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R&D Document

Setting up Point-to-Site VPN on Azure

Table of Contents

Serial Number	Content	Page Number
1	Introduction	3
2	Pre-requisites	3
3	Creating the Virtual Network Gateway 3.1 Create a Virtual Network 3.2 Create the VPN Gateway Subnet 3.3 Create the Virtual Network Gateway	3
4	Generating Client Certificates 4.1 Root Certificate 4.2 Client Certificate	6
5	Configuring Point-to-Site VPN 5.1 Configure P2S Parameters 5.2 Upload Root Certificate 5.3 Download VPN Client	7
6	Connecting from Client System	8
7	Verifying the Connection	8
8	Conclusion	8
9	References	8

1. Introduction

A **Point-to-Site (P2S)** VPN connection allows you to securely connect an individual client computer to an Azure virtual network. It's suitable when you want to connect from a remote location and do not need a site-to-site connection.

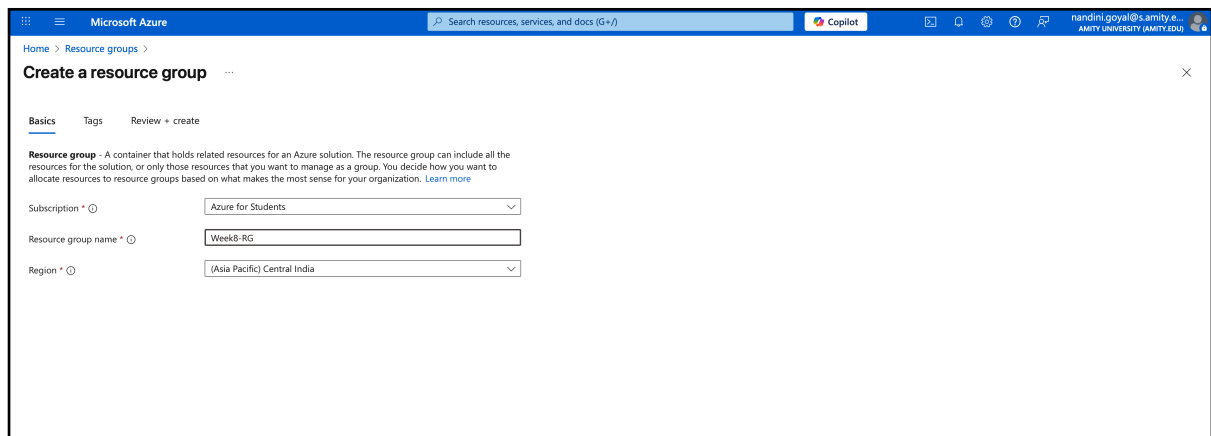
2. Pre-requisites

- Azure Student Subscription
- Azure Resource Group
- Permissions to create virtual network, gateway, and certificates

3. Creating the Virtual Network Gateway

3.1 Create a Virtual Network

- Go to Azure Portal > Create a resource > Networking > Virtual Network
- Select region like `East US` or `Central India` (low quota usage)
- Configure address space (e.g., 10.0.0.0/16)
- Add a subnet (e.g., 10.0.0.0/24)



The screenshot shows the 'Create a resource group' page in the Microsoft Azure portal. The page has a blue header with the 'Microsoft Azure' logo and a search bar. Below the header, there's a breadcrumb trail: 'Home > Resource groups >'. The main heading is 'Create a resource group'. There are three tabs: 'Basics', 'Tags', and 'Review + create'. The 'Basics' tab is active. Below the tabs, there's a description of a 'Resource group'. Then, there are three form fields: 'Subscription' (set to 'Azure for Students'), 'Resource group name' (set to 'Week8-RG'), and 'Region' (set to '(Asia Pacific) Central India').

Figure 1: Resource Group

Microsoft Azure

Home > Network foundation > Virtual networks >

Create virtual network

Basics Security IP addresses Tags Review + create

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

Project details

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

Subscription * Azure for Students

Resource group * Week8-RG [Create new](#)

Instance details

Virtual network name * P2S-VNet

Region * (Asia Pacific) Central India [Deploy to an Azure Extended Zone](#)

Figure 2: VNet Basics Tab

Microsoft Azure

Home > Network foundation > Virtual networks >

Create virtual network

Basics Security IP addresses Tags Review + create

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

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

+ Add a subnet

10.1.0.0/16 [Delete address space](#)

10.1.0.0 - 10.1.255.255 65,536 addresses

Subnets	IP address range	Size	NAT gateway
default	10.1.0.0 - 10.1.0.255	/24 (256 addresses)	-

+ Add IPv4 address space

Figure 3: VNet IP Addresses Tab

Microsoft Azure

Home >

P2S-VNet-1753419939405 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

Your deployment is complete

Deployment name : P2S-VNet-1753419939405

Subscription : Azure for Students

Resource group : Week8-RG

Start time : 25/7/2025, 10:35:43 AM

Correlation ID : f62ca625-ec00-4c8e-b6f3-bb9cf67ab34a

Deployment details

Next steps

[Go to resource](#)

Give feedback

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Figure 4: VNet Deployed

3.2 Create the VPN Gateway Subnet

- Go to Subnets under your VNet > Add Gateway Subnet
- Use address range like 10.0.1.0/24

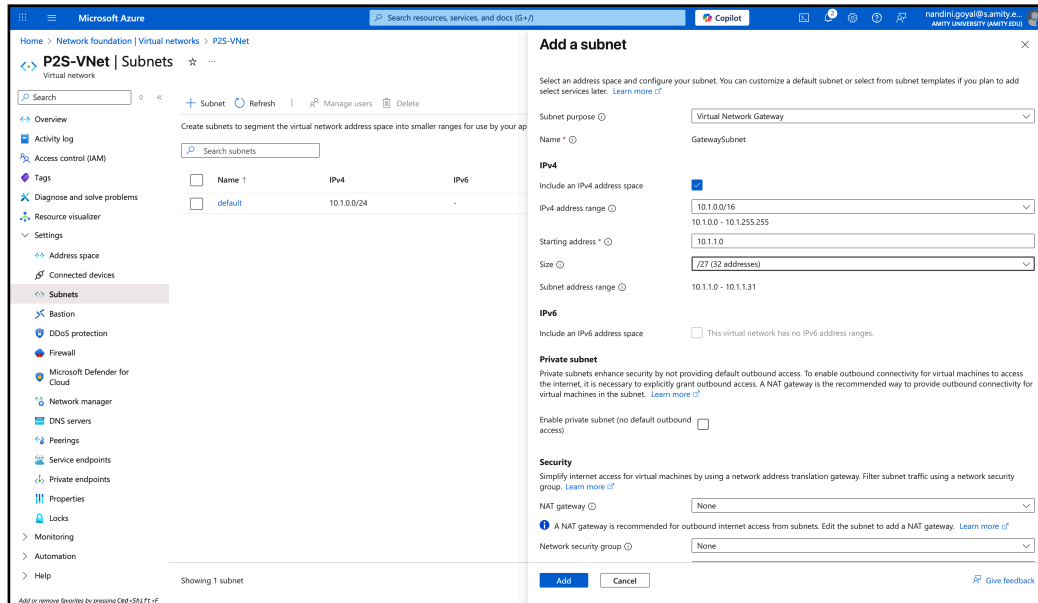


Figure 5: Gateway Subnet configuration

3.3 Create the Virtual Network Gateway

- Go to Create a resource > Networking > Virtual network gateway
- Choose VPN type: 'Route-based'
- SKU: Use 'Basic'
- Region must match VNet
- Associate with the created VNet

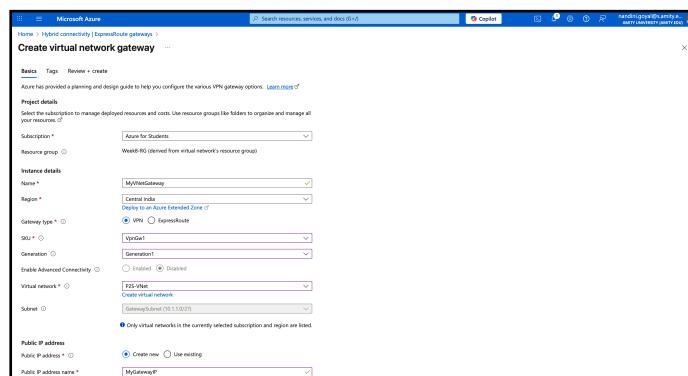


Figure 6: Virtual Network Gateway creation details

4.2 Client Certificate

```
$clientcert = New-SelfSignedCertificate -Type Custom -DnsName AzureP2SClient -KeySpec Signature -Subject "CN=AzureP2SClientCert" -KeyExportPolicy Exportable -HashAlgorithm sha256 -KeyLength 2048 -CertStoreLocation "Cert:\\CurrentUser\\My" -Signer $cert
```

5. Configuring Point-to-Site VPN

5.1 Configure P2S Parameters

- Go to the created Virtual Network Gateway > Point-to-site configuration > Configure now
- Address Pool: `172.16.201.0/24`
- Tunnel type: SSTP + IKEv2

5.2 Upload Root Certificate

- Upload `.cer` file generated in step 4

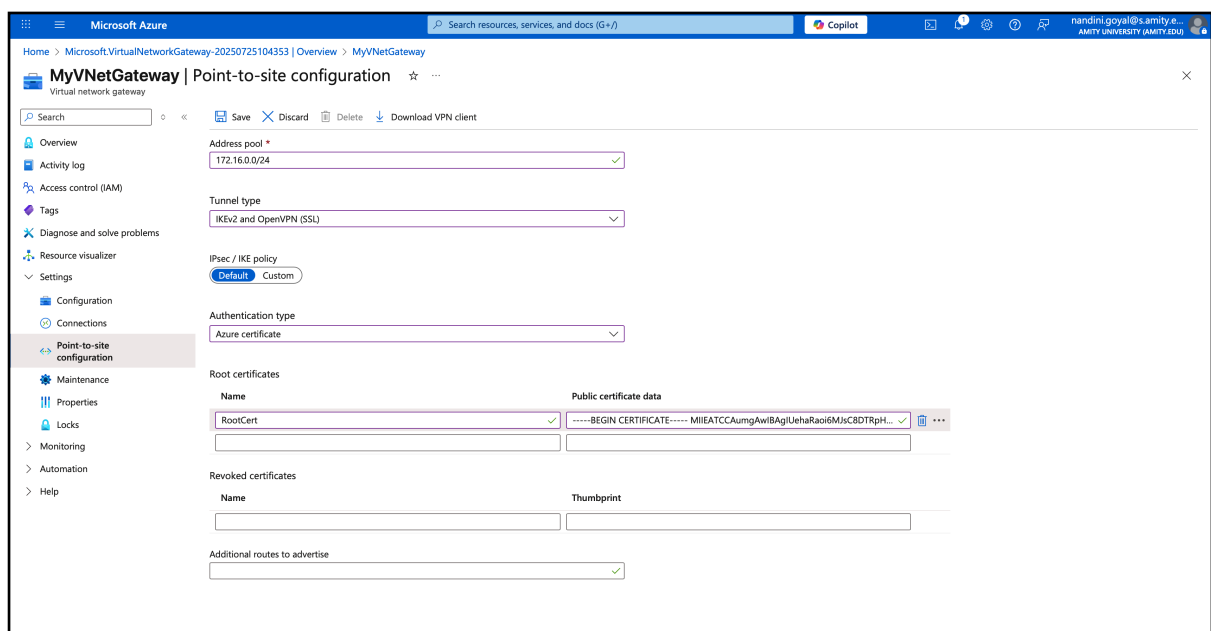


Figure 9: Upload root cert section in Azure

5.3 Download VPN Client

- Once configured, download VPN client specific to OS (Windows 64-bit)

6. Connecting from Client System

- Run the VPN client installer
- Connect to Azure VPN via installed profile
- Enter credentials when prompted

7. Verifying the Connection

- * Ping the VNet IP address from your client
- * Check Azure portal > Virtual Network Gateway > Connections to see status

8. Conclusion

Point-to-Site VPN on Azure provides secure, remote access for individual users. Using self-signed certificates and Azure's VPN gateway, you can test connectivity securely even with a student plan.

9. References

- Microsoft Docs: <https://learn.microsoft.com/en-us/azure/vpn-gateway/point-to-site-certificate-gateway>
- YouTube: <https://youtu.be/luw2mlD7CGk>
- Microsoft Certificate PowerShell Docs
- Additional: <https://learn.microsoft.com/en-us/azure/vpn-gateway/vpn-gateway-about-point-to-site>