

- 1) **Lastnamefinal-DC1 → Shahfinal-DC1**
- 2) **Firstnamefinal-DC1 → Aagamfinal-DC1**
- 3) **Lastnamefinal-S1 → Shahfinal-S1**
- 4) **Lastnamefinal-S2 → Shahfinal-S2**
- 5) **Lastnamefinal-C1 → Shahfinal-C1**

Domain Name: lastnamefinal.local → Shahfinal.local

Domain Name: firstnamefinal.local → Aagamfinal.local

Shahfinal-DC1 → 172.16.214.90

Aagamfinal-DC1 → 172.16.214.91

Shahfinal-S1 → 172.16.214.92

Shahfinal-S2 → 172.16.214.93

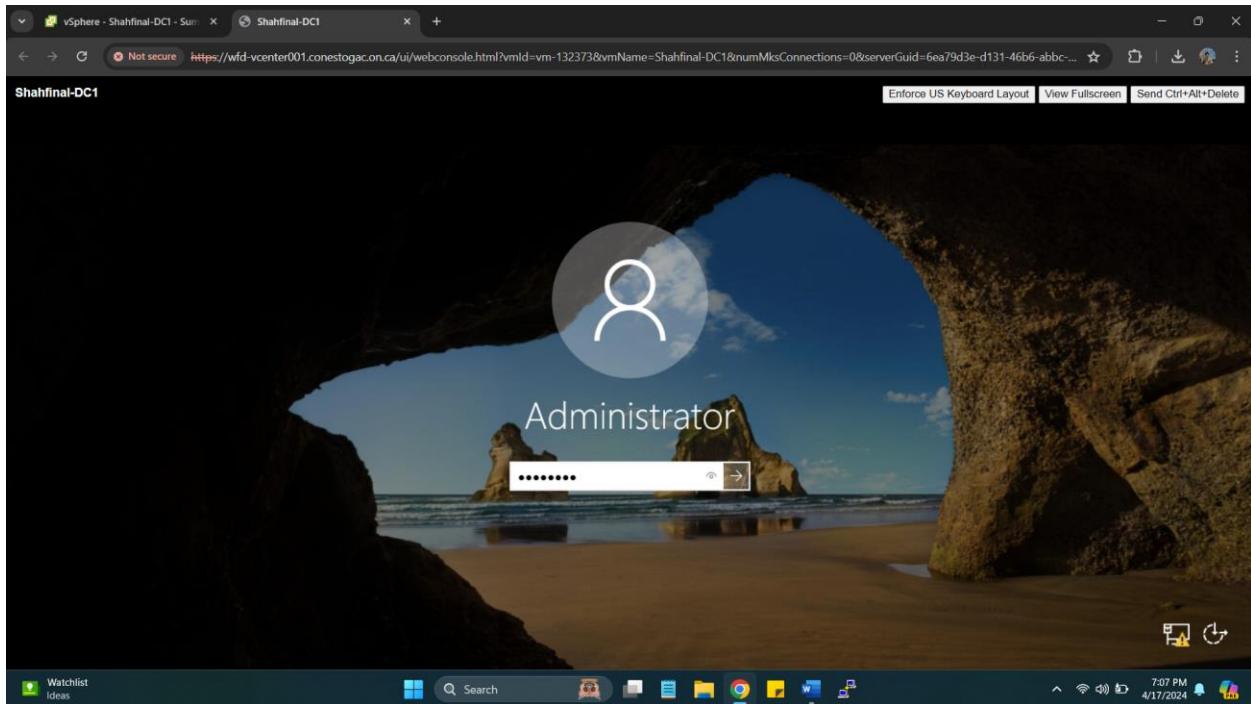
Shahfinal-C1 → 172.16.214.94

Cluster IP: 172.16.214.95

Subnet Mask: 255.255.255.0

Part 1: Preparation

- 1) Promote **Lastnamefinal-DC1** to a domain controller with domain name **lastnamefinal.local**.

A screenshot of the Microsoft Server Manager interface on a Windows Server 2019 machine. The title bar reads "vSphere - Shahfinal-DC1 - Summary" and "Shahfinal-DC1". The main content area is titled "Server Manager • Local Server".

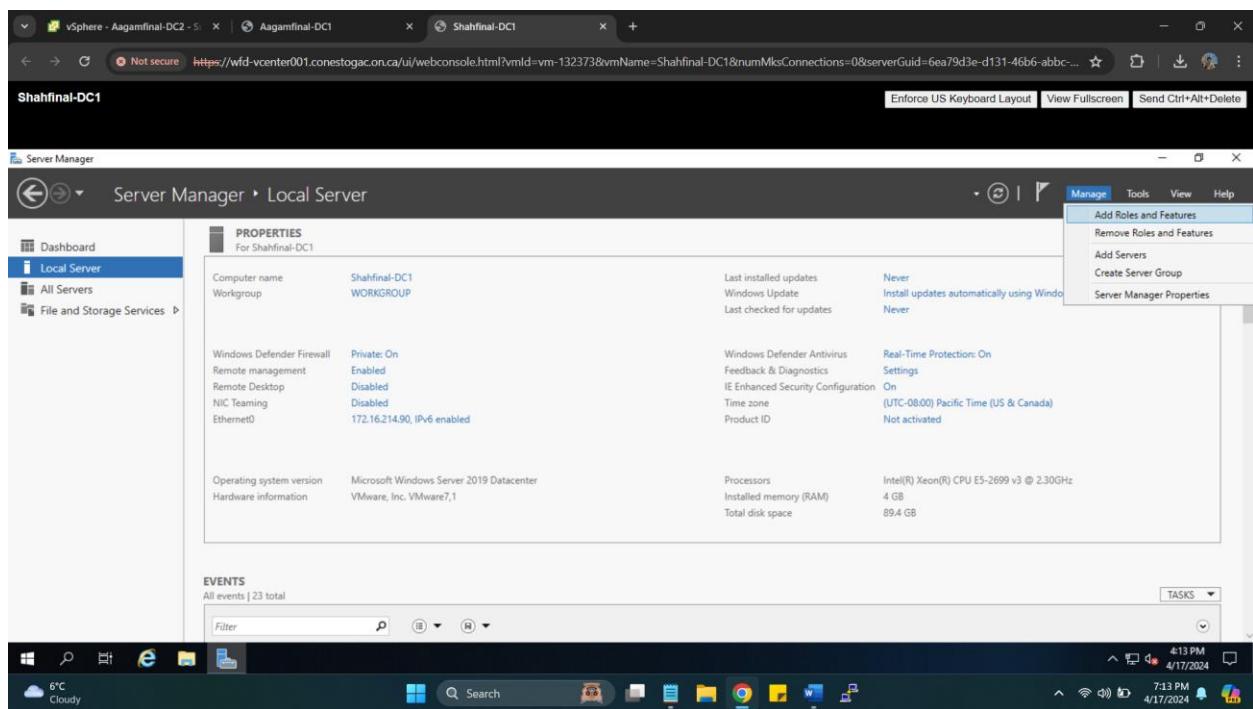
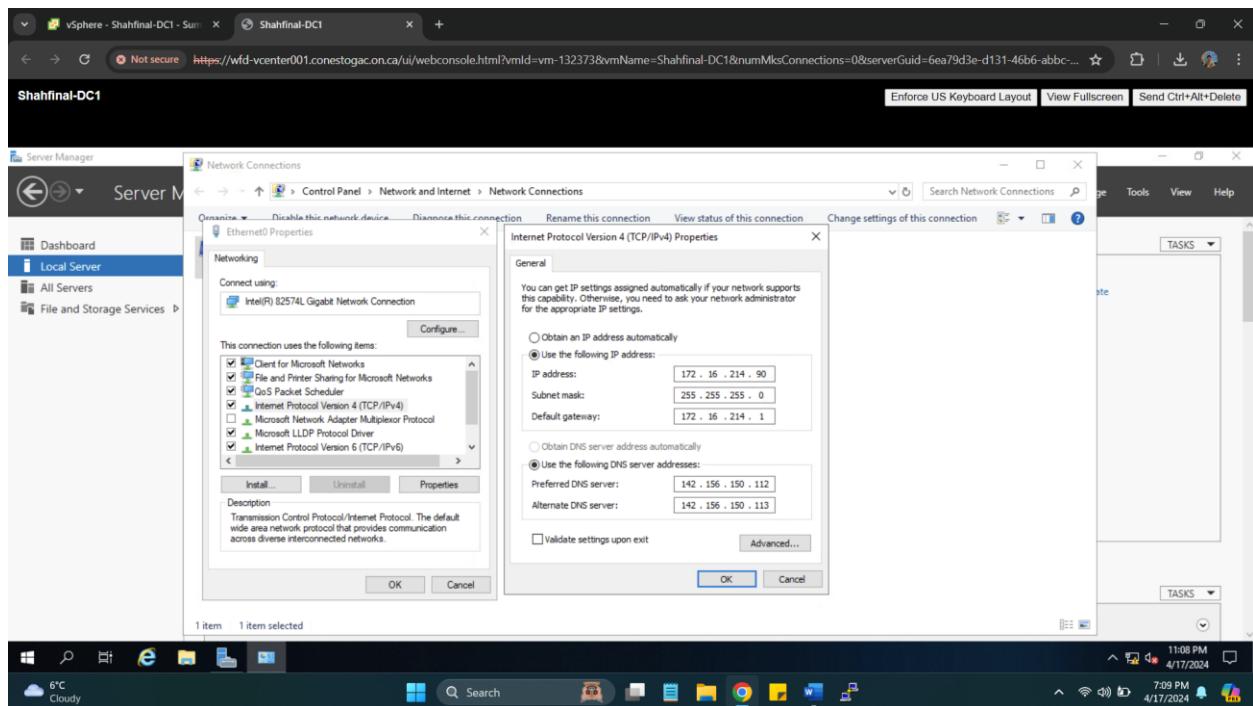
PROPERTIES
For WIN-057D5OCUML

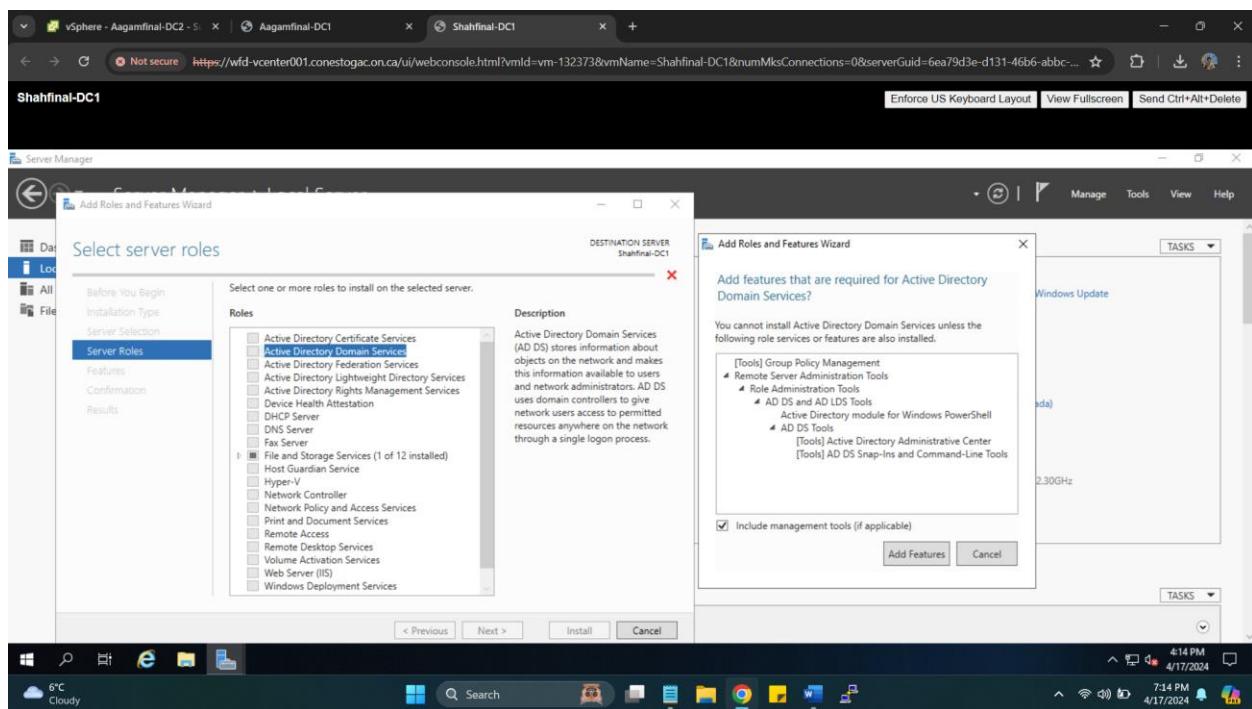
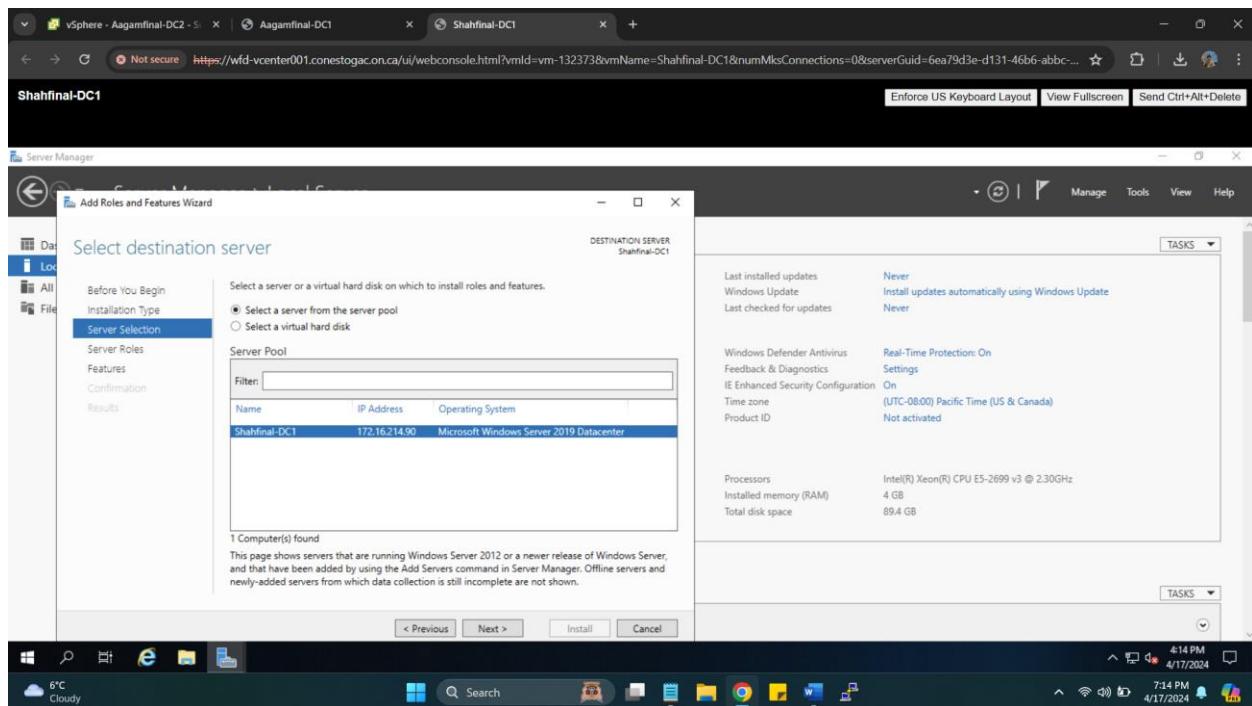
Computer name	WIN-057D5OCUML	Last installed updates	Never
Workgroup	WORKGROUP	Windows Update	Install updates automatically using Windows Update
		Last checked for updates	Never
Windows Defender Firewall	Public: On	Windows Defender Antivirus	Real-Time Protection: On
Remote management	Enabled	Feedback & Diagnostics	Settings
Remote Desktop	Disabled	IE Enhanced Security Configuration	On
NIC Teaming	Disabled	Time zone	(UTC-08:00) Pacific Time (US & Canada)
Ethernet0	IPv4 address assigned by DHCP, IPv6 enabled	Product ID	Not activated
Operating system version	Microsoft Windows Server 2019 Datacenter	Processors	Intel(R) Xeon(R) CPU E5-2699 v3 @ 2.30GHz
Hardware information	VMware, Inc. VMware7.1	Installed memory (RAM)	4 GB
		Total disk space	89.4 GB

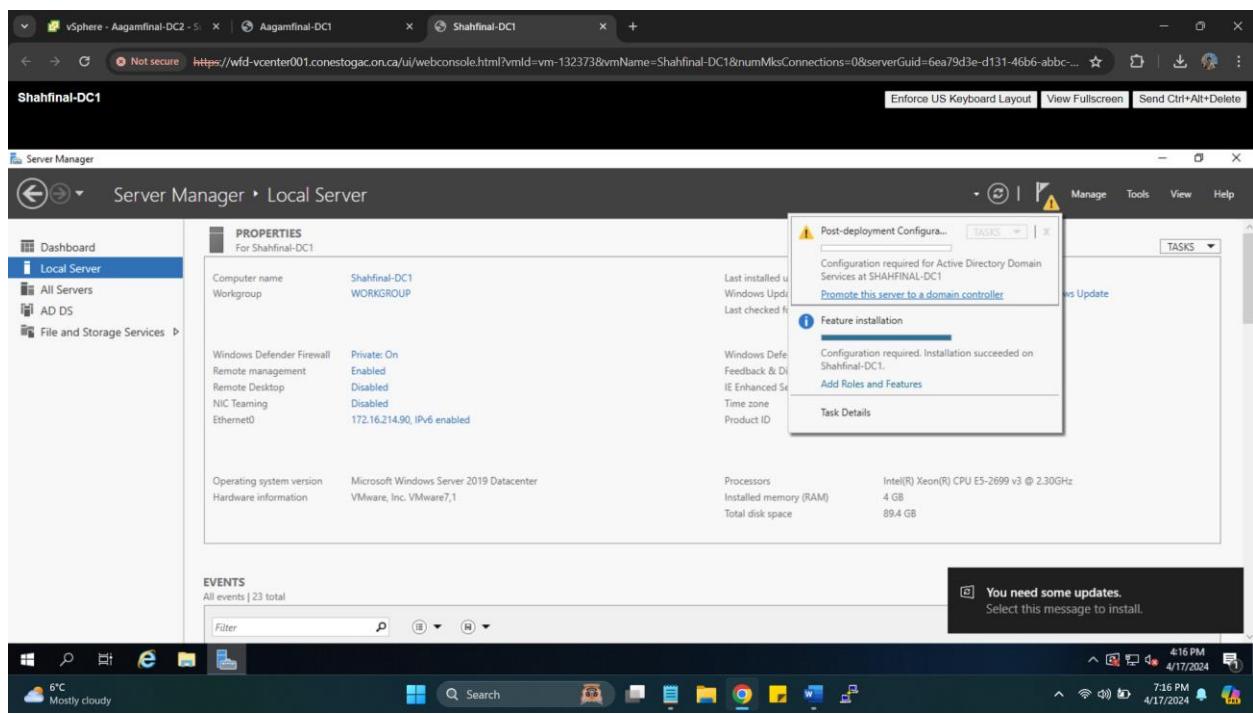
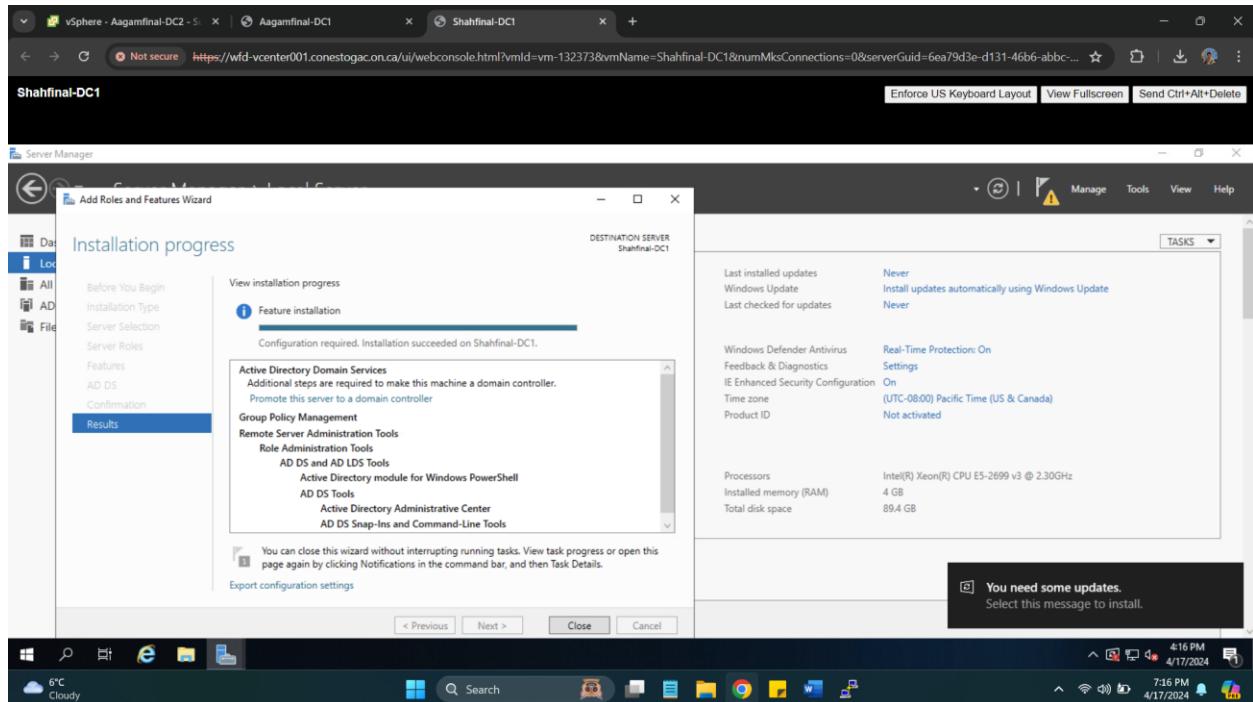
EVENTS
All events | 18 total

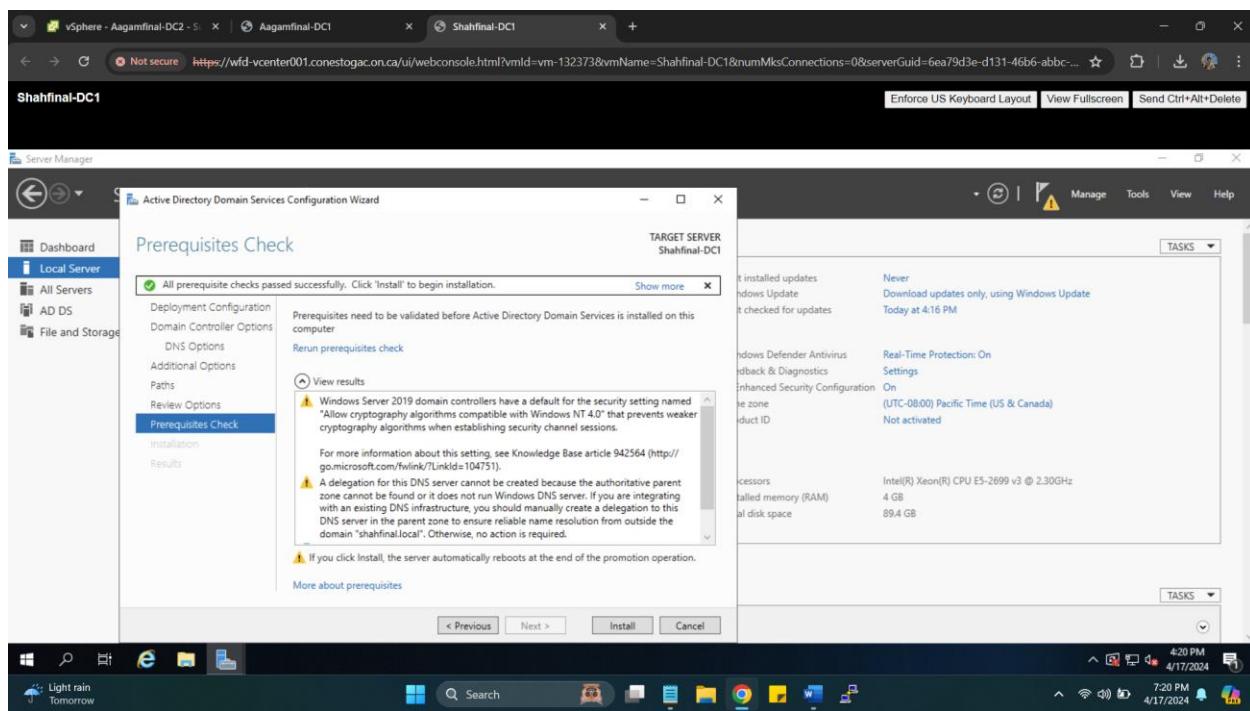
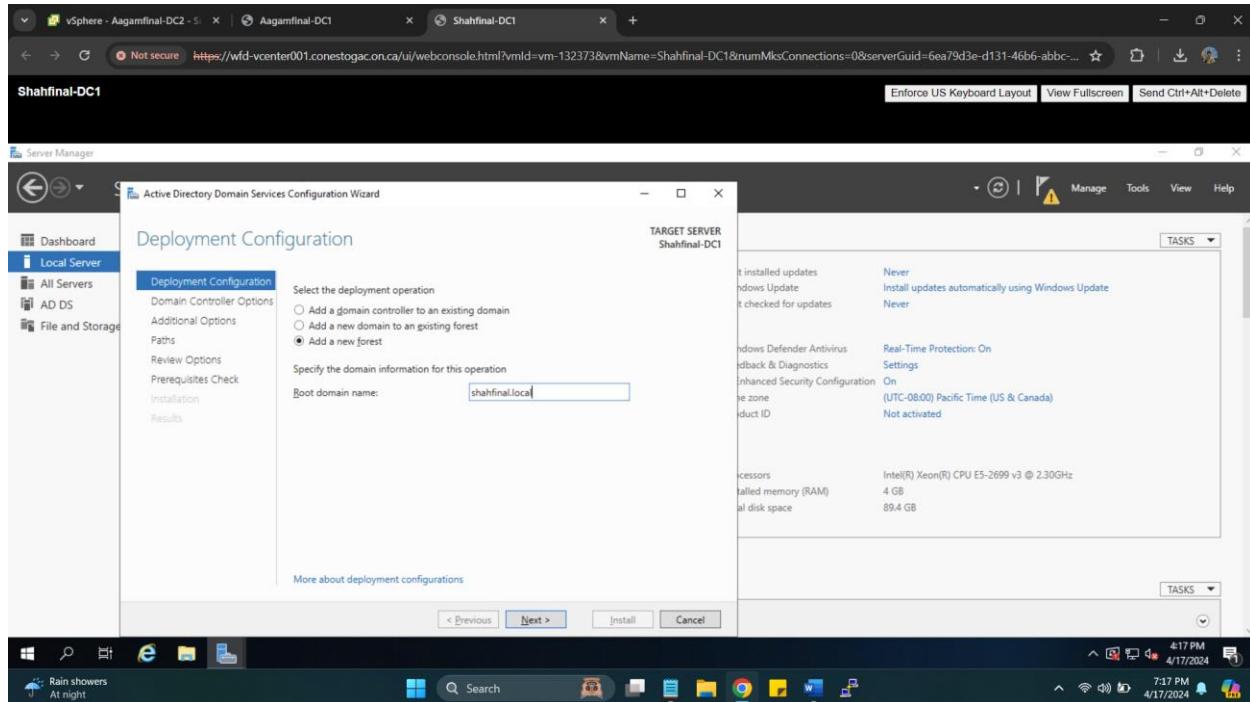
Filter:

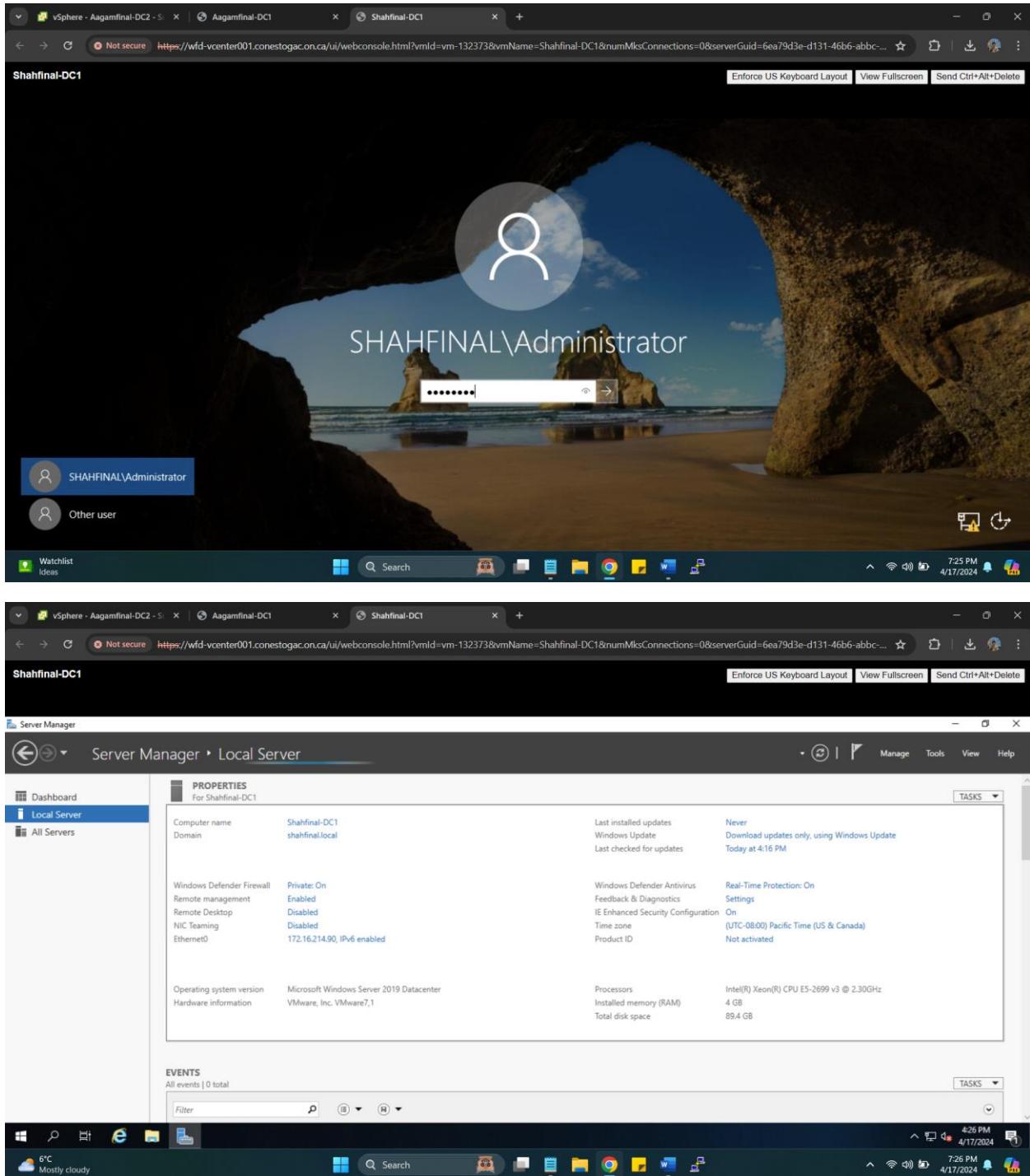
The system tray at the bottom right shows the date and time as "4/17/2024 7:08 PM".





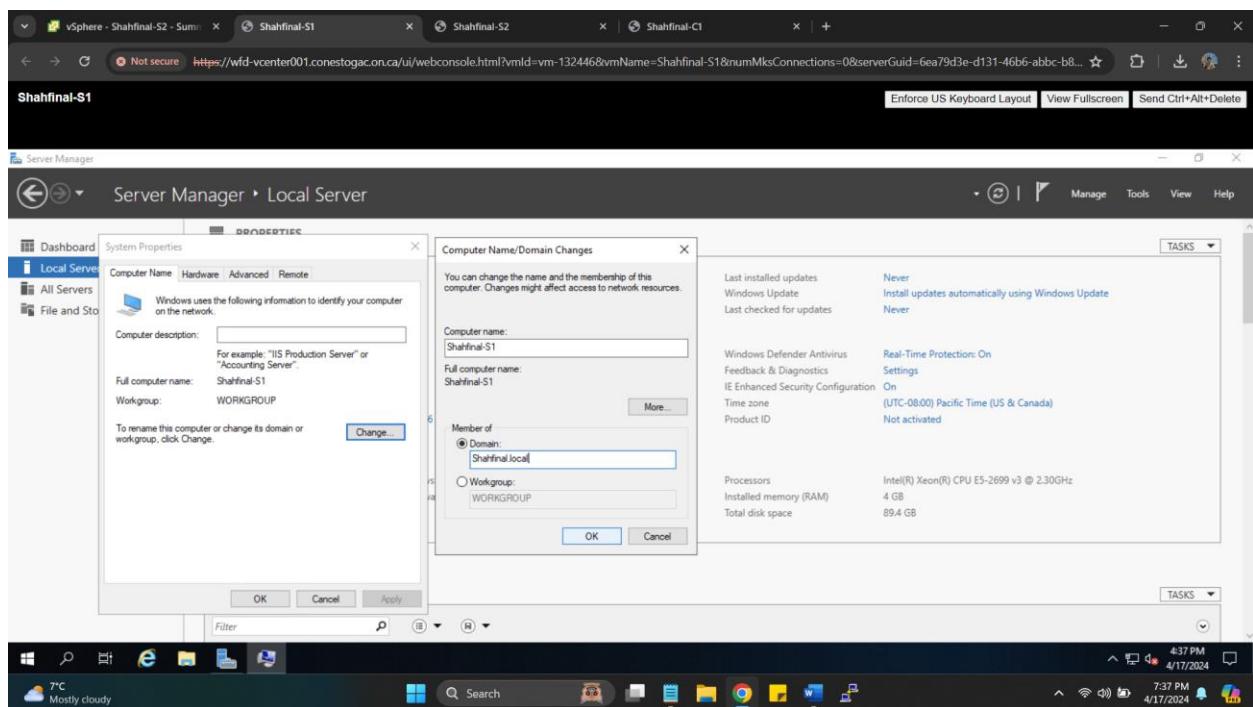
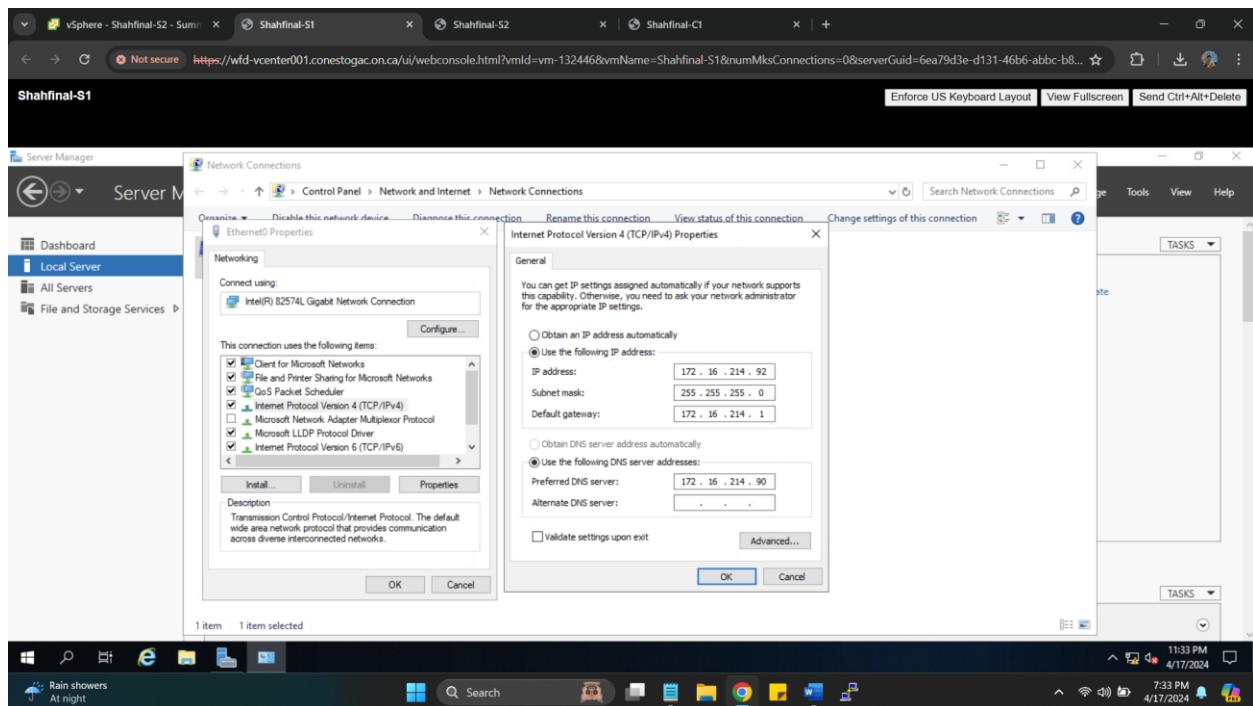


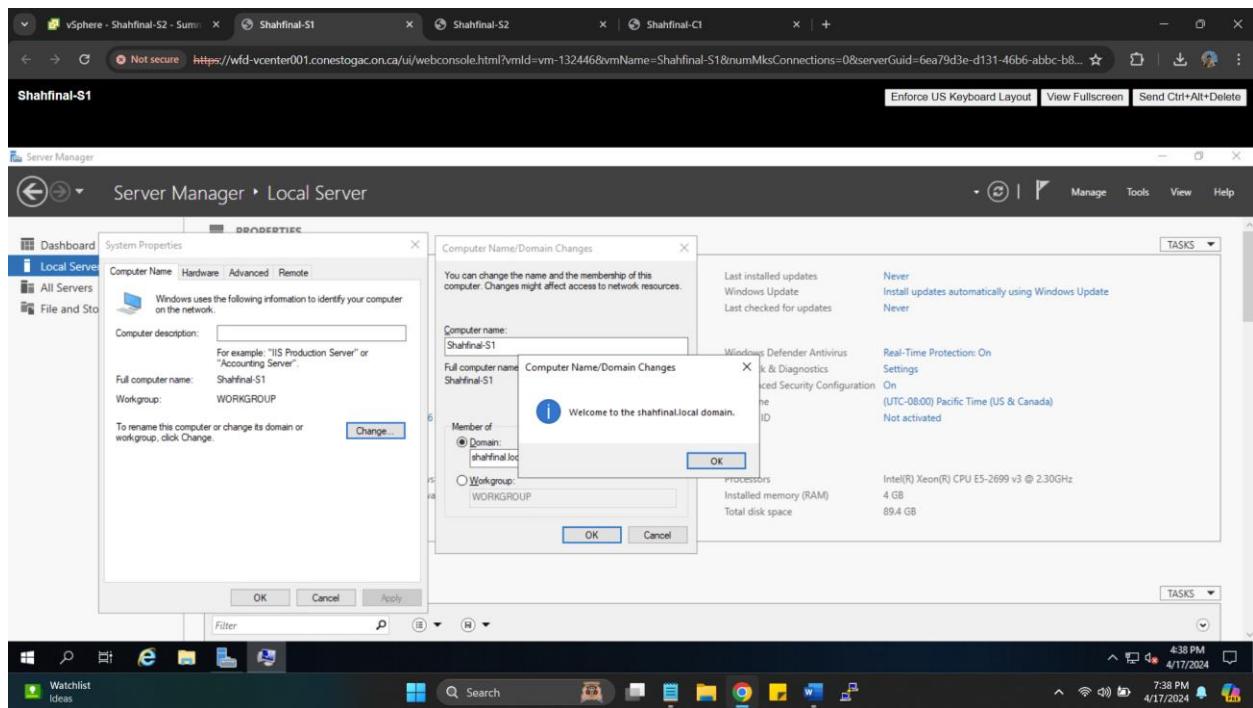




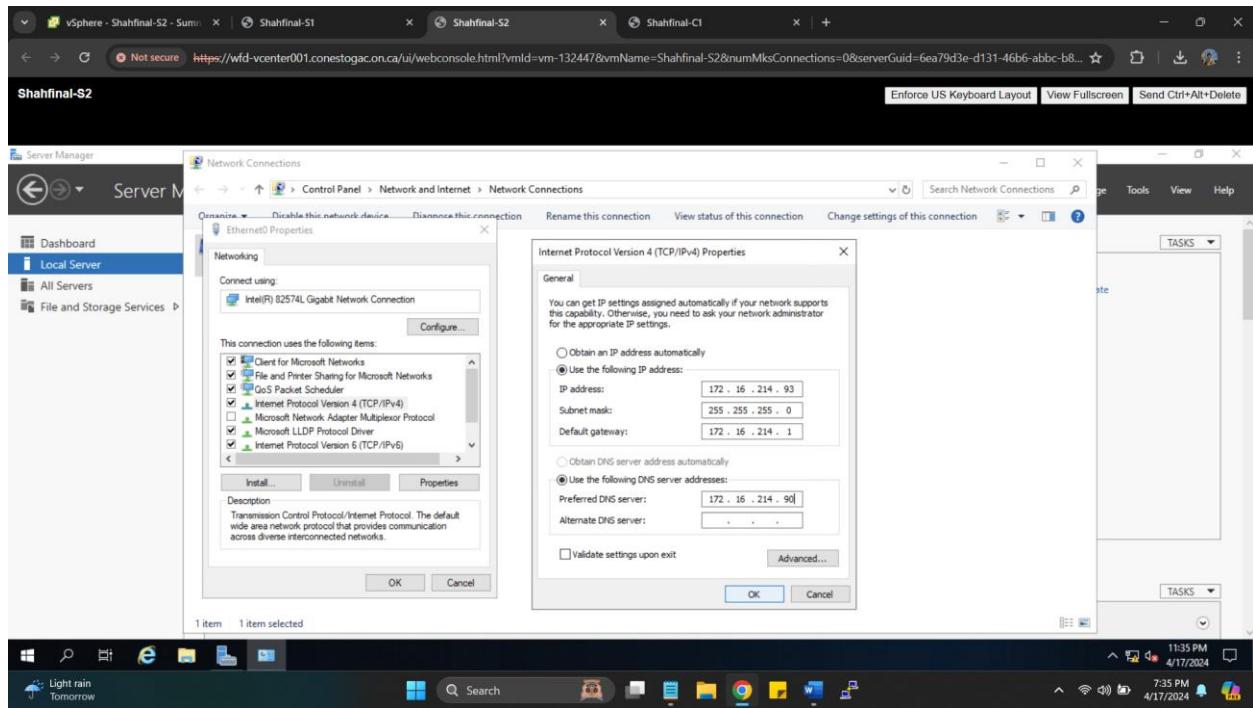
- 2) Add **Lastnamefinal-S1**, **Lastnamefinal-S2**, **Lastnamefinal-C1** as members to **lastnamefinal.local**.

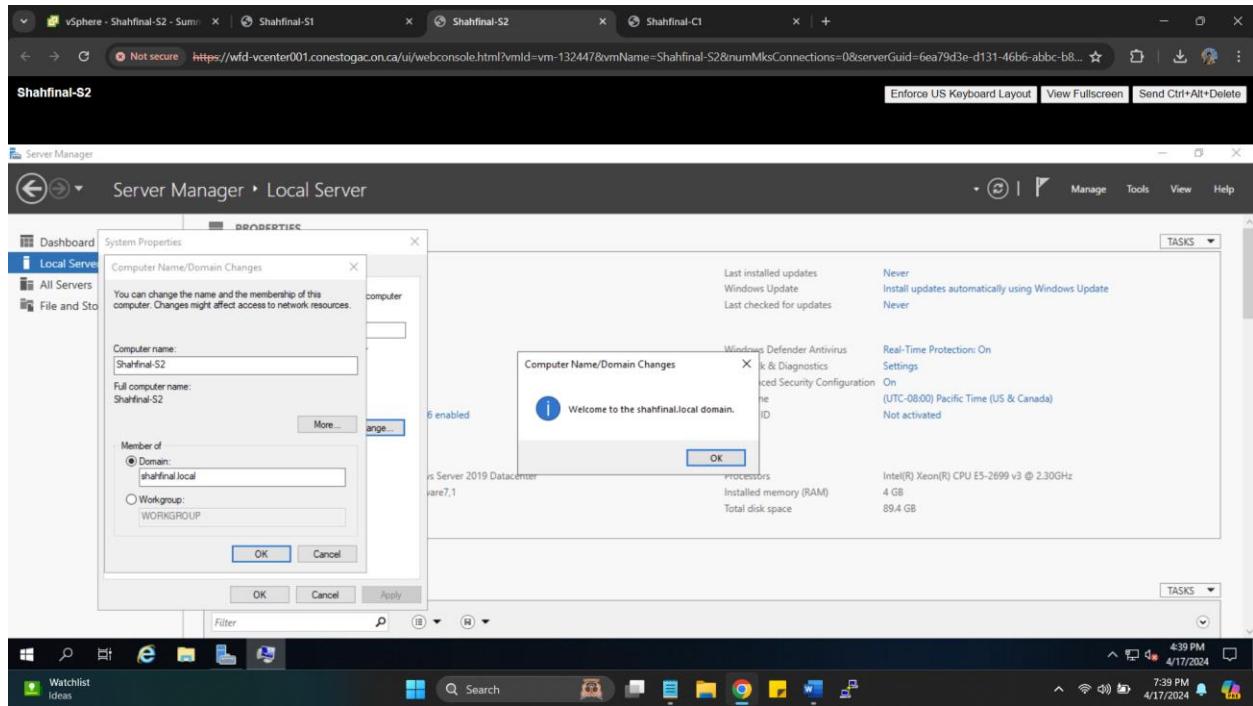
Shahfinal-S1



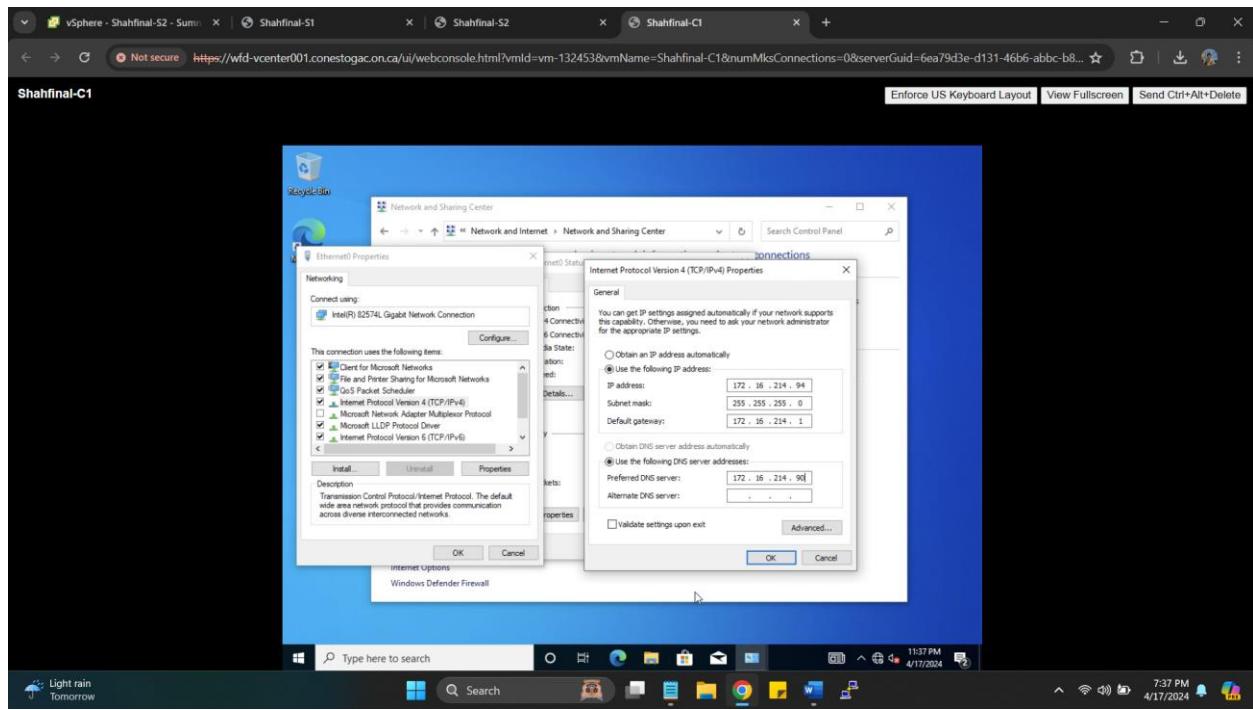


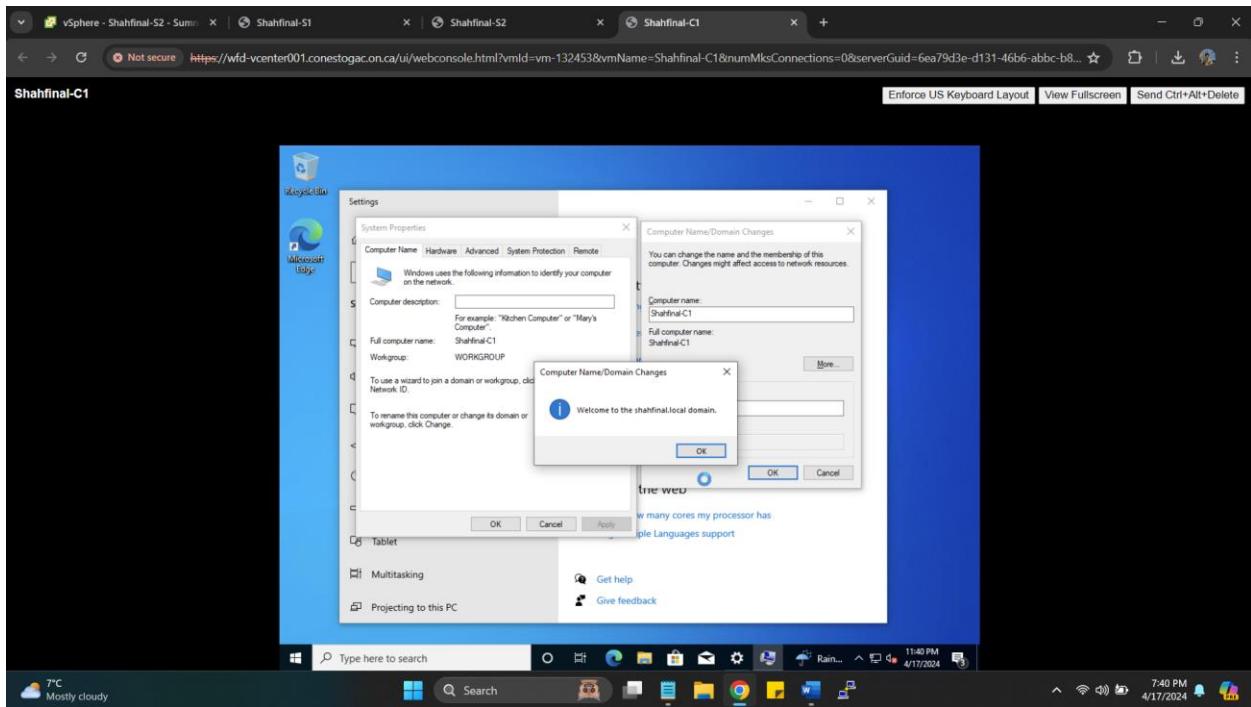
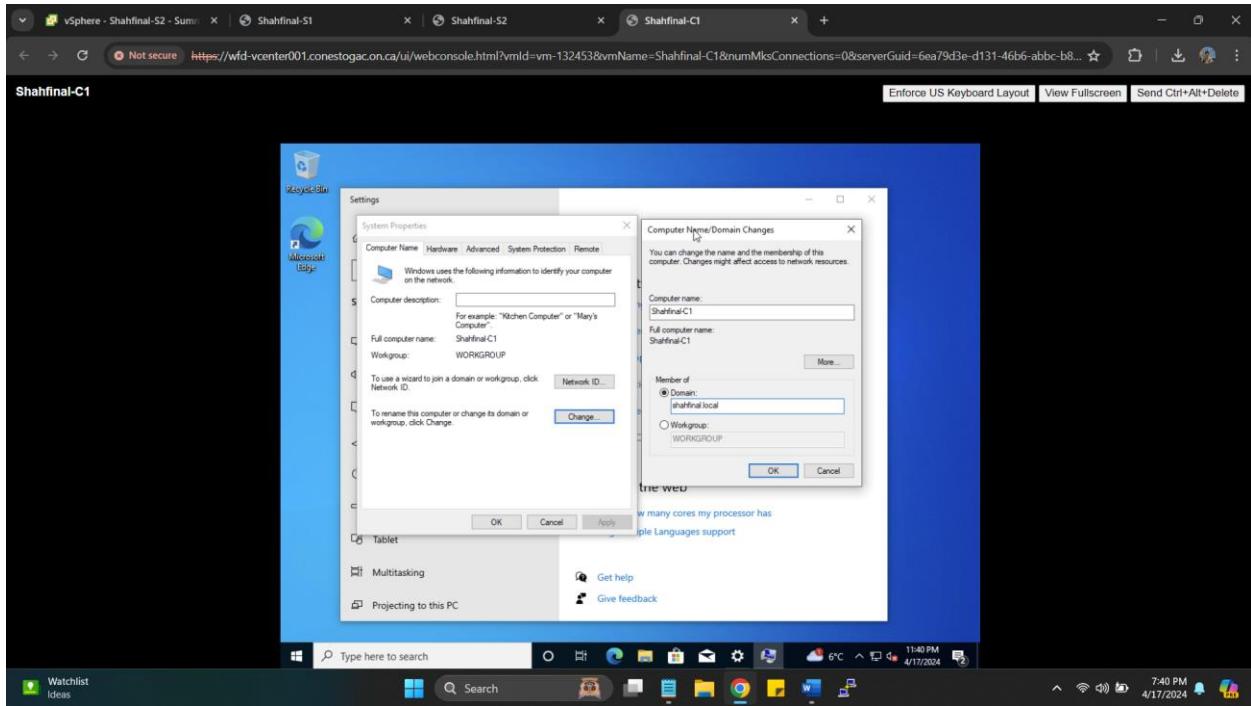
Shahfinal-S2



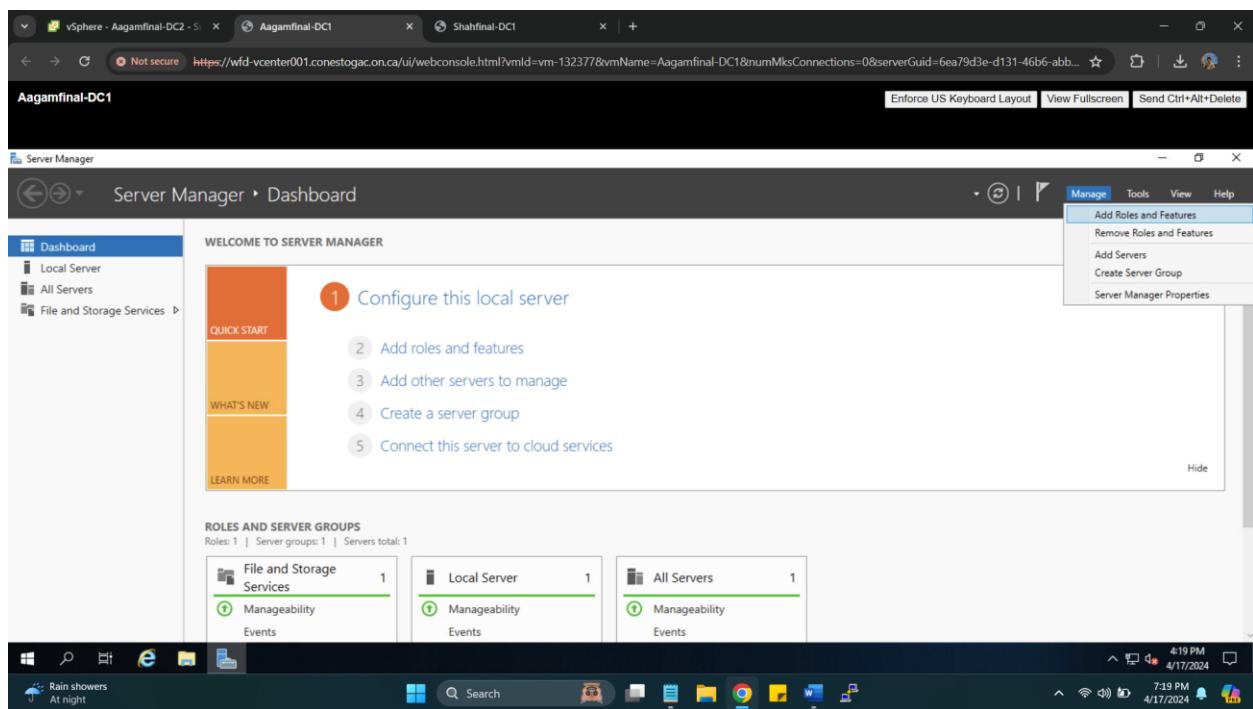
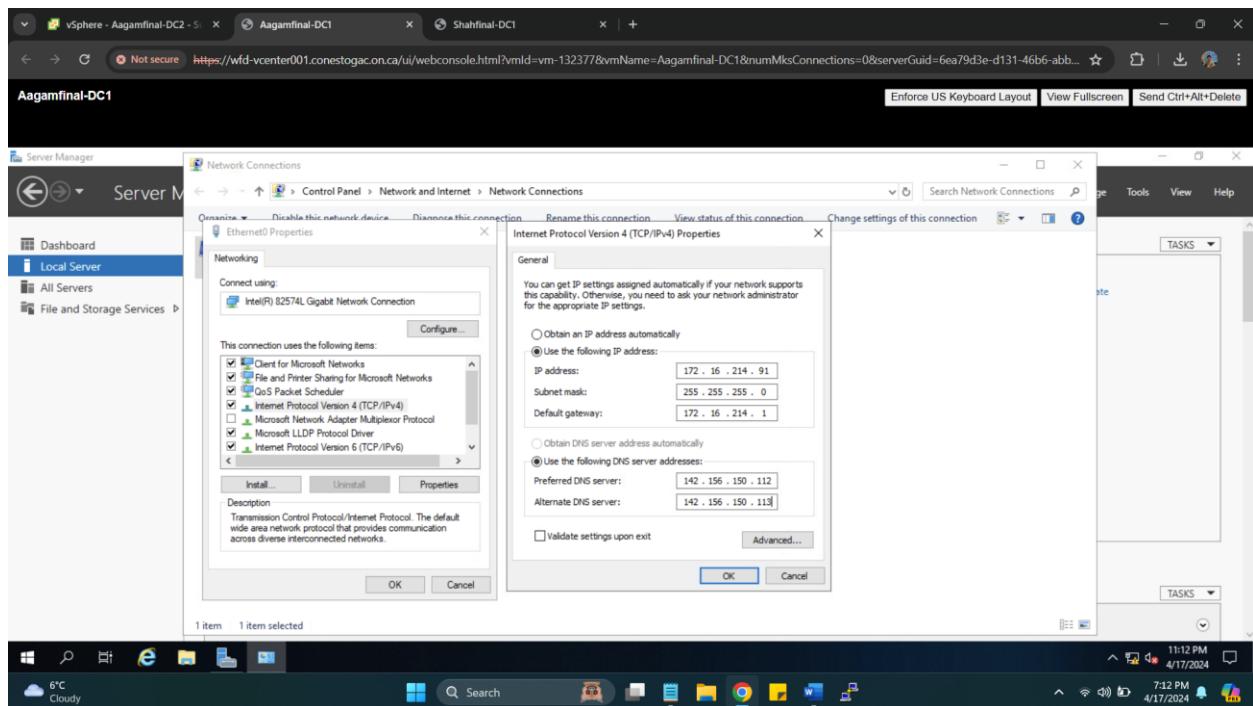


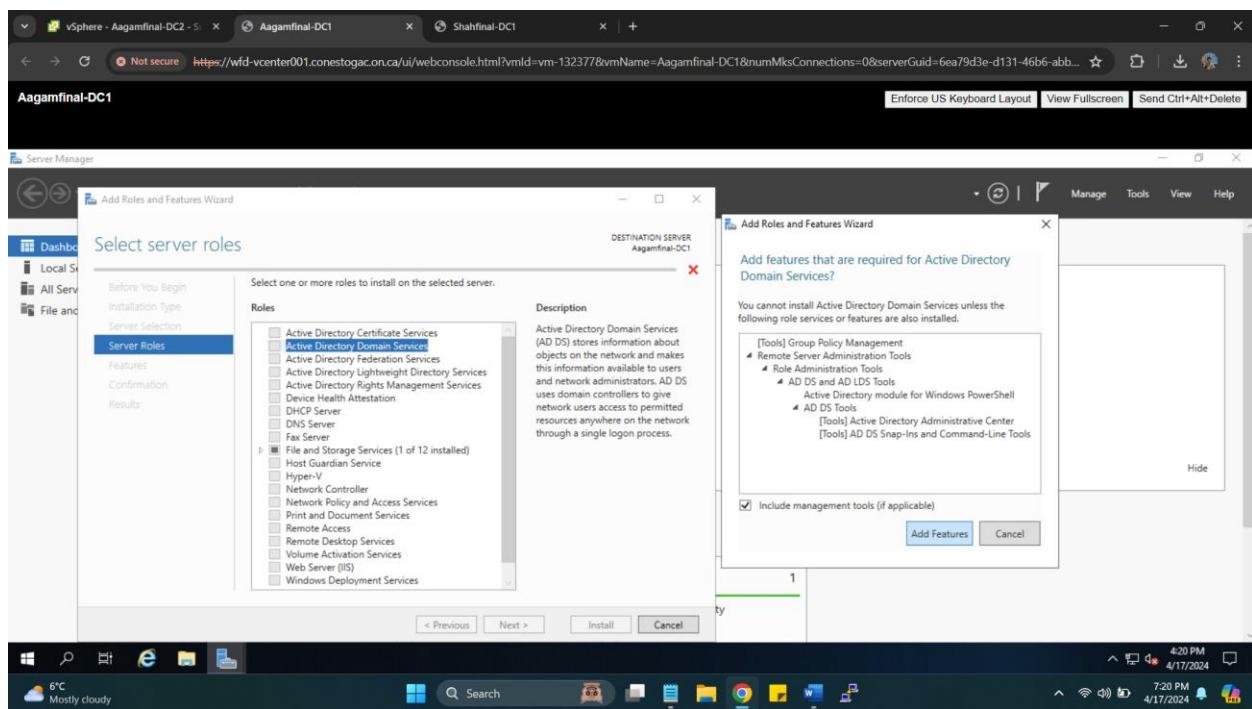
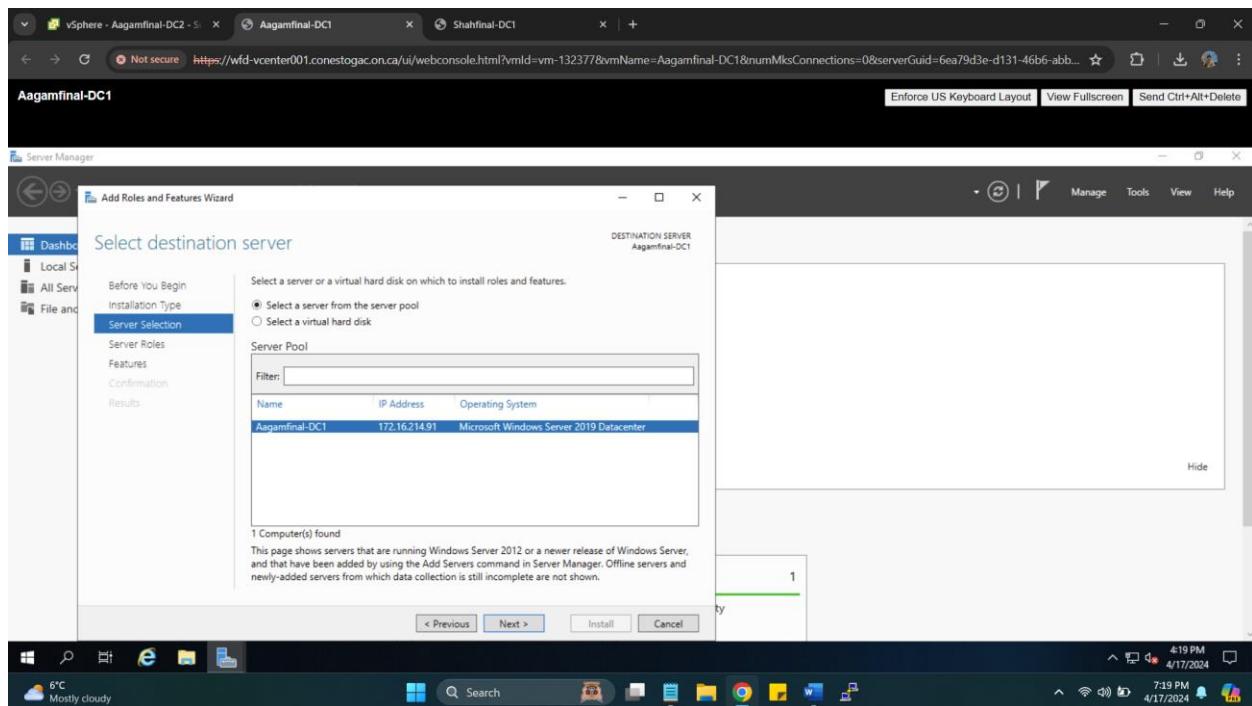
Shahfinal-C1

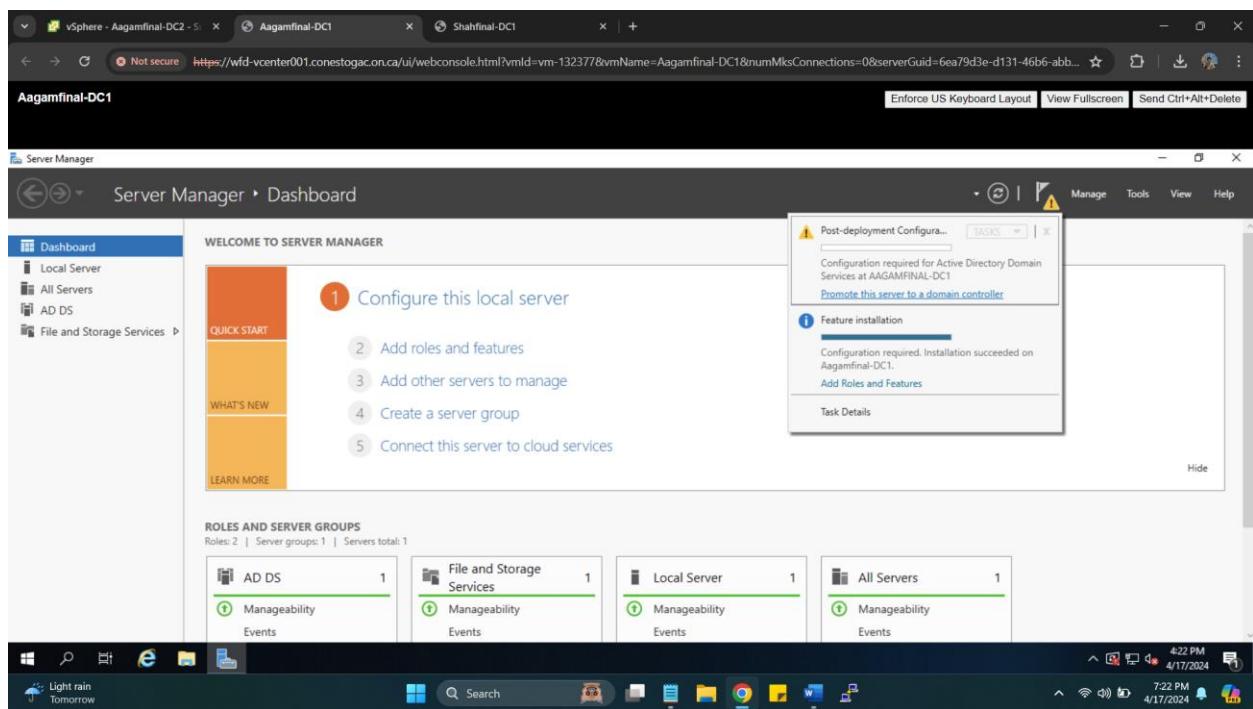
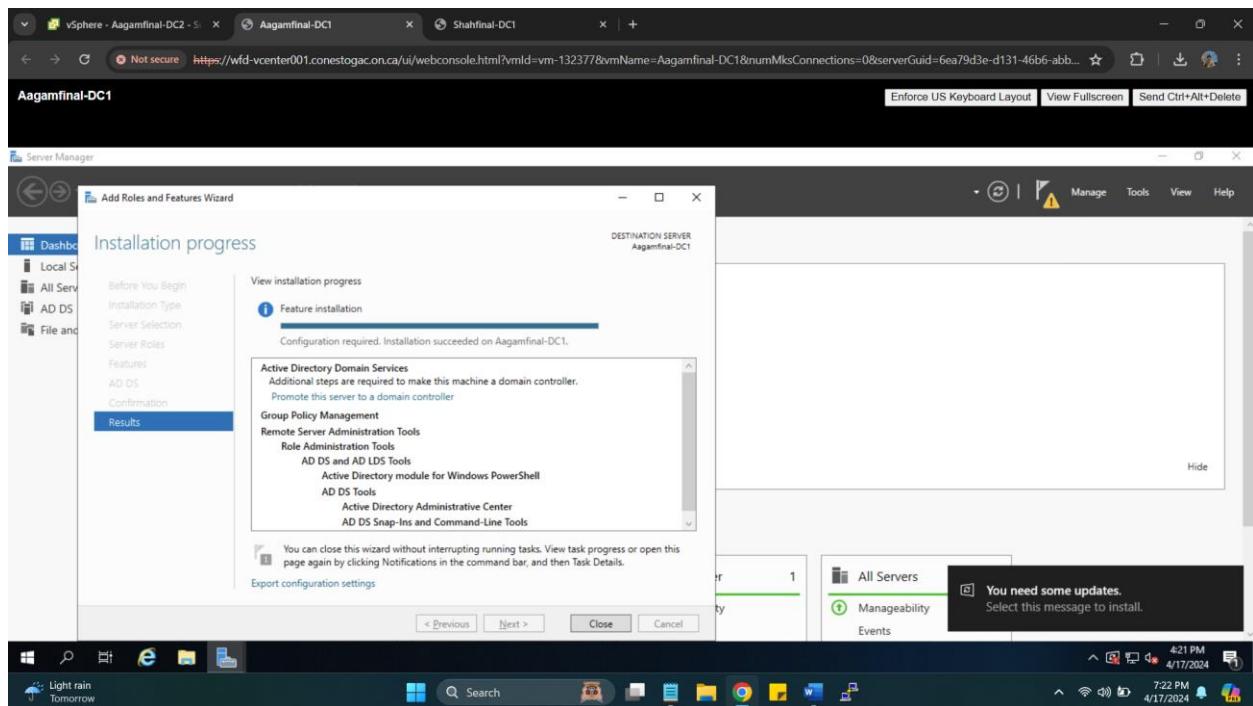


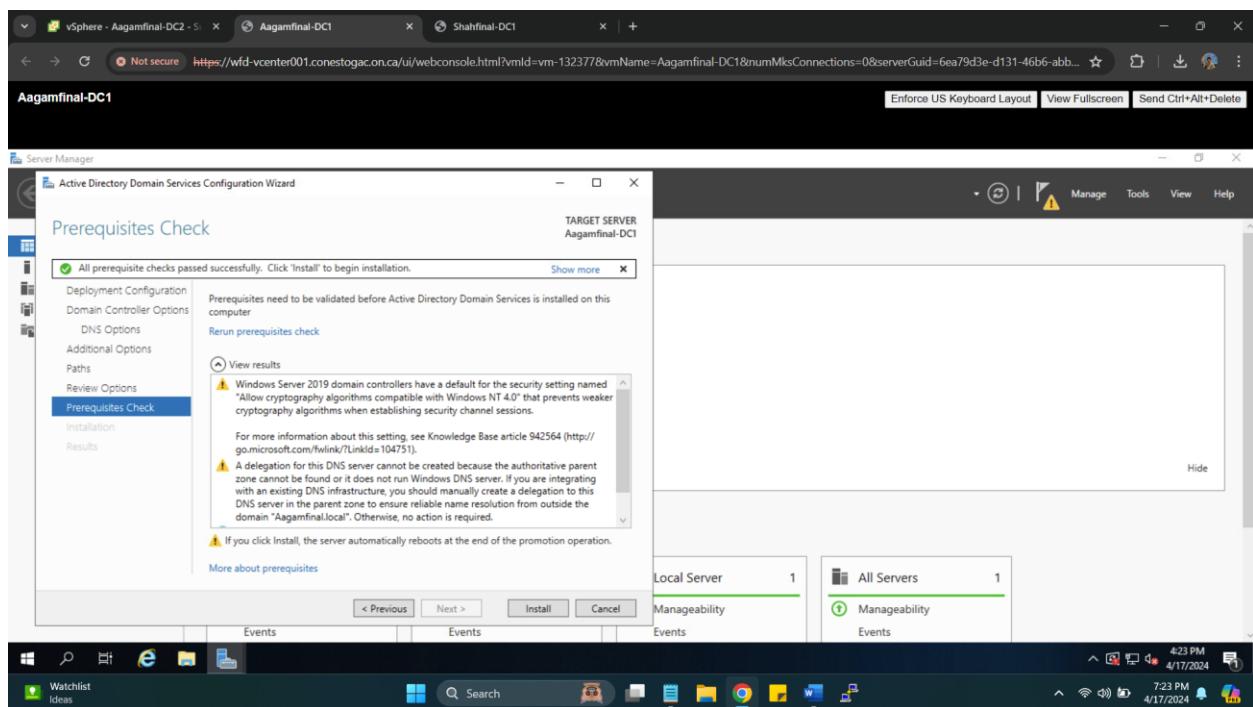
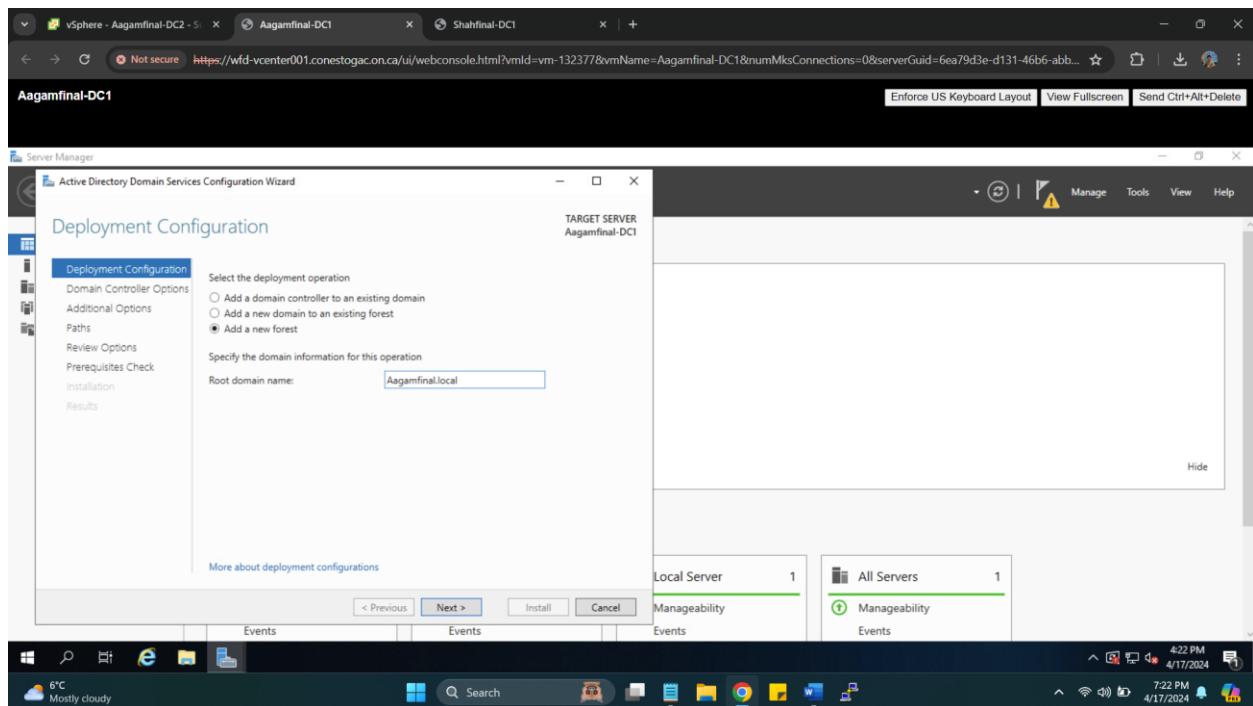


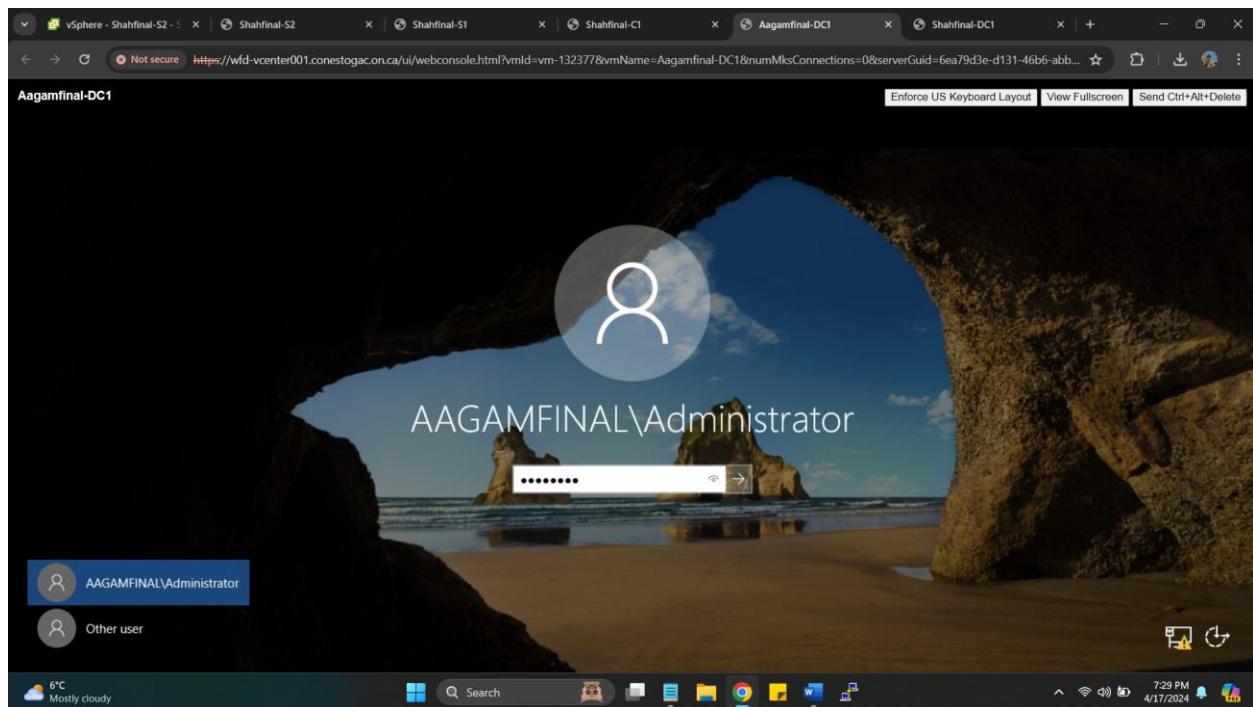
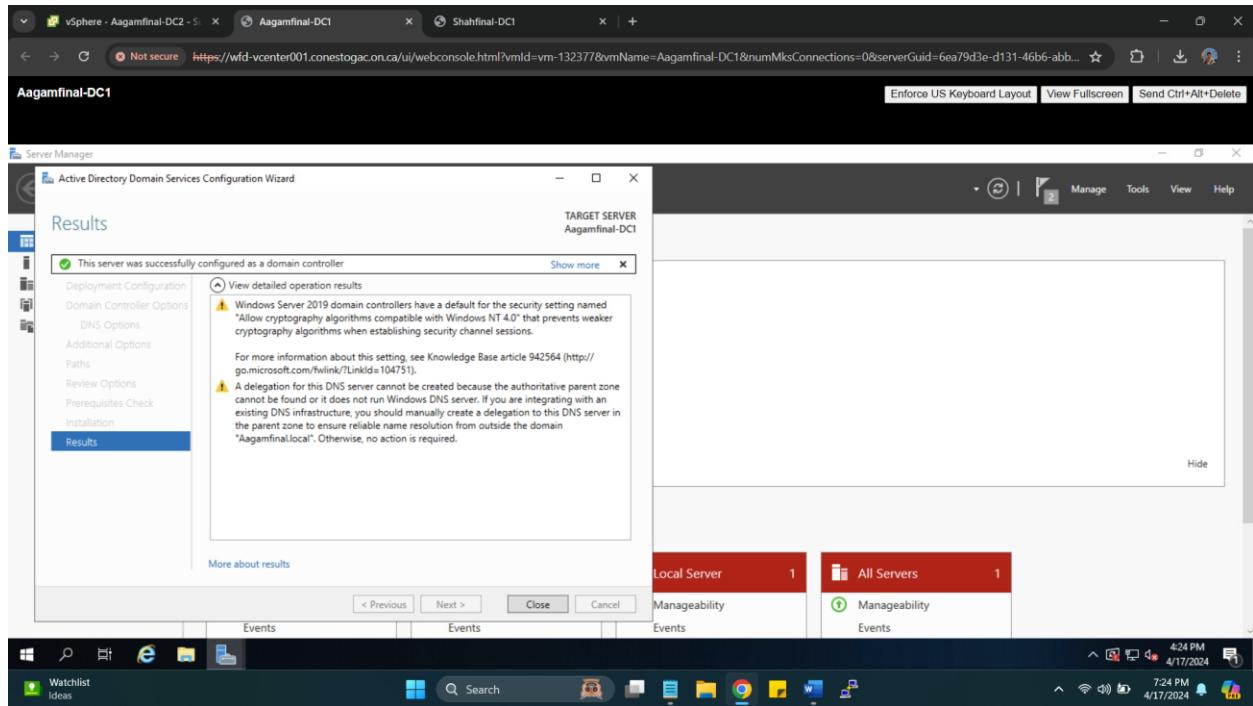
- 3) Promote **Firstnamefinal-DC1** to a domain controller with domain name **firstnamefinal.local**.

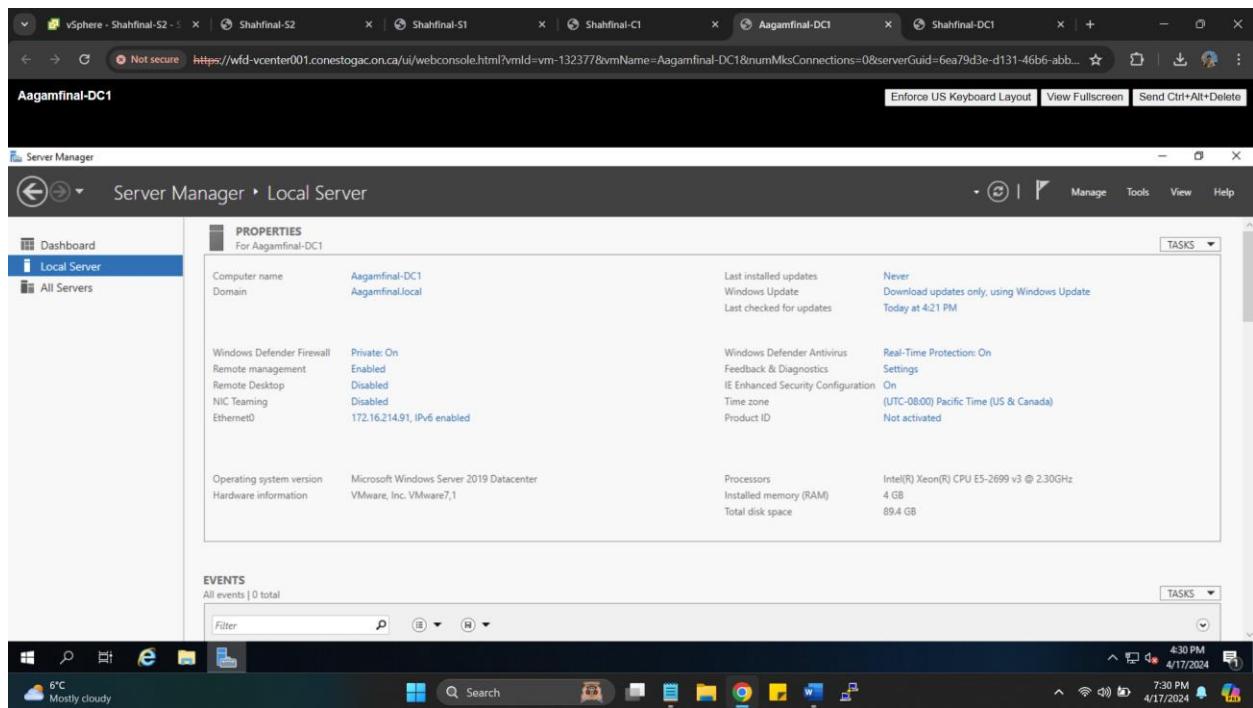




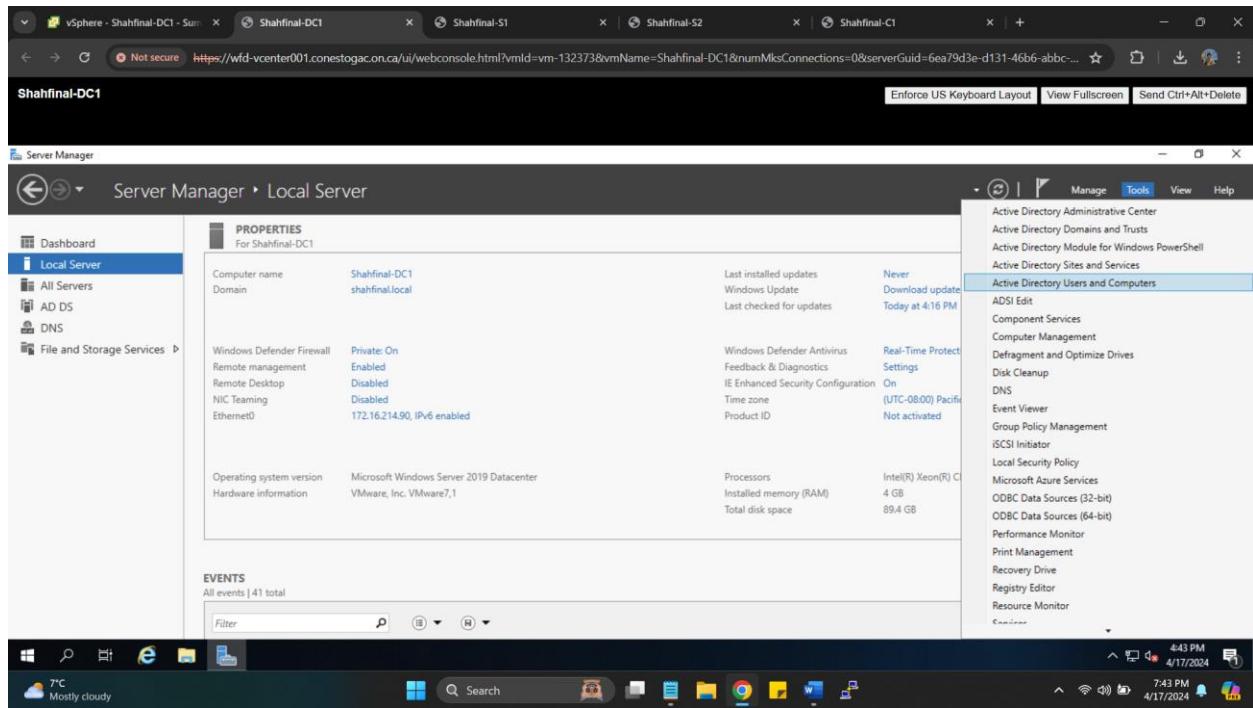


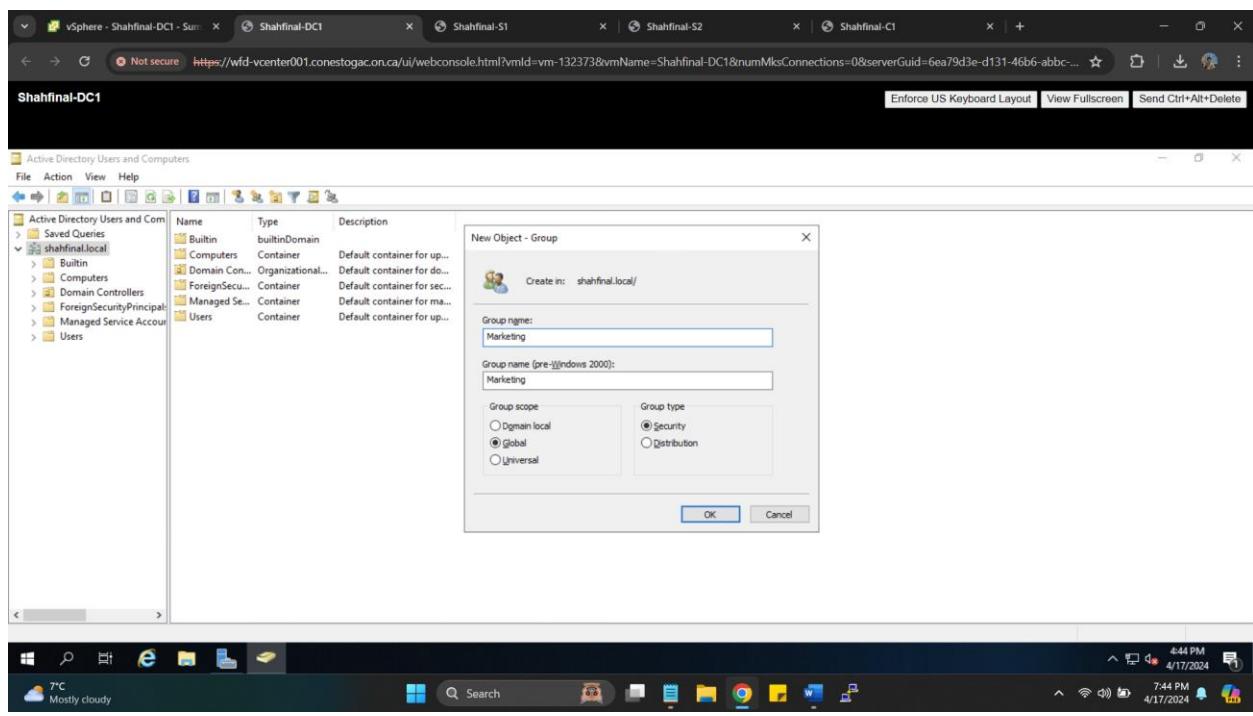
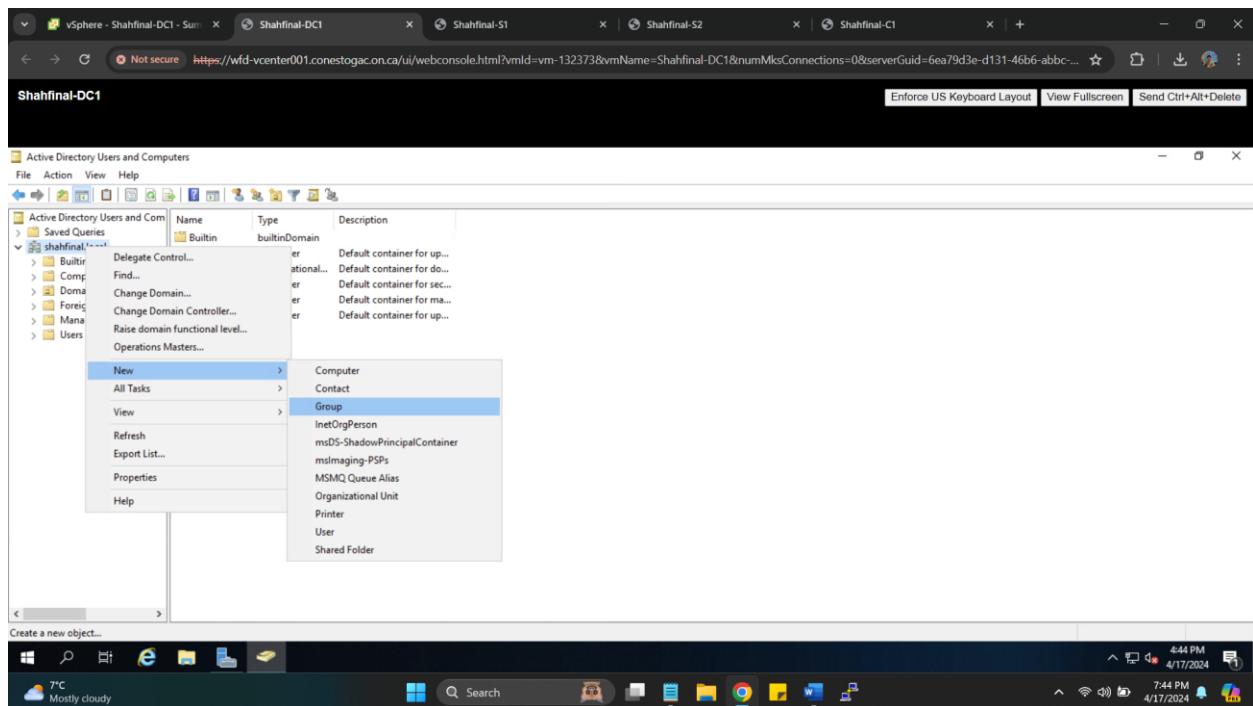


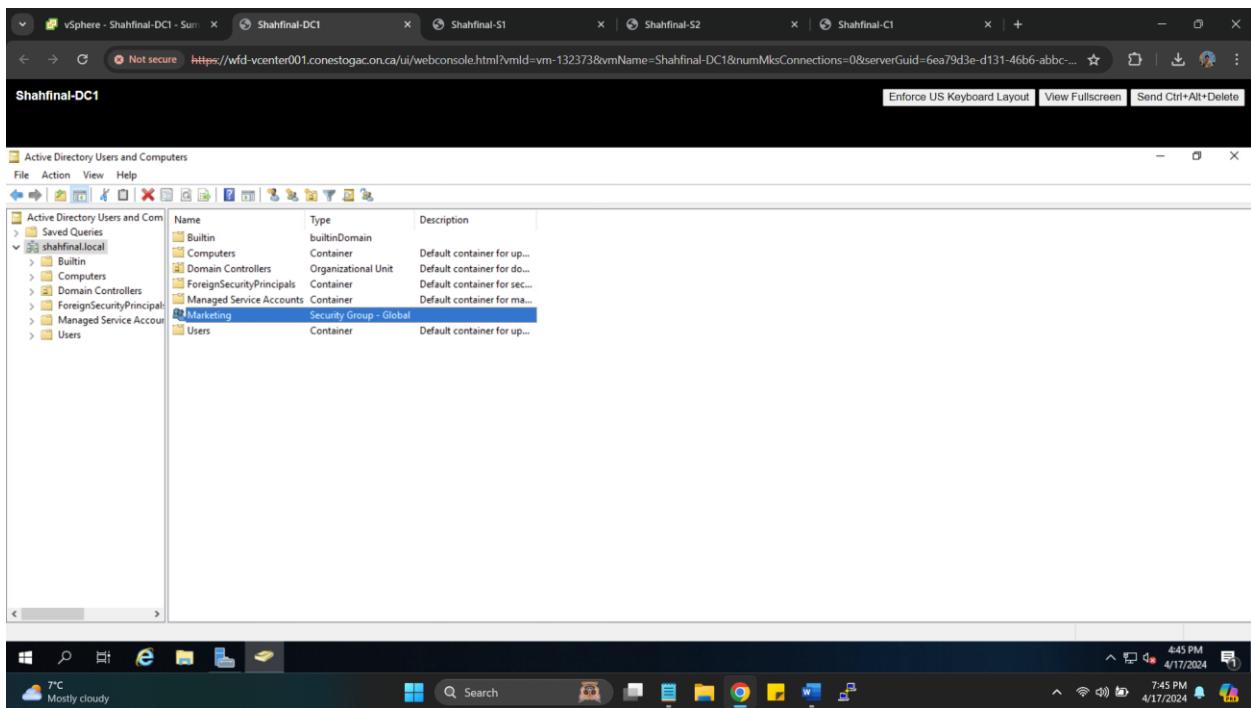




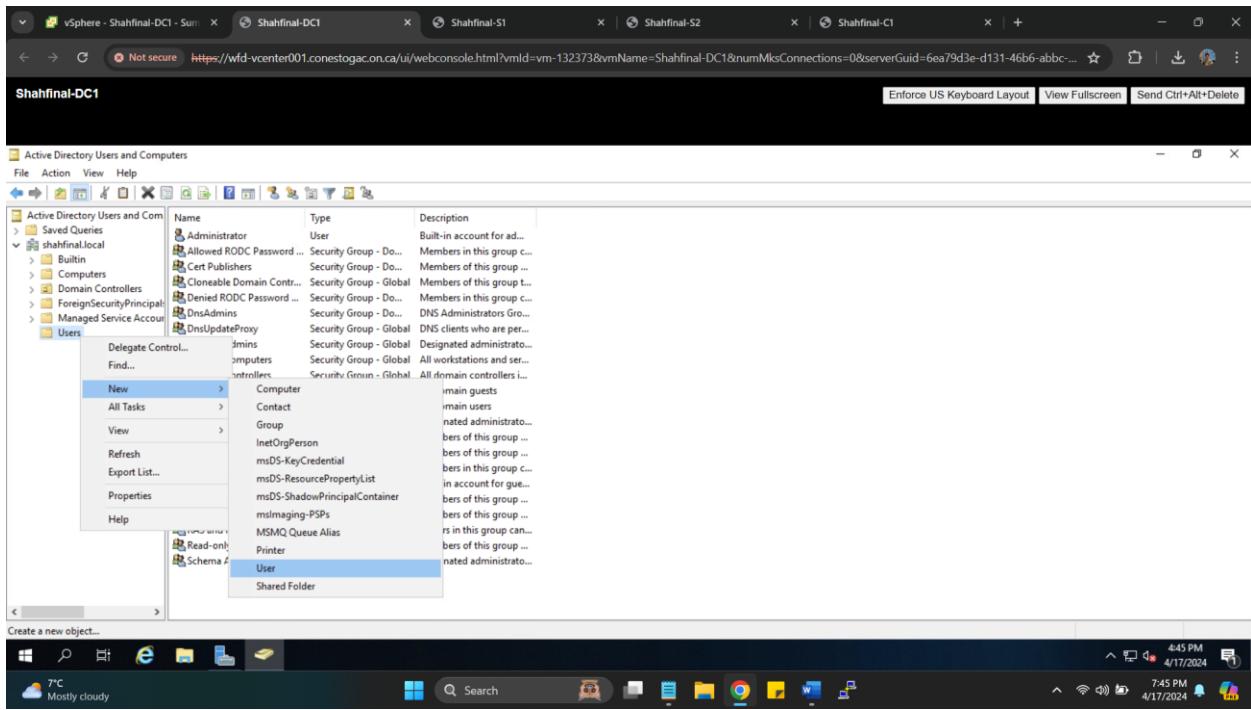
4) Create an AD group called Marketing on lastnamefinal-DC1.

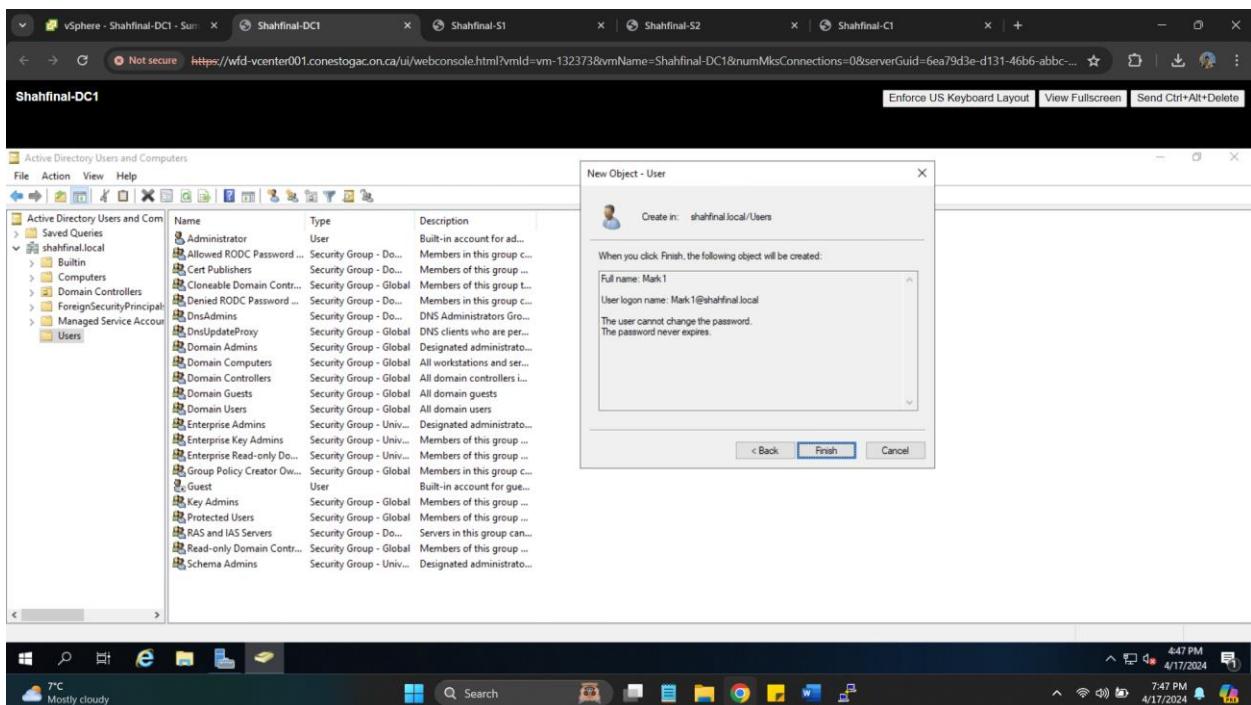
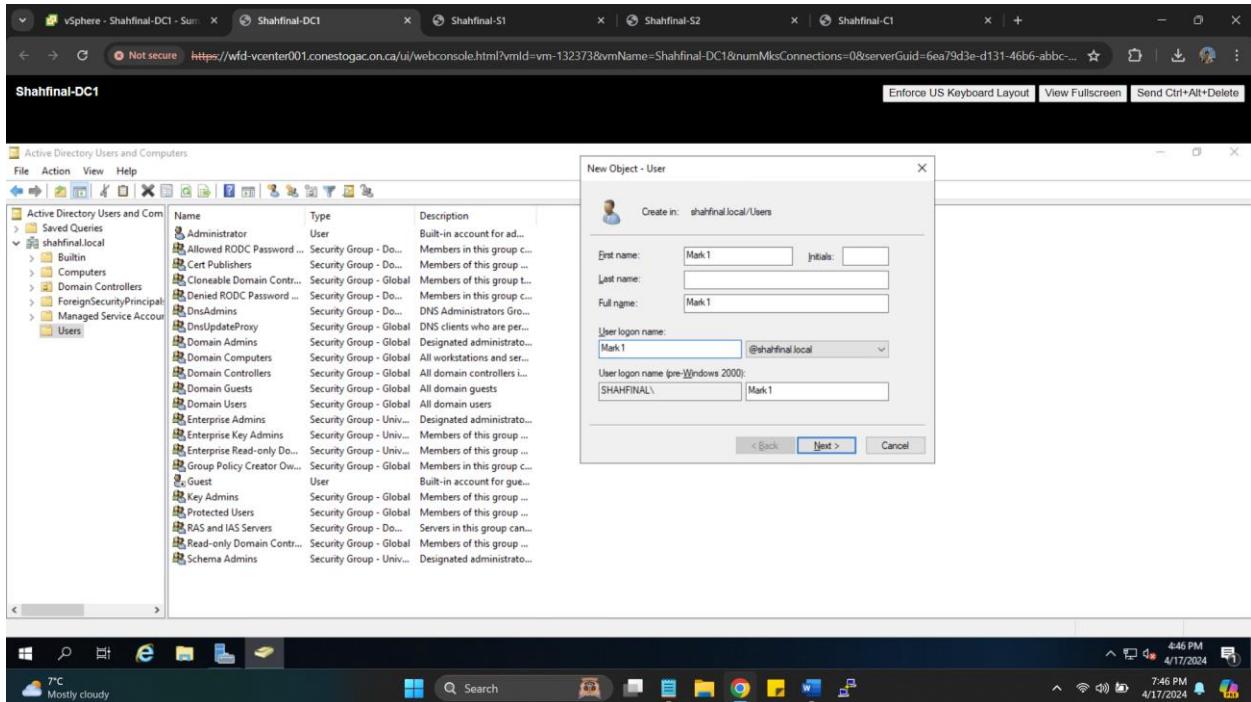


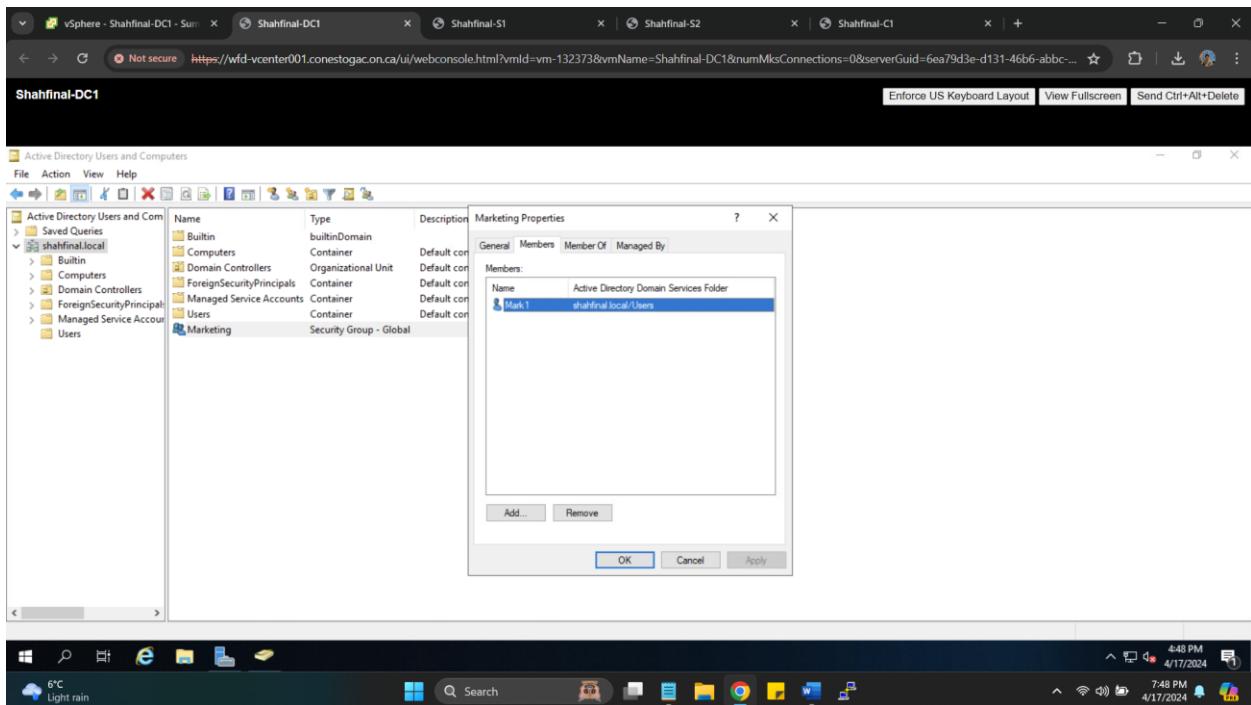
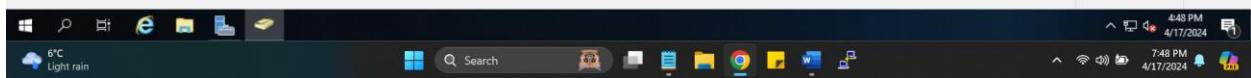
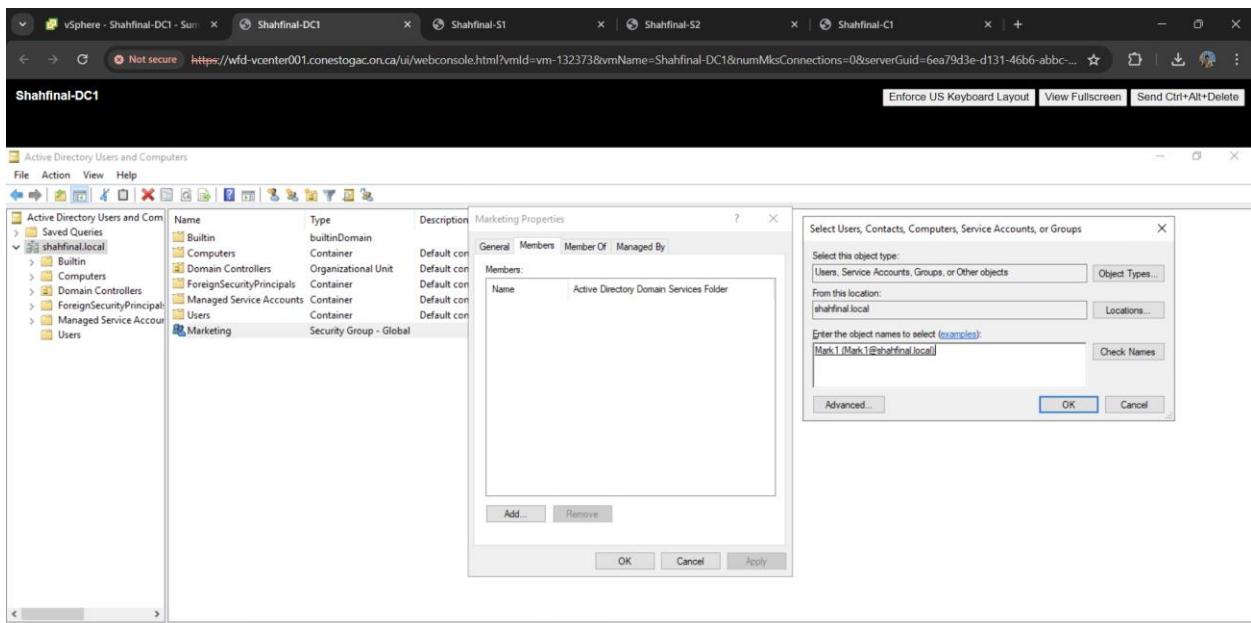


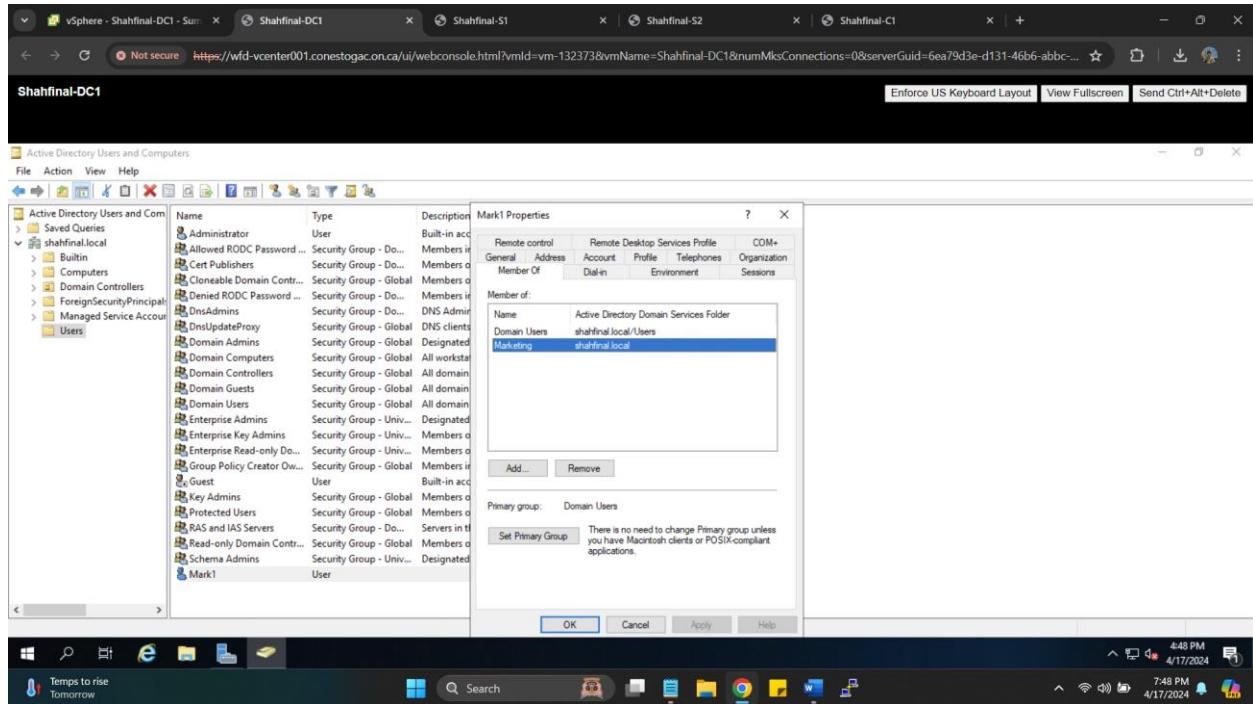


5) Create an AD user called **Mark1** and assign them to the **Marketing** AD Group.



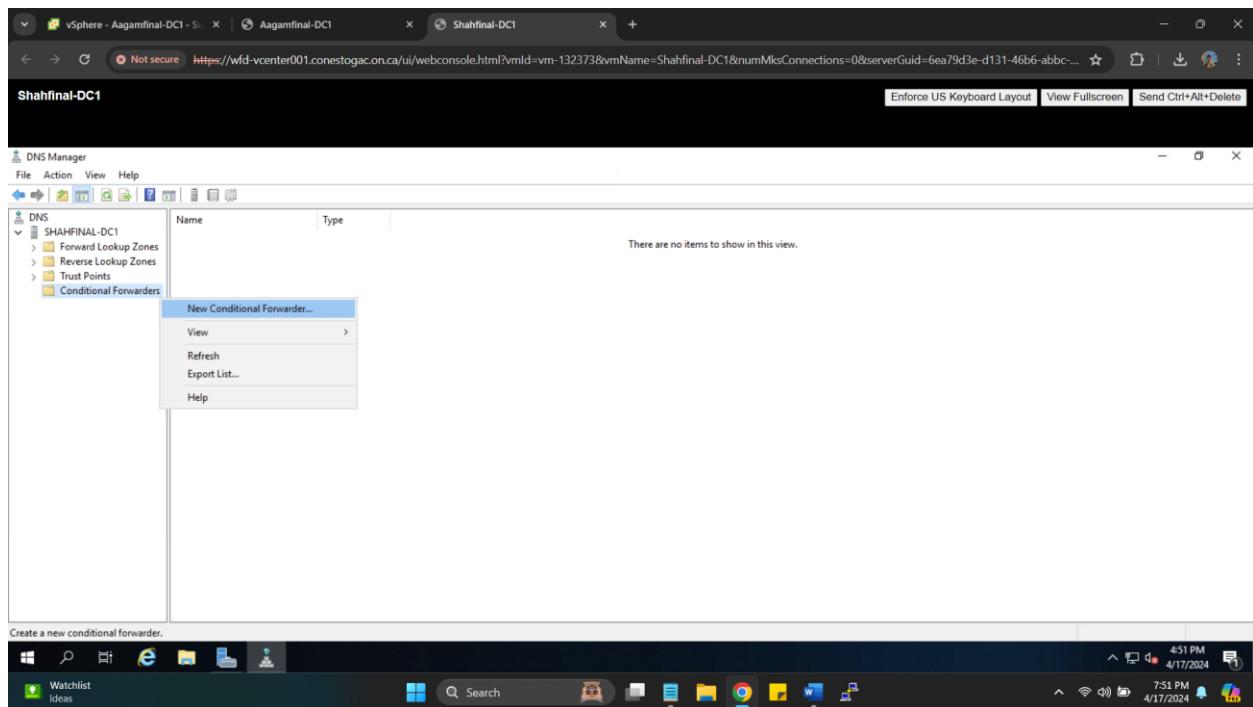


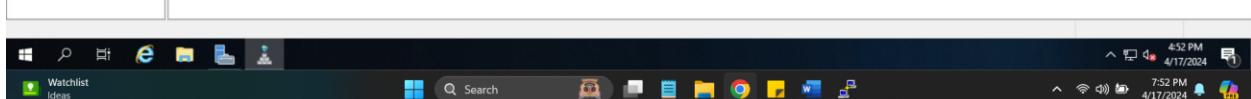
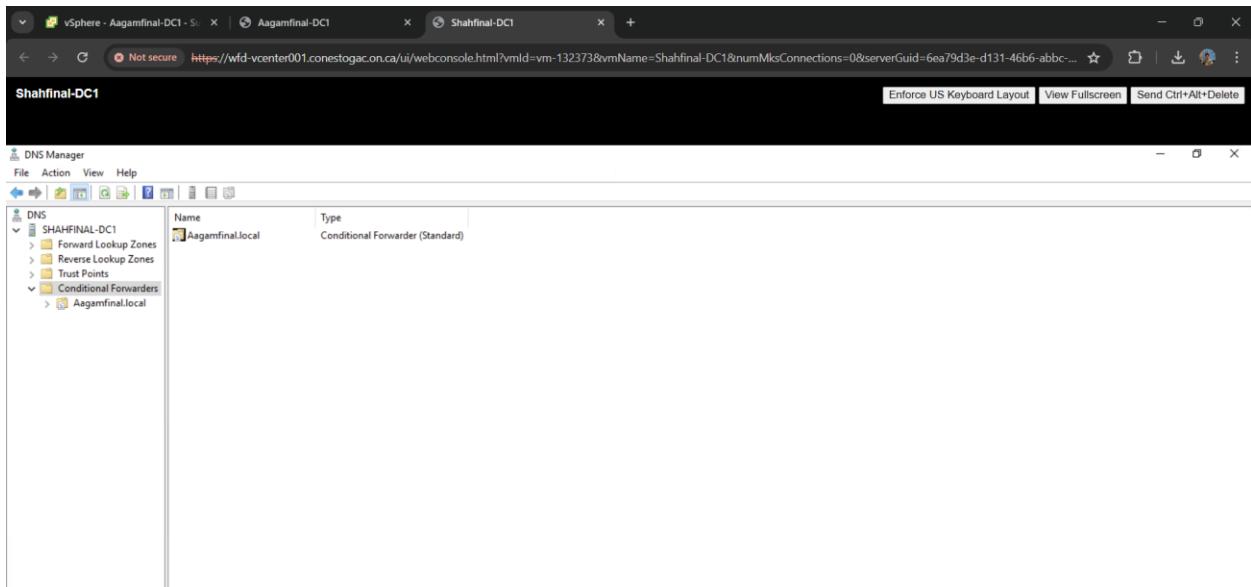
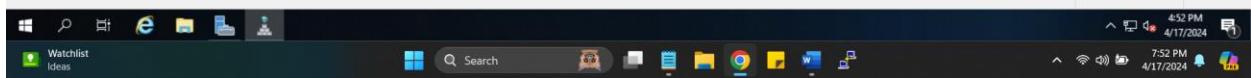
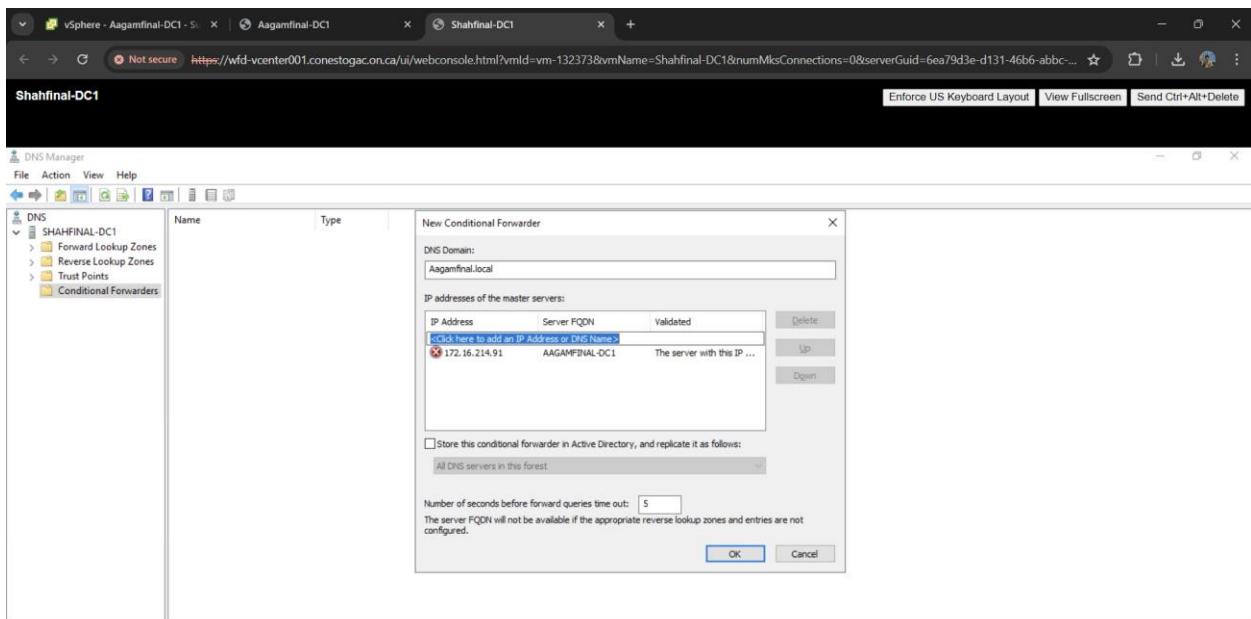




Part 2: Active Directory Domains and Trusts

- 1) Create a two-way trust between **lastnamefinal.local** and **firstnamefinal.local**.





The screenshot shows the Windows Server 2019 Local Server properties. Key details include:

- Computer name:** Shahfinal-DC1
- Domain:** shahfinal.local
- Last installed updates:** Never
- Last checked for updates:** Today at 4:16 PM
- Windows Defender Firewall:** Private: On, Enabled
- Operating system version:** Microsoft Windows Server 2019 Datacenter
- Processor:** Intel(R) Xeon(R) C
- Installed memory (RAM):** 4 GB
- Total disk space:** 89.4 GB

The right-hand pane lists various management tools under "Tools".

System tray icons: 6°C, Light rain, 4:50 PM, 4/17/2024.

The screenshot shows the Active Directory Domains and Trusts management console. The left pane displays the structure of Active Directory domains, with "shahfinal.local" selected. The right pane shows a message: "There are no items to show in this view." A context menu is open over "shahfinal.local", with "Properties" highlighted.

System tray icons: 6°C, Light rain, 4:55 PM, 4/17/2024.

Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132373&vmName=Shahfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abcb-... ☆ 🔍 🌐

Shahfinal-DC1

Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Active Directory Domains and Trusts

File Action View Help

shahfinal.local

shahfinal.local Properties

General Trusts Managed By

Domains trusted by this domain (outgoing trusts):

New Trust Wizard

Trust Name You can create a trust by using a NetBIOS or DNS name.

Type the name of the domain, forest, or realm for this trust. If you type the name of a forest, you must type a DNS name.

Example NetBIOS name: supplier01.et
Example DNS name: supplier01-internal.microsoft.com

Name: Aagamfinal.local

< Back Next > Cancel

Actions shahfinal.local More Actions

Windows taskbar: 6°C Light rain, 4/17/2024, 4:56 PM

vSphere - Aagamfinal-DC1 - Shahfinal-DC1

Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132373&vmName=Shahfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abcb-... ☆ 🔍 🌐

Shahfinal-DC1

Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Active Directory Domains and Trusts

File Action View Help

shahfinal.local

shahfinal.local Properties

General Trusts Managed By

Domains trusted by this domain (outgoing trusts):

New Trust Wizard

Trust Type This domain is a forest root domain. If the specified domain qualifies, you can create a forest trust.

Select the type of trust you want to create.

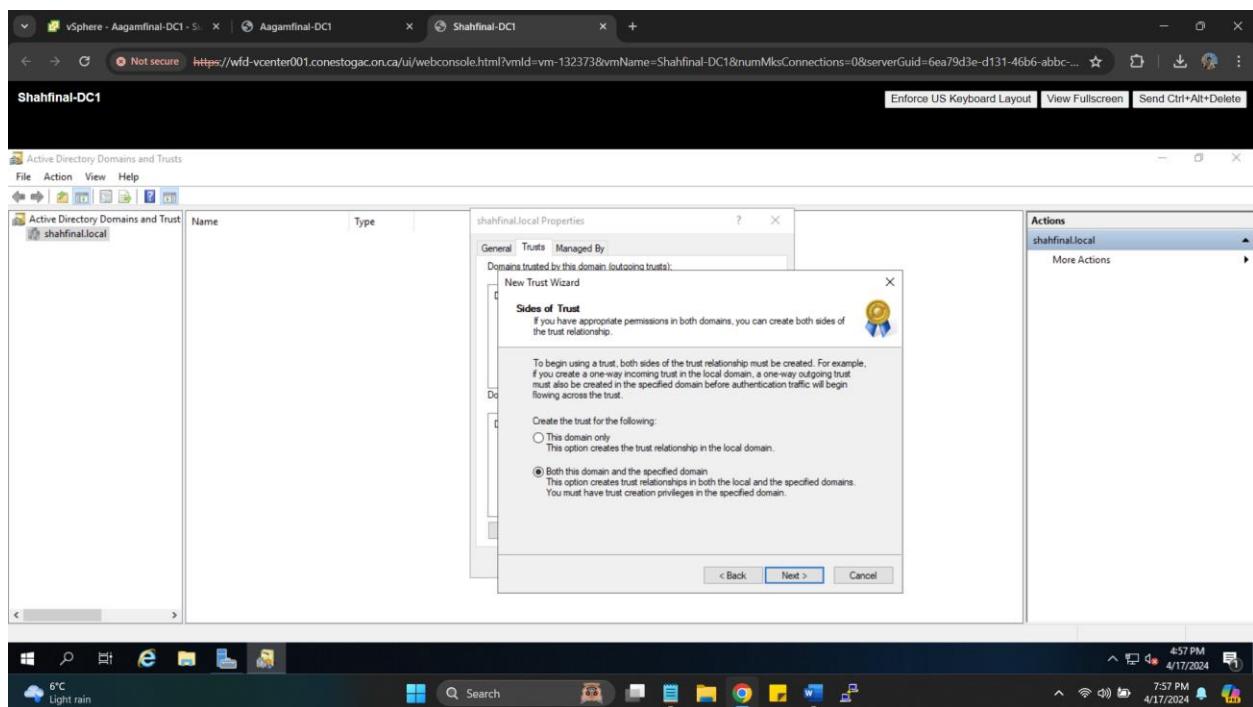
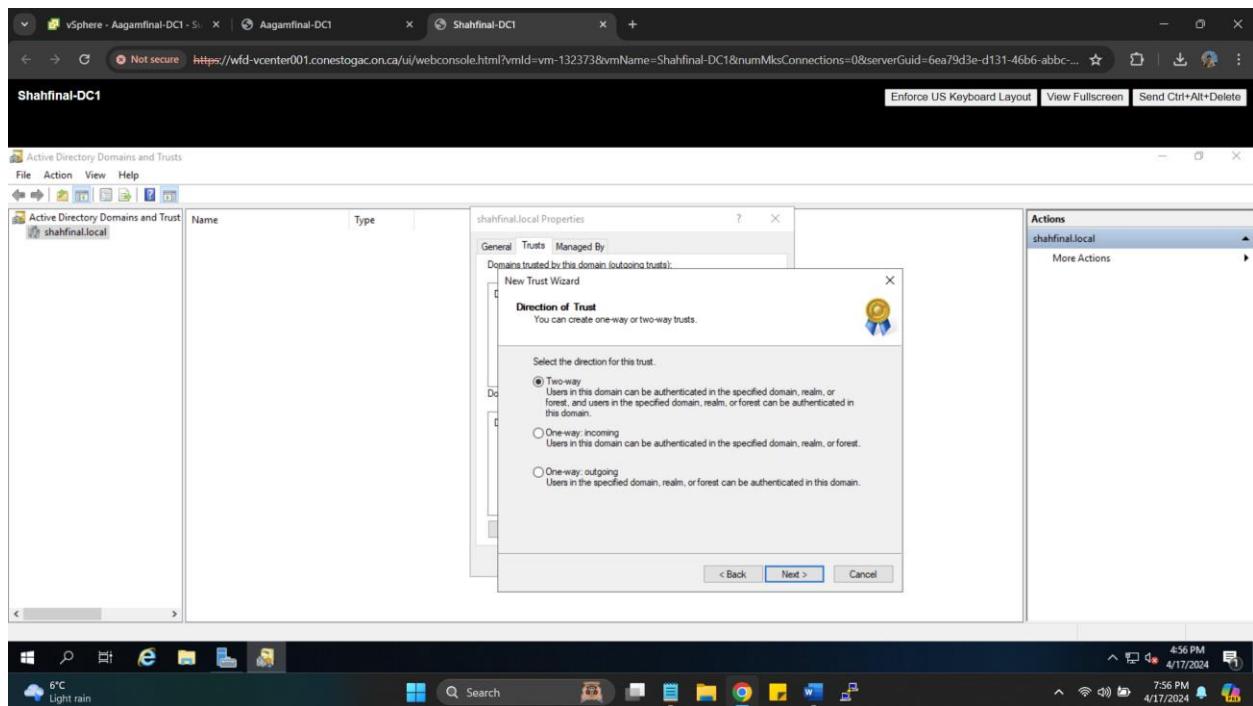
External trust An external trust is a nontransitive trust between a domain and another domain outside the forest. A nontransitive trust is bounded by the domains in the relationship.

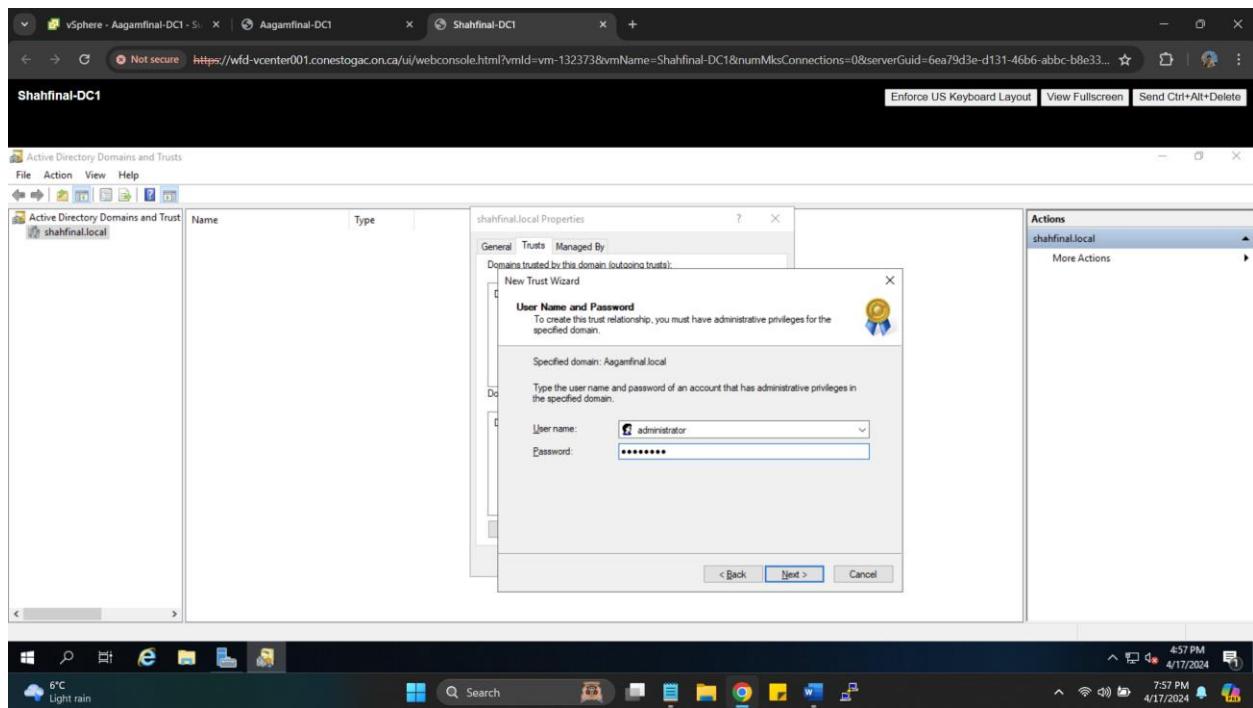
Forest trust A forest trust is a transitive trust between two forests that allows users in any of the domains in one forest to be authenticated in any of the domains in the other forest.

< Back Next > Cancel

Actions shahfinal.local More Actions

Windows taskbar: 6°C Light rain, 4/17/2024, 7:56 PM





Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132373&vmName=Shahfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e33... ☆

Shahfinal-DC1

Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Active Directory Domains and Trusts

File Action View Help

shahfinal.local

shahfinal.local Properties

General Trusts Managed By

Domains trusted by this domain (outgoing trusts):

New Trust Wizard

Completing the New Trust Wizard

You have successfully completed the New Trust Wizard.

Status of changes:

- Trust relationship created successfully.
- Route these names to the specified forest:
 - * Aagamfinal.local
- Route these names to the local forest:
 - * shahfinal.local

To close this wizard, click Finish.

< Back Finish Cancel

Actions shahfinal.local More Actions

Windows taskbar: 6°C Light rain, 4:57 PM 4/17/2024

Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132373&vmName=Shahfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e33... ☆

Shahfinal-DC1

Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Active Directory Domains and Trusts

File Action View Help

shahfinal.local

shahfinal.local Properties

General Trusts Managed By

Domains trusted by this domain (outgoing trusts):

Domain Name	Trust Type	Transitive
Aagamfinal.local	Forest	Yes

Properties... Remove

Domains that trust this domain (incoming trusts):

Domain Name	Trust Type	Transitive
Aagamfinal.local	Forest	Yes

Properties... Remove

New Trust...

OK Cancel Apply Help

Actions shahfinal.local More Actions

Windows taskbar: 6°C Light rain, 7:57 PM 4/17/2024

Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132373&vmName=Shahfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e33... ☆

Shahfinal-DC1

Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Active Directory Domains and Trusts

File Action View Help

shahfinal.local

shahfinal.local Properties

General Trusts Managed By

Domains trusted by this domain (outgoing trusts):

Domain Name	Trust Type	Transitive
Aagamfinal.local	Forest	Yes

Properties... Remove

Domains that trust this domain (incoming trusts):

Domain Name	Trust Type	Transitive
Aagamfinal.local	Forest	Yes

Properties... Remove

New Trust...

OK Cancel Apply Help

Actions shahfinal.local More Actions

Windows taskbar: 6°C Light rain, 4:58 PM 4/17/2024

Screenshot of the vSphere Client showing the DNS Manager interface for the Aagamfinal-DC1 host.

The browser address bar shows: `https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132377&vmName=Aagamfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abb...`

The DNS Manager interface displays the following structure:

- DNS** node expanded, showing:
 - AAGAMFINAL-DC1
 - Forward Lookup Zones
 - Reverse Lookup Zones
 - Trust Points
 - Conditional Forwarders

A context menu is open over the "Conditional Forwarders" item, listing options: New Conditional Forwarder..., View, Refresh, Export List..., and Help.

The main pane displays the message: "There are no items to show in this view." Below this, a note says: "Create a new conditional forwarder."

At the bottom of the screen, a Windows taskbar is visible with the date and time: 4/17/2024 4:53 PM.

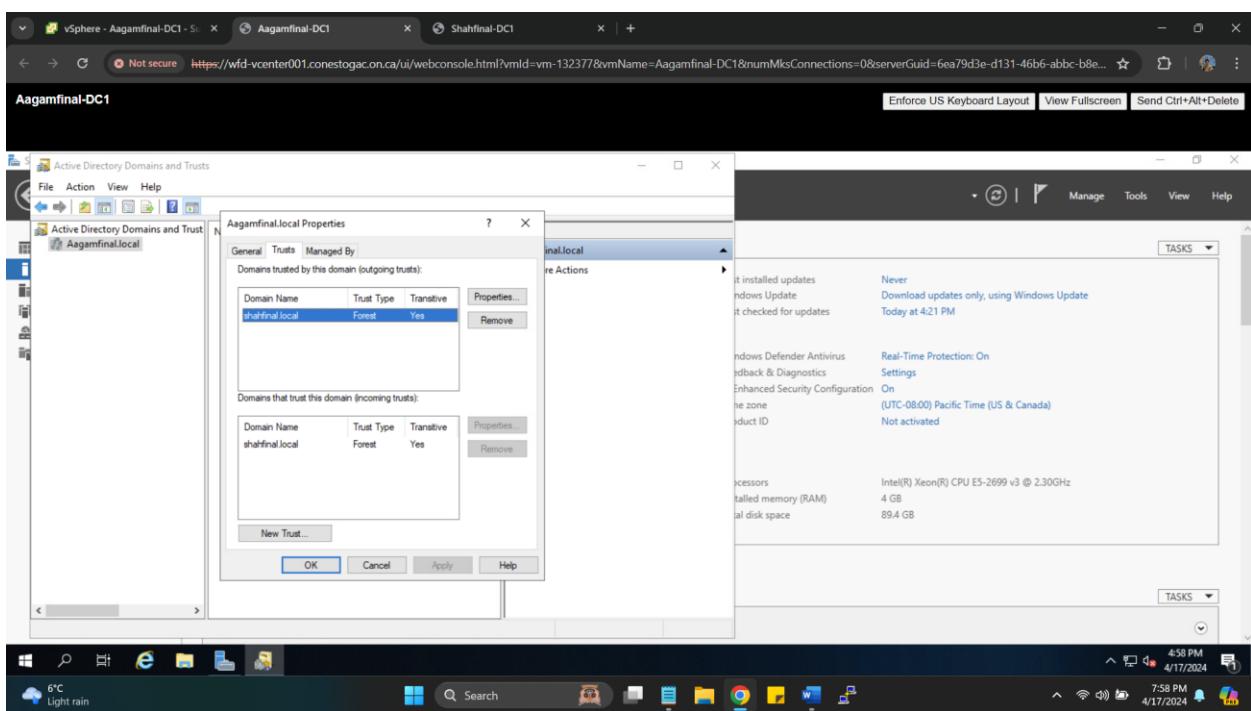
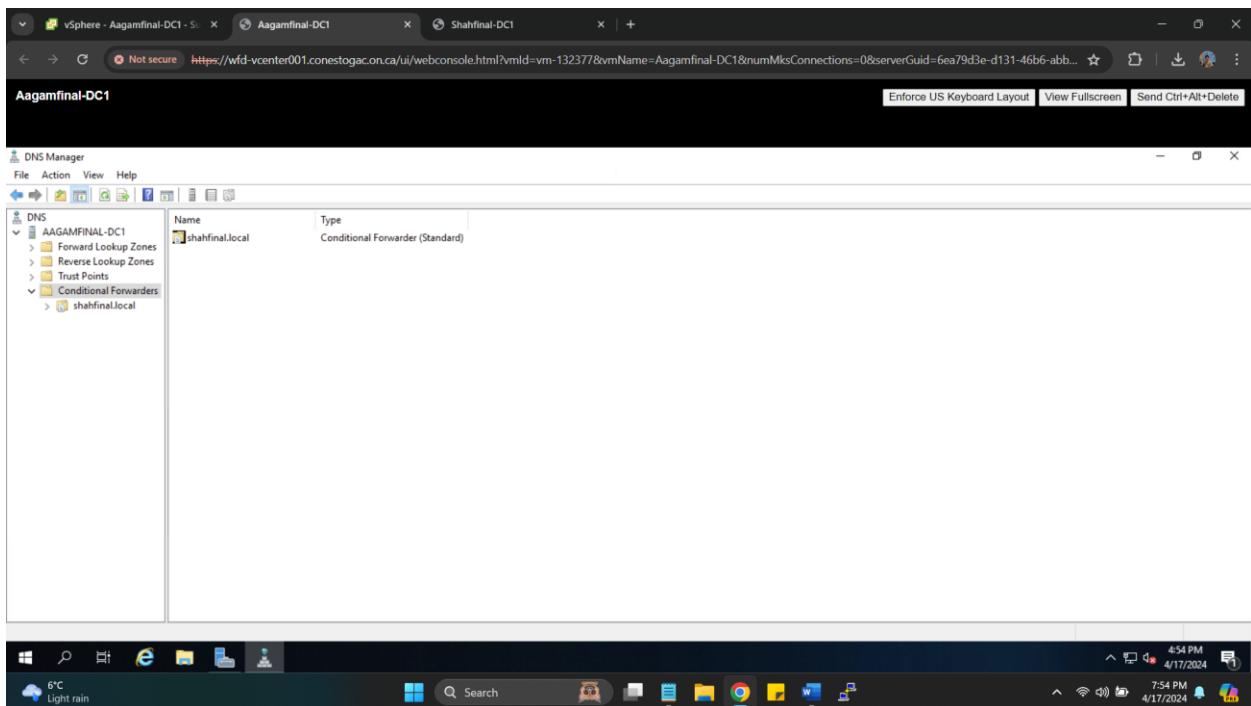
In the second screenshot, the "New Conditional Forwarder..." dialog box is open. It contains the following fields:

- DNS Domain:** shahfinal.local
- IP addresses of the master servers:**

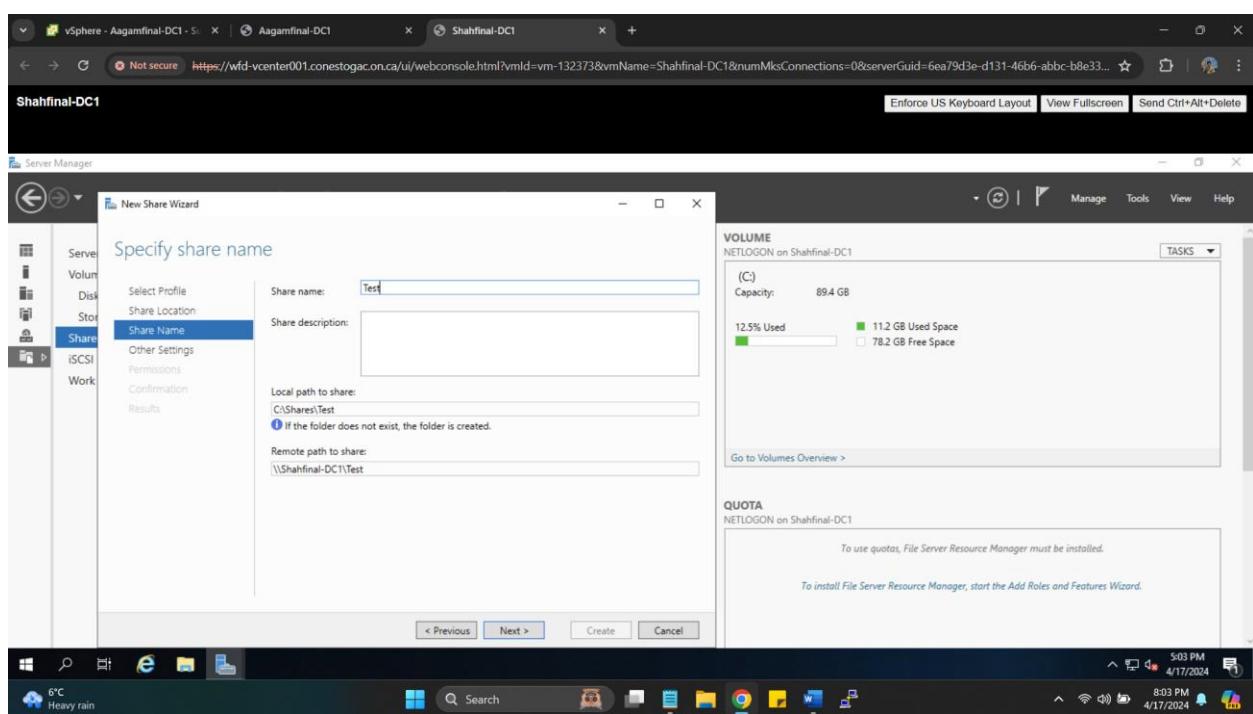
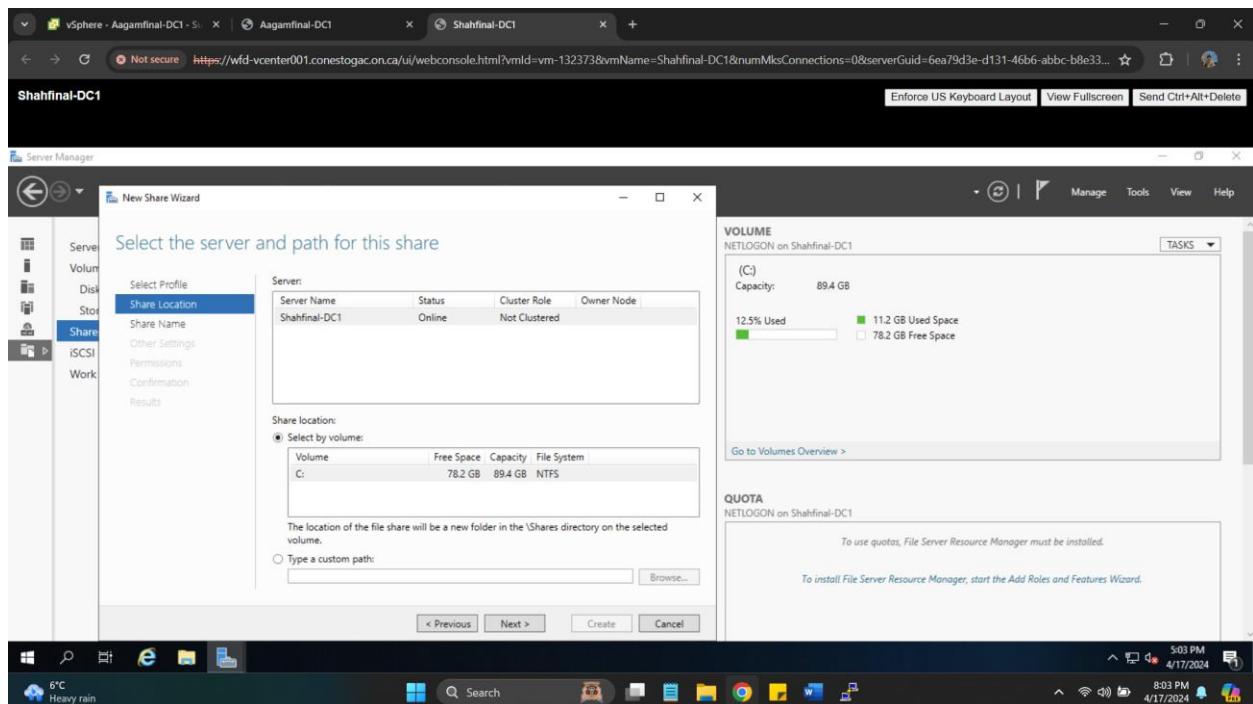
IP Address	Server FQDN	Validated
172.16.214.90	SHAHFINAL-DC1	The server with this IP ...
- Store this conditional forwarder in Active Directory, and replicate it as follows:** A dropdown menu showing "All DNS servers in this forest".
- Number of seconds before forward queries time out:** 5
- Note:** "The server FQDN will not be available if the appropriate reverse lookup zones and entries are not configured."

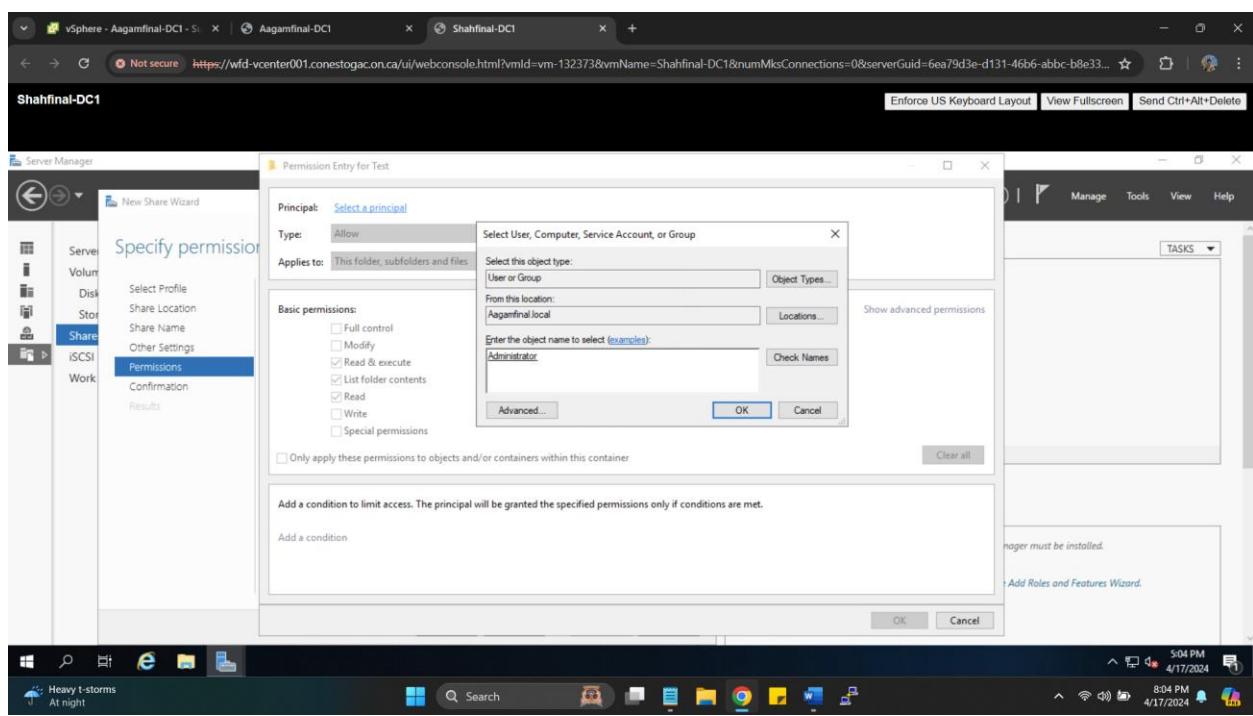
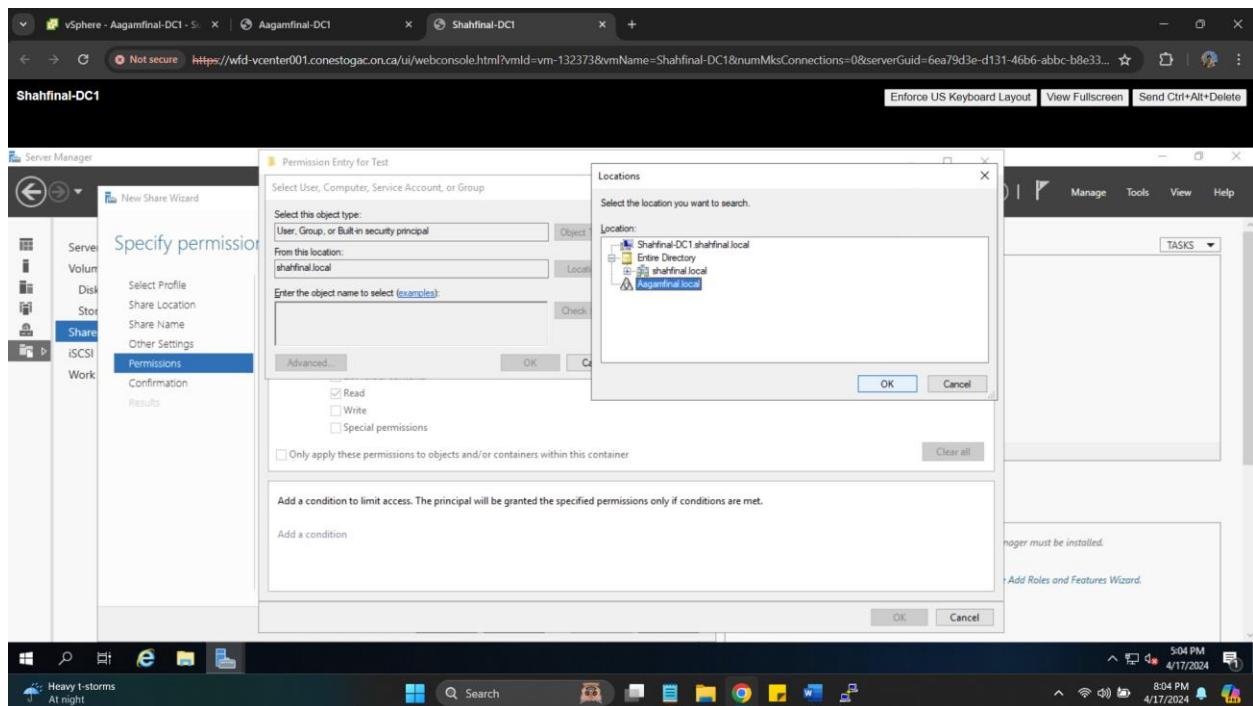
At the bottom right of the dialog are OK and Cancel buttons.

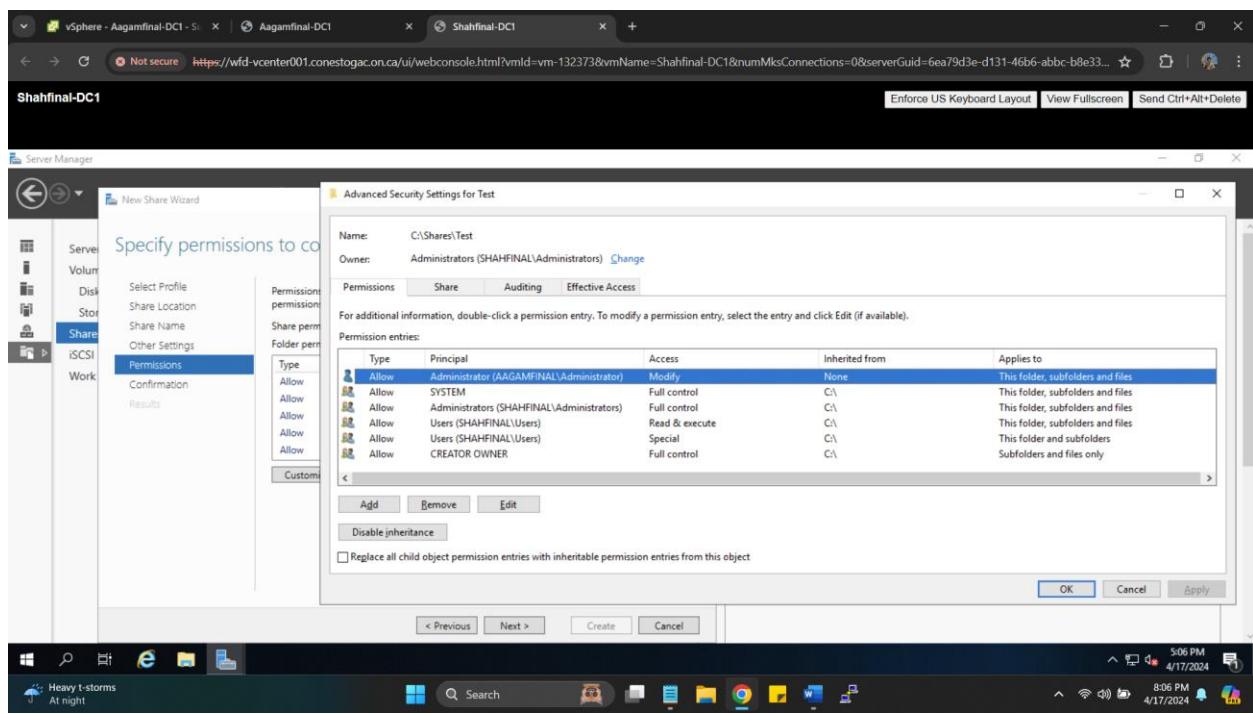
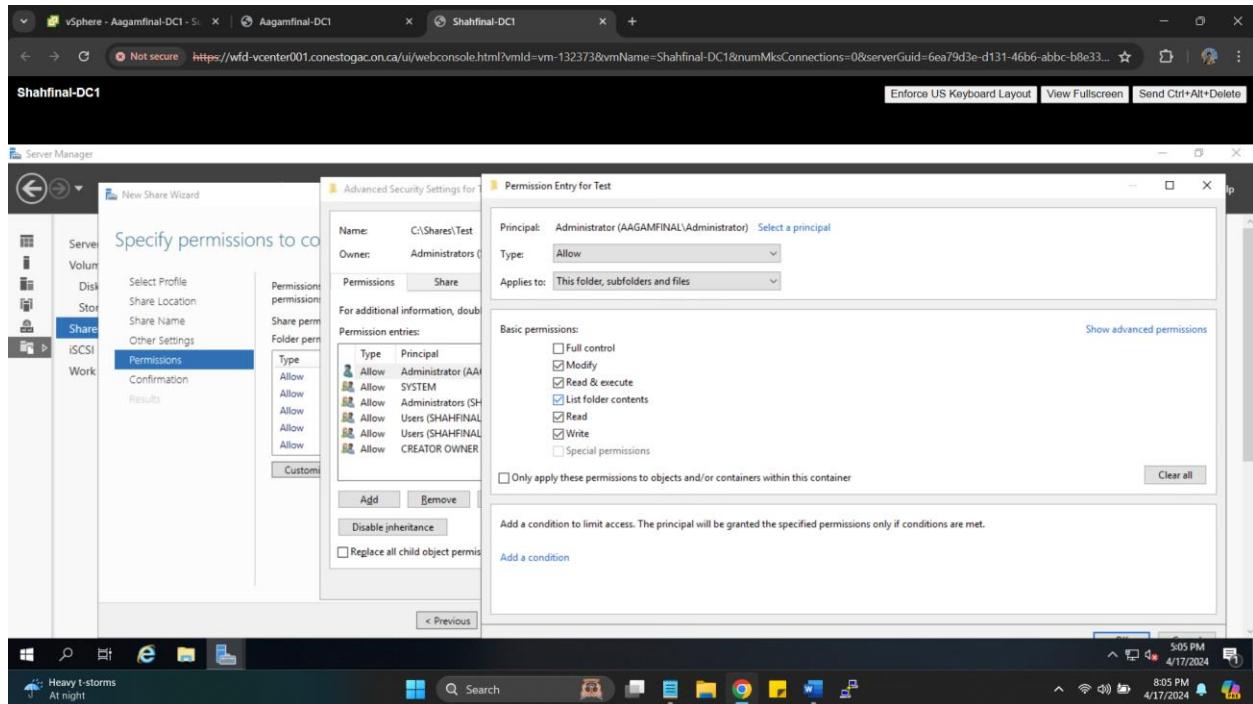
At the very bottom of the screen, another Windows taskbar is visible with the date and time: 4/17/2024 7:54 PM.

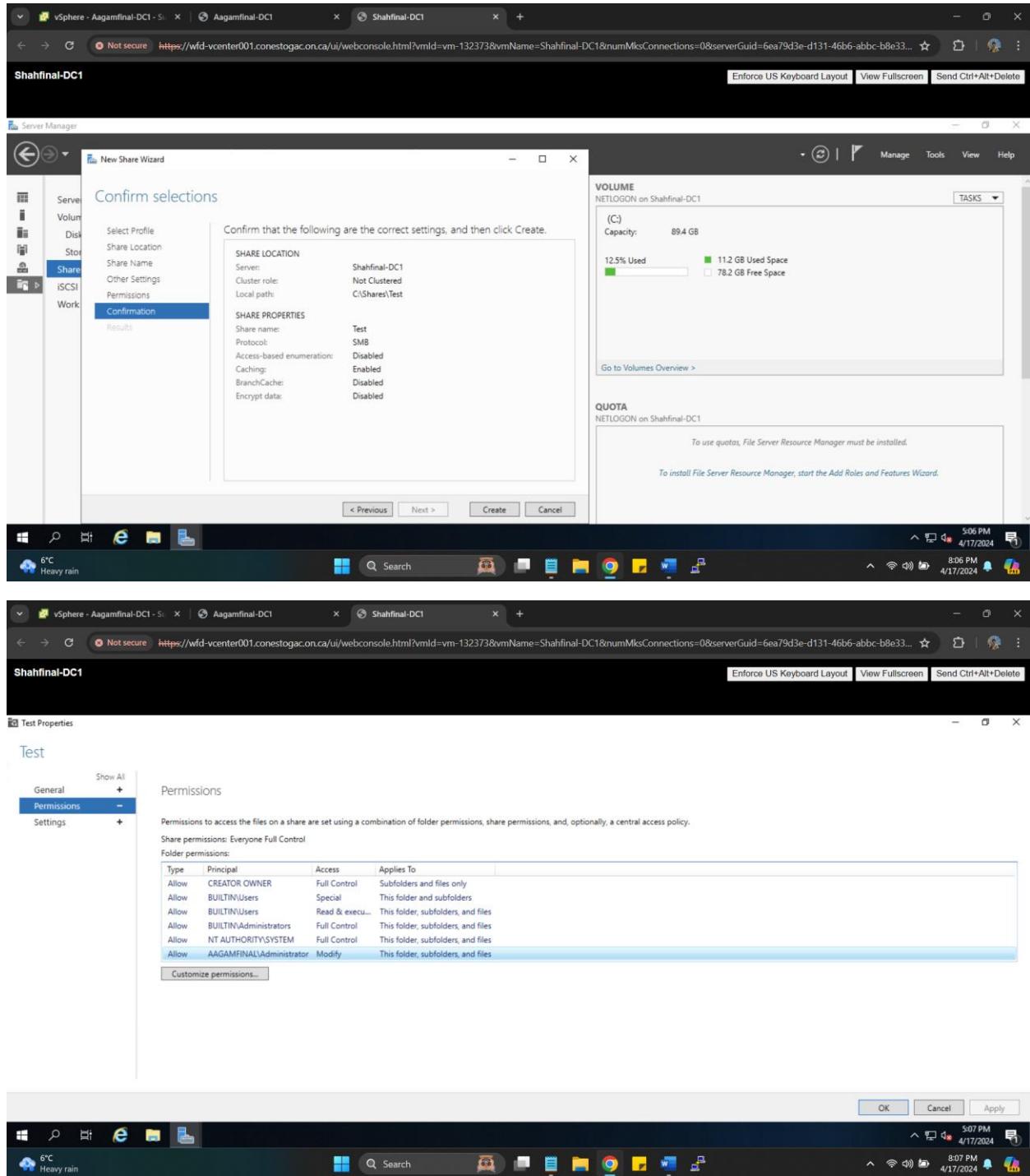


- 2) Test the trust after its created by creating an NTFS File share on **Lastnamefinal-DC1** assigning [administrator@firstnamefinal.local](#) modify access to it.



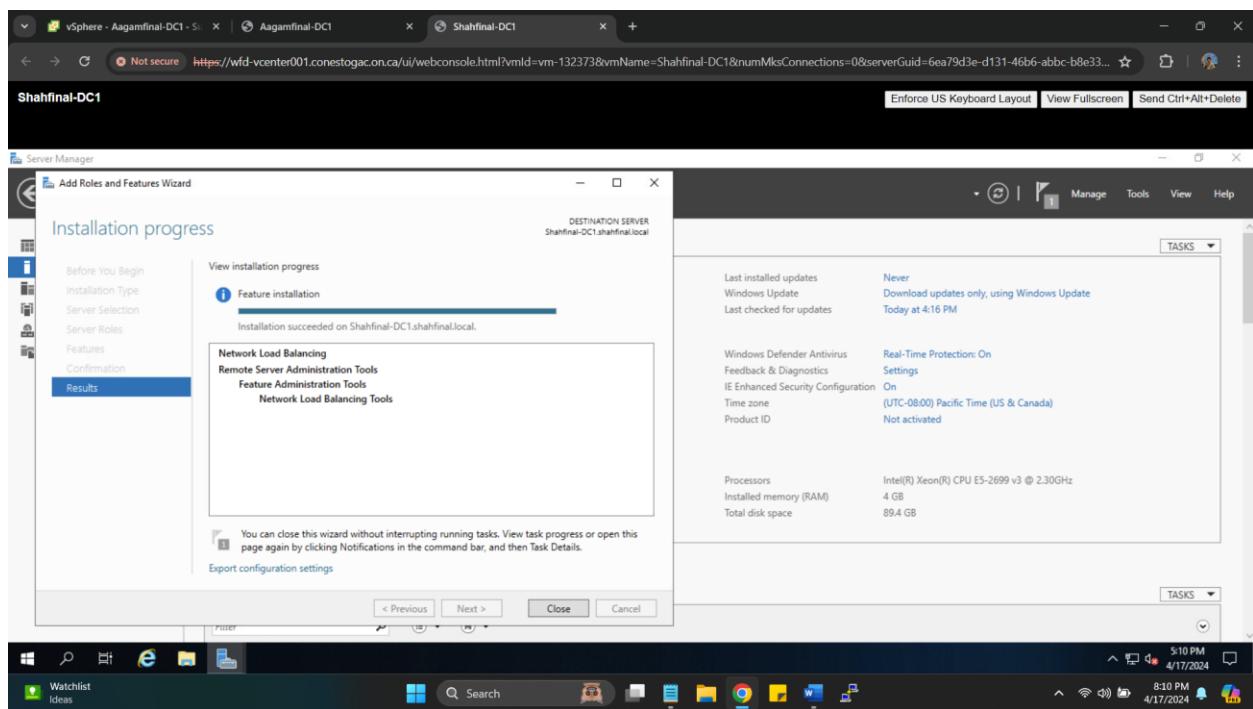
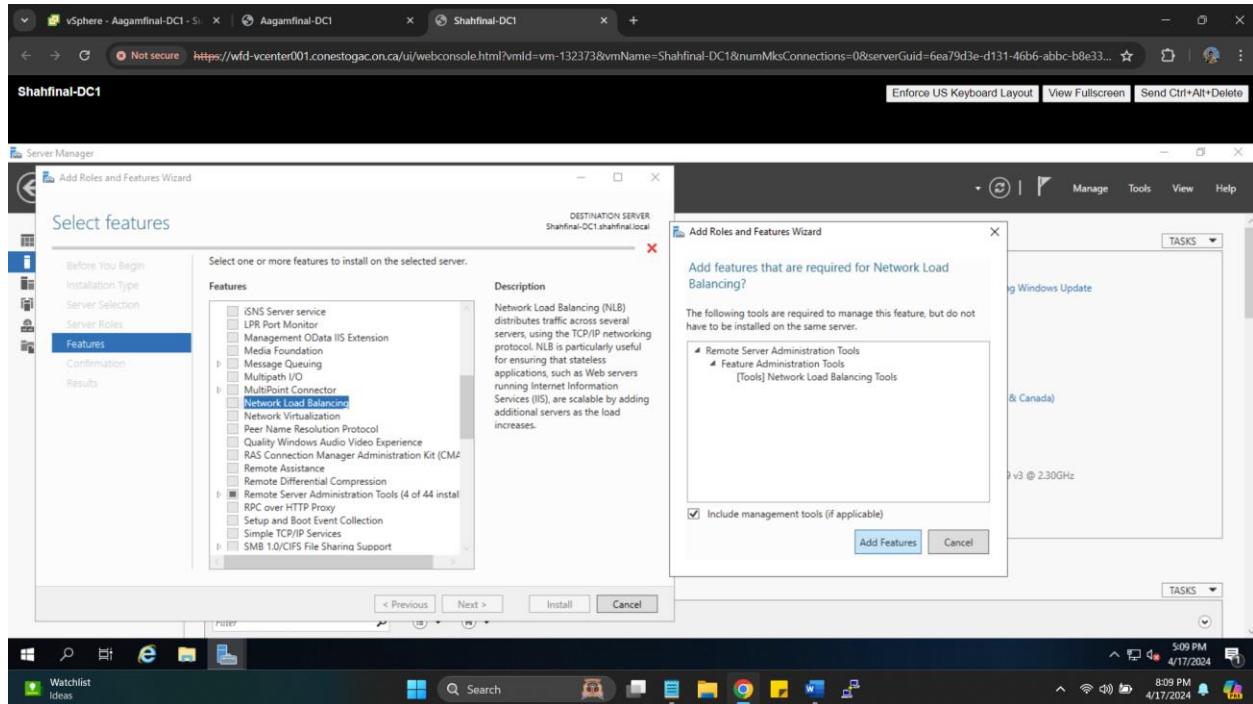






Part 3: NLB

- 1) Create an **NLB cluster** adding **Lastnamefinal-S1** and **Lastnamefinal-S2** as members.



Shahfinal-DC1

Server Manager • Local Server

PROPERTIES
For Shahfinal-DC1

Computer name: Shahfinal-DC1
Domain: shahfinal.local

Last installed updates: Never
Windows Update: Download update
Last checked for updates: Today at 4:16 PM

Windows Defender Firewall: Domain: On
Remote management: Enabled
Remote Desktop: Disabled
NIC Teaming: Disabled
Ethernet0: 172.16.214.90, IPv6 enabled

Windows Defender Antivirus: Real-Time Protection
Feedback & Diagnostics: Settings
IE Enhanced Security Configuration: On
Time zone: (UTC-08:00) Pacific
Product ID: Not activated

Operating system version: Microsoft Windows Server 2019 Datacenter
Hardware information: VMware, Inc. VMware7,1

Processors: Intel(R) Xeon(R) C
Installed memory (RAM): 4 GB
Total disk space: 89.4 GB

EVENTS
All events | 41 total

Filter

Manage Tools View Help

Network Load Balancing Manager

ODBC Data Sources (32-bit)
ODBC Data Sources (64-bit)
Performance Monitor
Print Management
Recovery Drive
Registry Editor
Resource Monitor

5:10 PM 4/17/2024

8:10 PM 4/17/2024

Shahfinal-DC1

Server Manager • Local Server

Network Load Balancing Manager

File Cluster Host Options Help

New
Connect to Existing
Add Host
Delete
Properties
Refresh
Remove From View
Control Hosts...
Control Ports...

Cluster configuration for all known NLB clusters

Cluster name	Cluster IP address	Cluster IP subnet mask	Cluster mode

Log Entry Date Time Cluster Host Description

0001 4/17/2024 5:10:37 PM NLB Manager session started
0002 4/17/2024 5:10:37 PM Loading locally bound instances

New Network Load Balancing cluster.

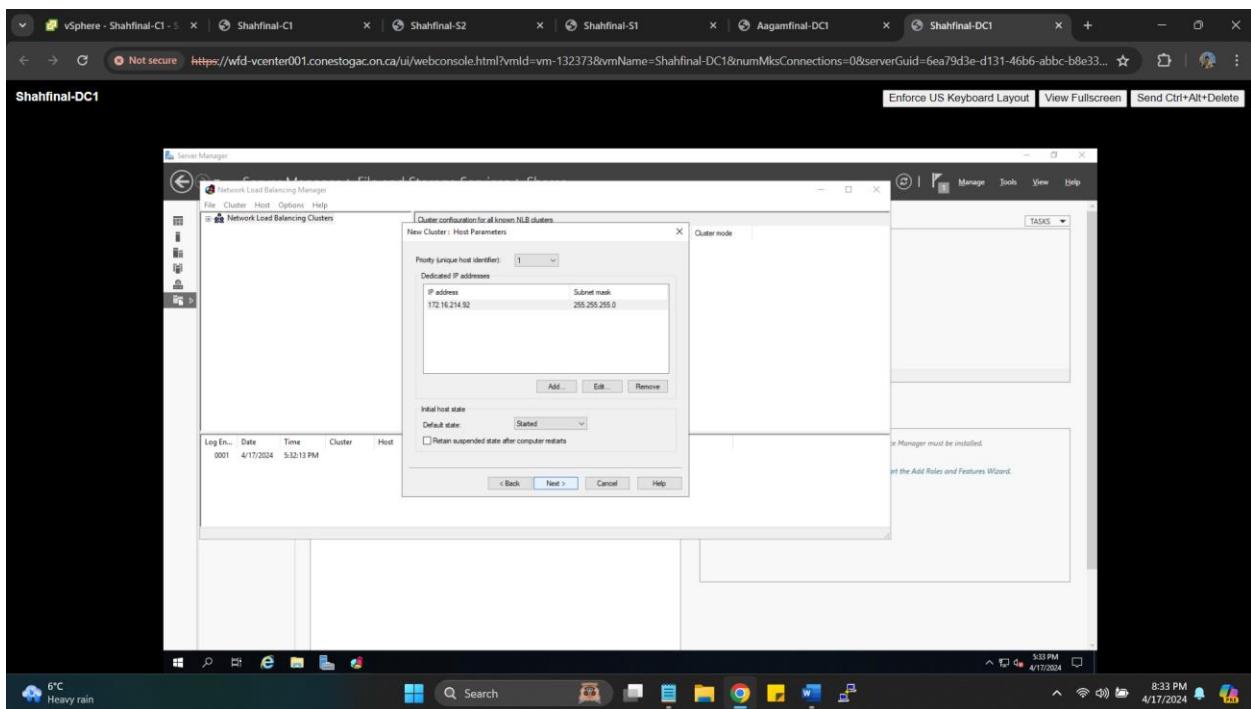
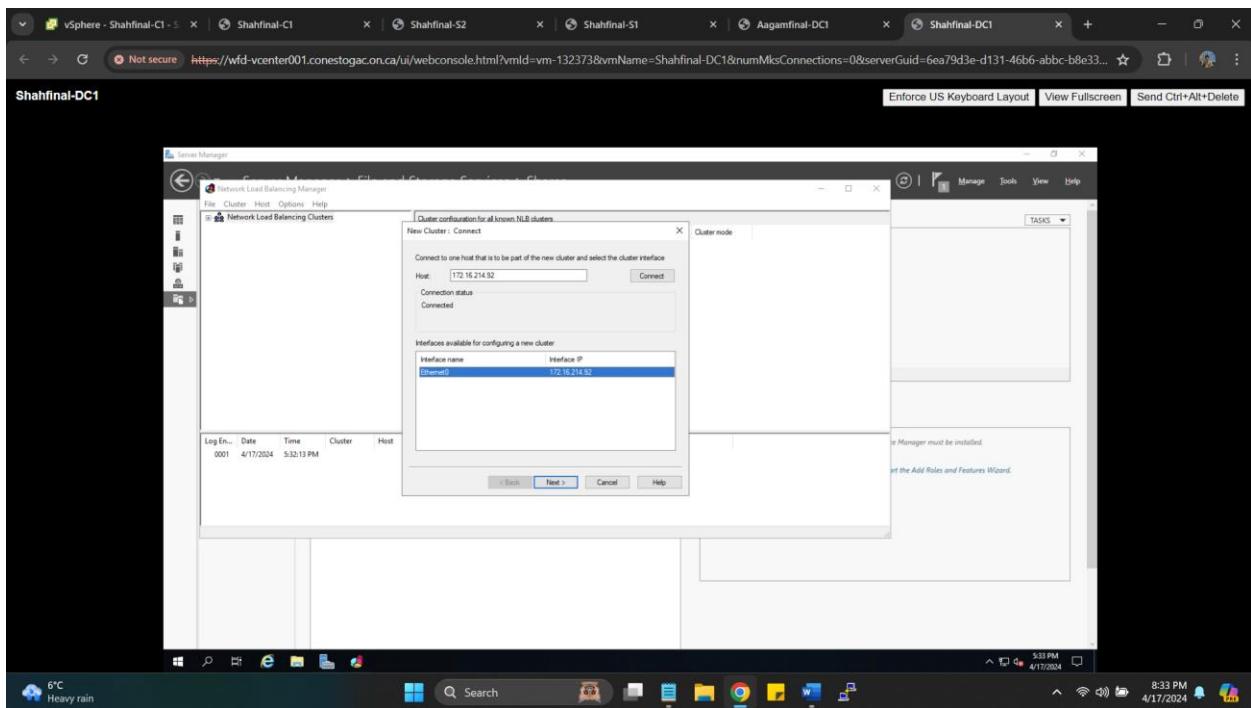
EVENTS
All events | 41 total

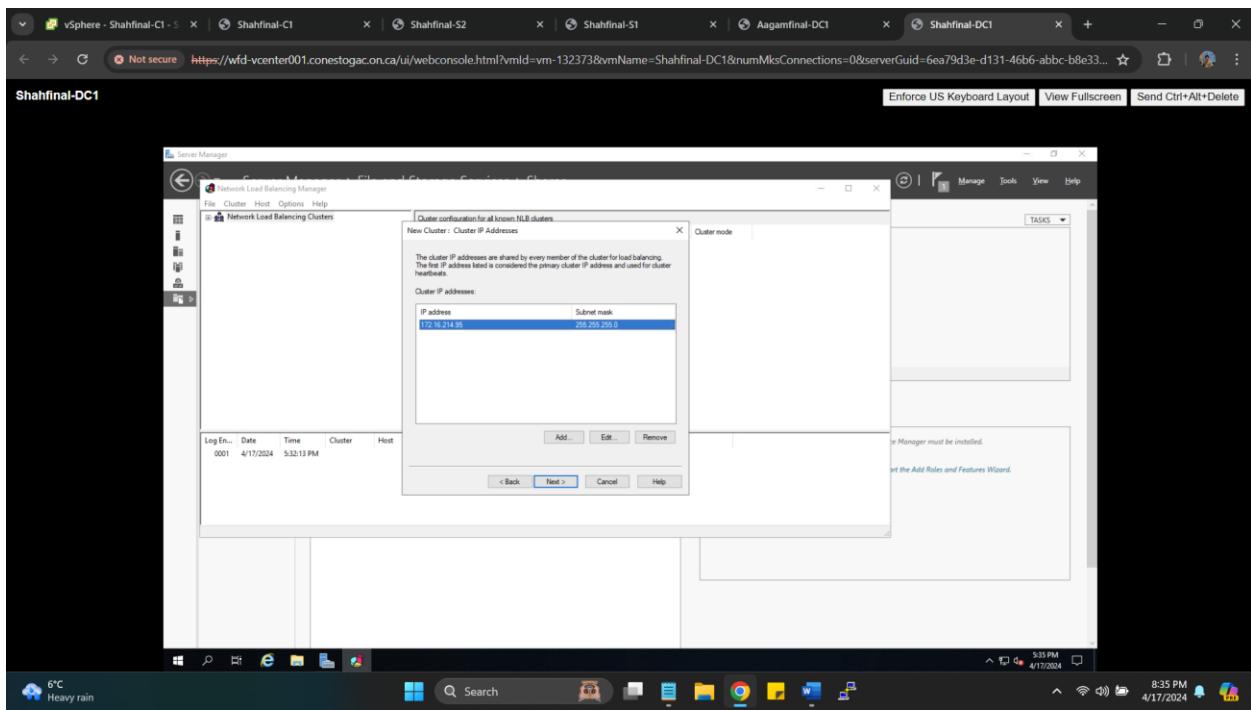
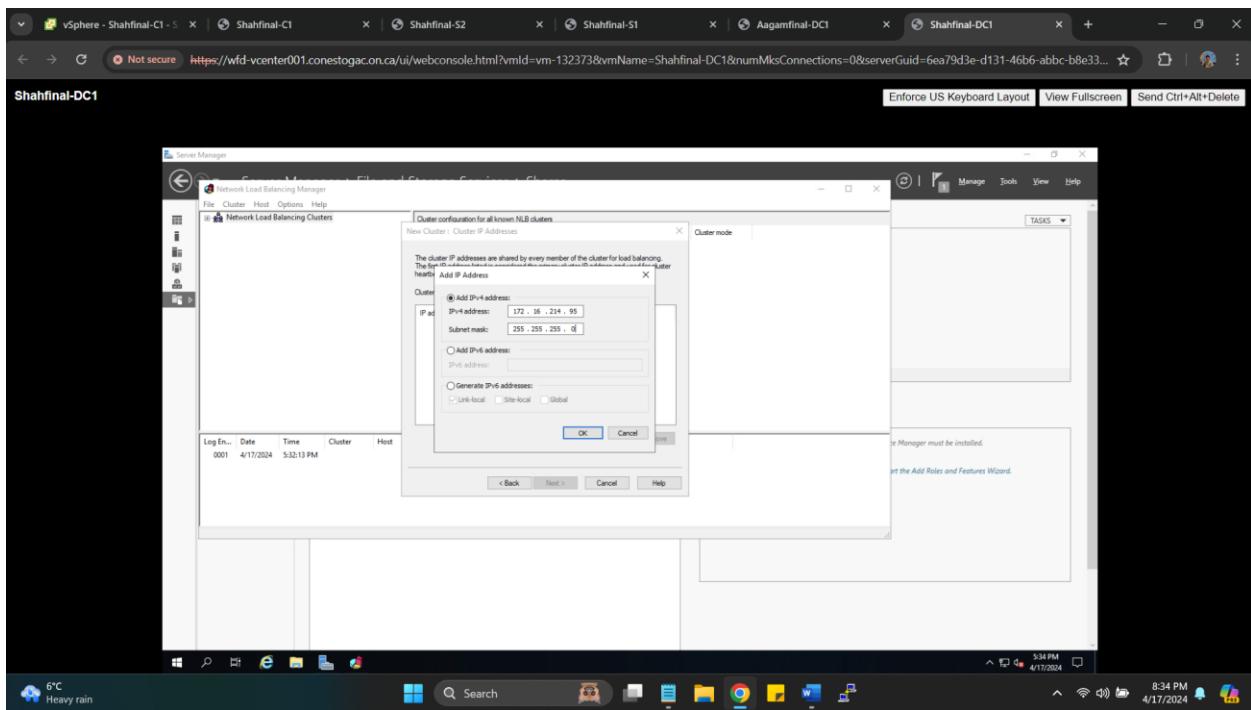
Filter

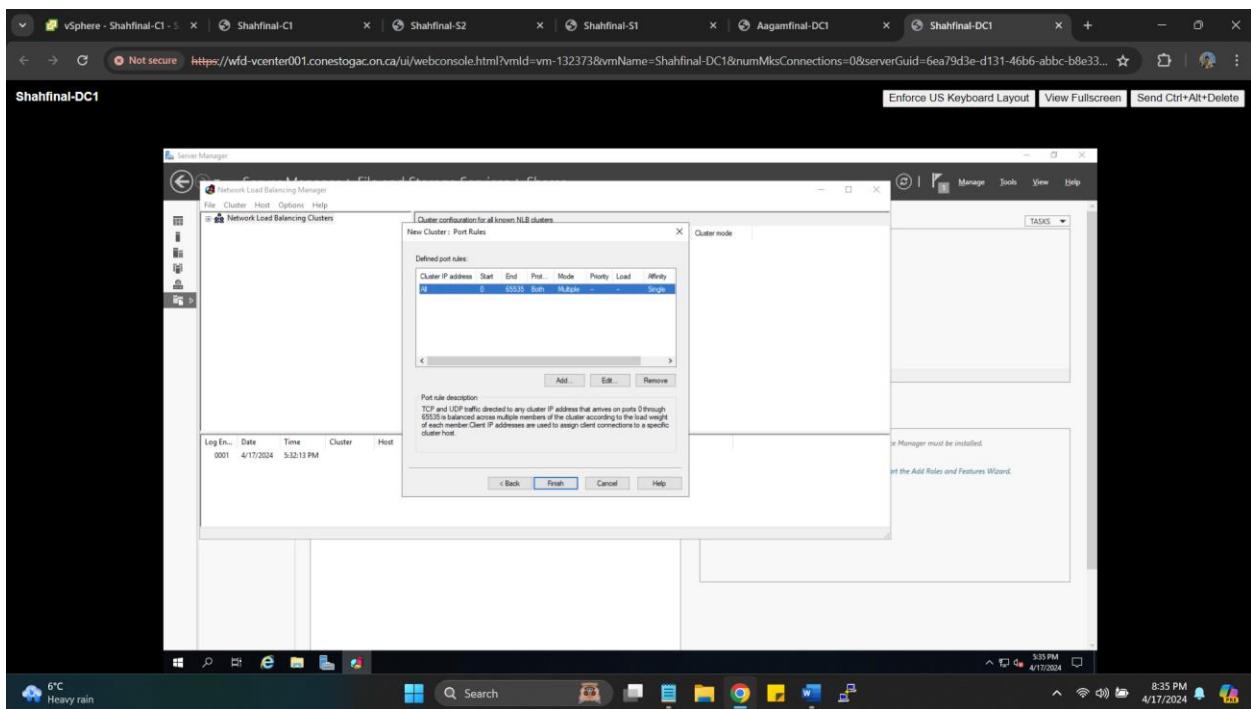
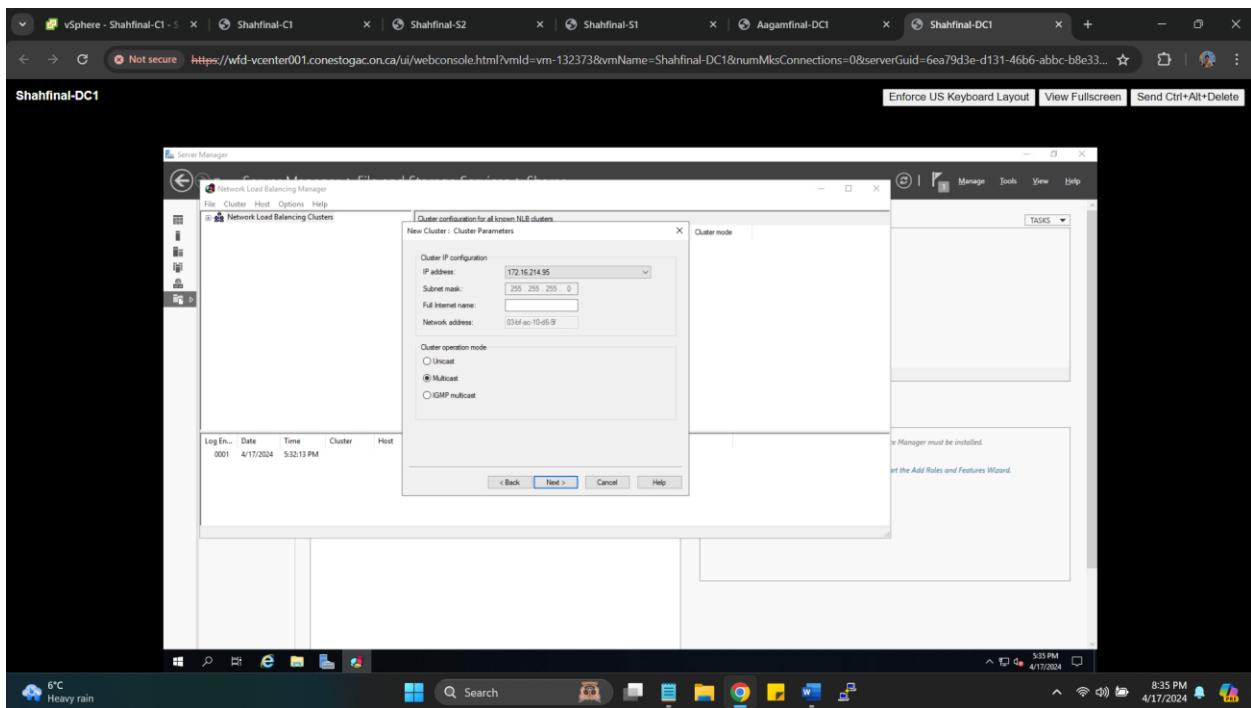
Manage Tools View Help

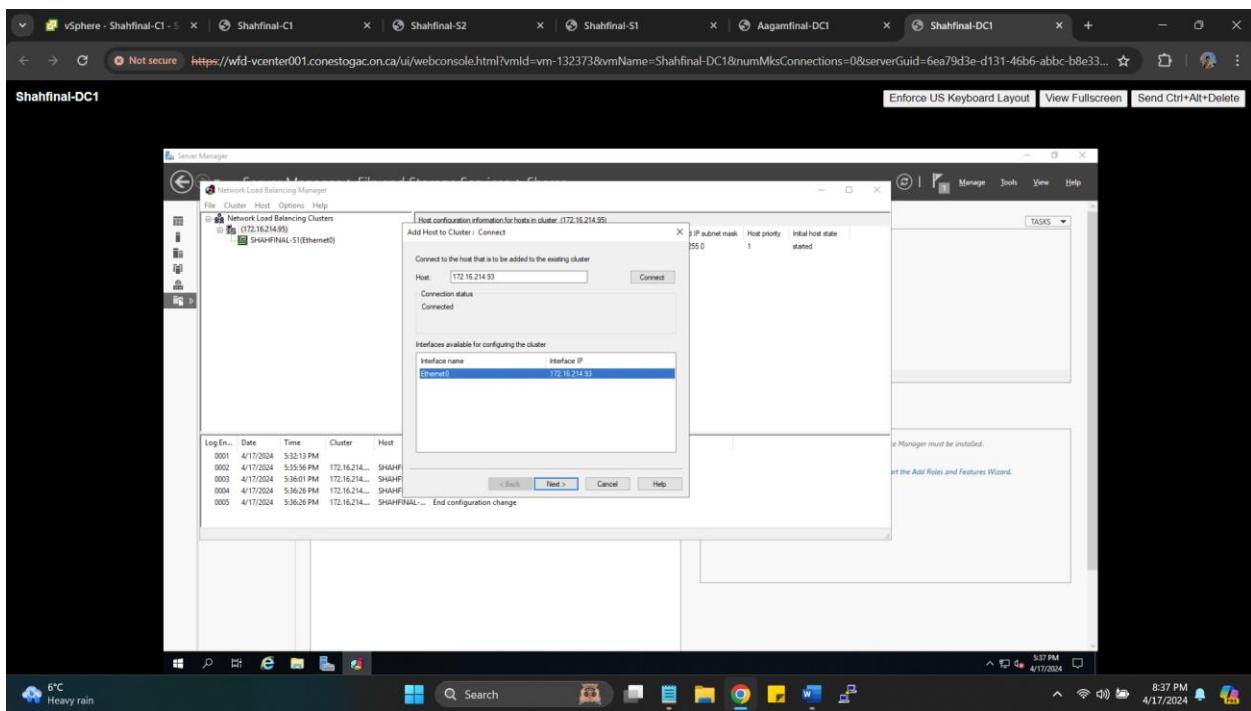
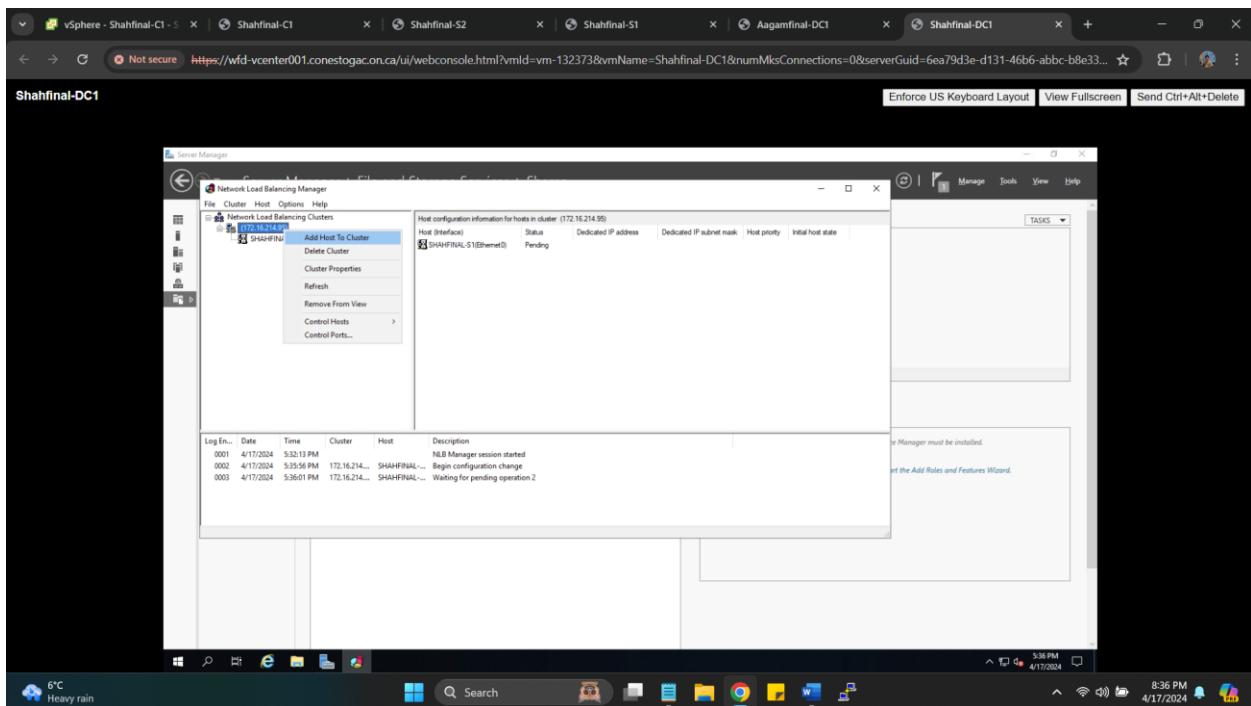
5:10 PM 4/17/2024

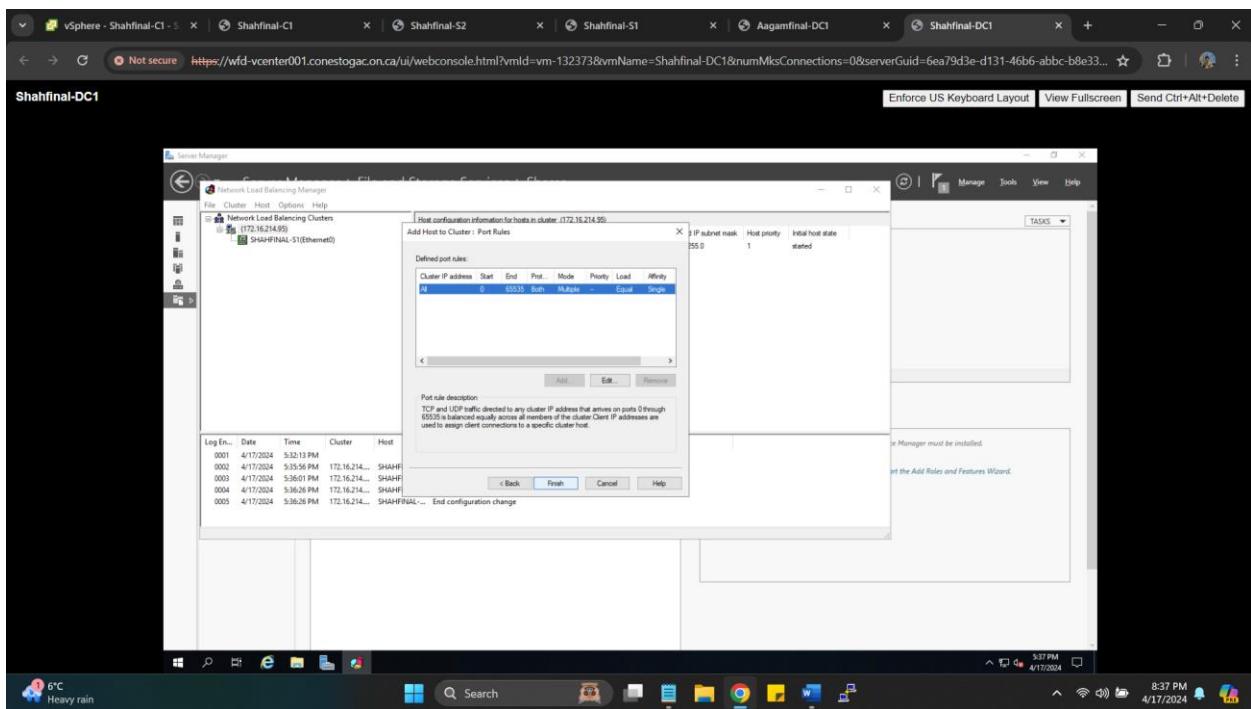
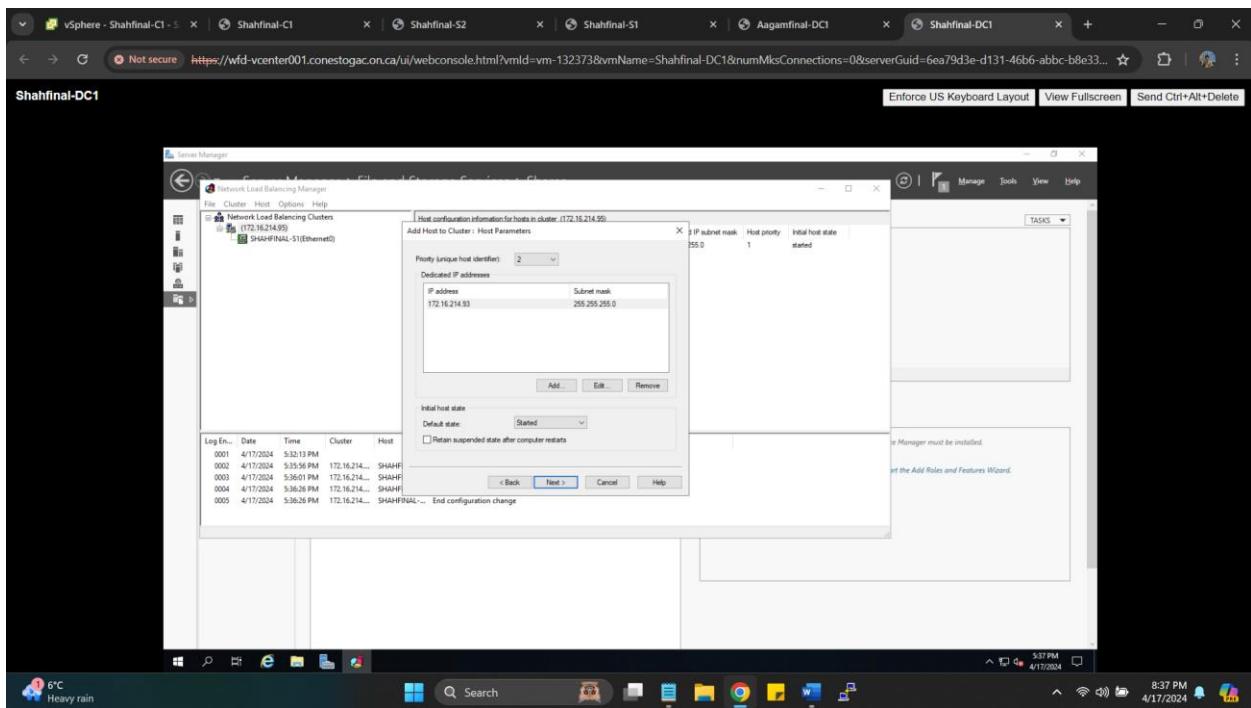
8:10 PM 4/17/2024

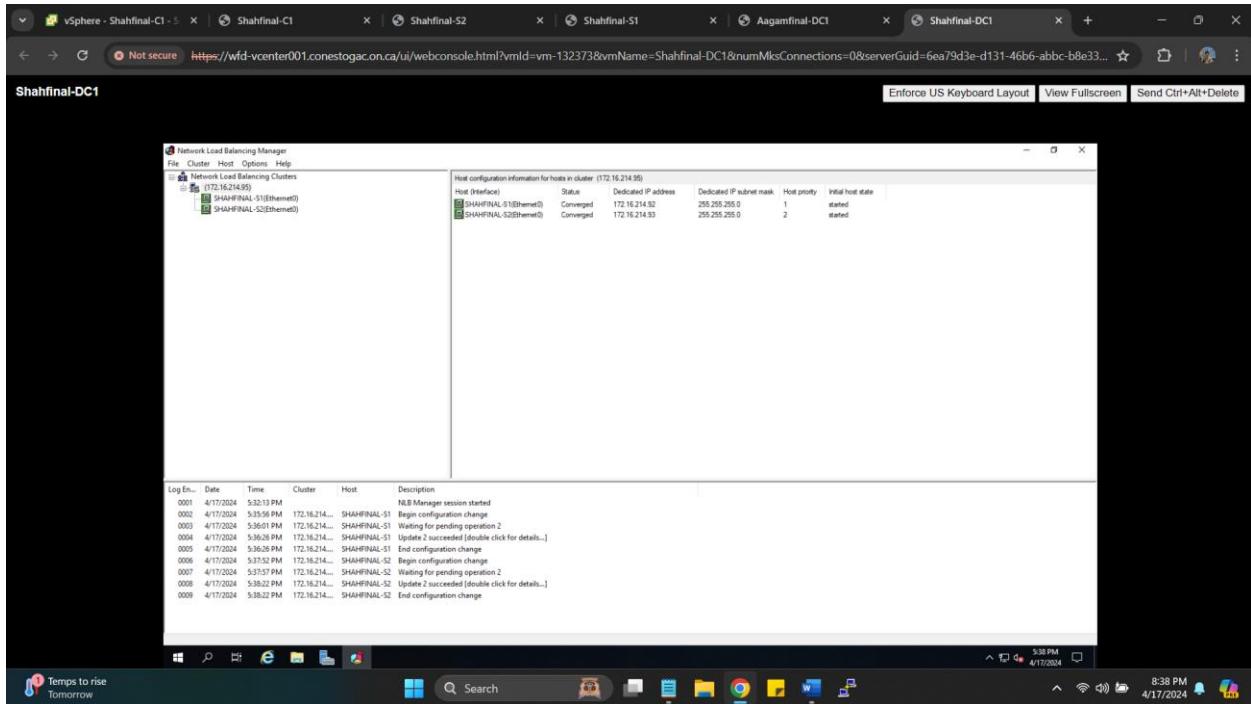






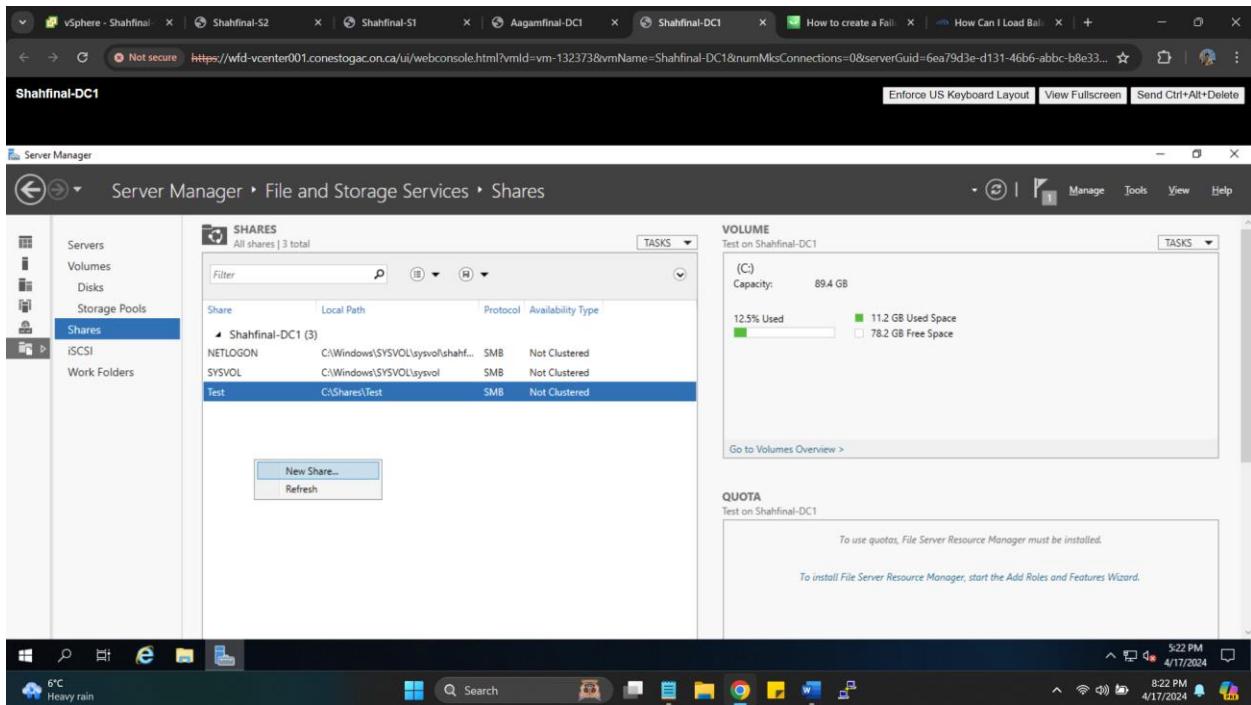


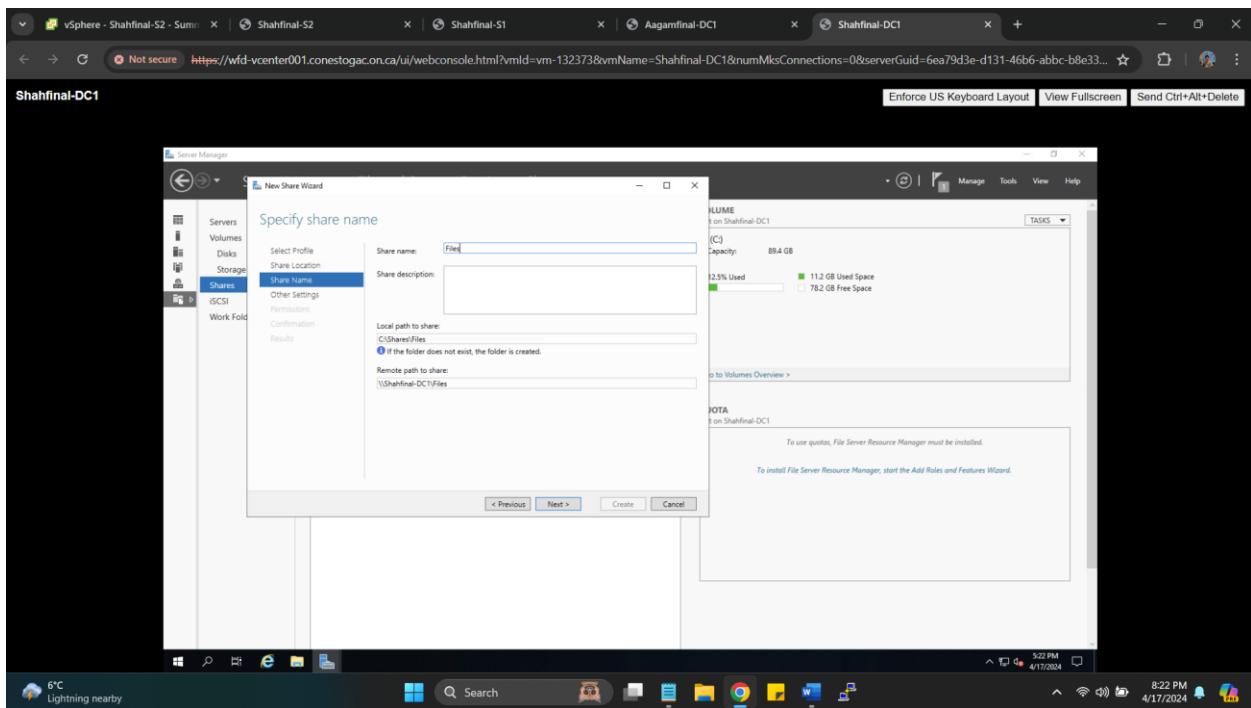




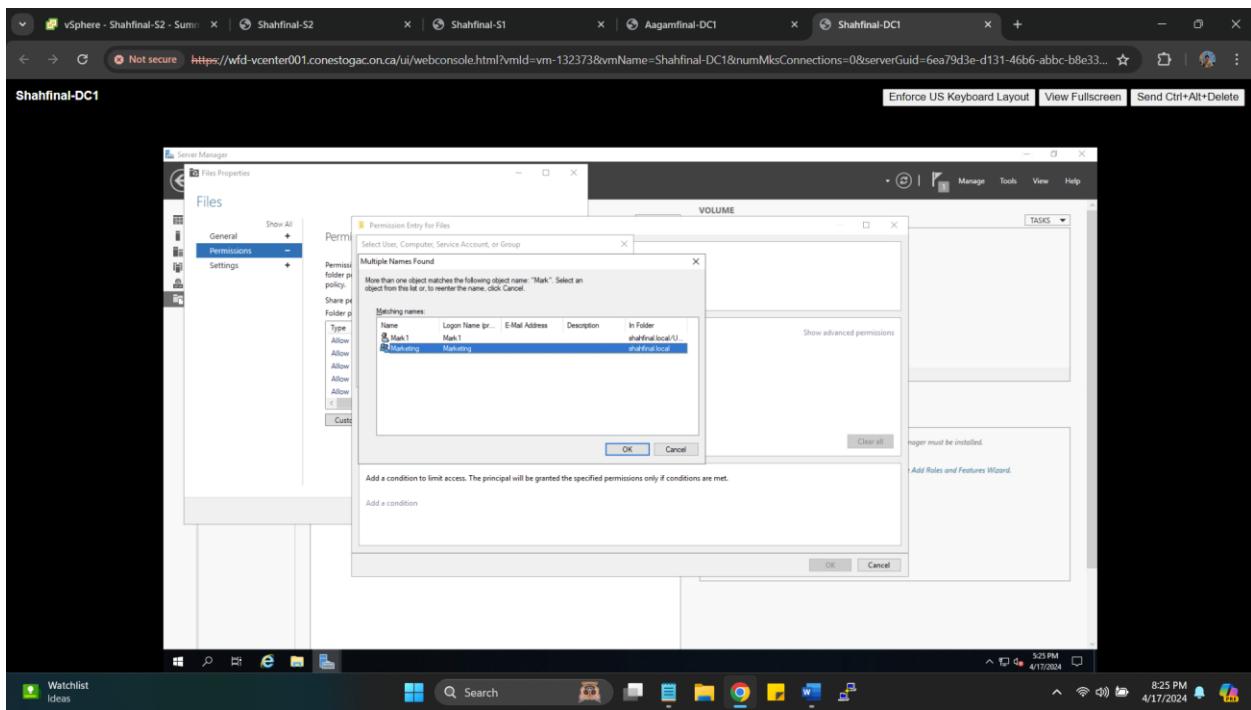
Part 4: Windows File and Storage Services

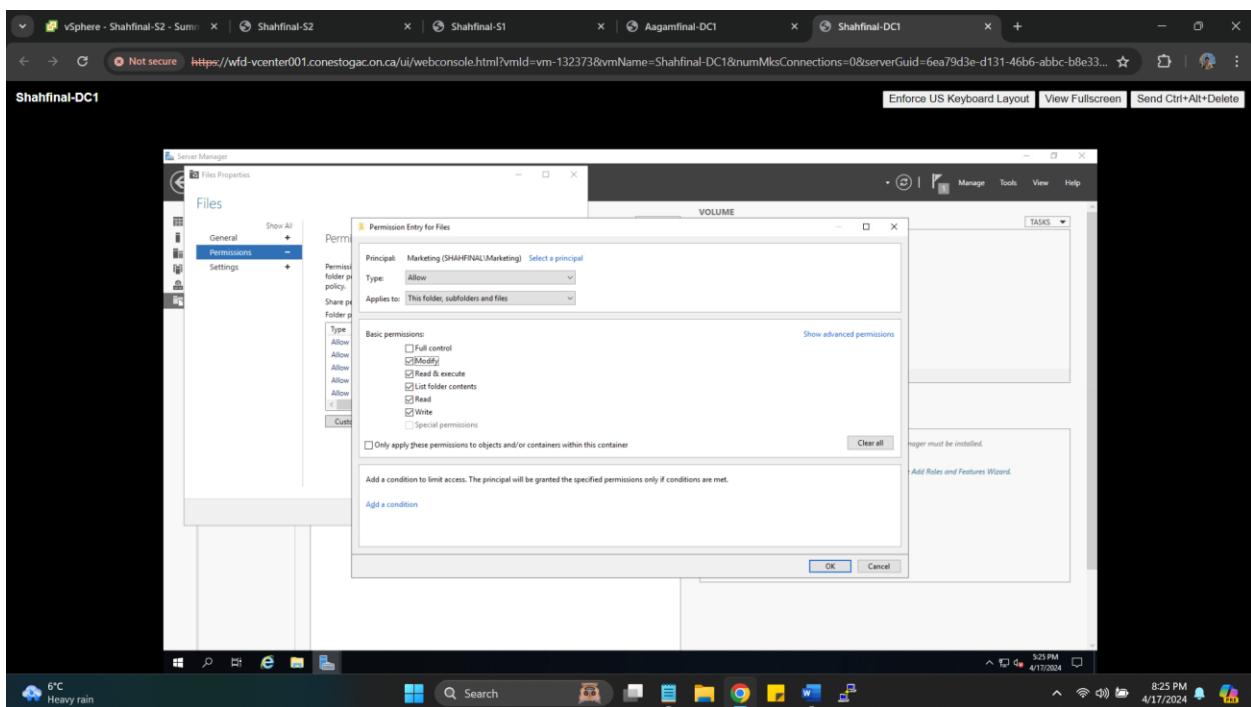
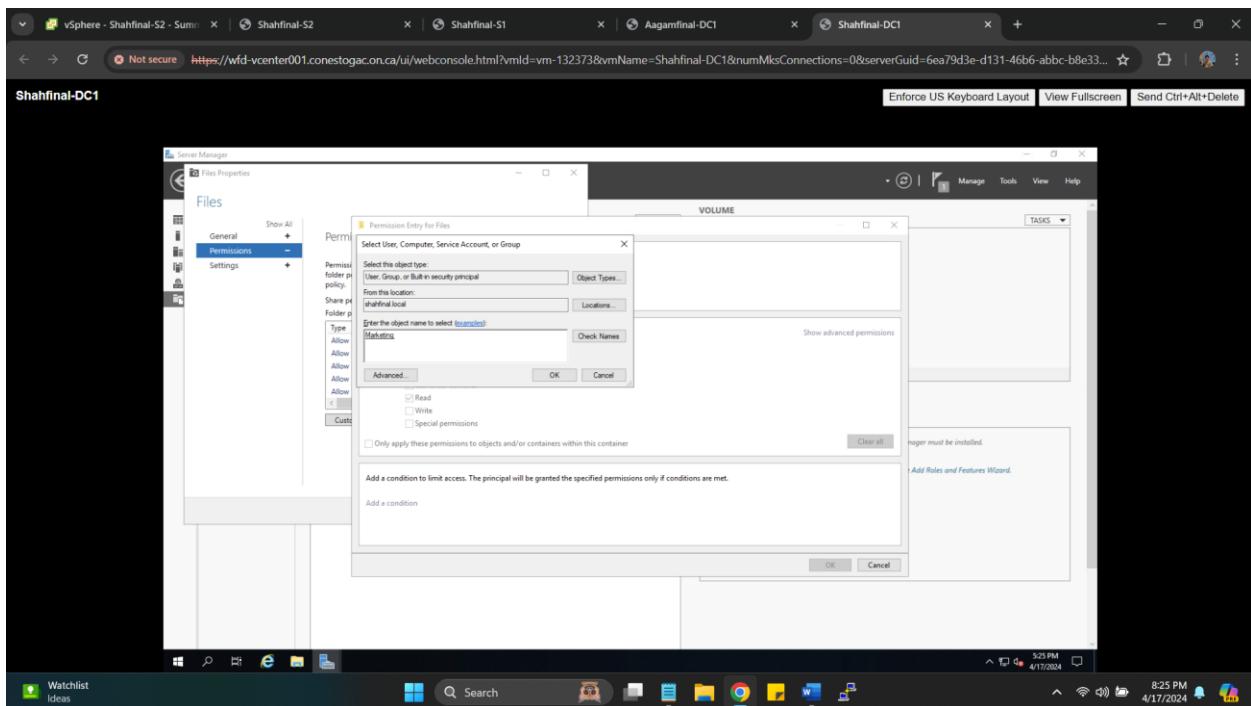
- Create an NTFS share named **Files** using File and Storage Services.

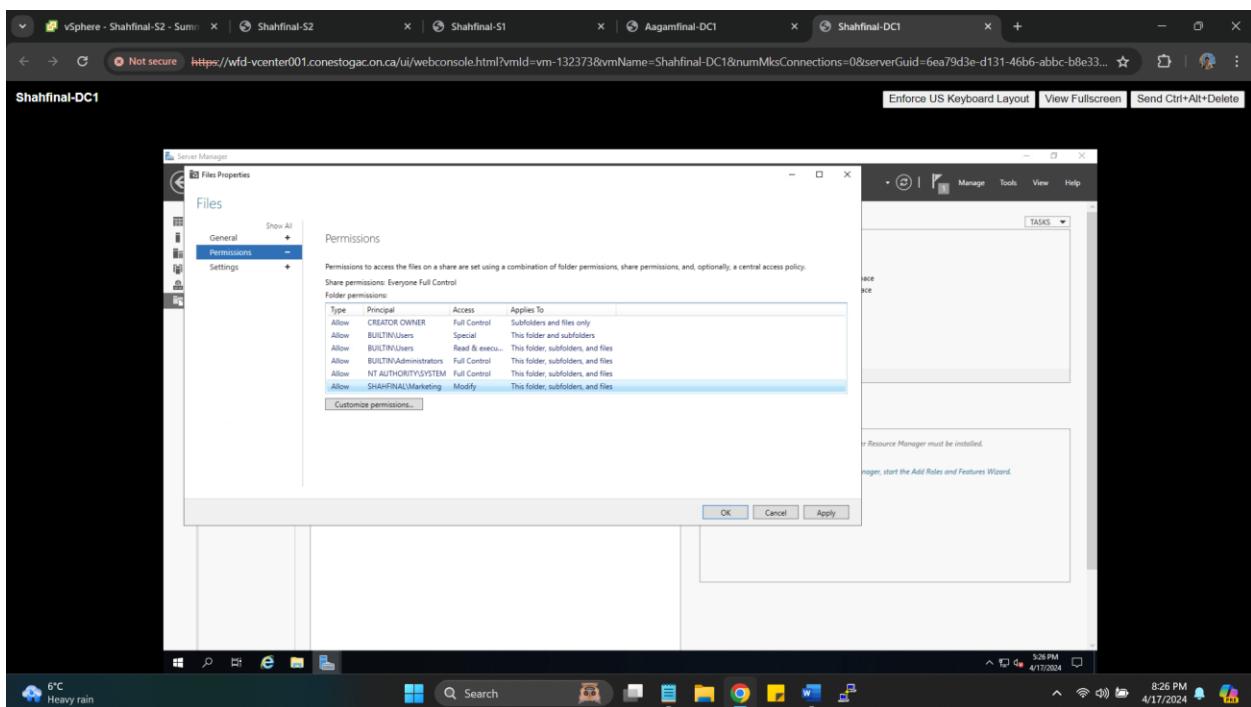
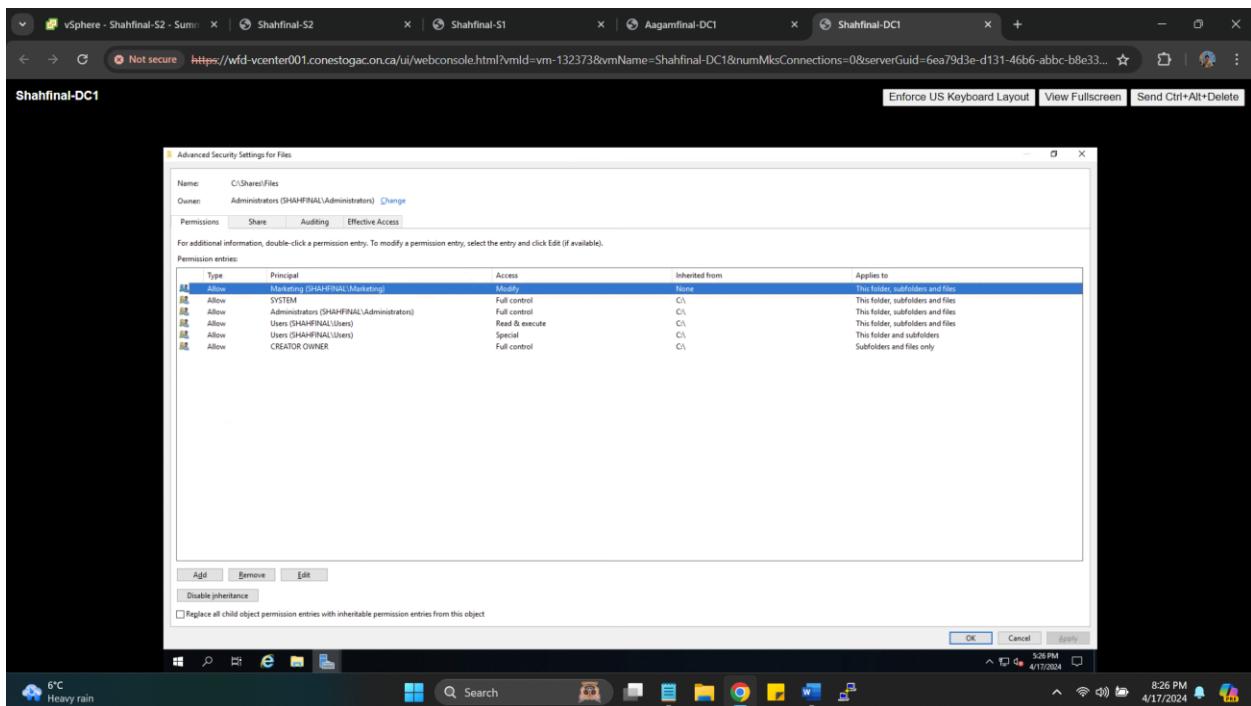




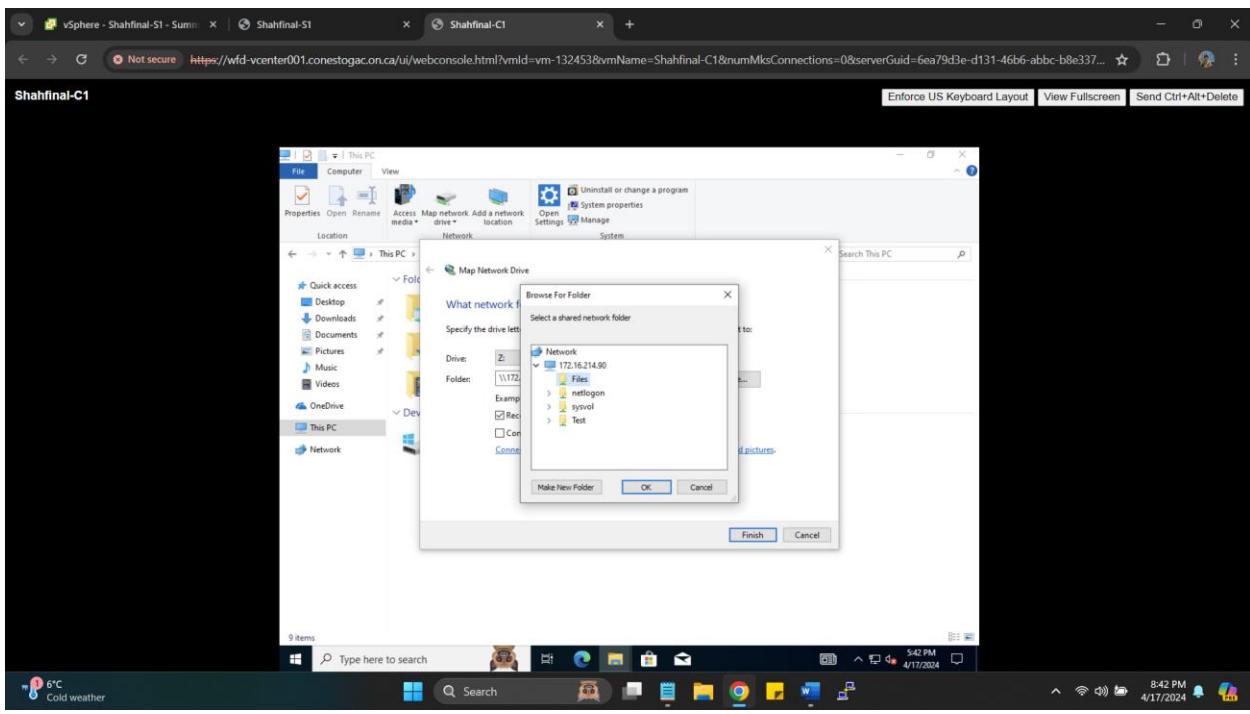
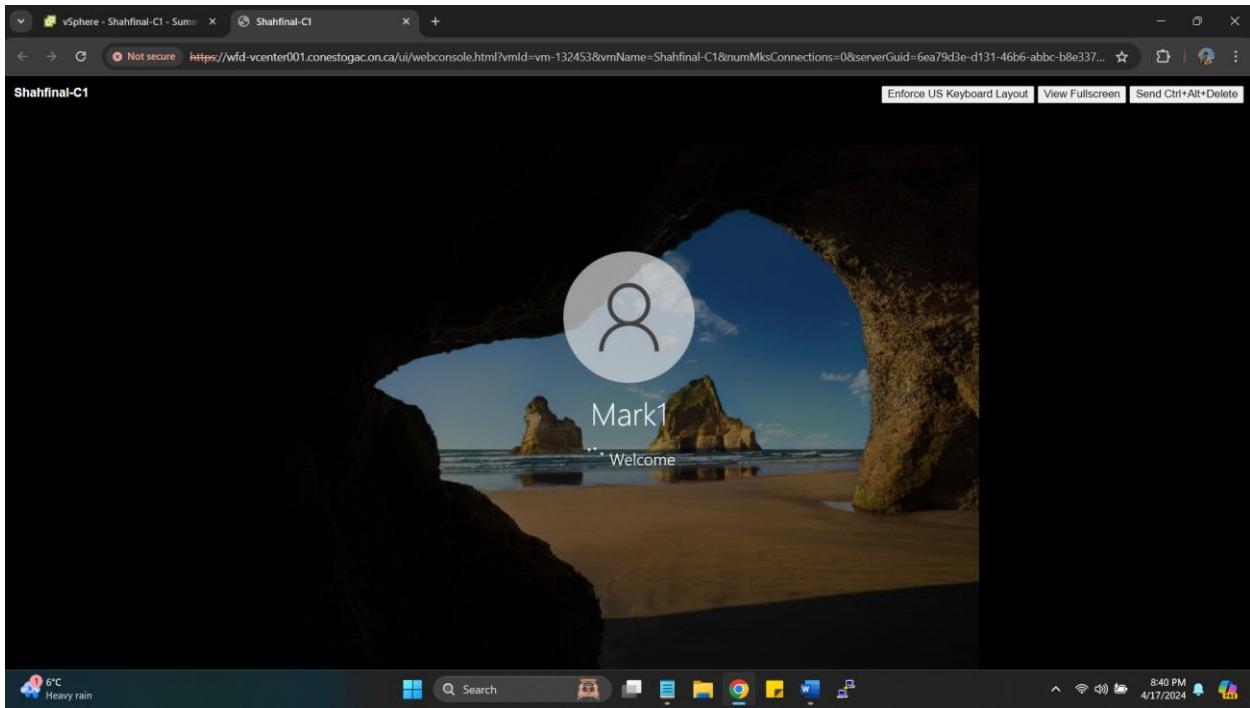
2) Assign the Marketing AD group Modify access to the share.

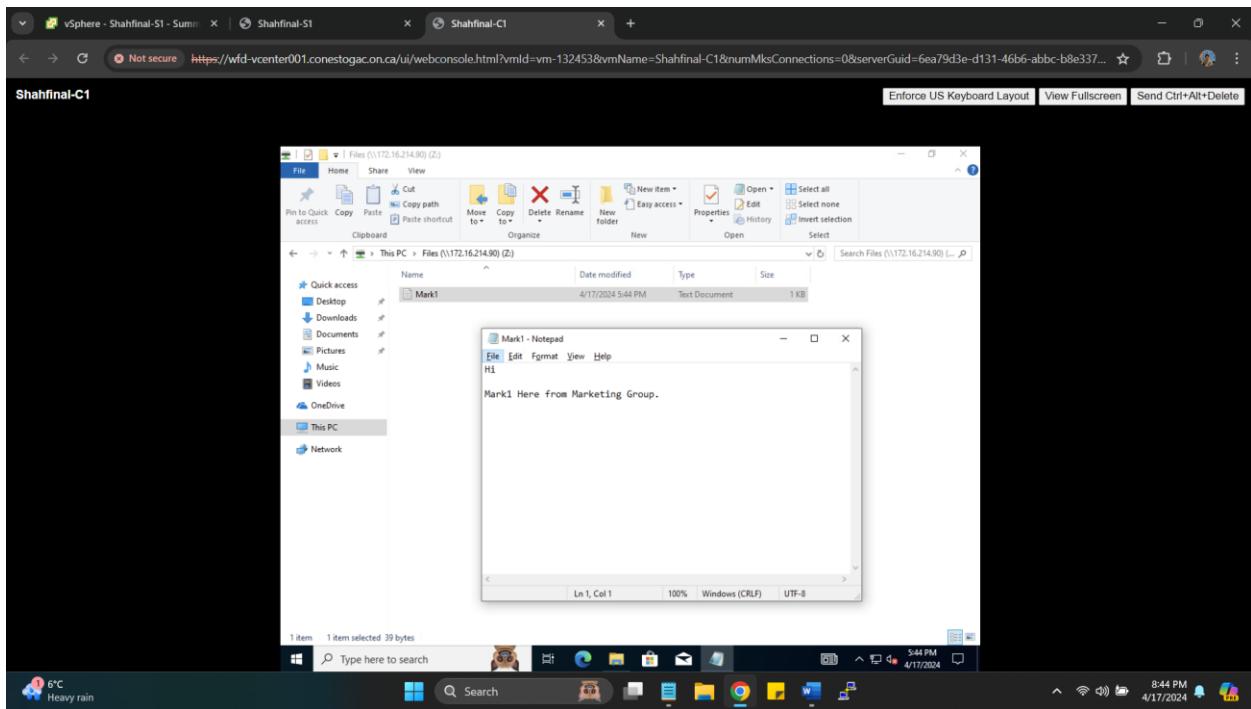
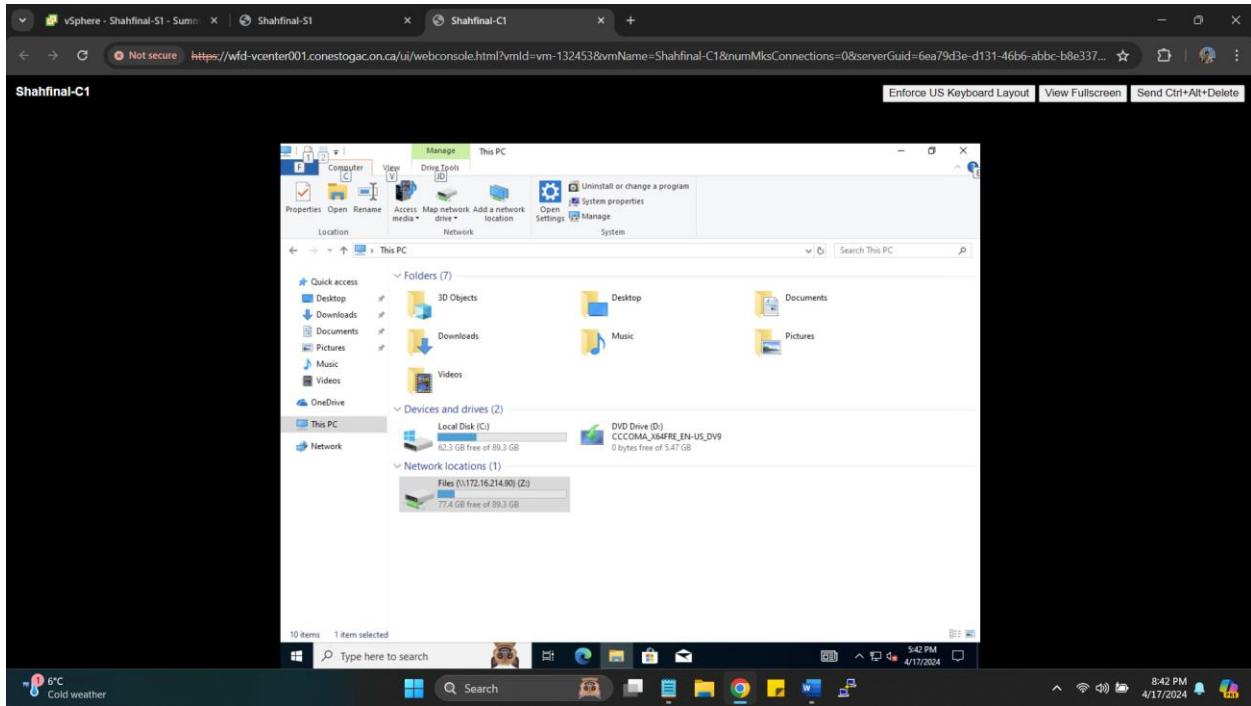






- 3) Sign in with **Mark1** on **Lastnamefinal-C1** and show that you can map and access the share.





Part 5: Server Hardening and Firewalls

- 1) Create the below rules in **Windows Defender Firewall with advanced security** on **Lastnamefinal-S1**.

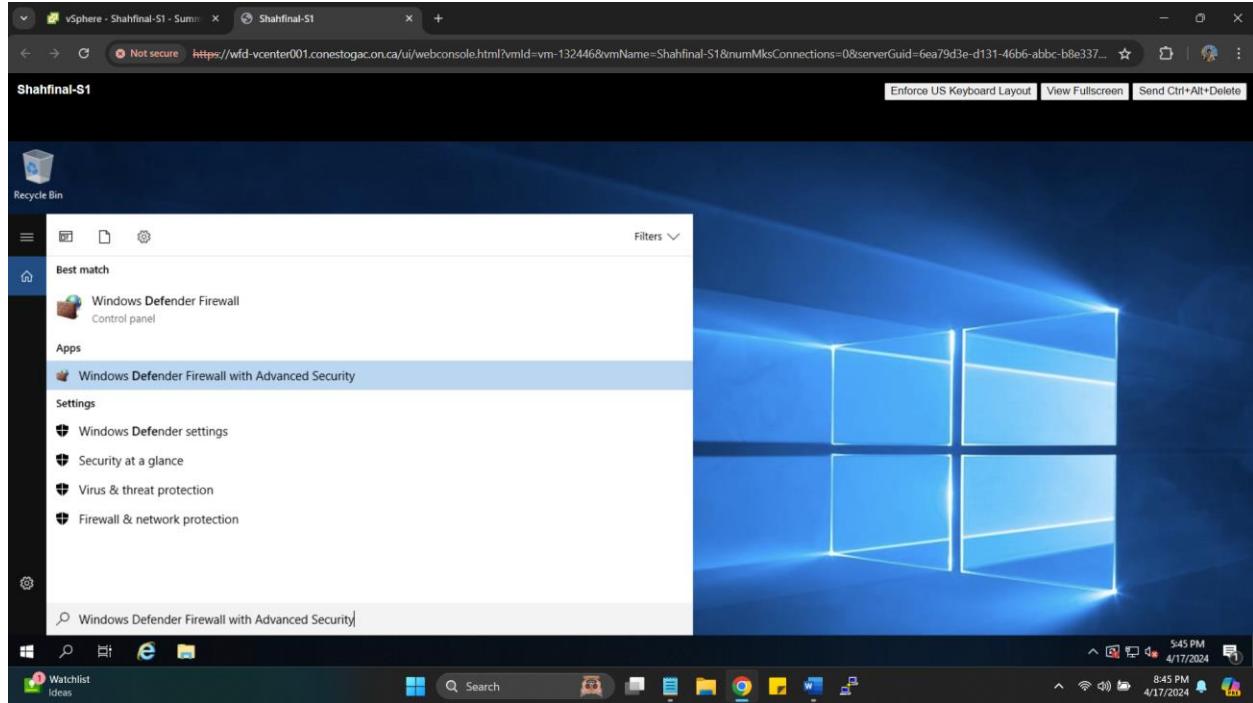
Allow ICMPv4

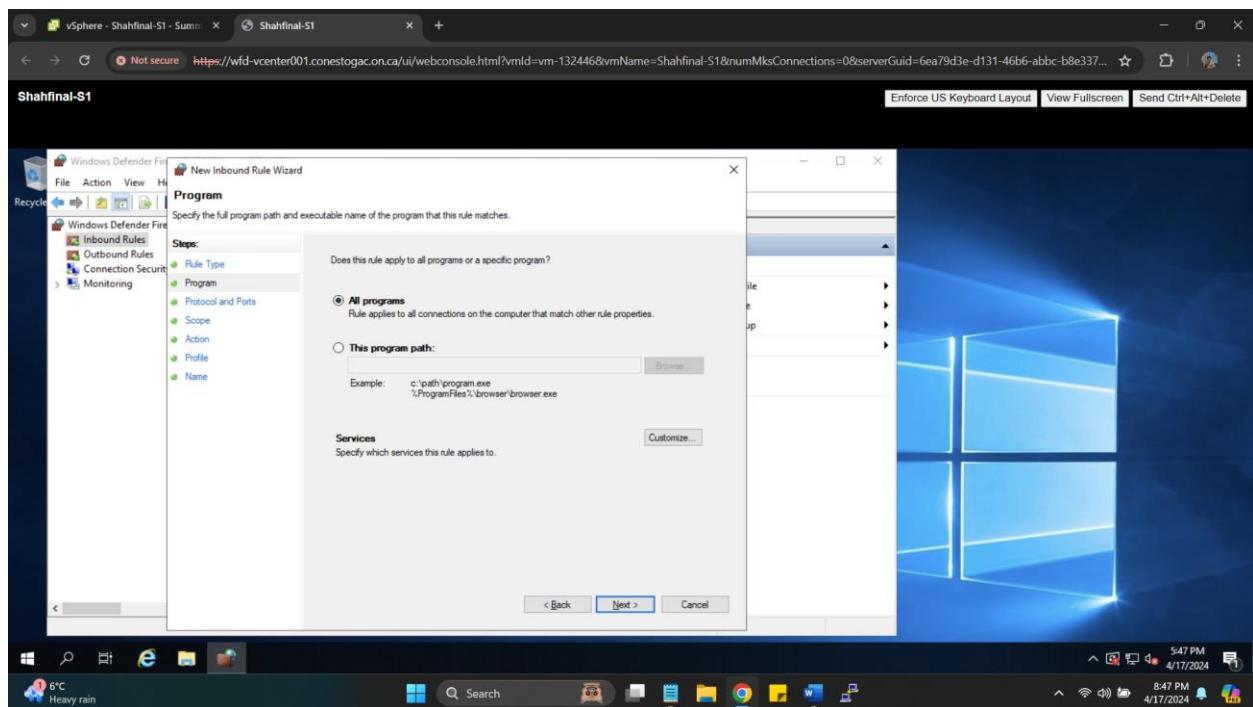
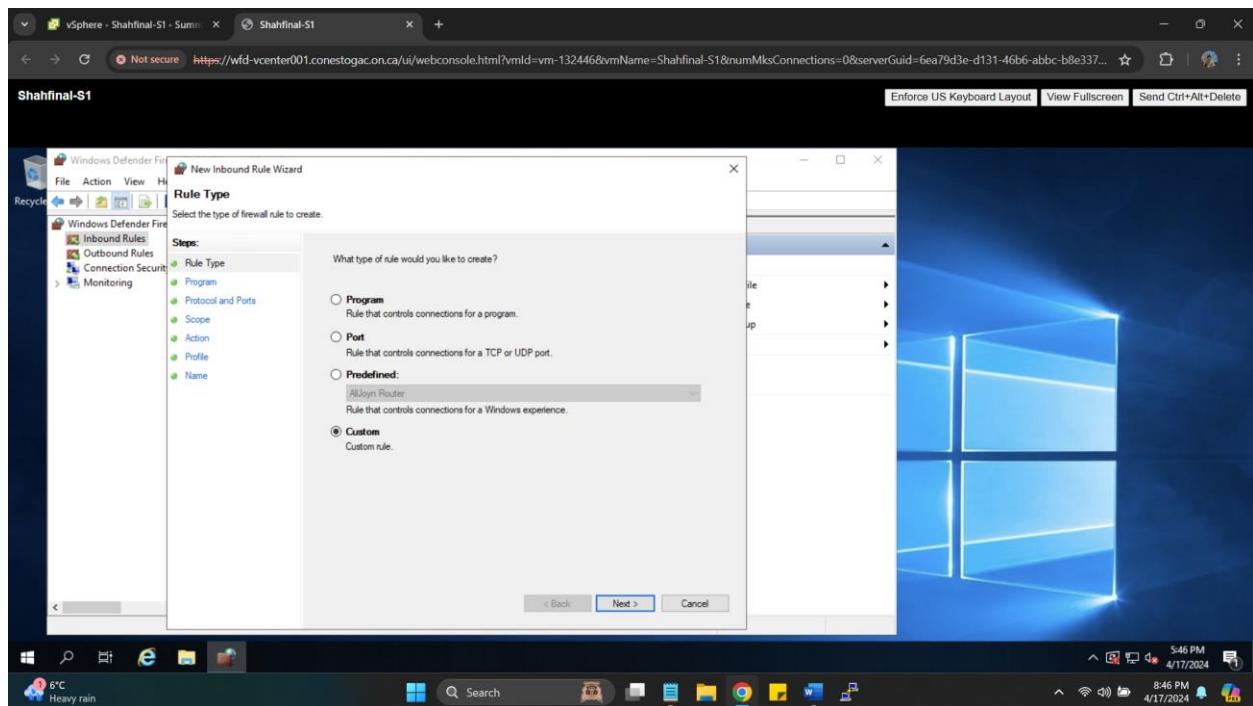
Allow HTTP TCP Port 80

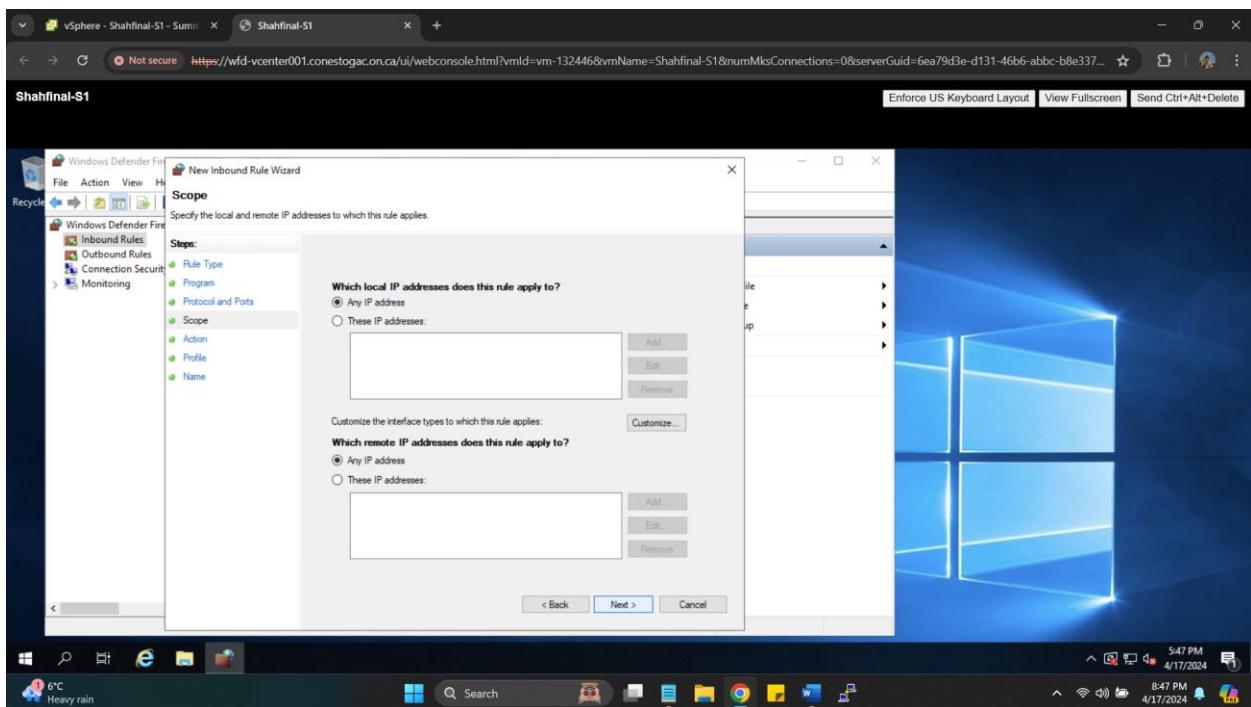
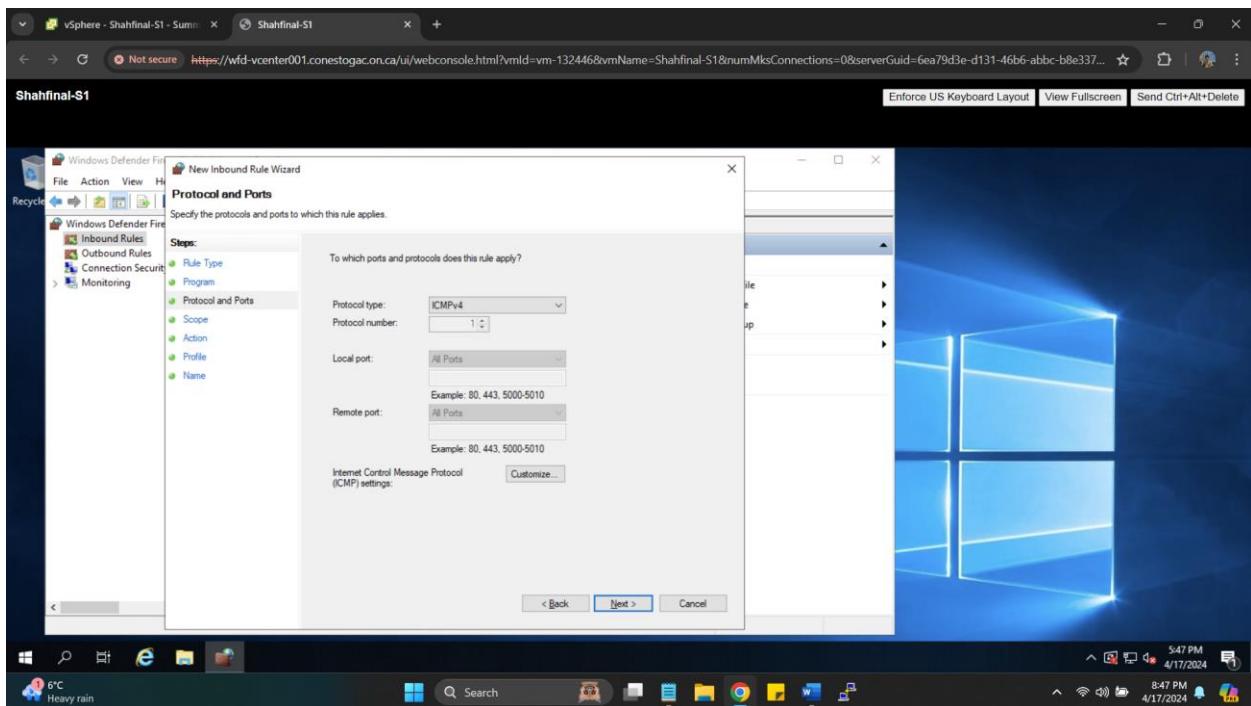
Allow HTTPS TCP Port 443

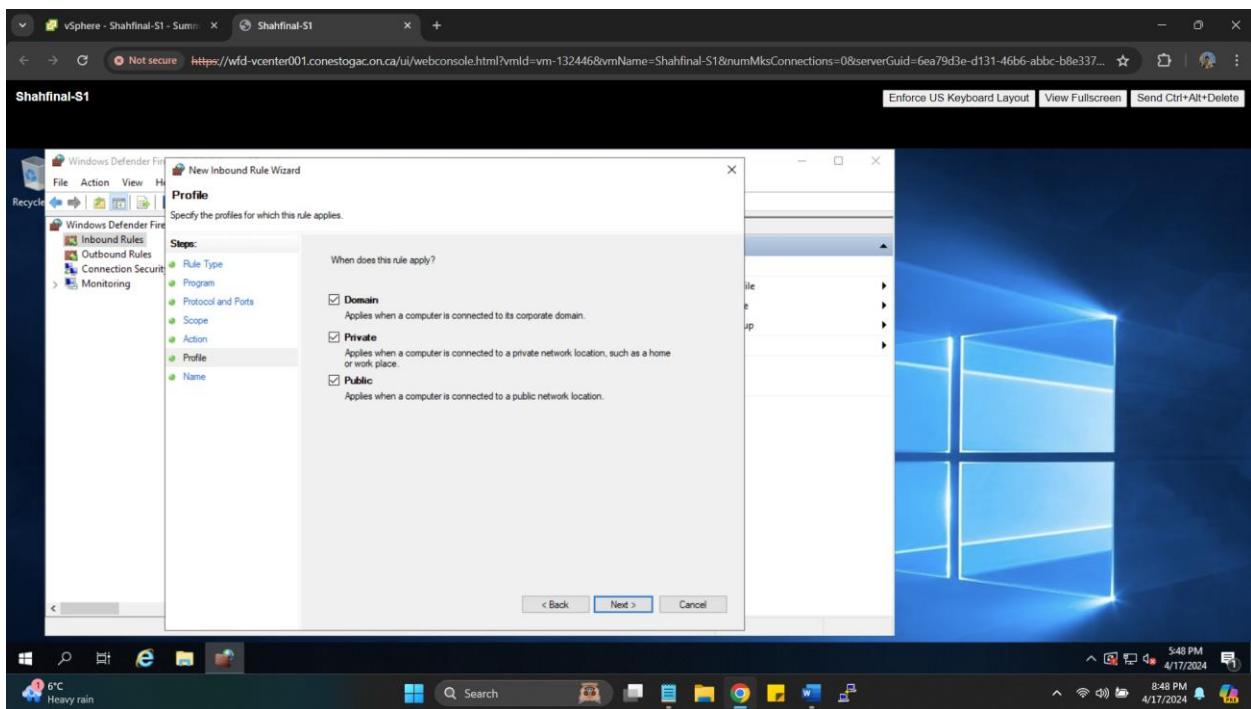
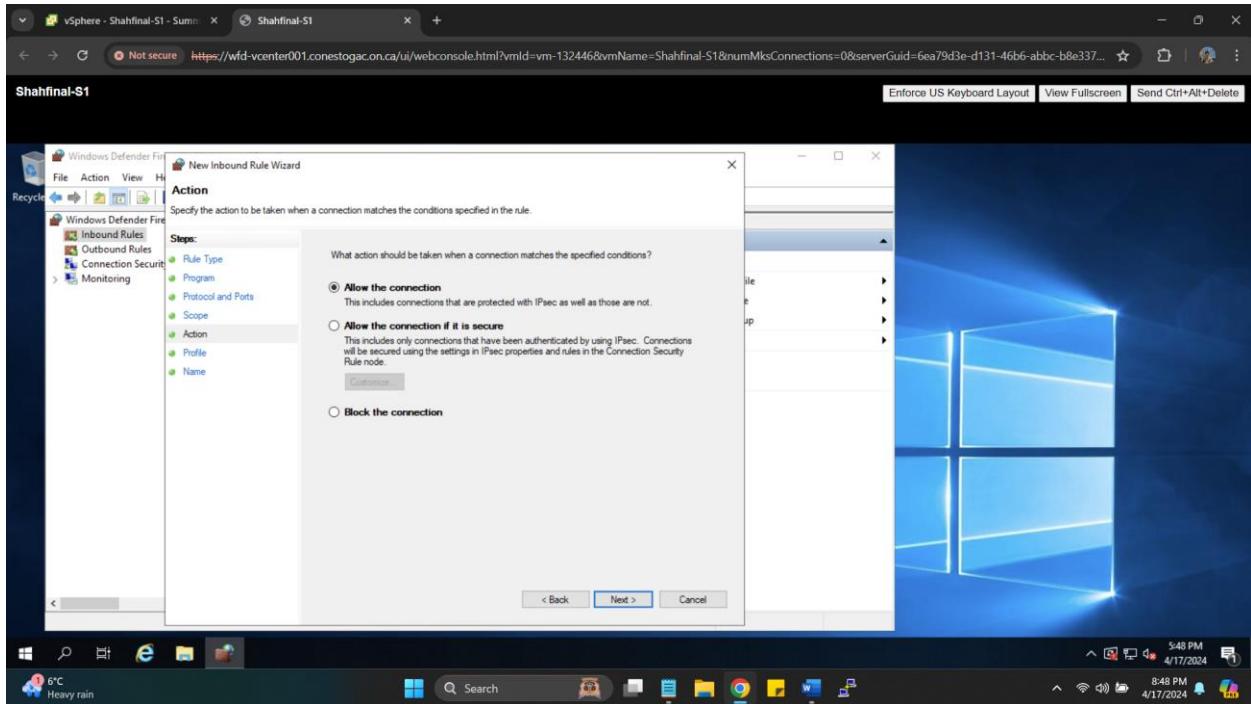
Allow RDP TCP Port 3389

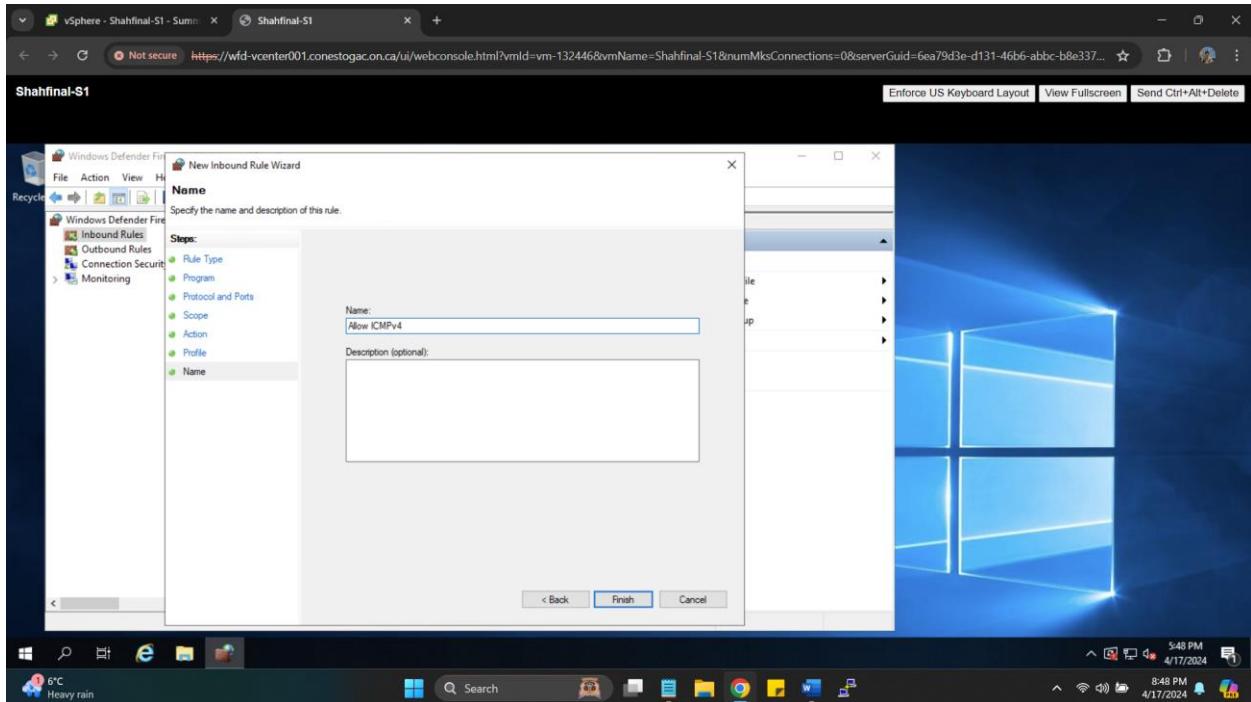
Allow ICMPv4







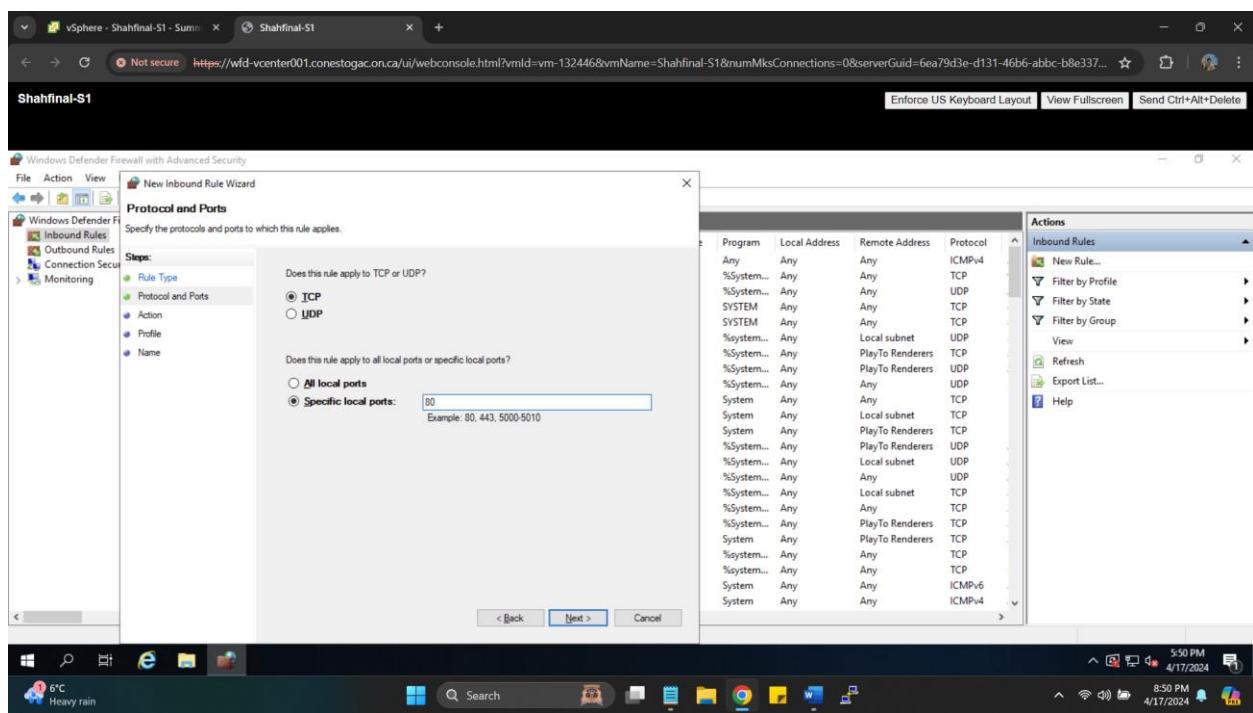
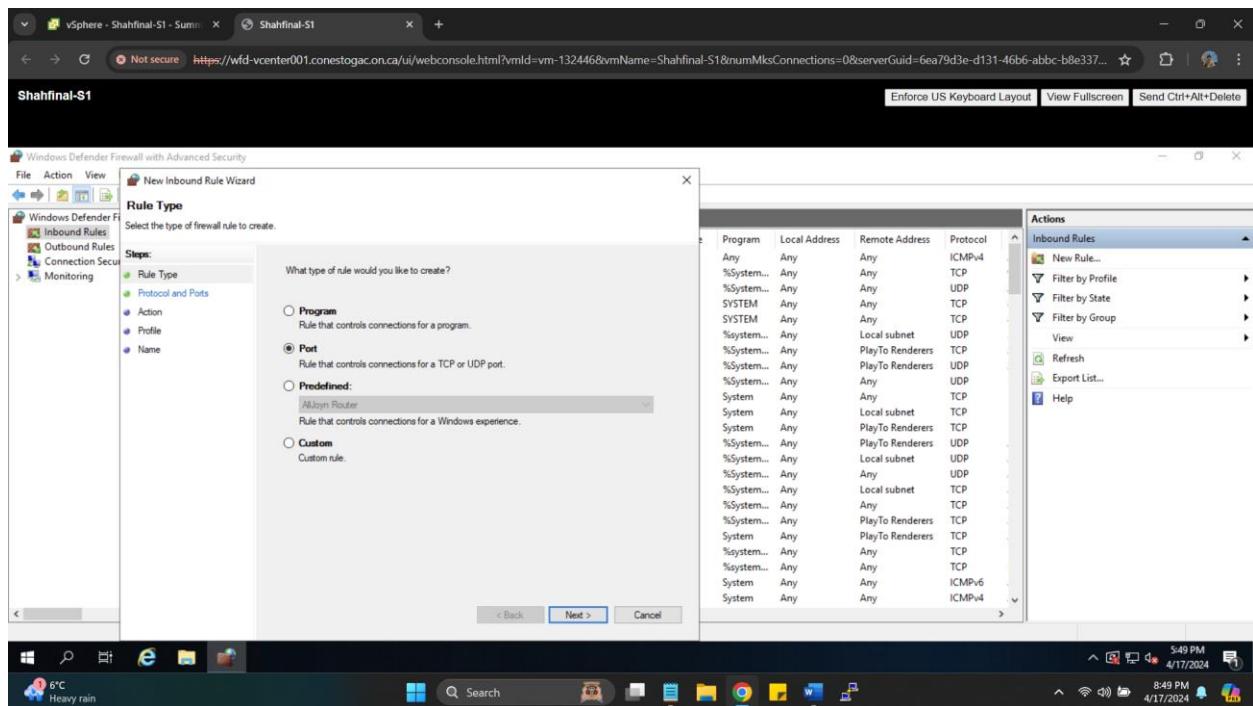


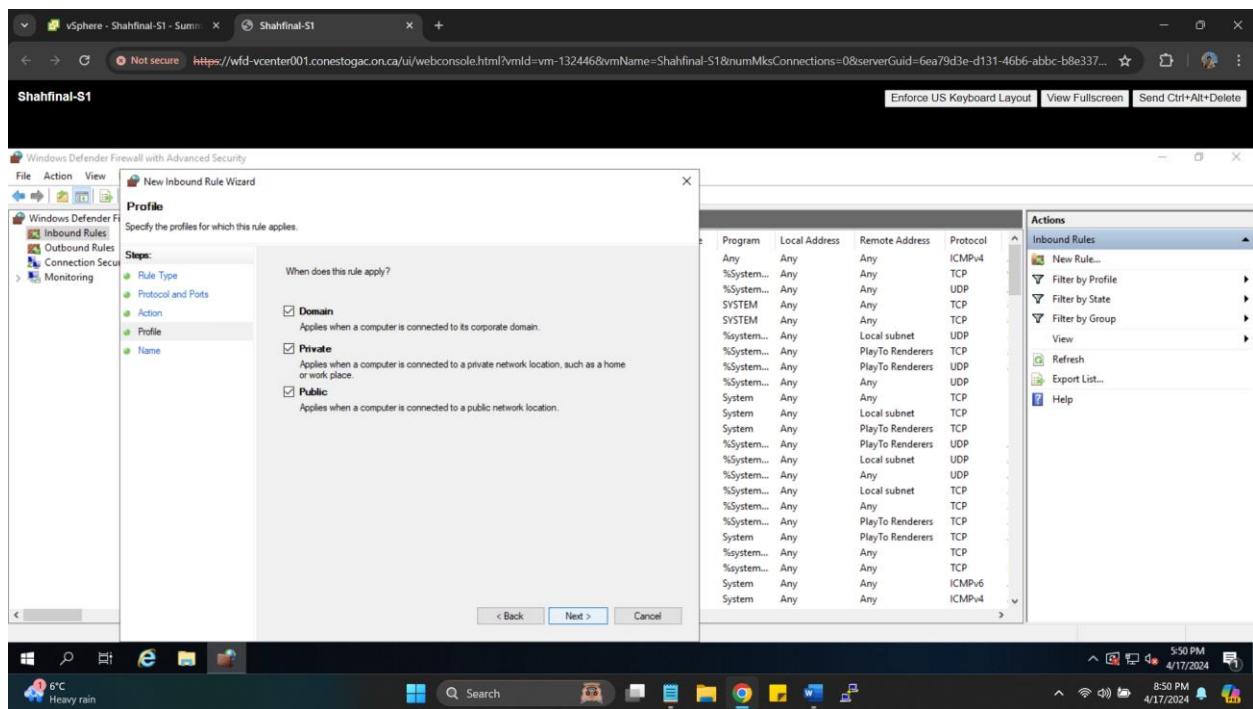
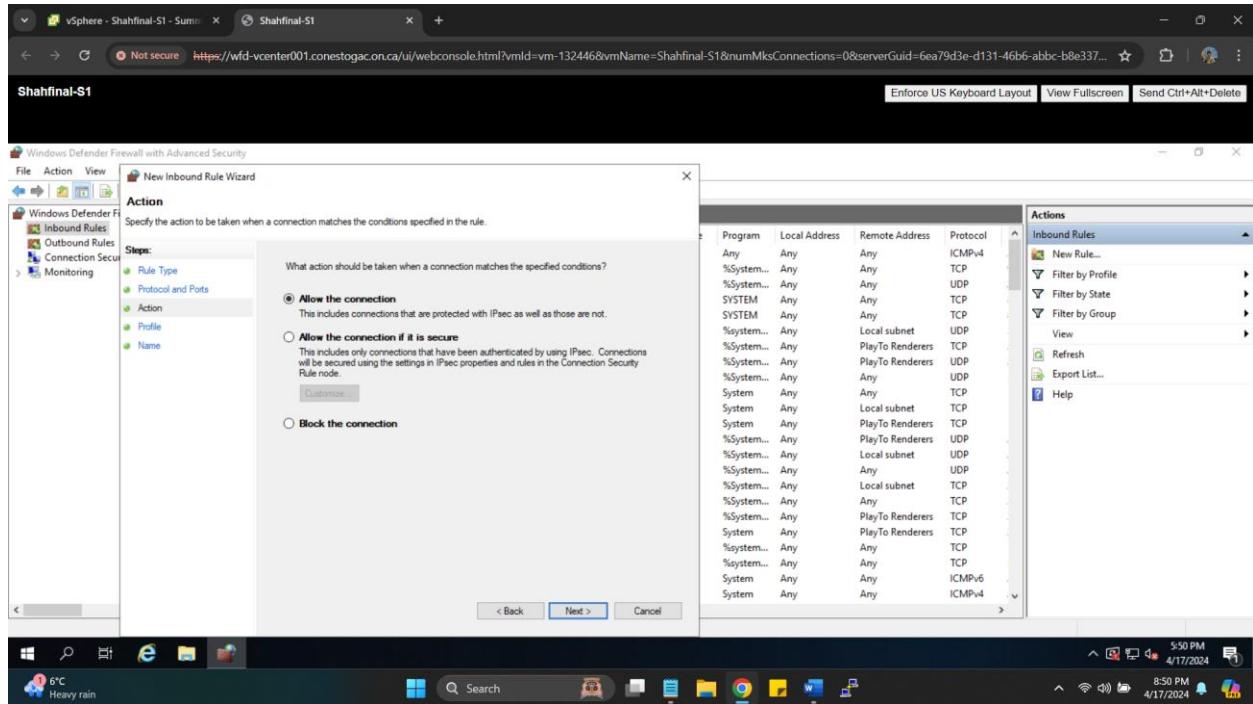


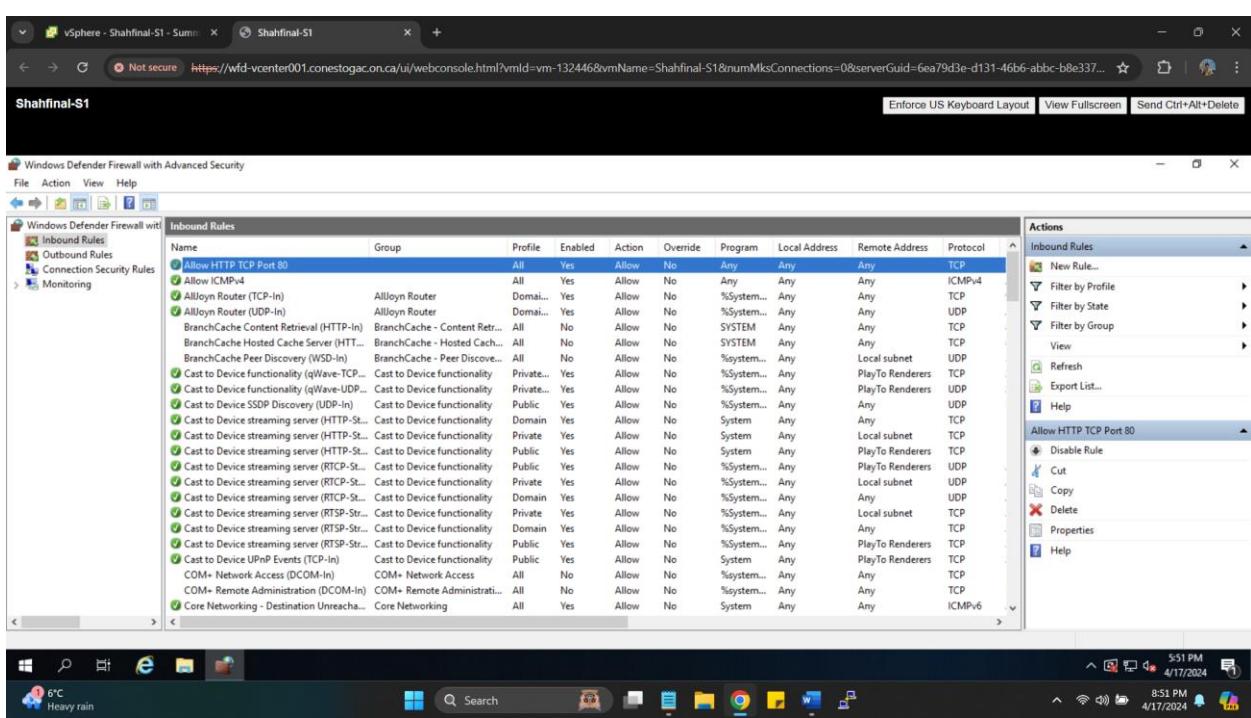
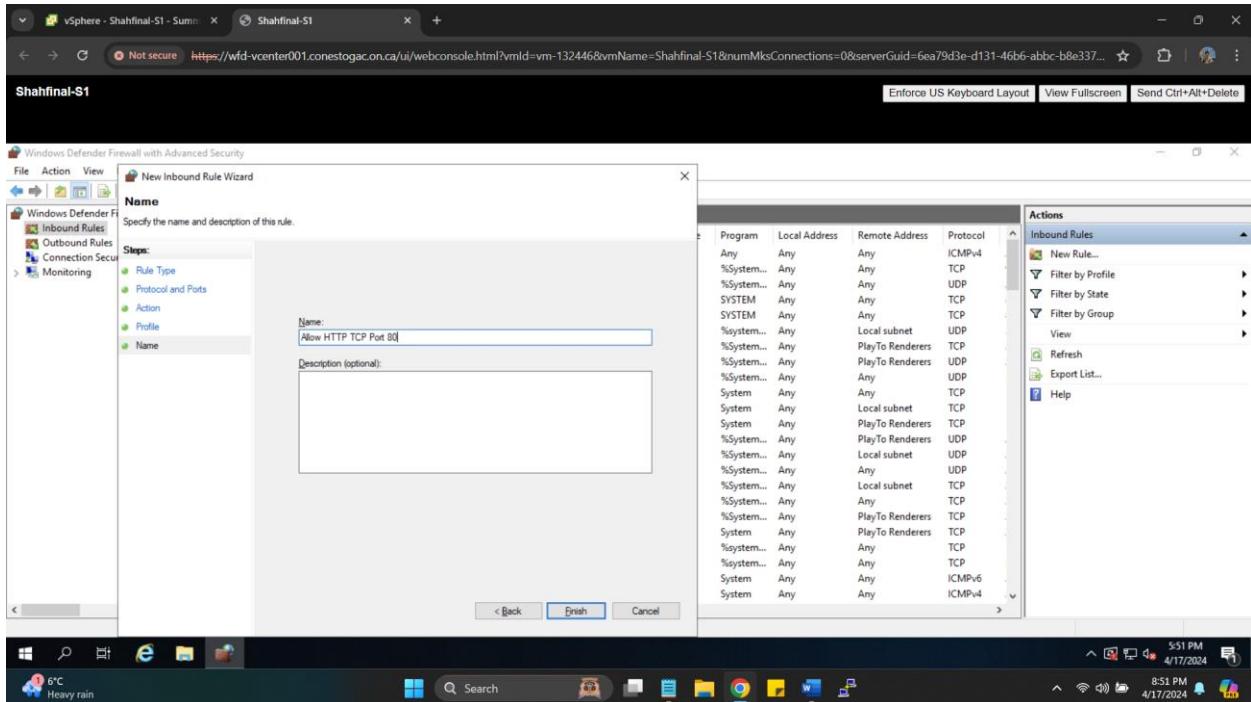
The screenshot shows the Windows Defender Firewall with Advanced Security interface. The 'Inbound Rules' list is displayed, showing various rules including 'Allow ICMPv4'. A context menu is open over the 'Allow ICMPv4' rule, listing options such as 'New Rule...', 'Filter by Profile', 'Filter by State', 'Filter by Group', 'Refresh', 'Export List...', 'Help', 'Disable Rule', 'Cut', 'Copy', 'Delete', 'Properties', and 'Help'.

Name	Group	Profile	Enabled	Action	Override	Program	Local Address	Remote Address	Protocol
Allow ICMPv4	All	Yes	Allow	No	Any	Any	Any	Any	ICMPv4
AllMy Router (TCP-In)	AllMy Router	Domain	Yes	Allow	No	%System...	Any	Any	TCP
AllMy Router (UDP-In)	AllMy Router	Domain	Yes	Allow	No	%System...	Any	Any	UDP
BranchCache Content Retrieval (HTTP-In)	BranchCache - Content Retr...	All	No	Allow	No	SYSTEM	Any	Any	TCP
BranchCache Hosted Cache Server (HT...	BranchCache - Hosted Cache...	All	No	Allow	No	SYSTEM	Any	Any	TCP
BranchCache Peer Discovery (WSD-In)	BranchCache - Peer Discove...	All	No	Allow	No	%System...	Any	Local subnet	UDP
Cast to Device functionality (qWave-TCP...	Cast to Device functionality	Private	Yes	Allow	No	%System...	Any	PlayTo Renderers	TCP
Cast to Device functionality (qWave-UDP...	Cast to Device functionality	Private	Yes	Allow	No	%System...	Any	PlayTo Renderers	UDP
Cast to Device SSDP Discovery (UDP-In)	Cast to Device functionality	Public	Yes	Allow	No	%System...	Any	Any	UDP
Cast to Device streaming server (HTTP-St...	Cast to Device functionality	Domain	Yes	Allow	No	System	Any	Any	TCP
Cast to Device streaming server (HTTP-St...	Cast to Device functionality	Private	Yes	Allow	No	System	Any	Local subnet	TCP
Cast to Device streaming server (RTCP-St...	Cast to Device functionality	Public	Yes	Allow	No	System	Any	PlayTo Renderers	TCP
Cast to Device streaming server (RTCP-St...	Cast to Device functionality	Public	Yes	Allow	No	%System...	Any	PlayTo Renderers	UDP
Cast to Device streaming server (RTCP-St...	Cast to Device functionality	Private	Yes	Allow	No	%System...	Any	Local subnet	UDP
Cast to Device streaming server (RTSP-Str...	Cast to Device functionality	Domain	Yes	Allow	No	%System...	Any	Local subnet	TCP
Cast to Device streaming server (RTSP-Str...	Cast to Device functionality	Domain	Yes	Allow	No	%System...	Any	Any	TCP
Cast to Device streaming server (RTSP-Str...	Cast to Device functionality	Public	Yes	Allow	No	System	Any	PlayTo Renderers	TCP
Cast to Device UPnP Event (TCP-In)	Cast to Device functionality	All	No	Allow	No	%System...	Any	Any	TCP
COM+ Network Access (DCOM-In)	COM+ Network Access	All	No	Allow	No	%System...	Any	Any	TCP
COM+ Remote Administration (DCOM-In)	COM+ Remote Administrati...	All	No	Allow	No	%System...	Any	Any	ICMPv6
Core Networking - Destination Unreacha...	Core Networking	All	Yes	Allow	No	System	Any	Any	ICMPv4
Core Networking - Destination Unreacha...	Core Networking	All	Yes	Allow	No	System	Any	Any	ICMPv4

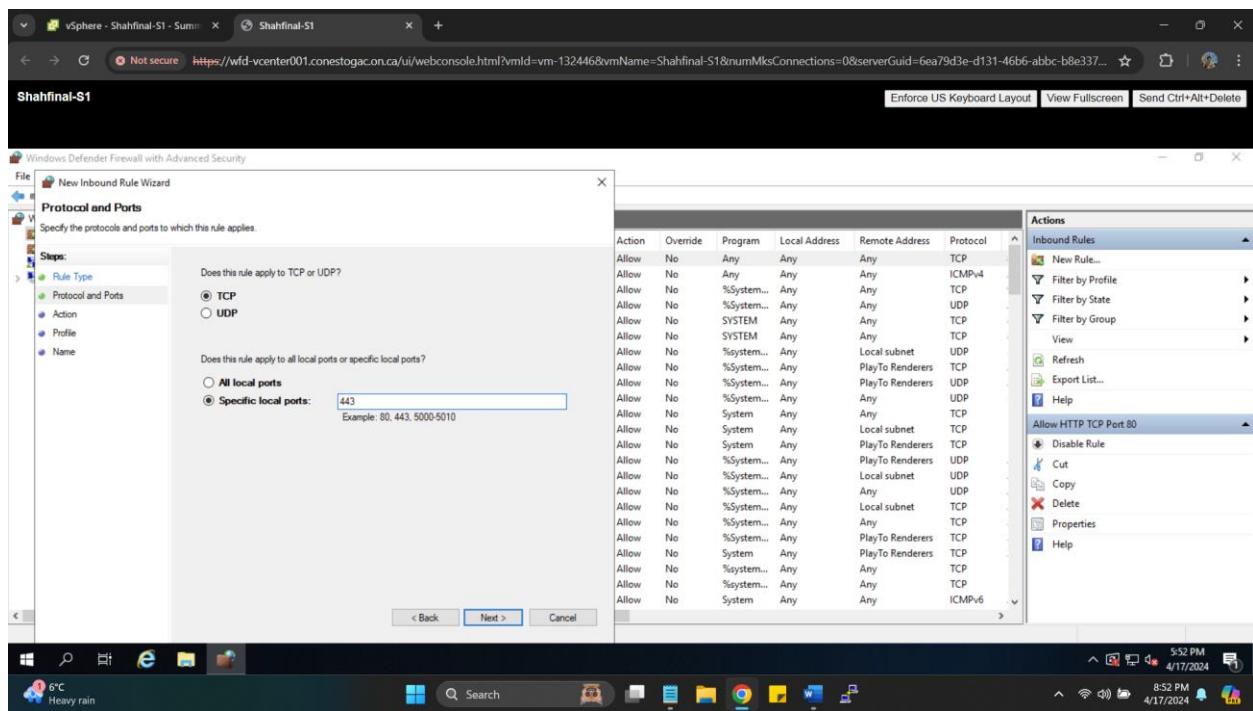
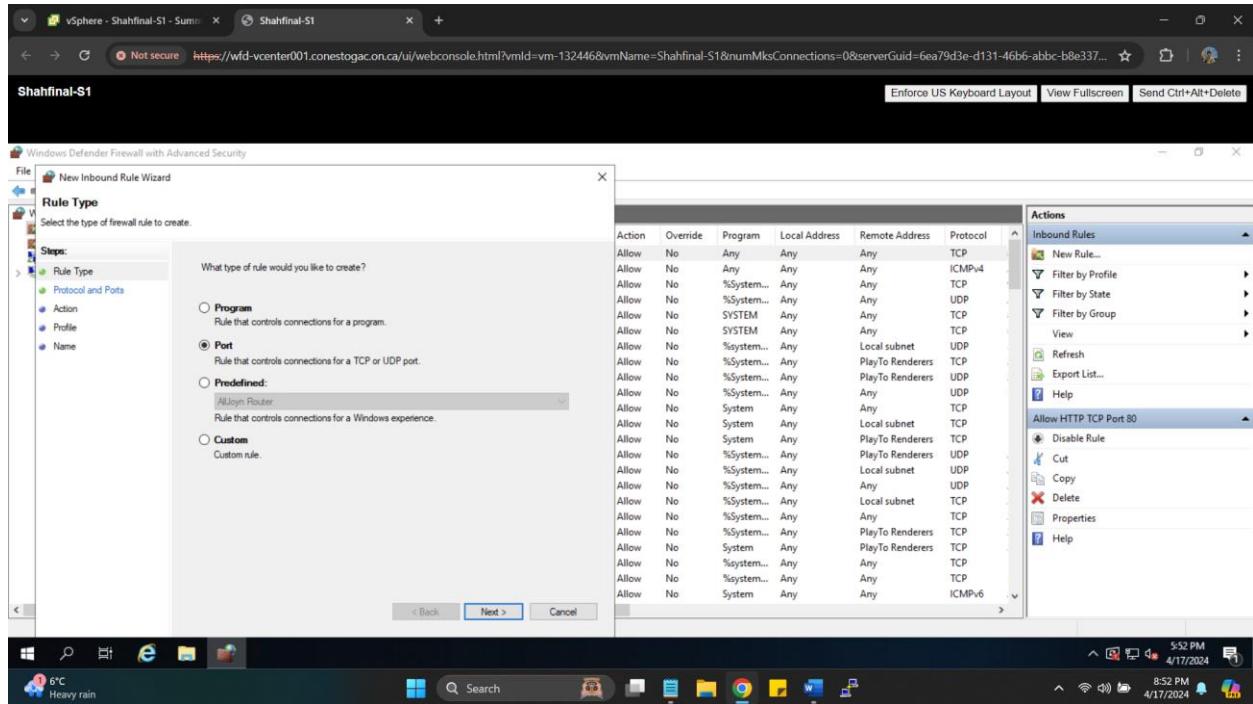
Allow HTTP TCP Port 80







Allow HTTPS TCP Port 443



vSphere - Shahfinal-S1 - Summary **Not secure** https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132446&vmName=Shahfinal-S1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e337... Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Shahfinal-S1

Windows Defender Firewall with Advanced Security

New Inbound Rule Wizard

Action

Specify the action to be taken when a connection matches the conditions specified in the rule.

Steps:

- Rule Type
- Protocol and Ports
- Action
- Profile
- Name

What action should be taken when a connection matches the specified conditions?

Allow the connection This includes connections that are protected with IPsec as well as those are not.

Allow the connection if it is secure This includes only connections that have been authenticated by using IPsec. Connections will be secured using the settings in IPsec properties and rules in the Connection Security Rule node.

Block the connection

Customize

< Back Next > Cancel

Actions

Inbound Rules

- New Rule...
- Filter by Profile
- Filter by State
- Filter by Group
- View
- Refresh
- Export List...
- Help

Allow HTTP TCP Port 80

- Disable Rule
- Cut
- Copy
- Delete
- Properties
- Help

Action	Override	Program	Local Address	Remote Address	Protocol
Allow	No	Any	Any	Any	TCP
Allow	No	%System...	Any	Any	ICMPv4
Allow	No	%System...	Any	Any	TCP
Allow	No	%System...	Any	Any	UDP
Allow	No	SYSTEM	Any	Any	TCP
Allow	No	%System...	Any	Any	TCP
Allow	No	%System...	Any	Local subnet	UDP
Allow	No	%System...	Any	PlayTo Renderers	TCP
Allow	No	%System...	Any	PlayTo Renderers	UDP
Allow	No	System	Any	Local subnet	TCP
Allow	No	System	Any	PlayTo Renderers	TCP
Allow	No	%System...	Any	PlayTo Renderers	UDP
Allow	No	%System...	Any	Local subnet	UDP
Allow	No	%System...	Any	Any	UDP
Allow	No	%System...	Any	Local subnet	TCP
Allow	No	%System...	Any	Any	TCP
Allow	No	%System...	Any	PlayTo Renderers	TCP
Allow	No	System	Any	PlayTo Renderers	TCP
Allow	No	%System...	Any	Any	TCP
Allow	No	%System...	Any	Any	ICMPv6

5:52 PM 4/17/2024

vSphere - Shahfinal-S1 - Summary Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132446&vmName=Shahfinal-S1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e337... Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

Shahfinal-S1

Windows Defender Firewall with Advanced Security

New Inbound Rule Wizard

Profile

Specify the profiles for which this rule applies.

Steps:

- Rule Type
- Protocol and Ports
- Action
- Profile
- Name

When does this rule apply?

Domain Applies when a computer is connected to its corporate domain.

Private Applies when a computer is connected to a private network location, such as a home or work place.

Public Applies when a computer is connected to a public network location.

< Back Next > Cancel

Actions

Inbound Rules

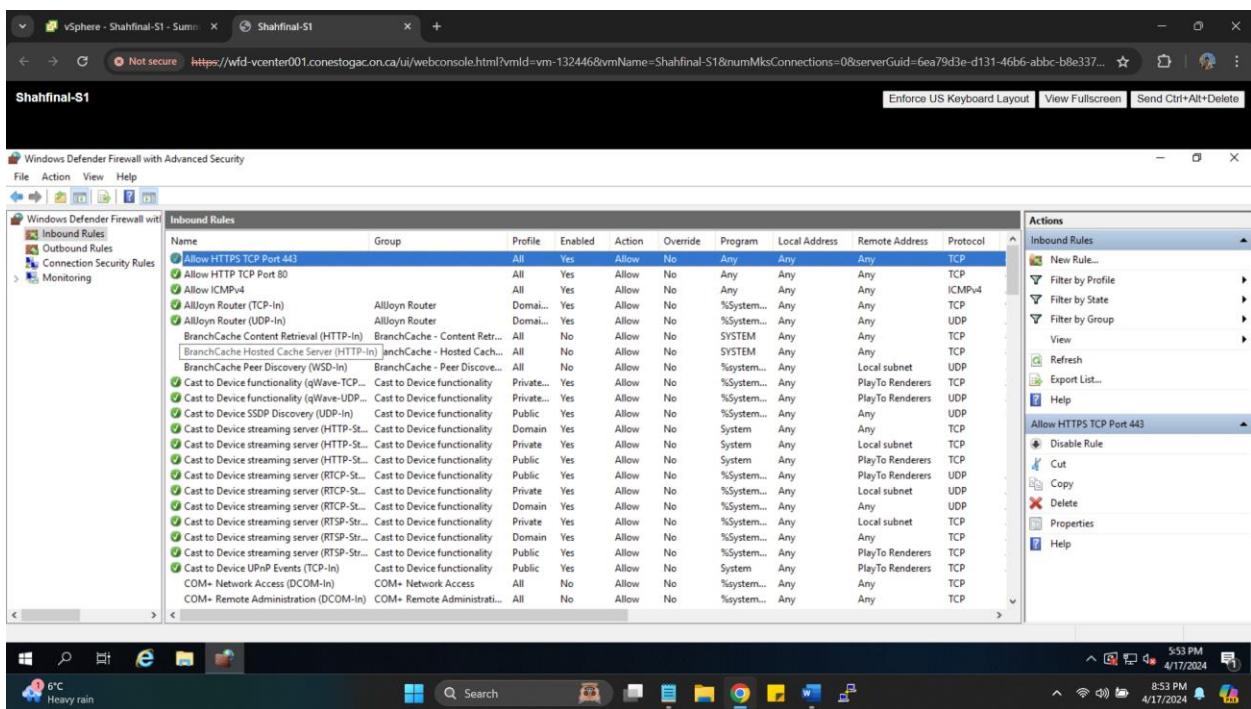
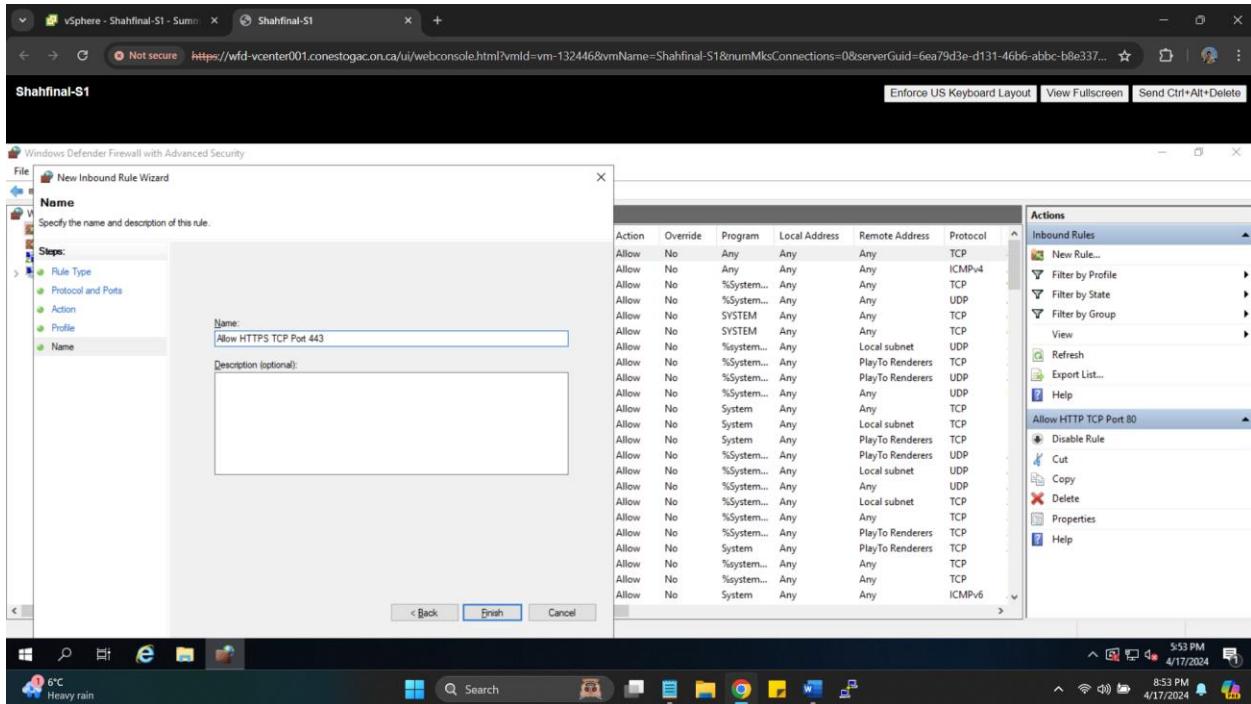
- New Rule...
- Filter by Profile
- Filter by State
- Filter by Group
- View
- Refresh
- Export List...
- Help

Allow HTTP TCP Port 80

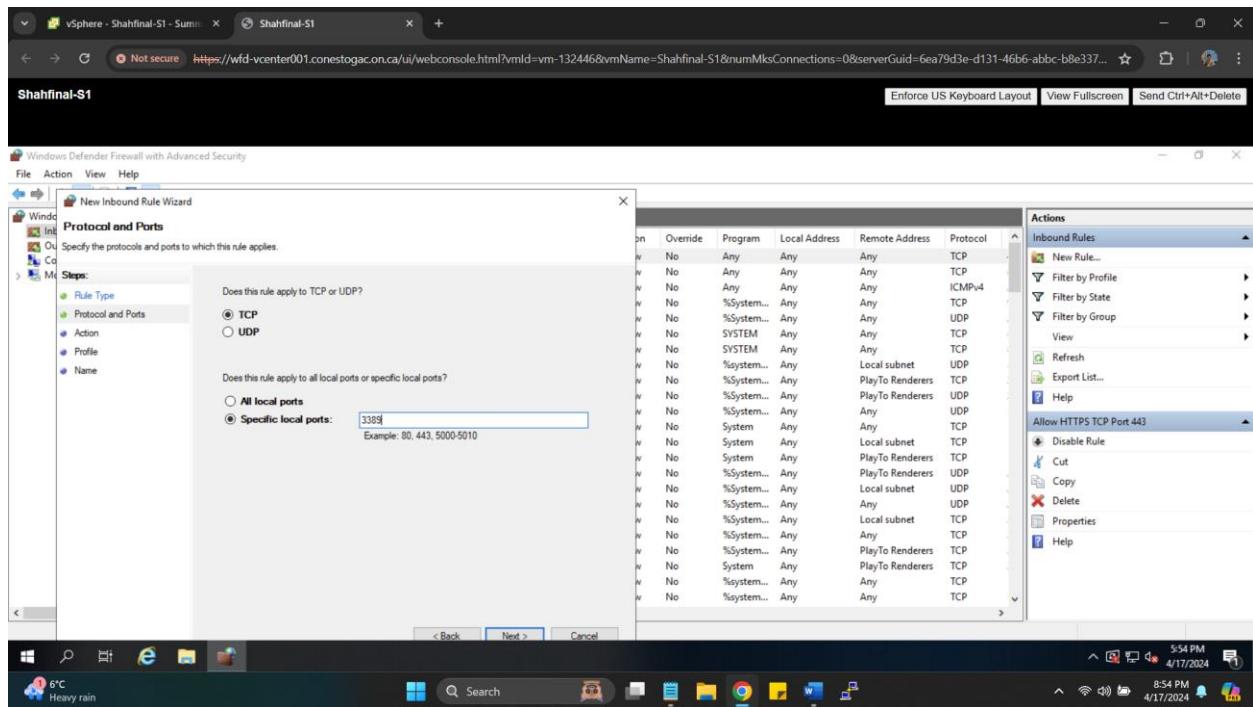
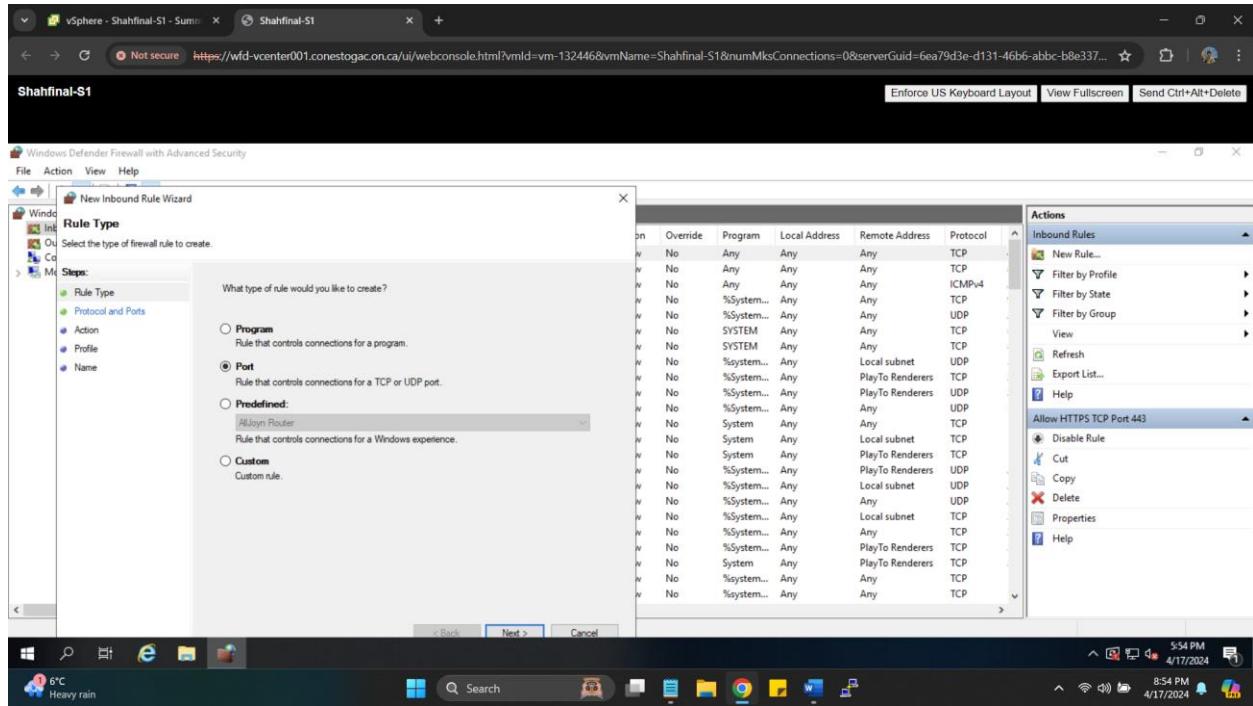
- Disable Rule
- Cut
- Copy
- Delete
- Properties
- Help

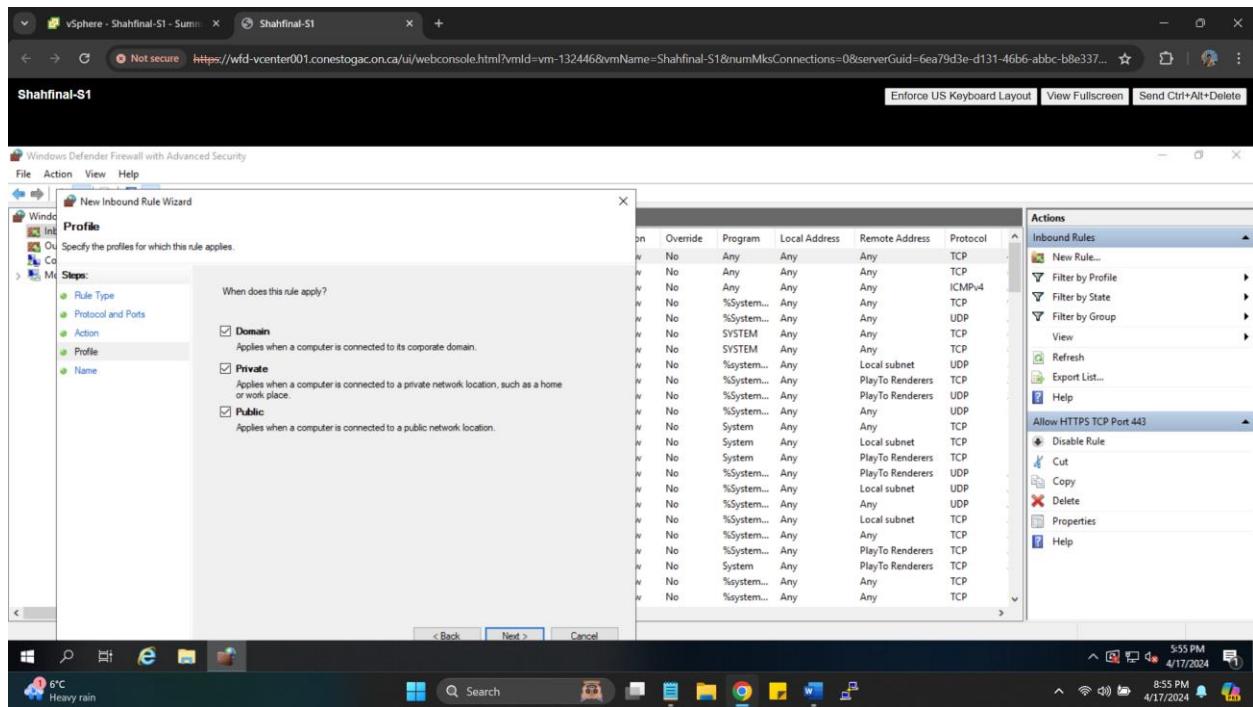
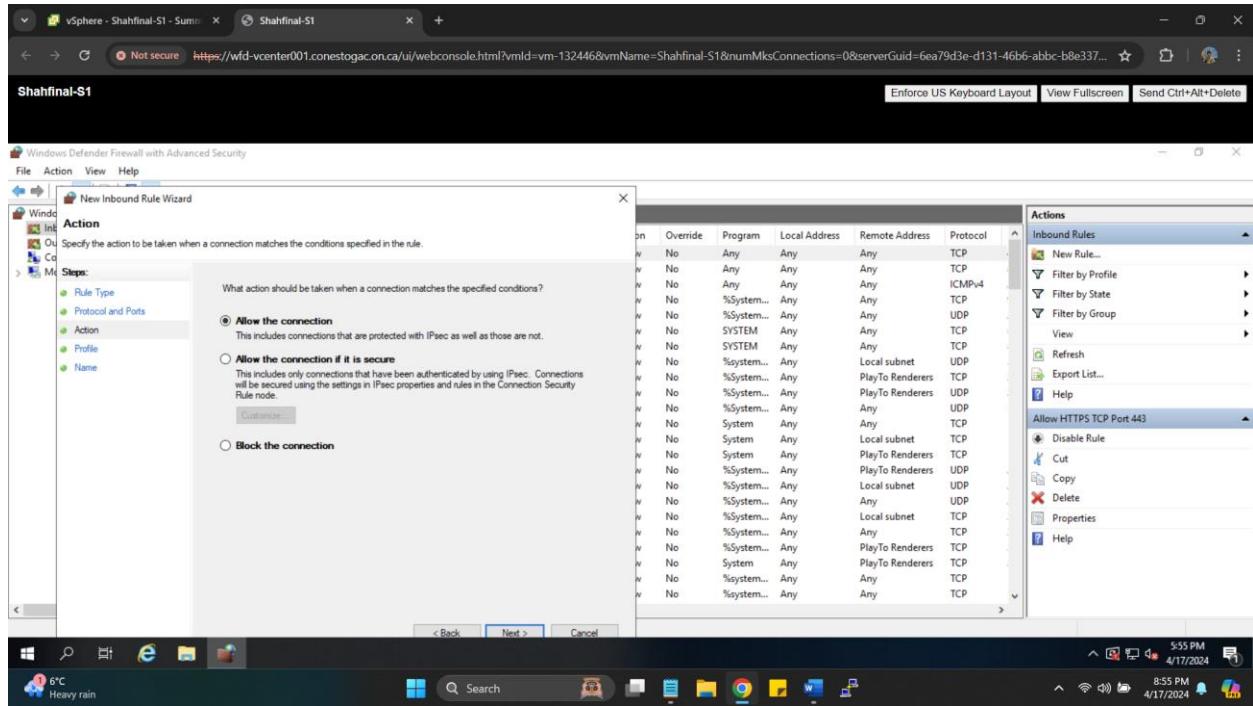
Action	Override	Program	Local Address	Remote Address	Protocol
Allow	No	Any	Any	Any	TCP
Allow	No	Any	Any	Any	ICMPv4
Allow	No	%System...	Any	Any	TCP
Allow	No	%System...	Any	Any	UDP
Allow	No	SYSTEM	Any	Any	TCP
Allow	No	%System...	Any	Any	TCP
Allow	No	%System...	Any	Local subnet	UDP
Allow	No	%System...	Any	PlayTo Renderers	TCP
Allow	No	%System...	Any	PlayTo Renderers	UDP
Allow	No	System	Any	Local subnet	TCP
Allow	No	System	Any	PlayTo Renderers	TCP
Allow	No	%System...	Any	Any	UDP
Allow	No	System	Any	Local subnet	TCP
Allow	No	System	Any	PlayTo Renderers	TCP
Allow	No	%System...	Any	Any	TCP
Allow	No	%System...	Any	PlayTo Renderers	TCP
Allow	No	System	Any	PlayTo Renderers	TCP
Allow	No	%System...	Any	Any	TCP
Allow	No	%System...	Any	Any	TCP
Allow	No	System	Any	ICMPv6	

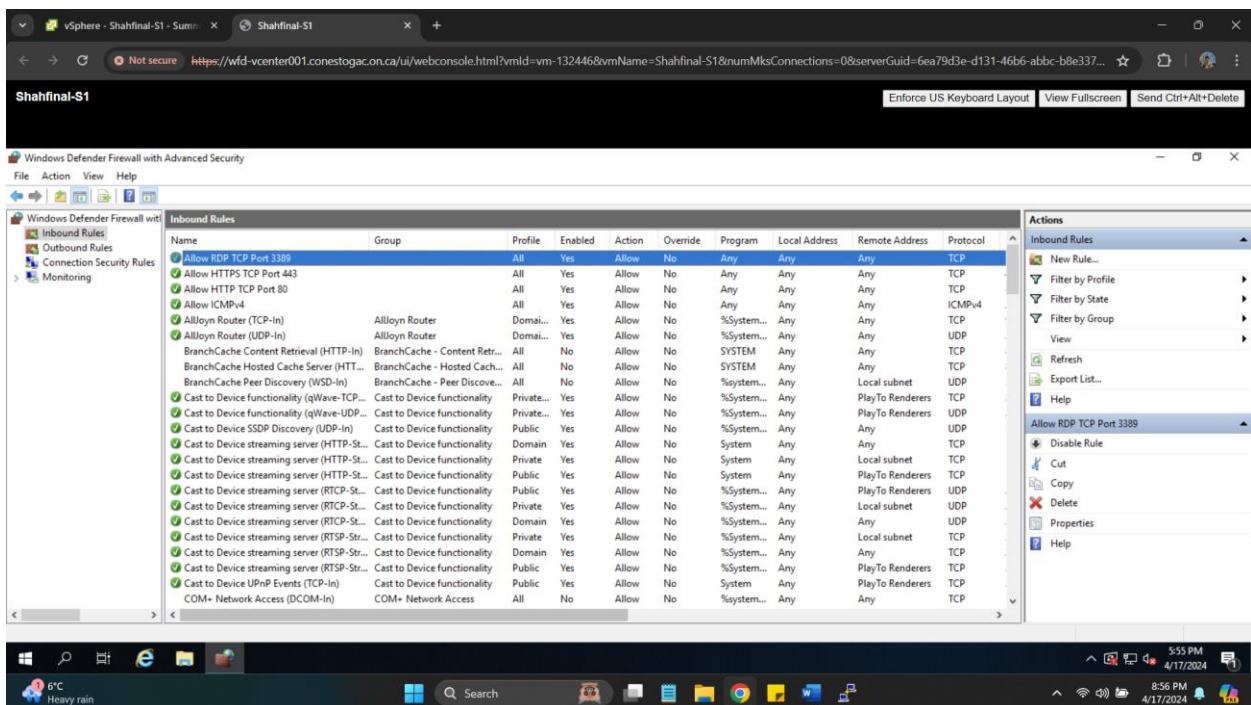
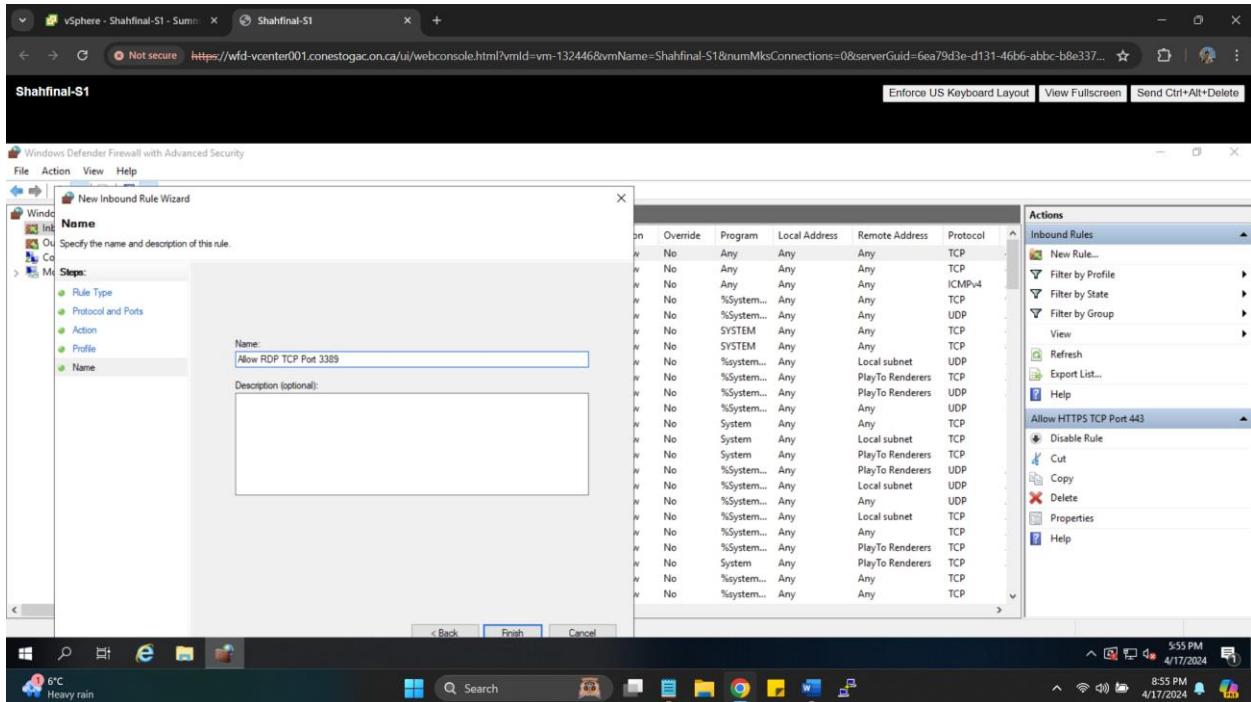
5:52 PM 4/17/2024



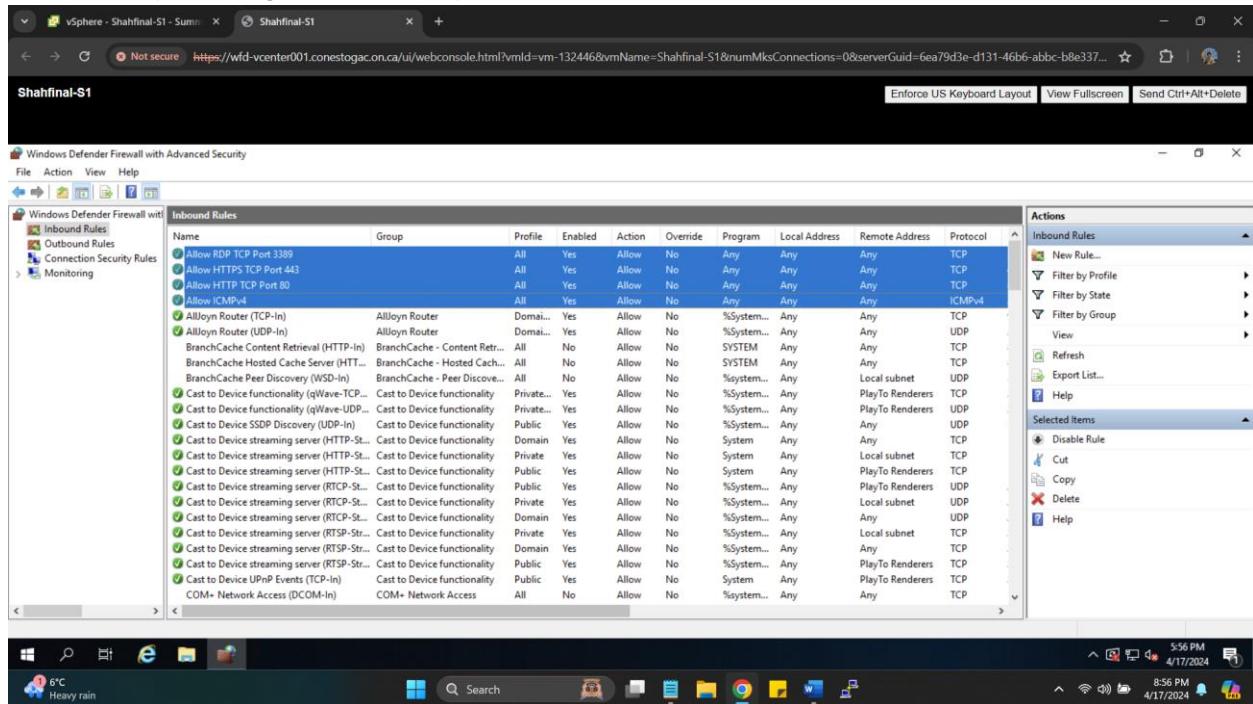
Allow RDP TCP Port 3389







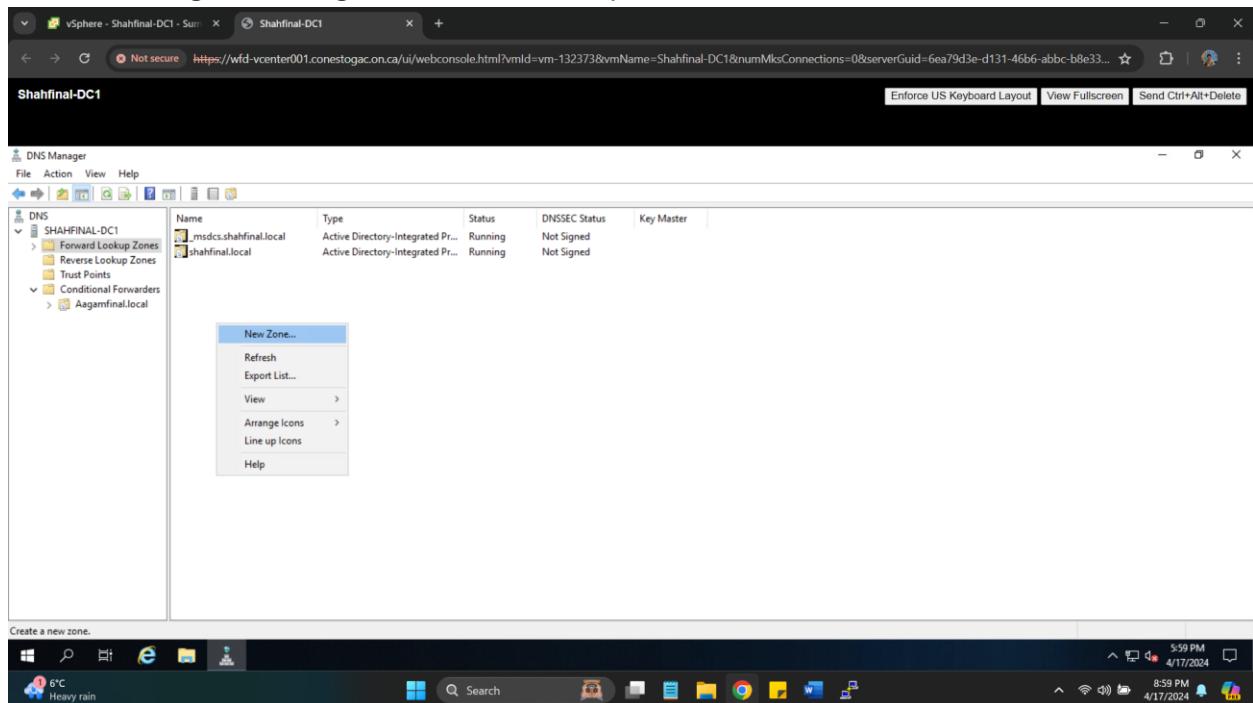
Successfully creating 4 rules are requested.



Part 6: Web Server (IIS)

- Create a **Host A record on lastnamefinal-DC1** called **www** inside the **lastnamefinal.local forward lookup zone** pointing to the **IP address of Lastnamefinal-S1**.

In DNS manager creating new forward lookup zone as www



Selecting as primary zone

The screenshot shows the vSphere web interface for managing DNS zones on a host named Shahfinal-DC1. The left sidebar lists various DNS-related configurations under the 'SHAHFINAL-DC1' section. A 'New Zone Wizard' window is open, prompting the user to select the type of zone to create. The 'Primary zone' option is selected, which is described as creating a copy of a zone that can be updated directly on this server. Other options shown include 'Secondary zone' (replicating from another server) and 'Stub zone' (containing only glue records). A checkbox for 'Store the zone in Active Directory' is also present. The bottom of the window has 'Back', 'Next >', and 'Cancel' buttons.

Shahfinal-DC1

New Zone Wizard

Zone Type

The DNS server supports various types of zones and storage.

Select the type of zone you want to create:

Primary zone
Creates a copy of a zone that can be updated directly on this server.

Secondary zone
Creates a copy of a zone that exists on another server. This option helps balance the processing load of primary servers and provides fault tolerance.

Stub zone
Creates a copy of a zone containing only Name Server (NS), Start of Authority (SOA), and possibly glue Host (A) records. A server containing a stub zone is not authoritative for that zone.

Store the zone in Active Directory (available only if DNS server is a writable domain controller)

< Back Next > Cancel

vSphere - Shahfinal-DC1 - Summary Shahfinal-DC1

Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132373&vmName=Shahfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e33... ☆

Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

File Action View Help

DNS Manager

DNS SHAHFINAL-DC1 Forward Lookup Zones Reverse Lookup Zones Trust Points Conditional Forwarders Aagamfinal.local

Name Type Status DNSSEC Status Key Master

_msdcs.shahfinal.local Active Directory-Integrated Pr... Running Not Signed

shahfinal.local Active Directory-Integrated Pr... Running Not Signed

5:59 PM 4/17/2024

6°C Heavy rain

Search

8:59 PM 4/17/2024

vSphere - Shahfinal-DC1 - Summary Shahfinal-DC1

Not secure https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132373&vmName=Shahfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e33... ☆

Enforce US Keyboard Layout View Fullscreen Send Ctrl+Alt+Delete

File Action View Help

DNS Manager

DNS SHAHFINAL-DC1 Forward Lookup Zones Reverse Lookup Zones Trust Points Conditional Forwarders Aagamfinal.local

Name Type Status DNSSEC Status Key Master

_msdcs.shahfinal.local Active Directory-Integrated Pr... Running Not Signed

shahfinal.local Active Directory-Integrated Pr... Running Not Signed

New Zone Wizard

Active Directory Zone Replication Scope

You can select how you want DNS data replicated throughout your network.

Select how you want zone data replicated:

To all DNS servers running on domain controllers in this forest: shahfinal.local

To all DNS servers running on domain controllers in this domain: shahfinal.local

To all domain controllers in this domain (for Windows 2000 compatibility): shahfinal.local

To all domain controllers specified in the scope of this directory partition:

< Back Next > Cancel

6:00 PM 4/17/2024

Creating new Zone as www

The screenshot shows the vSphere web interface for managing a DNS zone. In the main pane, there is a table of existing zones:

Name	Type	Status	DNSSEC Status	Key Master
_msdcshahfinal.local	Active Directory-Integrated Pr...	Running	Not Signed	
shahfinal.local	Active Directory-Integrated Pr...	Running	Not Signed	

A modal window titled "New Zone Wizard" is open, asking for the "Zone Name". The input field contains "www". Below the input field is a note explaining what a zone name is. At the bottom of the modal are "Back", "Next >", and "Cancel" buttons.

The taskbar at the bottom of the screen shows the date and time as 4/17/2024, 6:00 PM.

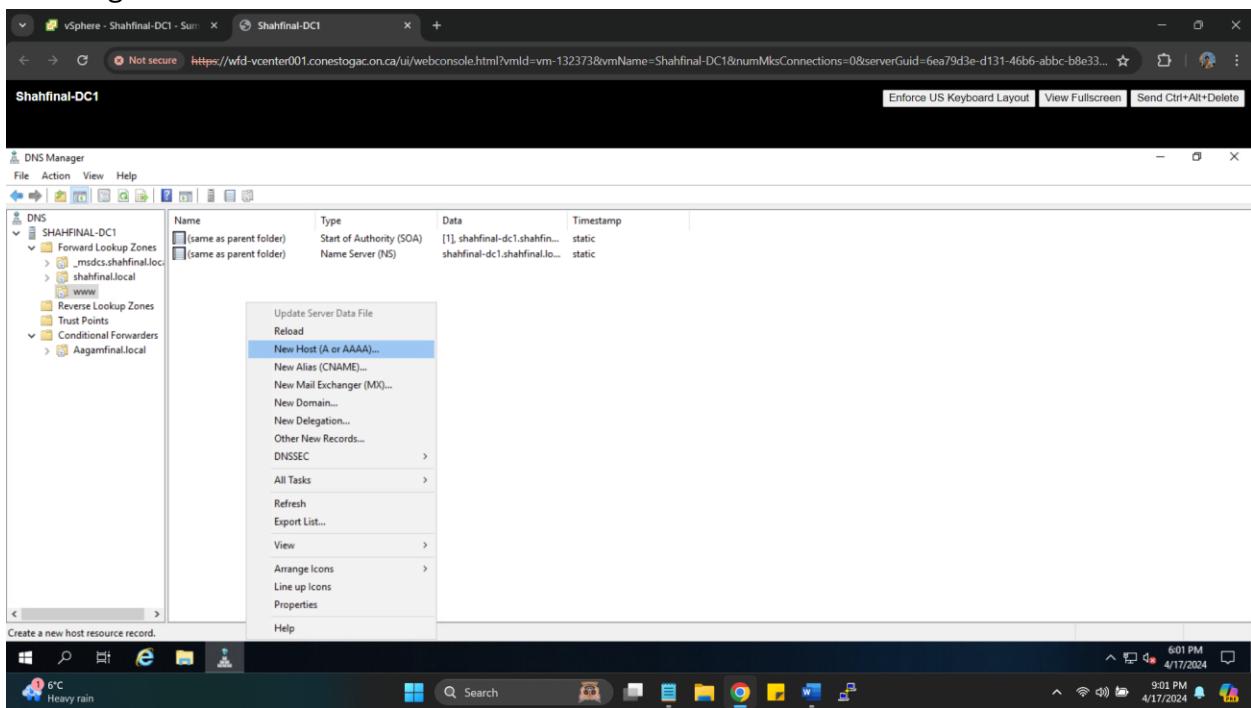
The screenshot shows the continuation of the "New Zone Wizard". A modal window titled "Dynamic Update" is open, with the note: "You can specify that this DNS zone accepts secure, nonsecure, or no dynamic updates." It asks to select the type of dynamic updates to allow:

- Allow only secure dynamic updates (recommended for Active Directory)
This option is available only for Active Directory-integrated zones.
- Allow both nonsecure and secure dynamic updates
Dynamic updates of resource records are accepted from any client.
⚠ This option is a significant security vulnerability because updates can be accepted from untrusted sources.
- Do not allow dynamic updates
Dynamic updates of resource records are not accepted by this zone. You must update these records manually.

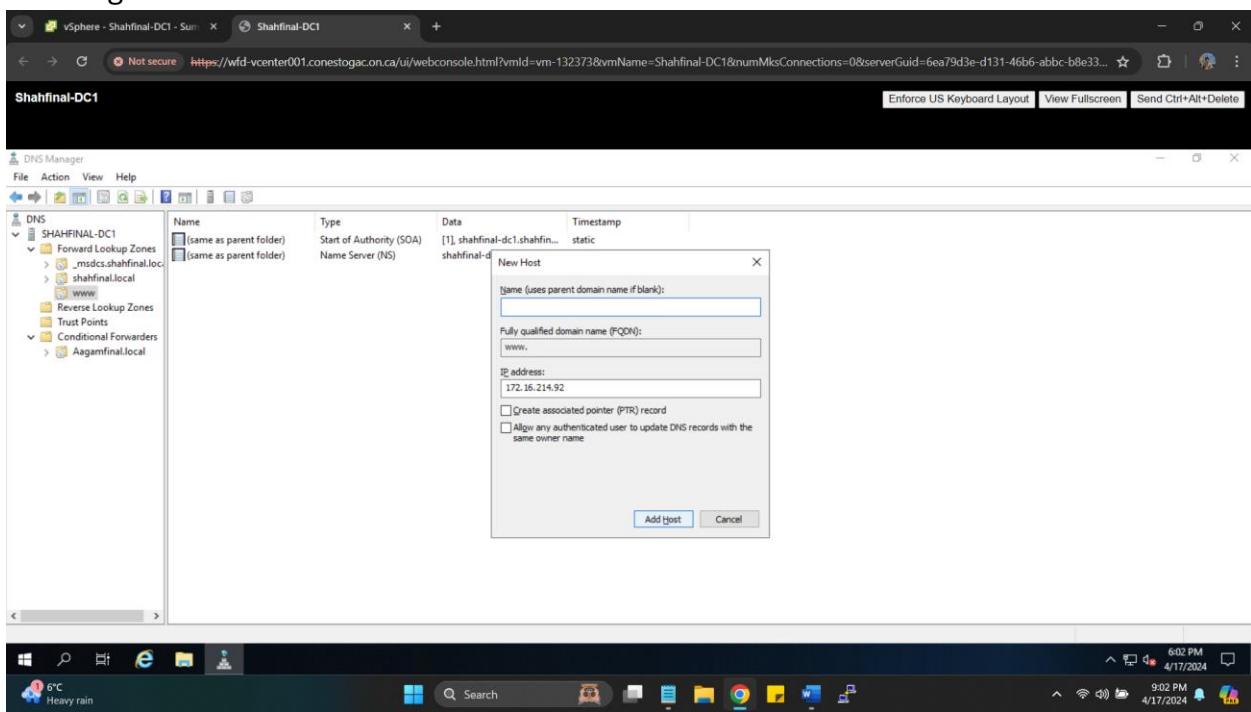
At the bottom of the modal are "Back", "Next >", and "Cancel" buttons.

The taskbar at the bottom of the screen shows the date and time as 4/17/2024, 9:00 PM.

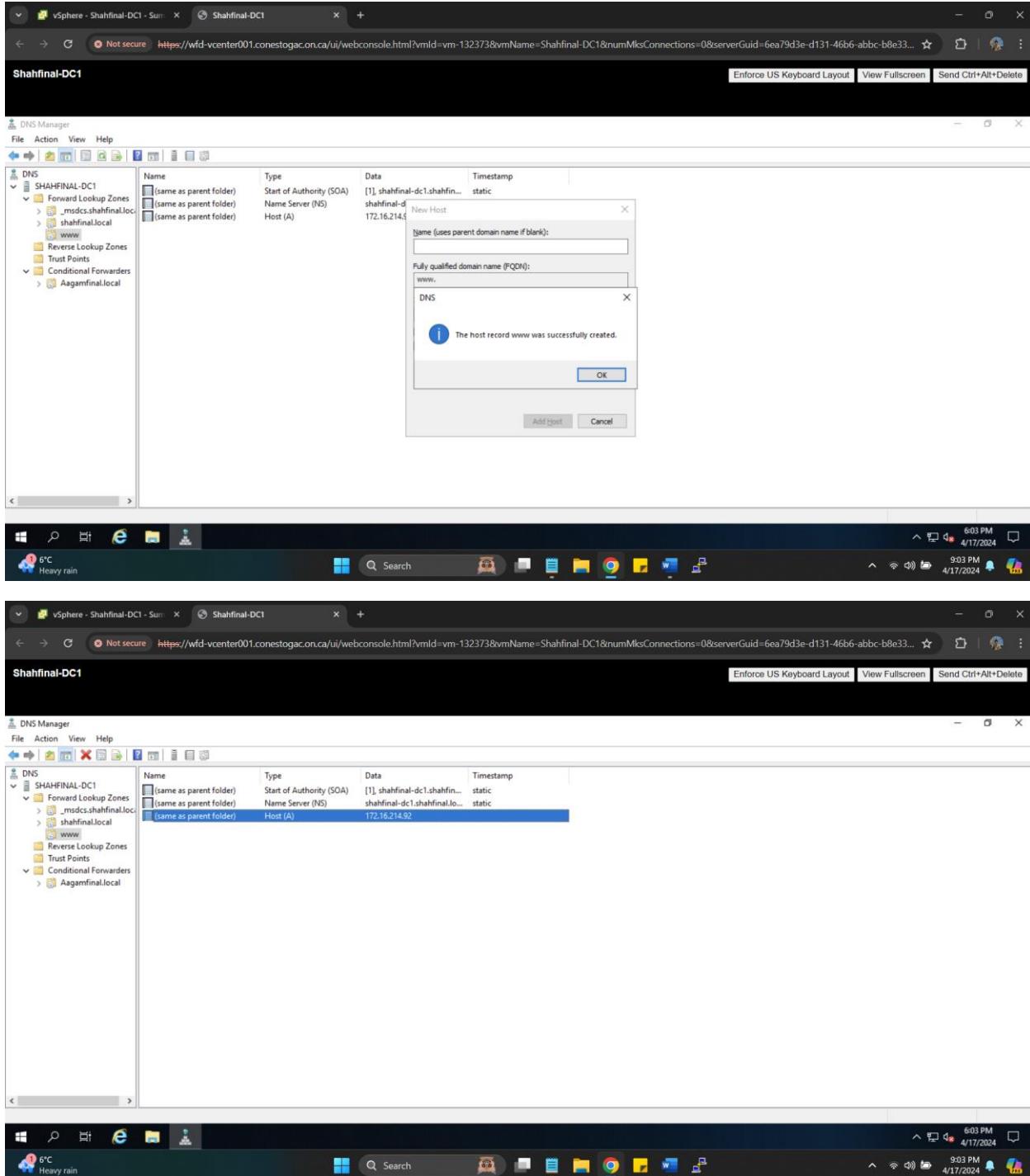
Creating new Host A



Creating new Host A in www zone

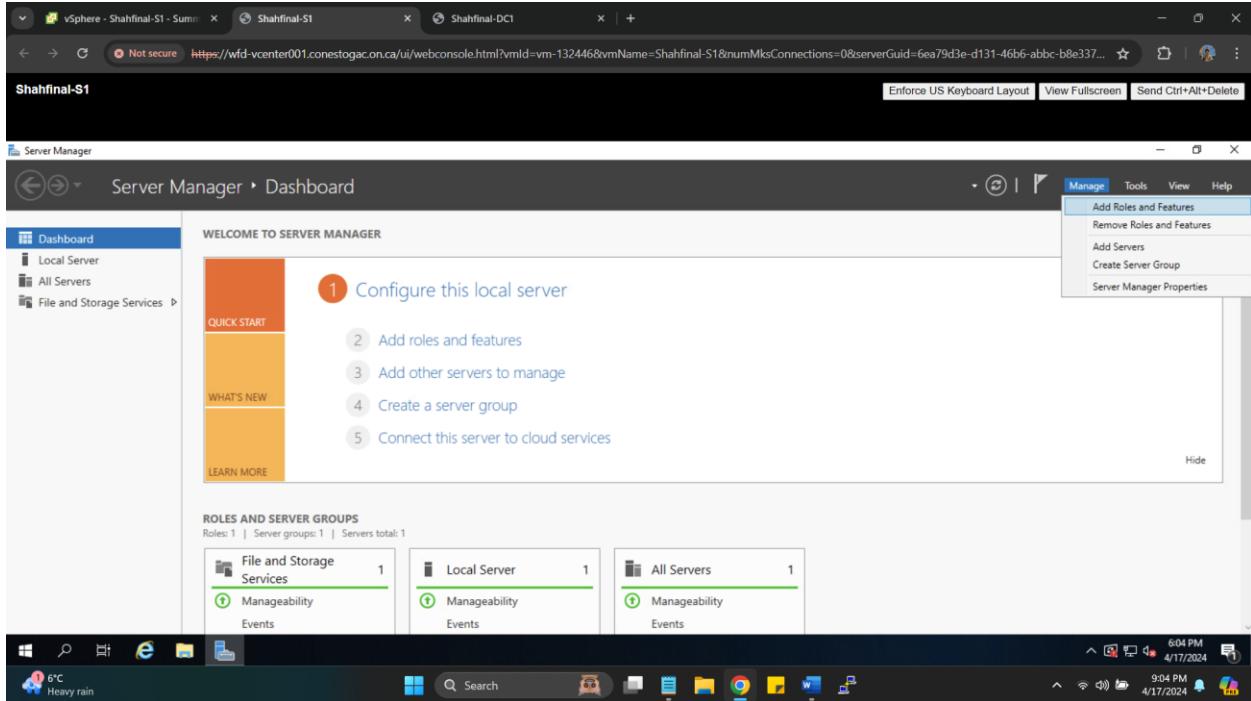


Successfully creating Host (A)

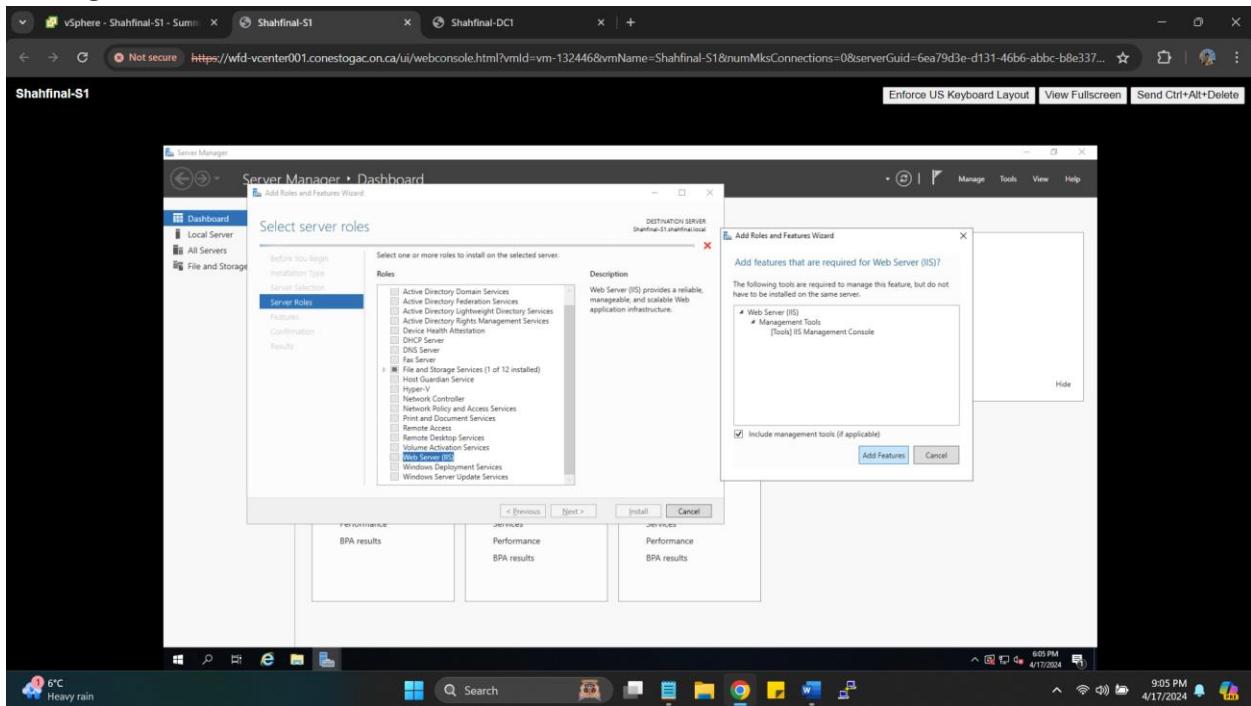


- 2) Install the **IIS Role** with the **Application Development** role feature on **Lastnamefinal-S1**.

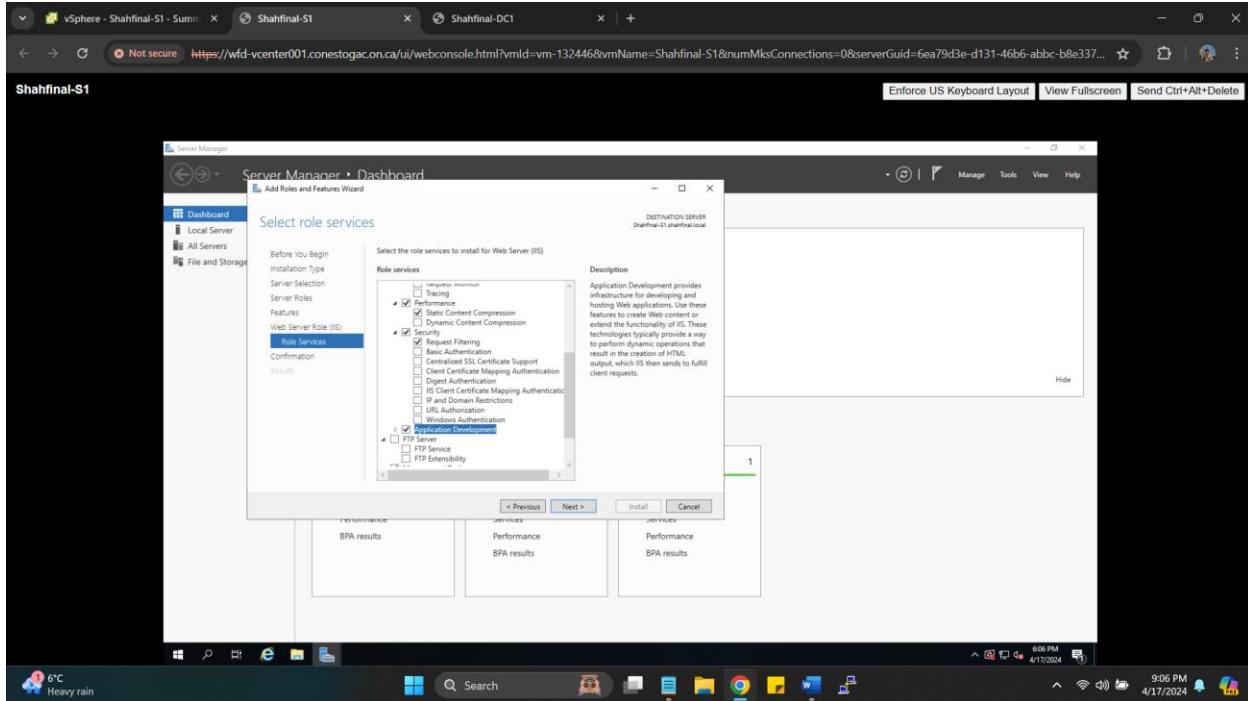
Adding roles and features for IIS Role installation



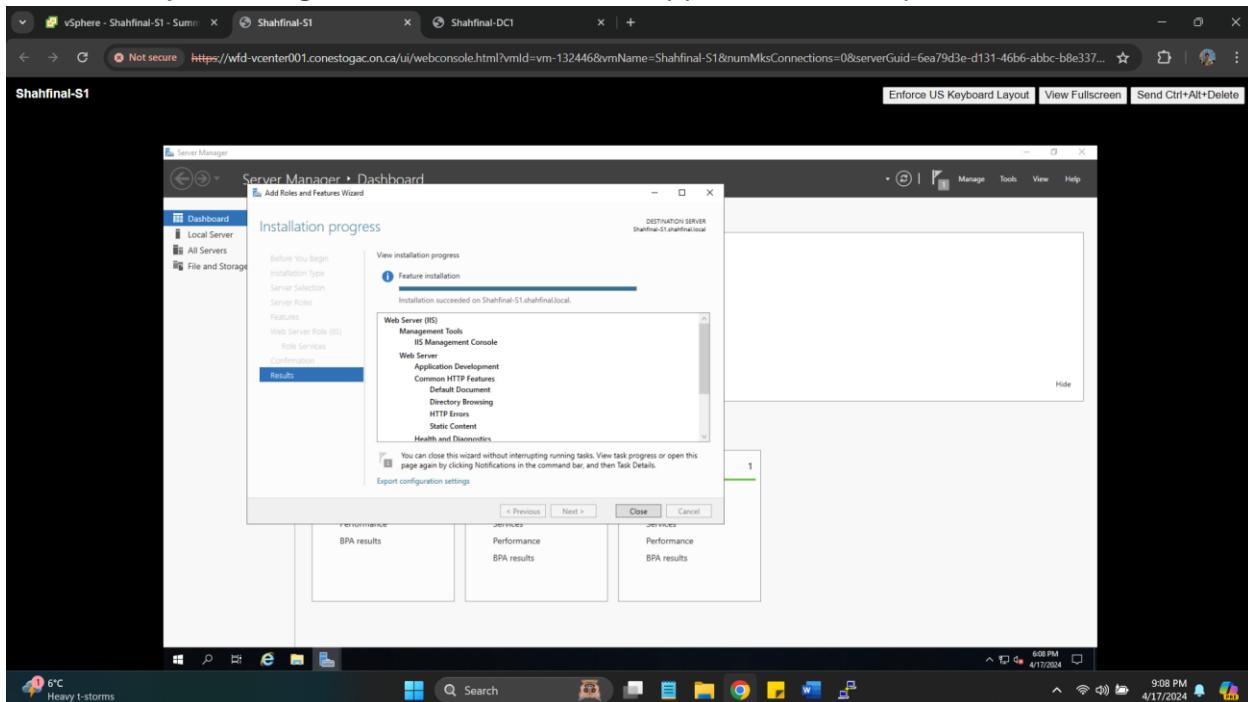
Adding feature of IIS role



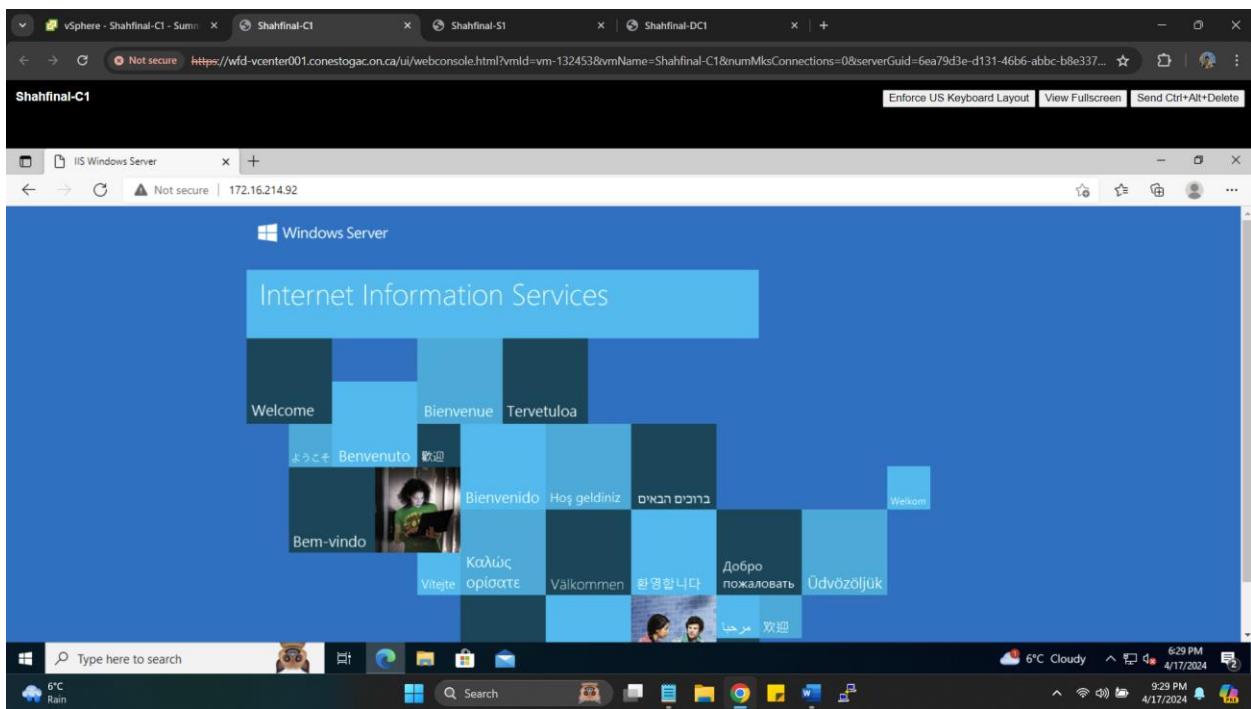
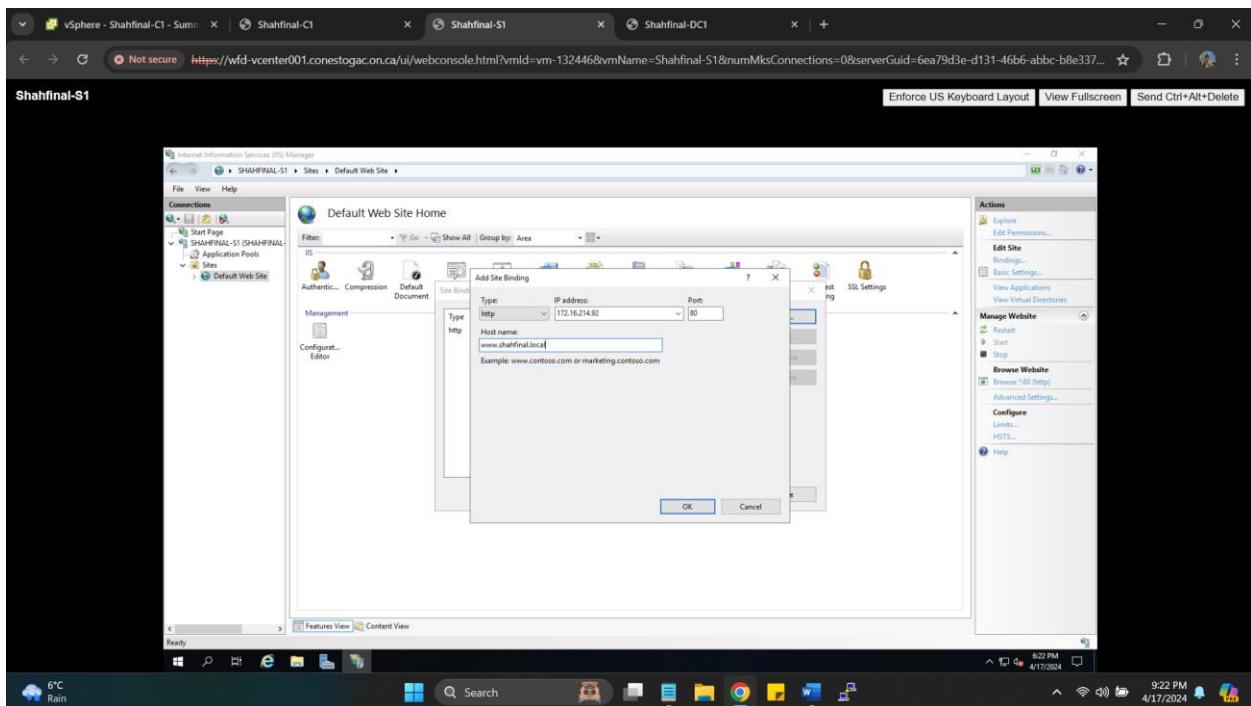
Selecting Application development role in IIS



Successfully installing IIS role and feature with application development



- 3) After IIS is installed, access the default website from **Lastnamefinal-C1** using www.lastnamefinal.local.



VM Links

Shahfinal-DC1 172.16.214.90

<https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132373&vmName=Shahfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e3379f5344&locale=en-US>

Aagamfinal-DC1 172.16.214.91

<https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132377&vmName=Aagamfinal-DC1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e3379f5344&locale=en-US>

Shahfinal-S1 172.16.214.92

<https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132446&vmName=Shahfinal-S1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e3379f5344&locale=en-US>

Shahfinal-S2 172.16.214.93

<https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132447&vmName=Shahfinal-S2&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e3379f5344&locale=en-US>

Shahfinal-C1 172.16.214.94

<https://wfd-vcenter001.conestogac.on.ca/ui/webconsole.html?vmId=vm-132453&vmName=Shahfinal-C1&numMksConnections=0&serverGuid=6ea79d3e-d131-46b6-abbc-b8e3379f5344&locale=en-US>