IT3061 – Massive Data Processing and Cloud Computing
Year 3, Semester 2
Practical Sheet 2

Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides secure, resizable compute capacity in the cloud. EC2 offers many options that enable you to build and run virtually any application.

Launching an EC2 instance

This practical describes the steps of launching a new Linux EC2 instance.

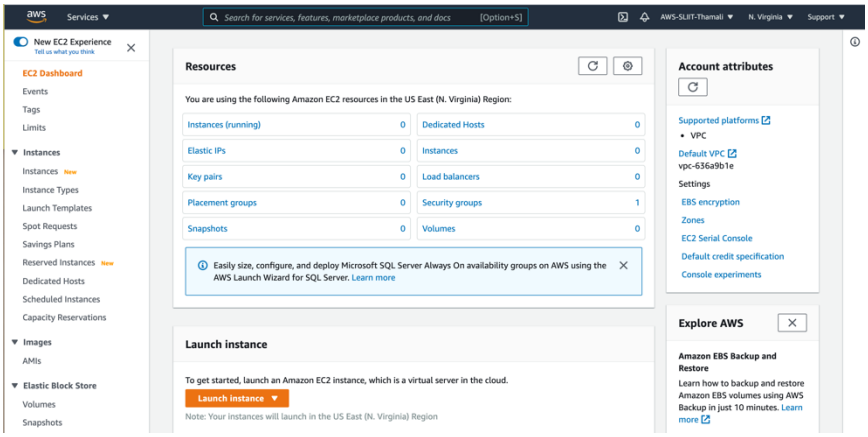
Steps to launch an instance:

Initiate instance launch
Step 1: Choose an Amazon Machine Image (AMI)
Step 2: Choose an Instance Type
Step 3: Configure Instance Details
Step 4: Add Storage
Step 5: Add Tags
Step 6: Configure Security Group
Step 7: Review Instance Launch and Select Key Pair

- **Initiate instance launch**

Open the AWS Management console.

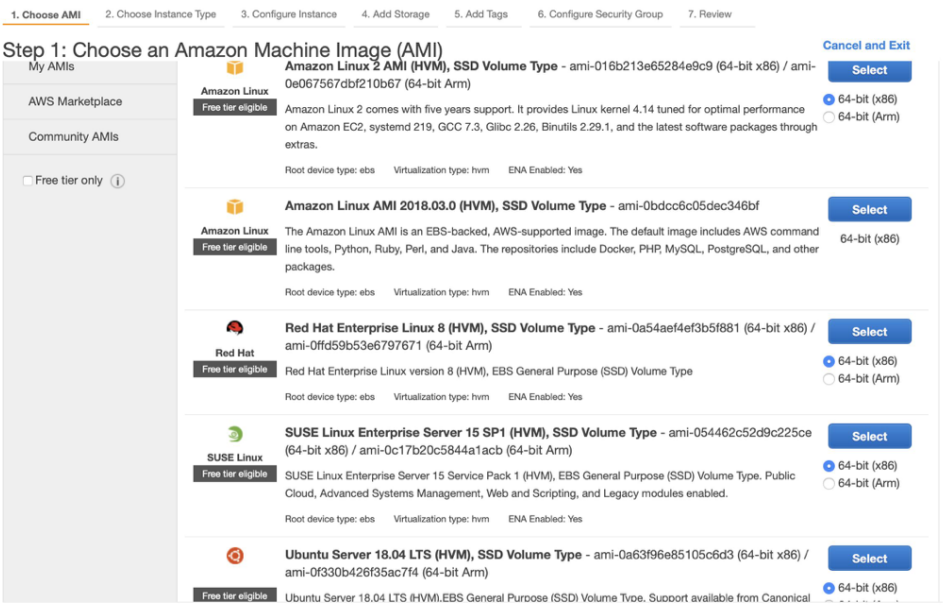
In the navigation bar at the top of the screen, the current Region is displayed. Select a Region for the instance that meets your needs. This choice is important because some Amazon EC2 resources can be shared between regions, while others can't.



From the Amazon EC2 console dashboard, choose **Launch instance**.

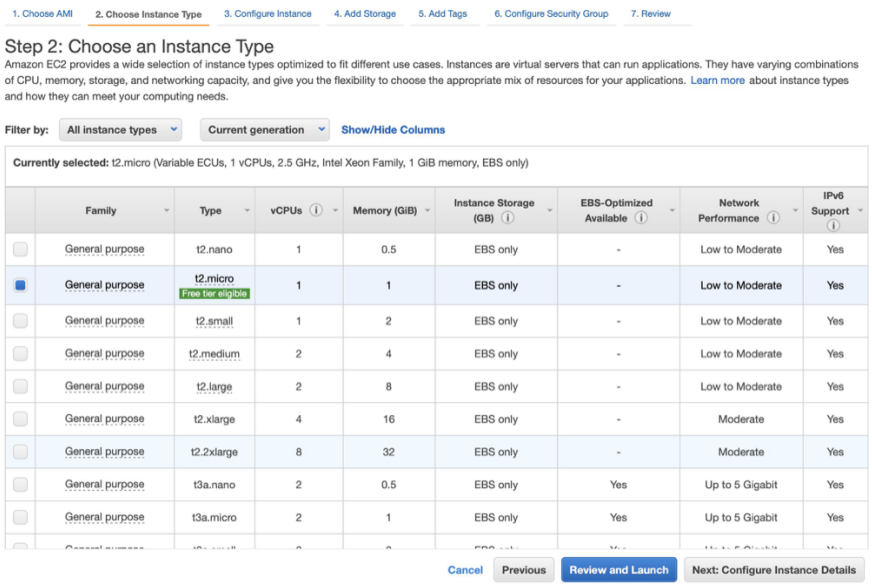
- **Step 1: Choose an Amazon Machine Image (AMI)**

Select a pre-configured Amazon Machine Image (AMI) to quickly start a VM. If not, you can create your own AMI using an existing EC2 instance and reuse to create custom instances.



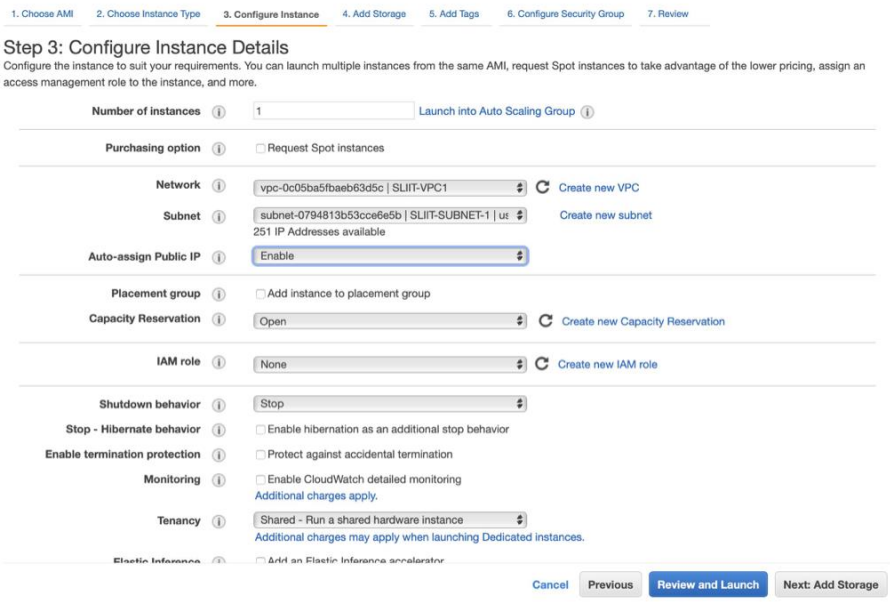
- **Step 2: Choose an Instance Type**

Select the instance type you wish to create. You are able to select a range of instance types with different resource configurations based on your requirement.



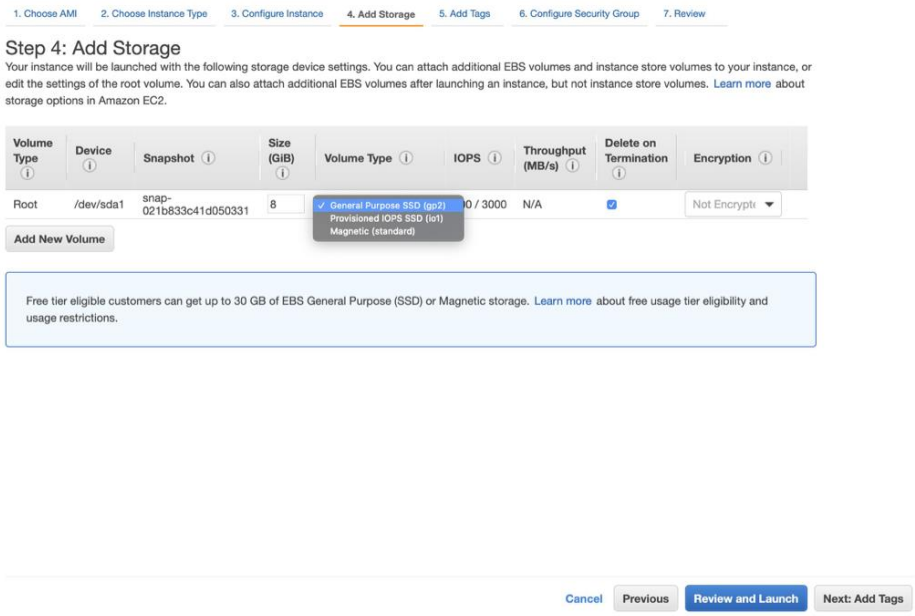
- **Step 3: Configure Instance Details**

Set network level configurations you need (assign public/private IP, select the network, VPC etc).



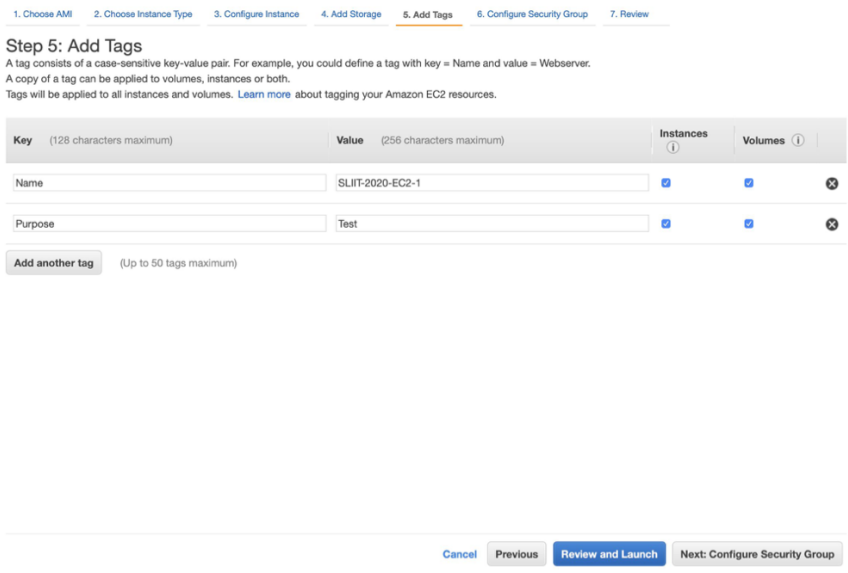
- **Step 4: Add Storage**

Add storage, change size of storage based on your needs.



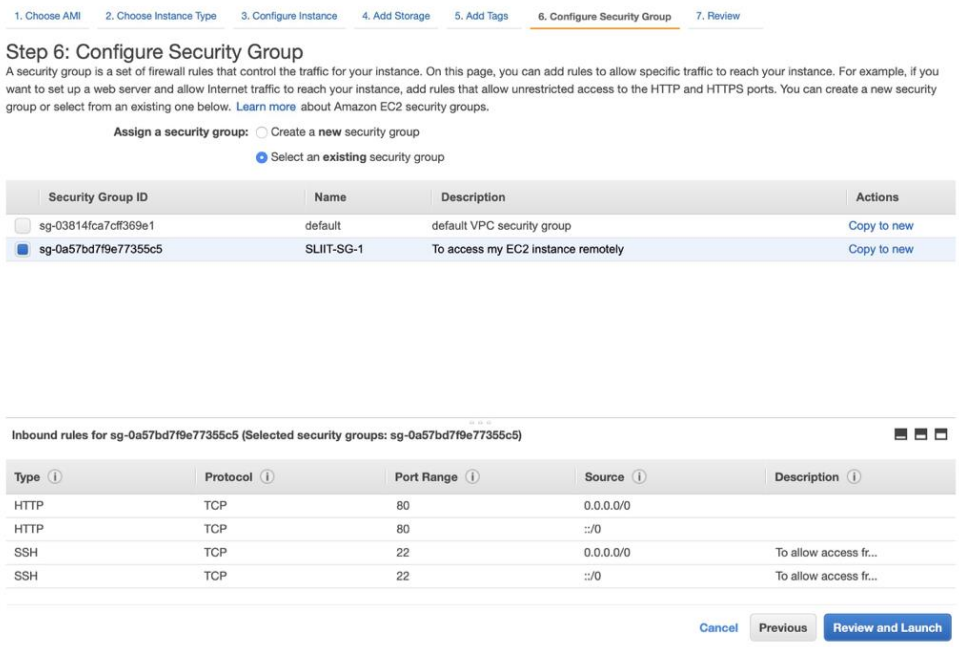
- **Step 5: Add Tags**

Add naming tags to easily and properly identify the resources.



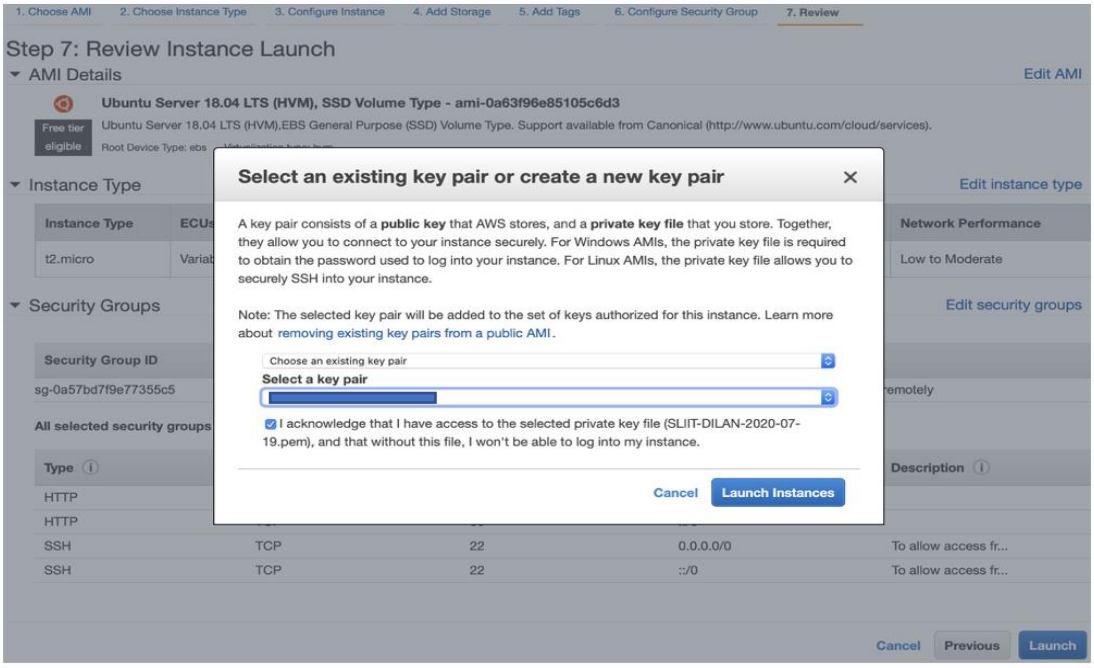
- **Step 6: Configure Security Group**

Add the security group configurations to determine which protocols, ports and sources you wish to allow.



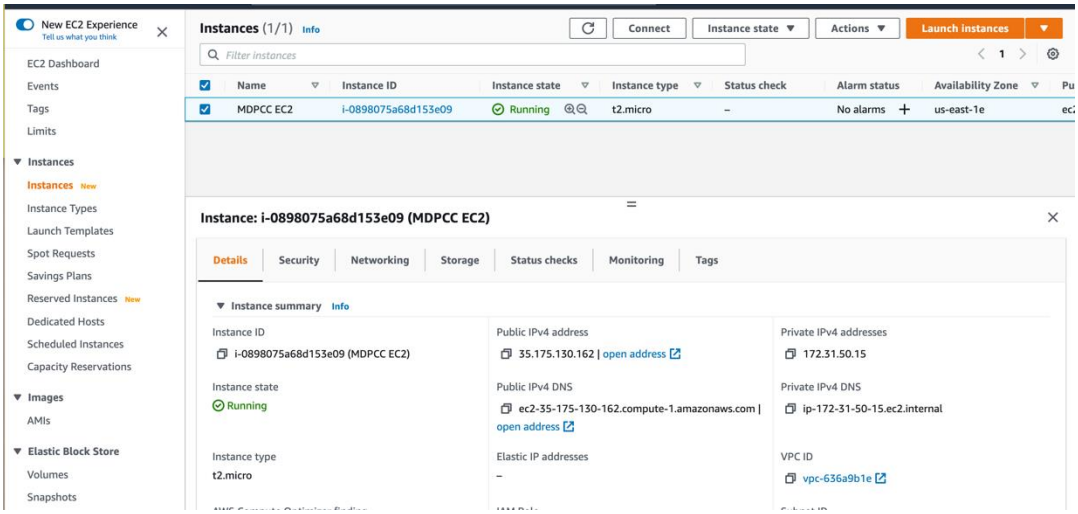
- **Step 7: Review Instance Launch and Select Key Pair**

When you are ready, select the acknowledgment check box, and then choose **Launch Instances**.



A confirmation page lets you know that your instance is launching. Choose **View Instances** to close the confirmation page and return to the console.

On the **Instances** page, you can view the status of your instance. It takes a short time for an instance to launch. When you launch an instance, its initial state is pending. After the instance starts, its state changes to running, and it receives a public DNS name. (If the **Public DNS** column is hidden, choose the **Show/Hide** icon.)



Connect to Amazon EC2 Instance

Now that you have launched your EC2 instance, you can connect to it and use it the way that you'd use a computer sitting in front of you.

Following are the ways of connecting to a Linux instance:

- Connect from Windows using PuTTY
- Connect from Mac or Linux Using an SSH Client
- Connect Using Your Browser

Connect from Windows using PuTTY

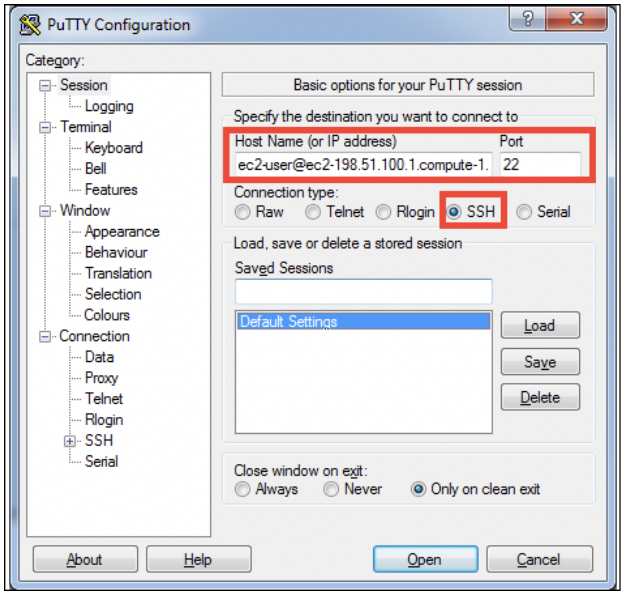
PuTTY uses .ppk files instead of .pem files.

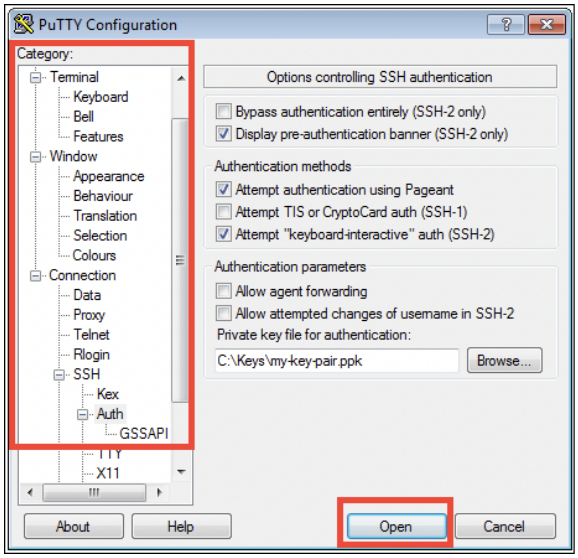
To connect using PuTTY

1. On the **Start** menu, choose **All Programs**, **PuTTY**, **PuTTY**.

2. In the **Category** pane, choose **Session** and complete the following fields:
    - For **Host Name**, enter **ec2-user@public_dns_name**.
    - For **Connection type**, choose **SSH**.
    - For **Port**, ensure that the value is **22**.

3. In the **Category** pane, choose **Connection**, **SSH**, and **Auth**. Complete the following:
    - Choose **Browse**, select the .ppk file that you generated for your key pair, and then choose **Open**.
    - Choose **Open** to start the PuTTY session.





4. If this is the first time you have connected to this instance, PuTTY displays a security alert dialog box that asks whether you trust the host you are connecting to. Choose **Yes**. A window opens and you are connected to your instance.

Microsoft Azure Virtual Machines is a web service which enables you to Provision Windows and Linux VMs in seconds and reduce costs. Azure virtual machines (VMs) can be created through the Azure portal. This method provides a browser-based user interface to create VMs and their associated resources.

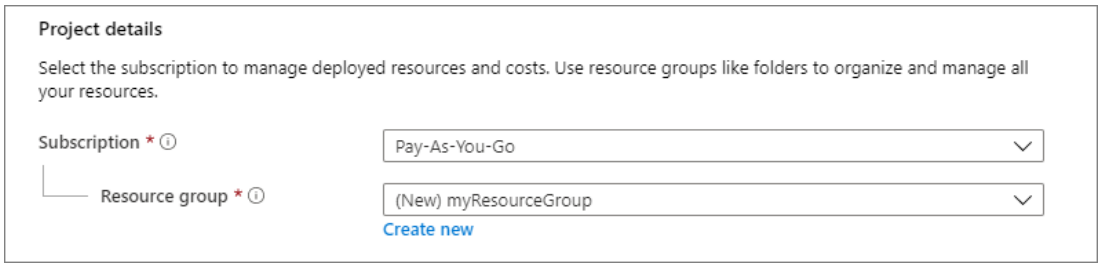
Creating a Windows virtual machine in the Azure portal

This practical describes how to use the Azure portal to deploy a virtual machine (VM) in Azure that runs Windows Server 2019.

Steps

- **Create virtual machine**

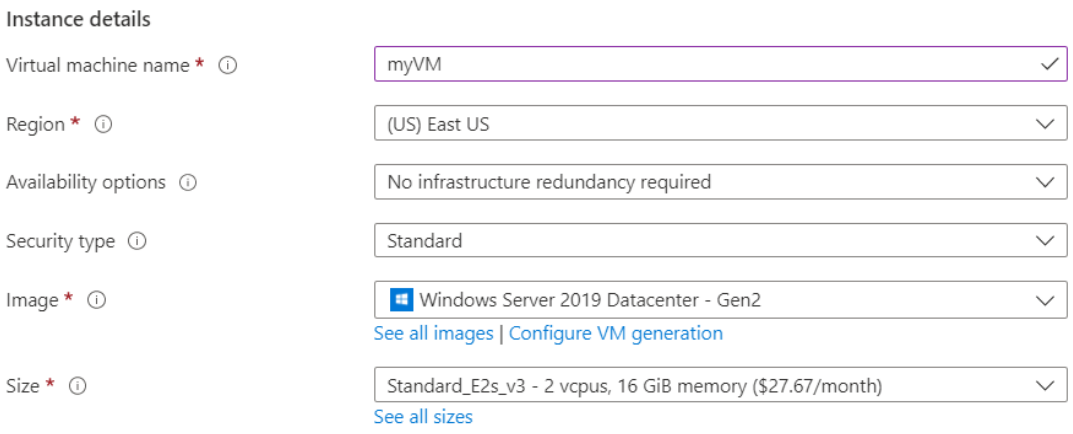
1. Sign in to the Azure portal at https://portal.azure.com.
2. Enter virtual machines in the search.
3. Under Services, select Virtual machines.
4. In the Virtual machines page, select Create and then Virtual machine. The Create a virtual machine page opens.
5. In the Basics tab, under Project details, make sure the correct subscription is selected and then choose to Create new resource group. Enter myResourceGroup for the name.



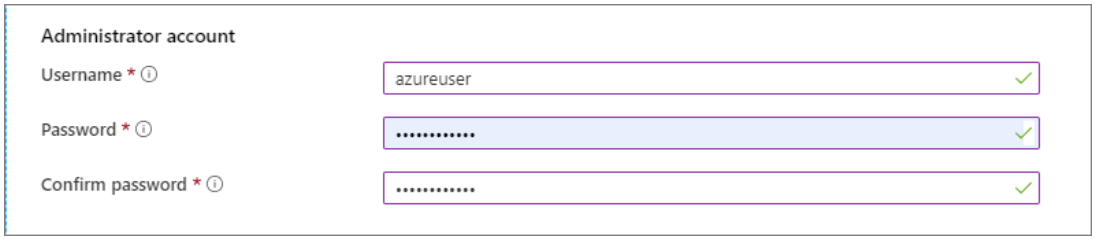
Note - A resource group is a container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group.

https://docs.microsoft.com/en-us/azure/azure-resource-manager/management/manage-resource-groups-portal

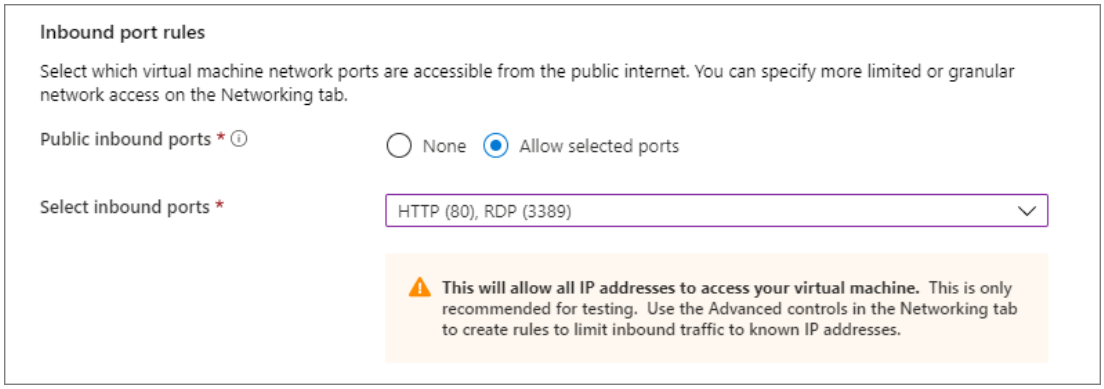
6. Under Instance details, enter myVM for the Virtual machine name and choose Windows Server 2019 Datacenter - Gen2 for the Image. Leave the other defaults.



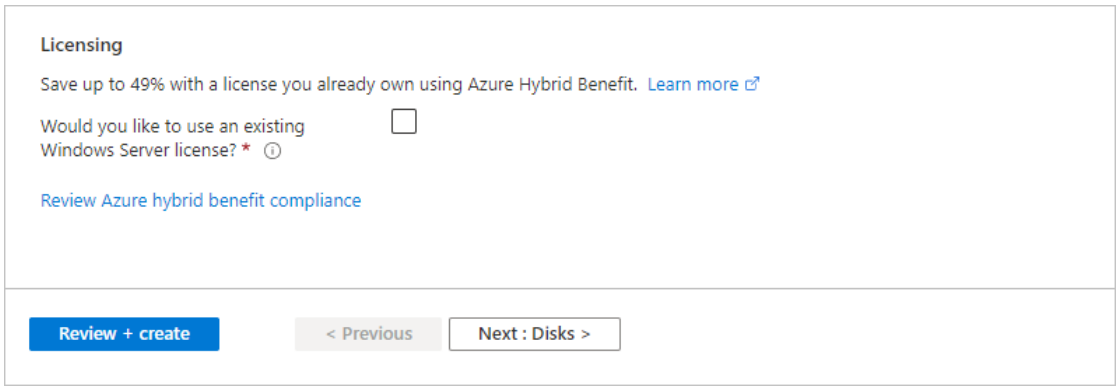
7. Under Administrator account, provide a username, such as *azureuser* and a password. The password must be at least 12 characters long and meet the defined complexity requirements.



8. Under Inbound port rules, choose Allow selected ports and then select RDP (3389) and HTTP (80) from the drop-down.

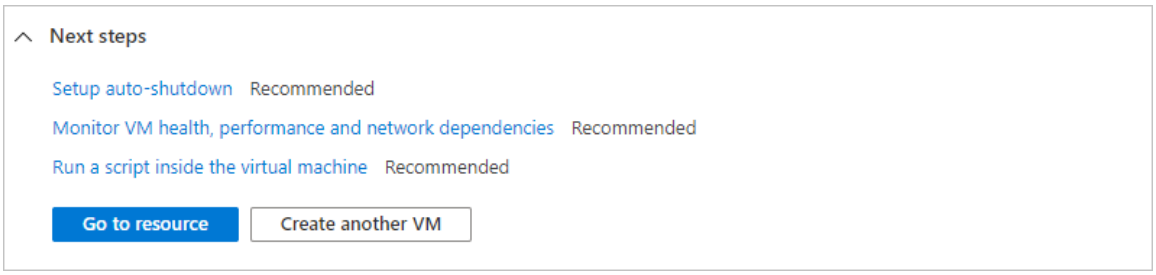


9. Leave the remaining defaults and then select the Review + create button at the bottom of the page.



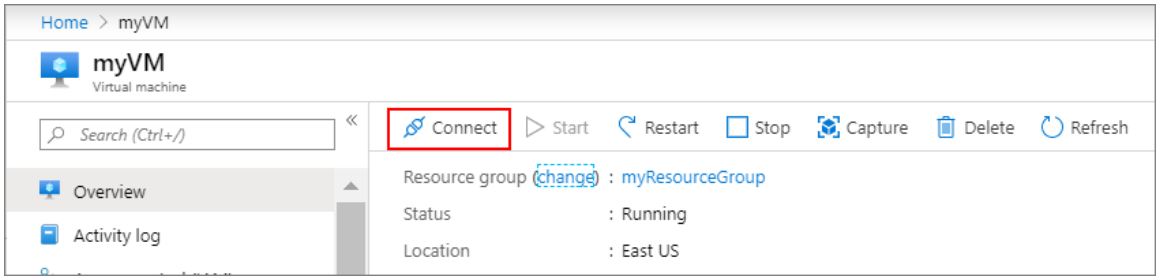
10. After validation runs, select the Create button at the bottom of the page.

11. After deployment is complete, select Go to resource.



- **Connect to virtual machine -** Create a remote desktop connection to the virtual machine.

1. On the overview page for your virtual machine, select the Connect > RDP.



2. In the Connect with RDP page, keep the default options to connect by IP address, over port 3389, and click Download RDP file.

3. Open the downloaded RDP file and click Connect when prompted.

4. In the Windows Security window, select More choices and then Use a different account. Type the username as localhost\username, enter the password you created for the virtual machine, and then click OK.

5. You may receive a certificate warning during the sign-in process. Click Yes or Continue to create the connection.

References

1. https://docs.aws.amazon.com/AWSEC2/latest/UserGuide/EC2_GetStarted.html
2. https://docs.microsoft.com/en-us/azure/virtual-machines/windows/quick-create-portal