R&D Document: Setup of Point-to-Site VPN on Azure

Tushar Bhosale

July 26, 2025

Contents

1 Introduction

This R&D document explains how to set up a Point-to-Site (P2S) VPN connection using Azure VPN Gateway. This type of VPN allows individual client devices to securely connect to an Azure virtual network.

2 Prerequisites

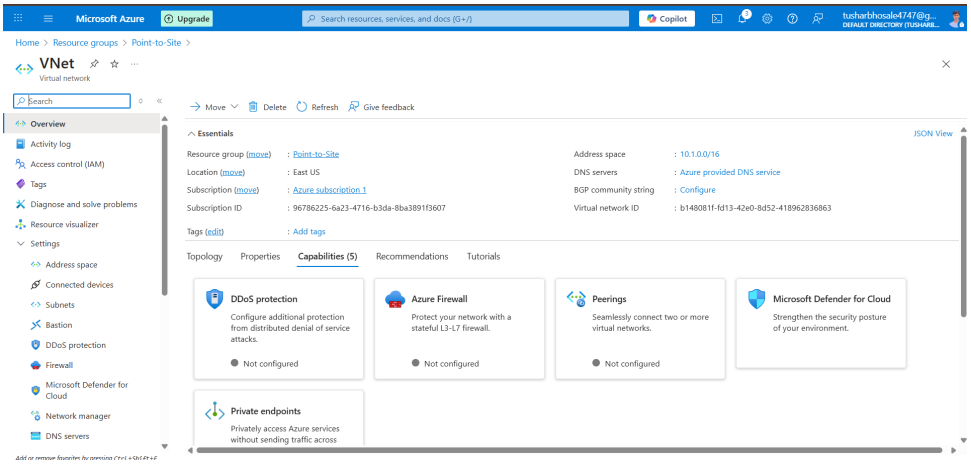
- Azure Subscription
- A Virtual Network (VNet) with GatewaySubnet
- Azure VPN Gateway (route-based)
- Self-signed root and client certificates
- Azure VPN Client (installed via Microsoft Store)

3 Network Setup

3.1 1. Create a Virtual Network (VNet)

- Address space: 10.1.0.0/16
- Subnet: 10.1.0.0/24

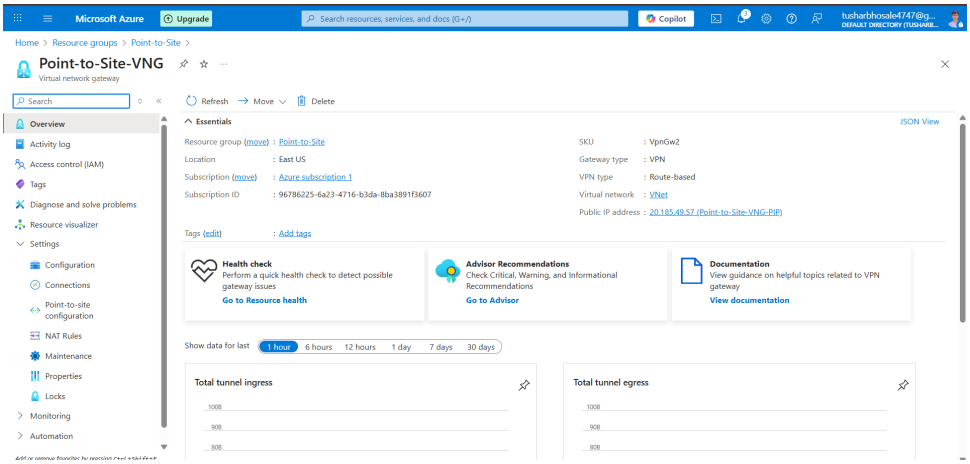
Screenshot: VNet Configuration



3.2 2. Create Gateway Subnet

- Name: `GatewaySubnet`
- Address range: 10.1.255.0/27

Screenshot: Gateway Subnet



4 VPN Gateway Deployment

- Type: VPN
- VPN Type: Route-based
- SKU: VpnGw1 or higher

5 Certificate Configuration

5.1 Generate Root Certificate

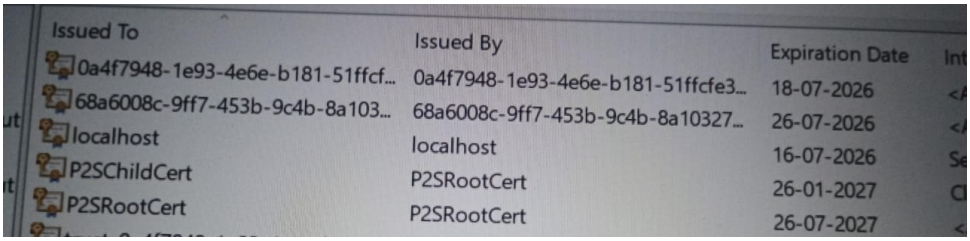
```
$cert = New-SelfSignedCertificate `
  -Type Custom `
  -KeySpec Signature `
  -Subject "CN=MyP2SRootCert" `
  -KeyExportPolicy Exportable `
  -HashAlgorithm sha256 `
  -KeyLength 2048 `
  -CertStoreLocation "Cert:\CurrentUser\My" `
  -KeyUsageProperty Sign `
  -KeyUsage CertSign
```

5.2 Generate Client Certificate

```
$params = @{
    Type = 'Custom'
    Subject = 'CN=P2SChildCert'
    DnsName = 'P2SChildCert'
    KeySpec = 'Signature'
    KeyExportPolicy = 'Exportable'
    KeyLength = 2048
    HashAlgorithm = 'sha256'
    NotAfter = (Get-Date).AddMonths(18)
    CertStoreLocation = 'Cert:\CurrentUser\My'
```

```
    Signer = $cert
    TextExtension = @(
        '2.5.29.37={text}1.3.6.1.5.5.7.3.2')
}
New-SelfSignedCertificate @params
```

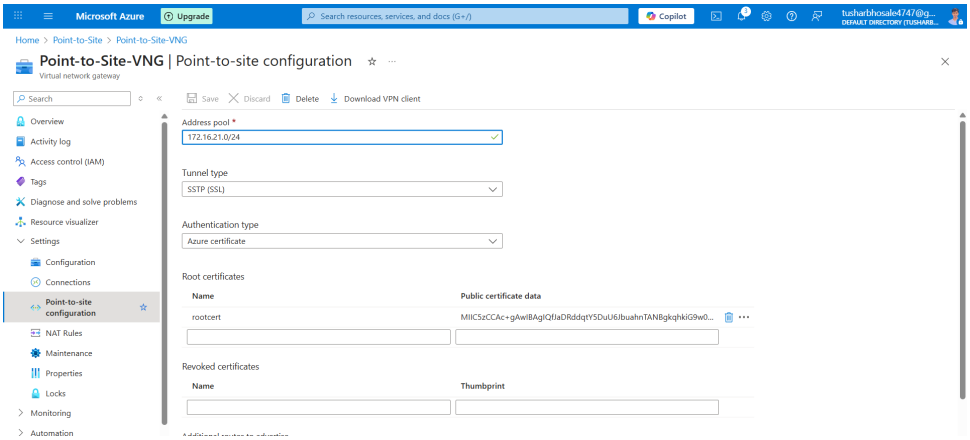
Screenshot: Certificates in certmgr.msc



6 Configure Point-to-Site VPN on Azure

- Go to Azure VPN Gateway → Point-to-site configuration
- Address pool: 172.16.0.0/24
- Tunnel type: SSTP or OpenVPN
- Upload root certificate (Base64 encoded)

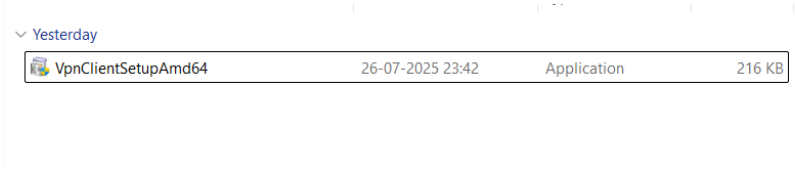
Screenshot: Point-to-site Settings



7 Azure VPN Client Setup

1. Download the VPN client from Azure
2. Extract the '.zip' and import '.azurevpnprofile' in Azure VPN Client
3. Ensure certificate is installed on the client machine
4. Connect via the Azure VPN Client

Screenshot: Azure VPN Client



8 Verification

- Ping Azure VMs or services from client machine
- Check VPN connection status in Azure VPN Client

9 Conclusion

This document covered the complete process of setting up a secure P2S VPN using Azure and PowerShell for certificate management. This enables secure access to Azure resources from remote client machines.