the Subscription.
4. Select the **cs561** resource group (you will need to create a new resource, following *these* instructions).
5. Name your virtual machine as **Project1-Machine**.
6. You may keep the defaults for Region, Availability options and Security type.
7. Under **Image**, select **Ubuntu Server 20.04 LTS – Gen2**.
8. Under size, make sure you select **Standard_B1s – 1vcpu, 1GiB memory (\$7.59/month)**. Note, you will not be charged anything even though Azure will show you a monthly rate for the instance. This is because they maintain the same user interface for students and general users.
9. Under authentication type, select the **Password** option/radio button. You will be prompted for the username and password. For both username and password, enter *exactly* as follows:
 - a. Username: **cs561user**
 - b. Password: **Cs561project1**
10. Keep all other settings set to their defaults.
11. The create window should look as follows:

12. Click on **Review+Create**.
13. In the review window, click on **Create**. Your instance will be deployed in a few minutes.

14. Once the instance is deployed, you will be given an option for **Go to Resource**. Click on it to view your Virtual Machine instance details.

✓ Your deployment is complete

Deployment name: CreateVm-canonical.0001-com-ubuntu-server-f... Start time: 11/10/2021, 3:09:30 PM
Subscription: Azure for Students Correlation ID: 18ba6909-0e4a-47b5-b33f-ecaba2662c11
Resource group: PA2-Machine_group

Deployment details (Download)

Next steps

Setup auto-shutdown Recommended

Monitor VM health, performance and network dependencies Recommended

Run a script inside the virtual machine Recommended

Go to resource

Create another VM

Logging into the Virtual Machine

The resource window for our created instance will look as follows:

The screenshot shows the Azure portal interface for a Virtual Machine named "PA2-Machine". The left sidebar contains navigation options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings, Networking, Connect, Disks, Size, Health state, Security, Advisor recommendations, Extensions, Continuous delivery, Availability + scaling, Configuration, Identity, Properties, Locks, Operations, Bastion, Auto-shutdown, and Backup. The main area displays the VM's details under the "Essentials" tab. Key information includes: Resource group (PA2-Machine_group), Status (Running), Location (East US), Subscription (Azure for Students), Subscription ID (45b23d64-8fda-47ab-a5e5-4e8561f6222), and Tags (change). The "Networking" section shows the Public IP address as 13.82.4.126, which is circled in red. Other details include the Operating system (Linux (ubuntu 20.04)), Size (Standard B1s (1 vcpu, 1 GiB memory)), and various configuration options like Disks, Size, and Networking.

Here, we note the public ip address that has been allocated for our resource. Note, this address might change after you stop/start the resource again. We will use the IP address listed in the resource details to login to the machine using **ssh** (like we did for login to csa1 machines). If the IP address changes, we will use the latest one.

1. Open a new terminal on a mac/linux system. If you are in a windows machine, please use PuTTY.
2. Login to the remote VM (Virtual machine) using **ssh**. Here, our username will be **cs561user** (that we listed while creating the instance) and password will be **Cs561project1**. Use this command to login from the terminal:

ssh cs561user@<ip_address>

Remember to replace <ip_address> with the public IP address listed for your resource. For example, in my case, I would type the above command as follows:

ssh cs561user@13.82.4.126

3. Type the password **Cs561project1** when prompted.
4. You will now be logged into the resource and will see the following window in your terminal:

```
(base) aneeshr@dhcp-acadmin-128-197-10-176 ~ % ssh cs460user@13.82.4.126
cs460user@13.82.4.126's password:
Welcome to Ubuntu 20.04.3 LTS (GNU/Linux 5.11.0-1021-azure x86_64)

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

System information as of Wed Nov 10 20:29:15 UTC 2021

System load:  0.0               Processes:    104
Usage of /:   5.2% of 28.9GB     Users logged in: 0
Memory usage: 32%              IPv4 address for eth0: 10.1.0.4
Swap usage:   0%

1 update can be applied immediately.
To see these additional updates run: apt list --upgradable

Last login: Wed Nov 10 20:13:01 2021 from 128.197.10.176
cs460user@PA2-Machine:~$
```

Installing make

Run the following command:

```
sudo apt install make
```

Installing gcc

Run the following command:

```
sudo apt-get install gcc
```