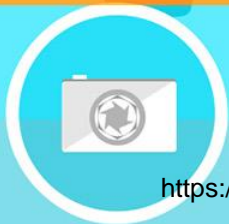




# Azure Extended Network

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## What is Azure Extended Network?

- Extended network for Azure enables you to stretch an on-premises subnet into Azure to let on-premises virtual machines keep their original on-premises private IP addresses when migrating to Azure.
- The network is extended using a bidirectional VXLAN (Virtual Extensible LAN) tunnel between two Windows Server VMs acting as virtual appliances, one running on-premises and the other running in Azure, each also connected to the subnet to be extended.
- Each subnet that you are going to extend requires one pair of appliances.
- Multiple subnets can be extended using multiple pairs.



## Capacity Considerations

- You can extend up to 250 IP addresses using extended network for Azure.
- You can expect an average throughput of about 700 Mbps, with some variability depending on the CPU speed of the extended network of the Azure virtual appliances.

# Configuration in Azure

Before you use Windows Admin Center, you must perform the following steps through the Azure Portal:

1. Create a Virtual network in Azure that contains at least two subnets, in addition to subnets required for your gateway connection. One of the subnets you create must use the same subnet CIDR as the on-premises subnet you want to extend. The subnet must be unique within your routing domain so that it does not overlap with any on-premises subnets.
2. Configure a virtual network gateway to use a site-to-site or ExpressRoute connection to connect the virtual network to your on-premises network.
3. Create a Windows Server 2022 Azure Edition VM in Azure that is capable of running nested virtualization. This is one of your two virtual appliances. Connect the primary network interface to the routable subnet, and the second network interface to the extended subnet.

## ⓘ Note

Extended network for Azure requires Windows Server 2022 Azure Edition for the VM that is running in Azure.

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# Continued...

4. Start the VM, enable the Hyper-V role, and reboot. For example:

PowerShell

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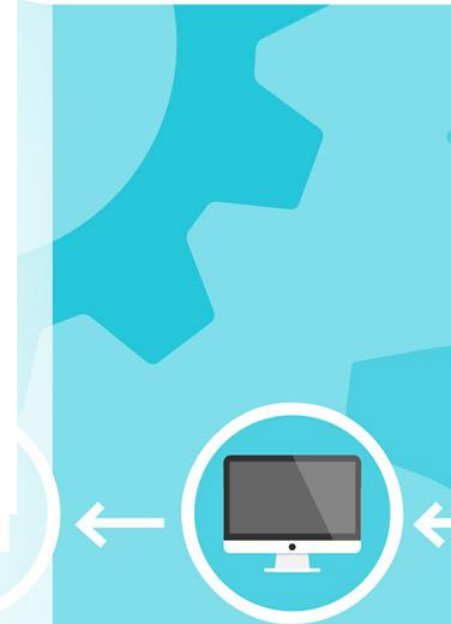
```
Install-WindowsFeature -Name Hyper-V -IncludeManagementTools -Restart
```

5. Create two external virtual switches in the VM and connect one to each of the network interfaces. For example:

PowerShell

Copy

```
New-VMSwitch -Name "External1" -AllowManagementOS $true -NetAdapterName "Ethernet"  
New-VMSwitch -Name "Extended" -AllowManagementOS $true -NetAdapterName "Ethernet 2"
```



# On-premises configuration

You must also perform some manual configuration in your on-premises infrastructure, including creating a VM to serve as the on-premises virtual appliance:

1. Make sure the subnets are available on the physical machine where you will deploy the on-premises VM (virtual appliance). This includes the subnet you want to extend and a second subnet that is unique and doesn't overlap with any subnets in the Azure virtual network.
2. Create a Windows Server 2019 or 2022 VM on any hypervisor that supports nested virtualization. This is the on-premises virtual appliance. We recommend that you create this as a highly available VM in a cluster. Connect a virtual network adapter to the routable subnet and a second virtual network adapter to the extended subnet.
3. Start the VM, then run this command from a PowerShell session in the VM to enable the Hyper-V role, and restart the VM:

```
PowerShell Copy  
  
Install-WindowsFeature -Name Hyper-V -IncludeManagementTools -Restart
```

4. Run the following commands in a PowerShell session in the VM to create two external virtual switches in the VM and connect one to each of the network interfaces:

```
PowerShell Copy  
  
New-VMSwitch -Name "External" -AllowManagementOS $true -NetAdapterName "Ethernet"  
New-VMSwitch -Name "Extended" -AllowManagementOS $true -NetAdapterName "Ethernet 2"  
  
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```

