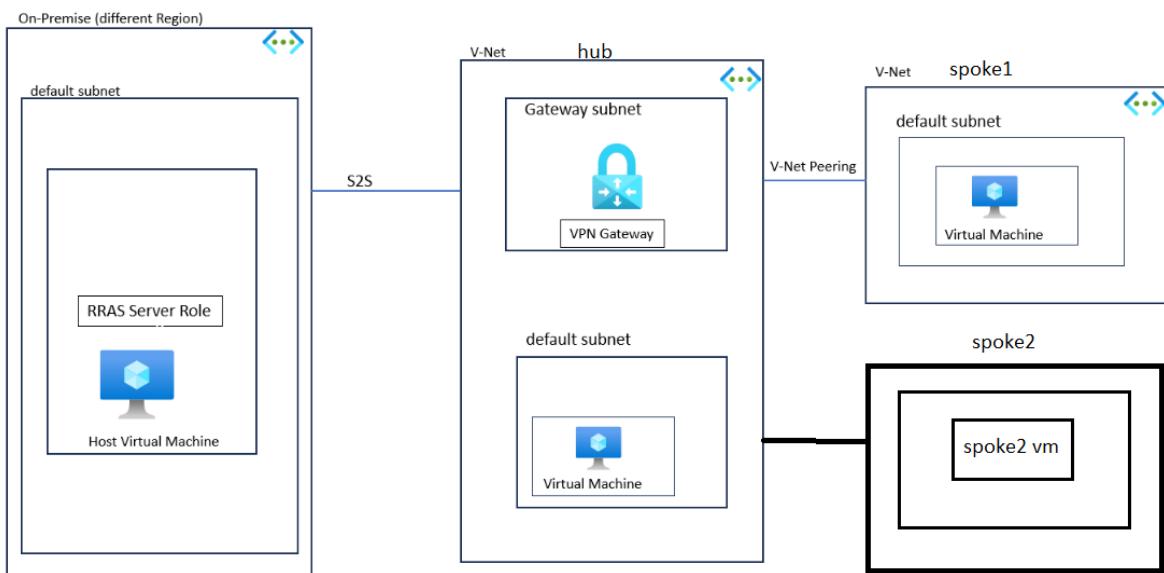


Project Title: Cloud Infrastructure and Security Domain
 Counsellor: Nita Jadav

Project structure



Create resource group.

Step-1 We have selected here as Azure for student subscription, Created four resource groups such as Jainam_Hub_RG, Jainam_Onprem_RG, Jainam_Spoke1_RG and Jainam_Spoke2_RG

The screenshot shows the Microsoft Azure portal interface for creating a new resource group:

- Header:** Microsoft Azure, Search resources, services, and docs (G+/-)
- Breadcrumbs:** Home > Resource groups >
- Title:** Create a resource group
- Basics Tab:** Selected tab. Other tabs include Tags and Review + create.
- Description:** Resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more](#)
- Project details:**
 - Subscription: Azure for Students
 - Resource group: Jainam_Hub_RG (highlighted with a blue border and green checkmark)
- Resource details:**
 - Region: (Asia Pacific) Central India

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Home > Resource groups >

Create a resource group ...

Basics Tags Review + create

Resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more ↗](#)

Project details

Subscription * ⓘ

Azure for Students

Resource group * ⓘ

Jainam_Spoke1_RG ✓

Resource details

Region * ⓘ

(Asia Pacific) Central India

Microsoft Azure

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

Home > Resource groups >

Create a resource group ...

Basics Tags Review + create

Resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more ↗](#)

Project details

Subscription * ⓘ

Azure for Students

Resource group * ⓘ

Jainam_Spoke2_RG ✓

Resource details

Region * ⓘ

(Asia Pacific) Central India

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Home > Resource groups >

Create a resource group ...

Basics Tags Review + create

Resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more](#)

Project details

Subscription * ⓘ

Azure for Students

Resource group * ⓘ

Jainam_Onprem_RG ✓

Resource details

Region * ⓘ

(US) East US

Home >

Resource groups ⌂ ...

Default Directory (janambapatel1709@gmail.onmicrosoft.com)

+ Create Manage view ⓘ Refresh ⓘ Export to CSV ⓘ Open query ⓘ Assign tags

✓ Resource group created

Creating resource group 'Jainam_Onprem_RG' in subscription 'Azure for Students' succeeded.

[Go to resource group](#)

✗ Pin to dashboard

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

Showing 1 to 6 of 6 records.

Name	Subscription
Jainam_Hub_RG	Azure for Students
Jainam_Onprem_RG	Azure for Students
Jainam_Spoke1_RG	Azure for Students
Jainam_Spoke2_RG	Azure for Students
NetworkWatcherRG	Azure for Students
TestResourceGroup	Azure for Students

Subscription ↑↓

No grouping

>List view

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Create virtual network.

Step-2 Enter the basic details of virtual network. (Subscription, name, region) and select the resource group as Jainam_Hub_RG and give Jainam_Hub_Vnet as a name.

The screenshot shows the 'Create virtual network' wizard in the Azure portal. The 'Basics' tab is selected. The 'Subscription' dropdown is set to 'Azure for Students'. The 'Resource group' dropdown is set to 'Jainam_Hub_RG' with a 'Create new' link below it. Under 'Instance details', the 'Name' field is 'Jainam_Hub_Vnet' and the 'Region' field is 'Central India'. At the bottom, there are buttons for 'Review + create', '< Previous', 'Next : IP Addresses >', and 'Download a template for automation'.

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Step-3 On IP Addresses tab we can select default subnet but here we created a subnet named GatewaySubnet.

Step-4 Enter the basic details of virtual network. (Subscription, name, region) and select the resource group as Jainam_Spoke1_RG and give Jainam_Spoke1_Vnet as a name.

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Step-5 On IP Addresses tab we have selected default subnet.

Home > Virtual networks >

Create virtual network

Basics IP Addresses Security Tags Review + create

The virtual network's address space, specified as one or more address prefixes in CIDR notation (e.g. 192.168.1.0/24).

IPv4 address space

10.1.0.0/16 10.1.0.0 - 10.1.255.255 (65536 addresses)

Add IPv6 address space ⓘ

The subnet's address range in CIDR notation (e.g. 192.168.1.0/24). It must be contained by the address space of the virtual network.

+ Add subnet

Subnet name	Subnet address range	NAT gateway
<input type="checkbox"/> default	10.1.0.0/24	-

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

Step-6 Enter the basic details of virtual network. (Subscription, name, region) and select the resource group as Jainam_Spoke2_RG and give Jainam_Spoke2_Vnet as a name.

Home > Virtual networks >

Create virtual network

Basics IP Addresses Security 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 about virtual network](#)

Project details

Subscription * ⓘ Azure for Students

Resource group * ⓘ Jainam_Spoke2_RG

Instance details

Name * Jainam_Spoke2_Vnet

Region * Central India

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Step-7 On IP Addresses tab we have selected default subnet.

The screenshot shows the 'Create virtual network' interface in the Azure portal. The 'IP Addresses' tab is selected. It displays the IPv4 address space configuration. A single entry '10.2.0.0/16' is listed with a range of '10.2.0.0 - 10.2.255.255 (65536 addresses)'. Below this, there is a checkbox for 'Add IPv6 address space' which is unchecked. A note below the IPv4 section states: 'The subnet's address range in CIDR notation (e.g. 192.168.1.0/24). It must be contained by the address space of the virtual network.' There is also a note about adding a NAT gateway. The 'Subnet name' field contains 'default'.

Step-8 Enter the basic details of virtual network. (Subscription, name, region) and select the resource group as Jainam_Onprem_RG and give Jainam_Onprem_Vnet as a name.

The screenshot shows the 'Create virtual network' interface in the Azure portal. The 'Basics' tab is selected. In the 'Project details' section, 'Subscription' is set to 'Azure for Students' and 'Resource group' is set to 'Jainam_Onprem_RG'. In the 'Instance details' section, 'Name' is set to 'Jainam_Onprem_Vnet' and 'Region' is set to 'East US'.

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Step-7 On IP Addresses tab we have selected default subnet.

The virtual network's address space, specified as one or more address prefixes in CIDR notation (e.g. 192.168.1.0/24).

IPv4 address space

10.3.0.0/16 10.3.0.0 - 10.3.255.255 (65536 addresses)

Add IPv6 address space ⓘ

The subnet's address range in CIDR notation (e.g. 192.168.1.0/24). It must be contained by the address space of the virtual network.

+ Add subnet Remove subnet

<input type="checkbox"/> Subnet name	Subnet address range	NAT gateway
<input type="checkbox"/> default	10.3.0.0/24	-

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

Step-8 Here we can see that all virtual network has been created.

Name	Resource group	Location	Subscription
Jainam_Hub_Vnet	Jainam_Hub_RG	Central India	Azure for Students
Jainam_Onprem_Vnet	Jainam_Onprem_RG	East US	Azure for Students
Jainam_Spoke1_Vnet	Jainam_Spoke1_RG	Central India	Azure for Students
Jainam_Spoke2_Vnet	Jainam_Spoke2_RG	Central India	Azure for Students

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Step-9 Apply name as Jainam_VNG and select SKU as VpnGw3az.

The screenshot shows the 'Create virtual network gateway' wizard in the Microsoft Azure portal. The 'Basics' tab is selected. The 'Subscription' dropdown is set to 'Azure for Students'. The 'Resource group' dropdown is set to 'Jainam_Hub_RG (derived from virtual network's resource group)'. In the 'Instance details' section, the 'Name' field is 'Jainam_VNG', 'Region' is 'Central India', 'Gateway type' is 'VPN' (selected), 'VPN type' is 'Route-based' (selected), 'SKU' is 'VpnGw3AZ', and 'Generation' is 'Generation2'. At the bottom, there are buttons for 'Review + create', 'Previous', 'Next : Tags >', and 'Download a template for automation'.

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Step-10 Select Virtual network “Jainam_Hub_Vnet” and create Public IP address “Jainam_VNGPIP” and disable active-active mode.

Home > Virtual network gateways >

Create virtual network gateway

Subnet ⓘ

GatewaySubnet (10.0.1.0/24) ⌄

Only virtual networks in the currently selected subscription and region are listed.

Public IP address

Public IP address * ⓘ

Create new Use existing

Public IP address name *

Jainam_VNGPIP

Public IP address SKU

Standard

Assignment

Dynamic Static

Availability zone *

1

Enable active-active mode * ⓘ

Enabled Disabled

Configure BGP * ⓘ

Enabled Disabled

Azure recommends using a validated VPN device with your virtual network gateway. To view a list of validated devices and instructions for configuration, refer to Azure's [documentation](#) regarding validated VPN devices.

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

Step-11 Virtual network gateway has been created.

Microsoft Azure

Search resources, services, and docs (G+)

jainambpatel1709@gmail.com DEFAULT DIRECTORY

Home > Jainam_VNG Virtual network gateway

Overview Activity log Access control (IAM) Tags Diagnose and solve problems

Configuration Connections Point-to-site configuration NAT Rules

Essentials

Resource group (move) : Jainam_Hub_RG

Location : Central India

Subscription (move) : Azure for Students

Subscription ID : 06219952-3eda-4ac7-9355-9af1b0ec9c5c

SKU : VpnGw3AZ

Gateway type : VPN

VPN type : Route-based

Virtual network : Jainam_Hub_Vnet/GatewaySubnet

Public IP address : 20.244.1.148 (Jainam_VNGPIP)

Tags (edit) : Click here to add tags

Health check Perform a quick health check to detect possible gateway issues Go to Resource health

Documentation View guidance on helpful topics related to VPN gateway View documentation

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Step-12 Under Virtual Network Gateways click on connection. Provide all the configurations. **Connection type:** Site-to-Site, **Name:** S2S.

Home > Jainam_VNG | Connections >

Create connection

Basics Settings Tags Review + create

Create a secure connection to your virtual network by using VPN Gateway or ExpressRoute.
[Learn more about VPN Gateway](#) [Learn more about ExpressRoute](#)

Project details

Subscription * Azure for Students

Resource group * Jainam_Hub_RG [Create new](#)

Instance details

Connection type * Site-to-site (IPsec)

Name * S2S

Region * Central India

Step-13 Select Jainam_VNG and Jainam_LNG and provide Shared Key and click on Review and create and further S2S connection has been created.

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

Home > Jainam_VNG | Connections >

Create connection

Basics Settings Tags Review + create

Virtual network gateway

To use a virtual network with a connection, it must be associated to a virtual network gateway.

Virtual network gateway * Jainam_VNG

Local network gateway * Jainam_LNG

Shared key (PSK) *

IKE Protocol IKEv1 IKEv2

Use Azure Private IP Address

Enable BGP

FastPath

IPsec / IKE policy Default Custom

Use policy based traffic selector Enable Disable

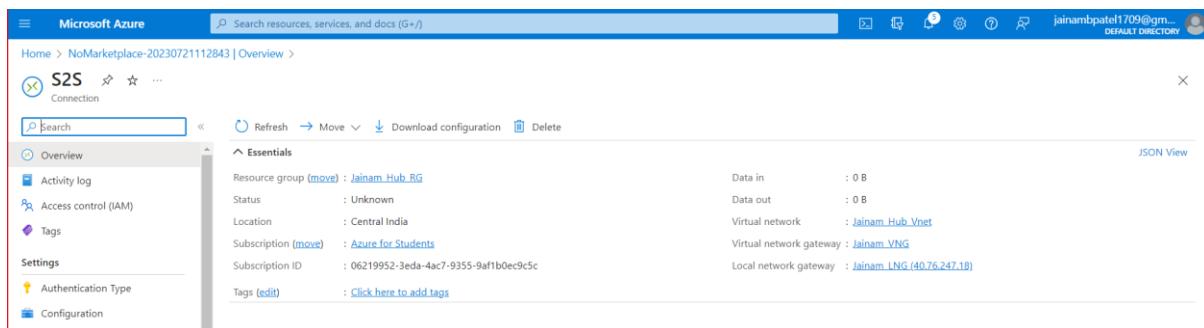
DPD timeout in seconds * 45

[Review + create](#) [Previous](#) [Next : Tags >](#) [Download a template for automation](#)

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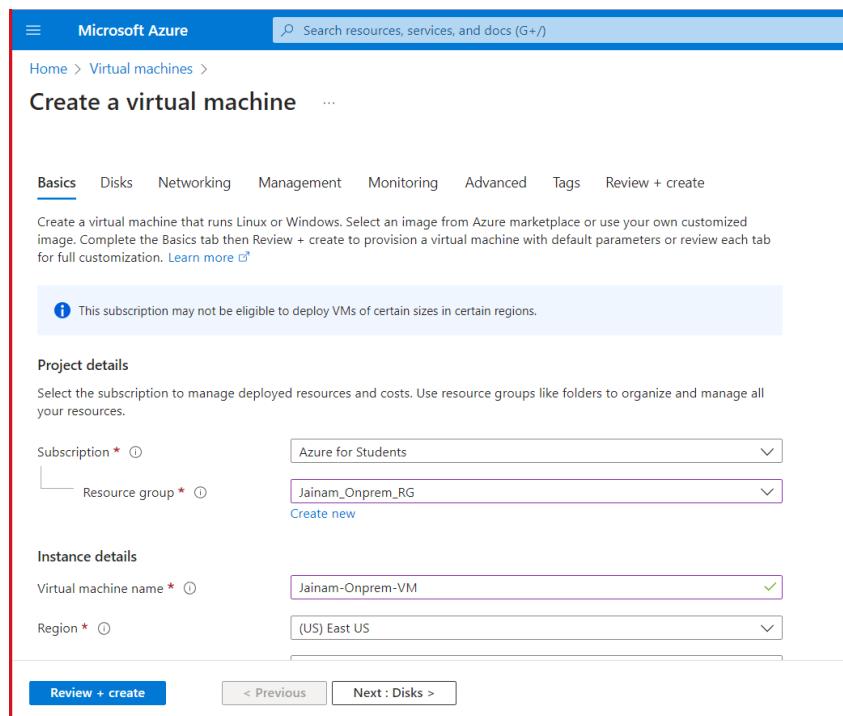
The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes 'Microsoft Azure', a search bar, and user information ('jainambpatel1709@gmail.com DEFAULT DIRECTORY'). Below the navigation is a breadcrumb trail: 'Home > NoMarketplace-20230721112843 | Overview >'. The main content area displays a 'S2S' connection named 'Jainam_Hub_RG'. The 'Overview' tab is selected, showing the following details:

- Resource group (move) : Jainam_Hub_RG
- Status : Unknown
- Location : Central India
- Subscription (move) : Azure for Students
- Subscription ID : 06219952-3eda-4ac7-9355-9af1b0ec9c5c
- Tags (edit) : Click here to add tags
- Data in : 0 B
- Data out : 0 B
- Virtual network : Jainam_Hub_Vnet
- Virtual network gateway : Jainam_VNG
- Local network gateway : Jainam_LNG (40.76.247.10)

Create Virtual machines

Step-14 In the Basics tab for all virtual machines:

1. Select your Subscription.
2. Select a Resource Group.
3. Enter a virtual machine Name.
4. Select the Region where you want to deploy the virtual machine.
5. Choose a suitable Availability Options based on your requirements.
6. Select an Image that corresponds to the operating system you want to use.
7. Choose a Size for your virtual machine based on the desired compute power and memory.
8. Specify the Administrator account username and password for the virtual machine.



The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal. The 'Basics' tab is selected. The page title is 'Create a virtual machine ...'. The 'Basics' tab has several sub-tabs: Basics, Disks, Networking, Management, Monitoring, Advanced, Tags, and Review + create. A note at the top states: '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](#)'.

A warning message in a box says: 'This subscription may not be eligible to deploy VMs of certain sizes in certain regions.'

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 for Students

Resource group: Jainam_Onprem_RG

Instance details:

- Virtual machine name**: Jainam-Onprem-VM
- Region**: (US) East US

At the bottom are buttons for 'Review + create' and 'Next : Disks >'.

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Home > Virtual machines >

Create a virtual machine

Security type ⓘ Trusted launch virtual machines ▾
[Configure security features](#)

Image * ⓘ Windows Server 2022 Datacenter: Azure Edition - x64 Gen2 ▾
[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ x64
 Arm64
i Arm64 is not supported with the selected image.

Run with Azure Spot discount ⓘ

Size * ⓘ Standard_DS1_v2 - 1 vcpu, 3.5 GiB memory (₹7,223.60/month) ▾
[See all sizes](#)

Administrator account

Username * ⓘ jainamonpremvm ✓
 Password * ⓘ ✓
 Confirm password * ⓘ ✓

Inbound port rules

Review + create < Previous Next : Disks >

Create a virtual machine

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 ⓘ
i Encryption at host is not registered for the selected subscription.
[Learn more about enabling this feature](#)

OS disk

OS disk type * ⓘ Premium SSD (locally-redundant storage) ▾
 Delete with VM ⓘ
 Key management ⓘ Platform-managed key ▾
 Enable Ultra Disk compatibility ⓘ
i Ultra disk is not supported with selected security type.

Data disks for Linux OpenRack VM

Review + create < Previous Next : Networking >

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Step-15 In Networking tab Select Virtual network as Jainam_Onprem_Vnet and Subnet as default (10.3.0.0/24).

Home > Virtual machines >
Create a virtual machine ...

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 * ⓘ

Subnet * ⓘ

Public IP ⓘ

NIC network security group ⓘ None Basic Advanced

Public inbound ports * ⓘ None Allow selected ports

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

Microsoft Azure

Home >
Create a virtual machine ...

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 * ⓘ

Instance details

Virtual machine name * ⓘ

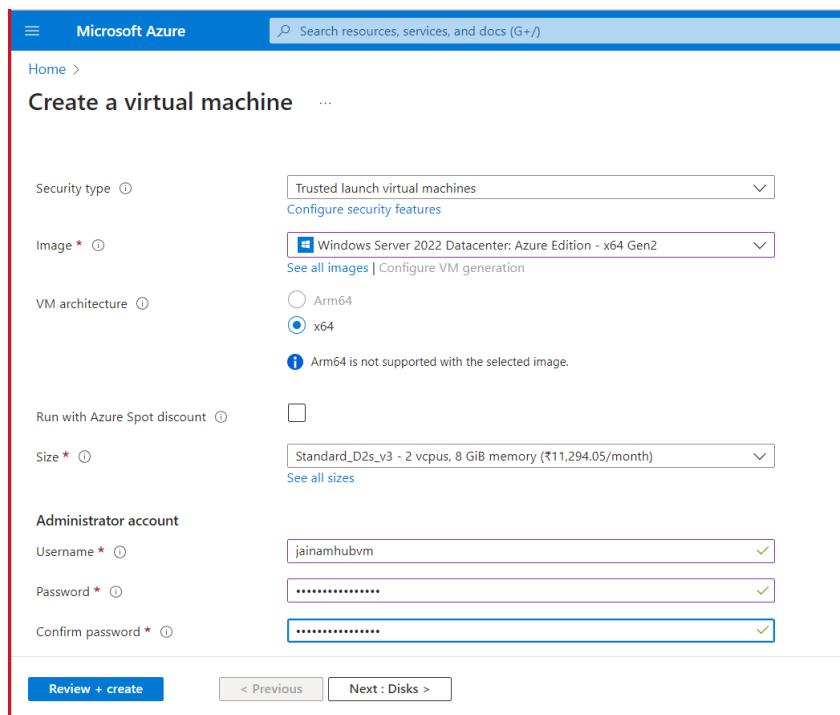
Region * ⓘ

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

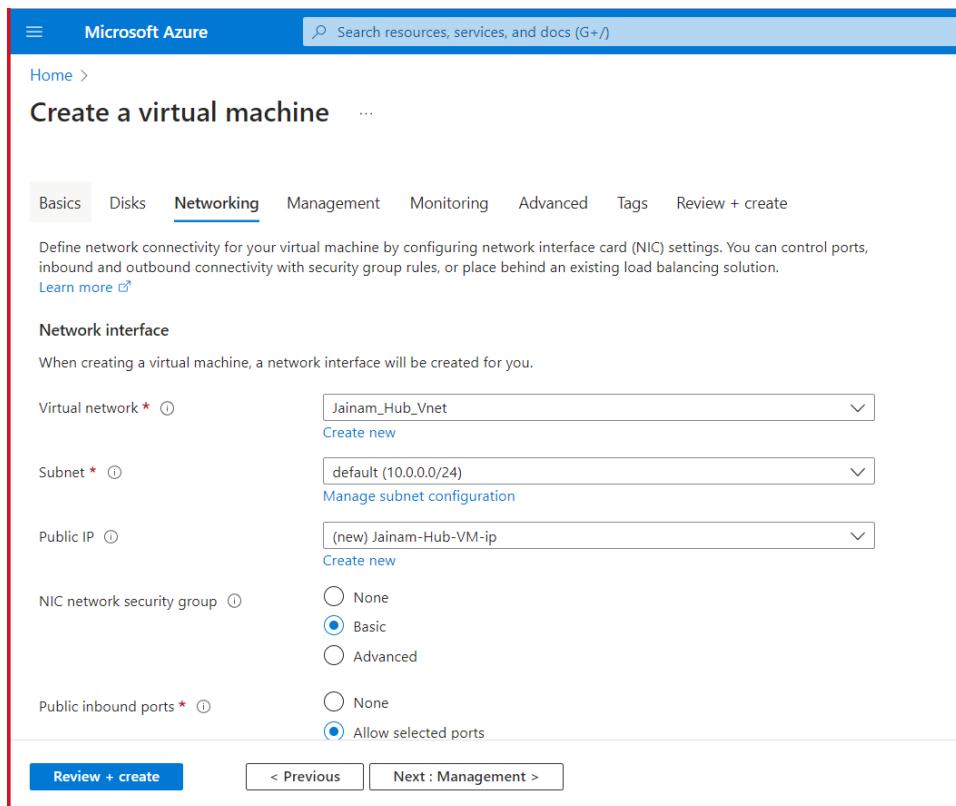
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Step-16 In Networking tab Select Virtual network as Jainam_Hub_Vnet and Subnet as default (10.0.0.0/24).



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Create Local Network Gateway

Step-17 For create Local Network Gateway we have provided all the necessary configuration in Basic tab. **IP address:** OnpremVM public IP address. **Address Space:** ONprem-Vnet address space.

The screenshot shows the 'Create local network gateway' wizard in the Microsoft Azure portal. The 'Basics' tab is selected. In the 'Project details' section, 'Subscription' is set to 'Azure for Students' and 'Resource group' is set to 'Jainam_Hub_RG'. In the 'Instance details' section, 'Region' is 'Central India', 'Name' is 'Jainam_LNG', 'Endpoint' is 'IP address' (selected), and 'IP address' is '40.76.247.18'. Under 'Address Space(s)', there is a single entry '10.3.0.0/16'. At the bottom, there are 'Review + create', 'Previous', and 'Next : Advanced >' buttons.

Step-18 click on Overview tab we can see that LNG has been created.

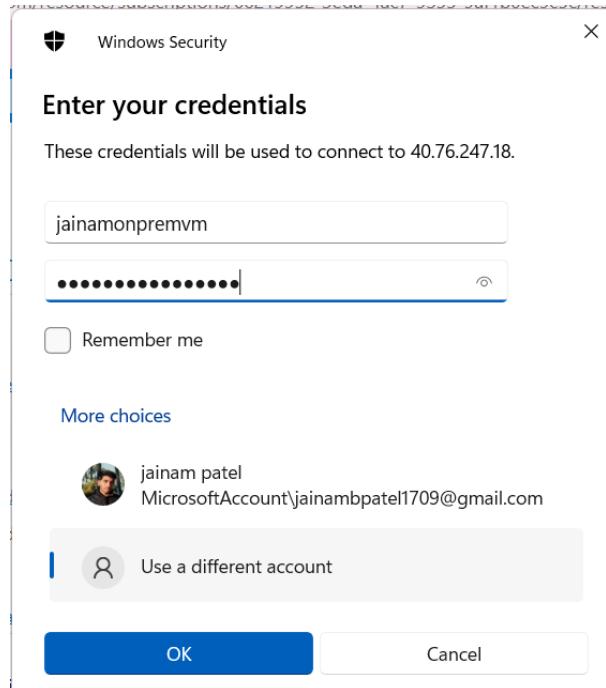
The screenshot shows the 'Overview' tab for the 'Jainam_LNG' Local Network Gateway. The 'Essentials' section displays the following details: Resource group (move) : Jainam_Hub_RG, Location : Central India, Subscription (move) : Azure for Students, Subscription ID : 06219952-3eda-4ac7-9355-9af1b0ec9c5c, IP address : 40.76.247.18, and Address Space(s) : 10.3.0.0/16. There is also a note: 'Tags (edit) : Click here to add tags'. The left sidebar shows other tabs like 'Activity log', 'Access control (IAM)', 'Tags', 'Settings', and 'Configuration'.

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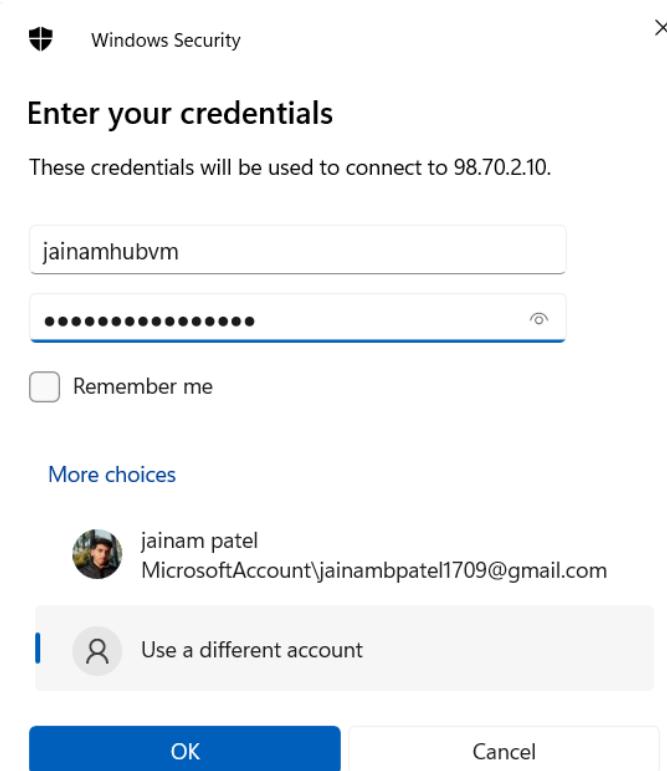
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Step-19 Open On-premises virtual machine by remote desktop.



Step-20 Open Hub virtual machine by remote desktop.

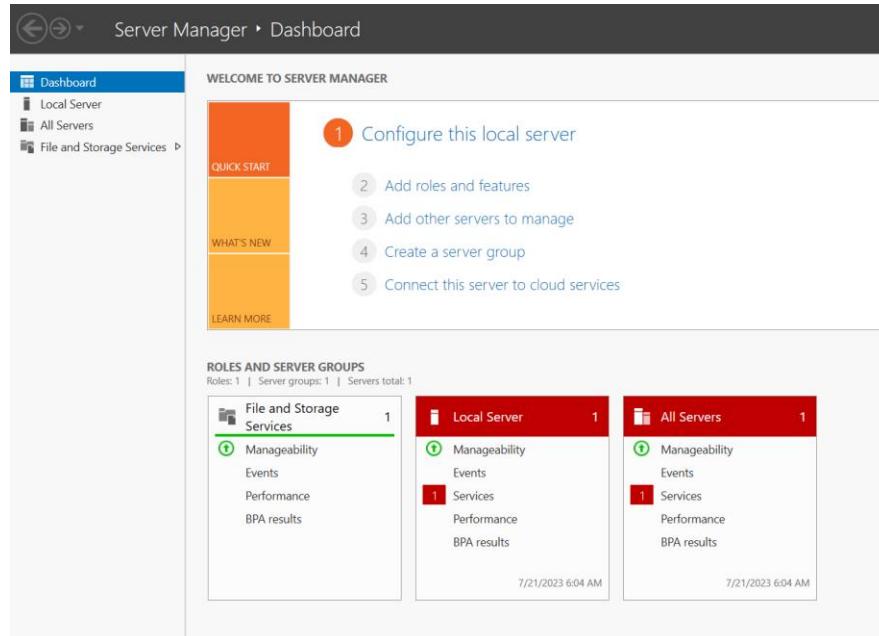


Student Id: 20IT096

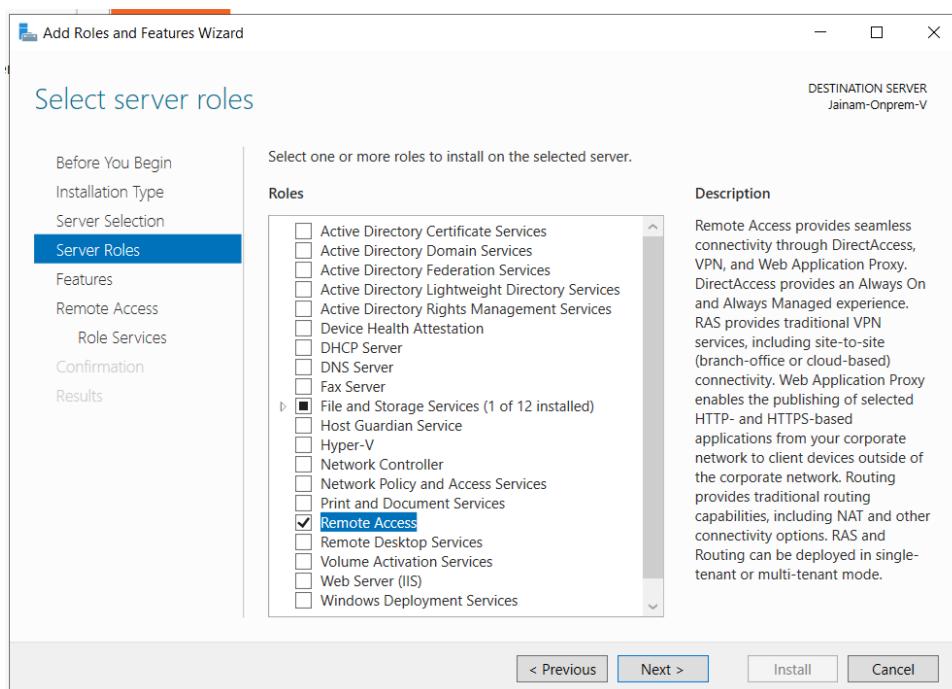
Student Name: Jainam Bijalkumar Patel

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Step-21 Open server manager dashboard and click on “add rules and features”.



Step-22 Go to server rules and enable the “remote access”.



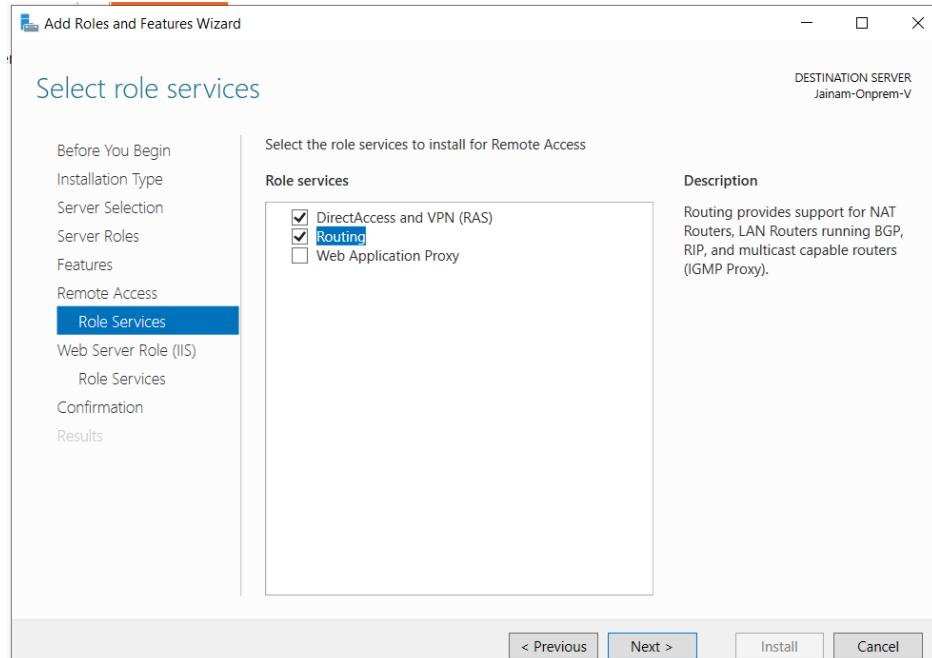
Student Id: 20IT096

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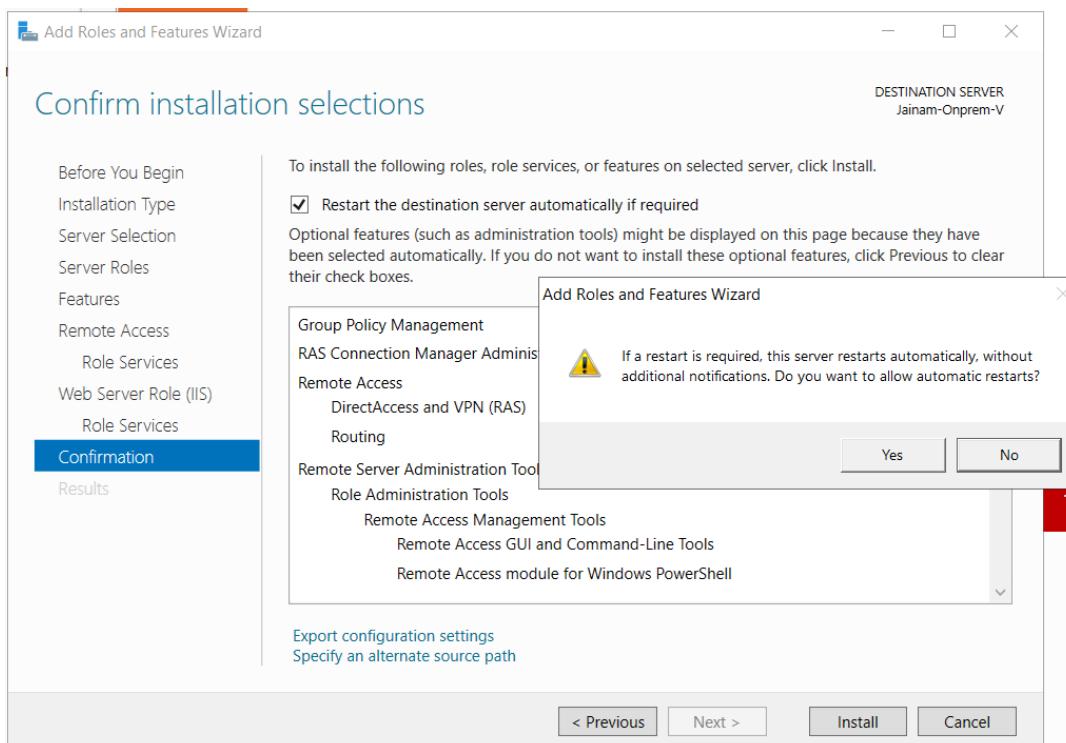
Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-23 Next, go to rule services and enable DirectAccess and Routing.



Step-24 Now, go to confirmation and check the restart box.



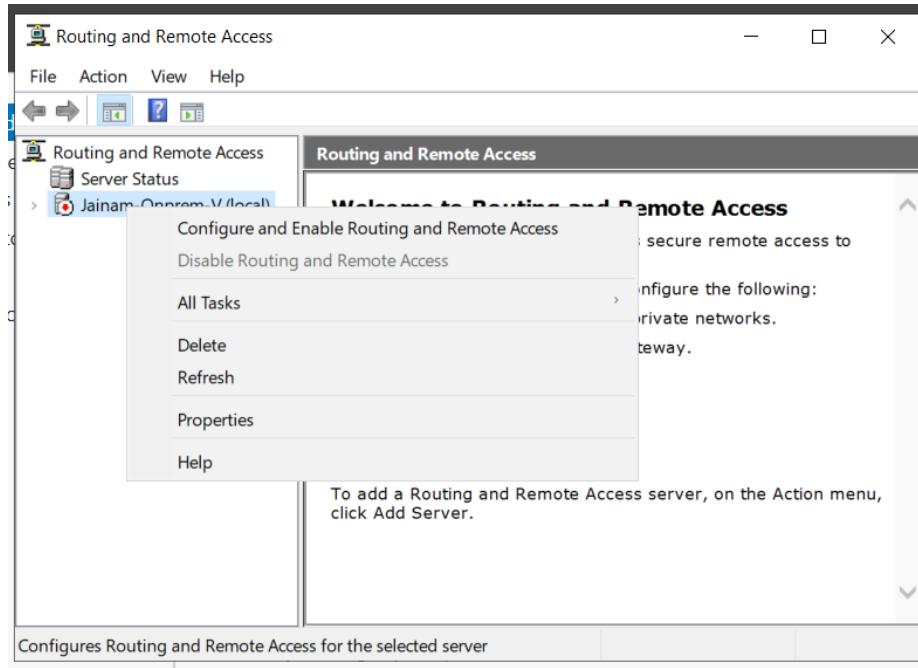
Student Id: 20IT096

Student Name: Jainam Bijalkumar Patel

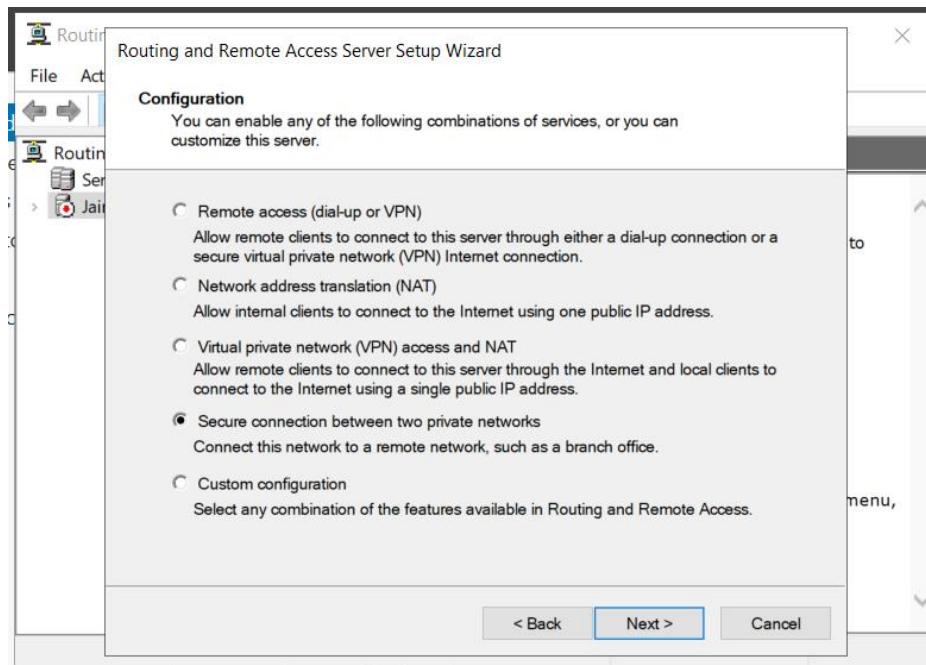
Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-25 Now, Right click on “Jainam_OnPrem_VM (local)” and Select “Configure and Enable Routing and Remote Access”.



Step-26 Check the “Secure Connection” box.



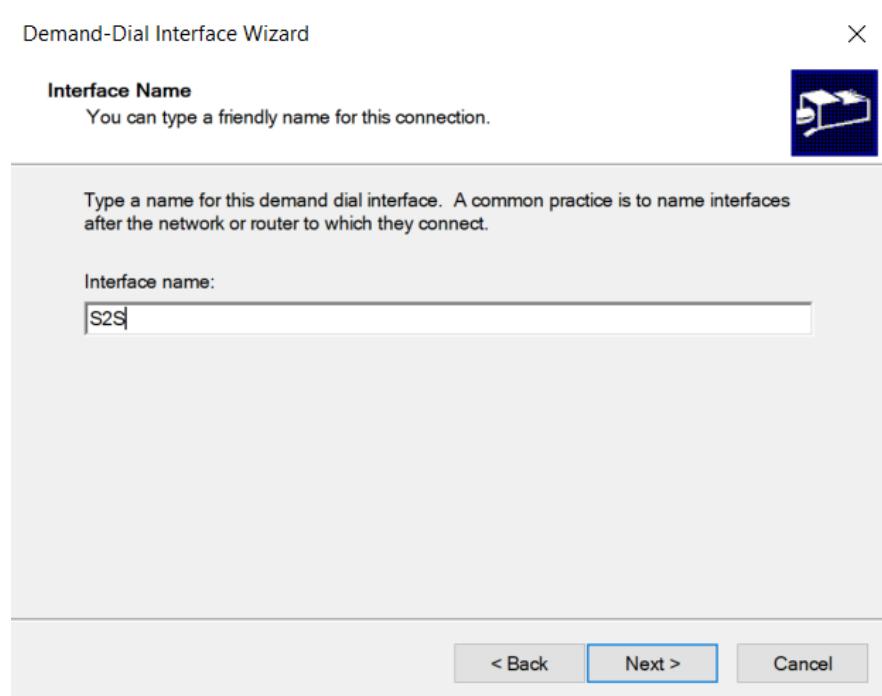
Student Id: 20IT096

Student Name: Jainam Bijalkumar Patel

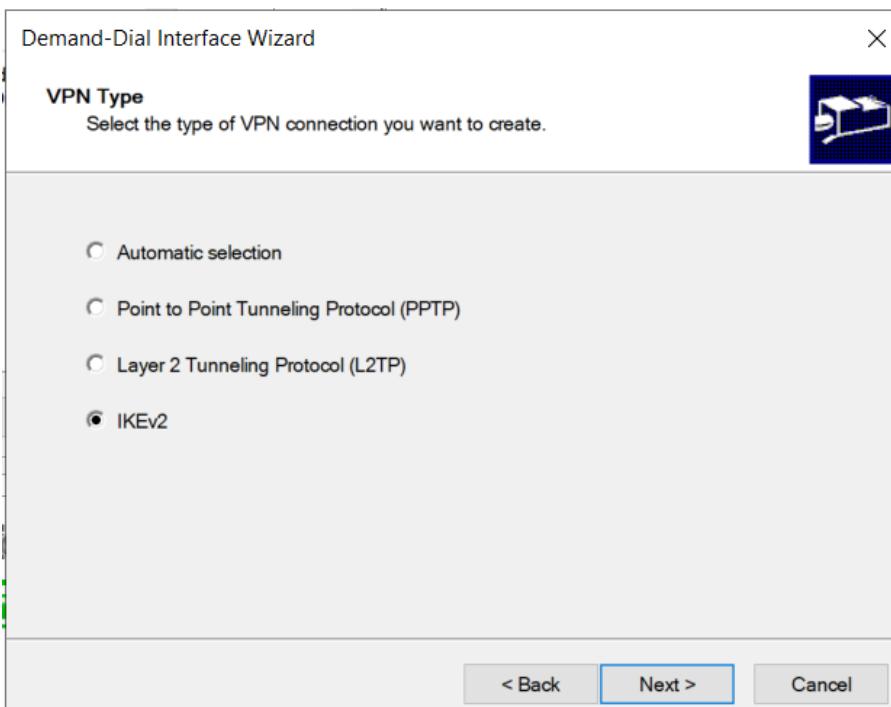
Project Title: Cloud Infrastructure and Security Domain

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Step-27 Enter an Interface Name.



Step-28 Select IKEv2.



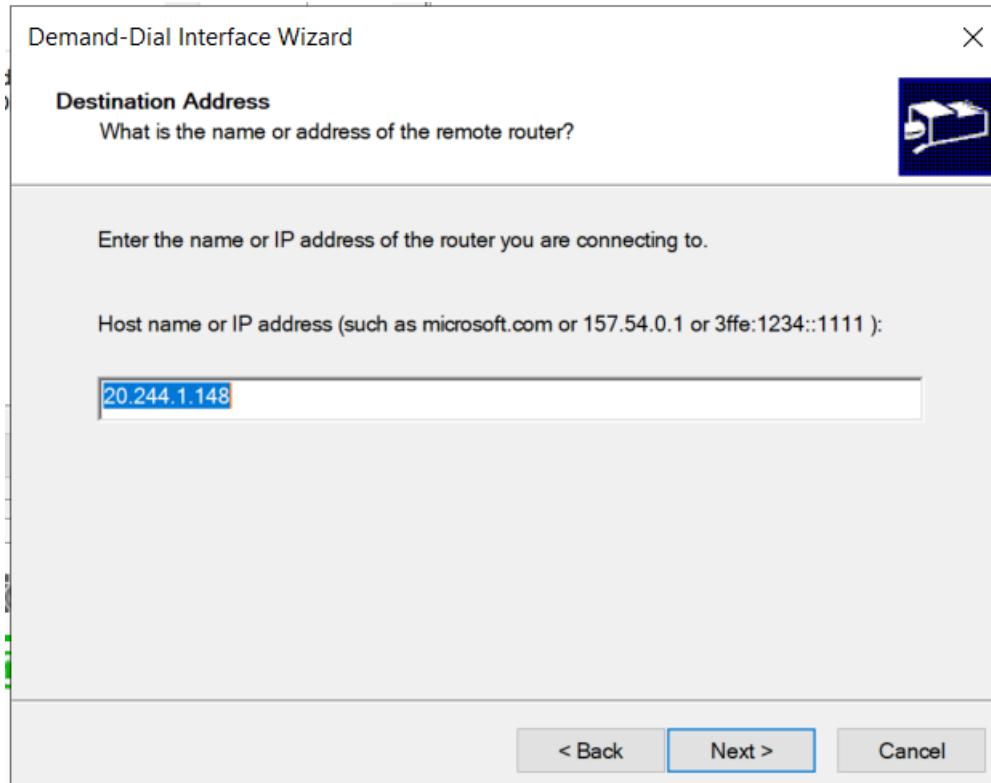
Student Id: 20IT096

Student Name: Jainam Bijalkumar Patel

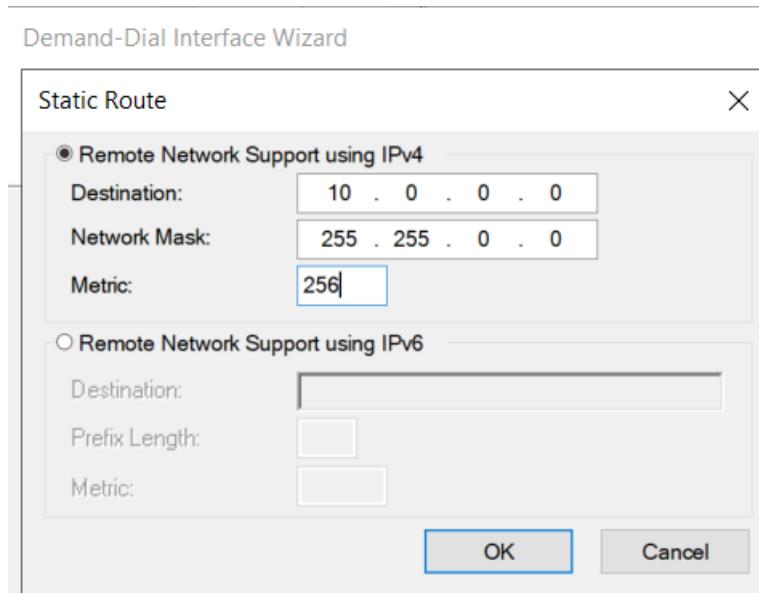
Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-29 Enter the Public IP address of Virtual Network Gateway



Step-30 Add Ip Address of Azure Virtual Network in Destination and add Network Mask after click on OK then Click on Finish .



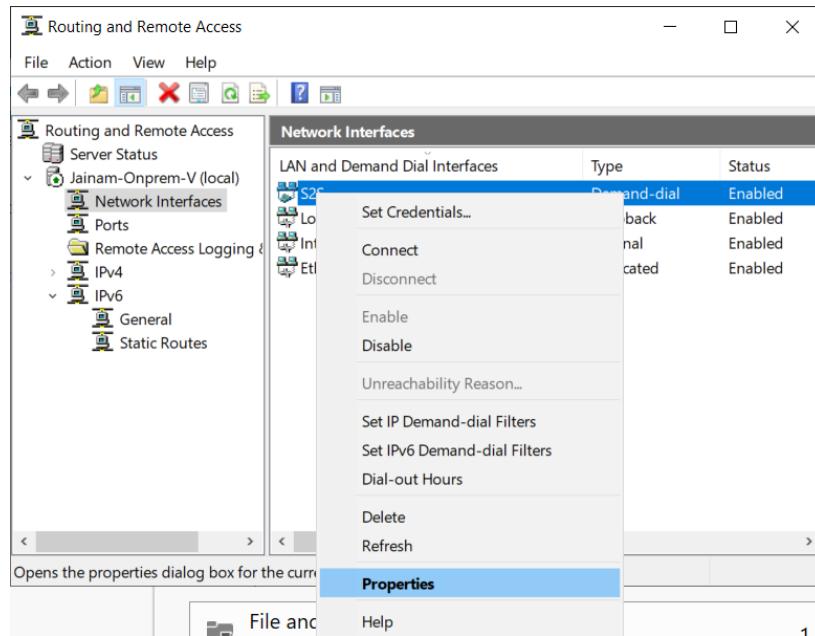
Student Id: 20IT096

Student Name: Jainam Bijalkumar Patel

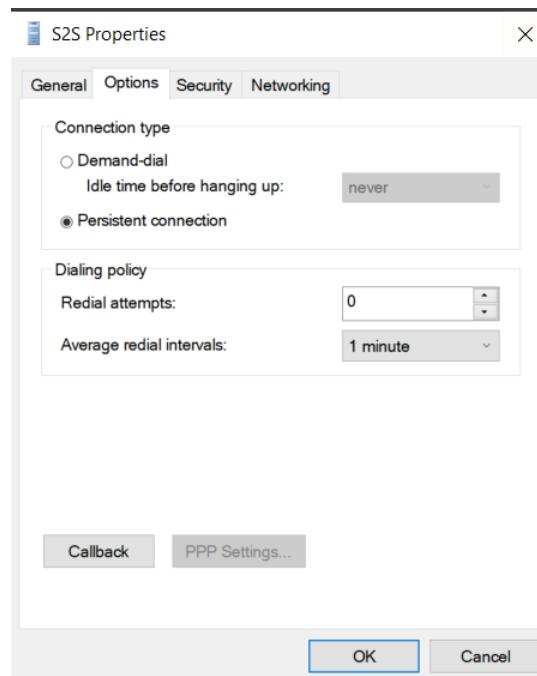
Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-31 go to OnPrem-VM (local)/Network Interfaces and right click select on S2S and go to in Properties.



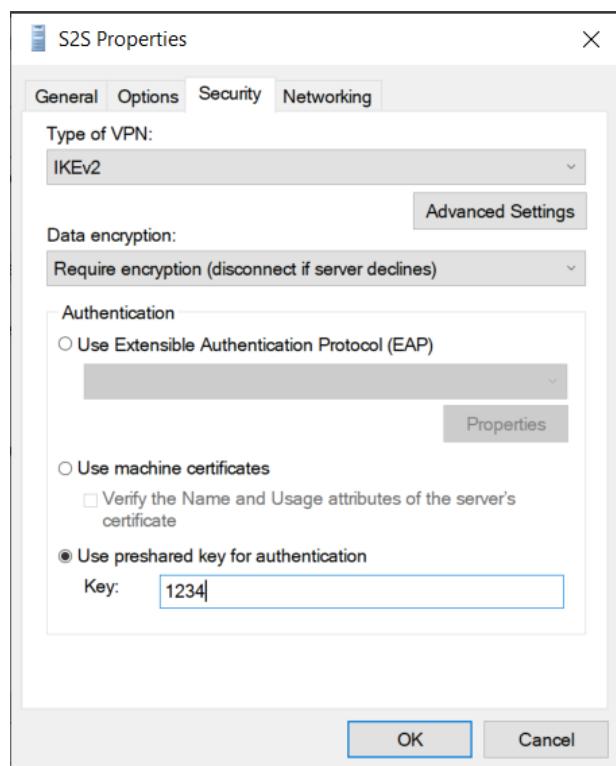
Step-32 Step-Now, go to in Options and select Persistent connection and enter shared key and click on “Ok”.



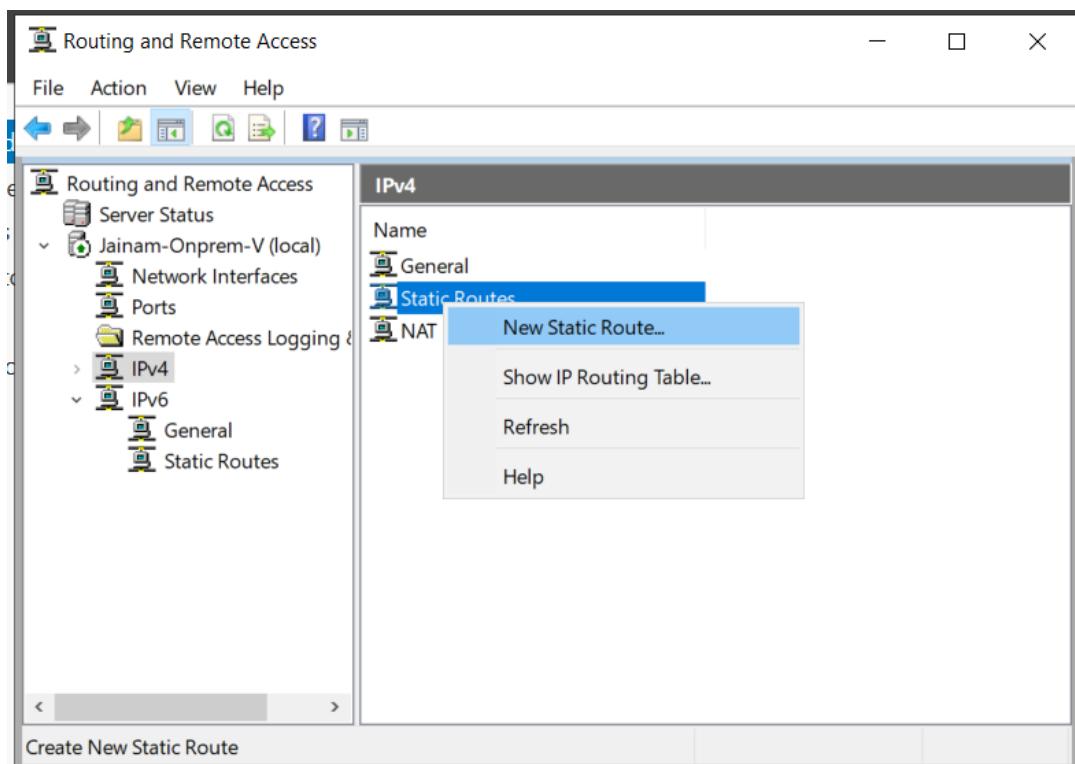
Student Id: 20IT096

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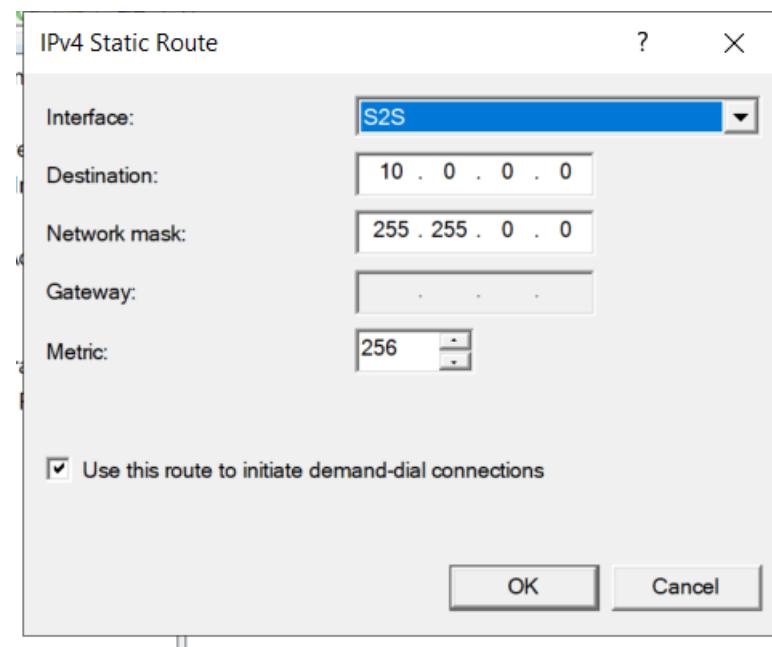
Step-33 create new IPv4 static route.



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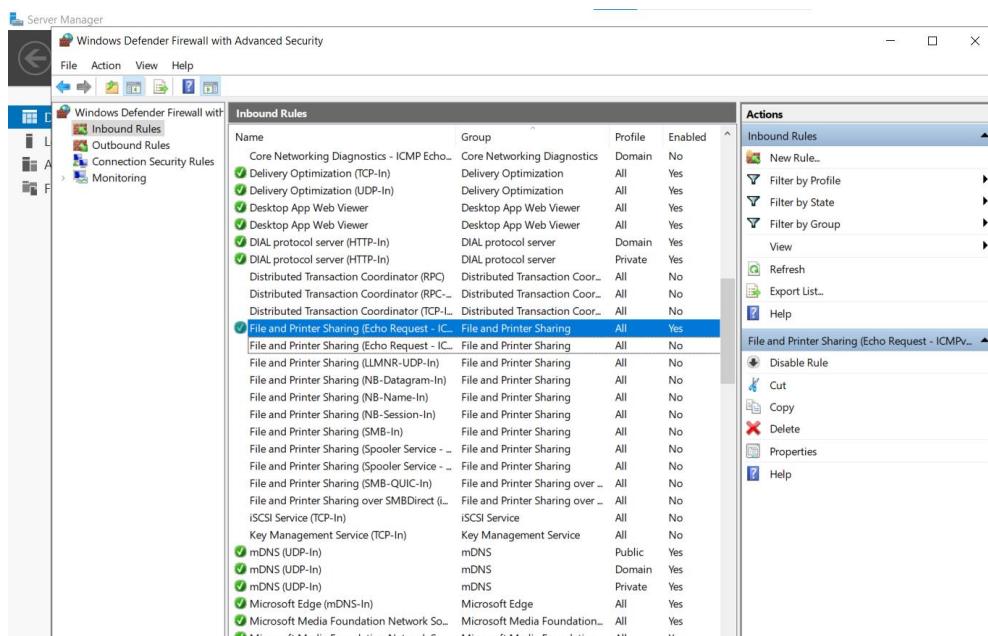
Step-34 Enable the ICMP. (Inbound rule) In both the VM.

Name	Group	Profile	Enabled
Core Networking - Neighbor Discovery So...	Core Networking	All	Yes
Core Networking - Packet Too Big (ICMP...	Core Networking	All	Yes
Core Networking - Parameter Problem (IC...	Core Networking	All	Yes
Core Networking - Router Advertisement (...	Core Networking	All	Yes
Core Networking - Router Solicitation (I...	Core Networking	All	Yes
Core Networking - Teredo (UDP-In)	Core Networking	All	Yes
Core Networking - Time Exceeded (ICMPv...	Core Networking Diagnostics	Domain	No
Core Networking Diagnostics - ICMP Echo...	Core Networking Diagnostics	Private, Domai...	No
Core Networking Diagnostics - ICMP Echo...	Core Networking Diagnostics	Private, Domai...	No
Core Networking Diagnostics - ICMP Echo...	Core Networking Diagnostics	Domain	No
Delivery Optimization (TCP-In)	Delivery Optimization	All	Yes
Delivery Optimization (UDP-In)	Delivery Optimization	All	Yes
Desktop App Web Viewer	Desktop App Web Viewer	All	Yes
Desktop App Web Viewer	Desktop App Web Viewer	All	Yes
DHCPv4 Relay Agent [Client] (UDP-In)	DHCP Relay Agent	All	Yes
DHCPv6 Relay Agent [Server] (UDP-In)	DHCPv6 Relay Agent	All	Yes
DIAL protocol server (HTTP-In)	DIAL protocol server	Domain	Yes
DIAL protocol server (HTTP-In)	DIAL protocol server	Private	Yes
Distributed Transaction Coordinator (RPC)	Distributed Transaction Coor...	All	No
Distributed Transaction Coordinator (RPC-...	Distributed Transaction Coor...	All	No
Distributed Transaction Coordinator (TCP-L...	Distributed Transaction Coor...	All	No
File and Printer Sharing (Echo Request - ICM...	File and Printer Sharing	All	No
File and Printer Sharing (TCP-In)	File and Printer Sharing	All	No
File and Printer Sharing (UDP-In)	File and Printer Sharing	All	No
File and Properties	File and Printer Sharing	All	No
File and Help	File and Printer Sharing	All	No
File and Printer Sharing (SMB-QUIC-In)	File and Printer Sharing over ...	All	No

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Student Name: Jainam Bijalkumar Patel

Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav



Step-35 Check the Ip address using command: ipconfig and check the connectivity using command: ping.

```

Administrator: Windows 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\jainamonpremvm> hostname
Jainam-Onprem-V
PS C:\Users\jainamonpremvm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

  Connection-specific DNS Suffix . : 3jkh3cpffietdavmaecevdwdc.bx.internal.cloudapp.net
  Link-local IPv6 Address . . . . . : fe80::52d6:7d8d:23df:c0d7%4
  IPv4 Address . . . . . : 10.3.0.4
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 10.3.0.1

PPP adapter S2S:

  Connection-specific DNS Suffix . :
  Autoconfiguration IPv4 Address. . . : 169.254.0.27
  Subnet Mask . . . . . : 255.255.0.0
  Default Gateway . . . . . :
PS C:\Users\jainamonpremvm> ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:
Reply from 10.0.0.4: bytes=32 time=229ms TTL=127
Reply from 10.0.0.4: bytes=32 time=230ms TTL=127
Reply from 10.0.0.4: bytes=32 time=229ms TTL=127
Reply from 10.0.0.4: bytes=32 time=229ms TTL=127

Ping statistics for 10.0.0.4:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 229ms, Maximum = 230ms, Average = 229ms
PS C:\Users\jainamonpremvm>

```

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Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-36 Our Site-to-Site Connection between on Premise to Hub VM is Successfully Established.

```
Administrator: Windows 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\jainamhubvm> hostname
Jainam-Hub-VM
PS C:\Users\jainamhubvm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

  Connection-specific DNS Suffix . : xutbuemhmote3mdgc2zzgmzlf.frx.internal.cloudapp.net
  Link-local IPv6 Address . . . . . : fe80::e9f9:82d0:b895:8302%6
  IPv4 Address . . . . . : 10.0.0.4
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 10.0.0.1
PS C:\Users\jainamhubvm> ping 10.3.0.4

Pinging 10.3.0.4 with 32 bytes of data:
Request timed out.
Reply from 10.3.0.4: bytes=32 time=230ms TTL=127
Reply from 10.3.0.4: bytes=32 time=229ms TTL=127
Reply from 10.3.0.4: bytes=32 time=229ms TTL=127

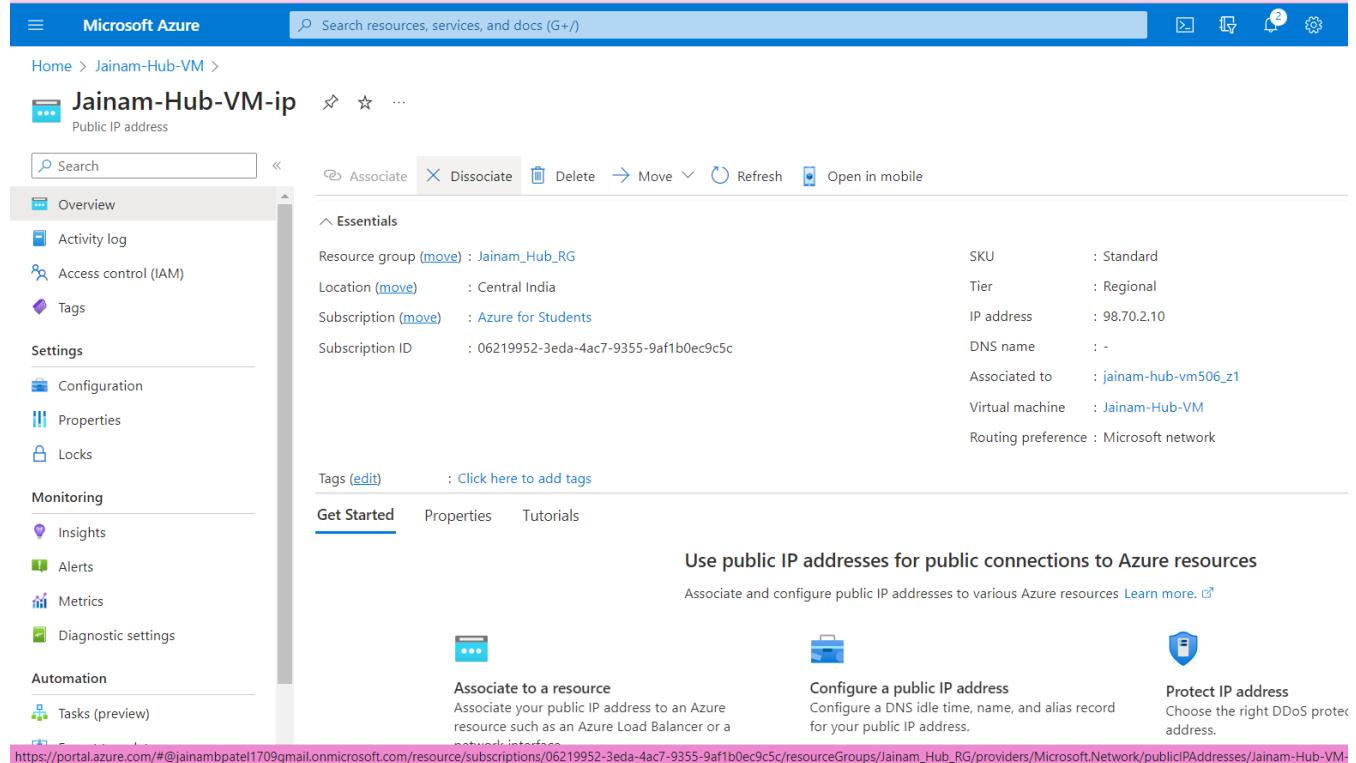
Ping statistics for 10.3.0.4:
  Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 229ms, Maximum = 230ms, Average = 229ms
PS C:\Users\jainamhubvm>
```

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Student Name: Jainam Bijalkumar Patel

Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav

Step-37 Dissociate Hub-VM-ip and Onprem-VM-ip



Jainam-Hub-VM-ip Public IP address

Essentials

Resource group (move) : Jainam_Hub_RG	SKU : Standard
Location (move) : Central India	Tier : Regional
Subscription (move) : Azure for Students	IP address : 98.70.2.10
Subscription ID : 06219952-3eda-4ac7-9355-9af1b0ec9c5c	DNS name : -
	Associated to : jainam-hub-vm506_z1
	Virtual machine : Jainam-Hub-VM
	Routing preference : Microsoft network

Tags (edit) : Click here to add tags

Get Started Properties Tutorials

Use public IP addresses for public connections to Azure resources

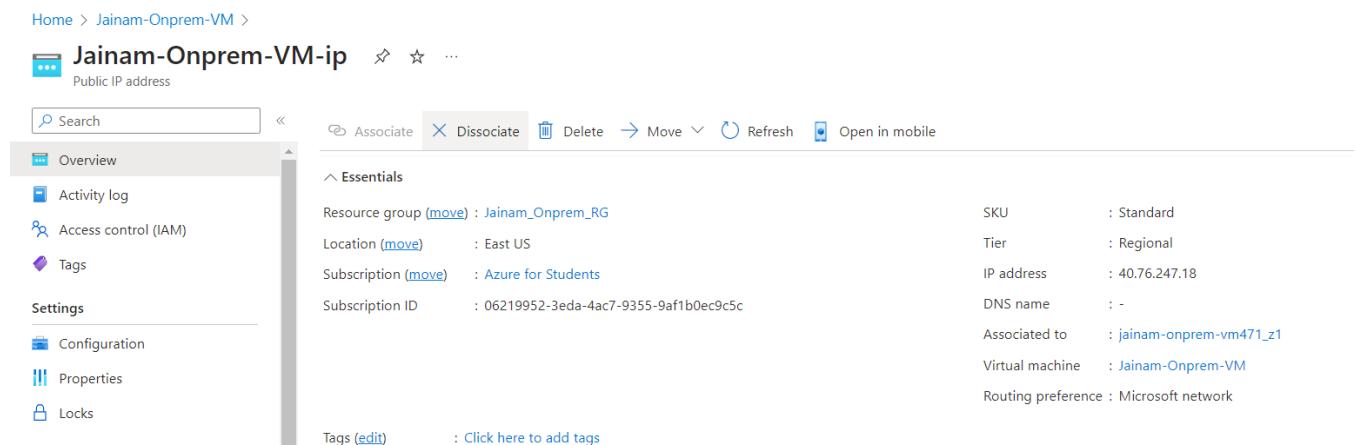
Associate and configure public IP addresses to various Azure resources [Learn more.](#)

Associate to a resource
Associate your public IP address to an Azure resource such as an Azure Load Balancer or a Network interface.

Configure a public IP address
Configure a DNS idle time, name, and alias record for your public IP address.

Protect IP address
Choose the right DDoS protection address.

https://portal.azure.com/#@jainambpatel1709@gmail.onmicrosoft.com/resource/subscriptions/06219952-3eda-4ac7-9355-9af1b0ec9c5c/resourceGroups/Jainam_Hub_RG/providers/Microsoft.Network/publicIPAddresses/jainam-Hub-VM



Jainam-Onprem-VM-ip Public IP address

Essentials

Resource group (move) : Jainam_Onprem_RG	SKU : Standard
Location (move) : East US	Tier : Regional
Subscription (move) : Azure for Students	IP address : 40.76.247.18
Subscription ID : 06219952-3eda-4ac7-9355-9af1b0ec9c5c	DNS name : -
	Associated to : jainam-onprem-vm471_z1
	Virtual machine : Jainam-Onprem-VM
	Routing preference : Microsoft network

Tags (edit) : Click here to add tags

Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-38 In the Basics tab for two spoke virtual machines:

1. Select your Subscription.
2. Select a Resource Group.
3. Enter a virtual machine Name.
4. Select the Region where you want to deploy the virtual machine.
5. Choose a suitable Availability Options based on your requirements.
6. Select an Image that corresponds to the operating system you want to use.
7. Choose a Size for your virtual machine based on the desired compute power and memory.
8. Specify the Administrator account username and password for the virtual machine.

Home > Virtual machines >

Create a virtual machine

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 ↗](#)

 This subscription may not be eligible to deploy VMs of certain sizes in certain regions.

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 for Students



Resource group * ⓘ

Jainam_Spoke1_RG



[Create new](#)

Instance details

Virtual machine name * ⓘ

Jainam-Spoke1-VM



Region * ⓘ

(Asia Pacific) Central India



[Review + create](#)

[< Previous](#)

[Next : Disks >](#)

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Step-39 In Networking tab Select Virtual network as Jainam_Spoke1_Vnet and Subnet as default (10.1.0.0/24).

The screenshot shows the 'Networking' tab of the Azure VM creation wizard. Key configuration details include:

- Virtual network:** Jainam_Spoke1_Vnet
- Subnet:** default (10.1.0.0/24)
- Public IP:** (new) Jainam-Spoke1-VM-ip
- NIC network security group:** Basic (selected)
- Public inbound ports:** Allow selected ports (selected)

At the bottom, there are navigation buttons: 'Review + create' (highlighted in blue), '< Previous', and 'Next : Management >'.

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Home > Virtual machines >

Create a virtual machine ...

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 * ⓘ Azure for Students

Resource group * ⓘ Jainam_Spoke2_RG
Create new

Instance details

Virtual machine name * ⓘ Jainam-Spoke2-VM

Region * ⓘ (Asia Pacific) Central India

Review + create < Previous Next : Disks >

Microsoft Azure Search resources, services, and docs (G+)

Home > Virtual machines >

Create a virtual machine ...

per zone. [Learn more](#)

Security type ⓘ Trusted launch virtual machines
[Configure security features](#)

Image * ⓘ Windows Server 2022 Datacenter: Azure Edition - x64 Gen2
[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ x64
 Arm64

Info Arm64 is not supported with the selected image.

Run with Azure Spot discount ⓘ

Size * ⓘ Standard_D2s_v3 - 2 vcpus, 8 GiB memory (₹11,294.05/month)
[See all sizes](#)

Administrator account

Username * ⓘ jainamspoke2vm

Password * ⓘ
Confirm password * ⓘ

Review + create < Previous Next : Disks >

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Step-40 In Networking tab Select Virtual network as Jainam_Spoke1_Vnet and Subnet as default (10.2.0.0/24).

Home > Virtual machines >

Create a virtual machine ...

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 * ⓘ

Jainam_Spoke2_Vnet



[Create new](#)

Subnet * ⓘ

default (10.2.0.0/24)



[Manage subnet configuration](#)

Public IP ⓘ

Jainam-Hub-VM-ip



[Create new](#)

NIC network security group ⓘ

None

Basic

Advanced

Public inbound ports * ⓘ

None

Allow selected ports

[Review + create](#)

[< Previous](#)

[Next : Management >](#)

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Create Vnet peering.

Step-41 Select the Jainam_Hub_VNet1 we created and open its settings and peering tab and click on add button.

The screenshot shows the Microsoft Azure portal interface for managing virtual networks. The main title bar says 'Microsoft Azure'. Below it, the breadcrumb navigation shows 'Home > Virtual networks > Jainam_Hub_Vnet'. The left sidebar lists several virtual networks: Jainam_Hub_Vnet, Jainam_Osprem_Vnet, Jainam_Spoke1_Vnet, and Jainam_Spoke2_Vnet. The 'Jainam_Hub_Vnet' card is selected. On the right, the 'Essentials' section displays details like Resource group (Jainam_Hub_RG), Location (Central India), Subscription (Azure for Students), and Address space (10.0.0.0/16). The 'Peering' tab is highlighted in blue. A tooltip 'Click here to add tags' is shown over the tags section. At the bottom, there are tabs for Topology, Properties, Capabilities, Recommendations, and Tutorials.

Step-42 Give the Peering link a name.

The screenshot shows the 'Add peering' configuration page for the Jainam_Hub_Vnet. The top navigation bar includes 'Microsoft Azure' and 'Search resources, services, and docs'. The breadcrumb path is 'Home > Virtual networks > Jainam_Hub_Vnet | Peerings > Add peering'. The main form fields include:

- This virtual network**
- Peering link name ***: hub-spoke1
- Traffic to remote virtual network** (radio buttons):
 - Allow (default)
 - Block all traffic to the remote virtual network
- Traffic forwarded from remote virtual network** (radio buttons):
 - Allow (default)
 - Block traffic that originates from outside the remote virtual network
- Virtual network gateway or Route Server** (radio buttons):
 - Use this virtual network's gateway or Route Server
 - Use the remote virtual network's gateway or Route Server
 - None (default)
- Remote virtual network**
- Peering link name ***: spoke1-hub
- Virtual network deployment model** (radio buttons):
 - Resource manager

A large blue 'Add' button is at the bottom of the form.

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Step-43 Give peering link name and the select Jainam_Spoke1_Vnet as remote virtual network and then click on add.

The screenshot shows the 'Add peering' configuration page in the Microsoft Azure portal. The top navigation bar includes 'Microsoft Azure', a search bar, and a breadcrumb trail: Home > Virtual networks > Jainam_Hub_Vnet | Peerings >. The main title is 'Add peering'. A dropdown menu shows 'Jainam_Hub_Vnet'. Below it, two radio buttons are shown: 'Resource manager' (selected) and 'Classic'. A checkbox 'I know my resource ID' is present. The 'Subscription' dropdown is set to 'Azure for Students'. The 'Virtual network' dropdown is set to 'Jainam_Spoke1_Vnet'. Under 'Traffic to remote virtual network', the 'Allow (default)' radio button is selected. Under 'Traffic forwarded from remote virtual network', the 'Allow (default)' radio button is selected. Under 'Virtual network gateway or Route Server', the 'Use the remote virtual network's gateway or Route Server' radio button is selected. At the bottom is a blue 'Add' button.

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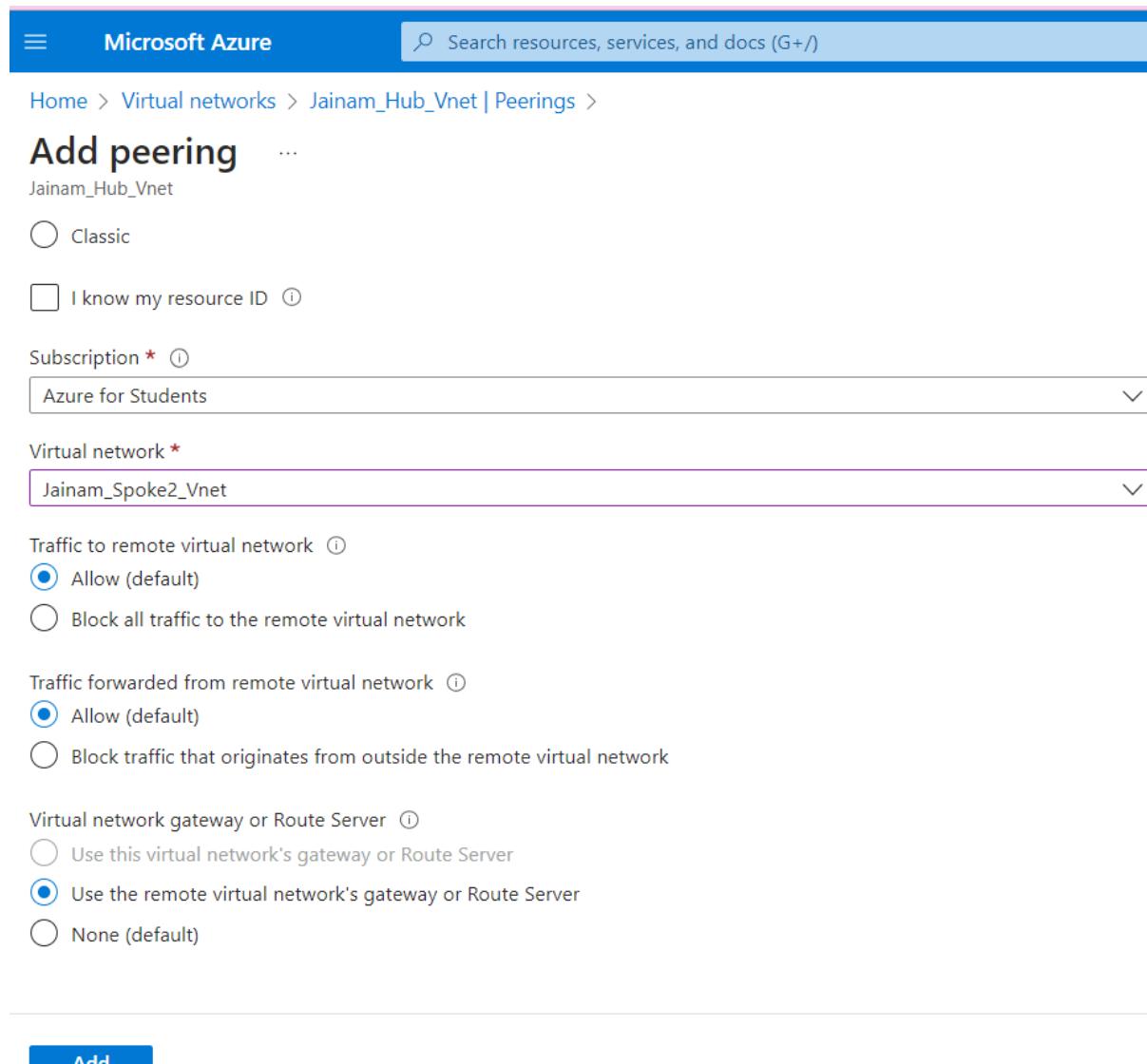
Step-44 Create second vnet peering as hub-spoke2. And select Jainam_Spoke2_Vnet as a remote virtual network

The screenshot shows the Microsoft Azure portal interface for creating a Virtual Network Peering. The top navigation bar includes 'Microsoft Azure', a search bar, and a 'Home > Virtual networks > Jainam_Hub_Vnet | Peerings > Add peering' path. The main section is titled 'Add peering' with a 'Jainam_Hub_Vnet' dropdown. A callout box provides information: 'For peering to work, two peering links must be created. By selecting remote virtual network, Azure will create both peering links.' Below this, the 'This virtual network' section shows the 'Peering link name *' input field containing 'hub-spoke2' with a green checkmark. Configuration options include: 'Traffic to remote virtual network' (radio button selected for 'Allow (default)'), 'Traffic forwarded from remote virtual network' (radio button selected for 'Allow (default)'), and 'Virtual network gateway or Route Server' (radio button selected for 'Use this virtual network's gateway or Route Server').

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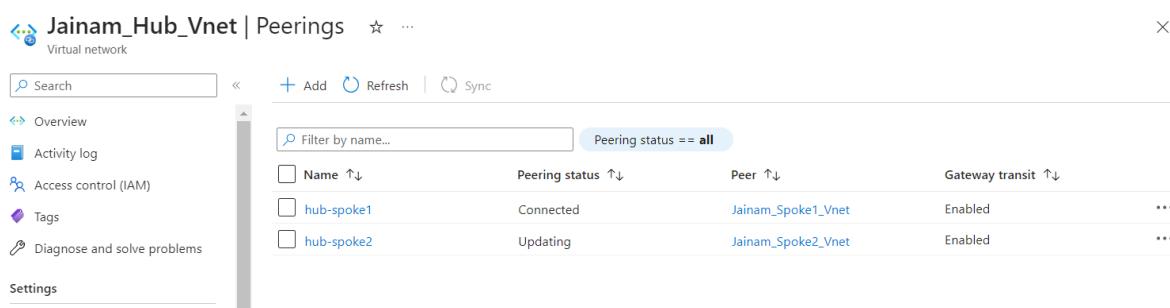
Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav



The screenshot shows the 'Add peering' configuration page in Microsoft Azure. The top navigation bar includes 'Microsoft Azure' and a search bar. The URL path is 'Home > Virtual networks > Jainam_Hub_Vnet | Peerings > Add peering'. The form fields include:

- Subscription ***: Azure for Students
- Virtual network ***: Jainam_Spoke2_Vnet
- Traffic to remote virtual network**:
 - Allow (default)
 - Block all traffic to the remote virtual network
- Traffic forwarded from remote virtual network**:
 - Allow (default)
 - Block traffic that originates from outside the remote virtual network
- Virtual network gateway or Route Server**:
 - Use this virtual network's gateway or Route Server
 - Use the remote virtual network's gateway or Route Server
 - None (default)

At the bottom right is a large blue 'Add' button.



The screenshot shows the 'Jainam_Hub_Vnet | Peerings' list view in Microsoft Azure. The left sidebar includes links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, and Settings. The main area displays a table of peerings:

Name	Peering status	Peer	Gateway transit	Actions
hub-spoke1	Connected	Jainam_Spoke1_Vnet	Enabled	...
hub-spoke2	Updating	Jainam_Spoke2_Vnet	Enabled	...

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Step-45 Check the Ip address using command: ipconfig and check the connectivity using command: ping.

```
Administrator: Windows PowerShell
Trace complete.
PS C:\Users\jainamspoke1vm> hostname
Jainam-Spoke1-V
PS C:\Users\jainamspoke1vm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

  Connection-specific DNS Suffix . : eq1xbj53kveplxhvgt02dfec.rx.internal.cloudapp.net
  Link-local IPv6 Address . . . . . : fe80::466e:8578:4950:6a36%5
  IPv4 Address . . . . . : 10.1.0.4
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 10.1.0.1
PS C:\Users\jainamspoke1vm> ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:
Reply from 10.0.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 10.0.0.4:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms
PS C:\Users\jainamspoke1vm> tracert 10.0.0.4

Tracing route to 10.0.0.4 over a maximum of 30 hops

  1     1 ms      1 ms      1 ms  10.0.0.4

Trace complete.
PS C:\Users\jainamspoke1vm>
```

Step-46 Our Connection between Hub to Spoke1 is Successfully Established using Vnet peering.

```
Administrator: Windows PowerShell
PS C:\Users\jainamhubvm> hostname
Jainam-Hub-VM
PS C:\Users\jainamhubvm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

  Connection-specific DNS Suffix . : xutbuemhmote3mdgc2zzgmzlf.frx.internal.cloudapp.net
  Link-local IPv6 Address . . . . . : fe80::e9f9:82d0:b895:8302%9
  IPv4 Address . . . . . : 10.0.0.4
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 10.0.0.1
PS C:\Users\jainamhubvm> ping 10.1.0.4

Pinging 10.1.0.4 with 32 bytes of data:
Reply from 10.1.0.4: bytes=32 time=1ms TTL=128
Reply from 10.1.0.4: bytes=32 time<1ms TTL=128
Reply from 10.1.0.4: bytes=32 time=1ms TTL=128
Reply from 10.1.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 10.1.0.4:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
PS C:\Users\jainamhubvm> tracert 10.1.0.4

Tracing route to 10.1.0.4 over a maximum of 30 hops

  1     1 ms      <1 ms      <1 ms  10.1.0.4

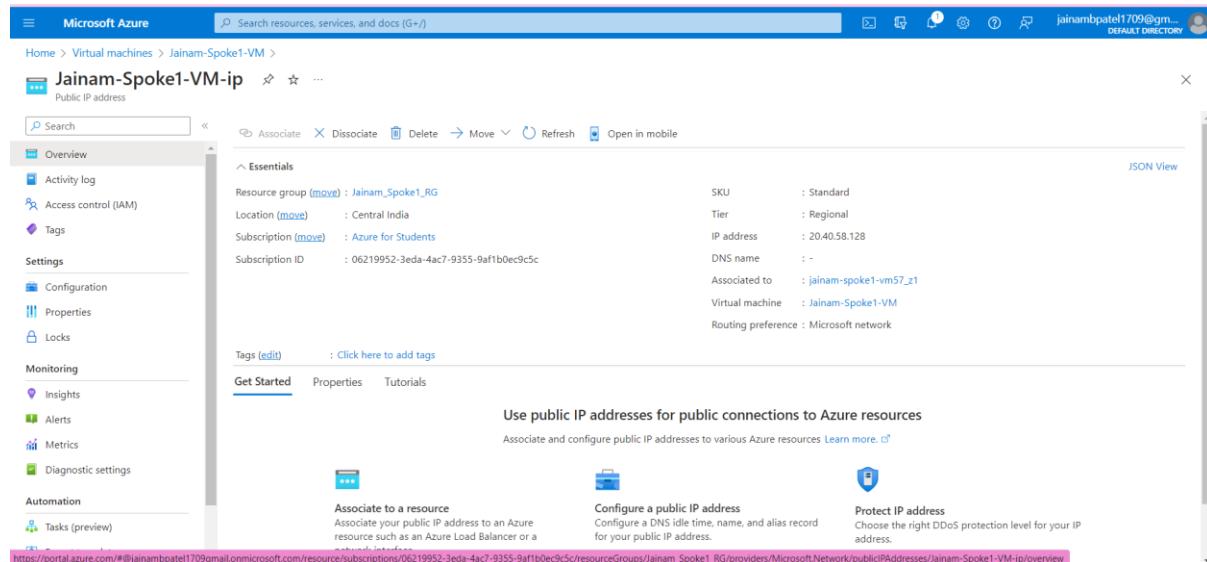
Trace complete.
PS C:\Users\jainamhubvm>
```

Student Id: 20IT096

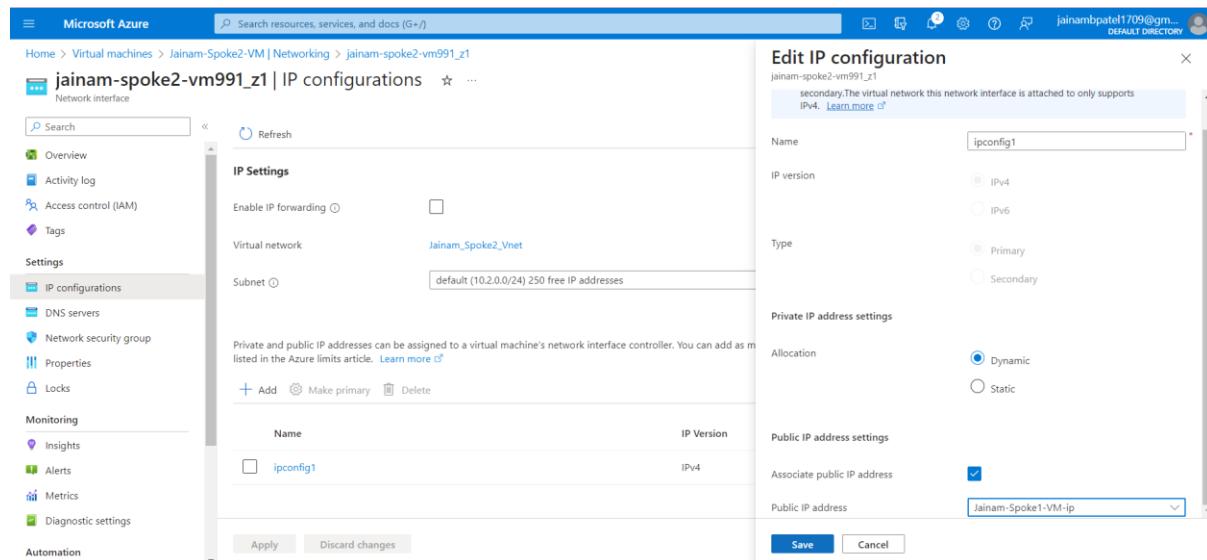
Student Name: Jainam Bijalkumar Patel

Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav

Step-47 Dissociate Jainam-Spoke1-VM-ip and Associate to Jainam-Spoke2-VM using configuration.



The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes 'Microsoft Azure', a search bar, and user information ('jainambpatel1709@gmail.com... DEFAULT DIRECTORY'). Below the navigation is a breadcrumb trail: Home > Virtual machines > Jainam-Spoke1-VM. The main content area is titled 'Jainam-Spoke1-VM-ip' (Public IP address). The 'Associate' tab is selected. The 'Essentials' section displays resource details: Resource group (move) is Jainam_Spoke1_RG, Location (move) is Central India, Subscription (move) is Azure for Students, and Subscription ID is 06219952-3eda-4ac7-9355-9af1b0ec9c5c. It also shows the IP address 20.40.58.128, DNS name (empty), Associated to (empty), Virtual machine (empty), and Routing preference (Microsoft network). A 'Tags (edit)' section allows adding tags. Below this is a 'Get Started' section with links for 'Associate to a resource', 'Configure a public IP address', and 'Protect IP address'. The URL in the browser is https://portal.azure.com/#@jainambpatel1709@gmail.com/microsoft.com/resource/subscriptions/06219952-3eda-4ac7-9355-9af1b0ec9c5c/resourceGroups/Jainam_Spoke1_RG/providers/Microsoft.Network/publicIPAddresses/jainam-Spoke1-VM-ip/overview.



The screenshot shows the Microsoft Azure portal interface. The top navigation bar includes 'Microsoft Azure', a search bar, and user information ('jainambpatel1709@gmail.com... DEFAULT DIRECTORY'). Below the navigation is a breadcrumb trail: Home > Virtual machines > Jainam-Spoke2-VM | Networking > jainam-spoke2-vm991_z1. The main content area is titled 'jainam-spoke2-vm991_z1 | IP configurations' (Network interface). The 'IP Settings' section shows 'Enable IP forwarding' (unchecked), 'Virtual network' set to Jainam_Spoke2_Vnet, and 'Subnet' set to default (10.2.0.0/24) 250 free IP addresses. Below this is a table for managing IP configurations. The table has columns for 'Name' (checkbox), 'IP Version' (radio buttons for IPv4 and IPv6), and 'Allocation' (radio buttons for Dynamic and Static). One row is shown with 'Name' ipconfig1, 'IP Version' IPv4, and 'Allocation' Dynamic. The 'Edit IP configuration' dialog is open on the right, showing settings for 'ipconfig1': Name (ipconfig1), IP version (IPv4), Type (Primary), Allocation (Dynamic), Public IP address settings (Associate public address checked), and Public IP address (Jainam-Spoke1-VM-ip). Buttons for 'Save' and 'Cancel' are at the bottom of the dialog. The URL in the browser is https://portal.azure.com/#@jainambpatel1709@gmail.com/microsoft.com/resource/subscriptions/06219952-3eda-4ac7-9355-9af1b0ec9c5c/resourceGroups/Jainam_Spoke2_RG/providers/Microsoft.Network/networkInterfaces/jainam-spoke2-vm991_z1/ipConfigurations/ipconfig1/edit.

Student Id: 20IT096

Student Name: Jainam Bijalkumar Patel

Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-48 Check the Ip address using command: ipconfig and check the connectivity using command: ping.

```
Administrator: Windows PowerShell
PS C:\Users\jainamhubvm> hostname
Jainam-Hub-VM
PS C:\Users\jainamhubvm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . : xutbuemhmote3mdgc2zzgmzlf.frx.internal.cloudapp.net
Link-local IPv6 Address . . . . . : fe80::e9f9:82d0:b895:8302%9
IPv4 Address. . . . . : 10.0.0.4
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.0.0.1
PS C:\Users\jainamhubvm> ping 10.1.0.4

Pinging 10.1.0.4 with 32 bytes of data:
Reply from 10.1.0.4: bytes=32 time=1ms TTL=128
Reply from 10.1.0.4: bytes=32 time<1ms TTL=128
Reply from 10.1.0.4: bytes=32 time=1ms TTL=128
Reply from 10.1.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 10.1.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
PS C:\Users\jainamhubvm> tracert 10.1.0.4

Tracing route to 10.1.0.4 over a maximum of 30 hops

  1     1 ms      <1 ms      <1 ms  10.1.0.4

Trace complete.
PS C:\Users\jainamhubvm> ping 10.2.0.4

Pinging 10.2.0.4 with 32 bytes of data:
Reply from 10.2.0.4: bytes=32 time<1ms TTL=128
Reply from 10.2.0.4: bytes=32 time<1ms TTL=128
Reply from 10.2.0.4: bytes=32 time=1ms TTL=128
Reply from 10.2.0.4: bytes=32 time=2ms TTL=128

Ping statistics for 10.2.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms
PS C:\Users\jainamhubvm> tracert 10.2.0.4

Tracing route to 10.2.0.4 over a maximum of 30 hops

  1     2 ms      <1 ms      <1 ms  10.2.0.4

Trace complete.
```

Student Id: 20IT096

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Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-49 Our Connection between Hub to Spoke2 is Successfully Established using Vnet peering.

```
Administrator: Windows 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\jainamspoke2vm> hostname
Jainam-Spoke2-V
PS C:\Users\jainamspoke2vm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

  Connection-specific DNS Suffix . : akubcdcu20upise4kw0syjcge.rx.internal.cloudapp.net
  Link-local IPv6 Address . . . . . : fe80::683f:be54:1231:c11f%3
  IPv4 Address . . . . . : 10.2.0.4
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 10.2.0.1
PS C:\Users\jainamspoke2vm> ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:
Reply from 10.0.0.4: bytes=32 time=2ms TTL=128
Reply from 10.0.0.4: bytes=32 time=1ms TTL=128
Reply from 10.0.0.4: bytes=32 time<1ms TTL=128
Reply from 10.0.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 10.0.0.4:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 1ms
PS C:\Users\jainamspoke2vm> tracert 10.0.0.4

Tracing route to 10.0.0.4 over a maximum of 30 hops

  1     1 ms      <1 ms      <1 ms  10.0.0.4

Trace complete.
PS C:\Users\jainamspoke2vm> _
```

Student Id: 20IT096

Student Name: Jainam Bijalkumar Patel

Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav

Create route table and Routes.

Step-50 Create route table for Spoke1 and spoke2.

Home > Route tables >

Create Route table

Basics Tags Review + create

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 for Students
Resource group *	Jainam_Spoke1_RG
Create new	

Instance details

Region *	Central India
Name *	spoke1RT
Propagate gateway routes *	<input checked="" type="radio"/> Yes <input type="radio"/> No

spoke2RT Route table

Search Move Delete Refresh Give feedback

Overview Activity log Access control (IAM) Tags Diagnose and solve problems

Settings Configuration Routes Subnets Properties

Copy to clipboard Resource group (move) Jainam_Spoke2_RG

Associations 0 subnet associations

Location Central India Subscription (move) Azure for Students

Subscription ID 06219952-3eda-4ac7-9355-9af1b0ec9c5c

Tags (edit) Click here to add tags

Routes Search routes

Home > Route tables

Default Directory

+ Create Manage view Refresh Export to CSV Open query Assign tags

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

Showing 1 to 2 of 2 records.

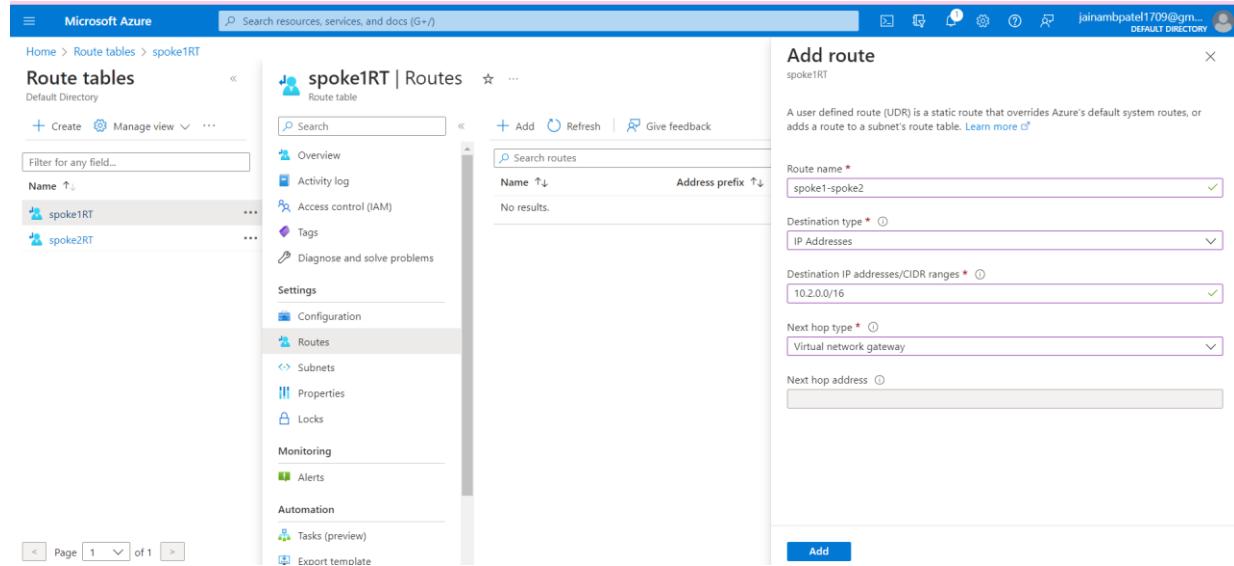
Name	Resource group	Location	Subscription
spoke1RT	Jainam_Spoke1_RG	Central India	Azure for Students
spoke2RT	Jainam_Spoke2_RG	Central India	Azure for Students

Student Id: 20IT096

Student Name: Jainam Bijalkumar Patel

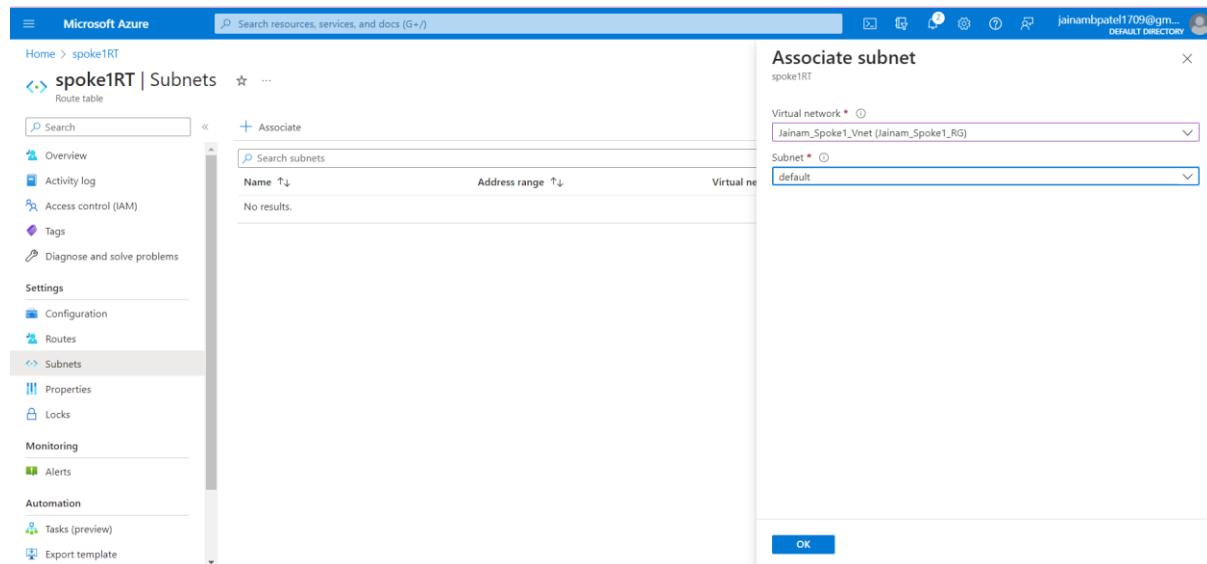
Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav

Step-51 Create user define routes from spoke1-spoke2 and select VNG as a next hop.



The screenshot shows the Microsoft Azure portal with the search bar at the top. The main navigation bar has 'Route tables' selected. On the left, under 'Route tables', there are two entries: 'spoke1RT' and 'spoke2RT'. The 'spoke1RT' entry is expanded, showing options like 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Settings' (with 'Routes' selected), 'Subnets', 'Properties', 'Locks', 'Monitoring', 'Alerts', and 'Automation'. Below the settings menu, there's a link to 'Tasks (preview)' and 'Export template'. At the bottom of the left sidebar, there are page navigation buttons. The main content area is titled 'spoke1RT | Routes' and shows a search bar and a 'Search routes' button. A table with columns 'Name' and 'Address prefix' is displayed, showing 'No results.' A modal window titled 'Add route' is open on the right, with the sub-title 'spoke1RT'. It contains fields for 'Route name' (set to 'spoke1-spoke2'), 'Destination type' (set to 'IP Addresses'), 'Destination IP addresses/CIDR ranges' (set to '10.2.0.0/16'), 'Next hop type' (set to 'Virtual network gateway'), and 'Next hop address' (empty). There is also a note: 'A user defined route (UDR) is a static route that overrides Azure's default system routes, or adds a route to a subnet's route table. Learn more'. A blue 'Add' button is at the bottom of the modal.

Step-52 Associate spoke1 route to the subnet of Jainam_Spoke1_Vnet



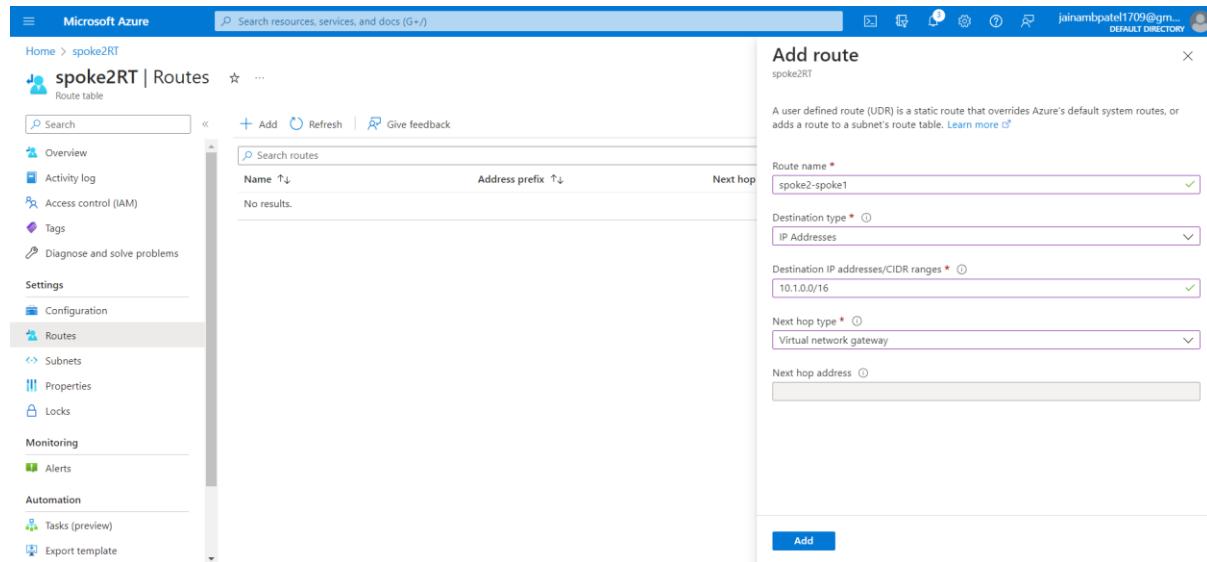
The screenshot shows the Microsoft Azure portal with the search bar at the top. The main navigation bar has 'spoke1RT' selected. On the left, under 'spoke1RT | Subnets', there are options like 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Settings' (with 'Subnets' selected), 'Properties', 'Locks', 'Monitoring', 'Alerts', and 'Automation'. Below the settings menu, there's a link to 'Tasks (preview)' and 'Export template'. The main content area is titled 'spoke1RT | Subnets' and shows a search bar and a 'Associate' button. A table with columns 'Name' and 'Address range' is displayed, showing 'No results.'. A modal window titled 'Associate subnet' is open on the right, with the sub-title 'spoke1RT'. It contains fields for 'Virtual network' (set to 'Jainam_Spoke1_Vnet (Jainam_Spoke1_RG)') and 'Subnet' (set to 'default'). A blue 'OK' button is at the bottom of the modal.

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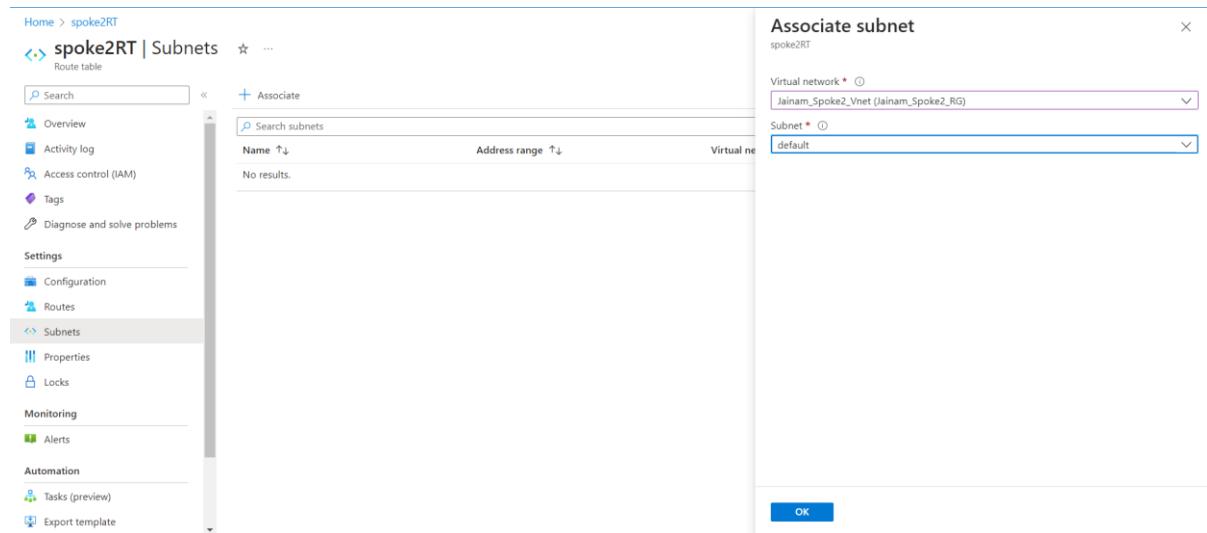
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Counsellor: Nita Jadav

Step-53 Create user define routes from spoke2-spoke1 and select VNG as a net hop.



The screenshot shows the Azure portal interface for managing routes. On the left, the navigation menu is open, showing options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings (Configuration, Routes, Subnets, Properties, Locks), Monitoring, Alerts, Automation, Tasks (preview), and Export template. The 'Routes' option under 'Configuration' is selected. On the right, a modal window titled 'Add route' is open, showing the configuration for a new route. The 'Route name' field contains 'spoke2-spoke1'. The 'Destination type' is set to 'IP Addresses'. The 'Destination IP addresses/CIDR ranges' field contains '10.1.0.0/16'. The 'Next hop type' is set to 'Virtual network gateway'. A 'Next hop address' field is present but empty. At the bottom of the modal is a blue 'Add' button.

Step-54 Associate spoke1 route to the subnet of Jainam_Spoke1_Vnet



The screenshot shows the Azure portal interface for managing subnets. On the left, the navigation menu is open, showing Options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings (Configuration, Routes, Subnets, Properties, Locks), Monitoring, Alerts, Automation, Tasks (preview), and Export template. The 'Subnets' option under 'Configuration' is selected. On the right, a modal window titled 'Associate subnet' is open, showing the configuration for associating a route with a subnet. The 'Virtual network' dropdown is set to 'Jainam_Spoke2_Vnet (Jainam_Spoke2_RG)'. The 'Subnet' dropdown is set to 'default'. At the bottom of the modal is a blue 'OK' button.

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Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-55 Enable IP forwarding in Hub VM.

The screenshot shows the Microsoft Azure portal interface for managing network interfaces. The top navigation bar includes the Microsoft Azure logo, a search bar, and user information. The main title is "jainam-hub-vm506_z1 | IP configurations". On the left, a sidebar lists "Overview", "Activity log", "Access control (IAM)", "Tags", "Settings" (selected), "IP configurations" (highlighted), "DNS servers", "Network security group", "Properties", "Locks", "Monitoring" (selected), "Insights", "Alerts", "Metrics", and "Diagnostic settings". The "Automation" section is also visible at the bottom. The main content area displays "IP Settings" for the selected virtual machine. It shows "Enable IP forwarding" checked, "Virtual network" set to "Jainam_Hub_Vnet", and "Subnet" set to "default (10.0.0.0/24) 250 free IP addresses". A note states: "Private and public IP addresses can be assigned to a virtual machine's network interface controller. You can add as many private and public IPv4 addresses as necessary to a network interface, within the limits listed in the Azure limits article." Below this, there are buttons for "+ Add", "Make primary", and "Delete". A table lists the IP configuration details: Name (ipconfig1), IP Version (IPv4), Type (Primary), Private IP Address (10.0.0.4 (Dynamic)), and Public IP Address (-). At the bottom are "Apply" and "Discard changes" buttons.

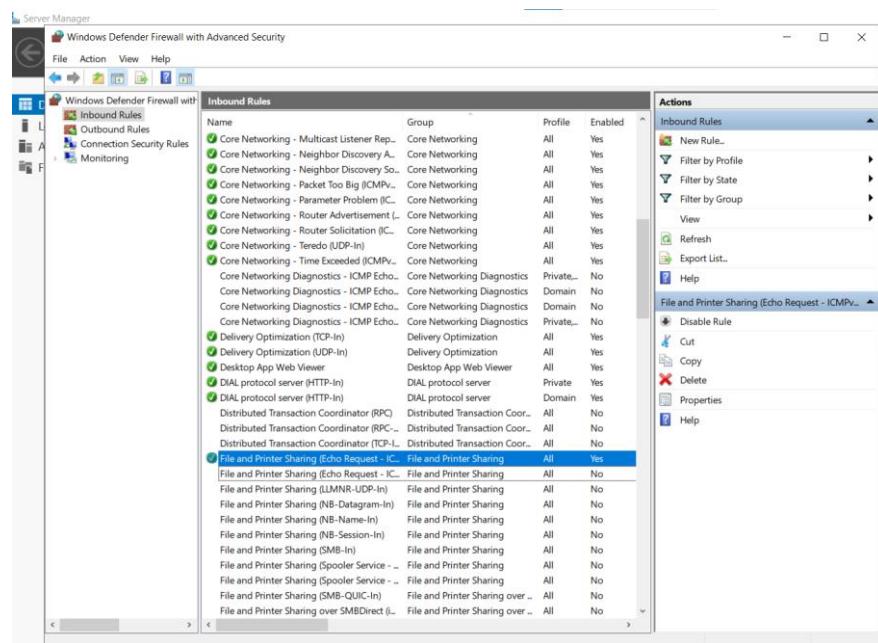
Step-56 Enable the ICMP. (Inbound rule) In both the spoke VM.

Inbound Rules					Actions	
Name	Group	Profile	Enabled	Inbound Rules		
Core Networking - Router Solicitation (ICMP-In)	Core Networking	All	Yes	 New Rule...		
Core Networking - Teredo (UDP-In)	Core Networking	All	Yes	 Filter by Profile		
Core Networking - Time Exceeded (ICMPv6-In)	Core Networking	All	Yes	 Filter by State		
Core Networking Diagnostics - ICMP Echo Request (ICMPv6-In)	Core Networking Diagnostics	Domain	No	 Filter by Group		
Core Networking Diagnostics - ICMP Echo Response (ICMPv6-In)	Core Networking Diagnostics	Private, Domain	No	 View		
Core Networking Diagnostics - ICMP Echo Request (ICMPv6-In)	Core Networking Diagnostics	Private, Domain	No	 Refresh		
Core Networking Diagnostics - ICMP Echo Response (ICMPv6-In)	Core Networking Diagnostics	Domain	No	 Export List...		
Delivery Optimization (TCP-In)	Delivery Optimization	All	Yes	 Help		
Delivery Optimization (UDP-In)	Delivery Optimization	All	Yes	File and Printer Sharing (Echo Request - ICMPv4-In)		
Desktop App Web Viewer	Desktop App Web Viewer	All	Yes	 Disable Rule		
DIAL protocol server (HTTP-In)	DIAL protocol server	Domain	Yes	 Cut		
DIAL protocol server (HTTP-In)	DIAL protocol server	Private	Yes	 Copy		
Distributed Transaction Coordinator (RPC-In)	Distributed Transaction Coordinator	All	No	 Delete		
Distributed Transaction Coordinator (RPC-In)	Distributed Transaction Coordinator	All	No	 Properties		
Distributed Transaction Coordinator (TCP-In)	Distributed Transaction Coordinator	All	No	 Help		
File and Printer Sharing (Echo Request - ICMPv4-In)	Printer Sharing	All	Yes			
File and Printer Sharing (Echo Request - ICMPv6-In)	File and Printer Sharing	All	No			
File and Printer Sharing (LLMNR-UDP-In)	File and Printer Sharing	All	No			
File and Printer Sharing (NB-Datagram-In)	File and Printer Sharing	All	No			
File and Printer Sharing (NB-Name-In)	File and Printer Sharing	All	No			
File and Printer Sharing (NB-Session-In)	File and Printer Sharing	All	No			
File and Printer Sharing (SMB-In)	File and Printer Sharing	All	No			
File and Printer Sharing (Spooler Service - In)	File and Printer Sharing	All	No			
File and Printer Sharing (Spooler Service - In)	File and Printer Sharing	All	No			
File and Printer Sharing (SMB-QUIC-In)	File and Printer Sharing over SMB3	All	No			
File and Printer Sharing over SMBDirect (In)	File and Printer Sharing over SMB3	All	No			
iSCSI Service (TCP-In)	iSCSI Service	All	No			
Key Management Service (TCP-In)	Key Management Service	All	No			
mDNS (UDP-In)	mDNS	Domain	Yes			
mDNS (UDP-In)	mDNS	Public	Yes			
mDNS (UDP-In)	mDNS	Private	Yes			
Microsoft Edge (mDNS-In)	Microsoft Edge	All	Yes			

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Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav



Step-57 Check the Ip address using command: ipconfig and check the connectivity using command: ping.

```

Administrator: Windows 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\jainamspoke1vm> hostname
Jainam-Spoke1-V
PS C:\Users\jainamspoke1vm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . : eq1zxbj53kveplxhvgt02dfec.rx.internal.cloudapp.net
Link-local IPv6 Address . . . . . : fe80::466e:8578:4950:6a36%6
IPv4 Address . . . . . : 10.1.0.4
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.1.0.1
PS C:\Users\jainamspoke1vm> ping 10.2.0.4

Pinging 10.2.0.4 with 32 bytes of data:
Reply from 10.2.0.4: bytes=32 time=2ms TTL=127

Ping statistics for 10.2.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 2ms, Average = 2ms
PS C:\Users\jainamspoke1vm> tracert 10.2.0.4

Tracing route to 10.2.0.4 over a maximum of 30 hops

  1     1 ms      *       1 ms  10.0.1.4
  2     2 ms      1 ms      1 ms  10.2.0.4

Trace complete.
PS C:\Users\jainamspoke1vm>

```

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Project Title: Cloud Infrastructure and Security Domain

Counsellor: Nita Jadav

Step-58 Our Connection between Spoke1 to Spoke2 is Successfully Established using Vnet peering and user define routes.

```
[x] Administrator: Windows PowerShell
Windows IP Configuration

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . : akubcddcu20upise4kw0syjcge.rx.internal.cloudapp.net
Link-local IPv6 Address . . . . . : fe80::683f:be54:1231:c11f%6
IPv4 Address . . . . . : 10.2.0.4
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.2.0.1
PS C:\Users\jainamspoke2vm> ping 10.1.0.4

Pinging 10.1.0.4 with 32 bytes of data:
Reply from 10.1.0.4: bytes=32 time=23ms TTL=127
Reply from 10.1.0.4: bytes=32 time=2ms TTL=127
Reply from 10.1.0.4: bytes=32 time=11ms TTL=127
Reply from 10.1.0.4: bytes=32 time=2ms TTL=127

Ping statistics for 10.1.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 23ms, Average = 9ms
PS C:\Users\jainamspoke2vm> tracert 10.1.0.4

Tracing route to 10.1.0.4 over a maximum of 30 hops

  1     1 ms      *      <1 ms  10.0.1.4
  2     3 ms      1 ms      1 ms  10.1.0.4

Trace complete.
PS C:\Users\jainamspoke2vm> tracert 10.1.0.4

Tracing route to 10.1.0.4 over a maximum of 30 hops

  1     <1 ms      *      1 ms  10.0.1.4
  2     2 ms      1 ms      1 ms  10.1.0.4

Trace complete.
```

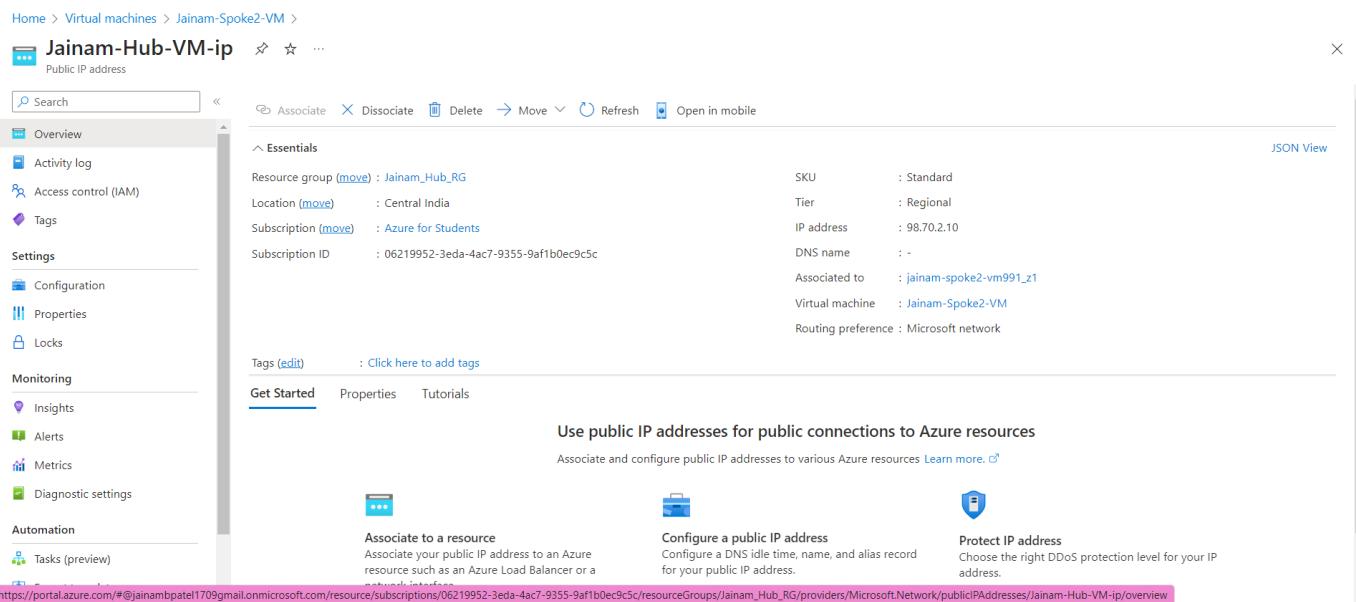
Student Id: 20IT096

Student Name: Jainam Bijalkumar Patel

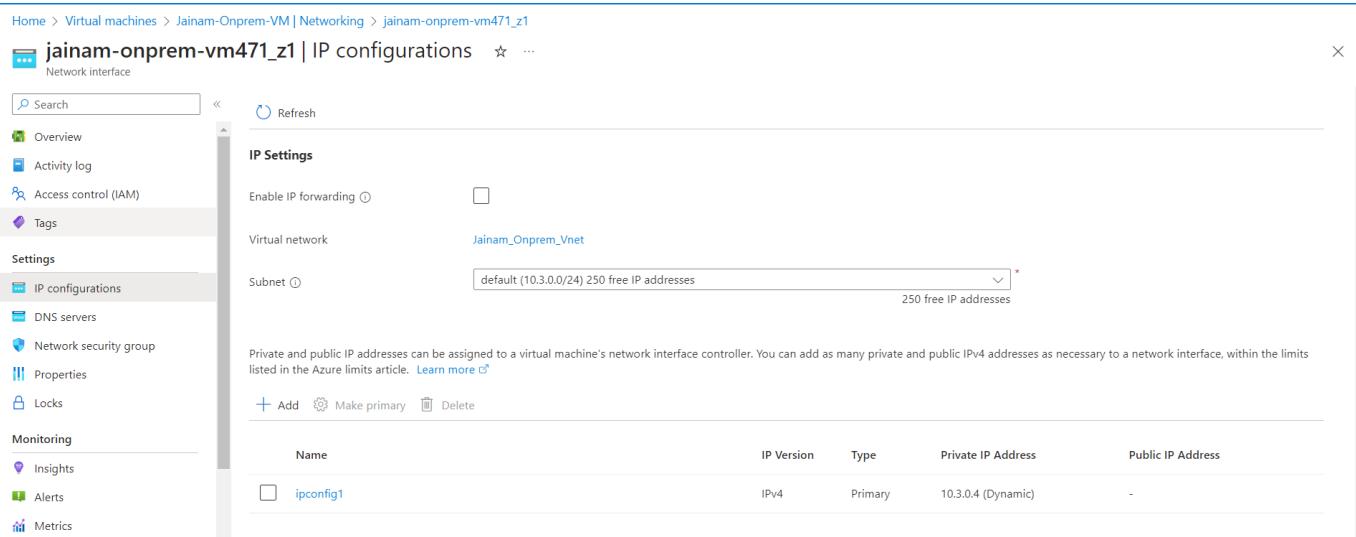
Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav

Connection between Onprem to spoke1

Step-59 Dissociate Jainam-Hub -VM-ip and Associate to Jainam-Onprem -VM using IP configuration.



The screenshot shows the Azure portal interface for managing a virtual machine named 'Jainam-Hub-VM-ip'. The main content area displays the VM's configuration, including its location (Central India), subscription (Azure for Students), and public IP address (98.70.2.10). A sidebar on the left provides navigation links for Overview, Activity log, Access control (IAM), Tags, Settings, Configuration, Properties, Locks, Monitoring, Insights, Alerts, Metrics, and Diagnostic settings. At the top, there are buttons for Associate, Dissociate, Delete, Move, Refresh, and Open in mobile. A 'Get Started' section offers links to associate public IP addresses, configure a public IP address, and protect IP address. The URL in the browser bar is https://portal.azure.com/#@jainambpatel1709@gmail.onmicrosoft.com/resource/subscriptions/06219952-3eda-4ac7-9355-9af1b0ec9c5c/resourceGroups/Jainam_Hub_RG/providers/Microsoft.Network/publicIPAddresses/Jainam-Hub-VM-ip/overview.



The screenshot shows the Azure portal interface for managing the 'jainam-onprem-vm471_z1' virtual machine's network interface. The 'IP Settings' section is displayed, showing the virtual network (Jainam_Onprem_Vnet) and subnet (default (10.3.0.0/24)). Below this, a table lists the IP configurations, with one entry named 'ipconfig1' shown. The table columns include Name, IP Version, Type, Private IP Address, and Public IP Address. The URL in the browser bar is https://portal.azure.com/#@jainambpatel1709@gmail.onmicrosoft.com/resource/subscriptions/06219952-3eda-4ac7-9355-9af1b0ec9c5c/resourceGroups/Jainam_Hub_RG/providers/Microsoft.Compute/virtualMachines/jainam-onprem-vm471_z1/networkInterfaces/jainam-onprem-vm471_z1/ipConfigurations/1/overview.

Student Id: 20IT096
 Student Name: Jainam Bijalkumar Patel

Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav

Microsoft Azure

Home > Virtual machines > Jainam-Onprem-VM | Networking > jainam-onprem-vm471_z1

jainam-onprem-vm471_z1 | IP configurations

Network interface

IP Settings

Enable IP forwarding:

Virtual network: Jainam_Onprem_Vnet

Subnet: default (10.3.0.0/24) 250 free IP addresses

Private and public IP addresses can be assigned to a virtual machine's network interface controller. You can add as many as listed in the Azure limits article. [Learn more](#)

Add Make primary Delete

Name	IP Version
ipconfig1	IPv4

Apply Discard changes

Edit IP configuration

jainam-onprem-vm471_z1

secondary. The virtual network this network interface is attached to only supports IPv4. [Learn more](#)

Name: ipconfig1

IP version: IPv4

Type: Primary

Allocation: (New) default-publicIpAddress

Public IP address settings:

- Jainam-Hub-VM-ip
- Jainam_VNGPIP
- Jainam-Onprem-VM-ip
- Jainam-Spoke1-VM-ip
- (New) default-publicIpAddress

Save Cancel

Microsoft Azure

Home > Virtual machines >

Virtual machines

Jainam-Onprem-VM

Virtual machine

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Networking

Connect

Windows Admin Center

Disks

Size

Microsoft Defender for Cloud

Advisor recommendations

Extensions + applications

Availability + scaling

Configuration

Identity

Page 1 of 1

Search

Connect Start Restart Stop Capture Delete Refresh Open in mobile Feedback CLI / PS

Adviser (1 of 1): Machines should have a vulnerability assessment solution →

Essentials

Resource group: (move) [Copy to clipboard](#)

Status: Running

Location: East US (Zone 1)

Subscription: (move) [Azure for Students](#)

Subscription ID: 06219952-3eda-4ac7-9355-9af1b0ec9c5c

Availability zone: 1

Tags (edit) [Click here to add tags](#)

Properties Monitoring Capabilities (8) Recommendations (1) Tutorials

Virtual machine

Computer name: Jainam-Onprem-V

Networking

Public IP address: 40.76.247.18 (Network: Jainam_...)

Project Title: Cloud Infrastructure and Security Domain
Counsellor: Nita Jadav

Step-60 Create route table for Onprem.

Home > Route tables >

Create Route table ...

Basics Tags Review + create

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 for Students
Resource group *	Jainam_Onprem_RG
Create new	

Instance details

Region *	East US
Name *	onpremRT
Propagate gateway routes *	<input checked="" type="radio"/> Yes <input type="radio"/> No

Step-61 Create user define routes from Onprem-spoke1 and select VNG as a next hop.

Add route ×

onpremRT

A user defined route (UDR) is a static route that overrides Azure's default system routes, or adds a route to a subnet's route table. [Learn more](#)

Route name *

Onprem-spoke1 ✓

Destination type * i

IP Addresses ▼

Destination IP addresses/CIDR ranges * i

10.1.0.0/16 ✓

Next hop type * i

Virtual network gateway ▼

Next hop address i

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Step-62 Associate Onprem route to the subnet of Jainam_Onprem_Vnet

The screenshot shows two windows side-by-side. On the left is the 'onpremRT | Subnets' blade under the 'Routes' section. It has a search bar and a table with columns 'Name', 'Address range', and 'Virtual network'. A message says 'No results.' On the right is the 'Associate subnet' dialog for the 'onpremRT' route table. It has fields for 'Virtual network' (set to 'Jainam_Onprem_Vnet (Jainam_Onprem_RG)'), 'Subnet' (set to 'default'), and a 'Filter subnets' dropdown. A note at the bottom says 'Can be associated to route table'.

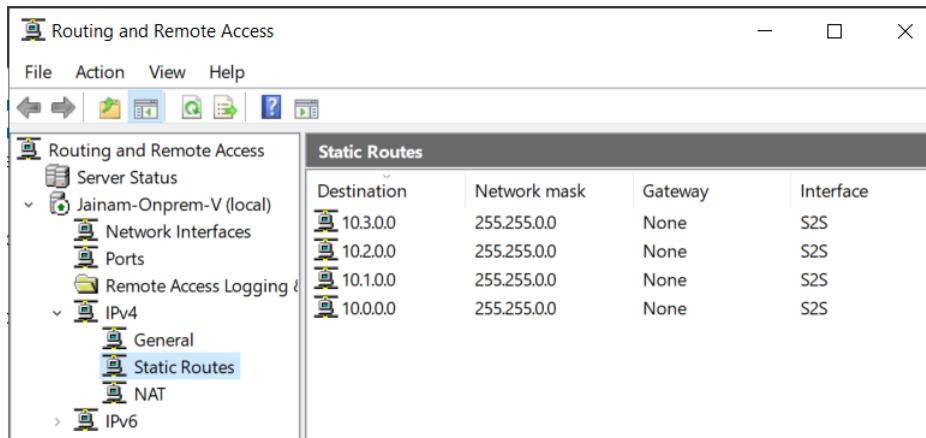
Step-63 Create user define routes from spoke1-Onprem and select VNG as a next hop.

The screenshot shows two windows. On the left is the 'spoke1RT | Routes' blade under the 'Routes' section. It lists a single route 'spoke1-spoke2' with address prefix '10.2.0.0/16'. On the right is the 'Add route' dialog for the 'spoke1RT' route table. It has fields for 'Route name' (set to 'spoke1-onprem'), 'Destination type' (set to 'IP Addresses'), 'Destination IP addresses/CIDR ranges' (set to '10.3.0.0/16'), 'Next hop type' (set to 'Virtual network gateway'), and a 'Next hop address' field which is empty. A note at the top says 'A user defined route (UDR) is a static route that overrides Azure's default system routes, or adds a route to a subnet's route table. Learn more'.

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Step-64 Create Static routes in Routing and remote access by adding address space of all virtual network.



Step-65 Check the Ip address using command: ipconfig and check the connectivity using command: ping. Our Connection between Onprem to Spoke1 is Successfully Established using gateway transit peering.

```

Administrator: Windows PowerShell
PS C:\Users\jainamonpremvm> hostname
Jainam-Onprem-V
PS C:\Users\jainamonpremvm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

  Connection-specific DNS Suffix . : 3jkh33cpffietdavmaecevdwdc.bx.internal.cloudapp.net
  Link-local IPv6 Address . . . . . : fe80::52d6:7d8d:23df:c0d7%5
    IPv4 Address . . . . . : 10.3.0.4
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.3.0.1

PPP adapter S2S:

  Connection-specific DNS Suffix . :
  Autoconfiguration IPv4 Address. . . : 169.254.0.29
  Subnet Mask . . . . . : 255.255.0.0
  Default Gateway . . . . . :

PS C:\Users\jainamonpremvm> ping 10.1.0.4

Pinging 10.1.0.4 with 32 bytes of data:
Reply from 10.1.0.4: bytes=32 time=238ms TTL=127
Reply from 10.1.0.4: bytes=32 time=237ms TTL=127
Reply from 10.1.0.4: bytes=32 time=237ms TTL=127
Reply from 10.1.0.4: bytes=32 time=237ms TTL=127

Ping statistics for 10.1.0.4:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 237ms, Maximum = 238ms, Average = 237ms
PS C:\Users\jainamonpremvm> tracert 10.1.0.4

Tracing route to 10.1.0.4 over a maximum of 30 hops
  1  <1 ms    <1 ms    <1 ms  Jainam-Onprem-V.3jkh33cpffietdavmaecevdwdc.bx.internal.cloudapp.net [10.3.0.4]
  2  234 ms   234 ms   234 ms  10.1.0.4

Trace complete.
PS C:\Users\jainamonpremvm>

```

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Step-66 Our Connection between Spoke1 to Onprem is Successfully Established using gateway transit peering.

```
Administrator: Windows PowerShell
PS C:\Users\jainamspoke1vm> hostname
Jainam-Spoke1-V
PS C:\Users\jainamspoke1vm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

  Connection-specific DNS Suffix  . : eq1zxbj53kveplxhvgt02dfec.rx.internal.cloudapp.net
  Link-local IPv6 Address . . . . . : fe80::466e:8578:4950:6a36%5
  IPv4 Address . . . . . : 10.1.0.4
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 10.1.0.1
PS C:\Users\jainamspoke1vm> ping 10.3.0.4

Pinging 10.3.0.4 with 32 bytes of data:
Reply from 10.3.0.4: bytes=32 time=234ms TTL=127
Reply from 10.3.0.4: bytes=32 time=236ms TTL=127
Reply from 10.3.0.4: bytes=32 time=234ms TTL=127
Reply from 10.3.0.4: bytes=32 time=234ms TTL=127

Ping statistics for 10.3.0.4:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 234ms, Maximum = 236ms, Average = 234ms
PS C:\Users\jainamspoke1vm> tracert 10.3.0.4

Tracing route to 10.3.0.4 over a maximum of 30 hops

  1  234 ms    234 ms    234 ms  169.254.0.29
  2  234 ms    235 ms    234 ms  10.3.0.4

Trace complete.
PS C:\Users\jainamspoke1vm>
```

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Step-67 Our Connection between Onprem to Spoke2 is Successfully Established using gateway transit peering.

```
Trace complete.  
PS C:\Users\jainamonpremvm> ping 10.2.0.4  
  
Pinging 10.2.0.4 with 32 bytes of data:  
Reply from 10.2.0.4: bytes=32 time=477ms TTL=127  
Reply from 10.2.0.4: bytes=32 time=236ms TTL=127  
Reply from 10.2.0.4: bytes=32 time=237ms TTL=127  
Reply from 10.2.0.4: bytes=32 time=236ms TTL=127  
  
Ping statistics for 10.2.0.4:  
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 236ms, Maximum = 477ms, Average = 296ms  
PS C:\Users\jainamonpremvm> tracert 10.2.0.4  
  
Tracing route to 10.2.0.4 over a maximum of 30 hops  
  
 1    <1 ms      <1 ms      <1 ms  Jainam-Onprem-V.3jkh33cpffietdavmaecevdwdc.bx.internal.cloudapp.net [10.3.0.4]  
 2    236 ms     236 ms     236 ms  10.2.0.4  
  
Trace complete.  
PS C:\Users\jainamonpremvm> ■
```

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Step-68 Our Connection between Spoke2 to Onprem is Successfully Established using gateway transit peering.

```
Administrator: Windows PowerShell
1      1 ms    <1 ms    <1 ms  10.0.0.4

Trace complete.
PS C:\Users\jainamspoke2vm> hostname
Jainam-Spoke2-V
PS C:\Users\jainamspoke2vm> ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

  Connection-specific DNS Suffix . : akubcddcu20upise4kw0syjcge.rx.internal.cloudapp.net
  Link-local IPv6 Address . . . . . : fe80::683f:be54:1231:c11f%3
  IPv4 Address. . . . . : 10.2.0.4
  Subnet Mask . . . . . : 255.255.255.0
  Default Gateway . . . . . : 10.2.0.1
PS C:\Users\jainamspoke2vm> ping 10.3.0.4

Pinging 10.3.0.4 with 32 bytes of data:
Reply from 10.3.0.4: bytes=32 time=244ms TTL=127
Request timed out.
Request timed out.
Reply from 10.3.0.4: bytes=32 time=236ms TTL=127

Ping statistics for 10.3.0.4:
  Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 236ms, Maximum = 244ms, Average = 240ms
PS C:\Users\jainamspoke2vm> ping 10.3.0.4

Pinging 10.3.0.4 with 32 bytes of data:
Reply from 10.3.0.4: bytes=32 time=236ms TTL=127
Reply from 10.3.0.4: bytes=32 time=236ms TTL=127
Reply from 10.3.0.4: bytes=32 time=237ms TTL=127
Reply from 10.3.0.4: bytes=32 time=236ms TTL=127

Ping statistics for 10.3.0.4:
  Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
  Approximate round trip times in milli-seconds:
    Minimum = 236ms, Maximum = 237ms, Average = 236ms
PS C:\Users\jainamspoke2vm> tracert 0.3.0.4

Tracing route to 0.3.0.4 over a maximum of 30 hops

  1  Transmit error: code 1231.

Trace complete.
PS C:\Users\jainamspoke2vm>
```

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