Tutorial 0 - Getting Started with AWS

Version 0.11

Obtaining a User Account

Objective

The purpose of this tutorial is to describe how to establish AWS account(s) for supporting work in TCSS 462/562.

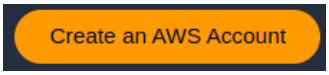
For the course, please create a personal AWS account using your UW NET ID email or other email account, or obtain an instructor provided account. An AWS account will be required to provide cloud computing resources for tutorials and the Term Project.

Use of a Linux environment is strongly recommended for AWS access.

For Windows 10/11 users, there is an Ubuntu "App" that can be installed onto Windows directly. This provides an Ubuntu Linux environment without the use of Oracle Virtualbox. For this classes, Windows and Mac users should install a Ubuntu virtual machine. Windows users can install Oracle Virtual Box to create virtual machines under Windows 10/11, and then install an Ubuntu virtual machine. Mac users with use UTM instead of Oracle Virtual Box. See Tutorial 1 for more details. **For more information regarding obtaining a Ubuntu environment, please refer to Tutorial #1.**

Task 1 – Creating an AWS account

Create a standard AWS account using your UW email address. This option requires providing a credit card as a backup if the account runs out of cloud computing credits. For this option navigate to the website (**https://aws.amazon.com/**) and click the "Create Account" button:

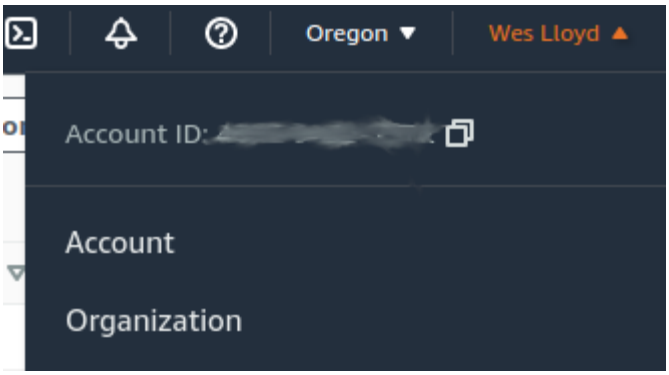


Complete the registration following all instructions.
Once the account is created, please complete the AWS Cloud Credits survey and/or provide your AWS account ID to the instructor to request cloud computing credits. If contacting the instructor by email use **"AWS CREDIT REQUEST"** as the email subject.

In the email, please include the email address used to create the AWS account as well as the 12-digit account ID to identify the account.

The instructor will work to then provide credits which will be directly loaded into the account.

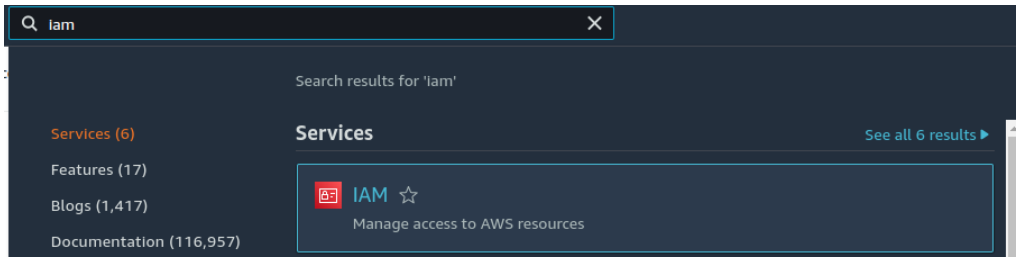
To enter the credit code, in the upper-right hand corner, select your name, and "My Billing Dashboard". The account ID appears after "Account ID:". The example is blurred out:



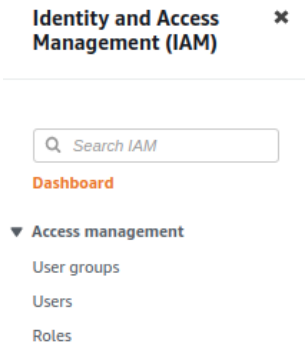
Task 2 – Create AWS Account Credentials

Once having access to AWS, create AWS account credentials to work with virtual machines on EC2, if you have not already done so. Credentials are required to access virtual machines by remote shell (SSH), and also to use the AWS command line interface, and programming APIs.

From the AWS services drop-down list, search for "IAM", which stands for Identity Access Management. This is under the "Security" group of service, select it:

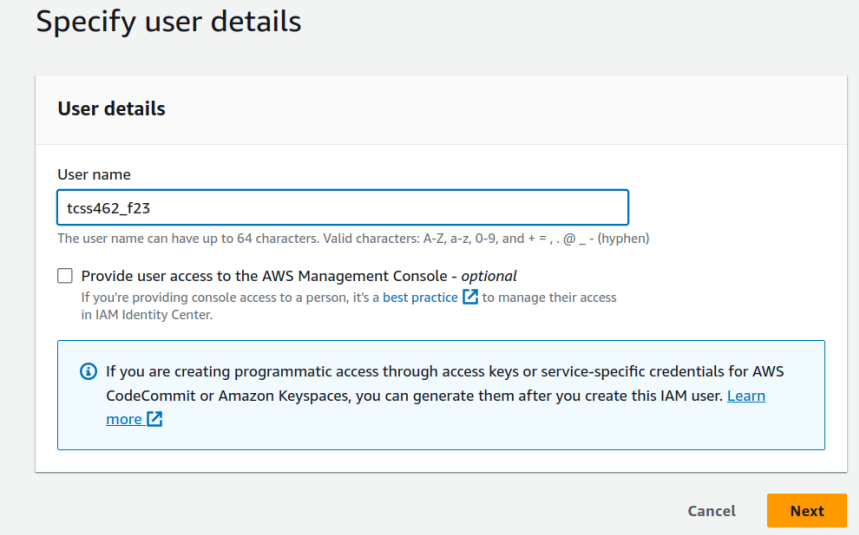


Optionally, IAM can be accessed by clicking on your name in the upper-right hand corner, and selecting "Security Credentials". Once in the IAM dashboard, on the left hand-side select "Users":



You may need to press "Add user", if there are no users.
If there are users, select your user.

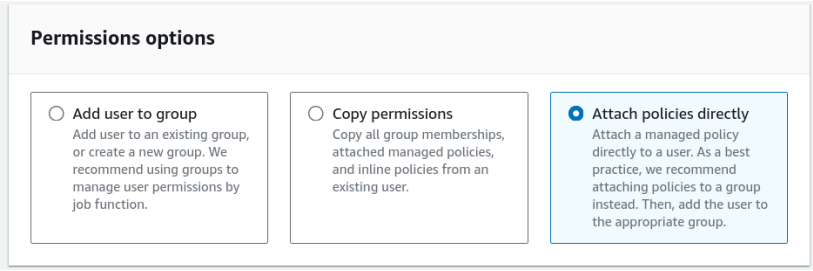
For creating a new users, provide a user account name. Here I am using "tcss462" as an example:



Be sure to select the "**Access key - Programmatic access**" checkbox.
If this is the default account "AWS Management Console access" may already be checked. If it is not checked, check it, and follow instructions to configure a password.

Then click the "Next" button…

Now select the "Attach policies directly" option:



And down below on the screen, using the search box, search for, find, and add by selecting the checkbox the following policies:

* **AmazonEC2FullAccess**

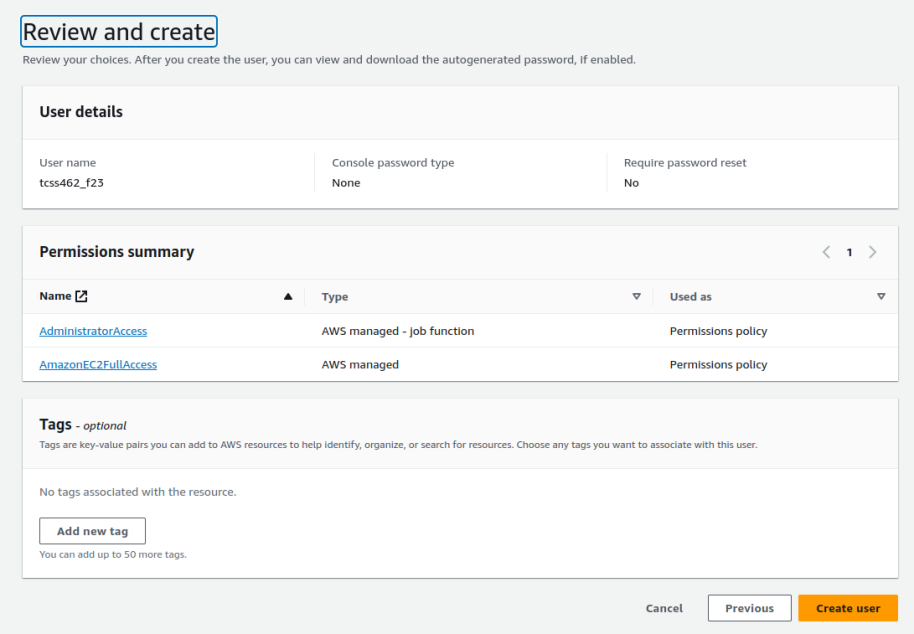
If you plan to use this user account to explore additional Amazon's services, then admin access should be added:

* **AdministratorAccess**

This will allow you, via the CLI, to explore and do just about everything with this AWS account.

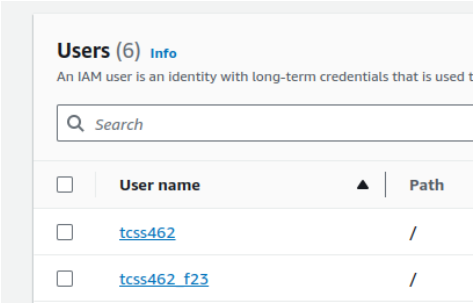
Later in the class you may need to attach additional policies directly to your user account by accessing users under IAM.

Now click the “Next” button.



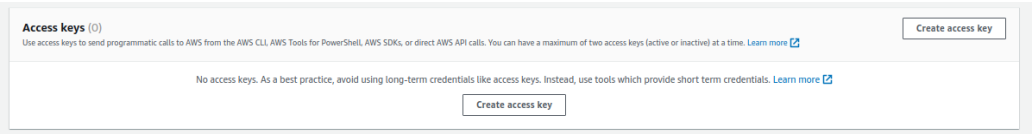
Now review the settings, make sure they are correct, and click “Create user”.

Now from the users list, select your newly created user account, here it was called “tcss462_f23”:

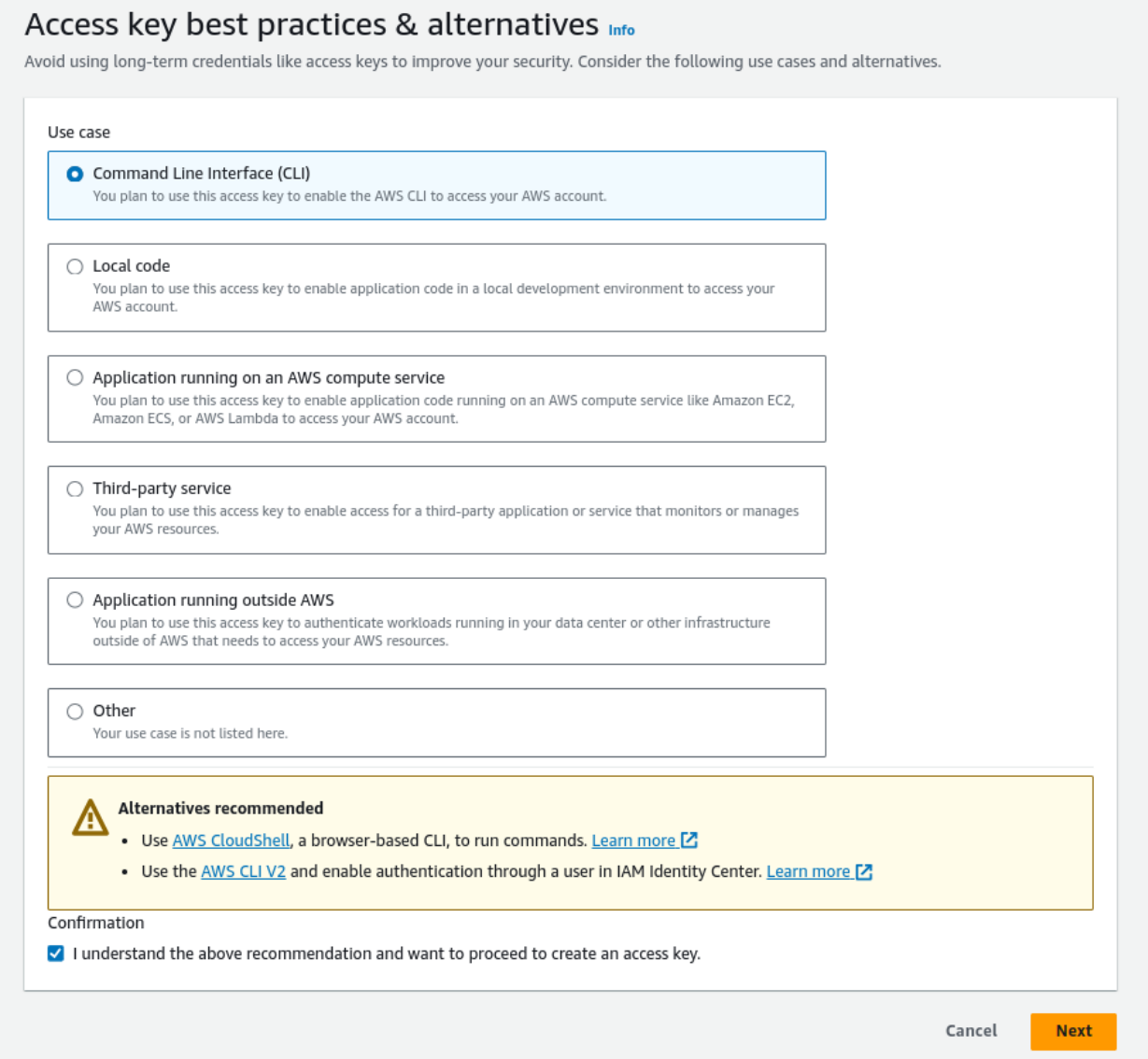


Click on the ‘**Security Credentials**’ tab.

Scroll down to the Access Keys widget:



Click on the ‘Command Line Interface (CLI) button, and select the checkbox that says “I understand the above recommendation and want to proceed to crease an access key.



Why are we ignoring the advice? For Ubuntu 22.04 LTS, AWS CLI V2 is not yet standard. Ubuntu 22.04 integrates support for AWS CLI V1. With the release of Ubuntu 24.04 LTS (in April 2024) we will migrate to AWS CLI V2. For now, since most folks will use Ubuntu 22.04, we will stick with AWS CLI V1.

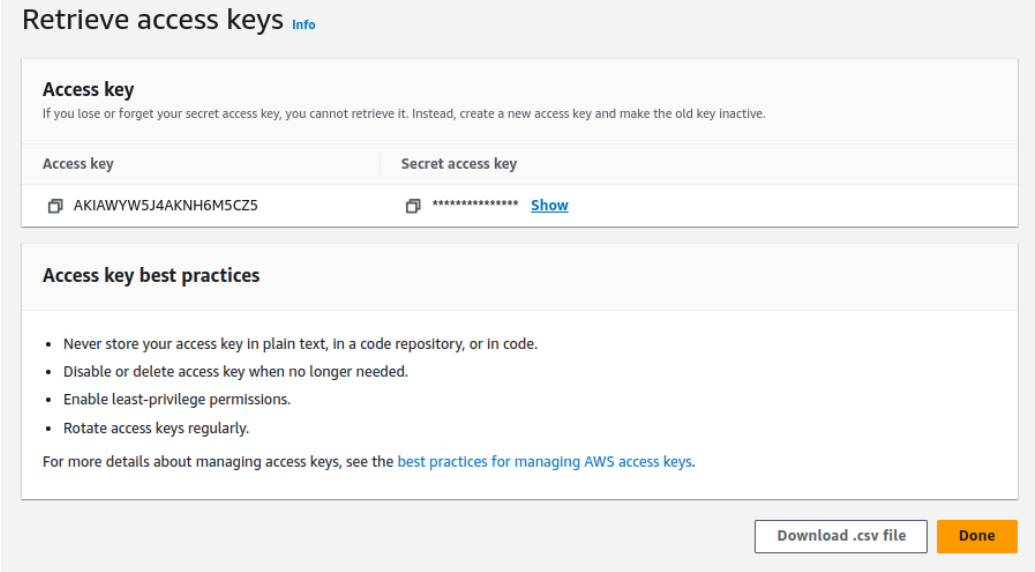
Proceed to press “Next”.

The description tag is optional and can be skipped.;

Proceed to press “Create access key”

There is one, and only one opportunity to download your Access key and Secret access key pairs.
You can press the **Show** button and copy and paste the key somewhere safe, or download the .csv file.
If you fail to download or copy the key values now, they will be lost forever, and this process will need to be repeated.

The keys must be copied, or the .csv file download to save the values:



Once you've downloaded these keys, be sure to **never** publish these key values in a source code repository such as github where your account credentials could be exposed. **Protect these keys as if they were your credit card or wallet!**

Task 3 – Install and Configure the AWS Command Line Interface (CLI)

On your Ubuntu machine, after obtaining your access key and secret key, install the AWS command line interface:

```
sudo apt install awscli
```

After installing, configure the CLI to use your credentials using "aws configure".
Provide your access key and secret key from Task 2.
Specify "us-east-2" (Ohio) as the default region.
Leave the default output as none. Most output will be returned in JSON format.

```
$ aws configure
AWS Access Key ID [None]: XXXXXXXXXXXXXXXXXXX
AWS Secret Access Key [None]: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Default region name [None]: us-east-2
Default output format [None]:
```

Check the version of the AWS CLI that's been installed:

```
#value shown is for Ubuntu 20.04
$ aws --version
aws-cli/1.18.69 Python/3.8.10 Linux/5.11.0-37-generic botocore/1.16.19
```

This version will likely be 1.22.34 if using Ubuntu 22.04.
Now try inspecting the available AWS CLI commands:

```
$ aws help
```

Now try lists the default Virtual Private Clouds (VPCs) that are preconfigured in your account to provide networking for virtual machines:

```
$ aws ec2 describe-vpcs
```

Once launching a virtual machine in Tutorial #3, you can inspect any running virtual machines from the Ubuntu command line with the command:

```
$ aws ec2 describe-instances
```

Document History:

v.10 Initial version
v.11 updated version to show new user interface