
How to Host an HTML Website on Azure

By Sidney Smith Ebot

Table of Contents

1.	INTRODUCTION.....	2
1.1.	How to Sign Up for a Free Azure Account.....	2
1.2.	How to Get a Free or Pay-As-You-Go Azure Subscription	3
1.3.	Create a Subscription.....	4
2.	Set Up Networking in Azure.....	11
2.1.	How to Create a Virtual Network (VNet) in Azure.....	11
2.2.	How to Create Public and Private Subnets in Azure VNet	22
2.3.	How to Create a NAT Gateway for Private Subnets in Azure	43
2.4.	How to Create a Network Security Group (NSG) in Azure	56
2.5.	How to Add Inbound Security Rules to a Network Security Group (NSG)	62
2.6.	How to Associate a Network Security Group (NSG) with a Subnet in Azure	74
3.	Create Azure Storage for Application Code	83
3.1.	How to Create a Storage Account in Azure.....	83
3.2.	How to Create a Blob Container inside Azure Storage	93
3.3.	How to Generate a SAS Token for Secure Access to Azure Blob Storage.....	99
4.	Launch and Connect to the Virtual Machine	104
4.1.	How to Create an SSH Key Pair in Azure	104
4.2.	How to Move an SSH Private Key to Your Home Directory (Windows).....	113
4.3.	How to Create a Virtual Machine (VM) in Azure	118
4.4.	How to SSH into an Azure Virtual Machine Using a Private Key.....	139
5.	Deploy and Host the HTML Application.....	141
5.1.	How the Script Works to Install HTML on an Azure Virtual Machine.....	141
5.2.	How to Install and Host an HTML Application on an Azure Virtual Machine	143
6.	Clean Up Azure Resources	151
6.1.	How to Clean Up Azure Resources After Project Completion	151
6.2.	Deleting the Network Security Groups	155
6.3.	Deleting the NAT gateways.....	163
6.4.	Deleting Public IP	168

1. INTRODUCTION

Welcome to how to host an HTML application on Azure. This is a full step-by-step project for beginners. In this course, you will learn how to build and deploy a secured web application using Azure services.

First, we will set up Networking with Virtual Network, subnets and NAT gateway and Network Security Groups. Then you will create an Azure Blob storage to store your application code. Next, we will launch a virtual machine and connect to it securely using SSH, and download your application code from the storage. After that, you will deploy your HTML application and make it accessible over the internet. Finally, you will learn how to clean up your resources to avoid unnecessary costs.

What you will learn:

- Sign up for an Azure Account (if you don't have one)
- Set Up Networking in Azure
- Create Azure Storage for Application Code
- Launch and Connect to the Virtual Machine
- Deploy and Host the HTML Application
- Clean Up Azure Resources

1.1. How to Sign Up for a Free Azure Account

In this lecture, you will learn how to sign up for an Azure account. The easiest way to sign up for an Azure account is to first sign up for a Microsoft account.

If you do not have a Microsoft account, go to <https://www.microsoft.com/en-us/> and sign up for a Microsoft account

After signing up, the next thing is to sign into the created Microsoft account

1.2. How to Get a Free or Pay-As-You-Go Azure Subscription

A subscription is where you put your card information and your details so that azure can start billing you when you use some of the pay as you go services. To start, you are going to click start under “**Start with an Azure free trial**”

Then click “**Try Azure for free**”

On this page, enter your information.

1.3. Create a Subscription

In this part, we are going to create a subscription in our Azure account. Search for “Subscription”

The screenshot shows the Microsoft Azure portal homepage. At the top, there is a search bar with the word "subscription". Below the search bar, there are three main categories: "Services", "Marketplace", and "Documentation". The "Services" category is currently selected. Under "Services", there is a list of items including "Subscriptions" (which has an orange arrow pointing to it), "OracleSubscriptions", "Billing subscriptions", "Event Grid", and "Keywords subscription". To the right of the search bar, there is a large blue heart icon with a pen, and below it, a section for "Students" with a "Start" button.

Click on “Subscription”

The screenshot shows the "Subscriptions" blade in the Microsoft Azure portal. At the top, there is a header with the title "Subscriptions" and a "Home > Subscriptions" breadcrumb. Below the header, there are several buttons: "+ Add" (which has an orange arrow pointing to it), "Manage Policies", "View Requests", "View eligible subscriptions", and "Export to CSV". There is also a search bar and filter options for "Subscriptions : Filtered (0 of 0)", "My role = all", "Status = all", and "Add filter". The main table below the filters is empty, displaying the message "None of the entries matched the given filter.".

Click on “Add”

The screenshot shows the Microsoft Azure Subscriptions page. On the left, there's a sidebar with a search bar, Copilot button, and user info. Below it, a list of subscriptions is shown with a filter applied: 'Subscriptions : Filtered (1 of 1)' with 'My role == all' and 'Status == all'. A red arrow points from the 'Subscription name' input field in the 'Create a subscription' dialog to the 'Subscription name' input field on the left.

Create a subscription

Basics Advanced Budget Tags Review + create

A subscription is a container used to provision resources in Azure. It holds the details of all your resources like virtual machines (VM), databases, and more. When you create an Azure resource like a VM, you identify the subscription it belongs to. As you use the VM, the usage of the VM is aggregated and billed monthly.

Subscription details

Subscription name * *

Billing account *

 Billing profile *

 Invoice section *

Plan * Add a different type of subscription

Review + create Previous Next

Give the subscription a name, I will call it “**soso**”

The screenshot shows the Microsoft Azure Subscriptions page. The 'Subscription name' input field now contains 'soso'. A red arrow points from the 'Next' button in the 'Create a subscription' dialog to the 'Next' button at the bottom of the dialog.

Create a subscription

Basics Advanced Budget Tags Review + create

A subscription is a container used to provision resources in Azure. It holds the details of all your resources like virtual machines (VM), databases, and more. When you create an Azure resource like a VM, you identify the subscription it belongs to. As you use the VM, the usage of the VM is aggregated and billed monthly.

Subscription details

Subscription name * ✓

Billing account *

 Billing profile *

 Invoice section *

Plan * Add a different type of subscription

Review + create Previous Next

Click on “**Next**”

Microsoft Azure

Subscriptions < Default Directory (ebotsidneysmith@outlook.onmicrosoft.com)

+ Add Manage Policies ...

Global administrators can manage all subscriptions in this list by updating their policy setting [here](#).

View list of subscriptions for which you have role-based access control (RBAC) permissions to manage Azure resources. To view subscriptions for which you have billing access, [click here](#).

Showing subscriptions in Default Directory directory. Don't see a subscription? [Switch directories](#)

Subscriptions : Filtered (1 of 1)

My role == all

Status == all

+ Add filter

Subscription name ↑↓

Azure subscription 1 ...

Create a subscription ...

Feedback

Basics Advanced Budget Tags Review + create

Subscription directory: Default Directory (deae064a-5c63-4ccf-8084-555f54d30f8f)

Management group: Root management group

Subscription owner: ebotsidneysmith@outlook.com

Review + create Previous Next

Click on “Next” again

Microsoft Azure

Subscriptions < Default Directory (ebotsidneysmith@outlook.onmicrosoft.com)

+ Add Manage Policies ...

Global administrators can manage all subscriptions in this list by updating their policy setting [here](#).

View list of subscriptions for which you have role-based access control (RBAC) permissions to manage Azure resources. To view subscriptions for which you have billing access, [click here](#).

Showing subscriptions in Default Directory directory. Don't see a subscription? [Switch directories](#)

Subscriptions : Filtered (1 of 1)

My role == all

Status == all

+ Add filter

Subscription name ↑↓

Azure subscription 1 ...

Create a subscription ...

Feedback

Basics Advanced Budget Tags Review + create

Budget details

Create a budget for this subscription. [Learn more](#) about budgets.

Name:

Amount (in USD):

Alert condition: Send alert when % of alert amount has been crossed.

Cost alert will be send to the subscription owner's email address: ebotsidneysmith@outlook.com.

Review + create Previous Next

Here you can set your budget. I will give the budget the name “**MyBudget**”

The screenshot shows the Microsoft Azure Subscriptions page. On the left, there's a sidebar with a search bar, a Copilot button, and user information. Below it, there's a list of subscriptions, with 'Azure subscription 1' selected. On the right, the main area is titled 'Create a subscription' and shows the 'Budget' tab selected. The 'Budget details' section asks to create a budget for the subscription. The 'Name' field is set to 'MyBudget'. The 'Amount (in USD)' field is empty. The 'Alert condition' field contains '100 % of alert amount has been crossed.' A tooltip indicates that a cost alert will be sent to the owner's email. At the bottom, there are 'Review + create', 'Previous', and 'Next' buttons.

And the amount will be “20”

This screenshot is similar to the previous one, but the 'Amount (in USD)' field now contains the value '20'. The 'Alert condition' field still shows '100 % of alert amount has been crossed.', with a red arrow pointing to the '100' value. The rest of the interface remains the same, with the 'Review + create' button at the bottom.

Let us set it such that we get an alert when the budget is 50%. So, enter “50”

Microsoft Azure

Subscriptions

Create a subscription

Budget

Budget details

Name: MyBudget

Amount (in USD): 20

Alert condition: Send alert when 50 % of alert amount has been crossed.

Review + create Previous **Next**

Click on “Next”

Microsoft Azure

Subscriptions

Create a subscription

Tags

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more](#)

Name: Value:

Review + create Previous **Next**

Here, we are not going to use tags. So, click on “Next”

Create a subscription

Feedback

Validation passed. Click on Create button below to initiate subscription creation.

Basics

Subscription name	soso
Billing account	Sidney Ebot
Billing profile	Sidney Ebot
Invoice section	Sidney Ebot
Plan	Microsoft Azure Plan

Advanced

Management group	None
Subscription directory	Default Directory (deae064a-5c63-4ccf-8084-555f5d30f8f)
Subscription owner	ebotsidneysmith@outlook.com

Create Previous Next

Review and click on “Create”

Subscription name	Subscription ID	My role	Current cost	Secure Score	Parent management group	Status
Azure subscription 1	dd5d4252-9ca5-4581-9dc7-b63c0788bde7	Owner	\$5.93	100%	Tenant Root Group	Disabled

Budget creation successful
Budget "MyBudget" for subscription "soso" was successfully created.

Refresh the page

Microsoft Azure

Search resources, services, and docs (G+ /)

Copilot

ebotsidneysmith@outlook.com

Home > Subscriptions

Summarize my costs this month | Compare the different Azure subscription types | Breakdown costs by subscription

Default Directory (ebotsidneysmith@outlook.onmicrosoft.com)

+ Add | Manage Policies | View Requests | View eligible subscriptions | Export to CSV

Global administrators can manage all subscriptions in this list by updating their policy setting [here](#).

View list of subscriptions for which you have role-based access control (RBAC) permissions to manage Azure resources. To view subscriptions for which you have billing access, [click here](#)

Showing subscriptions in Default Directory directory. Don't see a subscription? [Switch directories](#)

Search for any field... Subscriptions : Filtered (2 of 2) My role == all Status == all + Add filter

Subscription name ↑↓	Subscription ID ↑↓	My role ↑↓	Current cost	Secure Score ↑↓	Parent management group ↑↓	Status ↑↓	...
soso	c93b9be5-eb38-420f-9d5b-e63fc469fa1f	Owner	Not available	-	Tenant Root Group	Active	...
Azure subscription 1	dd5d4252-9ca5-4581-9dc7-b63c0788bde7	Owner	\$5.93	100%	Tenant Root Group	Disabled	...

You can see the “**subscription**” we just created.

2. Set Up Networking in Azure

In this section, you will learn how to create a secure Azure Network. We will set up a virtual Network, public and private subnets, a NAT gateway for outbound internet access and Network Security Groups to control traffic flow.

2.1. How to Create a Virtual Network (VNet) in Azure

Learn how to create a Virtual Network (VNet) in Microsoft Azure — the foundation of all networking in the cloud. This step-by-step tutorial shows you how to define address spaces, regions, and subnets within your VNet to prepare for secure resource deployment.

Login to Azure dashboard using this link: <https://portal.azure.com>

The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with links for 'Copilot', 'ebotsidneysmith@outlook.com', and 'DEFAULT DIRECTORY (EBOTSON...).'. Below the bar is a search input field labeled 'Search resources, services, and docs (G+/-)' with a magnifying glass icon. The main content area is divided into several sections:

- Azure services:** Includes links for 'Create a resource', 'Azure DevOps organizations', 'Storage accounts', 'Subscriptions', 'Virtual machines' (which has a red arrow pointing to the search bar), 'Quickstart Center', 'Foundry', 'Kubernetes services', 'App Services', and 'More services'.
- Resources:** A table showing recent resources:

Name	Type	Last Viewed
sosoebotprod	Storage account	5 days ago
sosoebotqa	Storage account	5 days ago
sosoebottst	Storage account	5 days ago
soso	Resource group	5 days ago

Buttons for 'Recent' and 'Favorite' are above the table. A 'See all' link is at the bottom.
- Navigate:** Buttons for 'Subscriptions', 'Resource groups', 'All resources', and 'Dashboard'.
- Tools:** Buttons for 'Microsoft Learn', 'Azure Monitor', 'Microsoft Defender for Cloud', and 'Cost Management'.

In this lecture, we are going to create a VNet which is equivalent to VPC in AWS. This VNet is where we are going to put the resources that we will use complete our project.

To create a VNet, search for “Virtual Networks”

The screenshot shows the Microsoft Azure portal homepage. At the top, there's a search bar with the placeholder "Search resources, services, and docs (G+)" and a Copilot button. Below the search bar, the "Azure services" section is visible, featuring a "Create a resource" button, an "Azure DevOps organizations" button, and a "Virtual networks" button, which is highlighted with an orange arrow. To the right of the services, there are sections for "Kubernetes services", "App Services", and "More services". The left sidebar includes "Recent" and "Favorite" resources, a "Navigate" section with "Subscriptions", and a "Tools" section with links to Microsoft Learn, Azure Monitor, Microsoft Defender for Cloud, and Cost Management.

Click on “Virtual Networks”

The screenshot shows the "Network foundation | Virtual networks" page. The URL is https://portal.azure.com/#view/HubsExtension/AssetMenuBlade/~/virtualnetworks/assetName/NetworkFoundation/extensionName/Microsoft_Azure_Network. The page title is "Network foundation | Virtual networks". On the left, there's a navigation menu with items like "Overview", "Virtual network", "Virtual Network overview", "Virtual networks" (which is selected and highlighted with an orange arrow), "NAT gateways", "Public IP addresses", "Network interfaces", "Network security groups", "Application security groups", "Bastions", "Route tables", "Route servers", "Private Link", "DNS", and "Monitoring and management". The main content area has a "Create" button at the top left. Below it, there's a message: "You are viewing a new version of Browse experience. Click here to access the old experience." There are also filter options for "Subscription equals all", "Resource Group equals all", and "Location equals all". A large "No virtual networks to display" message with a "Create" button is centered. At the bottom, there's a note about creating a virtual network to securely connect Azure resources and a "Learn more" link.

Click on “Create”

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation.

[Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Azure subscription 1

Resource group * soso

Create new

Instance details

Virtual network name *

Region * (US) East US 2

Deploy to an Azure Extended Zone

Previous Next Review + create Give feedback

Here make sure your subscription is selected. Next is to create a resource group, but we already have one called “**soso**”. Let us create a new resource group called “**rg-vm-demo-eus**”. The resource group is you can logically group your resources together.

Click on “**Create New**”

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation.

[Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Azure subscription 1

Resource group * soso

Create new

A resource group is a container that holds related resources for an Azure solution.

Name * rg-vm-demo-eus

OK Cancel

Previous Next Review + create Give feedback

Enter the name “**rg-vm-demo-eus**”

Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation.

Learn more. [View](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Resource group * [Create new](#)

Instance details

Virtual network name *

Region *

[OK](#) [Cancel](#)

Previous Next Review + create Give feedback

Click on “OK”

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation.

Learn more. [View](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Resource group * [Create new](#)

Instance details

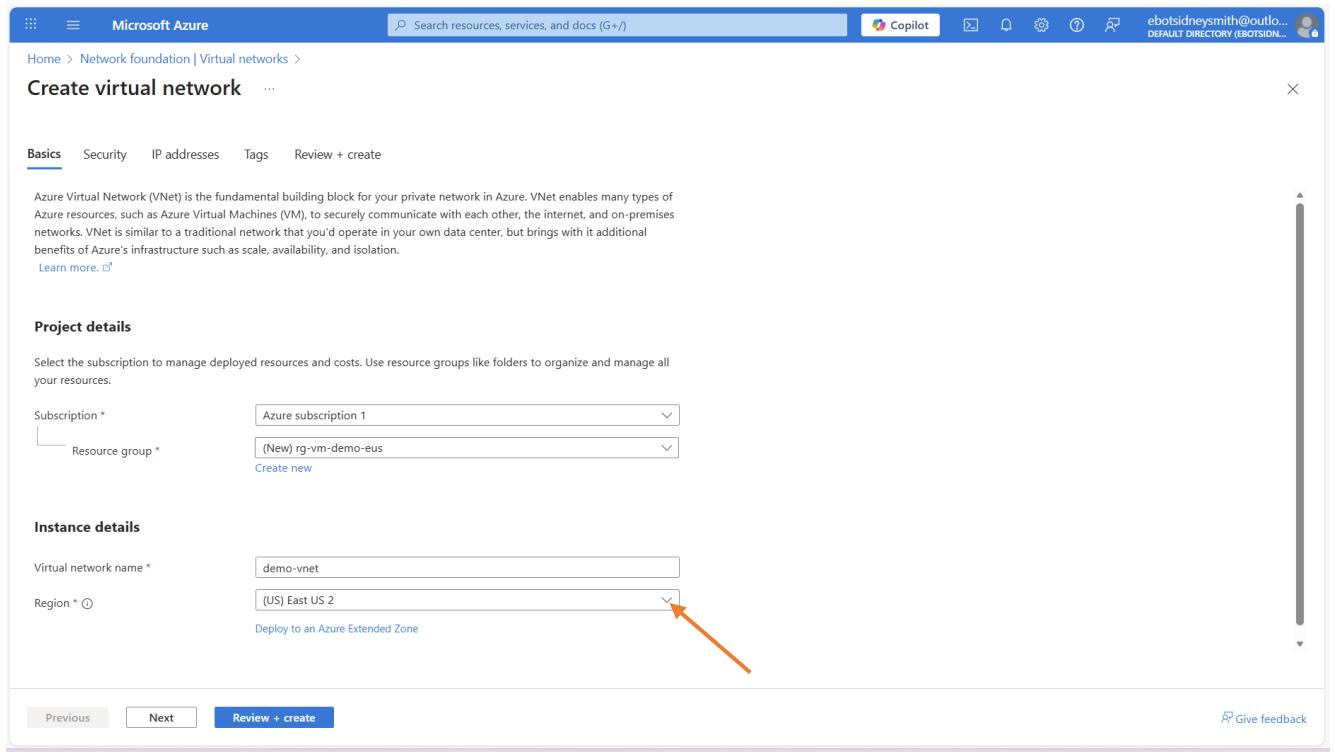
Virtual network name *

Region *

Deploy to an Azure Extended Zone

Previous Next Review + create Give feedback

The next thing is to give our Virtual Network a name, we will call it “**demo-vnet**”



Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security IP addresses Tags Review + create

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation.

Learn more

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Azure subscription 1

Resource group * (New) rg-vm-demo-eus

Create new

Instance details

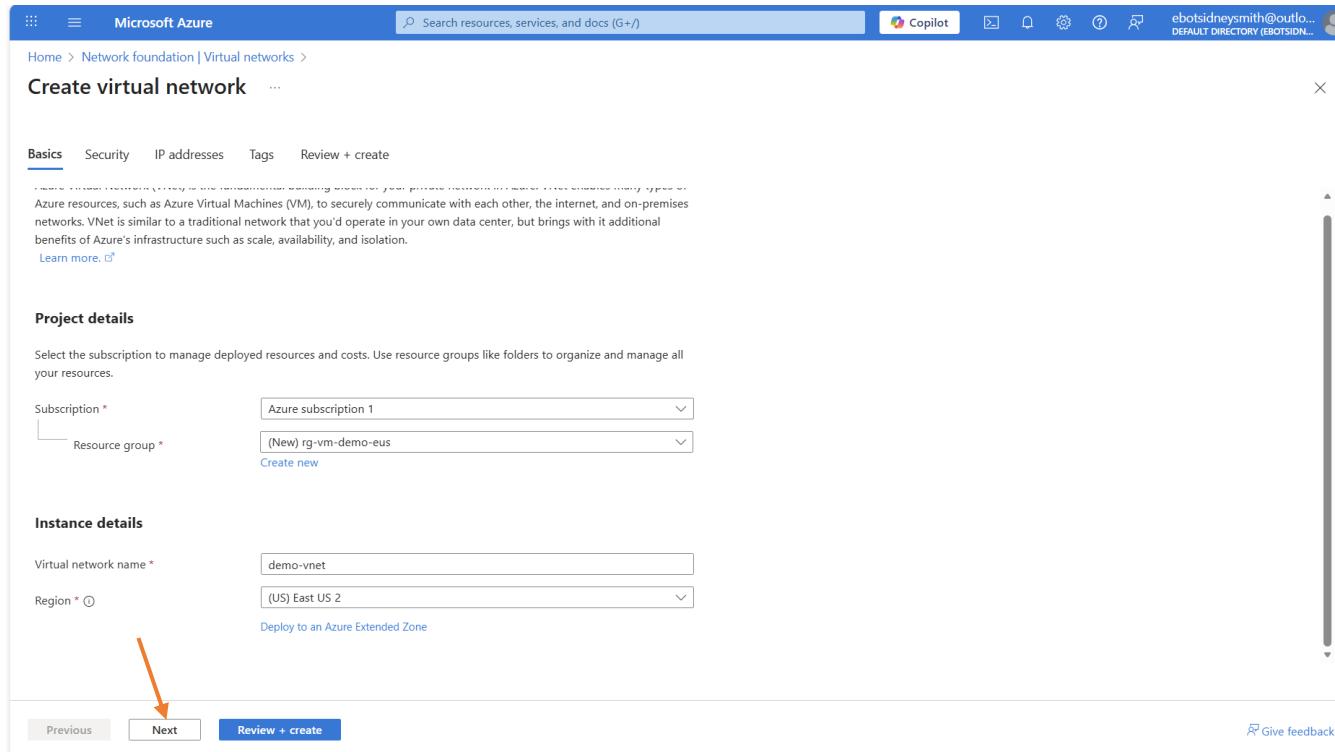
Virtual network name * demo-vnet

Region * (US) East US 2

Deploy to an Azure Extended Zone

Previous Next Review + create Give feedback

For the “Region”, select “East US 2”



Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security IP addresses Tags Review + create

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation.

Learn more

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Azure subscription 1

Resource group * (New) rg-vm-demo-eus

Create new

Instance details

Virtual network name * demo-vnet

Region * (US) East US 2

Deploy to an Azure Extended Zone

Previous Next Review + create Give feedback

Then click on “Next”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

DEFAULT DIRECTORY (EBOTSID...)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security IP addresses Tags Review + create

Enhance the security of your virtual network with these additional paid security services. [Learn more](#)

Virtual network encryption

Enable Virtual network encryption to encrypt traffic traveling within the virtual network. Virtual machines must have accelerated networking enabled. Traffic to public IP addresses is not encrypted. [Learn more](#)

Virtual network encryption

Azure Bastion

Azure Bastion is a paid service that provides secure RDP/SSH connectivity to your virtual machines over TLS. When you connect via Azure Bastion, your virtual machines do not need a public IP address. [Learn more](#)

Enable Azure Bastion

Azure Firewall

Azure Firewall is a managed cloud-based network security service that protects your Azure Virtual Network resources. [Learn more](#)

Next  Review + create Give feedback

On this page, we will leave everything as default and click on “Next”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

DEFAULT DIRECTORY (EBOTSID...)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security IP addresses Tags Review + create

Configure your virtual network address space with the IPv4 and IPv6 addresses and subnets you need. [Learn more](#)

Define the address space of your virtual network with one or more IPv4 or IPv6 address ranges. Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet. [Learn more](#)

Allocate using IP address pools. [Learn more](#)

+ Add a subnet

Subnets	IP address range	Size	NAT gateway
default	10.0.0.0 - 10.0.0.255	/24 (256 addresses)	-

Add IPv4 address space

Previous Next Review + create Give feedback

On this page, this is where we add our CIDR block to the VNet. And our CIDR block is going to be “**10.0.0.0/16**”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security **IP addresses** Tags Review + create

Configure your virtual network address space with the IPv4 and IPv6 addresses and subnets you need. [Learn more](#)

Define the address space of your virtual network with one or more IPv4 or IPv6 address ranges. Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet. [Learn more](#)

Allocate using IP address pools. [Learn more](#)

+ Add a subnet

Subnets	IP address range	Size	NAT gateway
default	10.0.0.0 - 10.0.0.255	/24 (256 addresses)	-

Add IPv4 address space | ↴

Previous Next **Review + create** Give feedback

Then for “**Subnet**”, let us remove the default subnet

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security **IP addresses** Tags Review + create

Configure your virtual network address space with the IPv4 and IPv6 addresses and subnets you need. [Learn more](#)

Define the address space of your virtual network with one or more IPv4 or IPv6 address ranges. Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet. [Learn more](#)

Allocate using IP address pools. [Learn more](#)

+ Add a subnet

Subnets	IP address range	Size	NAT gateway
---------	------------------	------	-------------

Add IPv4 address space | ↴

Previous **Next** Review + create Give feedback

We will create our subnet in the next lecture. Click on “**Next**”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDN...)

Home > Network foundation | Virtual networks >

Create virtual network ...

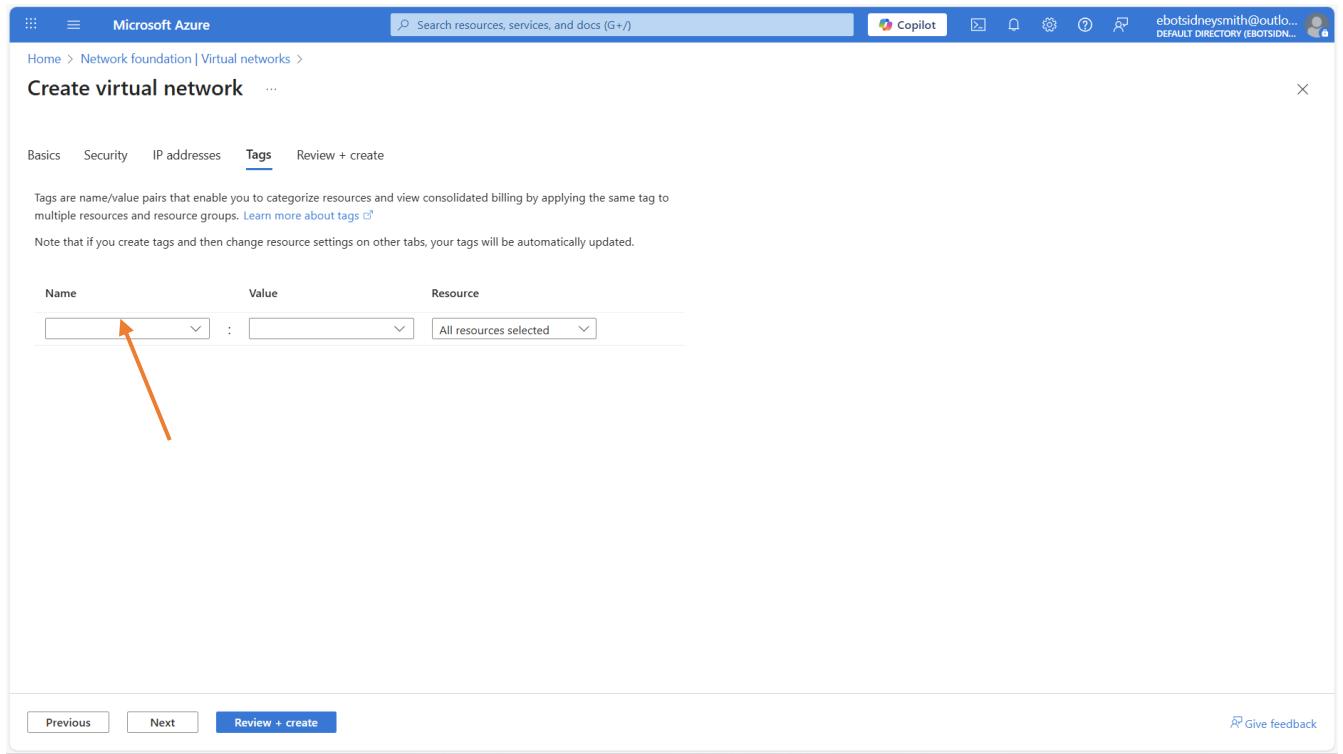
Basics Security IP addresses Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
<input type="text"/>	<input type="text"/>	All resources selected

Previous Next Review + create Give feedback



On this page, we will add a tag name. On “**Name**”, we will type “**Name**”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDN...)

Home > Network foundation | Virtual networks >

Create virtual network ...

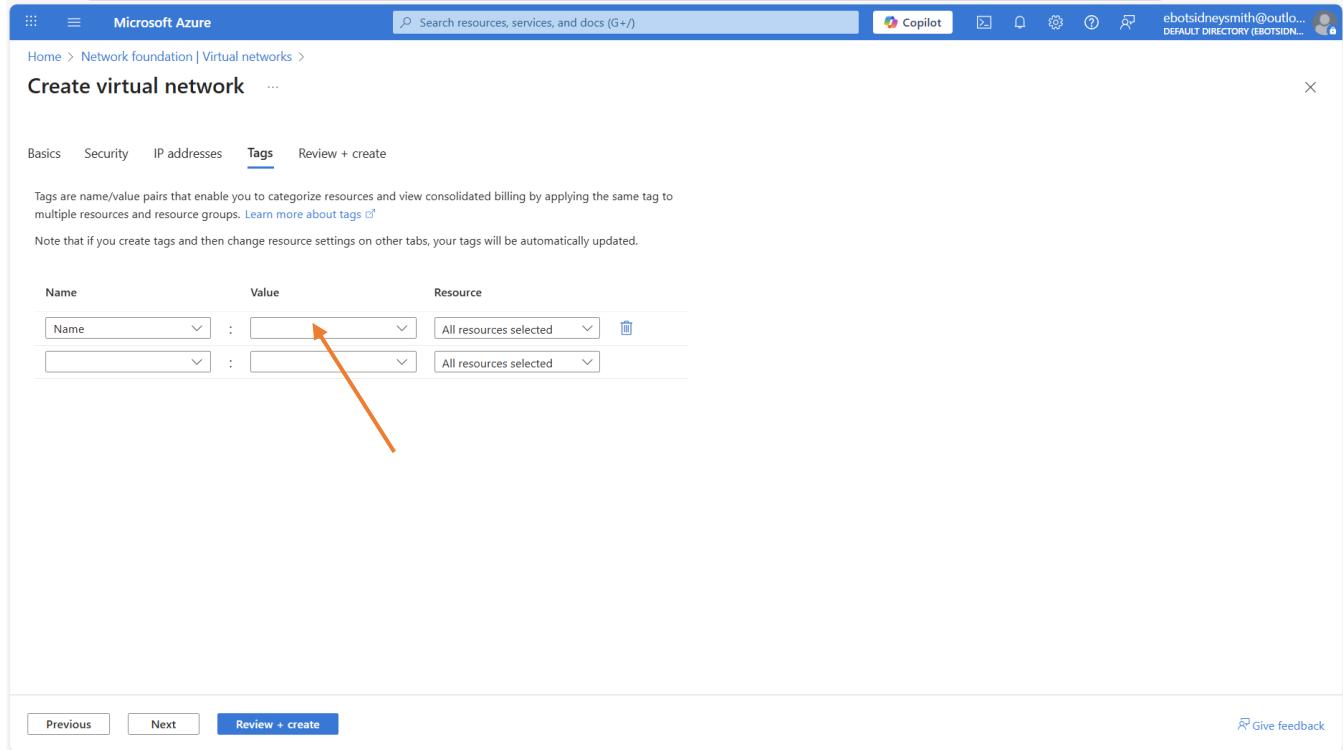
Basics Security IP addresses Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
<input type="text"/> Name	<input type="text"/> : demo-vnet	All resources selected
<input type="text"/>	<input type="text"/>	All resources selected

Previous Next Review + create Give feedback



Then on “**Value**”, we will enter “**demo-vnet**”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDN...)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security IP addresses Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
Name	: demo-vnet	All resources selected <input checked="" type="checkbox"/>
	:	All resources selected <input checked="" type="checkbox"/>

Previous Next Review + create Give feedback

And under “Resource”, we will enter “All Resources Selected”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDN...)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security IP addresses Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
Name	: demo-vnet	All resources selected <input checked="" type="checkbox"/>
	:	All resources selected <input checked="" type="checkbox"/>

Previous Next Review + create Give feedback

Then, click on “Next”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDNEY...)

Home > Network foundation | Virtual networks >

Create virtual network

Validation passed

Basics Security IP addresses Tags Review + create

[View automation template](#)

Basics

Subscription	Azure subscription 1
Resource Group	rg-vm-demo-eus
Name	demo-vnet
Region	East US 2

Security

Azure Bastion	Disabled
Azure Firewall	Disabled
Azure DDoS Network Protection	Disabled

IP addresses

Address space	10.0.0.0/16 (65,536 addresses)
---------------	--------------------------------

Tags

Name	demo-vnet
Name	demo-vnet

Previous Next Create Download a template for automation Give feedback



Click on “Create”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDNEY...)

Home > demo-vnet-1764018612459 | Overview

Deployment

Overview

Your deployment is complete

Deployment name : demo-vnet-1764018612459
Subscription : Azure subscription 1
Resource group : rg-vm-demo-eus

Start time : 11/24/2025, 4:10:16 PM
Correlation ID : 04861b83-4318-4edb-801e-db3c9b248bdc

Deployment details

Next steps

Go to resource

Give feedback

Tell us about your experience with deployment

Add or remove favorites by pressing **Ctrl+Shift+F**

Cost management
Get notified to stay within your budget and prevent unexpected charges on your bill.
[Set up cost alerts >](#)

Microsoft Defender for Cloud
Secure your apps and infrastructure
[Go to Microsoft Defender for Cloud >](#)

Free Microsoft tutorials
[Start learning today >](#)

Work with an expert
Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support.
[Find an Azure expert >](#)



The deployment has been completed. Click on “Go to Resource”

The screenshot shows the Microsoft Azure Virtual Network Overview page for a resource named 'demo-vnet'. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Settings, Address space, Connected devices, Subnets, Bastion, DDoS protection, Firewall, Microsoft Defender for Cloud, Network manager, DNS, Peerings, Service endpoints, and Private endpoints. The main content area displays the following details:

Setting	Value
Resource group (move)	: rg-vm-demo-eus
Location (move)	: East US 2
Subscription (move)	: Azure subscription 1
Subscription ID	: dd5d4252-9ca5-4581-9dc7-b63c0788bde7
Address space	: 10.0.0.0/16
Subnets	: 0 subnets
DNS servers	: Azure provided DNS service
BGP community string	: Configure
Virtual network ID	: dfba9366-d437-4212-9df9-8b8e452bda02

Below this, there is a 'Tags (edit)' section with the value 'Name : demo-vnet'. The 'Capabilities (5)' tab is selected, showing the following options:

- DDoS protection**: Configure additional protection from distributed denial of service attacks. Status: Not configured.
- Azure Firewall**: Protect your network with a stateful L3-L7 firewall. Status: Not configured.
- Peering**: Seamlessly connect two or more virtual networks. Status: Not configured.
- Private endpoints**: Privately access Azure services without sending traffic across internet. Status: Not configured.
- Microsoft Defender for Cloud**: Strengthen the security posture of your environment. Status: Not configured.

We have successfully created the VNET. In the next lecture, we will create our public and private subnet.

2.2. How to Create Public and Private Subnets in Azure VNet

In this tutorial, you'll learn how to divide your Azure VNet into public and private subnets. This setup is essential for building secure applications where frontend and backend services are isolated and follow best practices.

In this lecture, we will create the public and private subnets in the VNet we created in the previous lecture. Make sure you select the VNet we created in the previous lecture called "**demo-vnet**"

The screenshot shows the Microsoft Azure portal interface. On the left, there's a navigation pane with 'Network foundation | Virtual networks' selected. Under 'Virtual networks', 'demo-vnet' is listed. A tooltip says 'You are viewing a new version of Browse experience. Click here to access the old experience.' On the right, the main panel shows the 'demo-vnet' virtual network details. The 'Overview' tab is selected. A red arrow points to the 'Settings' link in the sidebar under 'Essentials'. Other tabs include 'Topology', 'Properties', and 'Capabilities (5)'. Under 'Capabilities', there are sections for 'DDoS protection' and 'Azure Firewall', both marked as 'Not configured'.

We are already in the VNet. Once you are in the VNet, click on "**Settings**"

Network foundation | Virtual networks

demo-vnet Virtual network

Overview

You are viewing a new version of Browse experience. Click here to access the old experience.

Name: demo-vnet

Virtual networks

- NAT gateways
- Public IP addresses
- Network interfaces
- Network security groups
- Application security groups
- Bastions
- Route tables
- Route servers

Private Link

DNS

Monitoring and management

Showing 1 - 1 of 1. Display count: auto

Add or remove favorites by pressing **Ctrl+Shift+F**

Search resources, services, and docs (G+)

Copilot

Diagnose issues with this virtual network

Move Delete Refresh Give feedback

Essentials

- Resource group (move) rg-vm-demo-eus
- Address space 10.0.0.0/16
- Location (move) East US 2
- Subscription (move) Azure subscription 1
- Subscription ID dd5d4252-9ca5-4581-9dc7-b63c0788bd...
- DNS servers Azure provided DNS service
- BGP community string Configure
- Virtual network ID dfba9366-d437-4212-9df9-8b8e452bda02

Tags (edit) Name : demo-vnet

Topology Properties Capabilities (5) Recommendations Tutorials

DDoS protection Configure additional protection from distributed denial of service

Azure Firewall Protect your network with a stateful L3-L7 firewall. Not configured

Add or remove favorites by pressing **Ctrl+Shift+F**

Then click on “Subnets”

demo-vnet | Subnets

Virtual network

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Address space

Connected devices

Subnets

Bastion

DDoS protection

Firewall

Microsoft Defender for Cloud

Network manager

DNS

Peerings

Service endpoints

Private endpoints

Scenario: *new 90 - Notepad++

+ Subnet Refresh Manage users Delete Export to CSV

Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet.

Search subnet:

Name ↑	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
No items found						

No subnets

Give feedback

Add or remove favorites by pressing **Ctrl+Shift+F**

Then click on “Subnet”

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default Private Public

Name *

IPv4

Include an IPv4 address space

IPv4 address range 10.0.0 - 10.0.255.255

Starting address * 10.0.0

Size /24 (256 addresses)

Subnet address range 10.0.0 - 10.0.0.255

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add **Cancel** [Give feedback](#)

Here we are going to add the settings for our subnets. On “**Subnet Purpose**”, we are going to leave it as “**Default**”.

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default Private Public

Name *

IPv4

Include an IPv4 address space

IPv4 address range 10.0.0 - 10.0.255.255

Starting address * 10.0.0

Size /24 (256 addresses)

Subnet address range 10.0.0 - 10.0.0.255

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add **Cancel** [Give feedback](#)

And for the “**Name**”, we are going to call it “**public-az1**”

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default

Name public-az1

IPv4

Include an IPv4 address space

IPv4 address range 10.0.0.0/16
10.0.0.0 - 10.0.255.255

Starting address * 10.0.0.0

Size /24 (256 addresses)

Subnet address range 10.0.0.0 - 10.0.0.255

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add Cancel Give feedback

Under “**IPV4**”, we have the CIDR block for our “**VPC**”. We will leave the CIDR block as it is and scroll down to “**Private Subnet**”.

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Security

Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway None

A NAT gateway is recommended for outbound internet access from subnets. Edit the subnet to add a NAT gateway. [Learn more](#)

Network security group None

Route table None

Service Endpoints

Create service endpoint policies to allow traffic to specific azure resources from your virtual network over service endpoints. [Learn more](#)

Services	Remove service endpoint
Select a service endpoint	

Add Cancel Give feedback

On “**Private Subnet**”, do not check that box. Since this is the public subnet.

Add a subnet

Security
Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway: None

A NAT gateway is recommended for outbound internet access from subnets. Edit the subnet to add a NAT gateway. [Learn more](#)

Network security group: None

Route table: None

Service Endpoints
Create service endpoint policies to allow traffic to specific azure resources from your virtual network over service endpoints. [Learn more](#)

Services: Select a service endpoint

Remove service endpoint

Subnet Delegation
Delegate subnet to a service

Delegate subnet to a service: None

Network Policy for Private Endpoints
The network policy affects the types of network policies that control traffic going to the private endpoints in this subnet. [Learn more](#)

Private endpoint network policy: Disabled

Add **Cancel** [Give feedback](#)

No subnets

Under “**Security**”, we will leave everything as default. Then click on “**Add**”

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
public-az1	10.0.0.0/24	-	251	-	-	-

Showing 1 subnet

The Public subnet has been created. Let us create the second public subnet.

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

demo-vnet | Subnets

Virtual network

+ Subnet Refresh Manage users Delete Export to CSV

Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet.

Name ↑	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
public-az1	10.0.0.0/24	-	251	-	-	-

Showing 1 subnet

Add or remove favorites by pressing **Ctrl+Shift+F**

Give feedback

Click on “Subnet”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

demo-vnet | Subnets

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default

Name *

IPv4

Include an IPv4 address space

IPv4 address range
10.0.0.0 - 10.0.255.255

Starting address *

Size
10.0.1.0 - 10.0.1.255

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add Cancel

Give feedback

We will leave “Subnet purpose” as “Default”, then on “Name”, we will enter “public-az2”

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default

Name * public-az2

IPv4

Include an IPv4 address space

IPv4 address range 10.0.0.0/16
10.0.0.0 - 10.0.255.255

Starting address * 10.0.1.0

Size /24 (256 addresses)

Subnet address range 10.0.1.0 - 10.0.1.255

IPv6

Include an IPv6 address space

This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

Note: After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add **Cancel** **Give feedback**

Under “**IPv4**”, this is the CIDR block for the VPC. And the CIDR block for the subnet, it will be **“10.0.1.0/24”**

Add a subnet

IPv6

Include an IPv6 address space

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

Note: After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Security

Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway None

Network security group None

Route table None

Service Endpoints

Create service endpoint policies to allow traffic to specific azure resources from your virtual network over service endpoints. [Learn more](#)

Services Remove service endpoint

Select a service endpoint

Add **Cancel** **Give feedback**

For the “**IPv6**”, we will leave it as default.

The screenshot shows the Microsoft Azure portal interface. On the left, there's a navigation sidebar with various options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Settings, Address space, Connected devices, Subnets, Bastion, DDoS protection, Firewall, Microsoft Defender for Cloud, Network manager, DNS, Peerings, Service endpoints, Private endpoints, and Droppers. The 'Subnets' option under 'Connected devices' is selected.

The main area displays a 'demo-vnet | Subnets' page for a virtual network named 'demo-vnet'. It shows one subnet named 'public-az1' with the IPv4 range 10.0.0.0/24. A search bar at the top right says 'Search resources, services, and docs (G+)'.

A modal window titled 'Add a subnet' is open. It has sections for 'IPv6' (disabled), 'Private subnet' (disabled), 'Security' (NAT gateway set to 'None'), and 'Service Endpoints' (Services dropdown set to 'Select a service endpoint'). At the bottom of the modal are 'Add' and 'Cancel' buttons, with an orange arrow pointing to the 'Add' button.

Under “**Private Subnet**”, this subnet is public subnet. So, we will leave the box unchecked.

This screenshot is identical to the previous one, but the 'Private subnet' checkbox in the 'Private subnet' section of the 'Add a subnet' dialog is now unchecked. An orange arrow points from the previous screenshot's note to this checkbox.

We will leave the rest as default and click on “**Add**”

The screenshot shows the Microsoft Azure portal interface for managing subnets. The left sidebar navigation is visible, and the main content area is titled "demo-vnet | Subnets". The subnets table shows two entries:

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
public-az1	10.0.0.0/24	-	251	-	-	-
public-az2	10.0.1.0/24	-	251	-	-	-

An orange arrow points to the "public-az2" row.

The second public subnet has been added. Now, we will create the private subnets

The screenshot shows the Microsoft Azure portal interface for managing subnets. The left sidebar navigation is visible, and the main content area is titled "demo-vnet | Subnets". The subnets table shows two entries: "public-az1" and "public-az2". Above the table, there is a button labeled "+ Subnet". An orange arrow points to this button.

Let us create our first private subnet. Click on “Subnet”

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default Private subnet

Name *

IPv4

Include an IPv4 address space

IPv4 address range 10.0.0.0 - 10.0.255.255

Starting address *

Size

Subnet address range

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add **Cancel** [Give feedback](#)

We will still leave “**Subnet Purpose**” as “**Default**”. Then on “**Name**”, we will use “**private-app-az1**”

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default Private subnet

Name *

IPv4

Include an IPv4 address space

IPv4 address range 10.0.0.0 - 10.0.255.255

Starting address *

Size

Subnet address range

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add **Cancel** [Give feedback](#)

Under “**IPv4**”, the CIDR block of our VPC is “**10.0.0.0/16**” and our subnet is “**10.0.2.0/24**”. Then, we will leave “**IPv6**” as default

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default

Name * private-app-az1

IPv4

Include an IPv4 address space

IPv4 address range [10.0.0.0/16](#)
10.0.0.0 - 10.0.255.255

Starting address * [10.0.2.0](#)

Size [/24 \(256 addresses\)](#)

Subnet address range [10.0.2.0 - 10.0.2.255](#)

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add Cancel Give feedback

Then, scroll down to “Private Subnet”

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the Internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Security

NAT gateway [None](#)

Network security group [None](#)

Route table [None](#)

Service Endpoints

Create service endpoint policies to allow traffic to specific Azure resources from your virtual network over service endpoints. [Learn more](#)

Services [Select a service endpoint](#) Remove service endpoint

Subnet Delegation

Add Cancel Give feedback

Since this is a private subnet, check the box

Add a subnet

Private subnet
Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

Security
Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway: None

Network security group: None

Route table: None

Service Endpoints
Create service endpoint policies to allow traffic to specific Azure resources from your virtual network over service endpoints. [Learn more](#)

Services: Select a service endpoint

Subnet Delegation

Add **Cancel** [Give feedback](#)

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
public-az1	10.0.0.0/24	-	251	-	-	-
public-az2	10.0.1.0/24	-	251	-	-	-

Then, we will leave the rest of the settings as default and click on “Add”

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
public-az1	10.0.0.0/24	-	251	-	-	-
public-az2	10.0.1.0/24	-	251	-	-	-
private-app-az1	10.0.2.0/24	-	251	-	-	-

The first private subnet has been added. Let us add the second private subnet.

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default

Name * default

IPv4

Include an IPv4 address space IPv4 address range [10.0.0/16](#) 10.0.0 - 10.0.255.255 Starting address * [10.0.3.0](#) Size [/24 \(256 addresses\)](#) Subnet address range [10.0.3.0 - 10.0.3.255](#)

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access) i After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

[Add](#) [Cancel](#) [Give feedback](#)

Click on “Subnet”

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default

Name * default

IPv4

Include an IPv4 address space IPv4 address range [10.0.0/16](#) 10.0.0 - 10.0.255.255 Starting address * [10.0.3.0](#) Size [/24 \(256 addresses\)](#) Subnet address range [10.0.3.0 - 10.0.3.255](#)

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access) i After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

[Add](#) [Cancel](#) [Give feedback](#)

We will leave the “**Subnet Purpose**” as “**Default**”. One the “**Name**”, we will use the name “**private-app-az2**”. Then for the CIDR block, we will leave it as “**10.0.0.0/16**” and for the “**Subnet**”, we will use “**10.0.3.0/24**”. And we will leave the “**IPv6**” as default.

Scroll down to “Private Subnet”

We will check the box since this is a private subnet.

Add a subnet

Private subnet
Create subnets to segment the virtual network address space of the subnet.

Security
Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group.

Service Endpoints
Create service endpoint policies to allow traffic to specific Azure resources over service endpoints.

Subnet Delegation

Add **Cancel**

Then leave the rest of the setting as default. Then click on “Add”

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
public-az1	10.0.0.0/24	-	251	-	-	
public-az2	10.0.1.0/24	-	251	-	-	
private-app-az1	10.0.2.0/24	-	251	-	-	
private-app-az2	10.0.3.0/24	-	251	-	-	

We have successfully added the second private subnet. We can now add the third private subnet.

The screenshot shows the Microsoft Azure portal interface for managing subnets. On the left, there's a navigation sidebar with various options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Settings, Address space, Connected devices, and Subnets. The Subnets option is currently selected. The main content area displays a table of existing subnets:

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
public-az1	10.0.0.0/24	-	251	-	-	-
public-az2	10.0.1.0/24	-	251	-	-	-
private-app-az1	10.0.2.0/24	-	251	-	-	-
private-app-az2	10.0.3.0/24	-	251	-	-	-

At the top of the main content area, there's a toolbar with a 'Subnet' button, which is highlighted with a red arrow. Below the toolbar, there's a search bar labeled 'Search subnets'.

Click on “Subnet”

The screenshot shows the 'Add a subnet' dialog box. It has two main sections: 'IPv4' and 'IPv6'. In the IPv4 section, the 'Include an IPv4 address space' checkbox is checked, and the 'IPv4 address range' dropdown is set to '10.0.0.0/16'. The 'Starting address' field is '10.0.4.0' and the 'Size' field is '/24 (256 addresses)'. The 'Subnet address range' field is '10.0.4.0 - 10.0.4.255'. In the IPv6 section, there's a note that 'This virtual network has no IPv6 address ranges'. Under 'Private subnet', there's a note about enabling outbound access and a warning about private subnets becoming default after March 31, 2026. At the bottom, there are 'Add' and 'Cancel' buttons.

We will leave “**Subnet Purpose**” as “**Default**”. Then, we will call the subnet “**private-data-az1**”. On “**IPv4**”, we are going to use the CIDR block “**10.0.4.0/24**” for the subnet IP range. Then we will leave “**IPv6**” as default.

The screenshot shows the Microsoft Azure portal interface. On the left, the navigation pane is open, showing the 'Subnets' section under 'demo-vnet'. The main area displays a list of existing subnets: 'public-az1' (10.0.0.0/24), 'public-az2' (10.0.1.0/24), 'private-app-az1' (10.0.2.0/24), and 'private-app-az2' (10.0.3.0/24). A search bar at the top right says 'Search resources, services, and docs (G+)'. On the far right, there's a 'Copilot' button and a user profile.

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose Default

Name * private-data-az1

IPv4

Include an IPv4 address space

IPv4 address range 10.0.0 - 10.0.255.255

Starting address *

Size

Subnet address range

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

i After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add **Cancel** **Give feedback**

Scroll down to “Public Subnet”

This screenshot is identical to the one above, but with a red arrow pointing to the 'Enable private subnet (no default outbound access)' checkbox. The rest of the interface and text are the same.

Add a subnet

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

i After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Security

Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway

i A NAT gateway is recommended for outbound internet access from subnets. Edit the subnet to add a NAT gateway. [Learn more](#)

Network security group

Route table

Service Endpoints

Create service endpoint policies to allow traffic to specific Azure resources over service endpoints. [Learn more](#)

Services **Remove service endpoint**

Select a service endpoint

Subnet Delegation

Add **Cancel** **Give feedback**

Check the box “Enable Private subnet” since this is a private subnet.

Add a subnet

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Security

Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway

A NAT gateway is recommended for outbound internet access from subnets. Edit the subnet to add a NAT gateway. [Learn more](#)

Network security group

Route table

Service Endpoints

Create service endpoint policies to allow traffic to specific Azure resources from your virtual network over service endpoints. [Learn more](#)

Services Remove service endpoint

Subnet Delegation

Add **Cancel** [Give feedback](#)

Then leave the rest of the settings as default and click on “Add”

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table	Actions
public-az1	10.0.0.0/24	-	251	-	-	-	
public-az2	10.0.1.0/24	-	251	-	-	-	
private-app-az1	10.0.2.0/24	-	251	-	-	-	
private-app-az2	10.0.3.0/24	-	251	-	-	-	
private-data-az1	10.0.4.0/24	-	251	-	-	-	

Showing 5 subnets [Give feedback](#)

We have added the third private subnet. We can now add our last private subnet.

The screenshot shows the Microsoft Azure portal interface for managing subnets in a virtual network named 'demo-vnet'. On the left, a navigation menu is visible with various options like Overview, Activity log, and Subnets. The Subnets section is currently selected. The main content area displays a table of existing subnets, each with columns for Name, IPv4, IPv6, Available IPs, Delegated to, Security group, and Route table. A red arrow points to the '+ Subnet' button at the top left of the table area.

Click on “Subnet”

The screenshot shows the 'Add a subnet' dialog box overlaid on the Azure Subnets page. The dialog has sections for 'Subnet purpose' (set to 'Default'), 'Name' (set to 'default'), 'IPv4' (checkbox checked, address range set to '10.0.0.0/16'), and 'IPv6' (checkbox unchecked). A red arrow points to the 'Name' input field, and another red arrow points to the 'IPv4' checkbox.

On the “Subnet Purpose”, we will leave it as “Default”. For the name of the subnet, we will use “**private-data-az2**”. On “IPv4”, we are going to use the CIDR block “**10.0.5.0/24**” for the subnet IP range. Then we will leave “IPv6” as default.

Add a subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose

Name *

IPv4

Include an IPv4 address space

IPv4 address range 10.0.0 - 10.0.255.255

Starting address *

Size

Subnet address range

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Add **Cancel** **Give feedback**

Scroll down to “Public Subnet”

Add a subnet

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Security

Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway

A NAT gateway is recommended for outbound internet access from subnets. Edit the subnet to add a NAT gateway. [Learn more](#)

Network security group

Route table

Service Endpoints

Create service endpoint policies to allow traffic to specific azure resources from your virtual network over service endpoints. [Learn more](#)

Services Remove service endpoint

Subnet Delegation

Add **Cancel** **Give feedback**

Check the box “Enable Private subnet” since this is a private subnet.

Add a subnet

Private subnet
Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

Security
Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway: None

Service Endpoints
Create service endpoint policies to allow traffic to specific Azure resources over service endpoints. [Learn more](#)

Subnet Delegation

Add **Cancel** **Give feedback**

Name	IPv4
public-az1	10.0.0.0/24
public-az2	10.0.1.0/24
private-app-az1	10.0.2.0/24
private-app-az2	10.0.3.0/24
private-data-az1	10.0.4.0/24

Then leave the rest of the settings as default and click on “Add”

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
public-az1	10.0.0.0/24	-	251	-	-	-
public-az2	10.0.1.0/24	-	251	-	-	-
private-app-az1	10.0.2.0/24	-	251	-	-	-
private-app-az2	10.0.3.0/24	-	251	-	-	-
private-data-az1	10.0.4.0/24	-	251	-	-	-
private-data-az2	10.0.5.0/24	-	251	-	-	-

We have added the fourth and last private subnet. So, we have successfully created the public and private subnets in this VNet.

2.3. How to Create a NAT Gateway for Private Subnets in Azure

Learn how to configure a NAT Gateway in Azure to allow outbound internet access from your private subnets—without exposing them publicly. This is key for enabling updates, external calls, or package installs from private resources.

In this lecture, we are going to create a NAT gateway that will allow our private subnets to have access to the internet.

The screenshot shows the Microsoft Azure portal interface. The user is on the 'Subnets' page of a virtual network named 'dev-vnet'. The left sidebar includes options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Settings, Address space, Connected devices, Subnets (which is selected), Bastion, DDoS protection, Firewall, Microsoft Defender for Cloud, Network manager, DNS, Peerings, Service endpoints, and Private endpoints. The main content area displays a table of subnets:

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
public-az1	10.0.0.0/24	-	251	-	-	[Edit] [Delete]
public-az2	10.0.1.0/24	-	251	-	-	[Edit] [Delete]
private-app-az1	10.0.2.0/24	-	251	-	-	[Edit] [Delete]
private-app-az2	10.0.3.0/24	-	251	-	-	[Edit] [Delete]
private-data-az1	10.0.4.0/24	-	251	-	-	[Edit] [Delete]
private-data-az2	10.0.5.0/24	-	251	-	-	[Edit] [Delete]

To create the NAT gateway, search for “**NAT gateways**”

Microsoft Azure

NAT Gateways

All Services (24) Marketplace (2) More (4)

Services

- NAT gateways
- Arc gateways
- Internet Gateways (Operator Nexus)
- Application gateways

Marketplace

- NAT gateway
- VNS3 NATe 6.x - NAT Gateway Appliance

Documentation

- Source Network Address Translation (SNAT) for outbound connections - Azure Load Balancer
- Azure virtual network service endpoints
- Quickstart: Create a public load balancer - Azure portal - Azure Load Balancer
- Virtual networks and virtual machines in Azure

Continue searching in Microsoft Entra ID

Searching all subscriptions. Give feedback

https://portal.azure.com/#view/HubsExtension/AssetMenuBlade/~/NATGateways/assetName/NetworkFoundation/extensionName/Microsoft_Azure_Network

Select “NAT gateways”

Microsoft Azure

Search resources, services, and docs (G+)

Preview ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSIDNEY)

Home > Network foundation

Network foundation | NAT gateways

+ Create Manage view Refresh Export to CSV Open query Assign tags Add to service group Group by none

You are viewing a new version of Browse experience. Click here to access the old experience.

Filter for any field... Subscription equals all Resource Group equals all Location equals all Add filter

No NAT gateways to display

Use Azure NAT Gateway to provide highly resilient and secure outbound connectivity to the internet from private instances in your virtual network. NAT gateway is a fully managed network address translation service that dynamically scales outbound connectivity and helps avoid connectivity failures due to port exhaustion. You can use a single instance to scale across multiple VMs in your network with predictable outbound addresses.

+ Create Learn more

Showing 1 - 0 of 0. Display count: auto ✓

Add or remove favorites by pressing Ctrl+Shift+F

Give feedback

Click on “Create”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

Home > Network foundation | NAT gateways >

Create network address translation (NAT) gateway ...

Basics Outbound IP Subnet Tags Review + create

Azure NAT gateway can be used to translate outbound flows from a virtual network to the public internet.

Learn more about NAT gateways. ↗

Project details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Azure subscription 1

Resource group * Create new

Instance details

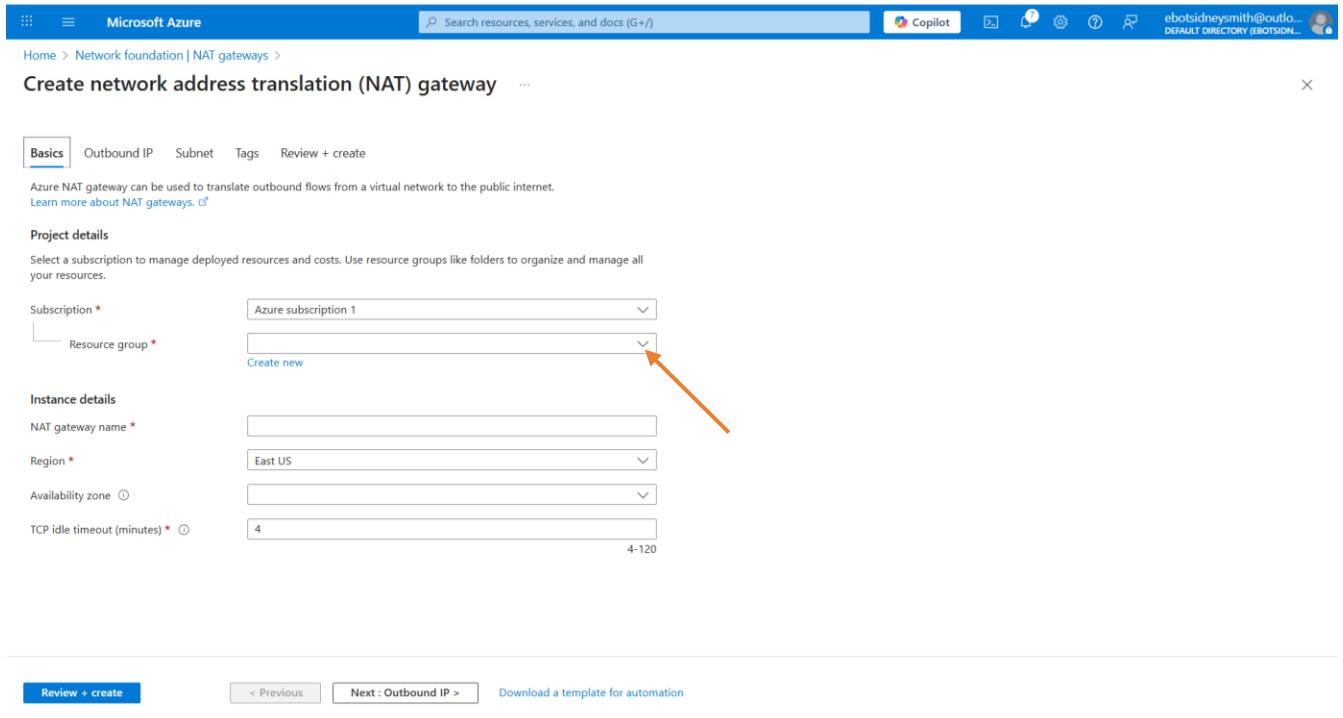
NAT gateway name *

Region * East US

Availability zone

TCP idle timeout (minutes) * 4 4-120

Review + create < Previous Next : Outbound IP > Download a template for automation



The first thing we will do is to select our “**Resource Group**”. To do this click on the drop down on “**Resource Group**”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

Home > Network foundation | NAT gateways >

Create network address translation (NAT) gateway ...

Basics Outbound IP Subnet Tags Review + create

Azure NAT gateway can be used to translate outbound flows from a virtual network to the public internet.

Learn more about NAT gateways. ↗

Project details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Azure subscription 1

Resource group * rg-vm-demo-eus

rg-vm-demo-eus

NetworkWatcherRG

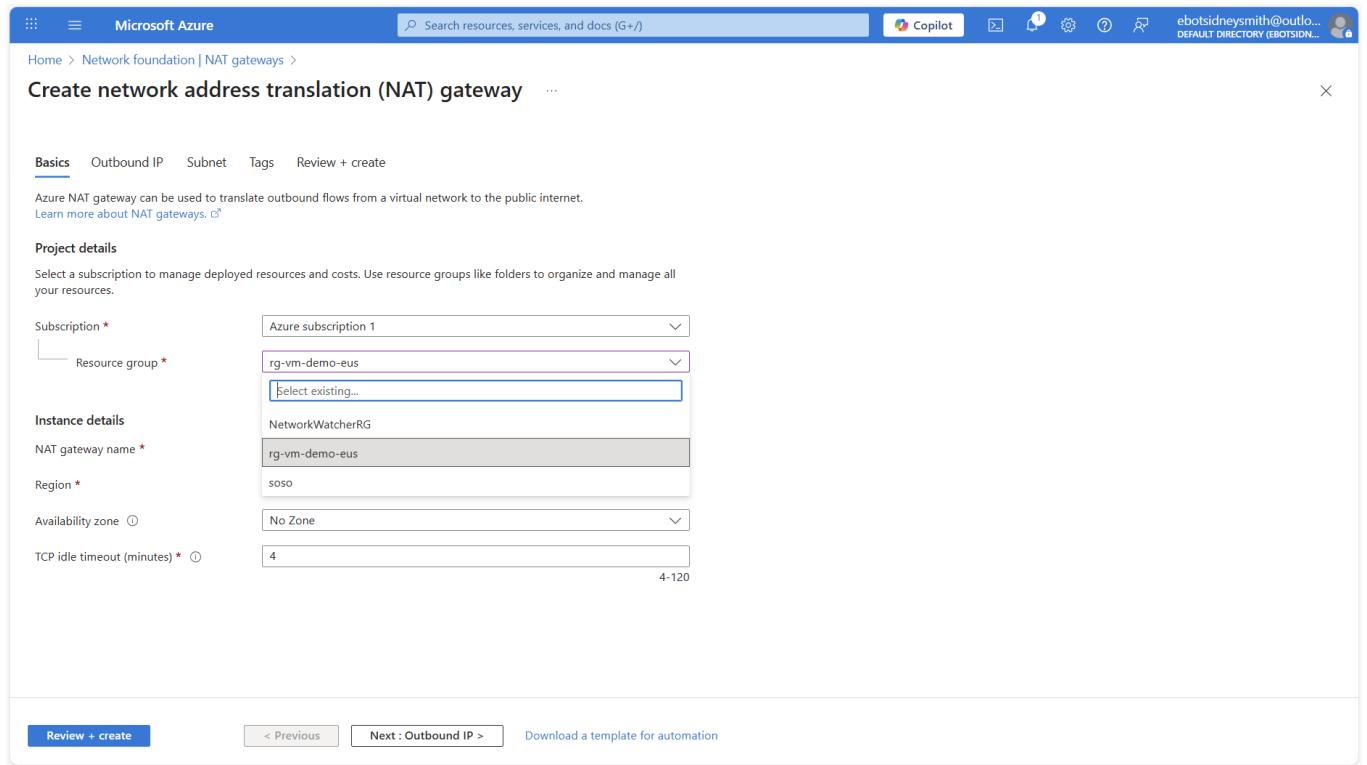
rg-vm-demo-eus

soso

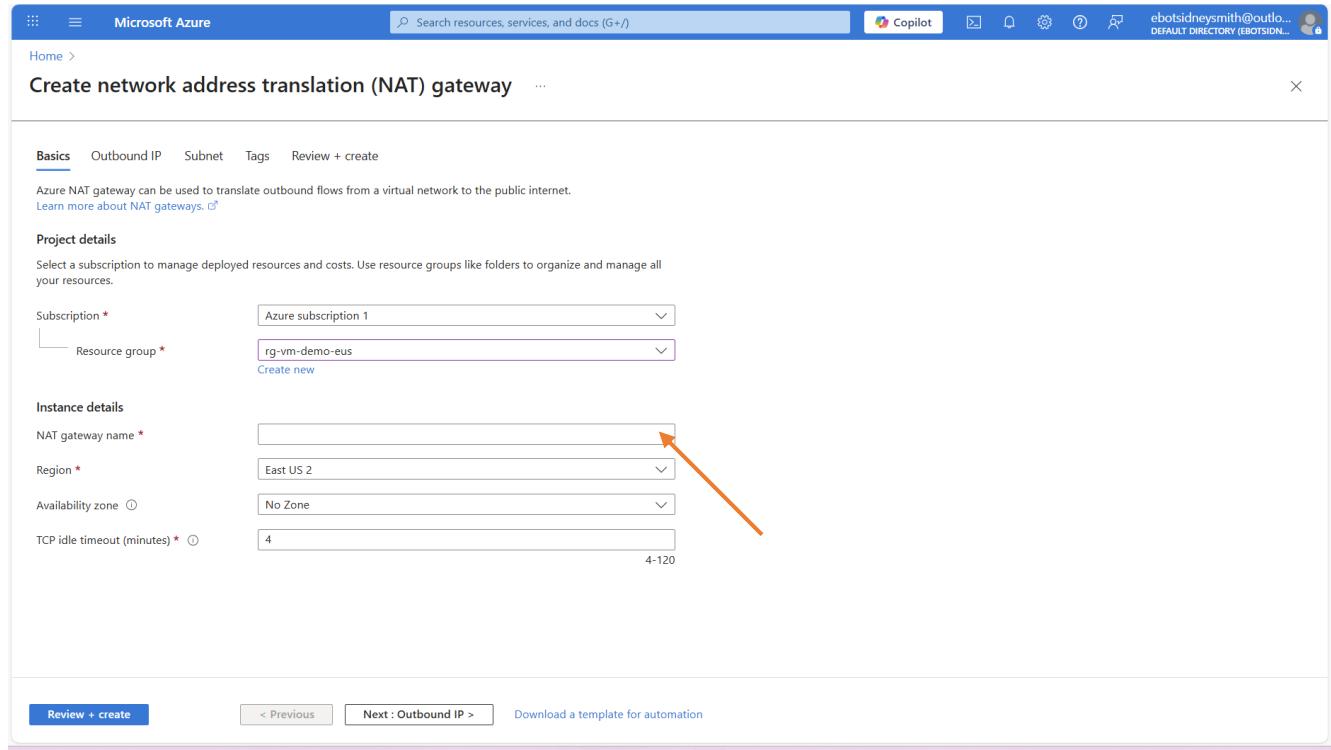
No Zone

4 4-120

Review + create < Previous Next : Outbound IP > Download a template for automation

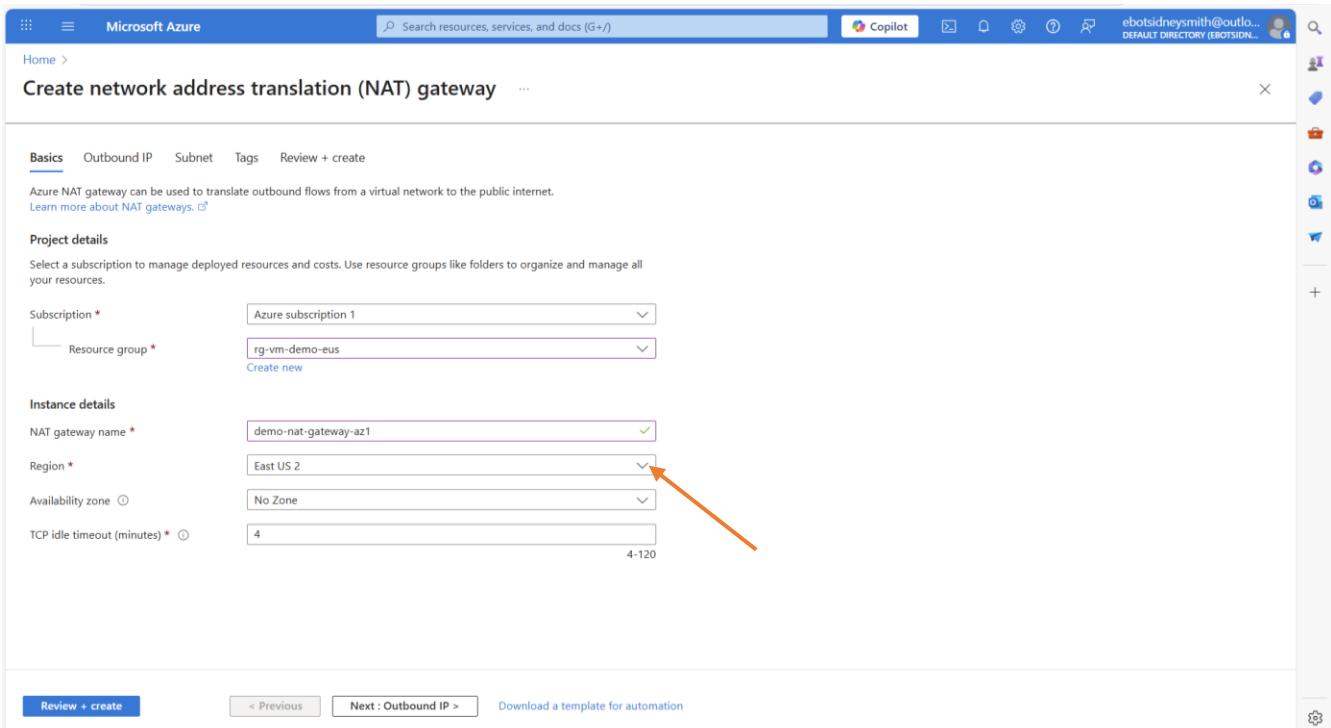


Select “**rg-vm-demo-eus**”, since this is the “**Resource Group**” we are using in this project



The screenshot shows the 'Create network address translation (NAT) gateway' wizard in the Microsoft Azure portal. The 'Basics' step is selected. The 'NAT gateway name' field contains 'demo-nat-gateway-az1'. Other fields include 'Region' set to 'East US 2', 'Availability zone' set to 'No Zone', and 'TCP idle timeout (minutes)' set to '4'. The 'Subscription' is 'Azure subscription 1' and the 'Resource group' is 'rg-vm-demo-eus'. Buttons at the bottom include 'Review + create', '< Previous', 'Next : Outbound IP >', and 'Download a template for automation'.

The next thing is to give the NAT gateway a name, we will call it “**demo-nat-gateway-az1**”



The screenshot shows the 'Create network address translation (NAT) gateway' wizard in the Microsoft Azure portal. The 'Basics' step is selected. The 'NAT gateway name' field contains 'demo-nat-gateway-az1'. The 'Region' dropdown is set to 'East US 2'. Other fields include 'Availability zone' set to 'No Zone' and 'TCP idle timeout (minutes)' set to '4'. The 'Subscription' is 'Azure subscription 1' and the 'Resource group' is 'rg-vm-demo-eus'. Buttons at the bottom include 'Review + create', '< Previous', 'Next : Outbound IP >', and 'Download a template for automation'.

The next thing is to choose our “**Region**”. I will be using “**East US 2**”

The screenshot shows the 'Create network address translation (NAT) gateway' wizard in the Microsoft Azure portal. The 'Basics' tab is selected. In the 'Project details' section, 'Subscription' is set to 'Azure subscription 1' and 'Resource group' is set to 'rg-vm-demo-eus'. In the 'Instance details' section, 'NAT gateway name' is 'demo-nat-gateway-az1', 'Region' is 'East US 2', 'Availability zone' is 'No Zone', and 'TCP idle timeout (minutes)' is '4'. At the bottom, there are buttons for 'Review + create', '< Previous', 'Next : Outbound IP >', and 'Download a template for automation'.

For “Availability Zone”, click on the drop down on “Availability Zone”.

The screenshot shows the 'Create network address translation (NAT) gateway' wizard in the Microsoft Azure portal. The 'Basics' tab is selected. In the 'Project details' section, 'Subscription' is set to 'Azure subscription 1' and 'Resource group' is set to 'rg-vm-demo-eus'. In the 'Instance details' section, 'NAT gateway name' is 'demo-nat-gateway-az1', 'Region' is 'East US 2', 'Availability zone' is currently 'No Zone', and 'TCP idle timeout (minutes)' is '4'. A dropdown menu for 'Availability zone' is open, showing options: 'No Zone', 'Zone 2', 'Zone 3', and 'Zone 1'. At the bottom, there are buttons for 'Review + create', '< Previous', 'Next : Outbound IP >', and 'Download a template for automation'.

Select “Zone 1”

Azure NAT gateway can be used to translate outbound flows from a virtual network to the public internet. [Learn more about NAT gateways.](#)

Project details

Select a subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Azure subscription 1

Resource group * rg-vm-demo-eus

Instance details

NAT gateway name * demo-nat-gateway-az1

Region * East US 2

Availability zone Zone 1

TCP idle timeout (minutes) * 4

Review + create < Previous Next : Outbound IP > Download a template for automation

For the “**TCP idle timeout (minutes)**”, I will leave the default, that is “**4**”. And click on “**Next: Outbound IP**”.

Configure which public IP addresses and public IP prefixes to use. Each outbound IP address provides 64,000 SNAT ports for the NAT gateway resource to use. You can add up to 16 outbound IP addresses.

Note: While you do not have to complete this step to create a NAT gateway, the NAT gateway will not be functional and any subnet with this NAT gateway will not have outbound connectivity until you have added at least one public IP address or public IP prefix. You can also add and reconfigure which IP addresses are included after creating the NAT gateway.

Public IP addresses 0 selected Create a new public IP address

Public IP Prefixes 0 selected Create a new public IP prefix

Review + create < Previous Next : Subnet > Download a template for automation

Here, we are going to create a public IP address for the NAT gateway. Click on “**Create a new public IP address**”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

DEFAULT DIRECTORY (EBOTSID...)

Home > Create network address translation (NAT) gateway ...

Basics Outbound IP Subnet Tags Review + create

Configure which public IP addresses and public IP prefixes to use. Each outbound IP address provides 64,000 SNAT ports for the NAT gateway resource to use. You can add up to 16 outbound IP addresses.

Note: While you do not have to complete this step to create a NAT gateway, the NAT gateway will not be functional and any subnet with this NAT gateway will not have outbound connectivity until you have added at least one public IP address or public IP prefix. You can also add and reconfigure which IP addresses are included after creating the NAT gateway.

Public IP addresses 0 selected Create a new public IP address

Public IP Prefixes

Add a public IP address

Name * demo-public-ip-nat-az1

SKU Standard Basic

Static IPs are assigned at the time the resource is created and released when the resource is deleted. Dynamic IPs are assigned when associating the IP to a resource and is released when you stop, restart, or delete a resource. Dynamic is only available for Basic SKU.

Assignment Dynamic Static

Availability zone 1

OK Cancel

Review + create < Previous Next : Subnet > Download a template for automation

Give the public IP address a name. I will call it “**demo-public-ip-nat-az1**”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

DEFAULT DIRECTORY (EBOTSID...)

Home > Create network address translation (NAT) gateway ...

Basics Outbound IP Subnet Tags Review + create

Configure which public IP addresses and public IP prefixes to use. Each outbound IP address provides 64,000 SNAT ports for the NAT gateway resource to use. You can add up to 16 outbound IP addresses.

Note: While you do not have to complete this step to create a NAT gateway, the NAT gateway will not be functional and any subnet with this NAT gateway will not have outbound connectivity until you have added at least one public IP address or public IP prefix. You can also add and reconfigure which IP addresses are included after creating the NAT gateway.

Public IP addresses 0 selected Create a new public IP address

Public IP Prefixes

Add a public IP address

Name * demo-public-ip-nat-az1

SKU Standard Basic

Static IPs are assigned at the time the resource is created and released when the resource is deleted. Dynamic IPs are assigned when associating the IP to a resource and is released when you stop, restart, or delete a resource. Dynamic is only available for Basic SKU.

Assignment Dynamic Static

Availability zone 1

OK Cancel

Review + create < Previous Next : Subnet > Download a template for automation

Leave the rest of the settings as default and click on “OK”

Screenshot of the Microsoft Azure 'Create network address translation (NAT) gateway' wizard, step 2: Outbound IP. The page shows configuration for outbound IP addresses and public IP prefixes. A red arrow points to the 'Next : Subnet >' button at the bottom of the page.

Then click on “Next: Subnet”

Screenshot of the Microsoft Azure 'Create network address translation (NAT) gateway' wizard, step 3: Subnet. The page shows configuration for selecting a subnet. A red arrow points to the dropdown menu for 'Virtual network'.

Click on the drop down on “Virtual Network” and select the subnet that we will use in the NAT gateway. This is very important because the subnets that we will be selecting are the subnet that we will use in the NAT gateway NOT the subnet we want to create the NAT gateway in.

The screenshot shows the 'Create network address translation (NAT) gateway' wizard in the Microsoft Azure portal. The current step is 'Subnet'. A dropdown menu titled 'Virtual network' is open, showing a list of virtual networks. The item 'demo-vnet' is selected and highlighted with an orange arrow. Other items in the list include 'None' and 'rg-vm-demo-eus'. At the bottom of the screen, there are navigation buttons: 'Review + create', '< Previous', 'Next : Tags >', and 'Download a template for automation'.

Select “demo-vnet”

The screenshot shows the 'Create network address translation (NAT) gateway' wizard in the Microsoft Azure portal. The current step is 'Subnet'. A dropdown menu titled 'Virtual network' is open, showing 'demo-vnet' selected. Below the dropdown, a list of subnets is displayed in a table format. The subnets are: public-az1, public-az2, private-app-az1, private-app-az2, private-data-az1, and private-data-az2. The checkboxes for private-app-az1, private-app-az2, private-data-az1, and private-data-az2 are checked, while the checkboxes for public-az1 and public-az2 are unchecked. At the bottom of the screen, there are navigation buttons: 'Review + create', '< Previous', 'Next : Tags >', and 'Download a template for automation'.

Then select the private subnets.

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com

DEFAULT DIRECTORY (EBOTSID...)

Home > Create network address translation (NAT) gateway

Basics Outbound IP Subnet Tags Review + create

To use the NAT gateway, at least one subnet must be selected. You can add and remove subnets after creating the NAT gateway.

Virtual network (demo-vnet)

Create new

Subnets that have any of the following resources are not shown because they are not compatible:

- A load balancer with a Basic SKU
- A public IP address with a Basic SKU
- An existing NAT gateway
- A virtual network gateway

Subnet name	Subnet address range
public-az1	-
public-az2	-
private-app-az1	-
private-app-az2	-
private-data-az1	-
private-data-az2	-

Manage subnets >

Review + create < Previous Next : Tags > Download a template for automation

Then, click on “Next: Tags”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com

DEFAULT DIRECTORY (EBOTSID...)

Home > Create network address translation (NAT) gateway

Basics Outbound IP Subnet Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value

Review + create < Previous Next : Review + create > Download a template for automation

Here we will give the tag a name and value. For “Name”, type “Name” and or “Value”, enter “demo-nat-gateway-az1”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSON...)

Home > Create network address translation (NAT) gateway ...

Basics Outbound IP Subnet Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name Value

Name : demo-nat-gateway-az1

Value :

Review + create < Previous Next : Review + create > Download a template for automation

Then click on “Next: Review + Create”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSON...)

Home > Create network address translation (NAT) gateway ...

Validation passed

Basics Outbound IP Subnet Tags Review + create

Basics

Subscription	Azure subscription 1
Resource group	rg-vm-demo-eus
Name	demo-nat-gateway-az1
Region	East US 2
Availability zone	1
TCP idle timeout (minutes)	4

Outbound IP

Public IP address	(New) demo-public-ip-nat-az1
Public IP prefix	None

Subnets

Virtual network	demo-vnet
Subnets	private-app-az2.private-app-az1.private-data-az1.private-data-az2

Tags

Name	demo-nat-gateway-az1
------	----------------------

Review < Previous Next > Download a template for automation

Create

Review and click on “Create”

The screenshot shows the Microsoft Azure Deployment Overview page for a deployment named "CreateNatGatewayBlade-20251124161844". The main message is "Your deployment is complete". Deployment details include: Deployment name: CreateNatGatewayBlade-20251124161844, Subscription: Azure subscription 1, Resource group: rg-vm-demo-eus, Start time: 11/24/2025, 5:37:11 PM, Correlation ID: fc2b379c-f600-474e-9c44-37217da5f58f. A "Go to resource" button is highlighted with a red arrow. On the right side, there are promotional cards for Cost management, Microsoft Defender for Cloud, Free Microsoft tutorials, and Work with an expert.

The deployment is complete. Click on “Go to resource”

The screenshot shows the Microsoft Azure NAT gateway settings page for a resource named "demo-nat-gateway-az1". The "Essentials" section displays: Resource group: rg-vm-demo-eus, Location: East US 2 (Zone 1), Subscription: Azure subscription 1, Subscription ID: dd5d4252-9ca5-4581-9dc7-b63c0788bde7, Virtual network: demo-vnet, Subnets: 4, SKU: Standard, Public IP addresses: 1, Public IP prefixes: 0. A "Settings" link in the left sidebar is highlighted with a red arrow. The "Subnets" section shows four subnets. A red arrow points to the "Subnets" value of 4.

We have created the NAT gateway. You can see that it has **four** subnets. If you click on “Settings”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com

Home > CreateNatGatewayBlade-20251124161844 | Overview > demo-nat-gateway-az1

NAT gateway

Search Delete Refresh

Overview

Essentials

Resource group (move) : rg-vm-demo-eus Virtual network : demo-vnet

Location : East US 2 (Zone 1) Subnets : 4

Subscription (move) : Azure subscription 1 SKU : Standard

Subscription ID : ddd5d4252-9ca5-4581-9dc7-b63c0788bde7 Public IP addresses : 1

Tags (edit) : Name : demo-nat-gateway-az1 Public IP prefixes : 0

Settings

- Outbound IP
- Subnets**
- Configuration
- Properties
- Locks
- Monitoring
- Automation
- Help

Configure outbound IP addresses Configure which public IP addresses and public IP prefixes to use for outbound connectivity.

Configure networking Configure which subnets of a virtual network should use this NAT gateway.

Add or remove favorites by pressing Ctrl+Shift+F

Give feedback

Click on “Subnets”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com

Home > CreateNatGatewayBlade-20251124161844 | Overview > demo-nat-gateway-az1

demo-nat-gateway-az1 | Subnets

NAT gateway

Search Save Discard Disassociate Refresh

To use the NAT gateway, at least one subnet must be selected. You can add and remove subnets after creating the NAT gateway.

Virtual network (demo-vnet)

Subnets

Subnet name	Subnet address range
<input type="checkbox"/> public-az1	-
<input type="checkbox"/> public-az2	-
<input checked="" type="checkbox"/> private-app-az1	-
<input checked="" type="checkbox"/> private-app-az2	-
<input checked="" type="checkbox"/> private-data-az1	-
<input checked="" type="checkbox"/> private-data-az2	-

Manage subnets >

Add or remove favorites by pressing Ctrl+Shift+F

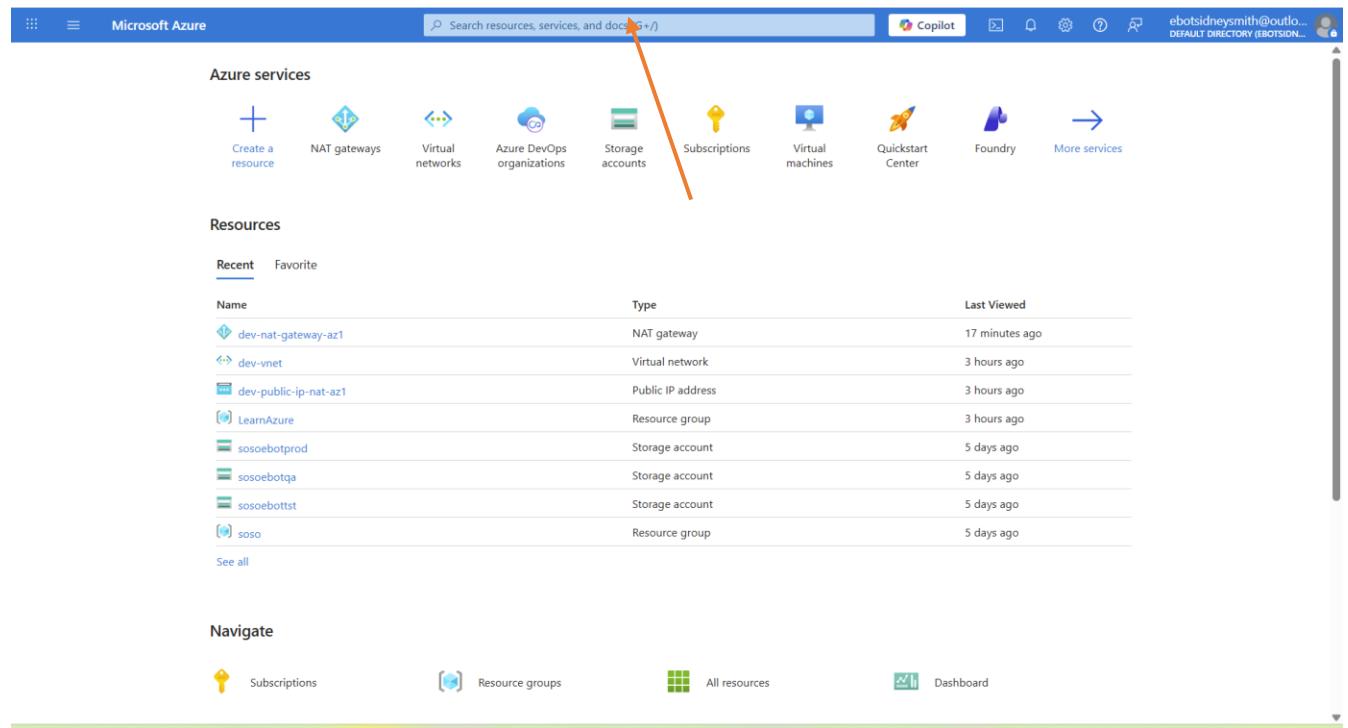
You can see the chosen subnets.

This is all we have to do to create our NAT gateway to allow our private subnet to have access to the internet.

2.4. How to Create a Network Security Group (NSG) in Azure

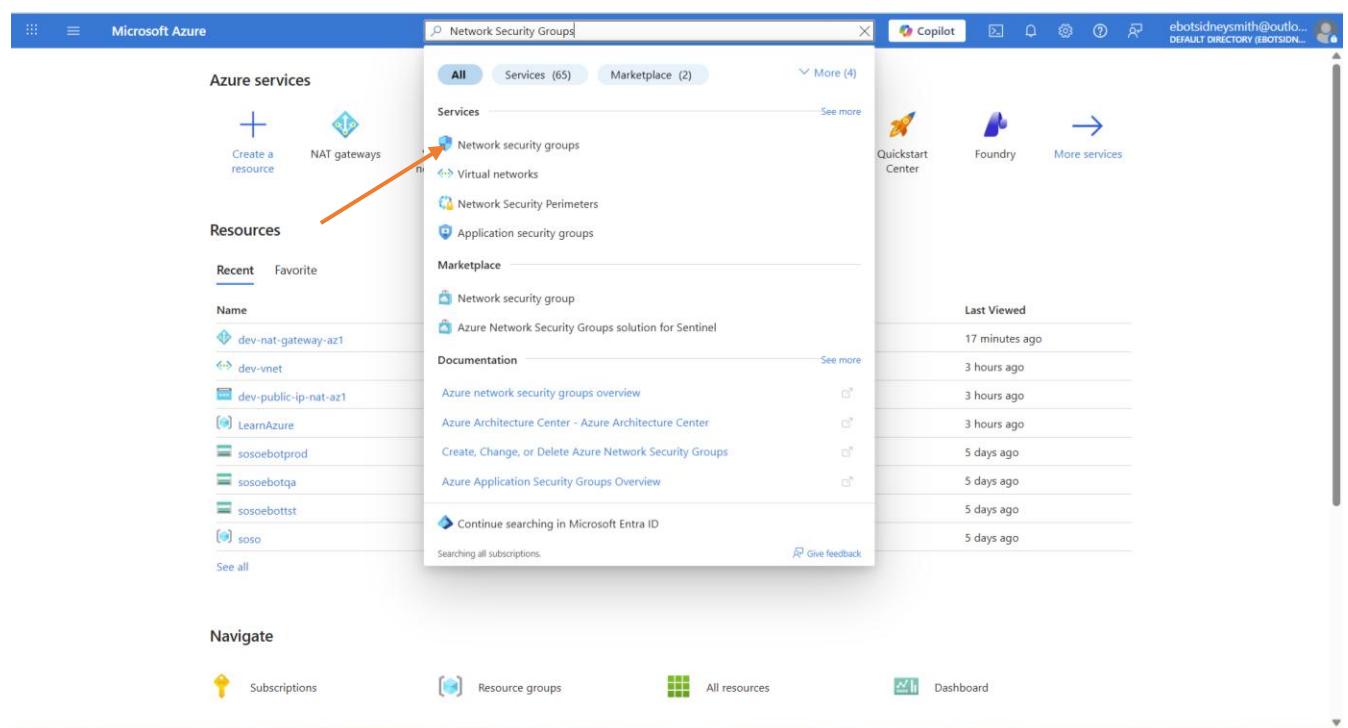
In this video, you'll learn how to create a Network Security Group (NSG) in Azure to control traffic into and out of your virtual network. NSGs are essential for securing resources by defining rules based on IP addresses, ports, and protocols.

In this lecture, we will create the Network Security Group that we will attach to the public subnet. To create a Network Security Group



The screenshot shows the Microsoft Azure portal homepage. At the top, there is a search bar labeled "Search resources, services, and docs (+)". Below the search bar is a navigation bar with icons for "Copilot", "Copilot", "Copilot", "Copilot", "Copilot", "Copilot", "Copilot", "Copilot", and "Copilot". The user's email address "ebotsidneysmith@outlook.com" and "DEFAULT DIRECTORY (EBOTSIDNEY...)" are also visible. The main content area is titled "Azure services" and includes icons for "Create a resource", "NAT gateways", "Virtual networks", "Azure DevOps organizations", "Storage accounts", "Subscriptions", "Virtual machines", "Quickstart Center", "Foundry", and "More services". Below this is a "Resources" section with tabs "Recent" and "Favorite". The "Recent" tab is selected, showing a list of resources with their names, types, and last viewed times. The list includes "dev-nat-gateway-az1" (NAT gateway), "dev-vnet" (Virtual network), "dev-public-ip-nat-az1" (Public IP address), "LearnAzure" (Resource group), "sosoebotprod" (Storage account), "sosoebotqa" (Storage account), "sosoebottst" (Storage account), and "soso" (Resource group). At the bottom of the "Recent" list is a "See all" link. Further down is a "Navigate" section with links to "Subscriptions", "Resource groups", "All resources", and "Dashboard".

Search for “Network Security Groups”



The screenshot shows the Microsoft Azure portal homepage after performing a search for "Network Security Groups". A red arrow points from the search bar at the top to the search results. The search results are displayed in a modal window. The "All" tab is selected, showing "Services (65)", "Marketplace (2)", and "More (4)". The "Services" section contains links for "Network security groups", "Virtual networks", "Network Security Perimeters", and "Application security groups". The "Marketplace" section contains links for "Network security group" and "Azure Network Security Groups solution for Sentinel". The "Documentation" section contains links for "Azure network security groups overview", "Azure Architecture Center - Azure Architecture Center", "Create, Change, or Delete Azure Network Security Groups", and "Azure Application Security Groups Overview". At the bottom of the search results, there is a link to "Continue searching in Microsoft Entra ID" and a "Give feedback" button. The rest of the page is identical to the first screenshot, showing the "Azure services" bar, the "Resources" section with recent items, and the "Navigate" section.

Click on “Network Security Groups”

The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes 'Microsoft Azure', a search bar, and user information. Below it, the breadcrumb path 'Home > Network foundation' leads to the 'Network foundation | Network security groups' page. On the left, a sidebar lists various network components: Overview, Virtual network (Virtual Network overview, Virtual networks, NAT gateways, Public IP addresses, Network interfaces, Network security groups), Application security groups, Bastions, Route tables, Route servers, Private Link, DNS, and Monitoring and management. The 'Network security groups' item is selected and highlighted with a grey background. The main content area displays a large shield icon and the message 'No network security groups to display'. It includes a sub-instruction: 'Create a network security group with rules to filter inbound traffic to, and outbound traffic from, virtual machines and subnets.' A prominent blue 'Create' button with a '+' icon is visible, and an orange arrow points to it from the bottom right. At the bottom, there's a note about favorite keys and a 'Give feedback' link.

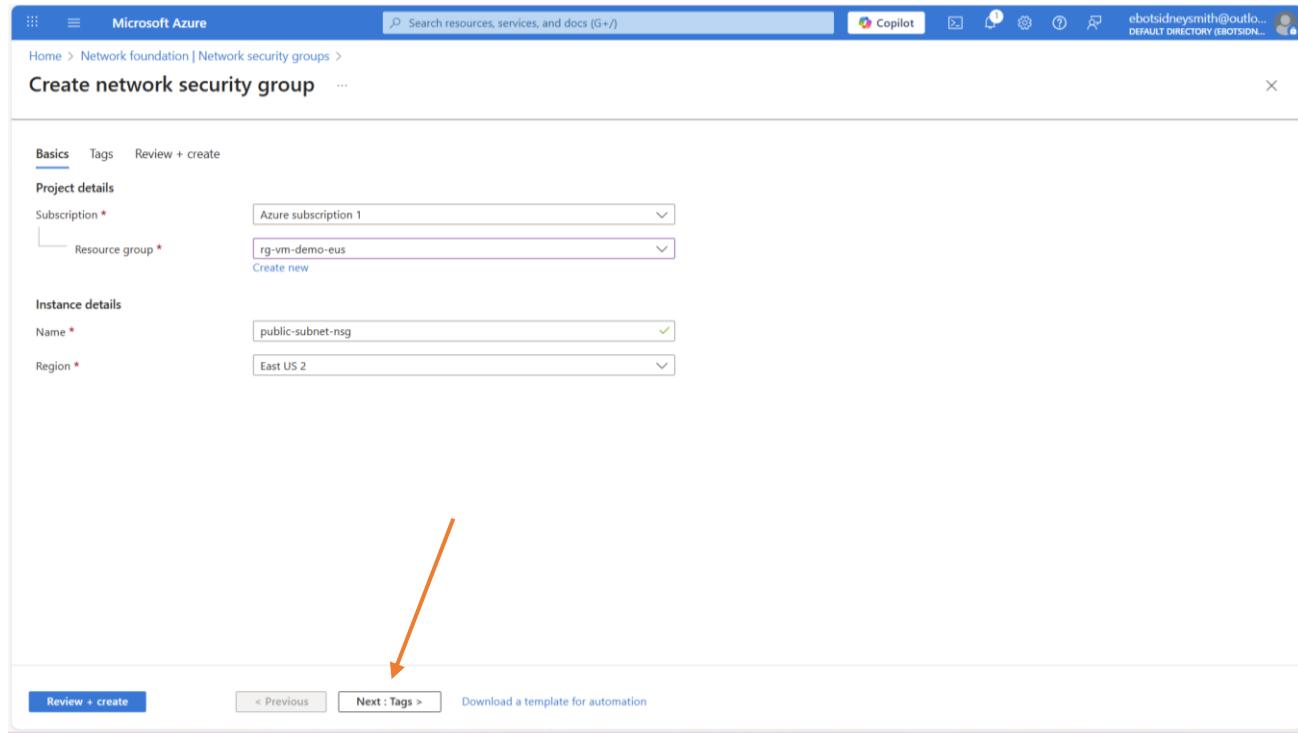
Click on “Create”

The screenshot shows the 'Create network security group' wizard in the Microsoft Azure portal. The title bar says 'Create network security group'. The 'Basics' tab is selected. The 'Project details' section contains fields for 'Subscription *' (set to 'Azure subscription 1') and 'Resource group *'. An orange arrow points to the dropdown menu for 'Resource group *'. The 'Instance details' section contains fields for 'Name *' (empty) and 'Region *' (set to 'East US 2'). At the bottom, there are buttons for 'Review + create', '< Previous' and 'Next : Tags >', and a link to 'Download a template for automation'.

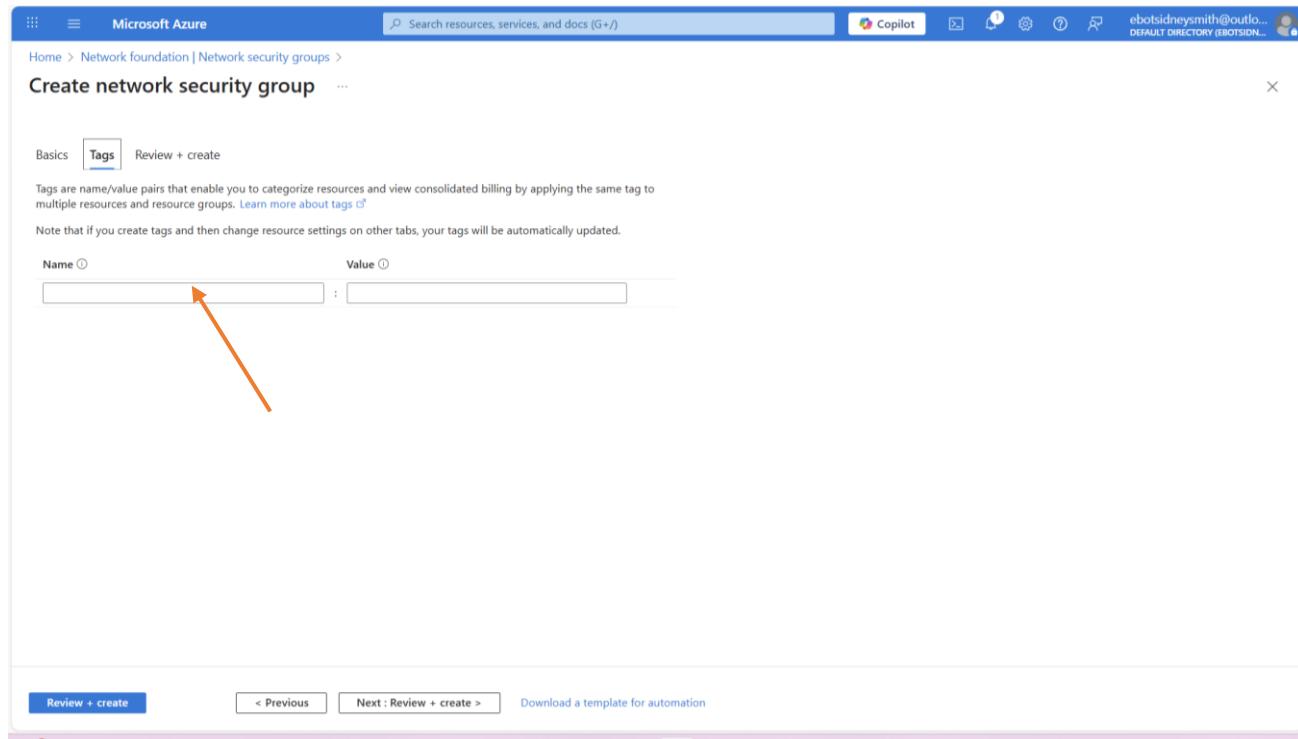
First, we are going to select our “**Resource Group**”. Click on the drop down

Our Resource Group is “rg-vm-demo-eus”. Select it.

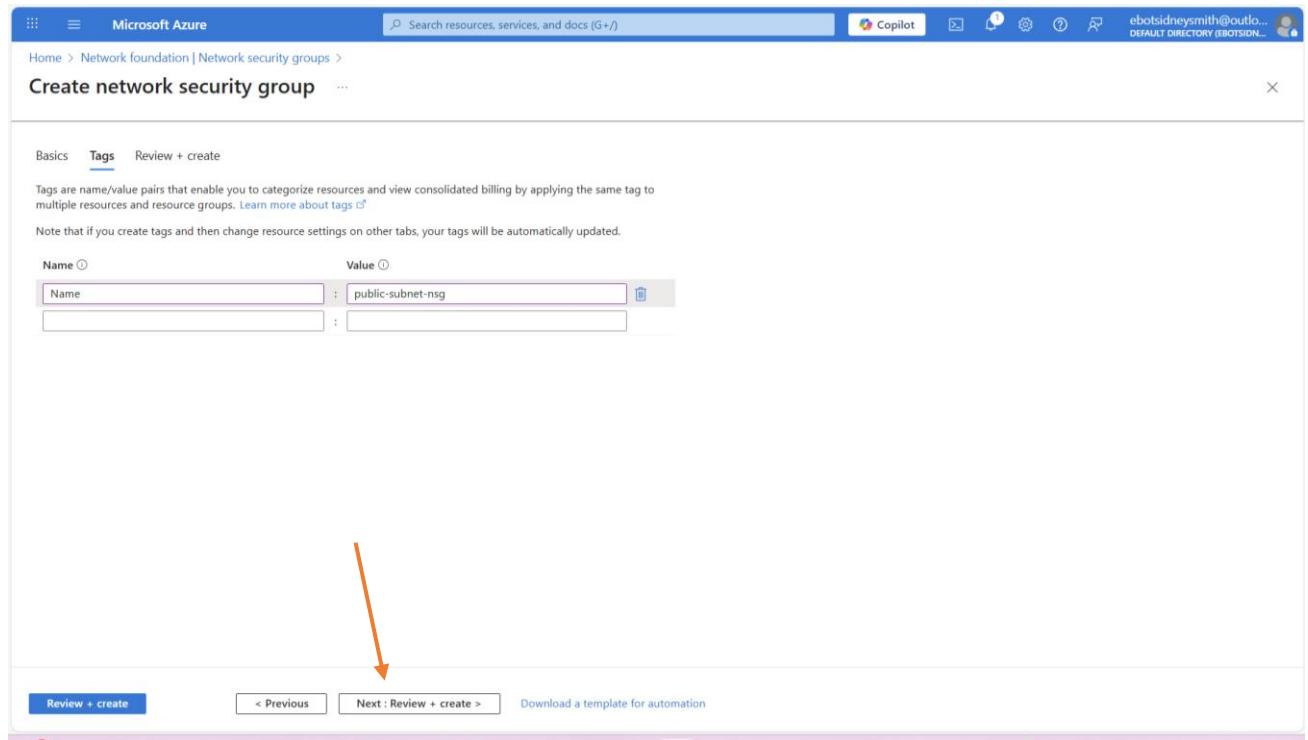
Then, let us give it a name. I will call it “public-subnet-nsg”



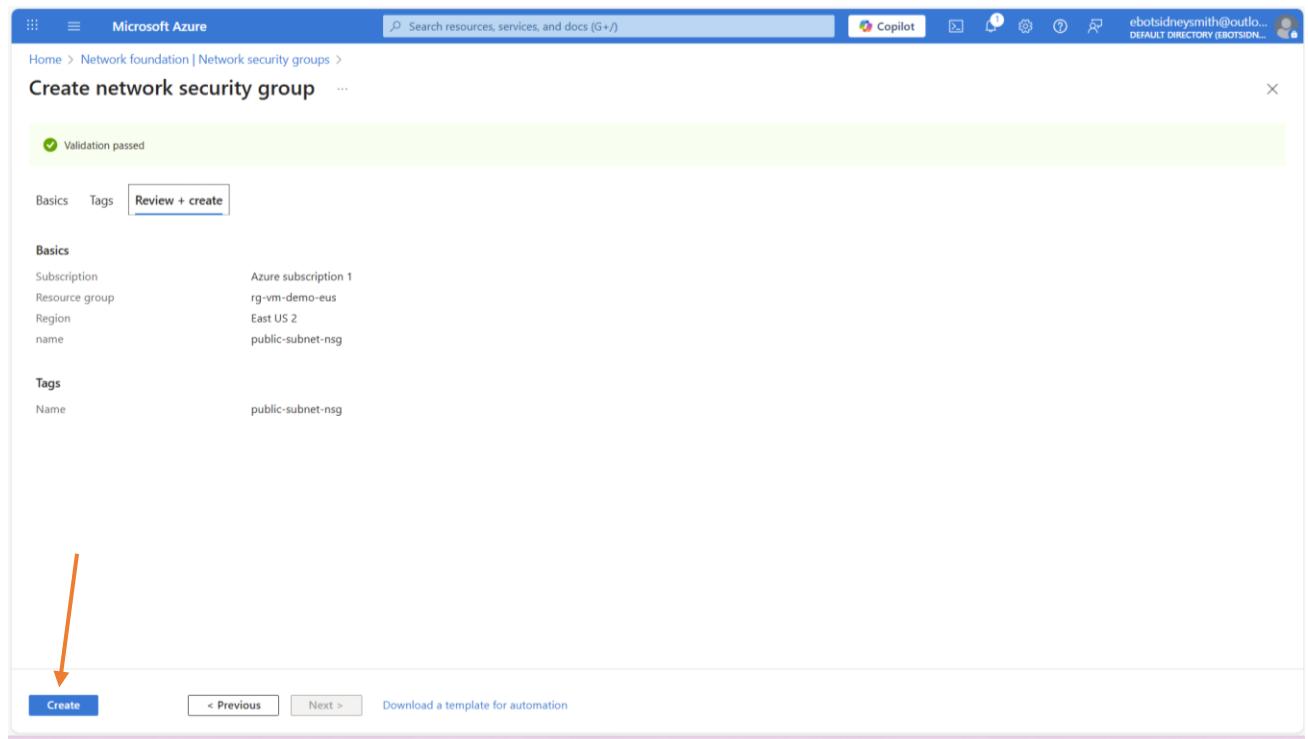
Then, we leave the “Region” as “East US 2” and click on “Next: Tags”



Here we will enter the name and value. For “Name”, enter “Name” and for “Value”, enter “public-subnet-nsg”



Click on “Next: review + Create”



Review and click on “create”

The screenshot shows the Microsoft Azure Deployment Overview page for a completed deployment named "CreateNetworkSecurityGroupBladeV2-20251124174259". The deployment status is "Your deployment is complete". Deployment details include a name of "CreateNetworkSecurityGroupBladeV2-20251124174259", a start time of "11/24/2025, 5:51:09 PM", a subscription of "Azure subscription 1", and a resource group of "rg-vm-demo-eus". A Correlation ID is also listed: "38ae9924-30fd-4213-93c0-583eca721a5d". Below the deployment details, there is a "Deployment details" section with a "Next steps" subsection containing a "Go to resource" button, which is highlighted with a red arrow pointing to it.

We have successfully deployed the Network security group. Click on “Go to resource”

The screenshot shows the Microsoft Azure Network Security Group (NSG) Overview page for a NSG named "public-subnet-nsq". The NSG is associated with a resource group "rg-vm-demo-eus", located in "East US 2", and is associated with 0 subnets and 0 network interfaces. It has 0 inbound and 0 outbound custom security rules. The "Essentials" section shows the following security rules:

Priority	Name	Port	Protocol	Source	Destination	Action
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancer...	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

This is how you create Network Security Group in Azure

2.5. How to Add Inbound Security Rules to a Network Security Group (NSG)

Learn how to add inbound security rules to your Network Security Group (NSG) in Azure. You'll see how to allow or block traffic based on source IP, protocol, and port to control access to your cloud resources.

In this lecture, we are going to add inbound rules to the public subnet Network Security Group we created in the previous lecture. Make sure the Network Security Group is open

The screenshot shows the Azure NSG Overview page for 'public-subnet-nsg'. The sidebar on the left has a 'Settings' link with a red arrow pointing to it. The main area displays the 'Essentials' section and two tables: 'Inbound Security Rules' and 'Outbound Security Rules'. The 'Inbound Security Rules' table lists four rules: AllowVnetInBound (Priority 65000), AllowAzureLoadBalancer... (Priority 65001), DenyAllInBound (Priority 65500), and AllowVnetOutBound (Priority 65000). The 'Outbound Security Rules' table lists three rules: AllowInternetOutBound (Priority 65001), DenyAllOutBound (Priority 65500), and AllowInternetOutBound (Priority 65001).

To add the inbound rule, click on “Settings”

The screenshot shows the Azure NSG Overview page for 'public-subnet-nsg'. The sidebar on the left has a 'Settings' link expanded, showing 'Inbound security rules' and 'Outbound security rules' with a red arrow pointing to 'Inbound security rules'. The main area displays the 'Essentials' section and two tables: 'Inbound Security Rules' and 'Outbound Security Rules'. The 'Inbound Security Rules' table lists four rules: AllowVnetInBound (Priority 65000), AllowAzureLoadBalancer... (Priority 65001), DenyAllInBound (Priority 65500), and AllowVnetOutBound (Priority 65000). The 'Outbound Security Rules' table lists three rules: AllowInternetOutBound (Priority 65001), DenyAllOutBound (Priority 65500), and AllowInternetOutBound (Priority 65001).

Click on “Inbound security rules”

The screenshot shows the Microsoft Azure portal interface. The left sidebar navigation includes Home, CreateNetworkSecurityGroupBladeV2-20251124174259 | Overview, public-subnet-nsg, Network security group, Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Settings, Inbound security rules (selected), Outbound security rules, Network interfaces, Subnets, Properties, Locks, Monitoring, Automation, and Help. The main content area is titled "public-subnet-nsg | Inbound security rules". It displays a table of security rules with columns: Priority (65000, 65001, 65500), Name (AllowVnetInBound, AllowAzureLoadBalancer..., DenyAllInBound), Port (Any, Any, Any), Protocol (Any, Any, Any), Source (VirtualNetwork, AzureLoadBalancer, Any), Destination (VirtualNetwork, Any, Any), and Action (Allow, Allow, Deny). A red arrow points to the "+ Add" button at the top left of the rule list.

Click on “Add”

The screenshot shows the Microsoft Azure portal interface with the same navigation and main content area as the previous screenshot. A red arrow points from the "Add" button in the main content area to the "Add inbound security rule" dialog box on the right. The dialog box has fields for Source (set to "Any"), Source port ranges (*), Destination (set to "Any"), Service (set to "Custom"), Destination port ranges (set to "8080"), Protocol (radio button selected for "Any"), Action (radio button selected for "Allow"), Priority (set to "100"), and a Name field. At the bottom are "Add" and "Cancel" buttons.

Under “source”, we are going to select “My IP Address”. Click on the drop down on “source”

Microsoft Azure

public-subnet-nsg | Inbound security rules

Add inbound security rule

Source: My IP address

Priority	Name	Port	Protocol
65000	AllowVnetInBound	Any	Any
65001	AllowAzureLoadBalancer...	Any	Any
65500	DenyAllInBound	Any	Any

And select “My IP address”, that should limit you to your IP address

Microsoft Azure

public-subnet-nsg | Inbound security rules

Add inbound security rule

Source: My IP address

Source port ranges: *

Priority	Name	Port	Protocol
65000	AllowVnetInBound	Any	Any
65001	AllowAzureLoadBalancer...	Any	Any
65500	DenyAllInBound	Any	Any

For the “Source Port Ranges”, leave it as default

Under “Destination”, we are going to leave it as “Any”

Add inbound security rule

Source: My IP address

Source IP addresses/CIDR ranges: 108.31.160.223

Source port ranges: *

Destination: Any

Service: Custom

Destination port ranges: 8080

Protocol: Any

Action: Allow

Then for “Service”, click on the drop down

Add inbound security rule

Source: My IP address

Source IP addresses/CIDR ranges: 108.31.160.223

Source port ranges: *

Destination: Any

Service: Custom

Destination port ranges: 8080

Protocol: Any

Action: Allow

public-subnet-nsg | Inbound security rules

Add inbound security rule

Source: My IP address

Source IP addresses/CIDR ranges: 108.31.160.223

Source port ranges: *

Destination: Any

Service: SSH

Priority	Name	Port	Protocol
65000	AllowVnetInBound	Any	Any
65001	AllowAzureLoadBalancer...	Any	Any
65500	DenyAllInBound	Any	Any

Select “SSH”, SSH is on Port 22 and the protocol is TCP

public-subnet-nsg | Inbound security rules

Add inbound security rule

Source: My IP address

Source IP addresses/CIDR ranges: 108.31.160.223

Source port ranges: *

Destination: Any

Service: SSH

Destination port ranges: 22

Protocol: TCP

Action: Allow

On “Action”, it should be “Allow”

Add inbound security rule

public-subnet-nsg

Any

Service: SSH

Destination port ranges: 22

Protocol: TCP

Action: Allow

Priority: 100

Name:

Description:

Add Cancel Give feedback

For “Priority”, leave it as “100”

Add inbound security rule

public-subnet-nsg

Any

Service: SSH

Destination port ranges: 22

Protocol: TCP

Action: Allow

Priority: 100

Name:

Description:

Add Cancel Give feedback

For “Name”, I will use “AllowMyipAddressSSHInbound”

Add inbound security rule

public-subnet-nsg

Any

Service: SSH

Destination port ranges: 22

Protocol: TCP

Action: Allow

Priority: 100

Name: AllowMyipAddressSSHinbound

Description:

Priority	Name	Port	Protocol
65000	AllowVnetInBound	Any	Any
65001	AllowAzureLoadBalancer...	Any	Any
65500	DenyAllInBound	Any	Any
100	AllowMyipAddressSSHinbound	22	TCP

Then, click on “Add”

Priority	Name	Port	Protocol	Source	Destination	Action
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancer...	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
100	AllowMyipAddressSSHinbound	22	TCP	108.31.160.223	Any	Allow

You can see that we have successfully added the SSH Inbound rule. We are going to add the next rule.

Microsoft Azure

public-subnet-nsg | Inbound security rules

Network security group

Add Hide default rules Refresh Delete Give feedback

Network security group security rules are evaluated by priority using the combination of source, source port, destination, destination port, and protocol to allow or deny the traffic. A security rule can't have the same priority and direction as an existing rule. You can't delete default security rules, but you can override them with rules that have a higher priority. [Learn more](#)

Priority ↑	Name ↑↓	Port ↑↓	Protocol ↑↓	Source ↑↓	Destination ↑↓	Action ↑↓
100	AllowMyipAddressSSHIn...	22	TCP	108.31.160.223	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancer...	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

Add or remove favorites by pressing **Ctrl+Shift+F**

Click on “Add”

Microsoft Azure

public-subnet-nsg | Inbound security rules

Network security group

Add Hide default rules Refresh Delete Give feedback

Network security group security rules are evaluated by priority using the combination of source, source port, destination, destination port, and protocol to allow or deny the traffic. You can't delete default security rules, but you can override them with rules that have a higher priority.

Add inbound security rule

Source: Any

Source port ranges *: *

Destination: Any

Service: Custom

Destination port ranges *: 8080

Protocol: Any

Action: Allow

Priority *: 110

Name *:

Add Cancel Give feedback

Under “Source”, It will be “Any”

The “**Source Port Ranges**”, will be left as the default setting.

The “**Destination**” is going to be “**Any**”

Microsoft Azure

public-subnet-nsg | Inbound security rules

Add inbound security rule

Source: Any

Source port ranges: *

Destination: Any

Service: Custom

Destination port ranges: * 8080

Protocol: Any

Action: Allow

Priority: 110

Add Cancel Give feedback

Then, on “Service”, click on the drop down

Microsoft Azure

public-subnet-nsg | Inbound security rules

Add inbound security rule

Source: Any

Source port ranges: *

Destination: Any

Service: Custom

HTTP

HTTPS

SSH

RDP

MS SQL

MySQL

PostgreSQL

Windows Admin Center

Custom

FTP

SMTP

DNS (TCP)

DNS (UDP)

POP3

Select “HTTP”. HTTP is accessed on Port 80 and it uses TCP protocol

The screenshot shows the Microsoft Azure portal interface. On the left, the navigation pane includes 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Resource visualizer', and 'Settings'. Under 'Settings', 'Inbound security rules' is selected. The main content area displays the 'public-subnet-nsg | Inbound security rules' page, showing a table of existing rules:

Priority	Name	Port	Protocol
100	AllowMyipAddressSSHIn...	22	TCP
65000	AllowVnetInBound	Any	Any
65001	AllowAzureLoadBalancer...	Any	Any
65500	DenyAllInBound	Any	Any

A modal dialog titled 'Add inbound security rule' is open on the right, prompting for new rule details:

- Service: HTTP
- Destination port ranges: 80
- Protocol: TCP (radio button selected)
- Action: Allow (radio button selected)
- Priority: 110
- Name: (empty field)
- Description: (empty field)

An orange arrow points from the text 'On "Action", select "Allow". This is going to allow us to access the port.' to the 'Allow' radio button in the dialog.

On “Action”, select “Allow”. This is going to allow us to access the port.

This screenshot is identical to the one above, showing the 'Add inbound security rule' dialog. The key difference is that the 'Protocol' dropdown has been expanded, and the 'ICMPv4' option is highlighted with an orange arrow.

For the “Priority”, leave it at “110”

Add inbound security rule

public-subnet-nsg

Any

Service: HTTP

Destination port ranges: 80

Protocol: TCP

Action: Allow

Priority: 110

Name: AllowAnyHTTPInbound

Description:

Add Cancel Give feedback

For the “Name”, enter “AllowAnyHTTPInbound”

Add inbound security rule

public-subnet-nsg

Any

Service: HTTP

Destination port ranges: 80

Protocol: TCP

Action: Allow

Priority: 110

Name: AllowAnyHTTPInbound

Description:

Add Cancel Give feedback

Click on “Add”

Priority ↑↓	Name ↑↓	Port ↑↓	Protocol ↑↓	Source ↑↓	Destination ↑↓	Action ↑↓
<input type="checkbox"/> 100	AllowMyipAddressSSHInbound	22	TCP	108.31.160.223	Any	Allow
<input type="checkbox"/> 110	AllowAnyHTTPInbound	80	TCP	Any	Any	Allow
<input type="checkbox"/> 65000	AllowVnetInbound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
<input type="checkbox"/> 65001	AllowAzureLoadBalancerInbound	Any	Any	AzureLoadBalancer	Any	Allow
<input type="checkbox"/> 65500	DenyAllInbound	Any	Any	Any	Any	Deny

We have successfully added the **SSH** and **HTTP** rules to our Network Security Group. This will allow us to be able to access our Virtual Machine from Port **22** and port **80**.

2.6. How to Associate a Network Security Group (NSG) with a Subnet in Azure

In this tutorial, you'll learn how to link a Network Security Group (NSG) to a subnet in Azure. This ensures that all resources within the subnet follow the same inbound and outbound security rules defined in the NSG.

In this lecture, we will add the public subnet Network Security Group we created in the previous lecture to our public subnet in **az1** and **az2**.

In Azure, when you create network security group, you attach it to a subnet not the resource. To attach the network security group to our subnet,

The screenshot shows the Microsoft Azure portal homepage. At the top, there is a search bar with the placeholder "Search resources, services, and docs (G+)". Below the search bar is a row of service icons: Create a resource, Network security groups, NAT gateways, Virtual networks, Virtual machines, Storage accounts, SSH keys, Azure DevOps organizations, Subscriptions, and More services. The "Virtual networks" icon is highlighted with a red arrow pointing to it from the left. The main content area is divided into sections: "Azure services" and "Resources". The "Resources" section contains a table of recent and favorite resources, with "Virtual networks" listed as the first item. At the bottom, there is a "Navigate" bar with links to Subscriptions, Resource groups, All resources, and Dashboard.

Search for “Virtual Networks”

The screenshot shows the Microsoft Azure portal search results for "Virtual Networks". The search bar at the top contains the query "Virtual Networks". Below the search bar is a list of search results categorized into "All", "Services (55)", and "Marketplace (8)". The "Services" category is expanded, showing "Virtual networks" as the top result, which is also highlighted with a red arrow pointing to it from the left. Other items in the "Services" list include Virtual network appliances, Virtual network gateways, and Virtual Network Managers. The "Marketplace" category lists items like Virtual network, Virtual network gateway, and Virtual network terminal access point. The "Documentation" category lists items such as Azure virtual network service endpoints, What is Azure Virtual Network?, Azure Storage firewall rules, and Azure network security groups overview. At the bottom of the search results, there is a link to "Continue searching in Microsoft Entra ID" and a "Give feedback" button.

Select “Virtual Networks” under services

Microsoft Azure

Search resources, services, and docs (G+ /)

Copilot

ebotsidneysmith@outlook.com

Home > Network foundation

Network foundation | Virtual networks

Virtual network

Virtual networks

NAT gateways

Public IP addresses

Network interfaces

Network security groups

Application security groups

Bastions

Route tables

Route servers

Private Link

DNS

Monitoring and management

You are viewing a new version of Browse experience. Click here to access the old experience.

Filter for any field... Subscription equals all Resource Group equals all Location equals all Add filter

Name ↑	Resource Group	Location	Subscription
demo-vnet	rg-vm-demo-eus	East US 2	Azure subscription 1

Showing 1 - 1 of 1. Display count: auto

Add or remove favorites by pressing Ctrl+Shift+F

Give feedback

Click your Virtual Network, that is “**demo-vnet**”

Microsoft Azure

Search resources, services, and docs (G+ /)

Copilot

ebotsidneysmith@outlook.com

Home > Network foundation | Virtual networks

Network foundation | Virtual networks

Virtual network

Virtual networks

NAT gateways

Public IP addresses

Network interfaces

Network security groups

Application security groups

Bastions

Route tables

Route servers

Private Link

DNS

Monitoring and management

You are viewing a new version of Browse experience. Click here to access the old experience.

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Address space

Connected devices

Subnets

Bastion

DDoS protection

Firewall

Microsoft Defender for Cloud

Network manager

DNS

Peerings

Service endpoints

Private endpoints

Drift

Move Delete Refresh Give feedback

Essentials

Resource group (move) rg-vm-demo-eus Address space 10.0.0.0/16

Location (move) East US 2 Subnets 6 subnets

Subscription (move) Azure subscription 1 DNS servers Azure provided DNS service

Subscription ID dd5d4252-9ca5-4581-9dc7-b63c0788bd... BGP community string Configure

Virtual network ID dba9366-d437-4212-9df9-8b8e452bda0 Virtual network ID

Tags (edit) Name : demo-vnet

Topology Properties Capabilities (5) Recommendations Tutorials

DDoS protection Configure additional protection from distributed denial of service attacks. Not configured

Azure Firewall Protect your network with a stateful L3-L7 firewall. Not configured

Showing 1 - 1 of 1. Display count: auto

Add or remove favorites by pressing Ctrl+Shift+F

And in the left menu, select “**Subnets**”

The screenshot shows the Microsoft Azure portal interface. The left sidebar navigation includes Home, Network foundation | Virtual networks, demo-vnet, Overview, Virtual network, Virtual networks (selected), NAT gateways, Public IP addresses, Network interfaces, Network security groups, Application security groups, Bastions, Route tables, Route servers, Private Link, DNS, and Monitoring and management. The main content area displays the 'Subnets' page for the 'demo-vnet' virtual network. The subnets listed are:

Name	IPv4	IPv6	Available IPs
public-az1	10.0.0.0/24	-	251
public-az2	10.0.1.0/24	-	251
private-app-az1	10.0.2.0/24	-	251
private-app-az2	10.0.3.0/24	-	251
private-data-az1	10.0.4.0/24	-	251
private-data-az2	10.0.5.0/24	-	251

Then, click on the “public-az1” subnet

The screenshot shows the 'Edit subnet' dialog box for the 'public-az1' subnet. The dialog has tabs for Subnet ID, Subnet purpose (set to Default), Name (set to public-az1), and IPv4. The IPv4 tab is active, showing options to include an IPv4 address space (checked), choose a starting address (10.0.0.0), and size (256 addresses). Other tabs include IPv6 (unchecked), Private subnet (disabled), and Security (disabled). Buttons at the bottom are Save and Cancel.

In the subnet settings, scroll down to “Security”

You are viewing a new version of Browse experience. Click here to access the old experience.

Name: demo-vnet

NAT gateway: None

Network security group: None

Route table: None

Service Endpoints

Subnet Delegation

Network Policy for Private Endpoints

Save Cancel

Under “**Network Security Group**”, click on the drop down

You are viewing a new version of Browse experience. Click here to access the old experience.

Name: demo-vnet

NAT gateway: None

Network security group: None

Route table: Filter items...

Service Endpoints

Subnet Delegation

Network Policy for Private Endpoints

Save Cancel

Select “**public-subnet-nsg**”

The screenshot shows the 'Edit subnet' dialog in the Microsoft Azure portal. The left pane lists various network components like NAT gateways, Public IP addresses, Network interfaces, etc. The right pane is titled 'Edit subnet' and contains sections for 'Security' (NAT gateway set to 'None'), 'Service Endpoints' (a dropdown menu), 'Subnet Delegation' (set to 'None'), and 'Network Policy for Private Endpoints' (set to 'Disabled'). An orange arrow points from the 'Save' button at the bottom right of the dialog to the 'Save' button on the main page.

Click on “Save”

The screenshot shows the 'demo-vnet | Subnets' page in the Microsoft Azure portal. The left pane shows the virtual network structure. The right pane lists six subnets: 'public-az2', 'private-app-az1', 'private-app-az2', 'private-data-az1', 'private-data-az2', and 'public-az1'. An orange arrow points from the 'public-az2' row in the table to the 'public-az2' entry in the search bar above the table.

Name	IPv4	IPv6	Available IPs	Deleted
public-az2	10.0.1.0/24	-	251	-
private-app-az1	10.0.2.0/24	-	251	-
private-app-az2	10.0.3.0/24	-	251	-
private-data-az1	10.0.4.0/24	-	251	-
private-data-az2	10.0.5.0/24	-	251	-
public-az1	10.0.0.0/24	-	251	-

We will repeat same procedure for “public-az2”. Click on “public-az2”

Edit subnet

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet ID: /subscriptions/dd5d4252-9ca5-4581-9dc7-b63c0788be7/resourceGroups/rvm-demo-e... [Edit](#)

Subnet purpose: Default

Name: public-az

IPv4

Include an IPv4 address space

Choose a starting address and size within your IPv4 address range: 10.0.0.0/16 (10.0.0.0 - 10.0.255.255)

Starting address *: 10.0.1.0

Size: /24 (256 addresses)

Subnet address range: 10.0.1.0 - 10.0.1.255

IPv6

Include an IPv6 address space This virtual network has no IPv6 address ranges.

Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)

Note: After March 31, 2026, private subnet will be the default selection for new virtual networks. [Learn more](#)

Save **Cancel** **Give feedback**

Scroll down to “Security”

Edit subnet

Security

Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway: None

Network security group: None [Edit](#)

Route table: None

Service Endpoints

Create service endpoint policies to allow traffic to specific azure resources from your virtual network over service endpoints. [Learn more](#)

Services: Select a service endpoint [Remove service endpoint](#)

Subnet Delegation

Delegate subnet to a service: None

Network Policy for Private Endpoints

The network policy affects the types of network policies that control traffic going to the private endpoints in this subnet. [Learn more](#)

Private endpoint network policy: Disabled

Save **Cancel** **Give feedback**

Click on the drop down on “Network Security Group”

Edit subnet

Security
Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway: None

Network security group: None

Route table: None

Service Endpoints
Create service endpoint policies to allow traffic to specific Azure resources from your virtual network over service endpoints. [Learn more](#)

Services: Select a service endpoint

Subnet Delegation: Delegate subnet to a service

Network Policy for Private Endpoints: The network policy affects the types of network policies that control traffic going to the private endpoints in this subnet. [Learn more](#)

Private endpoint network policy: Disabled

Save **Cancel** **Give feedback**

Select “**public-subnet-nsg**”

Edit subnet

Security
Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway: None

Network security group: public-subnet-nsg

Route table: None

Service Endpoints
Create service endpoint policies to allow traffic to specific Azure resources from your virtual network over service endpoints. [Learn more](#)

Services: Select a service endpoint

Subnet Delegation: Delegate subnet to a service

Network Policy for Private Endpoints: The network policy affects the types of network policies that control traffic going to the private endpoints in this subnet. [Learn more](#)

Private endpoint network policy: Disabled

Save **Cancel** **Give feedback**

Then, click on “**Save**”

You are viewing a new version of Browse experience. Click here to access the old experience.

demo-vnet | Subnets

Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet.

Name	IPv4	IPv6	Available IPs	Delegated to
private-app-az1	10.0.2.0/24	-	251	-
private-app-az2	10.0.3.0/24	-	251	-
private-data-az1	10.0.4.0/24	-	251	-
private-data-az2	10.0.5.0/24	-	251	-
public-az1	10.0.0.0/24	-	251	-
public-az2	10.0.1.0/24	-	251	-

We have successfully associated the **public subnet az1 and az2** with the Network Security Group we created in the previous lecture.

Scroll the bar

You are viewing a new version of Browse experience. Click here to access the old experience.

demo-vnet | Subnets

Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet.

Name	IPv6	Available IPs	Delegated to	Security group	Role
private-app-az1	-	251	-	-	-
private-app-az2	-	251	-	-	-
private-data-az1	-	251	-	-	-
private-data-az2	-	251	-	-	-
public-az1	-	251	-	public-subnet-nsg	-
public-az2	-	251	-	public-subnet-nsg	-

You can see that these subnets are associated with the public subnet network security group (**public-subnet-nsg**).

3. Create Azure Storage for Application Code

In this section, we will create an Azure storage account and a Blob container. This storage will securely host the HTML application file we will deploy to our virtual machine.

3.1. How to Create a Storage Account in Azure

In this step-by-step tutorial, you'll learn how to create a Storage Account in Azure, which is the foundation for hosting and managing your application files, logs, and other cloud data assets.

In this lecture, we will create an Azure storage account. An Azure storage account will be equivalent to when you create an S3 bucket in AWS. In this project, we will use the Azure storage account to store the web files for our project.

The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with icons for Copilot, notifications, settings, help, and a user profile. The main header says "Microsoft Azure" and has a search bar. Below the header is a "Azure services" section with icons for "Create a resource", "Virtual networks", "Network security groups", "NAT gateways", "Virtual machines", "Storage accounts", "SSH keys", "Azure DevOps organizations", "Subscriptions", and "More services". Underneath this is a "Resources" section titled "Recent". It lists various Azure resources with their names, types, and last viewed times. The resources listed are: demo-vnet (Virtual network), public-subnet-nsg (Network security group), rg-vm-demo-eus (Resource group), demo-public-ip-nat-az1 (Public IP address), demo-nat-gateway-az1 (NAT gateway), soso (Resource group), sosoebotprod (Storage account), sosoebotqa (Storage account), and sosoebottst (Storage account). At the bottom of the "Recent" section is a "See all" link. Below the "Recent" section is a "Navigate" section with links for "Subscriptions", "Resource groups", "All resources", and "Dashboard".

Name	Type	Last Viewed
demo-vnet	Virtual network	16 minutes ago
public-subnet-nsg	Network security group	6 hours ago
rg-vm-demo-eus	Resource group	6 hours ago
demo-public-ip-nat-az1	Public IP address	6 hours ago
demo-nat-gateway-az1	NAT gateway	6 hours ago
soso	Resource group	8 hours ago
sosoebotprod	Storage account	6 days ago
sosoebotqa	Storage account	6 days ago
sosoebottst	Storage account	6 days ago

To create an Azure Storage account, search for “**Storage Accounts**”

Storage Accounts

Azure services

Create a resource

Virtual networks

Resources

Recent

Name

- demo-vnet
- public-subnet-nsg
- rg-vm-demo-eus
- demo-public-ip-nat-az1
- demo-nat-gateway-az1
- soso
- sosoebotprod
- sosoebotqa
- sosoebottst

See all

All Services (25) Marketplace (3) More (4)

Services

- Storage accounts (classic)
- Storage accounts**
- Azure Storage Actions
- Discounts

Marketplace

- Storage account
- Storage task - Azure Storage Actions
- Azure Storage Mover

Documentation

- Upgrade to a general-purpose v2 storage account - Azure Storage
- Authorize access to blobs using Microsoft Entra ID - Azure Storage
- Configure a connection string - Azure Storage
- Azure Files scalability and performance targets

Continue searching in Microsoft Entra ID

Search all subscriptions. Give feedback

Last Viewed

- 16 minutes ago
- 6 hours ago
- 6 hours ago
- 6 hours ago
- 8 hours ago
- 6 days ago
- 6 days ago

Navigate

Subscriptions Resource groups All resources Dashboard

https://portal.azure.com/#view/Microsoft_Azure_StorageHub/StorageHub.MenuView/~/StorageAccountsBrowse

Then select “Storage Accounts” under services

Storage center | Blob Storage

Default Directory (ebotsidneysmith@outlook.onmicrosoft.com)

Home > Storage center

Storage center | Blob Storage

Overview All storage resources

- Object storage
- File storage
- Block storage
- Data management
- Migration
- Partner solutions
- Management services
- Help

Summary Resources

Create Restore Manage view Refresh Export to CSV Open query Assign tags Delete Add to service group Group by none

You are viewing a new version of Browse experience. Click here to access the old experience.

Name ↑	Type	Kind	Resource Group	Location	Subscription
sosoebotprod	Storage account	StorageV2	soso	East US 2	Azure subscription 1
sosoebotqa	Storage account	StorageV2	soso	East US 2	Azure subscription 1
sosoebottst	Storage account	StorageV2	soso	East US 2	Azure subscription 1

Showing 1 - 3 of 3. Display count: auto

Add or remove favorites by pressing Ctrl+Shift+F

Give feedback

Click on “Create”

The screenshot shows the 'Create a storage account' wizard in the Microsoft Azure portal. The 'Basics' tab is selected. In the 'Project details' section, the 'Subscription' is set to 'Azure subscription 1' and the 'Resource group' is 'rg-vm-demo-eus'. The 'Instance details' section shows the 'Storage account name' as 'demoprojectwebfiles', which has a red arrow pointing to the 'Region' dropdown. The 'Region' dropdown is set to '(US) East US 2'. Other settings include 'Preferred storage type' (Choose preferred storage type), 'Performance' (Standard selected), and 'Tags' (None). At the bottom, there are 'Previous', 'Next', and 'Review + create' buttons.

Make sure you subscription and Resource group are selected correctly. Then give the “**Storage account name**”, I will call it “**demoprojectwebfiles**”

The screenshot shows the 'Create a storage account' wizard in the Microsoft Azure portal. The 'Basics' tab is selected. In the 'Project details' section, the 'Subscription' is set to 'Azure subscription 1' and the 'Resource group' is 'rg-vm-demo-eus'. The 'Instance details' section shows the 'Storage account name' as 'demoprojectwebfiles', which has a red arrow pointing to the 'Region' dropdown. The 'Region' dropdown is set to '(US) East US 2'. Other settings include 'Preferred storage type' (Choose preferred storage type), 'Performance' (Standard selected), and 'Tags' (None). At the bottom, there are 'Previous', 'Next', and 'Review + create' buttons.

Our “**Region**” is “**East US 2**” and for the “**Preferred Storage Type**”, leave it as default.

Create a storage account

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription * Azure subscription 1

Resource group * rg-vm-demo-eus Create new

Instance details

Storage account name * demoprojectwebfiles

Region * (US) East US 2 Deploy to an Azure Extended Zone

Preferred storage type Choose preferred storage type

ⓘ This helps us provide relevant guidance. It doesn't restrict your storage to this resource type. [Learn more](#)

Performance * ⓘ Standard: Recommended for most scenarios (general-purpose v2 account) Premium: Recommended for scenarios that require low latency.

Redundancy * ⓘ Geo-redundant storage (GRS)

Make read access to data available in the event of regional unavailability. Geo priority replication guarantees Blob storage data is geo-replicated within 15 minutes.

Previous Next Review + create Give feedback

For the “**Performance**”, we are going to leave it as “**Standard**”

Create a storage account

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription * Azure subscription 1

Resource group * rg-vm-demo-eus Create new

Instance details

Storage account name * demoprojectwebfiles

Region * (US) East US 2 Deploy to an Azure Extended Zone

Preferred storage type Choose preferred storage type

ⓘ This helps us provide relevant guidance. It doesn't restrict your storage to this resource type. [Learn more](#)

Performance * ⓘ Standard: Recommended for most scenarios (general-purpose v2 account) Premium: Recommended for scenarios that require low latency.

Redundancy * ⓘ Geo-redundant storage (GRS)

Make read access to data available in the event of regional unavailability. Geo priority replication guarantees Blob storage data is geo-replicated within 15 minutes.

Previous Next Review + create Give feedback

On “**Redundancy**”, click on the drop down

Create a storage account

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription * Azure subscription 1

Resource group * rg-vm-demo-eus Create new

Instance details

Storage account name * demoprojectwebfiles

Region * (US) East US 2 Deploy to an Azure Extended Zone

Preferred storage type Choose preferred storage type

Performance * Standard: Recommended for most scenarios (general-purpose v2 account)
Premium: Recommended for scenarios that require low latency.

Redundancy * Locally-redundant storage (LRS): Lowest-cost option with basic protection against server rack and drive failure. Recommended for non-critical scenarios.

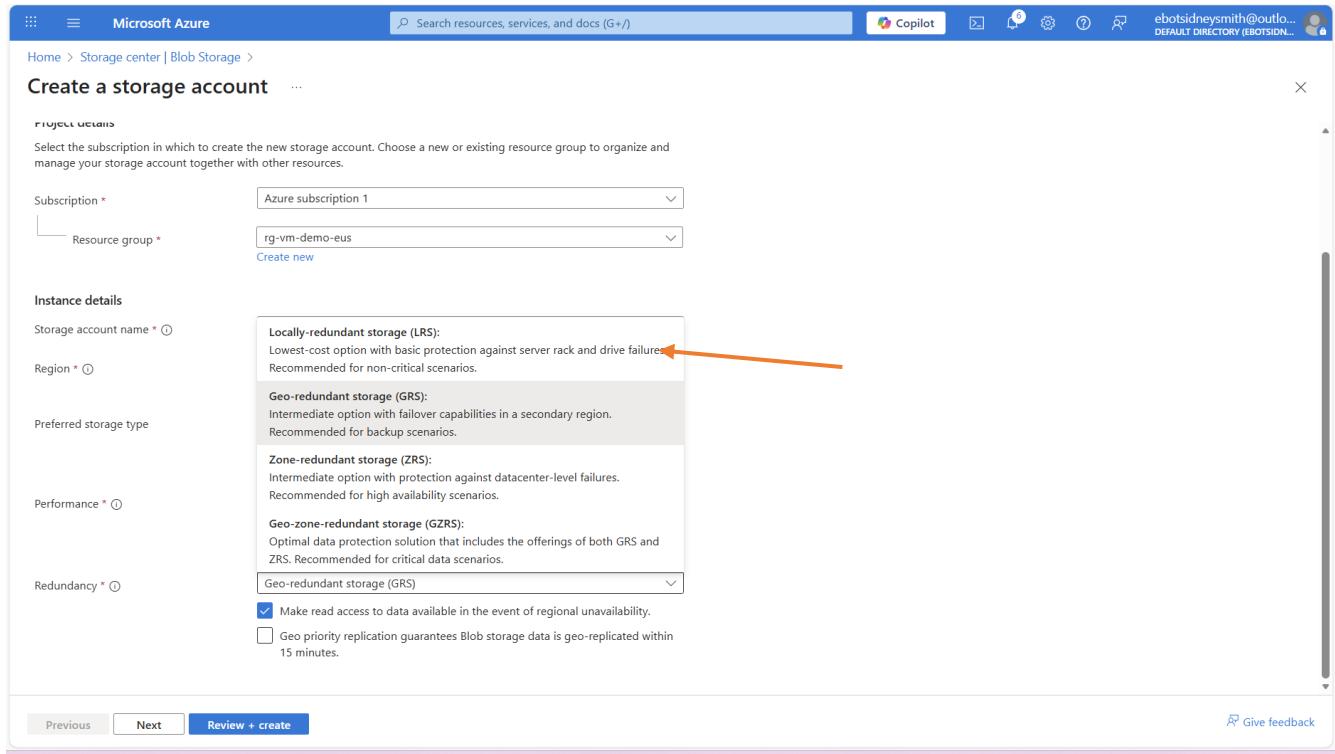
Geo-redundant storage (GRS): Intermediate option with failover capabilities in a secondary region. Recommended for backup scenarios.

Zone-redundant storage (ZRS): Intermediate option with protection against datacenter-level failures. Recommended for high availability scenarios.

Geo-zone-redundant storage (GZRS): Optimal data protection solution that includes the offerings of both GRS and ZRS. Recommended for critical data scenarios.

Make read access to data available in the event of regional unavailability.
 Geo priority replication guarantees Blob storage data is geo-replicated within 15 minutes.

Previous Next Review + create Give feedback



Select “Locally Redundant storage (LRS)”

Create a storage account

RECOMMENDED Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below. [Learn more about Azure storage accounts](#)

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription * Azure subscription 1

Resource group * rg-vm-demo-eus Create new

Instance details

Storage account name * demoprojectwebfiles

Region * (US) East US 2 Deploy to an Azure Extended Zone

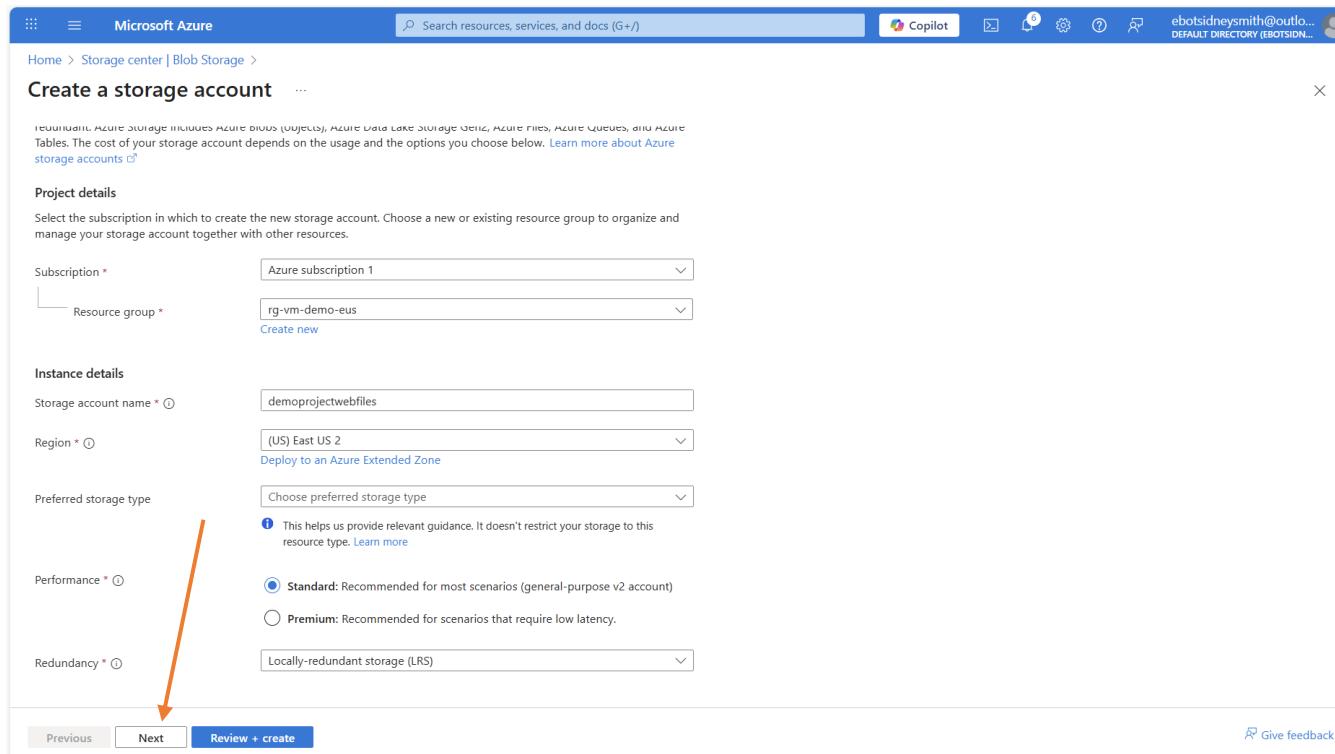
Preferred storage type Choose preferred storage type

This helps us provide relevant guidance. It doesn't restrict your storage to this resource type. [Learn more](#)

Standard: Recommended for most scenarios (general-purpose v2 account)
 Premium: Recommended for scenarios that require low latency.

Redundancy * Locally-redundant storage (LRS)

Previous Next Review + create Give feedback



Then click on “Next”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

Home > Storage center | Blob Storage >

Create a storage account

Basics Advanced Networking Data protection Encryption Tags Review + create

Security

Configure security settings that impact your storage account.

Require secure transfer for REST API operations

Allow enabling anonymous access on individual containers

Enable storage account key access

Default to Microsoft Entra authorization in the Azure portal

Minimum TLS version

Permitted scope for copy operations (preview)

Hierarchical Namespace

Hierarchical namespace, complemented by Data Lake Storage Gen2 endpoint, enables file and directory semantics, accelerates big data analytics workloads, and enables access control lists (ACLs) [Learn more](#)

Enable hierarchical namespace

Access protocols

Blob and Data Lake Gen2 endpoints are provisioned by default [Learn more](#)

Enable SFTP

Previous Next Review + create Give feedback

On this page, we will leave all the settings as default. Then click on “Next”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

Home > Storage center | Blob Storage >

Create a storage account

Basics Advanced Networking Data protection Encryption Tags Review + create

Public access

Access your resource from anywhere through a public network.

Note: Allowing access to your resource through a public network increases security risk. [Learn more](#)

Public network access * Enable

Allow inbound and outbound access with the option to restrict select inbound access using resource access configurations for this resource.

Disable

Restrict inbound access while allowing outbound access.

Secure by perimeter (Most restricted)

Restrict inbound and outbound access using a network security perimeter. Secure by perimeter offers the greatest level of inbound and outbound restriction to secure your resource.

Public network access scope * Enable from all networks

Enable from selected virtual networks and IP addresses

⚠️ Enabling public network access will make this resource available publicly. Unless public access is required, consider using the most restricted access configurations.

Private endpoint

Create a private endpoint to allow a private connection to this resource. Additional private endpoint connections can be created within the storage account or private link center.

Previous Next Review + create Give feedback

On this page, we will also leave the setting as default. Click on “Next”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSID...)

Home > Storage center | Blob Storage >

Create a storage account

Basics Advanced Networking **Data protection** Encryption Tags Review + create

Recovery

Protect your data from accidental or erroneous deletion or modification.

Enable point-in-time restore for containers
Use point-in-time restore to restore one or more containers to an earlier state. If point-in-time restore is enabled, then versioning, change feed, and blob soft delete must also be enabled. [Learn more](#)

Enable soft delete for blobs
Soft delete enables you to recover blobs that were previously marked for deletion, including blobs that were overwritten. [Learn more](#)
Days to retain deleted blobs

Enable soft delete for containers
Soft delete enables you to recover containers that were previously marked for deletion. [Learn more](#)
Enabling soft delete for frequently overwritten data may result in increased storage costs. [Learn more](#)
Days to retain deleted containers

Enable soft delete for file shares
Soft delete enables you to recover file shares that were previously marked for deletion. [Learn more](#)
Days to retain deleted file shares

Tracking

Manage versions and keep track of changes made to your blob data.

Previous **Next** Review + create Give feedback

On this page, we will also leave the setting as default. Click on “Next”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSID...)

Home > Storage center | Blob Storage >

Create a storage account

Basics Advanced Networking **Encryption** Tags Review + create

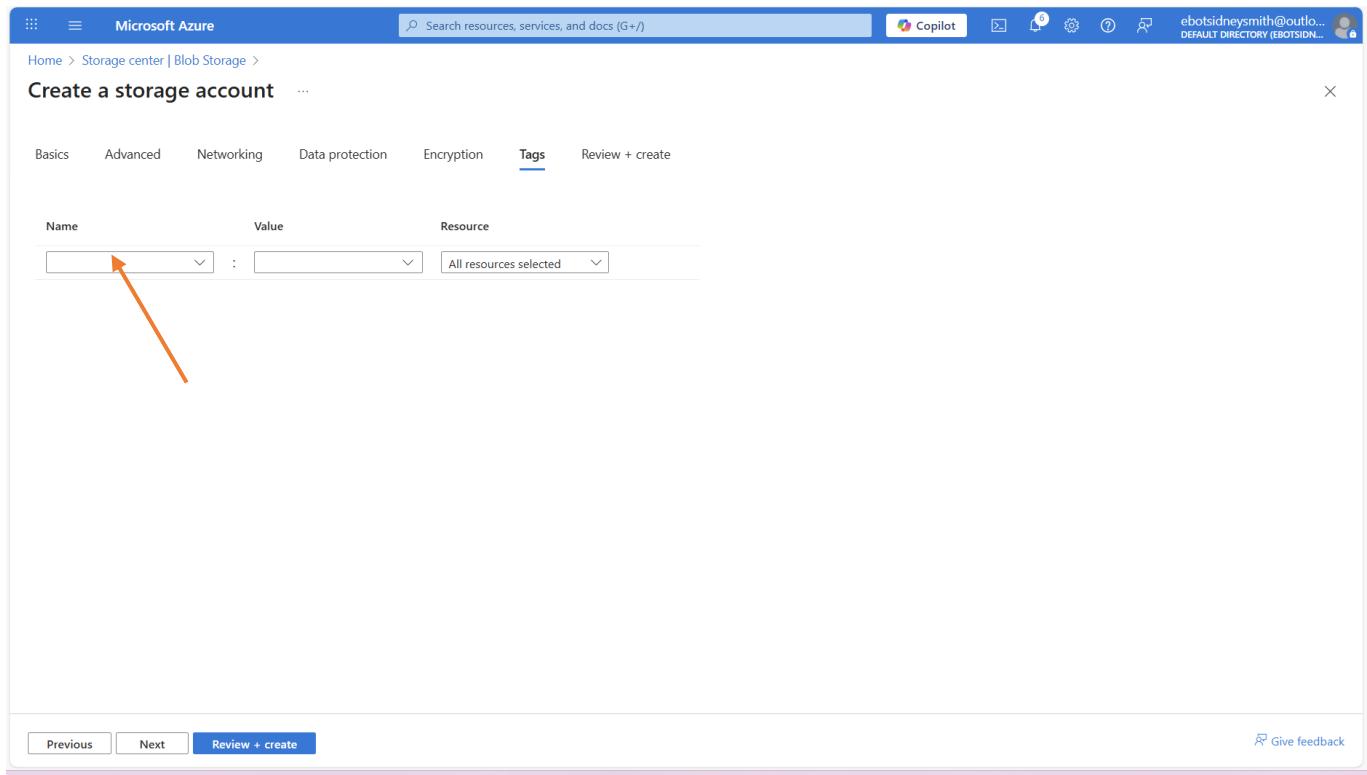
Encryption type * Microsoft-managed keys (MMK)
 Customer-managed keys (CMK)

Enable support for customer-managed keys Blobs and files only
 All service types (blobs, files, tables, and queues)
⚠ This option cannot be changed after this storage account is created.

Enable infrastructure encryption

Previous **Next** Review + create Give feedback

Here also click on “Next”



Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDN...)

Home > Storage center | Blob Storage >

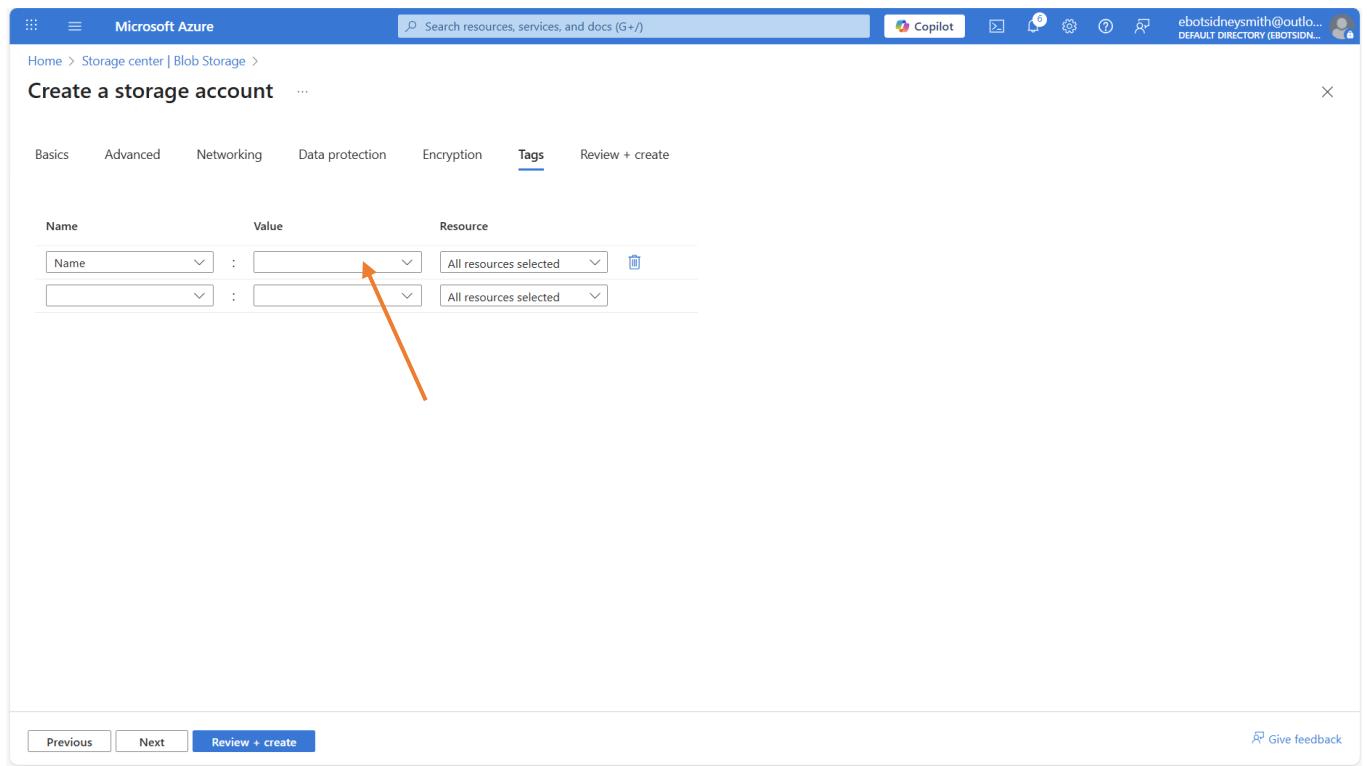
Create a storage account

Basics Advanced Networking Data protection Encryption **Tags** Review + create

Name	Value	Resource
<input type="text"/>	<input type="text"/>	All resources selected
<input type="text"/>	<input type="text"/>	All resources selected

Previous Next Review + create Give feedback

Here, we are going to add a name tag. We will add the name “Name”



Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDN...)

Home > Storage center | Blob Storage >

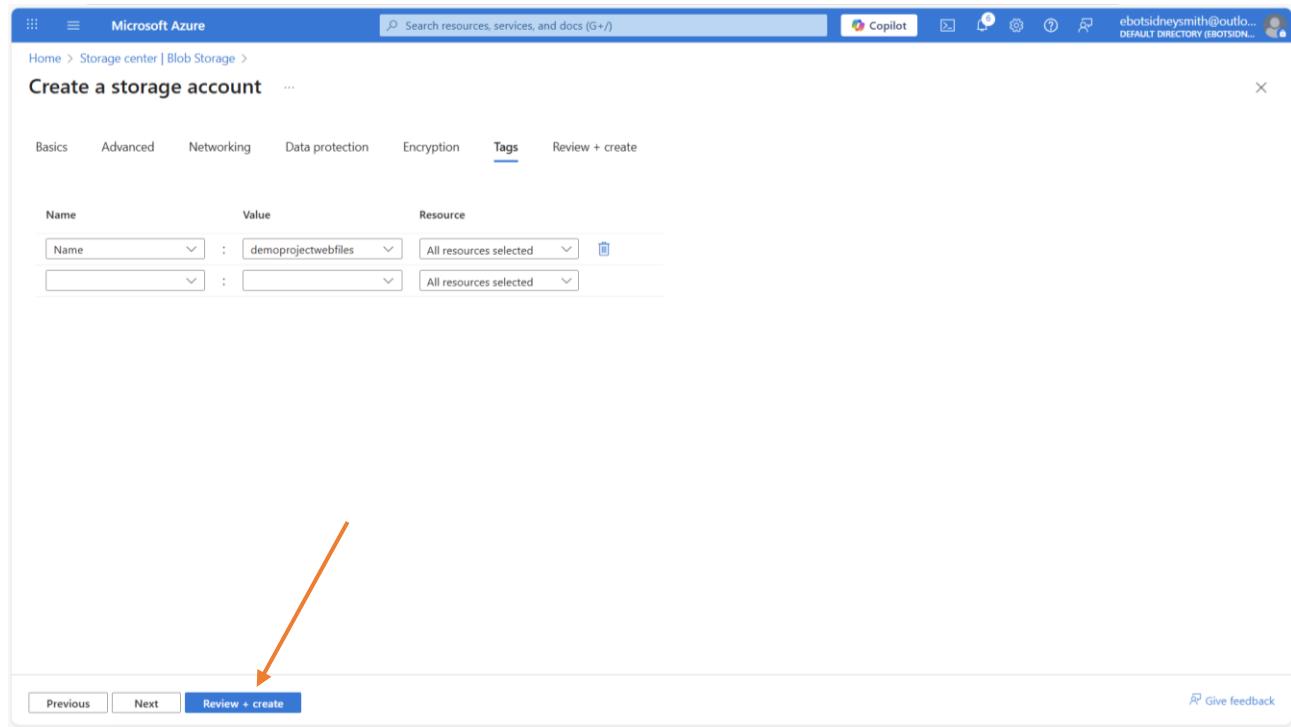
Create a storage account

Basics Advanced Networking Data protection Encryption **Tags** Review + create

Name	Value	Resource
Name	<input type="text"/>	All resources selected
<input type="text"/>	<input type="text"/>	All resources selected

Previous Next Review + create Give feedback

On “Value”, we will call it “**demoprojectwebfiles**”



Then, click on “Review + Create”

The screenshot shows the 'Create a storage account' wizard in Microsoft Azure, specifically the 'Review + create' step. The 'Review + create' tab is selected. The page displays configuration details under three sections: Basics, Advanced, and Security. The 'Basics' section includes fields for Subscription (Azure subscription 1), Resource group (rg-vm-demo-eus), Location (East US 2), Storage account name (demoprojectwebfiles), Preferred storage type (Standard), Performance (Standard), and Replication (Locally-redundant storage (LRS)). The 'Advanced' section includes fields for Enable hierarchical namespace (Disabled), Enable SFTP (Disabled), Enable network file system v3 (Disabled), Allow cross-tenant replication (Disabled), Access tier (Hot), and Enable large file shares (Enabled). The 'Security' section includes a field for Secure transfer (Enabled). At the bottom, there are 'Previous' and 'Next' buttons, and a prominent blue 'Create' button highlighted with an orange arrow.

Review and click on “create”

The screenshot shows the Microsoft Azure Deployment Overview page for a deployment named "demoprojectwebfiles_1764046898693". The main message is "Your deployment is complete". Deployment details include a start time of 11/25/2025, 12:02:42 AM, and a correlation ID of c4b43a27-00a4-4b2a-a318-adbbbab133e4. A red arrow points from the text "The deployment is complete. Click on “Go to Resource”" to the "Go to resource" button.

The deployment is complete. Click on “Go to Resource”

The screenshot shows the Microsoft Azure Storage Account Overview page for a storage account named "demoprojectwebfiles". The main title bar shows the account name. A red arrow points from the text "Here you can see our storage account." to the storage account name "demoprojectwebfiles" in the title bar.

Here you can see our storage account.

3.2. How to Create a Blob Container inside Azure Storage

Learn how to create a Blob Container inside your Azure Storage Account. This is where your HTML application files will reside, making them easily accessible for deployment and hosting on a virtual machine

In this lecture, we are going to create a container in the storage account we created in the previous lecture.

Creating a container in a storage account in Azure is similar to creating a folder in S3 bucket in AWS. So, the container we are creating in this lecture is equivalent to the folder you will create in an S3 bucket in AWS.

To start, make sure you are in the storage account.

The screenshot shows the Microsoft Azure Storage account overview for 'demoprojectwebfiles'. The 'Overview' tab is selected. On the left, there's a sidebar with links like Activity log, Tags, Diagnose and solve problems, Access Control (IAM), Data migration, Events, Storage browser, Storage Mover, Partner solutions, and Resource visualizer. Under 'Resource visualizer', the 'Data storage' link is highlighted with a red arrow. The main content area shows the storage account's configuration under 'Essentials' and 'Properties' tabs. It includes details like Resource group (rg-vm-demo-eus), Location (eastus2), Subscription (Azure subscription 1), Subscription ID (dd5d4252-9ca5-4581-9dc7-b63c0798bde7), Disk state (Available), and Tags (Name: demoprojectwebfiles). The 'Blob service' section shows settings for Hierarchical namespace (Disabled), Default access tier (Hot), Blob anonymous access (Disabled), Blob soft delete (Enabled (7 days)), Container soft delete (Enabled (7 days)), Versioning (Disabled), Change feed (Disabled), NFS v3 (Disabled), Allow cross-tenant replication (Disabled), and Storage tasks assignments (None). The 'Security' section includes Require secure transfer for REST API operations (Enabled), Storage account key access (Enabled), Minimum TLS version (Version 1.2), and Infrastructure encryption (Disabled). The 'Networking' section includes Public network access (Enabled), Public network access scope (Enable from all networks), Private endpoint connections (0), Network routing (Microsoft network routing), and Endpoint type (Standard). At the bottom, there's a note: 'Add or remove favorites by pressing Ctrl+Shift+F'.

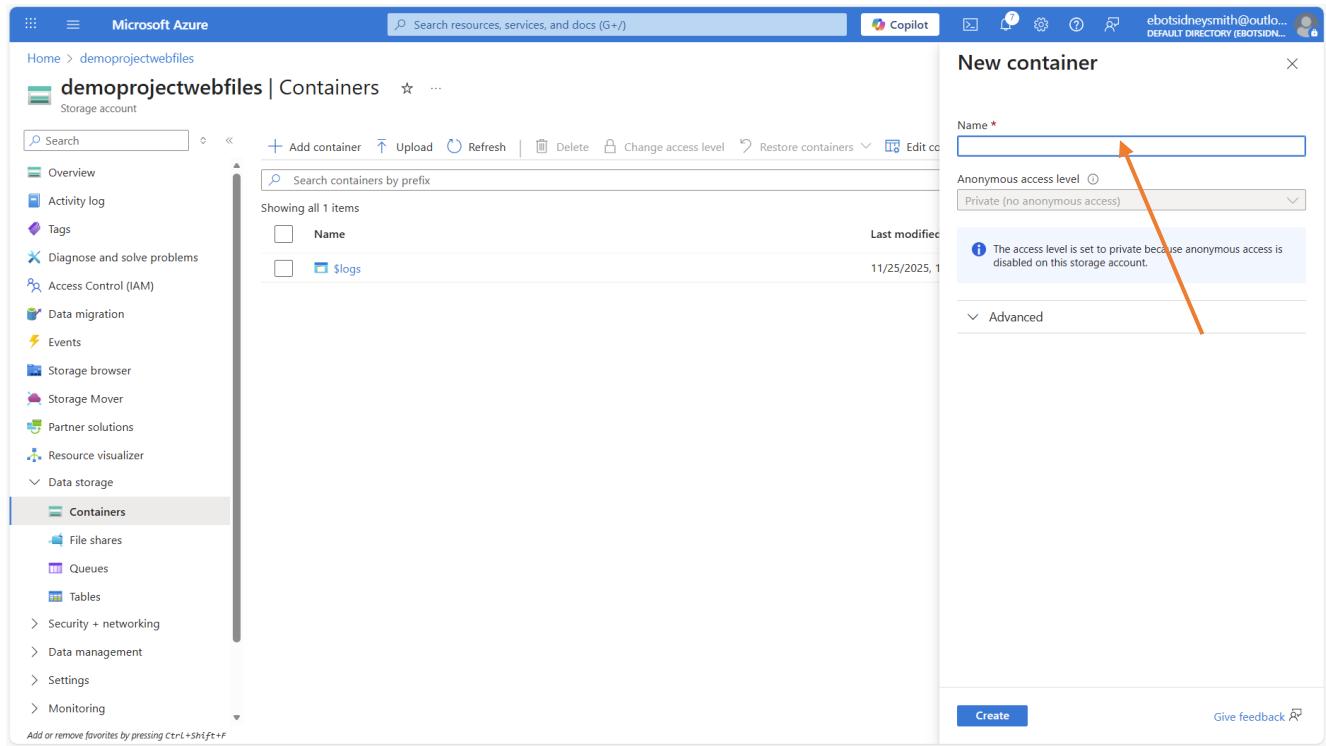
Click on “Data Storage”

The screenshot shows the Microsoft Azure Storage account overview page for 'demoprojectwebfiles'. The left sidebar has a 'Data storage' section with 'Containers' selected, indicated by a red arrow. The main content area displays 'Essentials' information and the 'Properties' tab. Under 'Properties', the 'Blob service' section is shown with various configuration settings like 'Hierarchical namespace' (Disabled), 'Default access tier' (Hot), and 'Container soft delete' (Enabled). The 'File service' section is also partially visible.

Click on “Containers”

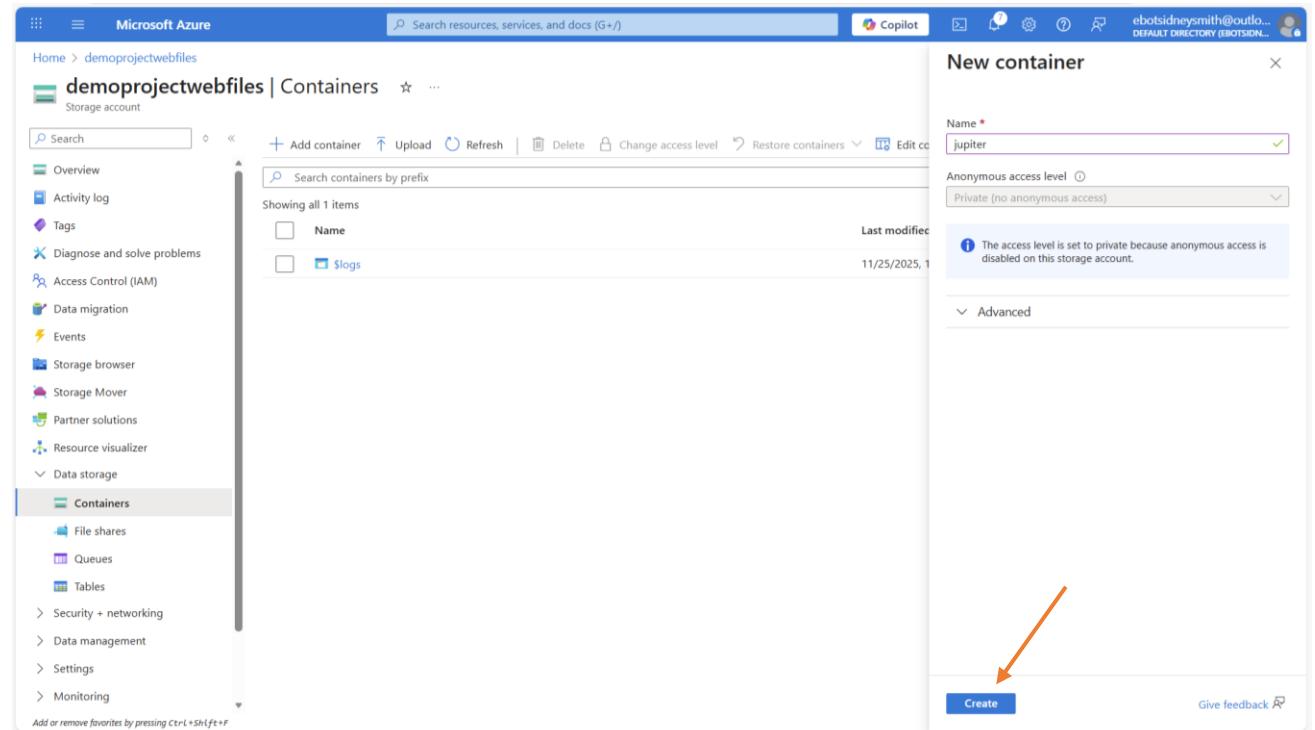
The screenshot shows the Microsoft Azure Storage account containers page for 'demoprojectwebfiles'. The left sidebar has 'Containers' selected, indicated by a red arrow. The main content area shows a table of existing containers, with one entry named '\$logs'. At the top of the table, there is a blue 'Add container' button, also indicated by a red arrow.

Click on “Add Container”



The screenshot shows the Microsoft Azure Storage container creation dialog. In the center, there's a table with two rows: 'Name' and 'Logs'. The 'Name' row has a text input field containing 'demoprojectwebfiles'. An orange arrow points from the text input field to the 'Create' button at the bottom right of the dialog. The 'Logs' row contains a file icon and the word 'Logs'. To the right of the table, there's a section titled 'New container' with fields for 'Name' (containing 'demoprojectwebfiles') and 'Anonymous access level' (set to 'Private (no anonymous access)'). A note below says, 'The access level is set to private because anonymous access is disabled on this storage account.' At the bottom right of the dialog is a 'Create' button.

We have to give the container a name, we will call it “**jupiter**”



This screenshot is identical to the one above, but the 'Name' input field now contains the value 'jupiter'. An orange arrow points from the 'Create' button at the bottom right of the dialog to the 'Create' button at the bottom right of the main Azure Storage interface.

Click on “**Create**”

The screenshot shows the Microsoft Azure Storage account interface. On the left, the navigation menu is expanded to show 'Data storage' and 'Containers'. Under 'Containers', 'Logs' and 'jupiter' are listed. An orange arrow points from the text 'Click on "Upload"' to the 'Upload' button in the top toolbar of the 'jupiter' container's details page.

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

Home > demoprojectwebfiles

demoprojectwebfiles | Containers

Storage account

Search

Add container

Upload

Refresh

Delete

Change access level

Restore containers

Edit columns

Search containers by prefix

Only show active containers

Name

Last modified

Anonymous access level

Lease state

\$Logs

11/25/2025, 12:03:04 AM

Private

Available

jupiter

11/25/2025, 12:11:13 AM

Private

Available

The container has been created. Now, that we have created the container, the next thing to do is to upload our application code for this project. Click on the container “**jupiter**”

The screenshot shows the Microsoft Azure Storage account interface, specifically the 'jupiter' container details page. The 'Overview' tab is selected. The top toolbar includes 'Add Directory', 'Upload' (which is highlighted with an orange arrow), 'Change access level', 'Refresh', 'Delete', 'Copy', 'Paste', 'Rename', 'Acquire lease', 'Break lease', and 'Edit columns'. A search bar at the bottom allows filtering by blob prefix.

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

Home > demoprojectwebfiles | Containers >

jupiter

Container

Search

Add Directory

Upload

Change access level

Refresh

Delete

Copy

Paste

Rename

Acquire lease

Break lease

Edit columns

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Authentication method: Access key [Switch to Microsoft Entra user account]

Add filter

Search blobs by prefix (case-sensitive)

Only show active blobs

Name

Last modified

Access tier

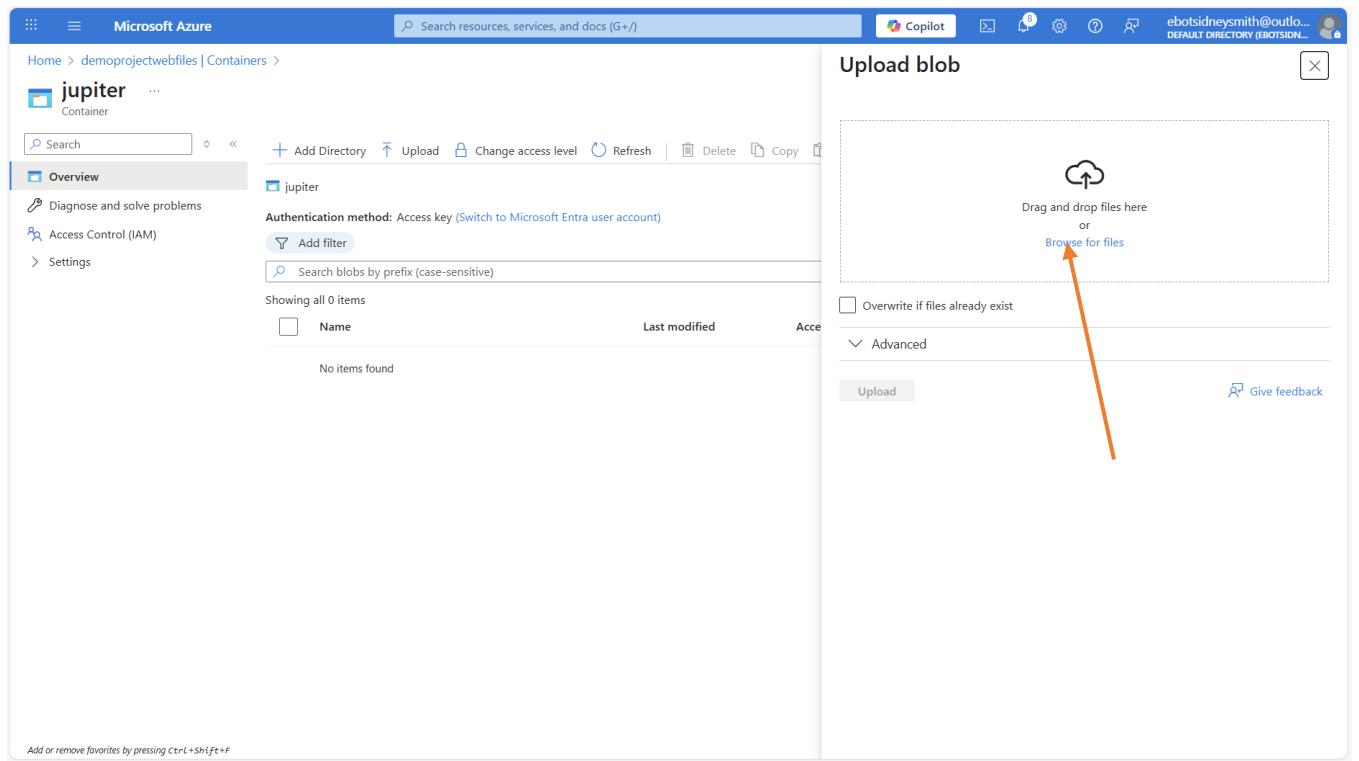
Blob type

Size

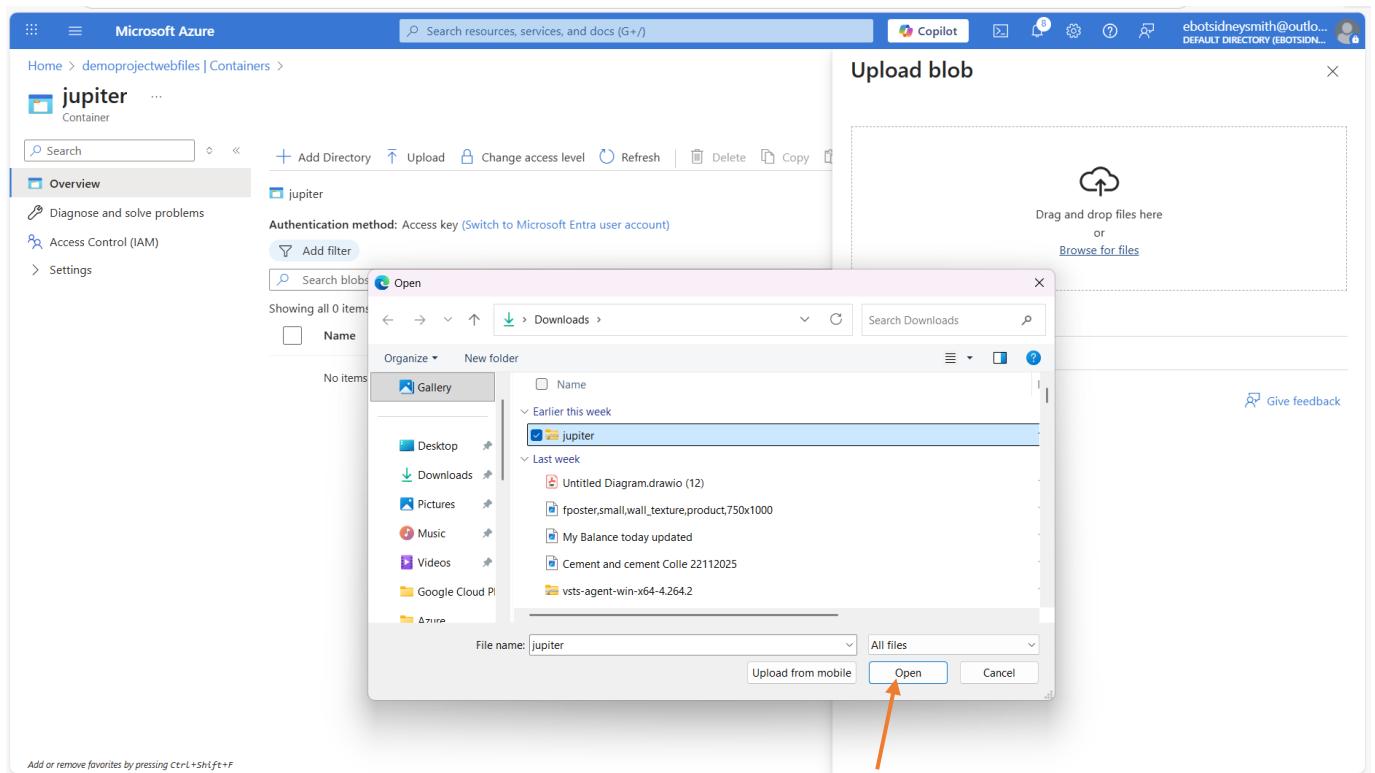
Lease state

No items found

Click on “**Upload**”



Click on “Browse for Files”



Click on “Open”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com

DEFAULT DIRECTORY (EBOTSIDNEY...)

Home > demoprojectwebfiles | Containers >

jupiter Container

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Add Directory Upload Change access level Refresh Delete Copy

jupiter

Authentication method: Access key (Switch to Microsoft Entra user account)

Add filter

Search blobs by prefix (case-sensitive)

Showing all 0 items

Name Last modified Access tier

No items found

Overwrite if files already exist

Advanced

Upload

Give feedback

Click on “Upload”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com

DEFAULT DIRECTORY (EBOTSIDNEY...)

Home > demoprojectwebfiles | Containers >

jupiter Container

Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Add Directory Upload Change access level Refresh Delete Copy Paste Rename Acquire lease Break lease Edit columns

jupiter

Authentication method: Access key (Switch to Microsoft Entra user account)

Add filter

Search blobs by prefix (case-sensitive)

Only show active blobs

Showng all 1 items

Name	Last modified	Access tier	Blob type	Size	Lease state	...
jupiter.zip	11/25/2025, 12:17:03 AM	Hot (Inferred)	Block blob	2.89 MiB	Available	...

Add or remove favorites by pressing Ctrl+Shift+F

We have successfully uploaded the application code in the Jupiter container.

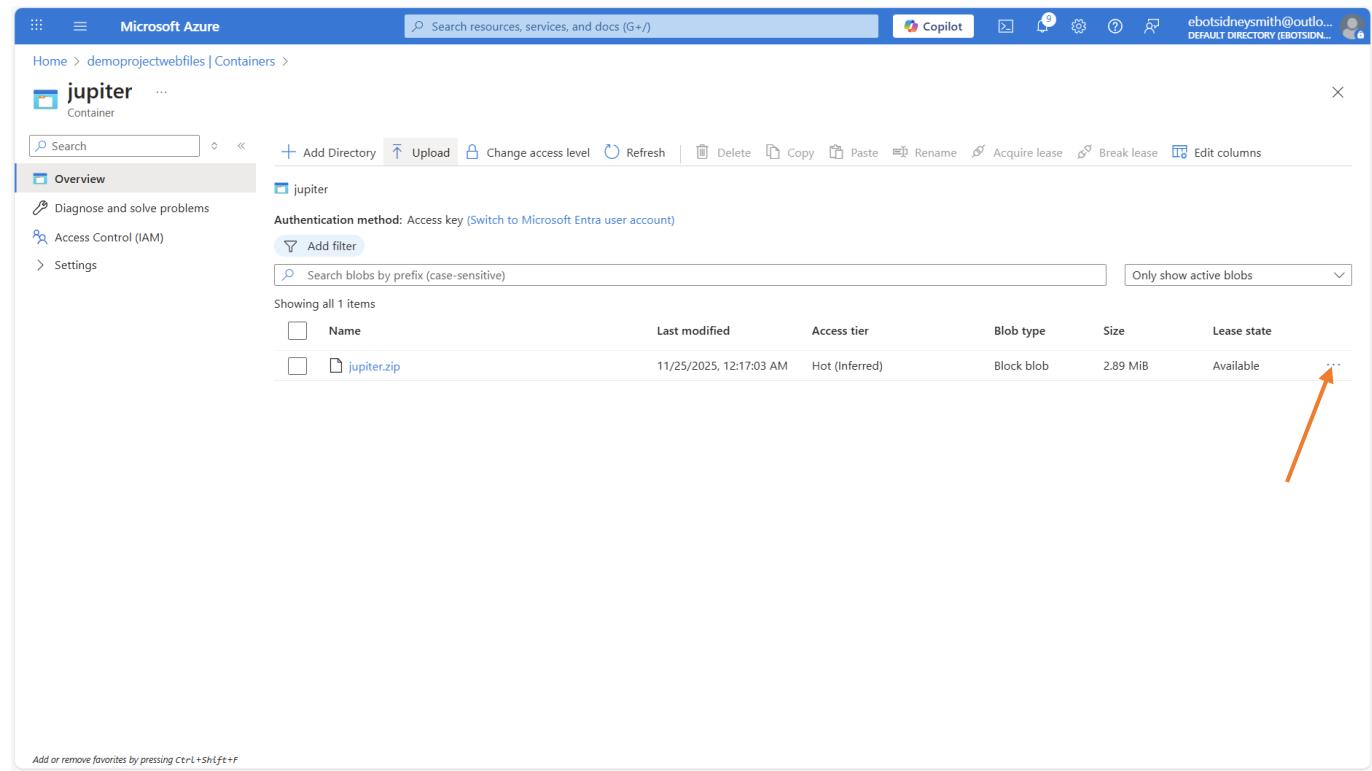
3.3. How to Generate a SAS Token for Secure Access to Azure Blob Storage

In this video, you'll learn how to generate a SAS (Shared Access Signature) token to securely grant limited-time access to your Azure Blob Storage — without exposing sensitive credentials.

In this lecture, we will generate a SAS token for the container we created in the previous lecture. Remember that the Azure storage account and the container in it are private. So, in order for the virtual machine to be able to download the web files we uploaded in the container, we have to generate an SAS token that the virtual machine will use to download the web files from the container.

So, basically, an SAS token allows any virtual machine to have access to the files we uploaded in the container.

To generate the SAS token, make sure you are in the container.



The screenshot shows the Microsoft Azure Storage Container Overview page. The container name is 'jupiter'. A single file, 'jupiter.zip', is listed. The file was last modified on 11/25/2025, 12:17:03 AM, has a size of 2.89 MiB, and is a Block blob. It is currently available. To the right of the file list, there is a three-dot menu icon (...).

Once you are in the container. Go to the right-hand side of the file we uploaded in it. Click on the three dots (...).

Microsoft Azure

Home > demoprojectwebfiles | Containers >

jupiter Container

Search Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Authentication method: Access key (Switch to Microsoft Entra user account)

Add filter

Search blobs by prefix (case-sensitive)

Showing all 1 items

Name	Last modified	Access tier	Blob type	Size
jupiter.zip	11/25/2025, 12:17:03 AM	Hot (Inferred)	Block blob	2.89 MiB

Properties

- View/edit
- Rename
- Clone
- Copy URL
- Download
- Change tier
- Generate SAS**
- Acquire lease
- Create snapshot
- View snapshots
- View versions
- Delete

Select “Generate SAS”

Microsoft Azure

Home > demoprojectwebfiles | Containers >

jupiter Container

Search Overview

Diagnose and solve problems

Access Control (IAM)

Settings

Authentication method: Access key (Switch to Microsoft Entra user account)

Add filter

Search blobs by prefix (case-sensitive)

Showing all 1 items

Name	Last modified	Access tier
jupiter.zip	11/25/2025, 12:17:03 AM	Hot (Inferred)

Generate SAS

A shared access signature (SAS) is a URI that grants restricted access to an Azure Storage blob. Use it when you want to grant access to storage account resources for a specific time range without sharing your storage account key. Learn more about creating an account SAS

Signing method

Account key User delegation key

Signing key

Key 1

Stored access policy

None

Permissions

Read

Start and expiry date/time

Start: 11/25/2025 12:05:22 AM (UTC-05:00) Eastern Time (US & Canada)

Expiry: 11/25/2025 8:20:22 AM (UTC-05:00) Eastern Time (US & Canada)

Allowed IP addresses

for example, 168.1.5.65 or 168.1.5.65-168.1....

Allowed protocols

HTTPS only HTTPS and HTTP

Generate SAS token and URL

On this page, we will leave most of the settings as the same. The only thing we will change is the “**Expiry**” date. For the expiry date, I will put it one year after.

Generate SAS

A shared access signature (SAS) is a URI that grants restricted access to an Azure Storage blob. Use it when you want to grant access to storage account resources for a specific time range without sharing your storage account key. [Learn more about creating an account SAS](#)

Signing method

Account key User delegation key

Signing key Key 1

Stored access policy None

Permissions * Read

Start and expiry date/time

Start 11/25/2025 12:05:22 AM
(UTC-05:00) Eastern Time (US & Canada)

Expiry 11/25/2026 8:20:22 AM
(UTC-05:00) Eastern Time (US & Canada)

Allowed IP addresses for example, 168.1.5.65 or 168.1.5.65-168.1...

Allowed protocols

HTTPS only HTTPS and HTTP

Generate SAS token and URL

Under “**Allowed IP addresses**”, we will leave it as default.

Generate SAS

A shared access signature (SAS) is a URI that grants restricted access to an Azure Storage blob. Use it when you want to grant access to storage account resources for a specific time range without sharing your storage account key. [Learn more about creating an account SAS](#)

Signing method

Account key User delegation key

Signing key Key 1

Stored access policy None

Permissions * Read

Start and expiry date/time

Start 11/25/2025 12:05:22 AM
(UTC-05:00) Eastern Time (US & Canada)

Expiry 11/25/2026 8:20:22 AM
(UTC-05:00) Eastern Time (US & Canada)

Allowed IP addresses for example, 168.1.5.65 or 168.1.5.65-168.1...

Allowed protocols

HTTPS only HTTPS and HTTP

Generate SAS token and URL

On “**Allowed Protocols**”, select “**HTTPS Only**”.

The screenshot shows the Microsoft Azure Storage Explorer interface. On the left, there's a sidebar with options like 'Overview', 'Diagnose and solve problems', 'Access Control (IAM)', and 'Settings'. The main area shows a container named 'jupiter' containing a single item, 'jupiter.zip'. On the right, a 'Generate SAS' dialog box is open. It includes fields for 'Signing method' (set to 'Account key'), 'Key 1' (selected), 'Stored access policy' (set to 'None'), 'Permissions' (set to 'Read'), and date/time settings for 'Start' (11/25/2025, 12:05:22 AM) and 'Expiry' (11/25/2026, 8:20:22 AM). Below these are fields for 'Allowed IP addresses' and 'Allowed protocols' (set to 'HTTPS only'). A prominent blue button at the bottom right of the dialog box is labeled 'Generate SAS token and URL'. A red arrow points from the text above to this button.

Then click on “Generate SAS token and URL” and scroll down

This screenshot is similar to the previous one, showing the 'jupiter' container in the Azure Storage Explorer. The 'Generate SAS' dialog box is still open, but now it has generated a SAS token and URL. The token is displayed in a text input field: 'sp=r&st=2025-11-25T05:05:22Z&se=2026-11-25T13:20:22Z&spr=https&sv=2024-1...'. Below it, the 'Blob SAS URL' is shown as a link: 'https://demoprojectwebfiles.blob.core.windows.net/jupiter/jupiter.zip?sp=r&st=202...'. A red arrow points from the text above to the generated URL.

You can see the token here. This is the actual token and below is the URL that the virtual machine can use to download the web files from the container.

One thing you need to know is that even though this token will expire in a year, if you click away from this page, you are not going to see this token anymore. So, you have to copy the token and the token URL. And save them.

BLOB SAS TOKEN

```
sp=r&st=2025-11-25T05:05:22Z&se=2026-11-25T13:20:22Z&spr=https&sv=2024-11-04&sr=b&sig=3keMH0Qxk%2FpG6DOTwW0yyNTnZ7MzKFxOpOQNVQpONu8%3D
```

BLOB SAS URL

```
https://demoprojectwebfiles.blob.core.windows.net/jupiter/jupiter.zip?sp=r&st=2025-11-25T05:05:22Z&se=2026-11-25T13:20:22Z&spr=https&sv=2024-11-04&sr=b&sig=3keMH0Qxk%2FpG6DOTwW0yyNTnZ7MzKFxOpOQNVQpONu8%3D
```

This is all we have to do to generate an SAS token that our virtual machine will use to download the web files from our container.

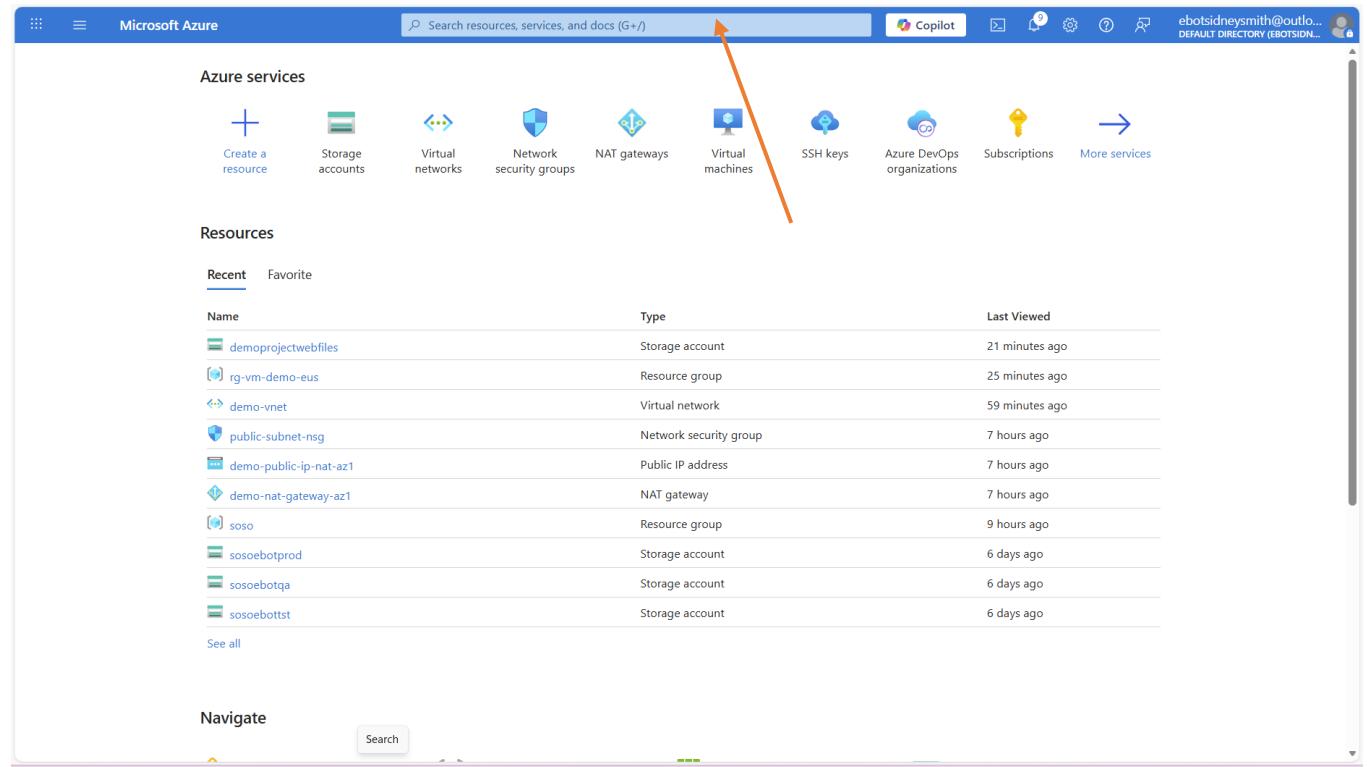
4. Launch and Connect to the Virtual Machine

In this section, we will create an ubuntu virtual machine on Azure, set up SSH key for secure access and connect to it from Windows or Mac.

4.1. How to Create an SSH Key Pair in Azure

Learn how to generate an SSH key pair in Azure to securely connect to your virtual machine without using a password. This is a foundational security step when working with cloud infrastructure.

In this lecture, we are going to create SSH keys that we will use to SSH into our Virtual machine. To create SSH Keys,



The screenshot shows the Microsoft Azure portal interface. At the top, there's a blue header bar with the Microsoft Azure logo, a search bar containing 'Search resources, services, and docs (G+)', and several icons for Copilot, notifications, and account settings. The user's email, 'ebotsidneysmith@outlook.com', is also visible. Below the header, the main content area has a title 'Azure services' and a row of service icons: 'Create a resource' (plus sign), 'Storage accounts', 'Virtual networks', 'Network security groups', 'NAT gateways', 'Virtual machines' (highlighted by an orange arrow), 'SSH keys', 'Azure DevOps organizations', 'Subscriptions', and 'More services'. Underneath this is a section titled 'Resources' with tabs for 'Recent' (selected) and 'Favorite'. It lists recent resources with their names, types, and last viewed times. At the bottom left, there's a 'Navigate' button and a search bar with the placeholder 'Search'.

Name	Type	Last Viewed
demoprojectwebfiles	Storage account	21 minutes ago
rg-vm-demo-eus	Resource group	25 minutes ago
demo-vnet	Virtual network	59 minutes ago
public-subnet-nsg	Network security group	7 hours ago
demo-public-ip-nat-az1	Public IP address	7 hours ago
demo-nat-gateway-az1	NAT gateway	7 hours ago
soso	Resource group	9 hours ago
sosoebotprod	Storage account	6 days ago
sosoebotqa	Storage account	6 days ago
sosoebottst	Storage account	6 days ago

Search for “SSH Keys”

Microsoft Azure

SSH Keys

Azure services

Create a resource Storage accounts

Resources

Recent Favorite

Name

- demoprojectwebfiles
- rg-vm-demo-eus
- demo-vnet
- public-subnet-nsg
- demo-public-ip-nat-az1
- demo-nat-gateway-az1
- soso
- sosoebotprod
- sosoebotqa
- sosoebottst

See all

Services

All Services (9) Marketplace (2) More (4)

SSH keys

BitLocker Keys

Key vaults

QnA makers

Marketplace

SSH Key

Universal SSH Key Manager by SSH

Documentation

Use SSH keys to connect to Linux VMs - Azure Virtual Machines

Connect to a Linux VM - Azure Virtual Machines

Azure network security groups overview

Use xrdp with Linux - Azure Virtual Machines

Continue searching in Microsoft Entra ID

Searching all subscriptions.

Last Viewed

21 minutes ago

25 minutes ago

59 minutes ago

7 hours ago

7 hours ago

7 hours ago

9 hours ago

6 days ago

6 days ago

6 days ago

Storage account

Give feedback

Storage account

Storage account

Navigate

<https://portal.azure.com/#blade/HubsExtension/BrowseResourceBlade/resourceType/Microsoft.Compute%2FsshPublicKeys>

Select “SSH Keys” under services.

Microsoft Azure

SSH keys

Search resources, services, and docs (G+)

Home >

+ Create Manage view Refresh Export to CSV Open query Assign tags Add to service group Group by none

You are viewing a new version of Browse experience. Click here to access the old experience.

Filter for any field... Subscription equals all Resource Group equals all Location equals all Add filter

No SSH keys to display

SSH is an encrypted connection protocol that allows secure sign-ins over unsecured connections. SSH keys allow secure connection to virtual machines, without having to use passwords.

+ Create Learn more

Showing 1 - 0 of 0. Display count: auto ▾ Give feedback

Click on “Create”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Home > SSH keys > Create an SSH key

Basics Tags Review + create

Creating an SSH key resource allows you to manage and use public keys stored in Azure with Linux virtual machines.

Learn more

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * (Azure subscription 1)

Resource group * (Create new)

Instance details

Region (US) East US 2

Key pair name *

SSH public key source (Generate new key pair)

SSH Key Type (RSA SSH Format)

Review + create < Previous Next : Tags >

Make sure your Subscription is selected and select the “Resource Group”. Click on the drop down

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Home > SSH keys > Create an SSH key

Basics Tags Review + create

Creating an SSH key resource allows you to manage and use public keys stored in Azure with Linux virtual machines.

Learn more

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * (Azure subscription 1)

Resource group * (Select existing...)

rg-vm-demo-eus (NetworkWatcherRG)

rg-vm-demo-eus (soso)

Instance details

Region (US) East US 2

Key pair name *

SSH public key source (Generate new key pair)

SSH Key Type (RSA SSH Format)

Review + create < Previous Next : Tags >

Select “rg-vm-demo-eus”

Microsoft Azure

Home > SSH keys > Create an SSH key

Basics Tags Review + create

Creating an SSH key resource allows you to manage and use public keys stored in Azure with Linux virtual machines. [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Resource group * [Create new](#)

Instance details

Region

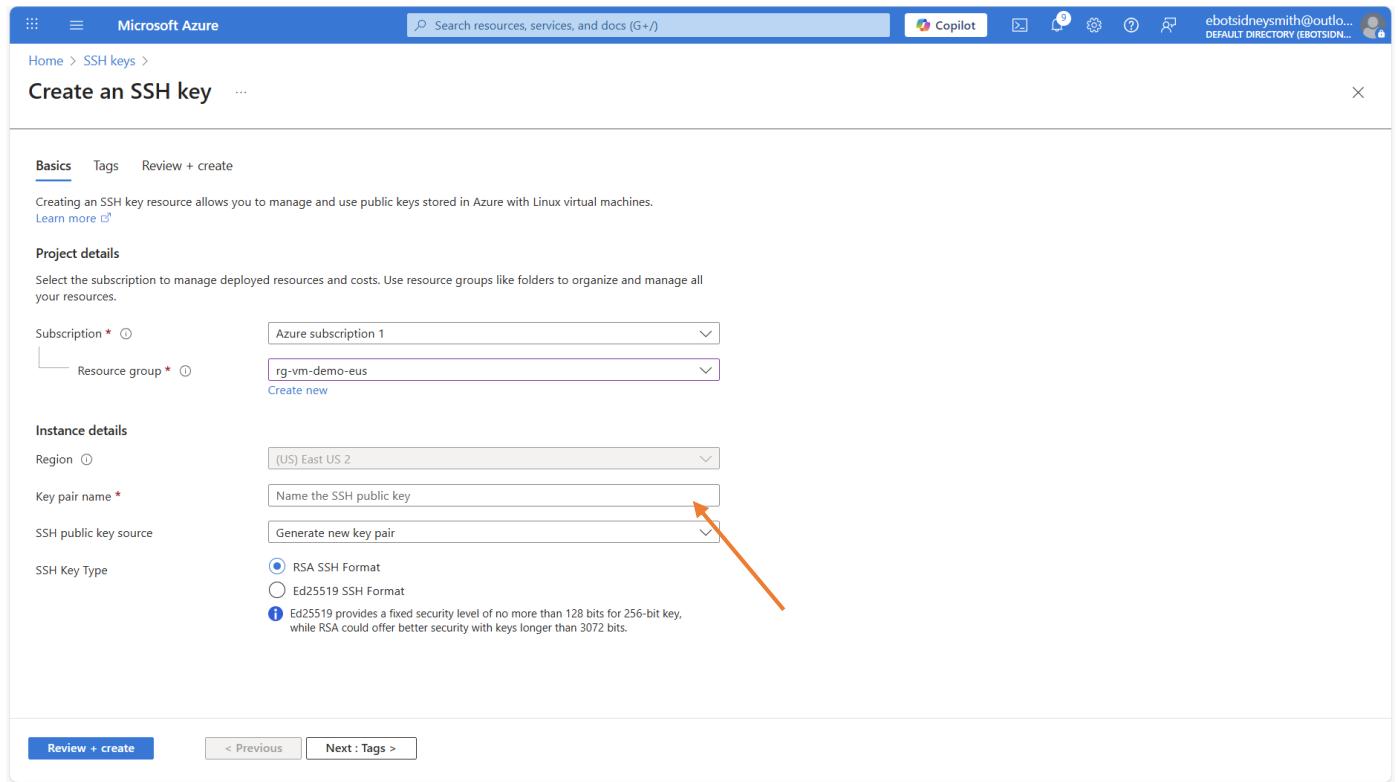
Key pair name * 

SSH public key source 

SSH Key Type RSA SSH Format Ed25519 SSH Format

Ed25519 provides a fixed security level of no more than 128 bits for 256-bit key, while RSA could offer better security with keys longer than 3072 bits.

[Review + create](#) [Next : Tags >](#)



For “Key Pair Name”, we will call the key pair “ssh-demo-key”

Microsoft Azure

Home > SSH keys > Create an SSH key

Basics Tags Review + create

Creating an SSH key resource allows you to manage and use public keys stored in Azure with Linux virtual machines. [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Resource group * [Create new](#)

Instance details

Region

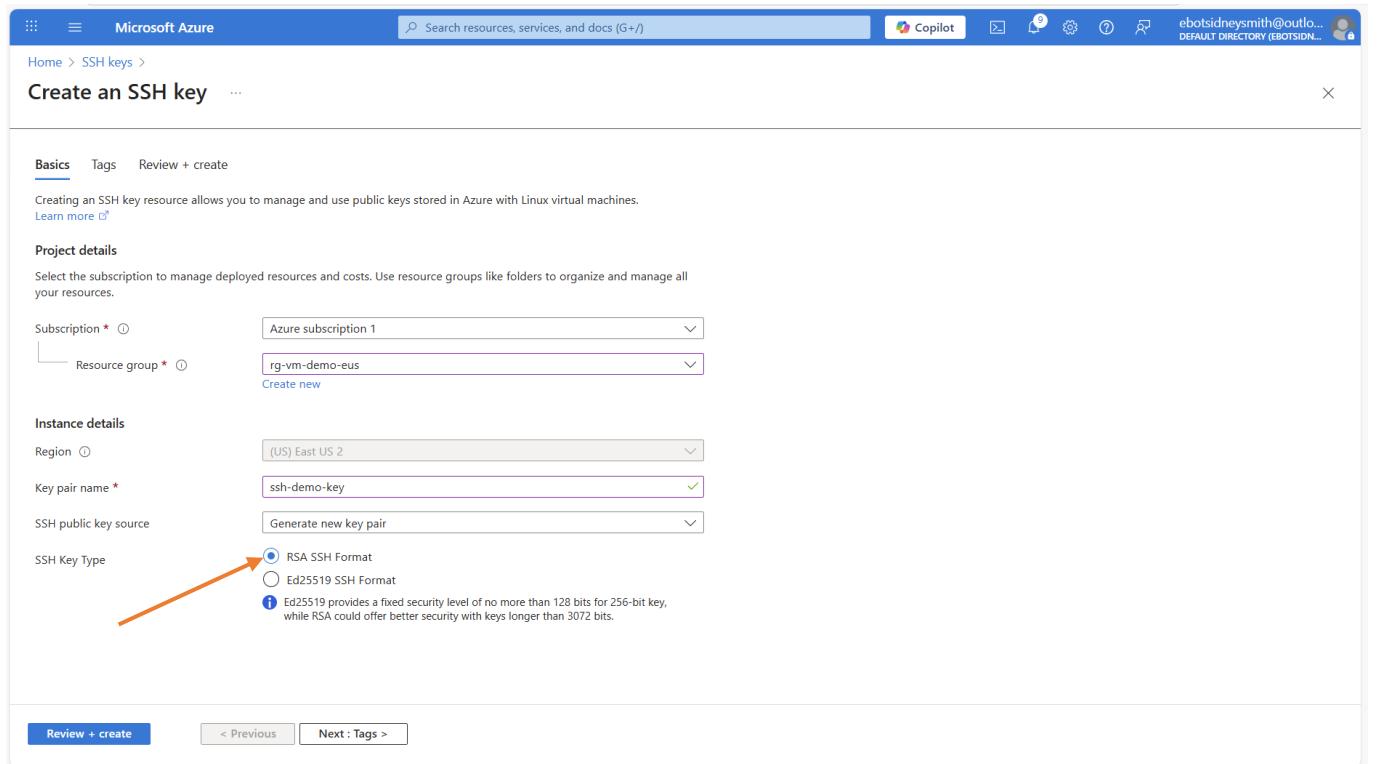
Key pair name * 

SSH public key source

SSH Key Type RSA SSH Format Ed25519 SSH Format

Ed25519 provides a fixed security level of no more than 128 bits for 256-bit key, while RSA could offer better security with keys longer than 3072 bits.

[Review + create](#) [Next : Tags >](#)



For “SSH Key Type”, select “RSA SSH Format”

Microsoft Azure

Search resources, services, and docs (G+ /)

Copilot

ebotsidneysmith@outlo...
DEFAULT DIRECTORY (EBOTSIDN...)

Home > SSH keys >

Create an SSH key ...

Basics Tags Review + create

Creating an SSH key resource allows you to manage and use public keys stored in Azure with Linux virtual machines.
Learn more

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * (Azure subscription 1) rg-vm-demo-eus (Resource group * Create new)

Instance details

Region (US) East US 2 Key pair name * ssh-demo-key

SSH public key source Generate new key pair

SSH Key Type RSA SSH Format (selected)
Ed25519 SSH Format
Ed25519 provides a fixed security level of no more than 128 bits for 256-bit key, while RSA could offer better security with keys longer than 3072 bits.

Review + create < Previous Next : Tags >

Let the other settings as default and click on “Next: Tags”

Microsoft Azure

Search resources, services, and docs (G+ /)

Copilot

ebotsidneysmith@outlo...
DEFAULT DIRECTORY (EBOTSIDN...)

Home > SSH keys >

Create an SSH key ...

Basics Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
	:	sshPublicKeys

Review + create < Previous Next : Review + create >

Then we will enter a Tag name. Under “Name”, enter “Name” and on “Value” enter “ssh-demo-key”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDN...)

Home > SSH keys >

Create an SSH key ...

Basics Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name ⓘ	Value ⓘ	Resource
Name	: ssh-demo-key	sshPublicKeys
	:	sshPublicKeys

Review + create < Previous Next : Review + create >

Click on “Next: Review + Create”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSIDN...)

Home > SSH keys >

Create an SSH key ...

Validation passed

Basics Tags Review + create

Basics

Subscription	Azure subscription 1
Resource group	rg-vm-demo-eus
Region	East US 2
Key pair name	ssh-demo-key
SSH Key format	RSA

Tags

Name	ssh-demo-key
------	--------------

< Previous Next > Download a template for automation

Review your settings and click on “Create”

The screenshot shows the Microsoft Azure portal interface for creating an SSH key. The top navigation bar includes 'Microsoft Azure', a search bar, and various account and service icons. The main page title is 'Create an SSH key'. Below the title, a green banner indicates 'Validation passed'. The 'Review + create' tab is selected. On the left, there are sections for 'Basics' and 'Tags'. In the 'Basics' section, the following details are listed:

Subscription	Azure subscription 1
Resource group	rg-vm-demo-eus
Region	East US 2
Key pair name	ssh-demo-key
SSH Key format	RSA

In the 'Tags' section, there is one tag named 'ssh-demo-key'. At the bottom of the main form, there are buttons for 'Create', '< Previous', 'Next >', and 'Download a template for automation'. A modal window titled 'Generate new key pair' is overlaid on the page. It contains the following text:

An SSH key pair contains both a public key and a private key. **Azure doesn't store the private key.** After the SSH key resource is created, you won't be able to download the private key again. [Learn more](#)

Two buttons are present at the bottom of the modal:

- Download private key and create resource** (highlighted with an orange arrow)
- [Return to create an SSH key resource](#)

When you create SSH keys, two keys are going to be created. A public key and a private key. The public key stays in the Azure portal and this is the key you will add to your Virtual Machine.

And the Private key is the key you are seeing on the screen and this is the key you will download on your computer. This key will allow you to SSH into the virtual machine you have to add the public key to. This is how SSH works.

Click on “**Download private key and create resource**”, the key will be saved in your “**Downloads**” folder

The screenshot shows the Azure portal's 'SSH keys' page. At the top, there's a search bar and a 'Copilot' button. Below the header, it says 'Home > SSH keys > Create an SSH key >'. There are filters for 'Subscription equals all', 'Resource Group equals all', and 'Location equals all'. A message at the bottom says 'You are viewing a new version of Browse experience. Click here to access the old experience.' In the center, it says 'No SSH keys to display' with a brief description of what SSH is. Below that are 'Create' and 'Learn more' buttons. At the bottom, it shows 'Showing 1 - 0 of 0. Display count: auto'. On the right side, there's a 'Copilot' sidebar with a user profile and a 'Downloads' section showing two files: 'ssh-demo-key.pem' (Open file) and another 'ssh-demo-key.pem' (Open file). An orange arrow points from the 'Downloads' section in the sidebar to the first file.

The file has been downloaded to your “Downloads” folder. Check your Downloads folder

The screenshot shows a Windows File Explorer window with the title 'Downloads'. The path 'This PC > OS (C) > Users > ebots > Downloads' is visible in the address bar. The file 'ssh-demo-key' is selected, showing its details: Name, Date modified (11/25/2025 00:40), Type (PEM File), and Size (3 KB). An orange arrow points to the '3 KB' size entry.

You can see the ssh-demo-key.pem key file. Head back to the Azure page and refresh it

Microsoft Azure

SSH keys

Name: ssh-demo-key

Name	Type	Resource Group	Location	Subscription
ssh-demo-key	SSH key	rg-vm-demo-eus	East US 2	Azure subscription 1

Showing 1 - 1 of 1. Display count: auto

You can see the key we just created. Click on it

Microsoft Azure

SSH keys

ssh-demo-key

Overview

Essentials

Resource group: rg-vm-demo-eus

Location: East US 2

Subscription: Azure subscription 1

Subscription ID: dd5d4252-9ca5-4581-9dc7-b63c0788bde7

Tags: Name : ssh-demo-key

Public key

```
ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQgQDCWTuYqJpcDJSfgnDRp10OfcDplhFXNSwAPAvHuZjBnwdoezX
hbOvqgjSkrfmchRUB3KNP5FA/29qKGSrapNbcbCBRTFueMgZGZP5VfgV1pFFospPKjhR8wv20vc2aTcqW3u
So0J/cg8/1DBypvaAFiYOv5oihRoCs/F8pYnwD0khM7eUPH2aVphKyUd6ku0FjZL2sSEZUKJKUOc6PV5luEWS
qzqRG2cdWGCGyH5lbGPZUclqDusj7U9L2D1CO/b06Knse50f9nj+FdFgXw8+snVLvK01pvA8Bb6oq8fkA
2pMyygRZU6OxXLkwANEcf15rgApjSLWQNz26KLaplMb7ZQ3Rm9zB0/ElsyjponY8mbe5EPiC0jBZoozhid7
E65NM8lHEQHEqv95pyv53fTSNoH3Ng7m+a7Spk6TeohmM6QSL4LqqLQqPmQTYKDAYX3IAijzZbz
5kyOc9j2Jzbfb6afwy/IQeB8Qcxw5Iy3DD/QANZ2E0vpfaY5xyE= generated-by-azure
```

Getting started with SSH keys

Create a Linux virtual machine

How to connect

SSH troubleshooting

And you can see the public key mentioned earlier.

4.2. How to Move an SSH Private Key to Your Home Directory (Windows)

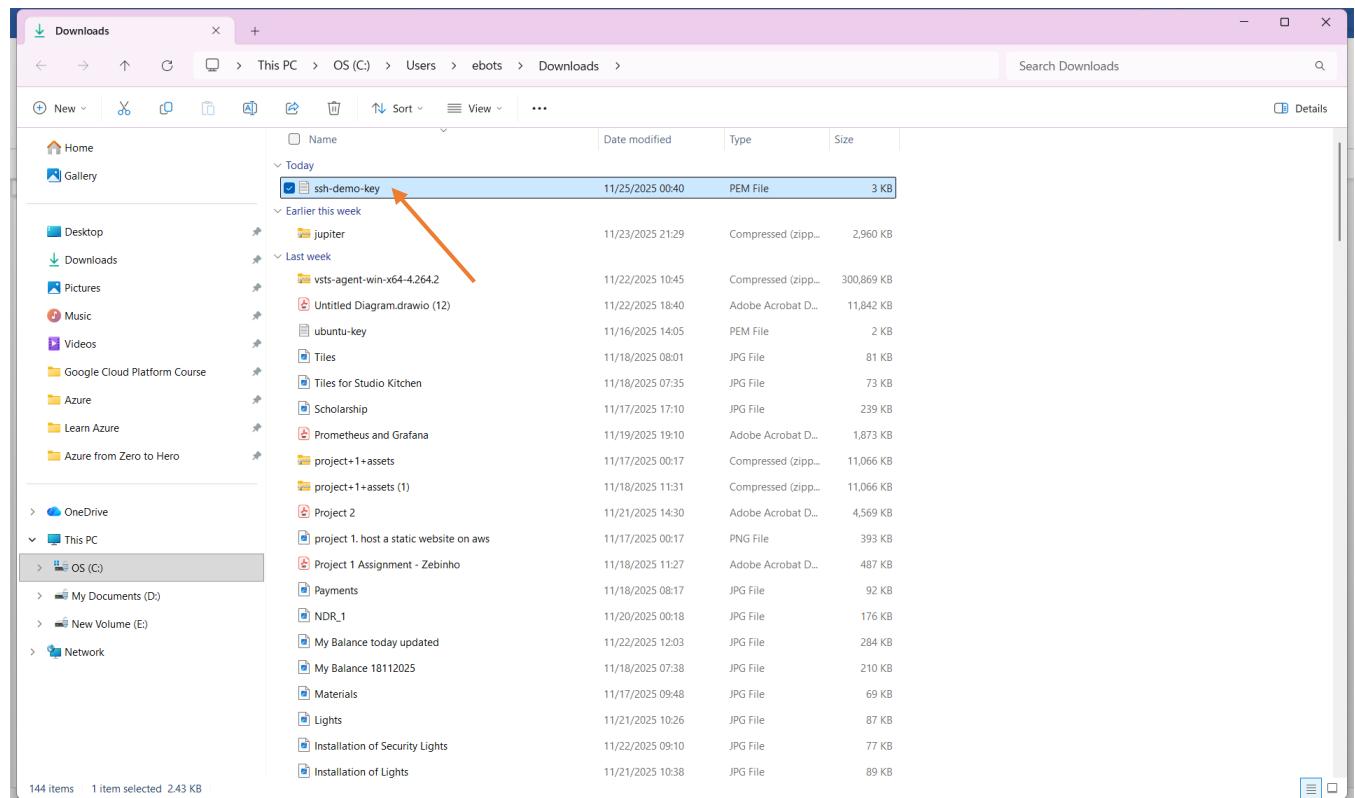
In this tutorial, you'll learn how to move your SSH private key to the correct location on Windows, so you can use it to connect to your Azure VM securely using PowerShell or a terminal.

In this lecture, we will use this command:

```
move "$HOME\Downloads\ssh-demo-key.pem" "$HOME\ssh-demo-key.pem"
```

To move the private key pair, we downloaded in the previous lecture into the home directory on our computer. The reason we have to move the private key into the home directory of your computer is because when you open your terminal, your terminal always open to your home directory. So, when we run our SSH command, we don't have to specify the path to the key pair in the Downloads directory.

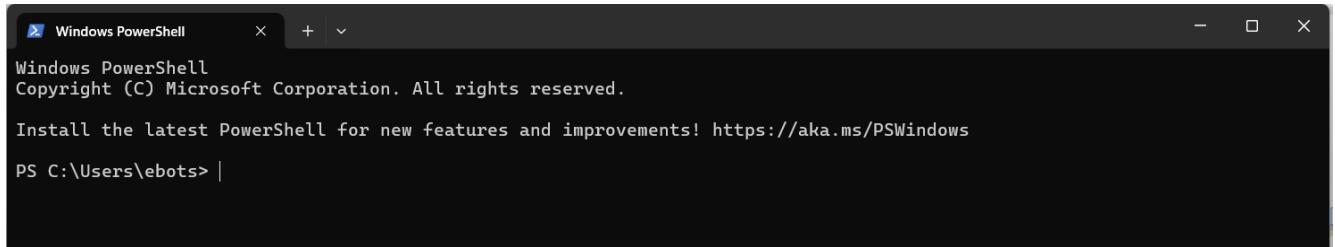
The key pair will already be in the home directory and we can just reference it there. That is why it is preferable to move the key to the home directory.



As you can see, the private key is currently in my Downloads directory. When you create a key pair and you download it, usually your computer will save it in the Downloads directory. So, first make sure your private key is in your Downloads directory.

The next thing is to confirm that the name of your private key match the name that is specified in the command above. In this project, I am calling the key pair "**ssh-demo-key**"

The next thing we are going to do is to open PowerShell.



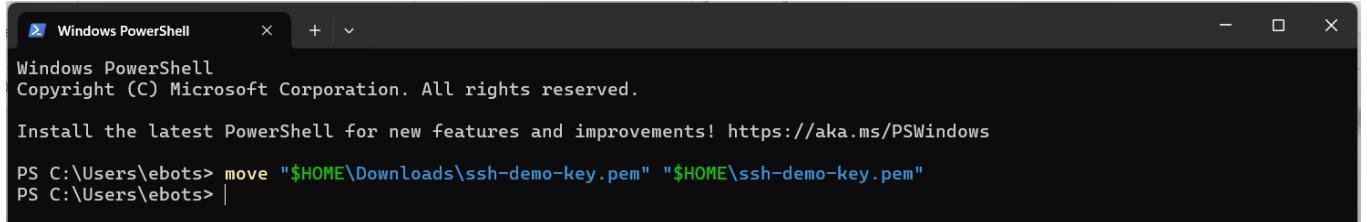
```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\ebots> |
```

Then, run the command:

```
move "$HOME\Downloads\ssh-demo-key.pem" "$HOME\ssh-demo-key.pem"
```



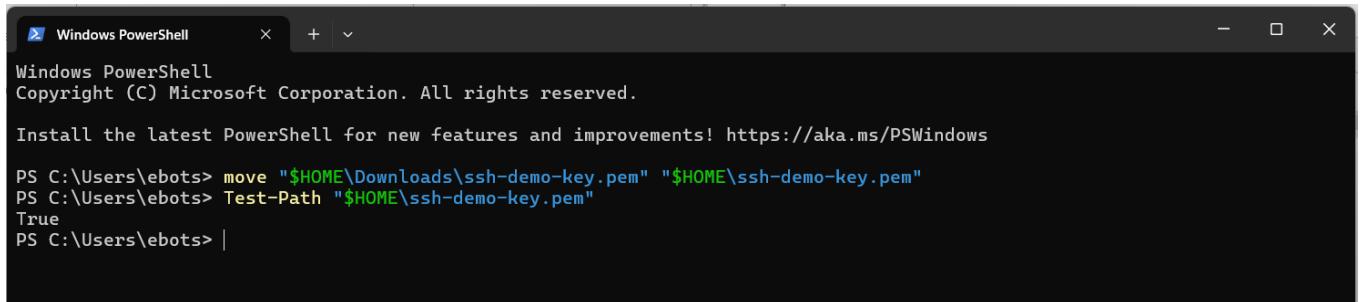
```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\ebots> move "$HOME\Downloads\ssh-demo-key.pem" "$HOME\ssh-demo-key.pem"
PS C:\Users\ebots> |
```

Next, we will run the command to verify that the private key is in our home directory.

```
Test-Path "$HOME\ssh-demo-key.pem"
```



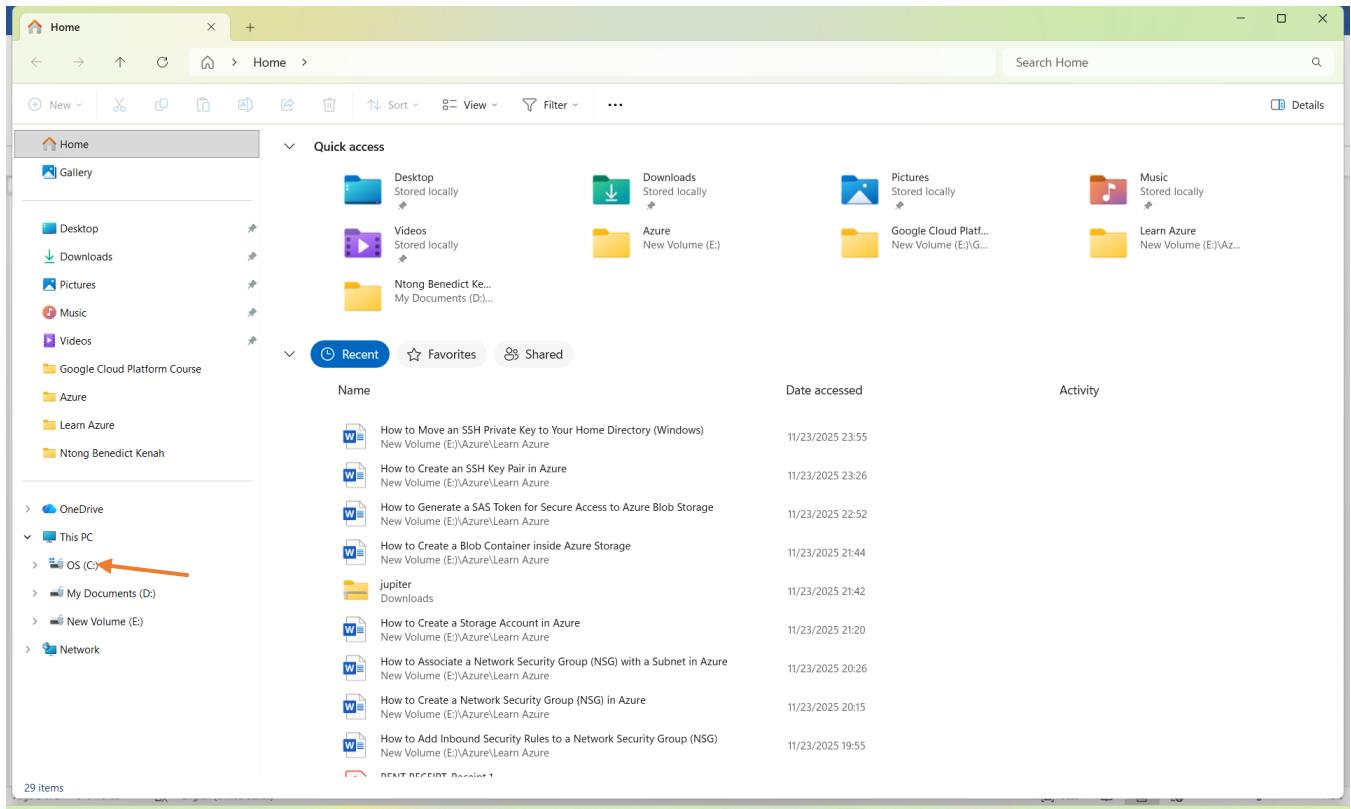
```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

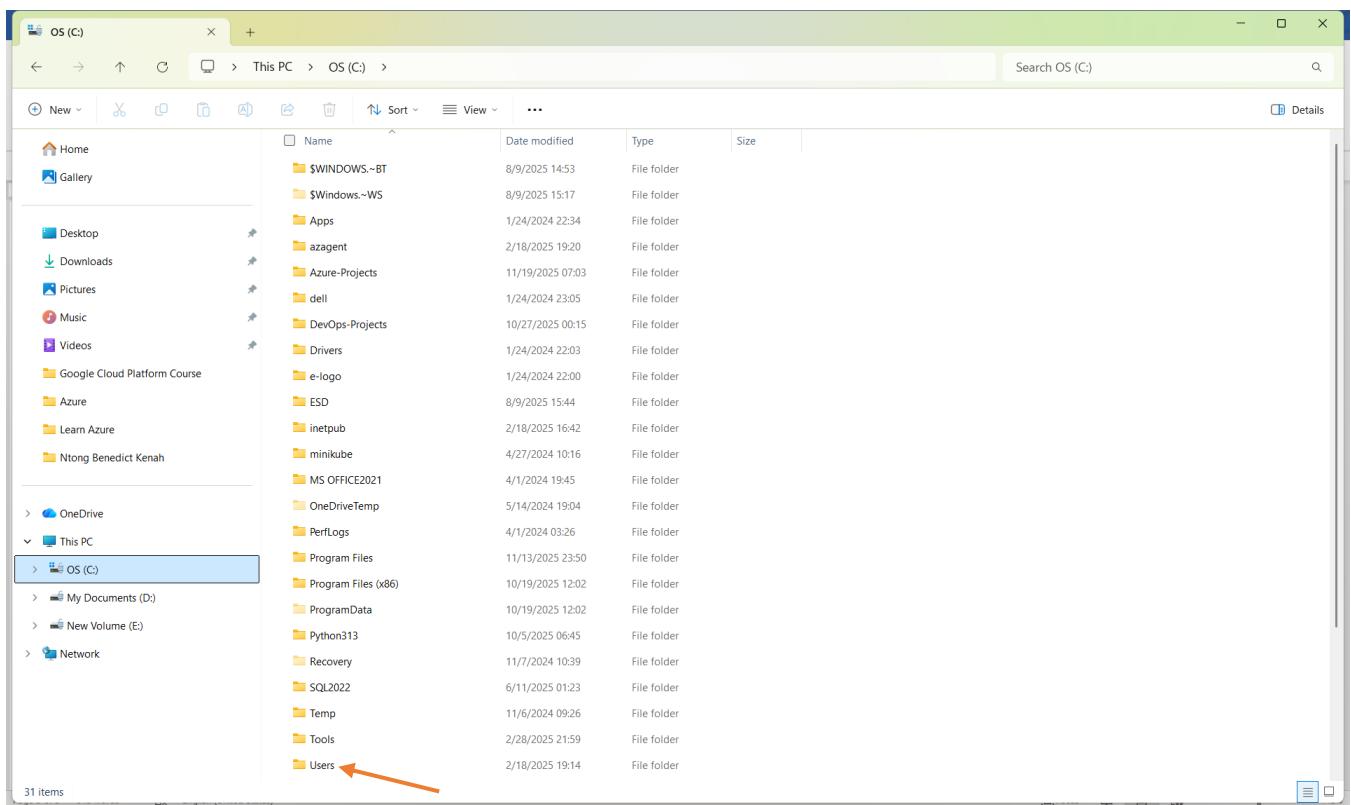
PS C:\Users\ebots> move "$HOME\Downloads\ssh-demo-key.pem" "$HOME\ssh-demo-key.pem"
PS C:\Users\ebots> Test-Path "$HOME\ssh-demo-key.pem"
True
PS C:\Users\ebots> |
```

The output is “true”, this means our private key is currently in the home directly on my computer.

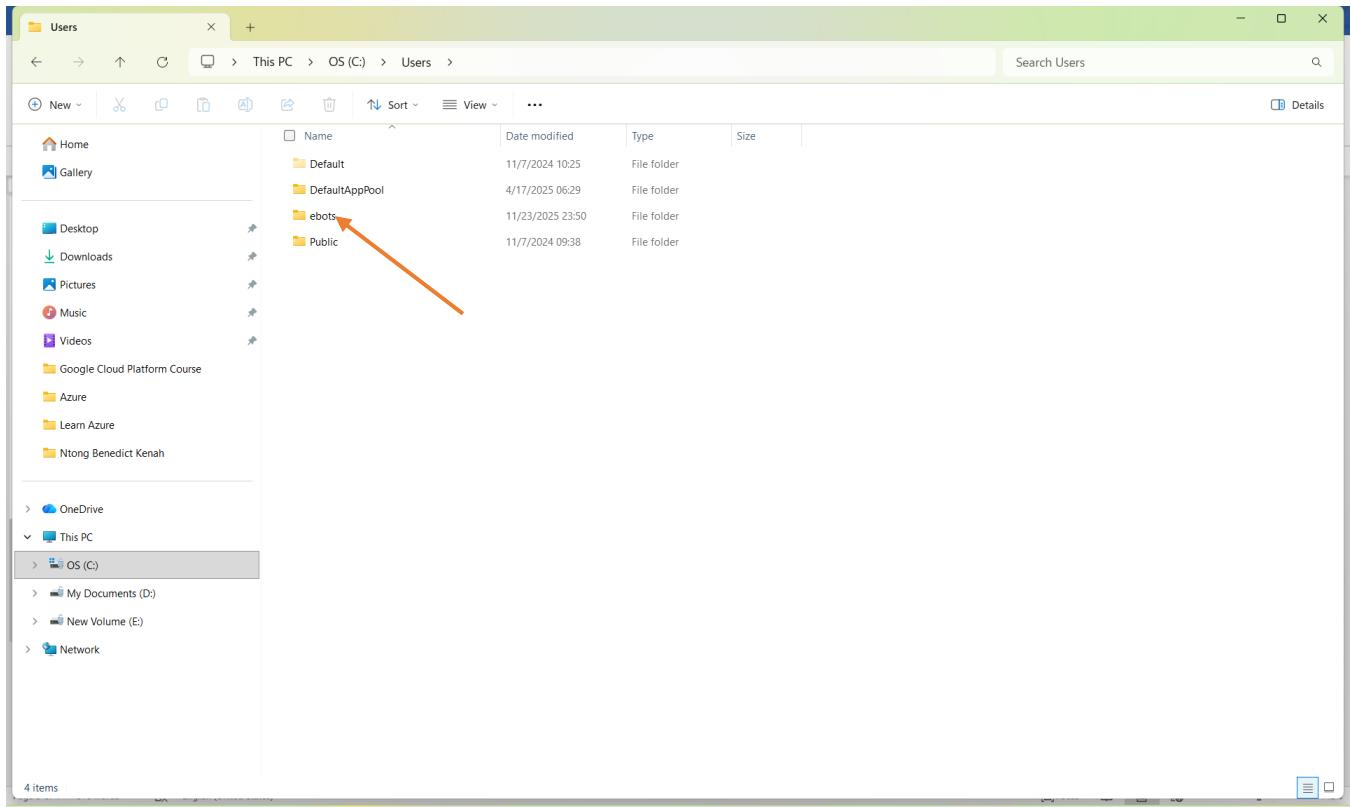
To visually verify that the file is in the home directory, open the file explorer



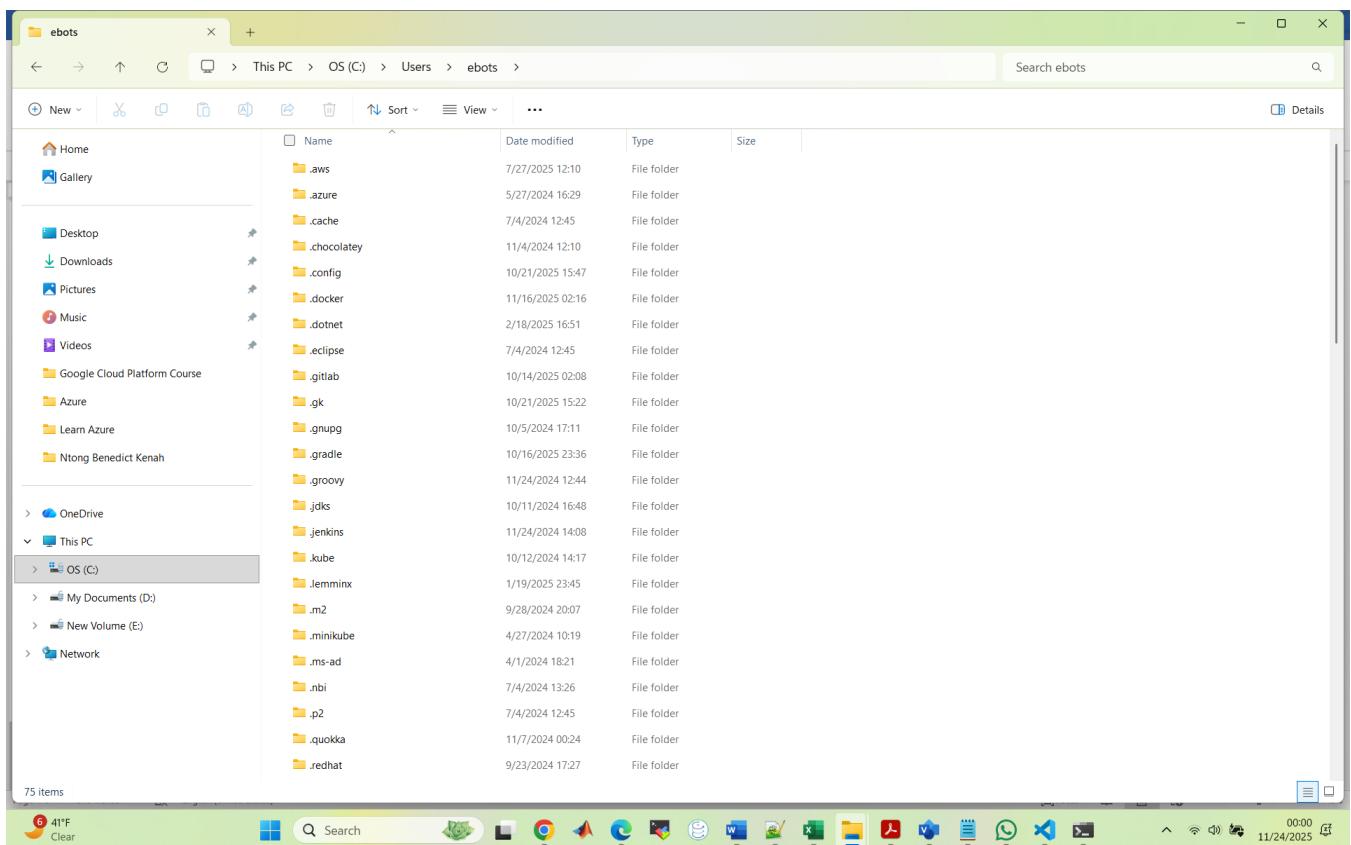
Select the “C-Drive”



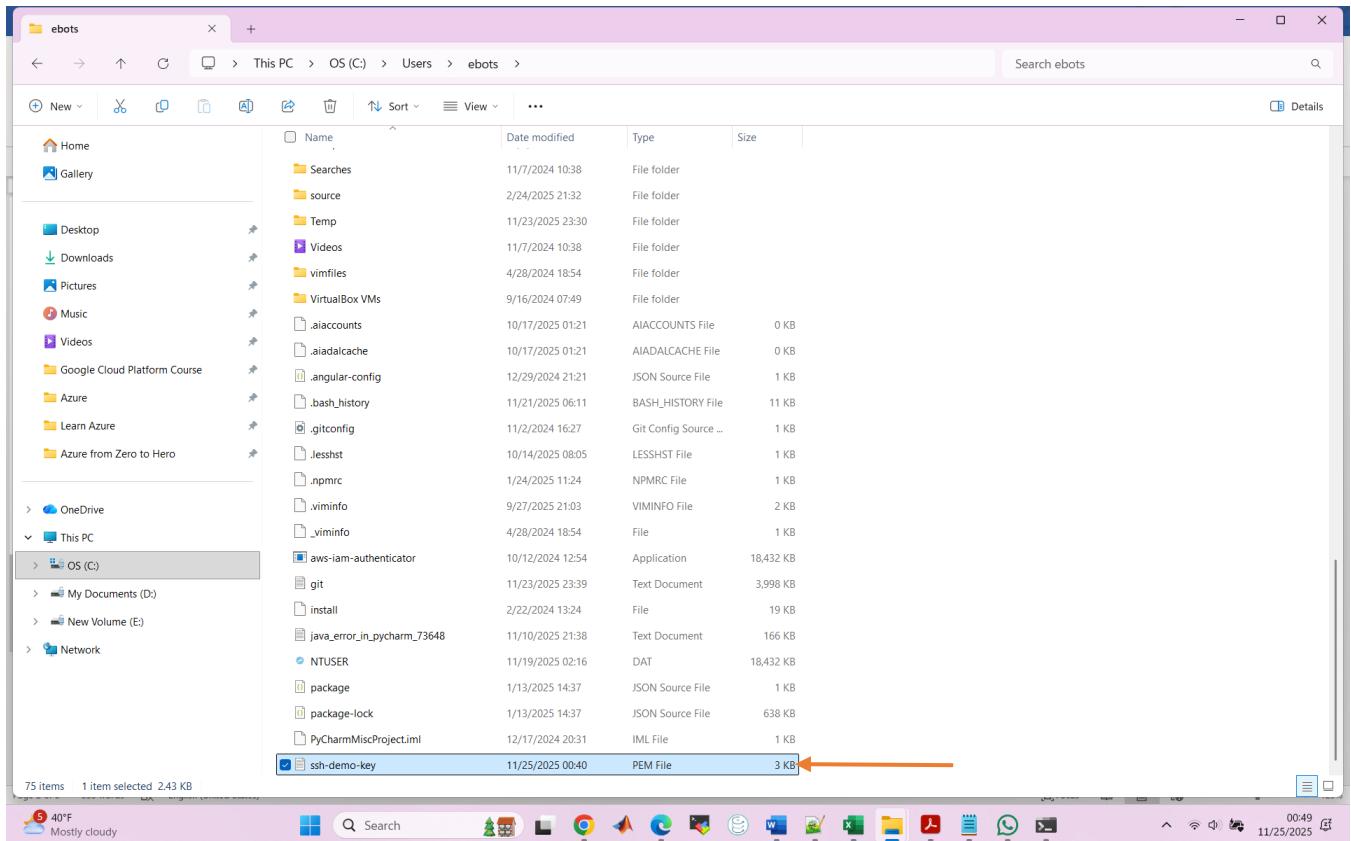
Click on “Users”



Click on “ebots”



This is my “home” directory. Scroll down

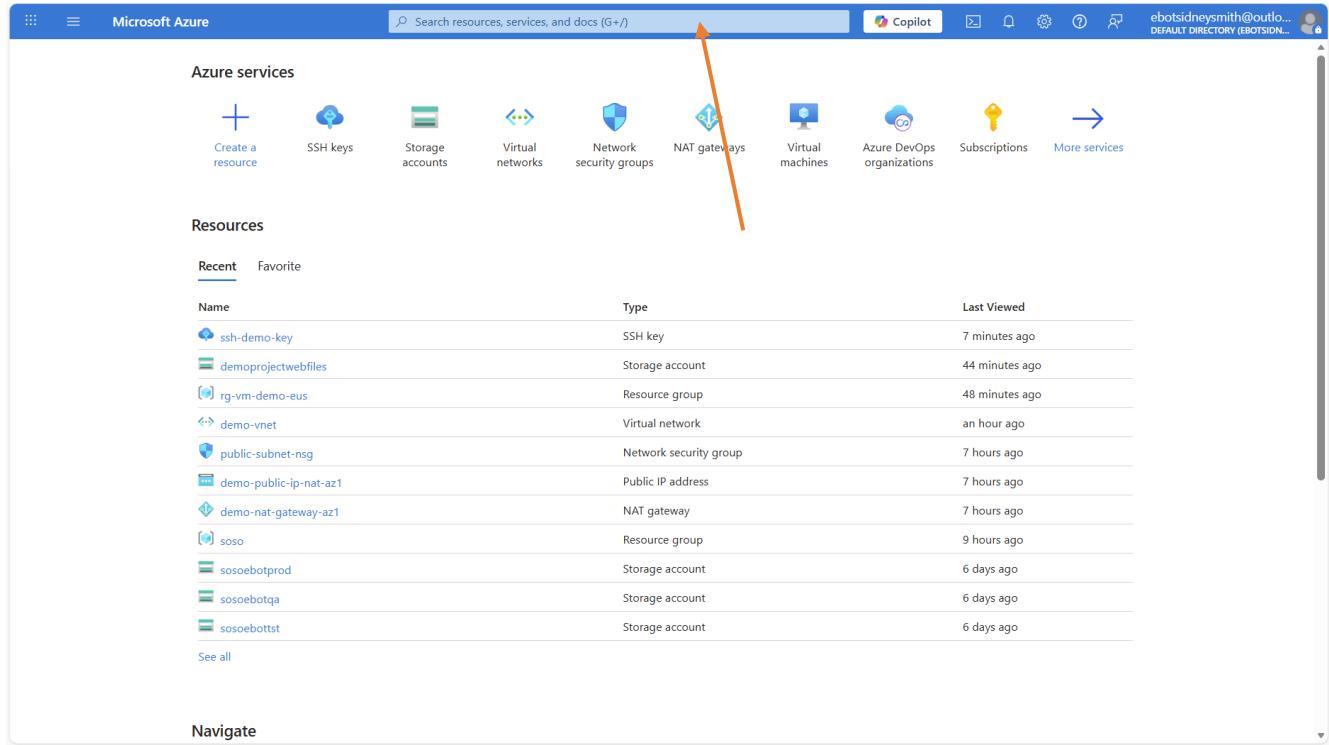


You can see my private key here

4.3. How to Create a Virtual Machine (VM) in Azure

Learn how to create a Linux virtual machine in Azure using the portal. You'll configure the size, OS image, networking, and SSH access as part of this hands-on demo.

In this lecture, we will create the virtual machine that we will use to host the HTML application. A virtual machine is equivalent to EC2 instance in AWS.



The screenshot shows the Microsoft Azure portal interface. At the top, there's a blue header bar with the 'Microsoft Azure' logo, a search bar containing 'Search resources, services, and docs (G+)', and various navigation icons. Below the header is a 'Azure services' section with several icons: 'Create a resource' (plus sign), 'SSH keys', 'Storage accounts', 'Virtual networks', 'Network security groups', 'NAT gateways' (highlighted by an orange arrow pointing from the search bar), 'Virtual machines', 'Azure DevOps organizations', 'Subscriptions', and 'More services'. Underneath this is a 'Resources' section with a 'Recent' tab selected. It lists various Azure resources with their names, types, and last viewed times:

Name	Type	Last Viewed
ssh-demo-key	SSH key	7 minutes ago
demoprojectwebfiles	Storage account	44 minutes ago
rg-vm-demo-eus	Resource group	48 minutes ago
demo-vnet	Virtual network	an hour ago
public-subnet-nsg	Network security group	7 hours ago
demo-public-ip-nat-az1	Public IP address	7 hours ago
demo-nat-gateway-az1	NAT gateway	7 hours ago
soso	Resource group	9 hours ago
sosobotprod	Storage account	6 days ago
sosobotqa	Storage account	6 days ago
sosobottst	Storage account	6 days ago

At the bottom of the 'Resources' section, there's a 'See all' link. The footer of the page includes a 'Navigate' button.

To create a virtual machine, search for “**Virtual Machines**”

The screenshot shows the Microsoft Azure portal homepage. At the top, there's a search bar with the placeholder "Virtual Machines". Below it, the "Azure services" section has a "Create a resource" button and an "SSH keys" button, with an orange arrow pointing from the text to the "SSH keys" button. The "Services" tab is selected, showing options like "Virtual machines", "Virtual machines (classic)", "Virtual Machines (Operator Nexus)", and "SQL Server on Azure Virtual Machines". To the right, there are links for "Azure DevOps organizations", "Subscriptions", and "More services". The "Marketplace" section lists items such as "Virtual Machines with Confidential App Enclaves", "Cloud Backup for Azure Virtual Machines & Azure Storage", and "Managed Virtual Machines". On the right side, there's a "Last Viewed" list with items like "Quickstart - Create a Windows VM in the Azure portal - Azure Virtual Machines", "Availability options for Azure Virtual Machines - Azure Virtual Machines", and "Describe Azure Compute and Networking Services - Training".

Select on “Virtual Machines” under services

The screenshot shows the "Compute infrastructure | Virtual machines" blade. The left sidebar has categories like "Overview", "All resources", "Infrastructure", and "Virtual machines" (which is currently selected). The main area has a "Create" button with a dropdown arrow, which is highlighted with an orange arrow. Below the "Create" button, there's a message: "You are viewing a new version of Browse experience. Click here to access the old experience." There are also filter options for "Subscription equals all", "Type equals all", "Resource Group equals all", "Location equals all", and a "Group by none" button. The center of the page says "No virtual machines to display" with a "Create" button below it. At the bottom, there are links for "Learn more about Windows virtual machines" and "Learn more about Linux virtual machines".

Click on the drop down on “Create”

The screenshot shows the Microsoft Azure Compute Infrastructure Virtual Machines page. On the left, there's a navigation sidebar with 'Virtual machines' selected. The main area has a heading 'Virtual machine' with a description: 'Best for lower-traffic workloads, testing, or to control or highly customize apps, OS, or file system. If your workload or traffic starts to grow, a VM can later be attached to a Virtual Machine Scale Set (VMSS)'. Below it is 'Virtual machine scale set (VMSS)' with a description: 'Built-in scaling, performance optimization, load balancing, and batch management for 1 to 1,000 VMs (no added cost). Include multiple VM sizes, zones, regions, and domains, along with discounted Spot VMs.'. Further down are 'Presets' and 'Hybrid, preconfigured, and high volume solutions'. A large central message says 'No virtual machines to display' with a 'Create' button. At the bottom, there's a note about customized images and links to learn more about Windows and Linux virtual machines.

Click on “Virtual Machine”

The screenshot shows the 'Create a virtual machine' wizard on the 'Basics' step. It includes tabs for 'Help me choose the right VM size for my workload', 'Help me create a VM optimized for high availability', and 'Help me create a low cost VM'. The 'Subscription' dropdown is set to 'Azure subscription' and the 'Resource group' dropdown is set to '(New) Resource group' with a 'Create new' link. To the right, there's a panel titled 'Estimated monthly costs' showing a breakdown of costs for Basics, Disks, Networking, Management, and Monitoring, totaling \$4.80. A bracket highlights the 'Subscription' and 'Resource group' fields.

The first thing we are going to do is to make sure that we are in our Azure **subscription** and also, we are in the correct **resource group**. That is “**rg-vm-demo-eus**”.

Create a virtual machine

Help me choose the right VM size for my workload | Help me create a VM optimized for high availability | Help me create a low cost VM

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Resource group * Create new

Instance details

Virtual machine name *

Region * Deploy to an Azure Extended Zone

Availability options

Zone options Self-selected zone Choose up to 3 availability zones, one VM per zone
 Azure-selected zone (Preview) Let Azure assign the best zone for your needs

[< Previous](#) [Next : Disks >](#) [Review + create](#) [Give feedback](#)

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Category	Cost
Basics	\$0.00
Virtual machine	\$0.00
Size	\$0.00
Standard_B1s	
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

We are going to give the Virtual Machine a name. I will call it “**demo-vm**”

Create a virtual machine

Help me choose the right VM size for my workload | Help me create a VM optimized for high availability | Help me choose the right VM size for my workload

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * Resource group * Create new

Instance details

Virtual machine name *

Region * Deploy to an Azure Extended Zone

Availability options

Zone options Self-selected zone Choose up to 3 availability zones, one VM per zone
 Azure-selected zone (Preview) Let Azure assign the best zone for your needs

[< Previous](#) [Next : Disks >](#) [Review + create](#) [Give feedback](#)

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Category	Cost
Basics	\$0.00
Virtual machine	\$0.00
Size	\$0.00
Standard_B1s	
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

Then, select your “**Region**”, I am using “**East US 2**”.

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.		
Give feedback about your estimate experience		
Basics	\$0.00	
Virtual machine	\$0.00	
Size	\$0.00	
Standard_B1s		
Disks	\$4.80	
Networking	\$0.00	
Management	\$0.00	
Monitoring	\$0.00	
Estimated monthly cost	\$4.80	

The next thing is to choose the “Availability Options”, in the “Zone Options” select “Self-selected zone”

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.		
Give feedback about your estimate experience		
Basics	\$0.00	
Virtual machine	\$0.00	
Size	\$0.00	
Standard_B1s		
Disks	\$4.80	
Networking	\$0.00	
Management	\$0.00	
Monitoring	\$0.00	
Estimated monthly cost	\$4.80	

On “Availability Zone” select “Zone1”

Create a virtual machine

Instance details

Virtual machine name * demo-vm

Region * (US) East US 2 Deploy to an Azure Extended Zone

Availability options Availability zone

Zone options Self-selected zone Choose up to 3 availability zones, one VM per zone

Azure-selected zone (Preview) Let Azure assign the best zone for your needs

Availability zone * Zone 1 You can now select multiple zones. Selecting multiple zones will create one VM per zone. [Learn more](#)

Security type Trusted launch virtual machines Configure security features

Image * Ubuntu Server 24.04 LTS - x64 Gen2 See all images | Configure VM generation

VM architecture x64

Run with Azure Spot discount

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Give feedback about your estimate experience

Basics	\$0.00
Virtual machine	\$0.00
Size Standard_B1s	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

< Previous Next : Disks > Review + create Give feedback

Under the “Security Type”, select “Trusted Launch Virtual Machine”.

Create a virtual machine

Instance details

You can now select multiple zones. Selecting multiple zones will create one VM per zone. [Learn more](#)

Security type Trusted launch virtual machines Configure security features

Image * Ubuntu Server 24.04 LTS - x64 Gen2 See all images | Configure VM generation

VM architecture x64

Run with Azure Spot discount

Size * Standard_B1s - 1 vcpu, 1 GiB memory (\$7.59/month) (free services eligible) See all sizes

Enable Hibernation Hibernate does not currently support Trusted launch and Confidential virtual machines for Linux images. [Learn more](#)

Administrator account

Authentication type SSH public key

Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Give feedback about your estimate experience

Basics	\$0.00
Virtual machine	\$0.00
Size Standard_B1s	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

< Previous Next : Disks > Review + create Give feedback

On “Image”, select “Ubuntu Server”.

Create a virtual machine

You can now select multiple zones. Selecting multiple zones will create one VM per zone. [Learn more](#)

Security type: Trusted launch virtual machines

Image: Ubuntu Server 24.04 LTS - x64 Gen2

VM architecture: x64 Arm64

Run with Azure Spot discount:

Size: Standard_B1s - 1 vcpu, 1 GiB memory (\$7.59/month) (free services eligible)

Enable Hibernation:

Administrator account: Authentication type: SSH public key

Estimated monthly costs:

Category	Cost
Virtual machine	\$0.00
Size	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

< Previous | Next : Disks > | Review + create | Give feedback

On “VM Architecture”, select “x64”

Create a virtual machine

You can now select multiple zones. Selecting multiple zones will create one VM per zone. [Learn more](#)

Security type: Trusted launch virtual machines

Image: Ubuntu Server 24.04 LTS - x64 Gen2

VM architecture: Arm64 x64

Run with Azure Spot discount:

Size: Standard_B1s - 1 vcpu, 1 GiB memory (\$7.59/month) (free services eligible)

Enable Hibernation:

Administrator account: Authentication type: SSH public key

Estimated monthly costs:

Category	Cost
Virtual machine	\$0.00
Size	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

< Previous | Next : Disks > | Review + create | Give feedback

For the “Size”, we will use “Standard”. We are using standard because it is the cheapest for this demo

You can now select multiple zones. Selecting multiple zones will create one VM per zone. [Learn more](#)

Security type: Trusted launch virtual machines

Image *: Ubuntu Server 24.04 LTS - x64 Gen2

VM architecture: x64

Run with Azure Spot discount:

Size *: Standard_B1s - 1 vcpu, 1 GiB memory (\$7.59/month) (free services eligible)

Enable Hibernation:

Administrator account

Authentication type: SSH public key

Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Estimated monthly costs

Category	Cost
Virtual machine	\$0.00
Size	\$0.00
Standard_B1s	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

< Previous | Next : Disks > | Review + create | Give feedback

For “Enable Hibernation”, we leave the box “Unchecked”

You can now select multiple zones. Selecting multiple zones will create one VM per zone. [Learn more](#)

Security type: Trusted launch virtual machines

Image *: Ubuntu Server 24.04 LTS - x64 Gen2

VM architecture: x64

Run with Azure Spot discount:

Size *: Standard_B1s - 1 vcpu, 1 GiB memory (\$7.59/month) (free services eligible)

Enable Hibernation:

Administrator account

Authentication type: SSH public key

Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Estimated monthly costs

Category	Cost
Virtual machine	\$0.00
Size	\$0.00
Standard_B1s	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

< Previous | Next : Disks > | Review + create | Give feedback

Then scroll down to “Administrator Account”

Administrator account

Authentication type SSH public key Password

Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username *

SSH public key source

SSH Key Type RSA SSH Format Ed25519 SSH Format

Key pair name *

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * Allow selected ports None

Select inbound ports *

< Previous Next : Disks > Review + create Give feedback

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Category	Cost
Virtual machine	\$0.00
Size	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

Under “Authentication Type”, use “SSH public key”.

Administrator account

Authentication type SSH public key Password

Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username *

SSH public key source

SSH Key Type RSA SSH Format Ed25519 SSH Format

Key pair name *

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * Allow selected ports None

Select inbound ports *

< Previous Next : Disks > Review + create Give feedback

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Category	Cost
Virtual machine	\$0.00
Size	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

Then on “username”, leave it as “**azureuser**”, take note of this name because we are going to use it to SSH into our Virtual Machine.

Administrator account

Authentication type: SSH public key Password

Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username *: azureuser

SSH public key source: **Generate new key pair** (highlighted with an orange arrow)

SSH Key Type: RSA SSH Format Ed25519 SSH Format

Key pair name *: demo-vm_key

Inbound port rules: Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports *: None Allow selected ports

Select inbound ports *: SSH (22)

< Previous | Next : Disks > | Review + create | Give feedback

Estimated monthly costs	
Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.	
Give feedback about your estimate experience	
Basics \$0.00	
Virtual machine	\$0.00
Size	\$0.00
Standard_B1s	
Disks \$4.80	
Networking \$0.00	
Management \$0.00	
Monitoring \$0.00	
Estimated monthly cost	\$4.80

On “SSH public Key Source”, click on the drop down

Administrator account

Authentication type: SSH public key Password

Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username *: azureuser

SSH public key source: **Generate new key pair** (highlighted with an orange arrow)

SSH Key Type: RSA SSH Format Ed25519 SSH Format

Key pair name *: demo-vm_key

Inbound port rules: Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports *: None Allow selected ports

Select inbound ports *: SSH (22)

Warning: This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

< Previous | Next : Disks > | Review + create | Give feedback

Estimated monthly costs	
Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.	
Give feedback about your estimate experience	
Basics \$0.00	
Virtual machine	\$0.00
Size	\$0.00
Standard_B1s	
Disks \$4.80	
Networking \$0.00	
Management \$0.00	
Monitoring \$0.00	
Estimated monthly cost	\$4.80

And select “Use Existing key stored in Azure”

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal. On the left, the 'Stored Keys' dropdown is open, displaying 'Select a key'. A red arrow points from the text 'Under "Stored Keys", click on the drop down' to this dropdown. On the right, the 'Estimated monthly costs' sidebar is visible, showing a total cost of \$4.80.

Under “**Stored Keys**”, click on the drop down

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal. The 'Stored Keys' dropdown is open, and the key 'ssh-demo-key' is highlighted with a red arrow. The sidebar on the right shows estimated monthly costs for various categories, totaling \$4.80.

And select our key, that is “**ssh-demo-key**”

Create a virtual machine

Authentication type: SSH public key Password

Username *: azureuser

SSH public key source: Use existing key stored in Azure

Stored Keys: ssh-demo-key

Inbound port rules:

Public inbound ports *: None (highlighted by an orange arrow) Allow selected ports

Select inbound ports *: SSH (22)

Estimated monthly costs

Category	Cost (\$)
Virtual machine	\$0.00
Size	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

On “**Public Inbound Ports**”, we have already created the Network Security Group in the previous lecture that we will use. So, select “**None**”

Create a virtual machine

Authentication type: SSH public key Password

Username *: azureuser

SSH public key source: Use existing key stored in Azure

Stored Keys: ssh-demo-key

Inbound port rules:

Public inbound ports *: None (highlighted by an orange arrow) Allow selected ports

Select one or more ports: Select one or more ports

Estimated monthly costs

Category	Cost (\$)
Virtual machine	\$0.00
Size	\$0.00
Disks	\$4.80
Networking	\$0.00
Management	\$0.00
Monitoring	\$0.00
Estimated monthly cost	\$4.80

Then click on “**Next: Disks**”

Create a virtual machine

Help me choose the right VM size for my workload | Help me create a VM optimized for high availability | Help me create a low cost VM

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

VM disk encryption

Azure disk storage encryption automatically encrypts your data stored on Azure managed disks (OS and data disks) at rest by default when persisting it to the cloud.

Encryption at host Encryption at host is not registered for the selected subscription. [Learn more](#)

OS disk

OS disk size

OS disk type *

Delete with VM

Key management

Enable Ultra Disk compatibility

Data disks for demo-vm

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

ID	Name	Size (GiB)	Disk type	Host caching	Delete with VM

< Previous | Next : Networking > | Review + create | Give feedback

On this page, we will leave everything as default. Click on “**Next: Networking**”

Create a virtual machine

Help me choose the right VM size for my workload | Help me create a VM optimized for high availability | Help me choose the right VM size for my workload

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network Edit virtual network

Subnet * Edit subnet 172.16.0.0 - 172.16.0.255 (256 addresses)

Public IP

NIC network security group Basic None

Public inbound ports * None

Select inbound ports

All traffic from the internet will be blocked by default. You will be able to choose inbound port rules in the VM's Network interface.

< Previous | Next : Management > | Review + create | Give feedback

For the “**Virtual Network**”, click on the drop down and select your Virtual Network that is “**demo-vnet**”

Microsoft Azure

Search resources, services, and docs (G+)

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSID...)

Create a virtual machine

Help me choose the right VM size for my workload | Help me create a VM optimized for high availability | Help me create a low cost VM

Basics Disks **Networking** Management Monitoring Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution.

[Learn more](#)

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network: demo-vnet (rg-vm-demo-eus)

Subnet *: (New) snet-eastus2-1

Public IP: (new) demo-vm-ip

NIC network security group: Basic

Public inbound ports: None

Select inbound ports: Select one or more ports

Estimated monthly costs

Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Public IP	\$3.65
VM outbound data transfer	\$0.00
Estimated data transferred (GB)	\$0.00
100	
Estimated monthly cost	\$8.45

< Previous | Next : Management > | Review + create | Give feedback

Then, on the “**Subnet**”, click on the drop down and select “**public-az2**”

Microsoft Azure

Search resources, services, and docs (G+)

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSID...)

Create a virtual machine

Help me choose the right VM size for my workload | Help me create a VM optimized for high availability | Help me create a low cost VM

Basics Disks **Networking** Management Monitoring Advanced Tags Review + create

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution.

[Learn more](#)

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network: demo-vnet (rg-vm-demo-eus)

Subnet *: public-az2

Public IP: (new) demo-vm-ip

NIC network security group: Basic

The selected subnet 'public-az2 (10.0.1.0/24)' is already associated to a network security group 'public-subnet-nsg'. We recommend managing connectivity to this virtual machine via the existing network security group instead of creating a new one here.

Delete public IP and NIC when VM is deleted:

Estimated monthly costs

Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Public IP	\$3.65
VM outbound data transfer	\$0.00
Estimated data transferred (GB)	\$0.00
100	
Estimated monthly cost	\$8.45

< Previous | Next : Management > | Review + create | Give feedback

For the “**Public IP**”, it is going to create a new public IP. So, just leave it as default.

Create a virtual machine

Networking

Virtual network: demo-vnet (rg-vm-demo-eus)

Subnet: public-az2 (public-az2) 10.0.1.0 - 10.0.1.255 (256 addresses)

Public IP: (new) demo-vm-ip

NIC network security group: None (selected)

Estimated monthly costs:

Category	Cost
Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Public IP	\$3.65
VM outbound data transfer	\$0.00
Estimated data transferred (GB)	\$0.00
100	
Estimated monthly cost	\$8.45

Under “**NIC Network security group**”, we will leave it on “**None**” because we have already created a Network Security Group in the previous lecture and we attached it to the public subnet.

Create a virtual machine

Networking

Virtual network: demo-vnet (rg-vm-demo-eus)

Subnet: public-az2 (public-az2) 10.0.1.0 - 10.0.1.255 (256 addresses)

Public IP: (new) demo-vm-ip

NIC network security group: None (selected)

Delete public IP and NIC when VM is deleted

Estimated monthly costs:

Category	Cost
Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Public IP	\$3.65
VM outbound data transfer	\$0.00
Estimated data transferred (GB)	\$0.00
100	
Estimated monthly cost	\$8.45

Under “**Delete public IP and NIC when VM is deleted**”, we will check the box

Create a virtual machine

Public IP: (new) demo-vm-ip

NIC network security group: None

Delete public IP and NIC when VM is deleted:

Enable accelerated networking: (disabled)

Load balancing: None

Estimated monthly costs:

Category	Cost
Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Public IP	\$3.65
VM outbound data transfer	\$0.00
Estimated data transferred (GB)	\$0.00
100	
Estimated monthly cost	\$8.45

Then under “Enable Accelerated Networking”, we will leave it as default

Create a virtual machine

Public IP: (new) demo-vm-ip

NIC network security group: None

Delete public IP and NIC when VM is deleted:

Enable accelerated networking: (enabled)

Load balancing: None

Estimated monthly costs:

Category	Cost
Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Public IP	\$3.65
VM outbound data transfer	\$0.00
Estimated data transferred (GB)	\$0.00
100	
Estimated monthly cost	\$8.45

On “Load Balancing Option”, leave it as “None”. Then click on “Next: Management”

Create a virtual machine

Help me choose the right VM size for my workload | Help me create a VM optimized for high availability | Help me create a low cost VM

Basics Disks Networking **Management** Monitoring Advanced Tags Review + create

Configure management options for your VM.

Microsoft Defender for Cloud

Microsoft Defender for Cloud provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

Your subscription is protected by Foundational Cloud Security Posture Management Free Plan.

Identity

Enable system assigned managed identity

Microsoft Entra ID

Login with Microsoft Entra ID

RBAC role assignment of Virtual Machine Administrator Login or Virtual Machine User Login is required when using Microsoft Entra ID login. [Learn more](#)

Microsoft Entra ID login now uses SSH certificate-based authentication. You will need to use an SSH client that supports OpenSSH certificates. You can use Azure CLI or Cloud Shell from the Azure Portal. [Learn more](#)

Auto-shutdown

Enable auto-shutdown

Backup

< Previous Next : Monitoring > Review + create

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Give feedback about your estimate experience	
> Basics	\$0.00
> Disks	\$4.80
> Networking	\$3.65
> Management	\$0.00
No items added	
> Monitoring	\$0.00
> Advanced	\$0.00
Estimated monthly cost	\$8.45

Give feedback

On this page, we will leave all the settings as default. Then click on “Next: Monitoring”

Create a virtual machine

Help me create a low cost VM | Help me create a VM optimized for high availability | Help me choose the right VM size for my workload

Basics Disks Networking Management **Monitoring** Advanced Tags Review + create

Configure monitoring options for your VM.

Alerts

Enable recommended alert rules

Diagnostics

Boot diagnostics Enable with managed storage account (recommended) Enable with custom storage account Disable

Enable OS guest diagnostics

Health

Enable application health monitoring

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Give feedback about your estimate experience	
> Basics	\$0.00
> Disks	\$4.80
> Networking	\$3.65
> Management	\$0.00
> Monitoring	\$0.00
Managed storage account for boot diagnostics	See pricing
Charges depend on read/writes with storage account.	
Estimated monthly cost	\$8.45

Give feedback

On this page, we will also leave the settings as default and click on “Next: Advanced”

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.	
Give feedback about your estimate experience	
> Basics	\$0.00
> Disks	\$4.80
> Networking	\$3.65
> Management	\$0.00
> Monitoring	\$0.00
▽ Advanced	\$0.00
No items added	
Estimated monthly cost	\$8.45

On this page, we will also leave the settings as default and click on “Next: Tags”

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.	
Give feedback about your estimate experience	
> Basics	\$0.00
> Disks	\$4.80
> Networking	\$3.65
> Management	\$0.00
> Monitoring	\$0.00
▽ Advanced	\$0.00
Estimated monthly cost	\$8.45

On this page, we will give a name take. On “Name”, enter “Name”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Create a virtual machine

Help me choose the right VM size for my workload Help me create a VM optimized for high availability Help me create a low cost VM

Help me create a low cost VM Help me create a VM optimized for high availability Help me choose the right VM size for my workload

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
Name	: <input type="text"/>	13 selected <input type="button" value="▼"/> <input type="button" value="Delete"/>
	: <input type="text"/>	13 selected <input type="button" value="▼"/> <input type="button" value="Delete"/>

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

	Estimated monthly cost
Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Management	\$0.00
Monitoring	\$0.00
Advanced	\$0.00
Estimated monthly cost	\$8.45

< Previous Next : Review + create > Review + create Give feedback

Then on “Value”, enter “**demo-vm**” which is the same name I gave to the virtual machine

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Create a virtual machine

Help me choose the right VM size for my workload Help me create a VM optimized for high availability Help me create a low cost VM

Help me create a low cost VM Help me create a VM optimized for high availability Help me choose the right VM size for my workload

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
Name	: <input type="text" value="demo-vm"/>	13 selected <input type="button" value="▼"/> <input type="button" value="Delete"/>
	: <input type="text"/>	13 selected <input type="button" value="▼"/> <input type="button" value="Delete"/>

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

	Estimated monthly cost
Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Management	\$0.00
Monitoring	\$0.00
Advanced	\$0.00
Estimated monthly cost	\$8.45

< Previous Next : Review + create > Review + create Give feedback

And under “Resource”, we are going to select all the resources that are there. Click on the drop down.

Estimated monthly costs

Category	Cost
Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Management	\$0.00
Monitoring	\$0.00
Advanced	\$0.00
Estimated monthly cost	\$8.45

Then click on “Next: Review + Create”

Estimated monthly costs

Category	Cost
Basics	\$0.00
Disks	\$4.80
Networking	\$3.65
Management	\$0.00
Monitoring	\$0.00
Advanced	\$0.00
Estimated monthly cost	\$8.45

Review and click on “Create”

The deployment is complete and the Virtual Machine has been created. Click on “Go to resource”

You can see the public IP of our virtual machine.

4.4. How to SSH into an Azure Virtual Machine Using a Private Key

In this step-by-step guide, you'll SSH into your Azure VM using a private key for secure, passwordless access. This is the final step in preparing your virtual machine for deployment tasks.

In this lecture, we will SSH into the Virtual machine we created in the previous lecture.

The screenshot shows the Azure portal interface for a virtual machine named 'demo-vm'. In the 'Networking' section, the 'Primary NIC public IP' field is highlighted with a red arrow, displaying the value '20.81.228.200'. Other details shown include the operating system as Linux (ubuntu 24.04), size as Standard B1s (1 vcpu, 1 GiB memory), and the fact that it has 1 associated public IPs.

To SSH into this virtual machine, we will first copy the “**Public IP address**”: 20.81.228.200

Once you copy it, open terminal on your computer. I will open PowerShell

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\ebots> |
```

Run this command to SSH into our virtual machine. Type

```
ssh -i ssh
```

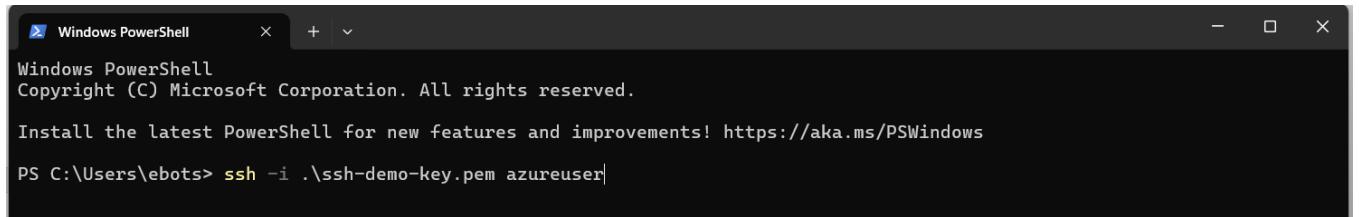
and press “Tab” key

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\ebots> ssh -i .\ssh-demo-key.pem |
```

You can see that it has completed the name of your key pair file. Then complete the command by typing the name of our azure user. Our username is “**azureuser**”

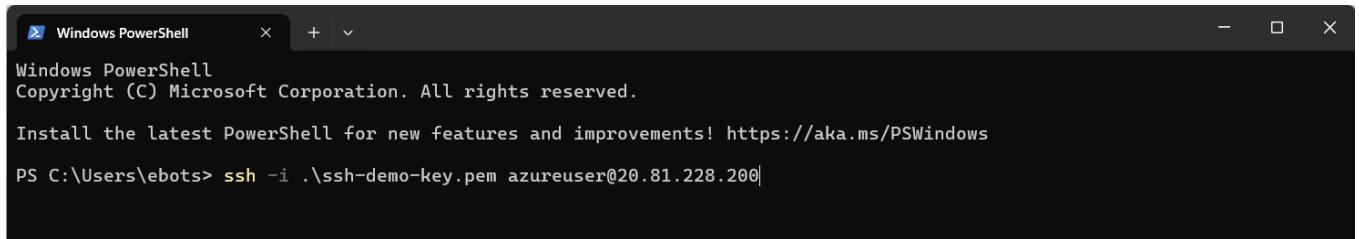


```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\ebots> ssh -i .\ssh-demo-key.pem azureuser
```

Followed by @ and the public IP

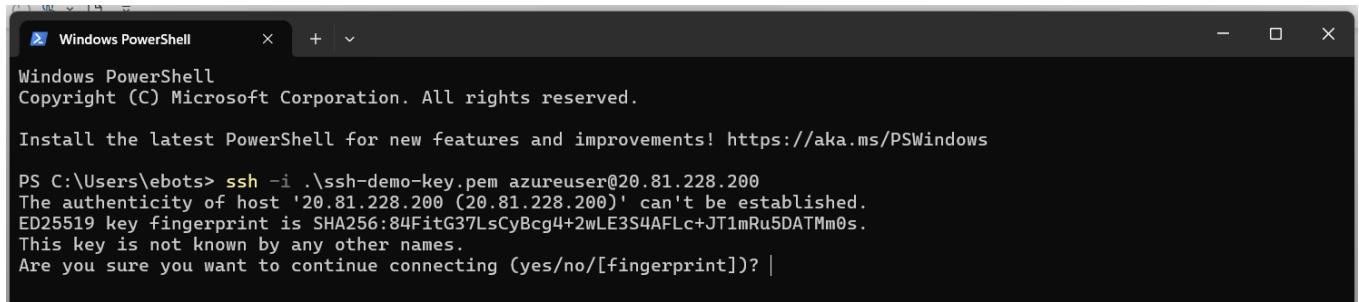


```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\ebots> ssh -i .\ssh-demo-key.pem azureuser@20.81.228.200
```

Press “Enter”

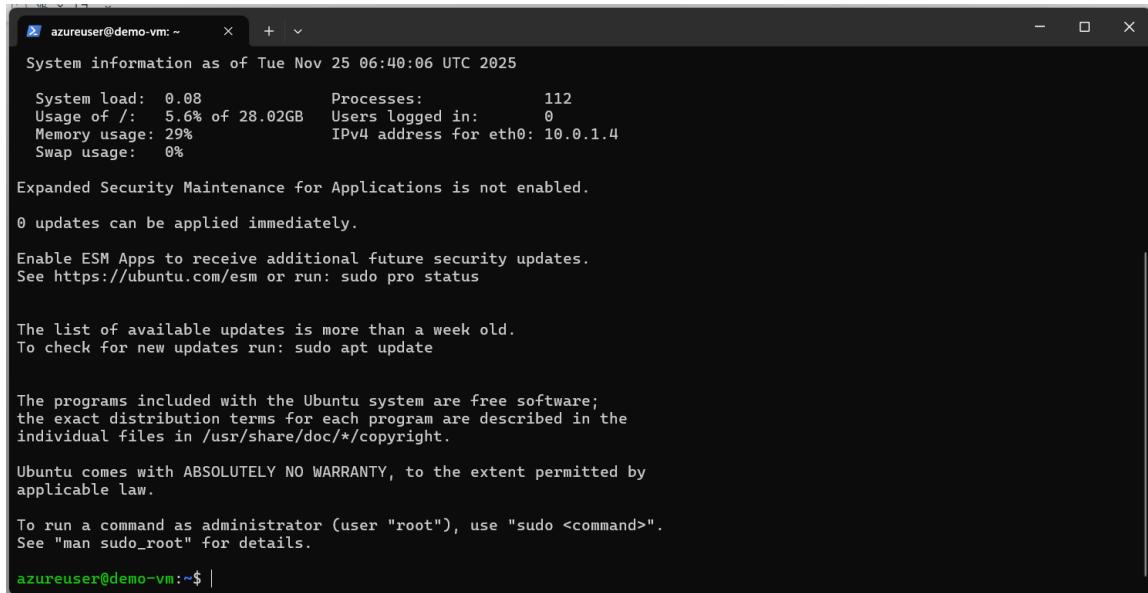


```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\ebots> ssh -i .\ssh-demo-key.pem azureuser@20.81.228.200
The authenticity of host '20.81.228.200 (20.81.228.200)' can't be established.
ED25519 key fingerprint is SHA256:84FitG37LsCyBcg4+2wLE3S4AFLc+JT1mRu5DATMm0s.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? |
```

Type “yes” and press “Enter”



```
azureuser@demo-vm: ~
System information as of Tue Nov 25 06:40:06 UTC 2025

System load: 0.08      Processes:          112
Usage of /: 5.6% of 28.02GB   Users logged in:     0
Memory usage: 29%           IPv4 address for eth0: 10.0.1.4
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/*copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

azureuser@demo-vm:~$ |
```

We have successfully SSHed into the Virtual Machine.

5. Deploy and Host the HTML Application

In this section, we will learn how to install Apache on the virtual machine, download the HTML files from Azure storage, and serve the website over the internet, so that the end users can access it.

5.1. How the Script Works to Install HTML on an Azure Virtual Machine

This Lecture guides you through the deployment script, which automates the installation of Apache, retrieves HTML files from Azure Blob Storage, and serves them via your Azure Virtual Machine. Great for understanding the logic behind the automation.

In this lecture, we are going to use these commands to install the HTML application on our virtual machine.

```
# Create an Environment Variable for the Blob SAS URL
export BLOB_SAS_URL=""

# Update the packages on the VM
sudo apt update

# Install unzip and Apache
sudo apt install unzip apache2 -y

# Change to the html directory
cd /var/www/html

# Remove any existing files
sudo rm -rf *

# Download the zip file
sudo wget -O jupiter.zip "$BLOB_SAS_URL"

# Unzip the downloaded file
sudo unzip jupiter.zip

# Copy the contents to the html directory
sudo cp -R jupiter/. .

# Clean up zip and directory
sudo rm -rf jupiter jupiter.zip

# Enable and start Apache service
sudo systemctl enable apache2
sudo systemctl start apache2
```

In this lecture, I will explain what each of these commands will do when you run it. I have also added a comment at the top of each command which explains what each command is doing.

The first command below is going to create an environment variable for the Blob SAS URL. Remember this is the URL that was created when we generated the token for our container in Azure storage.

So, here we are storing it in our virtual machine's environment variable so that it will be easy for us to reference it when we run the command to download our web files from the container.

```
# Create an Environment Variable for the Blob SAS URL
export BLOB_SAS_URL=""
```

The next thing I want us to do is to update the value for this variable. So, go back to the copied URL when we generated the token. Copy and paste it here

```
# Create an Environment Variable for the Blob SAS URL
export
BLOB_SAS_URL="https://demoprojectwebfiles.blob.core.windows.net/jupiter/jupiter.zip
?sp=r&st=2025-11-25T05:05:22Z&se=2026-11-25T13:20:22Z&spr=https&sv=2024-11-
04&sr=b&sig=3keMH0Qxk%2FpG6DOTwW0yyNTnZ7MzKFxOpOQNVQpONu8%3D"
```

The next command is going to update all the packages on the virtual machine.

```
# Update the packages on the VM
sudo apt update
```

Once we have updated all the packages, the next command will install unzip and Apache

```
# Install unzip and Apache
sudo apt install unzip apache2 -y
```

Once we have installed Apache, we are going to change our directory into the HTML directory with this command:

```
# Change to the html directory
cd /var/www/html
```

Once we have changed our directory, we will remove any file that exist in that directory with this command:

```
# Remove any existing files
sudo rm -rf *
```

The next command is going to download our application code from the container into the HTML directory.

```
# Download the zip file
sudo wget -O jupiter.zip "$BLOB_SAS_URL"
```

If you look here, you can see our environment variable match what we exported on the first command. So, make sure you update your Blob SAS URL in the first command. The reason why it is added as an environment variable is because I don't want you to accidentally remove anything in the command. So, the only thing we should be changing on this command is the value of the Blob SAS URL on the first command.

Once we have downloaded our application code which is a zip file, we have to unzip the file using the command:

```
# Unzip the downloaded file
sudo unzip jupiter.zip
```

Once we unzip the file, the next command is going to copy all the web files out of the unzipped folder into the HTML directory.

```
# Copy the contents to the html directory  
sudo cp -R jupiter/. .
```

Once the web files are copied into the HTML directory, we are going to remove the zip folder we downloaded and the folder we unzipped using the command:

```
# Clean up zip and directory  
sudo rm -rf jupiter.zip
```

And the last command is going to enable and start the Apache service on the virtual machine.

```
# Enable and start Apache service  
sudo systemctl enable apache2  
sudo systemctl start apache2
```

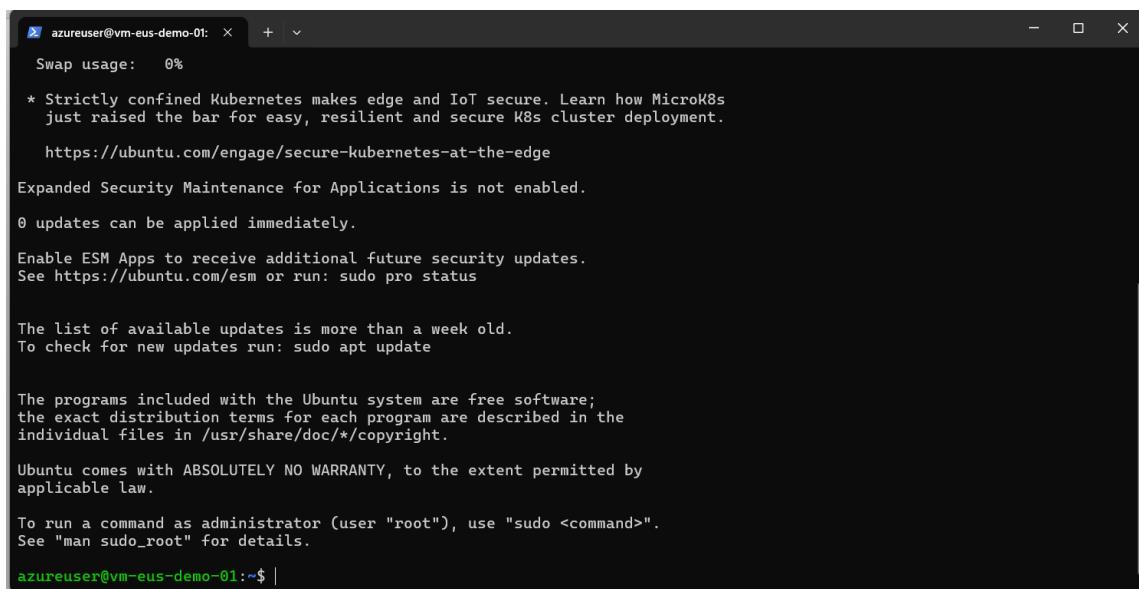
These are all the commands we will use to install the HTML application on our virtual machine.

5.2. How to Install and Host an HTML Application on an Azure Virtual Machine

Learn how to manually install Apache on your Azure VM, download your HTML files from Azure Blob Storage, and host your website live on the internet. This step-by-step tutorial wraps up the deployment of your HTML app in Azure.

In this lecture, we will use the script we created in the previous lecture to install the HTML application on the virtual machine,

The first thing to do is to SSH into your virtual machine.



A screenshot of a terminal window titled "azreuser@vm-eus-demo-01: ~". The window displays the output of the "apt update" command. The text includes system statistics like swap usage (0%), security notices about Kubernetes and MicroK8s, and information about ESM Apps. It also mentions that the list of available updates is more than a week old and provides instructions to check for new updates. The terminal ends with a prompt "azreuser@vm-eus-demo-01:~\$ |".

Once you have SSHed into the virtual machine, you can start running your commands.

Clear the terminal using the command:

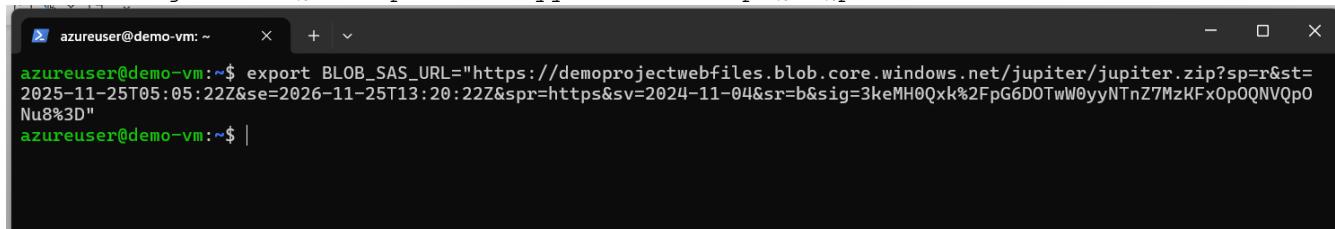
```
clear
```



```
azureuser@vm-eus-demo-01: ~$ clear
```

The first command that we are going to run is a command that will create an environment variable for the Blob SAS URL.

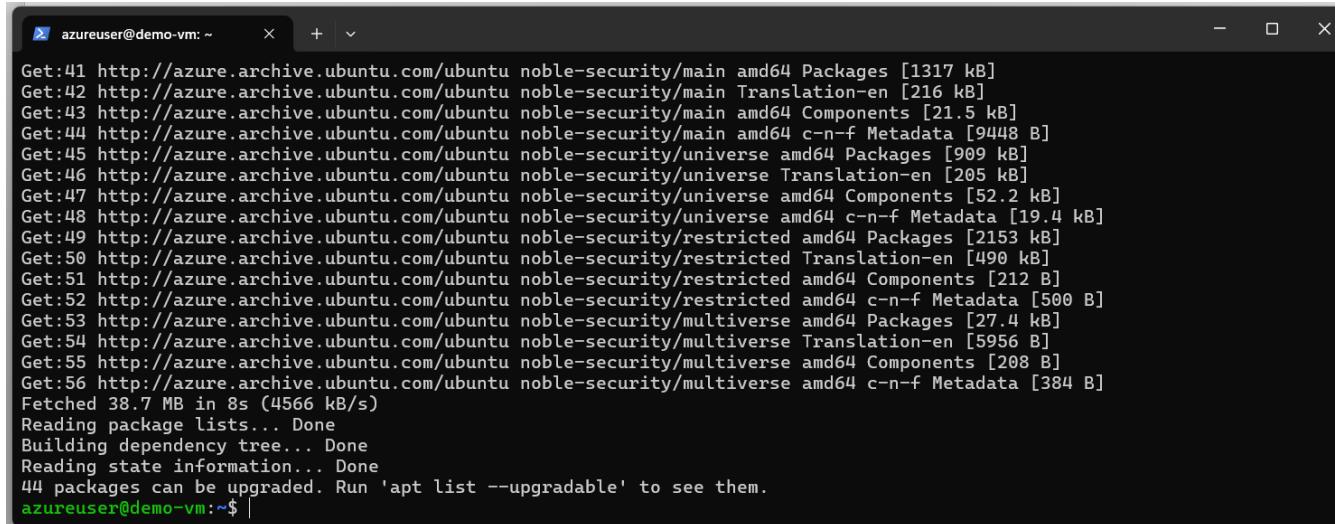
```
export  
BLOB_SAS_URL="https://demoprojectwebfiles.blob.core.windows.net/jupiter/jupiter.zip  
?sp=r&st=2025-11-25T05:05:22Z&se=2026-11-25T13:20:22Z&spr=https&sv=2024-11-  
04&sr=b&sig=3keMH0Qxk%2FpG6DOTwW0yyNTnZ7MzKFxOpOQNVQpONu8%3D"
```



```
azureuser@demo-vm: ~$ export BLOB_SAS_URL="https://demoprojectwebfiles.blob.core.windows.net/jupiter/jupiter.zip?sp=r&st=2025-11-25T05:05:22Z&se=2026-11-25T13:20:22Z&spr=https&sv=2024-11-04&sr=b&sig=3keMH0Qxk%2FpG6DOTwW0yyNTnZ7MzKFxOpOQNVQpONu8%3D"  
azureuser@demo-vm: ~$ |
```

The next command is going to update all the packages on the Virtual machine

```
sudo apt update
```

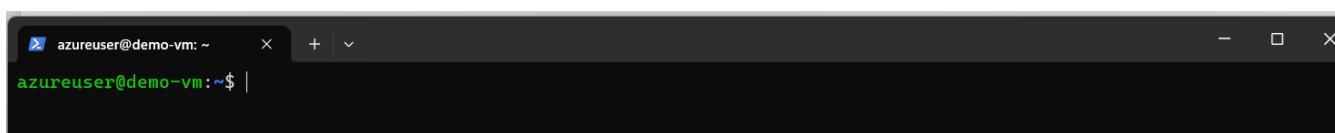


```
Get:41 http://azure.archive.ubuntu.com/ubuntu noble-security/main amd64 Packages [1317 kB]  
Get:42 http://azure.archive.ubuntu.com/ubuntu noble-security/main Translation-en [216 kB]  
Get:43 http://azure.archive.ubuntu.com/ubuntu noble-security/main amd64 Components [21.5 kB]  
Get:44 http://azure.archive.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [9448 B]  
Get:45 http://azure.archive.ubuntu.com/ubuntu noble-security/universe amd64 Packages [909 kB]  
Get:46 http://azure.archive.ubuntu.com/ubuntu noble-security/universe Translation-en [205 kB]  
Get:47 http://azure.archive.ubuntu.com/ubuntu noble-security/universe amd64 Components [52.2 kB]  
Get:48 http://azure.archive.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [19.4 kB]  
Get:49 http://azure.archive.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [2153 kB]  
Get:50 http://azure.archive.ubuntu.com/ubuntu noble-security/restricted Translation-en [490 kB]  
Get:51 http://azure.archive.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]  
Get:52 http://azure.archive.ubuntu.com/ubuntu noble-security/restricted amd64 c-n-f Metadata [500 B]  
Get:53 http://azure.archive.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [27.4 kB]  
Get:54 http://azure.archive.ubuntu.com/ubuntu noble-security/multiverse Translation-en [5956 B]  
Get:55 http://azure.archive.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [208 B]  
Get:56 http://azure.archive.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [384 B]  
Fetched 38.7 MB in 8s (4566 kB/s)  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
44 packages can be upgraded. Run 'apt list --upgradable' to see them.  
azureuser@demo-vm: ~$ |
```

We have successfully updated all the packages on the virtual machine.

Clear the screen using the command:

```
clear
```



```
azureuser@demo-vm: ~$ clear
```

Then, run the next command that is going to install unzip and Apache on the virtual machine.

```
sudo apt install unzip apache2 -y
azureuser@demo-vm: ~ + | 
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service → /usr/lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheload.service → /usr/lib/systemd/system/apache-htcacheload.service.
Processing triggers for ufw (0.36.2-6) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.6) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

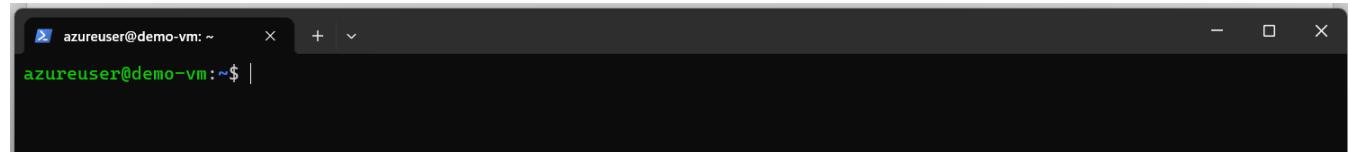
No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
azureuser@demo-vm:~$ |
```

We have successfully installed unzip and Apache on the virtual machine.

Clear the screen using the command:

```
clear
```



```
azureuser@demo-vm: ~ + | 
azureuser@demo-vm:~$ |
```

We will run the next command to change our directory into the HTML directory.

```
cd /var/www/html
```



```
azureuser@demo-vm:~/var/w ~ + | 
azureuser@demo-vm:~$ cd /var/www/html
azureuser@demo-vm:/var/www/html$ |
```

The HTML directory will only be available after you have installed Apache.

Now, that we have changed the directory into the HTML, if you run the command:

```
ls
```



```
azureuser@demo-vm:/var/w ~ + | 
azureuser@demo-vm:~$ cd /var/www/html
azureuser@demo-vm:/var/www/html$ ls
index.html
azureuser@demo-vm:/var/www/html$ |
```

You can see the index.html file in the directory. That is why we are running the next command to remove that file because we are going to add our own html file later on. So, run the command:

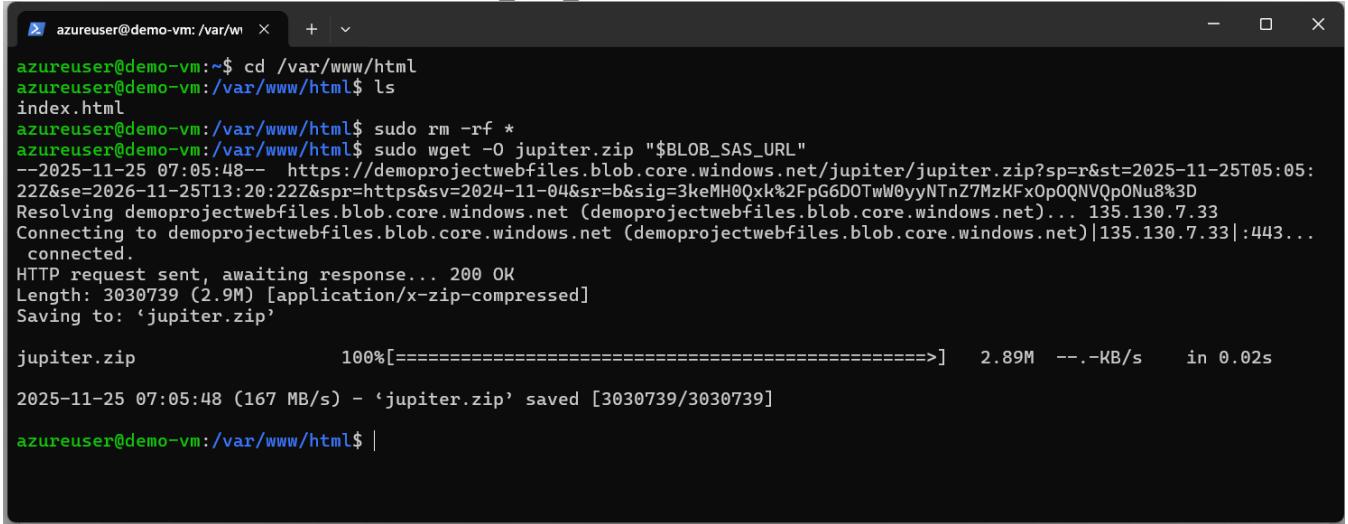
```
sudo rm -rf *
```



```
azureuser@demo-vm:~$ cd /var/www/html
azureuser@demo-vm:/var/www/html$ ls
index.html
azureuser@demo-vm:/var/www/html$ sudo rm -rf *
azureuser@demo-vm:/var/www/html$ |
```

Once we have removed any existing files, we are going to run the next command to download our application code from the Azure storage container.

```
sudo wget -O jupiter.zip "$BLOB_SAS_URL"
```



```
azureuser@demo-vm:~$ cd /var/www/html
azureuser@demo-vm:/var/www/html$ ls
index.html
azureuser@demo-vm:/var/www/html$ sudo rm -rf *
azureuser@demo-vm:/var/www/html$ sudo wget -O jupiter.zip "$BLOB_SAS_URL"
--2025-11-25 07:05:48-- https://demoprojectwebfiles.blob.core.windows.net/jupiter/jupiter.zip?sp=r&st=2025-11-25T05:05:22Z&se=2026-11-25T13:20:22Z&spr=https&sv=2024-11-04&sr=b&sig=3keMH0Qxk%2FpG6DOTwW0yyNTnZ7MzKFxOp0QNVQpONu8%3D
Resolving demoprojectwebfiles.blob.core.windows.net (demoprojectwebfiles.blob.core.windows.net)... 135.130.7.33
Connecting to demoprojectwebfiles.blob.core.windows.net (demoprojectwebfiles.blob.core.windows.net)|135.130.7.33|:443...
connected.
HTTP request sent, awaiting response... 200 OK
Length: 3030739 (2.9M) [application/x-zip-compressed]
Saving to: 'jupiter.zip'

jupiter.zip          100%[=====] 2.89M --.-KB/s   in 0.02s

2025-11-25 07:05:48 (167 MB/s) - 'jupiter.zip' saved [3030739/3030739]

azureuser@demo-vm:/var/www/html$ |
```

We have successfully downloaded the file. Run the command:

```
ls
```

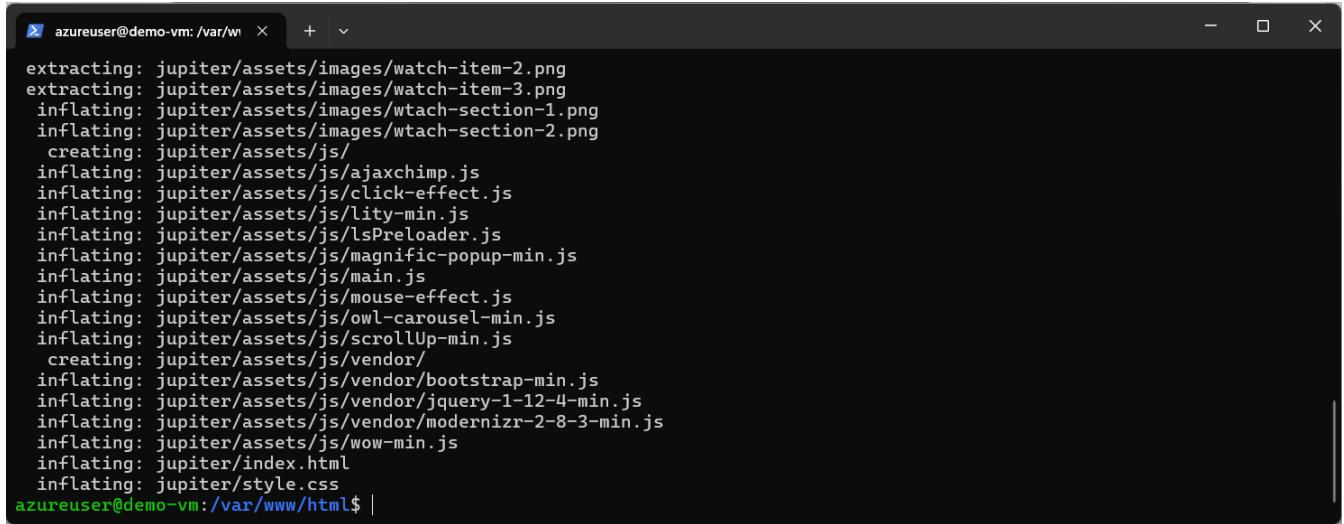


```
azureuser@demo-vm:~$ ls
jupiter.zip
azureuser@demo-vm:/var/www/html$ |
```

You can see the zip file we just downloaded.

The next thing we are going to do is to unzip the file using the command:

```
sudo unzip jupiter.zip
```



```
azureuser@demo-vm: /var/www/html$ unzip jupiter.zip
extracting: jupiter/assets/images/watch-item-2.png
extracting: jupiter/assets/images/watch-item-3.png
inflating: jupiter/assets/images/watch-section-1.png
inflating: jupiter/assets/images/watch-section-2.png
  creating: jupiter/assets/js/
inflating: jupiter/assets/js/ajaxchimp.js
inflating: jupiter/assets/js/click-effect.js
inflating: jupiter/assets/js/lity-min.js
inflating: jupiter/assets/js/lsPreloader.js
inflating: jupiter/assets/js/magnific-popup-min.js
inflating: jupiter/assets/js/main.js
inflating: jupiter/assets/js/mouse-effect.js
inflating: jupiter/assets/js/owl-carousel-min.js
inflating: jupiter/assets/js/scrollUp-min.js
  creating: jupiter/assets/js/vendor/
inflating: jupiter/assets/js/vendor/bootstrap-min.js
inflating: jupiter/assets/js/vendor/jquery-1-12-4-min.js
inflating: jupiter/assets/js/vendor/modernizr-2-8-3-min.js
inflating: jupiter/assets/js-wow-min.js
inflating: jupiter/index.html
inflating: jupiter/style.css
azureuser@demo-vm: /var/www/html$ |
```

We have successfully unzip the file. Clear the screen using the command:

```
clear
```



```
azureuser@demo-vm: /var/www/html$ |
```

Run this command again:

```
ls
```



```
azureuser@demo-vm: /var/www/html$ ls
jupiter  jupiter.zip
azureuser@demo-vm: /var/www/html$ |
```

You can see the file we just unzipped.

The next command we will run will copy all of the application code out of the unzipped folder into the HTML directory.

```
sudo cp -R jupiter/. .
```



```
azureuser@demo-vm: /var/www/html$ ls
jupiter  jupiter.zip
azureuser@demo-vm: /var/www/html$ sudo cp -R jupiter/. .
azureuser@demo-vm: /var/www/html$ |
```

Run the command to check the content again:

```
ls
```

```
azureuser@demo-vm: /var/www/html$ ls
jupiter jupiter.zip
azureuser@demo-vm: /var/www/html$ sudo cp -R jupiter/..
azureuser@demo-vm: /var/www/html$ ls
assets index.html jupiter jupiter.zip style.css
azureuser@demo-vm: /var/www/html$ |
```

You can see that the application codes are now in HTML directory.

Once we have moved the application code into the HTML directory, we do not need the Jupiter.zip folder and the unzipped folder any more. We will run this command to remove them:\

```
sudo rm -rf jupiter jupiter.zip
```

```
azureuser@demo-vm: /var/www/html$ ls
jupiter jupiter.zip
azureuser@demo-vm: /var/www/html$ sudo cp -R jupiter/..
azureuser@demo-vm: /var/www/html$ ls
assets index.html jupiter jupiter.zip style.css
azureuser@demo-vm: /var/www/html$ sudo rm -rf jupiter jupiter.zip
azureuser@demo-vm: /var/www/html$ |
```

Run the command to check the content again:

```
ls
```

```
azureuser@demo-vm: /var/www/html$ ls
jupiter jupiter.zip
azureuser@demo-vm: /var/www/html$ sudo cp -R jupiter/..
azureuser@demo-vm: /var/www/html$ ls
assets index.html jupiter jupiter.zip style.css
azureuser@demo-vm: /var/www/html$ sudo rm -rf jupiter jupiter.zip
azureuser@demo-vm: /var/www/html$ ls
assets index.html style.css
azureuser@demo-vm: /var/www/html$ |
```

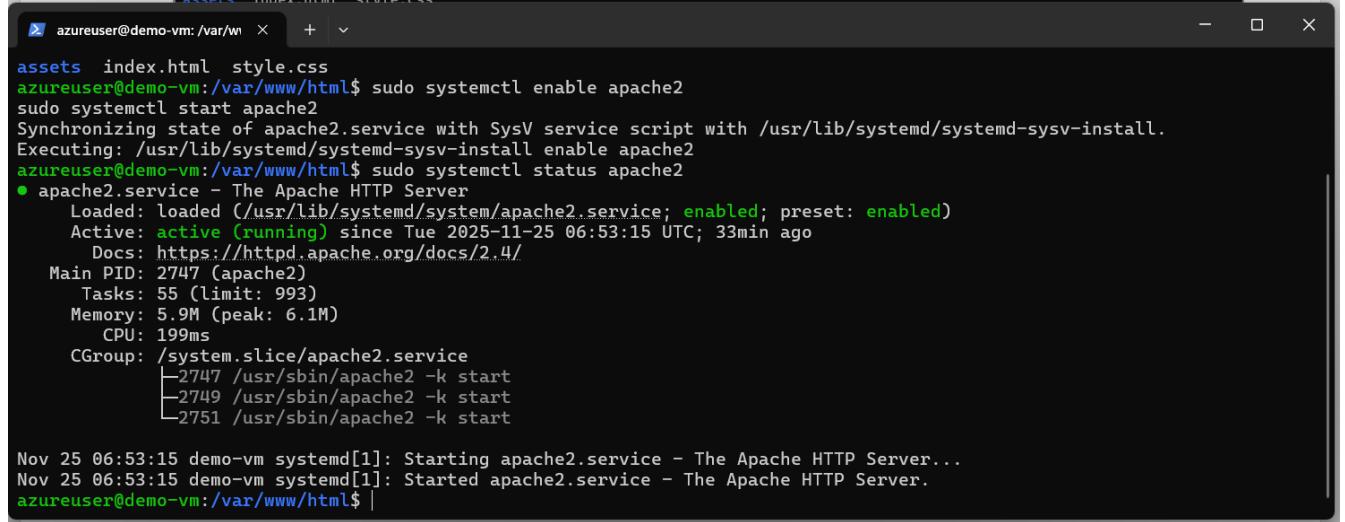
You can see that we have removed the folders. The next command we are going to run is going to enable and start the Apache service on the virtual machine.

```
sudo systemctl enable apache2
sudo systemctl start apache2
```

```
azureuser@demo-vm: /var/www/html$ ls
jupiter jupiter.zip
azureuser@demo-vm: /var/www/html$ sudo cp -R jupiter/..
azureuser@demo-vm: /var/www/html$ ls
assets index.html jupiter jupiter.zip style.css
azureuser@demo-vm: /var/www/html$ sudo rm -rf jupiter jupiter.zip
azureuser@demo-vm: /var/www/html$ ls
assets index.html style.css
azureuser@demo-vm: /var/www/html$ sudo systemctl enable apache2
sudo systemctl start apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
azureuser@demo-vm: /var/www/html$ |
```

You have successfully started the Apache service on the virtual machine. You can check the status by using the command:

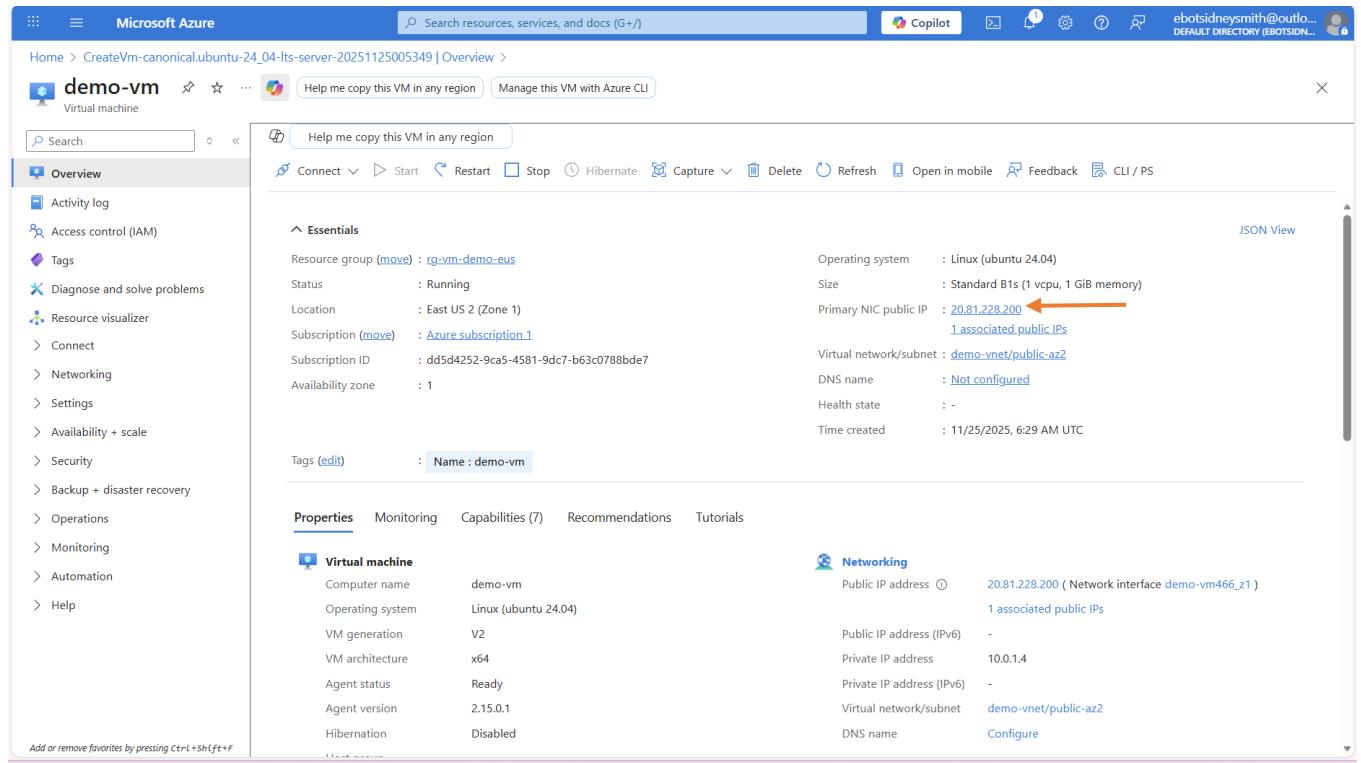
```
sudo systemctl status apache2
```



```
azuser@demo-vm: /var/www/html$ sudo systemctl enable apache2
azuser@demo-vm: /var/www/html$ sudo systemctl start apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
azuser@demo-vm: /var/www/html$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
   Active: active (running) since Tue 2025-11-25 06:53:15 UTC; 33min ago
     Docs: https://httpd.apache.org/docs/2.4/
          CPU: 199ms
     Tasks: 55 (limit: 993)
    Memory: 5.9M (peak: 6.1M)
        CPU: 199ms
      CGroup: /system.slice/apache2.service
              ├─2747 /usr/sbin/apache2 -k start
              ├─2749 /usr/sbin/apache2 -k start
              └─2751 /usr/sbin/apache2 -k start

Nov 25 06:53:15 demo-vm systemd[1]: Starting apache2.service - The Apache HTTP Server...
Nov 25 06:53:15 demo-vm systemd[1]: Started apache2.service - The Apache HTTP Server.
azuser@demo-vm: /var/www/html$ |
```

You can see that it is “Active” and “Running”. Now, go to the Virtual machine on Azure

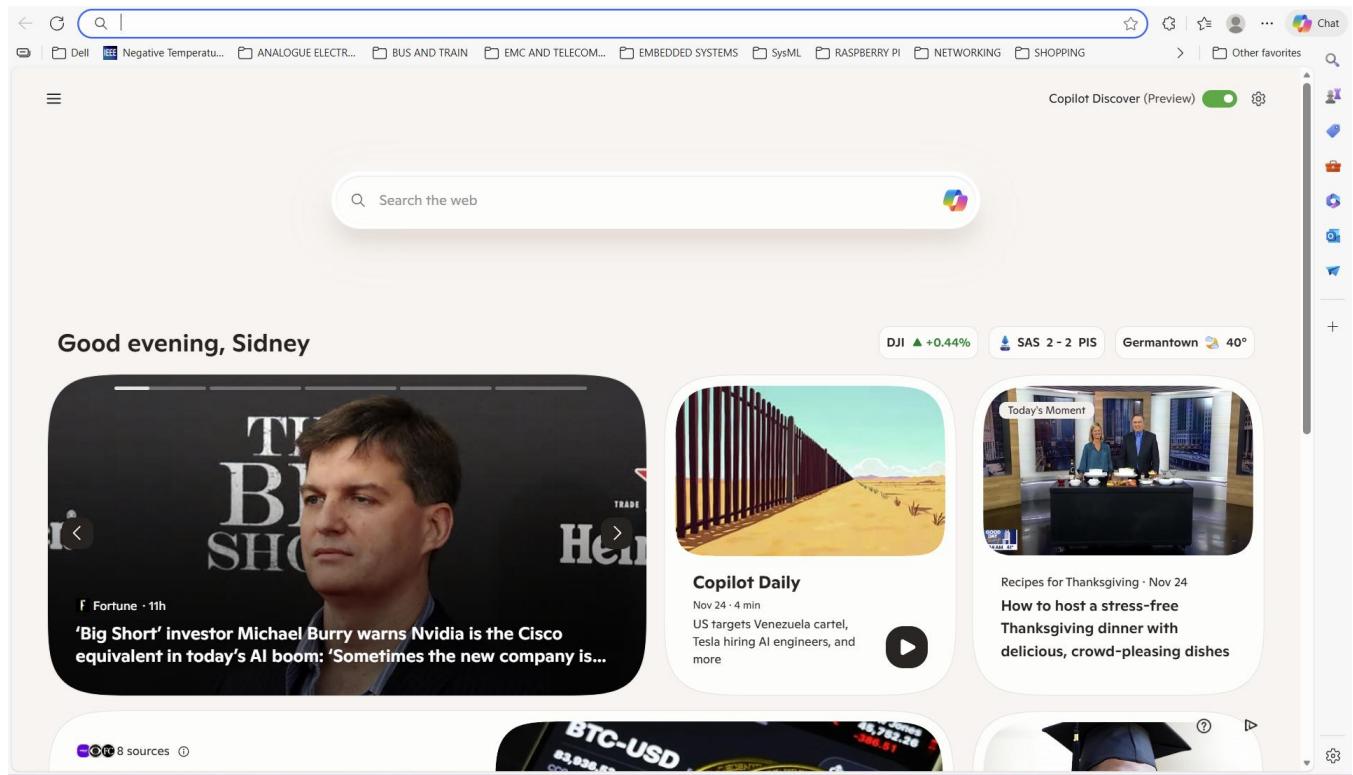


The screenshot shows the Azure portal interface with the following details for the 'demo-vm' VM:

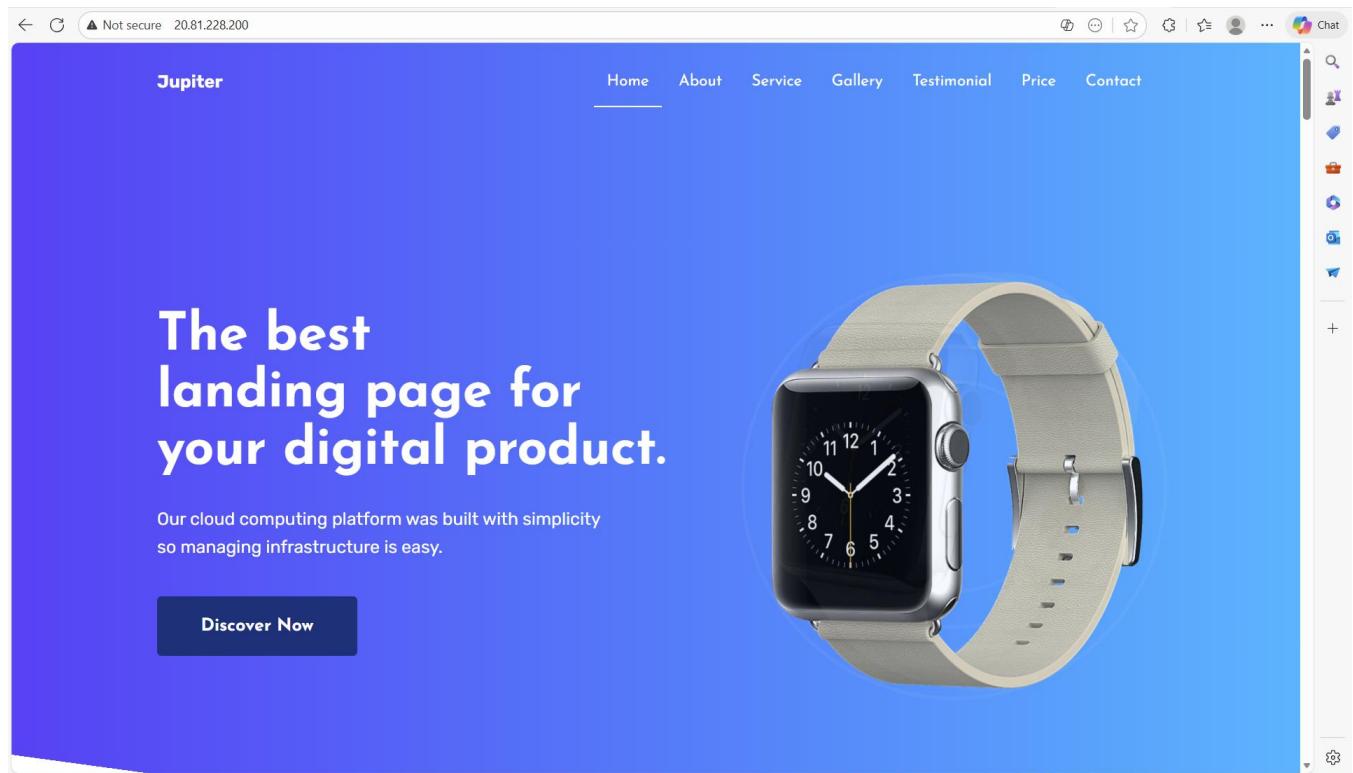
- Essentials:**
 - Resource group: rg-vm-demo-eus
 - Status: Running
 - Location: East US 2 (Zone 1)
 - Subscription: Azure subscription 1
 - Subscription ID: dd5d4252-9ca5-4581-9dc7-b63c0788bde7
 - Availability zone: 1
 - Primary NIC public IP: 20.81.228.200 (highlighted with an orange arrow)
 - Virtual network/subnet: demo-vnet/public-az2
 - DNS name: Not configured
 - Health state: -
 - Time created: 11/25/2025, 6:29 AM UTC
- Properties:**
 - Virtual machine:** Computer name: demo-vm, Operating system: Linux (ubuntu 24.04), VM generation: V2, VM architecture: x64, Agent status: Ready, Agent version: 2.15.0.1, Hibernation: Disabled.
 - Networking:** Public IP address: 20.81.228.200 (Network interface demo-vm466_z1), 1 associated public IPs.

Copy the public IP: 20.81.228.200

Open a new web browser



Paste the copied IP on the browser and press “Enter”



We have successfully installed the HTML application in Azure. This is how you deploy an HTML application in Azure.

6. Clean Up Azure Resources

In this section, we will delete all the Azure resources we created to avoid ongoing charges and keep our subscription clean.

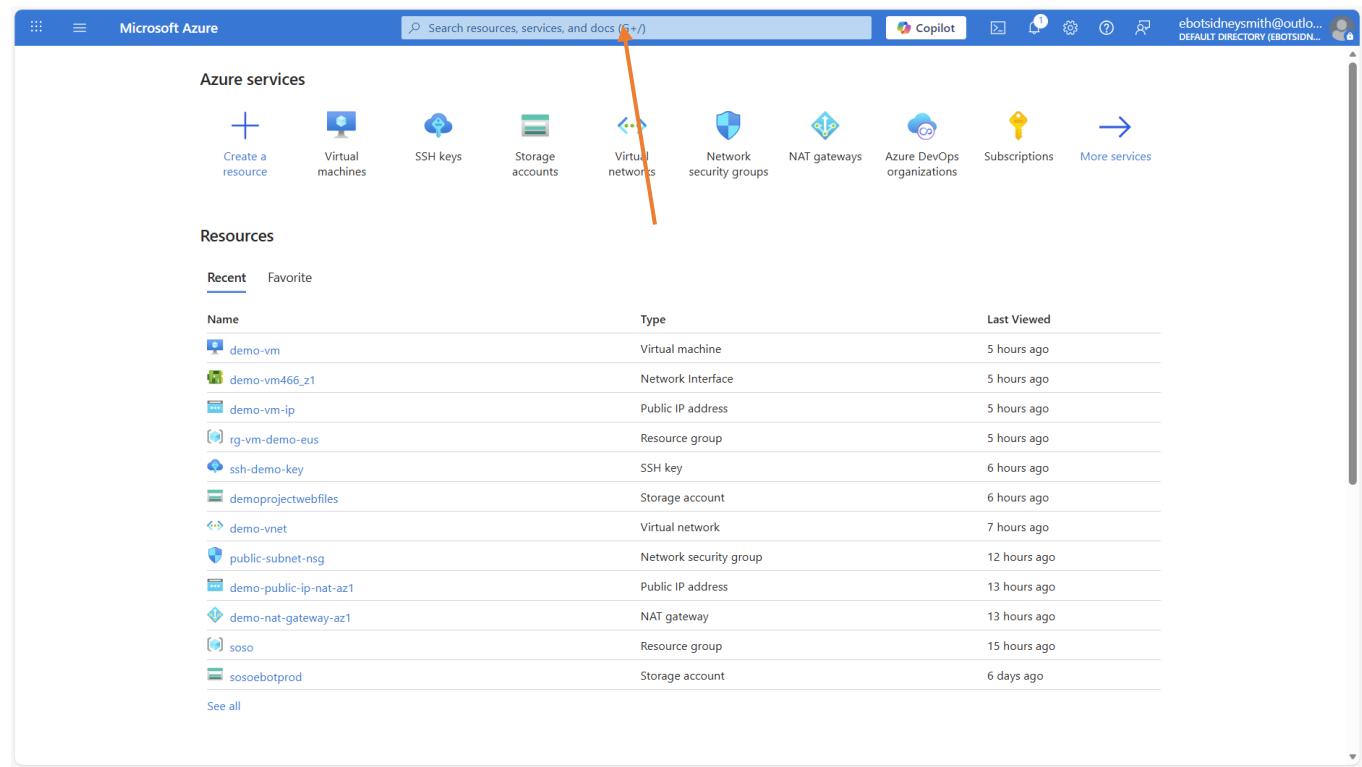
6.1. How to Clean Up Azure Resources After Project Completion

Learn how to safely delete all Azure resources you created during your project — including virtual machines, storage accounts, networks, and more. Follow this step-by-step tutorial to prevent unnecessary billing and maintain a clear cloud usage record.

In this lecture, we will delete some of the resources we used to complete this project so that you don't get charged. The resources we are going to delete are the virtual machine, the network security group, the NAT gateway, and the public IP we created for the NAT gateway.

Part 1: Deleting the Virtual Machine

We will start by deleting the virtual machine



The screenshot shows the Microsoft Azure portal interface. At the top, there is a blue header bar with the 'Microsoft Azure' logo, a search bar containing 'Search resources, services, and docs (S+)', and various navigation icons and user information. Below the header, the main content area has two sections: 'Azure services' and 'Resources'. The 'Azure services' section contains icons for 'Create a resource', 'Virtual machines', 'SSH keys', 'Storage accounts', 'Virtual networks' (which has a red arrow pointing to it), 'Network security groups', 'NAT gateways', 'Azure DevOps organizations', 'Subscriptions', and 'More services'. The 'Resources' section has tabs for 'Recent' and 'Favorite', with 'Recent' selected. It lists resources with columns for 'Name', 'Type', and 'Last Viewed'. The listed resources include:

Name	Type	Last Viewed
demo-vm	Virtual machine	5 hours ago
demo-vm466_z1	Network Interface	5 hours ago
demo-vm-ip	Public IP address	5 hours ago
rg-vm-demo-eus	Resource group	5 hours ago
ssh-demo-key	SSH key	6 hours ago
demoprojectwebfiles	Storage account	6 hours ago
demo-vnet	Virtual network	7 hours ago
public-subnet-ns	Network security group	12 hours ago
demo-public-ip-nat-az1	Public IP address	13 hours ago
demo-nat-gateway-az1	NAT gateway	13 hours ago
soso	Resource group	15 hours ago
sosoebotprod	Storage account	6 days ago

To start, search for “Virtual Machines”

The screenshot shows the Microsoft Azure portal homepage. At the top, there's a search bar with "Virtual Machines". Below it, under "Azure services", there are links for "Create a resource" and "Virtual machines". In the "Resources" section, "Recent" is selected, showing a list of resources including "demo-vm", "demo-vm466_z1", "demo-vm-ip", "rg-vm-demo-eus", "ssh-demo-key", "demoprojectwebfiles", "demo-vnet", "public-subnet-nsg", "demo-public-ip-nat-az1", "demo-nat-gateway-az1", "soso", and "sosoebotprod". To the right, there are sections for "Services", "Marketplace", "Documentation", and "Last Viewed". The "Services" section includes "Virtual machines", "Virtual machines (classic)", "Virtual Machines (Operator Nexus)", and "SQL Server on Azure Virtual Machines". The "Marketplace" section lists "Virtual Machines with Confidential App Enclaves", "Cloud Backup for Azure Virtual Machines & Azure Storage", "Managed Virtual Machines", and "Managed Services for Azure Virtual Machines". The "Documentation" section includes "Quickstart - Create a Windows VM in the Azure portal - Azure Virtual Machines", "Availability options for Azure Virtual Machines - Azure Virtual Machines", "Describe Azure Compute and Networking Services - Training", and "Sign in to a Windows virtual machine in Azure by using Microsoft Entra ID - Micro...". The "Last Viewed" section lists items from 5 hours ago to 6 days ago.

Select “Virtual Machines” under services.

The screenshot shows the "Compute infrastructure | Virtual machines" blade. On the left, there's a navigation menu with "Virtual machines" selected. The main area displays a table of virtual machines. One row is highlighted with a red arrow pointing to the "Name" column, which contains "demo-vm". The table columns include Name, Subscription, Resource Group, Location, Status, Operating syst..., Size, Public IP addre..., and Disks. At the bottom, it says "Showing 1 - 1 of 1. Display count: auto".

Name	Subscription	Resource Group	Location	Status	Operating syst...	Size	Public IP addre...	Disks
demo-vm	Azure subscript...	rg-vm-demo-eus	East US 2	Running	Linux	Standard_B1s	20.81.228.200	1

Click on the virtual machine.

The screenshot shows the Microsoft Azure Compute Infrastructure Virtual machines page. On the left, there's a sidebar with options like 'Virtual machines', 'Create', and 'Reservations'. The main area displays a single virtual machine named 'demo-vm'. In the top right of this area, there are several buttons: 'Help me copy this VM in any region', 'Manage this VM with Azure CLI', 'Advisor (1 of 2): Use Azure Capacity Reservation for virtual machine (VM) →', 'Connect', 'Start', 'Restart', 'Stop', 'Hibernate', 'Capture', 'Delete', and 'Refresh'. A red arrow points to the 'Delete' button. Below these buttons, there's a section titled 'Essentials' with detailed information about the VM, such as its resource group ('rg-vm-demo-eus'), operating system ('Linux (ubuntu 24.04)'), and status ('Running'). At the bottom of the main content area, there are tabs for 'Properties', 'Monitoring', 'Capabilities (7)', 'Recommendations (2)', and 'Tutorials'.

Then click on “Delete”

The screenshot shows the Microsoft Azure Compute Infrastructure Virtual machines page with the 'Delete demo-vm' dialog open. The dialog title is 'Delete demo-vm'. It contains a message: 'This action will permanently delete the virtual machine and is irreversible even if delete operation fails.' Below this, it says 'Resource to be deleted' and shows 'demo-vm' under 'Resource type' 'Virtual machine'. There's a checked checkbox 'Apply force delete' with a note: 'This virtual machine can be safely force deleted because all of its associated resources are being deleted.' Below this, it says 'You can also choose to delete associated resources at the same time. Resources that aren't deleted will be orphaned. Associated resources that are in use by other resources are not shown here.' A table lists 'Associated resource type', 'Quantity', and 'Delete with VM' for three items: 'OS disk' (1, checked), 'Network interfaces' (1, checked), and 'Public IP addresses' (1, checked). At the bottom, there's a checkbox 'I have read and understand the virtual machine as well as any selected associated resources listed above will be deleted.', followed by 'Delete' and 'Cancel' buttons.

Leave all the settings as default and check the box on “I have read and understand the virtual machine as well as any selected associated resources listed above will be deleted”.

This action will permanently delete the virtual machine and is irreversible even if delete operation fails.

Resource to be deleted	Resource type
demo-vm	Virtual machine

Apply force delete ⓘ
 ⓘ This virtual machine can be safely force deleted because all of its associated resources are being deleted.

You can also choose to delete associated resources at the same time. Resources that aren't deleted will be orphaned. Associated resources that are in use by other resources are not shown here.

Associated resource type	Quantity	Delete with VM
OS disk	1	<input checked="" type="checkbox"/>
Network interfaces	1	<input checked="" type="checkbox"/>
Public IP addresses	1	<input checked="" type="checkbox"/>

I have read and understand that this virtual machine as well as any selected associated resources listed above will be deleted.

Delete **Cancel**

Then click on “Delete” again

☰ Microsoft Azure

Home > Compute infrastructure | Virtual machines >

Compute infra... Microsoft

Virtual machines Get started

+ Create ⓘ Reservations ...

(ⓘ You are viewing a new version of Browse experience. Click here to access the old experience.)

Name ↑

demo-vm

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Connect Networking Settings Availability + scale Security Backup + disaster recovery Operations Monitoring Automation Help

Show 1 - 1 of 1. Display auto count:

Add or remove favorites by pressing Ctrl+Shift+F

Help me copy this VM in any region Manage this VM with Azure CLI

Advisors (1 of 2): Use Azure Capacity Reservation for virtual machine (VM) →

Help me copy this VM in any region

Connect Start Restart Stop Hibernate Capture Delete Refresh ...

☰ Deleting virtual machine 'demo-vm'

Deleting virtual machine 'demo-vm' and any selected resource(s) associated with it.

☰ Essentials

Resource group ([move](#)) rg-vm-demo-eus

Operating system Linux (ubuntu 24.04)

Status Running

Size Standard B1s (1 vcpu, 1 GiB memory)

Location East US 2 (Zone 1)

Primary NIC public IP 20.81.228.200

Subscription ([move](#)) [Azure subscription 1](#)

1 associated public IPs

Virtual network/subnet demo-vnet/public-az2

Subscription ID dd5d4252-9ca5-4581-9dc7-b63c0788bde7

DNS name Not configured

Health state -

Availability zone 1

Time created 11/25/2025, 6:29 AM UTC

Tags ([edit](#)) Name : demo-vm

Properties Monitoring Capabilities (7) Recommendations (2) Tutorials

Virtual machine Computer name demo-vm

Networking Dynamic IP address 20.81.228.200 / Network demo-vm

We are now deleting the virtual machine; it will take some time for the virtual machine to be deleted.

The screenshot shows the Microsoft Azure Compute Infrastructure Virtual Machines page. A red arrow points from the search bar at the top to the 'Delete' button in the top right corner of the main content area. The content area displays details for a virtual machine named 'demo-vm'. The 'Status' field shows 'Deleting'. Other details include Resource group (rg-vm-demo-eus), Subscription (Azure subscription 1), and Tags (Name : demo-vm). The 'Properties' tab is selected.

We have successfully deleted the virtual machine.

6.2. Deleting the Network Security Groups

Let us now delete the Network security group. Search for “Network Security Groups”

The screenshot shows the Microsoft Azure Compute Infrastructure Virtual Machines page. A red arrow points from the search bar at the top to the search results list. The results list includes 'Network security groups' and 'Virtual networks'. The 'Network security groups' item is highlighted. The right side of the screen shows the properties of a virtual machine named 'demo-vm', which has been deleted.

Select “Network Security Group”

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Home > Network foundation

Network foundation | Network security groups

Preview

Search

Create Manage view Refresh Export to CSV Open query Assign tags Add to service group Group by none

You are viewing a new version of Browse experience. Click here to access the old experience.

Filter for any field... Subscription equals all Resource Group equals all Location equals all Add filter

Name ↑	Resource Group	Location	Subscription	Flow log
public-subnet-nsg	rg-vm-demo-eus	East US 2	Azure subscription 1	

Showing 1 - 1 of 1. Display count: auto

Add or remove favorites by pressing Ctrl+Shift+F Give feedback

Click on the network security group

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com DEFAULT DIRECTORY (EBOTSID...)

Home > Network foundation | Network security groups

Network foundation | Network security groups

Preview

Search

Create Manage view

You are viewing a new version of Browse experience. Click here to access the old experience.

Name ↑

public-subnet-nsg

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Inbound security rules

Outbound security rules

Network interfaces

Subnets

Properties

Locks

Monitoring

Automation

Help

Diagnose connectivity issues related to this security group

Move Delete Refresh Give feedback

JSON View

Resource group : rg-vm-demo-eus

Location : East US 2

Subscription (move) : Azure subscription 1

Subscription ID : dd5d4252-9ca5-4581-9dc7-b63c0788b...

Custom security rules : 2 inbound, 0 outbound

Associated with : 2 subnets, 0 network interfaces

Tags (edit) : More (1)

Filter by name

Port == all Protocol == all Source == all Destination == all

Action == all

Priority ↑	Name ↑	Port ↑	Protocol ↑
100	AllowMyIpAddressSS...	22	TCP
110	AllowAnyHTTPInbound	80	TCP
65000	AllowVnetInBound	Any	Any
65001	AllowAzureLoadBalanc...	Any	Any
65500	DenyAllInBound	Any	Any

Showing 1 - 1 of 1. Display count: auto

Add or remove favorites by pressing Ctrl+Shift+F

Click on “Subnets”

The screenshot shows the Microsoft Azure portal interface. The left sidebar navigation bar is visible, with the 'Network security groups' section highlighted. The main content area displays the 'public-subnet-nsg | Subnets' page for a Network security group. On the right, there is a table titled 'Search subnets' showing two entries: 'public-az1' and 'public-az2'. An orange arrow points from the text 'Click on the three dots (...) on the first subnet' to the three-dot menu icon next to the 'public-az1' entry.

Name	Address range	Virtual network	...
public-az1	10.0.0.0/24	demo-vnet	...
public-az2	10.0.1.0/24	demo-vnet	...

Click on the three dots (...), on the first subnet

The screenshot shows the same Microsoft Azure portal interface as the previous one, but with a different focus. The 'Associate' button is highlighted with an orange arrow. Below it, the 'Dissociate' button is also highlighted with an orange arrow. The table 'Search subnets' remains the same, showing 'public-az1' and 'public-az2' entries.

Name	Address range	Virtual network	...
public-az1	10.0.0.0/24	demo-vnet	Dissociate ...
public-az2	10.0.1.0/24	demo-vnet	...

Select “Dissociate”

Network foundation | Network security groups

public-subnet-nsg | Subnets

Dissociate subnet
Do you want to dissociate the subnet 'public-az1'?
Yes **No**

Name	Address range	Virtual network
public-az1	10.0.0.0/24	demo-vnet
public-az2	10.0.1.0/24	demo-vnet

Click on “Yes”

public-subnet-nsg | Subnets

Successfully dissociated subnet
Successfully dissociated subnet 'public-az1'.

Name	Address range	Virtual network
public-az2	10.0.1.0/24	demo-vnet

The dissociation is successful. Now, let us do the same procedure on the second subnet.

The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is open, showing 'Network foundation' selected under 'Network security groups'. The main content area displays the 'public-subnet-nsg' Subnets blade. A table lists a single subnet: 'public-az2' with address range '10.0.1.0/24' and associated with 'Virtual network' 'public-az2'. An orange arrow points to the 'Dissociate' button in the top right corner of the table row.

Click on “Dissociate”

The screenshot shows the same Microsoft Azure portal interface as the previous one. The 'Dissociate' button has been clicked, and a modal dialog box appears asking 'Do you want to dissociate the subnet 'public-az2'?'. Two buttons are visible: 'Yes' (highlighted with an orange arrow) and 'No'.

Click on “Yes”

The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is open, showing various services like Virtual network, Network security groups, Application security groups, Bastions, Route tables, Route servers, Private Link, DNS, and Monitoring and management. The 'Network security groups' section is currently selected. In the main content area, the title is 'public-subnet-nsg | Subnets'. A modal window titled 'Dissociating subnet' is open, stating 'Dissociating subnet 'public-az2''. Below this, the 'Associate' blade is visible, showing a table with one row: Name 'public-az2', Address range '10.0.1.0/24', and Virtual network 'demo-vnet'. The 'Subnets' section is highlighted in the sidebar.

The second subnet is dissociating

This screenshot is similar to the previous one but with a red arrow pointing to the 'Overview' link in the left sidebar of the main content area. The rest of the interface and the modal window are identical to the first screenshot.

Both subnets have been dissociated. Click on “Overview”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

Home > public-subnet-nsg Network security group

Diagnose connectivity issues related to this security group | Retrieve detailed information for troubleshooting security rules | Analyze security rules for this network security group

Search

Move Delete Refresh Give feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Inbound security rules

Outbound security rules

Network interfaces

Subnets

Properties

Locks

Monitoring

Automation

Help

Essentials

Resource group (move) : rg-vm-demo-eus

Location : East US 2

Subscription (move) : Azure subscription 1

Subscription ID : dd5d4252-9ca5-4581-9dc7-b63c0788bde7

Custom security rules : 2 inbound, 0 outbound

Associated with : 0 subnets, 0 network interfaces

Tags (edit) : Name : public-subnet-nsg

Filter by name

Port == all Protocol == all Source == all Destination == all Action == all

Priority ↑ Name ↓ Port ↓ Protocol ↓ Source ↓ Destination ↓ Action ↓

Inbound Security Rules

Priority ↑	Name ↓	Port ↓	Protocol ↓	Source ↓	Destination ↓	Action ↓
100	AllowMyipAddressSSHInbound	22	TCP	108.31.160.223	Any	Allow
110	AllowAnyHTTPInbound	80	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInbound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

Outbound Security Rules

Priority ↑	Name ↓	Port ↓	Protocol ↓	Source ↓	Destination ↓	Action ↓
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

Add or remove favorites by pressing Ctrl+Shift+F

Click on “Refresh”

Microsoft Azure

Search resources, services, and docs (G+/)

Copilot

ebotsidneysmith@outlook.com

Home > public-subnet-nsg Network security group

Diagnose connectivity issues related to this security group | Retrieve detailed information for troubleshooting security rules | Analyze security rules for this network security group

Search

Move Delete Refresh Give feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Inbound security rules

Outbound security rules

Network interfaces

Subnets

Properties

Locks

Monitoring

Automation

Help

Essentials

Resource group (move) : rg-vm-demo-eus

Location : East US 2

Subscription (move) : Azure subscription 1

Subscription ID : dd5d4252-9ca5-4581-9dc7-b63c0788bde7

Custom security rules : 2 inbound, 0 outbound

Associated with : 0 subnets, 0 network interfaces

Tags (edit) : Name : public-subnet-nsg

Filter by name

Port == all Protocol == all Source == all Destination == all Action == all

Priority ↑ Name ↓ Port ↓ Protocol ↓ Source ↓ Destination ↓ Action ↓

Inbound Security Rules

Priority ↑	Name ↓	Port ↓	Protocol ↓	Source ↓	Destination ↓	Action ↓
100	AllowMyipAddressSSHInbound	22	TCP	108.31.160.223	Any	Allow
110	AllowAnyHTTPInbound	80	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInbound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

Outbound Security Rules

Priority ↑	Name ↓	Port ↓	Protocol ↓	Source ↓	Destination ↓	Action ↓
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

Add or remove favorites by pressing Ctrl+Shift+F

Then click on “Delete”

The screenshot shows the Microsoft Azure portal interface. The user is on the 'Overview' page of a Network Security Group named 'public-subnet-nsg'. A modal dialog box is open, asking 'Do you want to delete the network security group 'public-subnet-nsg'?'. Two buttons are visible: 'Yes' (highlighted with a red arrow) and 'No'. Below the dialog, the main content area displays the NSG's settings, including its subscription ID, tags, and security rules tables.

Subscription ID: dd5d4252-9ca5-4581-9dc7-b63c0788bde7
Tags (edit): Name : public-subnet-nsg

2 inbound, 0 outbound
0 subnets, 0 network interfaces

Priority ↑	Name ↑	Port ↑	Protocol ↑	Source ↑	Destination ↑	Action ↑
Inbound Security Rules						
100	AllowMyipAddressSSHInbound	22	TCP	108.31.160.223	Any	Allow
110	AllowAnyHTTPInbound	80	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInbound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
Outbound Security Rules						
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

Then click on “Yes”

The screenshot shows the Microsoft Azure portal interface. The user is on the 'Overview' page of the same NSG. A modal dialog box is open, stating 'Deleting the network security group 'public-subnet-nsg''. The main content area displays the NSG's settings, including its subscription ID, tags, and security rules tables.

Resource group (move) : rg-vm-demo-eus
Location : East US 2
Subscription (move) : Azure subscription 1
Subscription ID : dd5d4252-9ca5-4581-9dc7-b63c0788bde7
Tags (edit) : Name : public-subnet-nsg

Custom security rules : 2 inbound, 0 outbound
Associated with : 0 subnets, 0 network interfaces

Priority ↑	Name ↑	Port ↑	Protocol ↑	Source ↑	Destination ↑	Action ↑
Inbound Security Rules						
100	AllowMyipAddressSSHInbound	22	TCP	108.31.160.223	Any	Allow
110	AllowAnyHTTPInbound	80	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInbound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny
Outbound Security Rules						
65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowInternetOutBound	Any	Any	Any	Internet	Allow
65500	DenyAllOutBound	Any	Any	Any	Any	Deny

The Network Security Group is deleting

The screenshot shows the Microsoft Azure portal homepage. At the top, there is a search bar with the placeholder text "Search resources, services, and docs (G+Y)". Below the search bar is a navigation bar with icons for Copilot, Notifications, Settings, and Account. The account section shows the email "ebotsidneysmith@outlook.com" and "DEFAULT DIRECTORY (EBOTSIDN...)".

The main content area is divided into two sections: "Azure services" and "Resources".

Azure services:

- Create a resource
- Network security groups
- Virtual machines
- SSH keys
- Storage accounts
- Virtual networks
- NAT gateways
- Azure DevOps organizations
- Subscriptions
- More services

Resources:

Recent

Name	Type	Last Viewed
public-subnet-nsg	Network security group	4 minutes ago
demo-vm	Virtual machine	3 hours ago
demo-vm466_z1	Network Interface	7 hours ago
demo-vm-ip	Public IP address	7 hours ago
rg-vm-demo-eus	Resource group	8 hours ago
ssh-demo-key	SSH key	8 hours ago
demoprojectwebfiles	Storage account	9 hours ago
demo-vnet	Virtual network	10 hours ago
demo-public-ip-nat-az1	Public IP address	15 hours ago
demo-nat-gateway-az1	NAT gateway	15 hours ago
soso	Resource group	17 hours ago
sosoebotprod	Storage account	6 days ago

See all

The Network Security Group has been deleted.

6.3. Deleting the NAT gateways

Let us go ahead and delete the NAT gateways. Search for “**NAT gateways**”

The screenshot shows the Microsoft Azure portal homepage with the search bar containing the text "NAT gateways".

The main content area is divided into "Azure services" and "Resources".

Azure services:

- Create a resource
- Network security groups
- Virtual machines
- SSH keys
- Storage accounts
- Virtual networks
- NAT gateways
- Azure DevOps organizations
- Subscriptions
- More services

Resources:

Recent

Name	Type	Last Viewed
public-subnet-nsg	Network security group	4 minutes ago
demo-vm	Virtual machine	3 hours ago
demo-vm466_z1	Network Interface	7 hours ago
demo-vm-ip	Public IP address	7 hours ago
rg-vm-demo-eus	Resource group	8 hours ago
ssh-demo-key	SSH key	8 hours ago
demoprojectwebfiles	Storage account	9 hours ago
demo-vnet	Virtual network	10 hours ago
demo-public-ip-nat-az1	Public IP address	15 hours ago
demo-nat-gateway-az1	NAT gateway	15 hours ago
soso	Resource group	17 hours ago
sosoebotprod	Storage account	6 days ago

See all

The search results pane shows the following items:

- All
- Services (24)
- Marketplace (2)
- More (4)

Services

- NAT gateways
- Arc gateways
- Internet Gateways (Operator Nexus)
- Application gateways

Marketplace

Searching all subscriptions.

Give feedback

Select “**NAT gateways**” under services.

Microsoft Azure

Search resources, services, and docs (G+/-)

Copilot

ebotsidneysmith@outlook.com

Home > Network foundation

Network foundation | NAT gateways

Preview

Search

Create Manage view Refresh Export to CSV Open query Assign tags Add to service group Group by none

You are viewing a new version of Browse experience. Click here to access the old experience.

Filter for any field... Subscription equals all Resource Group equals all Location equals all Add filter

Name	Resource Group	Location	Subscription	Type
demo-nat-gateway-az1	rg-vm-demo-eus	East US 2	Azure subscription 1	NAT gateway

Public IP addresses Network interfaces Network security groups Application security groups Bastions Route tables Route servers Private Link DNS Monitoring and management

Showing 1 - 1 of 1. Display count: auto

Add or remove favorites by pressing Ctrl+Shift+F Give feedback

Click on the NAT gateways

Microsoft Azure

Search resources, services, and docs (G+/-)

Copilot

ebotsidneysmith@outlook.com

Home > Network foundation | NAT gateways

Network foundation | NAT gateways

Preview

Search

Create Manage view ...

You are viewing a new version of Browse experience. Click here to access the old experience.

Name: demo-nat-gateway-az1

Overview

Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Settings Outbound IP Subnets Configuration Properties Locks Monitoring Automation Help

Essentials

Resource group (move) rg-vm-demo-eus	Virtual network demo-vnet
Location East US 2 (Zone 1)	Subnets 4
Subscription (move) Azure subscription 1	SKU Standard
Subscription ID dd5d425-9ca5-4581-9dc7-b63c0788bde7	Public IP addresses 1
	Public IP prefixes 0

Tags (edit)
Name : demo-nat-gateway-az1

Configure outbound IP addresses
Configure which public IP addresses and public IP prefixes to use for outbound connectivity.

Configure networking
Configure which subnets of a virtual network should use this NAT gateway.

Showing 1 - 1 of 1. Display count: auto

Add or remove favorites by pressing Ctrl+Shift+F Give feedback

Click on “Subnets”

The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is open, showing various network-related services like Virtual network, NAT gateways, and Route tables. The 'NAT gateways' section is selected. In the main content area, the title is 'demo-nat-gateway-az1 | Subnets'. Below the title, there's a toolbar with 'Search', 'Save', 'Discard', 'Disassociate' (which has an orange arrow pointing to it), and 'Refresh'. The 'Subnets' section is expanded, showing a table with two rows: 'private-app-az1' and 'private-app-az2'. Both rows have a checked checkbox next to 'Subnet name'. To the right of the table, it says 'Subnet address range -'. At the bottom of the table, there's a link 'Manage subnets >'. A note at the top right of the page says 'To use the NAT gateway, at least one subnet must be selected. You can add and remove subnets after creating the NAT gateway.'

The first thing we will do is to dissociate our private subnets from this NAT gateways. Click on “Dissociate”.

This screenshot shows the same Azure portal interface as the previous one, but with a message box in the top right corner stating 'Updating the NAT Gateway' and 'Updating the NAT Gateway 'demo-nat-gateway-az1''. The rest of the interface is identical to the first screenshot, showing the list of subnets and the 'Disassociate' button.

The subnets are dissociating from the NAT gateways.

Network foundation | NAT gateways

demo-nat-gateway-az1 | Subnets

Overview

To use the NAT gateway, at least one subnet must be selected. You can add and remove subnets after creating the NAT gateway.

Virtual network

Subnets

Configuration

Properties

Locks

Monitoring

Automation

Help

The private subnets have dissociated from the NAT gateways. Click on “Overview”

demo-nat-gateway-az1

Overview

Essentials

Resource group (move)	: rg-vm-demo-eus
Location	: East US 2 (Zone 1)
Subscription (move)	: Azure subscription 1
Subscription ID	: dd5d4252-9ca5-4581-9dc7-b63c0788b...
Virtual network	: -
Subnets	: 0
SKU	: Standard
Public IP addresses	: 1
Public IP prefixes	: 0
Tags (edit)	: More (1)

Configure outbound IP addresses
Configure which public IP addresses and public IP prefixes to use for outbound connectivity.

Configure networking
Configure which subnets of a virtual network should use this NAT gateway.

Then click on “Delete”

The screenshot shows the Microsoft Azure portal interface. On the left, the 'Network foundation | NAT gateways' blade is open, showing a list of resources including 'demo-nat-gateway-az1'. On the right, a detailed view of 'demo-nat-gateway-az1' is shown. A modal dialog titled 'Delete the NAT gateway' is displayed, asking 'Do you want to delete the NAT gateway 'demo-nat-gateway-az1'?'. Two buttons are visible: 'Yes' (highlighted with a red arrow) and 'No'. The resource details pane on the right lists various properties like Location (East US 2 (Zone 1)), Subscription (Azure subscription 1), and Virtual network (dd5d4252-9ca5-4581-9dc7-b63c0788b...). Below the resource details, two configuration sections are shown: 'Configure outbound IP addresses' and 'Configure networking'.

And click on “Yes”

The screenshot shows the Microsoft Azure portal interface after the deletion process has been initiated. The 'demo-nat-gateway-az1' resource is still listed in the blade, but a message in the top right corner indicates 'Deleting the NAT gateway 'demo-nat-gateway-az1''. The resource details pane on the right now shows a warning: 'demo-nat-gateway-az1 is not currently operational. To use this gateway, you will need to add a subnet.' The configuration sections remain the same as in the previous screenshot.

The NAT gateways is being deleted

Microsoft Azure | Network foundation | NAT gateways

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSID...)

Deleted the NAT gateway
Successfully deleted the NAT gateway 'demo-nat-gateway-az1'.

Preview

Search

Create Manage view Refresh Export to CSV Open query Assign tags Add to service group Group by none

Overview Virtual network Virtual Network overview Virtual networks NAT gateways Public IP addresses Network interfaces Network security groups Application security groups Bastions Route tables Route servers Private Link DNS Monitoring and management

You are viewing a new version of Browse experience. Click here to access the old experience.

Filter for any field... Subscription equals all Resource Group equals all Location equals all Add filter

No NAT gateways to display

Use Azure NAT Gateway to provide highly resilient and secure outbound connectivity to the internet from private instances in your virtual network. NAT gateway is a fully managed network address translation service that dynamically scales outbound connectivity and helps avoid connectivity failures due to port exhaustion. You can use a single instance to scale across multiple VMs in your network with predictable outbound addresses.

+ Create Learn more

Showing 1 - 0 of 0. Display count: auto

Add or remove favorites by pressing Ctrl+Shift+F Give feedback

The NAT gateways has been successfully deleted

6.4. Deleting Public IP

Let us now delete the Public IP

Microsoft Azure | Network foundation | NAT gateways

Search resources, services, and docs (G+)

Copilot

ebotsidneysmith@outlook.com
DEFAULT DIRECTORY (EBOTSID...)

Deleted the NAT gateway
Successfully deleted the NAT gateway 'demo-nat-gateway-az1'.

Preview

Search

Create Manage view Refresh Export to CSV Open query Assign tags Add to service group Group by none

Overview Virtual network Virtual Network overview Virtual networks NAT gateways Public IP addresses Network interfaces Network security groups Application security groups Bastions Route tables Route servers Private Link DNS Monitoring and management

You are viewing a new version of Browse experience. Click here to access the old experience.

Filter for any field... Subscription equals all Resource Group equals all Location equals all Add filter

No NAT gateways to display

Use Azure NAT Gateway to provide highly resilient and secure outbound connectivity to the internet from private instances in your virtual network. NAT gateway is a fully managed network address translation service that dynamically scales outbound connectivity and helps avoid connectivity failures due to port exhaustion. You can use a single instance to scale across multiple VMs in your network with predictable outbound addresses.

+ Create Learn more

Showing 1 - 0 of 0. Display count: auto

Add or remove favorites by pressing Ctrl+Shift+F Give feedback

Let us now delete the public IP, search for “Public IP”

This screenshot shows the Microsoft Azure Network foundation | NAT gateway page. The left sidebar is collapsed, and the main content area is titled "Network foundation | NAT gateway". A red arrow points from the text "Select ‘Public IP addresses’ under services" to the "Public IP addresses" link in the "Services" section of the blade.

Services

- Public IP addresses
- Public IP Prefixes
- Subscriptions
- Pipelines

Marketplace

- Public IP address
- Public IP Prefix
- Public IP address

Documentation

- Azure Storage firewall rules
- Azure virtual network service endpoints
- Source Network Address Translation (SNAT) for outbound connections - Azure Load Balancer
- Public IP addresses in Azure - Azure Virtual Network

Display

and connectivity to the internet from private network address translation service that dynamically maps to port exhaustion. You can use a single predictable outbound addresses.

Continue searching in Microsoft Entra ID

Searching all subscriptions. [Give feedback](#) [Learn more](#)

Showing 1 - 0 of 0. Display count: auto

https://portal.azure.com/#view/HubsExtension/AssetMenuBlade/~/PublicIPAddresses/assetName/NetworkFoundation/extensionName/Microsoft_Azure_Network

Select “Public IP addresses” under services

This screenshot shows the Microsoft Azure Network foundation | Public IP addresses page. The left sidebar is collapsed, and the main content area is titled "Network foundation | Public IP addresses". A red arrow points from the text "Click on the public IP" to the "demo-public-ip-nat-az1" entry in the list of public IP addresses.

Name ↑	IP address	IP version	SKU	Associated to
demo-public-ip-nat-az1	135.232.105.58	IPv4	Standard	-

Showing 1 - 1 of 1. Display count: auto

Add or remove favorites by pressing [Ctrl+L+Shift+F](#)

Click on the public IP

This screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu is open, showing 'Public IP addresses' selected under 'Network foundation'. On the right, the details for a public IP address named 'demo-public-ip-nat-az1' are displayed. The 'Delete' button in the top right corner of the resource details panel is highlighted with a red arrow.

Click on “Delete”

This screenshot shows the same Azure portal interface as the previous one, but with a modal dialog box overlaid. The dialog is titled 'Delete public IP address' and contains a message: 'Before deleting the public IP address 'demo-public-ip-nat-az1', please ensure it is no longer associated with any resources. Do you want to delete the public IP address 'demo-public-ip-nat-az1'?'. Two buttons are visible at the bottom of the dialog: 'Yes' (highlighted with a red arrow) and 'No'.

Click on “Yes”

The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu under 'Network foundation' includes 'Public IP addresses'. A search bar at the top is empty. In the center, the 'demo-public-ip-nat-az1' public IP address is selected. The right pane displays its details:

Overview	
Activity log	SKU
Access control (IAM)	Standard
Tags	Tier
Resource visualizer	Regional
Settings	IP address
Monitoring	135.232.105.58
Automation	DNS name
Help	-
See more	

Below the overview, there are sections for 'Tags (edit)', 'Add tags', 'Get Started', 'Properties', and 'Tutorials'. A note at the bottom says 'Associate to a resource'.

The public IP is being deleted.

The screenshot shows the same Microsoft Azure portal interface after the deletion. The 'demo-public-ip-nat-az1' public IP address is still listed in the search results. The right pane now shows a message: 'Deleted public IP address' and 'Successfully deleted public IP address 'demo-public-ip-nat-az1''. Below this, a large cloud icon with a raindrop is displayed, and the text 'Not found' is shown. The 'Summary' section contains session ID, resource ID, extension, content, and error code information.

We have successfully deleted the public IP.

These are all the resources we need to delete in this project.