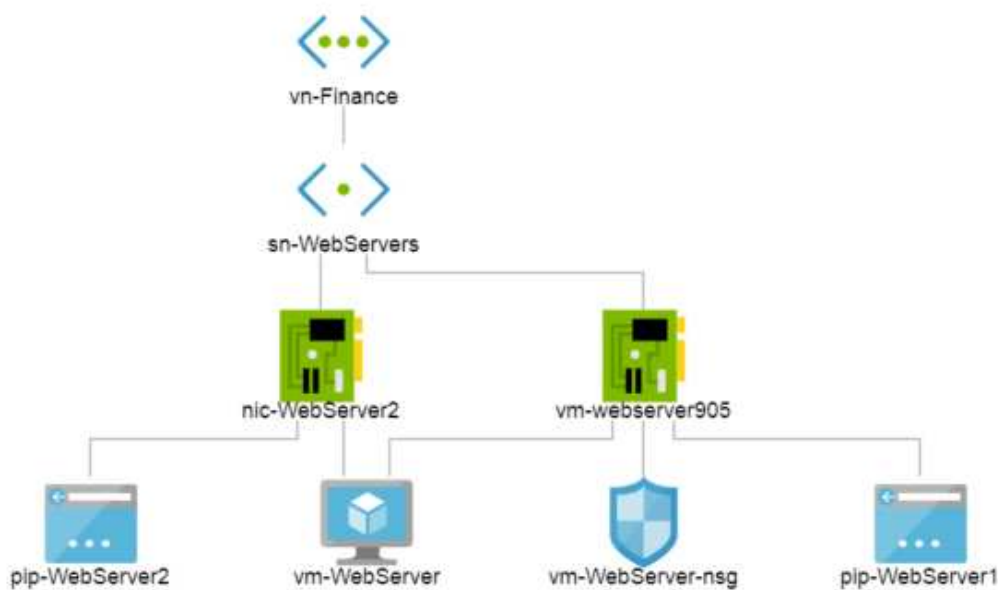


Configure Multiple Network Interfaces And Public IPs To A Virtual Machine

In this tutorial I'm going to show how to:

- Create new Resource Group
- Create a Virtual Network and associate it with Resource Group
- Add Subnet to Virtual Network
- Add Virtual Machine to the Virtual Network
- Associate multiple NICs and PIPs to a Virtual Machine
- Remote in to a Virtual Machine
- Install IIS on the Virtual Manager
- Send http traffic to the Virtual Machine

At the end of this tutorial we will be ending up with a network topology which will look something like bellow.



Step 01: Create a new Resource Group

- Give it name: rg-NetworkServices
- Select region: (US) Central US


Home > Resource groups > Create a resource group


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  Visual Studio Professional



* Resource group  rg-NetworkServices ✓

Resource details





* Region  (US) Central US

We can see the newly created Resource Group.

Home > Resource groups

Resource groups Documentation  



Department of Health and Human Services, Victoria

+ Add  Edit columns  Refresh  Export to CSV  Assign tags

Subscriptions: 1 of 2 selected – Don't see a subscription? [Open Directory](#) + [Subscription settings](#)

Filter by name: Visual Studio Professional All locations All tags No grouping

1 items

<input type="checkbox"/>	NAME	SUBSCRIPTION	LOCATION
<input type="checkbox"/>	 rg-NetworkServices	Visual Studio Professional	Central US 

Step 02: Create a new Virtual Network

We are going to create a Virtual Network and associate a Subnet.

- Give it name: vn-Finance
- Address space: 99.0.0.0/16
- Resource group: rg-NetworkServices (the resource group we created earlier)
- Location: (US) Central US
- Subnet name: sn-WebServers
- Address range: 99.0.1.0/24

Home > Virtual networks > Create virtual network

Create virtual network □ ×

* Name
 ✓

* Address space ⓘ
 ✓
99.0.0.0 - 99.0.255.255 (65536 addresses)

* Subscription
 ▼

* Resource group
 ▼
[Create new](#)

* Location
 ▼

Subnet

* Name
 ✓

* Address range ⓘ
 ✓
99.0.1.0 - 99.0.1.255 (256 addresses)

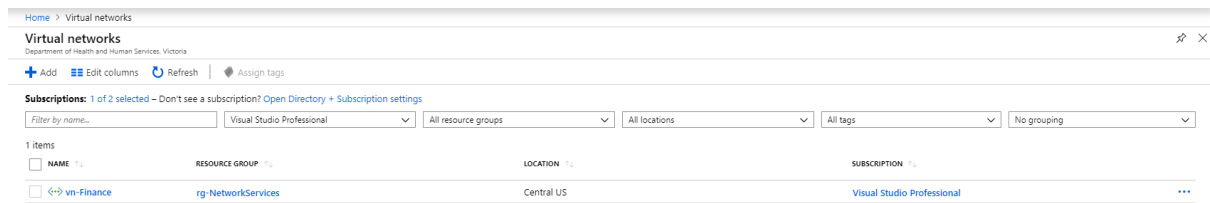
DDoS protection ⓘ
☒ Basic ☐ Standard

Service endpoints ⓘ

Firewall ⓘ

[Automation options](#)

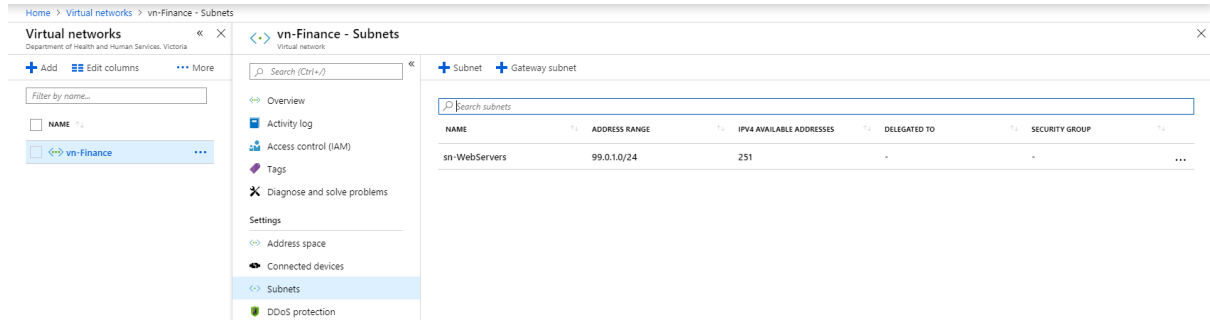
We can see the newly created Virtual Network.



NAME	RESOURCE GROUP	LOCATION	SUBSCRIPTION
vn-Finance	rg-NetworkServices	Central US	Visual Studio Professional

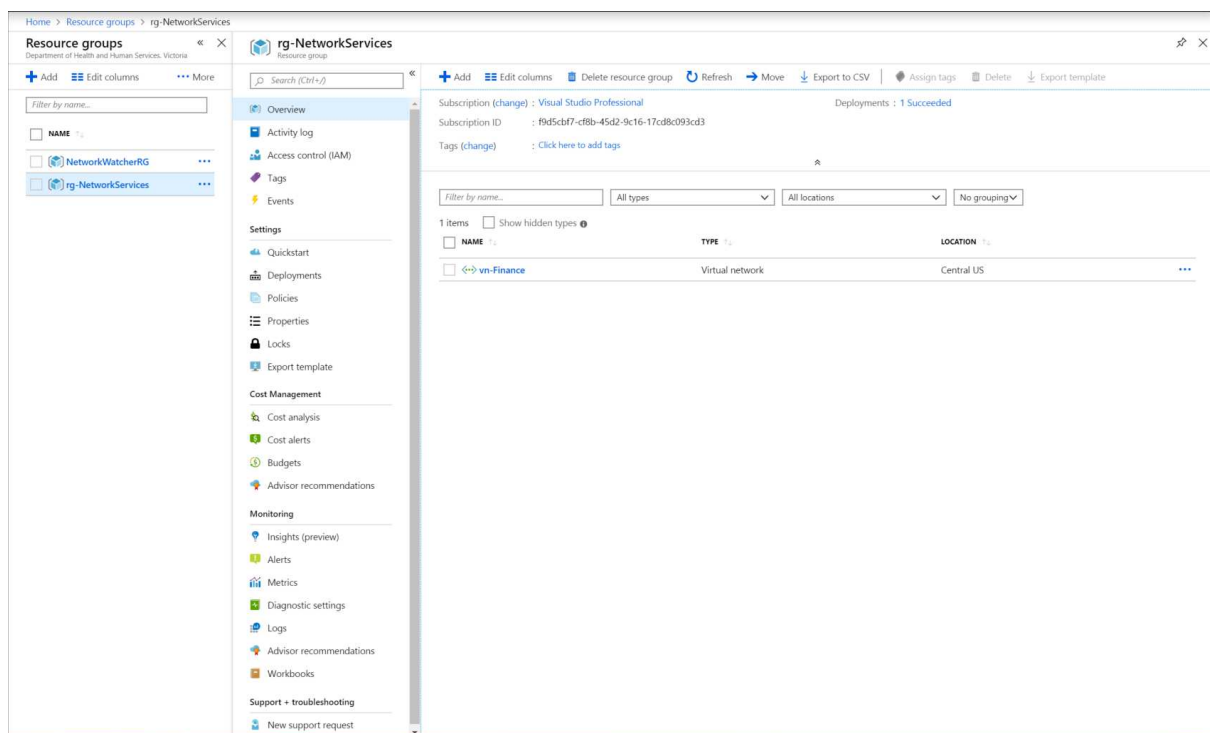
Click on “vn-Finance” Virtual Network and go in to it.

Under Subnets we can see the new subnet we created: sn-WebServers



NAME	ADDRESS RANGE	IPV4 AVAILABLE ADDRESSES	DELEGATED TO	SECURITY GROUP
sn-WebServers	99.0.1.0/24	251	-	-

Resources:



NAME	TYPE	LOCATION
vn-Finance	Virtual network	Central US

Step 03: Add a new Virtual Machine

We are going to create a new Virtual Machine.

- Resource Group: rg-NetworkServices
- Give it name: vm-WebServer
- Region: (US) Central US
- Image: Windows Server 2016 Datacentre
- Size: Standard B1ls
- Username/password (we are going to remote in to this machine later on)
- Public inbound ports: Allow selected ports (*important – set this option to remote in)
- Selected inbound ports: RDP (*important – set this option to remote in)

Home > Virtual machines > Create a virtual machine

Create a virtual machine

Basics Disks Networking Management 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. Looking for classic VMs? [Create VM from Azure Marketplace](#)

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

* Subscription Visual Studio Professional ✓
* Resource group rg-NetworkServices ✓
[Create new](#)

Instance details

* Virtual machine name vm-WebServer1 ✓
* Region US Central US ✓
Availability options No infrastructure redundancy required ✓
* Image Windows Server 2016 Datacentre ✓
[Browse all public and private images](#)
* Size Standard B1ls ✓
1 vCPU, 0.5 GB memory
[Change size](#)
[Click here for available locations](#)

Administrator account

* Username psam ✓
* Password ***** ✓
* Confirm password ***** ✓

INBOUND PORT RULES
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

* Public inbound ports ☐ None ☒ Allow selected ports
* Select inbound ports RDP ✓

These ports will be exposed to the internet. Use the Advanced controls to limit inbound traffic to known IP addresses. You can also update inbound traffic rules later.

Save manually

[Review + create](#) < Previous Next: Disks >

Click Next: Disks button.

- OS disk type: Standard HDD

Home > Virtual machines > Create a virtual machine

Create a virtual machine

Basics **Disks** Networking Management 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](#)

Disk options

* OS disk type
The selected VM size supports premium disks. We recommend Premium SSD for high IOPS workloads. Virtual machines with Premium SSD disks qualify for the 99.9% connectivity SLA.

Enable Ultra Disk compatibility (Preview) ☐ Yes ☒ No
Ultra Disk compatibility is not available for this VM size and location.

Data disks

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	NAME	SIZE (GiB)	DISK TYPE	HOST CACHING
Create and attach a new disk Attach an existing disk				

Advanced

[Review + create](#) [< Previous](#) [Next: Networking >](#)

Click Next: Networking button.

- Virtual network: vn-Finance (the Virtual Network we created earlier)
- Subnet: sn-WebServers
- Public inbound ports: Allow selected ports (*important – set this option to remote in)
- Selected inbound ports: RDP (*important – set this option to remote in)

Home > Virtual machines > Create a virtual machine

Create a virtual machine

Basics Disks **Networking** Management 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
[Create new](#)

* Subnet
[Manage subnet configuration](#)

Public IP
[Create new](#)

NIC network security group ☐ None ☒ Basic ☐ Advanced

* Public inbound ports ☐ None ☒ Allow selected ports

* Select inbound ports
 These ports will be exposed to the internet. Use the Advanced controls to limit inbound traffic to known IP addresses. You can also update inbound traffic rules later.

Accelerated networking ☐ On ☒ Off
The selected VM size does not support accelerated networking.

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Place this virtual machine behind an existing load balancing solution? ☐ Yes ☒ No

[Review + create](#) [< Previous](#) [Next: Management >](#)

To create a new Public IP, click on Create New

- Name: pip-WebServer1

Create public IP address



* Name

pip-WebServer1



SKU ⓘ

☒ Basic ☐ Standard

Assignment

☒ Dynamic ☐ Static

OK

Click Review + Create button.

Home > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20190823095829 - Overview

Deployment

Search (Ctrl+F)

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsS... Start time: 8/23/2019, 10:01:18 AM
Subscription: Visual Studio Professional Correlation ID: 8b401ec7-35aa-4531-83b9-d93626c7eb68
Resource group: rg-NetworkServices

Deployment details (Download)

RESOURCE	TYPE	STATUS	OPERATION DETAILS
shutdown-computevm-vn	Microsoft.DevTestLab/s...	Created	Operation details
vm-WebServer	Microsoft.Compute/Virt...	OK	Operation details
vm-webserver905	Microsoft.Network/netw...	Created	Operation details
vm-WebServer-nsg	Microsoft.Network/netw...	OK	Operation details
pip-WebServer1	Microsoft.Network/publ...	OK	Operation details
rgnetworkstorageiag907	Microsoft.Storage/stora...	OK	Operation details

Next steps

[Go to resource](#)

Security Center
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[Go to Azure security center >](#)

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[Start learning today >](#)

We can see the newly created Virtual Machine.

Home > Virtual machines

Virtual machines

Department of Health and Human Services, Victoria

Documentation

+ Add Reservations Edit columns Refresh Assign tags Start Restart Stop Delete Services

Subscriptions: 1 of 2 selected - Don't see a subscription? [Open Directory](#) + [Subscription settings](#)

Filter by name: Visual Studio Professional All resource groups All types All locations All tags No grouping

1 items

NAME	TYPE	STATUS	RESOURCE GROUP	LOCATION	SOURCE	MAINTENANCE STATUS	SUBSCRIPTION
vm-WebServer1	Virtual machine	Running	rg-NetworkServices	Central US	Marketplace	-	Visual Studio Professional

Click on the newly created Virtual Machine.

Mind you when we created the Virtual Machine, it automatically creates:

- Network Interface
- Network Security Group

We can view the important details relating to vm-WebServer1 under Networking tab.

- Network Interface: vm-webserver905
- NIC Public IP: 40.122.73.32
- NIC Private IP: 99.0.1.4

Home > Virtual machines > vm-WebServer - Networking

Virtual machines
Department of Health and Human Services, Victoria

+ Add Reservations ... More

Filter by name...

NAME

vm-WebServer

vm-WebServer - Networking

Search (Ctrl+/)

Attach network interface Detach network interface

Network interface: vm-webserver905 Effective security rules Topology
Virtual network/subnet: vn-Finance/sn-WebServers NIC Public IP: 40.122.73.32 NIC Private IP: 99.0.1.4 Accelerated networking: Disabled

Inbound port rules Outbound port rules Application security groups Load balancing

Network security group vm-WebServer-nsg (attached to network interface: vm-webserver905)
Impacts 0 subnets, 1 network interfaces

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
300	RDP	3389	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

As a summary we'll look in to all the resources we created.

Resource Group: rg-NetworkServices

Home > Resource groups > rg-NetworkServices

Resource groups
Department of Health and Human Services, Victoria

+ Add Edit columns Delete resource group Refresh Move Export to CSV Assign tags Delete Export template

Subscription (change): Visual Studio Professional
Subscription ID: f9d5cbf7-cfb-45d2-9c16-17cd8c093cd3
Deployments: 2 Succeeded

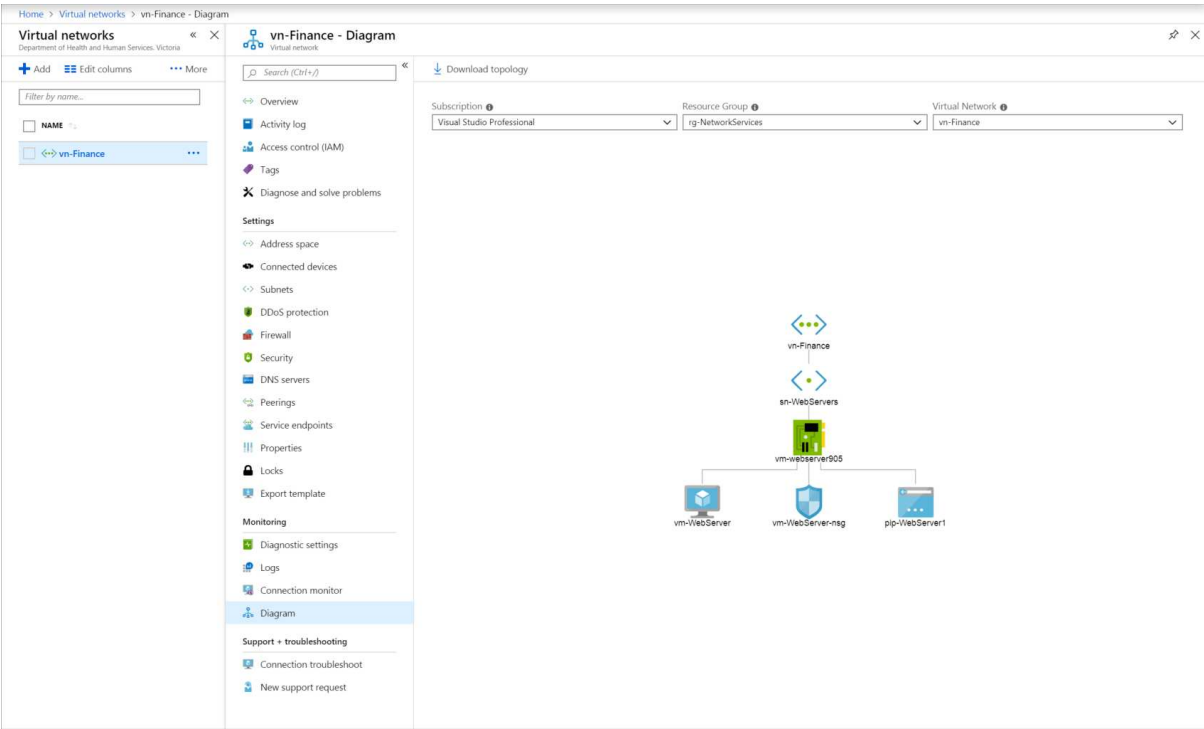
Tags (change): Click here to add tags

Filter by name... All types All locations No grouping

6 items Show hidden types

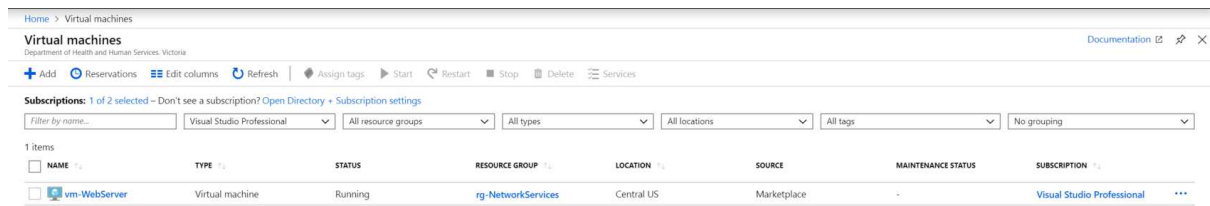
NAME	TYPE	LOCATION
pip-WebServer1	Public IP address	Central US
rgnetworkservicesdiag682	Storage account	Central US
vm-WebServer	Virtual machine	Central US
vm-webserver905	Network interface	Central US
vm-WebServer-nsg	Network security group	Central US
vn-Finance	Virtual network	Central US

Virtual Network diagram:



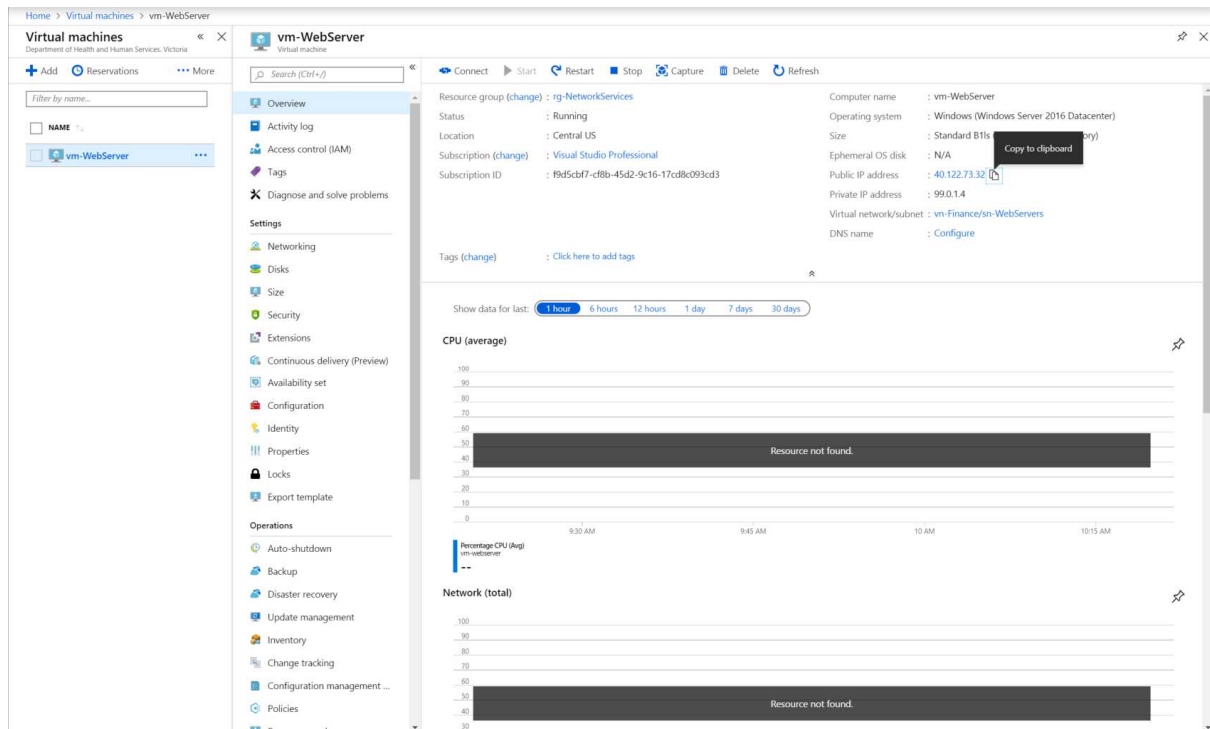
Step 04: Remote Desktop to one of the Virtual Machine

Click on vm-WebServer.



Virtual machines							
Department of Health and Human Services, Victoria							
Subscriptions: 1 of 2 selected – Don't see a subscription? Open Directory • Subscription settings							
Filter by name... Visual Studio Professional All resource groups All types All locations All tags No grouping							
1 items							
NAME	TYPE	STATUS	RESOURCE GROUP	LOCATION	SOURCE	MAINTENANCE STATUS	SUBSCRIPTION
vm-WebServer	Virtual machine	Running	rg-NetworkServices	Central US	Marketplace	-	Visual Studio Professional

Get the Public IP Address copied – 40.122.73.32



Virtual machines > vm-WebServer

vm-WebServer

Overview

Resource group (change): rg-NetworkServices

Status: Running

Location: Central US

Subscription (change): Visual Studio Professional

Subscription ID: f9d5cbf7-cl8b-45d2-9c16-17cd8c093cd3

Computer name: vm-WebServer

Operating system: Windows (Windows Server 2016 Datacenter)

Size: Standard B1ls

Ephemeral OS disk: N/A

Public IP address: 40.122.73.32

Private IP address: 99.0.1.4

Virtual network/subnet: vm-Finance/sn-WebServers

DNS name: Configure

Tags (change): Click here to add tags

Show data for last: 1 hour 6 hours 12 hours 1 day 7 days 30 days

CPU (average)

Resource not found.

Percentage CPU (Avg)

Network (total)

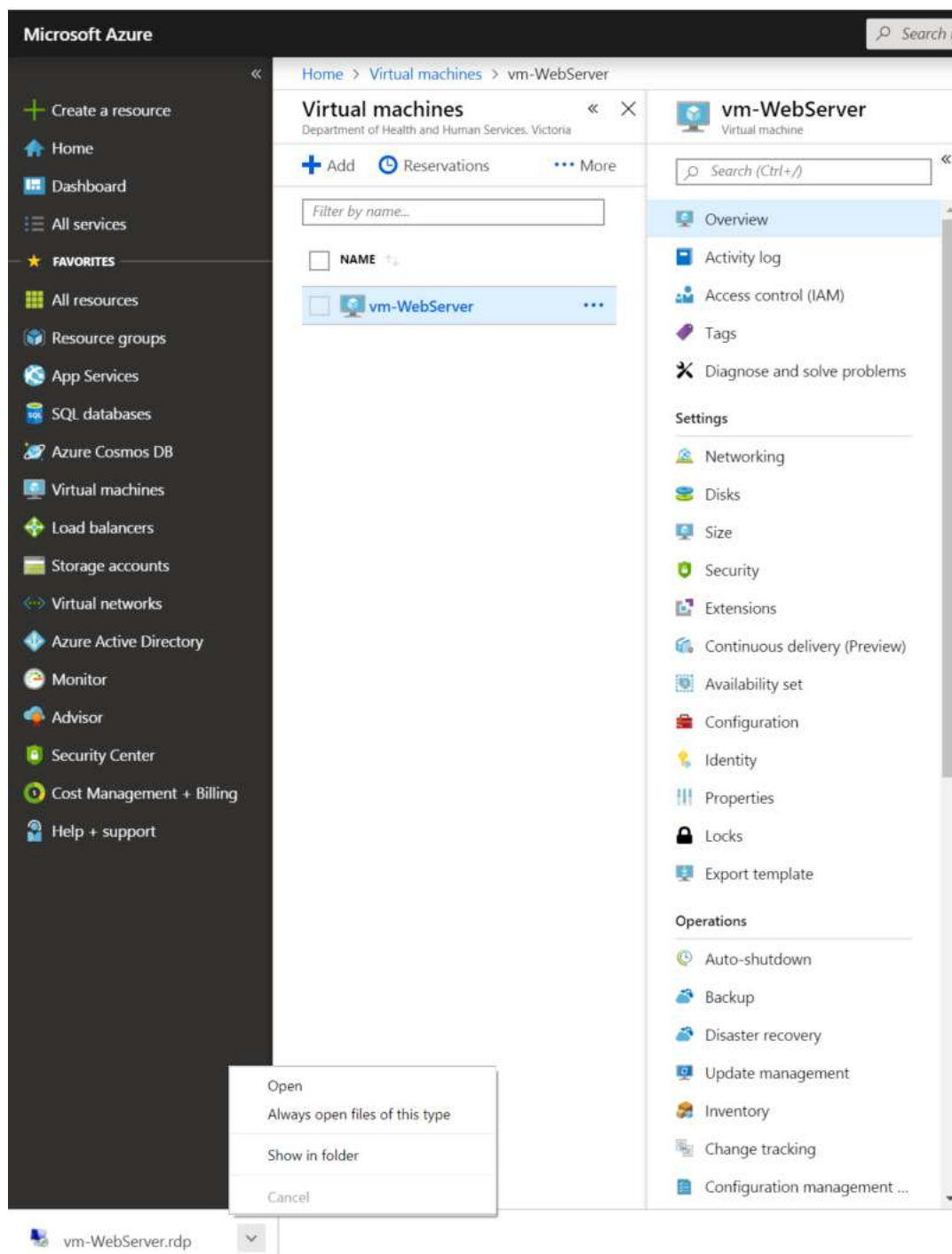
Resource not found.

Click on Connect.

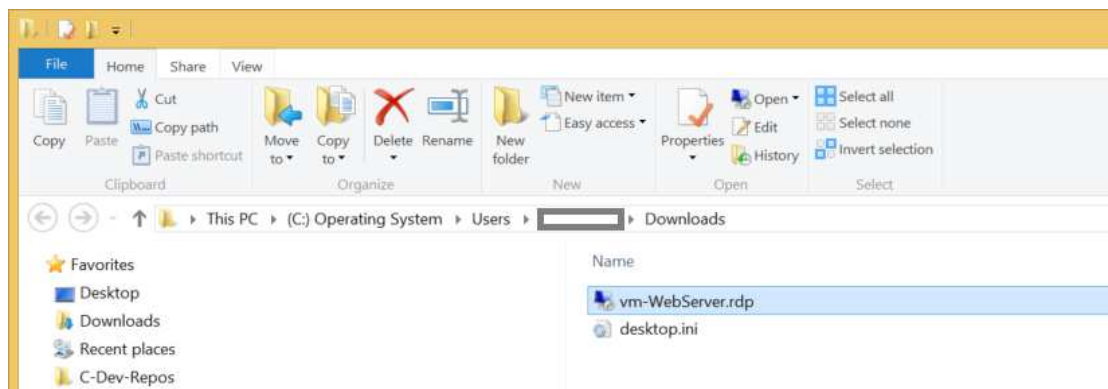
Click Download RDP File button.

The screenshot displays the Azure portal interface for a virtual machine named 'vm-WebServer'. The left sidebar shows the 'Virtual machines' section with a search bar and a list of virtual machines. The main pane shows the 'Overview' tab for 'vm-WebServer', displaying details such as Resource group (rg-WebServices), Status (Running), Location (Central US), and Subscription ID. The 'Connect' button is highlighted in the top toolbar. On the right, the 'Connect to virtual machine' pane is open, showing the 'RDP' tab with fields for IP address (Public IP address: 40.122.73.32) and Port number (3389). The 'Download RDP File' button is visible. Below the IP address field, there is a warning: 'Having trouble connecting to this VM?' with links for 'Diagnose and solve problems', 'Troubleshoot connection', and 'Serial console'.

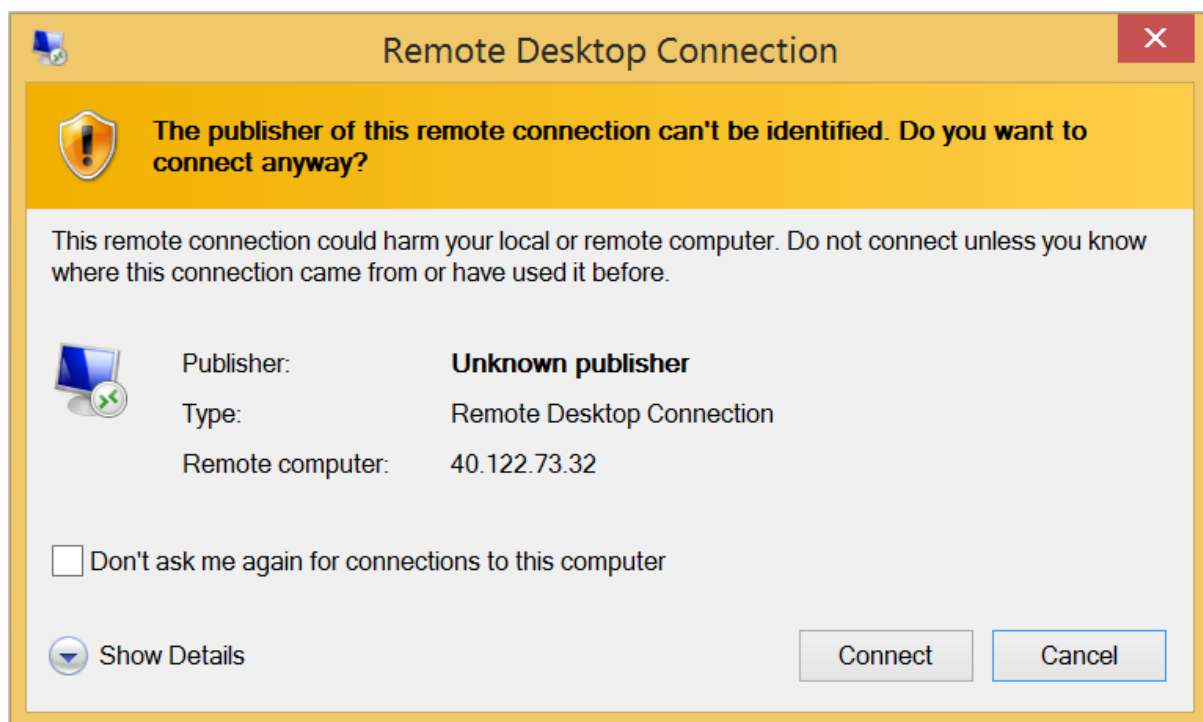
It will download the RDP file to your downloads.



Click on the RDP file.



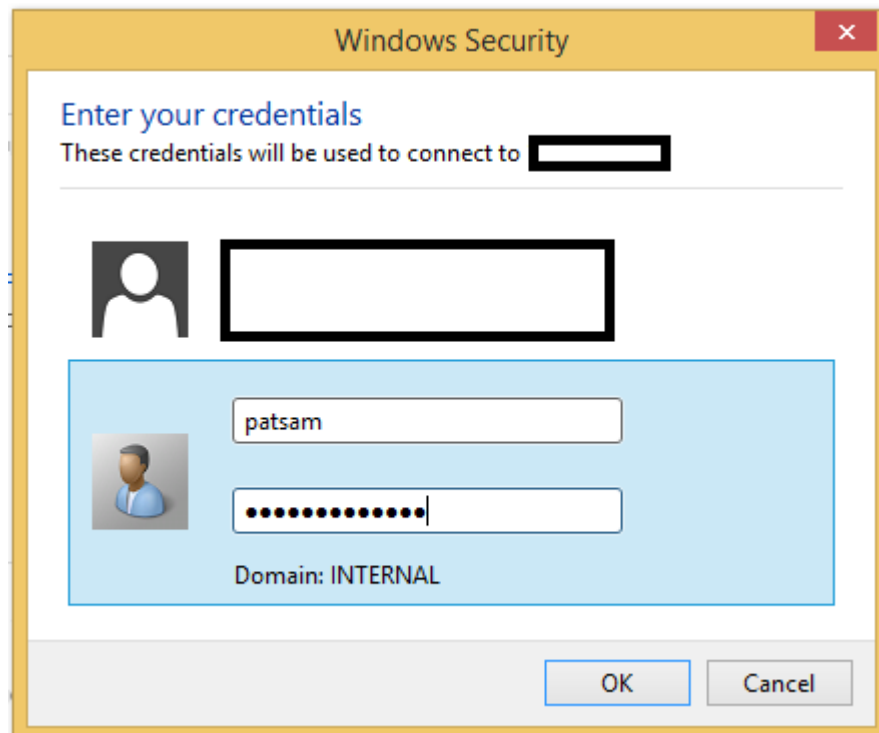
Click on Connect.



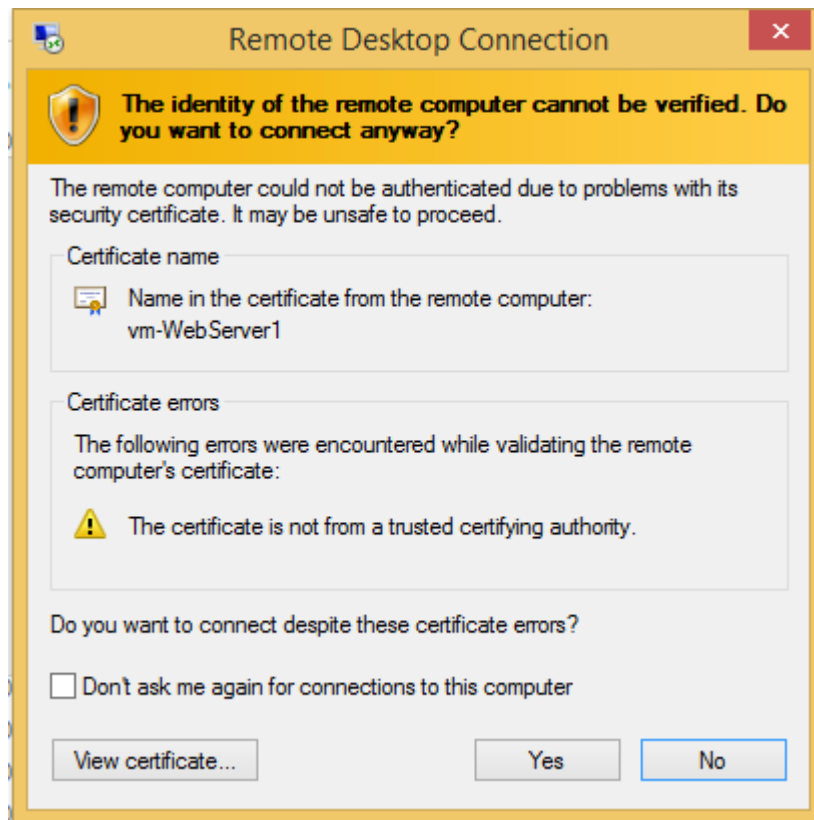
Also, you can go to Remote Desktop Connection on Windows and manually type in the IP address:



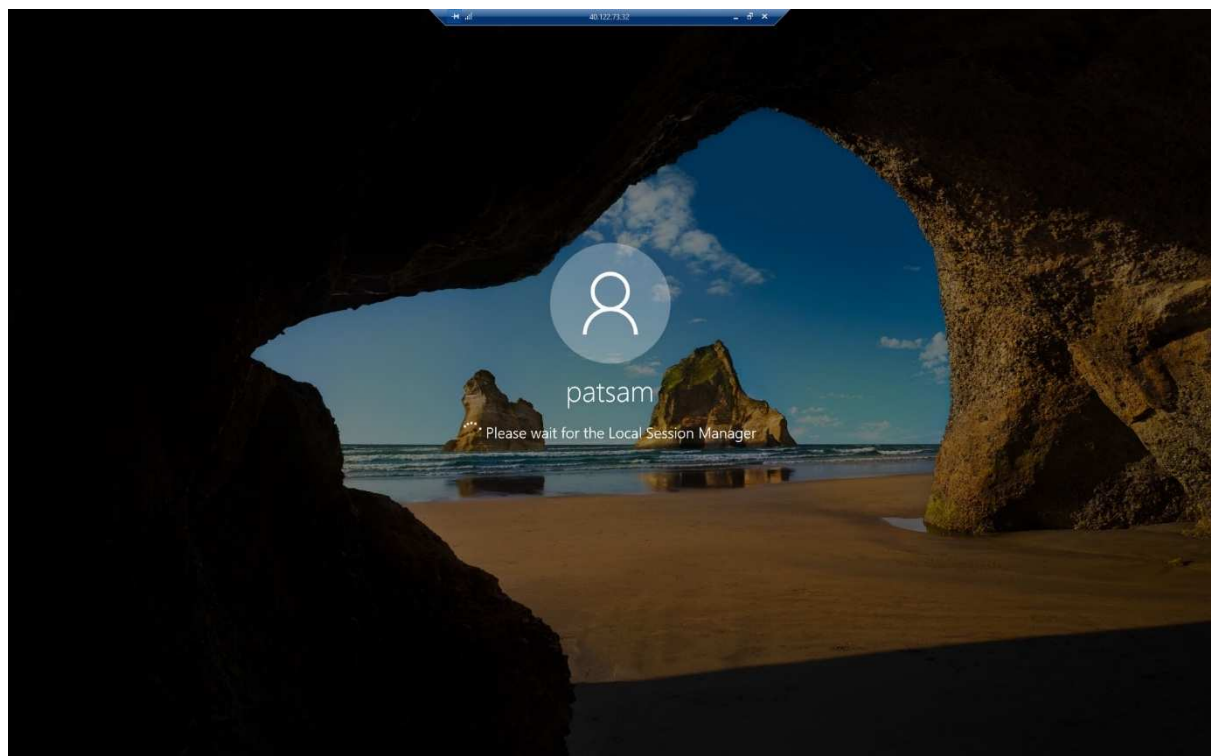
Enter the username/password which we used when creating the Virtual Machine.



To accept the certificate, click Yes.



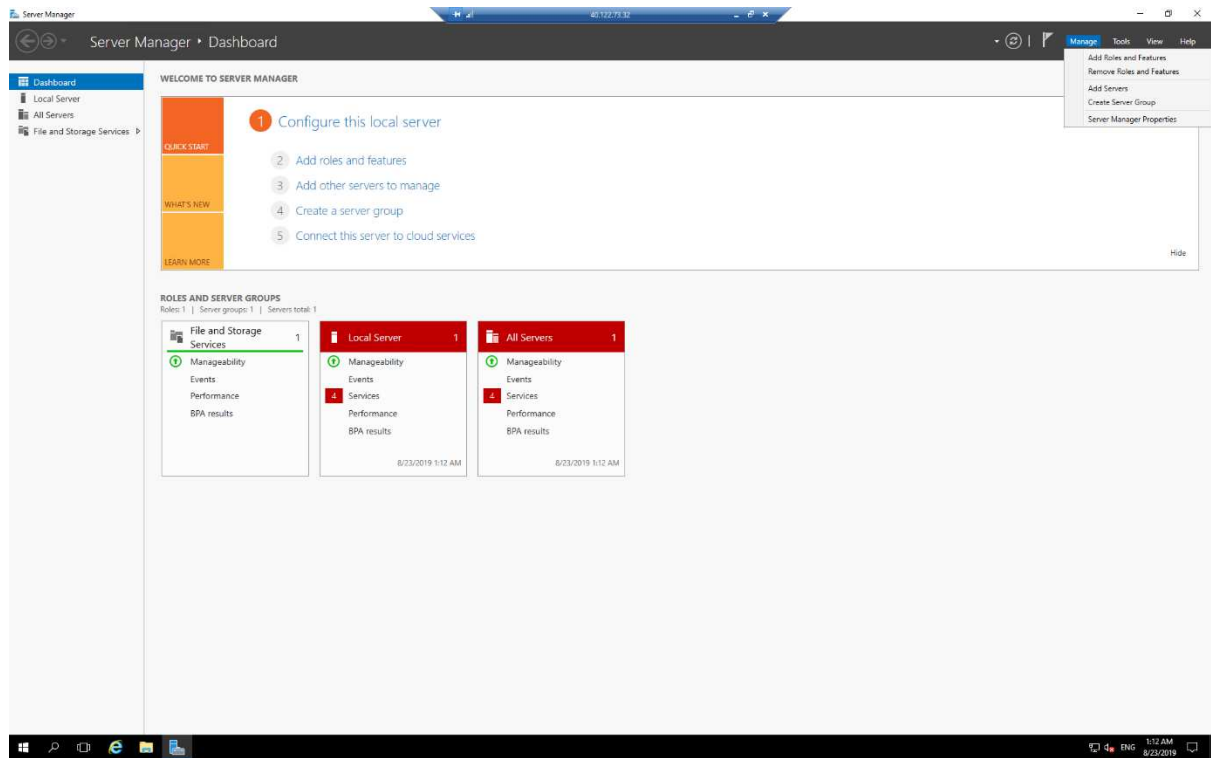
You should be able to access the Virtual Machine.



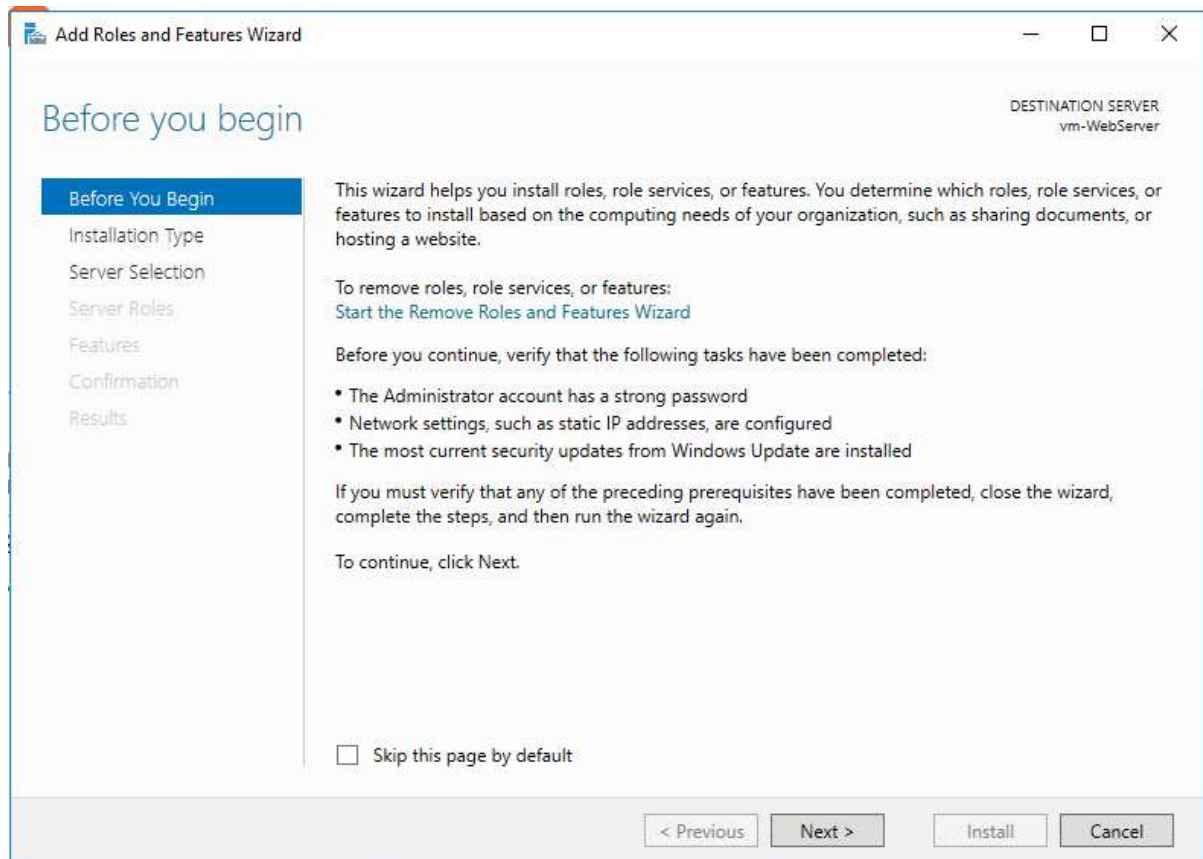
Step 05: Install IIS

Go to Server Manager on the Virtual Machine.

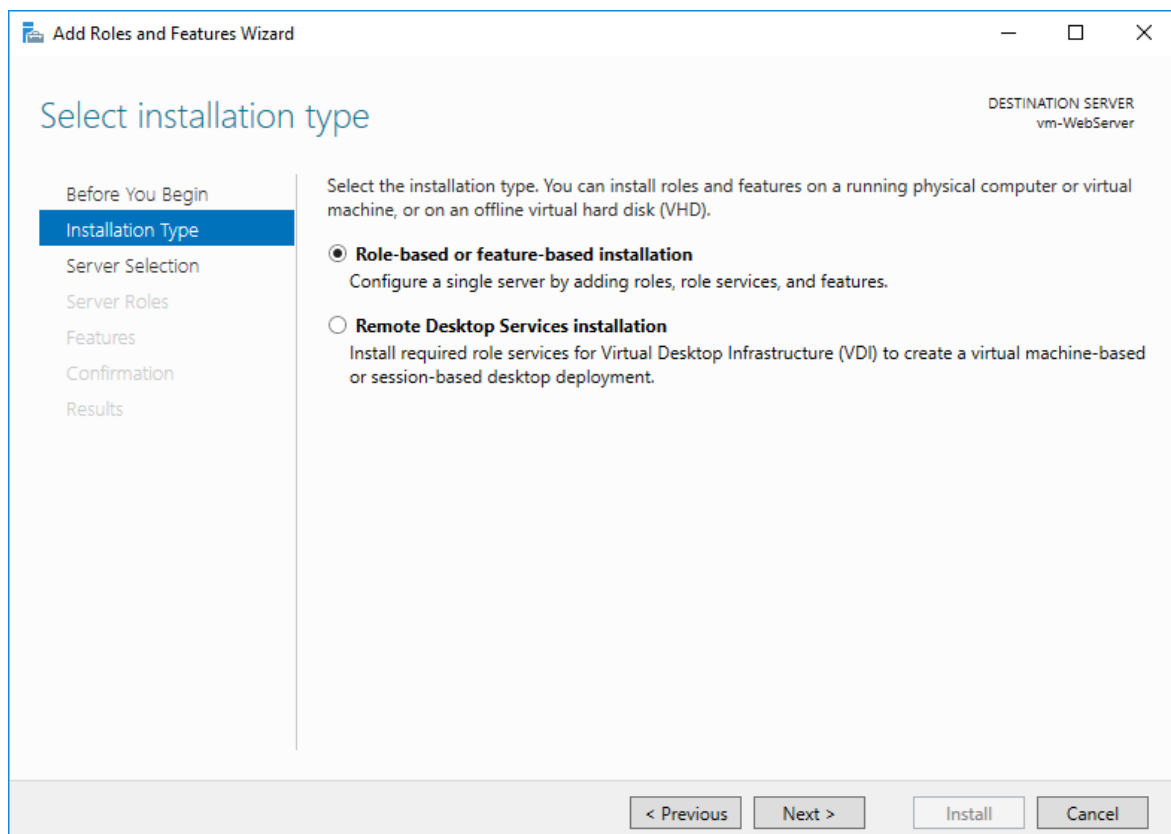
Click Manage → Add Roles and Features



Click Next



Click Next



Click Next

The screenshot shows the 'Add Roles and Features Wizard' window. The title bar reads 'Add Roles and Features Wizard'. The main heading is 'Select destination server'. In the top right corner, it says 'DESTINATION SERVER vm-WebServer'. On the left, a navigation pane lists: 'Before You Begin', 'Installation Type', 'Server Selection' (highlighted in blue), 'Server Roles', 'Features', 'Confirmation', and 'Results'. The main area contains the instruction: 'Select a server or a virtual hard disk on which to install roles and features.' Below this are two radio buttons: 'Select a server from the server pool' (selected) and 'Select a virtual hard disk'. A 'Server Pool' section contains a 'Filter:' text box and a table with the following data:

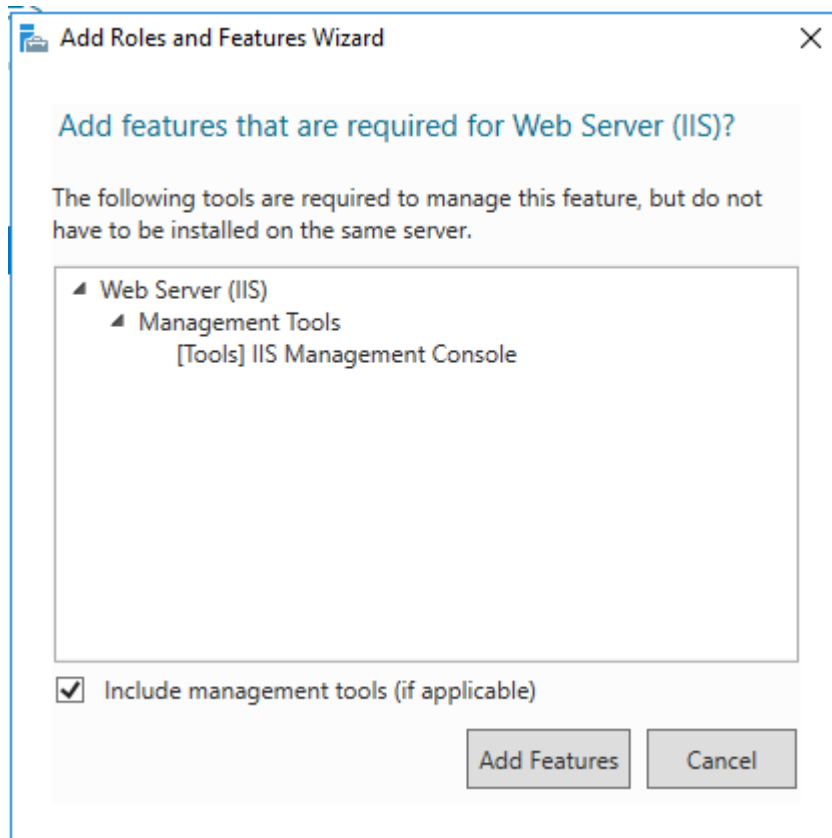
Name	IP Address	Operating System
vm-WebServer	99.0.1.4	Microsoft Windows Server 2016 Datacenter

Below the table, it says '1 Computer(s) found'. A paragraph follows: 'This page shows servers that are running Windows Server 2012 or a newer release of Windows Server, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.' At the bottom are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

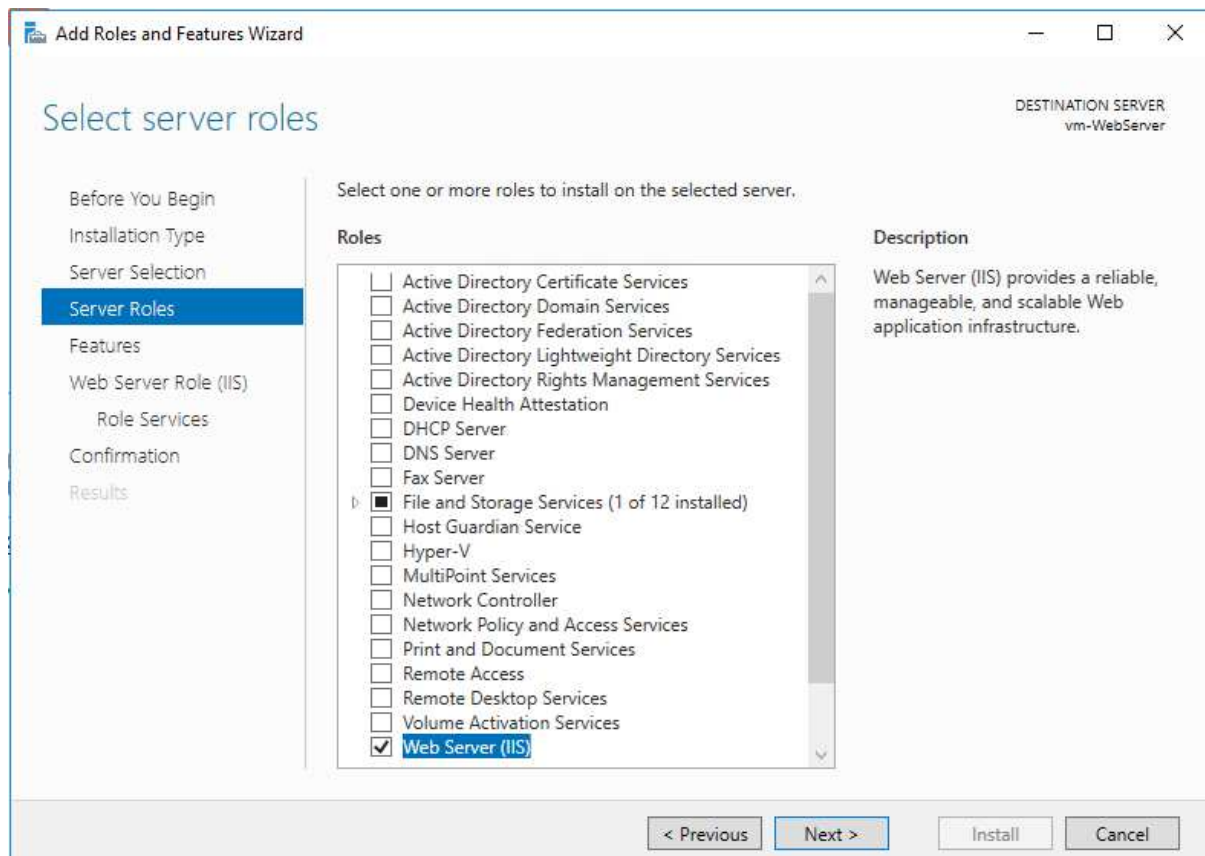
Click on Web Server (IIS)

The screenshot shows the 'Add Roles and Features Wizard' window at the 'Select server roles' step. The title bar reads 'Add Roles and Features Wizard'. The main heading is 'Select server roles'. In the top right corner, it says 'DESTINATION SERVER vm-WebServer'. The left navigation pane is the same as the previous screenshot, with 'Server Roles' highlighted in blue. The main area contains the instruction: 'Select one or more roles to install on the selected server.' Below this is a list of roles under the heading 'Roles'. The roles are: Active Directory Certificate Services, Active Directory Domain Services, Active Directory Federation Services, Active Directory Lightweight Directory Services, Active Directory Rights Management Services, Device Health Attestation, DHCP Server, DNS Server, Fax Server, File and Storage Services (1 of 12 installed) (checked with a black square), Host Guardian Service, Hyper-V, MultiPoint Services, Network Controller, Network Policy and Access Services, Print and Document Services, Remote Access, Remote Desktop Services, Volume Activation Services, and Web Server (IIS) (highlighted in blue). To the right of the list is a 'Description' box that says: 'Web Server (IIS) provides a reliable, manageable, and scalable Web application infrastructure.' At the bottom are four buttons: '< Previous', 'Next >', 'Install', and 'Cancel'.

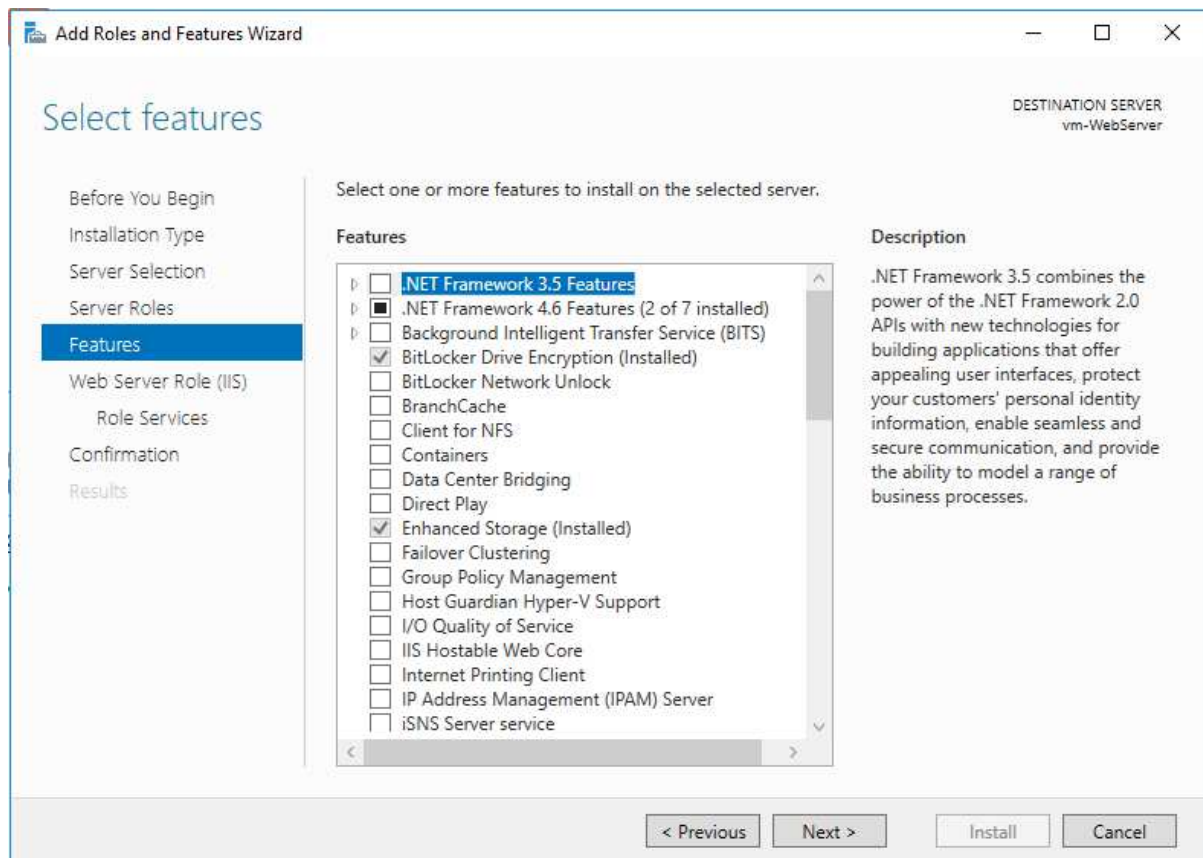
Click on Add Features



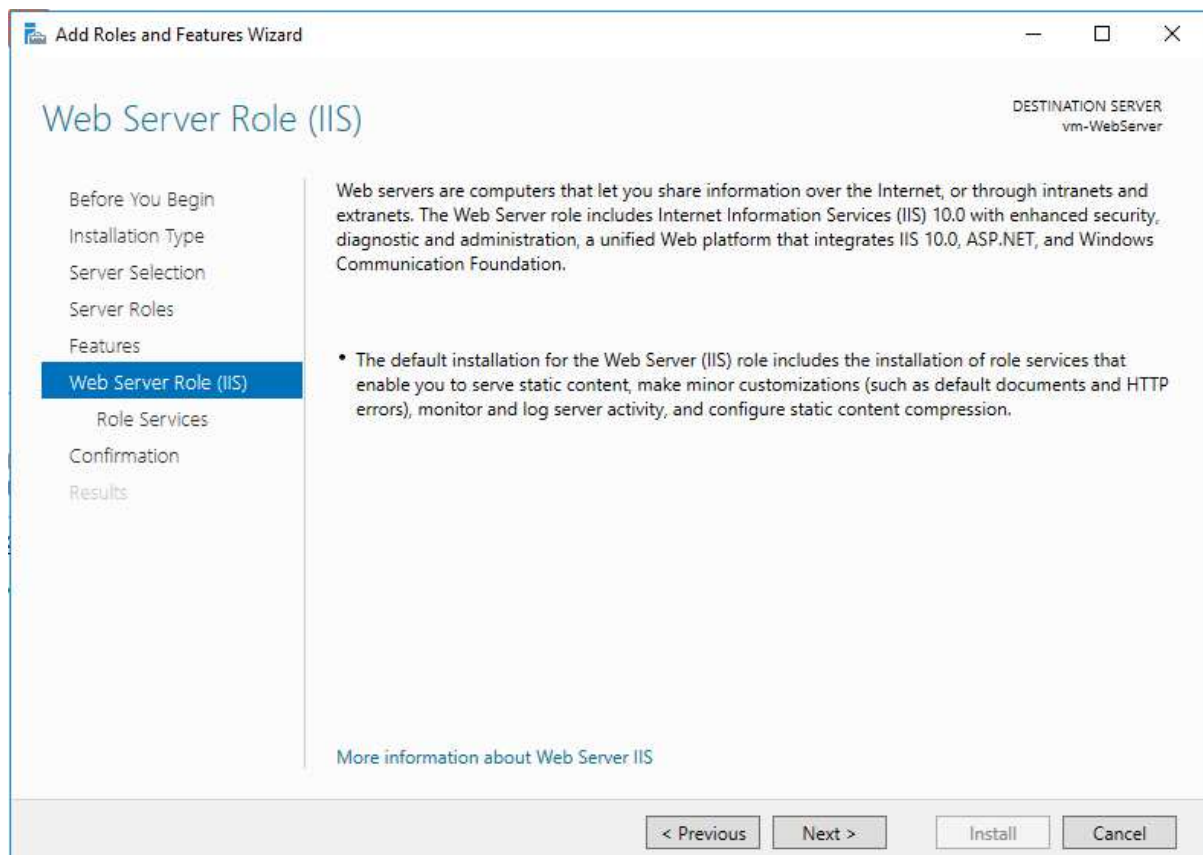
Click on Next



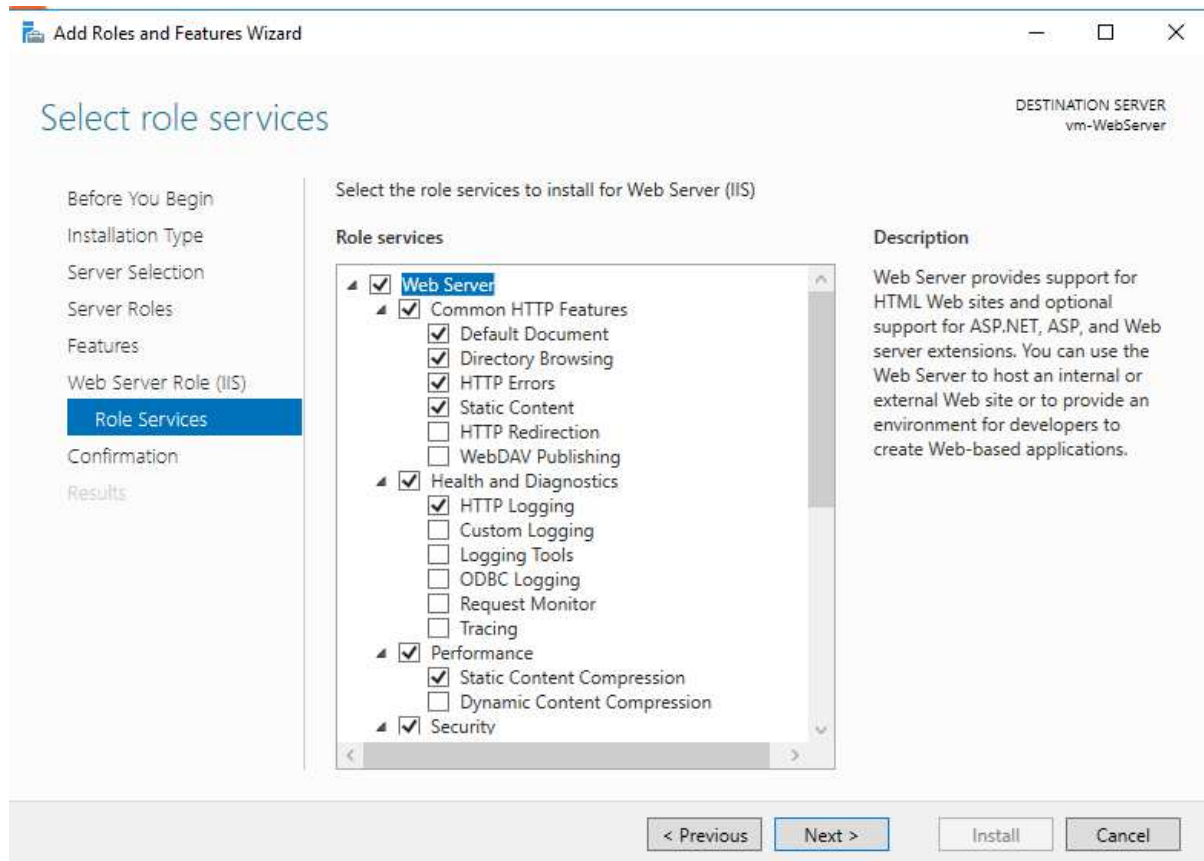
Click on Next



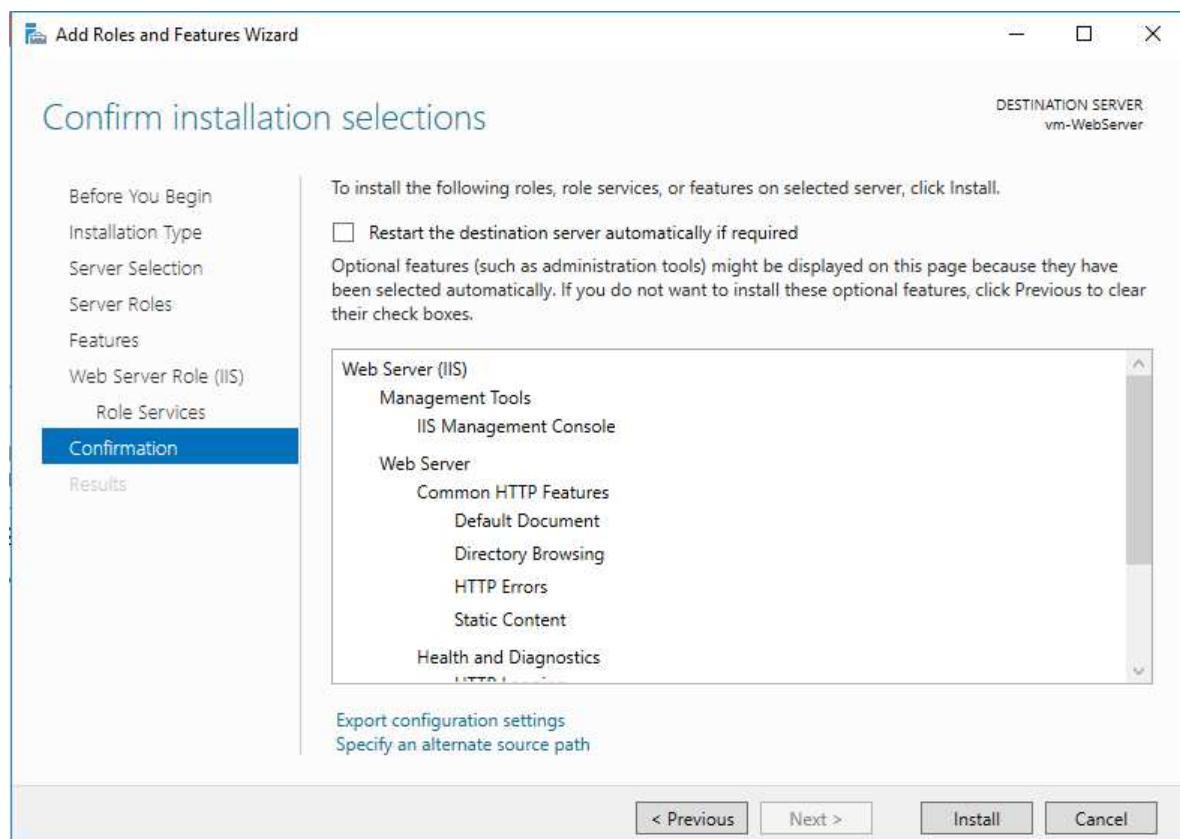
Click on Next



Click on Next

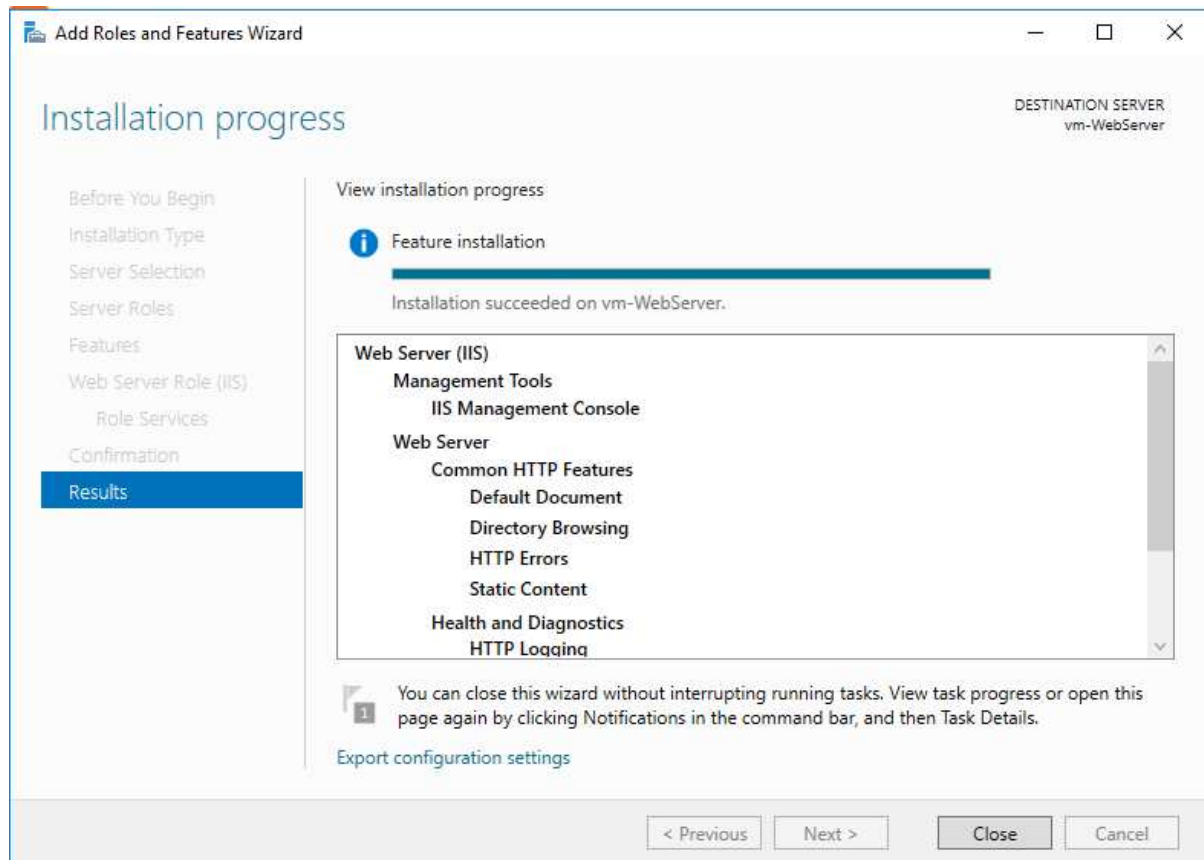


Click on Install



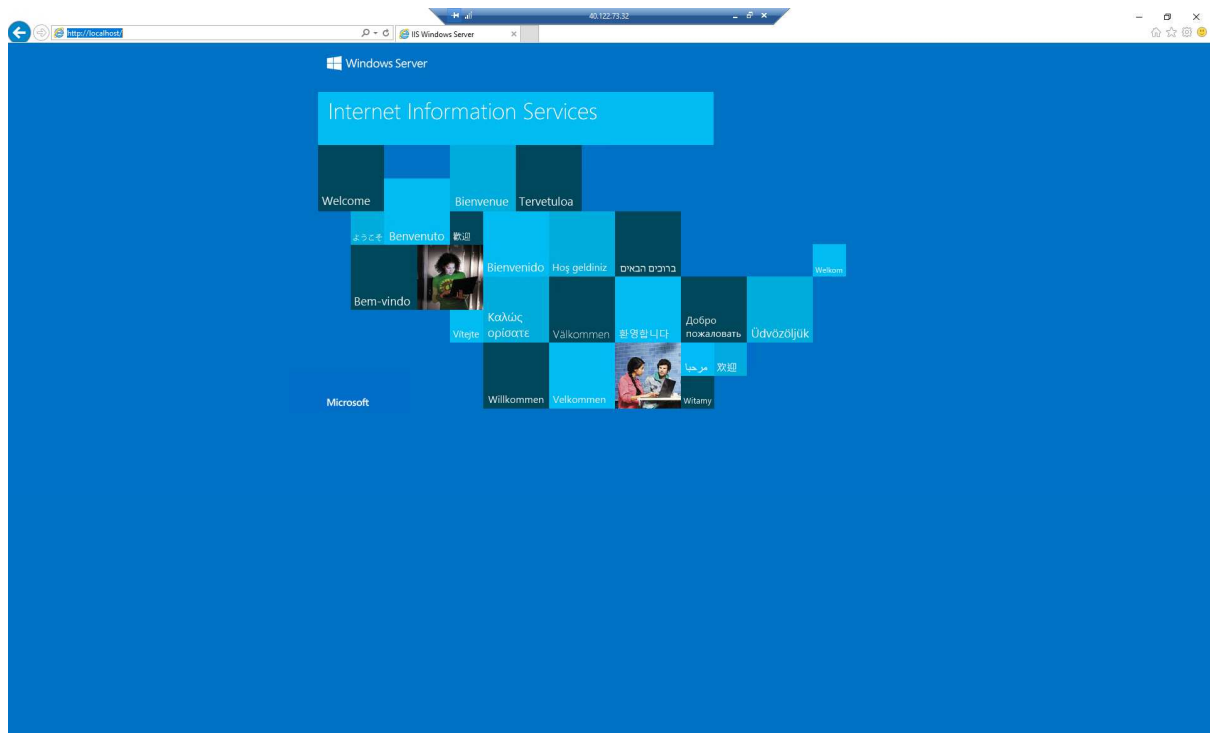
This will install IIS on this Virtual Machine.

Once finishes installing IIS click Close.



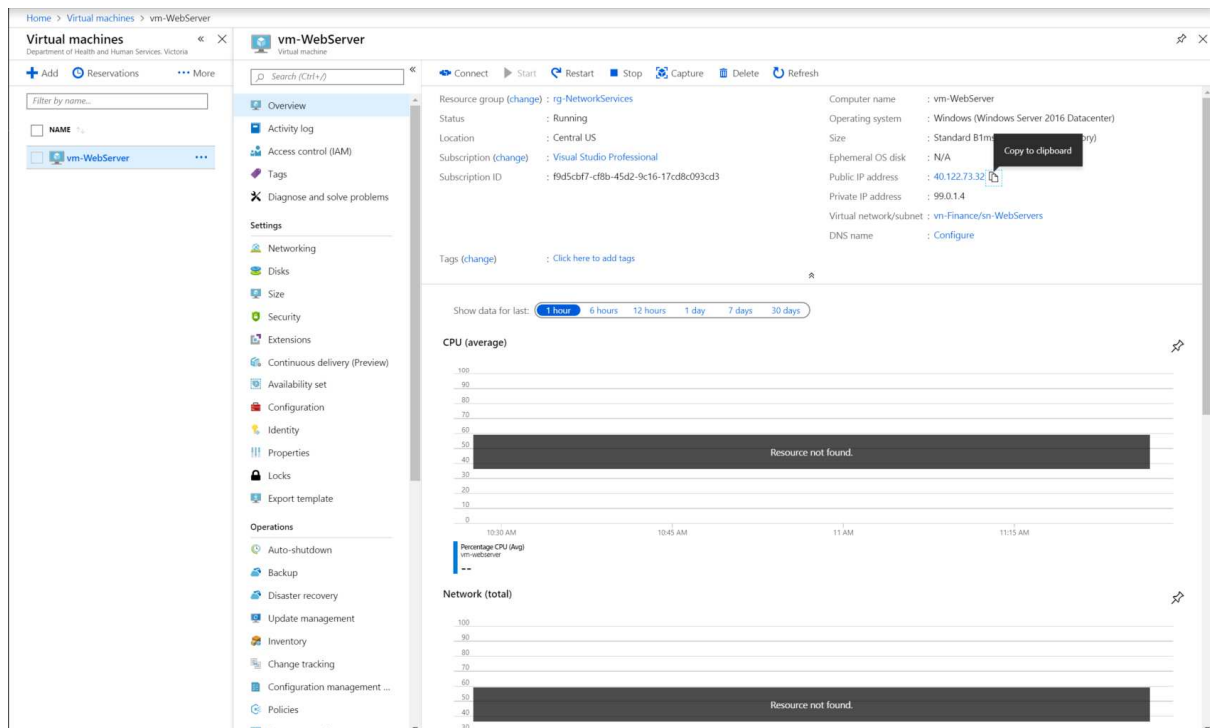
To test whether we have installed IIS correctly and it's working fine, open IE web browser on the Virtual Machine and type in localhost.

<http://localhost/>



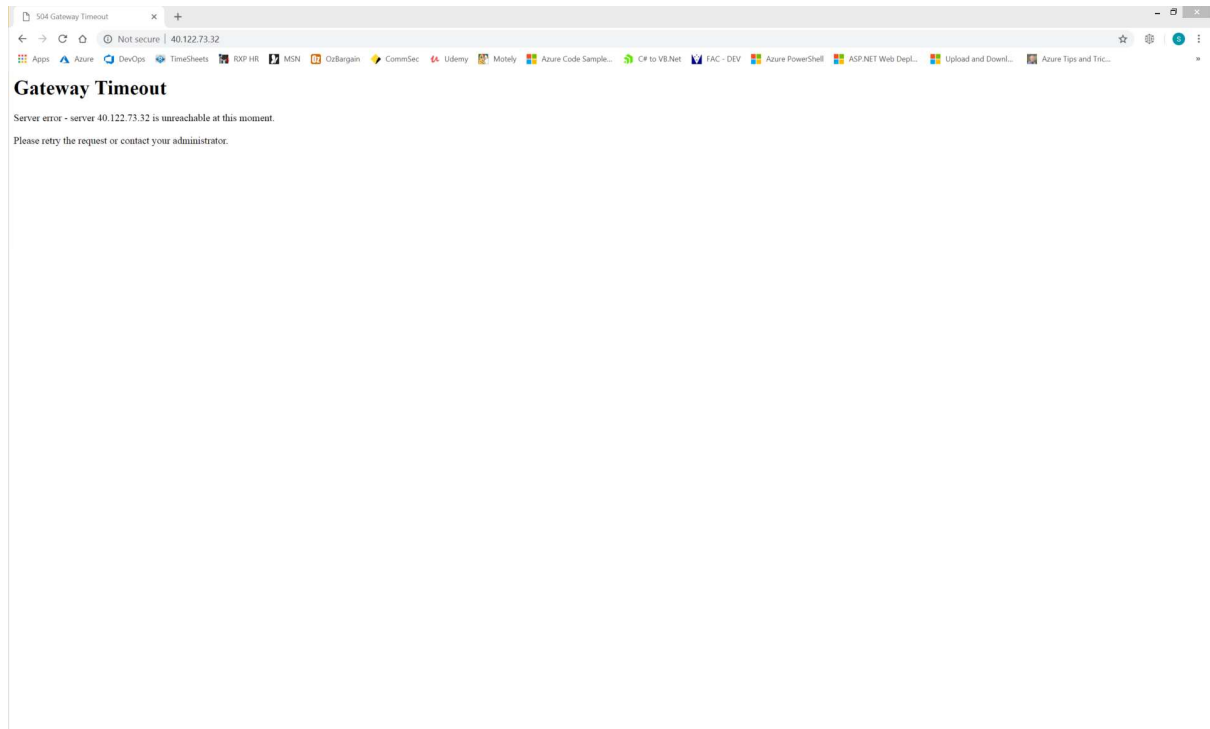
Next, we need to find out whether we can access this page from externally. (outside of this Virtual Machine)

Copy the Public IP Address from the Virtual Machine.



Paste the Public IP Address to a browser - <http://40.122.73.32/>

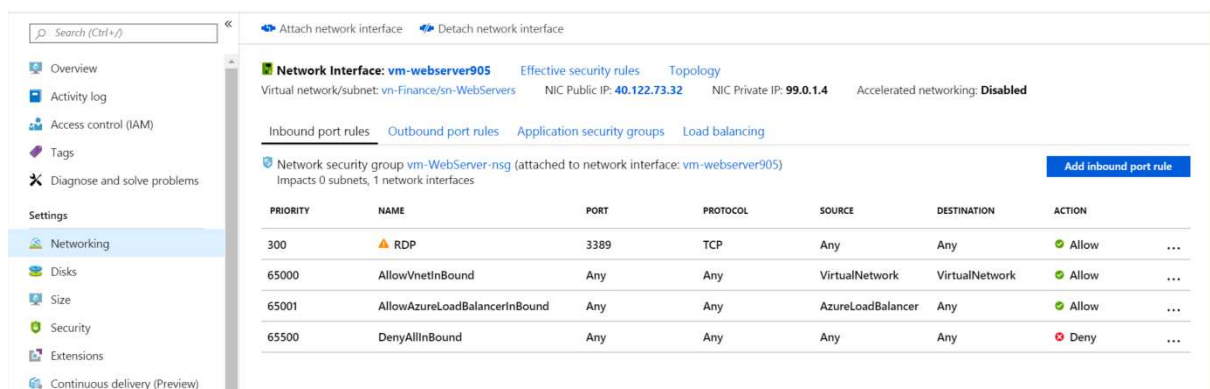
Seems like we cannot connect to the Virtual Machine we created.



That is because we haven't defined a network rule to accept http traffic.

Bellow are the list of rules we have now.

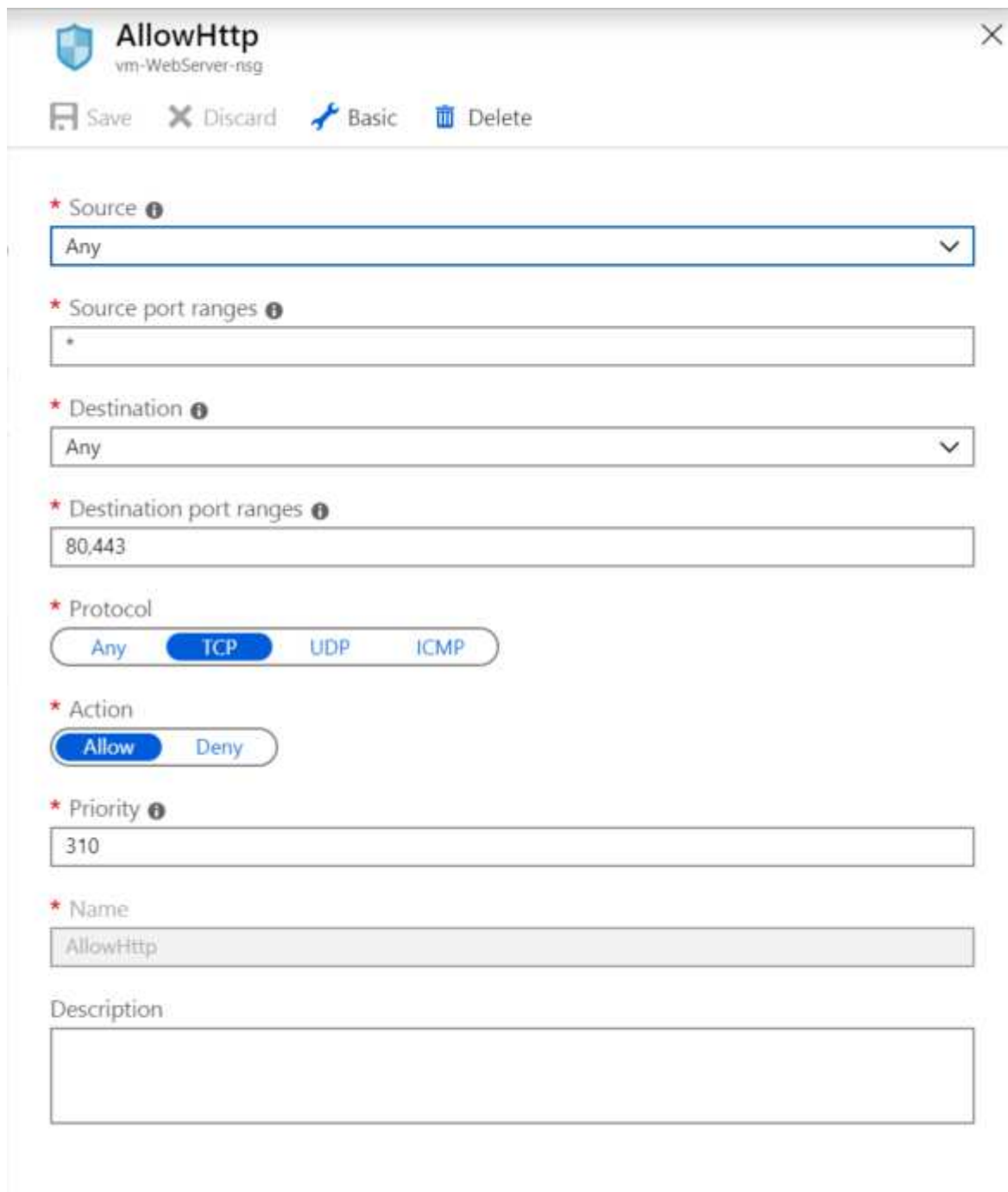
- RDP – Allows RDP traffic
- AllowVnetInBound – Allow Virtual Network traffic
- AllowAzureLoadBalancerInBound – Allow Load Balancer traffic
- DenyAllInBound – Deny any other traffic



Now we need to add another new rule to accept http/https traffic.

Click on Add Inbound Port Rule button.

- Name: AllowHttp
- Source: *
- Destination: Any
- Destination port ranges: 80,443
- Protocol: TCP
- Action: Allow
- Priority: 310



The screenshot shows the configuration window for a new Network Security Group (NSG) rule named 'AllowHttp' on the resource 'vm-WebServer-nsg'. The window has a title bar with a close button and a toolbar with 'Save', 'Discard', 'Basic' (selected), and 'Delete' options. The configuration fields are as follows:

- Source:** A dropdown menu set to 'Any'.
- Source port ranges:** A text input field containing an asterisk (*).
- Destination:** A dropdown menu set to 'Any'.
- Destination port ranges:** A text input field containing '80,443'.
- Protocol:** A group of buttons: 'Any', 'TCP' (selected), 'UDP', and 'ICMP'.
- Action:** A group of buttons: 'Allow' (selected) and 'Deny'.
- Priority:** A text input field containing '310'.
- Name:** A text input field containing 'AllowHttp'.
- Description:** An empty text input field.

Now the Inbound Port Rules look like bellow.

Attach network interface Detach network interface

Network Interface: vm-webserver905

Effective security rules

Topology

Virtual network/subnet: vn-Finance/sn-WebServers

NIC Public IP: 40.122.73.32

NIC Private IP: 99.0.1.4

Accelerated networking: Disabled

Inbound port rules

Outbound port rules

Application security groups

Load balancing

Network security group vm-WebServer-nsg (attached to network interface: vm-webserver905)

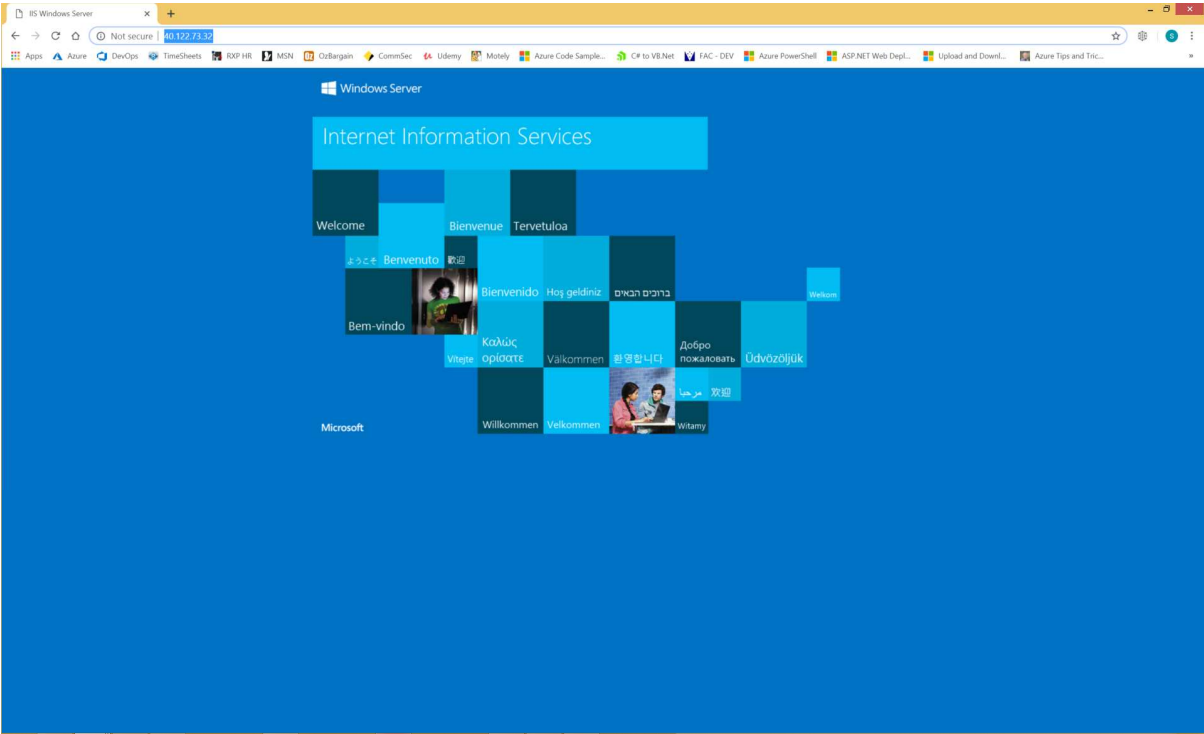
Impacts 0 subnets, 1 network interfaces

Add inbound port rule

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION	
300	RDP	3389	TCP	Any	Any	Allow	...
310	AllowHttp	80,443	TCP	Any	Any	Allow	...
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow	...
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow	...
65500	DenyAllInBound	Any	Any	Any	Any	Deny	...

Paste the Public IP Address to a browser again - <http://40.122.73.32/>

It works fine this time.



We'll have a quick look at the IP configuration of the Virtual Machine.

Run ipconfig /all command on command prompt. (on the Virtual Machine)

```
Administrator: C:\Windows\System32\cmd.exe
(c) 2016 Microsoft Corporation. All rights reserved.

C:\windows\system32>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : vm-WebServer
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Hybrid
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No
    DNS Suffix Search List. . . . . : l03iq5hnybterj30mjhyzv052a.gx.internal.cloudapp.net

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix . : l03iq5hnybterj30mjhyzv052a.gx.internal.cloudapp.net
    Description . . . . . : Microsoft Hyper-V Network Adapter
    Physical Address. . . . . : 00-0D-3A-42-24-DB
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::9c16:fce4:b645:97a9%4(Preferred)
    IPv4 Address. . . . . : 99.0.1.4(Preferred)
    Subnet Mask . . . . . : 255.255.255.0
    Lease Obtained. . . . . : Friday, August 23, 2019 1:08:34 AM
    Lease Expires . . . . . : Monday, September 29, 2155 8:28:52 AM
    Default Gateway . . . . . : 99.0.1.1
    DHCP Server . . . . . : 168.63.129.16
    DHCPv6 IAID . . . . . : 50335034
    DHCPv6 Client DUID. . . . . : 00-01-00-01-24-F0-83-71-00-0D-3A-42-24-DB
    DNS Servers . . . . . : 168.63.129.16
    NetBIOS over Tcpip. . . . . : Enabled

Tunnel adapter isatap.l03iq5hnybterj30mjhyzv052a.gx.internal.cloudapp.net:

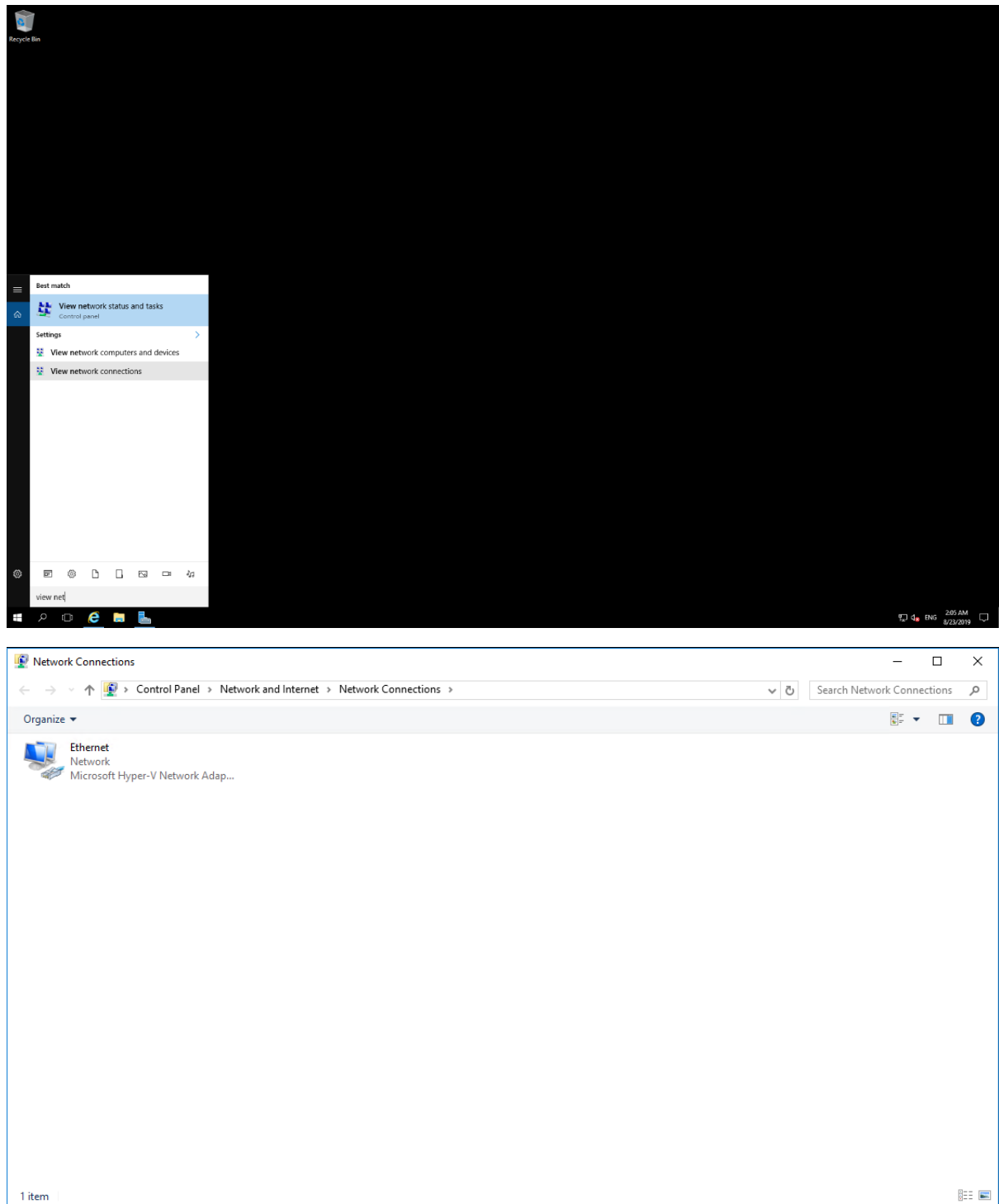
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . : l03iq5hnybterj30mjhyzv052a.gx.internal.cloudapp.net
    Description . . . . . : Microsoft ISATAP Adapter
    Physical Address. . . . . : 00-00-00-00-00-00-E0
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes

Tunnel adapter Teredo Tunneling Pseudo-Interface:

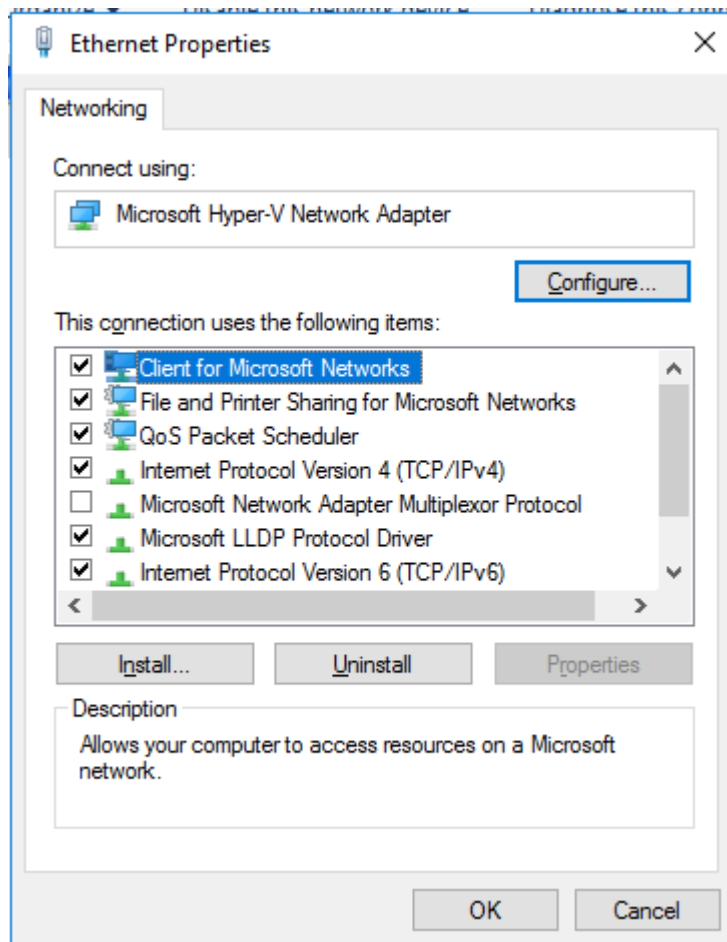
    Connection-specific DNS Suffix . :
    Description . . . . . : Teredo Tunneling Pseudo-Interface
    Physical Address. . . . . : 00-00-00-00-00-00-E0
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes
    IPv6 Address. . . . . : 2001:0:34f1:8072:14db:3334:9cff:fefb(Preferred)
    Link-local IPv6 Address . . . . . : fe80::14db:3334:9cff:fefb%2(Preferred)
    Default Gateway . . . . . : ::
    DHCPv6 IAID . . . . . : 134217728
    DHCPv6 Client DUID. . . . . : 00-01-00-01-24-F0-83-71-00-0D-3A-42-24-DB
    NetBIOS over Tcpip. . . . . : Disabled

C:\windows\system32>
```

You can view the Network Connections.



Right click on Ethernet and click on Properties.



Click on Internet Protocol Version 4 (TCP/IPv4).

There we have the selected option as:

- Obtain an IP address automatically
- Obtain DNS server address automatically

The screenshot shows the 'Internet Protocol Version 4 (TCP/IPv4) Properties' dialog box with the 'General' tab selected. The dialog has a title bar with a close button (X). Inside, there are two tabs: 'General' and 'Alternate Configuration'. The 'General' tab contains the following elements:

- A text block: "You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings."
- Two radio button options:
 - ☒ Obtain an IP address automatically
 - ☐ Use the following IP address:
- Fields for manual IP configuration (disabled):
 - IP address: [x . x . x]
 - Subnet mask: [x . x . x]
 - Default gateway: [x . x . x]
- Two radio button options:
 - ☒ Obtain DNS server address automatically
 - ☐ Use the following DNS server addresses:
- Fields for manual DNS configuration (disabled):
 - Preferred DNS server: [x . x . x]
 - Alternate DNS server: [x . x . x]
- A checkbox: ☐ Validate settings upon exit
- An 'Advanced...' button.

At the bottom of the dialog are 'OK' and 'Cancel' buttons.

Step 6: Associate multiple NICs and PIPs to a Virtual Machine

Create new Network Interface.

- Name: nic-WebServer2
- Virtual network: vn-Finance
- Subnet: sn-WebServers
- Resource group: rg-NetworkServices
- Location: (US) Central US

Create network interface

*

Name

nic-WebServer2

✓

*

Virtual network

📘

vn-Finance

▼

*

Subnet

📘

sn-WebServers (99.0.1.0/24)

▼

Private IP address assignment

Dynamic

Static

Network security group

📘

None

>

☐

Private IP address (IPv6)

*

Subscription

Visual Studio Professional

▼

*

Resource group

📘

rg-NetworkServices

▼

Create new

*

Location

(US) Central US

▼

Create

Automation options

We can see the newly created Network Interface.

Home > Network interfaces

Network interfaces

Department of Health and Human Services, Victoria

+ Add

Edit columns

Refresh

Assign tags

Subscriptions: 1 of 2 selected – Don't see a subscription? Open Directory + Subscription settings

Filter by name:

Visual Studio Professional

All resource groups

All locations

All tags

No grouping

2 items

<input type="checkbox"/>	NAME	VIRTUAL NETWORK	PRIMARY PRIVATE IP	ATTACHED TO	RESOURCE GROUP	LOCATION	SUBSCRIPTION
<input type="checkbox"/>	nic-WebServer2	vn-Finance	99.0.1.5	-	rg-NetworkServices	Central US	Visual Studio Professional
<input type="checkbox"/>	vm-webserver905	vn-Finance	99.0.1.4	vm-WebServer	rg-NetworkServices	Central US	Visual Studio Professional

Next create a new Public IP Address.

To create a new Public IP, click on Create New

- Name: pip-WebServer1
- DNS name label: webserver2

We can see the newly created Public IP Address.

Home > Public IP addresses

Public IP addresses

Department of Health and Human Services, Victoria

+ Add

≡ Edit columns

↻ Refresh

🏷 Assign tags

Subscriptions: 1 of 2 selected – Don't see a subscription? [Open Directory](#) + [Subscription settings](#)

Filter by name...

Visual Studio Professional

All resource groups

All locations

All tags

No grouping

2 items

<input type="checkbox"/> NAME	RESOURCE GROUP	LOCATION	SUBSCRIPTION
<input checked="" type="checkbox"/> pip-WebServer1	rg-NetworkServices	Central US	Visual Studio Professional
<input type="checkbox"/> pip-WebServer2	rg-NetworkServices	Central US	Visual Studio Professional

Next, we need to associate newly created Public IP Address to newly created Network Interface.

pip-Webserver2 → nic-WebServer2

Go to Network Interfaces and click on nic-WebServer2

Home > Network interfaces

Network interfaces

Department of Health and Human Services, Victoria

+ Add

≡ Edit columns

↺ Refresh

🔖 Assign tags

Subscriptions: 1 of 2 selected – Don't see a subscription? Open Directory + Subscription settings

Filter by name...

Visual Studio Professional

All resource groups

All locations

All tags

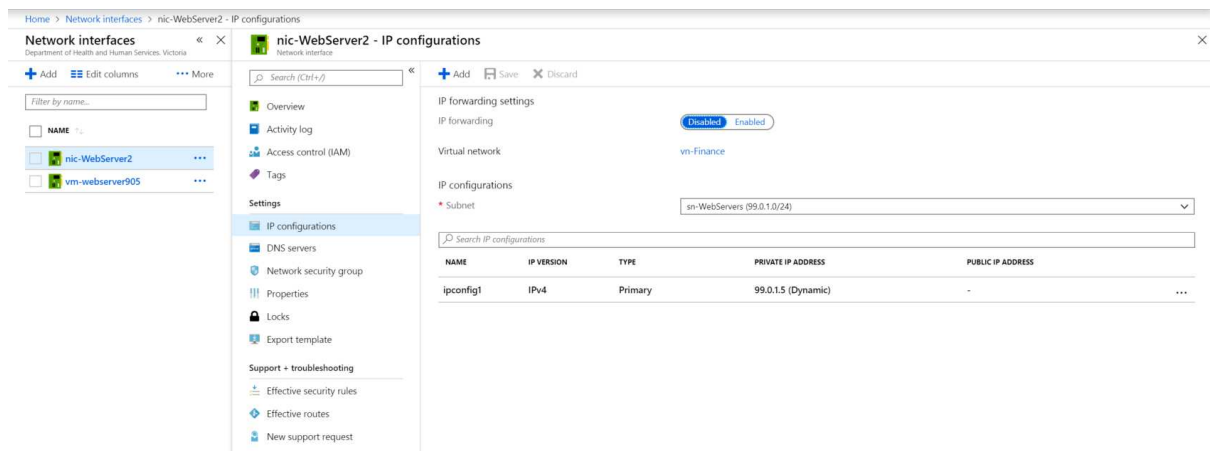
No grouping

2 items

<input type="checkbox"/>	NAME	VIRTUAL NETWORK	PRIMARY PRIVATE IP	ATTACHED TO	RESOURCE GROUP	LOCATION	SUBSCRIPTION
<input checked="" type="checkbox"/>	nic-WebServer2	vn-Finance	99.0.1.5	-	rg-NetworkServices	Central US	Visual Studio Professional
<input checked="" type="checkbox"/>	vm-webserver905	vn-Finance	99.0.1.4	vm-WebServer	rg-NetworkServices	Central US	Visual Studio Professional

Click on IP Configuration tab.

Click on ipconfig1.



Network interfaces				
Department of Health and Human Services, Victoria				
+ Add Edit columns ... More				
Filter by name...				
NAME				
nic-WebServer2				
vm-webserver905				

nic-WebServer2 - IP configurations				
Network interface				
+ Add Save Discard				
IP forwarding settings				
IP forwarding				
Virtual network				
IP configurations				
* Subnet				
vm-WebServers (99.0.1.0/24)				
Search IP configurations				
NAME	IP VERSION	TYPE	PRIVATE IP ADDRESS	PUBLIC IP ADDRESS
ipconfig1	IPv4	Primary	99.0.1.5 (Dynamic)	-

[Home](#) > [Network interfaces](#) > [nic-WebServer2 - IP configurations](#) > ipconfig1

ipconfig1

nic-WebServer2



Save



Discard

Public IP address settings

Public IP address

Disabled

Enabled

Private IP address settings

Virtual network/subnet

[vn-Finance/sn-WebServers](#)

Assignment

Dynamic

Static

* IP address

99.0.1.5

Click on Public IP Address – Enabled option. Then click on Configure Required Settings option.

Home > Network interfaces > nic-WebServer2 - IP configurations > ipconfig1

ipconfig1

nic-WebServer2

Save Discard

Public IP address settings

Public IP address

Disabled Enabled

* IP address >

Configure required settings

Private IP address settings

Virtual network/subnet

vn-Finance/sn-WebServers

Assignment

Dynamic Static

* IP address

99.0.1.5

Select newly created Public IP Address: pip-WebServer2

Home > Network interfaces > nic-WebServer2 - IP configurations > ipconfig1 > Choose public IP address

ipconfig1

nic-WebServer2

Save Discard

Public IP address settings

Public IP address

Disabled Enabled

* IP address >

Configure required settings

Private IP address settings

Virtual network/subnet

vn-Finance/sn-WebServers

Assignment

Dynamic Static

* IP address

99.0.1.5

Choose public IP address

Dynamic public IP addresses that are not in use won't have an IP address assigned to them.

These are the public IP addresses in the selected subscription and location 'Central US'.

Create new

pip-WebServer2	rg-NetworkServices
pip-WebServer1	rg-NetworkServices

Click Save button.

Home > Network interfaces > nic-WebServer2 - IP configurations > ipconfig1

ipconfig1

nic-WebServer2

Save Discard

Public IP address settings

Public IP address

☐ Disabled ☒ Enabled

* IP address

pip-WebServer2 (Unassigned) >

Private IP address settings

Virtual network/subnet

vn-Finance/sn-WebServers

Assignment

☒ Dynamic ☐ Static

* IP address

99.0.1.5

Next step is to associate this Network Interface to the Virtual Machine.

nic-WebServer2 → vm-WebServer

Click on vm-WebServer virtual machine. Make sure the Virtual Machine is in Stopped status.

Home > Virtual machines

Virtual machines

Department of Health and Human Services Victoria

Documentation

Add Reservations Edit columns Refresh Assign tags Start Restart Stop Delete Services

Subscriptions: 1 of 2 selected - Don't see a subscription? [Open Directory](#) + [Subscription settings](#)

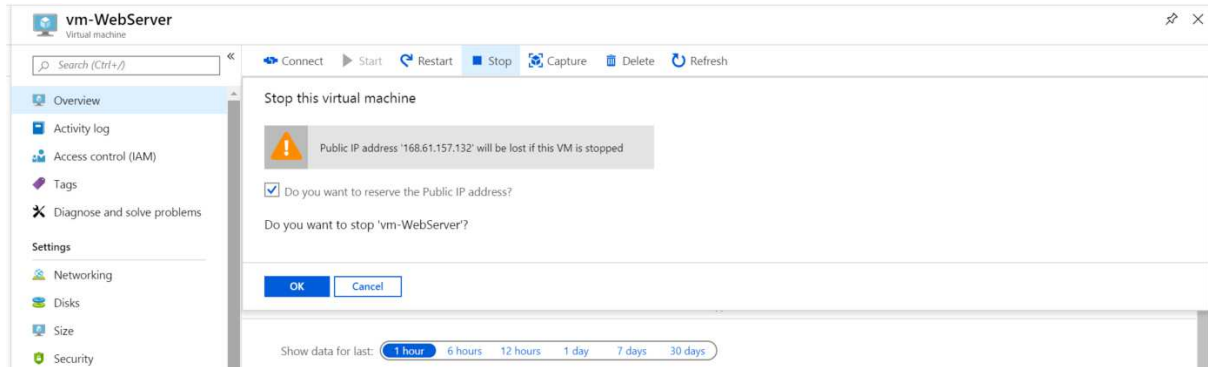
Filter by name... Visual Studio Professional All resource groups All types All locations All tags No grouping

1 items

<input type="checkbox"/>	NAME	TYPE	STATUS	RESOURCE GROUP	LOCATION	SOURCE	MAINTENANCE STATUS	SUBSCRIPTION
<input type="checkbox"/>	vm-WebServer	Virtual machine	Stopped (deallocated)	rg-NetworkServices	Central US	Marketplace	-	Visual Studio Professional

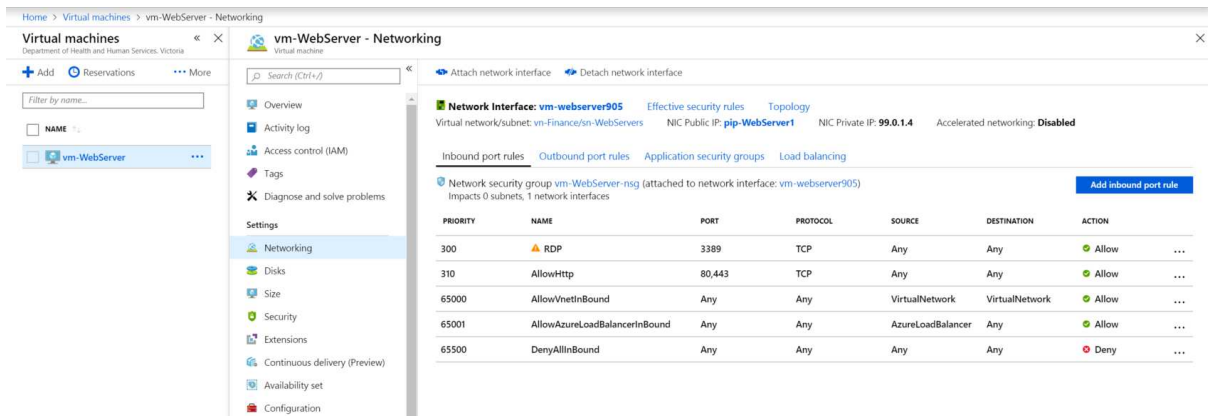
** Important

When stopping the Virtual Machine, it will prompt below warning.

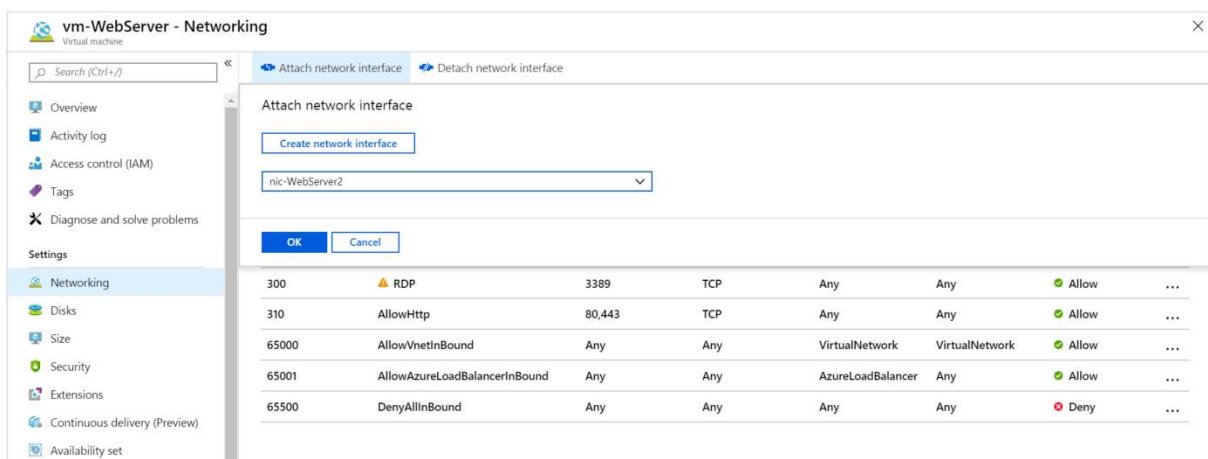


Make sure you tick Reserve Public IP Address option to retain the current Public IP Addresses. Or else when you re start it next time, there will be different Public Ip Addresses next time.

Click on Networking tab.



Click on Attach Network Interface button.



Select nic-Webserver2 from the options and click OK.

It will add a new Network Interface. (new tab: nic-Webserver2)

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
300	RDP	3389	TCP	Any	Any	Allow
310	AllowHttp	80,443	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

Re start the Virtual Machine.

Resource group (change) : rg-NetworkServices
Status : Stopped (deallocated)
Location : Central US
Subscription (change) : Visual Studio Professional
Subscription ID : f9d5cbf7-cf8b-45d2-9c16-17cd8c093cd3

Computer name : (start VM to view)
Operating system : Windows
Size : Standard B1ms (1 vcpu, 2 GiB memory)
Ephemeral OS disk : N/A
Public IP address : pip-WebServer1
Private IP address : 99.0.1.4
Virtual network/subnet : vm-Finance/sn-WebServers
DNS name : Configure

Now this Virtual Machine have 2 Network Interfaces.

- vm-webserver905
- nic-WebServer2

Because of that now this Virtual Machine has 2 Private IP Addresses and 2 Public IP addresses.

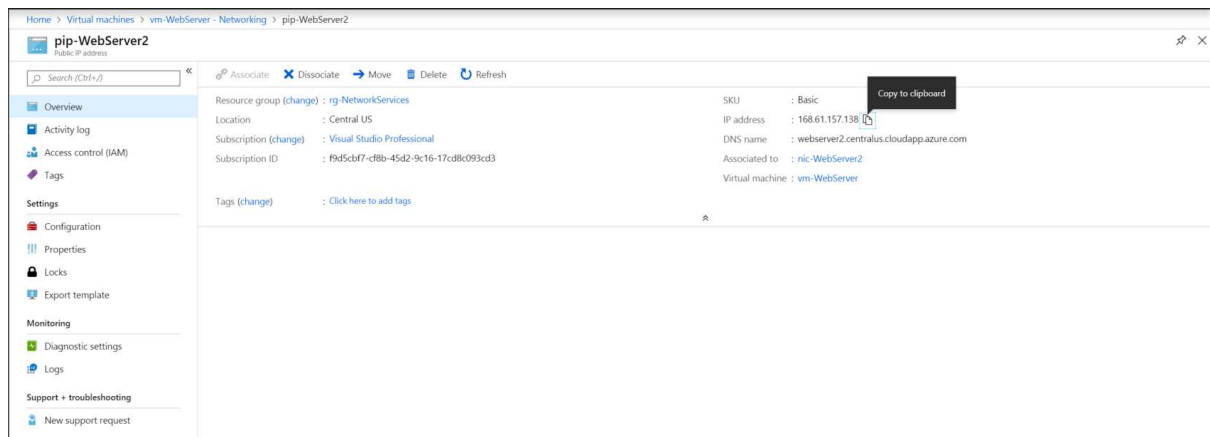
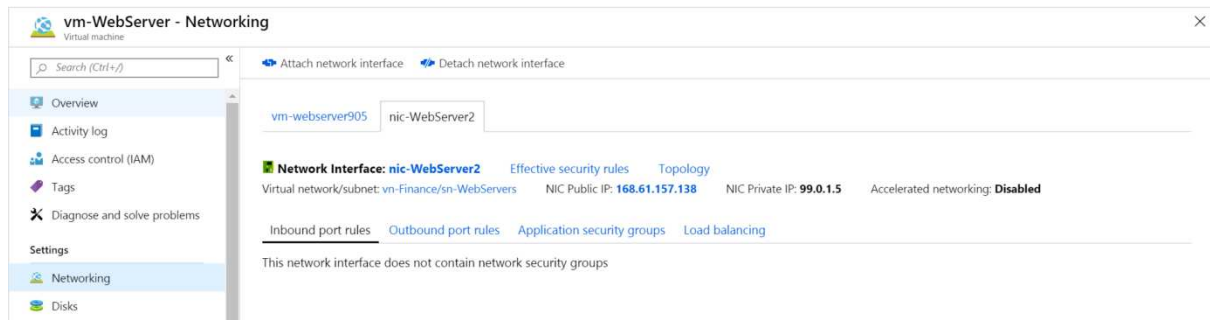
- Private IP Address: 99.0.1.4 | 99.0.1.5
- Public IP Address: 168.61.157.132 | 40.122.144.69

**** Important:** Remember I mentioned when Stopping the Virtual Machine, it gave me a warning saying to tick the option Reserve Public IP Address. In my case I didn't tick it. So that's why the Public IP Addresses now I have set for this Virtual Machine is different to earlier.

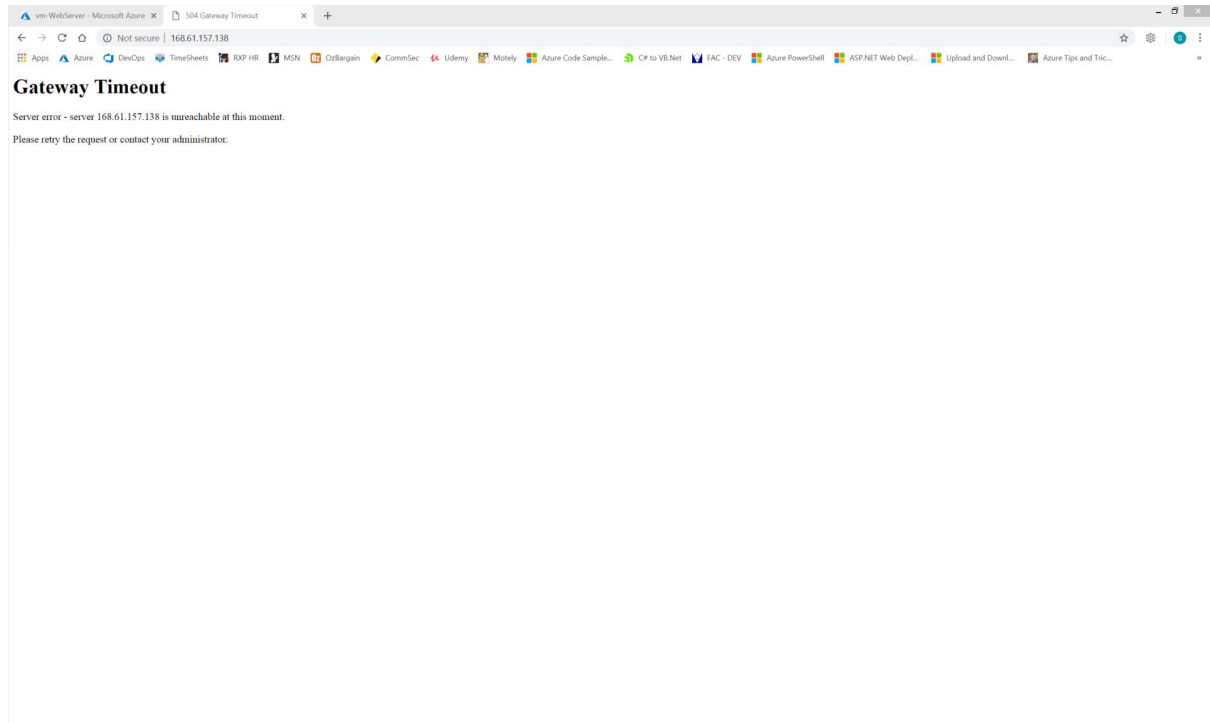
Last time we did connected to this Virtual Machine through internet using old Public IP Address. Now we are going to connect to the same machine using new Public IP Address.

Get the new Public IP Address and paste the Public IP Address to a browser again -

<http://168.61.157.138/>



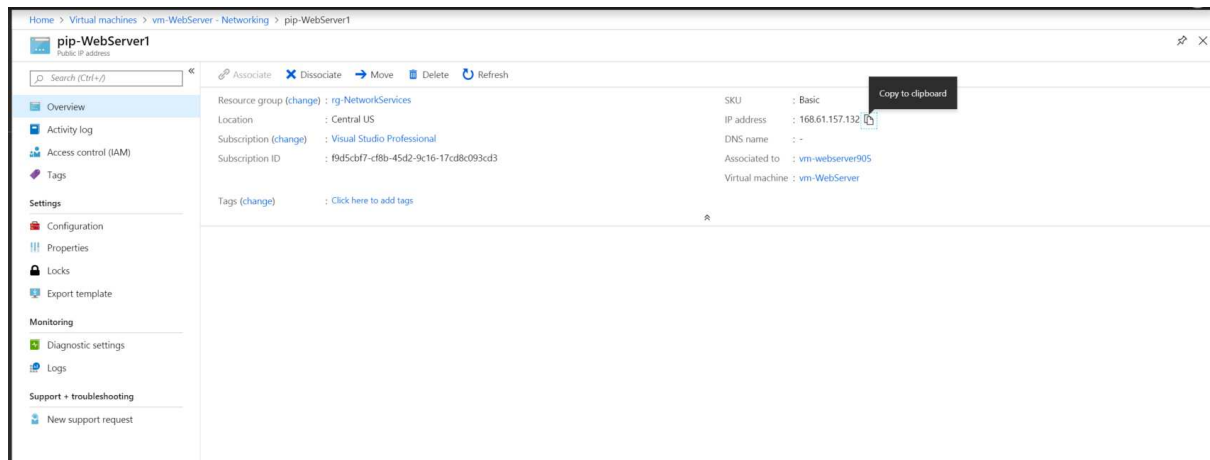
It gives below error.



We are not able to RDP in to this Virtual Machine using new Public IP Address.

This is because we need to configure new the Network Interface on the Virtual Machine level.

In order to RDP in to the Virtual Machine get the old Public IP Address: 168.61.157.132



RDP using old Public IP Address: 168.61.157.132



When you are inside the Virtual Machine run below command in command line.

Ipconfig /all

Now we can see 2 Ethernet Adaptors:

- Ethernet adapter Ethernet
- Ethernet adapter Ethernet 2

```
Select Administrator: C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\windows\system32>ipconfig /all

Windows IP Configuration

Host Name . . . . . : vm-WebServer
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : l03iq5hnybterj3omjhyzv052a.gx.internal.cloudapp.net

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . : l03iq5hnybterj3omjhyzv052a.gx.internal.cloudapp.net
Description . . . . . : Microsoft Hyper-V Network Adapter
Physical Address. . . . . : 00-0D-3A-42-24-DB
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::9c16:fce4:b645:97a9%12(Preferred)
IPv4 Address. . . . . : 99.0.1.4(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Friday, August 23, 2019 5:18:20 AM
Lease Expires . . . . . : Monday, September 29, 2155 11:56:32 AM
Default Gateway . . . . . : 99.0.1.1
DHCP Server . . . . . : 168.63.129.16
DHCPv6 IAID . . . . . : 50335034
DHCPv6 Client DUID. . . . . : 00-01-00-01-24-F0-83-71-00-0D-3A-42-24-DB
DNS Servers . . . . . : 168.63.129.16
NetBIOS over Tcpip. . . . . : Enabled

Ethernet adapter Ethernet 2:

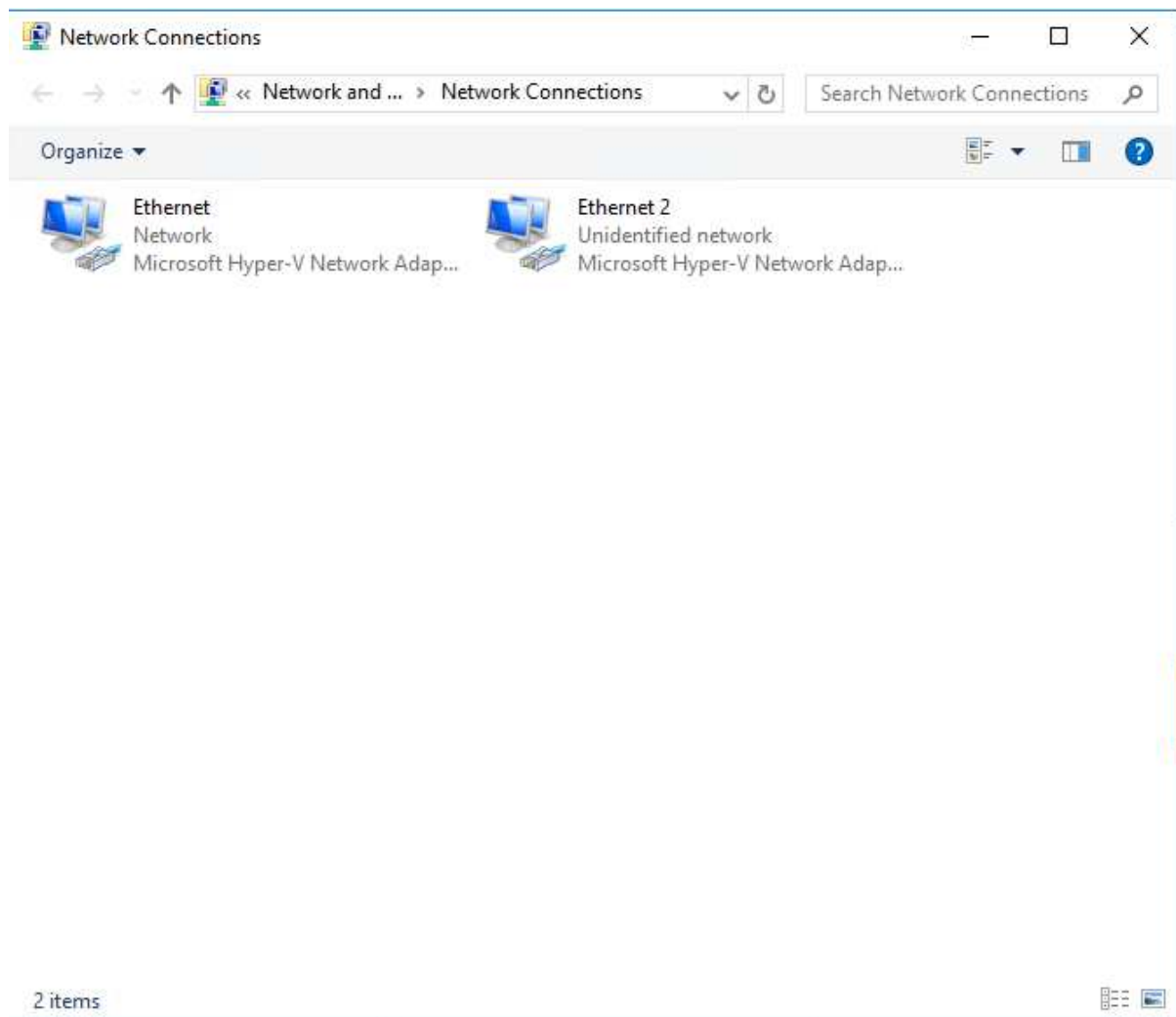
Connection-specific DNS Suffix . : l03iq5hnybterj3omjhyzv052a.gx.internal.cloudapp.net
Description . . . . . : Microsoft Hyper-V Network Adapter #2
Physical Address. . . . . : 00-0D-3A-94-48-10
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::68be:f7cb:4284:ccf1%2(Preferred)
IPv4 Address. . . . . : 99.0.1.5(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Friday, August 23, 2019 5:18:20 AM
Lease Expires . . . . . : Monday, September 29, 2155 11:56:32 AM
Default Gateway . . . . . :
DHCP Server . . . . . : 168.63.129.16
DHCPv6 IAID . . . . . : 301993274
DHCPv6 Client DUID. . . . . : 00-01-00-01-24-F0-83-71-00-0D-3A-42-24-DB
DNS Servers . . . . . : 168.63.129.16
NetBIOS over Tcpip. . . . . : Enabled

Tunnel adapter isatap.l03iq5hnybterj3omjhyzv052a.gx.internal.cloudapp.net:

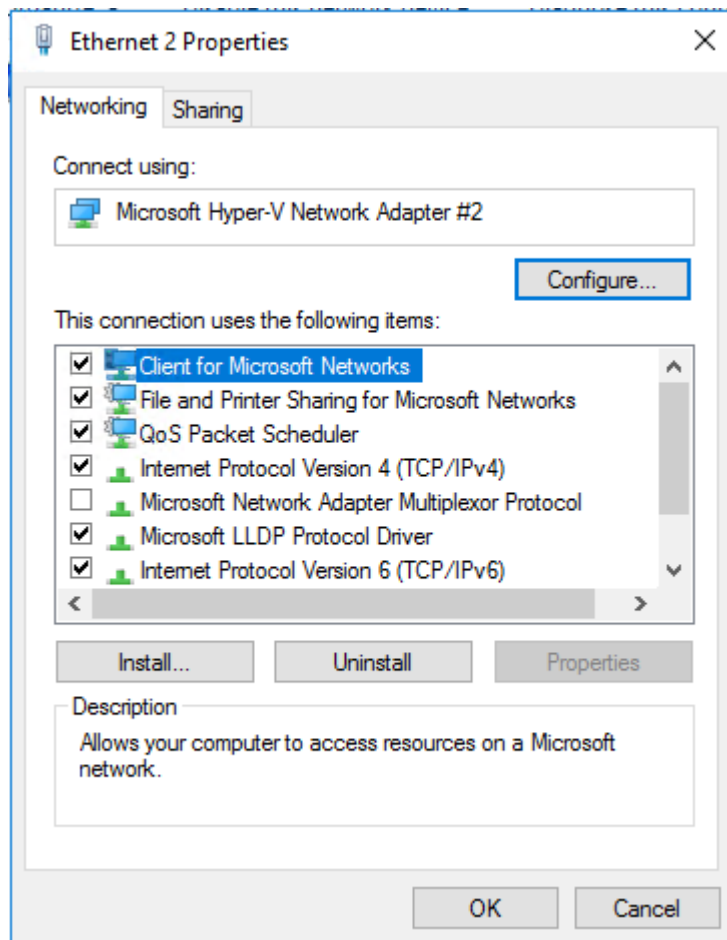
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : l03iq5hnybterj3omjhyzv052a.gx.internal.cloudapp.net
Description . . . . . : Microsoft ISATAP Adapter
Physical Address. . . . . : 00-00-00-00-00-00-E0
DHCP Enabled. . . . . : No
Autoconfiguration Enabled . . . . : Yes

C:\windows\system32>
```

Go in to Network Connections. Now we can see 2 Network Connections.



Right click on Ethernet 2 and click on Properties.



Click on Internet Protocol Version 4 (TCP/IPv4)

The image shows a Windows dialog box titled "Internet Protocol Version 4 (TCP/IPv4) Properties". It has two tabs: "General" and "Alternate Configuration". The "General" tab is selected. Inside the dialog, there is a text block that reads: "You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings." Below this, there are two radio button options. The first option, "Obtain an IP address automatically", is selected. The second option, "Use the following IP address:", is unselected and has a group box containing three input fields for "IP address:", "Subnet mask:", and "Default gateway:". Each field contains four asterisks. Below these, there are two more radio button options. The first option, "Obtain DNS server address automatically:", is selected. The second option, "Use the following DNS server addresses:", is unselected and has a group box containing two input fields for "Preferred DNS server:" and "Alternate DNS server:". Each field contains four asterisks. At the bottom left, there is a checkbox labeled "Validate settings upon exit" which is unchecked. At the bottom right, there is an "Advanced..." button. At the very bottom of the dialog, there are "OK" and "Cancel" buttons. The "OK" button is highlighted with a blue border.

Internet Protocol Version 4 (TCP/IPv4) Properties

General Alternate Configuration

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☒ Obtain an IP address automatically

☐ Use the following IP address:

IP address: . . .

Subnet mask: . . .

Default gateway: . . .

☒ Obtain DNS server address automatically:

☐ Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

☐ Validate settings upon exit

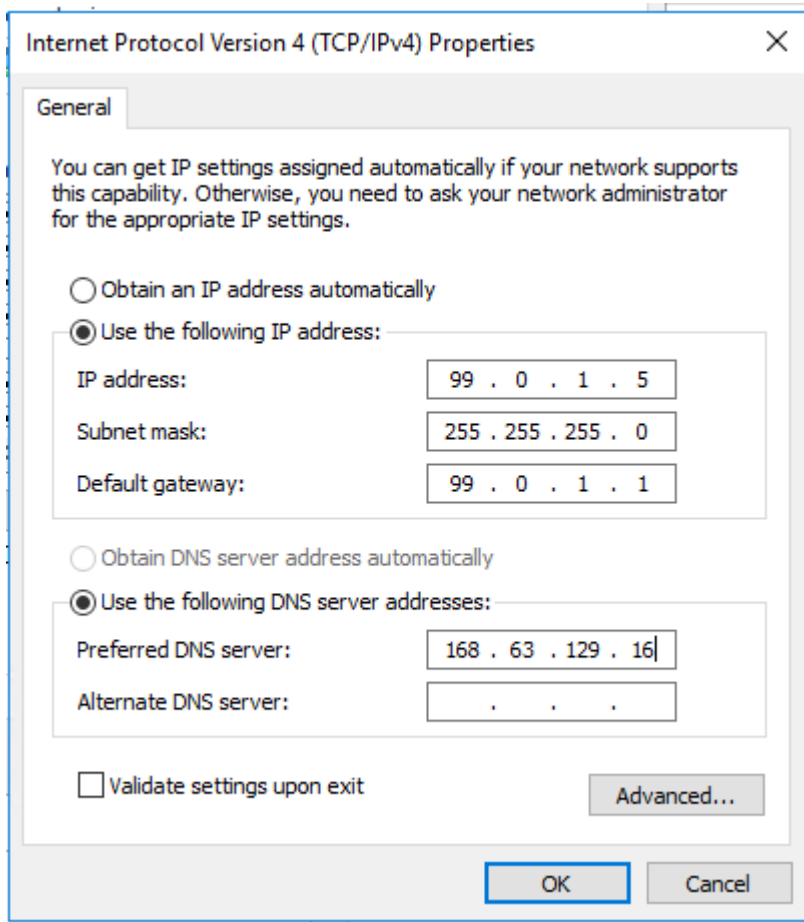
Advanced...

OK Cancel

Enter below details: (obtained from running ipconfig command)

Select option Use the Following IP Address/Use the Following Server Address Automatically

- IP address: 99.0.1.5
- Subnet mask: 255.255.255.0
- Default gateway: 99.0.1.1
- Preferred DNS server: 168.63.129.16
- Alternate DNS server: blank



Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 99 . 0 . 1 . 5

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 99 . 0 . 1 . 1

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: 168 . 63 . 129 . 16

Alternate DNS server: . . .

☐ Validate settings upon exit

Advanced...

OK Cancel

Click OK.

Now try to RDP and send http traffic using both Public IP Addresses.

- 168.61.157.132
- 40.122.144.69

vm-WebServer - Networking

Search (Ctrl+/)

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

Settings

Networking
Disks
Size
Security
Extensions
Continuous delivery (Preview)
Availability set
Configuration
Identity

Attach network interface Detach network interface

vm-webserver905 nic-WebServer2

Network Interface: vm-webserver905 Effective security rules Topology
Virtual network/subnet: vm-Finance/sn-WebServers NIC Public IP: 168.61.157.132 NIC Private IP: 99.0.1.4 Accelerated networking: Disabled

Inbound port rules Outbound port rules Application security groups Load balancing

Network security group vm-WebServer-nsg (attached to network interface: vm-webserver905)
Impacts 0 subnets, 1 network interfaces [Add inbound port rule](#)

PRIORITY	NAME	PORT	PROTOCOL	SOURCE	DESTINATION	ACTION
300	RDP	3389	TCP	Any	Any	Allow
310	AllowHttp	80,443	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny

vm-WebServer - Networking

Search (Ctrl+/)

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

Settings

Networking
Disks
Size
Security
Extensions
Continuous delivery (Preview)
Availability set
Configuration
Identity

Attach network interface Detach network interface

vm-webserver905 nic-WebServer2

Network Interface: nic-WebServer2 Effective security rules Topology
Virtual network/subnet: vm-Finance/sn-WebServers NIC Public IP: 40.122.144.69 NIC Private IP: 99.0.1.5 Accelerated networking: Disabled

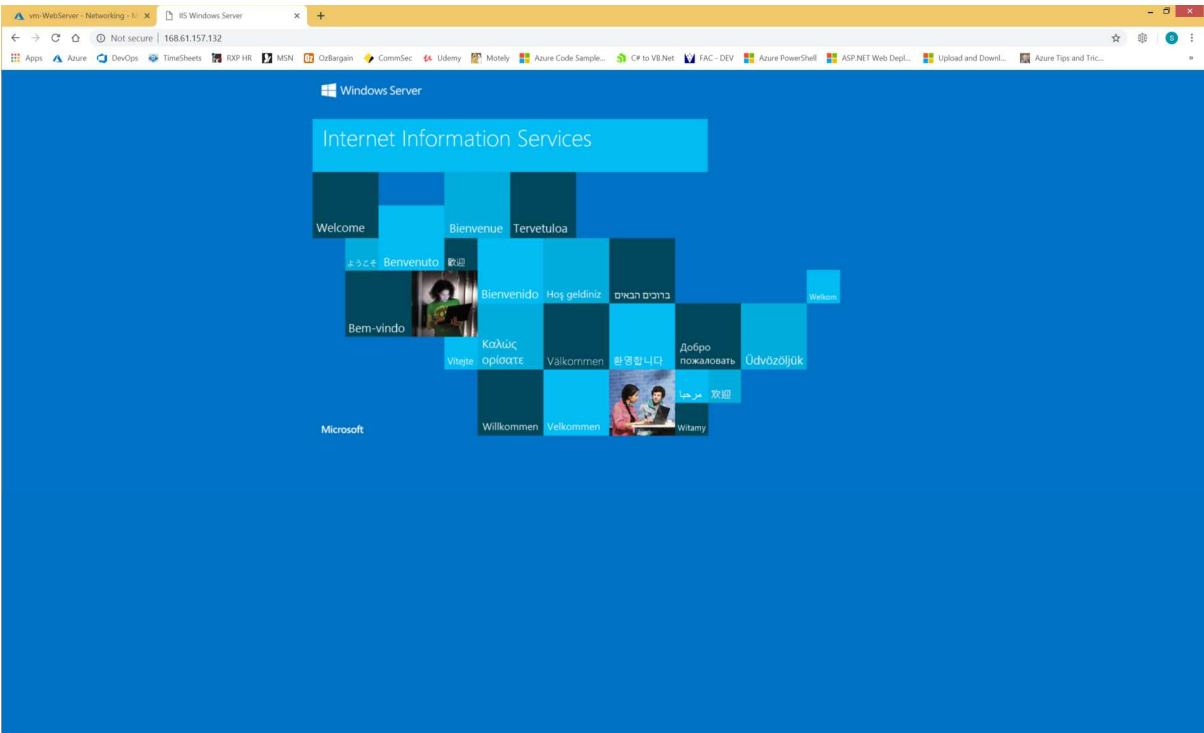
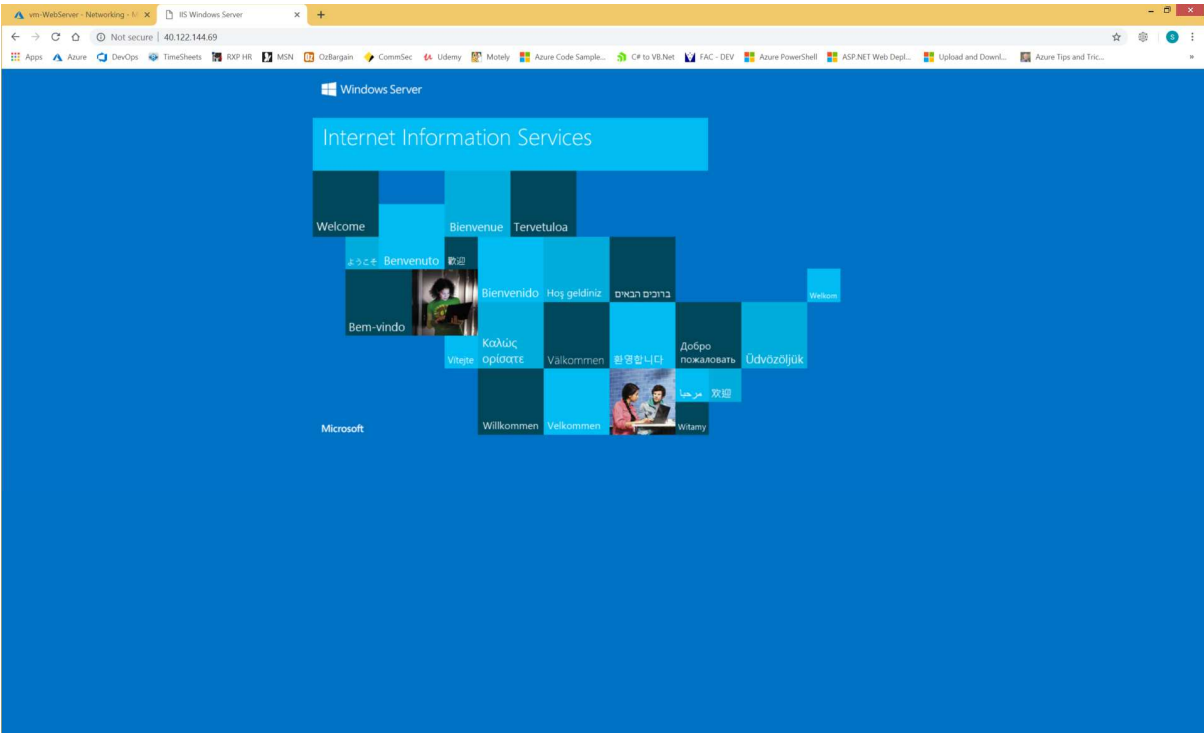
Inbound port rules Outbound port rules Application security groups Load balancing

This network interface does not contain network security groups

RDP:



HTTP:



Network Diagram

