

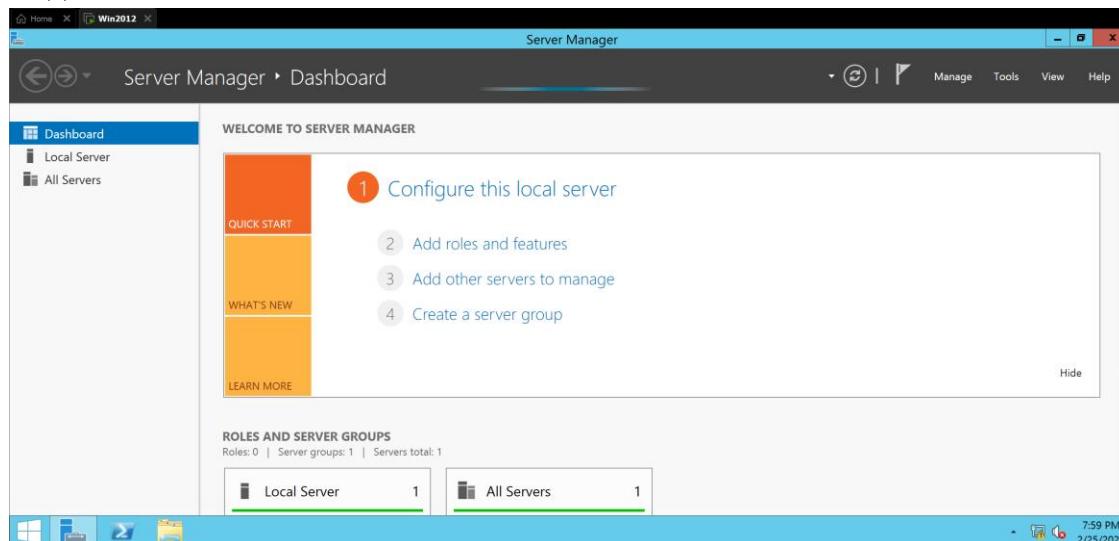
Configuring and Troubleshooting Domain Name System DNS

Exercise 1: Configuring DNS Resource Records

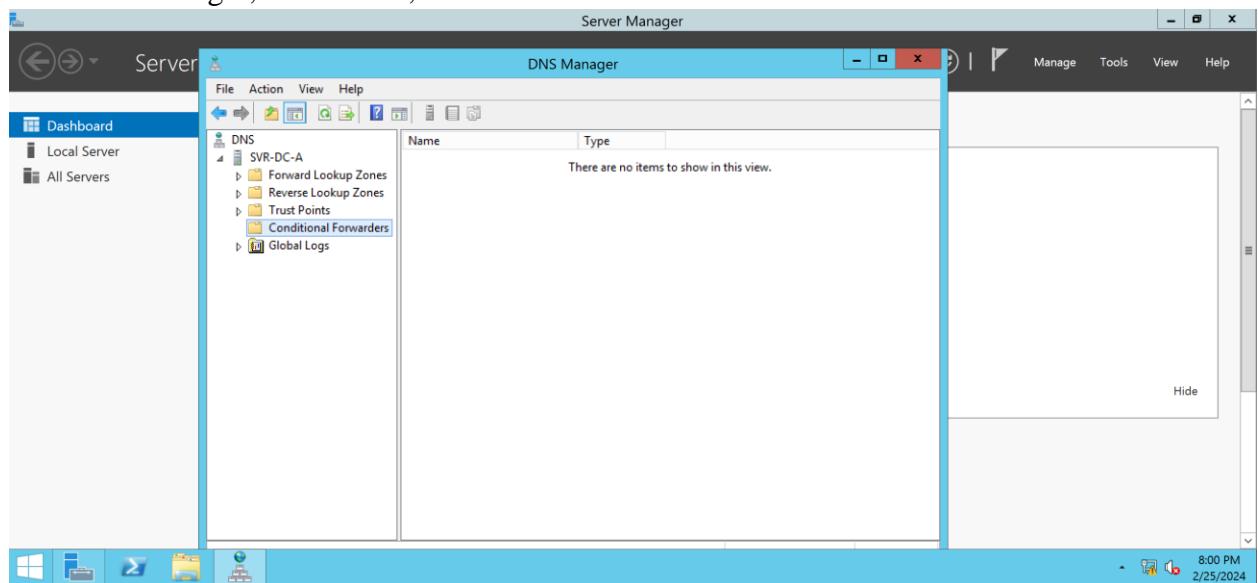
Task -1

Add the required mail exchanger (MX) record

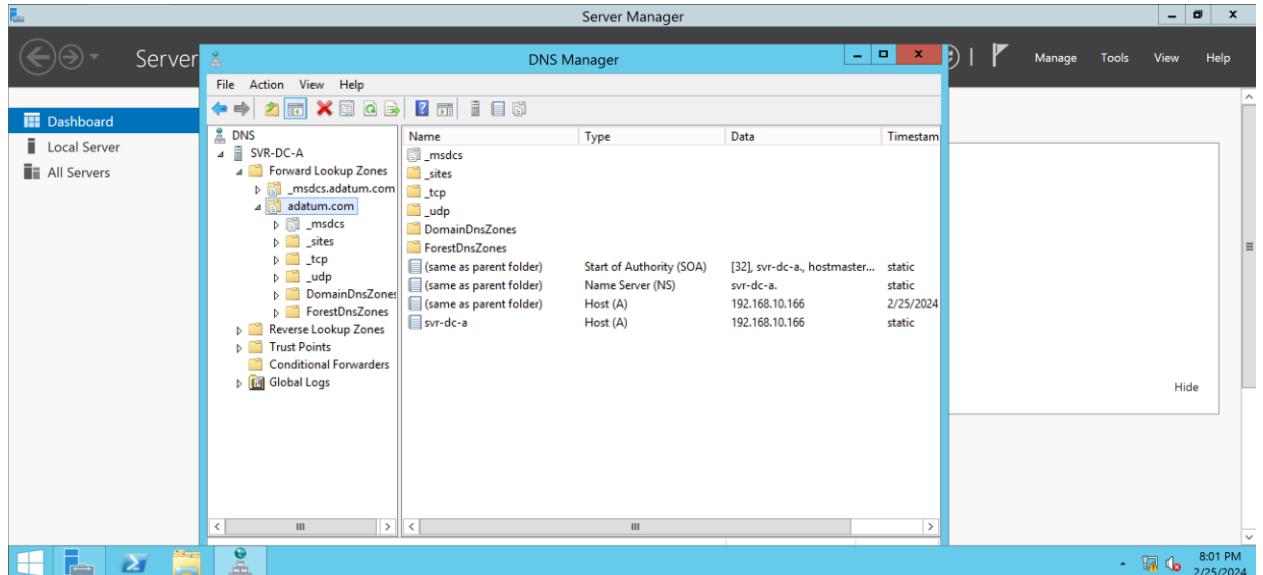
1. Switch to LON-DC1, and then sign in as Adatum\Administrator with the password Pa\$\$w0rd.



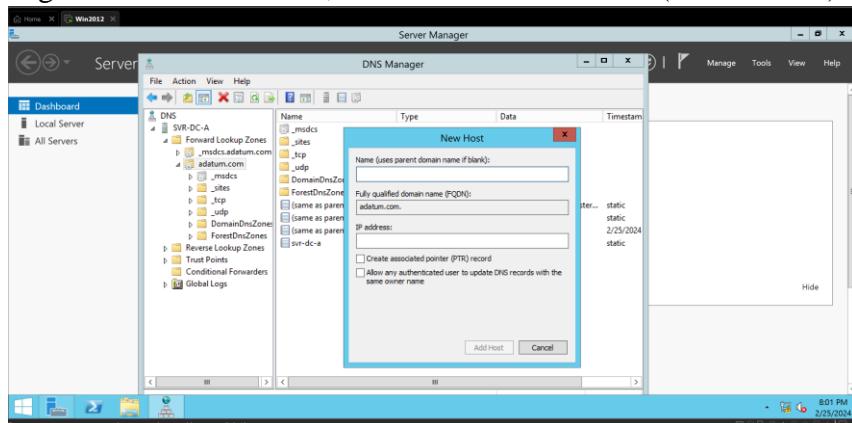
2. In Server Manager, click Tools, and then click DNS.



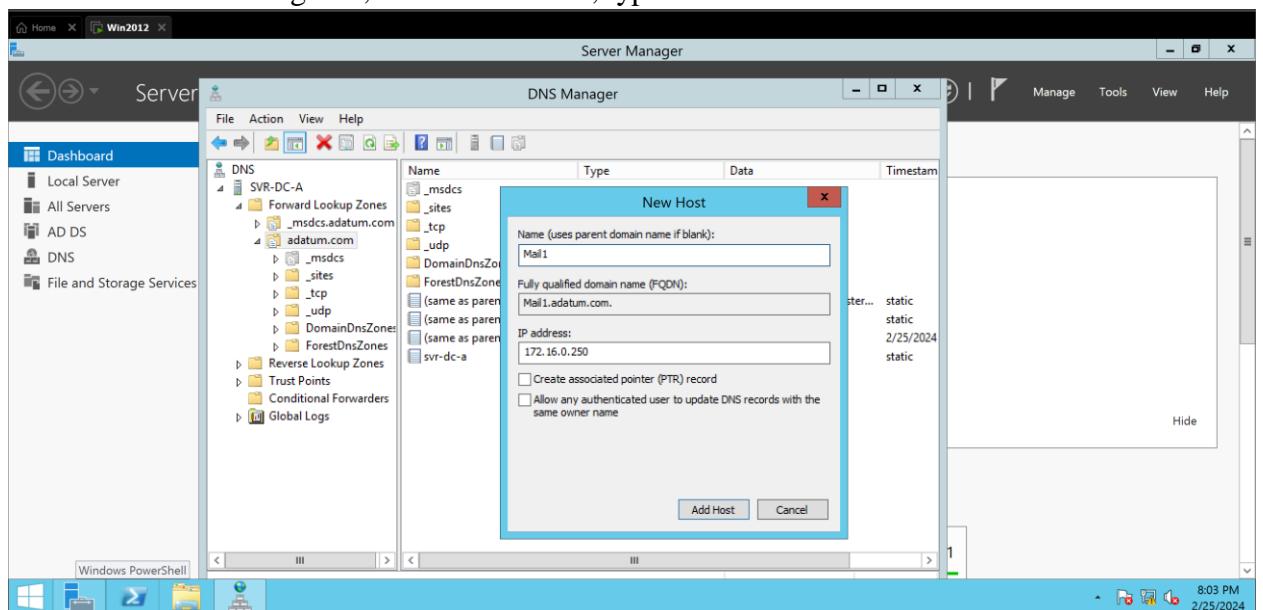
3. In DNS Manager, expand LON-DC1, expand Forward Lookup Zones, and then click Adatum.com.



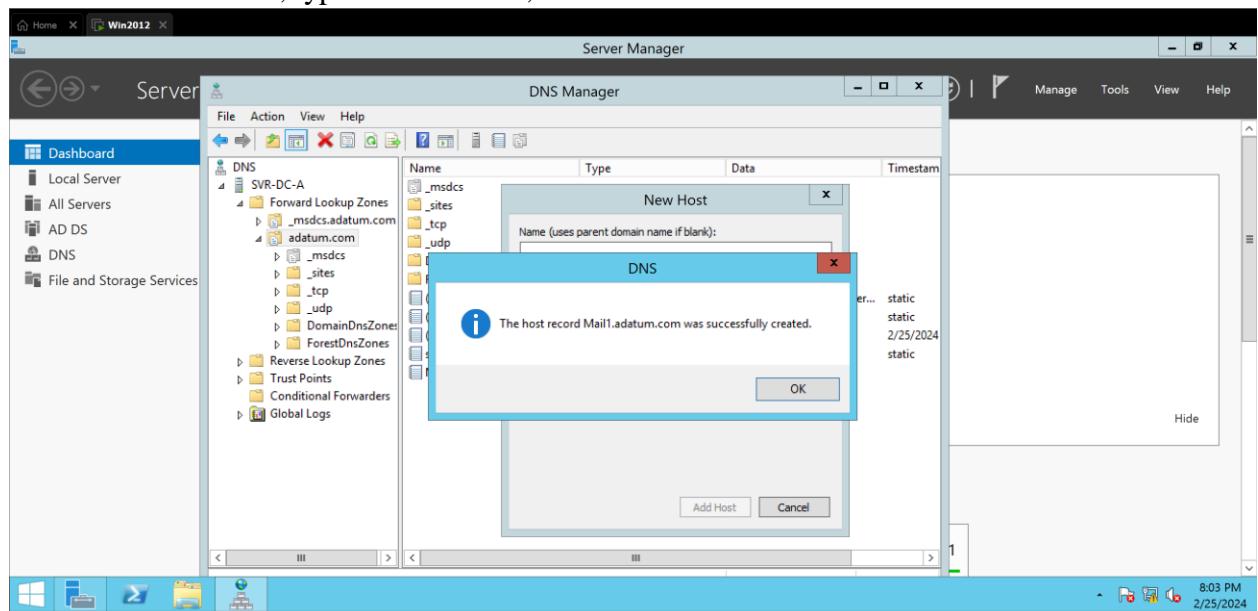
- Right-click Adatum.com, and then click New host (A or AAAA).



- In the New Host dialog box, in the Name box, type Mail1.



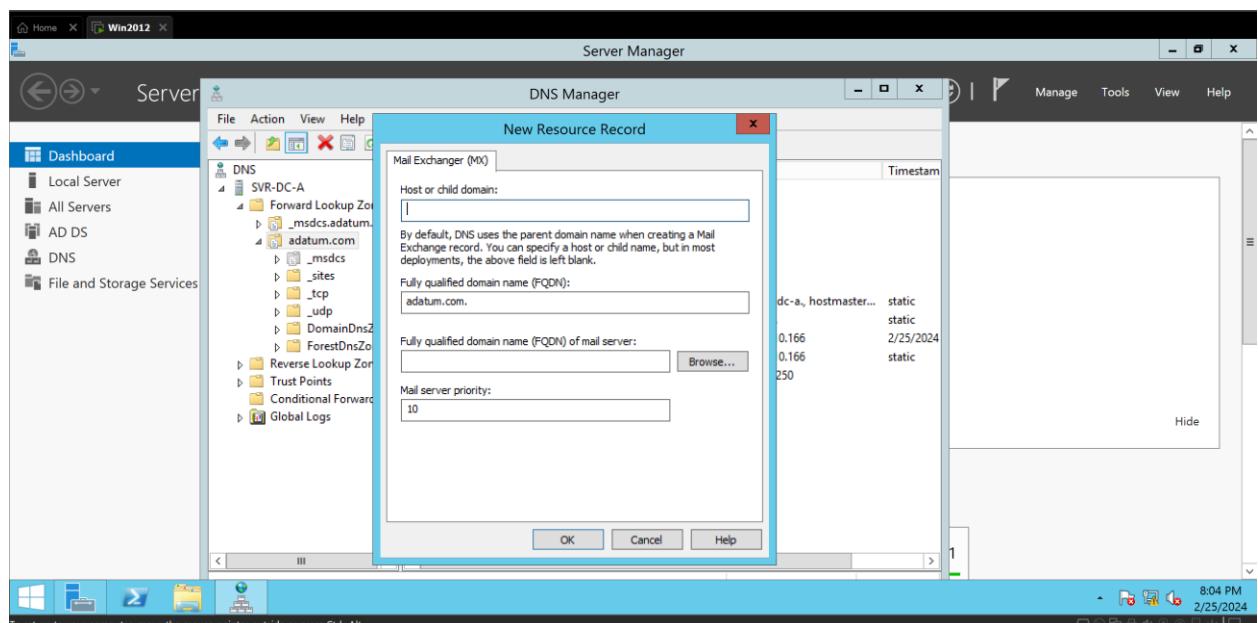
6. In the IP address box, type 172.16.0.250, and then click Add Host.



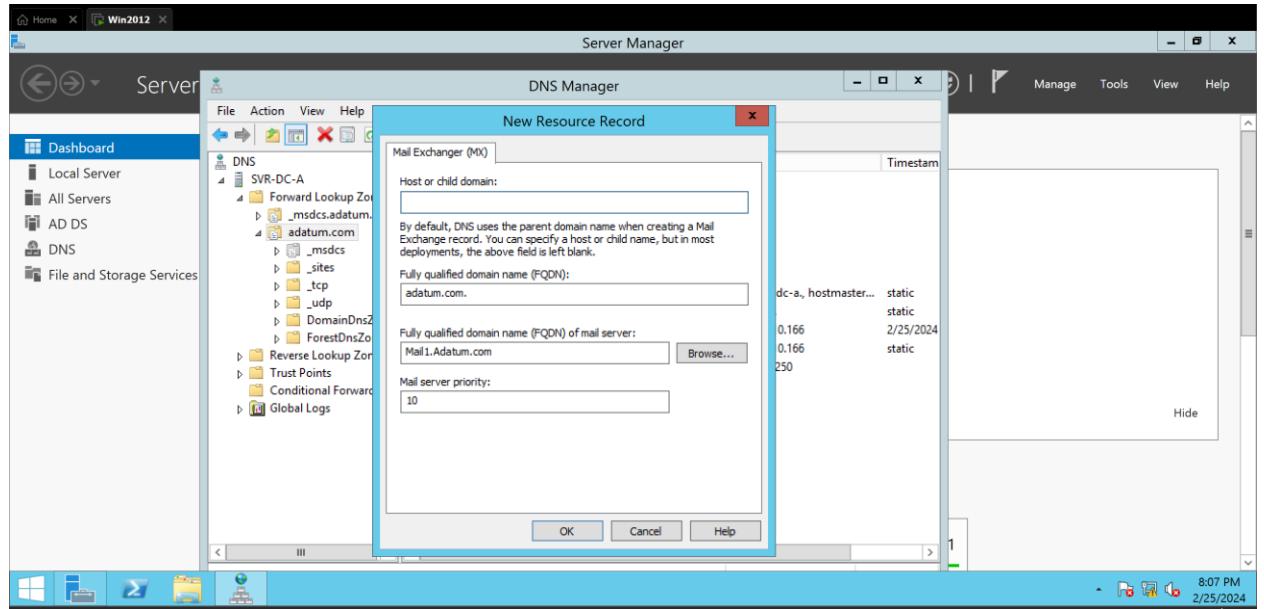
7. In the DNS dialog box, click OK

8. In the New Host dialog box, click Done.

9. Right-click Adatum.com, and then click New Mail Exchanger (MX).

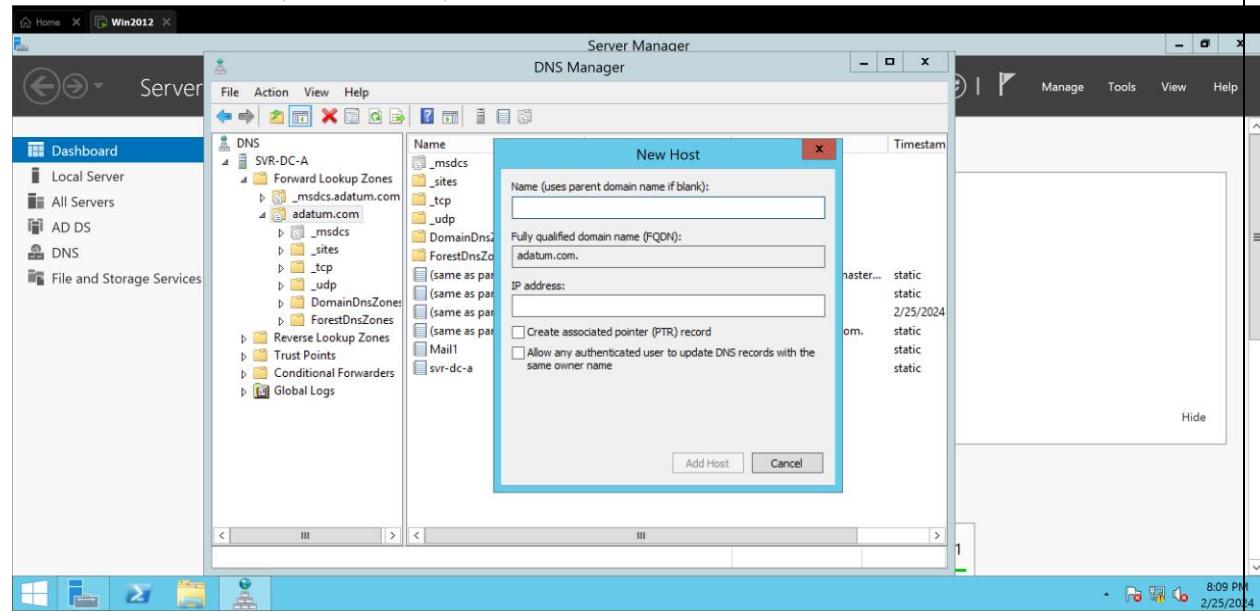


10. In the New Resource Record dialog box, in the Fully qualified domain name (FQDN) of mail server box, type Mail1.Adatum.com, and then click OK.

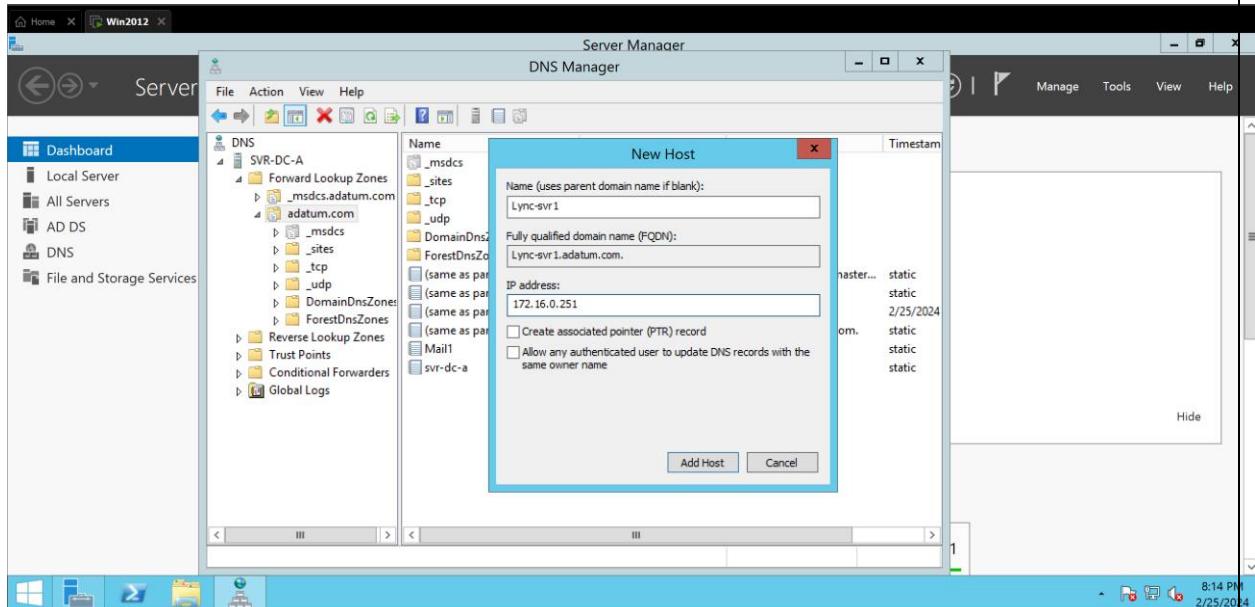


Task 2: Add the required Microsoft Lync Server records

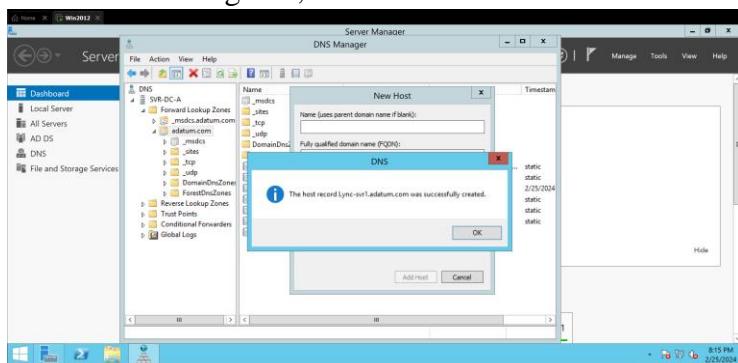
1. To add the required Microsoft® Lync® Server records, right-click Adatum.com, and then click New host (A or AAAA).



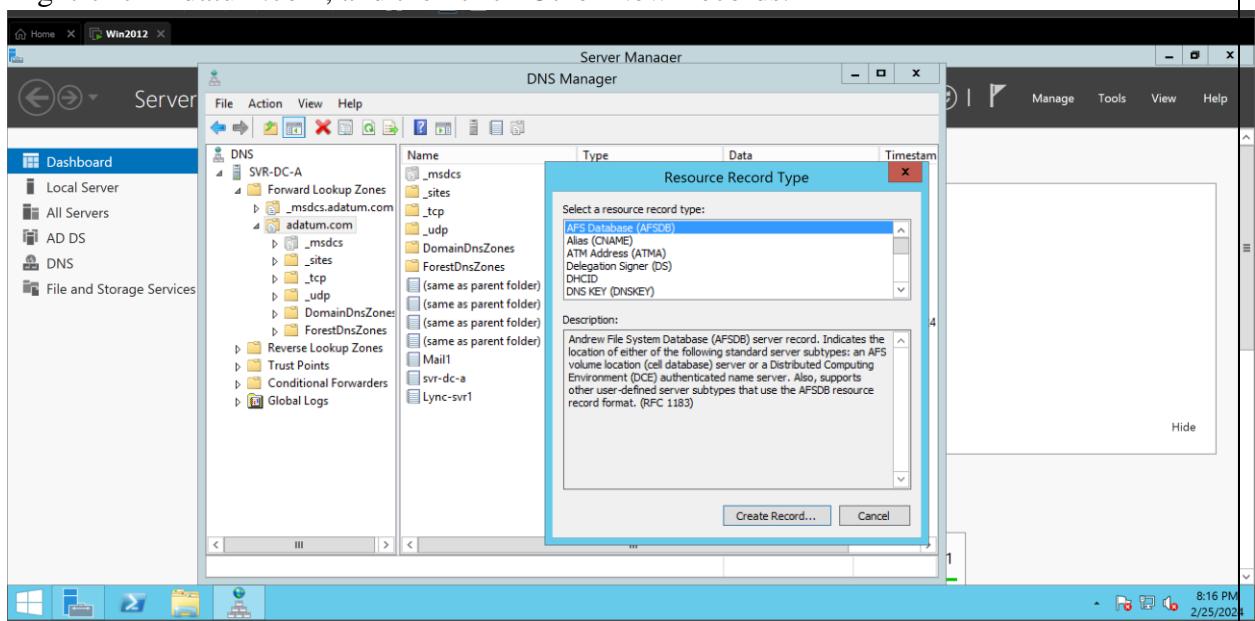
2. In the New Host dialog box, in the Name box, type Lync-svr1.
3. In the IP address box, type 172.16.0.251, and then click Add Host.



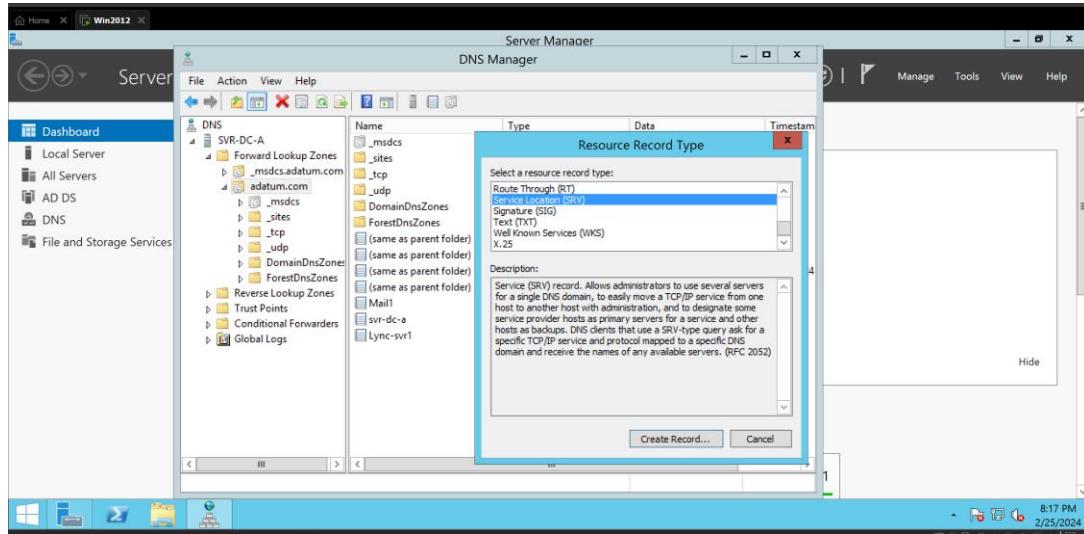
4. In the DNS dialog box, click OK.



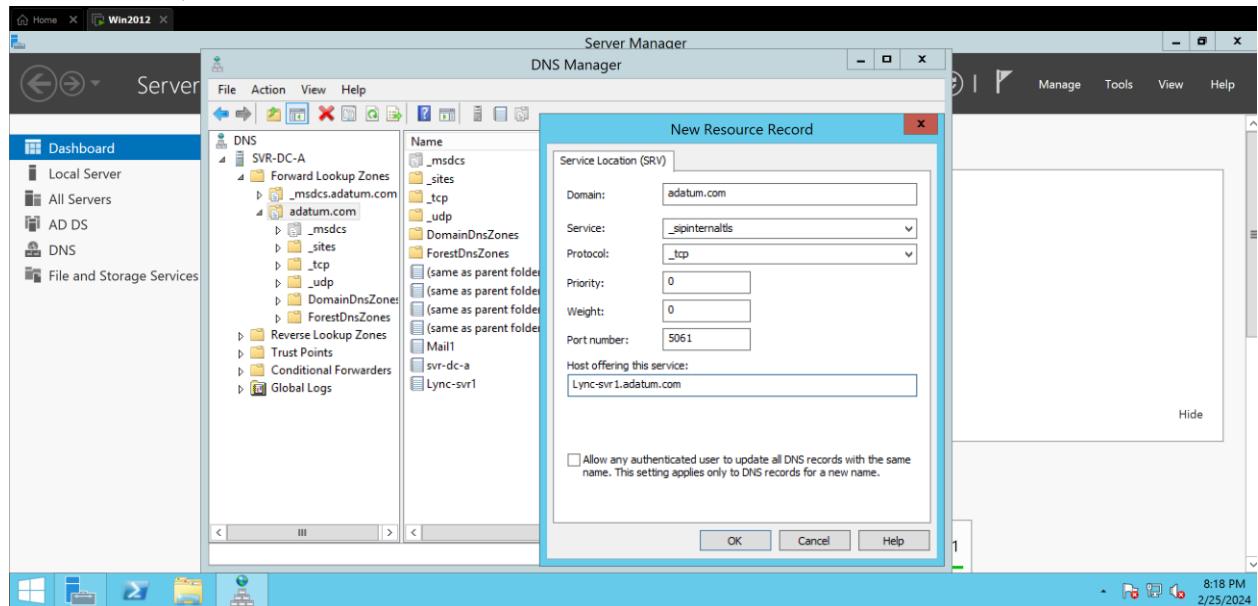
5. In the New Host dialog box, click Done.
6. Right-click Adatum.com, and then click Other New Records.



- In the Resource Record Type dialog box, in the Select a resource record type list, scroll down, then click Service Location (SRV), and then click Create Record.

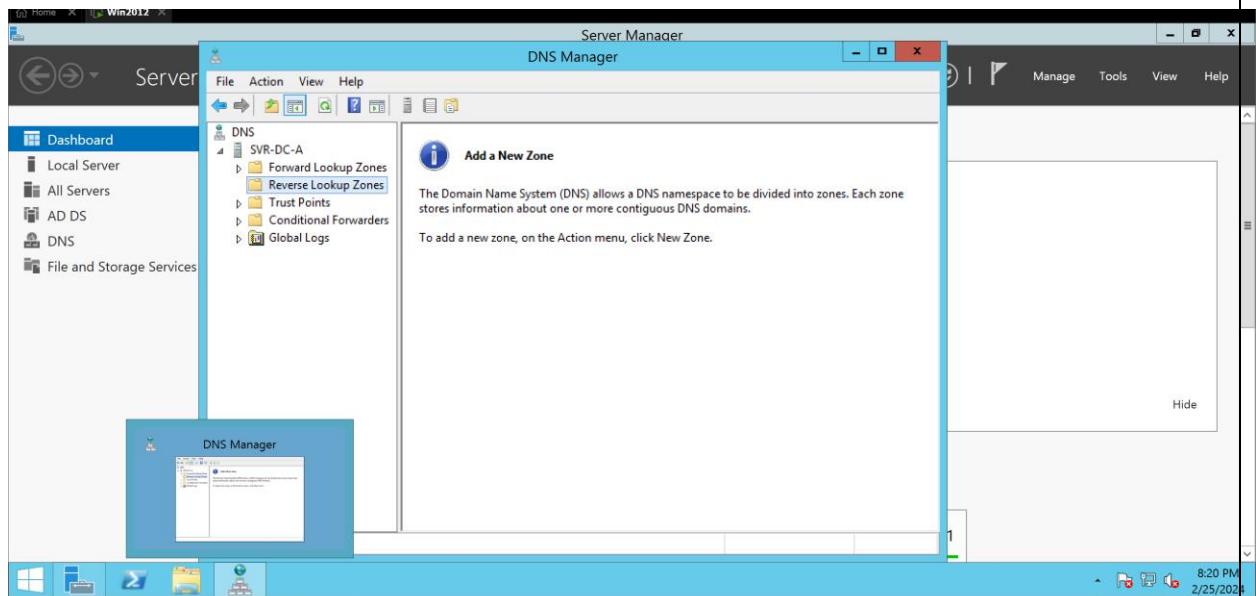


- In the New Resource Record dialog box, in the Service box, type _sipinternaltls.
- In the Protocol box, type _tcp.
- In Port Number, type 5061.
- In the Host offering this service box, type Lync-svr1.adatum.com.
- Click OK, and then click Done

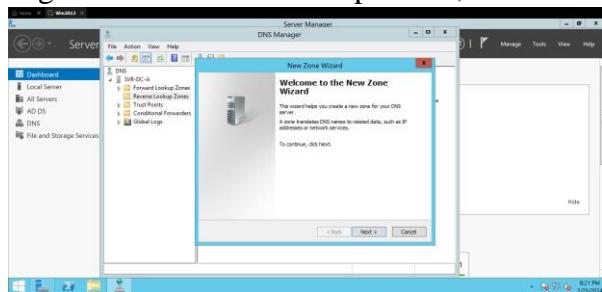


Task 3: Create the reverse lookup zone

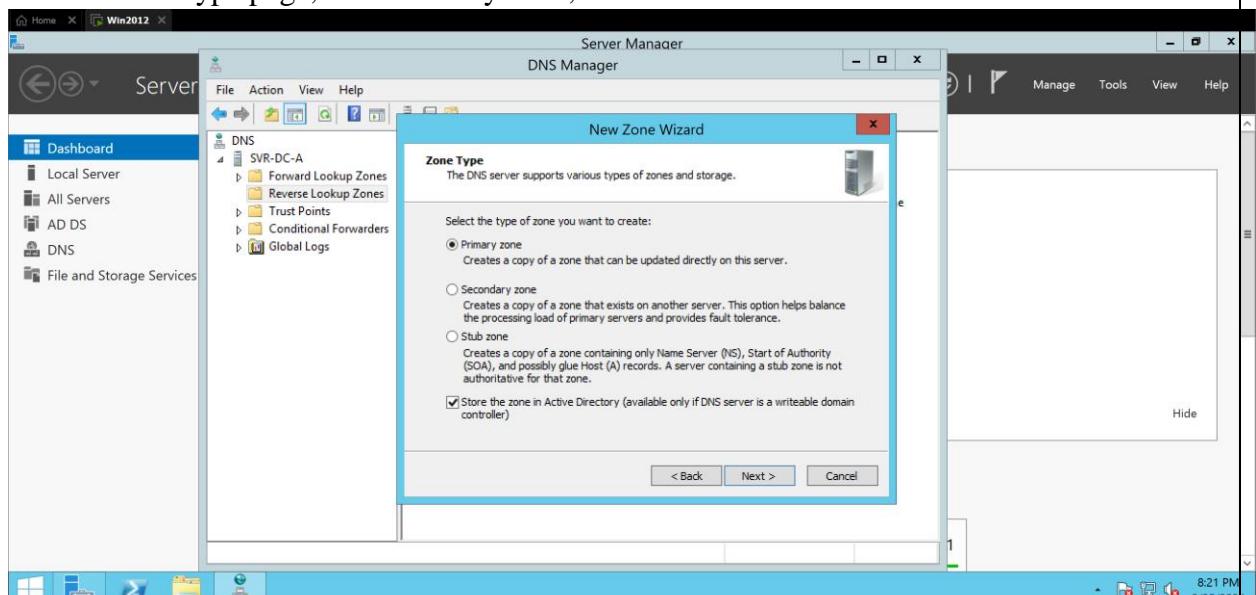
- In DNS Manager, in the navigation pane, click Reverse Lookup Zones.



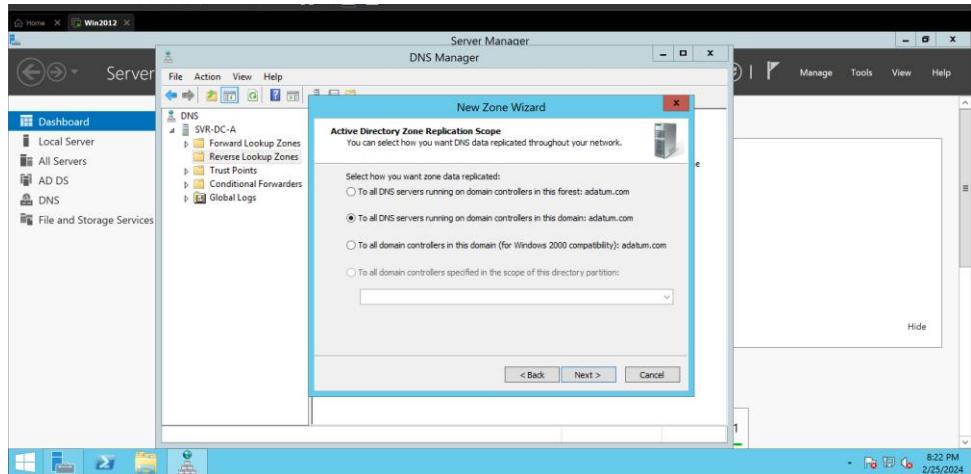
2. Right-click Reverse Lookup Zones, and then click New Zone.



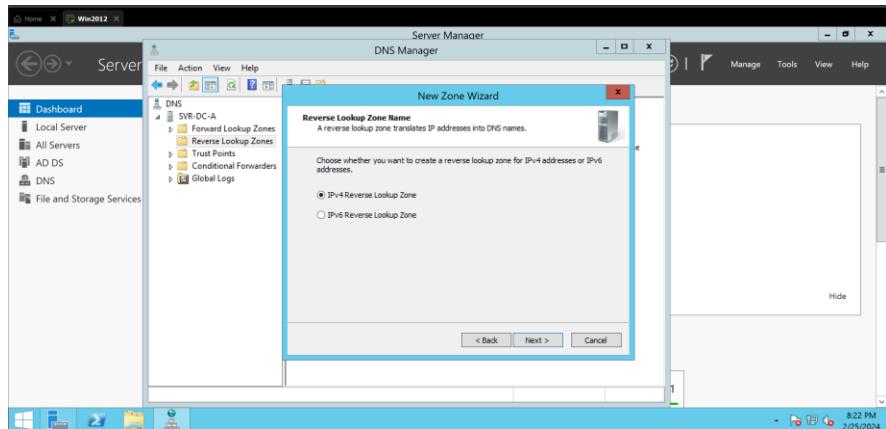
3. In the New Zone Wizard, click Next.
4. On the Zone Type page, click Primary zone, and then click Next.



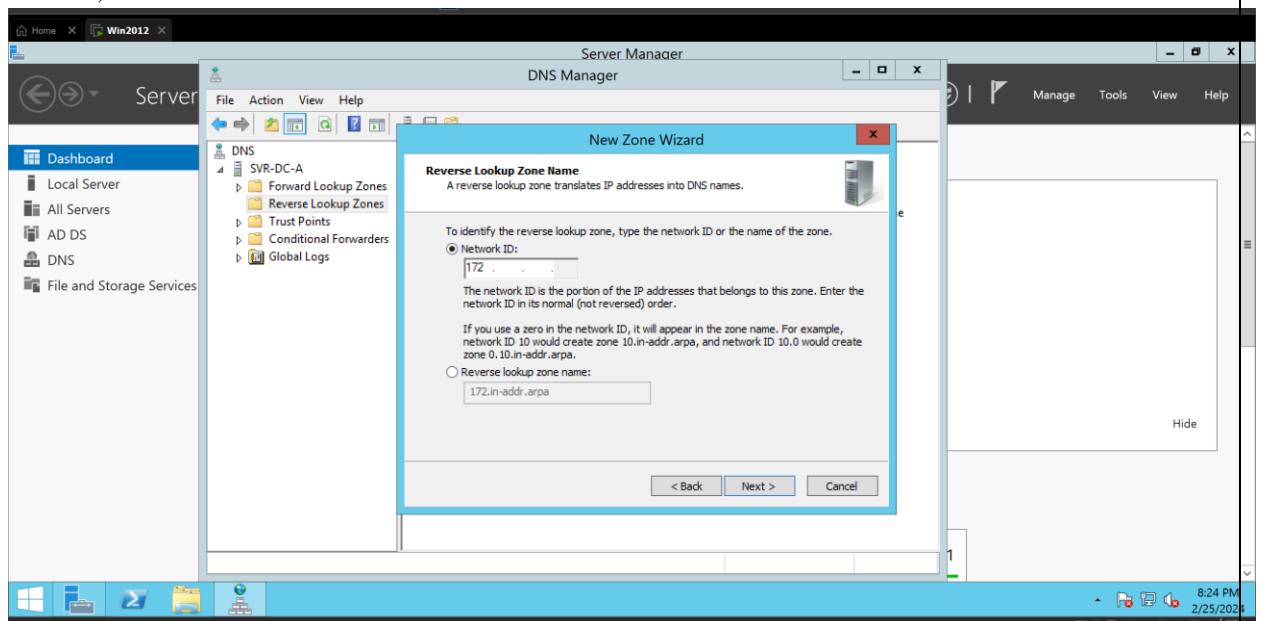
5. On the Active Directory Zone Replication Scope page, click Next.



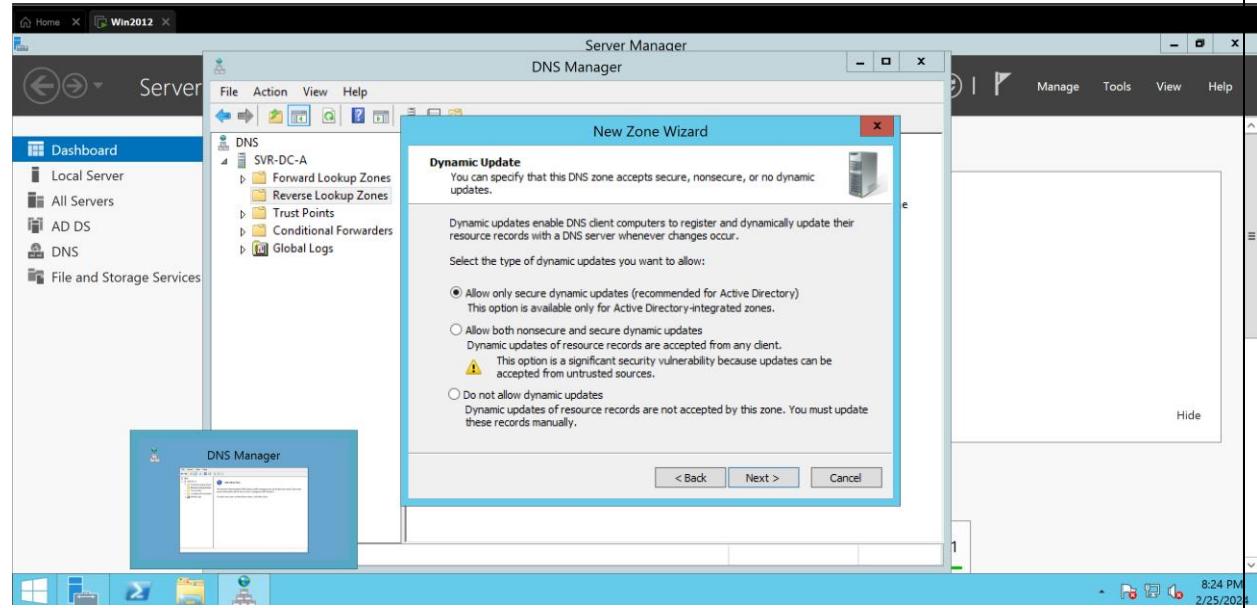
6. On the Reverse Lookup Zone Name page, click IPv4 Reverse Lookup Zone, and then click Next.



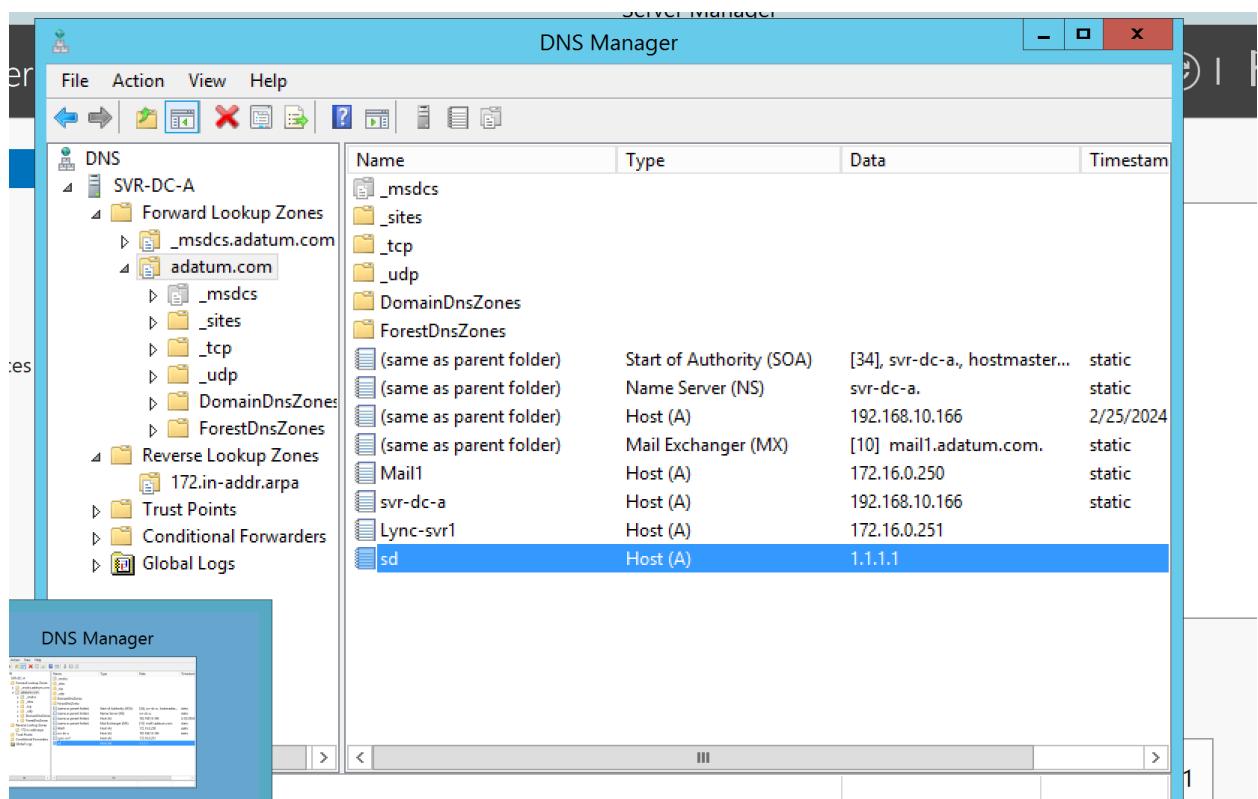
7. On the second Reverse Lookup Zone Name page, in the Network ID box, type 172.16, and then click Next.



8. On the Dynamic Update page, click Next.



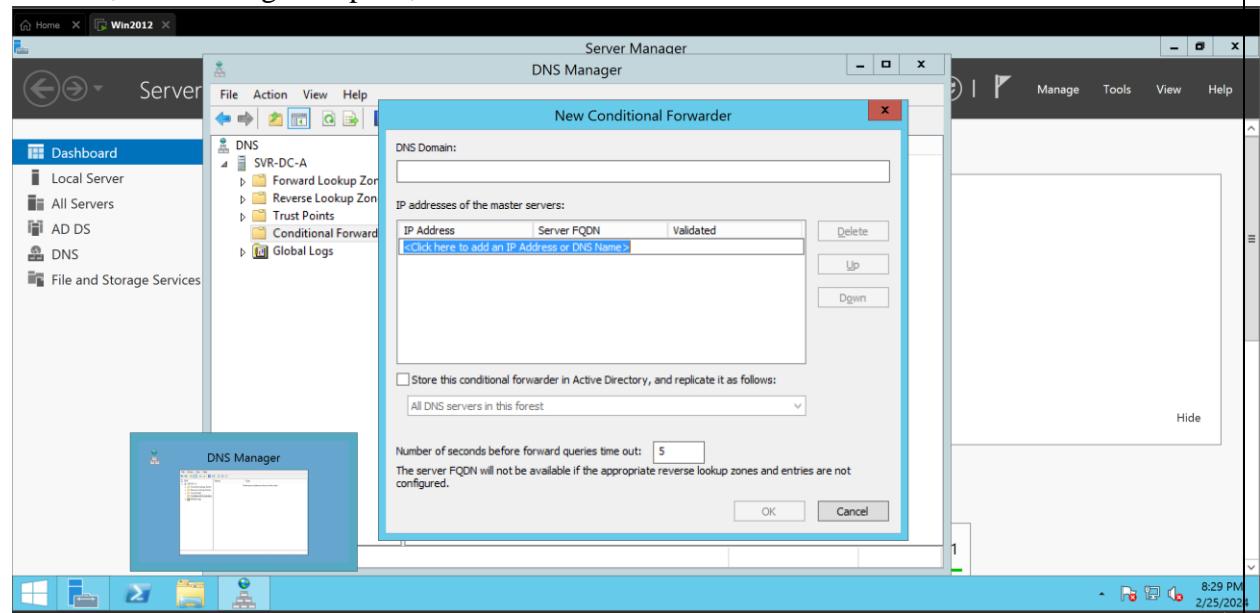
9. On the Completing the New Zone Wizard page, click Finish



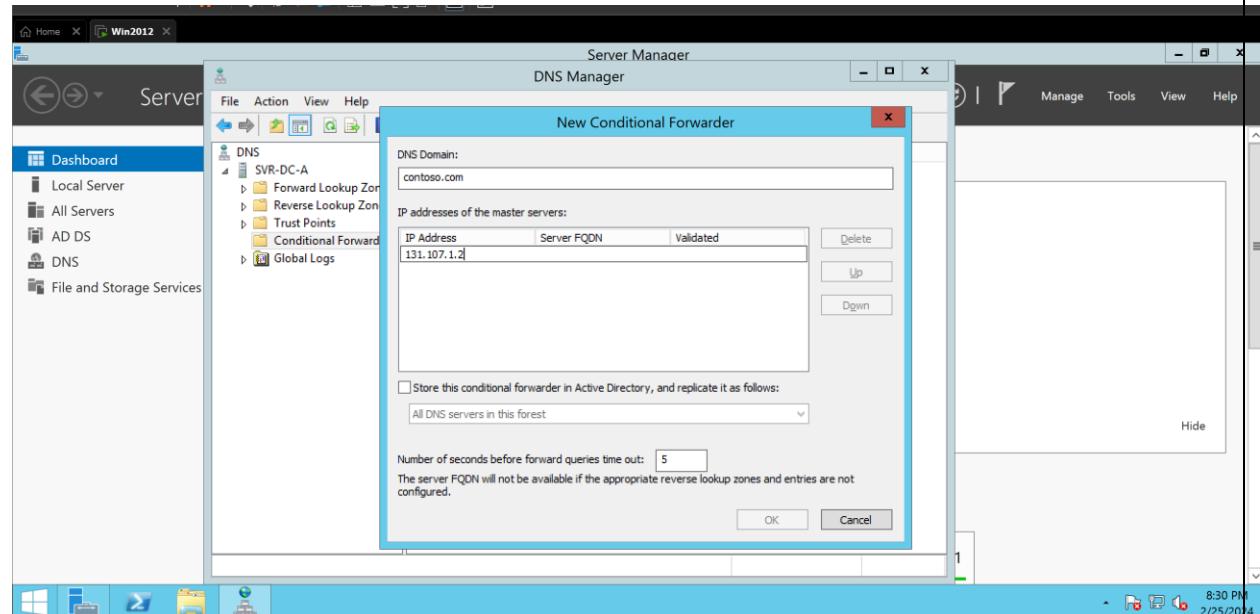
Exercise 2: Configuring DNS Conditional Forwarding

Task 1: Add the conditional forwarding record for Contoso.com

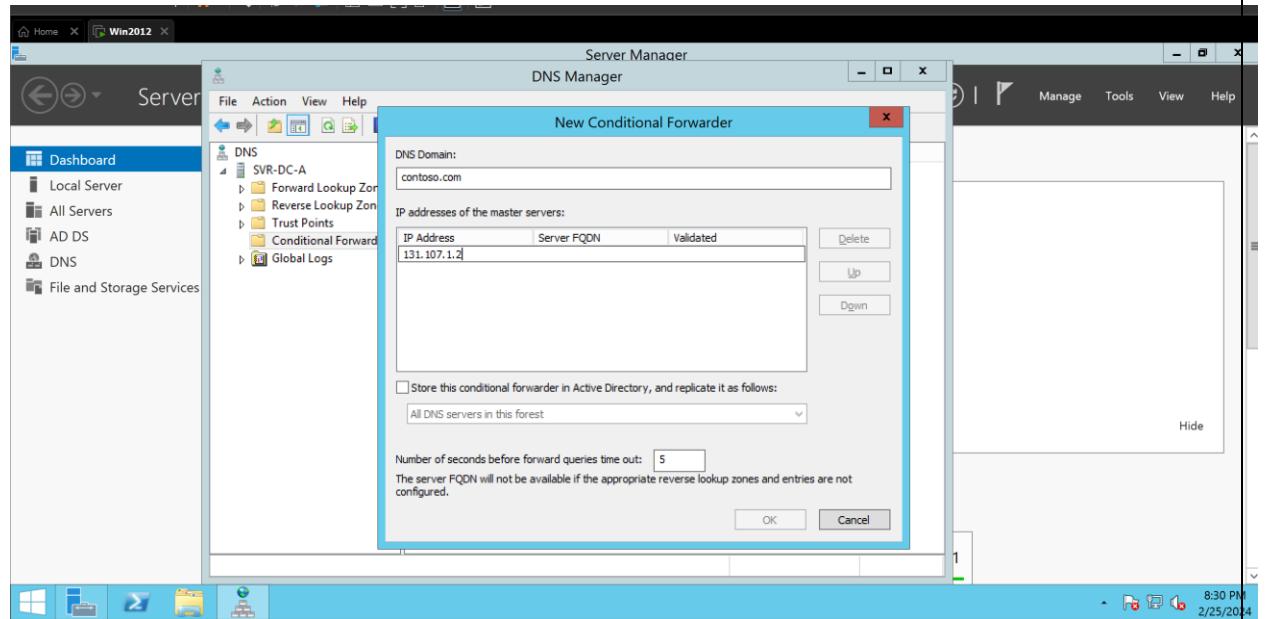
1. In DNS, in the navigation pane, click Conditional Forwarders.



2. Right-click Conditional Forwarders, and then click New Conditional Forwarder.
3. In the New Conditional Forwarder dialog box, in the DNS Domain box, type contoso.com.



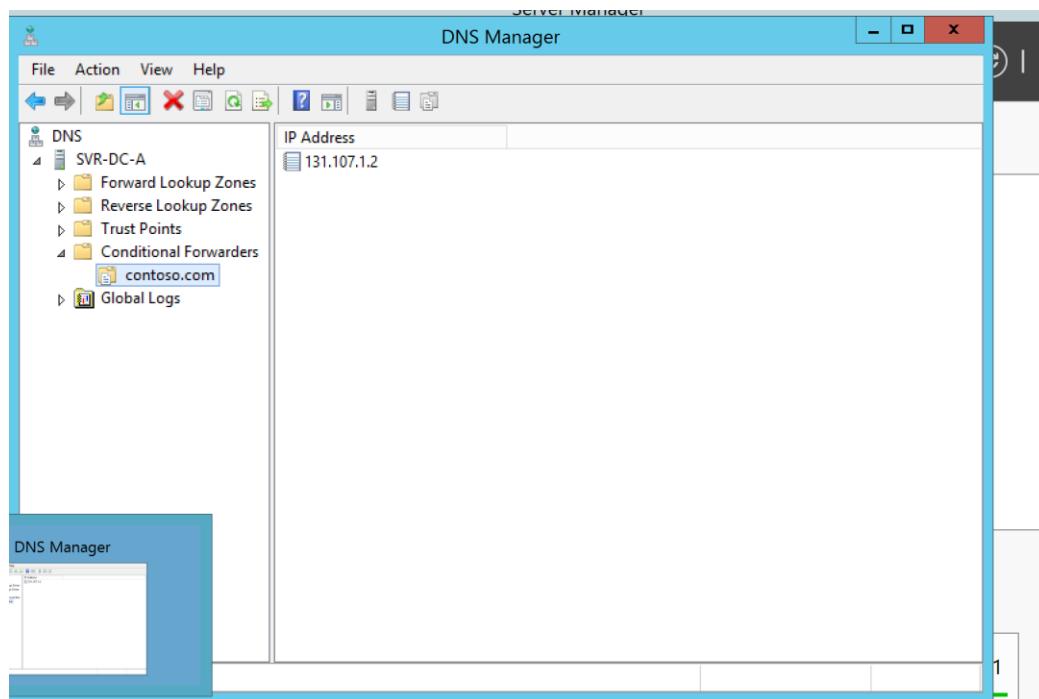
4. Click the <Click here to add an IP Address or DNS Name> box, type 131.107.1.2, and then press Enter. Validation



will fail because the server cannot be contacted.

5. Select the Store this conditional forwarder in Active Directory, and replicate it as follows check box, and then

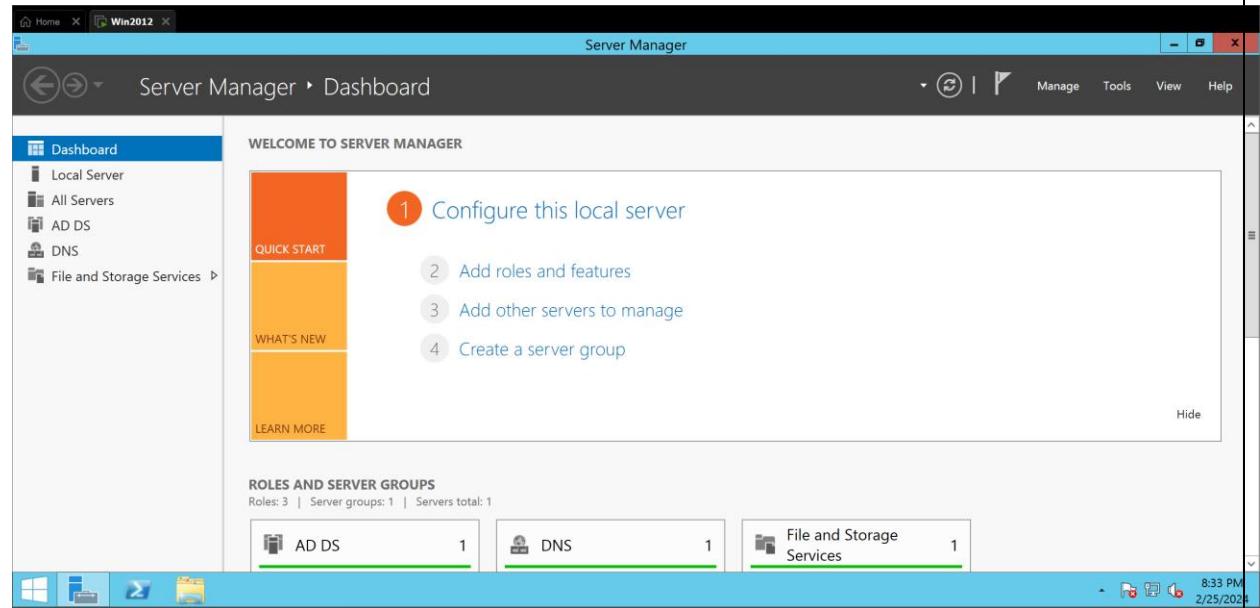
click OK.



Exercise 3: Installing and Configuring DNS Zones

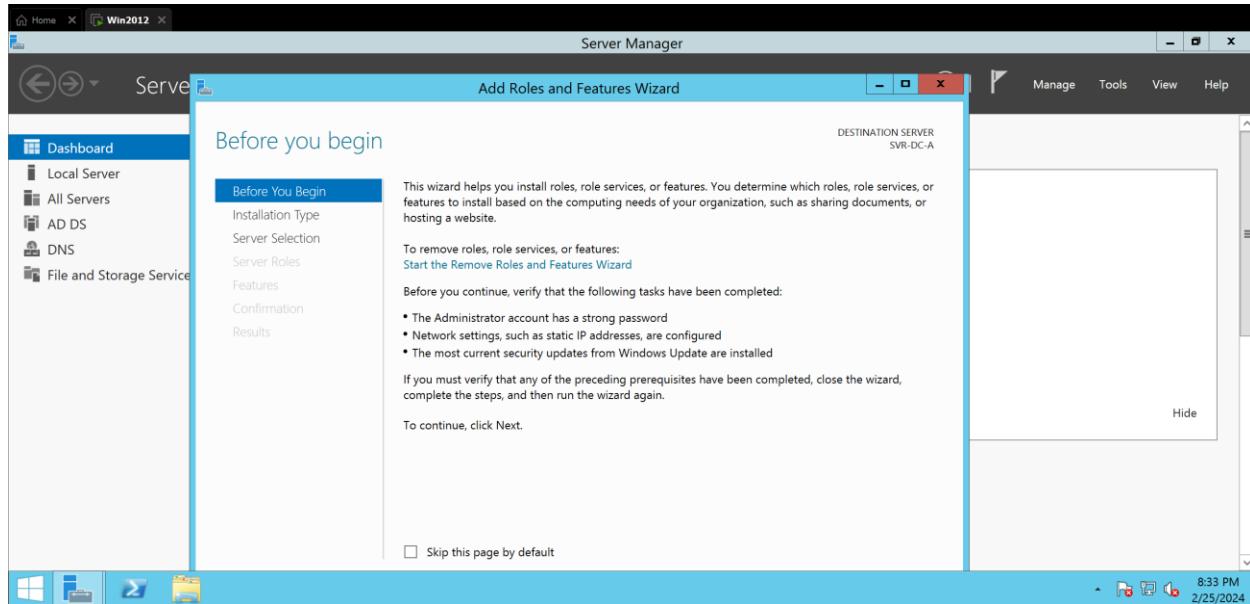
Task 1: Install the DNS server role on LON-SVR1

1. Switch to LON-SVR1, and then sign in as Adatum\Administrator with the password Pa\$\$w0rd.



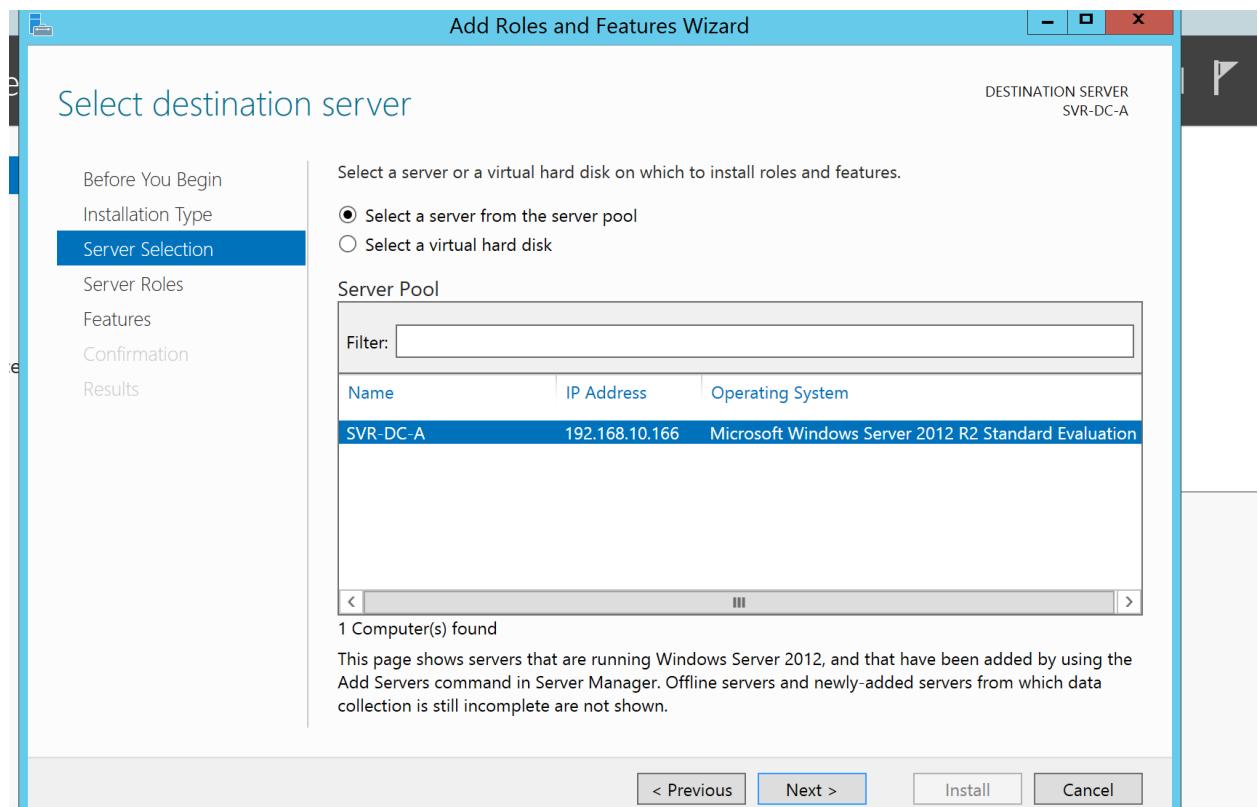
2. If necessary, on the taskbar, click Server Manager.

3. In Server Manager, in the navigation pane, click Dashboard, and then, in the details pane, click Add roles and features.

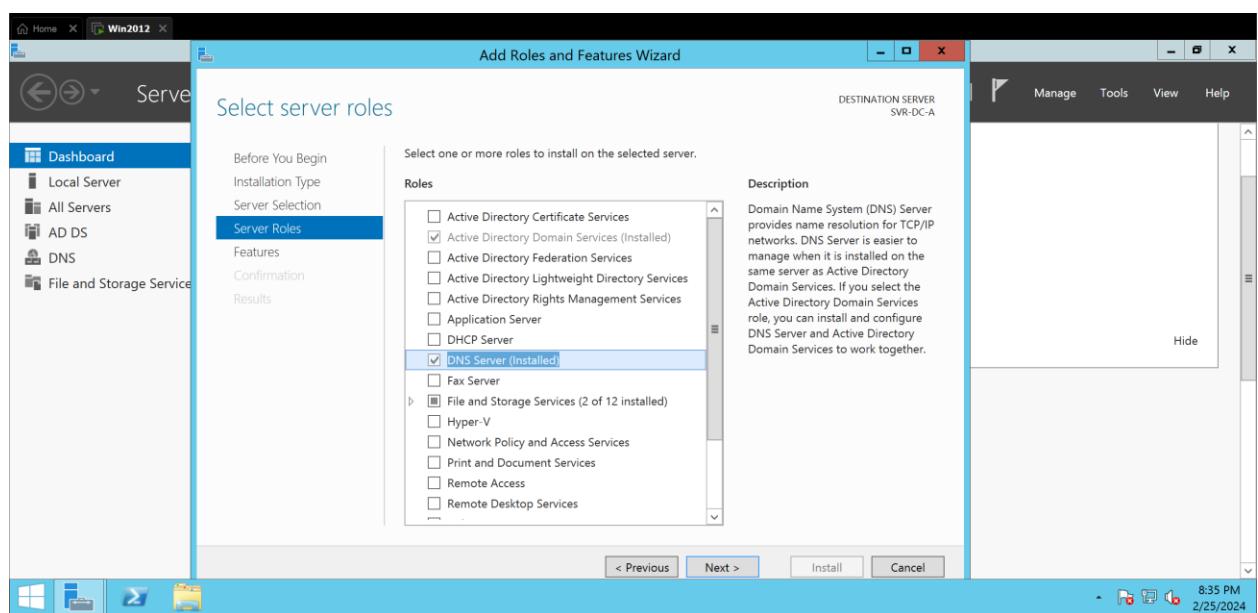


4. In the Add Roles and Features Wizard, click Next.

5. On the Select installation type page, click Role-based or feature-based installation, and then click Next.



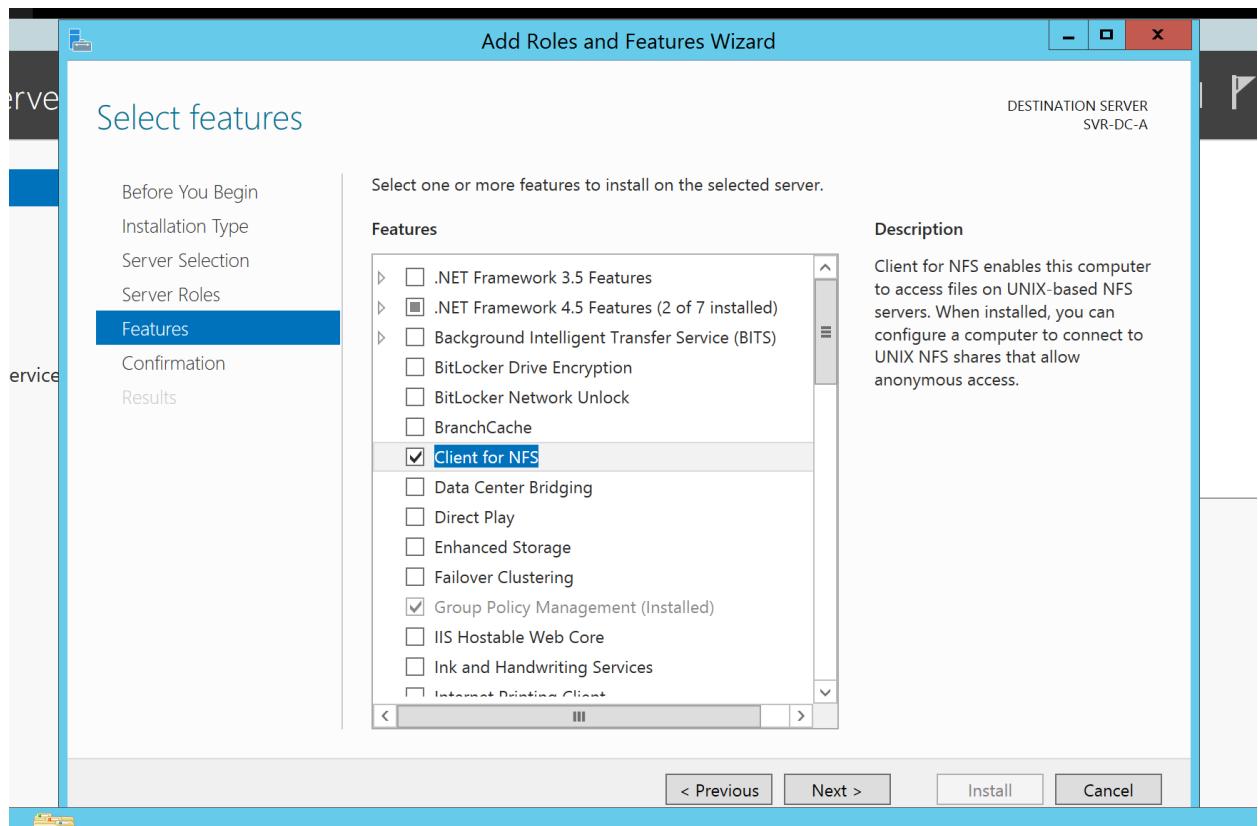
6. On the Select destination server page, click Next.
7. On the Select server roles page, in the Roles list, select the DNS Server check box.



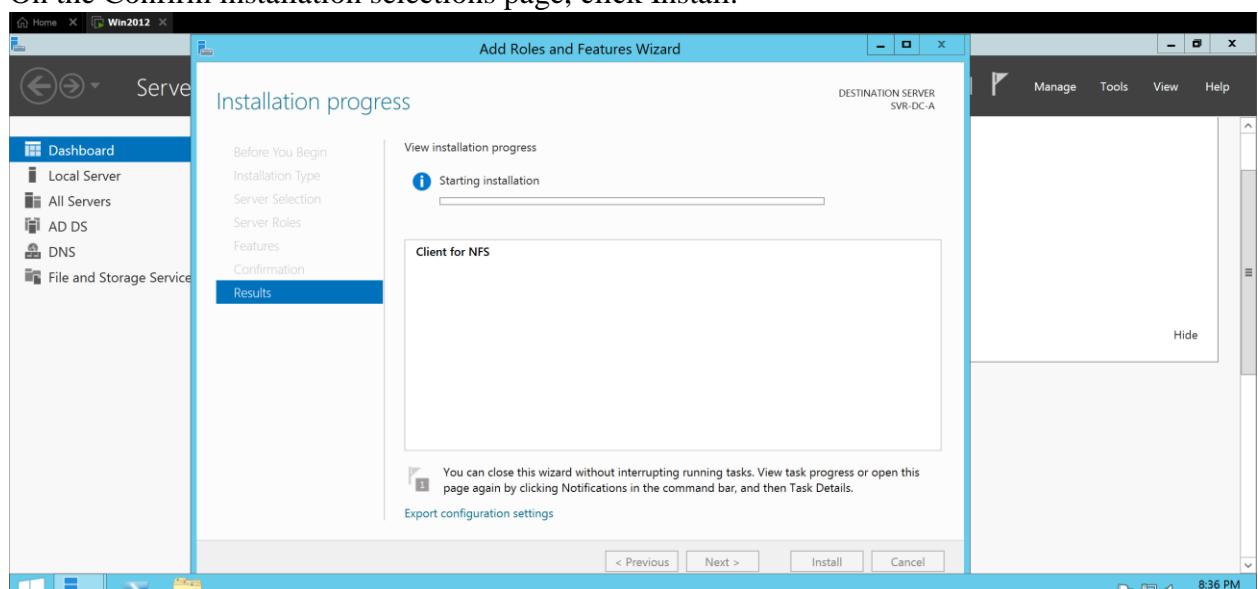
8. In the Add Roles and Features Wizard dialog box, click Add Features.
9. On the Select server roles page, click Next.

10. On the Select features page, click Next.

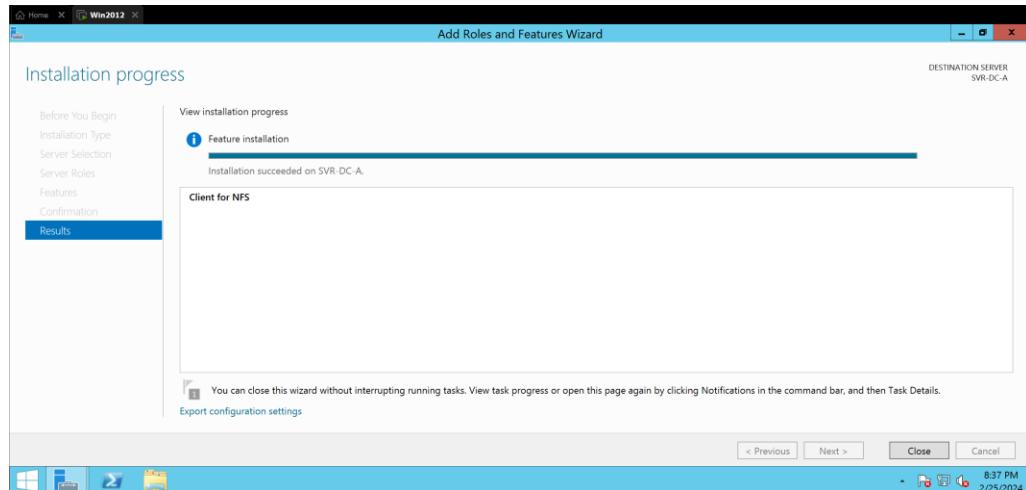
11. On the DNS Server page, click Next.



11. On the Confirm installation selections page, click Install.



12. After the role is installed, click Close.



Task 2: Create the required secondary zones on LON-SVR1

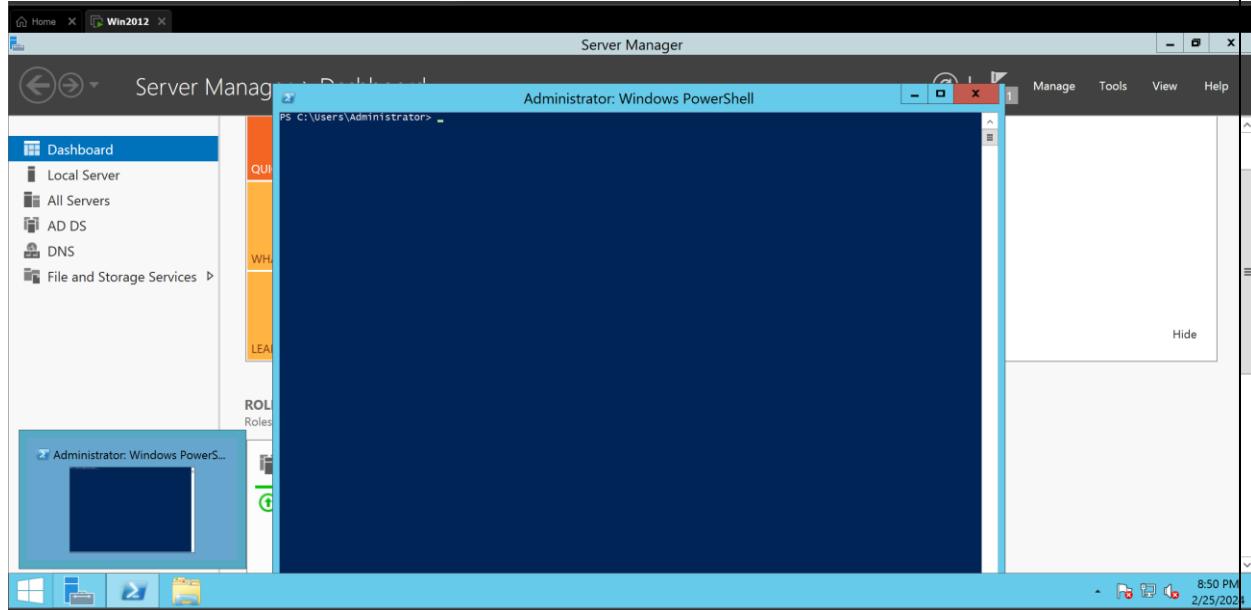
1. To use the Windows PowerShell® command-line interface to create the secondary zone, type the following in a Windows PowerShell Administrator console, and then press Enter:

Add-DnsServerSecondaryZone -Name "Adatum.com" -ZoneFile "Adatum.com.dns" -MasterServers 172.16.0.10

A screenshot of an 'Administrator: Windows PowerShell' window. The command 'Add-DnsServerSecondaryZone -Name "example.com" -ZoneFile "C:\DNS\example.com.dns" -MasterServers 192.168.1.10' is typed and executed. The output shows the command was run from 'PS C:\Users\Administrator>' and completed successfully.

Task 3: Enable and configure zone transfers

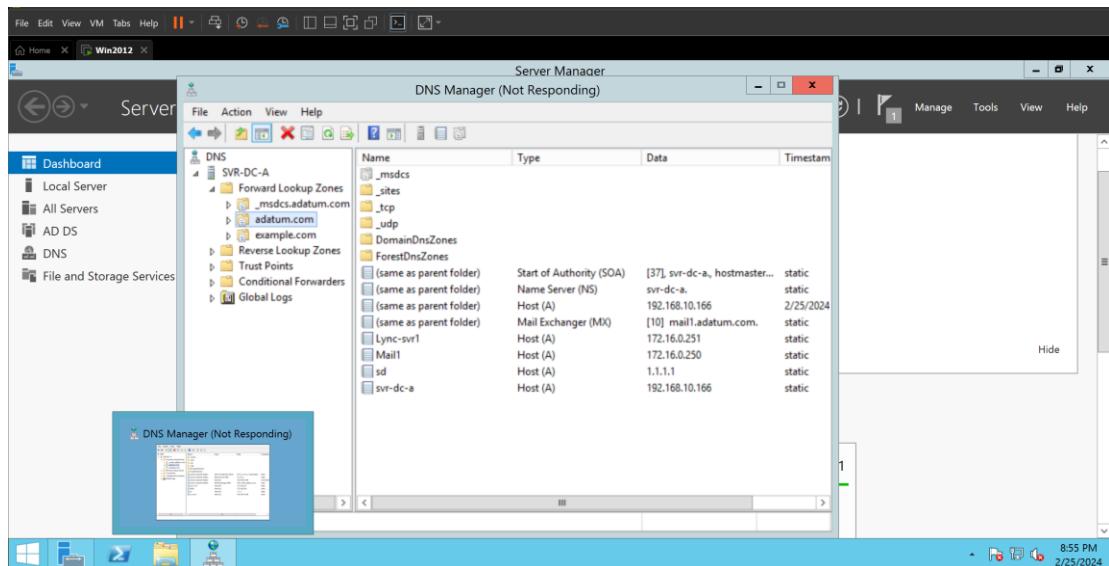
1. Switch to LON-DC1.



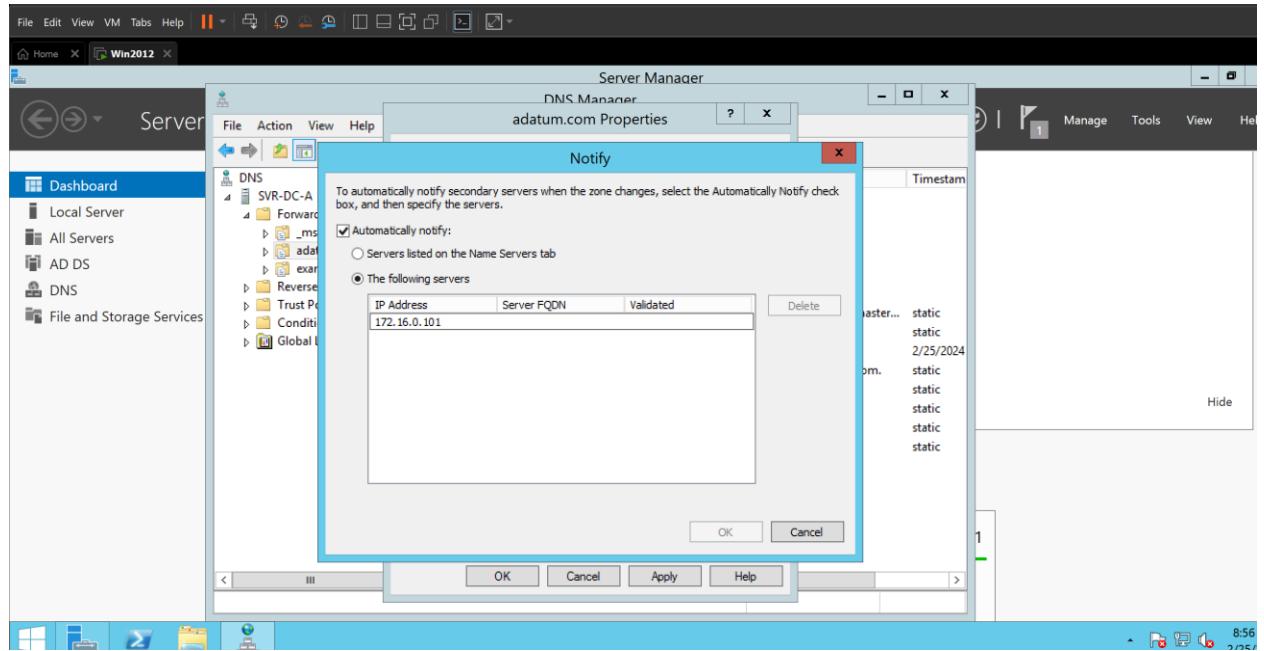
2. On the desktop, click Windows PowerShell on the taskbar.
3. At the Windows PowerShell Administrator command prompt, type the following cmdlet, and then press Enter:

```
Set-DnsServerPrimaryZone -Name "Adatum.com" –Notify NotifyServers –NotifyServers  
"172.16.0.101" –SecondaryServers "172.16.0.101" –SecureSecondaries  
TransferToSecureServers
```

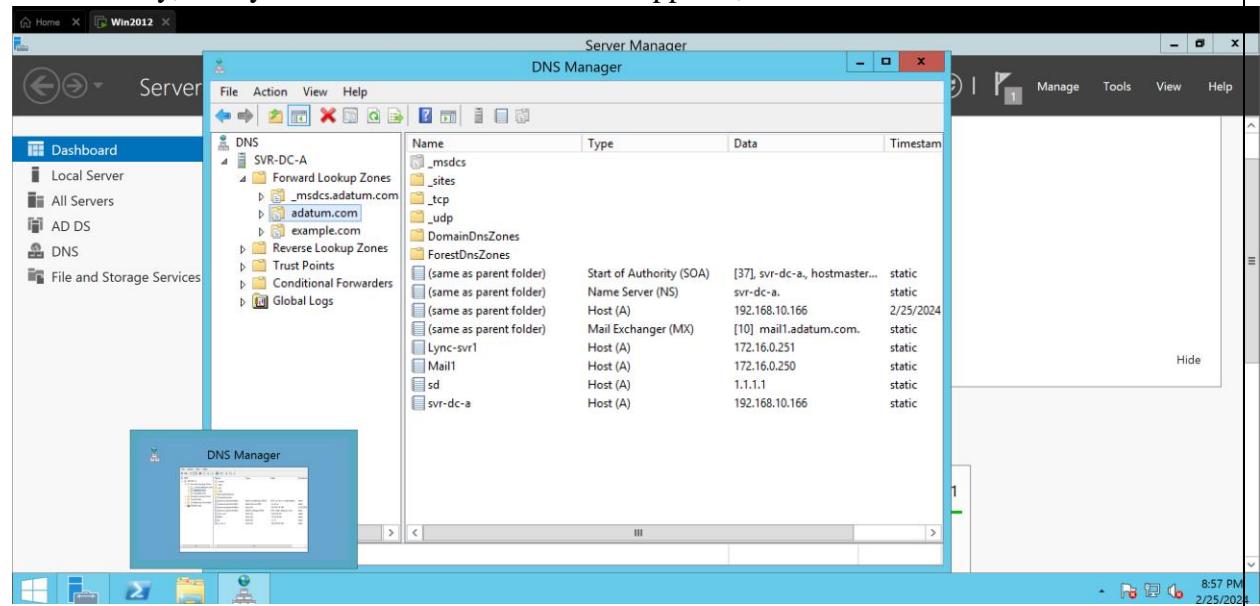
5. In DNS Manager, in the navigation pane, click Adatum.com, and then, on the toolbar, click Refresh.



5. Right-click Adatum.com, and then click Properties.
6. In the Adatum.com Properties dialog box, click the Zone Transfers tab.

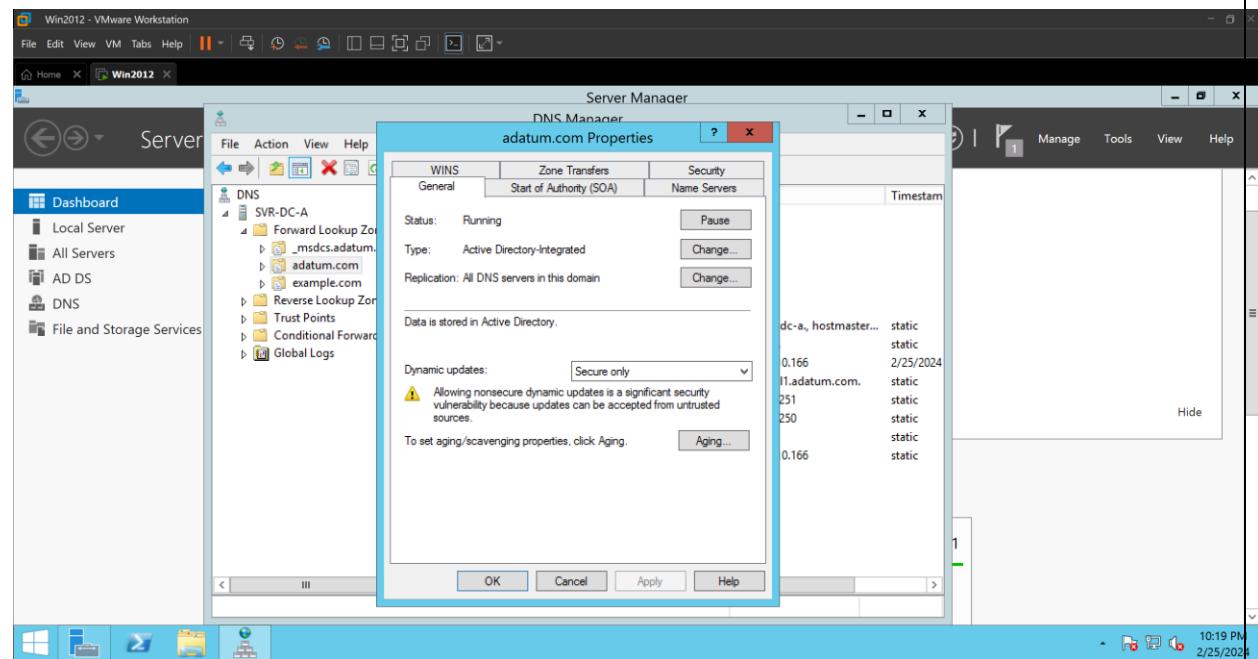


- Click Notify, verify that the server 172.16.0.101 appears, and then click Cancel.

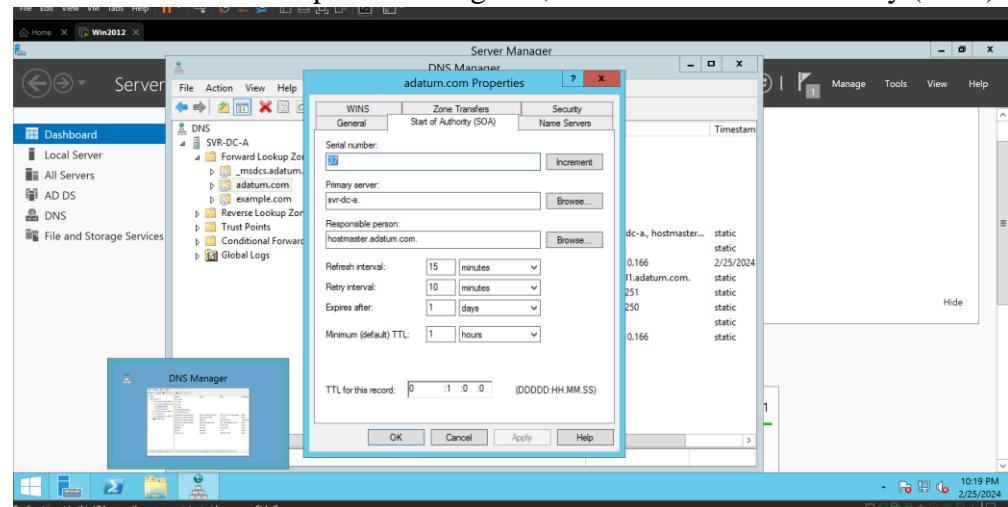


Task 4: Configure Time to Live (TTL), aging, and scavenging

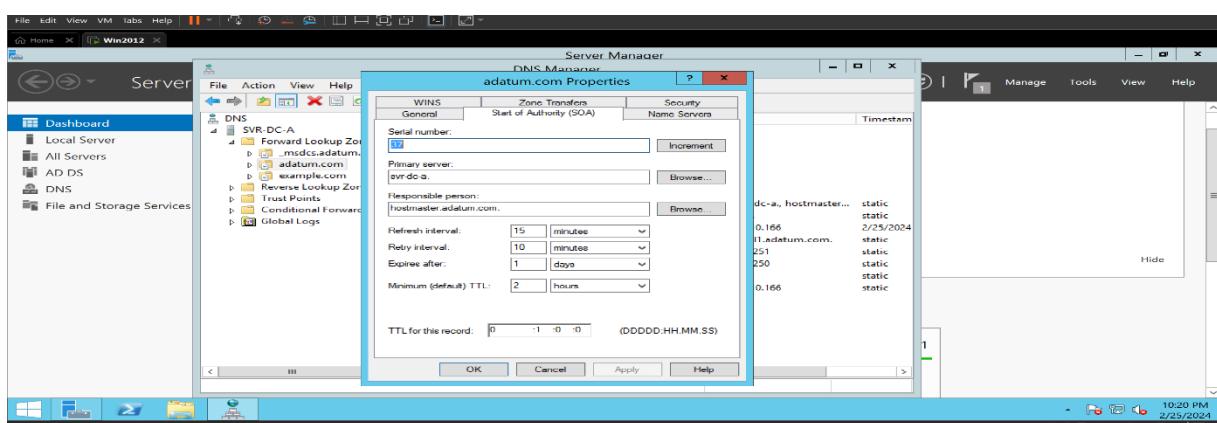
- On LON-DC1, in DNS Manager, right-click Adatum.com, and then click Properties.



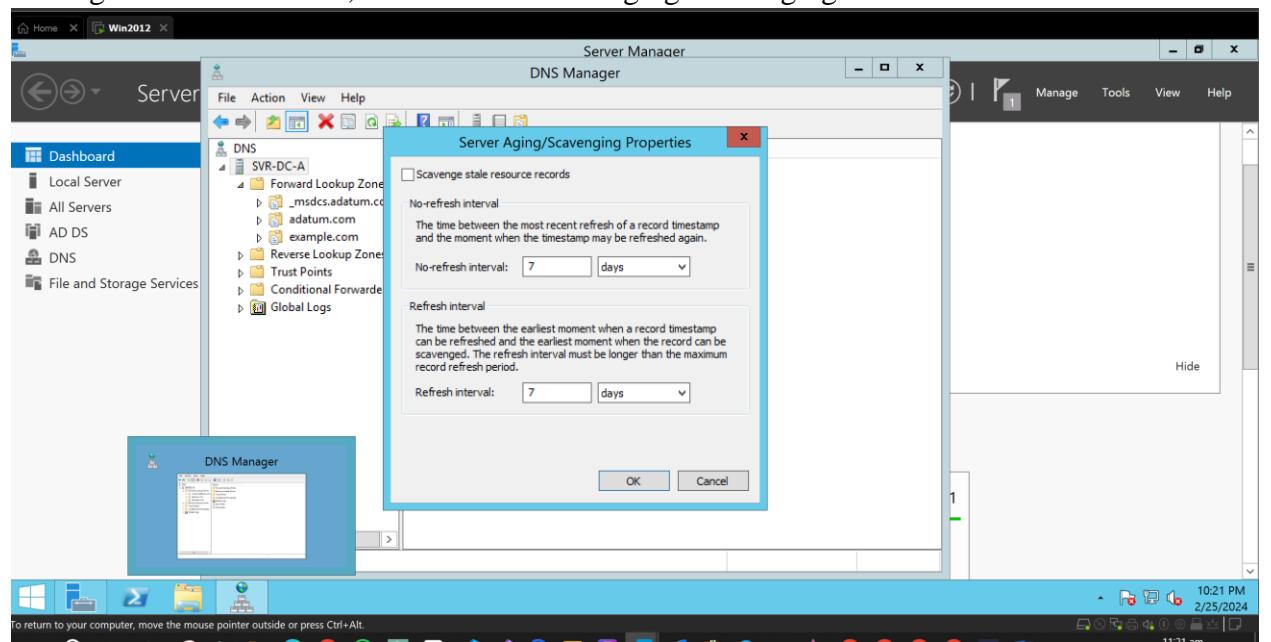
2. In the Adatum.com Properties dialog box, click the Start of Authority (SOA) tab.



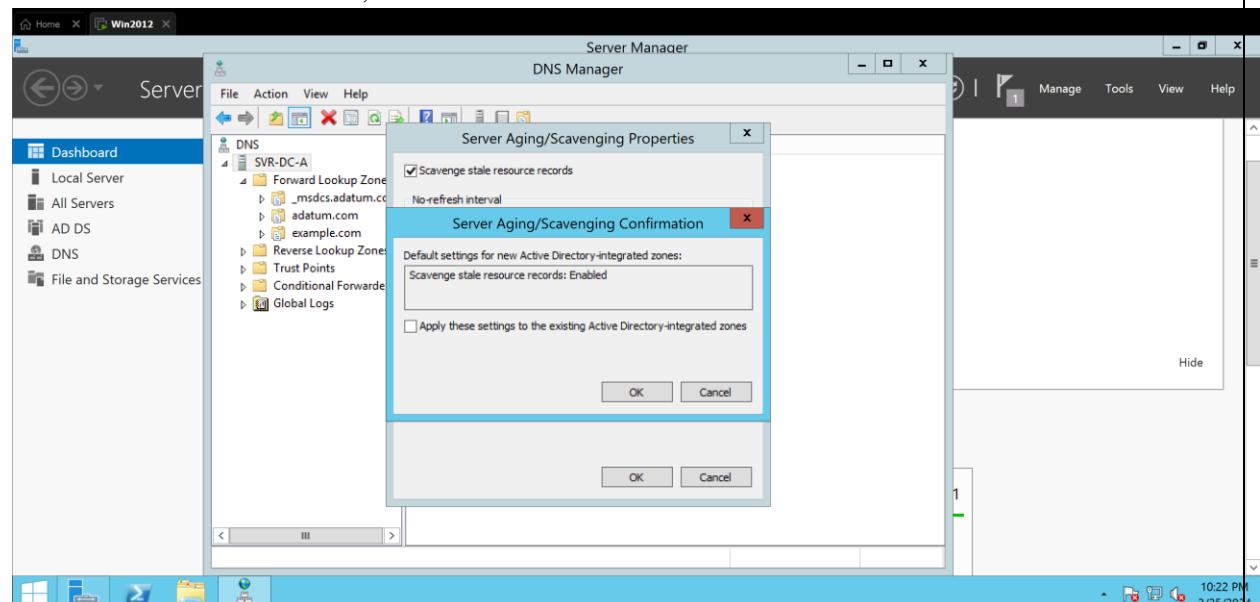
3. In the Minimum (default) TTL box, type 2, and then click OK.



4. Right-click LON-DC1, and then click Set Aging/Scavenging for All Zones.



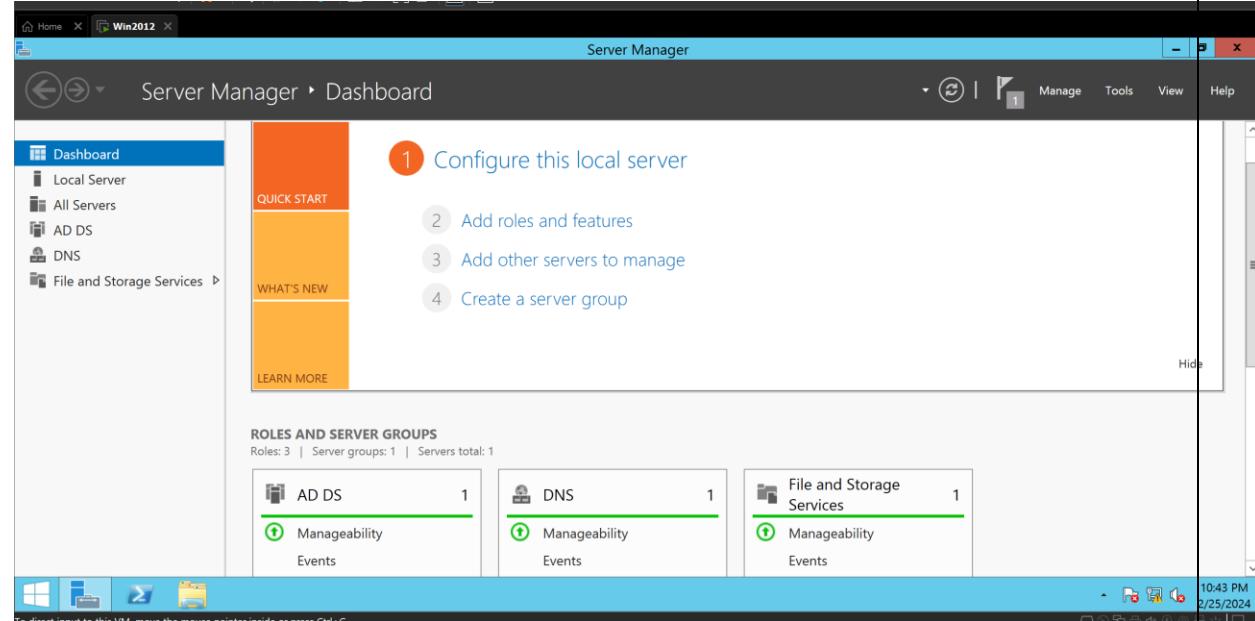
5. In the ServerAging/Scavenging Properties dialog box, select the Scavenge stale resource records check box, and then click OK.



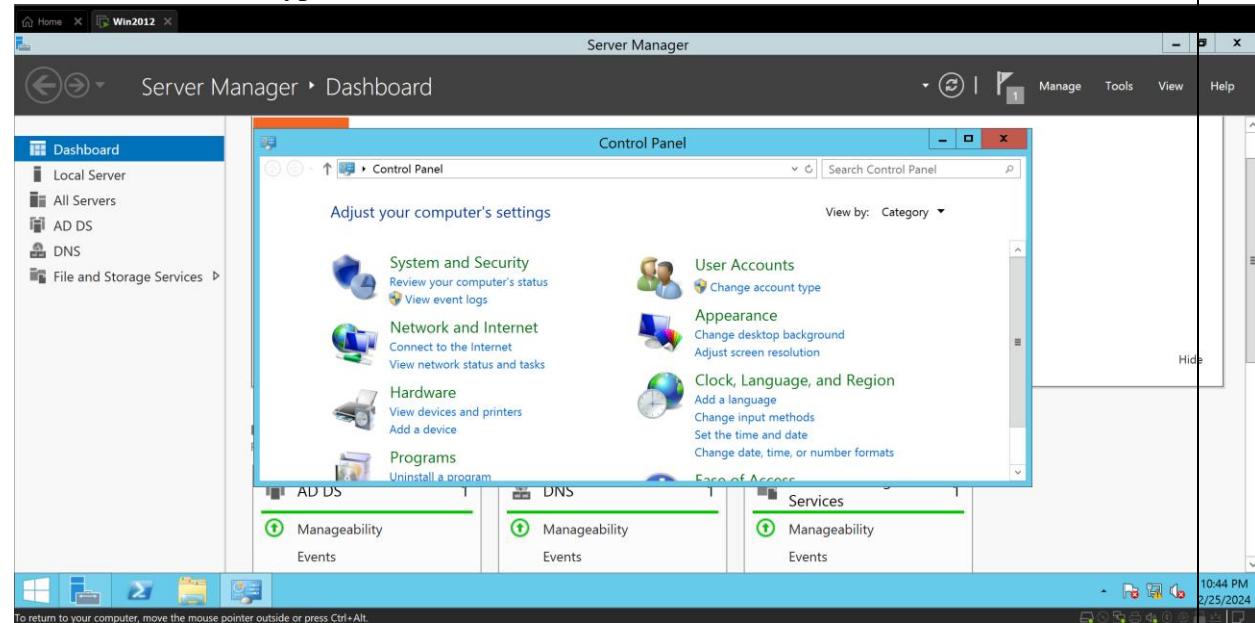
6. In the Server Aging/Scavenging Confirmation dialog box, select the Apply these settings to the existing Active Directory-integrated zones check box, and then click OK.

Task 5: Configure clients to use the new name server

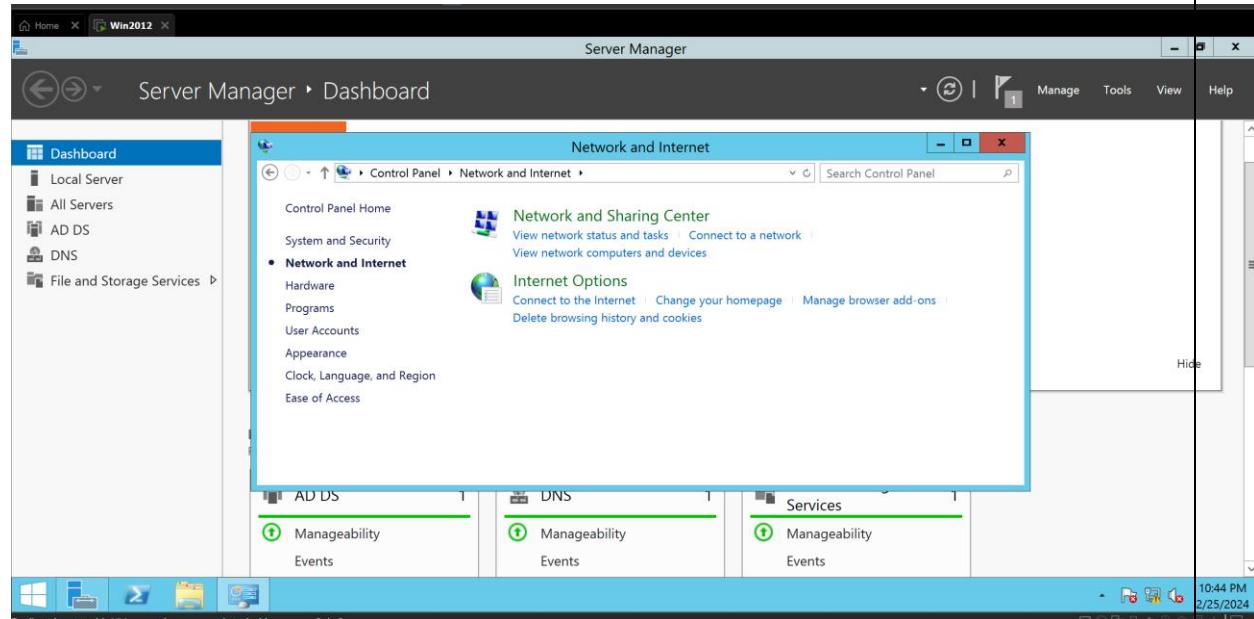
1. Switch to LON-CL1, and then sign in as Adatum\Administrator with the password Pa\$\$w0rd.



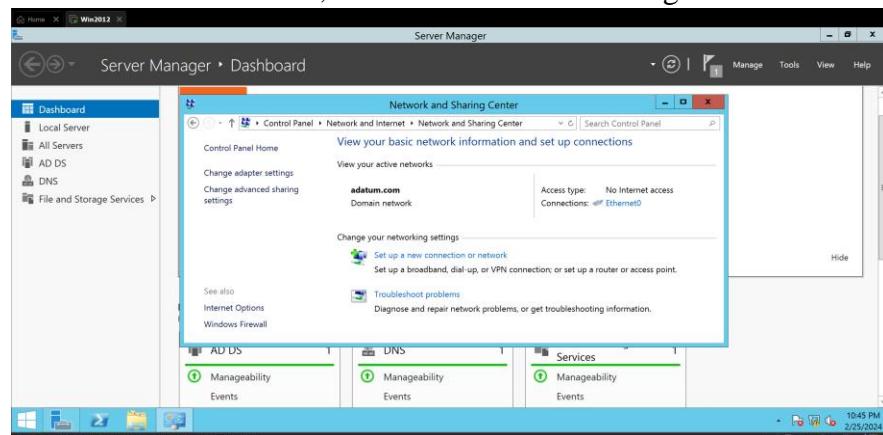
2. On the Start screen, type Control, and then click Control Panel.



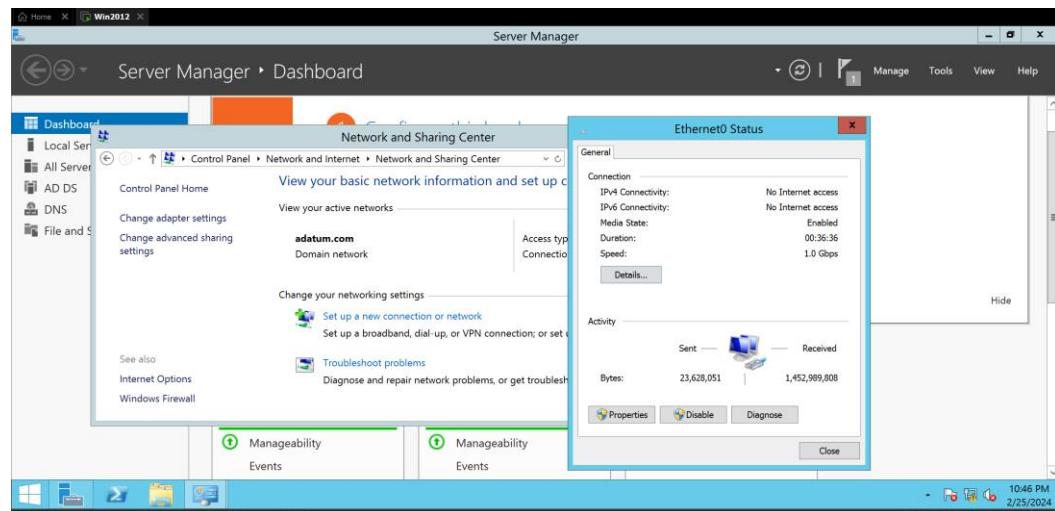
3. In Control Panel, click Network and Internet.



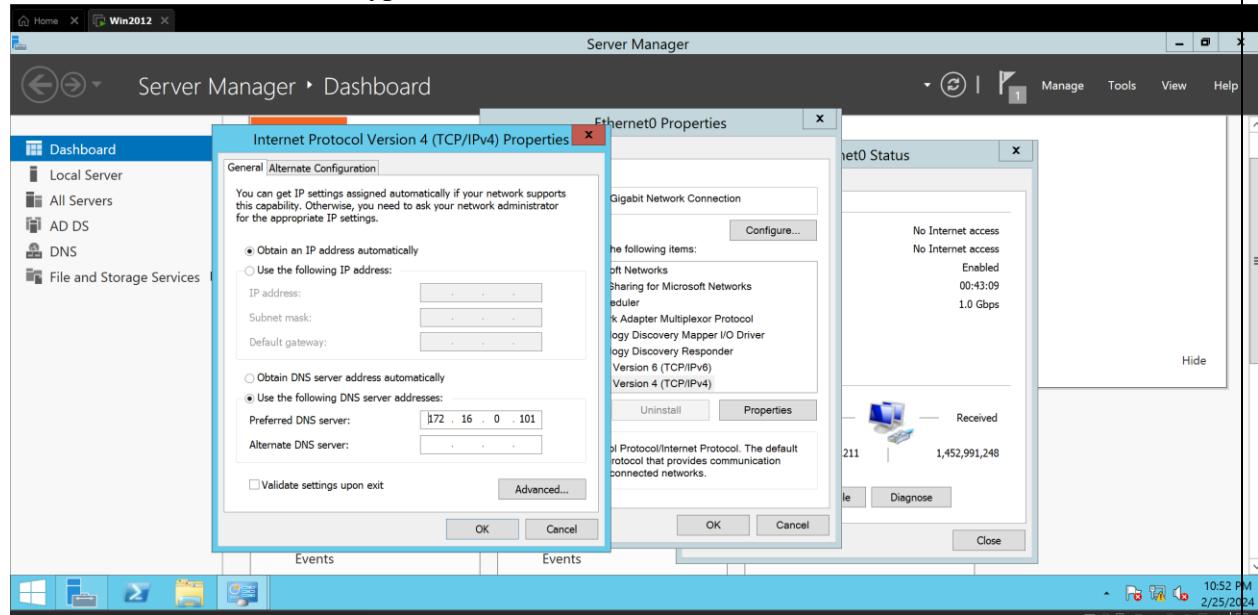
4. In Network and Internet, click Network and Sharing Center.



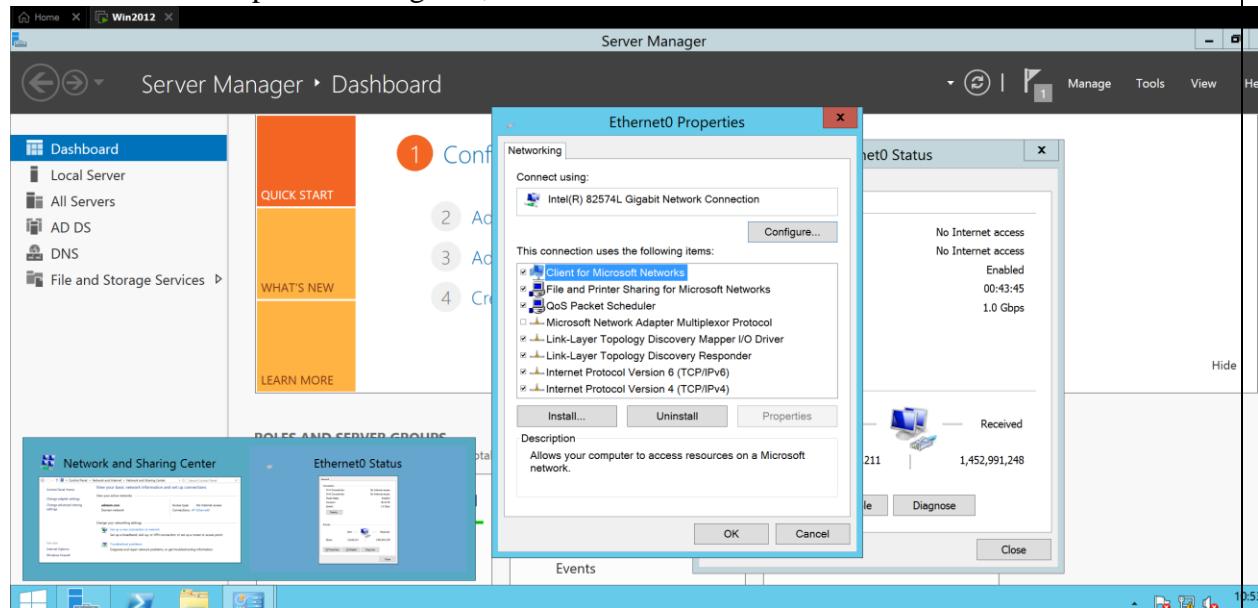
5. In Network and Sharing Center, to the right of the Adatum.com Domain network, click Ethernet.



6. In the Ethernet Status dialog box, click Properties.
7. Click Internet Protocol Version 4 (TCP/IPv4), and then click Properties.
8. In the Internet Protocol Version 4 (TCP/IPv4) Properties dialog box, in the Preferred DNS server box, type 172.16.0.101, and then click OK.



8. In the Ethernet Properties dialog box, click Close.

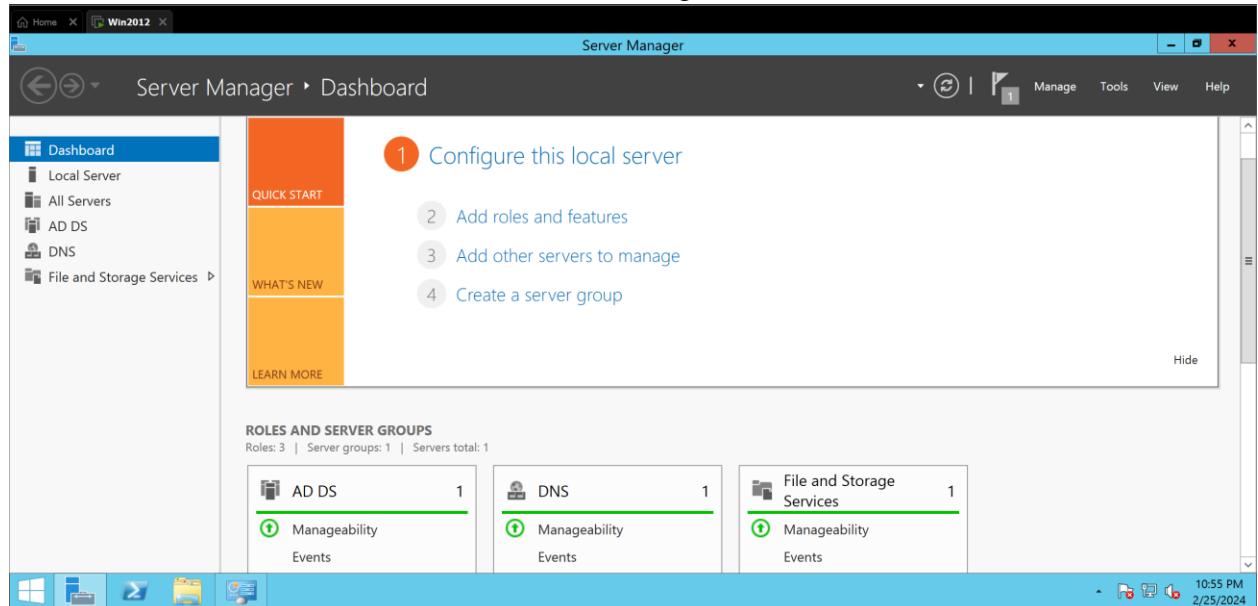


9. In the Ethernet Status dialog box, click Close.

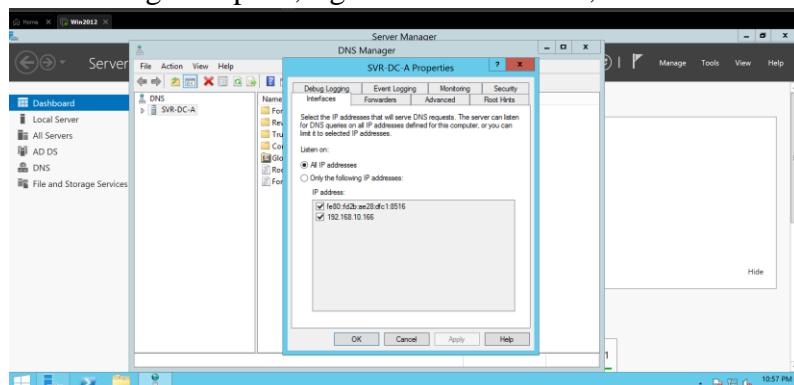
Exercise 4: Troubleshooting DNS

Task 1: Test simple and recursive queries

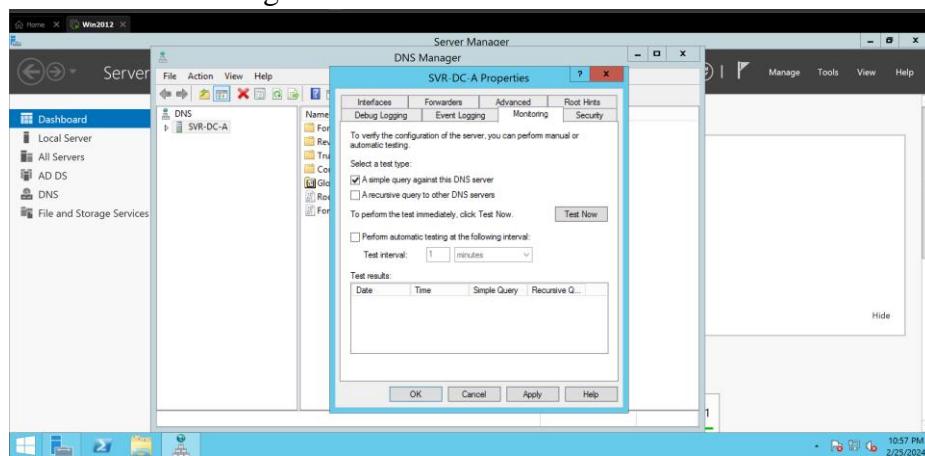
1. Switch to LON-DC1, and then switch to DNS Manager.



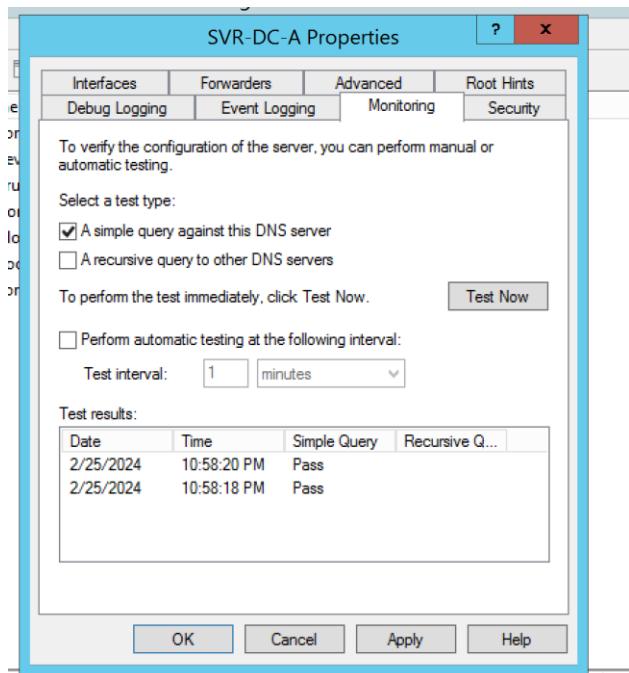
2. In the navigation pane, right-click LON-DC1, and then click Properties.



3. Click the Monitoring tab.



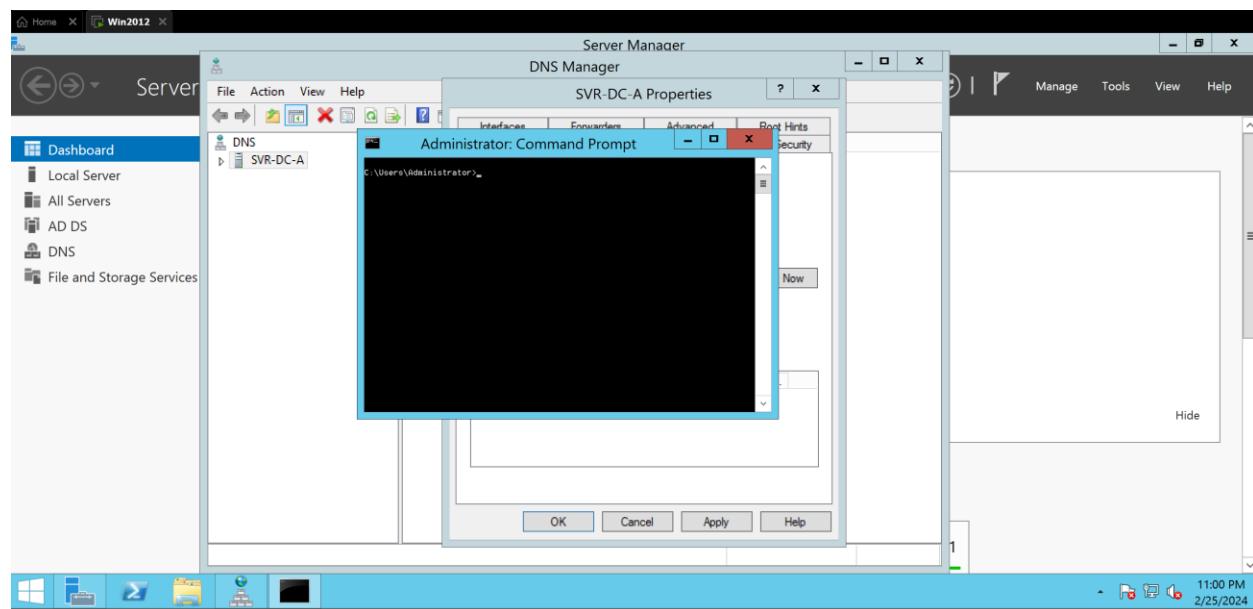
4. On the Monitoring tab, select A simple query against this DNS server, and then click Test Now.



5. On the Monitoring tab, select A recursive query to other DNS servers, and then click Test Now. Notice that the Recursive test fails for LON-DC1, which is normal given that there are no forwarders configured for this DNS server to use.

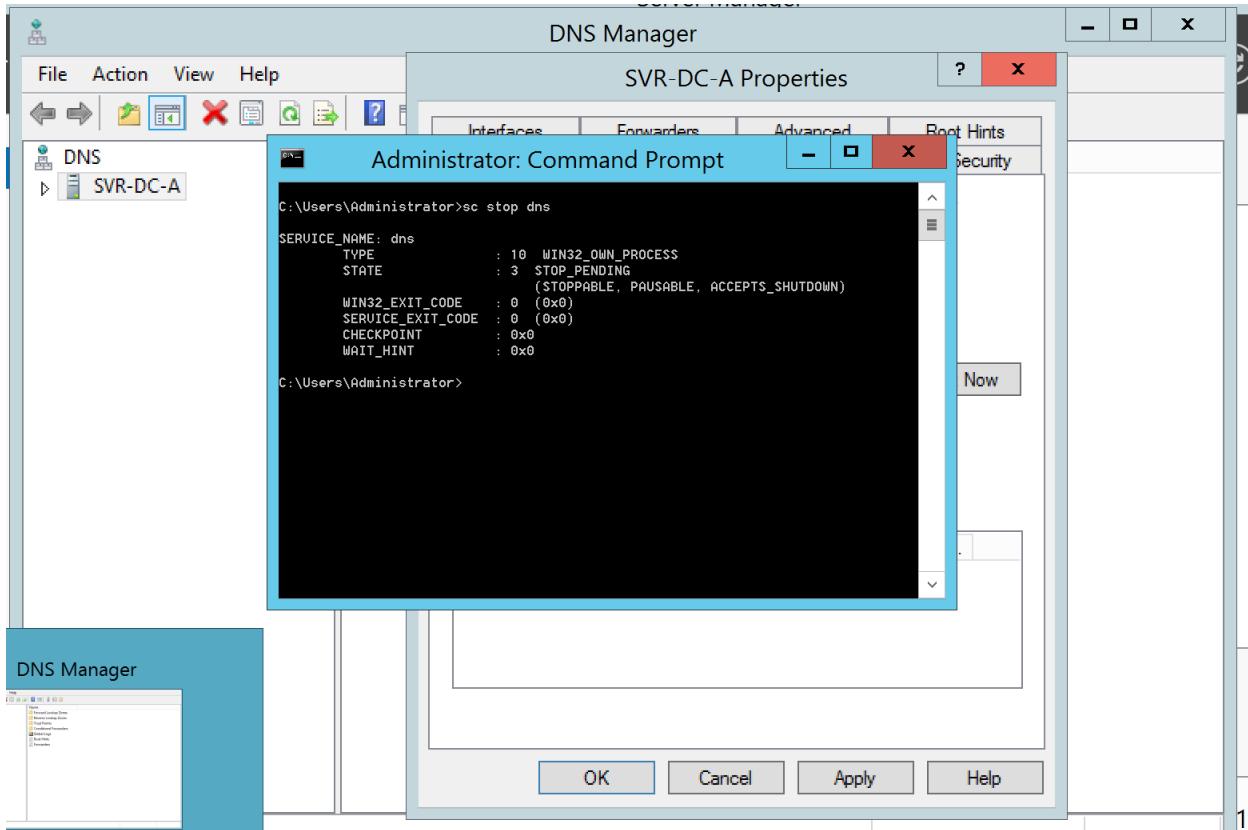
6. Pause your pointer over the lower-left corner of the display, and then click the Windows® icon.

7. On the Start screen, type cmd, and then press Enter. 8. In the Search results pane, click Command Prompt.



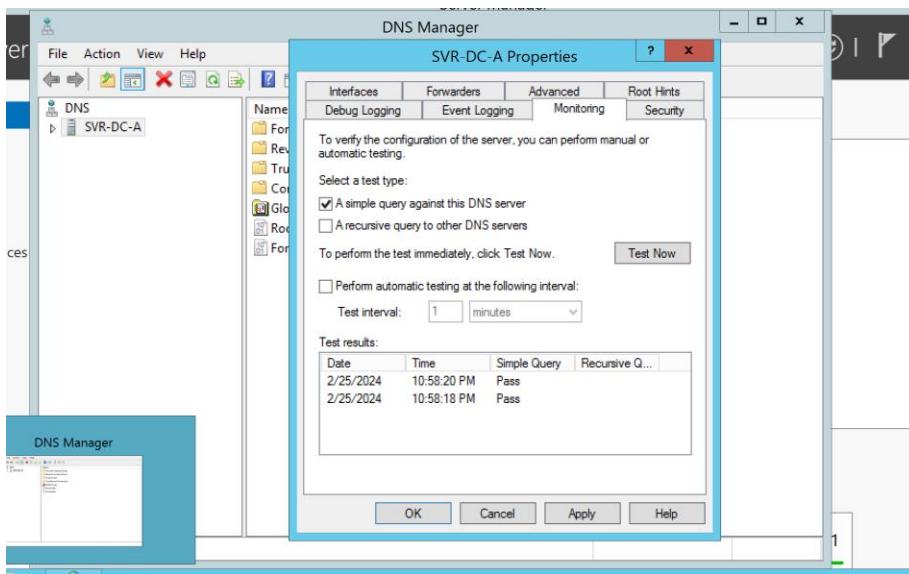
9. At the command prompt, type the following command, and then press Enter:

```
sc stop dns
```

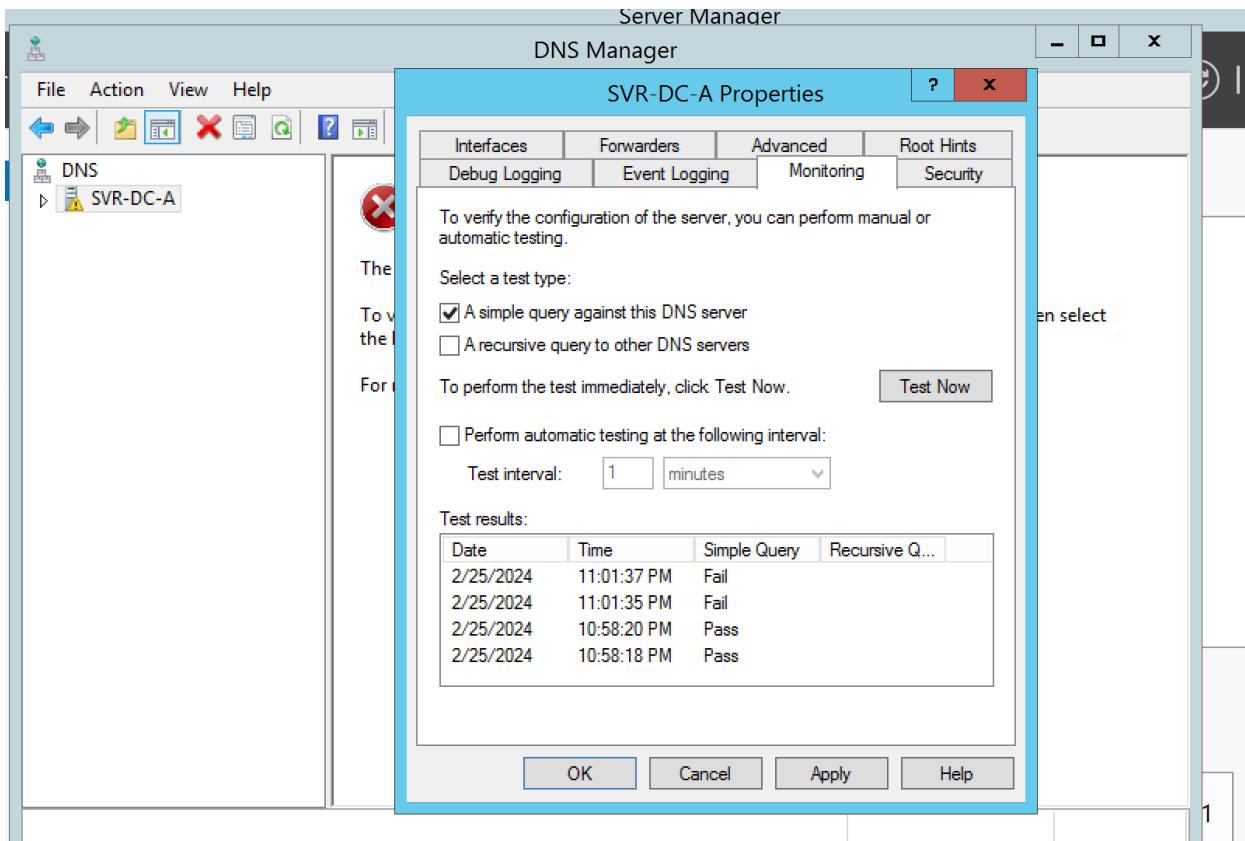


10. Switch back to DNS Manager.

11. In DNS Manager, in the LON-DC1 Properties dialog box, on the Monitoring tab, click Test Now.



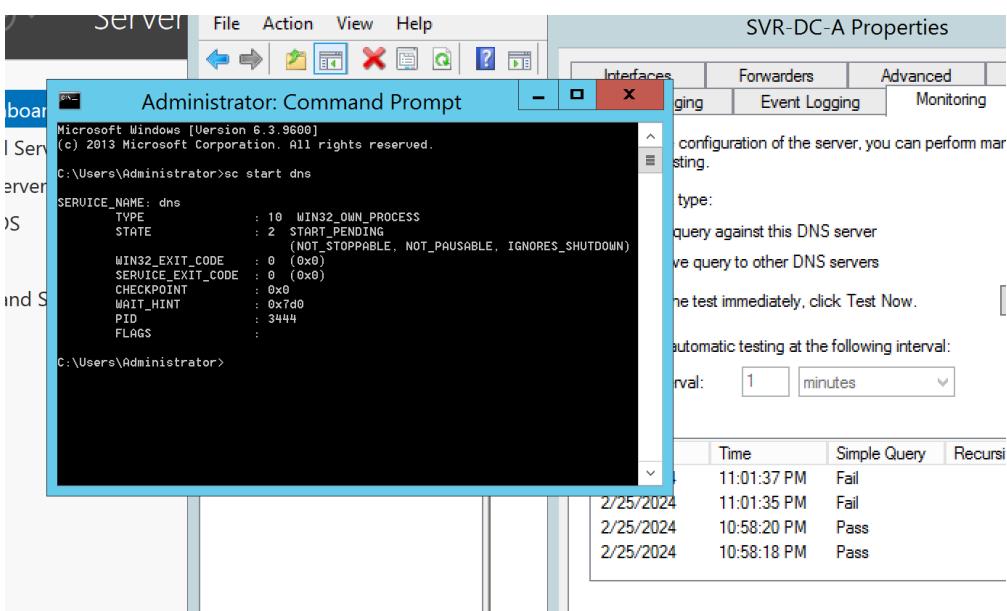
Now, both simple and recursive tests fail because no DNS server is available.



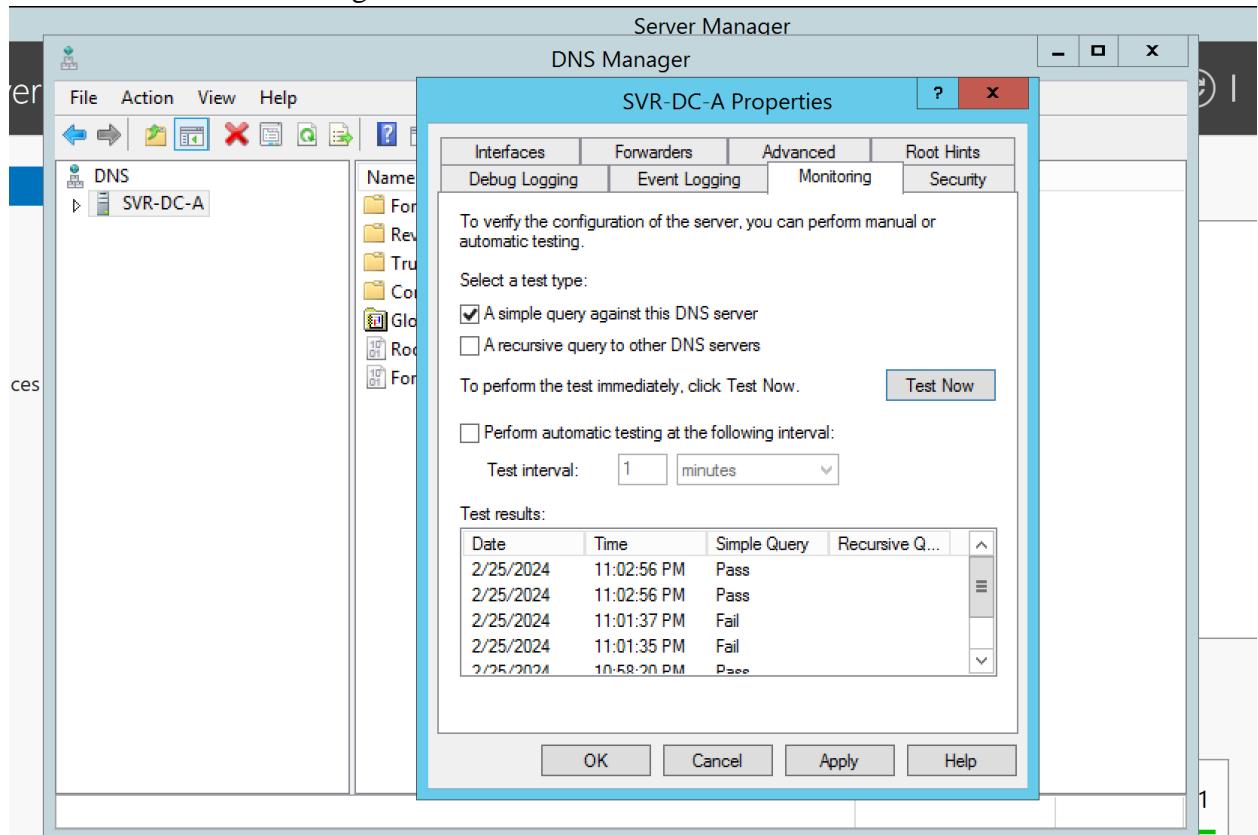
12. Switch to the Command Prompt window.

13. At the command prompt, type the following command, and then press Enter:

```
sc start dns
```



13. Switch back to DNS Manager.

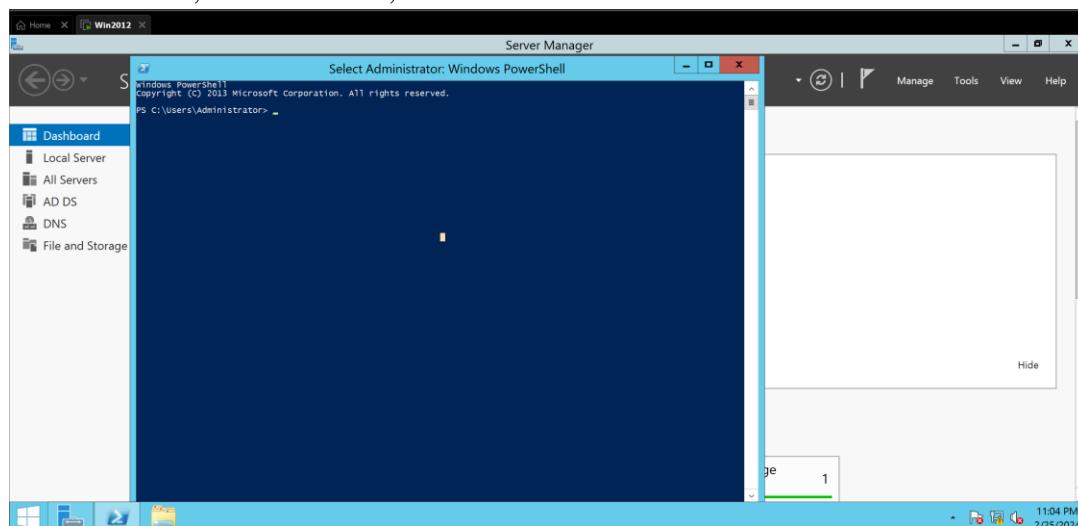


15. On the Monitoring tab, click Test Now. The simple test completes successfully.

16. Close the LON-DC1 Properties dialog box.

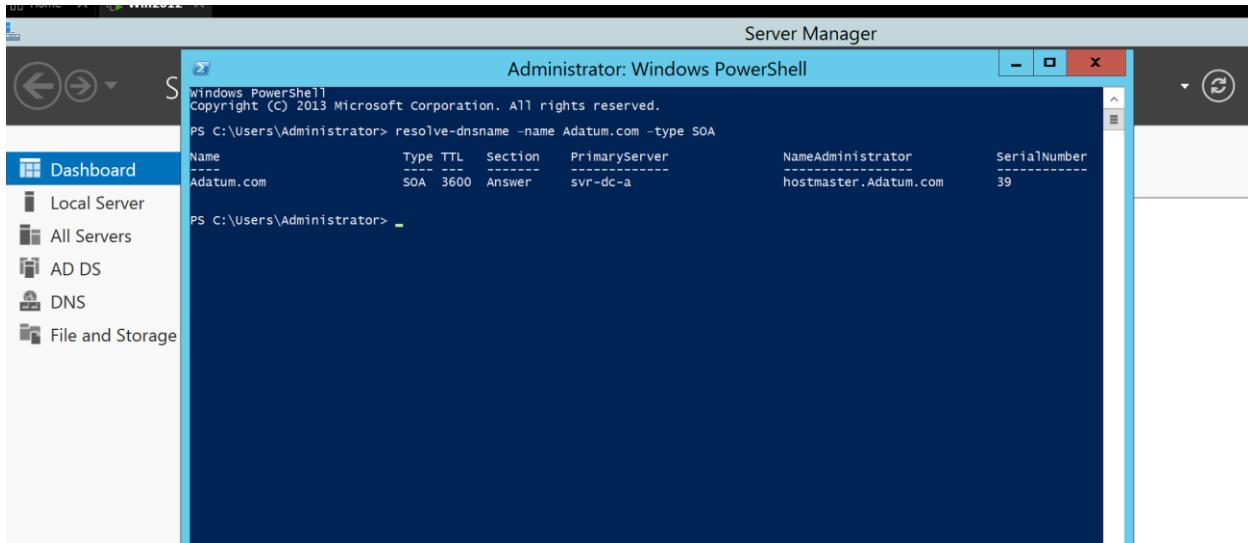
Task 2: Verify start of authority (SOA) resource records with Windows PowerShell

1. On LON-DC1, on the taskbar, click Windows PowerShell.



2. At the Windows PowerShell command prompt, type the following command, and then press Enter:

```
resolve-dnsname -name Adatum.com -type SOA
```



Name	Type	TTL	Section	PrimaryServer	NameAdministrator	SerialNumber
Adatum.com	SOA	3600	Answer	svr-dc-a	hostmaster.Adatum.com	39

3. Close the Windows PowerShell console.

Conclusion:

In this lab, DNS configurations such as adding resource records, conditional forwarding, installing DNS server role, and configuring zones were performed to enhance network functionality and resolution. Troubleshooting DNS issues and verifying SOA records were also addressed, ensuring robust DNS operations within the network environment.

References:

- 1- Elz, R., Bush, R., Bradner, S., & Patton, M. (1997). Selection and operation of secondary DNS servers (No. rfc2182).
- 2- Pan, J., Hou, Y. T., & Li, B. (2003). An overview of DNS-based server selections in content distribution networks. *Computer Networks*, 43(6), 695-711.
- 3- Brownlee, N., Claffy, K. C., & Nemeth, E. (2001, November). DNS measurements at a root server. In GLOBECOM'01. IEEE Global Telecommunications Conference (Cat. No. 01CH37270) (Vol. 3, pp. 1672-1676). IEEE.