Show Submission Credentials

P0. Microsoft Azure Intro Microsoft Azure

- ✔ Microsoft Azure
- ✔ Microsoft Azure Compute
- ✔ Microsoft Azure Storage
- ✔ Microsoft Azure CLI
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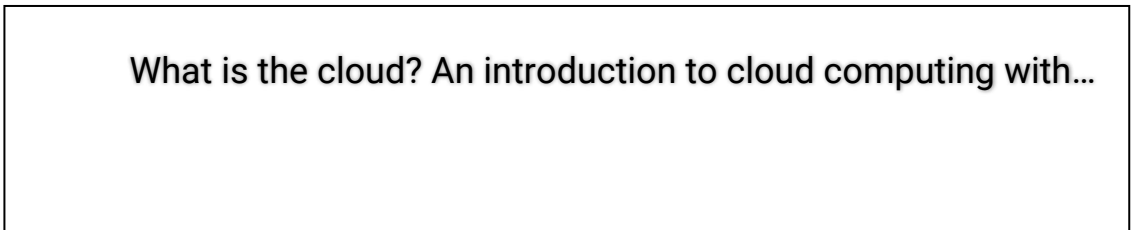
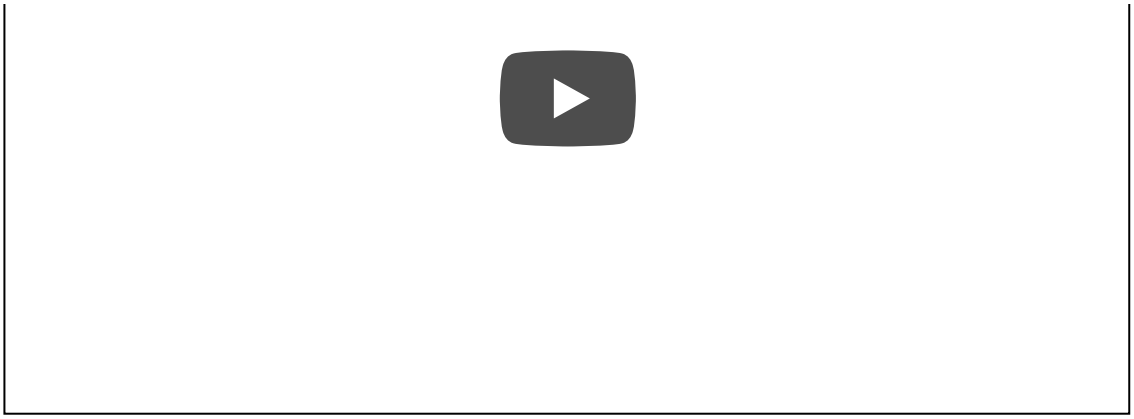
Microsoft Azure

Microsoft Azure

Introduction to Azure

Microsoft Azure is a cloud computing platform and infrastructure provider developed by Microsoft for building, deploying, and managing applications and services through a global network of Microsoft-managed and Microsoft partner hosted data centers. It provides both PaaS and IaaS services and supports many programming languages, tools and frameworks, including both Microsoft-specific and third-party software and systems. You will set up Azure Virtual Machines (VMs) and use Azure storage services for projects in this course.





Video 1: Introduction to Azure (Source: Microsoft)

You can visit the Azure Portal (https://portal.azure.com) to manage cloud resources. For more information you can read through the Azure introduction here (https://azure.microsoft.com/en-us/documentation/articles/fundamentals-introduction-to-azure).

Microsoft Azure Compute

Microsoft Azure Compute

Introduction

Azure compute services provide virtual machines that you can configure and launch, log in, and install and run software. To launch an Azure virtual machine:

1. Go to the Azure Portal (https://portal.azure.com/). Select the **Virtual Machine** tab and click **Create - Virtual Machine** to begin creating a new VM.

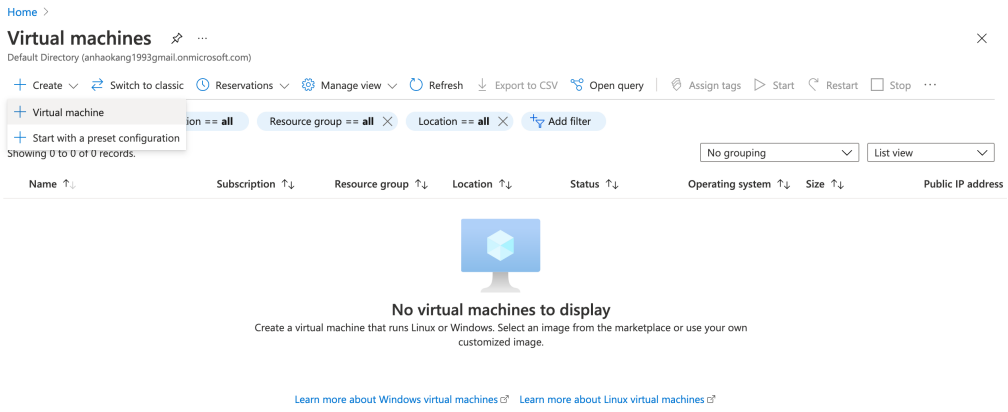


Figure: Add a new Virtual Machine from the Azure Portal

2. Select your Azure Classroom subscription for **Subscription**, create new **Resource group**, and specify a **Virtual machine name**.

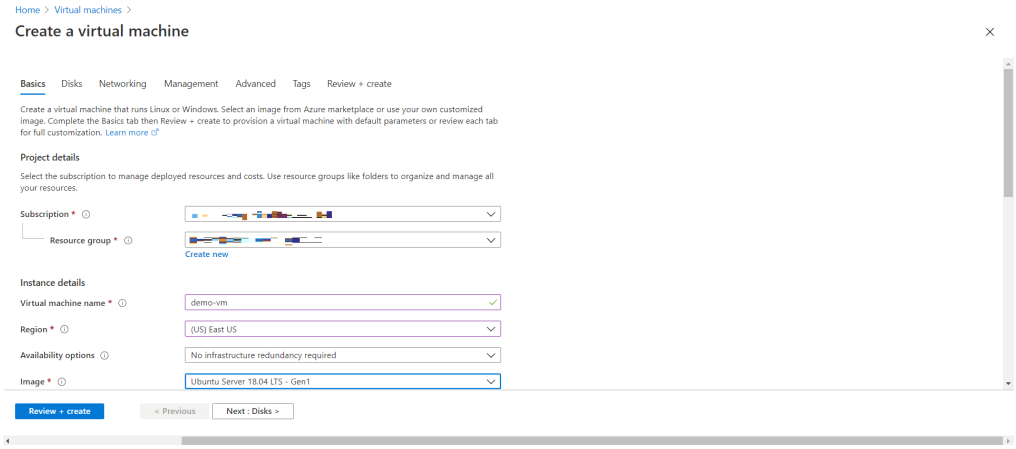


Figure: Specify Basic VM Information

3. Under **Image**, click **See all images**, and select **Ubuntu Server 18.04 LTS Gen1**.

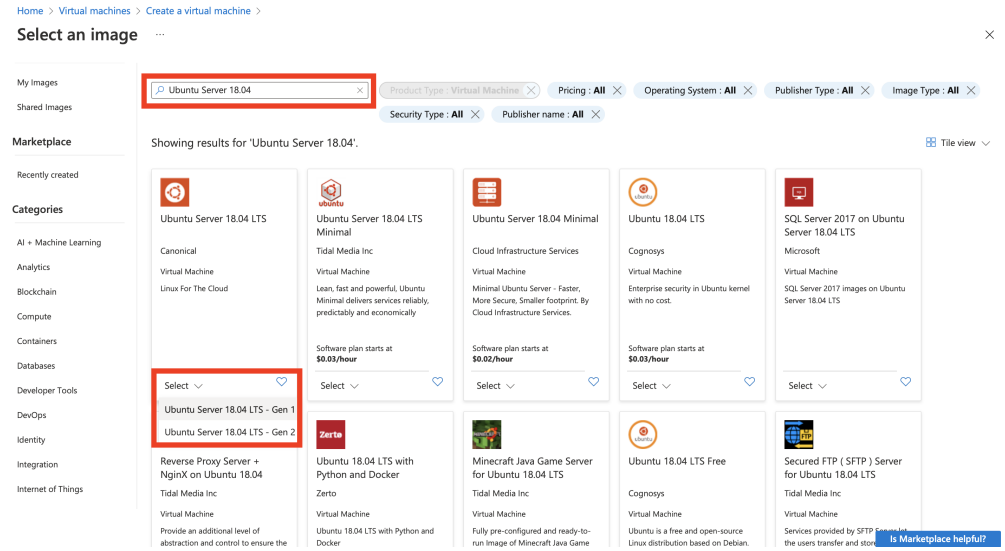


Figure: Select VM images

4. Under **Size**, click **See all sizes**, and select **B1ms**.

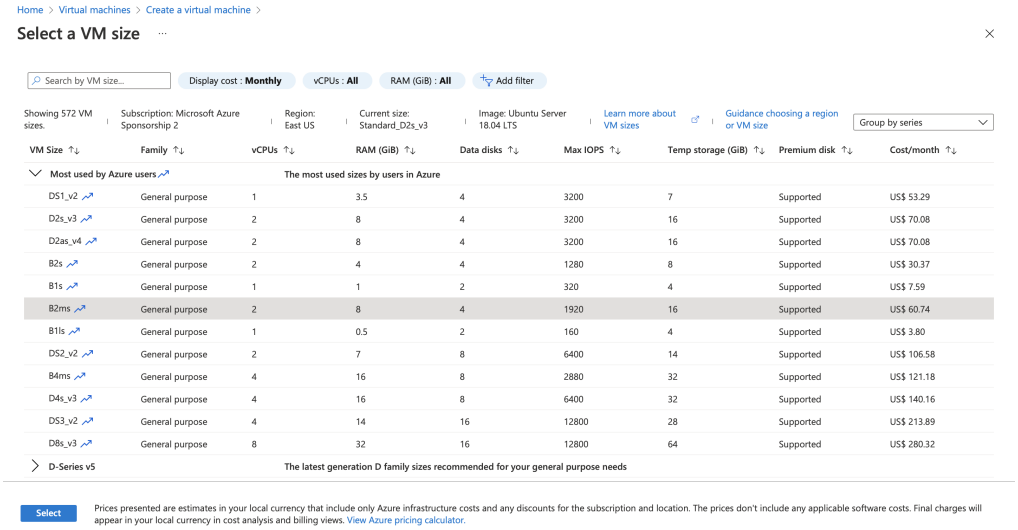


Figure: Select B1ms VM type (or equivalent)

5. Specify a **Username** and **Password** or **SSH public key**. Under **Public inbound ports**, select **Allow selected ports** and you can modify the **Select public inbound ports** to open up additional ports HTTP(80) and SSH (22) as needed.

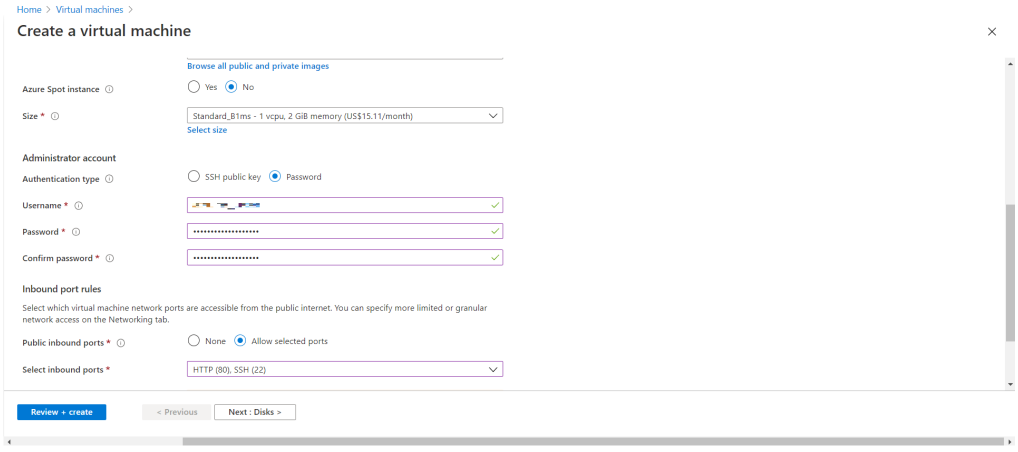


Figure: Complete Basic VM Information

6. Finally, click **Review + create**. In the **Review** page, view all the options for this virtual machine. Click on **Create** to launch the virtual machine.

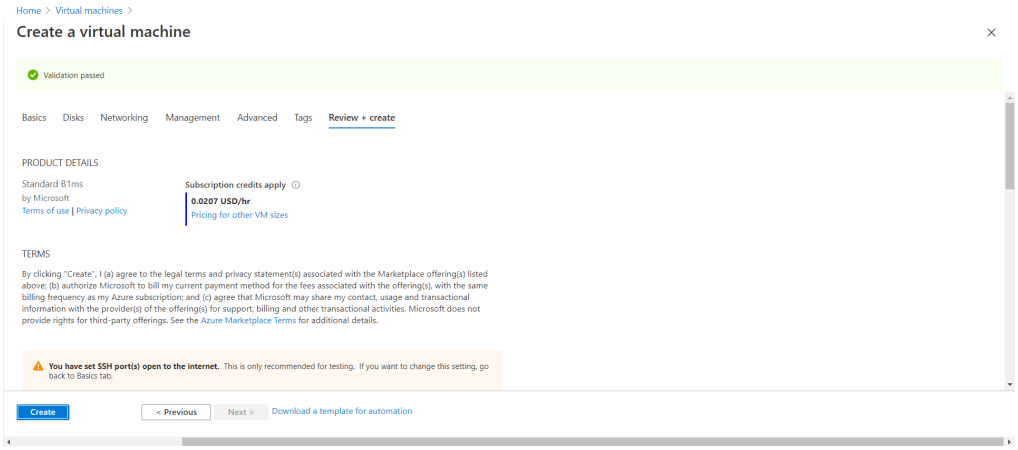


Figure: VM Review Page

The Create a Linux virtual machine in the Azure portal (https://docs.microsoft.com/en-us/azure/virtual-machines/linux/quick-create-portal) contains information on how to create a Linux Virtual Machine on Azure.

Microsoft Azure Storage

Azure Storage

Azure storage is a unified storage service available to Azure users which provides highly scalable, durable and globally available storage for various application needs. Azure storage is offered in five forms:

1. **Azure Blobs** - An object storage system (similar to Amazon's S3)
2. **Azure Tables** - A database system
3. **Azure Queues** - A messaging queue for applications
4. **Azure Files** - A file system
5. **Azure Disks** - Block-level storage volumes for Azure VMs.

We will look at Azure Blobs in this primer, and as you complete additional projects in this course, the differences between the various storage systems will be more apparent to you.

To access the service, you must first create an Azure Storage account.

Creating an Azure Storage Account

To create an Azure storage account:

1. Go to the Azure Portal (https://portal.azure.com/) and click on **Storage accounts**. Click **Create** to begin creating a new Storage Account.

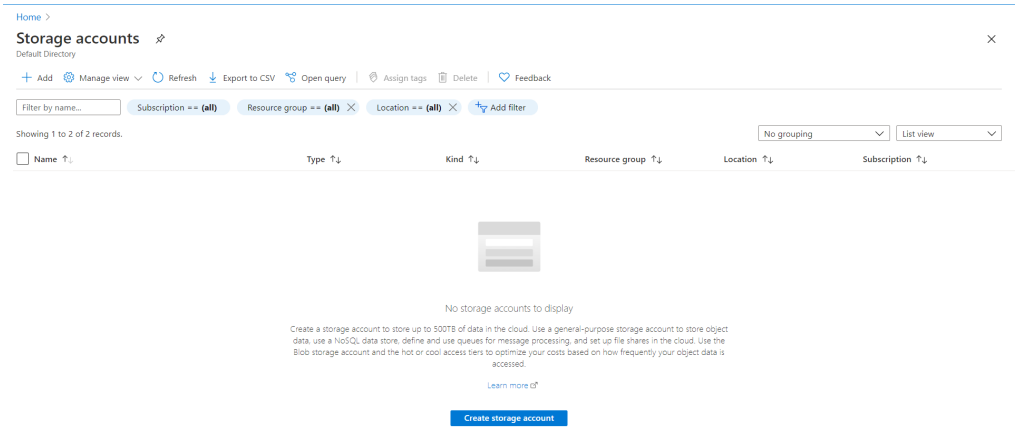


Figure: Storage Account Blade

2. Complete the Storage Account details and click **Create**:
    - Unique Storage account name.
    - Set Redundancy to **Locally Redundant (LRS)**
    - Select the **East US location**.
    - Create a new resource group or use an existing one.

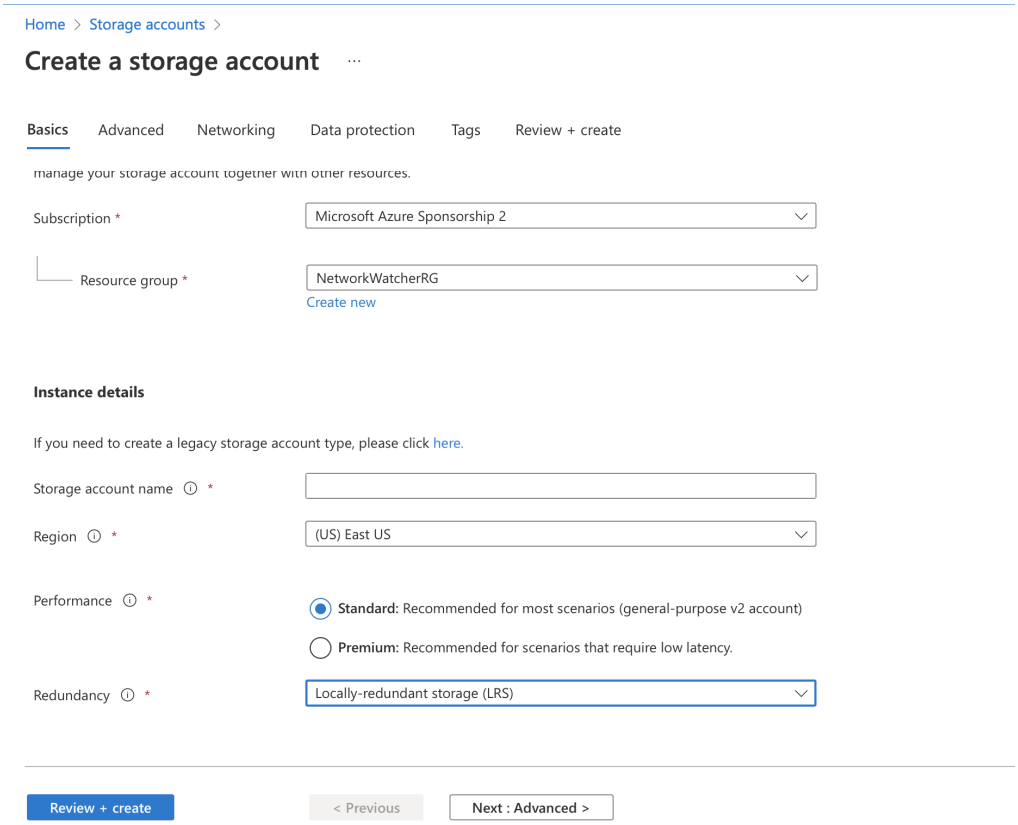


Figure: Configure Storage Account Settings

3. Once the Storage Account is created, click **Containers** under **Data storage** and create containers to upload / download blobs to. Provide a name for the container and click **Create**.

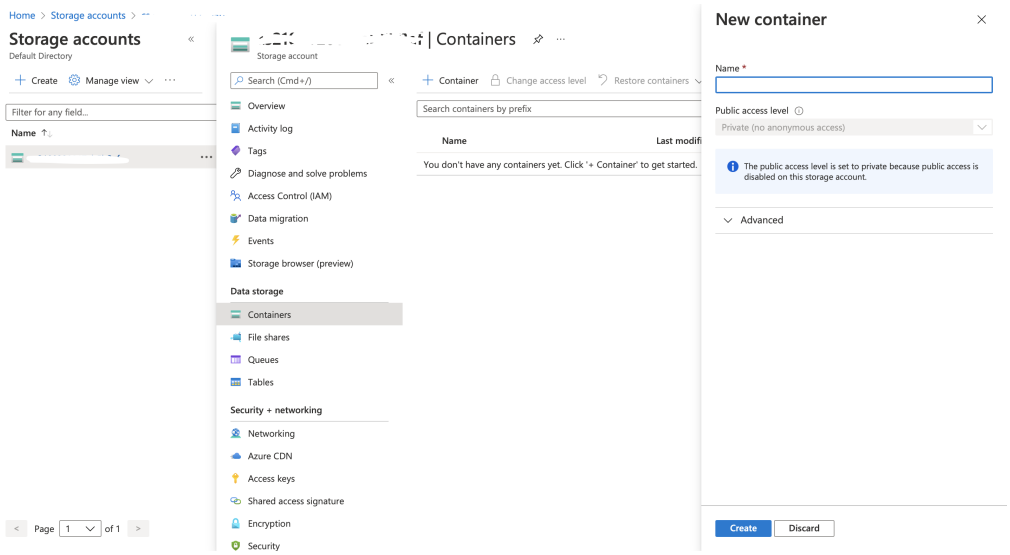


Figure: Create Storage Account Container

4. Once the container is created, you can upload and download blobs from the Azure Portal, SDK, or via the CLI.

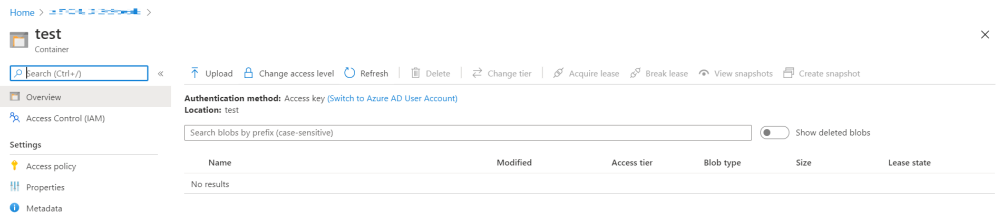


Figure: Upload and Download Blobs in Container

Microsoft Azure CLI

Azure CLI

Downloading and installing the Azure CLI

Before this section, you should have already created your Azure account using instructions in the Cloud Account Setup primer. Either visit the Azure CLI - Azure Docs (https://docs.microsoft.com/en-us/cli/azure/install-azure-cli) for the official instructions on installing the CLI.

Configuring the Azure CLI

Before using the Azure CLI with your Azure account, you must login. Running `az login` will open Microsoft's login page.

```
$ az login
To sign in, use a web browser to open the page https://aka.ms/devicelogin and en
ter the code ... to authenticate.
```

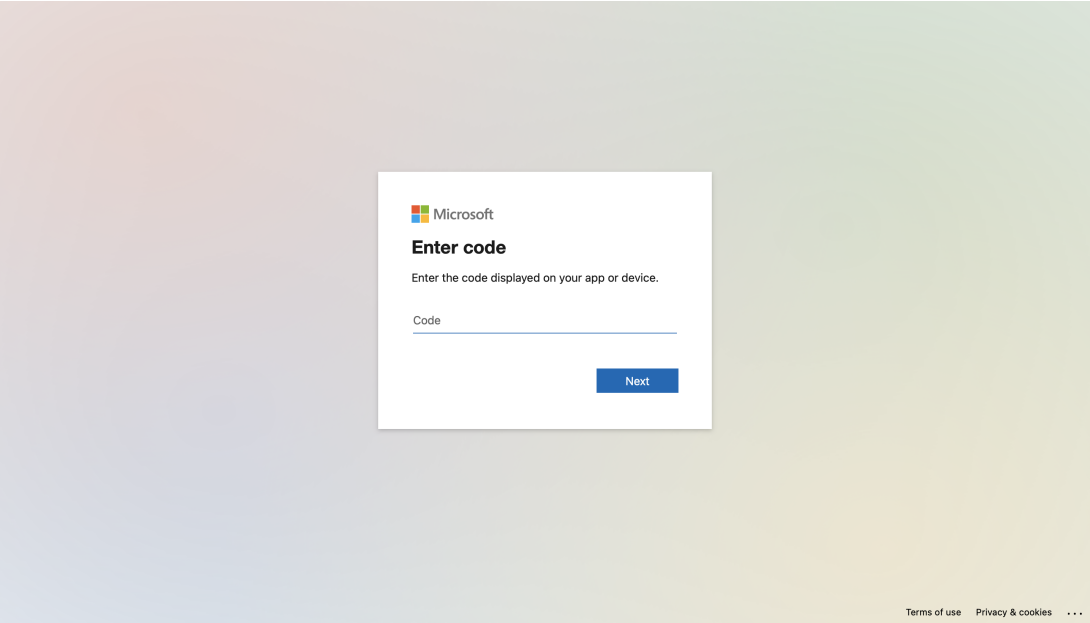


Figure: Enter the authentication code in the device login page

On the following page, enter your Azure credentials to complete the login process.

If you installed the CLI using `pip` and wish to enable tab completion, you may do so by running the following script:

```
$ source az.completion.sh

$ az [TAB] [TAB]
--debug            account            cdn                disk               grou
p                  login              postgres           sql
--help             acr                cloud              dla                imag
e                  logout             provider           storage
--output           acs                cognitiveservices  dls                inte
ractive            managedapp         redis              tag
--query            ad                 component          feature            iot
monitor            resource           vm
--verbose          appservice         configure          feedback           keyv
ault               mysql              role               vmss
-h                 batch              consumption        find               lab
network            sf                 webapp
-o                 billing            cosmosdb           functionapp        lock
policy             snapshot
```

To determine which subscription is currently being used and which subscriptions are available you may use the `account show` and `account list` commands respectively.

```
$ az account show
{
  "environmentName": "AzureCloud",
  "id": "<SUBSCRIPTION_ID>",
  "isDefault": true,
  "name": "<SUBSCRIPTION_NAME>",
  "state": "Enabled",
  "tenantId": "<TENANT_ID>",
  "user": {
    "name": "<USER_EMAIL>",
    "type": "user"
  }
}

$ az account list
...
```

Microsoft Azure Cloud Shell

Azure Cloud Shell

Overview

A computer shell is a user interface to get access to the computer's services. It can have a command-line interface (CLI) or a graphical user interface (GUI). Azure Cloud Shell is an interactive, browser-accessible shell for managing Azure resources using a set of commands. A text-based interface is called a command-line interface (CLI). Azure Cloud Shell persists your files on a cloud service named Azure File storage, similar to how a computer stores the files on a disk. A shell can have different environments or experiences, such as Bash (popular in UNIX) or PowerShell (popular in Windows) among others. Both Bash and PowerShell experiences are available in Azure Cloud Shell, but we will use Bash as an example in this course to learn about scripting.

You can understand Azure Cloud Shell as a command-line shell that works in a free remote machine managed by Azure rather than your local machine, and comes with some installed tools such as Azure CLI, Linux tools, Text editors, Terraform, etc.

The Cloud Shell is built right into the Azure Portal, if you click the Cloud Shell icon (>_) on the top-right toolbar, it will create a new Azure Cloud Shell session for you.

Figure: Cloud Shell icon on the page header

Let us create an Azure Cloud Shell and attach a storage account through two simple steps.

Step 1. After you create your Azure account, you can log in to the Azure portal and click the Cloud Shell icon to launch a Cloud Shell in the browser.

Step 2. On the initial start of Azure Cloud Shell, use your existing subscription and select “Create storage”, it will create a new storage account for you. Or if you have an existing Azure file share (a "Cloud Endpoint"), you can associate it to persist files so that you can retrieve and reuse the files the next time you log in Cloud Shell. Only one file share can be associated with automatic mounting in Cloud Shell.

On the initial start, select “Create storage”, it will create a new storage account and add it into a new resource group for you.

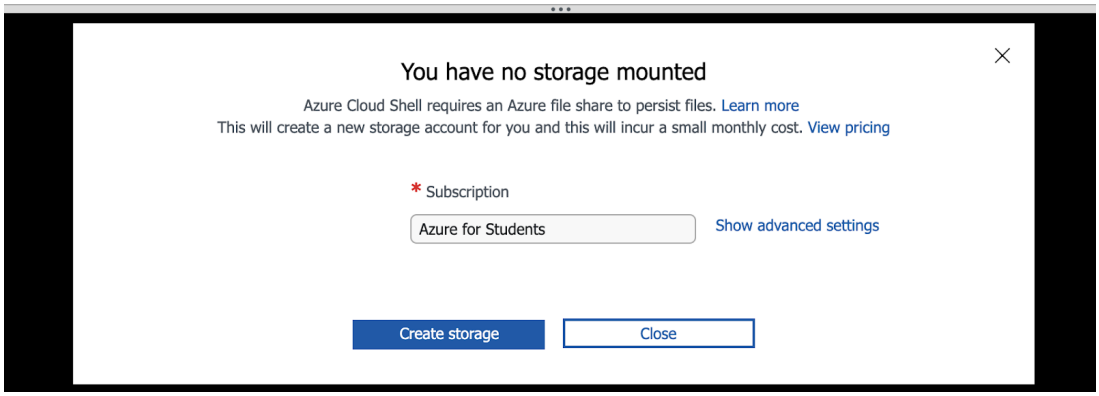


Figure: Azure Cloud Shell initial start

Features

Users can choose between Bash or PowerShell from the shell dropdown. We will only use Bash in this course.

There is a toolbar on the top of the Azure Cloud Shell window, and there are several buttons such as Restart, Settings, Upload/Download files, Open new session, Open editor, Web preview.

Figure: Open the Azure Cloud Shell

If you want to terminate the active session, type the command `exit` and press the Return/Enter key on your keyboard to run it. The Cloud Shell will also terminate automatically being idle for 20 minutes.

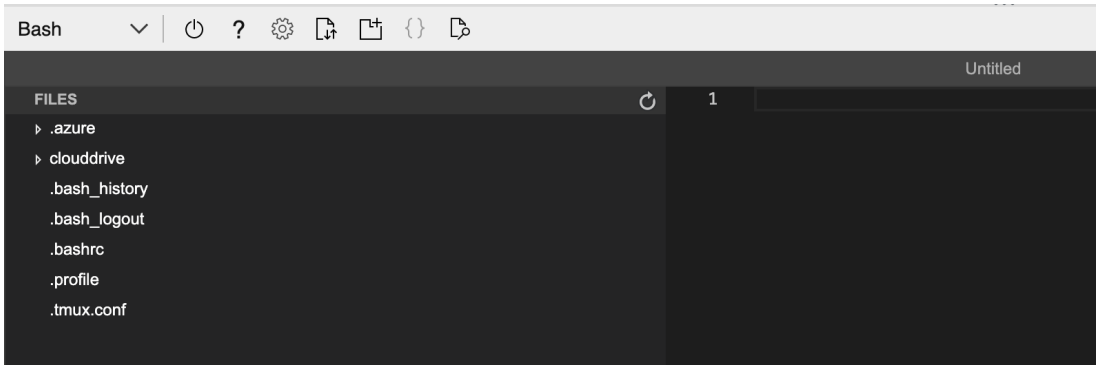


Figure: Cloud Shell Editor

You can access the integrated file editor in Cloud Shell by clicking the Open editor icon `{}` from the toolbar or running the command: `code .` This command opens the editor with your active working directory set in the terminal. To directly open and edit a file, run `code <filename>` to open the editor.

To close the editor, use the `...` action panel in the top right corner of the editor.

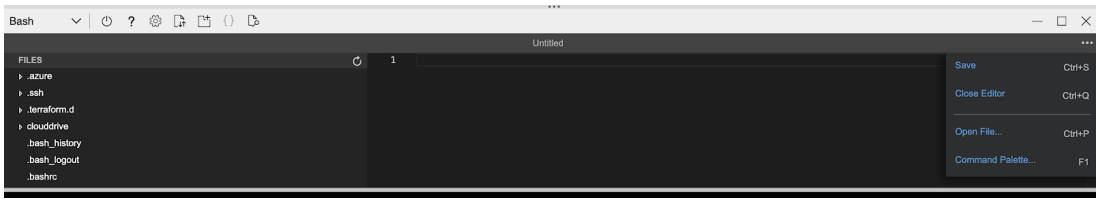


Figure: Close the Cloud Shell Editor

The Cloud Shell editor supports advanced features such as language highlighting, the command palette, and a file explorer. These features are optional to learn in this course.

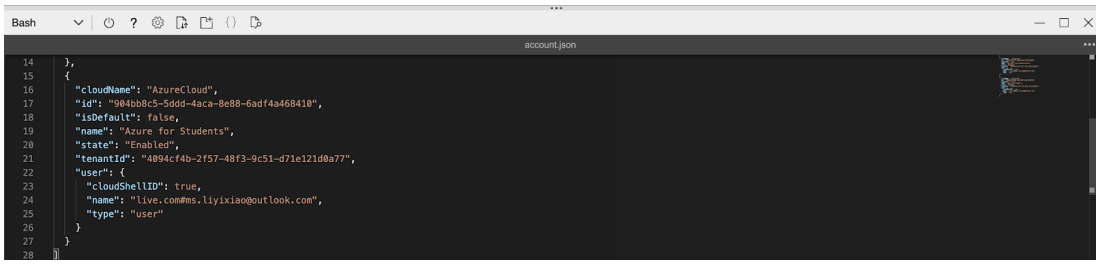


Figure: Cloud Shell Editor highlighting feature

For more features, please visit Azure Cloud Shell features (https://azure.microsoft.com/en-us/features/cloud-shell/)

Pricing

Azure Cloud Shell runs on a machine provided for free by Azure. To use Cloud Shell, you only pay for the Azure Files share used to persist your data. Your total cost depends on how much you store, the volume, and type of storage transactions and outbound data transfers, etc. By default, Azure Cloud Shell creates a storage account on your behalf with an Azure Files share using your active Azure subscription.

For more pricing information, please visit Azure Files Share pricing (https://azure.microsoft.com/en-us/pricing/details/storage/files/)