

Deploying Azure Infrastructure: A Step-by-Step Guide



- Create a resource group
- Create a virtual network with 2 subnets
- Deploy a virtual machine and attach a disk
- Configure a network interface and assign private and public IPs
- Attach the NIC to the VM
- Set up a Network Security Group (NSG) with rules to allow web traffic and RDP
- Configure Virtual Network Peering

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In this guide, you will learn how to:

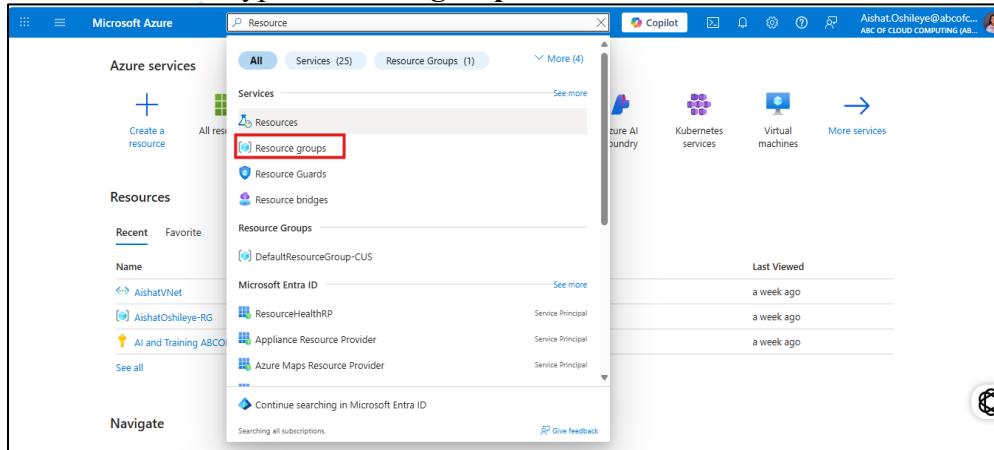
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Prerequisites

- An active [Azure subscription](#)
- Access to [Azure Portal](#)

Task 1: Create a Resource Group

1. Log in to the Azure Portal.
2. In the search bar, type **Resource groups** and select it.



3. Click on + Create.

The screenshot shows the Microsoft Azure Resource groups page. At the top, there's a search bar and various navigation icons. Below it, a header says 'Resource groups ... ABC OF CLOUD COMPUTING (abcofcloud.com)'. A red box highlights the '+ Create' button. The main area lists existing resource groups with columns for Name, Subscription, and Location. There are filters at the top and a table below showing 1-10 of 113 results.

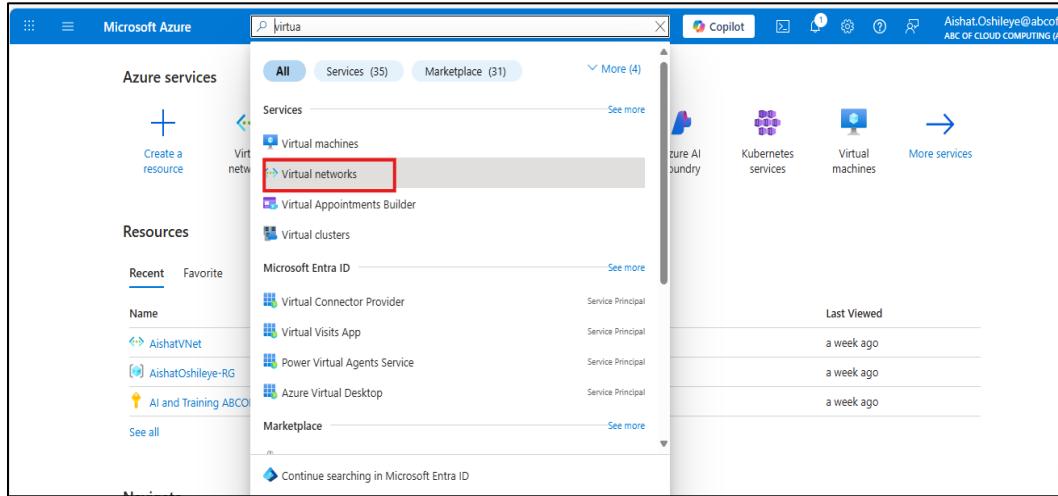
4. Choose your **Subscription**.
5. Enter a **Resource Group Name** (e.g., MyResourceGroup).
6. Select a **Region** (e.g., West Europe).
7. Click **Review + Create → Create**.

The screenshot shows the 'Create a resource group' Basics step. It has tabs for Basics, Tags, and Review + create. Under Basics, there's a description of what a resource group is. The form fields are: Subscription (Ai and Training ABCOFCLOUD), Resource group name (AishatOshileye1-RG), and Region ((US) East US). At the bottom are 'Previous' and 'Next' buttons, and a red box highlights the 'Review + create' button.

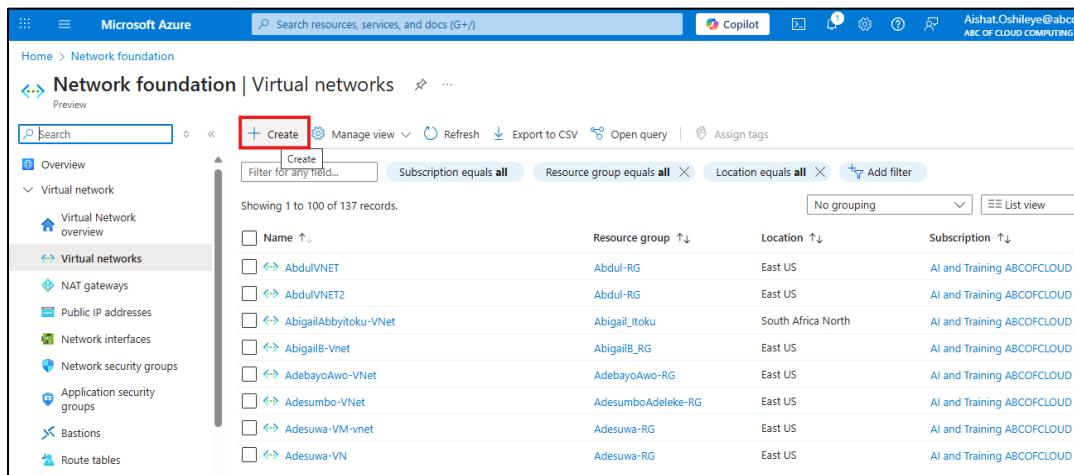
The screenshot shows the 'Create a resource group' Review + create step. It has tabs for Basics, Tags, and Review + create. The Basics section shows the same details: Subscription (Ai and Training ABCOFCLOUD), Resource group name (AishatOshileye1-RG), and Region (East US). The 'Review + create' button has been replaced by a single 'Create' button, which is highlighted with a red box.

Task 2: Create a Virtual Network (VNet) with 2 Subnets

1. In the search bar, type **Virtual networks** and click **+ Create**.



The screenshot shows the Microsoft Azure search interface. A search bar at the top contains the text "virtua". Below it, a list of services is shown under the heading "All". The "Virtual networks" option is highlighted with a red box. Other visible options include "Virtual machines", "Virtual Appointments Builder", "Virtual clusters", "Virtual Connector Provider", "Virtual Visits App", "Power Virtual Agents Service", and "Azure Virtual Desktop". To the right of the search results, there are icons for "Azure AI Foundry", "Kubernetes services", "Virtual machines", and a link to "More services". The user's email, "Aishat.Oshileye@abcofcloud.com", is visible in the top right corner.



The screenshot shows the Microsoft Azure "Virtual networks" list page. On the left, a navigation menu includes "Overview", "Virtual network", "Virtual networks" (which is selected and highlighted with a red box), "NAT gateways", "Public IP addresses", "Network interfaces", "Network security groups", "Application security groups", "Bastions", and "Route tables". At the top, there is a search bar, a "+ Create" button (also highlighted with a red box), and various filter and export options. The main area displays a table of 100 records (out of 137 total), with columns for Name, Resource group, Location, and Subscription. The table lists several VNet names like "AbdulVNET", "AbdulVNET2", etc., each associated with a specific resource group and location.

2. Choose your **Subscription** and **Resource Group**.
3. Enter a **Name** for your VNet (e.g., MyVNet).

4. Select the Region. Then Navigate to the IP Addresses tab

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Aishat.Oshileye@abcofc...
ABC OF CLOUD COMPUTING (AB)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security IP addresses Tags Review + create

Subscription: AI and Training ABCOFCLOUD

Resource group: AishatOshileye1-RG

Virtual network name: AishatO-Vnet

Region: (US) East US

Deploy to an Azure Extended Zone

Previous Next : Security Review + create Give feed

5. Under IP Addresses, define your Address Space (e.g., 10.0.0.0/16).

6. Add 2 Subnets: Example;

- o Subnet1: 10.0.1.0/24
- o Subnet2: 10.0.2.0/24

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Aishat.Oshileye@abcofc...
ABC OF CLOUD COMPUTING (AB)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security IP addresses Tags Review + create

+ Add a subnet

10.13.0.0/16 Delete address space

This address prefix overlaps with virtual network 'AbdulVNET'. If you intend to peer these virtual networks, change the address space. [Learn more ↗](#)

10.13.0.0 /16 10.13.0.0 - 10.13.255.255 65,536 addresses

Subnets IP address range Size NAT gateway

default 10.13.0.0 - 10.13.0.255 /24 (256 addresses) -

Add Cancel Give feedback

Previous Next : Tags Review + create

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

Aishat.Oshileye@abcofc...
ABC OF CLOUD COMPUTING (AB)

Home > Network foundation | Virtual networks >

Create virtual network ...

Basics Security IP addresses Tags Review + create

+ Add a subnet

192.168.13.0/24 Delete address space

192.168.13.0 /24 192.168.13.0 - 192.168.13.255 256 addresses

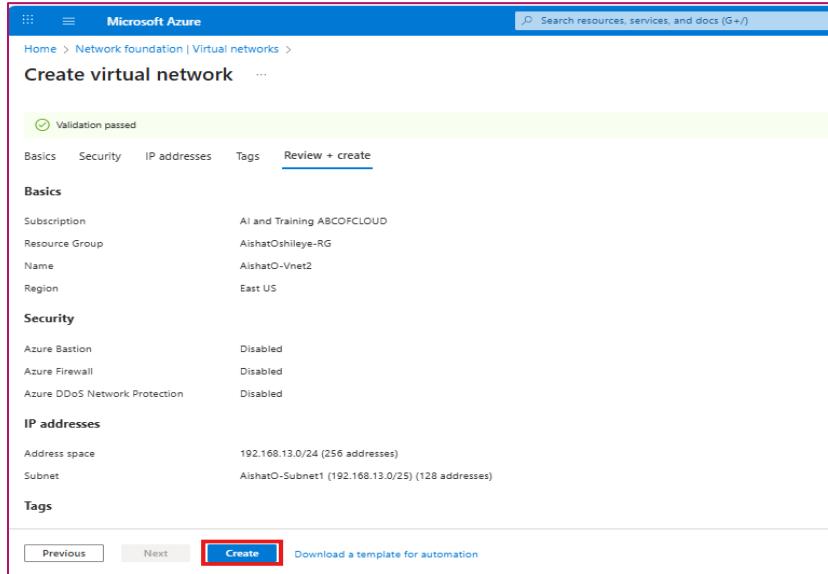
Subnets IP address range Size NAT gateway

default 192.168.13.0 - 192.168.13.255 /24 (256 addresses) -

Save Cancel Give feedback

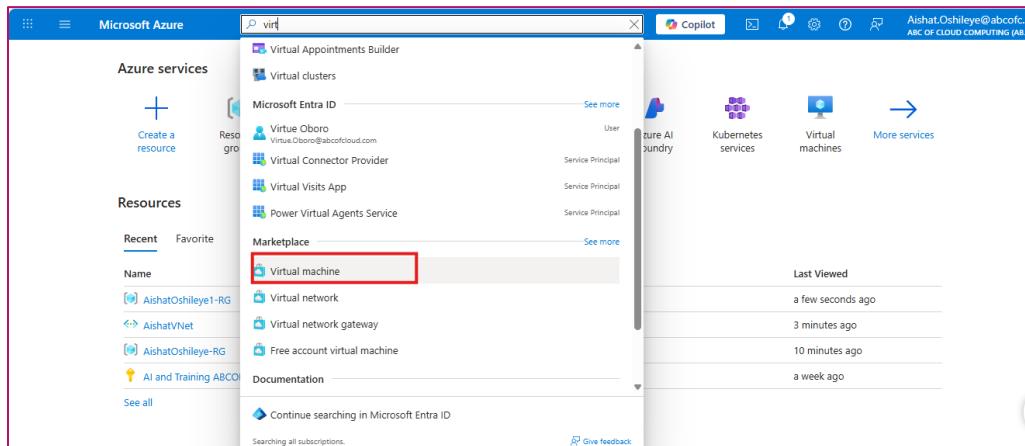
Previous Next : Tags Review + create

7. Click **Review + Create** → **Create**.



Task 3: Create a Virtual Machine and Attach an Additional Disk

1. In the search bar, type **Virtual machines** → Click **+ Create** → **Azure virtual machine**.



2. Select your **Resource Group**.
3. Name your VM (e.g., MyVM).
4. Choose the **Region** (same as your VNet).
5. Choose an **Image** (e.g., Windows Server 2019 Datacenter).

Subscription * AI and Training ABCOFCLOUD

Resource group * AishatOshileye-RG

Virtual machine name * Aishato-VM

Region * (US) East US

Availability options Availability zone

Zone options Self-selected zone

< Previous Next : Disks > Review + create

Security type Trusted launch virtual machines

Image * Windows Server 2025 Datacenter: Azure Edition - x64 Gen2

VM architecture x64

Run with Azure Spot discount

Size * Standard_D2ds_v6 - 2 vcpus, 8 GiB memory (\$158.41/month)

< Previous Next : Disks > Review + create

6. Create or select an Admin username and Password.

7. Under Inbound port rules, select RDP (3389).

Administrator account

Username * Aishat1

Password *

Confirm password *

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 * RDP (3389)

< Previous Next : Disks > Review + create

8. Click Next: Disks and enter disk details → Create and Attach a New Disk.

Configure New Disk details, Save and Click Next: Networking

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)

Name *	AishatO-VM_DataDisk_0
Source type *	None (empty disk)
Size *	1024 GiB Standard SSD LRS Change size
Key management	Platform-managed key
Enable shared disk	<input type="radio"/> Yes <input checked="" type="radio"/> No
Delete disk with VM	<input checked="" type="checkbox"/>

OK

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

Key management: Platform-managed key

Enable Ultra Disk compatibility: Ultra disk is supported in Availability Zone(s) 1,2,3 for the selected VM size Standard_D2ds_v6.

Data disks for AishatO-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.

LUN	Name	Size (GiB)	Disk type	Host caching	Delete with VM
0	AishatO-VM_DataDisk_0	1024	Standard SSD LRS	Read/write	<input checked="" type="checkbox"/>

[Create and attach a new disk](#) [Attach an existing disk](#)

< Previous **Next : Networking >** Review + create

1. Under **Networking**, choose:
 - o Existing **Virtual Network** and **Subnet**
 - o Select **create new** under **Public IP** (optional for RDP)
 - o Select an option (**Basic**) for **NIC Network Security Group**
2. Click **Review + Create** → **Create**.

Create public IP address

- Name *
- SKU Standard
- Assignment Static
- Routing preference Microsoft network

Review + create

Validation passed

Deployment

Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsServer-202-20250724022147 | Start time: 7/24/2025, 2:36:44 AM
Subscription: AI and Training ABCOFCLOUD | Correlation ID: 668c0cf0-5afc-45e4-9afb-36b8
Resource group: AishatOshileye-RG

Next steps

- Setup auto-shutdown Recommended
- Monitor VM health, performance and network dependencies Recommended
- Run a script inside the virtual machine Recommended

Go to resource **Create another VM**

Connect to the VM Via RDP, only recommended for testing purpose. RDP exposes the VM to the public

1. In the left-hand menu, click **Virtual machines**.
2. Click on the **name of your VM**.

Locate the Public IP Address

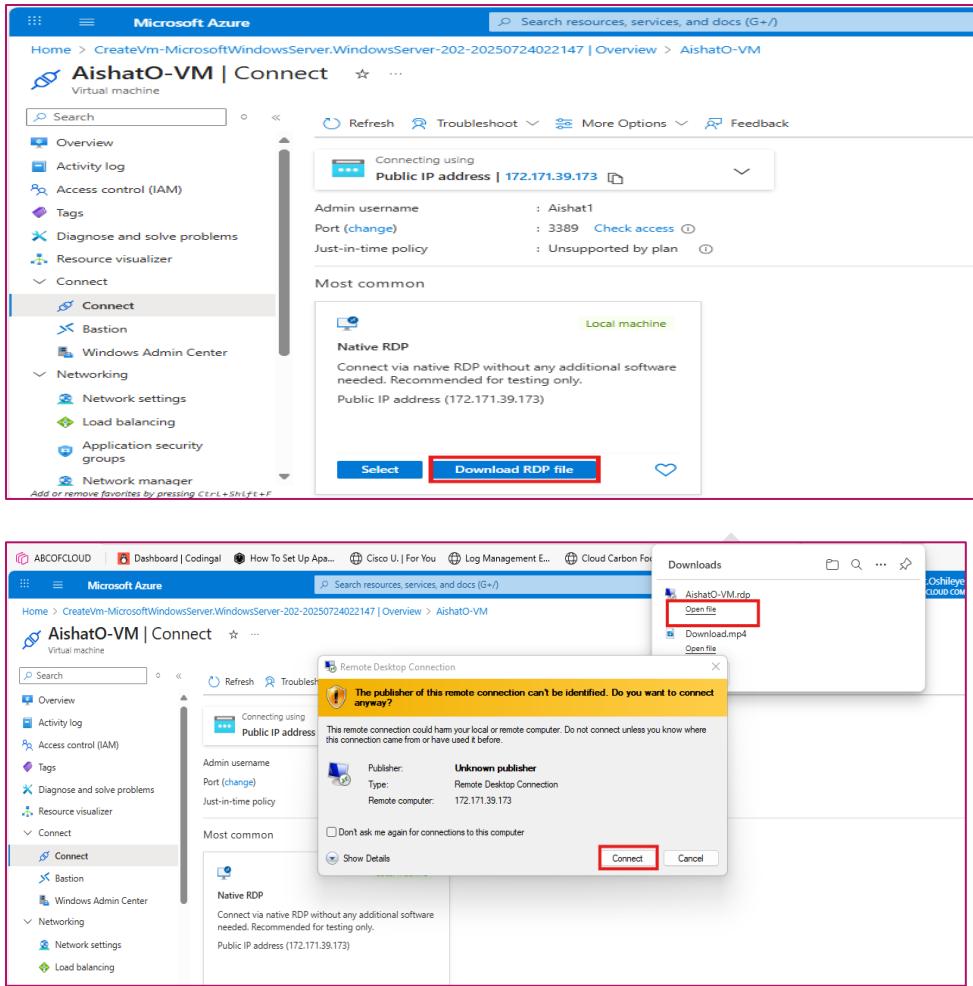
1. In the VM Overview page, look for **Public IP address**.
2. Copy this IP — you will need it for the RDP connection.

The screenshot shows the Microsoft Azure portal interface for a virtual machine named 'AishatO-VM'. The top navigation bar includes 'Search resources, services, and docs (G+)', 'Copilot', and 'Aishat.Oshi ABC OF CLOUD'. The main content area displays the VM's overview with a 'Connect' button highlighted. A modal window titled 'Connecting using' shows the 'Public IP address | 172.171.39.17' with a red box around the copy icon. Below this, connection details are listed: Admin username (Aishat1), Port (3389), and Just-in-time policy (Unsupported by plan). A 'Most common' section shows 'Native RDP' with the public IP address (172.171.39.173) and options to 'Select' or 'Download RDP file'.

Download the RDP File (Optional Method)

1. Still on the VM Overview page, click the **Connect** button at the top.
2. Choose **RDP**.
3. In the pane that appears, click **Download RDP File**.
4. Open the downloaded .rdp file.

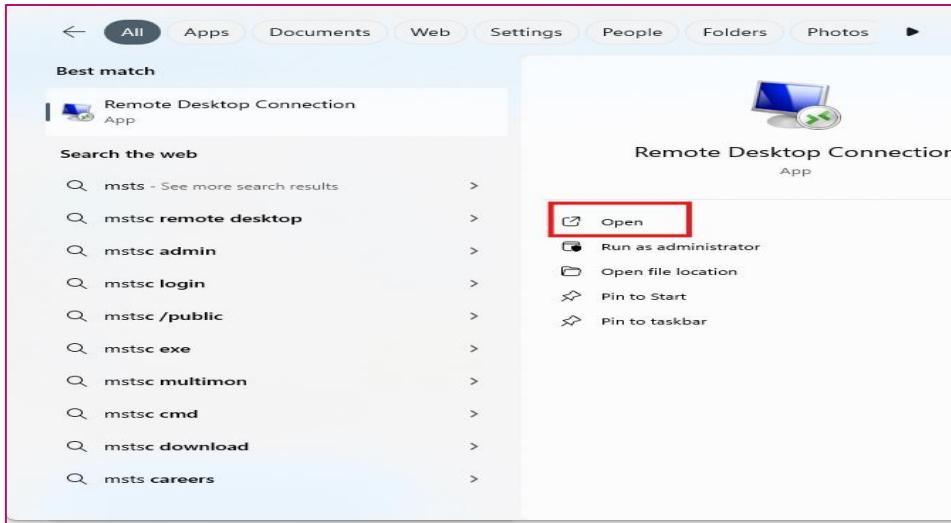
The screenshot shows the Microsoft Azure portal interface for the same virtual machine 'AishatO-VM'. The top navigation bar includes 'Search resources, services, and docs (G+)', 'Copilot', and 'Aishat.Oshi ABC OF CLOUD'. The main content area displays the VM's overview with a 'Connect' button highlighted with a red box. A dropdown menu titled 'Connect via Bastion' is open, showing options like 'Resource group (move)', 'Status (Running)', 'Location (East US)', 'Subscription (move)', 'Subscription ID (6788dd01-2ad4-46ae-ad07-30ba6221aee3)', and system details such as 'Operating system (Windows (Windows Server 2025 Datacenter Azure Edition))', 'Size (Standard D2s v3 (2 vcpus, 8 GiB memory))', 'Public IP address (172.171.39.173)', 'Virtual network/subnet (AishatVNet/AishatSubNet1)', 'DNS name (Not configured)', and 'Health state (-)'.



Connect Using Remote Desktop App (Manual Method)

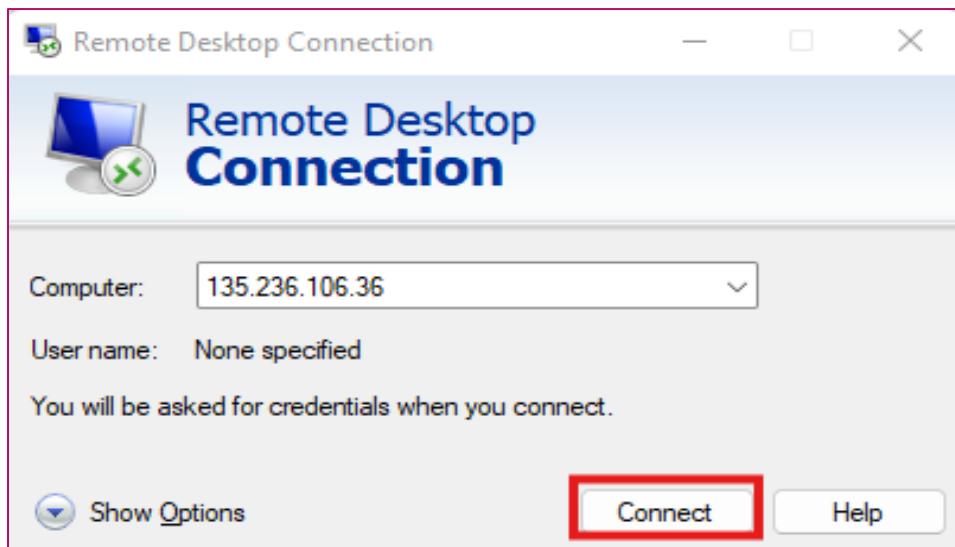
RDP is used only for testing purposes and not recommended for use in Production environments

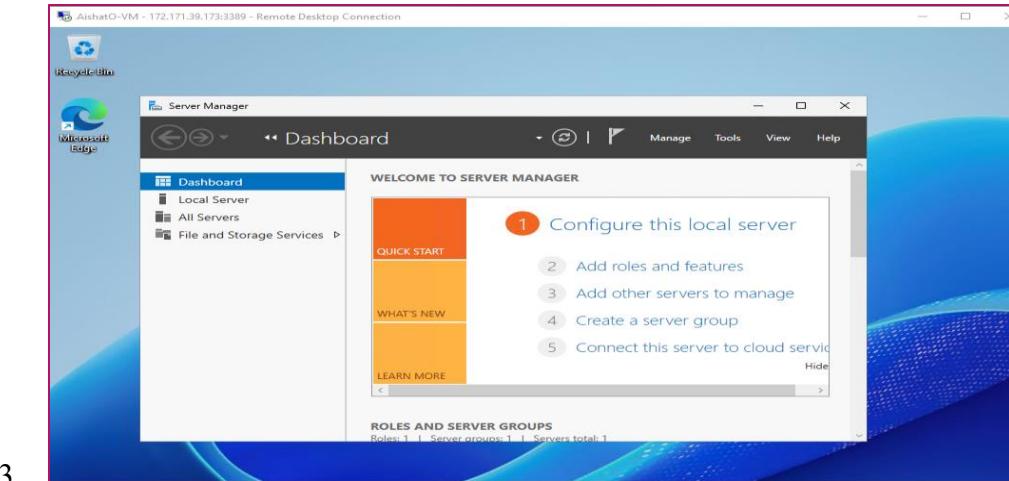
1. On your local computer, press **Windows + R**, type `mstsc`, and press **Enter**.
2. In the **Remote Desktop Connection** window:
 - Enter the **Public IP address** of your VM
 - Click **Connect**



Enter Credentials

1. When prompted, enter the **admin username and password** you created when setting up the VM.
2. Click **OK**. Accept the certificate warning if prompted





3.

You should now be connected to your Azure VM via RDP and can interact with it like a regular Windows computer.

Step 4: Configure the Network Interface (NIC)

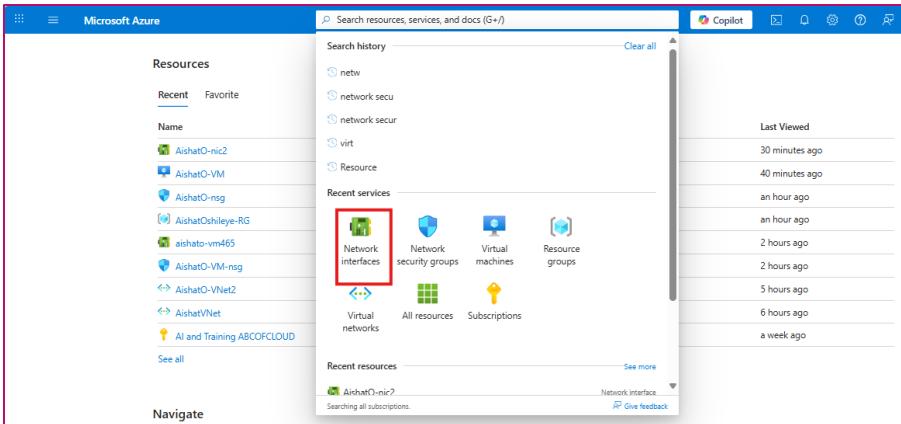
1. Go to **Virtual machines** → Select your VM.
2. In the VM blade, under **Settings**, click **Networking**.
3. Click on the **Network interface name**.

4. Under **Settings**, go to **IP configurations**.
5. Select the configuration, click **Edit**, and:
 - o Set **Private IP address** to **Static**
 - o Enter the IP (e.g., 10.0.1.4)

6. Save changes.
7. Create a new network interface by clicking **+Add**. This opens a new window that prompts you to Add IP configurations.
8. Add a name for the ipconfig.
9. Set private IP address to **static**.
10. Select **create a new public IP address** and configure the public IP address settings.
11. Click **OK**, then **Add**

Create a New Network Interface

Step 1: Search for "Network Interfaces"



◆ Step 3: Start Creating a New NIC

1. Click on **+ Create** or **+ Add** at the top.

Name	Kind	Virtual Network	Primary IP	Attachments	Resource group	Location
abigailb-vm2305	Regular	Abigail-Vnet2	192.168.4.4	Abigail... AbigailB_RG	East US	
adaobi-vm-new81	Regular	Adaobi-VNet	192.168.80.4	Adaobi... Adaobi-RG	East US	
adaobi-vm961	Regular	Adaobi-VNet	10.80.0.4	Adaobi... Adaobi-RG	East US	
aishatvm2262	Regular	AishatO-VNet	192.168.13.4	AISHAT... AishatOshileye-RG	East US	
aishavm1338	Regular	AishatVNet	10.13.0.4	AishaV... AishatOshileye-RG	East US	
ALVIN-NIC	Regular	ALVIN_VNET	192.168.224...	ALVIN-RG	Central US	

◆ Step 4: Fill in NIC Details

1. **Subscription:** Choose your Azure subscription.
2. **Resource Group:** Select the existing resource group (e.g., MyResourceGroup).
3. **Name:** Enter a name for the NIC (e.g., MyNIC1).
4. **Region:** Select the same region as your VM and VNet (e.g., West Europe).

Configure Network Settings

1. **Virtual Network:** Choose the existing VNet (e.g., MyVNet).
2. **Subnet:** Select one of the subnets you created earlier (e.g., Subnet1).
3. **Private IP:** You can leave it as **Dynamic**, or choose **Static** and enter an IP (e.g., 10.0.1.5).
4. **Click Review + create.**

5. Once validation passes, click **Create**.

The screenshot shows the 'Create network interface' wizard in the Microsoft Azure portal. The 'Review + create' button at the bottom left is highlighted with a red box. The form fields include:

- Subscription:** AI and Training ABCOFCLOUD
- Resource group:** AishatOshileye-RG
- Name:** AishatO-nic2
- Region:** East US
- Virtual network:** AishatVNet (AishatOshileye-RG)
- Subnet:** AishatSubNet1
- IP version:** IPv4 (radio button selected)
- Private IP address assignment:** Static (radio button selected)

The screenshot shows the 'Custom deployment' step of the template creation wizard. The 'Create' button at the bottom right is highlighted with a red box. The summary table includes:

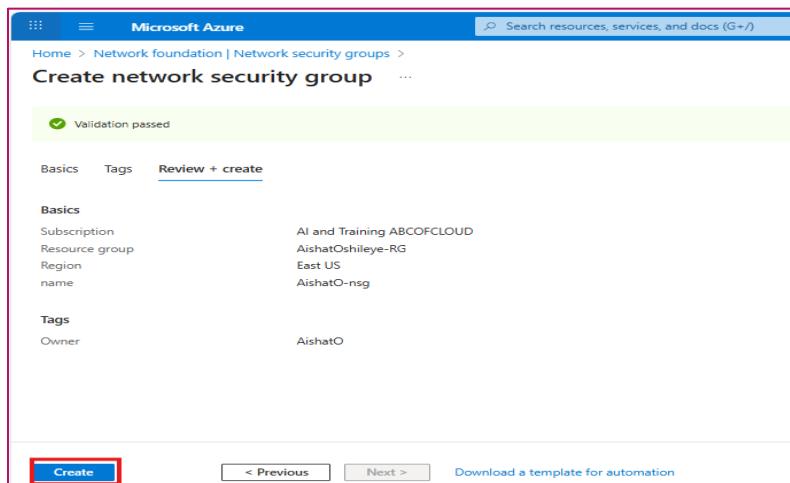
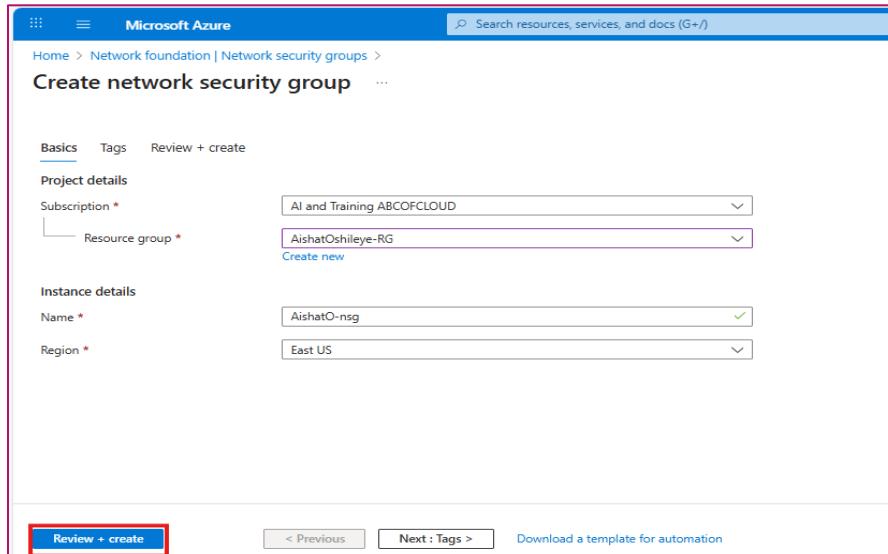
Subscription	AI and Training ABCOFCLOUD
Resource group	AishatOshileye-RG
Region	East US
Network Interface Name	AishatO-nic2
Location	eastus
Subnet Id	/subscriptions/6788dd01-2ad4-46ae-ad07-30ba6221aee3/resourceGroups/A...
Private IP Allocation Method	Static
Private IP Address	10.13.0.06

The screenshot shows the 'Microsoft.Template-20250724054120 | Overview' page. The 'Your deployment is complete' section is highlighted with a green checkmark icon. Deployment details are listed:

- Deployment name: Microsoft.Template-20250724054120
- Subscription: AI and Training ABCOFCLOUD
- Resource group: AishatOshileye-RG
- Start time: 7/24/2025, 5:41:31 AM
- Correlation ID: db89381c-6f74-4498-8d3f-6d5f91384714

Task 5: Create and Configure Network Security Group (NSG)

1. In the search bar, type **Network security groups** → Click + **Create**.
2. Select your **Subscription** and **Resource Group**.
3. Enter **Name** (e.g., MyNSG) and select the **Region**.
4. Click **Review + Create** → **Create**.



5. After creation, open the NSG → Go to **Inbound security rules** → + **Add**:

Rule 1 – Allow Web App (HTTP)

- **Source:** Any
- **Protocol:** TCP
- **Port:** 80

- Action:** Allow
- Priority:** 100
- Name:** Allow-HTTP

The screenshot shows the 'Inbound security rules' section of the Azure portal. A new rule is being created with the following details:

Setting	Value
Source	Any
Source port ranges	80
Destination	Any
Service	HTTP
Protocol	TCP
Action	Allow
Priority	100

The 'Add' button is highlighted in red at the bottom right.

The screenshot shows the 'Inbound security rules' table after the rule has been added. The newly created rule is highlighted with a red box:

Priority	Name	Port	Protocol	Source	Destination	Action
100	Allow-HTTP	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

Rule 2 – Allow RDP

- Source:** Any
- Protocol:** TCP
- Port:** 3389
- Action:** Allow
- Priority:** 200
- Name:** Allow-RDP

6. Associate the NSG to your **NIC or Subnet** by selecting **Network interfaces** or **Subnets** under **Settings** in the NSG.

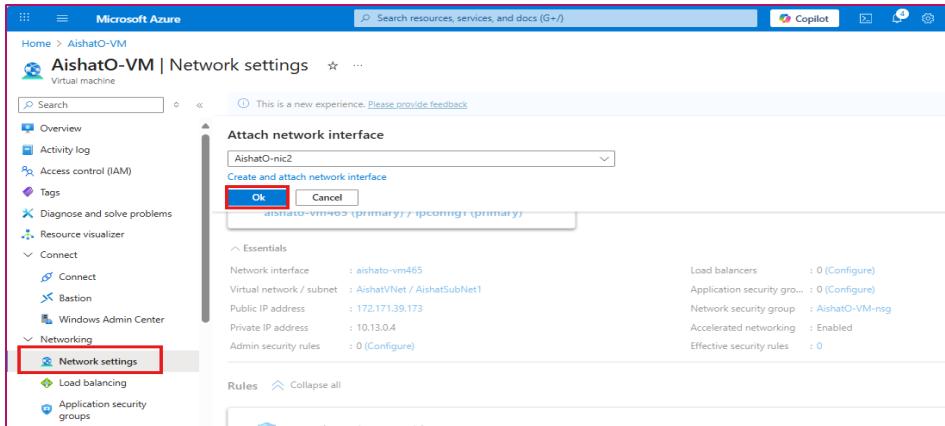
The screenshot shows the Microsoft Azure portal interface for managing a Network Security Group (NSG). The left sidebar navigation shows the following path: Home > CreateNetworkSecurityGroupBladeV2-20250724054602 | Overview > AishatO-nsg. The main content area is titled 'AishatO-nsg | Network interfaces'. It displays a table of network interfaces, with one row highlighted by a red box. The columns in the table are Name, Public IP address, Private IP address, and Virtual machine. The highlighted row shows 'AishatO-nic2' as the name, an empty public IP address field, a private IP address of '10.13.0.6', and a virtual machine entry. The left sidebar also includes sections for 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, and Automation.

Task 6: Attach the NIC to the VM

This step applies if you created a NIC separately and want to attach it to a VM.

1. Stop the VM if running.
2. Go to the **Virtual machine** → **Networking** → **Detach network interface** (if needed).
3. Attach the new NIC via **Networking** → **+ Attach network interface**.
4. Select the NIC → OK.

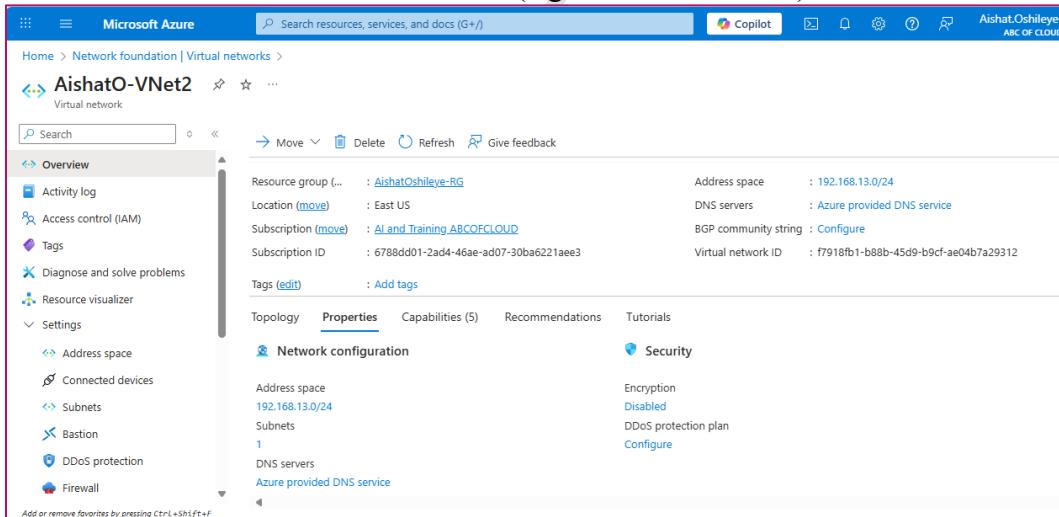
The screenshot shows the Microsoft Azure portal interface for managing a virtual machine (VM). The left sidebar navigation shows the following path: Home > AishatO-VM. The main content area is titled 'AishatO-VM | Network settings'. It displays a table of network interfaces, with one row highlighted by a red box. The highlighted row shows 'aishato-vm465 (primary) / ipconfig1 (primary)' as the name. The left sidebar also includes sections for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Connect (Connect, Bastion), Windows Admin Center, Networking (Network settings, Load balancing), and Rules.



Task 7: Configure VNet Peering and Connect Two VMs

Step 1: Create a Subnet in a second Vnet

1. Go back to your second VNet
2. Add another subnet: **AishatO-Subnet3** (e.g., 192.168.13.0/25)



Step 2: Create Another VM in AishatO-Subnet3

Repeat **VM creation steps** and place it in **AishatO-Subnet3**. Name it **AishatOVM2**.

Step 3: Configure VNet Peering

1. Navigate Home > Virtual networks > Your VNet > Peerings > + Add
 - o **Peering link name:** vnet-to-vnet (or more descriptive)
 - o **Virtual network:** Same VNet or another one (in this case, another one)
 - o Enable "Allow traffic" both ways
 - o Click "Add"

Microsoft Azure > Network foundation | Virtual networks > AishatVNet | Peerings > Add peering ...

AishatVNet

Virtual network peering enables you to seamlessly connect two or more virtual networks in Azure. This will allow resources in either virtual network to directly connect and communicate with resources in the peered virtual network.

Remote virtual network summary

Peering link name *

Virtual network deployment model Resource manager Classic

I know my resource ID

Subscription *

Virtual network *

Remote virtual network peering settings

Add Cancel

Microsoft Azure > Network foundation | Virtual networks > AishatVNet | Peerings > Add peering ...

AishatVNet

Local virtual network summary

Peering link name *

Local virtual network peering settings

Allow 'AishatVNet' to access 'AishatO-VNet2'

Allow 'AishatVNet' to receive forwarded traffic from 'AishatO-VNet2'

Allow gateway or route server in 'AishatVNet' to forward traffic to 'AishatO-VNet2'

Enable 'AishatVNet' to use 'AishatO-VNet2's' remote gateway or route server

Add Cancel

AishatVNet | Peering ★ ...

Virtual network

Name	Peering sync status	Peering state	Remote VNet	Virtual network	Cross-tenant
AishatVnet-AishatOVnet	Fully Synchronized	Connected	AishatO... Disabled	No	

Step 4: Test VM Connectivity

- Use RDP from VM1 to SSH into the other via its **Private IP** (found in NIC or VM overview) RDP into VM1 and SSH from VM1 to VM2

```

AishatO-VM (1) - 172.17.39.173:3389 - Remote Desktop Connection
Recycle Bin
Server Manager
Dashboard Manage Tools View Help
Aishat@AishatO-VM2: ~ + 
C:\Users\Aishat1>ping 192.168.13.4
Pinging 192.168.13.4 with 32 bytes of data:
Reply from 192.168.13.4: bytes=32 time=2ms TTL=64
Reply from 192.168.13.4: bytes=32 time=1ms TTL=64
Reply from 192.168.13.4: bytes=32 time=1ms TTL=64
Reply from 192.168.13.4: bytes=32 time=1ms TTL=64

Ping statistics for 192.168.13.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 1ms

C:\Users\Aishat1>ssh Aishat1@192.168.13.4
The authenticity of host '192.168.13.4 (192.168.13.4)' can't be established.
ED25519 key fingerprint is SHA256:793JaabPfRpK46iQK3YgeKU\NLONqpWUp2Xe6KPD4M.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '192.168.13.4' (ED25519) to the list of known hosts.
Aishat1@192.168.13.4's password:
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.11.0-1018-azure x86_64)

 * Documentation: https://help.ubuntu.com


```

Summary

Resource	Task
Resource Group	Created a Resource Group to contain all resources
Virtual Network	Created 2 Vnets in resource group
Subnet	Created two subnets in VNet2 and 1 subnet in Vnet2
VM	Created 1 each in 2 subnets
Disks	Attached to VMs
NIC + NSG	Created, configured and attached to VMs
NSG Rules	Allow HTTP and RDP
Peering	Configured between Vnets
Connection	Verified between VMs

If you have come this far, you're ready to build more advanced cloud solutions!