

10zig®

PXE Booting BIOS and UEFI Devices Across VLANs

Document and Version Control

| Version | Created by | Date | Authorised & Checked |
|---------|------------|------------|----------------------|
| 1.0 | Vu Nguyen | 09/18/2020 | Alex Hyatt |
| 2.0 | Vu Nguyen | 09/28/2020 | Alex Hyatt |
| | | | |

Overview

You have multiple VLANs, and have a mixture of devices with BIOS and UEFI and need to boot them from the network using PXE from the 10ZiG Manager or a WDS server.

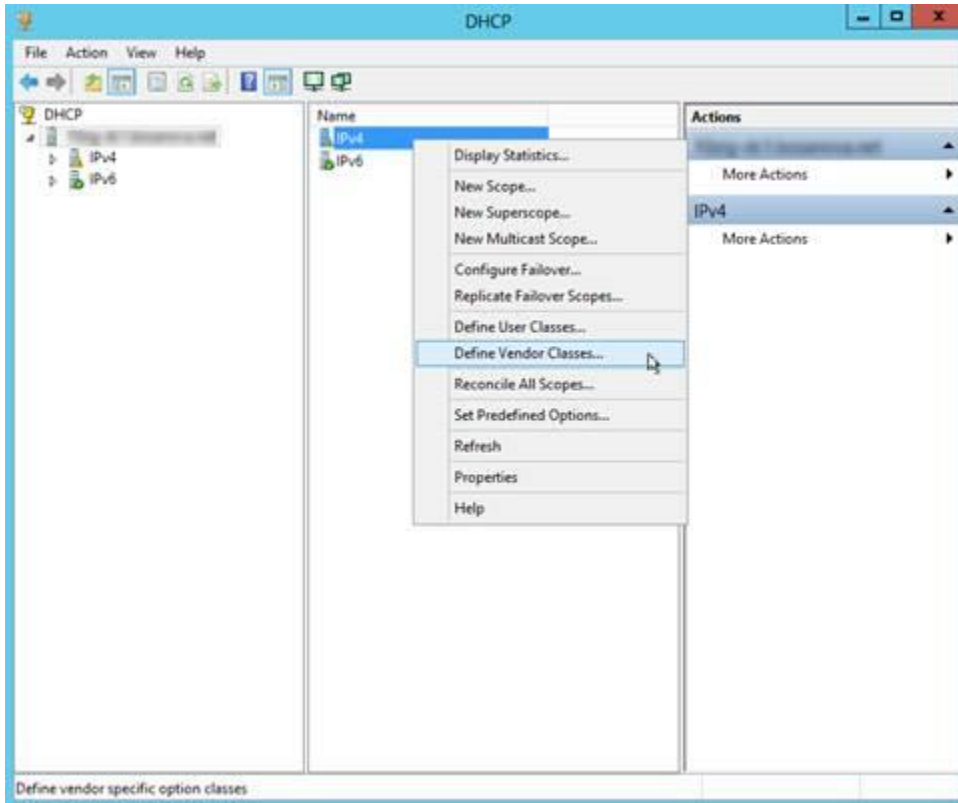
Prerequisites

- The 10ZiG Manager boot server or a Windows Deployment Server.
- A Microsoft DHCP server (does not have to be running on the same server as WDS).
- Have the DHCP server's IP as a helper address on your network switch for each VLAN you want to boot.

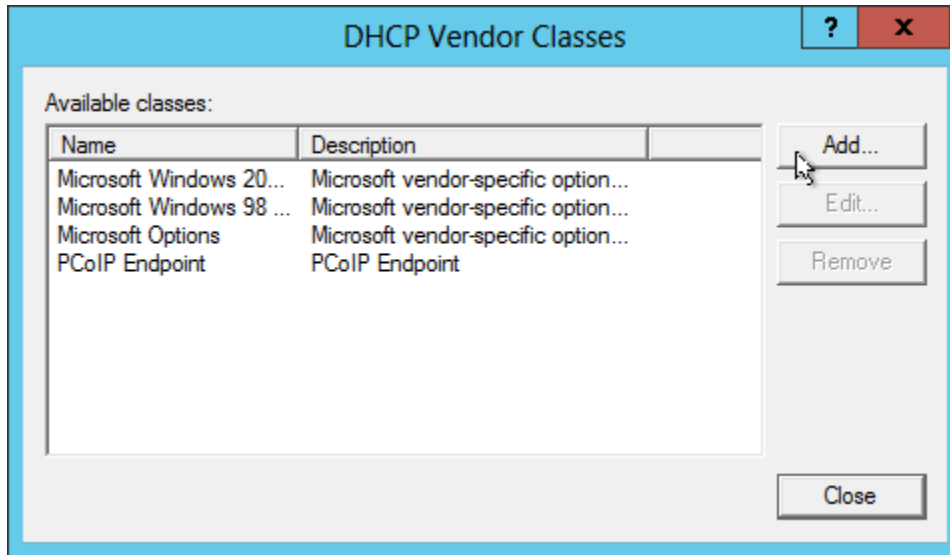
Defining DHCP Vendor Classes

Firstly, we need to define the vendor classes for the BIOS PXE Client x86 and the UEFI PXEClient x64 (10ZiG model 6000 clients). To do this:

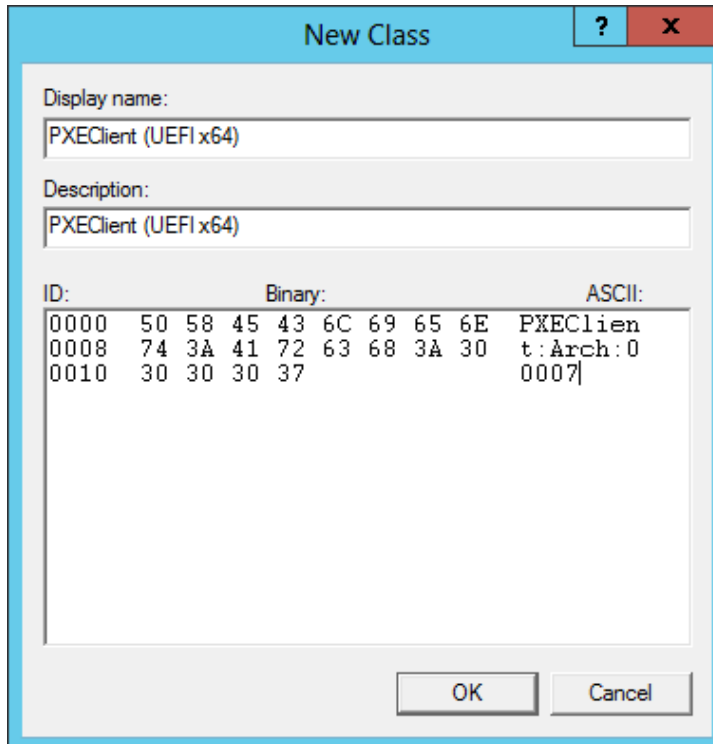
1. Go to **DHCP**, **right-click** on **IPv4**.



- In the **DHCP Vendor Classes** window, click **Add**.

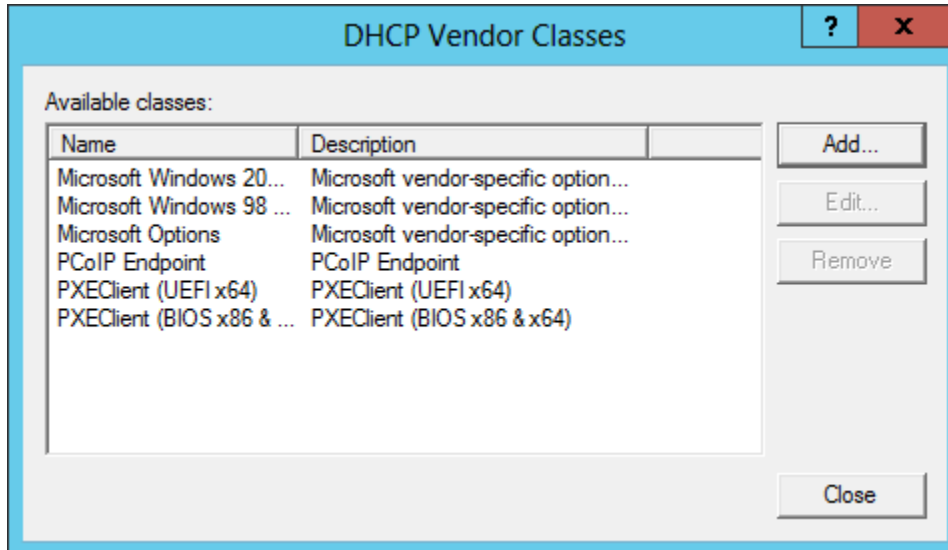


- For the **Name** enter **PXEClient (UEFI x64)**.
- For the **Description** enter whatever you want.
- Under the **ASCII** text enter **PXEClient:Arch:00007** (you will not be able to paste this text, and it's also case-sensitive).



- Click **OK** to add it to the list.
- Finally, repeat steps 2 – 6 for **PXEClient (BIOS x86 & x64)** with **PXEClient:Arch:00000** (five zero's) as the **ASCII** value.

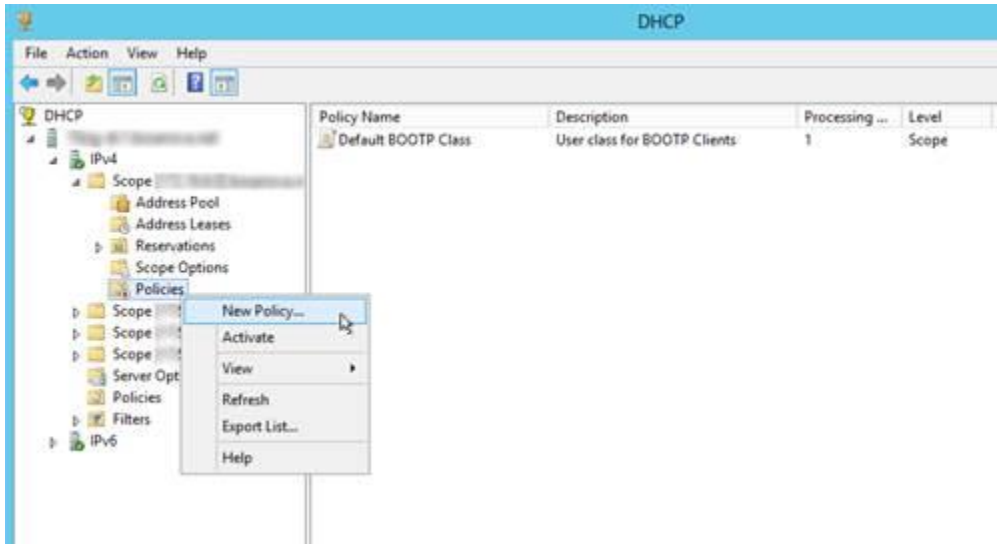
You should now have two additional vendor classes.



Creating the DHCP Policies

Now we need to create policies in DHCP so that the correct files are served to the correct clients. You will need to do this for each DHCP scope that contains potential PXE boot clients.

1. Go to **DHCP** and **expand the scope** you wish to create a policy for.
2. **Right-click** on **Policies** and choose **New Policy**.



3. Enter **10ZiG PXEClient (UEFI x64)** for the name.



DHCP Policy Configuration Wizard

Policy based IP Address and Option Assignment

This feature allows you to distribute configurable settings (IP address, DHCP options) to clients based on certain conditions (e.g. vendor class, user class, MAC address, etc.).

This wizard will guide you setting up a new policy. Provide a name (e.g. VoIP Phone Configuration Policy) and description (e.g. NTP Server option for VoIP Phones) for your policy.

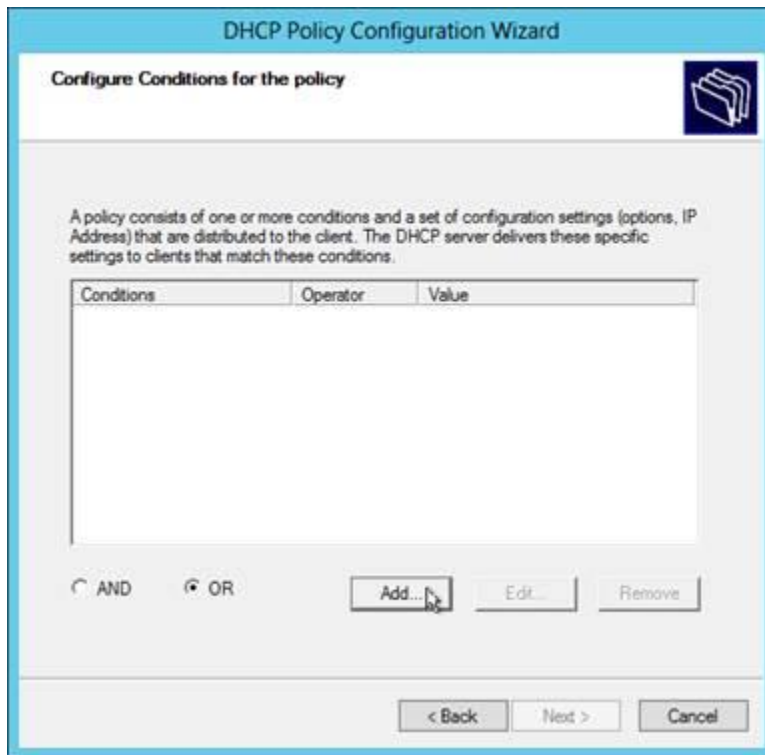
Policy Name:

Description:

< Back Next > Cancel

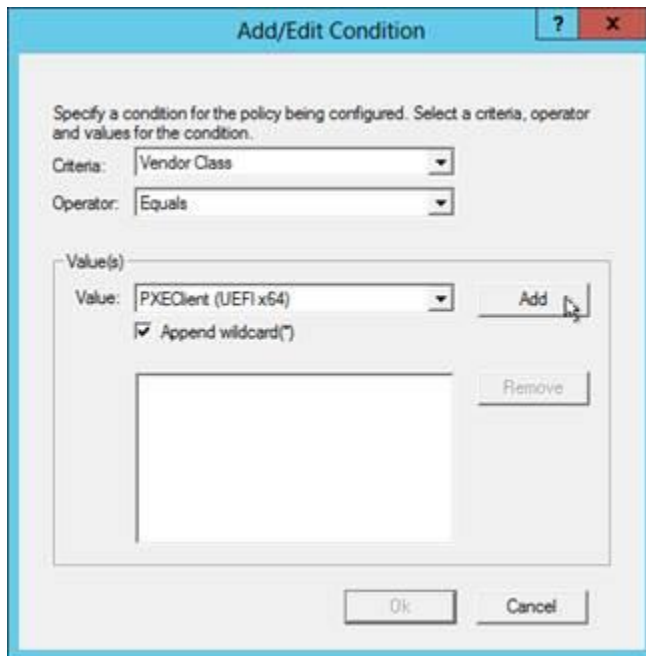
4. Enter a **Description** or leave it blank. Click **Next**.

5. On the **Configure Conditions for the policy** screen, click **Add**.



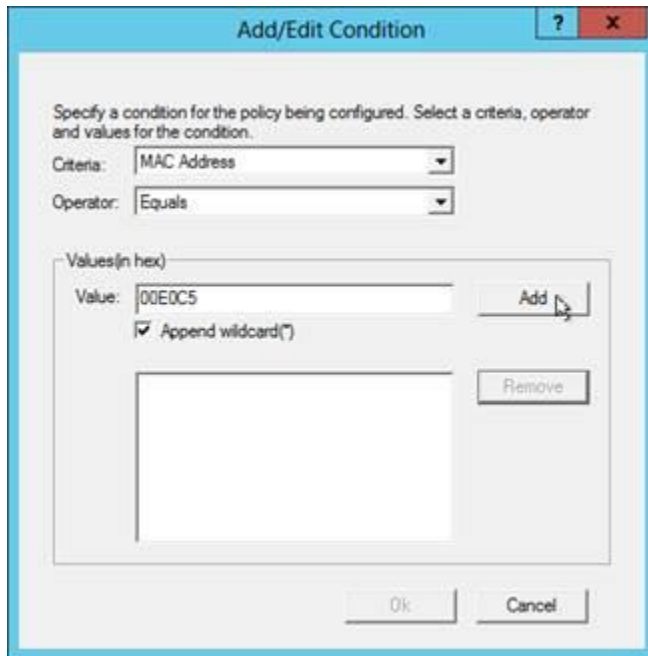
6. In the **Add/Edit Condition** window, click the **Value:** drop down menu.
7. Choose the **PXEClient (UEFI x64)** vendor class you created earlier.

8. Tick the **Append wildcard(*)** check box and then click **Add** and then **Ok**.

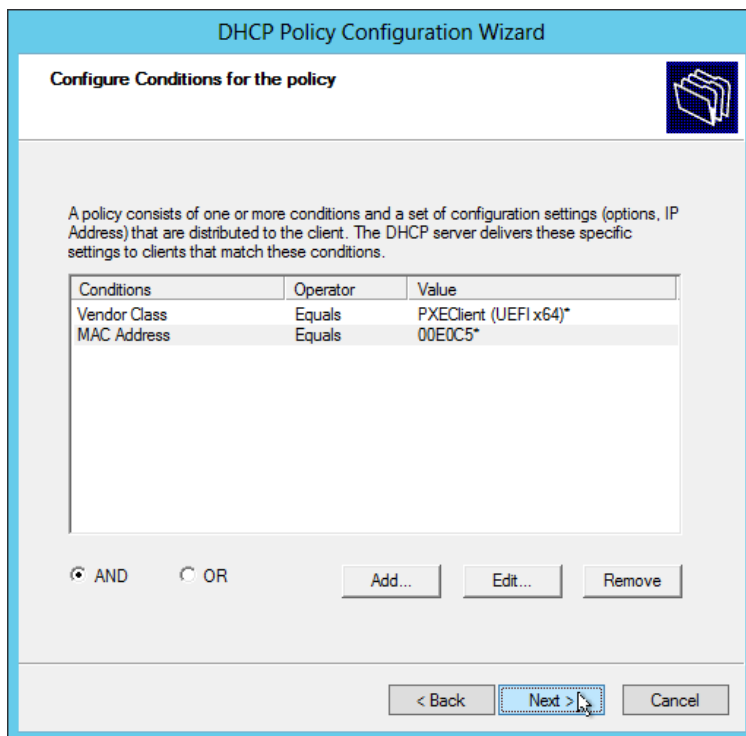


9. On the **Configure Conditions for the policy** screen, click **Add** again.
10. From the **Criteria:** drop down menu, choose **MAC Address** in order to specify a wildcard match for 10ZiG thin client MAC addresses.

11. Enter “00e0c5”, tick the Append wildcard(*) check box, and then click **Add** and finally **Ok**.



12. The **Configure Conditions for the policy** screen should appear as pictured below. Make sure the **AND** radio button is ticked and then click **Next** to proceed



13. On the **Configure settings for the policy** screen, click **No** for the **Do you want to configure an IP address range for the policy**. Click **Next**.

DHCP Policy Configuration Wizard

Configure settings for the policy
If the conditions specified in the policy match a client request, the settings will be applied.

A scope can be subdivided into multiple IP address ranges. Clients that match the conditions defined in a policy will be issued an IP Address from the specified range.

Configure the start and end IP address for the range. The start and end IP addresses for the range must be within the start and end IP addresses of the scope.

The current scope IP address range is: 172.16.6.28 - 172.16.6.254

If an IP address range is not configured for the policy, policy clients will be issued an IP address from the scope range.

Do you want to configure an IP address range for the policy: Yes No

Start IP address:

End IP address:

Percentage of IP address range: No valid range specified

< Back Next > Cancel

14. On the **Configure settings for the policy** screen, search for options **066** and **067**.
15. Tick option **066** and enter either the **FQDN** or the **IP address** of the 10ZiG Manager server or WDS server if using WDS for PXE booting.
16. Tick option **067** and enter just **pxelinux.efi** if you will be using the 10ZiG Manager's boot server or **boot\x64uefi\pxelinux.efi** for x64 UEFI boot file on WDS. Click **Next**.

DHCP Policy Configuration Wizard

Configure settings for the policy
If the conditions specified in the policy match a client request, the settings will be applied.

Vendor class: DHCP Standard Options

| Available Options | Description |
|---|--------------------------------|
| <input checked="" type="checkbox"/> 066 Boot Server Host Name | TFTP boot server host name |
| <input checked="" type="checkbox"/> 067 Bootfile Name | Bootfile Name |
| <input type="checkbox"/> 068 Mobile IP Home Agents | Mobile IP home agents in prior |

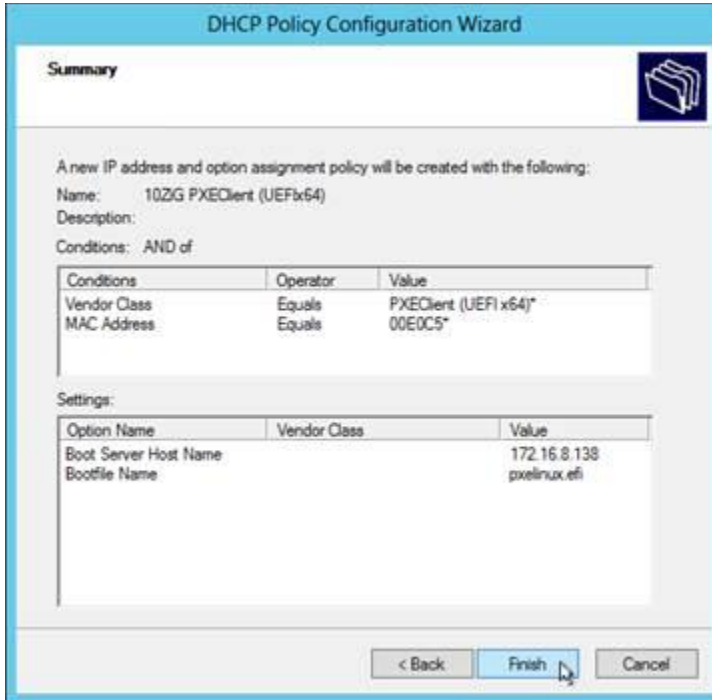
Data entry

String value:
pxelinux.efi

< Back Next > Cancel

Please Note: If using WDS and the WDS services are on the same machine as the DHCP server, you will need to set option **060**. This is unnecessary if using the 10ZiG Manager's boot server or WDS services reside on a different server than DHCP.

17. If applicable, Tick option **060** and enter **PXEClient**.
18. On the **Summary** screen, if all the details are correct, click **Finish**.



DHCP Policy Configuration Wizard

Summary

A new IP address and option assignment policy will be created with the following:

Name: 10ZG PXEClient (UEFIx64)
Description:

Conditions: AND of

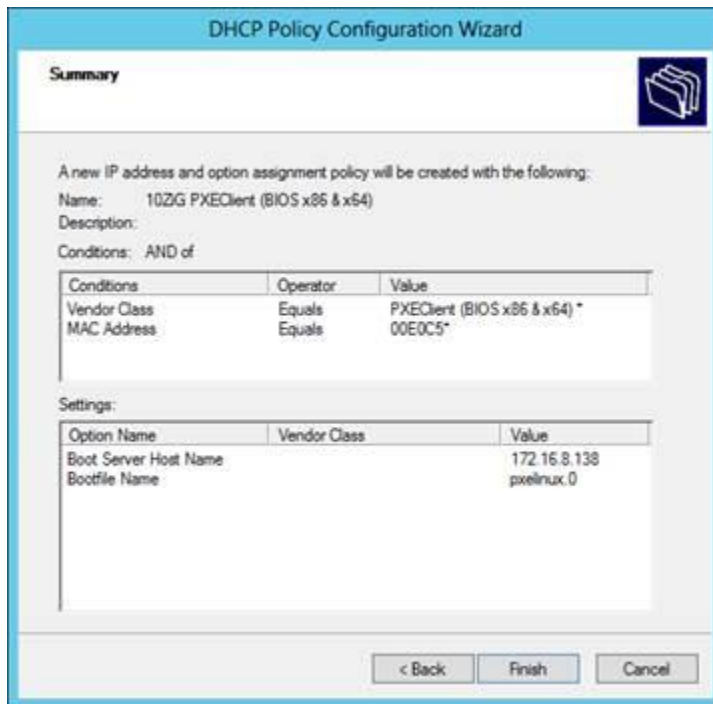
| Conditions | Operator | Value |
|--------------|----------|-----------------------|
| Vendor Class | Equals | PXEClient (UEFI x64)* |
| MAC Address | Equals | 00E0C5* |

Settings:

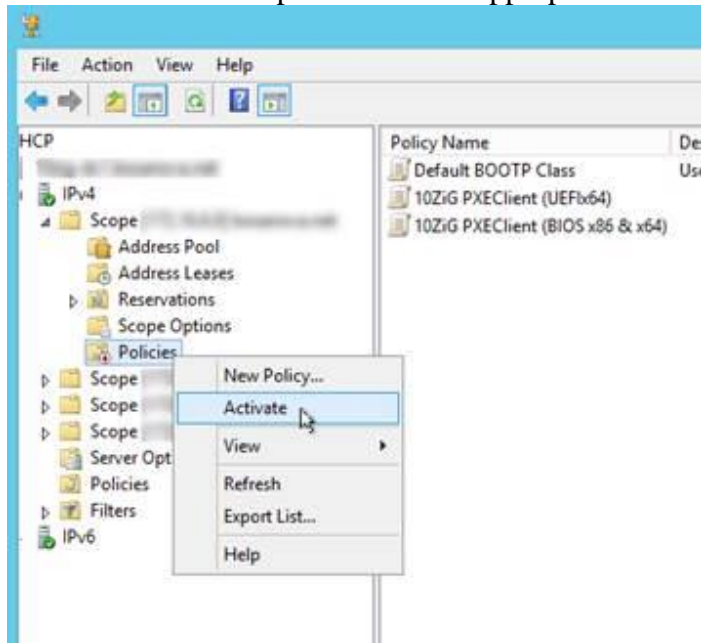
| Option Name | Vendor Class | Value |
|-----------------------|--------------|--------------|
| Boot Server Host Name | | 172.16.8.138 |
| Bootfile Name | | pxelinux.efi |

< Back Finish Cancel

19. Finally, repeat steps 2 – 14 once again for **PXEClient (BIOS x86 & x64)** with **pxelinux.0** as option **067** if using the 10ZiG Manager's boot server or **bootx64uefi/pxelinux.0** if using WDS and leave option **060** empty.



20. Lastly, verify that the policies for the scope have been activated. If not activated, right-click on the Policies and select Activate. The policies should take effect and properly dish out the correct options with the appropriate filtering.



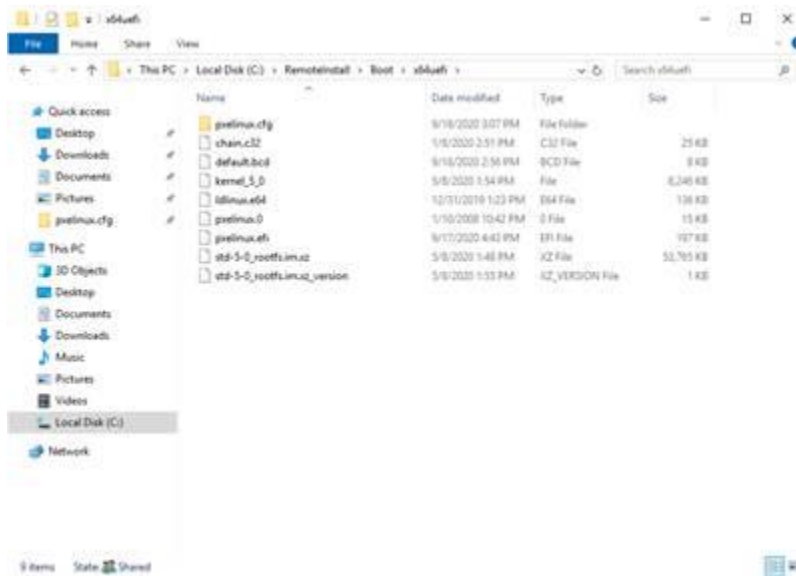
Repeat the above for each VLAN you wish to PXE boot from.

Now in DHCP, if you expand the Scope Options folder you should see the new options you just created and under policy name should be the names of the policies you just created. You should be able to boot both a UEFI and BIOS devices from the network.

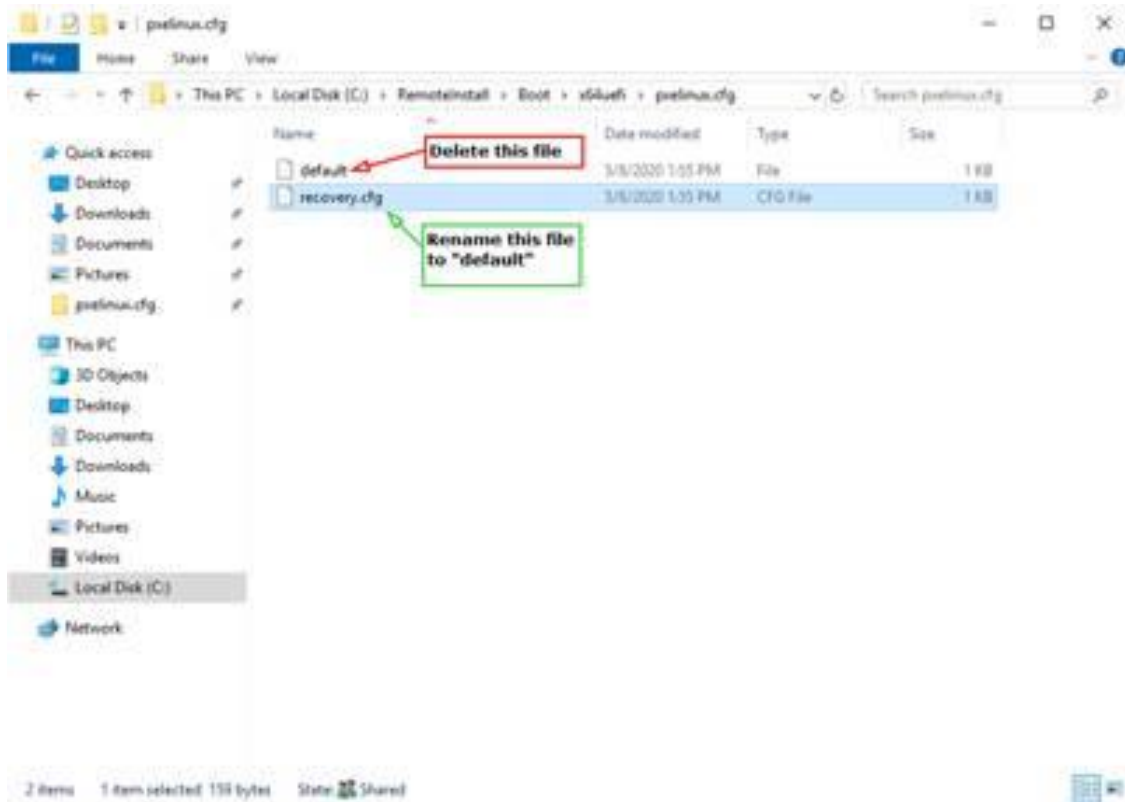
Setting up WDS for PXE booting 10ZiG Recovery Image

You will need copy the PXE boot files from the 10ZiG Manager's installation path to the appropriate boot architecture folder on the WDS server.

1. Locate the **TFTPRoot** subfolder in the 10ZiG Manager installation path. This is typically **C:\Program Files (x86)\10ZiG\10ZiG Manager\TFTPRoot**.
2. Copy all the contents of the **TFTPRoot** subfolder including the **pxelinux.cfg** folder to the WDS boot folder for the **x64uefi** architecture. In a stock vanilla WDS setup, this path could be **C:\Remote Install\Boot\x64uefi**.



3. In the `..\Boot\x64uefi\pxelinux.cfg` path, we need to delete the **default** file and rename the **recovery.cfg** to **default**.



Please note, if DHCP is installed on the same server as WDS, you will need to check both the **Do not listen on DHCP ports** and **Configure DHCP options to indicate that this is also a PXE server options**.