Lab - Installing the IPv6 Protocol and Assigning Host Addresses with Windows XP (Instructor Version)

Instructor Note: Red font color or Gray highlights indicate text that appears in the instructor copy only.

Objectives

Part 1: Install the IPv6 Protocol on a Windows XP PC

- Install the IPv6 protocol.
- Examine IPv6 address information.

Part 2: Use the Network Shell (netsh) Utility

- Work inside the **netsh** utility.
- Configure a static IPv6 address on the local-area network (LAN) interface.
- Exit the **netsh** utility.
- Display IPv6 address information using **netsh**.
- Issue **netsh** instructions from the command prompt.

Background / Scenario

The Internet Protocol Version 6 (IPv6) is not enabled by default in Windows XP. Windows XP includes IPv6 implementation, but the IPv6 protocol must be installed. XP does not provide a way to configure IPv6 static addresses from the Graphical User Interface (GUI), so all IPv6 static address assignments must be done using the Network Shell (**netsh**) utility.

In this lab, you will install the IPv6 protocol on a Windows XP PC. You will then assign a static IPv6 address to the LAN interface.

Required Resources

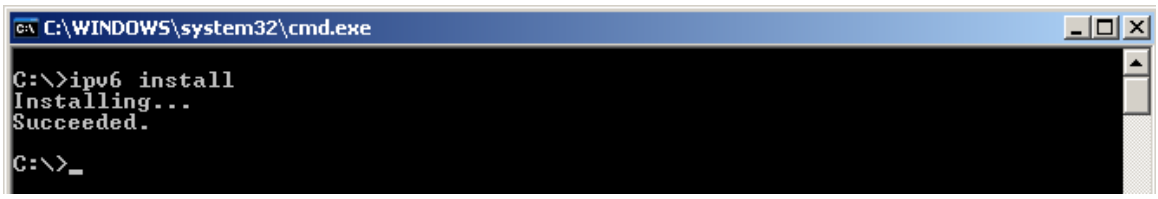
1 Windows XP PC

Part 1: Install the IPv6 Protocol on a Windows XP PC

In Part 1, you will install the IPv6 protocol on a PC running Windows XP. You will also use two commands to view the IPv6 addresses assigned to the PC.

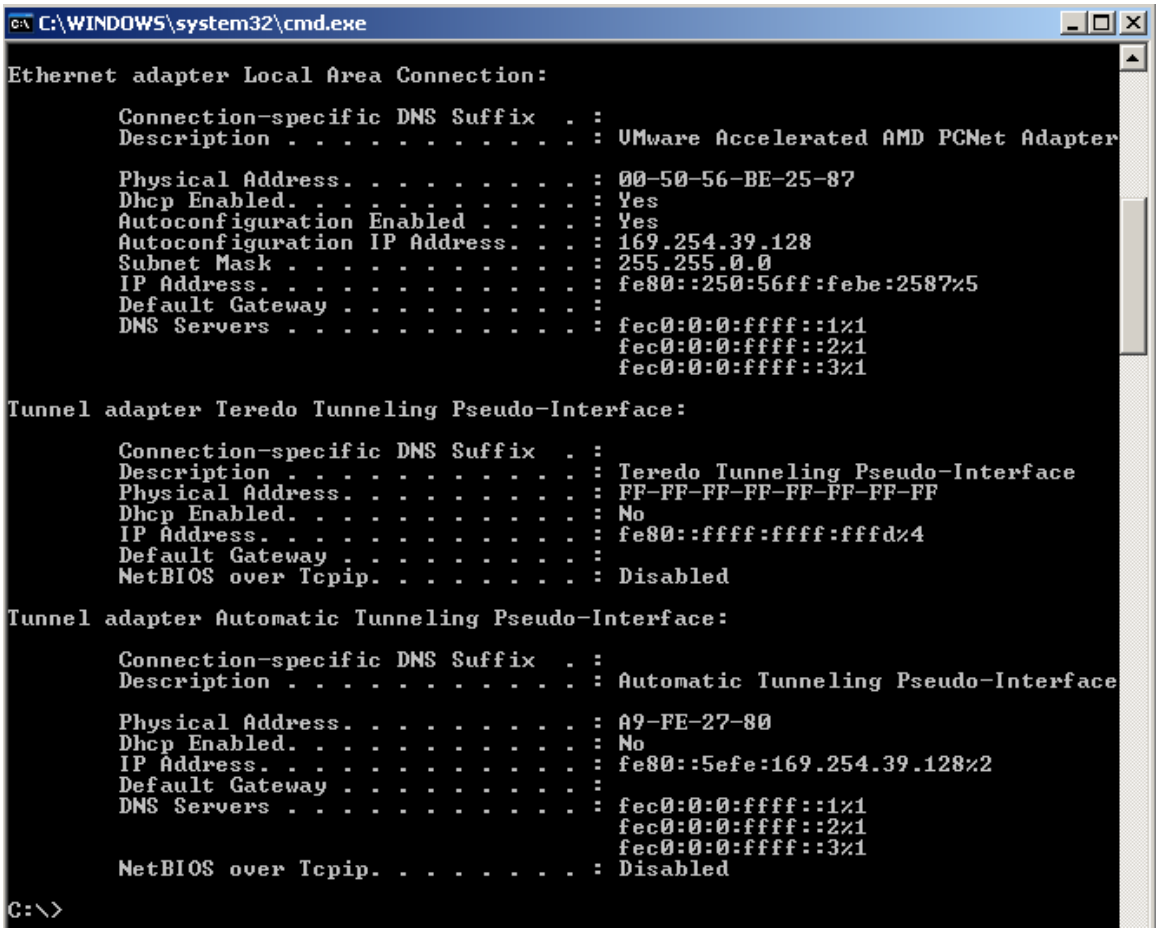
Step 1: Install the IPv6 protocol.

From the command prompt window, type **ipv6 install** to install the IPv6 protocol.



Step 2: Examine IPv6 Address Information.

Use the **ipconfig /all** command to view IPv6 address information.

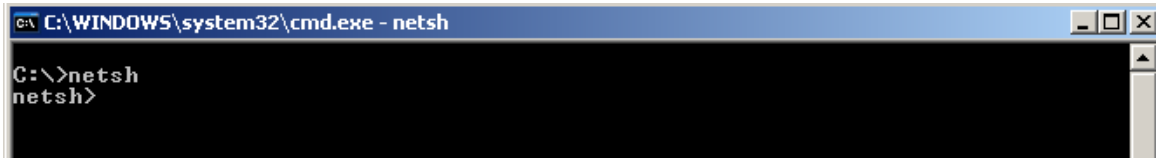


Part 2: Use the Network Shell (netsh) Utility

Network Shell (**netsh**) is a command-line utility included with Windows XP and newer Windows operating systems, such as Vista and Windows 7. It allows you to configure the IPv6 address information on your LAN. In Part 2, you will use the **netsh** utility to configure static IPv6 address information on a Windows XP PC LAN interface. You will also use the **netsh** utility to display the PC LAN interface IPv6 address information.

Step 1: Work inside the Network Shell utility.

a. From the command prompt window, type **netsh** and press Enter to start the **netsh** utility. The command prompt changes from **C:\>** to **netsh>**.



b. At the prompt, enter a question mark (**?**) and press Enter to provide the list of available parameters.

```
netsh>?

The following commands are available:

Commands in this context:
..              - Goes up one context level.
?               - Displays a list of commands.
abort           - Discards changes made while in offline mode.
add             - Adds a configuration entry to a list of entries.
alias           - Adds an alias.
bridge          - Changes to the `netsh bridge' context.
bye             - Exits the program.
commit          - Commits changes made while in offline mode.
delete          - Deletes a configuration entry from a list of entries.
diag            - Changes to the `netsh diag' context.
dump            - Displays a configuration script.
exec            - Runs a script file.
exit            - Exits the program.
firewall        - Changes to the `netsh firewall' context.
help            - Displays a list of commands.
interface       - Changes to the `netsh interface' context.
lan             - Changes to the `netsh lan' context.
nap             - Changes to the `netsh nap' context.
offline         - Sets the current mode to offline.
online          - Sets the current mode to online.
popd            - Pops a context from the stack.
pushd           - Pushes current context on stack.
quit            - Exits the program.
ras             - Changes to the `netsh ras' context.
routing         - Changes to the `netsh routing' context.
set             - Updates configuration settings.
show            - Displays information.
unalias         - Deletes an alias.
winsock         - Changes to the `netsh winsock' context.

The following sub-contexts are available:
 bridge diag firewall interface lan nap ras routing winsock

To view help for a command, type the command, followed by a space, and then
 type ?.

netsh>
```

c. Type **interface ?** and press Enter to provide the list of interface commands.

```
netsh>interface ?

The following commands are available:

Commands in this context:
?               - Displays a list of commands.
add             - Adds a configuration entry to a table.
delete          - Deletes a configuration entry from a table.
dump            - Displays a configuration script.
help            - Displays a list of commands.
ip              - Changes to the `netsh interface ip' context.
ipv6            - Changes to the `netsh interface ipv6' context.
portproxy       - Changes to the `netsh interface portproxy' context.
reset           - Resets information.
set             - Sets configuration information.
show            - Displays information.

The following sub-contexts are available:
 ip ipv6 portproxy

To view help for a command, type the command, followed by a space, and then
 type ?.

netsh>_
```

Note: You can use the question mark (**?**) at any level in the **netsh** utility to list the available options. The up arrow can be used to scroll through previous **netsh** commands. The **netsh** utility also allows you to abbreviate commands, as long as the abbreviation is unique.

Step 2: Configure a static IPv6 address on the LAN interface.

To add a static IPv6 address to the LAN interface, issue the **interface ipv6 add address** command from inside the **netsh** utility.

```
netsh>interface ipv6 add address "Local Area Connection" 2001:db8:acad:a::3
Ok.

netsh>
```

Step 3: Display IPv6 address information using the netsh utility.

You can display IPv6 address information using the **interface ipv6 show address** command.

```
netsh>interface ipv6 show address
Querying active state...


Interface 5: Local Area Connection

Addr Type  DAD State  Valid Life   Pref. Life   Address
---------  ---------- ------------ ------------ ------------------------------
Manual     Preferred      infinite     infinite 2001:db8:acad:a::3
Link       Preferred      infinite     infinite fe80::250:56ff:febe:2587

Interface 4: Teredo Tunneling Pseudo-Interface

Addr Type  DAD State  Valid Life   Pref. Life   Address
---------  ---------- ------------ ------------ ------------------------------
Link       Preferred      infinite     infinite fe80::ffff:ffff:fffd

Interface 2: Automatic Tunneling Pseudo-Interface

Addr Type  DAD State  Valid Life   Pref. Life   Address
---------  ---------- ------------ ------------ ------------------------------
Link       Preferred      infinite     infinite fe80::5efe:169.254.39.128

Interface 1: Loopback Pseudo-Interface

Addr Type  DAD State  Valid Life   Pref. Life   Address
---------  ---------- ------------ ------------ ------------------------------
Loopback   Preferred      infinite     infinite ::1
Link       Preferred      infinite     infinite fe80::1

netsh>_
```

Step 4: Exit the netsh utility.

Use the **exit** command to exit from the **netsh** utility.

```
netsh>exit


C:\>_
```

Step 5: Issue netsh instructions from the command prompt.

All **netsh** instructions can be entered from the command prompt, outside the **netsh** utility, by preceding the instruction with the **netsh** command.

```
C:\>netsh interface ipv6 show address
Querying active state...

Interface 5: Local Area Connection

Addr Type  DAD State  Valid Life   Pref. Life   Address
---------  ---------- ------------ ------------ ------------------------------
Manual     Preferred      infinite     infinite 2001:db8:acad:a::3
Link       Preferred      infinite     infinite fe80::250:56ff:febe:2587

Interface 4: Teredo Tunneling Pseudo-Interface

Addr Type  DAD State  Valid Life   Pref. Life   Address
---------  ---------- ------------ ------------ ------------------------------
Link       Preferred      infinite     infinite fe80::ffff:ffff:fffd

Interface 2: Automatic Tunneling Pseudo-Interface

Addr Type  DAD State  Valid Life   Pref. Life   Address
---------  ---------- ------------ ------------ ------------------------------
Link       Preferred      infinite     infinite fe80::5efe:169.254.39.128

Interface 1: Loopback Pseudo-Interface

Addr Type  DAD State  Valid Life   Pref. Life   Address
---------  ---------- ------------ ------------ ------------------------------
Loopback   Preferred      infinite     infinite ::1
Link       Preferred      infinite     infinite fe80::1


C:\>
```

Reflection

1. How would you renew your LAN interface address information from the **netsh** utility?

   Hint: Use the question mark (**?**) for help in obtaining the parameter sequence.

   _____

   _____

   Answers may vary, but from the command prompt you would issue the **netsh interface ipv6 renew** command.