

Installing and Configuring DHCP for PXE Boot on Windows Server 2016 2019 2022

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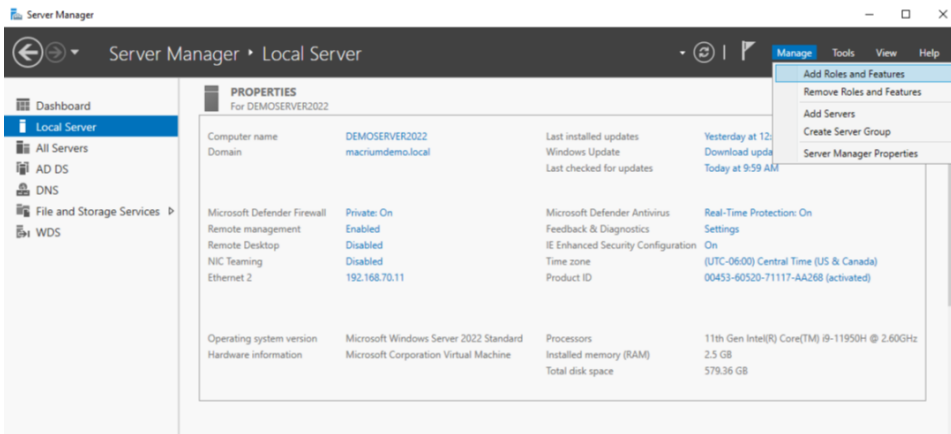
IMPORTANT ASSUMPTIONS AND NOTES

1. You are using this DHCP server in a closed testing / deployment environment. Please do NOT do this in a live production environment without the necessary clearance / permission / authority / licensing to do so.
2. You are a network administrator and have domain administrator access or permission to use a Windows Server / Server license for this project.
3. You are a network administrator and have the appropriate authority / permission to complete this project.
4. You understand how to, are licensed to, and have created the Technician's USB stick from your Deployment Kit for use further on in this document.
5. You have the proper Microsoft licensing to use the Deployment Kit for the purpose of this project.
6. This server will be both a DHCP and WDS server for this closed environment.
7. Macrium Software, its parent company Paramount Software UK Ltd, its affiliates and/or employees are not liable under any circumstances for issues arising directly or indirectly from the use of this document.

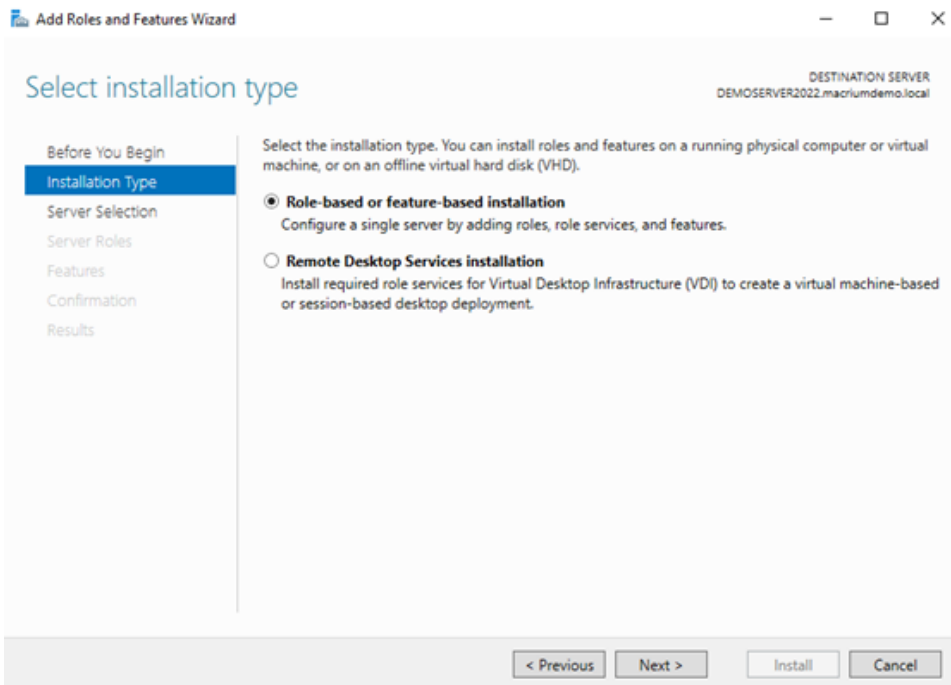
If the above assumptions and notes above do not pertain to your environment, license compliance, and/or permission, and/or if you do not agree with the assumptions and notes above, then please DO NOT proceed. Your use of this document is subject to and constitutes your acceptance of the above and is done so completely at your own risk.

Install and configure the DHCP Role on Windows Server 2016/2019/2022

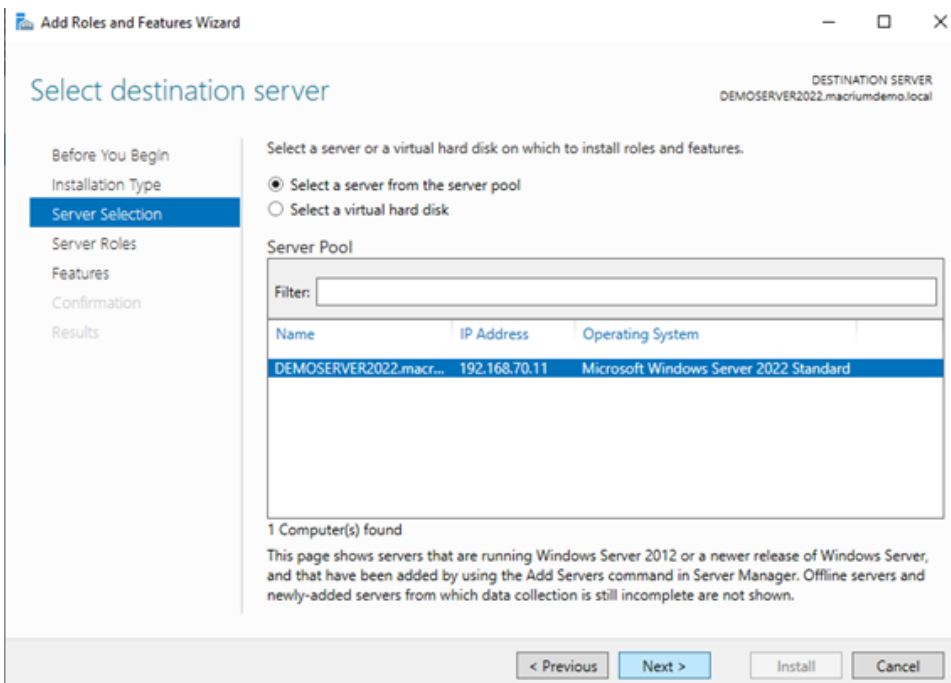
1. Open Server Manager and select the local server.
2. Click on "Manage, then select "Add Roles and Features"



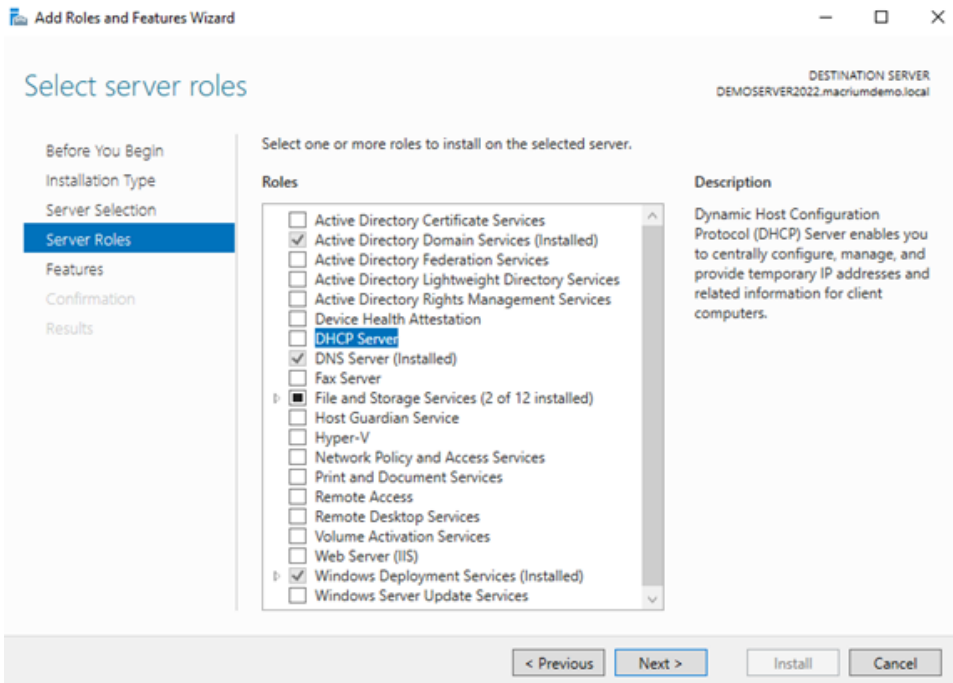
3. Select "Role-based or feature-based installation". Click "Next"



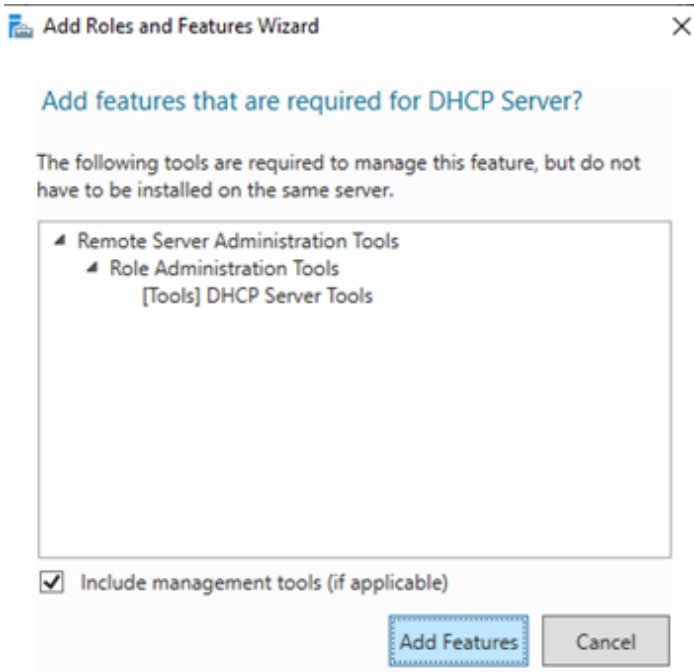
4. Select the destination server. Click "Next"



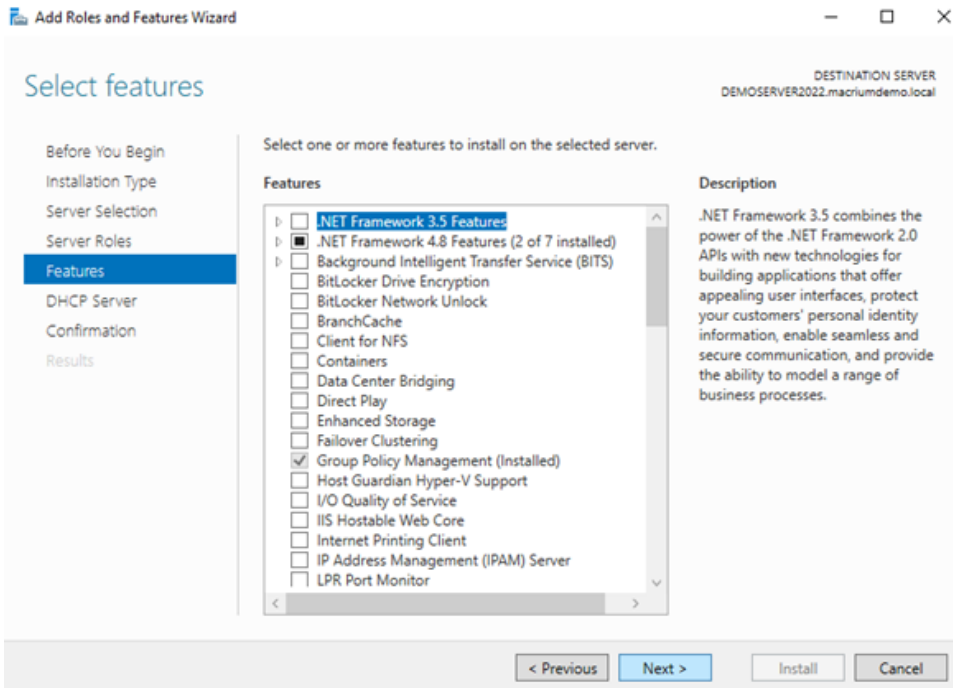
5. Select "DHCP Server" from the Roles list. Click "Next".



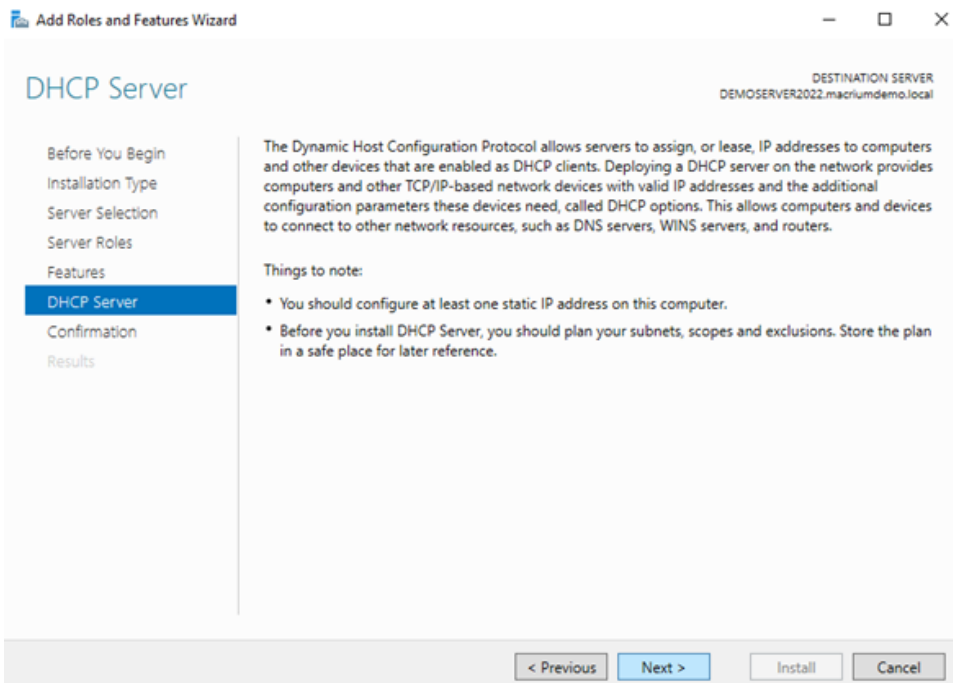
6. Confirm the features that are required. Click “Add Features”, then click “Next”.



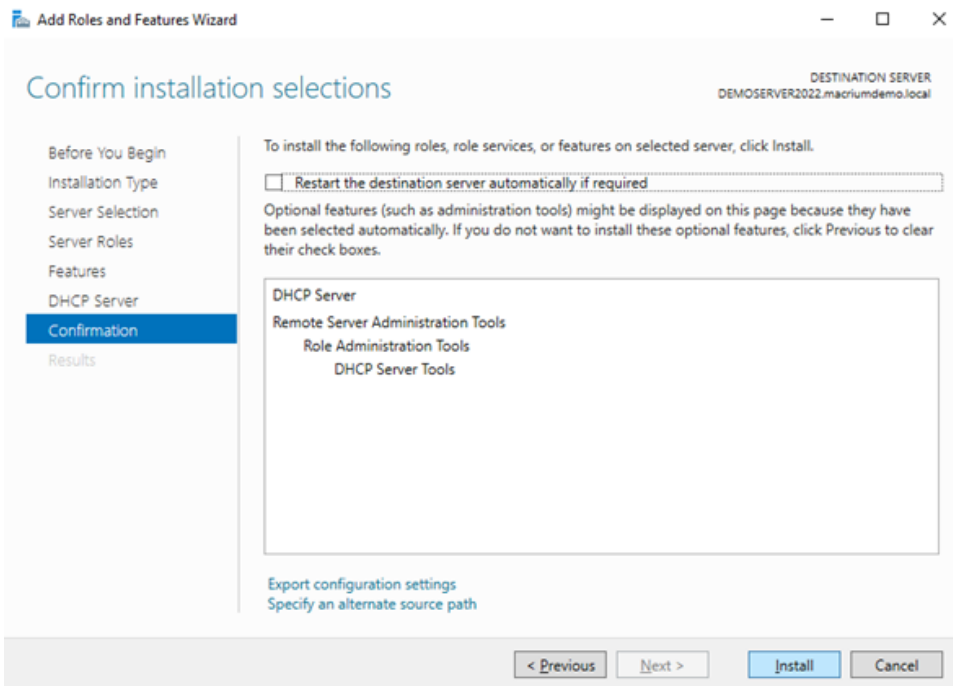
7. Click “Next” on the Features list.



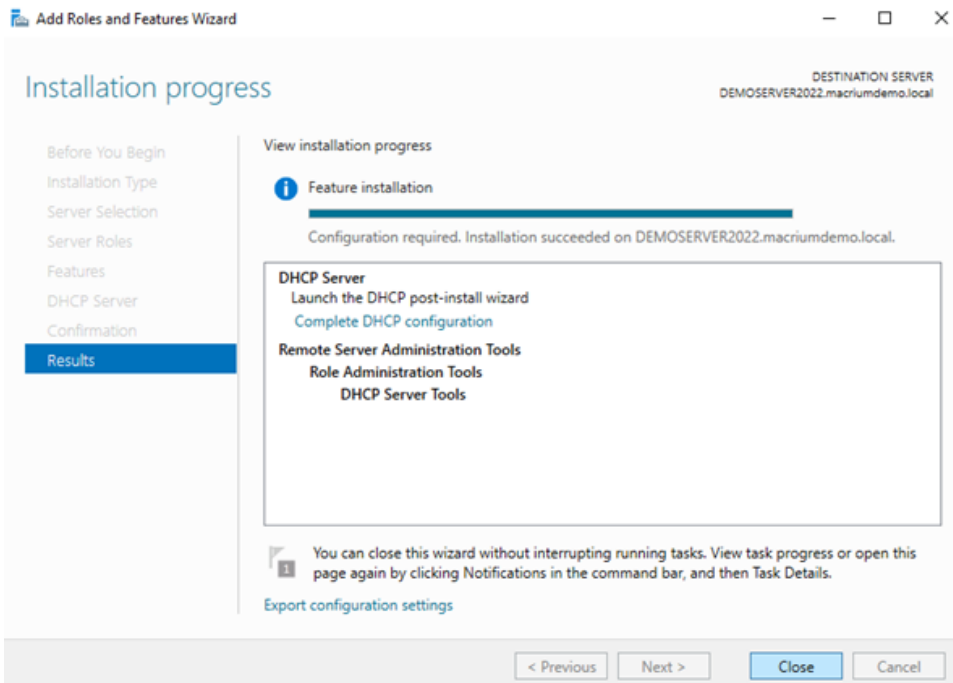
8. Read through the notes for DHCP Server and click "Next".



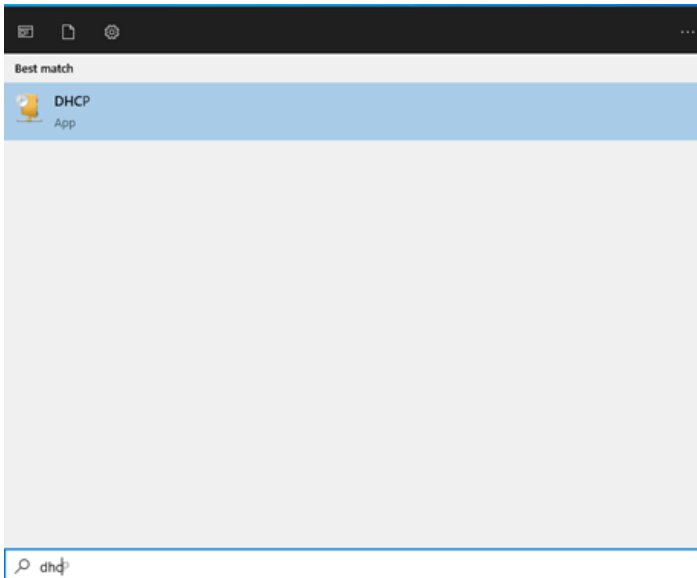
9. One last chance to make changes, confirm and by clicking "Install".



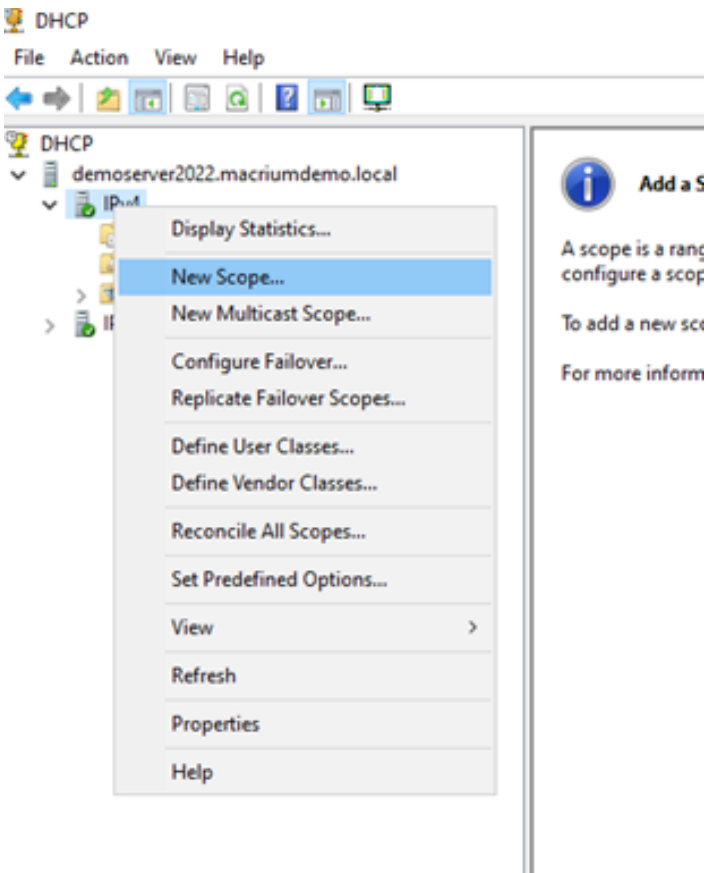
10. Wait for the installation to complete and click "Close".



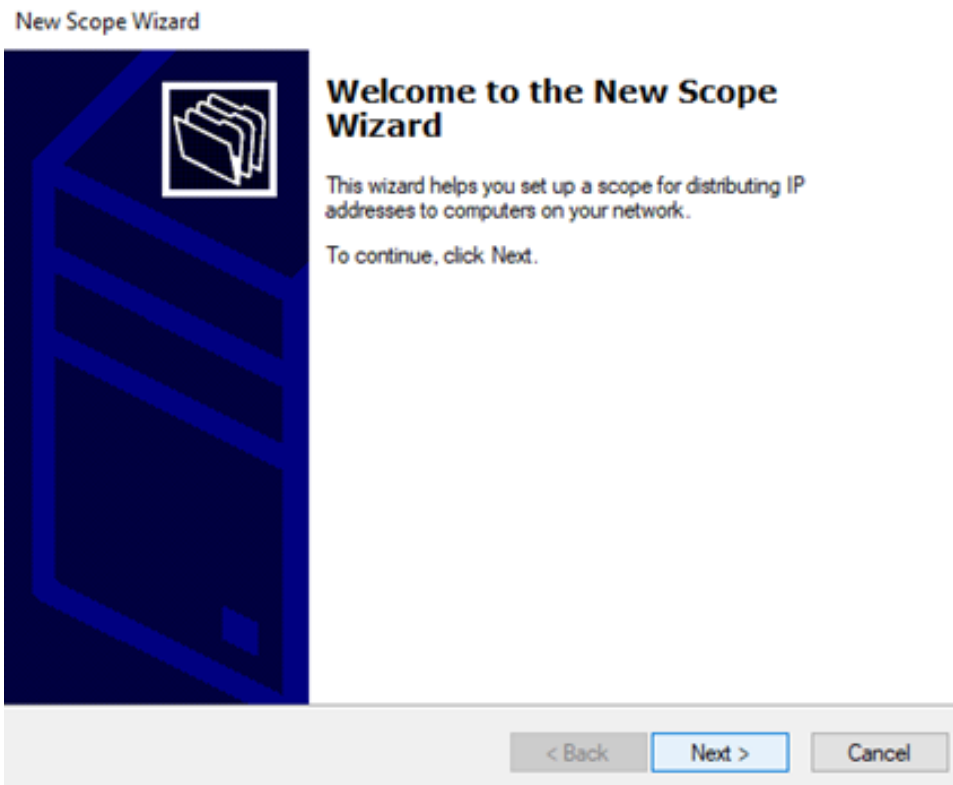
11. In the search bar, type "DHCP" and click on the app when it comes up.



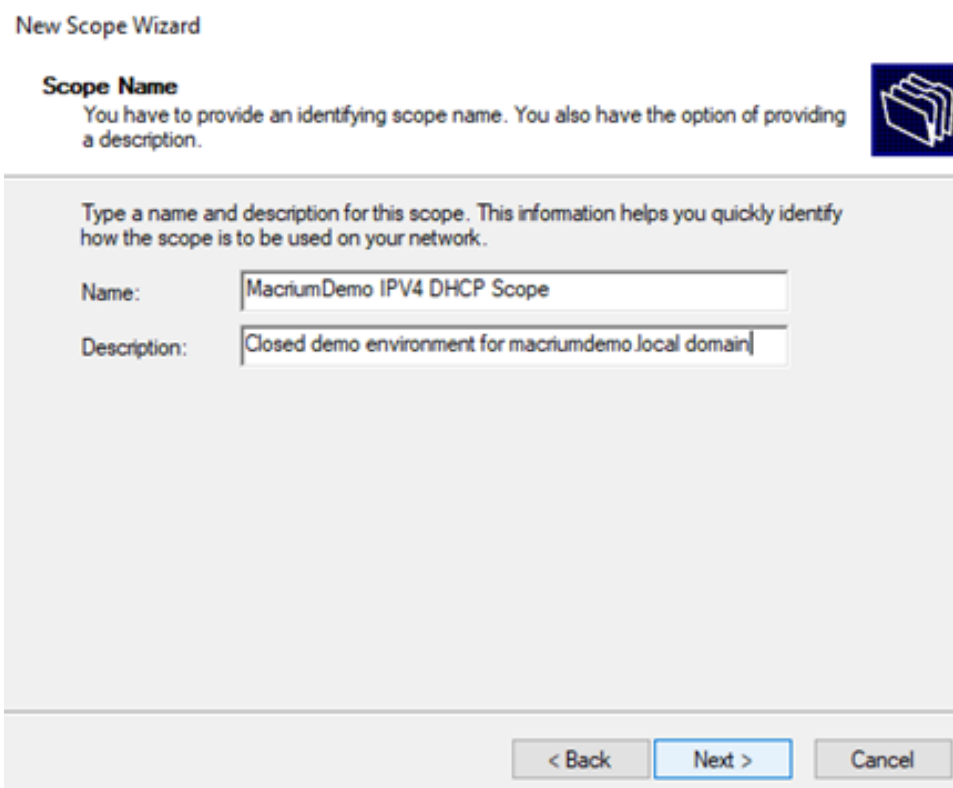
12. Now we begin the process of configuring DHCP. Expand the server and right click on IPv4. Click on "New Scope".



13. Click "Next" to start configuring the new scope.



14. Give your scope a name and description. We've chosen "MacriumDemo IPv4 DHCP Scope" in our example. Click "Next" when done.



15. Enter a start and end address for your DHCP range. Decide on how many addresses you need by adjusting your subnet mask accordingly. Click "Next" when done.

Note: We will setup exclusions in the next section.

New Scope Wizard

IP Address Range

You define the scope address range by identifying a set of consecutive IP addresses.



Configuration settings for DHCP Server

Enter the range of addresses that the scope distributes.

Start IP address:

End IP address:

Configuration settings that propagate to DHCP Client

Length:

Subnet mask:

< Back Next > Cancel

16. If you need to add some exclusions (like the static address of the DHCP / WDS server), you can add exclusion ranges here. Click "Next" when done.

New Scope Wizard

Add Exclusions and Delay

Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCP OFFER message.



Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.

Start IP address:

End IP address:

Add

Excluded address range:

192.168.70.1 to 192.168.70.100
192.168.70.201 to 192.168.70.254

Remove

Subnet delay in milli second:

< Back Next > Cancel

17. If you need to adjust the DHCP lease duration, make your adjustment here. Click "Next" when done.

New Scope Wizard

Lease Duration

The lease duration specifies how long a client can use an IP address from this scope.

Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.

Set the duration for scope leases when distributed by this server.

Limited to:

Days: Hgurs: Minutes:

< Back Next > Cancel

18. If you want to define DHCP options for the scope, select "yes" here. Otherwise, select "no". Click "Next" when done.

New Scope Wizard

Configure DHCP Options

You have to configure the most common DHCP options before clients can use the scope.

When clients obtain an address, they are given DHCP options such as the IP addresses of routers (default gateways), DNS servers, and WINS settings for that scope.

The settings you select here are for this scope and override settings configured in the Server Options folder for this server.

Do you want to configure the DHCP options for this scope now?

☒ Yes, I want to configure these options now


☐ No, I will configure these options later

< Back Next > Cancel

19. If you've selected "yes" above, you'll be asked to enter a few common options. First is router. Enter your router's IP address (if there is one). Click "Next" when done.

New Scope Wizard

Router (Default Gateway)
You can specify the routers, or default gateways, to be distributed by this scope.



To add an IP address for a router used by clients, enter the address below.

IP address:


	Add
192.168.70.1	Remove
	Up
	Down

< Back Next > Cancel

20. The next option will be DNS. Enter your FQDN or IP address for DNS servers you want to reference (if any). Click "Next" when done.

New Scope Wizard

Domain Name and DNS Servers
The Domain Name System (DNS) maps and translates domain names used by clients on your network.



You can specify the parent domain you want the client computers on your network to use for DNS name resolution.

Parent domain:

To configure scope clients to use DNS servers on your network, enter the IP addresses for those servers.

Server name:	IP address:
	192.168.70.11
	192.168.70.1

Resolve Add Remove Up Down

< Back Next > Cancel

21. You'll be asked to enter WINS server info. If you have a WINS server you need to define here, enter the information. Click "Next" when done.

New Scope Wizard

WINS Servers
Computers running Windows can use WINS servers to convert NetBIOS computer names to IP addresses.

Entering server IP addresses here enables Windows clients to query WINS before they use broadcasts to register and resolve NetBIOS names.

Server name: IP address:

To change this behavior for Windows DHCP clients modify option 046, WINS/NBT Node Type, in Scope Options.

< Back Next > Cancel

22. There is still a piece missing that we'll need to define, so for now, do not activate the scope. Select "No, I will activate this scope later". Click "Next" when done.

New Scope Wizard

Activate Scope
Clients can obtain address leases only if a scope is activated.

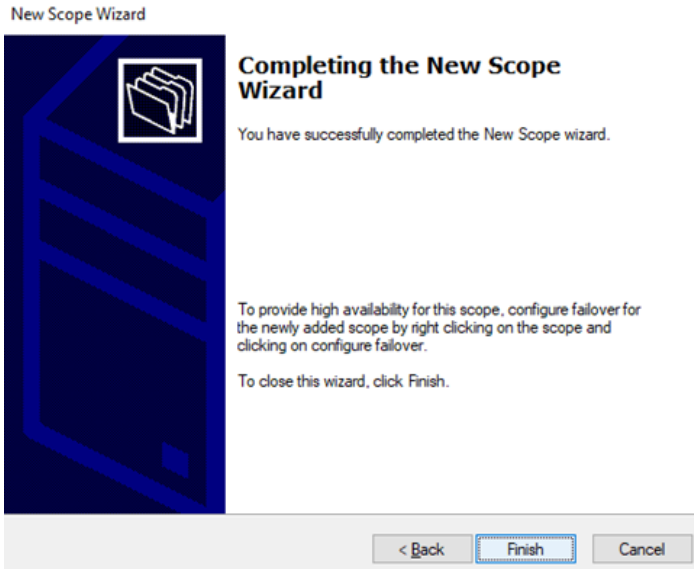
Do you want to activate this scope now?

☐ Yes, I want to activate this scope now

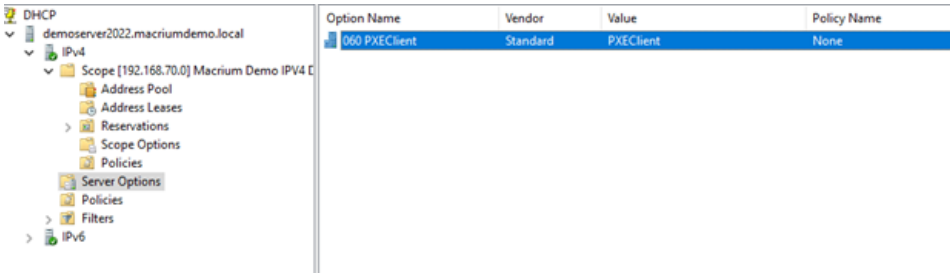
☒ No, I will activate this scope later

< Back Next > Cancel

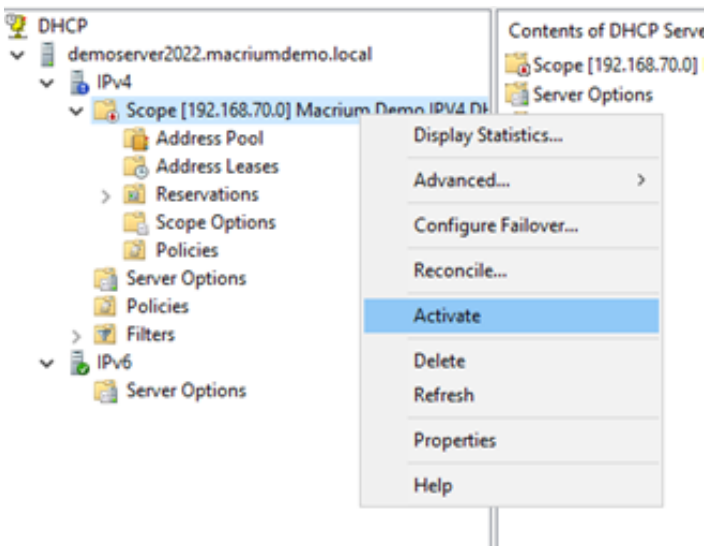
23. Click "Finish" to complete the Scope Wizard.







24. If you are configuring DHCP before WDS, you can activate the scope now. WDS will automatically add option 60 to the Server Options when you've completed the WDS configuration.
- If you are configuring DHCP after WDS, please check to make sure that option 60 has been added in to the Server Options section. If not, please reboot your server and then activate the scope.



25. To activate the scope right click on the scope and select "Activate".



26. You can verify all options in the information pane.

Option Name	Vendor	Value	Policy Name
 003 Router	Standard	192.168.70.1	None
 006 DNS Servers	Standard	192.168.70.11, 192.168.70.1	None
 015 DNS Domain Name	Standard	macriumdemo.local	None
 060 PXEClient	Standard	PXEClient	None

DHCP is now configured. If you've already set up WDS, then you should be able to start up a PXE compatible system, have it boot up, talk to the PXE sever, get the Deployment Kit Recovery Environment boot image (defined in the WDS document), and be ready for imaging.

