

Getting Started with AWS

Version 0.11

Obtaining a User Account

Objective

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

We will leverage the AWS Educate program for education credits from Amazon Web Services (AWS) to provide cloud computing resources for tutorials and the Term Project.

Tutorial 3 will provide an in-depth tutorial on the best practices of using AWS Virtual Machines.

Use of a Linux environment is recommended for AWS access.

For Windows 10 users, there is a Ubuntu “App” that can be installed onto Windows 10 directly. This provides a Ubuntu Linux environment without the use of Oracle Virtualbox. Alternatively, Windows users can install Oracle Virtual Box to create virtual machines under Windows 10, and then install a Ubuntu 20.04 virtual machine.

Windows 10 Ubuntu “App” instructions:

https://msdn.microsoft.com/en-us/commandline/wsl/install_guide

Windows Oracle Virtual Box & Ubuntu VM instructions:

There are a number of blogs and YouTube videos that walk through installing Oracle VirtualBox on Windows 10, and how to then install Ubuntu 20.04 LTS on Virtual Box. Search using google.com or video.google.com to find blogs and/or videos to help.

Oracle VirtualBox can be downloaded from:

<https://www.virtualbox.org/wiki/Downloads>

Task 0 - Creating an AWS account

If you do not presently have an AWS account, as of Fall 2020 there are two options that can provide up to \$100 in usage credits each.

Option #1 - Create a Standard AWS Account

The best option is to 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

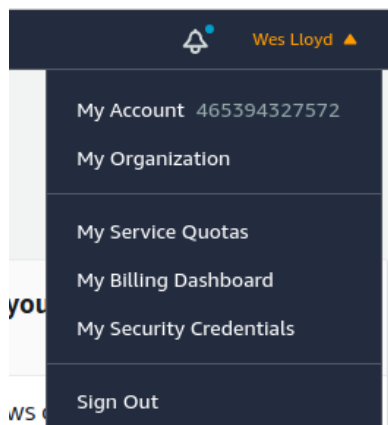
cloud computing credits. For this option navigate to the website (<https://aws.amazon.com/>) and click the “Create Account” button:



Complete the registration following all instructions. Once the account is created, contact the instructor by email to request a credit coupon code. In the subject line include “AWS CREDIT REQUEST”. Include your UW email that you’ve used to create the AWS account.

The instructor will email a credit code which can be used to provide AWS Cloud Credits.

To enter the credit code, in the upper-right hand corner, select your name, and “My Billing Dashboard”:



Option #2 - Create an AWS Educate Starter Account

AWS Educate provides “Starter Accounts” without requiring the use of a credit card. Initially, Starter Accounts provide either a \$50 or \$100 credit. As of Fall 2020, it appears that credits can be extended 1x for \$20 good for 10-days. It is unclear if credits can be extended beyond this. Once all credits are exhausted, this account will be limited to AWS Free Tier resources:

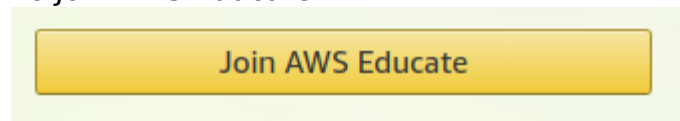
<https://aws.amazon.com/free/>

Before applying, please note your UW email ID has up to ~3 domain name variants that can be used to apply to create a secondary or replacement account. If cloud credits are exhausted on an account with the original email ID, it is possible to apply again with with an alternate email with an “.edu” domain.

UW “.edu” domains include: “uw.edu”, “u.washington.edu”, and “washington.edu”. Occasionally AWS Educate applications are denied because of an issue with an email address. In some cases reapplying using an alternate email ID has been sufficient to resolve the issue.

Go to <https://www.awseducate.com/> to register.

Click on the button to Join AWS Educate:



Apply for an account as a Student:

The image shows the AWS Educate application form. At the top is the AWS Educate logo and the text "Apply to join AWS Educate". Below this is a blue banner with the text "Step 1/3: Choose your role". The main content area displays five selectable roles, each with an icon, a label, and a selection button: "Student" (graduation cap icon), "Educator" (teacher at a board icon), "US Veteran" (military service icon), "Institution" (classroom icon), and "Company/Recruiter" (factory icon). The "Student" role is highlighted with a blue border.

Populate the form:

The image shows the second step of the AWS Educate application form, "Populate the form". It contains several input fields: a school selection field with "University of Washington" and a dropdown arrow, a country selection field with "United States" and a dropdown arrow, a "First Name" field, a "Last Name" field, an "Email" field with a placeholder "your_name@your_school.edu", a "Grade" field with "12" and a dropdown arrow, a "Year" field with "2022" and a dropdown arrow, a "Promo Code (optional)" field, and a "2" field with a dropdown arrow. Each field has an information icon (i) to its right.

Click continue. You'll be presented with a general liability/release form to read and agree to. Once accepting, you'll receive a request to verify your email address. Once your email is verified, you should receive a second email with the title "AWS Educate Application Approved". If you do not receive this email, you may follow-up with the instructor.

AWS Educate provides a controller-user experience and allows you to access AWS services through a "FIXED" user interface which locks down certain features. This user interface is provided by Vocareum, a third party provider. On the Vocareum UI, there will be a button to access the AWS console:

If you already have an AWS account created on your own, not using a UW email, then it should be possible to create a **new** account by applying for the AWS Educate using your UW email. It may be necessary to use an alternate domain name: "uw.edu", "u.washington.edu", and "washington.edu".

Here are the account limitations for starter accounts as of Fall 2020:

https://awseducate-starter-account-services.s3.amazonaws.com/AWS_Educate_Starter_Account_Services_Supported.pdf

A key limitation is that spot instances are **not** supported. Spot instances are low-cost virtual machines which can be accessed for about ~ 1/3 or even 1/4 the cost of full priced VMs. (*discussed in tutorial #3*)

Task 2 - Obtaining 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.

If you're using an AWS Educate starter account: Obtain account credentials for your AWS Educate starter account by using the Vocareum user interface as below in your web browser. Click the **blue button** labeled **"Account Details"**:

The screenshot shows the Vocareum user interface for an AWS Educate account. The top navigation bar includes the Vocareum logo, a home icon, a dropdown menu for 'My Classes', a 'Help' link, and the user's email 'sxu253@uw.edu'. The main content area is divided into two columns. The left column, titled 'Welcome to your AWS Educate Account', contains a brief introduction and a list of frequently asked questions. The right column, titled 'Your AWS Account Status', displays the account's current state: 'Active' with full access, a balance of \$99.98, and a session time of 2:60. Below this status information are two buttons: 'Account Details' and 'AWS Console'. A disclaimer at the bottom of the right column advises responsible use of the account credits.

Vocareum

Welcome to your AWS Educate Account

AWS Educate provides you with access to a wide variety of AWS Services for you to get your hands on and build on AWS! To get started, click on the AWS Console button to log in to your AWS console.

Please read the FAQ below to help you get started on your Starter Account.

- What are the list of services supported?
- What regions are supported with Starter Accounts or Classroom Accounts?
- I can't start any resources. What happened?
- Can I create users within my Starter or Classroom Account for others to access?
- Can I create my own IAM policy within Starter Account or Classroom?
- Can I use marketplace software with my Starter Account or Classrooms?
- Are there any restrictions on AWS services in my AWS Educate Account?

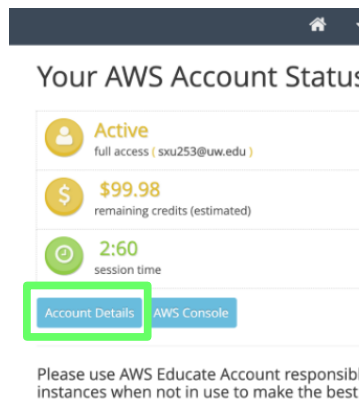
Your AWS Account Status

Active	full access (sxu253@uw.edu)
\$99.98	remaining credits (estimated)
2:60	session time

Account Details AWS Console

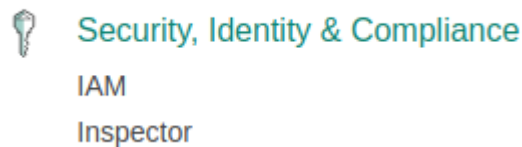
Please use AWS Educate Account responsibly. Remember to shut down your instances when not in use to make the best use of your credits. And, don't forget to logout once you are done with your work!

Press the **“Account Details”** button to obtain credentials for an AWS Educate account:



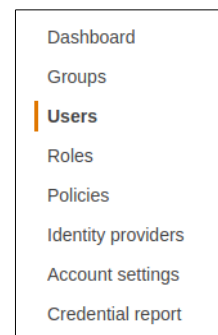
This should provide access to the account credentials including an **access key** and a **secret key**. Copy these and store in a safe and secure place.

If not using an AWS Educate starter account: 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 “My 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 “tcss562” as an example:

Set user details

You can add multiple users at once with the same access type and permissions. [Learn more](#)

User name*

[+ Add another user](#)

Select AWS access type

Select how these users will access AWS. Access keys and autogenerated passwords are provided in the last step. [Learn more](#)

- Access type* ☐ **Programmatic access**
Enables an **access key ID** and **secret access key** for the AWS API, CLI, SDK, and other development tools.
- ☐ **AWS Management Console access**
Enables a **password** that allows users to sign-in to the AWS Management Console.

Be sure to select the “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: Permissions” button...

For simplicity, you can simply select the button:



Using the search box, search, find, and select using the checkbox the following policy:

* AmazonEC2FullAccess

If you plan to use this user account to explore additional Amazon’s services, then admin access can be added (not required):

* AdministratorAccess

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

Now click the “Next: Review” button, and then select “Create user”.

You'll now see a screen with an Access key ID (grayed out below), and a Secret access key. You can copy both the Access key, and the secret access key to a safe place, or alternatively, click the "Download .csv" button to download a file containing this information.

User	Access key ID	Secret access key
tcss558	AKIAI44QH8DHBVS7G23TR6	***** Show

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 - Instal 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]: XXXXXXXXXXXXXXXXXXXX
AWS Secret Access Key [None]: XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Default region name [None]: us-east-2
Default output format [None]:
```

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

```
$ aws --version
aws-cli/1.18.69 Python/3.6.9 Linux/4.15.0-1057-aws botocore/1.16.19
```

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 describe running virtual machines with the command:

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

Document History:

v.10 Initial version

v.11 Added AWS CLI configuration