LAB ASSIGNMENT 1

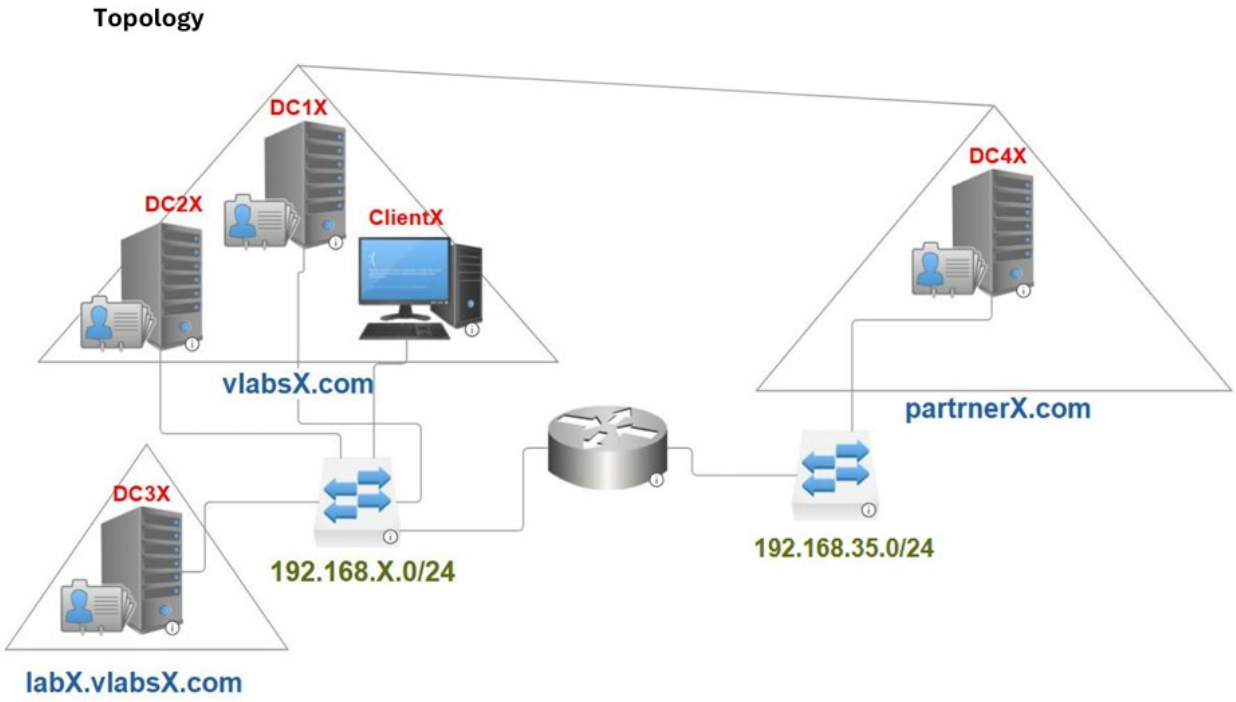
PART 1

MAY 13, 2025

LAETITIA MOHAMMED, 0931512

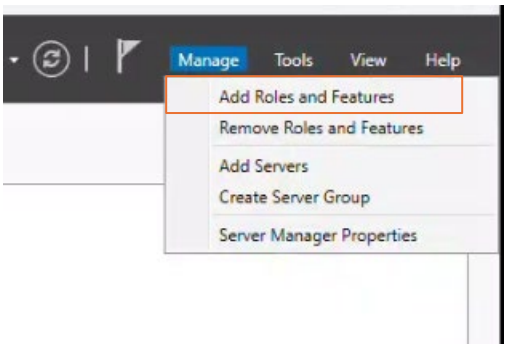
Network Installation and Administration II

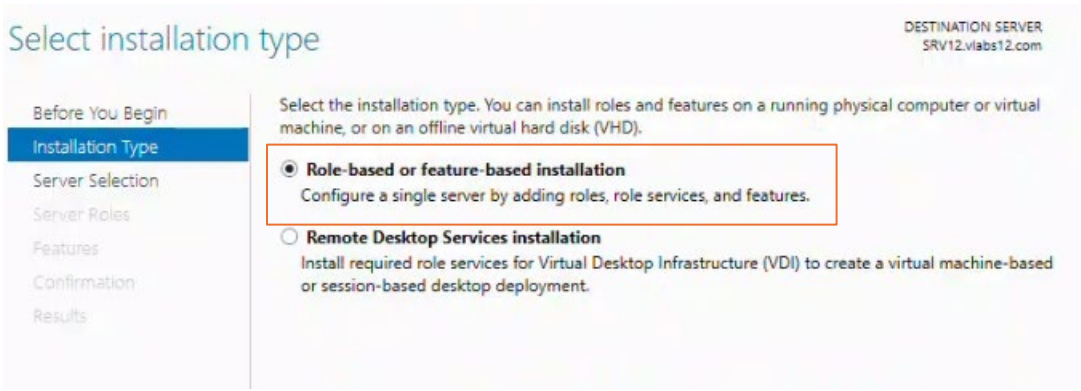
Contents

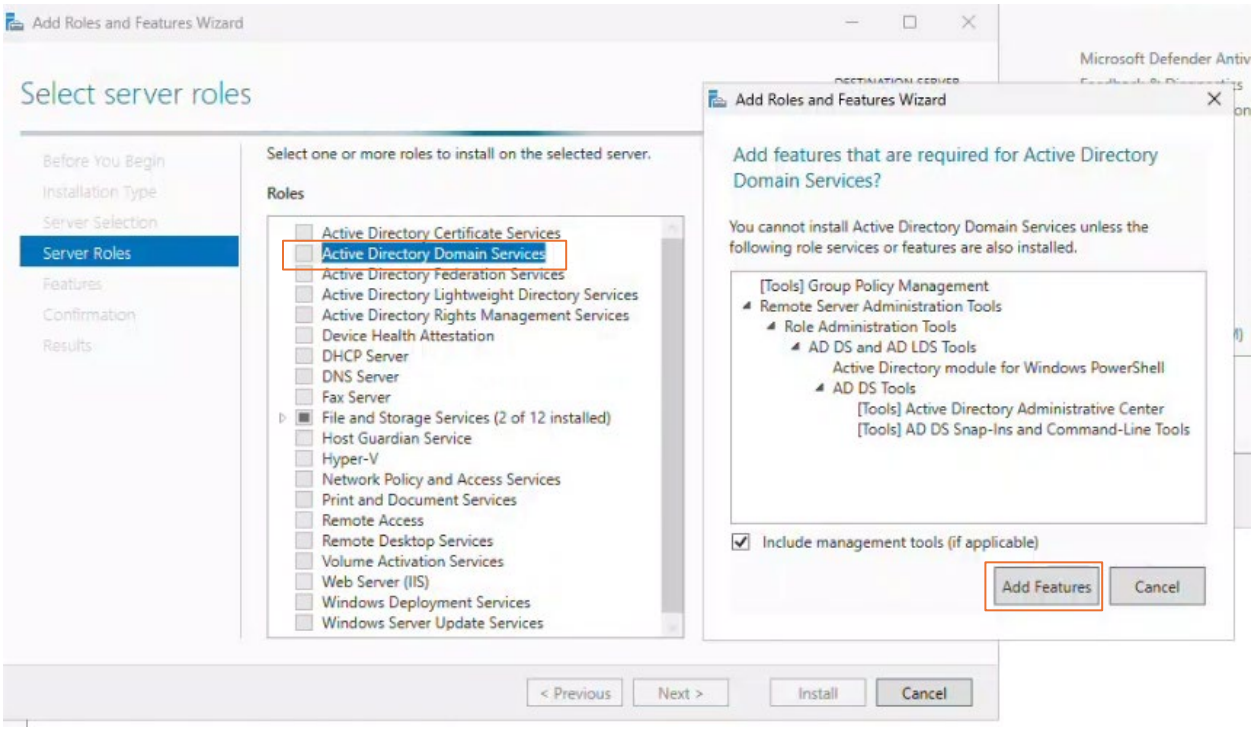


Task 1: Promote DC412 as a New Domain Controller in a New Forest

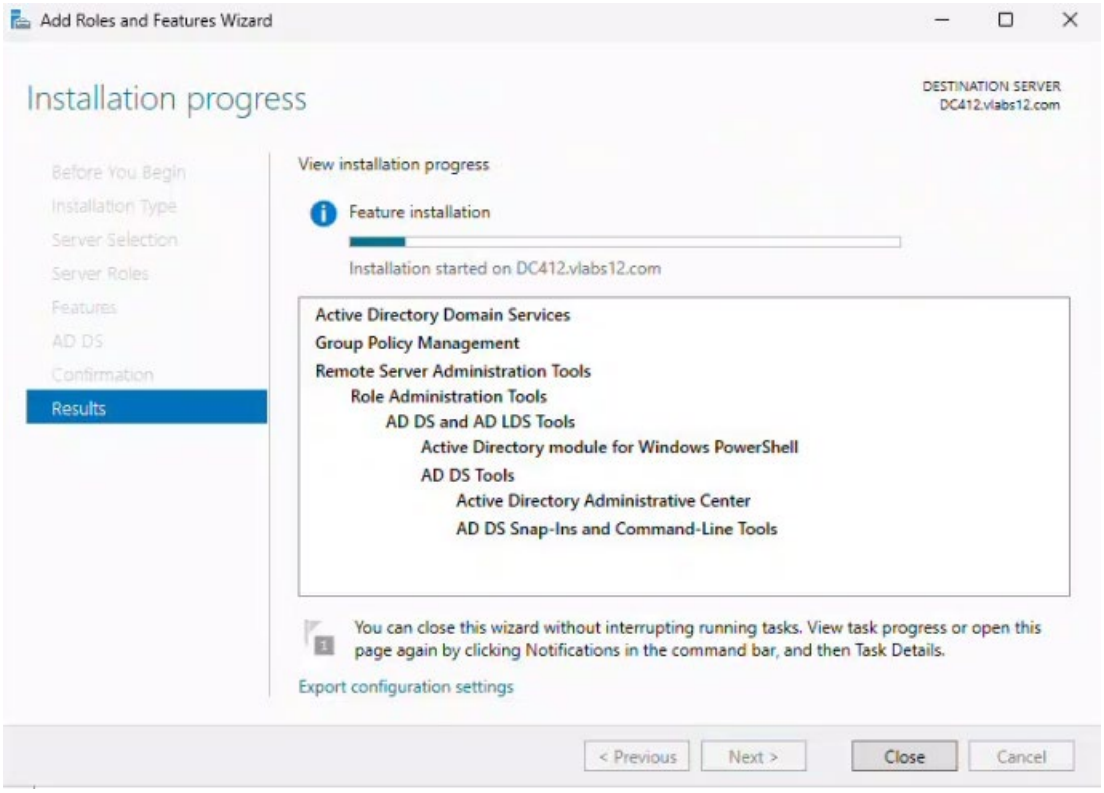
Promote DC412 as a new DC in a New Forest named partner12.com



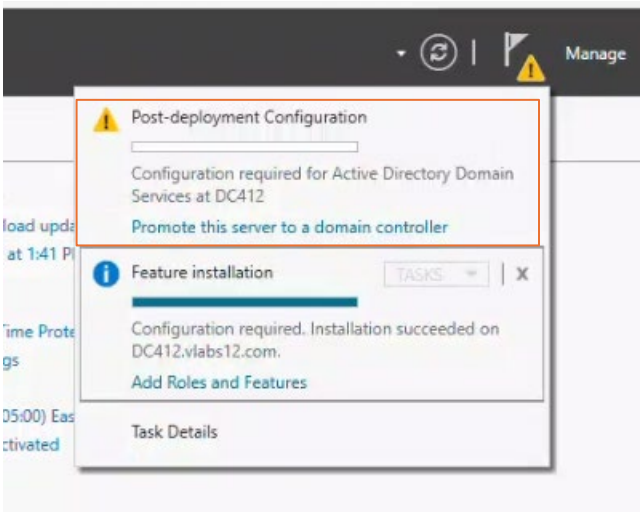




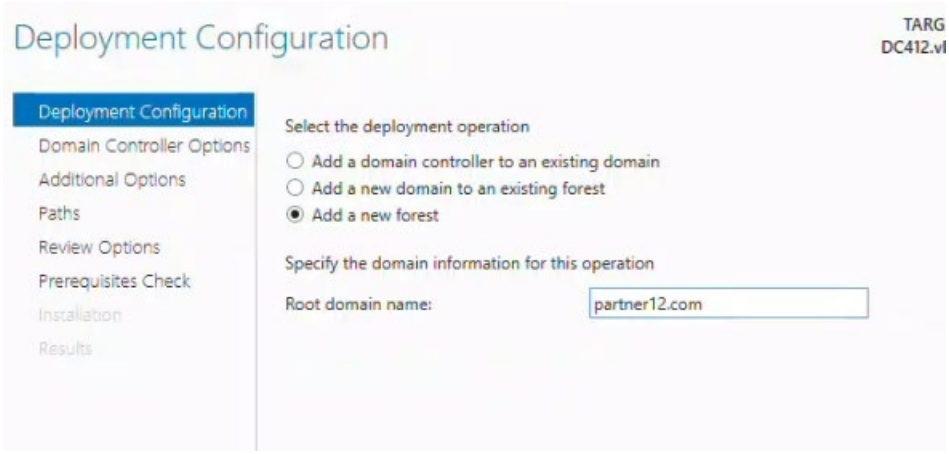
Click next over the following few pages until you get to install. Click install.



Once that's done, we need to promote the server to a DC. Click on the yellow exclamation mark and click "promote this server to a domain controller."

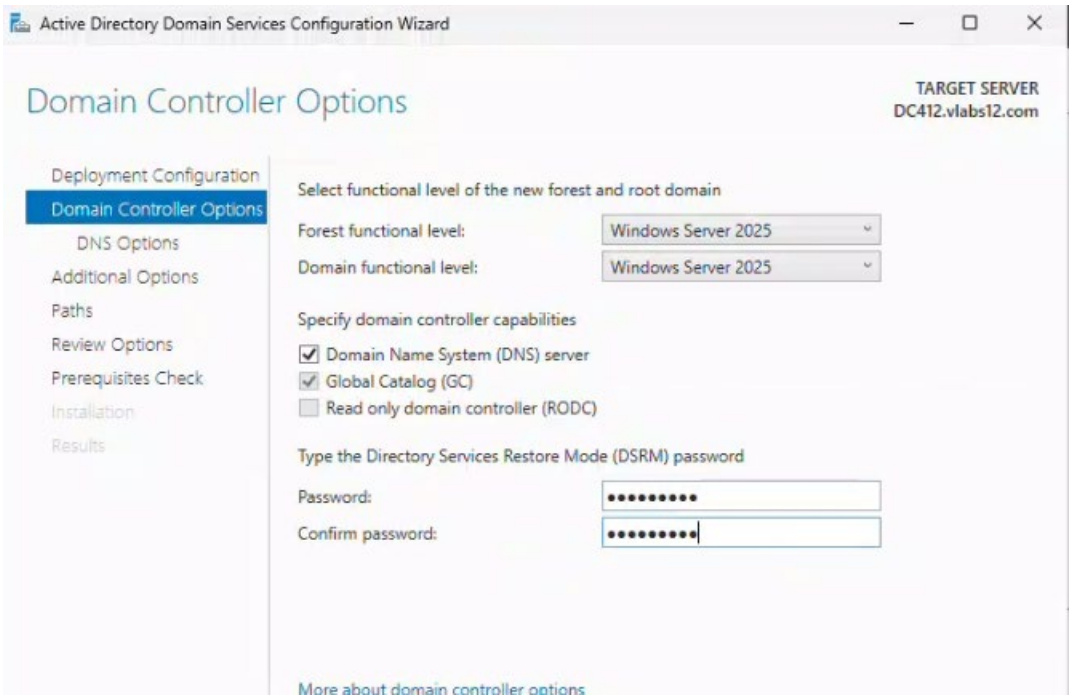


In this case, we'll be adding a new forest and naming it partner12.com

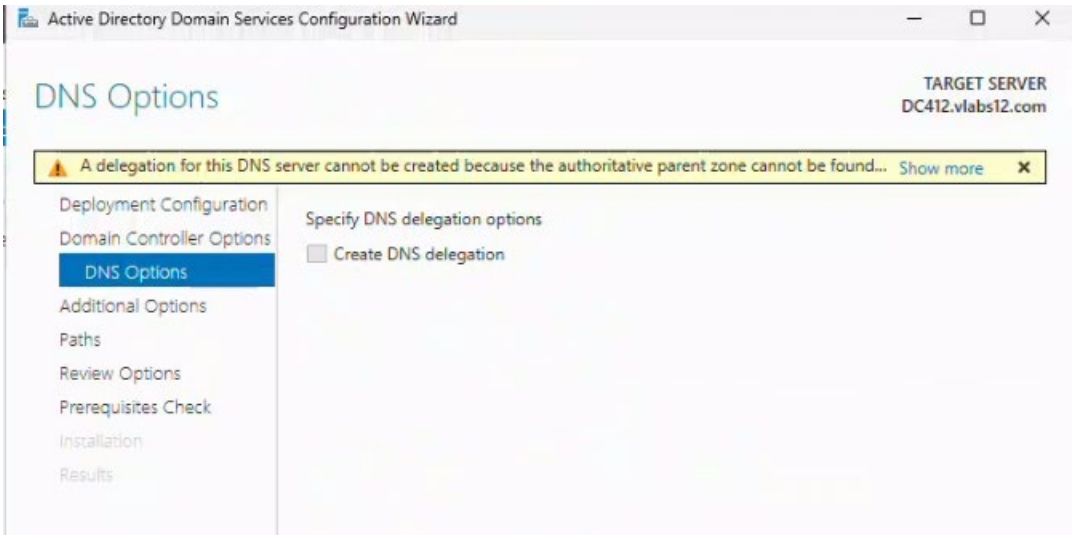


Leave everything as is in this scenario, since we won't be adding any DCs from previous years (Windows Server 2022, 2016, etc) and enter the password "Passw0rd$"

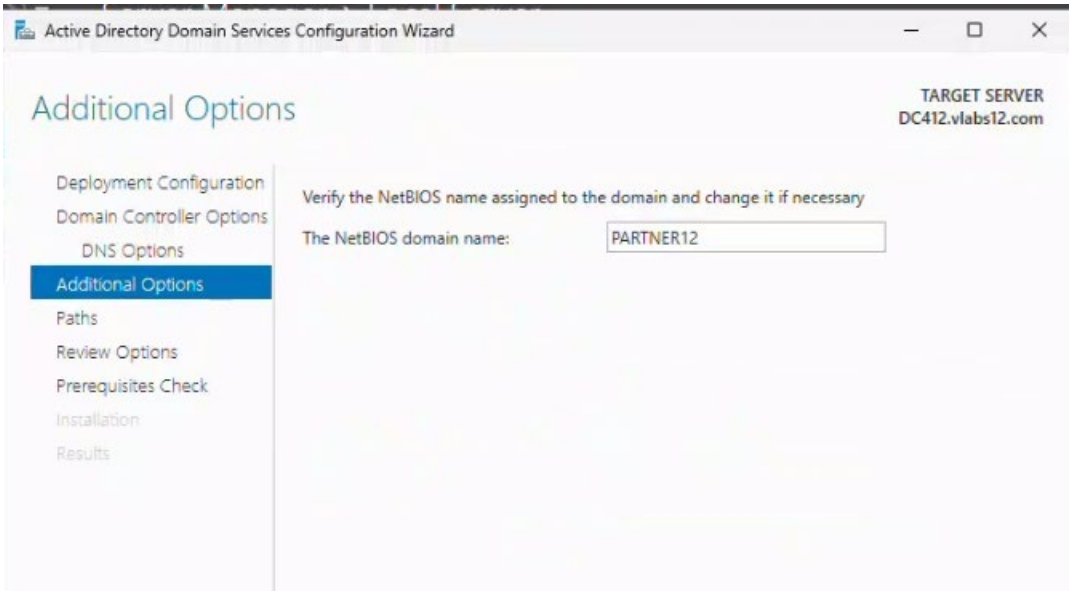
In the event that we would be adding a DC from example; Windows Server 2016, we'd have to change the forest functional level and domain functional level to Windows Server 2016 or else they would not be compatible.



Click next on the page below. It will create the DNS by default.

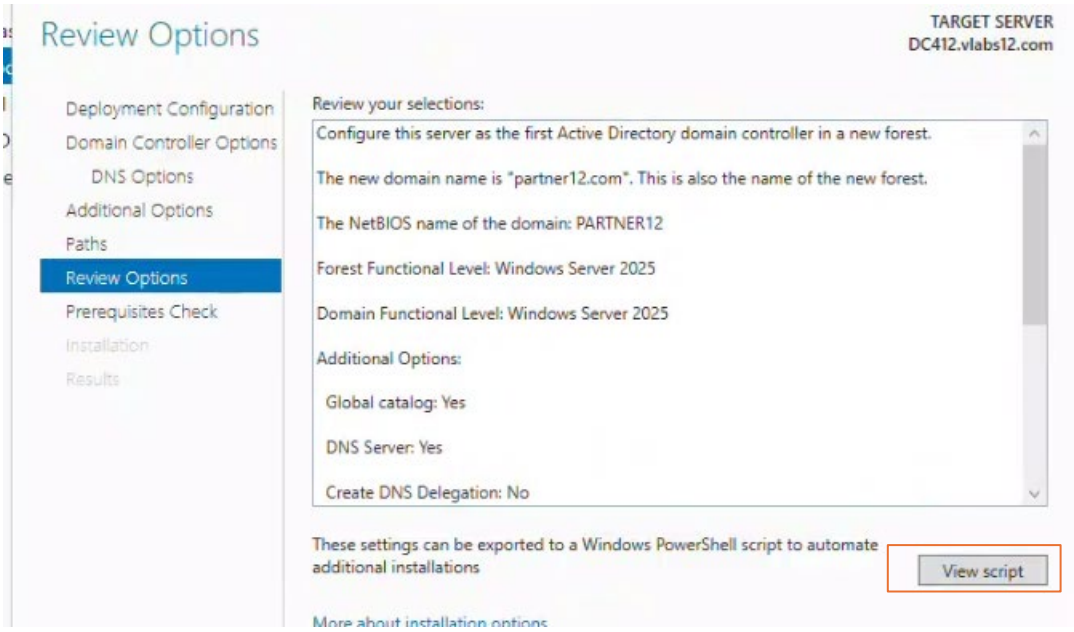


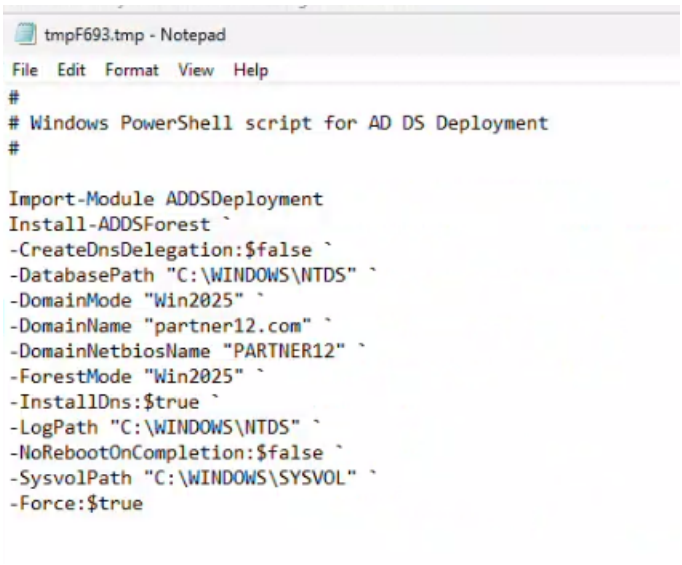
Leave the NetBIOS as is:



Click next again for the location of the log files, AD DS database, etc.

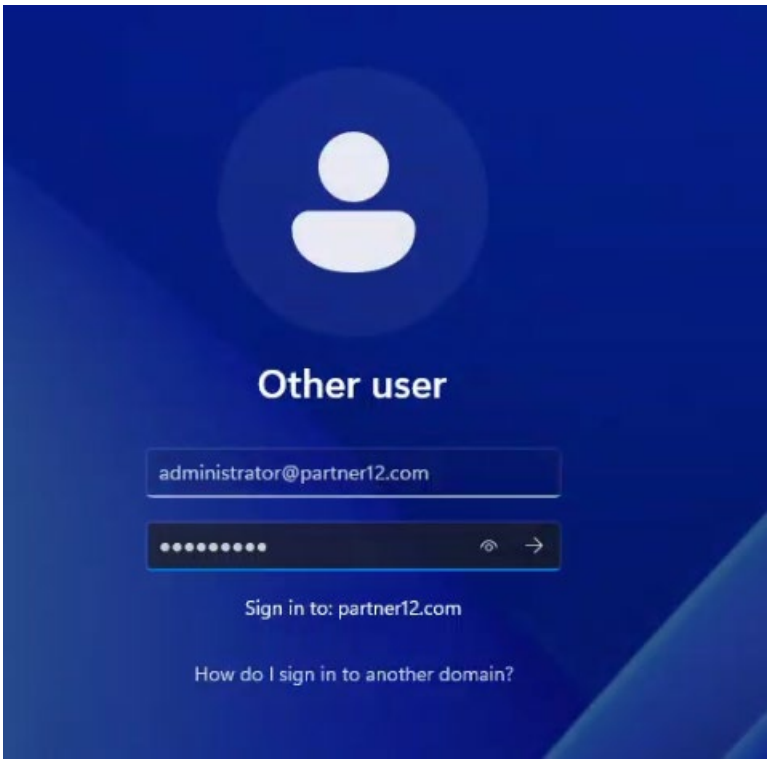
Review your selections and just confirm everything is right. You can also view the PowerShell script.

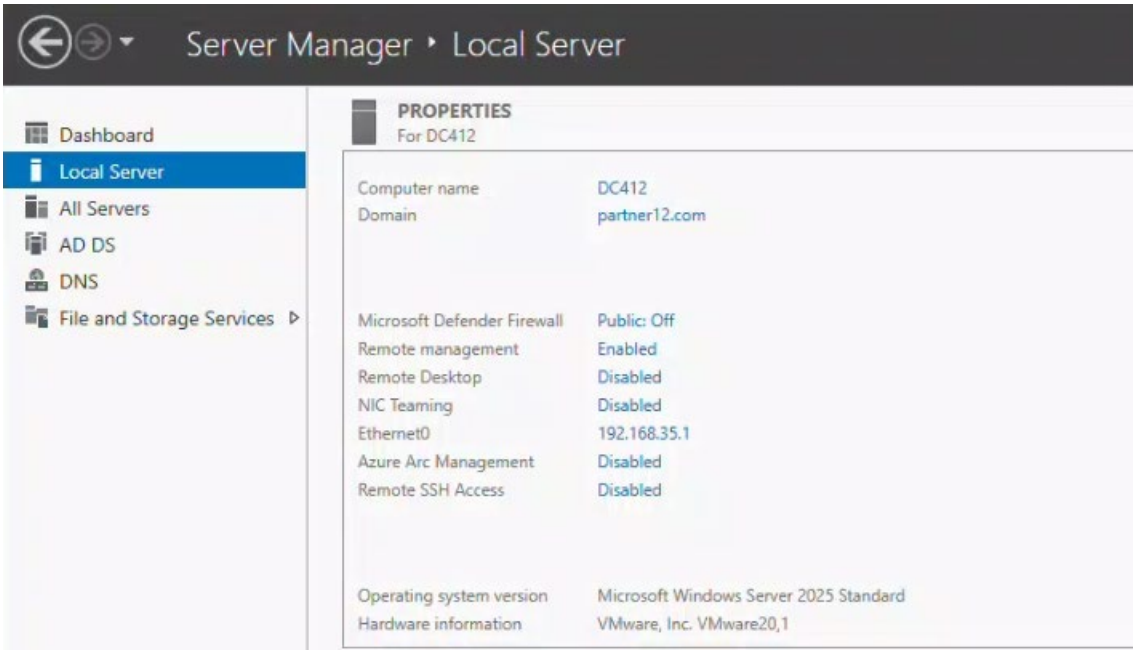




Click next for the prerequisites check and then click Install. Once it's installed, it'll automatically reboot.

Once rebooted, click on "other user" and enter your credentials for the new forest and password Passw0rd$


Other user
administrator@partner12.com
Sign in to: partner12.com
How do I sign in to another domain?


Server Manager • Local Server
Dashboard
Local Server
All Servers
AD DS
DNS
File and Storage Services
PROPERTIES
For DC412
Computer name DC412
Domain partner12.com
Microsoft Defender Firewall Public: Off
Remote management Enabled
Remote Desktop Disabled
NIC Teaming Disabled
Ethernet0 192.168.35.1
Azure Arc Management Disabled
Remote SSH Access Disabled
Operating system version Microsoft Windows Server 2025 Standard
Hardware information VMware, Inc. VMware20,1

Task 2: Verify Domain and Forest Functional Levels

1) Check the Domain and Forest Functional Levels on vlabs12.com

-Using Active Directory Administrative Center

-Using PowerShell

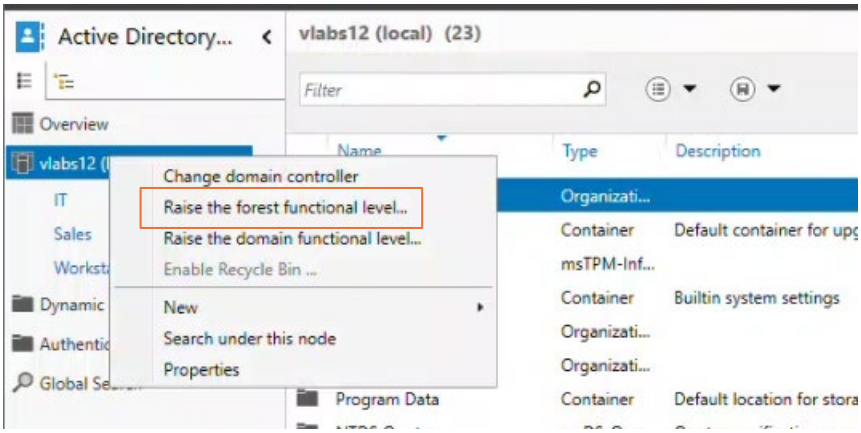
2) Check the Domain and Forest Functional Levels on partner12.com

-Using Active Directory Administrative Center

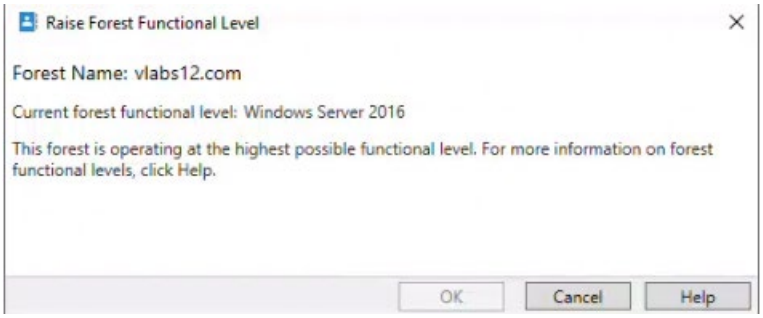
- Using PowerShell

Log into DC112 and open the Active Directory Administrative Center

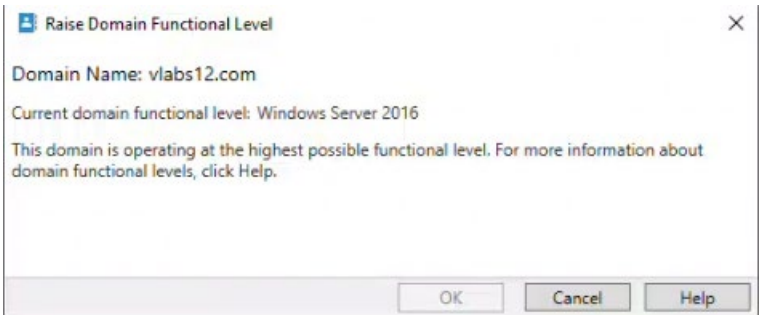
Right click on vlabs12 and select “Raise the forest functional level”



You’ll see the forest is functioning at the highest functional level (Windows Server 2016). Click cancel to close.



Repeat the process but this time click on “Raise the domain functional level”



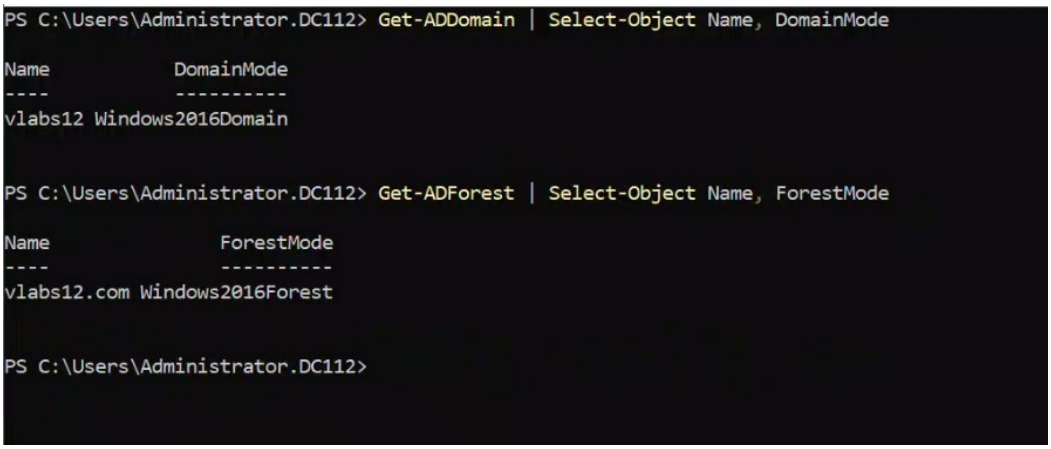
Verify using PowerShell by using the following commands:

For the domain functional level –

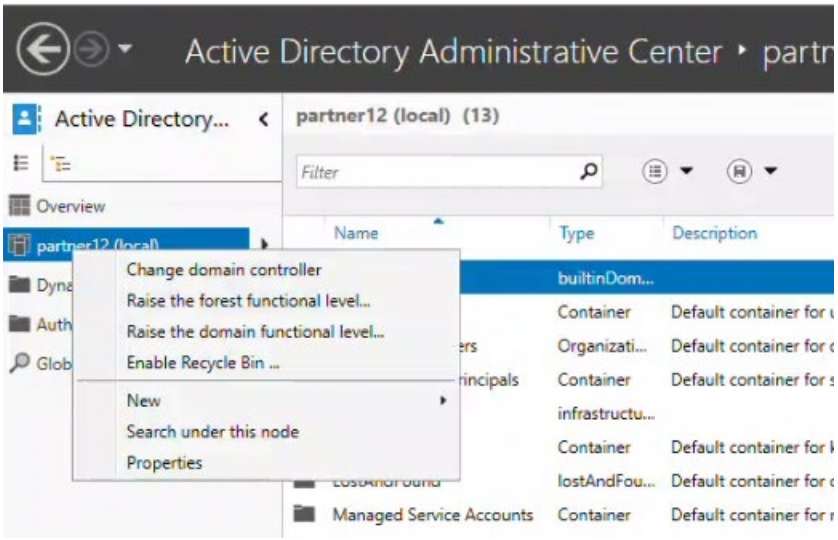
Get-ADDomain | Select-Object Name, DomainMode

For the Forest functional level –

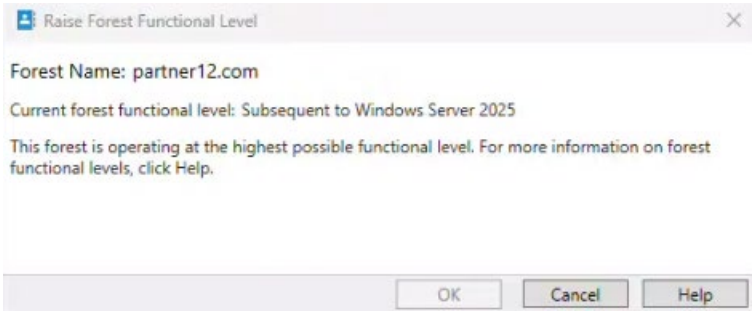
Get-ADForest | Select-Object Name, ForestMode



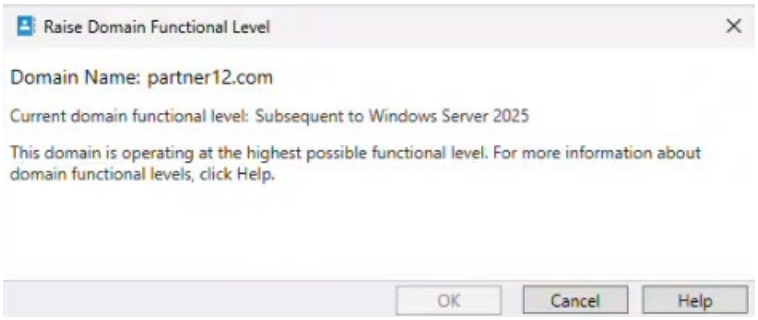
Repeat the verifications on partner12.com (DC412)



Forest Functional Level:



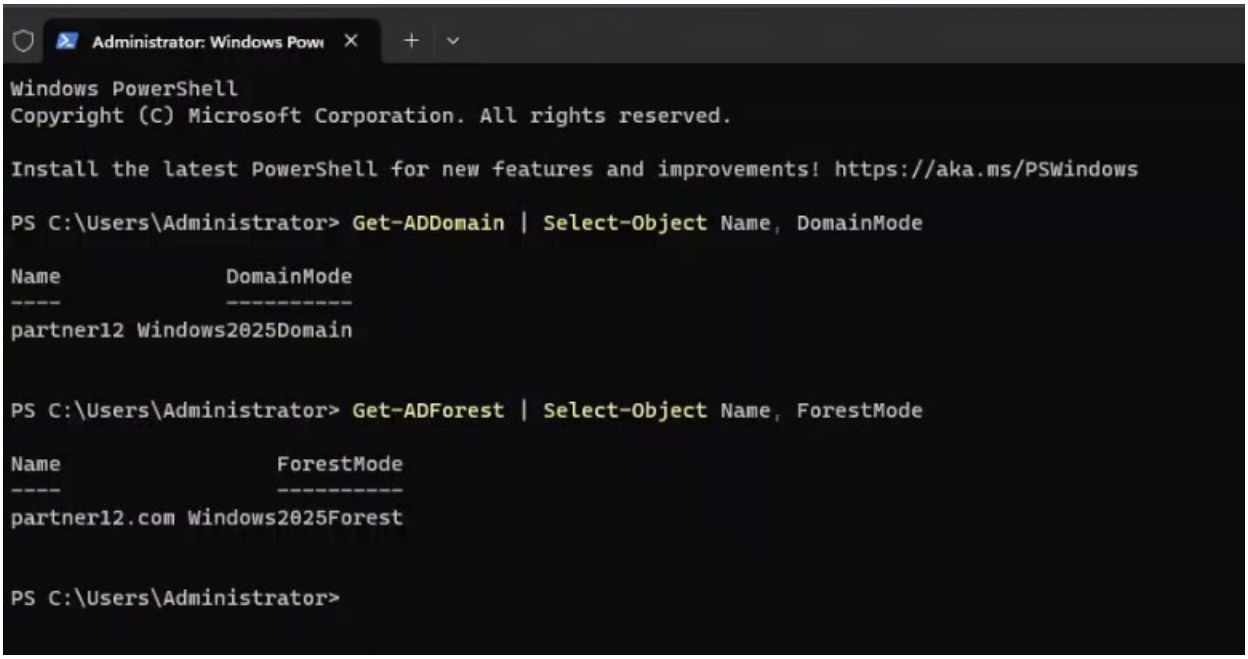
Domain Functional Level:



Using PowerShell:

Get-ADDomain | Select-Object Name, DomainMode

Get-ADForest | Select-Object Name, ForestMode



Task 3: Listing Trusts

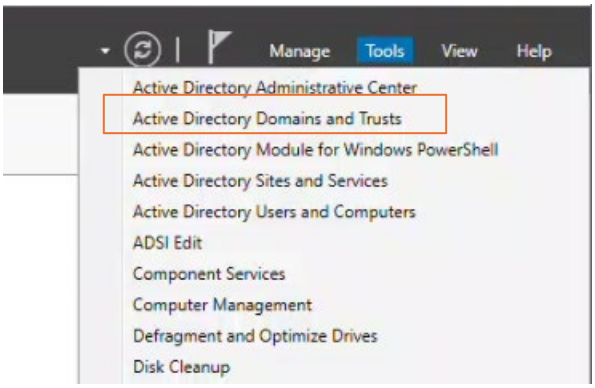
1) List all Trusts on vlabs12.com and labs12.vlabs12.com

- Using Active Directory Domains and Trusts.
- Using PowerShell

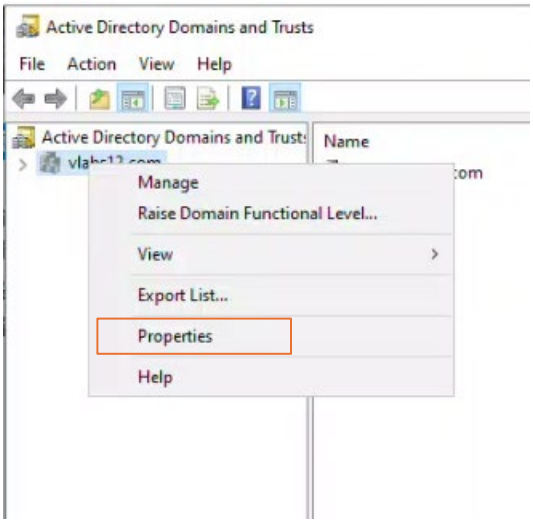
2) List all Trusts on partner12.com

- Using Active Directory Domains and Trust
- Using PowerShell.

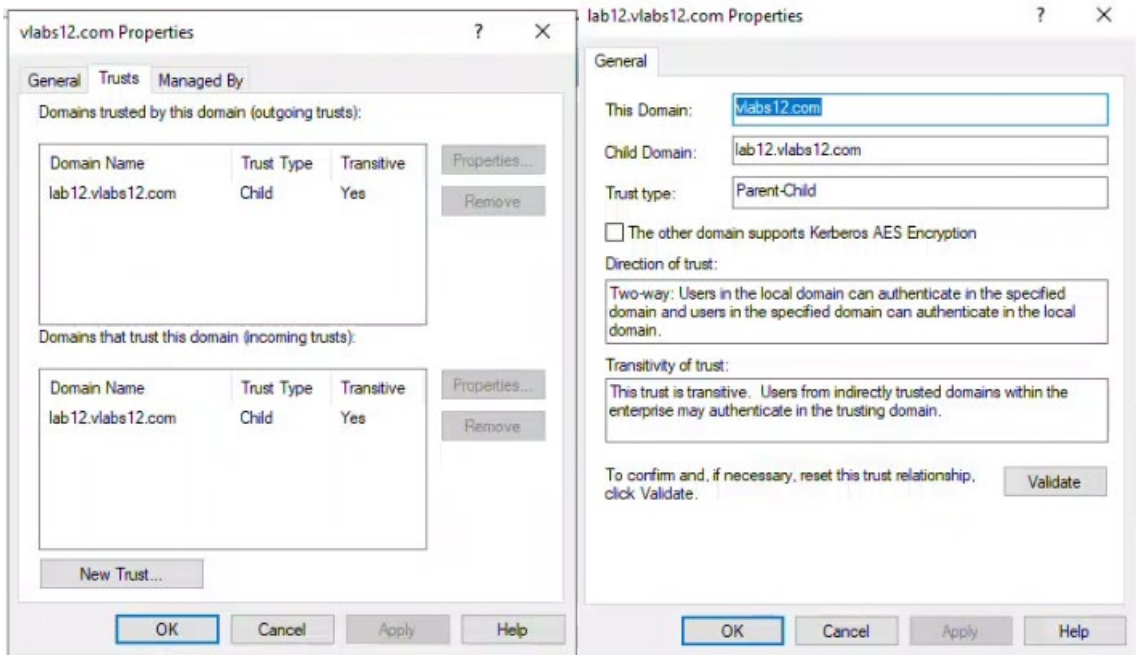
Using DC112, open Active Directory Domains and Trusts



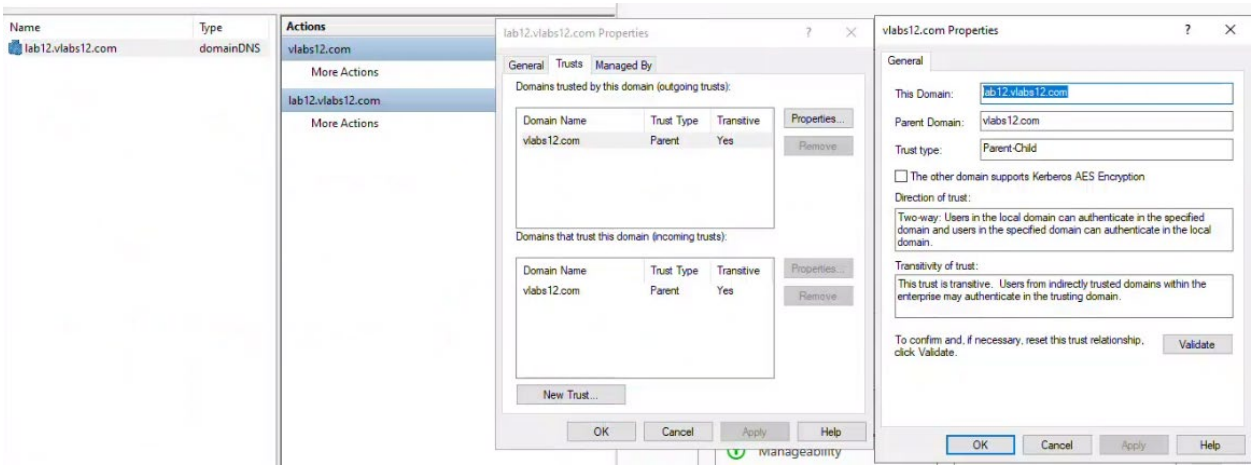
Right click on vlabs12.com → Properties



Click on Trusts and look at the outgoing and incoming trusts. In our case, we have two-way, transitive trust relationship with lab12.vlabs12.com (our child domain). This is a Parent-Child trust.



Right-click on lab12.vlabs12.com → Properties and verify the same way. You'll see the two-way, transitive trust with vlabs12.com



Using PowerShell, verify the trusts using the following command:

Get-ADTrust -Filter * | Select-Object Name, Target, TrustType, TrustDirection

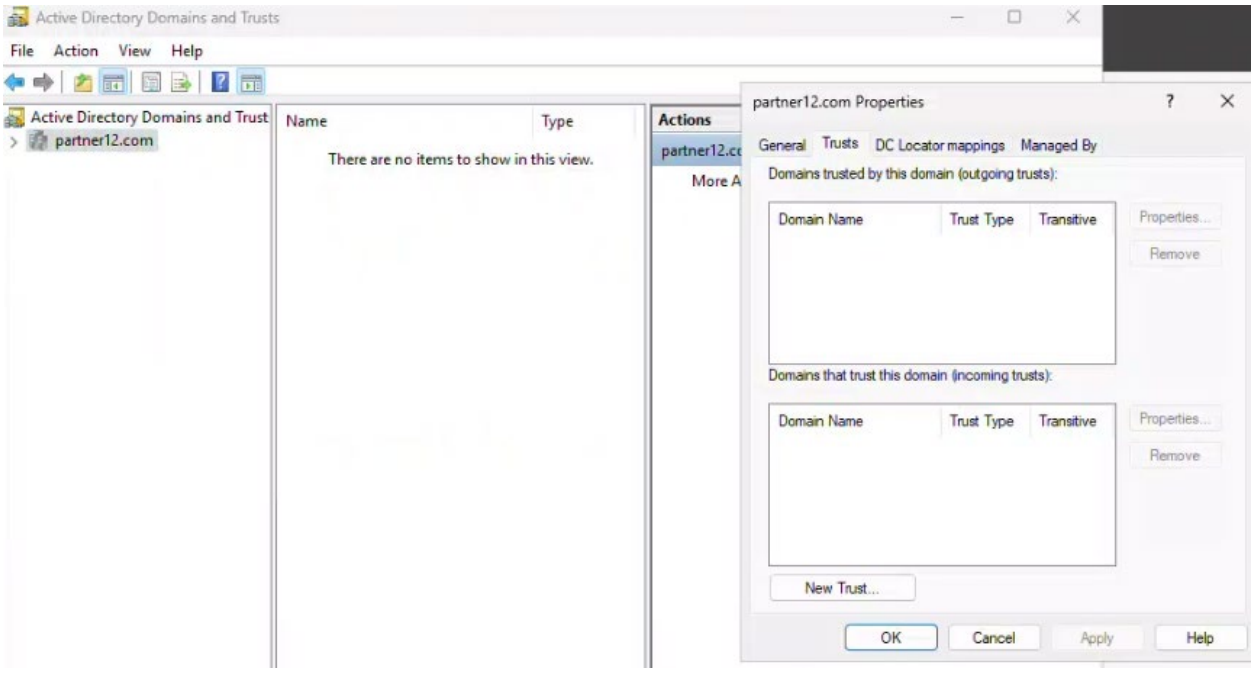
```
PS C:\Users\Administrator.DC112> Get-ADTrust -Filter * | Select-Object Name, Target, TrustType, TrustDirection

Name             Target           TrustType TrustDirection
----             ------           --------- --------------
lab12.vlabs12.com lab12.vlabs12.com   Uplevel


PS C:\Users\Administrator.DC112>
```

For detailed trust properties, use this command:

Get-ADTrust -Filter * | Format-List *

```
PS C:\Users\Administrator.DC112> Get-ADTrust -Filter * | Format-List *


Direction               : BiDirectional
DisallowTransivity      : False
DistinguishedName       : CN=lab12.vlabs12.com,CN=System,DC=vlabs12,DC=com
ForestTransitive        : False
IntraForest             : True
IsTreeParent            : False
IsTreeRoot              : False
Name                    : lab12.vlabs12.com
ObjectClass             : trustedDomain
ObjectGUID              : f0934e30-7ca5-405b-95bb-611b62a6b3a5
SelectiveAuthentication : False
SIDFilteringForestAware : False
SIDFilteringQuarantined : False
Source                  : DC=vlabs12,DC=com
Target                  : lab12.vlabs12.com
TGTDelegation           : False
TrustAttributes         : 32
TrustedPolicy           :
TrustingPolicy          :
TrustType               : Uplevel
UplevelOnly             : False
UsesAESKeys             : False
UsesRC4Encryption       : False
PropertyNames           : {Direction, DisallowTransivity, DistinguishedName, ForestTransitive...}
AddedProperties         : {}
RemovedProperties       : {}
ModifiedProperties      : {}
PropertyCount           : 23
```

Repeat these steps on DC412 to verify trusts on partner12.com



Partner12 doesn't yet have any trusts.

Verify using PowerShell:

Get-ADTrust -Filter * | Select-Object Name, Target, TrustType, TrustDirection

```
PS C:\Users\Administrator> Get-ADTrust -Filter * | Select-Object Name, Target, TrustType, TrustDirection
PS C:\Users\Administrator>
```

No trusts so nothing returns after the command input.

Task 4: Creating Trusts

1) Create DNS Conditional Forwarders to ensure both forests can resolve each other's domains.

- On the DNS server of DC112 create a Conditional Forwarder for partner12.com using PowerShell

- Verify using nslookup.

2) On the DNS server of DC412 create a Conditional Forwarder for vlabs12.com using GUI

- Verify using nslookup.

3) Using GUI:

- Create a Two-Way Transitive Forest Trust between vlabs12.com and partner12.com

4) Using PowerShell:

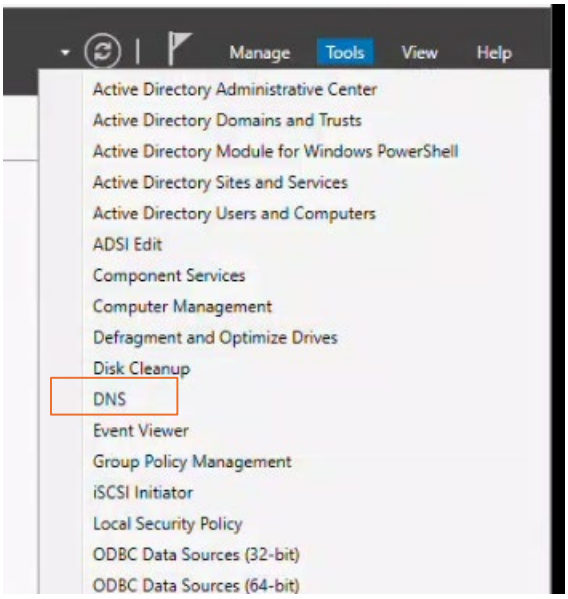
- Verify the Trust Status on both Servers.

On DC112, open PowerShell and use the following command:

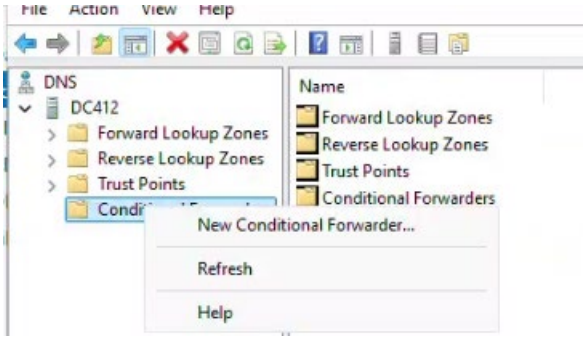
Add-DnsServerConditionalForwarderZone -Name "partner12.com" -MasterServers 192.168.35.1 -ReplicationScope Forest

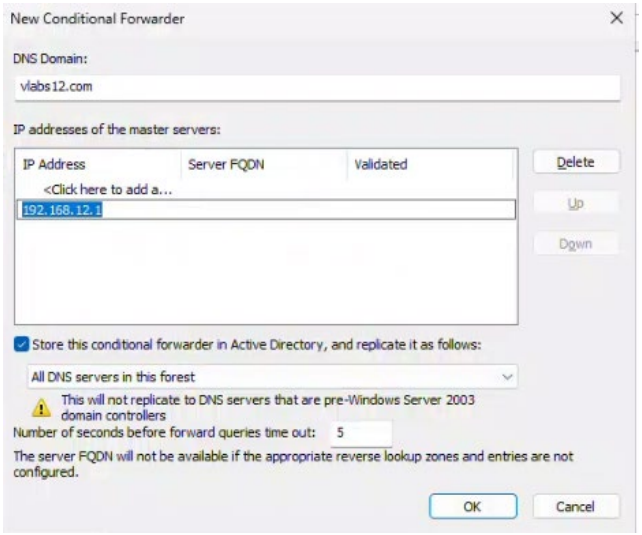
```
PS C:\Users\Administrator.DC112> Add-DnsServerConditionalForwarderZone -Name "partner12.com" -MasterServers 192.168.35.1 -ReplicationScope Forest
```

From DC412, use the GUI to set up a Conditional Forwarder.



Right click on Conditional Forwarders → New Conditional Forwarder





Nslookup from vlabs12.com from DC412

```
PS C:\Users\Administrator> nslookup vlabs12.com
DNS request timed out.
    timeout was 2 seconds.
Server:  UnKnown
Address:  192.168.35.1

Non-authoritative answer:
Name:    vlabs12.com
Address:  192.168.12.1

PS C:\Users\Administrator>
```

```
PS C:\Users\Administrator.DC412> nslookup dc112.vlabs12.com
DNS request timed out.
    timeout was 2 seconds.
Server:  UnKnown
Address:  192.168.35.1

Non-authoritative answer:
Name:    dc112.vlabs12.com
Address:  192.168.12.1

PS C:\Users\Administrator.DC412>
```

Nslookup partner12.com fro

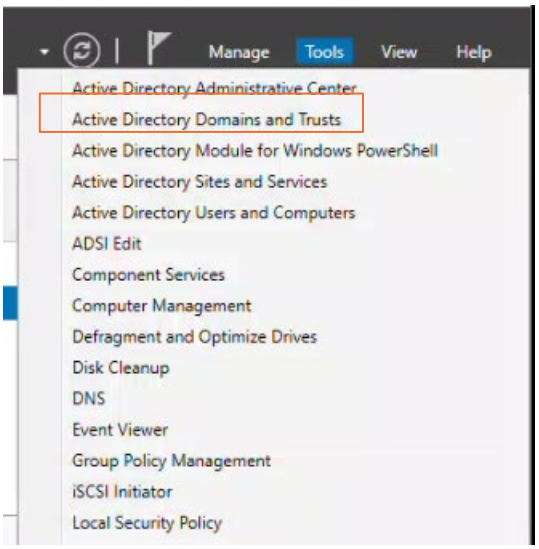
```
PS C:\Users\Administrator.DC112> nslookup dc412.partner12.com
DNS request timed out.
    timeout was 2 seconds.
Server:  UnKnown
Address:  192.168.12.1

Non-authoritative answer:
Name:    dc412.partner12.com
Address:  192.168.35.1

PS C:\Users\Administrator.DC112>
```

m DC112

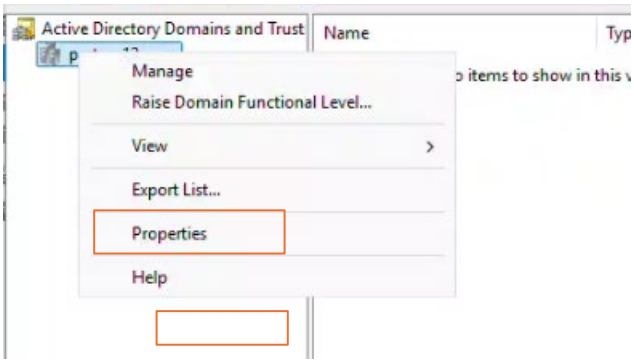
```
PS C:\Users\Administrator.DC112> nslookup partner12.com
DNS request timed out.
    timeout was 2 seconds.
Server:  UnKnown
Address:  192.168.12.1

Non-authoritative answer:
Name:    partner12.com
Address:  192.168.35.1

PS C:\Users\Administrator.DC112>
```

Create a Two-Way Transitive Forest Trust between vlabs12.com and partner12.com

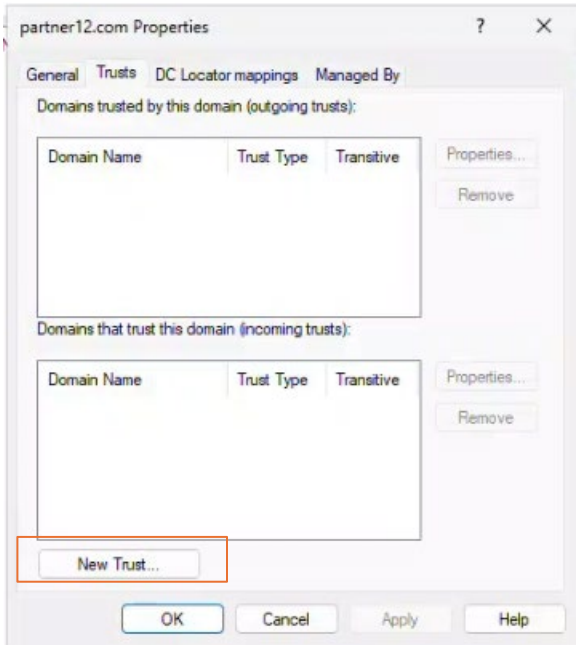
On DC412, open Active Directory Domains and Trusts



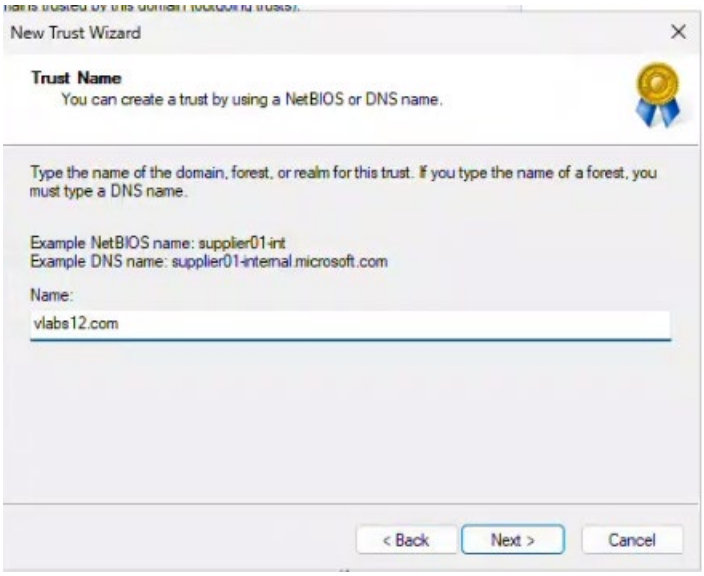
Right-click on Properties→ Trusts



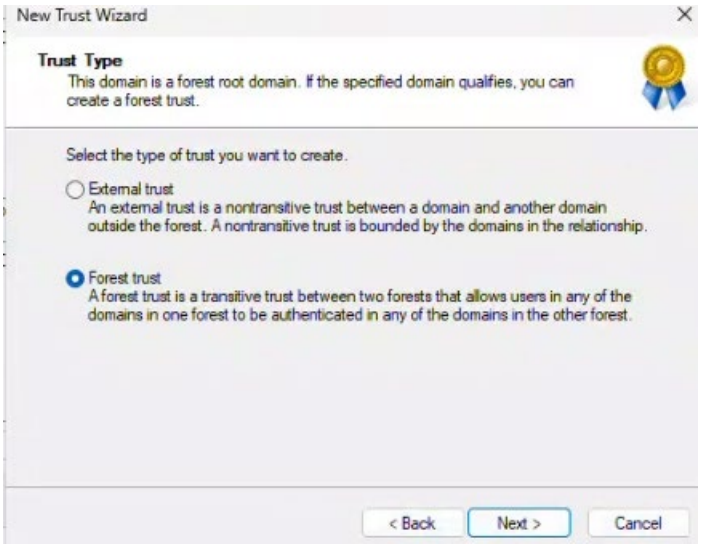
Click on “New Trust”



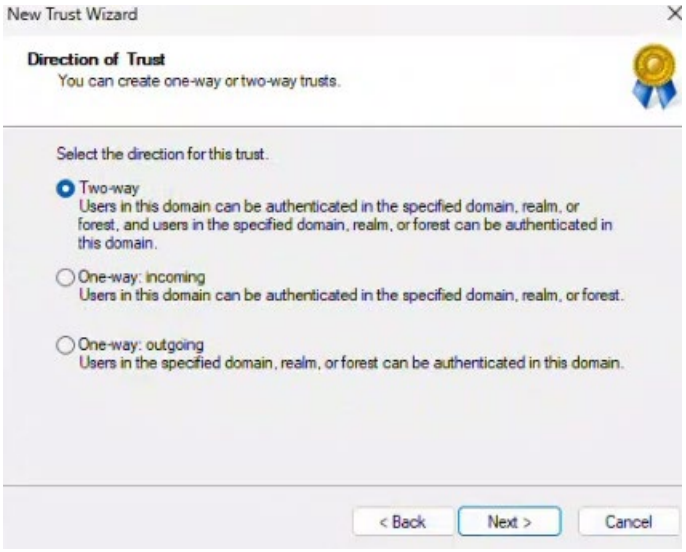
The Wizard will open. Click on Next → then enter vlabs12.com → Next



For trust type, select “Forest Trust” → Next

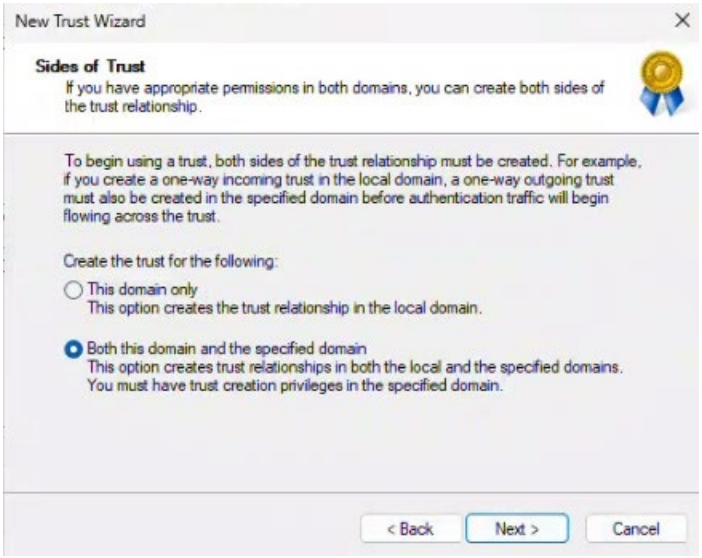


Select Two-Way → Next

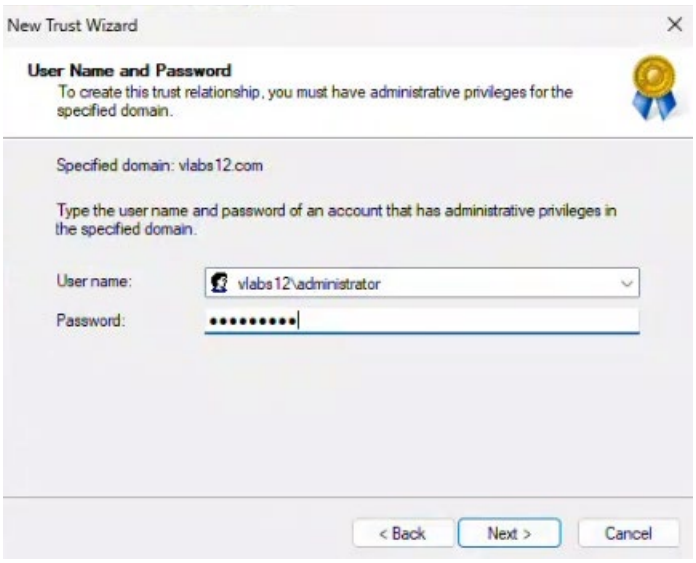


Both this domain and the specified domain → Next

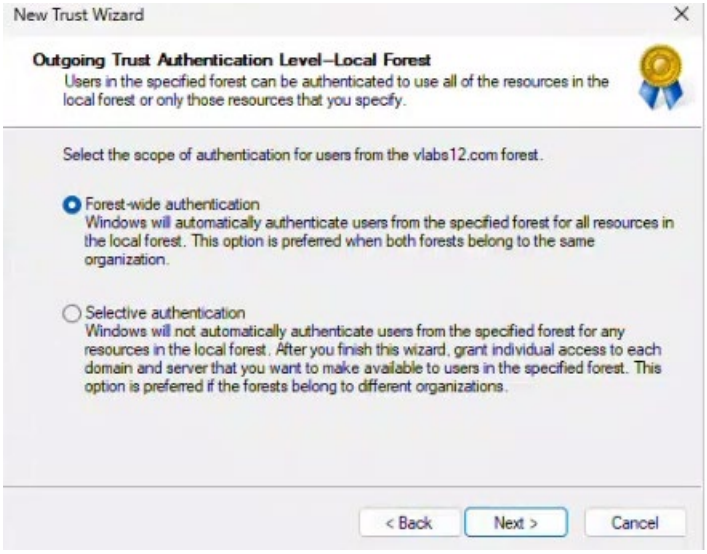
*Normally the option “this domain only” is chosen because the administrator from the other domain will create the trust on their end. Since we are also the administrator for vlabs12, we’ll save time and do it both ways at once.



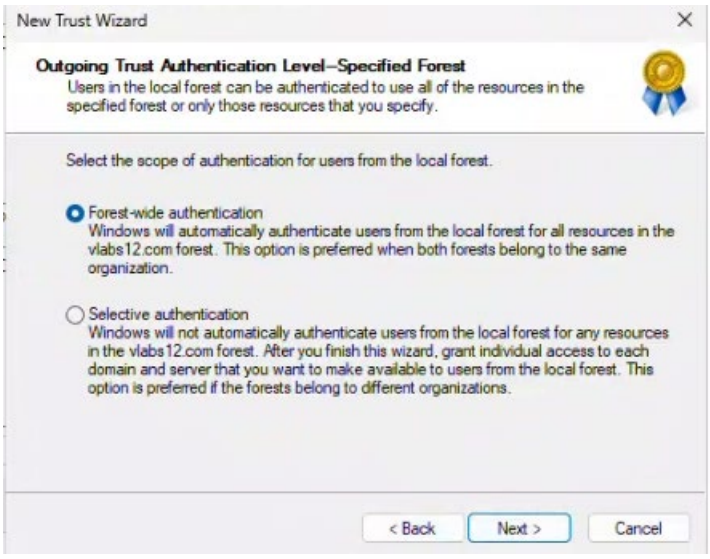
Enter the username and password for vlabs12.com

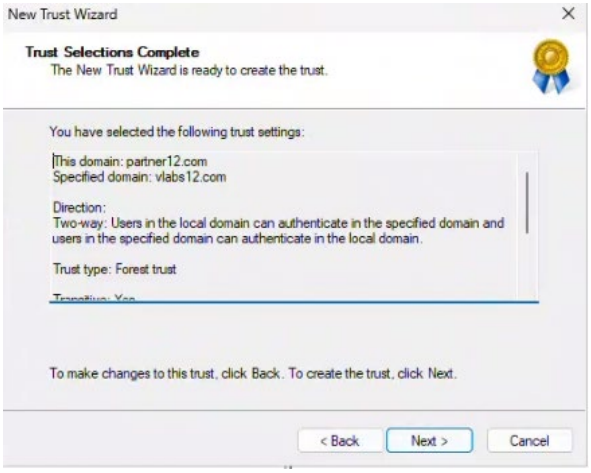


Select Forest-wide authentication. Again, in real life scenario, this is not recommended because it authenticates everyone automatically. For lab purposes, it's fine.



Choose the same option for the vlabs12.com domain





Verify everything is set up correctly and click next and finish.

Using PowerShell, verify the trust status on both servers

From DC112:

```
PS C:\Users\Administrator.DC112> Get-ADTrust -Filter * | Select-Object Name, Target, TrustType, Direction

Name              Target            TrustType     Direction
----              ------            ---------     ---------
lab12.vlabs12.com lab12.vlabs12.com   Uplevel BiDirectional
partner12.com     partner12.com       Uplevel BiDirectional


PS C:\Users\Administrator.DC112>
```

From DC412:

```
PS C:\Users\Administrator> Get-ADTrust -Filter * | Select-Object Name, Target, TrustType, Direction

Name         Target       TrustType     Direction
----         ------       ---------     ---------
vlabs12.com vlabs12.com   Uplevel BiDirectional


PS C:\Users\Administrator>
```

Task 5: Testing Trust Between Two Forests

1) **On DC412.partner12.com:**

   -Create a new user in partnerXX.com → Pierre Lima / Passw0rd$

2) **On DC212.vlabs12.com (Windows Server Core, RODC):**

   -Verify the trust relationship with partner12.com using PowerShell.

   -Create a folder C:\Secret

   -Share C:\Secret and assign permissions Read/Write to p.lima@partner12.com.

-Verify the shared folder and NTFS permissions.

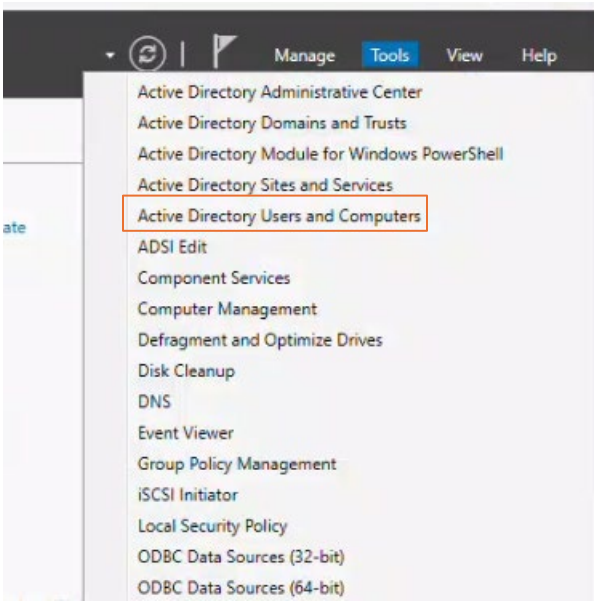
3) **From ClientXX:**

   -Log in with Pierre Lima from partner12.com

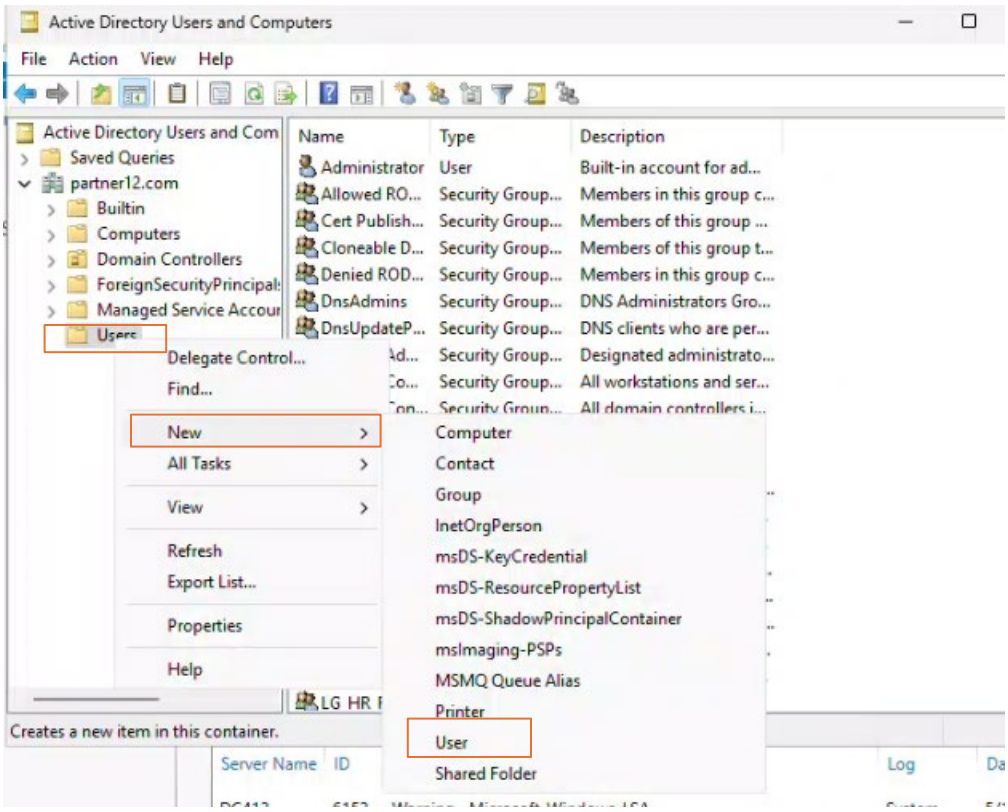
   -Map the shared folder \\DC2XX\Secret as drive S:

   -Test file creation and access.

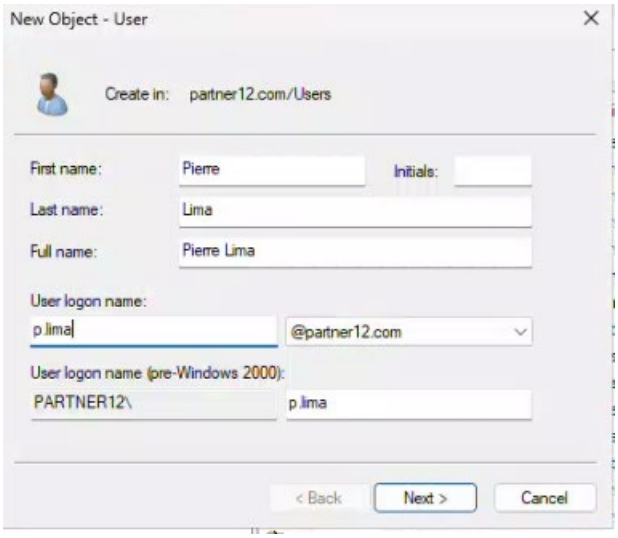
On DC412, create the user Pierre Lima using Active Directory Users and Computers



Open the dropdown menu of partner12.com → Users → New → User

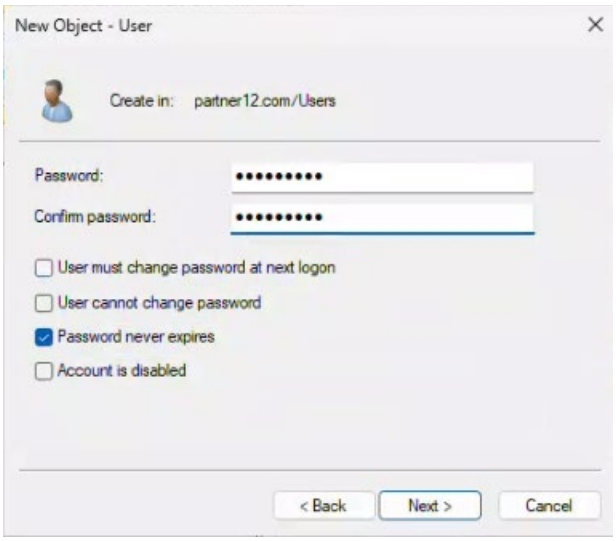


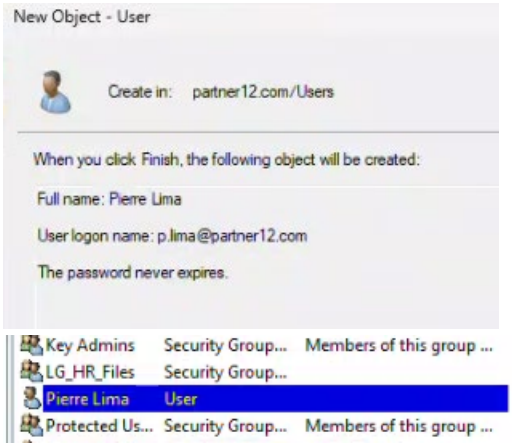
Enter Pierre Lima, p.lima for user logon



Use the password “Passw0rd$”

For lab purposes we’ll choose “password never expires”. Not to be done in real environments.





On DC212.vlabs12.com (Windows Server Core, RODC), verify the trust with partner12.com

Get-ADTrust -Filter {Name -eq "partner12.com"}

```
PS C:\Users\Administrator.VLABS12.000> Get-ADTrust -Filter {Name -eq "partner12.com"}


Direction               : BiDirectional
DisallowTransivity      : False
DistinguishedName       : CN=partner12.com,CN=System,DC=vlabs12,DC=com
ForestTransitive        : True
IntraForest             : False
IsTreeParent            : False
IsTreeRoot              : False
Name                    : partner12.com
ObjectClass             : trustedDomain
ObjectGUID              : d70e2129-ef73-494d-954c-525249c30eb9
SelectiveAuthentication : False
SIDFilteringForestAware : False
SIDFilteringQuarantined : False
Source                  : DC=vlabs12,DC=com
Target                  : partner12.com
TGTDelegation           : False
TrustAttributes         : 8
TrustedPolicy           :
TrustingPolicy          :
TrustType               : Uplevel
UplevelOnly             : False
UsesAESKeys             : False
UsesRC4Encryption       : False


PS C:\Users\Administrator.VLABS12.000> _
```

Get-ADTrust -Identity "partner12.com" | Format-List *

```
PS C:\Users\Administrator.VLABS12.000> Get-ADTrust -Identity "partner12.com" | Format-List *


Direction               : BiDirectional
DisallowTransivity      : False
DistinguishedName       : CN=partner12.com,CN=System,DC=vlabs12,DC=com
ForestTransitive        : True
IntraForest             : False
IsTreeParent            : False
IsTreeRoot              : False
Name                    : partner12.com
ObjectClass             : trustedDomain
ObjectGUID              : d70e2129-ef73-494d-954c-525249c30eb9
SelectiveAuthentication : False
SIDFilteringForestAware : False
SIDFilteringQuarantined : False
Source                  : DC=vlabs12,DC=com
Target                  : partner12.com
TGTDelegation           : False
TrustAttributes         : 8
TrustedPolicy           :
TrustingPolicy          :
TrustType               : Uplevel
UplevelOnly             : False
UsesAESKeys             : False
UsesRC4Encryption       : False
PropertyNames           : {Direction, DisallowTransivity, DistinguishedName, ForestTransitive...}
AddedProperties         : {}
RemovedProperties       : {}
```

Create a folder C:\Secret

New-Item -Path "C:\Secret" -ItemType Directory -Force

```
PS C:\Users\Administrator.VLABS12.000> New-Item -Path "C:\Secret" -ItemType Directory -Force


    Directory: C:\


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----         5/13/2025   6:54 PM                Secret


PS C:\Users\Administrator.VLABS12.000>
```

Share the folder and authorize pierre lima (p.lima) from partner12.com

```
PS C:\Users\Administrator.VLABS12.000>
PS C:\Users\Administrator.VLABS12.000> New-SmbShare -Name "Secret" -Path "C:\Secret" -FullAccess "p.lima@partner12.com"

Name   ScopeName Path      Description
----   --------- ----      -----------
Secret *         C:\Secret


PS C:\Users\Administrator.VLABS12.000>
```

Set permissions for the folder and assign read/write permissions for pierre

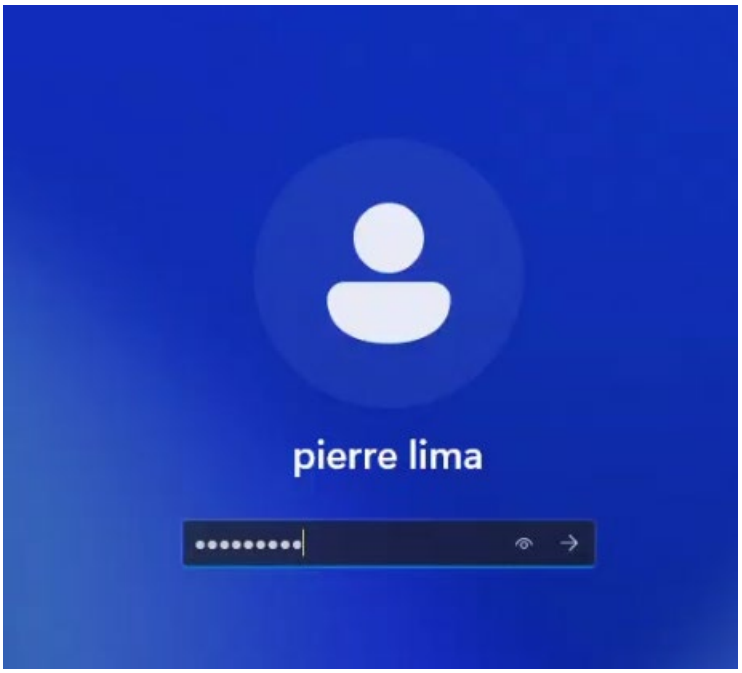
```
PS C:\Users\Administrator.VLABS12.000> $acl = Get-Acl "C:\Secret"
PS C:\Users\Administrator.VLABS12.000> $rule = New-Object System.Security.AccessControl.FileSystemAccessRule("p.lima@par
tner12.com", "Modify", "ContainerInherit,ObjectInherit", "None", "Allow")
PS C:\Users\Administrator.VLABS12.000>   $acl.AddAccessRule($rule)
PS C:\Users\Administrator.VLABS12.000>   Set-Acl "C:\Secret" $acl
PS C:\Users\Administrator.VLABS12.000> Get-SmbShare -Name "Secret" | Format-List *
```

Verify that pierre has full permissions

```
PS C:\Users\Administrator.VLABS12.000> Get-SmbShareAccess -Name "Secret"

Name   ScopeName AccountName      AccessControlType AccessRight
----   --------- -----------      ----------------- -----------
Secret *         PARTNER12\p.lima Allow             Full


PS C:\Users\Administrator.VLABS12.000>
```

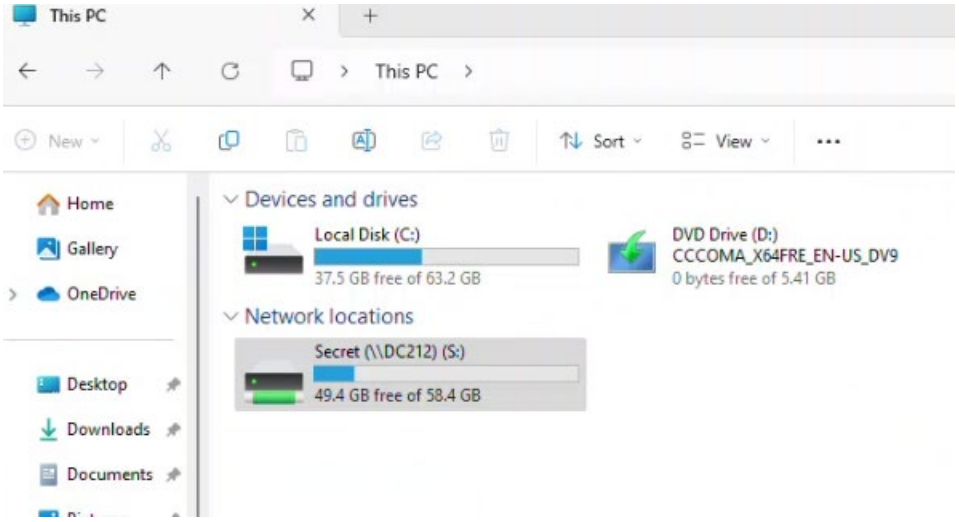
Test from Client12

Log in as p.lima@partner12.com

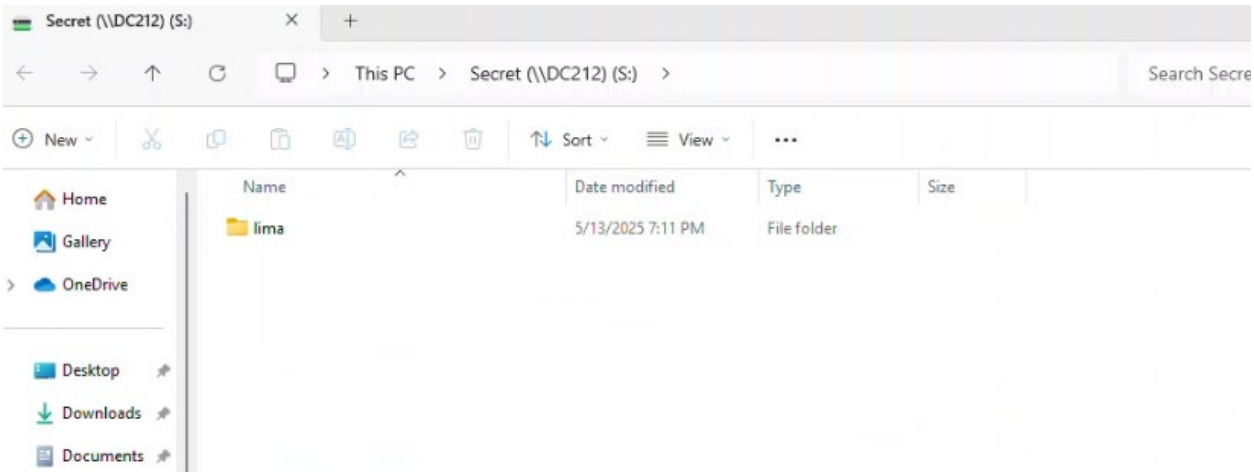


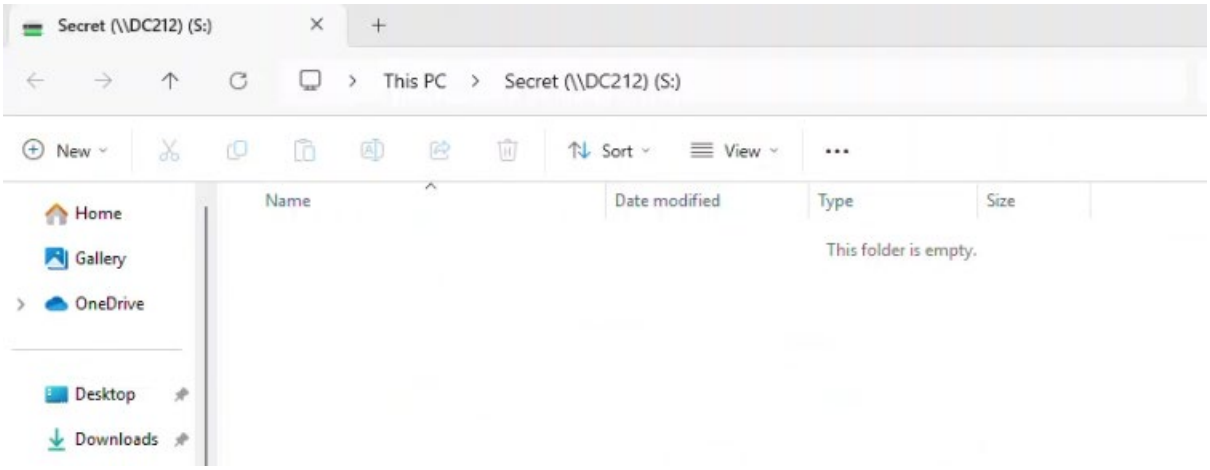
Search for the Secret folder shared by DC212

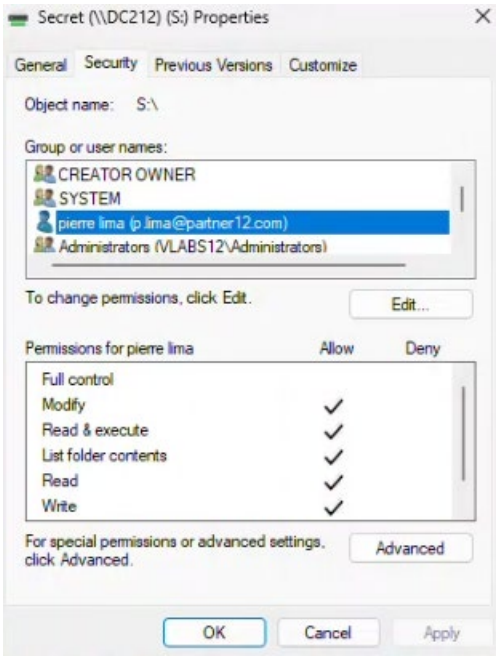
Map the drive to S:



Try to create a file (it must work).


Secret (\\DC212) (S:)
This PC
Secret (\\DC212) (S:)
Search Secre
New
Sort
View
Home
Gallery
OneDrive
Desktop
Downloads
Documents
Name
Date modified
Type
Size
lima
5/13/2025 7:11 PM
File folder

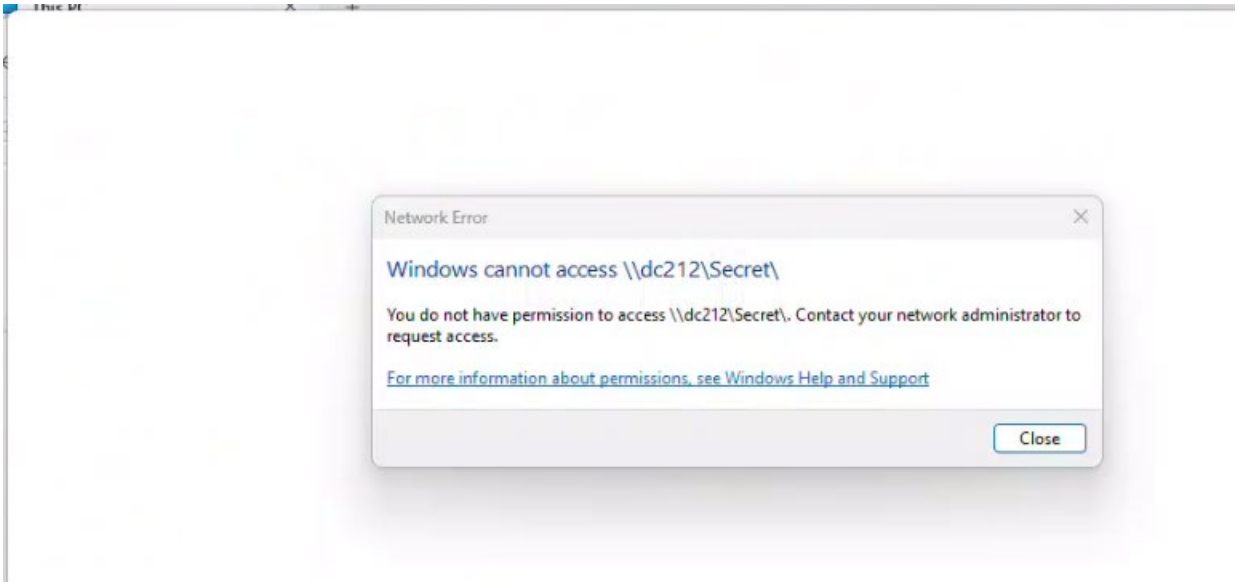

Secret (\\DC212) (S:)
This PC
Secret (\\DC212) (S:)
New
Sort
View
Home
Gallery
OneDrive
Desktop
Downloads
Name
Date modified
Type
Size
This folder is empty.

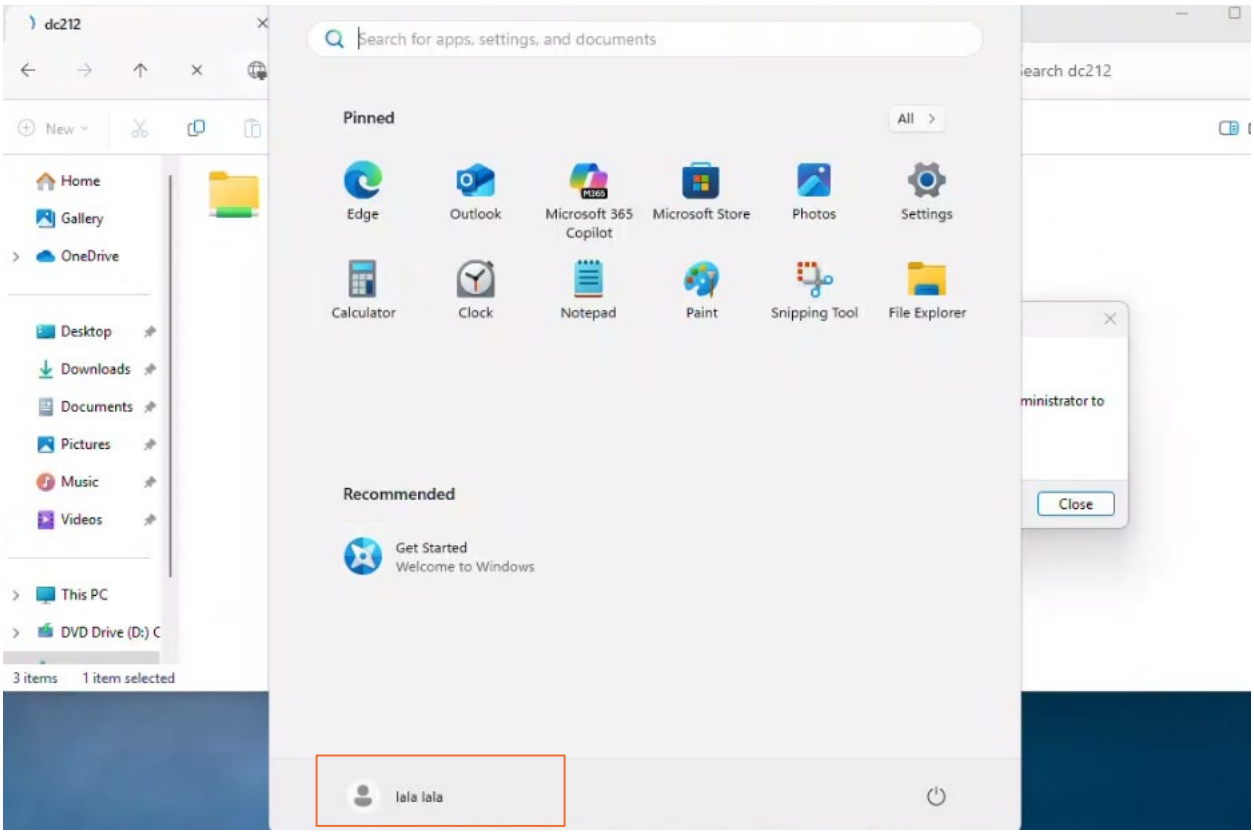

Secret (\\DC212) (S:) Properties
General
Security
Previous Versions
Customize
Object name: S:\
Group or user names:
CREATOR OWNER
SYSTEM
pierre lima (p.lima@partner12.com)
Administrators (VLABS12\Administrators)
To change permissions, click Edit.
Edit...
Permissions for pierre lima
Allow
Deny
Full control
Modify
Read & execute
List folder contents
Read
Write
For special permissions or advanced settings, click Advanced.
Advanced
OK
Cancel
Apply

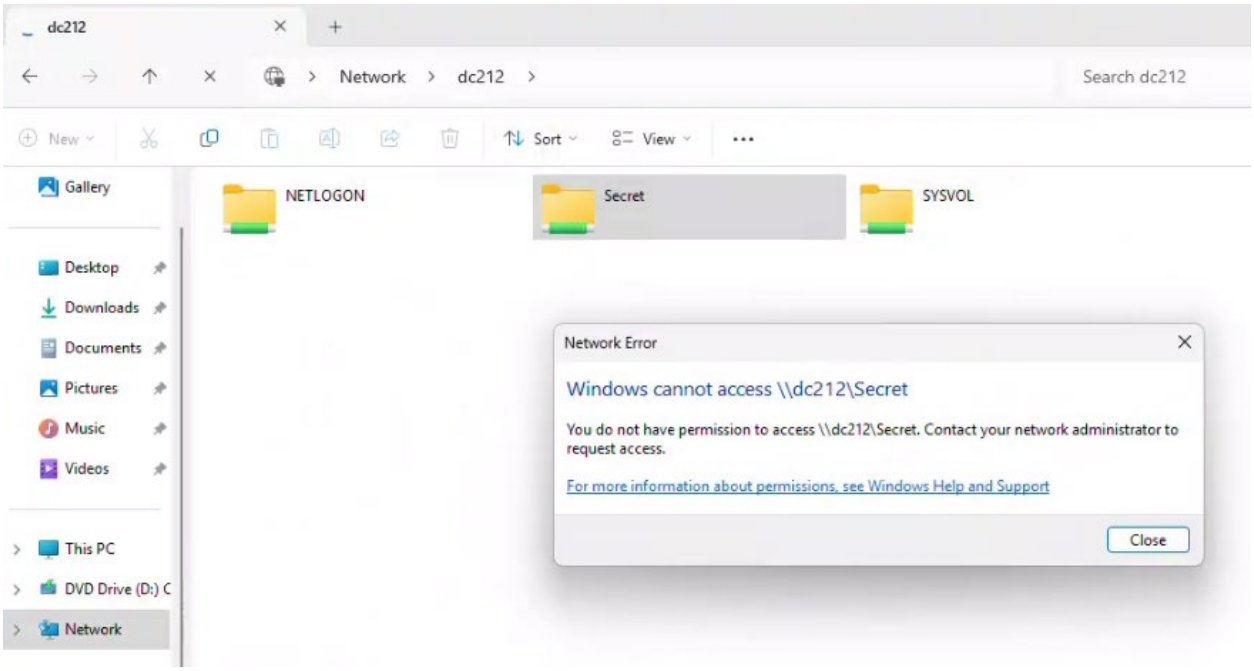
Everything is working as it should.

I even created a random user in partner12.com to verify that they'd have no access.

Can't map the drive.




dc212
Search for apps, settings, and documents
Pinned
All
Edge
Outlook
Microsoft 365 Copilot
Microsoft Store
Photos
Settings
Calculator
Clock
Notepad
Paint
Snipping Tool
File Explorer
Recommended
Get Started
Welcome to Windows
lala lala
Home
Gallery
OneDrive
Desktop
Downloads
Documents
Pictures
Music
Videos
This PC
DVD Drive (D:) C
3 items
1 item selected
Close


dc212
Network
dc212
Search dc212
New
Sort
View
Gallery
NETLOGON
Secret
SYSVOL
Desktop
Downloads
Documents
Pictures
Music
Videos
This PC
DVD Drive (D:) C
Network
Network Error
Windows cannot access \\dc212\Secret
You do not have permission to access \\dc212\Secret. Contact your network administrator to request access.
For more information about permissions, see Windows Help and Support
Close

LAB ASSIGNMENT 1

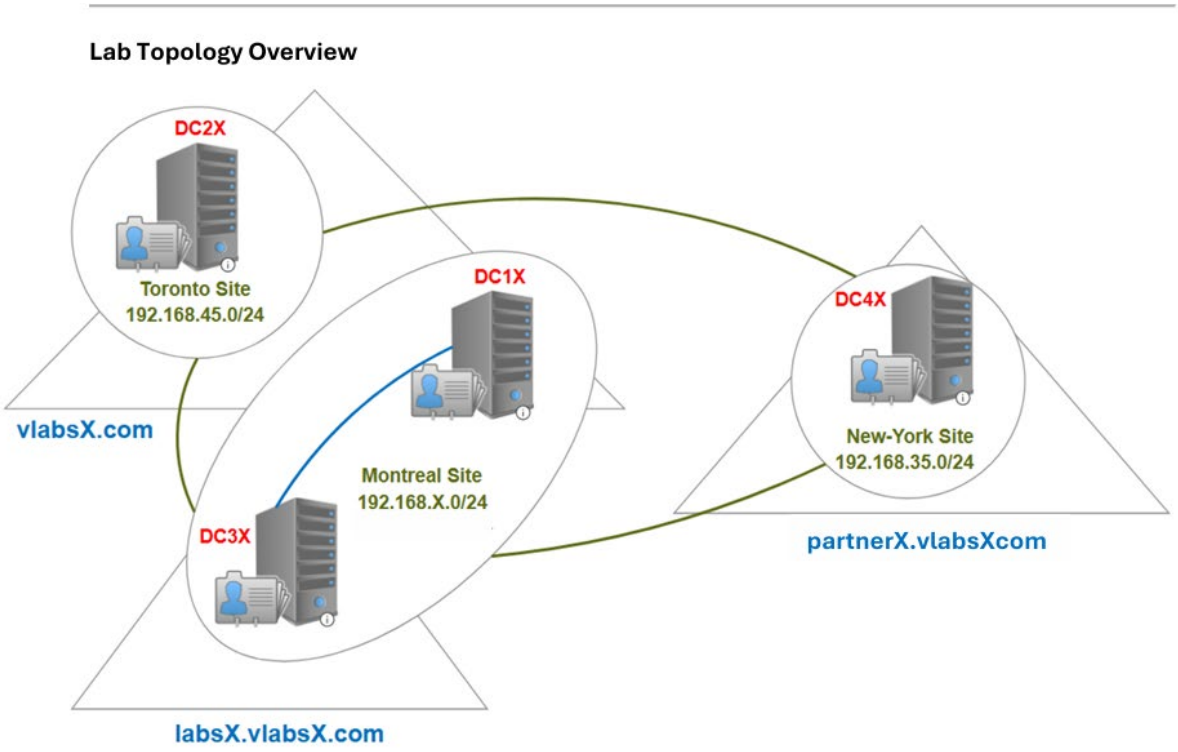
Part 2

MAY 14, 2025

NETWORK INSTALLATION AND ADMINISTRATION II

Laetitia Mohammed, 0931512

Contents



Task 1: Configuring DC212

Start the **DC212 VM**.

After starting and login into DC212, open its VM Settings, modify the **LAN segment to LAN3**.

Change the NIC IP address to **192.168.45.1/24** with default gateway to **192.168.45.50.**

Keep the **DNS IP address as it is → 192.168.12.1**

Ping the default gateway **192.168.45.50** and **192.168.12.1**

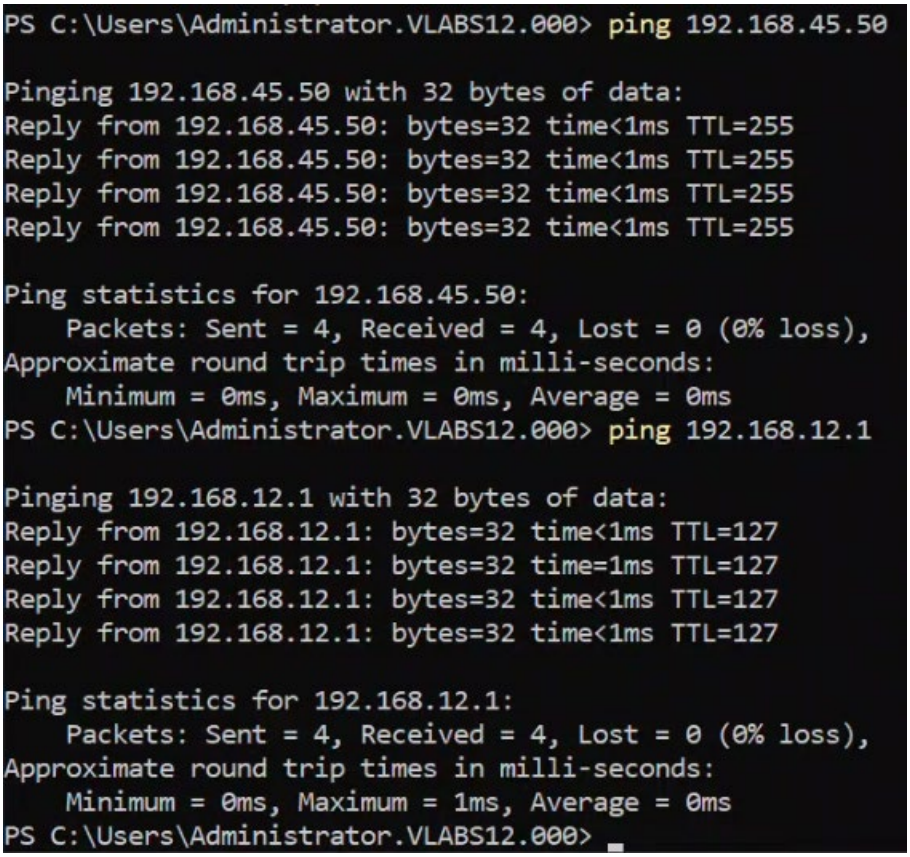
netsh interface ipv4 set address name="Ethernet0" static 192.168.45.1 255.255.255.0 192.168.45.50

```
WARNING: To launch Server Configuration tool again, run "SConfig"
PS C:\Users\Administrator.VLABS12.000> netsh interface ipv4 set address name="Ethernet0" static 192.168.45.1 255.255.255
.0 192.168.45.50
```

Ipconfig /all

```
PS C:\Users\Administrator.VLABS12.000> ipconfig /all

Windows IP Configuration

   Host Name . . . . . . . . . . . . : DC212
   Primary Dns Suffix  . . . . . . . : vlabs12.com
   Node Type . . . . . . . . . . . . : Hybrid
   IP Routing Enabled. . . . . . . . : No
   WINS Proxy Enabled. . . . . . . . : No
   DNS Suffix Search List. . . . . . : vlabs12.com

Ethernet adapter Ethernet0:

   Connection-specific DNS Suffix  . :
   Description . . . . . . . . . . . : Intel(R) 82574L Gigabit Network Connection
   Physical Address. . . . . . . . . : 00-0C-29-63-DE-31
   DHCP Enabled. . . . . . . . . . . : No
   Autoconfiguration Enabled . . . . : Yes
   Link-local IPv6 Address . . . . . : fe80::c2b6:464a:e6f3:d4a9%6(Preferred)
   IPv4 Address. . . . . . . . . . . : 192.168.45.1(Preferred)
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.45.50
   DHCPv6 IAID . . . . . . . . . . . : 100666409
   DHCPv6 Client DUID. . . . . . . . : 00-01-00-01-2F-AA-DC-85-00-0C-29-63-DE-31
   DNS Servers . . . . . . . . . . . : ::1
                                       192.168.12.1
   NetBIOS over Tcpip. . . . . . . . : Enabled
PS C:\Users\Administrator.VLABS12.000> _
```

Ping the default gateway 192.168.45.50 and the DNS server 192.168.12.1



Task 2: Configuring DC412

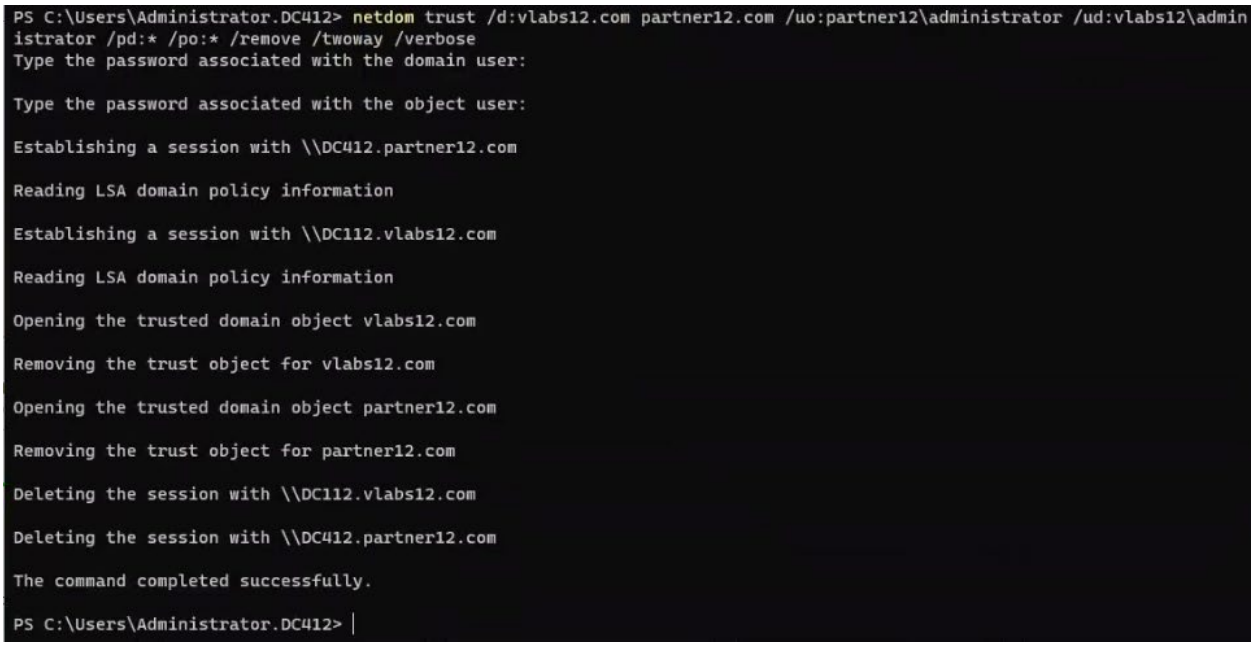
For legal and operational reasons, the company has decided to integrate the previously independent partner12.com into the existing vlabs12.com forest. A new child domain called partner12.vlabs12.com must be created.

From DC412 remove the two-way trust with vlabs12.com

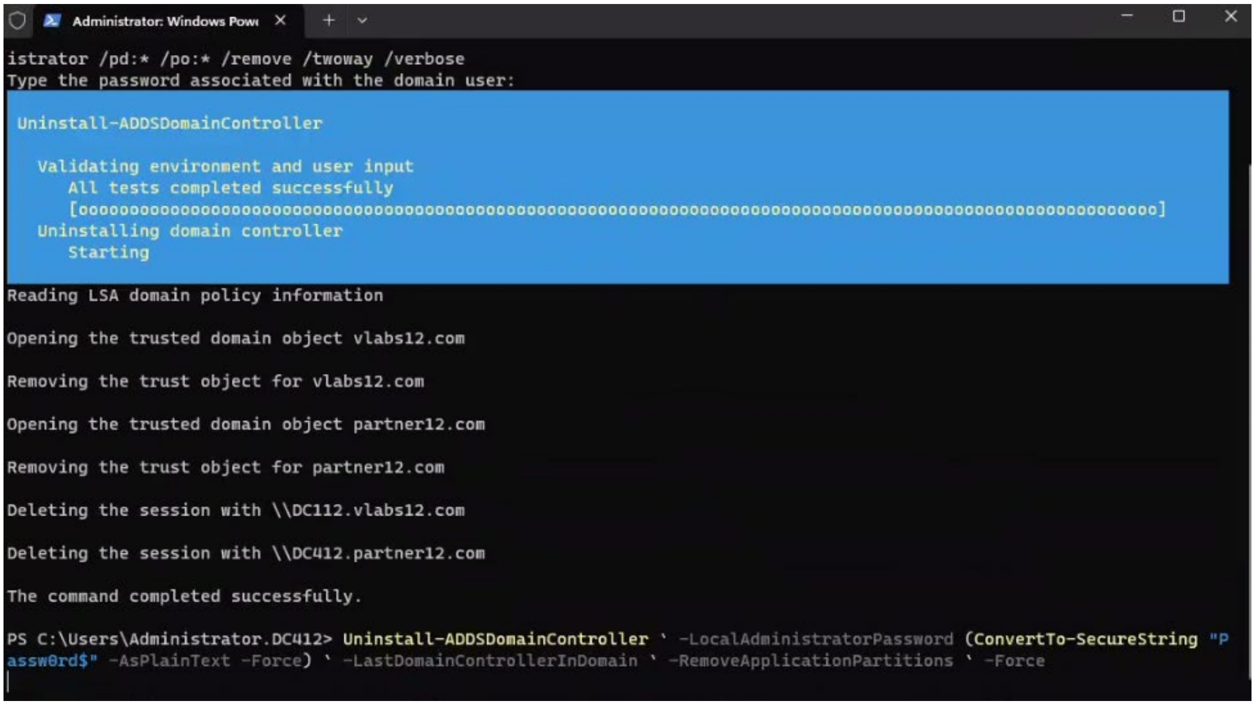
Demote DC4XX

On DC412, use PowerShell to remove the two-way trust between partner12.com and vlabs12.com using the following:

netdom trust /d:vlabs12.com partner12.com /uo:partner12\administrator /ud:vlabs12\administrator /pd:* /po:* /remove /twoway /verbose

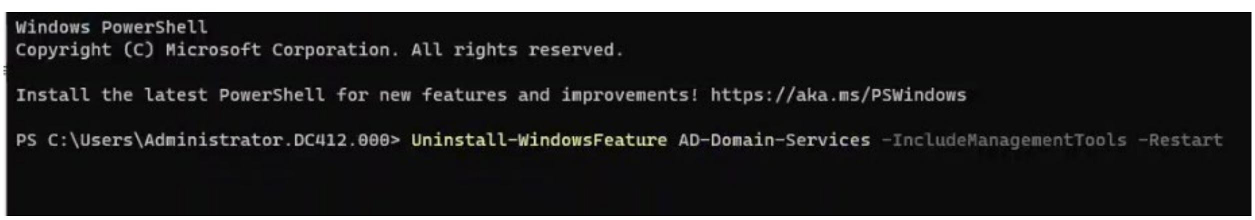


We need to demote DC412 because we'll be adding it to the DCs of vlabs12, as a child domain.



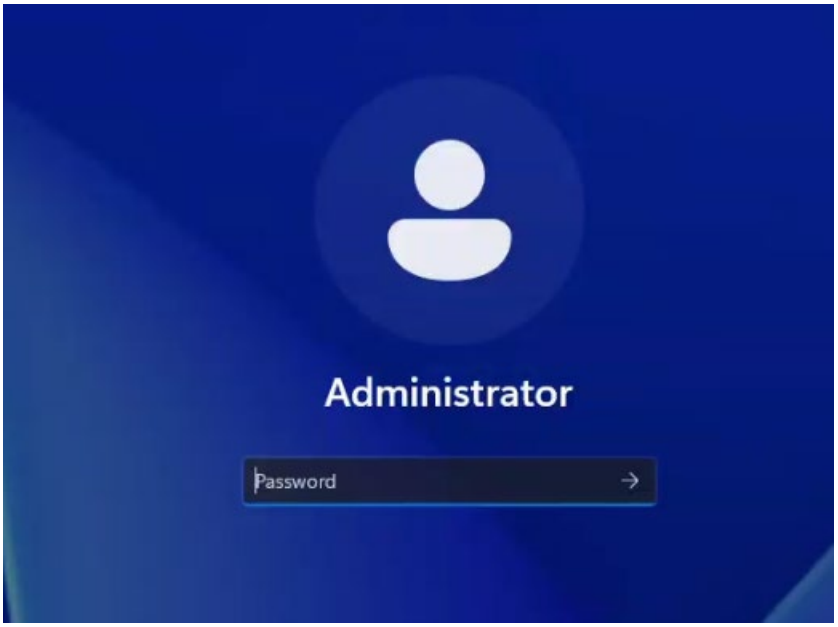
After restarting, remove the AD Domain Service role

Uninstall-WindowsFeature AD-Domain-Services -IncludeManagementTools -Restart



Wait until the server restarts on it’s own

Sign in with the administrator credentials



After restarting, modify the DNS IP address to 192.168.12.1 and disable IPv6

netsh interface ip add dns name="Ethernet0" 192.168.12.1 index=1

Disable-NetAdapterBinding -Name "Ethernet0" -ComponentID ms_tcpip6

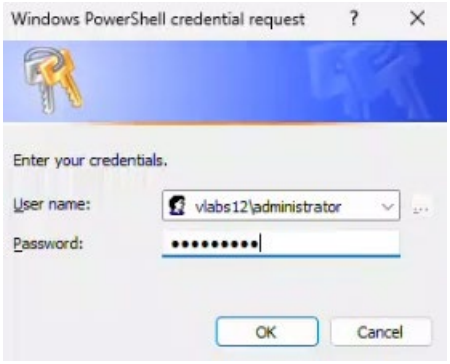
```
PS C:\Users\Administrator.DC412.000> netsh interface ip add dns name="Ethernet0" 192.168.12.1 index=1

PS C:\Users\Administrator.DC412.000> Disable-NetAdapterBinding -Name "Ethernet0" -ComponentID ms_tcpip6
PS C:\Users\Administrator.DC412.000>
```

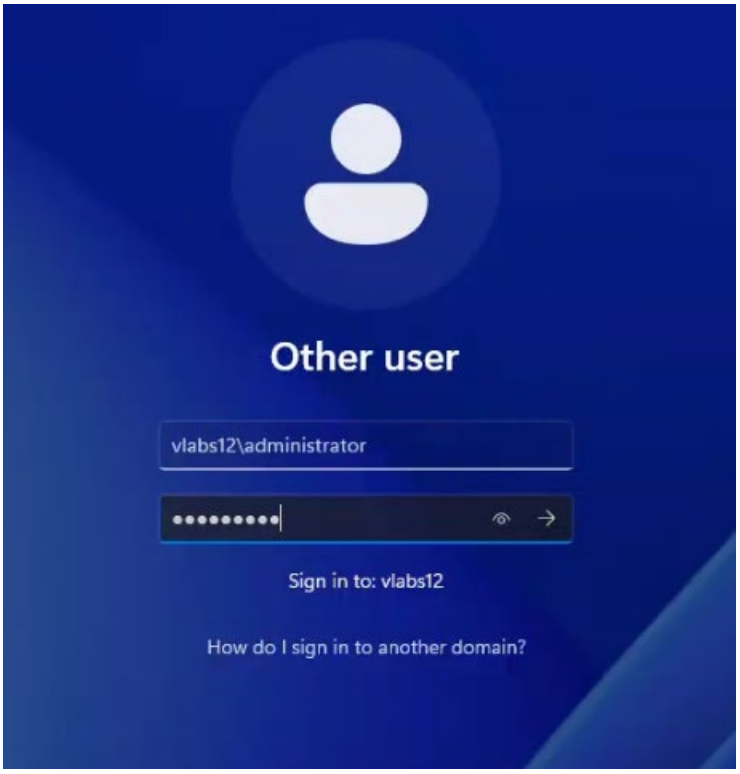
Ping the DNS Server 192.168.X.1 and nslookup vlabs12.com before doing next step

```
PS C:\Users\Administrator.DC412.000> ping 192.168.12.1

Pinging 192.168.12.1 with 32 bytes of data:
Reply from 192.168.12.1: bytes=32 time<1ms TTL=127
Reply from 192.168.12.1: bytes=32 time<1ms TTL=127
Reply from 192.168.12.1: bytes=32 time<1ms TTL=127
Reply from 192.168.12.1: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.12.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\Administrator.DC412.000> nslookup vlabs12.com
DNS request timed out.
    timeout was 2 seconds.
Server:  UnKnown
Address:  192.168.12.1

DNS request timed out.
    timeout was 2 seconds.
DNS request timed out.
    timeout was 2 seconds.
Name:    vlabs12.com
Address:  192.168.12.1

PS C:\Users\Administrator.DC412.000>
```

Join the server DC412 to the domain vlabs12.com using PowerShell

```
PS C:\Users\Administrator.DC412.000> Add-Computer -DomainName vlabs12.com -Credential vlabs12\administrator -Verbose Res
tart -Force
```





Create a new child domain partner12.vlabs12.com using PowerShell

Install-ADDSDomain `

-NewDomainName "partner12" `

-ParentDomainName "vlabs12.com" `

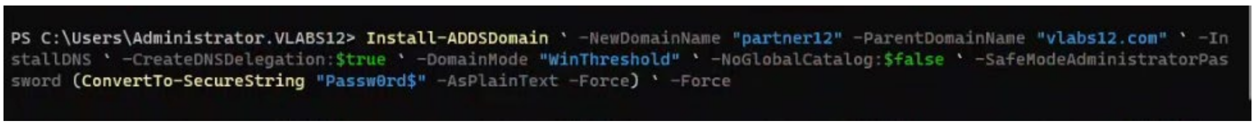
-InstallDNS `

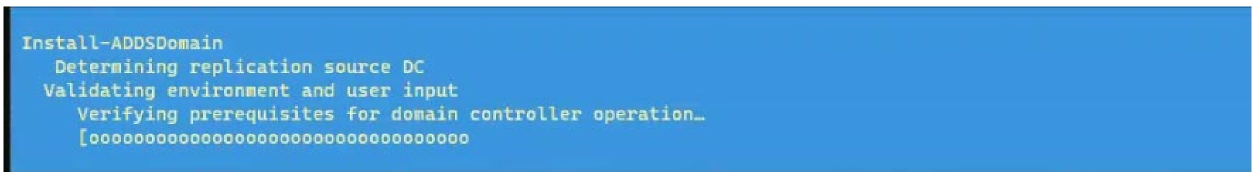
-CreateDNSDelegation:$true `

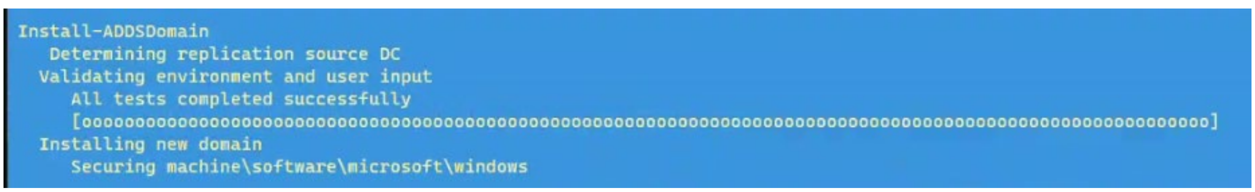
-DomainMode "WinThreshold" `

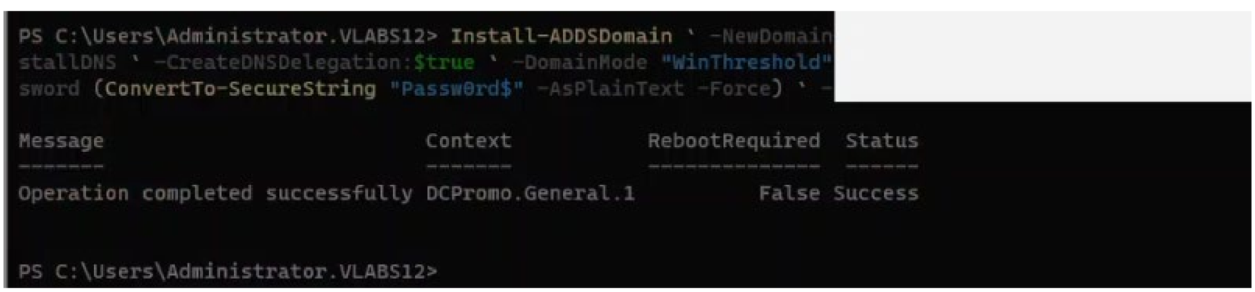
-NoGlobalCatalog:$false `

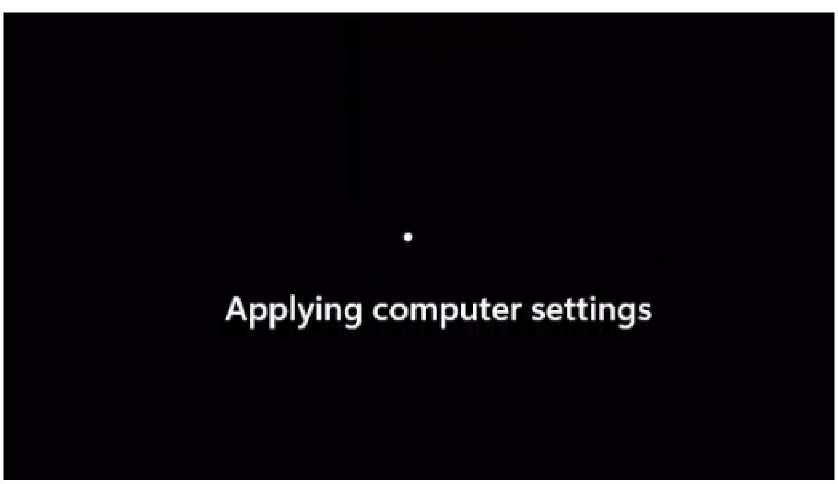
-Force



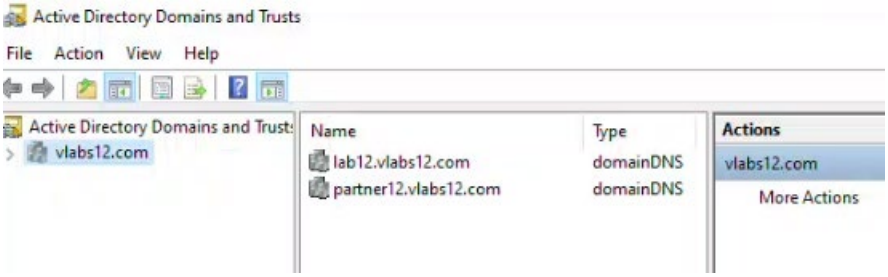








On DC112, we can see partner12.vlabs12.com under domains and trusts



Task 3: Managing the Connections Objects

Using GUI:

List the automatically created Connection Objects on DC112.

Replicate manually to DC312.

Delete this Connection object to DC312.

Recreate it again using the KCC to regenerate it automatically.

Using PowerShell:

Replicate manually to DC412.

Delete this Connection object to DC312.

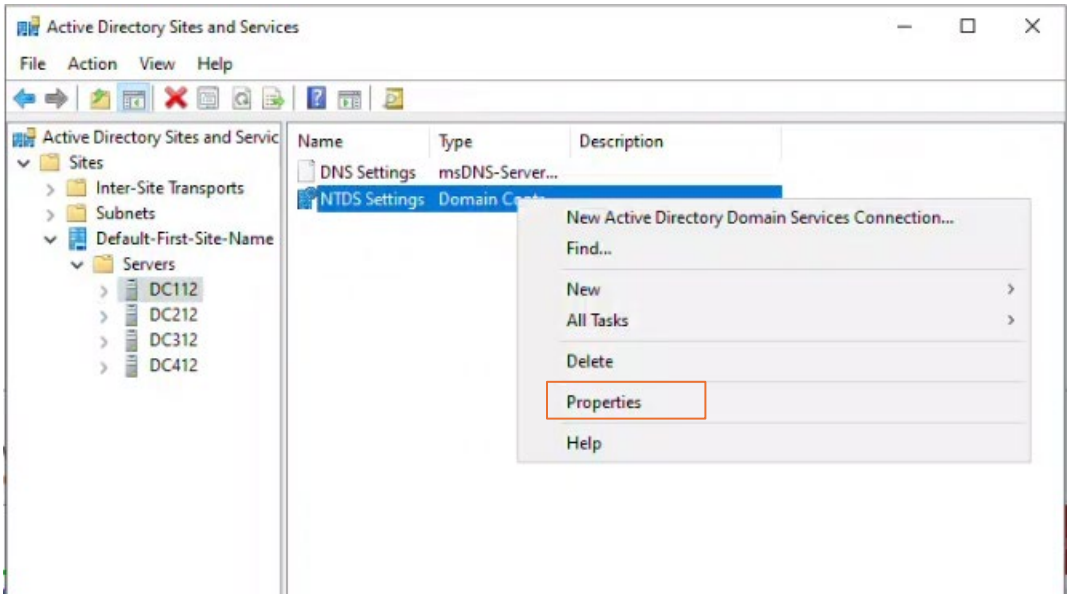
Recreate it again using the KCC to regenerate it automatically and verify that it is created.

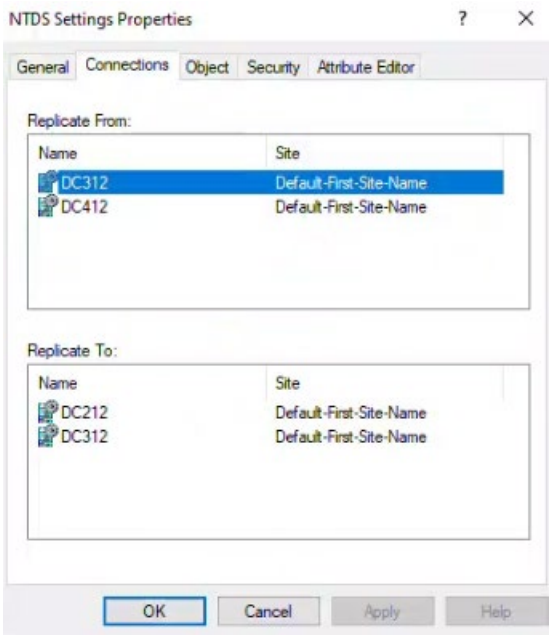
Open Event Viewer to list the KCC events and verify if there are any errors.

On DC112, open Active Directory Sites and Services

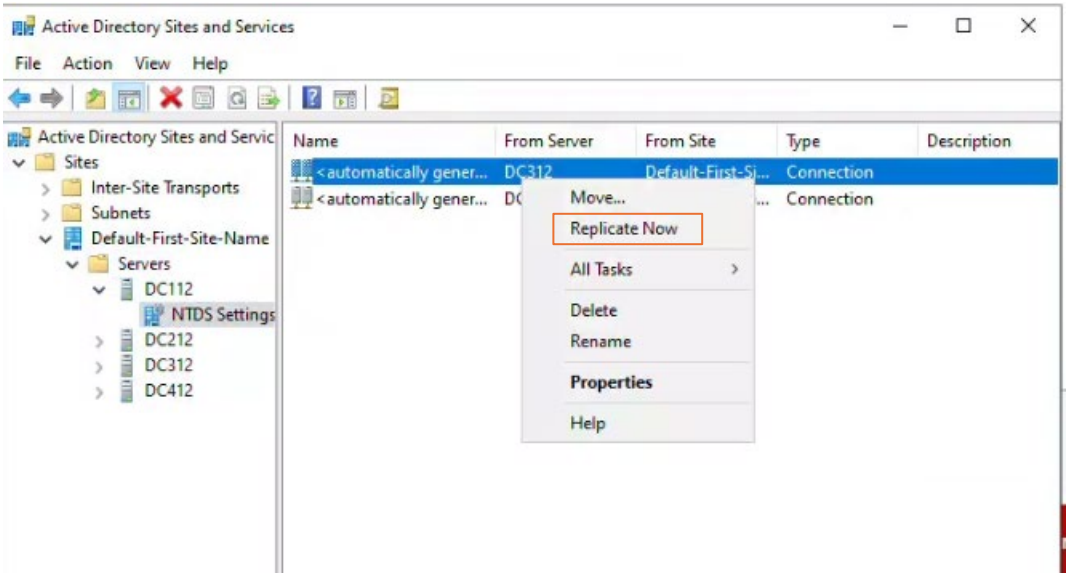
Go to Sites → Default-First-Site-Name → Servers – DC112

Right-click on NTDS Settings → Properties → Connections

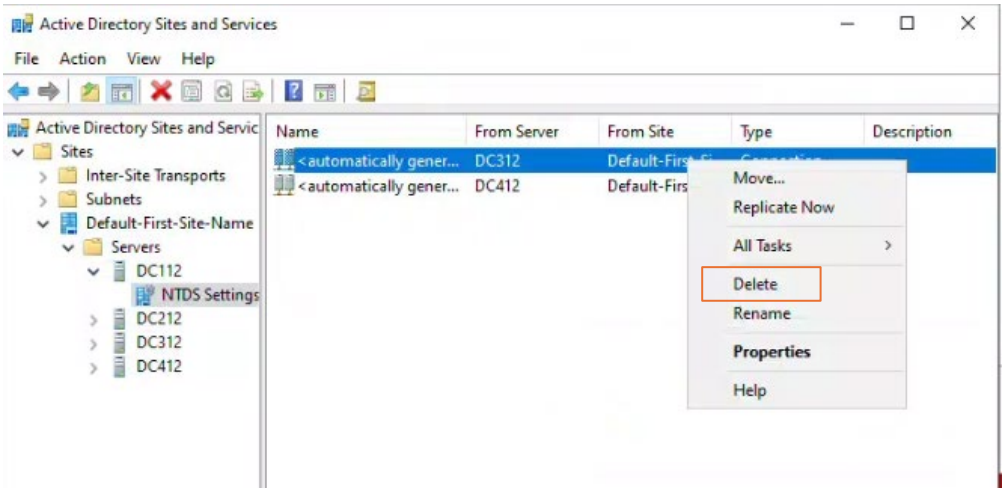


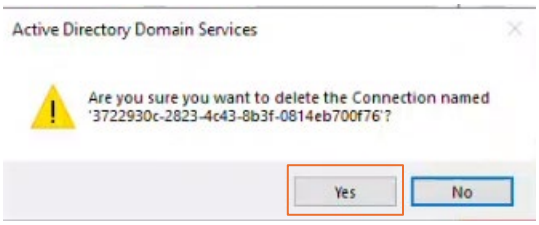


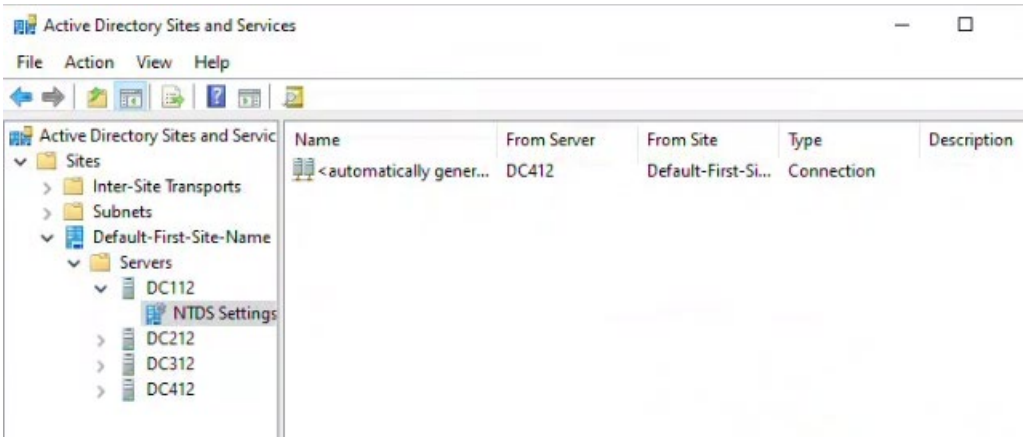
Replicate manually to DC312 by right clicking on DC312 in the DC112/NTDS Settings → Replicate Now



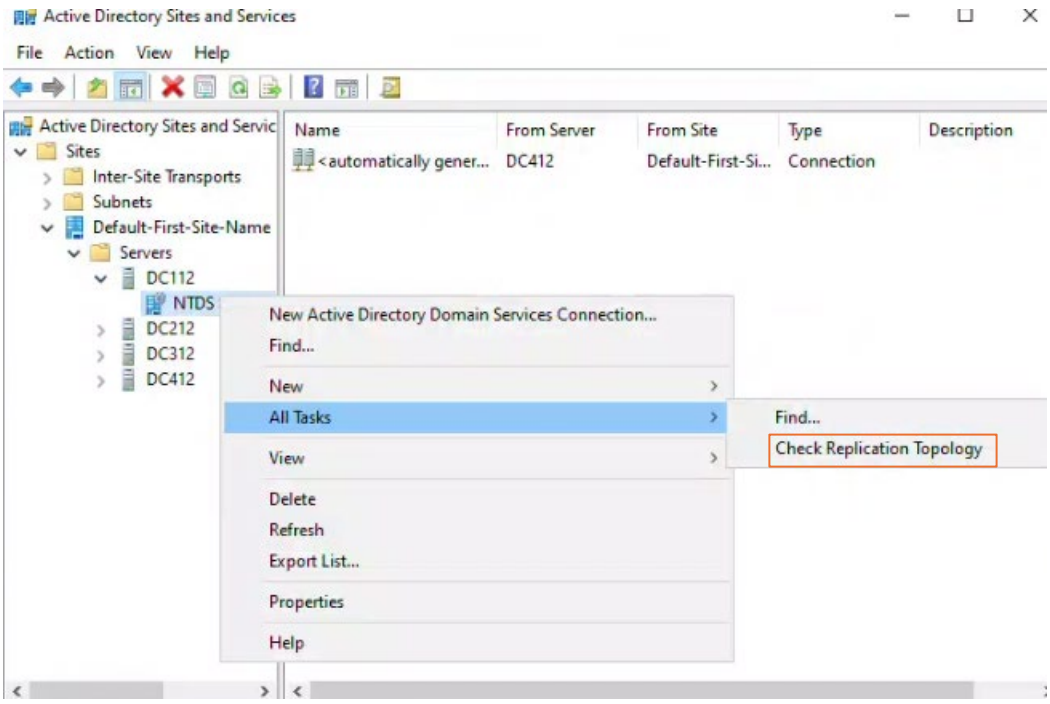
Delete this Connection object to DC312 by right-clicking on the connection → Delete → Yes





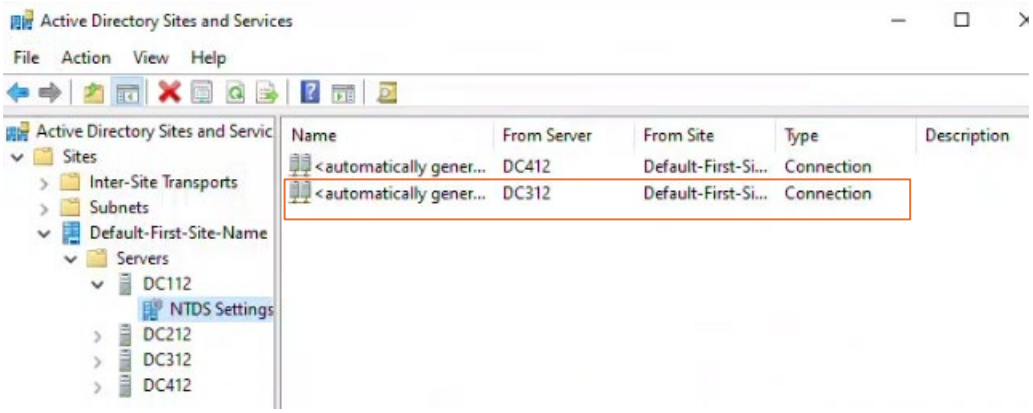


Recreate it again using the KCC to regenerate it automatically by right clicking on NTDS Settings → All Tasks → Check replication topology



Click on Action → Refresh

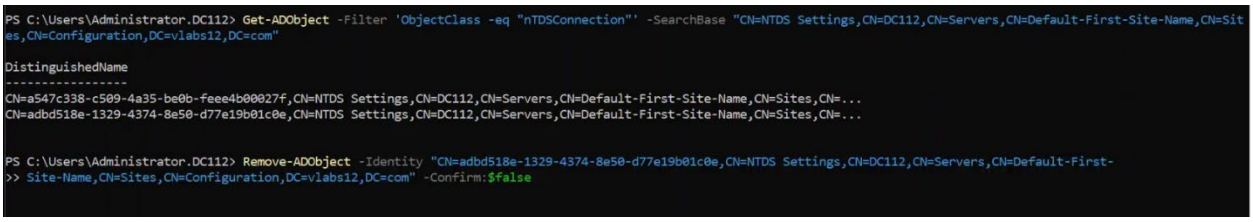
DC312 is back.



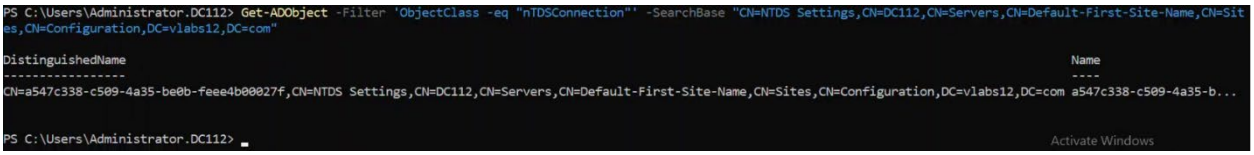
Using PowerShell:

Replicate manually to DC412, by using the following:

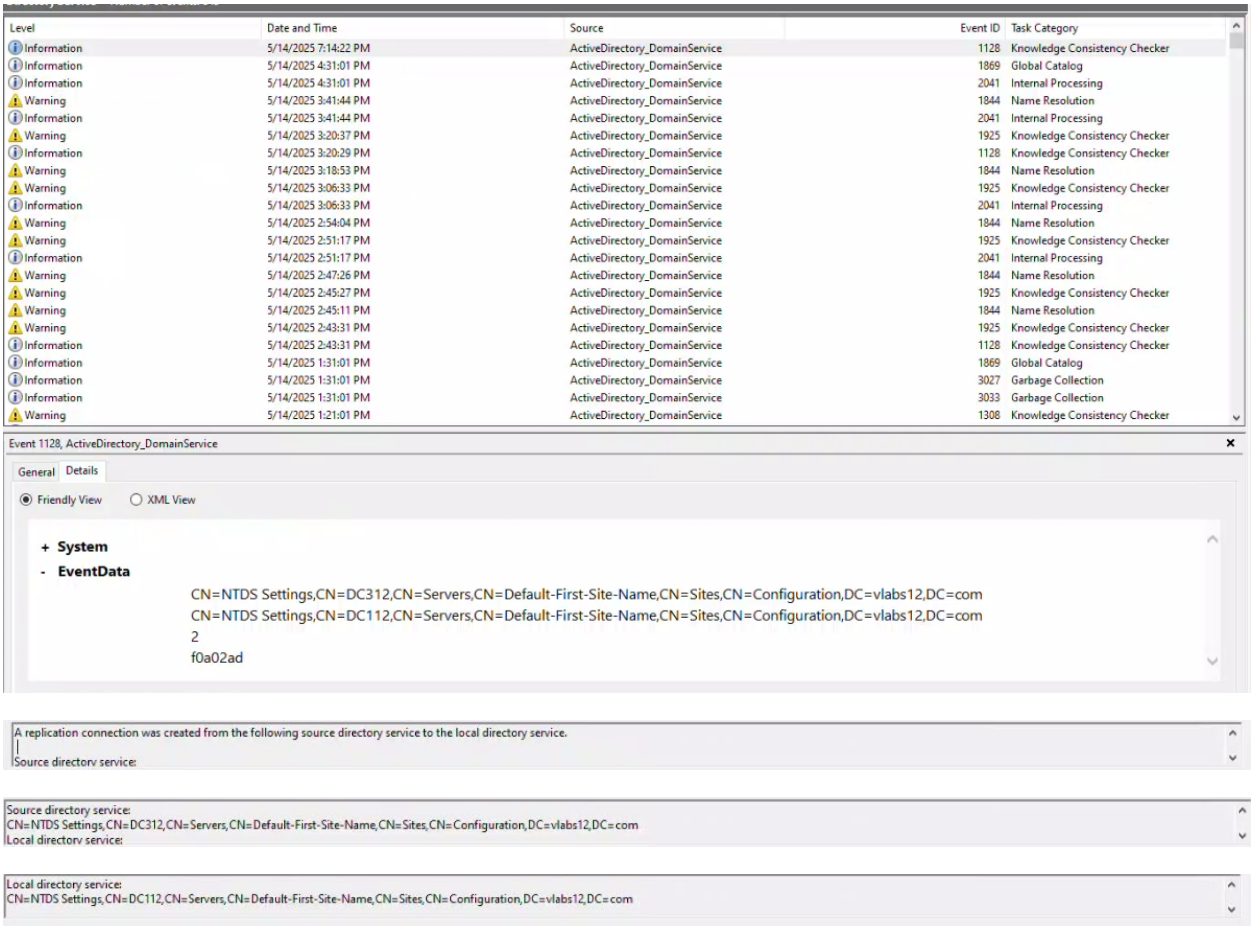
Sync-ADObject -Object "DC=vlabs12,DC=com" -Source DC112 -Destination DC412



After deleting :



Use **repadmin /kcc** to regenerate the connection:



Level	Date and Time	Source	Event ID	Task Category
Information	5/14/2025 7:14:22 PM	ActiveDirectory_DomainService	1128	Knowledge Consistency Checker
Information	5/14/2025 4:31:01 PM	ActiveDirectory_DomainService	1869	Global Catalog
Information	5/14/2025 4:31:01 PM	ActiveDirectory_DomainService	2041	Internal Processing
Warning	5/14/2025 3:41:44 PM	ActiveDirectory_DomainService	1844	Name Resolution
Information	5/14/2025 3:41:44 PM	ActiveDirectory_DomainService	2041	Internal Processing
Warning	5/14/2025 3:20:37 PM	ActiveDirectory_DomainService	1925	Knowledge Consistency Checker
Information	5/14/2025 3:20:29 PM	ActiveDirectory_DomainService	1128	Knowledge Consistency Checker
Warning	5/14/2025 3:18:53 PM	ActiveDirectory_DomainService	1844	Name Resolution
Warning	5/14/2025 3:06:33 PM	ActiveDirectory_DomainService	1925	Knowledge Consistency Checker
Information	5/14/2025 3:06:33 PM	ActiveDirectory_DomainService	2041	Internal Processing
Warning	5/14/2025 2:54:04 PM	ActiveDirectory_DomainService	1844	Name Resolution
Warning	5/14/2025 2:51:17 PM	ActiveDirectory_DomainService	1925	Knowledge Consistency Checker
Information	5/14/2025 2:51:17 PM	ActiveDirectory_DomainService	2041	Internal Processing
Warning	5/14/2025 2:47:26 PM	ActiveDirectory_DomainService	1844	Name Resolution
Warning	5/14/2025 2:45:27 PM	ActiveDirectory_DomainService	1925	Knowledge Consistency Checker
Warning	5/14/2025 2:45:11 PM	ActiveDirectory_DomainService	1844	Name Resolution
Warning	5/14/2025 2:43:31 PM	ActiveDirectory_DomainService	1925	Knowledge Consistency Checker
Information	5/14/2025 2:43:31 PM	ActiveDirectory_DomainService	1128	Knowledge Consistency Checker
Information	5/14/2025 1:31:01 PM	ActiveDirectory_DomainService	1869	Global Catalog
Information	5/14/2025 1:31:01 PM	ActiveDirectory_DomainService	3027	Garbage Collection
Information	5/14/2025 1:31:01 PM	ActiveDirectory_DomainService	3033	Garbage Collection
Warning	5/14/2025 1:21:01 PM	ActiveDirectory_DomainService	1308	Knowledge Consistency Checker

Event 1128, ActiveDirectory_DomainService

General Details

Friendly View XML View

+ System

- EventData

CN=NTDS Settings,CN=DC312,CN=Servers,CN=Default-First-Site-Name,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
CN=NTDS Settings,CN=DC112,CN=Servers,CN=Default-First-Site-Name,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
2
f0a02ad

A replication connection was created from the following source directory service to the local directory service.

Source directory service:

Source directory service:
CN=NTDS Settings,CN=DC312,CN=Servers,CN=Default-First-Site-Name,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
Local directory service:

Local directory service:
CN=NTDS Settings,CN=DC112,CN=Servers,CN=Default-First-Site-Name,CN=Sites,CN=Configuration,DC=vlabs12,DC=com

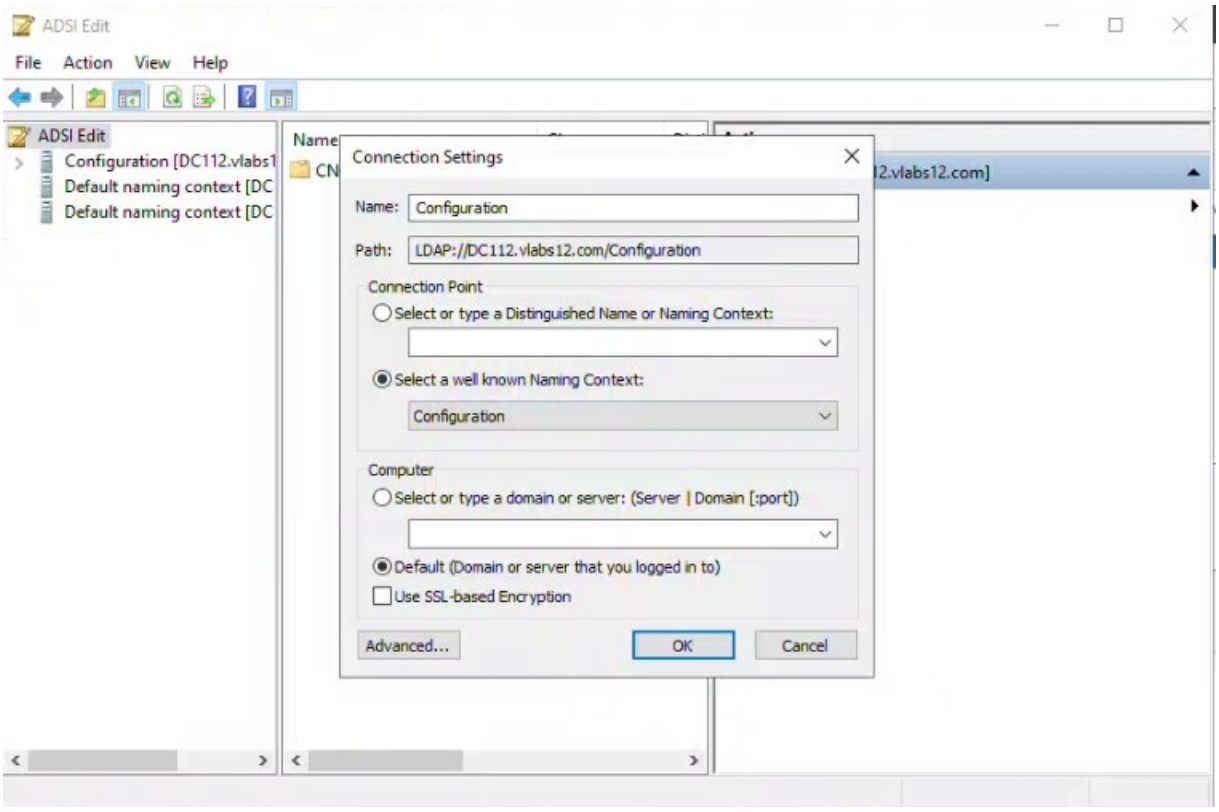
Task 4: Managing the Notification-Based Replication

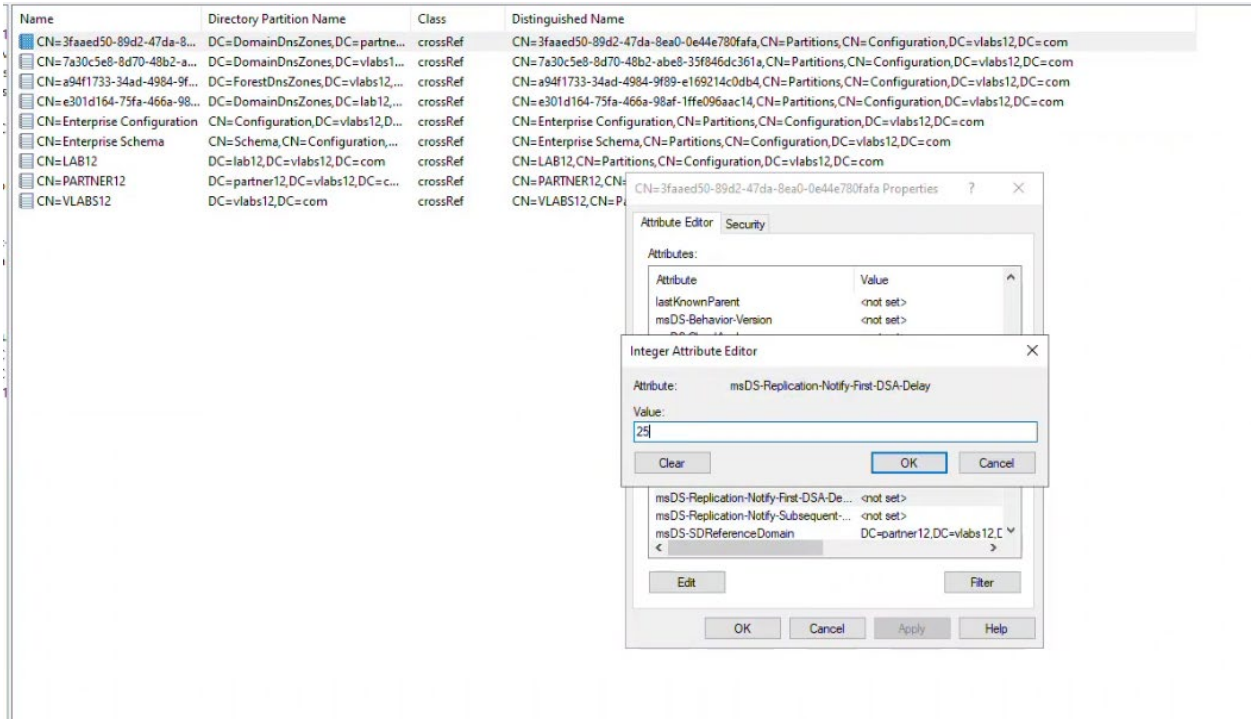
Using GUI:

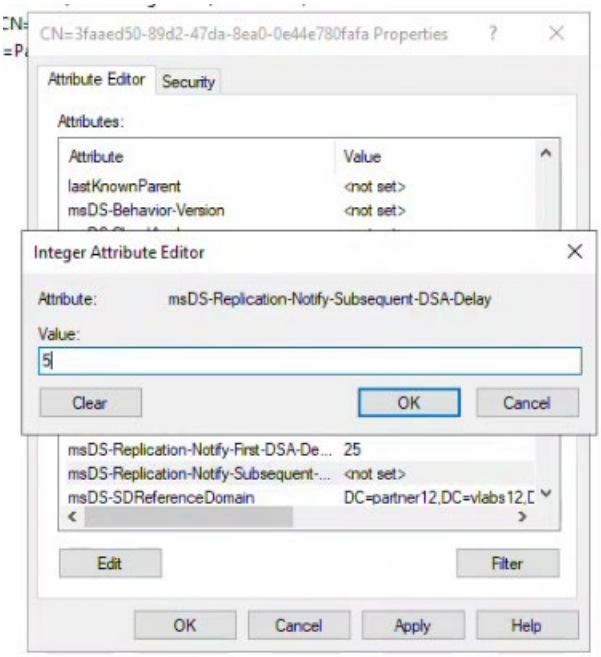
Modify First Replication Delay to 25 sec and Subsequent Notifications to 5 sec. Using

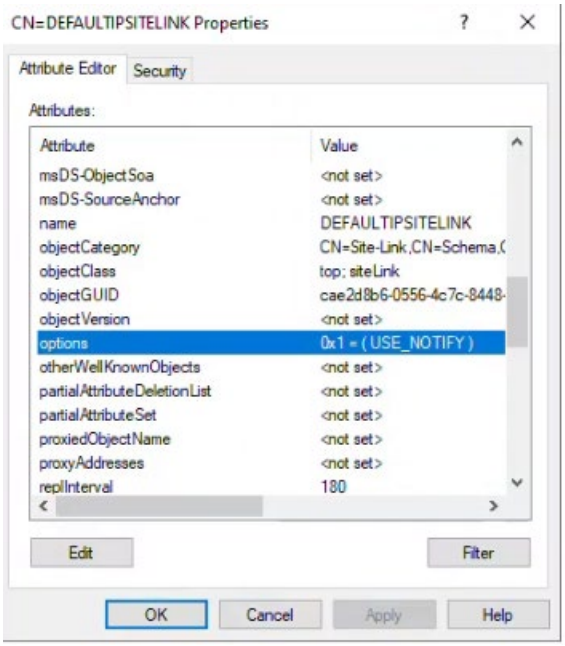
PowerShell:

Verify if Notification-Based Replication is enabled.


ADSI Edit
File Action View Help
ADSI Edit
Configuration [DC112.vlabs1
Default naming context [DC
Default naming context [DC
Connection Settings
Name: Configuration
Path: LDAP://DC112.vlabs12.com/Configuration
Connection Point
Select or type a Distinguished Name or Naming Context:
Select a well known Naming Context:
Configuration
Computer
Select or type a domain or server: (Server | Domain [:port])
Default (Domain or server that you logged in to)
Use SSL-based Encryption
Advanced...
OK
Cancel


Name
Directory Partition Name
Class
Distinguished Name
CN=3faaed50-89d2-47da-8...
DC=DomainDnsZones,DC=partne...
crossRef
CN=3faaed50-89d2-47da-8ea0-0e44e780fafa,CN=Partitions,CN=Configuration,DC=vlabs12,DC=com
CN=7a30c5e8-8d70-48b2-a...
DC=DomainDnsZones,DC=vlabs1...
crossRef
CN=7a30c5e8-8d70-48b2-abe8-35f846dc361a,CN=Partitions,CN=Configuration,DC=vlabs12,DC=com
CN=a94f1733-34ad-4984-9f...
DC=ForestDnsZones,DC=vlabs12,...
crossRef
CN=a94f1733-34ad-4984-9f89-e169214c0db4,CN=Partitions,CN=Configuration,DC=vlabs12,DC=com
CN=e301d164-75fa-466a-98...
DC=DomainDnsZones,DC=lab12,...
crossRef
CN=e301d164-75fa-466a-98af-1ffe096aac14,CN=Partitions,CN=Configuration,DC=vlabs12,DC=com
CN=Enterprise Configuration
CN=Configuration,DC=vlabs12,D...
crossRef
CN=Enterprise Configuration,CN=Partitions,CN=Configuration,DC=vlabs12,DC=com
CN=Enterprise Schema
CN=Schema,CN=Configuration,...
crossRef
CN=Enterprise Schema,CN=Partitions,CN=Configuration,DC=vlabs12,DC=com
CN=LAB12
DC=lab12,DC=vlabs12,DC=com
crossRef
CN=LAB12,CN=Partitions,CN=Configuration,DC=vlabs12,DC=com
CN=PARTNER12
DC=partner12,DC=vlabs12,DC=c...
crossRef
CN=VLABS12
DC=vlabs12,DC=com
crossRef
CN=3faaed50-89d2-47da-8ea0-0e44e780fafa Properties
Attribute Editor
Security
Attributes:
Attribute
Value
lastKnownParent
<not set>
msDS-Behavior-Version
<not set>
Integer Attribute Editor
Attribute: msDS-Replication-Notify-First-DSA-Delay
Value:
25
Clear
OK
Cancel
msDS-Replication-Notify-First-DSA-De...
<not set>
msDS-Replication-Notify-Subsequent-...
<not set>
msDS-SDReferenceDomain
DC=partner12,DC=vlabs12,D
Edit
Filter
OK
Cancel
Apply
Help






```
PS C:\Users\Administrator.DC112>  (Get-ADObject -Filter {Name -eq "DEFAULTIPSITELINK"} -SearchBase "CN=IP,CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com" -Properties options).options
1
```

Task 5: Creating Sites

Using GUI:

Create the sites Montreal and New-York.

Move DC112 and DC312 under the Montreal site.

Move DC412 under the New-York site.

Using PowerShell:

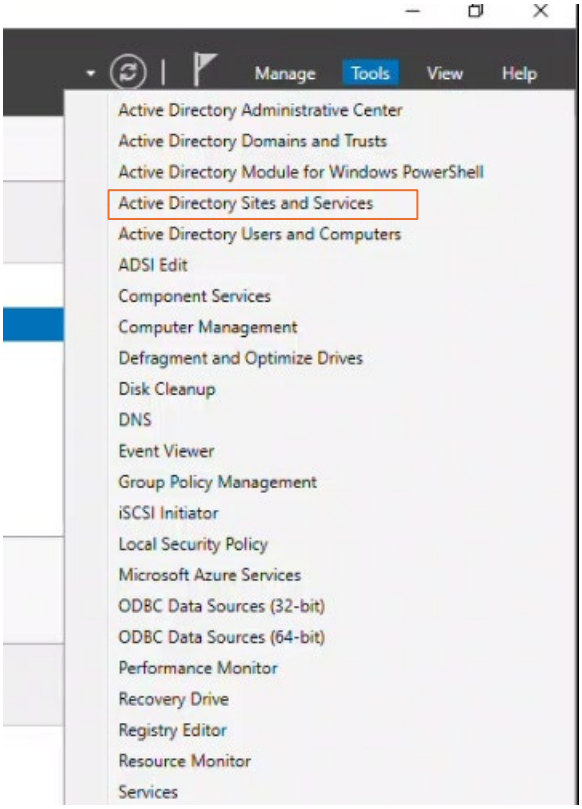
Create the site Toronto and verify that it has been created.

Modify it by adding a description.

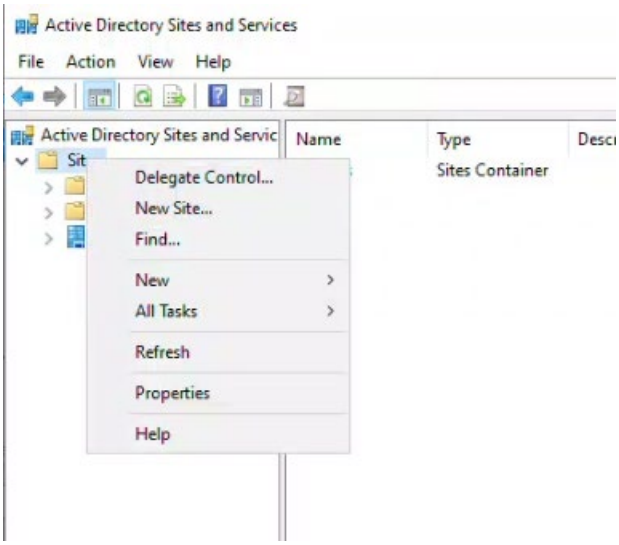
Move DC212 to Toronto site

Verify that it was moved.

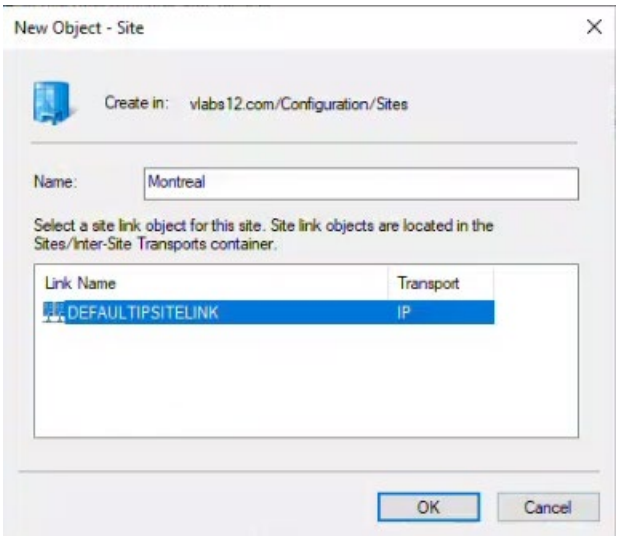
On DC112, go to Tools → Active Directory Sites and Services



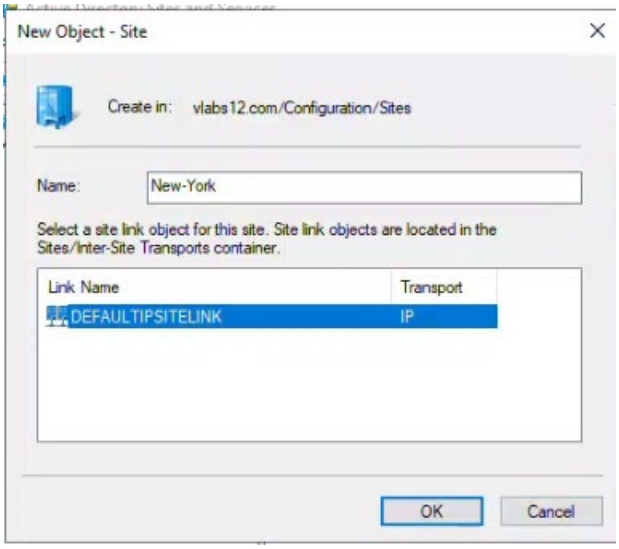
Select New Site

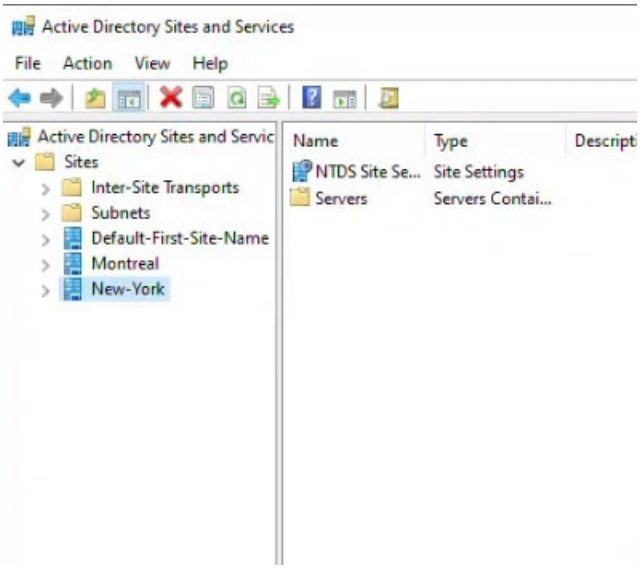


Create Montreal

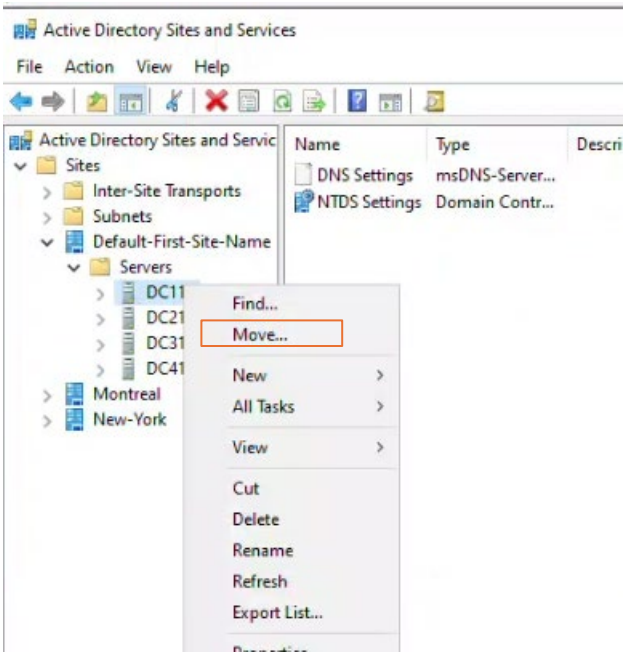


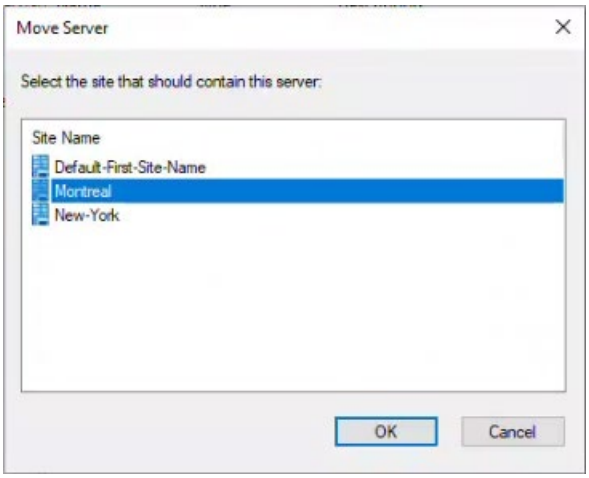
Repeat for New-York

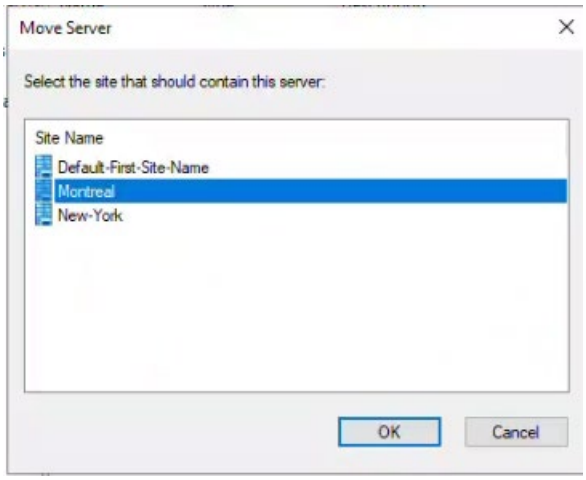


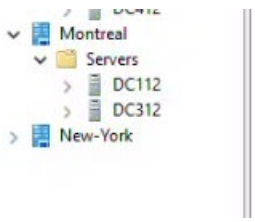


Move DC112 and DC312 under the Montreal site

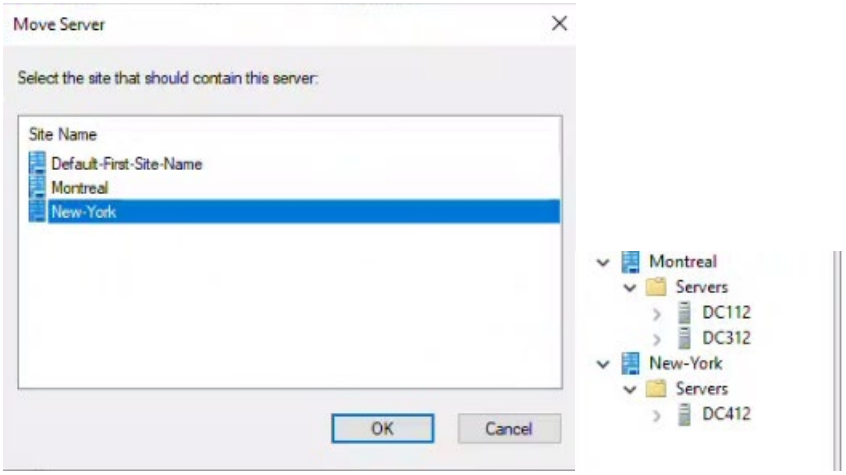

Active Directory Sites and Services
File Action View Help
Active Directory Sites and Servic
Sites
Inter-Site Transports
Subnets
Default-First-Site-Name
Servers
DC11
DC21
DC31
DC41
Montreal
New-York
Name
Type
Descri
DNS Settings
msDNS-Server...
NTDS Settings
Domain Contr...
Find...
Move...
New
All Tasks
View
Cut
Delete
Rename
Refresh
Export List...


Move Server
Select the site that should contain this server:
Site Name
Default-First-Site-Name
Montreal
New-York
OK
Cancel


Move Server
Select the site that should contain this server:
Site Name
Default-First-Site-Name
Montreal
New-York
OK
Cancel


Montreal
Servers
DC112
DC312
New-York

Move DC412 under the New-York site



Using PowerShell, create the site Toronto and verify it's creation

New-ADReplicationSite -Name "Toronto"

Get-ADReplicationSite -Filter * | Select-Object Name

```
PS C:\Users\Administrator.DC112> New-ADReplicationSite -Name "Toronto"
PS C:\Users\Administrator.DC112> Get-ADReplicationSite -Filter * | Select-Object Name

Name
----
Default-First-Site-Name
Montreal
New-York
Toronto
```

Add a description to Toronto site

Set-ADReplicationSite -Identity "Toronto" -Description "Toronto Datacenter"

Get-ADReplicationSite -Filter * | Select-Object Name, Description

```
PS C:\Users\Administrator.DC112> Set-ADReplicationSite -Identity "Toronto" -Description "Toronto Datacenter"
PS C:\Users\Administrator.DC112> Get-ADReplicationSite -Filter * | Select-Object Name, Description

Name                 Description
----                 -----------
Default-First-Site-Name
Montreal
New-York
Toronto              Toronto Datacenter


PS C:\Users\Administrator.DC112>
```

Move DC212 to the Toronto site

```
PS C:\Users\Administrator.DC112> Move-ADDirectoryServer -Identity "DC212" -Site "Toronto"
```

Get-ADDomainController -Identity DC212 | Select-Object Name,Site

```
PS C:\Users\Administrator.DC112> Get-ADDomainController -Identity DC212 | Select-Object Name,Site

Name  Site
----  ----
DC212 Toronto
```

Task 6: Creating Subnets

Using GUI:

Create subnet 192.168.12.0/24 and associate it with the Montreal site.

Create subnet 192.168.35.0/24 and associate it with the New-York site.

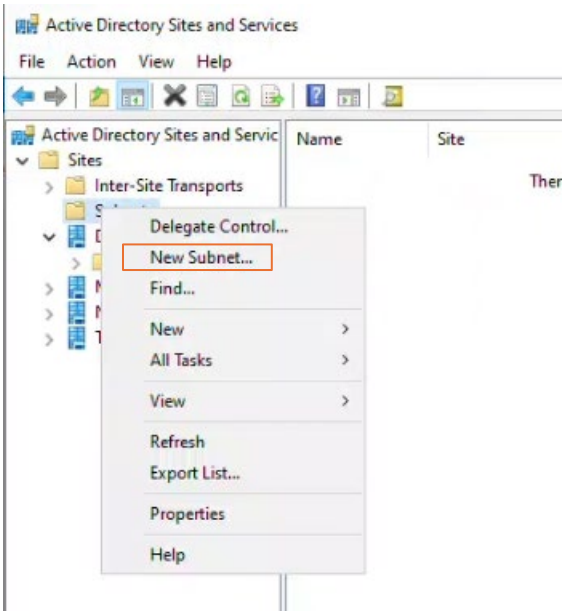
Using PowerShell:

Create subnet 192.168.45.0/24 and associate it with the Toronto site.

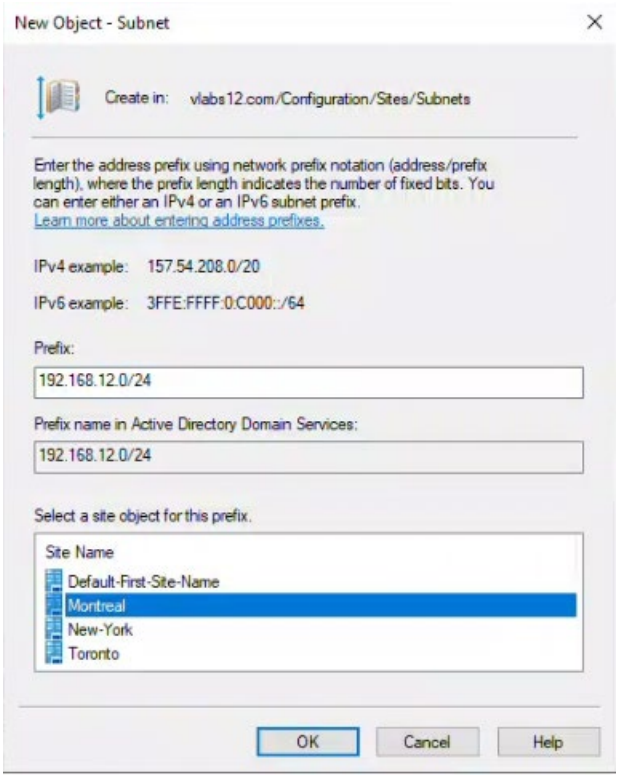
Verify the creation.

On DC112, create the subnet 192.168.12.0/24 and associate it with the Montreal site

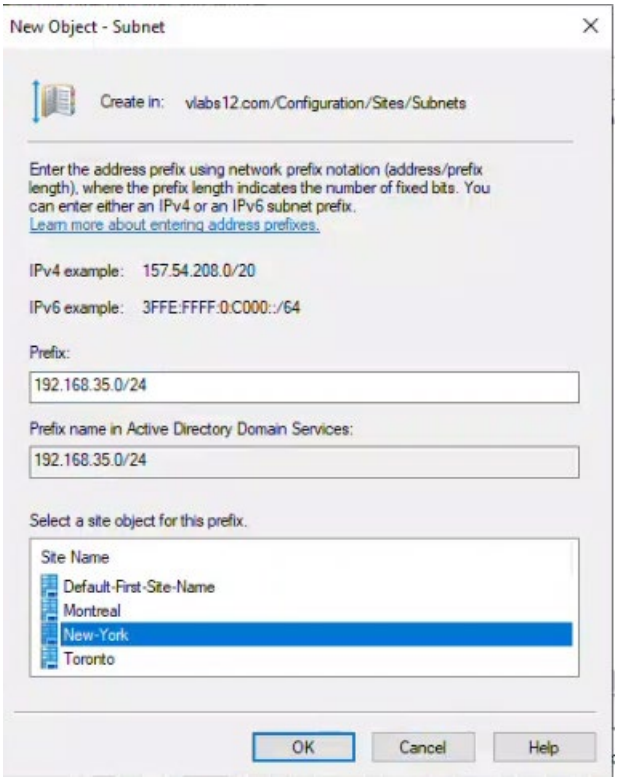
Go to Active Directory Sites and Services → expand Sites → right-click on subnets → new subnet

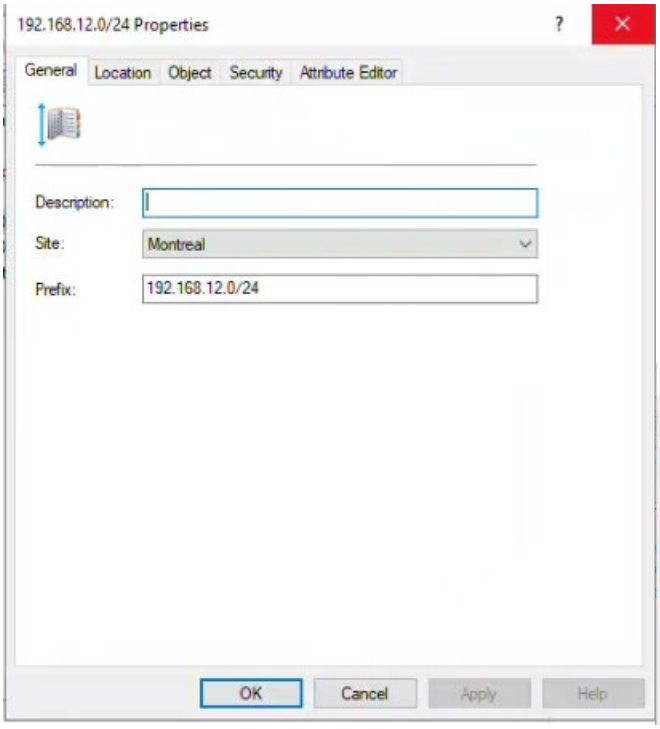


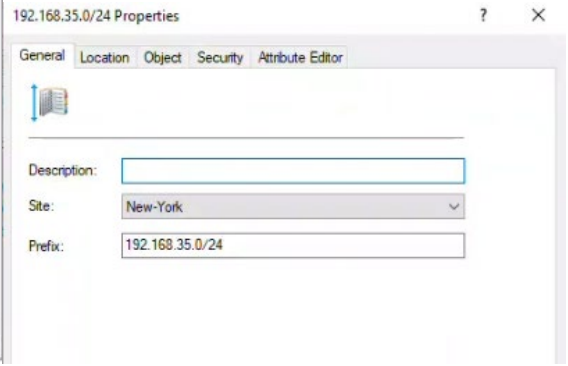
Enter the subnet and then select the site (Montreal). Click OK.



Repeat the process for New-York (192.168.35.0/24)

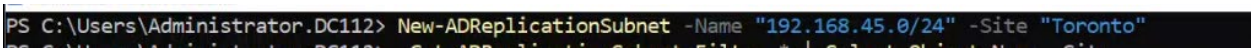




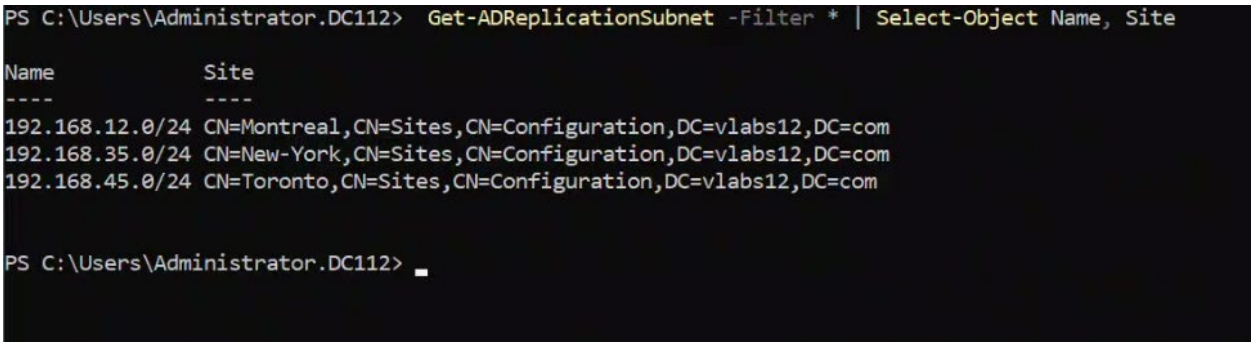


Using PowerShell, create the subnet 192.168.45.0/24 for Toronto

New-ADReplicationSubnet -Name "192.168.45.0/24" -Site "Toronto"



Get-ADReplicationSubnet -Filter * | Select-Object Name, Site



Task 7: Creating Site Links

Using GUI:

Create Site Link MTL_NY to link Montreal and New-York sites.

Using PowerShell:

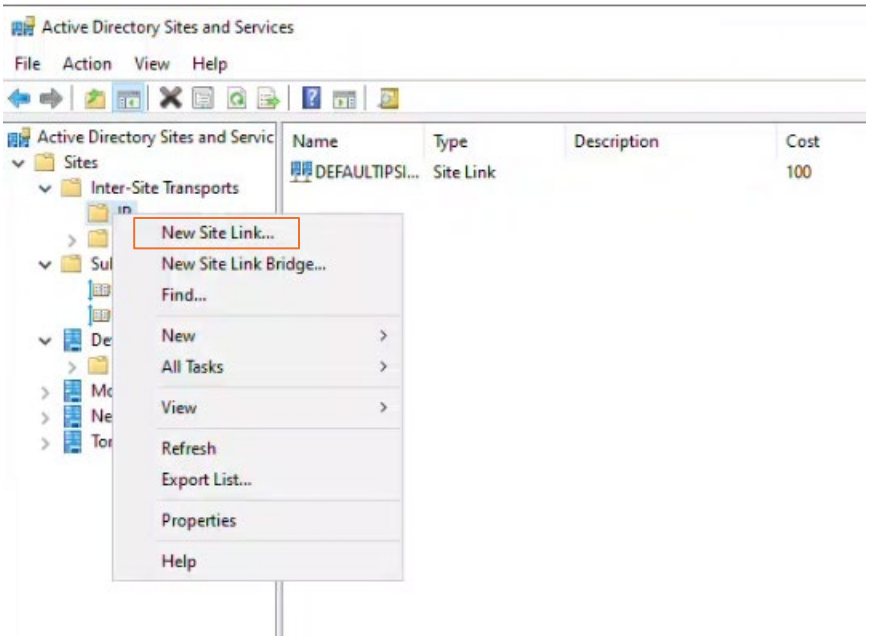
Create Site Link TOR_MTL to link Toronto and Montreal sites.

Verify the creation

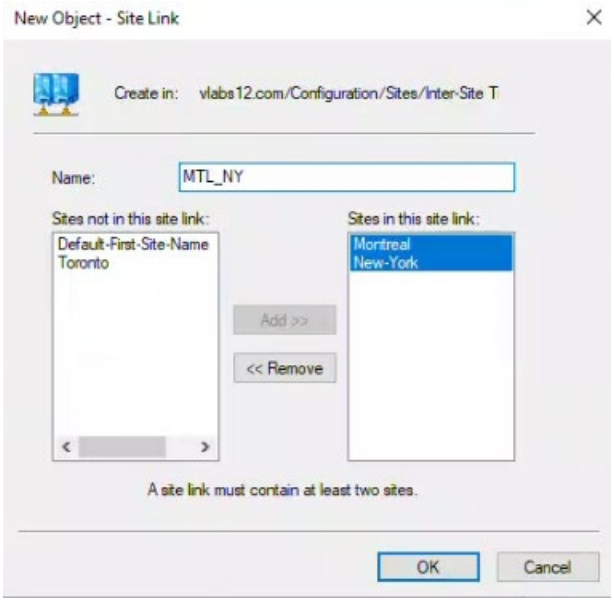
Modify the TOR_MTL replication cost to 90 and replication interval to 40.

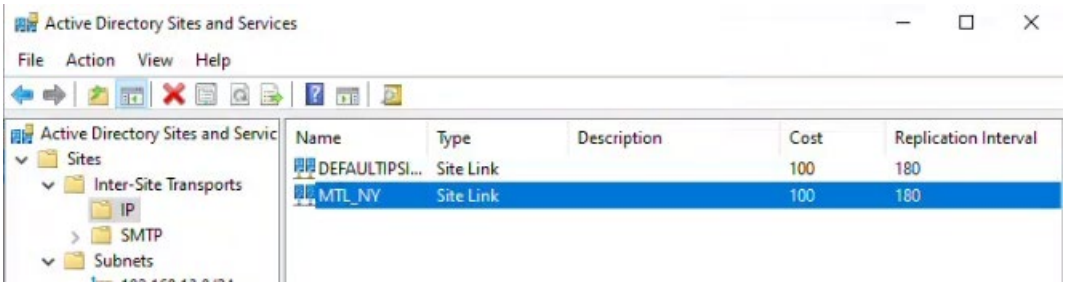
Verify the modification.

Go to Active Directory Sites and Services → Inter-Site Transports → Right-click on IP → New Site Link



Name the site link “MTL_NY” and select the sites the link is for. Montreal and New York





In PowerShell, create the TOR_MTL link for Toronto and Montreal. Verify it's creation afterwards.

New-ADReplicationSiteLink -Name "TOR_MTL" -SitesIncluded "Toronto","Montreal"

Get-ADReplicationSiteLink -Filter *

```
PS C:\Users\Administrator.DC112> New-ADReplicationSiteLink -Name "TOR_MTL" -SitesIncluded "Toronto","Montreal"
PS C:\Users\Administrator.DC112> Get-ADReplicationSiteLink -Filter *


Cost                          : 100
DistinguishedName             : CN=DEFAULTIPSITELINK,CN=IP,CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
Name                          : DEFAULTIPSITELINK
ObjectClass                   : siteLink
ObjectGUID                    : cae2d8b6-0556-4c7c-8448-e13f203103d4
ReplicationFrequencyInMinutes : 180
SitesIncluded                 : {CN=New-York,CN=Sites,CN=Configuration,DC=vlabs12,DC=com, CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com,
                                CN=Default-First-Site-Name,CN=Sites,CN=Configuration,DC=vlabs12,DC=com}

Cost                          : 100
DistinguishedName             : CN=MTL_NY,CN=IP,CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
Name                          : MTL_NY
ObjectClass                   : siteLink
ObjectGUID                    : 10208d73-1738-403d-a1ec-394c584888f3
ReplicationFrequencyInMinutes : 180
SitesIncluded                 : {CN=New-York,CN=Sites,CN=Configuration,DC=vlabs12,DC=com, CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com}

Cost                          :
DistinguishedName             : CN=TOR_MTL,CN=IP,CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
Name                          : TOR_MTL
ObjectClass                   : siteLink
ObjectGUID                    : 4b86d355-f2c4-4208-9ad6-1e46ab027a48
ReplicationFrequencyInMinutes :
SitesIncluded                 : {CN=Toronto,CN=Sites,CN=Configuration,DC=vlabs12,DC=com, CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com}
```

Modify the link with the cost of 90 and replication frequency of 40 minutes

Set-ADReplicationSiteLink -Identity "TOR_MTL" -Cost 90 -ReplicationFrequencyInMinutes 40

Verify the modification

Get-ADReplicationSiteLink -Identity "TOR_MTL" | Select-Object Name,Cost,ReplicationFrequencyInMinutes

```
PS C:\Users\Administrator.DC112> Set-ADReplicationSiteLink -Identity "TOR_MTL" -Cost 90 -ReplicationFrequencyInMinutes 40
PS C:\Users\Administrator.DC112> Get-ADReplicationSiteLink -Identity "TOR_MTL" | Select-Object Name,Cost,ReplicationFrequencyInMinutes

Name    Cost ReplicationFrequencyInMinutes
----    ---- -----------------------------
TOR_MTL   90                            40
```

Task 8: Creating Site Link Bridge

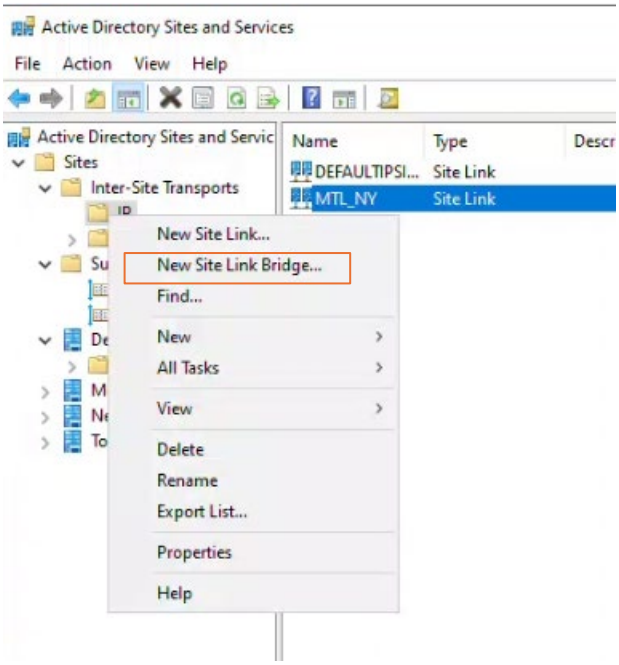
Using GUI:

Create a Site Link Bridge MTL_NY_TOR and add the two links: MTL_NY and TOR_MTL.

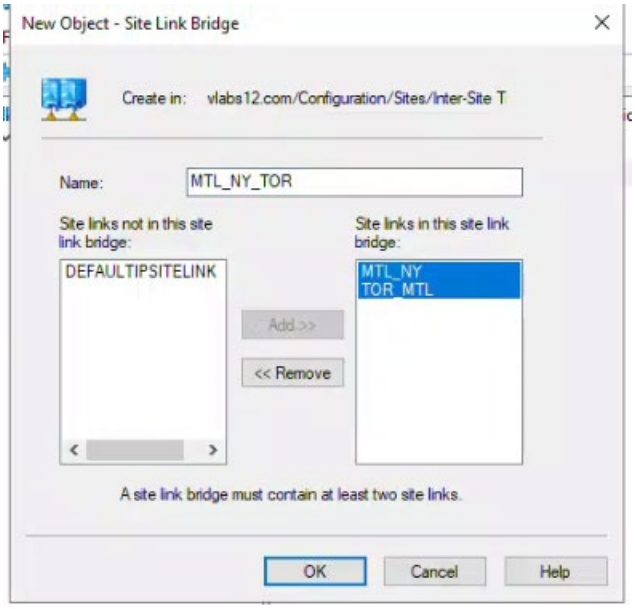
Using PowerShell:

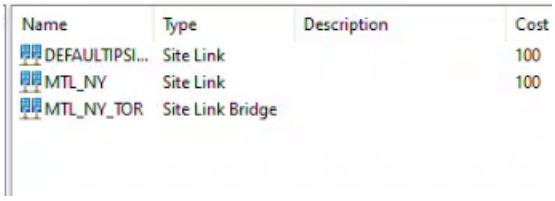
Verify the new Site Link Bridge.

In Active Directory Sites and Services, expands Inter-Site Transports → Right click on IP and select New Site Link Bridge



Name it MTL_NY_TOR and add both links to all sites





Verify the new Site Link Bridge using PowerShell

Get-ADReplicationSiteLinkBridge -Filter *

```
PS C:\Users\Administrator.DC112>  Get-ADReplicationSiteLinkBridge -Filter *


DistinguishedName : CN=MTL_NY_TOR,CN=IP,CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
Name              : MTL_NY_TOR
ObjectClass       : siteLinkBridge
ObjectGUID        : c8a89a43-73ca-4589-8620-f6e57aefec8f
SiteLinksIncluded : {CN=TOR_MTL,CN=IP,CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com, CN=MTL_NY,CN=IP,CN=Inter-Site
                    Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com}
```

Task 9: Selecting a Bridgehead

Using GUI:

Select DC412 as a bridgehead for the Toronto Site.

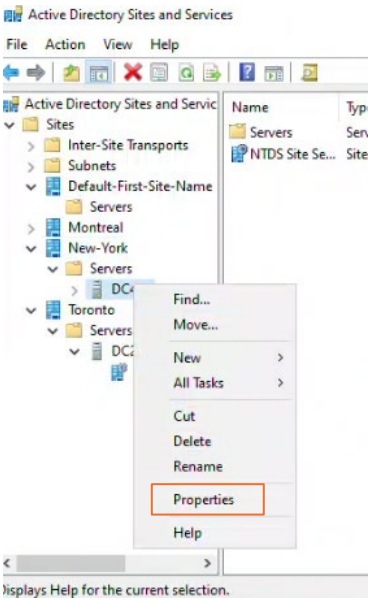
Using PowerShell:

Select DC112 as a bridgehead for the Montreal Site.

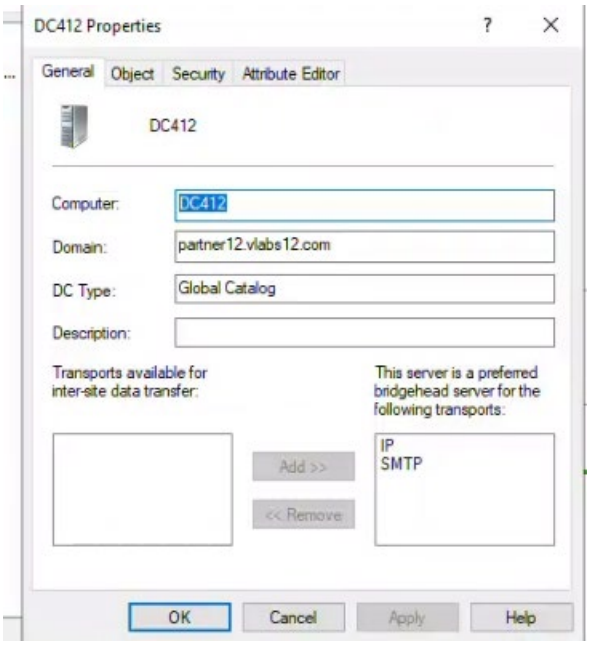
Verify that DC112 is the bridgehead.

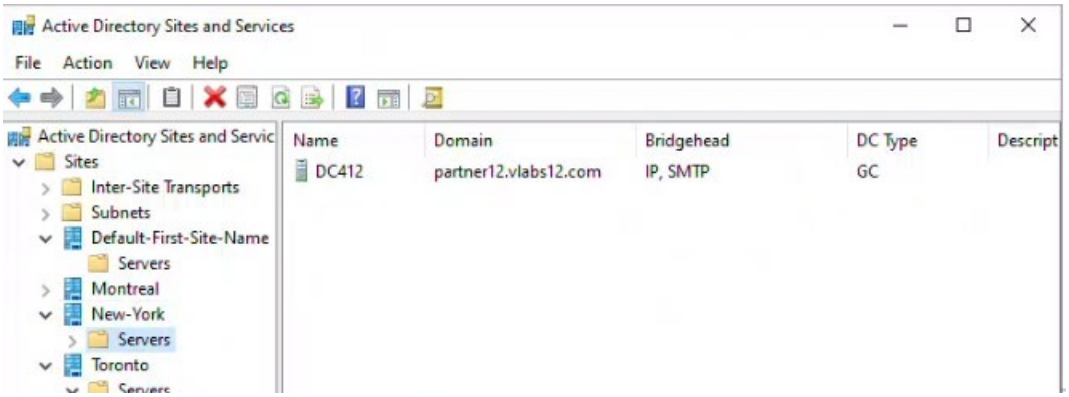
Since DC412 is in New-York, making it the bridgehead for Toronto is not possible because the server has the reside in the site to be the bridgehead. So I will make DC412 the bridgehead of New-York (please let me know if this is wrong)

Open Active Directory Sites and Services → expand Sites → target site → expand servers



Select both IP and SMTP and add it to the box. Click OK.





Using PowerShell, make DC112 the bridgehead of Montreal

Set-ADObject -Identity "CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com" -Add @{bridgeHeadTransportList="CN=IP,CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com"}

```
PS C:\Users\Administrator.DC112> Set-ADObject -Identity "CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com" -Add @{bridgeHeadTransportList="CN=IP,
CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com"}
PS C:\Users\Administrator.DC112>
```

Verify using the following:

```
PS C:\Users\Administrator.DC112> Get-ADObject -LDAPFilter "(bridgeheadServerListBL=*)" -SearchBase "CN=Sites,CN=Configuration,DC=vlabs12,DC=com" -Properties bridgeheadServe
rListBL


bridgeheadServerListBL : {CN=DC412,CN=Servers,CN=Toronto,CN=Sites,CN=Configuration,DC=vlabs12,DC=com,
                         CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com}
DistinguishedName      : CN=IP,CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
Name                   : IP
ObjectClass            : interSiteTransport
ObjectGUID             : 2c229a42-9e12-4e14-bd21-95e62f72a9b0

bridgeheadServerListBL : {CN=DC412,CN=Servers,CN=Toronto,CN=Sites,CN=Configuration,DC=vlabs12,DC=com}
DistinguishedName      : CN=SMTP,CN=Inter-Site Transports,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
Name                   : SMTP
ObjectClass            : interSiteTransport
ObjectGUID             : 88202e73-e31f-49aa-ac7f-87ec7fd89519
```

Task 10: Managing Universal Group Membership

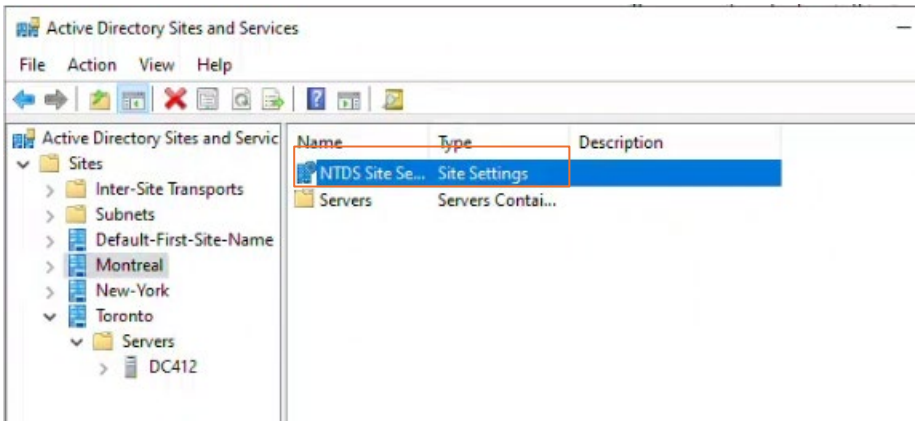
Using GUI:

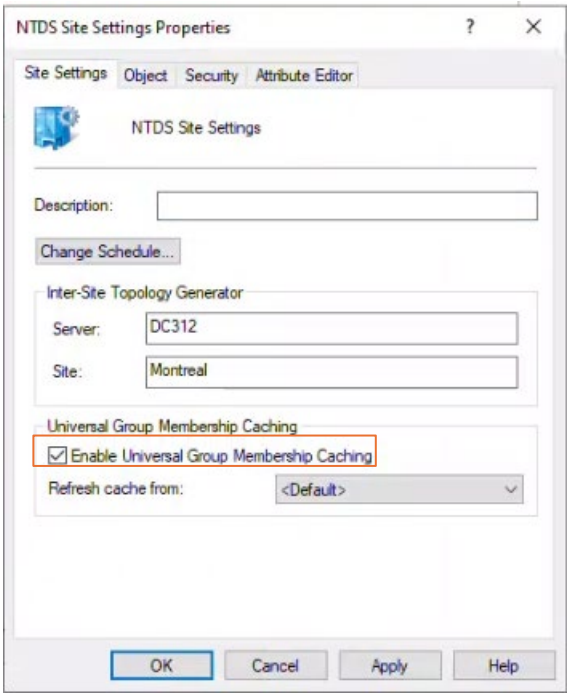
Enable Universal Group Membership on the Montreal site.

Using PowerShell:

Enable Universal Group Membership on the New-York site.

In Active Directory Sites and Services, go to the Montreal site and click on it. Double click on NTDS Site Settings. Under Universal Group Membership Caching, tick the box “Enable Universal Group Membership Caching”





Using PowerShell, enable the setting for New-York using the following:

```
PS C:\Users\Administrator.DC112> Set-ADReplicationSite -Identity New-York -UniversalGroupCachingEnabled $True
PS C:\Users\Administrator.DC112>
```

Task 11: Monitoring and Troubleshooting Replication

From DC112, using PowerShell:

Check the replication partner and the replication status.

Identify any replication errors and resolve them.

Check the replication partner and the replication status for DC212

Summarize the replication status and the overall replication health.

Check the replication queue.

Force replication between DC112 and DC312 by pulling from DC312

List the Topology information.

Check the replication partner and the replication status:

repadmin/showrepl “DC112”

```
PS C:\Users\Administrator.DC112> repadmin /showrepl DC112
Montreal\DC112
DSA Options: IS_GC
Site Options: IS_GROUP_CACHING_ENABLED
DSA object GUID: 72ce110d-f5a6-459c-90cf-a2bb90f6c9ce
DSA invocationID: 72ce110d-f5a6-459c-90cf-a2bb90f6c9ce

==== INBOUND NEIGHBORS ======================================

CN=Configuration,DC=vlabs12,DC=com
    New-York\DC412 via RPC
        DSA object GUID: 1857659e-861c-4b6c-8d2c-5547f45c05aa
        Last attempt @ 2025-05-15 17:11:43 was successful.
    Montreal\DC312 via RPC
        DSA object GUID: a2a35c6c-6c94-486a-b40b-a486d6f87221
        Last attempt @ 2025-05-15 17:24:15 was successful.

CN=Schema,CN=Configuration,DC=vlabs12,DC=com
    Montreal\DC312 via RPC
        DSA object GUID: a2a35c6c-6c94-486a-b40b-a486d6f87221
        Last attempt @ 2025-05-15 17:11:43 was successful.
    New-York\DC412 via RPC
        DSA object GUID: 1857659e-861c-4b6c-8d2c-5547f45c05aa
        Last attempt @ 2025-05-15 17:11:43 was successful.

DC=ForestDnsZones,DC=vlabs12,DC=com
    New-York\DC412 via RPC
        DSA object GUID: 1857659e-861c-4b6c-8d2c-5547f45c05aa
        Last attempt @ 2025-05-15 17:11:43 was successful.
    Montreal\DC312 via RPC
        DSA object GUID: a2a35c6c-6c94-486a-b40b-a486d6f87221
        Last attempt @ 2025-05-15 17:24:10 was successful.
```

```
DC=ForestDnsZones,DC=vlabs12,DC=com
    New-York\DC412 via RPC
        DSA object GUID: 1857659e-861c-4b6c-8d2c-5547f45c05aa
        Last attempt @ 2025-05-15 17:11:43 was successful.
    Montreal\DC312 via RPC
        DSA object GUID: a2a35c6c-6c94-486a-b40b-a486d6f87221
        Last attempt @ 2025-05-15 17:24:10 was successful.

DC=lab12,DC=vlabs12,DC=com
    New-York\DC412 via RPC
        DSA object GUID: 1857659e-861c-4b6c-8d2c-5547f45c05aa
        Last attempt @ 2025-05-15 17:11:44 was successful.
    Montreal\DC312 via RPC
        DSA object GUID: a2a35c6c-6c94-486a-b40b-a486d6f87221
        Last attempt @ 2025-05-15 17:11:44 was successful.

DC=partner12,DC=vlabs12,DC=com
    Montreal\DC312 via RPC
        DSA object GUID: a2a35c6c-6c94-486a-b40b-a486d6f87221
        Last attempt @ 2025-05-15 17:11:44 was successful.
    New-York\DC412 via RPC
        DSA object GUID: 1857659e-861c-4b6c-8d2c-5547f45c05aa
        Last attempt @ 2025-05-15 17:11:44 was successful.
```

Repadmin /replsummary

```
PS C:\Users\Administrator.DC112> repadmin /replsummary
Replication Summary Start Time: 2025-05-15 17:34:23

Beginning data collection for replication summary, this may take awhile:
  .......


Source DSA          largest delta    fails/total %%   error
 DC112                      47m:27s    0 /  15    0
 DC312                      22m:40s    0 /   5    0
 DC412                      22m:40s    0 /   5    0


Destination DSA     largest delta    fails/total %%   error
 DC112                      22m:40s    0 /  10    0
 DC212                      33m:17s    0 /   5    0
 DC312                      47m:27s    0 /   5    0
 DC412                      23m:20s    0 /   5    0
```

```
PS C:\Users\Administrator.DC112> Get-ADReplicationPartnerMetadata -Target DC112
PS C:\Users\Administrator.DC112> repadmin /showrepl /errorsonly

Repadmin: running command /showrepl against full DC localhost
Montreal\DC112
DSA Options: IS_GC
Site Options: IS_GROUP_CACHING_ENABLED
DSA object GUID: 72ce110d-f5a6-459c-90cf-a2bb90f6c9ce
DSA invocationID: 72ce110d-f5a6-459c-90cf-a2bb90f6c9ce

==== INBOUND NEIGHBORS ======================================
```

Verify the replication partner and status of DC212:

```
PS C:\Users\Administrator.DC112> repadmin /showrepl DC212
Toronto\DC212
DSA Options: DISABLE_OUTBOUND_REPL IS_RODC
Site Options: (none)
DSA object GUID: a5eb2aa7-e2a5-4c46-be90-1ac815b71095
DSA invocationID: 3adcc91f-f27b-4e46-b4d6-26fa292e8dd2

==== INBOUND NEIGHBORS ======================================

DC=vlabs12,DC=com
    Montreal\DC112 via RPC
        DSA object GUID: 72ce110d-f5a6-459c-90cf-a2bb90f6c9ce
        Last attempt @ 2025-05-15 17:19:33 was successful.

CN=Configuration,DC=vlabs12,DC=com
    Montreal\DC112 via RPC
        DSA object GUID: 72ce110d-f5a6-459c-90cf-a2bb90f6c9ce
        Last attempt @ 2025-05-15 17:20:23 was successful.

CN=Schema,CN=Configuration,DC=vlabs12,DC=com
    Montreal\DC112 via RPC
        DSA object GUID: 72ce110d-f5a6-459c-90cf-a2bb90f6c9ce
        Last attempt @ 2025-05-15 17:01:06 was successful.

DC=DomainDnsZones,DC=vlabs12,DC=com
    Montreal\DC112 via RPC
        DSA object GUID: 72ce110d-f5a6-459c-90cf-a2bb90f6c9ce
        Last attempt @ 2025-05-15 17:20:50 was successful.

DC=ForestDnsZones,DC=vlabs12,DC=com
    Montreal\DC112 via RPC
        DSA object GUID: 72ce110d-f5a6-459c-90cf-a2bb90f6c9ce
        Last attempt @ 2025-05-15 17:21:00 was successful.
```

```
PS C:\Users\Administrator.DC112>  repadmin /queue

Repadmin: running command /queue against full DC localhost
Queue contains 0 items.

PS C:\Users\Administrator.DC112>
```

```
PS C:\Users\Administrator.DC112>  repadmin /syncall DC312 /aed
CALLBACK MESSAGE: The following replication is in progress:
    From: CN=NTDS Settings,CN=DC412,CN=Servers,CN=New-York,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
    To  : CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
CALLBACK MESSAGE: The following replication completed successfully:
    From: CN=NTDS Settings,CN=DC412,CN=Servers,CN=New-York,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
    To  : CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
CALLBACK MESSAGE: The following replication is in progress:
    From: CN=NTDS Settings,CN=DC212,CN=Servers,CN=Toronto,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
    To  : CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
CALLBACK MESSAGE: The following replication completed successfully:
    From: CN=NTDS Settings,CN=DC212,CN=Servers,CN=Toronto,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
    To  : CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
CALLBACK MESSAGE: The following replication is in progress:
    From: CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
    To  : CN=NTDS Settings,CN=DC312,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
CALLBACK MESSAGE: The following replication completed successfully:
    From: CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
    To  : CN=NTDS Settings,CN=DC312,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
CALLBACK MESSAGE: SyncAll Finished.
SyncAll terminated with no errors.
```

```
PS C:\Users\Administrator.DC112>  repadmin  /bridgeheads * /verbose

Repadmin: running command /bridgeheads against full DC DC112.vlabs12.com
Gathering topology from site Montreal (DC112.vlabs12.com):

Bridgeheads for site Montreal (DC112.vlabs12.com):
            Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========
                New-York           DC112    IP             (never)   0   The operation completed successfully.
       Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
        Configuration  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
            partner12  2025-05-15 17:11:44  2025-05-15 17:11:44     0   The operation completed successfully.
       ForestDnsZones  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
            Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========

Bridgeheads for site Montreal (DC312.lab12.vlabs12.com):
            Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========
                New-York           DC112    IP             (never)   0   The operation completed successfully.
       Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
        Configuration  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
            partner12  2025-05-15 17:11:44  2025-05-15 17:11:44     0   The operation completed successfully.
       ForestDnsZones  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
            Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========

Bridgeheads for site New-York (DC412.partner12.vlabs12.com):
            Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========
                Montreal           DC412    IP             (never)   0   The operation completed successfully.
       Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
```

```
            Montreal          DC412    IP            (never)   0   The operation completed successfully.
      Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
      ForestDnsZones  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
             vlabs12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
               lab12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
       Configuration  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
        ==============  ==============  ====  ================   ===  ========

Bridgeheads for site New-York (DC412.partner12.vlabs12.com):
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
        ==============  ==============  ====  ================   ===  ========
            Montreal          DC412    IP            (never)   0   The operation completed successfully.
      Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
      ForestDnsZones  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
             vlabs12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
               lab12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
       Configuration  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
        ==============  ==============  ====  ================   ===  ========

Repadmin: not running against read-only DC DC212.vlabs12.com since it is incompatible with this command.

Repadmin: running command /bridgeheads against full DC DC312.lab12.vlabs12.com
Gathering topology from site Montreal (DC312.lab12.vlabs12.com):

Bridgeheads for site Montreal (DC112.vlabs12.com):
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
        ==============  ==============  ====  ================   ===  ========
            New-York          DC112    IP            (never)   0   The operation completed successfully.
      Naming Context         Attempt Time         Success Time  #Fail  Last Result
```

```
Repadmin: running command /bridgeheads against full DC DC312.lab12.vlabs12.com
Gathering topology from site Montreal (DC312.lab12.vlabs12.com):

Bridgeheads for site Montreal (DC112.vlabs12.com):
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
        ==============  ==============  ====  ================   ===  ========
            New-York          DC112    IP            (never)   0   The operation completed successfully.
      Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
       Configuration  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
           partner12  2025-05-15 17:11:44  2025-05-15 17:11:44     0   The operation completed successfully.
      ForestDnsZones  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
        ==============  ==============  ====  ================   ===  ========

Bridgeheads for site Montreal (DC312.lab12.vlabs12.com):
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
        ==============  ==============  ====  ================   ===  ========
            New-York          DC112    IP            (never)   0   The operation completed successfully.
      Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
       Configuration  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
           partner12  2025-05-15 17:11:44  2025-05-15 17:11:44     0   The operation completed successfully.
      ForestDnsZones  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
        ==============  ==============  ====  ================   ===  ========

Bridgeheads for site New-York (DC412.partner12.vlabs12.com):
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
        ==============  ==============  ====  ================   ===  ========
            Montreal          DC412    IP            (never)   0   The operation completed successfully.
      Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
      ForestDnsZones  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
             vlabs12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
```

```
Bridgeheads for site New-York (DC412.partner12.vlabs12.com):
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========
                Montreal           DC412    IP             (never)   0   The operation completed successfully.
       Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
       ForestDnsZones  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
              vlabs12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
                lab12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
        Configuration  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========

Repadmin: running command /bridgeheads against full DC DC412.partner12.vlabs12.com
Gathering topology from site New-York (DC412.partner12.vlabs12.com):

Bridgeheads for site Montreal (DC112.vlabs12.com):
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========
                New-York           DC112    IP             (never)   0   The operation completed successfully.
       Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
        Configuration  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
            partner12  2025-05-15 17:11:44  2025-05-15 17:11:44     0   The operation completed successfully.
       ForestDnsZones  2025-05-15 17:11:43  2025-05-15 17:11:43     0   The operation completed successfully.
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========
```

```
Bridgeheads for site New-York (DC412.partner12.vlabs12.com):
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========
                Montreal           DC412    IP             (never)   0   The operation completed successfully.
       Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
       ForestDnsZones  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
              vlabs12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
                lab12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
        Configuration  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========

Bridgeheads for site New-York (DC412.partner12.vlabs12.com):
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========
                Montreal           DC412    IP             (never)   0   The operation completed successfully.
       Naming Context         Attempt Time         Success Time  #Fail  Last Result
     ===============  ==================  ==================  =====  ==============
       ForestDnsZones  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
              vlabs12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
                lab12  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
        Configuration  2025-05-15 17:56:03  2025-05-15 17:56:03     0   The operation completed successfully.
           Source Site    Local Bridge  Trns         Fail. Time    #    Status
         ==============  ==============  ====  ================   ===  ========

PS C:\Users\Administrator.DC112>
```

```
PS C:\Users\Administrator.DC112> repadmin /istg * /verbose

Repadmin: running command /istg against full DC DC112.vlabs12.com
Gathering topology from site Montreal (DC112.vlabs12.com):
                  Site                 ISTG
     ==================   =================
 Default-First-Site-Name              DC112
               Montreal               DC312
               New-York               DC412
                Toronto               DC212

Repadmin: running command /istg against full DC DC212.vlabs12.com
Gathering topology from site Toronto (DC212.vlabs12.com):
                  Site                 ISTG
     ==================   =================
 Default-First-Site-Name              DC112
               Montreal               DC312
               New-York               DC412
                Toronto               DC212
```

```
Repadmin: running command /istg against full DC DC312.lab12.vlabs12.com
Gathering topology from site Montreal (DC312.lab12.vlabs12.com):
                  Site                 ISTG
     ==================   =================
 Default-First-Site-Name              DC112
               Montreal               DC312
               New-York               DC412
                Toronto               DC212

Repadmin: running command /istg against full DC DC412.partner12.vlabs12.com
Gathering topology from site New-York (DC412.partner12.vlabs12.com):
                  Site                 ISTG
     ==================   =================
 Default-First-Site-Name              DC112
               Montreal               DC312
               New-York               DC412
                Toronto               DC212

PS C:\Users\Administrator.DC112> _
```

Task 12: Managing FSMO role and Global Catalog

Remove the DC212 from the domain and return it to a standalone server

Uninstall-ADDSDomainController ` -LocalAdministratorPassword (Read-Host -Prompt "Enter local admin password" -AsSecureString) ` -Force

```
PS C:\Users\Administrator.VLABS12.000> Uninstall-ADDSDomainController `
>>   -LocalAdministratorPassword (Read-Host -Prompt "Enter local admin password" -AsSecureString) `
>>   -Force
Enter local admin password: *********

Message                      Context           RebootRequired  Status
-------                      -------           --------------  ------
Operation completed successfully DCPromo.General.1          False Success


PS C:\Users\Administrator.VLABS12.000>
```

```
PS C:\Users\Administrator.VLABS12.000> Get-WmiObject Win32_OperatingSystem -ComputerName "dc212" | Select-Object Product
Type

ProductType
-----------
          3
```

Install-ADDSDomainController ` -DomainName "vlabs25.com" ` -Credential (Get-Credential) ` -SiteName "Montreal" ` -InstallDNS ` -NoGlobalCatalog:$true ` -Force

```
Message                      Context           RebootRequired  Status
-------                      -------           --------------  ------
Operation completed successfully DCPromo.General.3          False Success


PS C:\Users\Administrator.VLABS12.000>
```

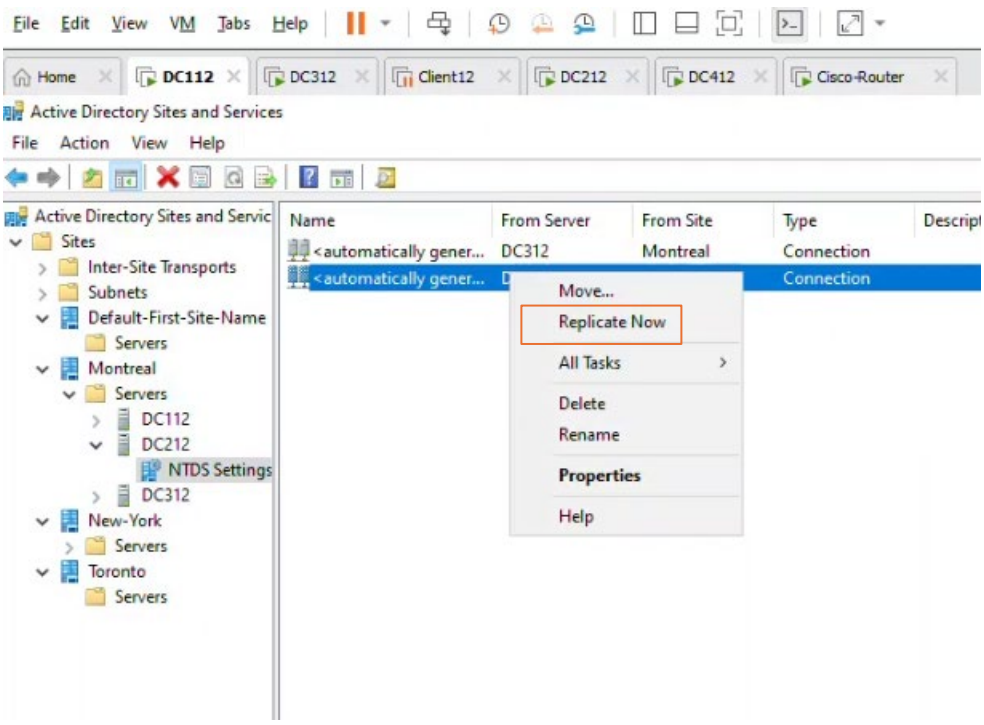
```
PS C:\Users\Administrator.VLABS12.000> repadmin /syncall
CALLBACK MESSAGE: SyncAll Finished.
SyncAll terminated with no errors.
```

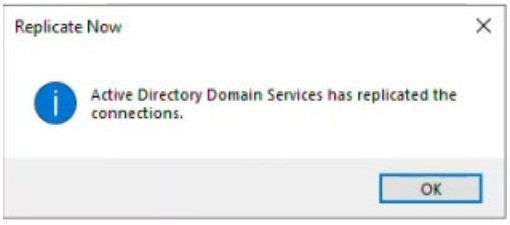
Move DC212 from Toronto to Montreal (was Toronto when originally promoted)

```
PS C:\Users\Administrator.VLABS12.000> Move-ADDirectoryServer -Identity "DC212" -Site "Montreal"
PS C:\Users\Administrator.VLABS12.000> Get-ADDomainController -Identity "DC212"
```

```
PS C:\Users\Administrator.VLABS12.000> Get-ADDomainController -Identity "DC212" | Select-Object Name, Site

Name  Site
----  ----
DC212 Montreal


PS C:\Users\Administrator.VLABS12.000>
```

On DC112, in Active Directory Sites and Services, replicate the NTDS connection between DC212 and DC112.





On DC212, use the netdom tool to locate the FSMO roles of all the domains

Netdom.exe query fsmo (for vlabs12.com)

```
PS C:\Users\Administrator.VLABS12.000> netdom.exe query fsmo
Schema master               DC112.vlabs12.com
Domain naming master        DC112.vlabs12.com
PDC                         DC112.vlabs12.com
RID pool manager            DC112.vlabs12.com
Infrastructure master       DC112.vlabs12.com
The command completed successfully.

PS C:\Users\Administrator.VLABS12.000>
```

For lab12.vlabs12.com

```
PS C:\Users\Administrator.VLABS12.000> netdom.exe query fsmo /d:lab12.vlabs12.com
Schema master               DC112.vlabs12.com
Domain naming master        DC112.vlabs12.com
PDC                         DC312.lab12.vlabs12.com
RID pool manager            DC312.lab12.vlabs12.com
Infrastructure master       DC312.lab12.vlabs12.com
The command completed successfully.

PS C:\Users\Administrator.VLABS12.000>
```

For partner12.vlabs12.com

```
PS C:\Users\Administrator.VLABS12.000> netdom.exe query fsmo /d:partner12.vlabs12.com
Schema master               DC112.vlabs12.com
Domain naming master        DC112.vlabs12.com
PDC                         DC412.partner12.vlabs12.com
RID pool manager            DC412.partner12.vlabs12.com
Infrastructure master       DC412.partner12.vlabs12.com
The command completed successfully.

PS C:\Users\Administrator.VLABS12.000>
```

On DC212, use PowerShell to transfer the Domain Naming Master FSMO role from DC112 to DC212, then verify that the role has been successfully moved

Move-ADDirectoryServerOperationMasterRole -Identity "DC212" -OperationMasterRole DomainNamingMaster

```
PS C:\Users\Administrator.VLABS12.000> Move-ADDirectoryServerOperationMasterRole -Identity "DC212" -OperationMasterRole
DomainNamingMaster

Move Operation Master Role
Do you want to move role 'DomainNamingMaster' to server 'DC212.vlabs12.com' ?
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is "Y"): y
PS C:\Users\Administrator.VLABS12.000>
```

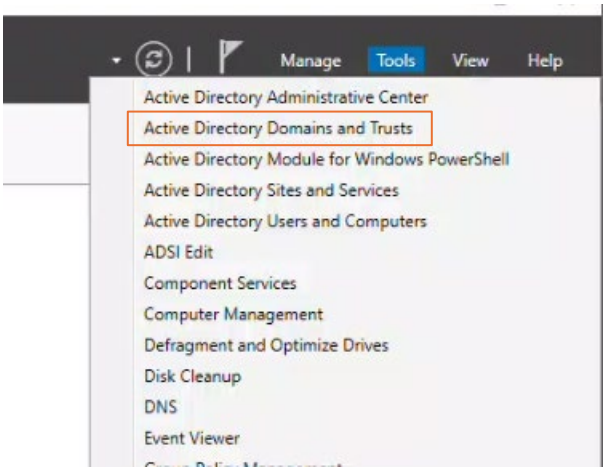
Verify with:

Get-ADForest | Format-List DomainNamingMaster

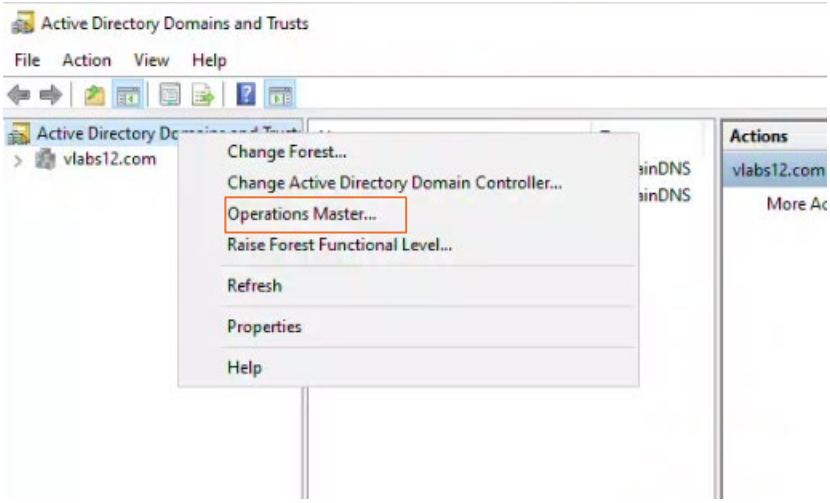
```
PS C:\Users\Administrator.VLABS12.000>  Get-ADForest | Format-List DomainNamingMaster

DomainNamingMaster : DC212.vlabs12.com


PS C:\Users\Administrator.VLABS12.000>
```

Go back to DC112, use the GUI to transfer the Domain Naming Master FSMO role back to DC112

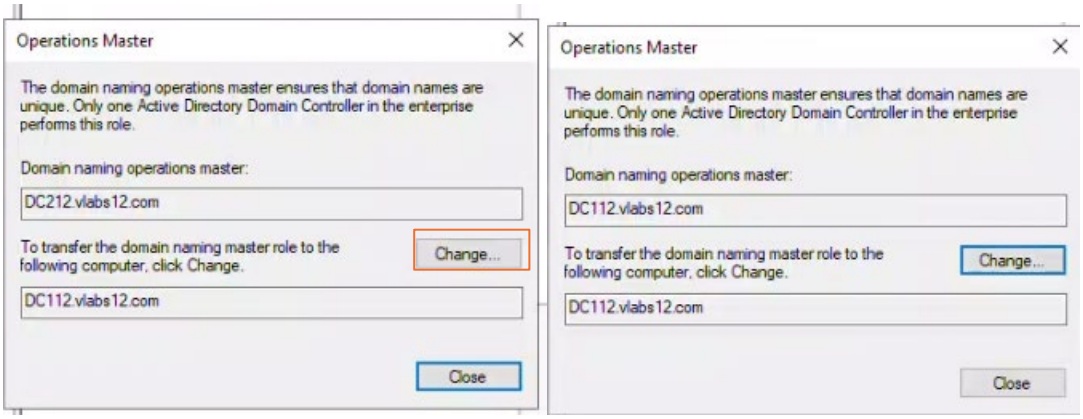
Go to Active Directory Domains and Trusts



Right-click on Active Directory Domains and Trusts → Operations Master



Click on “Change” to switch the role from DC212 to DC112



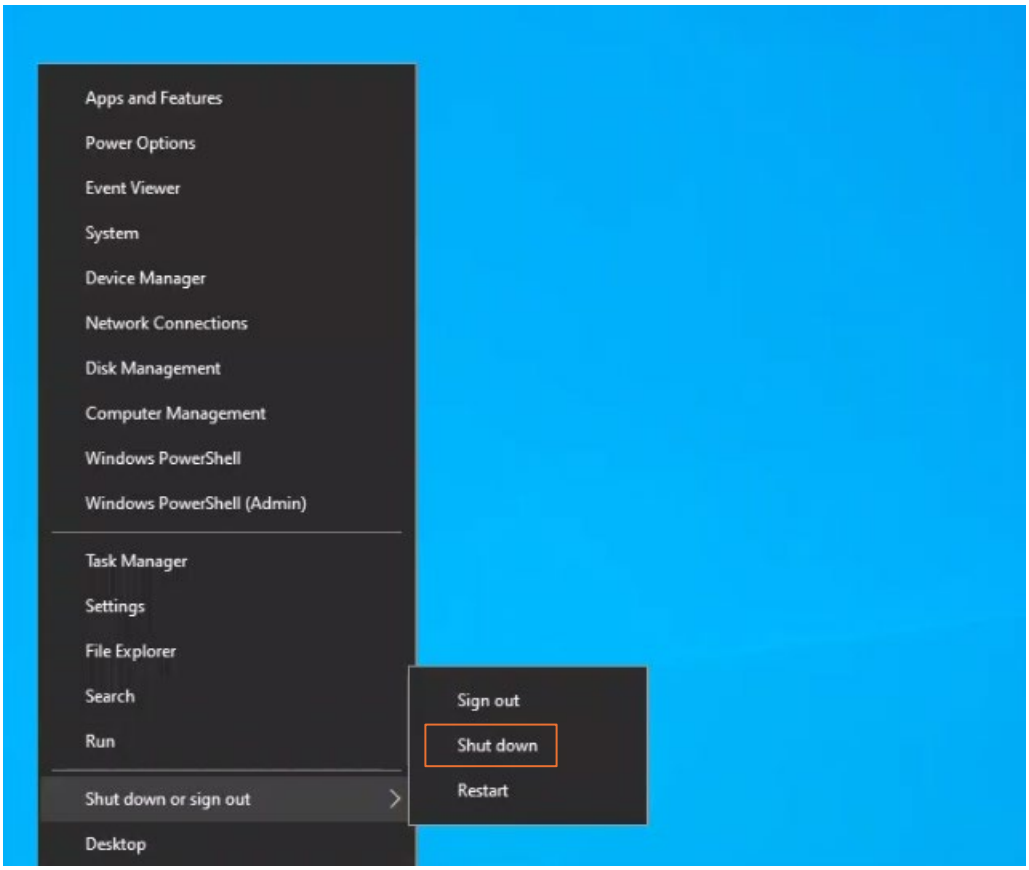
Simulate a failure scenario:

Stop the DC112 server.

On DC212, use the ntdsutil tool to seize the PDC Emulator FSMO role.

Start the DC112 server again.

Shut down the server



On DC212, seize the PDC Emulator

ntdsutil.exe

roles

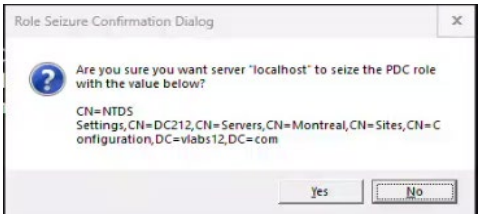
Connections

connect to server localhost

quit

seize PDC

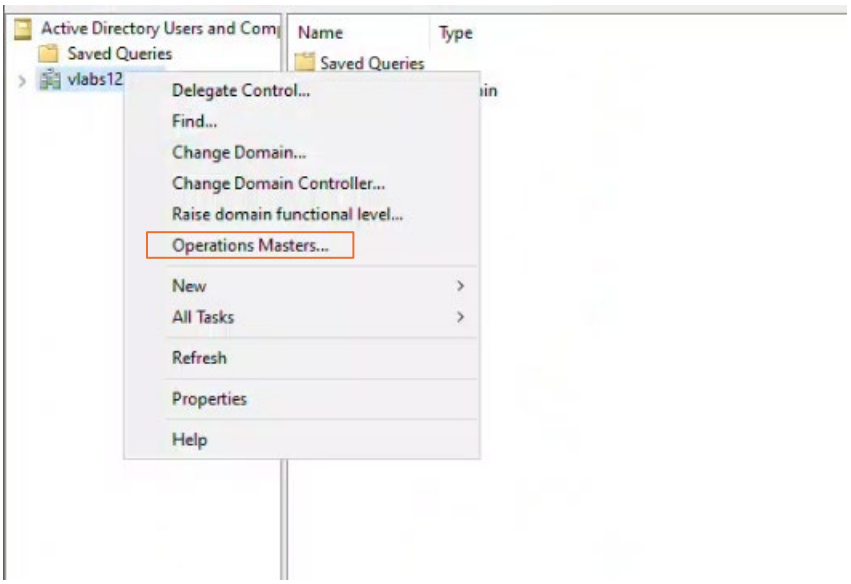
```
PS C:\Users\Administrator.VLABS12.000> ntdsutil
C:\WINDOWS\system32\ntdsutil.exe: roles
fsmo maintenance: Connections
server connections: connect to server localhost
Binding to localhost ...
Connected to localhost using credentials of locally logged on user.
server connections: quit
fsmo maintenance: seize PDC
```

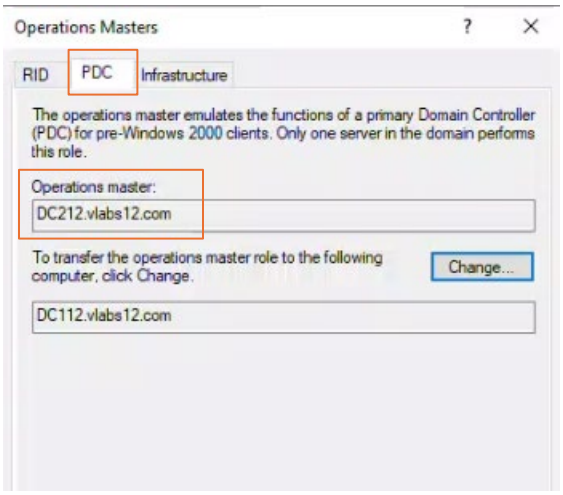



```
Attempting safe transfer of PDC FSMO before seizure.
ldap_modify_sW error 0x34(52 (Unavailable).
Ldap extended error message is 000020AF: SvcErr: DSID-03210901, problem 5002 (UNAVAILABLE), data 1722

Win32 error returned is 0x20af(The requested FSMO operation failed. The current FSMO holder could not be contacted.)
)
Depending on the error code this may indicate a connection,
ldap, or role transfer error.
Transfer of PDC FSMO failed, proceeding with seizure ...
Server "localhost" knows about 5 roles
Schema - CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
Naming Master - CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
PDC - CN=NTDS Settings,CN=DC212,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
RID - CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
Infrastructure - CN=NTDS Settings,CN=DC112,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com
fsmo maintenance:
```

The error message is normal, because it wasn't able to transfer since DC112 is down. The seizure means it's successful.

Verify the transfer:





Configure the PDC Emulator DC to synchronize time with a reliable time source

On DC212, enter the following:

w32tm.exe /config /manualpeerlist:"europe.pool.ntp.org time.nist.gov 192.43.244.18 193.67.79.202" /syncfromflags:manual /reliable:yes /update

net stop w32time

net start w32time

```
PS C:\Users\Administrator.VLABS12.000> w32tm.exe /config /manualpeerlist:"europe.pool.ntp.org time.nist.gov 192.43.244.1
8 193.67.79.202" /syncfromflags:manual /reliable:yes /update
The command completed successfully.
PS C:\Users\Administrator.VLABS12.000>
```

By stopping and starting the Windows Time Service, it allows the time to synchronize with the source

```
PS C:\Users\Administrator.VLABS12.000> net stop w32time
The Windows Time service is stopping.
The Windows Time service was stopped successfully.

PS C:\Users\Administrator.VLABS12.000> net start w32time
The Windows Time service is starting.
The Windows Time service was started successfully.

PS C:\Users\Administrator.VLABS12.000>
```

Enable Global Catalog on DC212

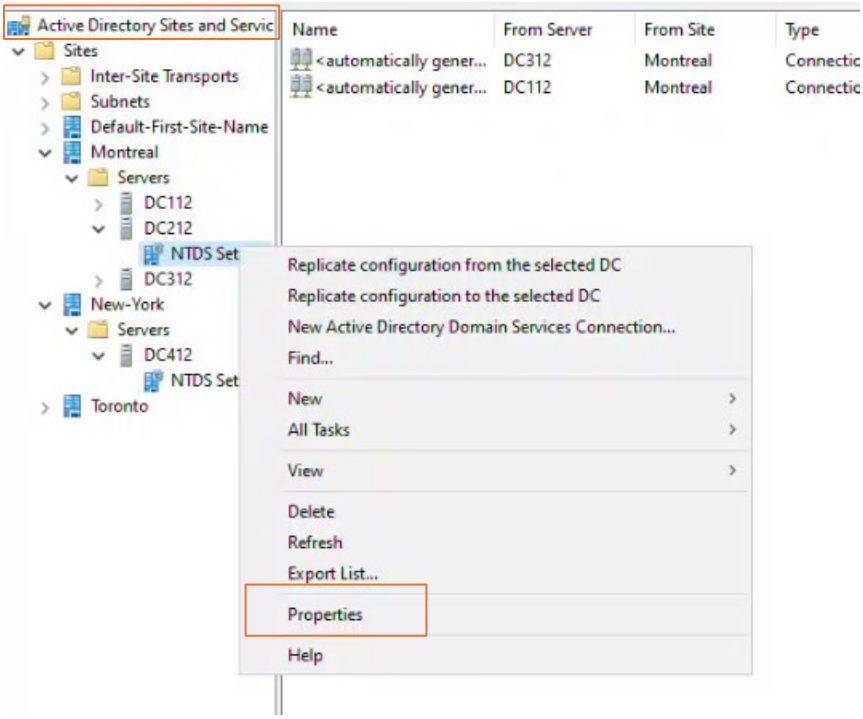
Set-ADObject -Identity "CN=NTDS Settings,CN=DC212,CN=Servers,CN=Montreal,CN=Sites,CN=Configuration,DC=vlabs12,DC=com" -Replace @{options=1}

```
PS C:\Users\Administrator.VLABS12.000> Set-ADObject -Identity "CN=NTDS Settings,CN=DC212,CN=Servers,CN=Montreal,CN=Sites
,CN=Configuration,DC=vlabs12,DC=com" -Replace @{options=1}
PS C:\Users\Administrator.VLABS12.000>
```

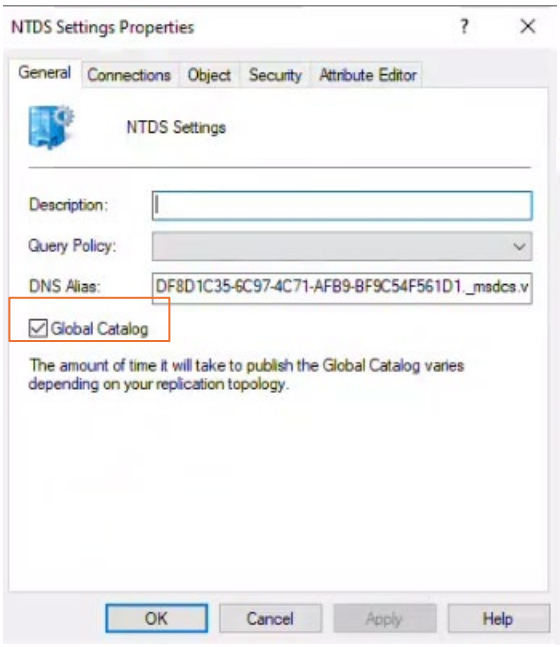
Verify:

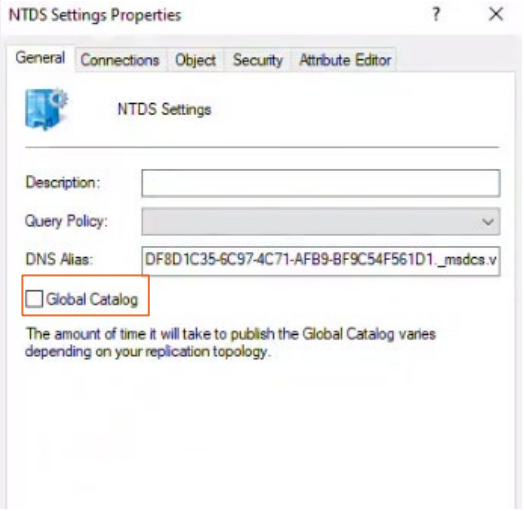
```
PS C:\Users\Administrator.VLABS12.000>  Get-ADDomainController -Identity "DC212" | Select-Object Name, IsGlobalCatalog

Name  IsGlobalCatalog
----  ---------------
DC212            True


PS C:\Users\Administrator.VLABS12.000>
```

Return to DC112, use the GUI to disable the Global Catalog on DC212



Uncheck the box “Global Catalog”


NTDS Settings Properties
General
Connections
Object
Security
Attribute Editor
NTDS Settings
Description:
Query Policy:
DNS Alias:
DF8D1C35-6C97-4C71-AFB9-BF9C54F561D1._msdcs.v
Global Catalog
The amount of time it will take to publish the Global Catalog varies depending on your replication topology.
OK
Cancel
Apply
Help


NTDS Settings Properties
General
Connections
Object
Security
Attribute Editor
NTDS Settings
Description:
Query Policy:
DNS Alias:
DF8D1C35-6C97-4C71-AFB9-BF9C54F561D1._msdcs.v
Global Catalog
The amount of time it will take to publish the Global Catalog varies depending on your replication topology.