SITE-SITE NETWORKING

SITE TO SITE VPN IN AZURE

GATEWAY

VPN Tunnel

VIRTUAL NETWORK GATEWAY

PUBLIC IP

LOCAL NETWORK GATEWAY
On Premises Public IP

On Premises Ip Range

CONNECTIONS

Azure-Subscription

→ VNET

AD

Routing

Client

On - Premises Data Center

On Premises Subnet- 172.16.10.0/24
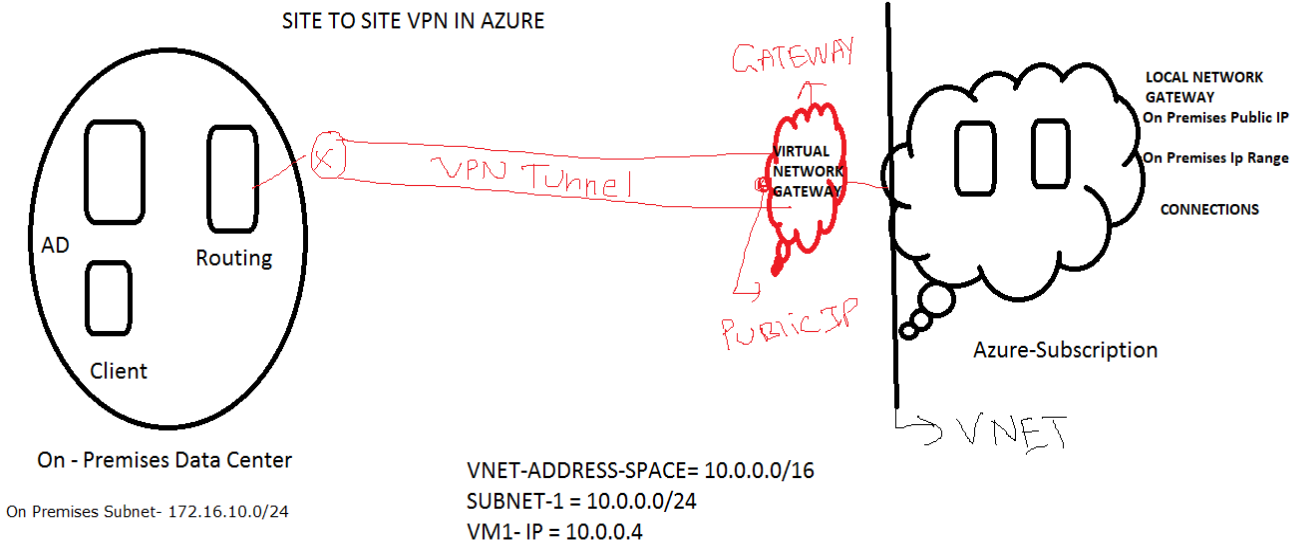
VNET-ADDRESS-SPACE= 10.0.0.0/16
SUBNET-1 = 10.0.0.0/24
VM1- IP = 10.0.0.4

A Site-to-Site VPN gateway connection is used to connect your on-premises network to an Azure virtual network over an **IPsec/IKE (IKEv1 or IKEv2) VPN tunnel**. This type of connection requires a VPN device located on-premises that has an externally facing public IP address assigned to it.

Requirements and Configuration:

1. RESOURCE GROUP1 > Region-East-Us
VIRTUAL NETWORK1 > 10.0.0.0/16 > subnet ip=10.0.0.0/24 > Gateway subnet=10.0.1.0/24
VIRTUAL NETWORK GATEWAY1 =public ip1(123.134.0.0)
LOCAL NETWORK GATEWAY1 > remote machine ip ie vm2 ip(check in step 2)
LOCAL NETWORK GATEWAY CONNECTIONS1
VIRTUAL MACHINE1 > only private IP. Disable Public IP.

2. RESOURCE GROUP2 > Region=West-Us
VIRTUAL NETWORK2 > 192.168.0.0/16 > subnet ip=192.168.0.0/24
VIRTUAL MACHINE2
> add roles--- Server roles >Remote Access
> Role services->direct acces & VPN,Routing > Install
> Routing & remote acces
Needed to Config VPN:
1. **Shared key**. This is the same shared key that you specify when creating your Site-to-Site VPN connection.
2. The **Public IP address of your virtual network gateway1** of Azure
3. **VPN device configuration scripts**
 **** Ping **VIRTUAL MACHINE**1 using private IP from **VIRTUAL MACHINE2.** If you get reply then site-site connection is success.

Site to Site Connectivity in Azure Portal:

- **Login into the Azure Portal.**
- **Create Resource Group with name 'S2SRG', with location 'East US'**

- **Create a virtual Network with name 'S2SVnet' for Resource group 'S2SRG', with Address space '10.0.0.0/16'.**
- **Create a subnet for virtual network 'S2SVnet' with name 'subnet1' with address range '10.0.1.0/24'**
- **Create a Gateway subnet for virtual network 'S2SVnet' with address range '10.0.0.0/24'**

- ➢ **Create a Virtual Network Gateway with name 'S2SVPNGW' for resource group 'S2SRG', for virtual network 'S2SVnet'.**

- **Create another Resource Group with name 'RG' with location 'East US2'**

- **Create another virtual network with name 'vnet' for resource group 'RG', with address space '10.1.0.0/16' and add subnet with address range '10.1.1.0/24'**

Virtual networks 📌
Default Directory

+ Add   ⚙ Manage view ∨   ↻ Refresh   ↓ Export to CSV   🏷 Assign tags   ♡ Feedback

| Filter by name... | Subscription == **all** | Resource group == **all** ⊗ | Location == **all** ⊗ | ⊹ Add filter |

Showing 1 to 2 of 2 records.   No gr

☐ Name ↑↓	Resource group ↑↓	Location ↑↓	Subscription ↑↓
☐ ‹·› S2SVnet	S2SRG	East US	Free Trial
☐ ‹·› vnet	RG	East US 2	Free Trial

- **Create virtual machine with name 'VM' for resource group 'RG', with image 'windows 2019 DataCenter' and provide user name and password for VM.**

Virtual machines 📌   Documentation ☐ ✕
Default Directory

+ Add   ⊕ Reservations   ☰ Edit columns   ↻ Refresh | 🏷 Assign tags   ▷ Start   ⟳ Restart   ☐ Stop   🗑 Delete   ☰ Services

Subscriptions: Free Trial

| Filter by name... | All resource groups ∨ | All types ∨ | All locations ∨ | All tags ∨ | No grouping ∨ |

1 items

☐ Name ↑↓	Type ↑↓	Status	Resource group ↑↓	Location ↑↓	Source	Maintenance status	Subscription ↑↓	
☐ 🖥 VM	Virtual machine	Running	RG	East US 2	Marketplace	-	Free Trial	⋯

- **Click on the virtual machine 'VM' and copy the public IP Address**

🖥 **VM** 📌
Virtual machine

| 🔍 Search (Ctrl+/) | « | 🔗 Connect   ▷ Start   ⟳ Restart   ☐ Stop   📷 Capture   🗑 Delete   ↻ Refresh |

🖥 Overview	Resource group (change) : RG
📋 Activity log	Status : Running
🔑 Access control (IAM)	Location : East US 2
🏷 Tags	Subscription (change) : Free Trial
🔧 Diagnose and solve problems	Subscription ID : 1f09e00a-6ff3-4b70-9885-d517584d7873
Settings	Computer name : (not available)
📶 Networking	Operating system : Windows
🔗 Connect	Size : Standard B2ms (2 vcpus, 8 GiB memory)
	Tags (change) : Click here to add tags

|	
Azure Spot	: N/A
Public IP address	: 40.79.69.117
Private IP address	: 10.1.1.4
Public IP address (IPv6)	: -
Private IP address (IPv6)	: -
Virtual network/subnet	: vnet/subnet2
DNS name	: Configure

- **Click Windows+R and enter the following command in Run Prompt (mstsc –v 40.79.69.117) and click on Ok button.**

⊞ **Run**   ✕

🖥 Type the name of a program, folder, document, or Internet
    resource, and Windows will open it for you.

Open: | mstsc –v 40.79.69.117 ▼ |

        [OK]   [Cancel]   [Browse...]
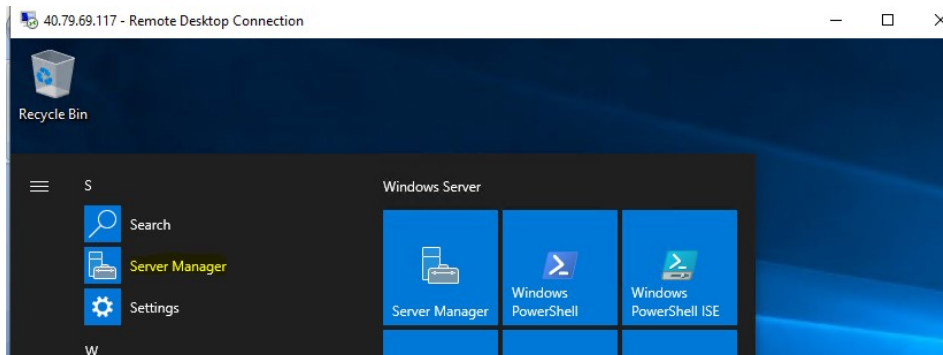
Page: 2 of 2   Words: 104   English (United States)
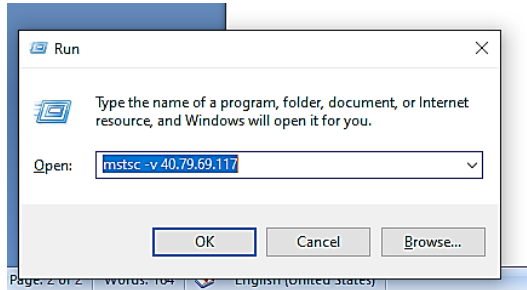
- **A windows security popup will display and enter the user name and password which we given at the time of virtual machine(VM) creation and click on OK button.**
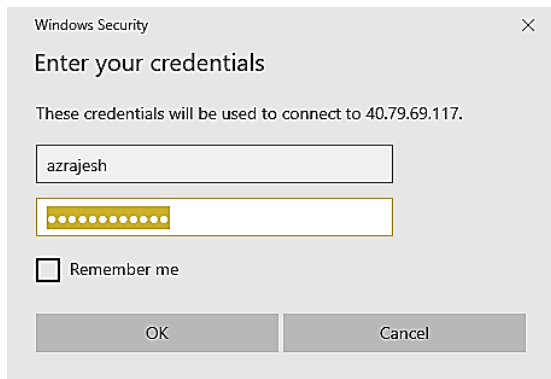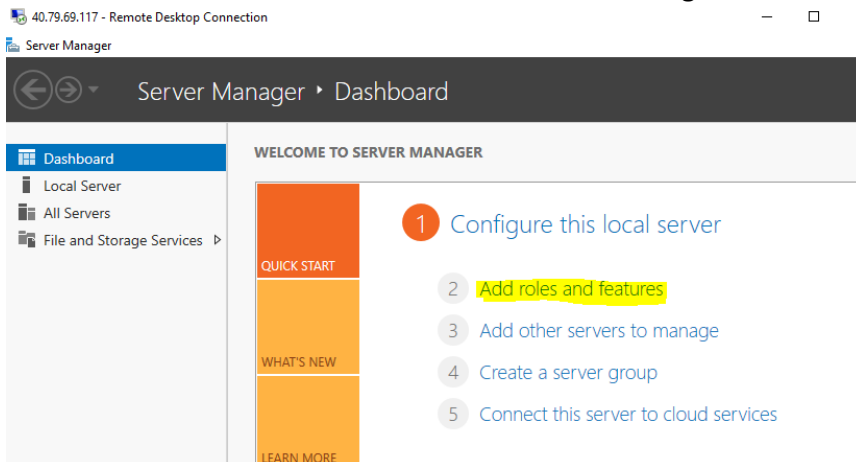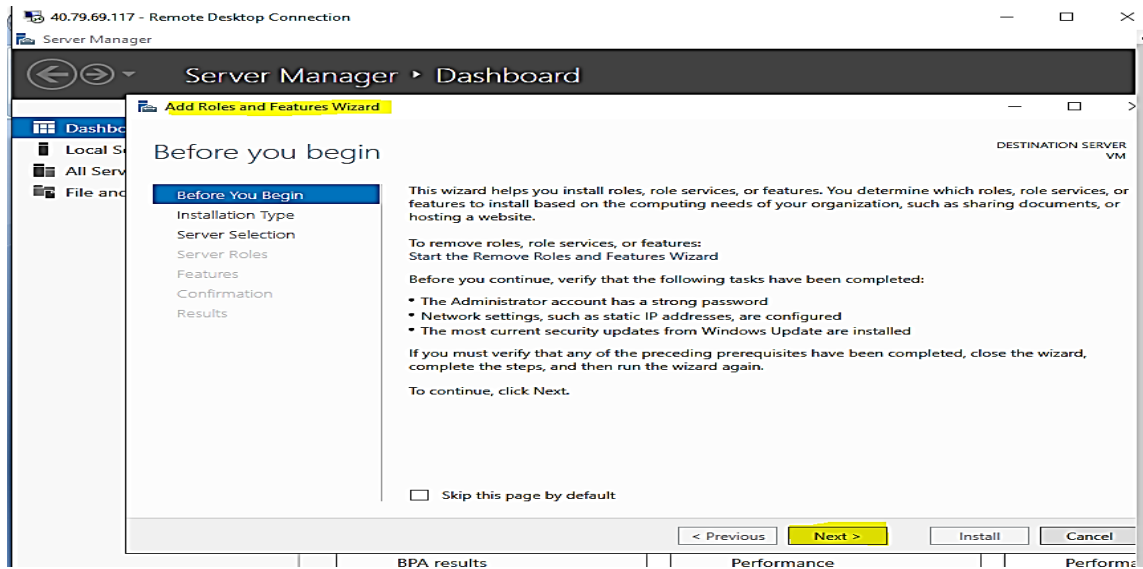
A remote machine (40.79.69.117) will open
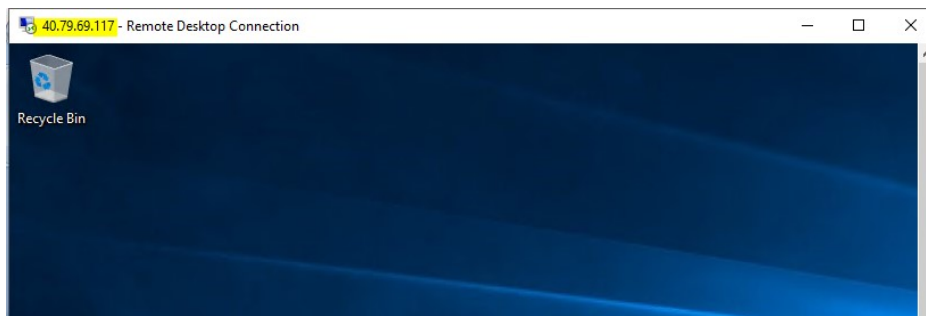
- Click on start windows in remote machine and click on server manager.

- **Click on 'Add roles and features' in Server Manager Dashboard.**

WELCOME TO SERVER MANAGER

1 Configure this local server

QUICK START

2 Add roles and features
3 Add other servers to manage
WHAT'S NEW
4 Create a server group
5 Connect this server to cloud services
LEARN MORE

- **Add Roles and features wizard will open and click on Next up to 'Server Roles'**

- **In Server Roles, select Remote Access and click on Next up to Role Services.**
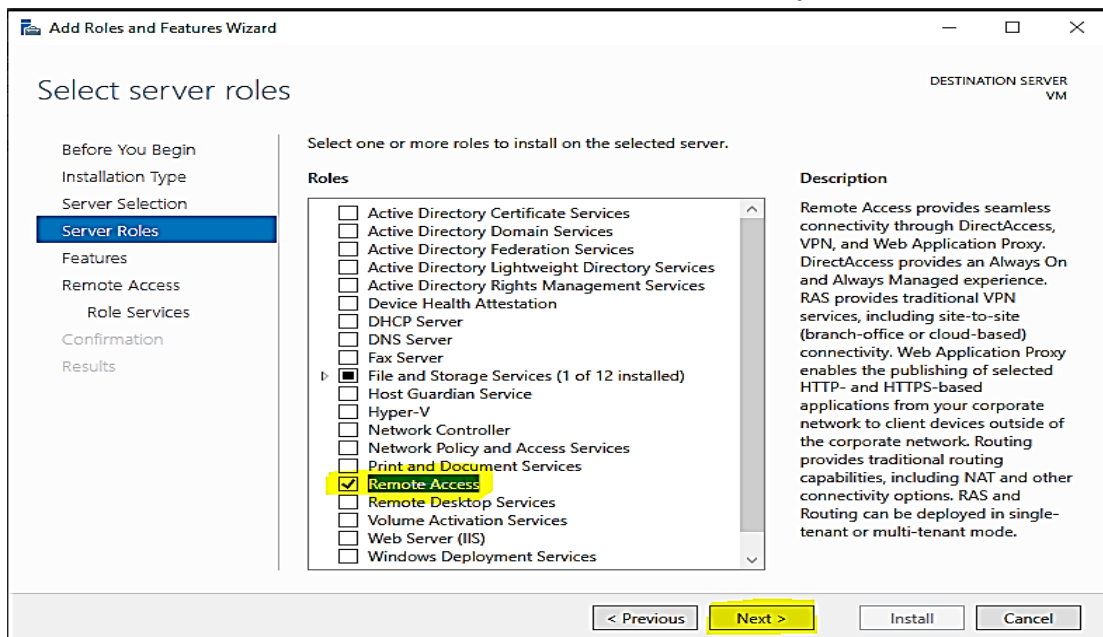
- **In Role Services, select 'DirectAccess and VPN(RAS)' and 'Routing' and click on Next up to Confirmation.**
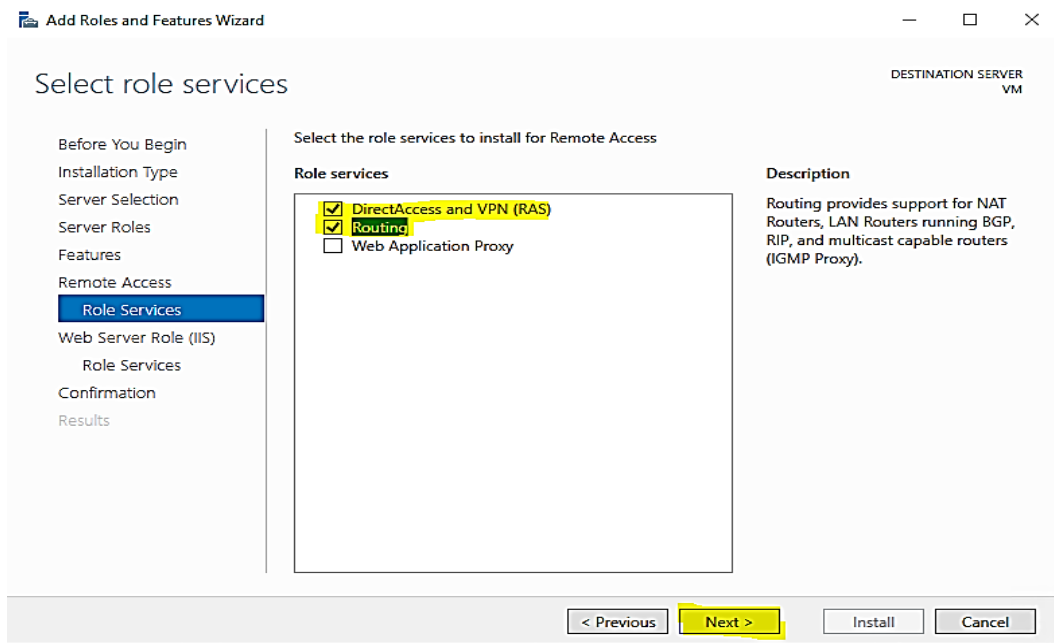
- In Confirmation, click on Install
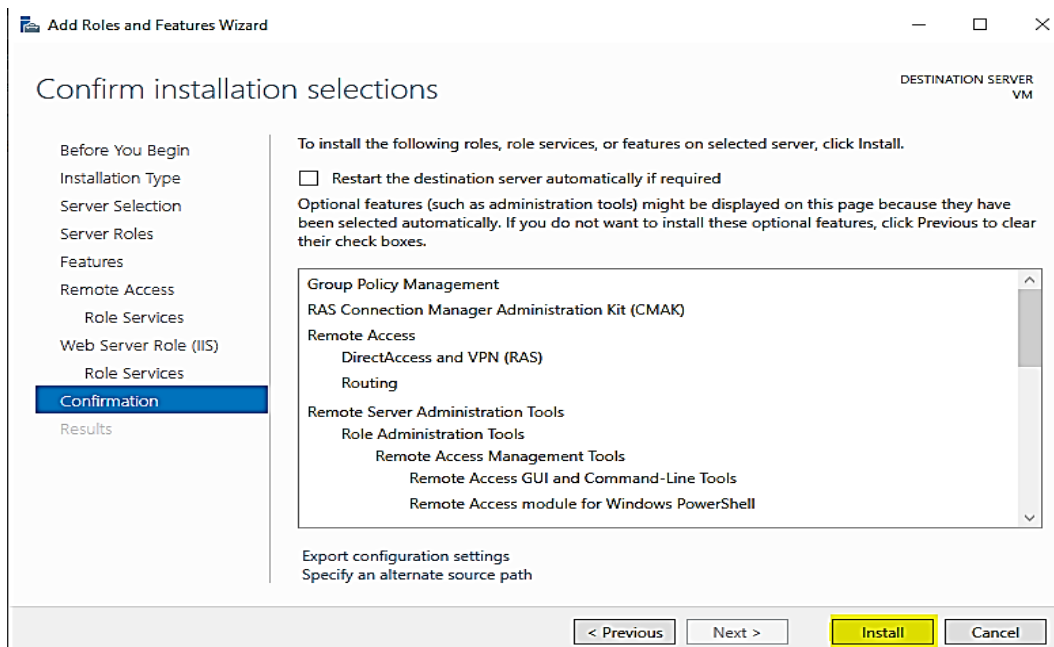
- Once the installation completed, close the wizard.
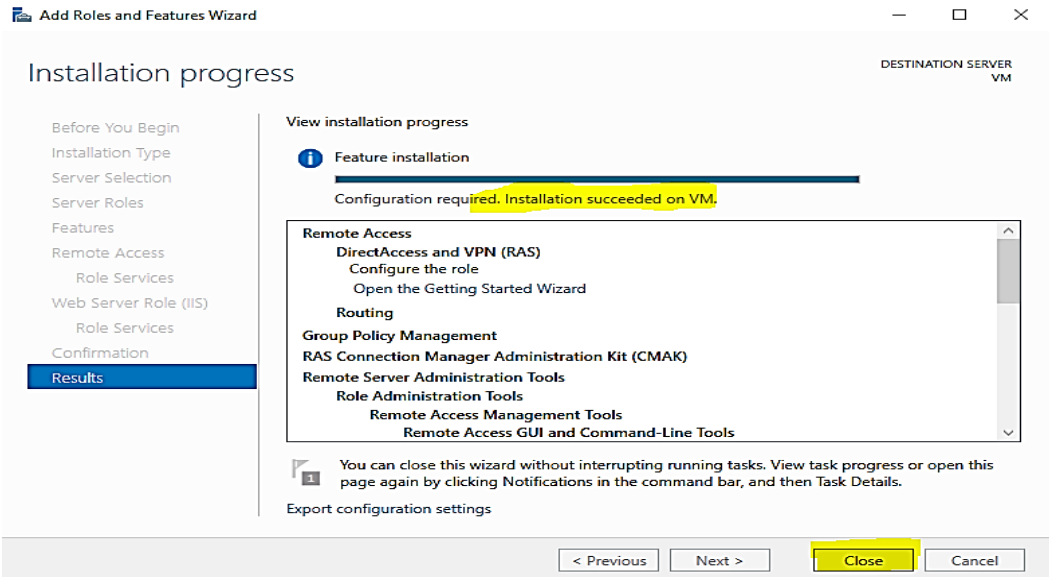
- **Click on Tools of the Server manager Dashboard in remote machine, a dropdown will display, in that click on Routing and Remote Access.**
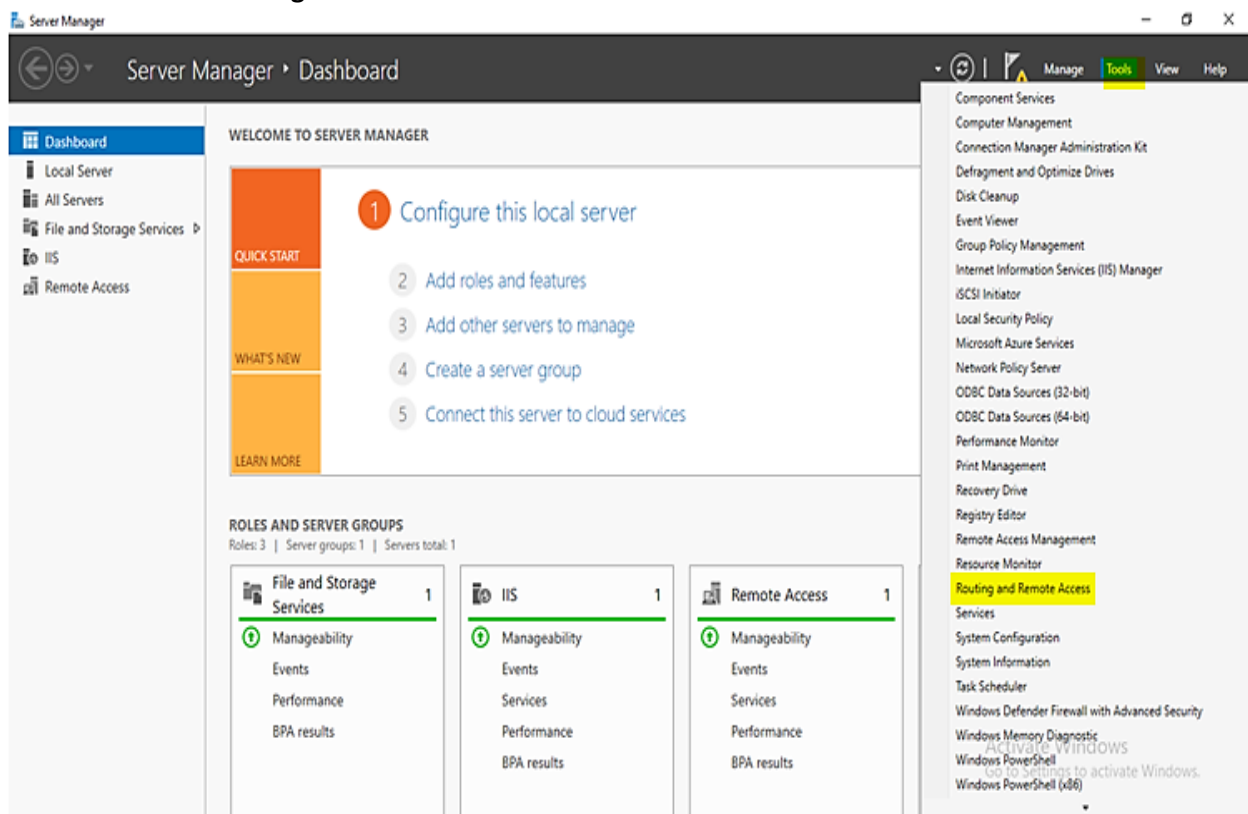
- **Routing and Remote Access window will open.**
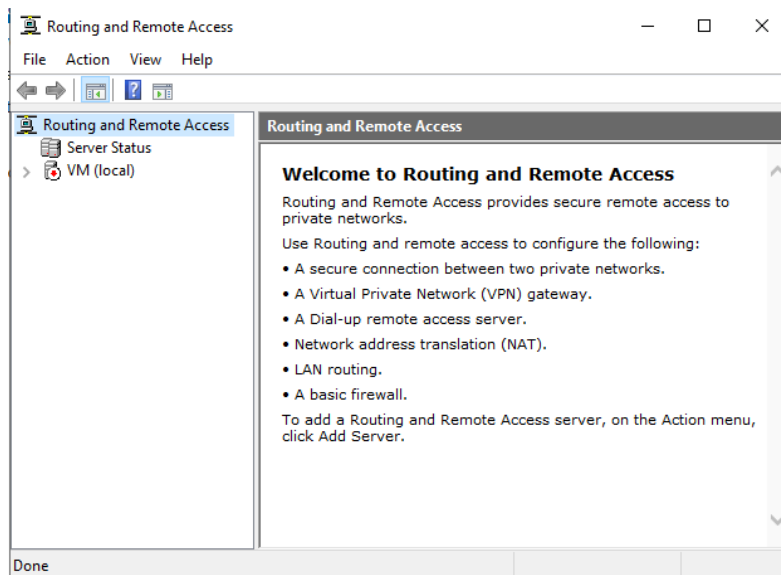
- **Right click on VM(local) and click on Configure and Enable Routing and Remote Access**
- Note**: VM(local) – Here VM is name of the virtual machine created in local, it should display based on VM name you gave in local.**
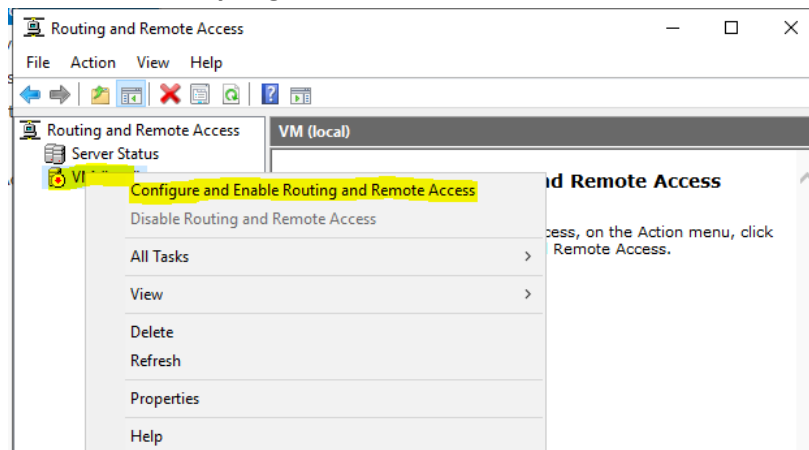
- **Routing and Remote Access server setup wizard will open and click on Next.**
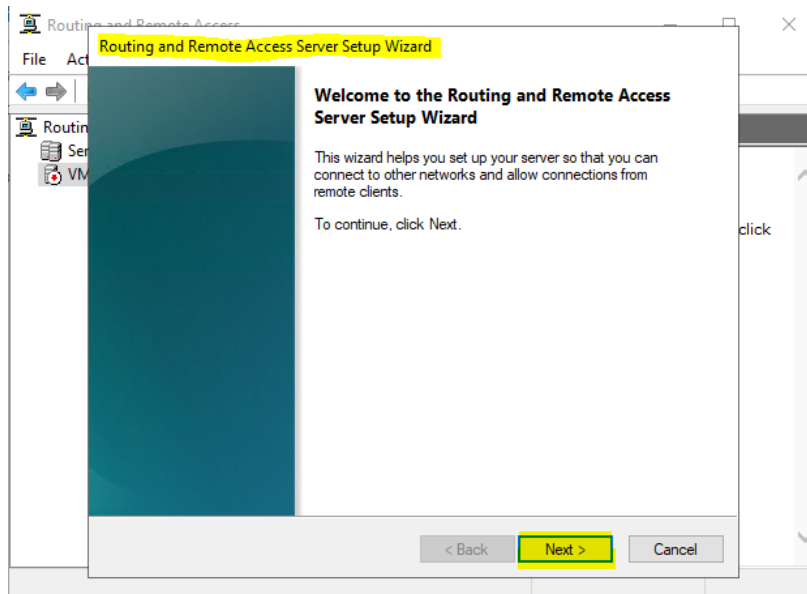
- **In configuration section, Select Custom configuration and click on Next**
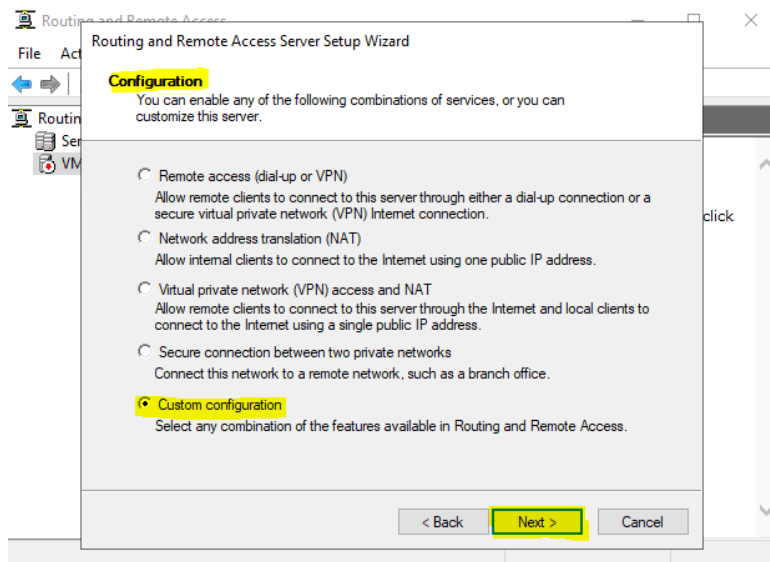
- **In custom configuration, select VPN Access and Demand-dial connections and click on Next**
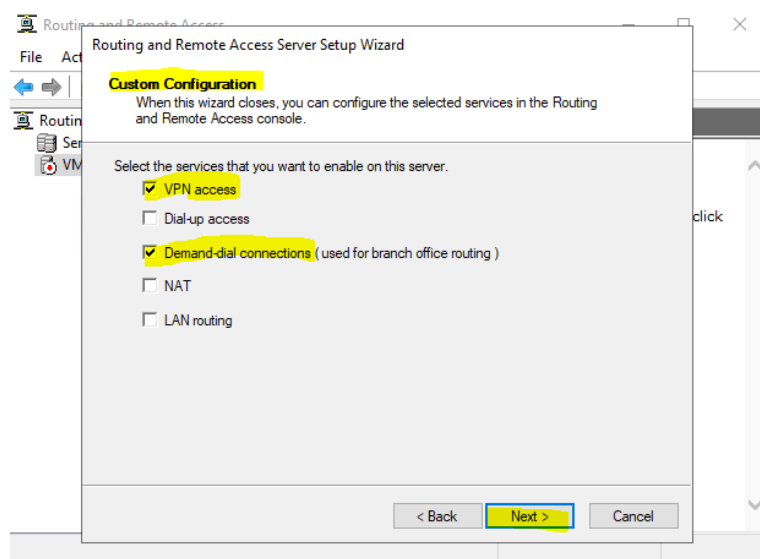
- Click on Finish
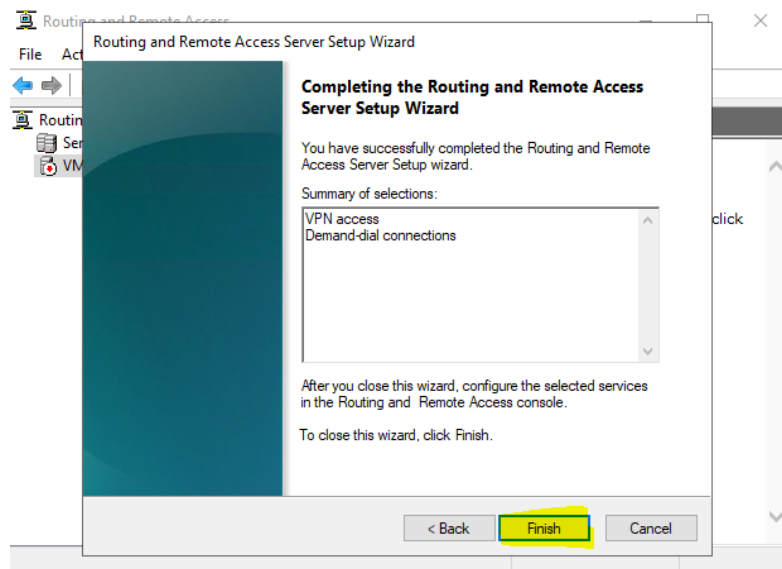
- **Start the service popup will display and click on Start service button.**
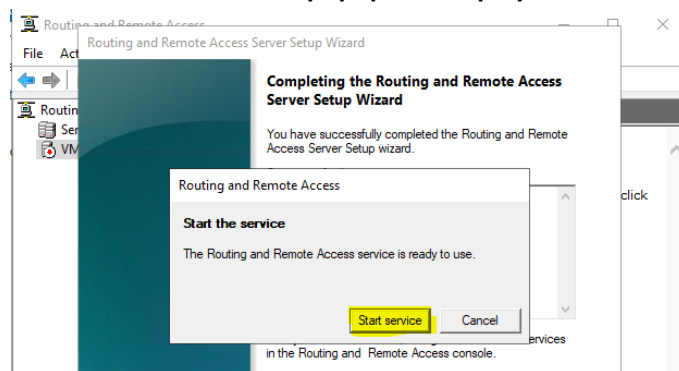
- **Select the Network Interfaces under VM(local) and right click on Network Interfaces and select 'New Demand-dial Interface'**
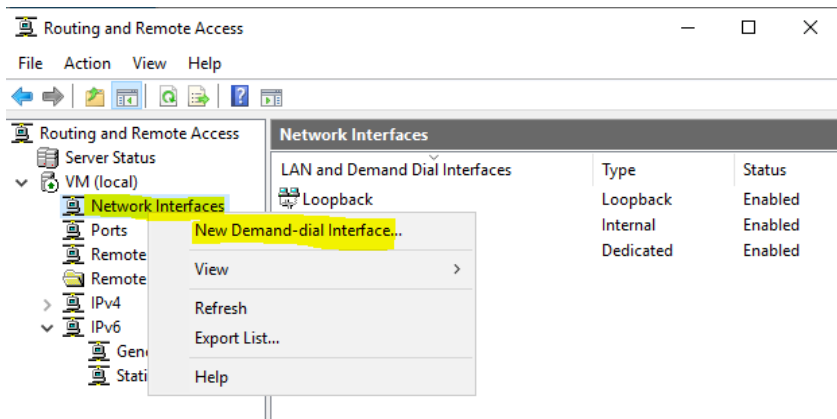
- Demand-dial interface wizard will open and click on Next.
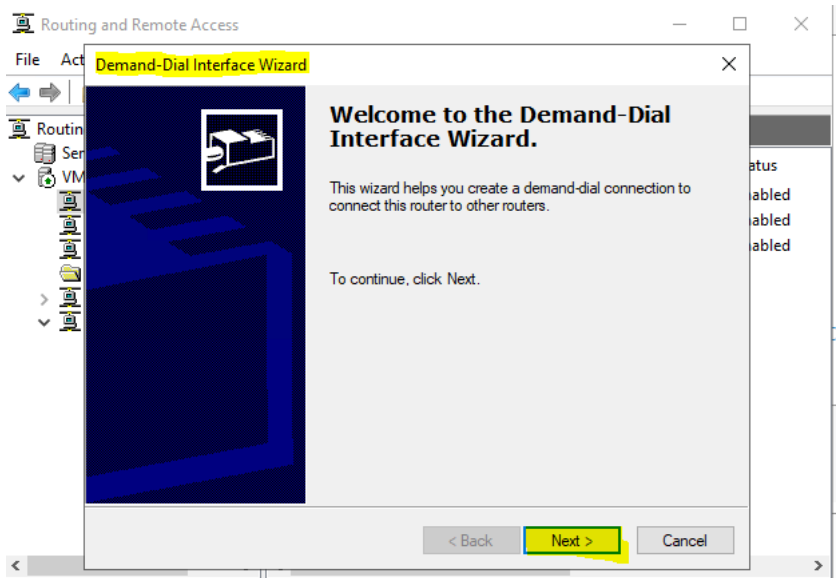
- **Enter the Interface Name as 'S2S' and click on Next up to VPN Type.**
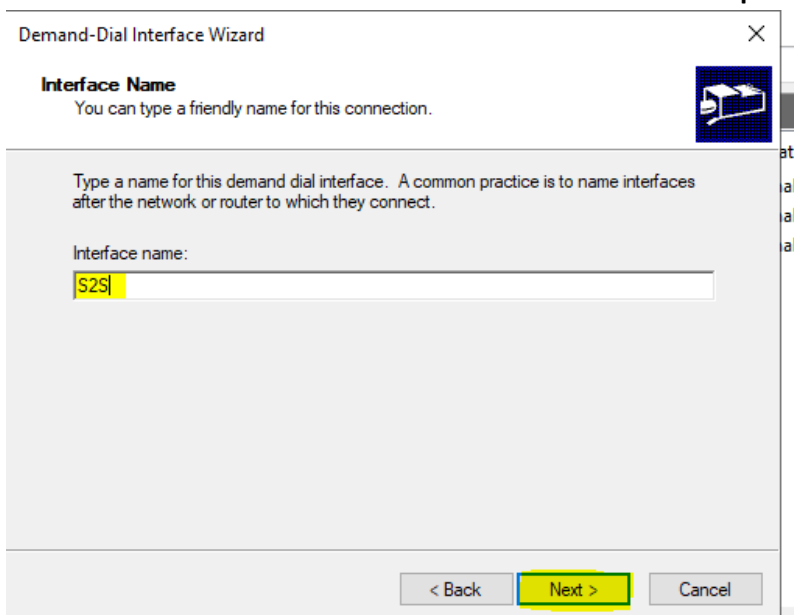
- **In VPN Type, select IKEv2 and click on Next**

- **In Destination Address, enter the public IP Address (52.188.148.92) of the Virtual Network Gateway 'S2SVPNGW' and click on Next**
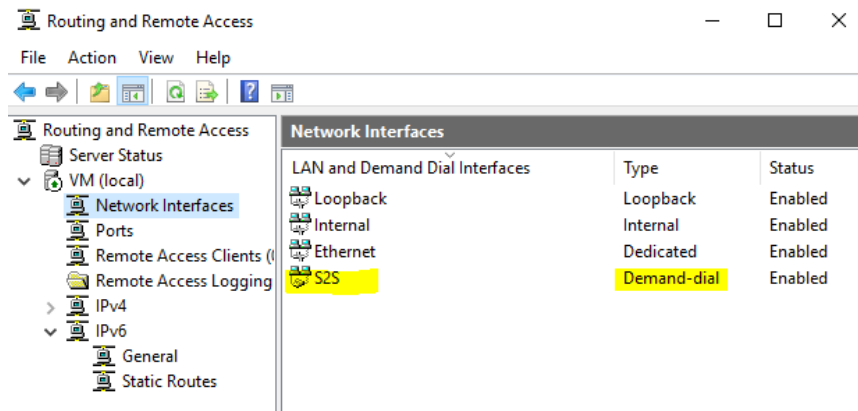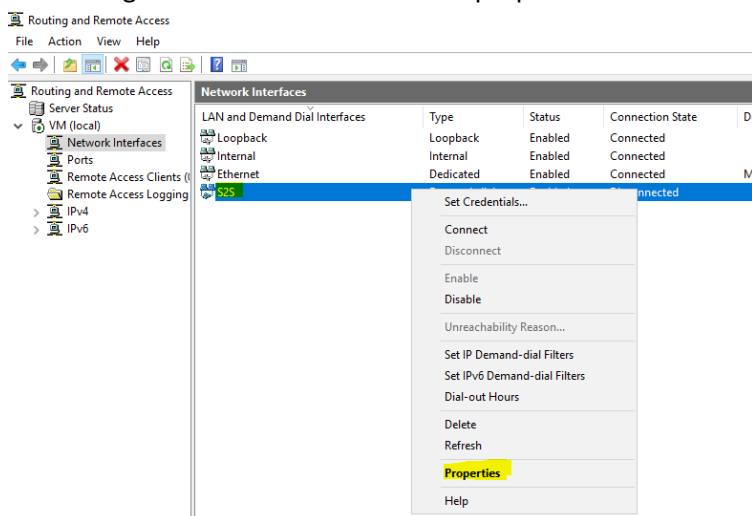

- Click on Next-> Next until Finish and click on Finish.
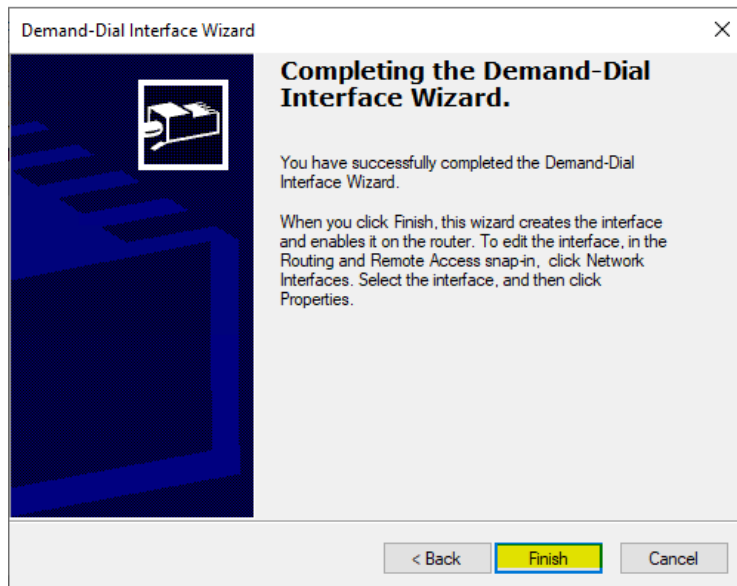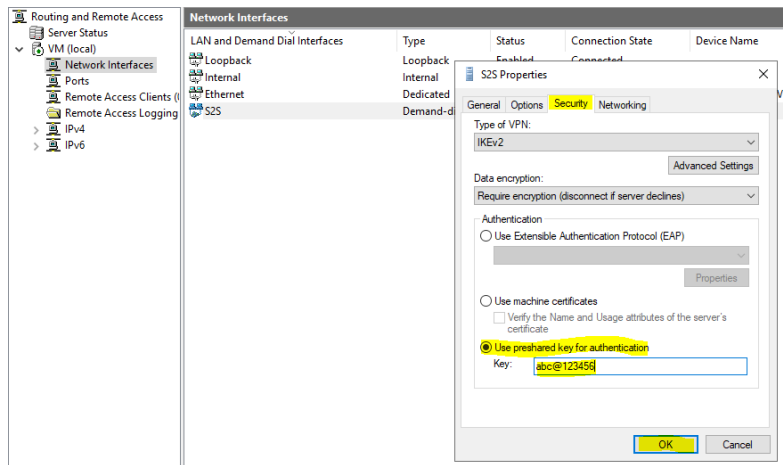
- Our new Demand-dial Network interface 'S2S' is created.

- Right click on 'S2S' and click on properties

- **Go to security tab and select 'Use preshared key for authentication' and enter the key and click on OK.**

- Create a Local Network Gateway with name 'S2SLNGW' for resource group 'S2SRG' and give IP Address as Remote machine IP Address(40.79.69.117) and click on create button.

- **Click on the Local network gateway 'S2SLNGW' and click on Connections under Settings and click on Add button.**

- **Give the connection name as 'S2S' and select virtual network gateway 'S2SVPNGW' and local network gateway 'S2SLNGW' and enter shared key which we provide the same in remote machine 'S2S' network interface and select IKE Protocol as IKEv2 and resource group as 'S2SRG' and click on OK.**
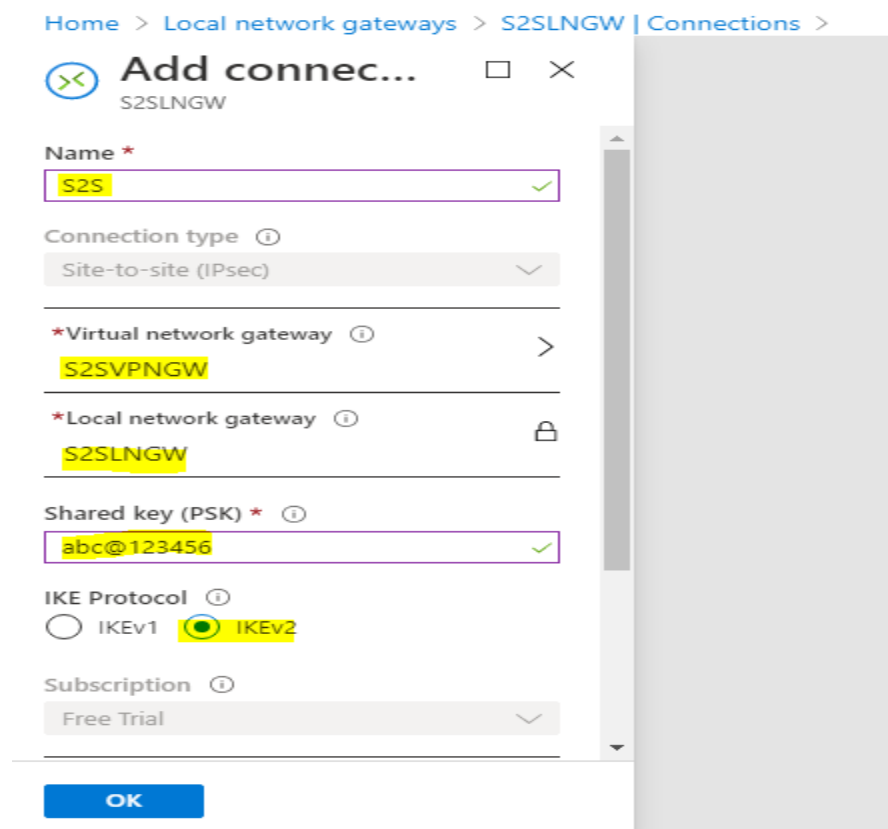
- **Go to Remote machine (40.79.69.117) and right click on S2S and click on Connect.**
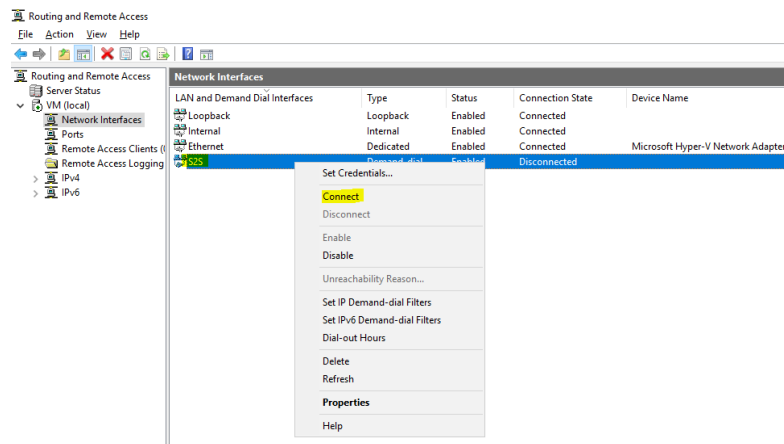
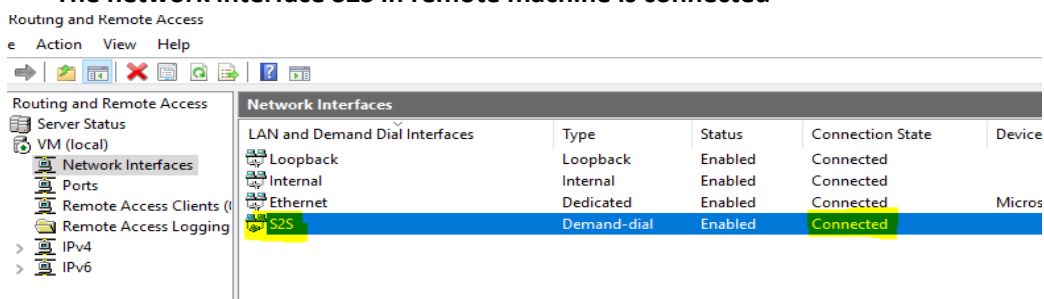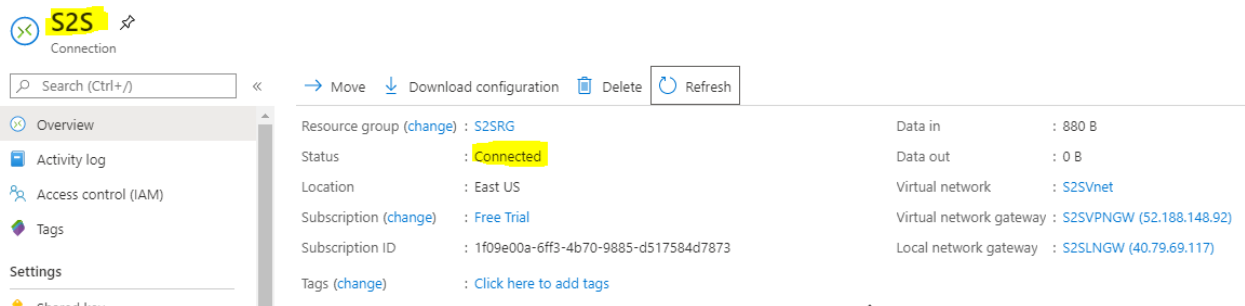- **The network interface S2S in remote machine is connected**

- **To check whether the connection is established, go to connections in azure portal and click on S2S connection and check the status. It will display status as 'Connected'**

- **Once connection is established, create one more virtual machine with name 'S2SVM' for resource group 'S2SRG',with Image 'Windows server 2019 datacenter'**
- **Note: In this the IP should be private, public ip address should be disabled (select None)**
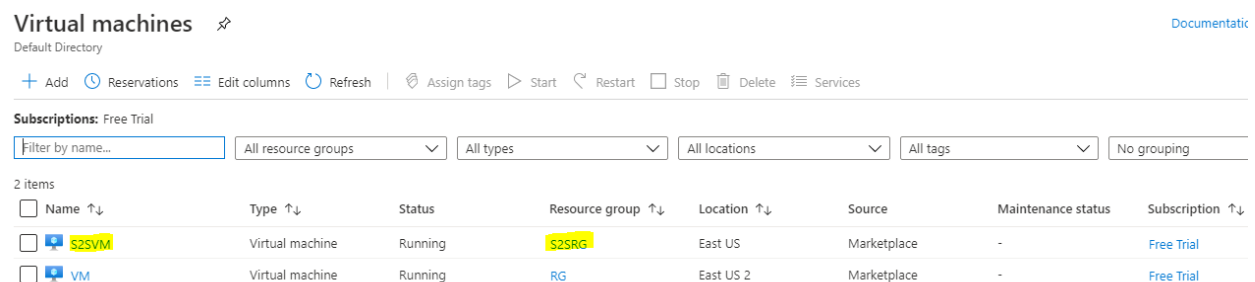
- **Click on virtual machine 'S2SVM' and copy the private ip address(10.0.1.4)**

S2SVM
Virtual machine

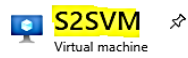Search (Ctrl+/) «

   ⥁ Connect   ▷ Start   ↻ Restart   □ Stop   Capture   🗑 Delete   ↻ Refresh

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

Settings

Resource group (change)	: S2SRG		Azure Spot	: N/A
Status	: Running		Public IP address	: -
Location	: East US		Private IP address	: 10.0.1.4
Subscription (change)	: Free Trial		Public IP address (IPv6)	: -
Subscription ID	: 1f09e00a-6ff3-4b70-9885-d517584d7873		Private IP address (IPv6)	: -
Computer name	: S2SVM		Virtual network/subnet	: S2SVnet/subnet1
Operating system	: Windows (Windows Server 2019 Datacenter)		DNS name	: -

- **Go to first Remote machine (40.79.69.117) and open cmd prompt as administrator and ping the ip address(10.0.1.4) of second virtual machine.**

We should get the ping reply from ip address (10.0.1.4)