

7.6.1

WINDOWS XP VPN SERVER AND CLIENT



Objective

At the end of this lab students will be able to configure a Windows XP computer as a Virtual Private Network (VPN) Server and Client. Students will be able to connect Windows XP clients to a VPN Server.

Information for Laboratory

- A. Students will utilize Microsoft Windows XP built in VPN Networking

Student Preparation

The student will have completed requisite reading. The student will require paper for notes and should be prepared to discuss the exercises upon completion.

You will need a partner or two networked computers. You will need to set up a VPN between your computers and then delete the VPN.

Estimated Completion Time

60 Minutes



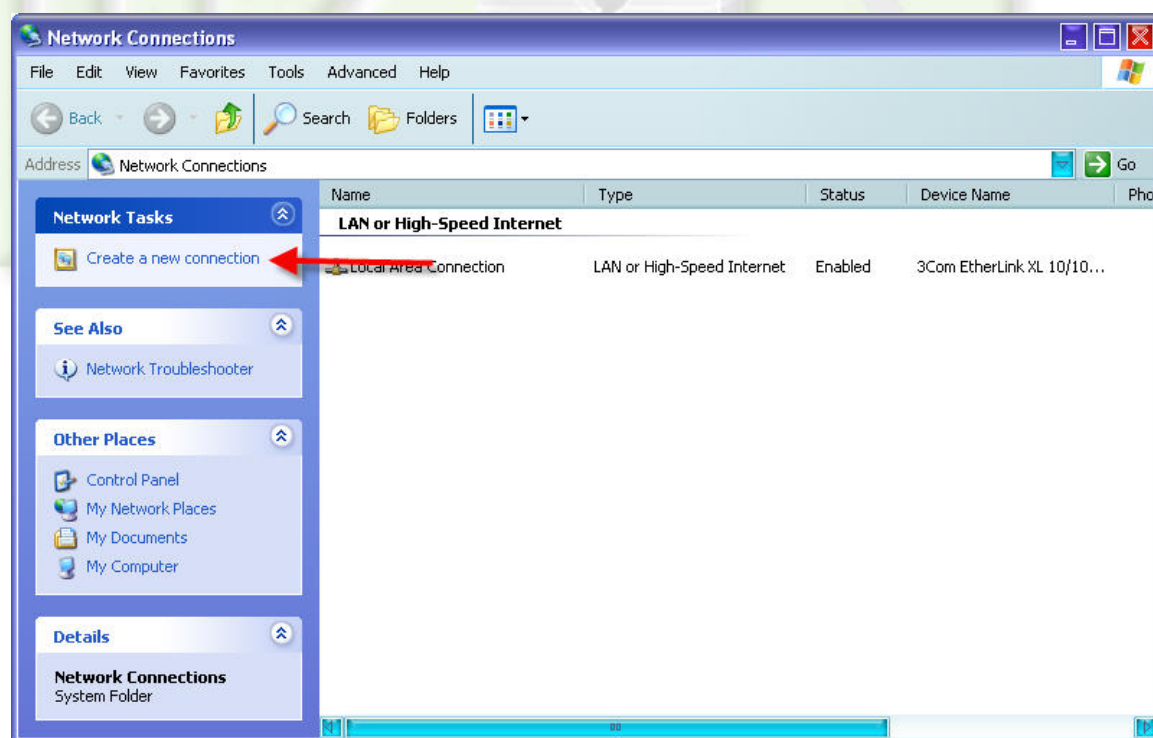
A virtual private network (VPN) is the extension of a private network that encompasses links across shared or public networks like the Internet. A VPN enables you to send data between two computers across a shared or public internetwork in a manner that emulates the properties of a point-to-point private link.

VPN's with Windows XP

Students will use Windows XP built in Virtual Private Network PPTP Server and Client to show how VPN's can be built in a public network environment such as the Internet.

Step 1: Create the VPN Server Connection (Computer A)

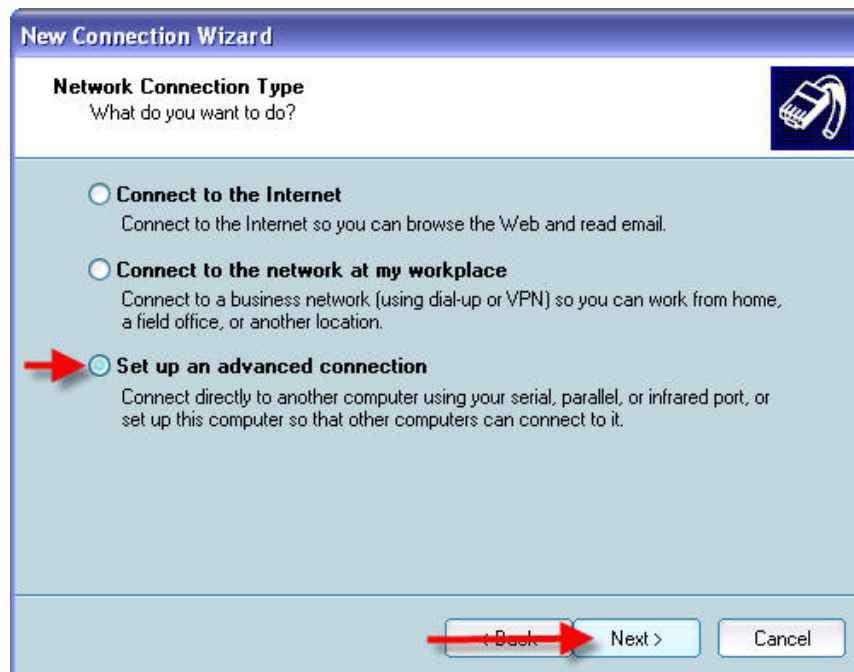
From your desktop, right click My Network Places, and click on Properties. This will open the Network Connections page. From the Network Connections Page, click on Create a new connection from the Network Tasks on the left side as below.



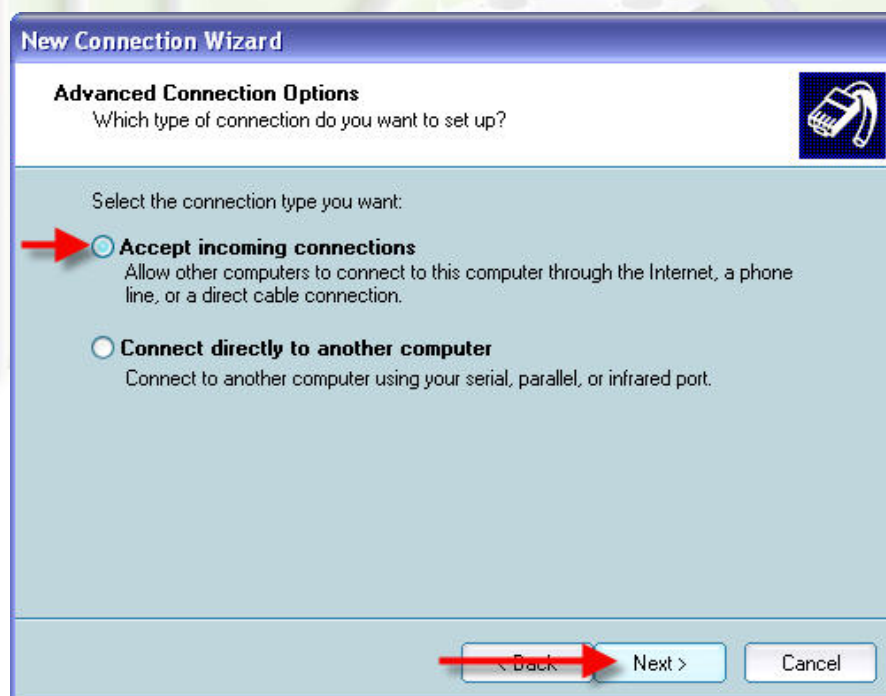
This will launch the New Connection Wizard, click Next to proceed as below.



Select the option to Set up an advanced connection, and click Next as shown below.

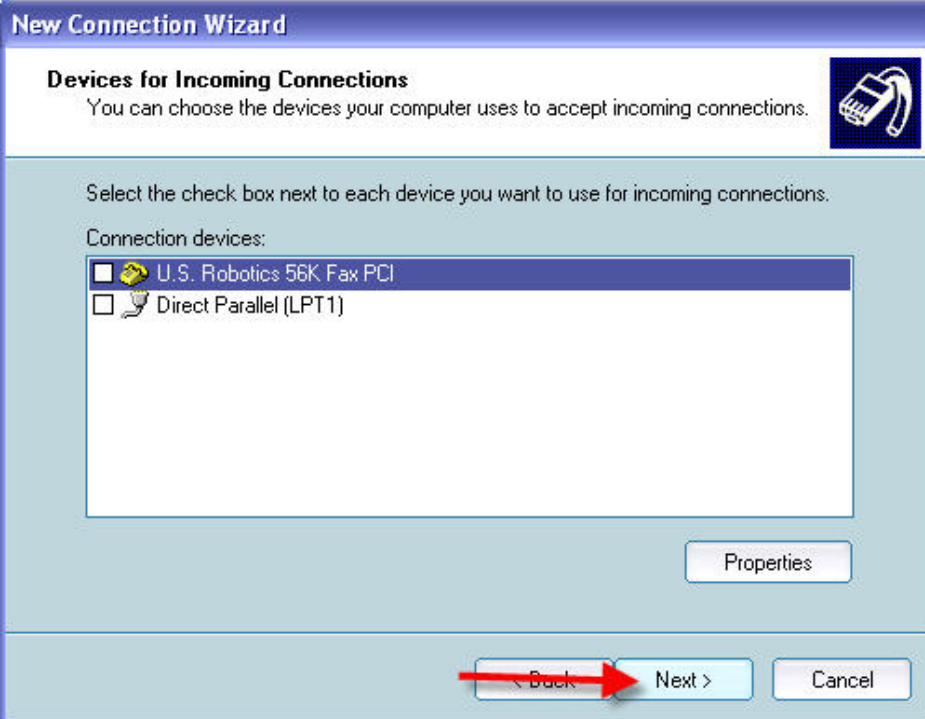


Select the option to Accept incoming connections and click Next as shown below.

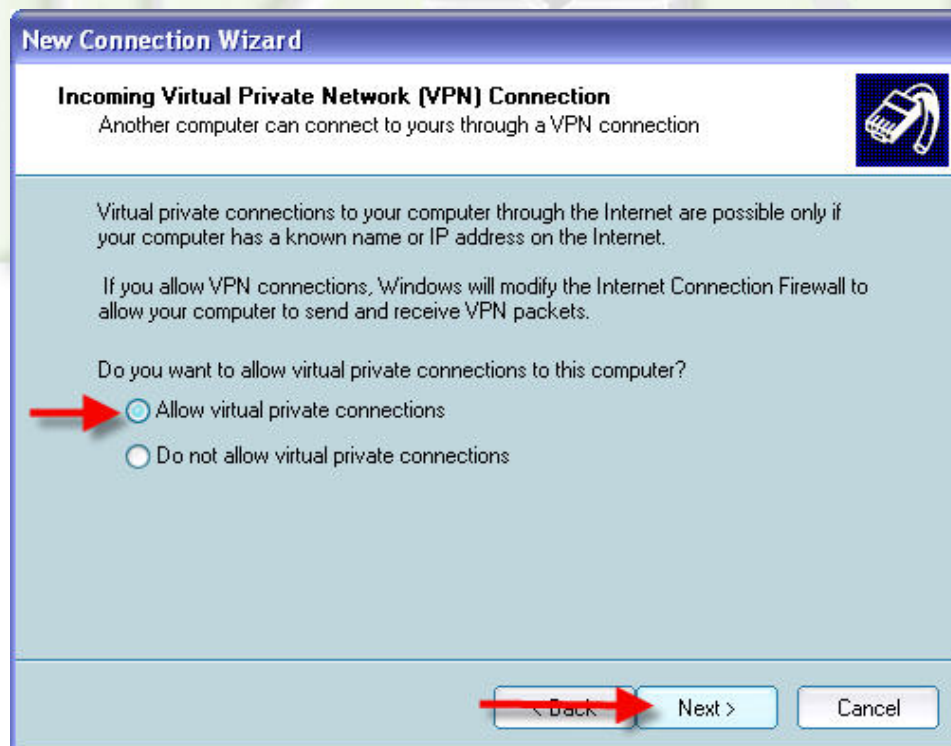


Ignore the Devices for Incoming Connections, as we are using the network card and TCP/IP. Click Next as below without modifying anything on this page.

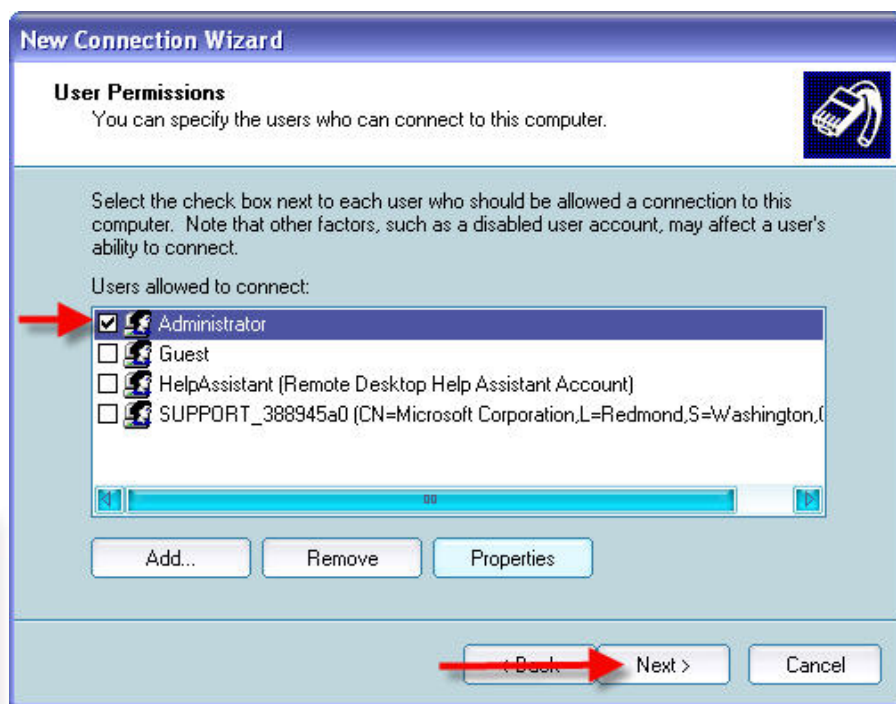




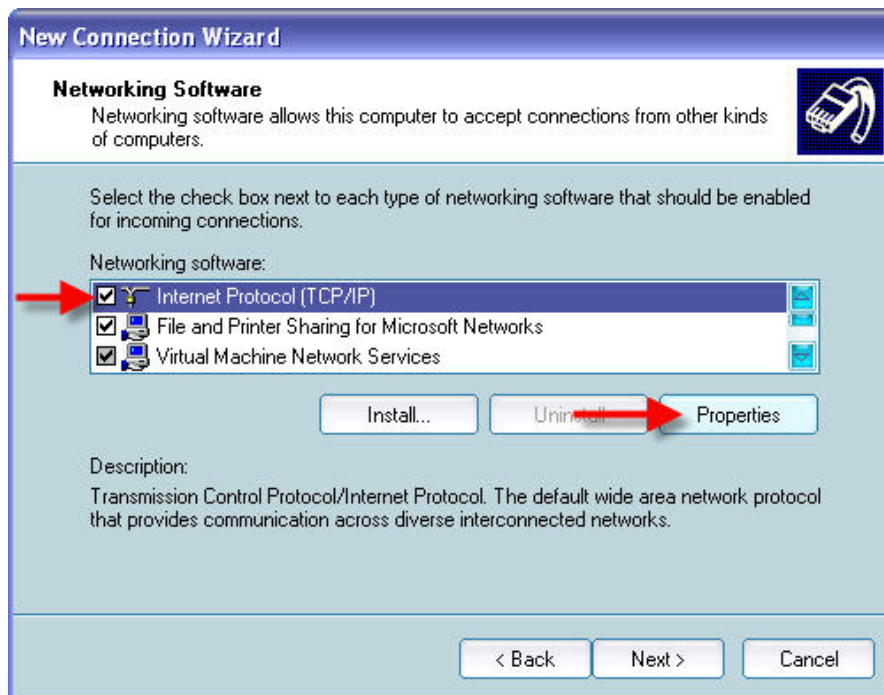
Choose the option to Allow virtual private connections and click next as shown below.



Select the Administrator account, or any other account that has administrative rights of the computer to use as the account to connect to the computer, and click next as shown below.



Make sure that Internet Protocol (TCP/IP) is selected, and click properties, as shown below.

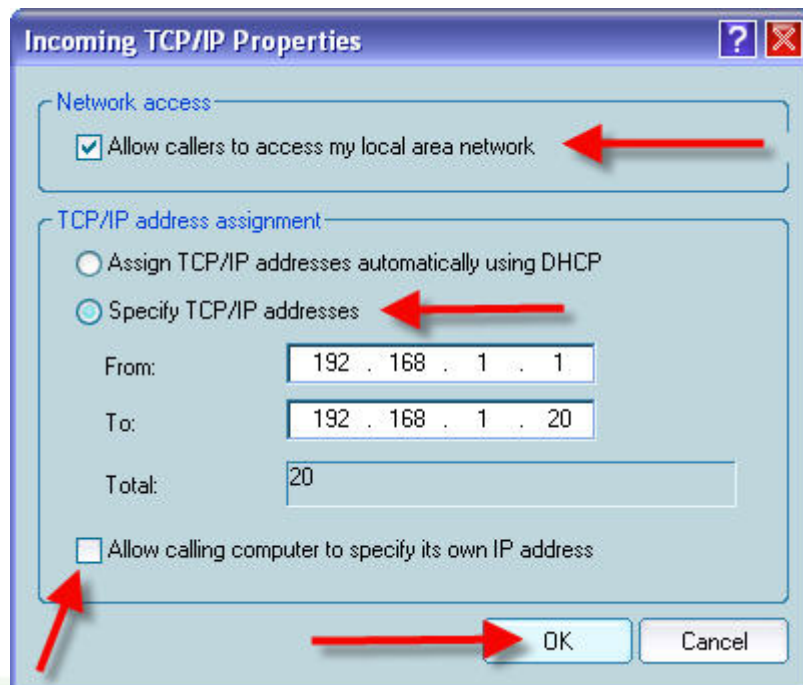


From the properties page, Network access, Allow callers to access my local area network should be selected. TCP/IP address assignment needs to be setup to automatically assign IP addresses to connecting computers. Choose the Specify TCP/IP addresses option, and use the following IP addresses...

From: 192.168.1.1
To: 192.168.1.20

Make sure that the Allow calling computer to specify its own IP address is not selected.

Check the example shown below to make sure your TCP/IP settings are correct, and click OK.



The 'Incoming TCP/IP Properties' dialog box is shown. It has two tabs: 'Network access' and 'TCP/IP address assignment'. In the 'Network access' tab, the checkbox 'Allow callers to access my local area network' is checked. In the 'TCP/IP address assignment' tab, the radio button 'Specify TCP/IP addresses' is selected. Below this, the 'From' field is '192 . 168 . 1 . 1', the 'To' field is '192 . 168 . 1 . 20', and the 'Total' field is '20'. The checkbox 'Allow calling computer to specify its own IP address' is unchecked. The 'OK' and 'Cancel' buttons are at the bottom right. Red arrows point to the 'Allow callers to access my local area network' checkbox, the 'Specify TCP/IP addresses' radio button, the 'Allow calling computer to specify its own IP address' checkbox, and the 'OK' button.

Incoming TCP/IP Properties

Network access

☒ Allow callers to access my local area network

TCP/IP address assignment

☐ Assign TCP/IP addresses automatically using DHCP

☒ Specify TCP/IP addresses

From: 192 . 168 . 1 . 1

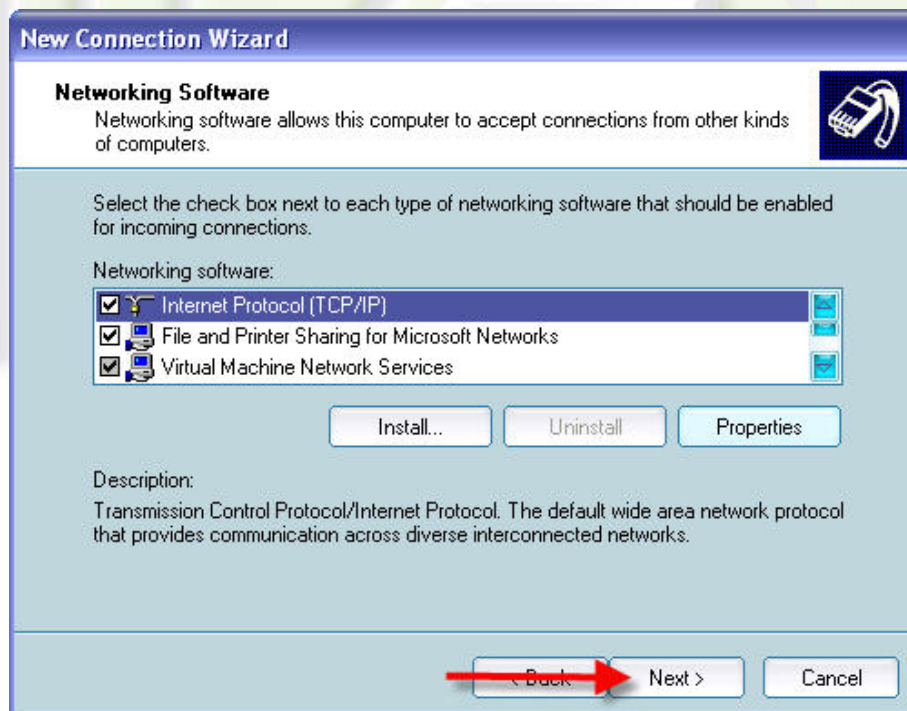
To: 192 . 168 . 1 . 20

Total: 20

☐ Allow calling computer to specify its own IP address

OK Cancel

After specifying the TCP/IP settings, click Next on the Networking Software page, as shown below.



The 'New Connection Wizard' dialog box is shown, specifically the 'Networking Software' page. It has a title bar 'New Connection Wizard' and a sub-header 'Networking Software'. Below the sub-header, it says 'Networking software allows this computer to accept connections from other kinds of computers.' and 'Select the check box next to each type of networking software that should be enabled for incoming connections.' Under 'Networking software:', there is a list box with three items: 'Internet Protocol (TCP/IP)', 'File and Printer Sharing for Microsoft Networks', and 'Virtual Machine Network Services'. All three are checked. Below the list box are three buttons: 'Install...', 'Uninstall', and 'Properties'. Below these is a 'Description:' section with the text 'Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.' At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'. A red arrow points to the 'Next >' button.

New Connection Wizard

Networking Software

Networking software allows this computer to accept connections from other kinds of computers.

Select the check box next to each type of networking software that should be enabled for incoming connections.

Networking software:

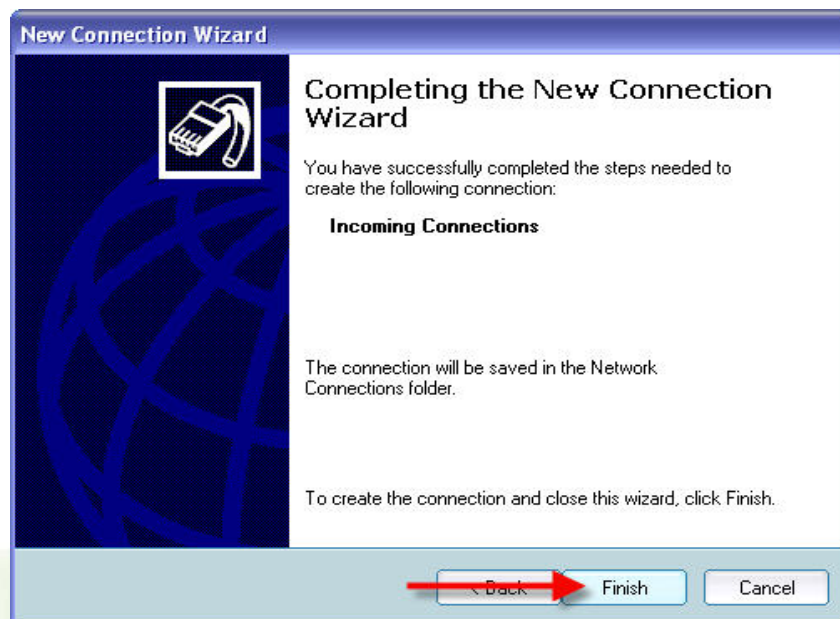
- ☒ Internet Protocol (TCP/IP)
- ☒ File and Printer Sharing for Microsoft Networks
- ☒ Virtual Machine Network Services

Install... Uninstall Properties

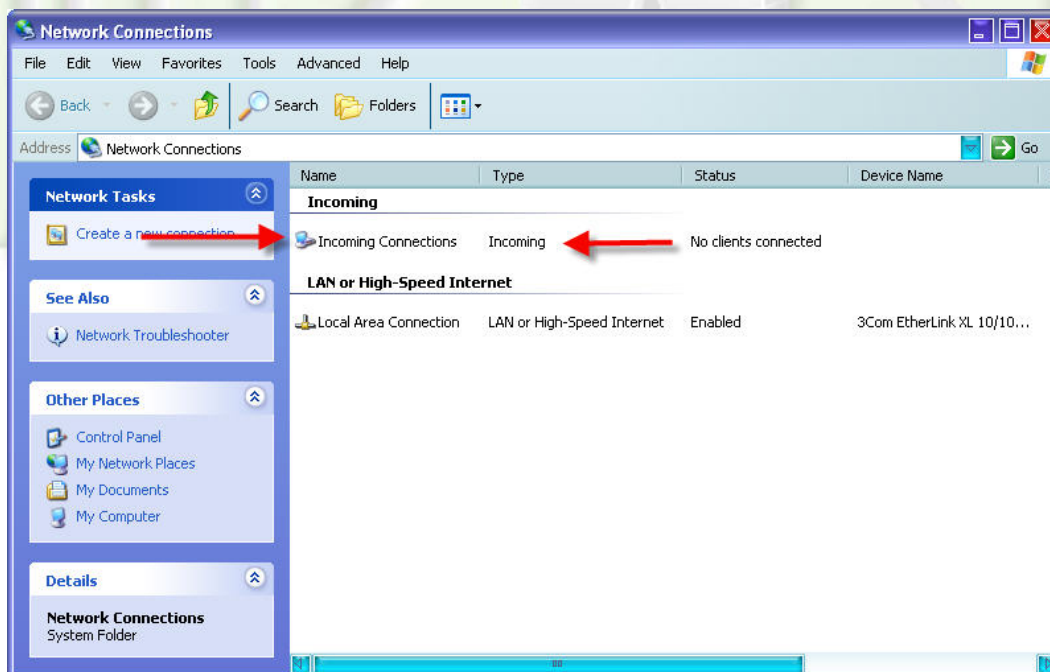
Description:
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

< Back Next > Cancel

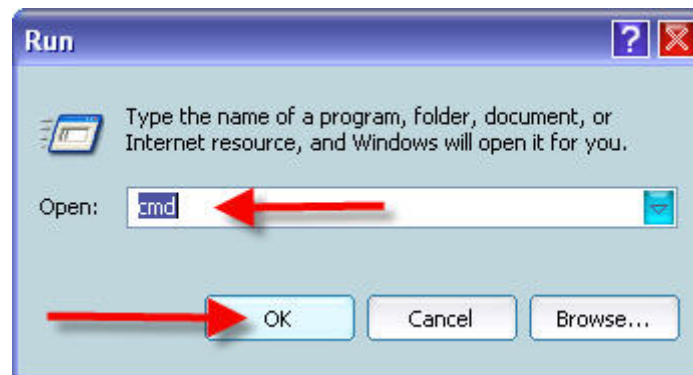
Click Finish on the Completing the New Connection Wizard, as shown below.



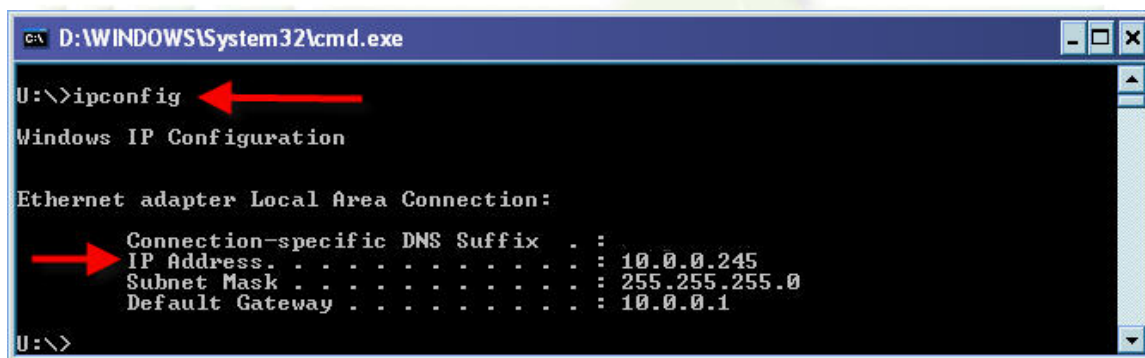
Go back to the Network Connections page. You should now see that you have an Incoming Connections setup, as show below.



From START, Run, enter 'cmd' and click ok

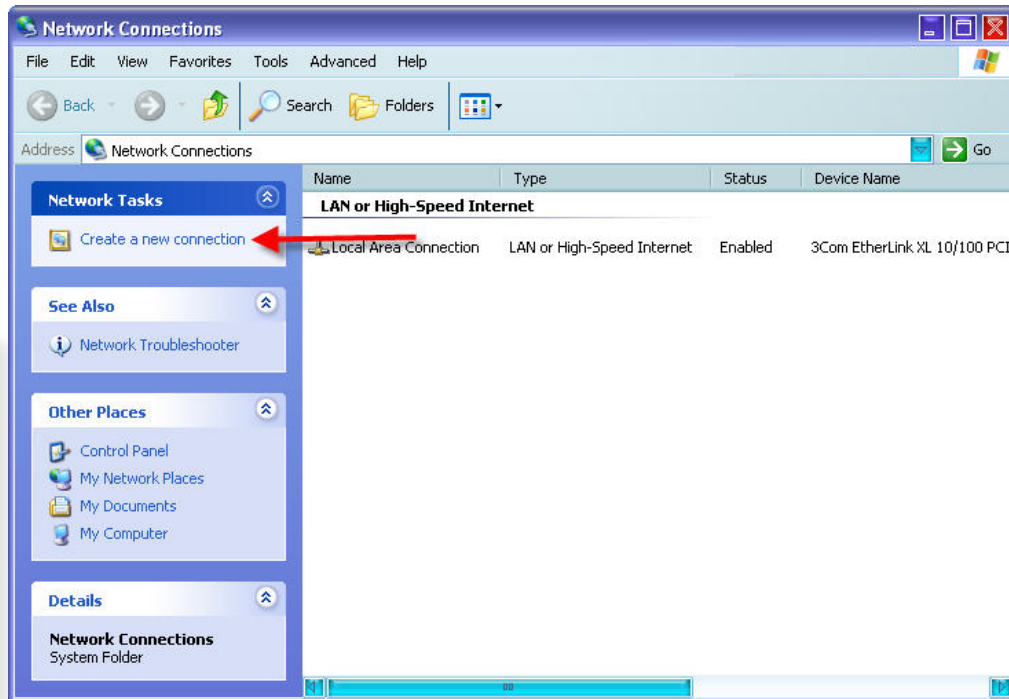


At the command prompt type 'ipconfig' to view your current IP address. This is the address in which the clients will use to connect.

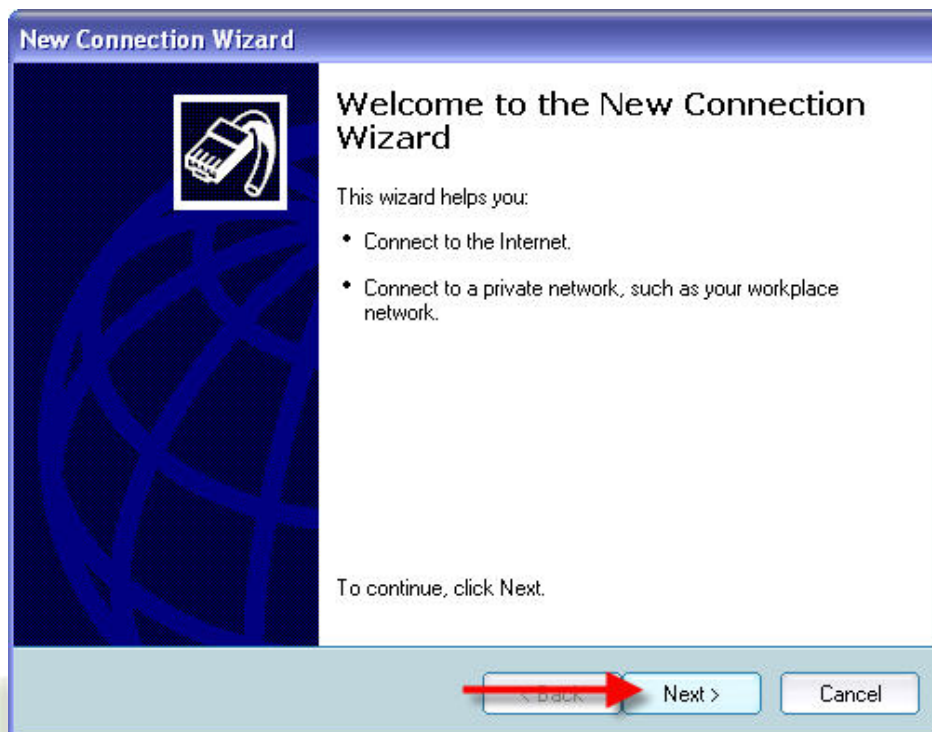


Step 2: Creating the VPN Client connection (Computer B)

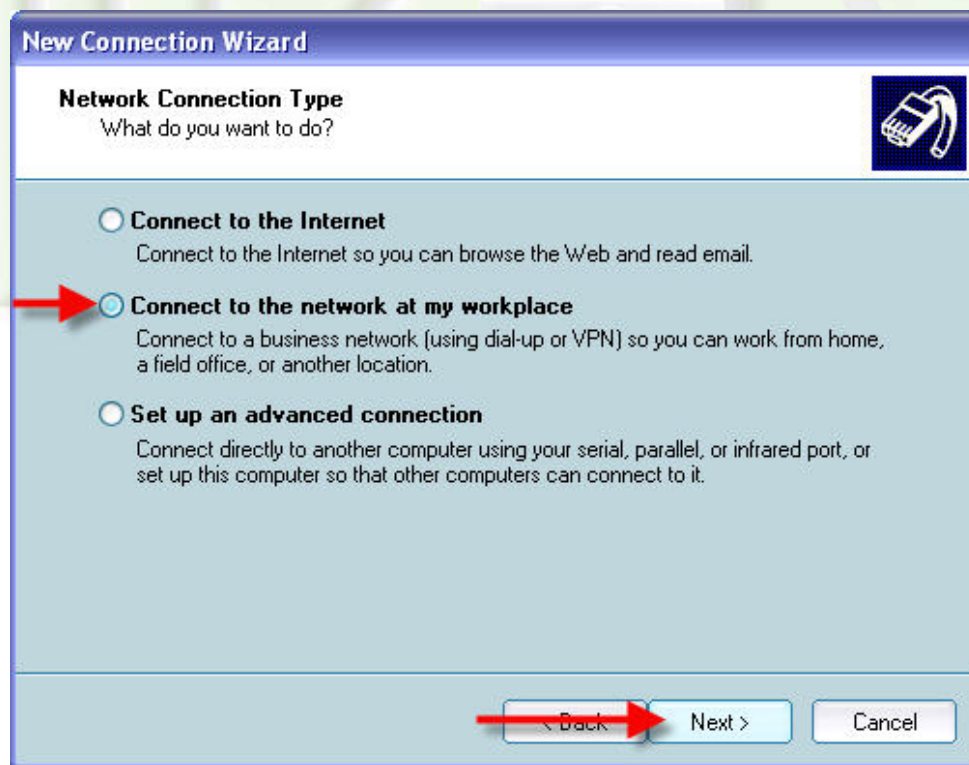
From your partners computer, From the desktop, right click on My Network Places, and click properties. This will open the Network Connections page. From the Network Connections page, click on Create a new connection from Network Tasks on the left side, as show below.



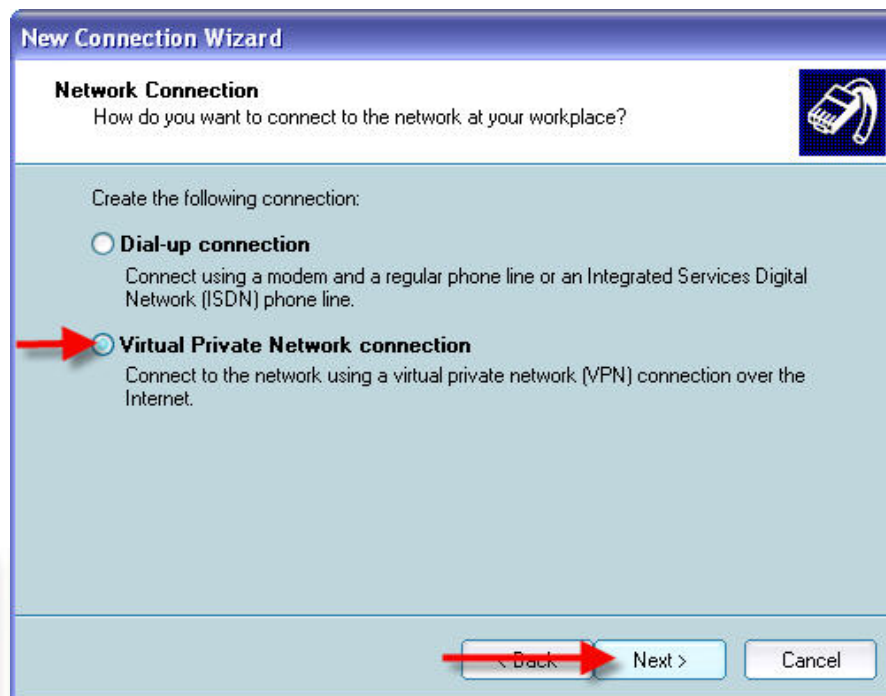
This will launch the New Connection Wizard, click next to continue, as below.



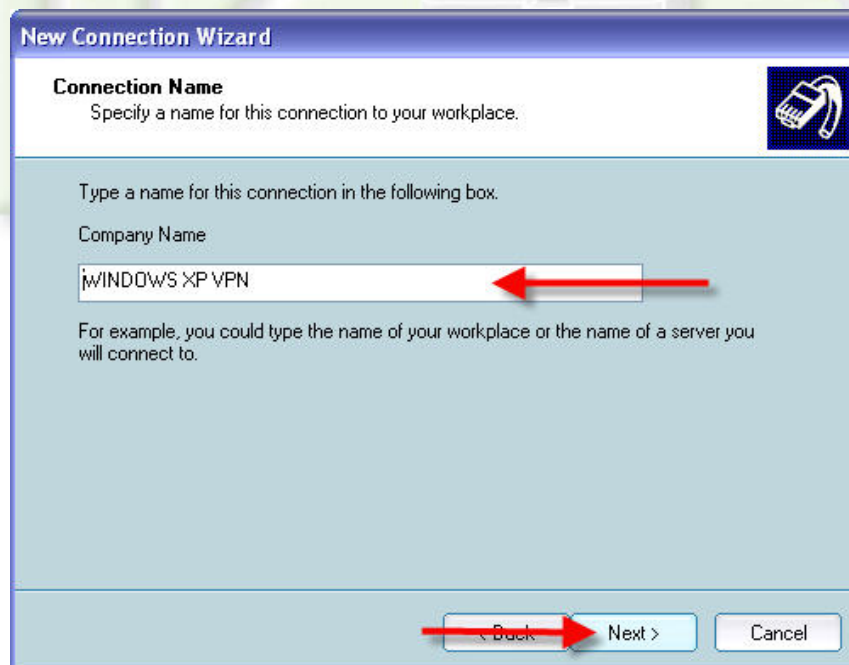
From the Network Connection Type page, choose to Connect to the network at my workplace and click next, as shown below.



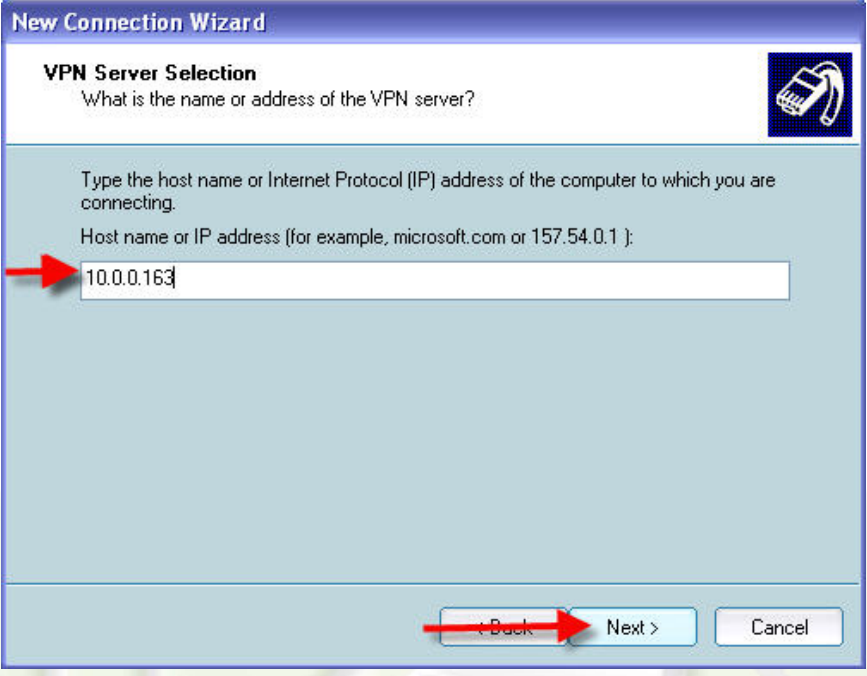
From the Network Connection page, choose Virtual Private Network connection, and click next as below.



Enter a name for the connection in the Company Name box, and click next, as below.



Enter the IP address of the VPN server from Part I, in the Host name or IP address box from the VPN Server Selection page, as below.



New Connection Wizard

VPN Server Selection
What is the name or address of the VPN server?

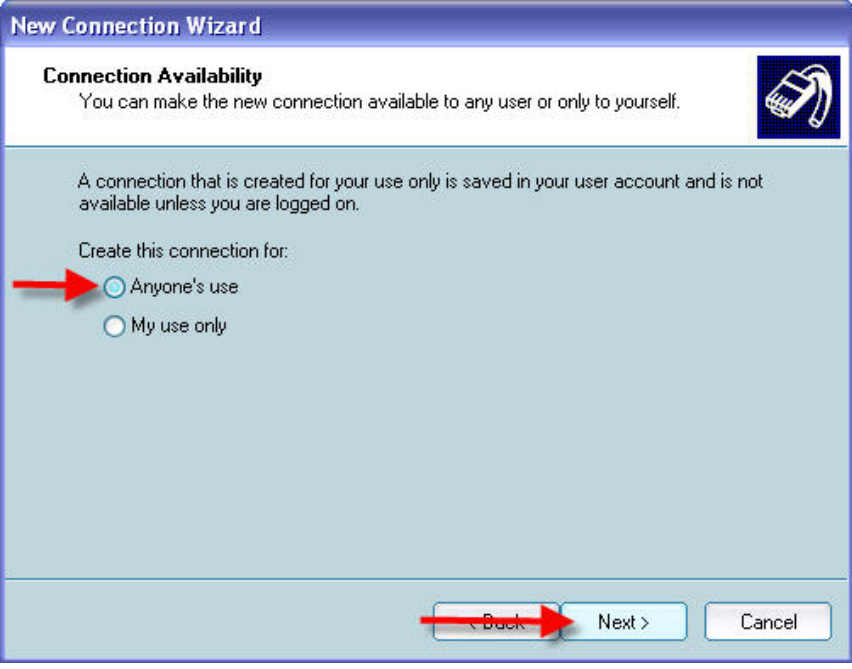
Type the host name or Internet Protocol (IP) address of the computer to which you are connecting.
Host name or IP address (for example, microsoft.com or 157.54.0.1):

10.0.0.163

< Back Next > Cancel

A screenshot of the 'New Connection Wizard' window, specifically the 'VPN Server Selection' step. The window has a blue title bar and a light blue background. The title 'New Connection Wizard' is in the top left. Below it, the step title 'VPN Server Selection' is followed by the question 'What is the name or address of the VPN server?'. A small icon of a computer with a plug is in the top right. The main area contains instructions: 'Type the host name or Internet Protocol (IP) address of the computer to which you are connecting.' and 'Host name or IP address (for example, microsoft.com or 157.54.0.1):'. A text box contains the IP address '10.0.0.163', with a red arrow pointing to it from the left. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'. A red arrow points to the 'Next >' button.

Choose Anyone's use from the Connection Availability page, and click next as shown below.



New Connection Wizard

Connection Availability
You can make the new connection available to any user or only to yourself.

A connection that is created for your use only is saved in your user account and is not available unless you are logged on.

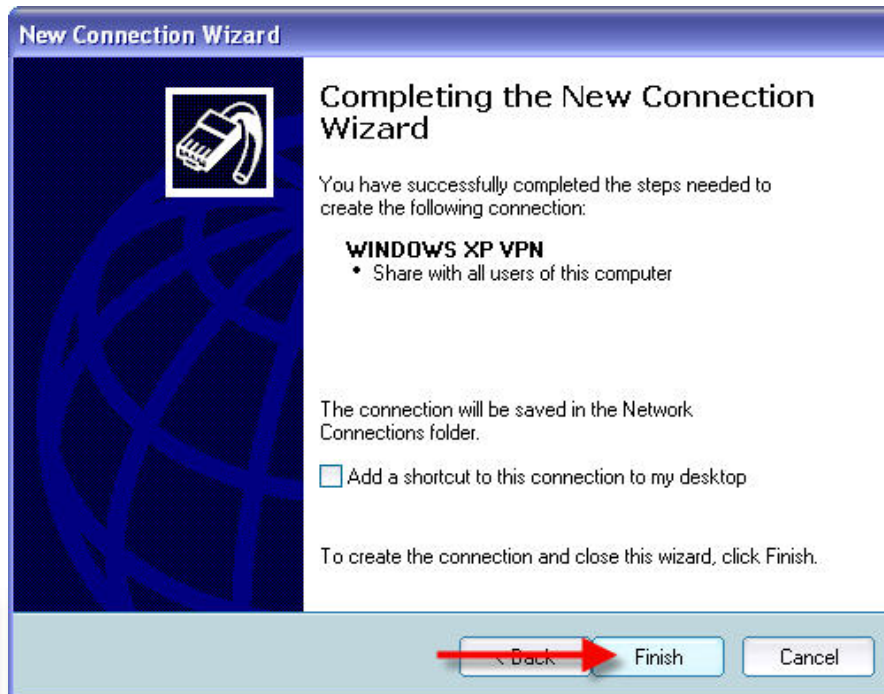
Create this connection for:

☒ Anyone's use
☐ My use only

< Back Next > Cancel

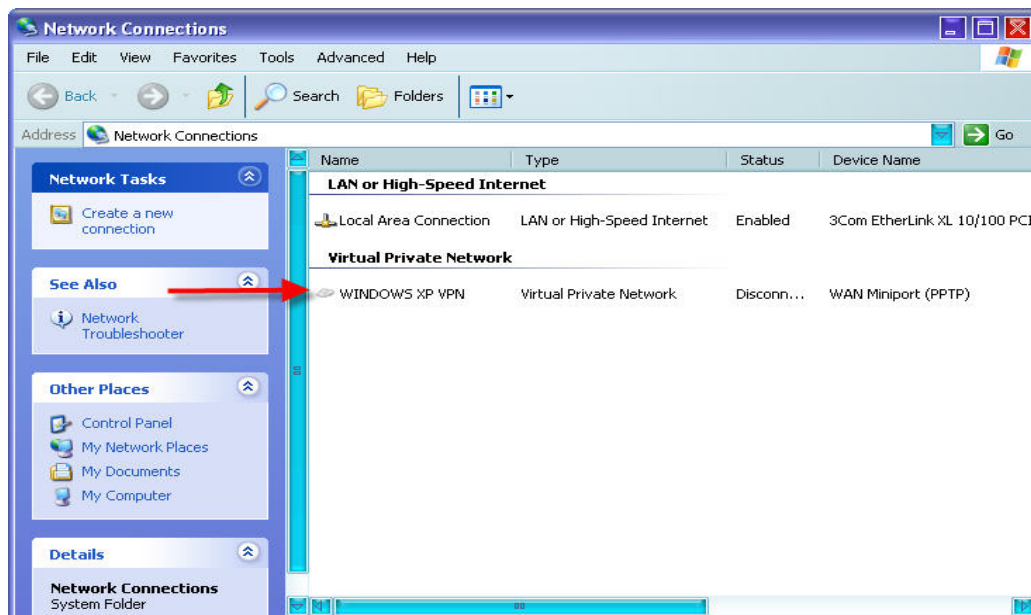
A screenshot of the 'New Connection Wizard' window, specifically the 'Connection Availability' step. The window has a blue title bar and a light blue background. The title 'New Connection Wizard' is in the top left. Below it, the step title 'Connection Availability' is followed by the text 'You can make the new connection available to any user or only to yourself.'. A small icon of a computer with a plug is in the top right. The main area contains a paragraph: 'A connection that is created for your use only is saved in your user account and is not available unless you are logged on.' Below this, it says 'Create this connection for:'. There are two radio button options: 'Anyone's use' (which is selected, indicated by a red arrow pointing to it from the left) and 'My use only'. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'. A red arrow points to the 'Next >' button.

Click Finish to complete the connection setup, as below.

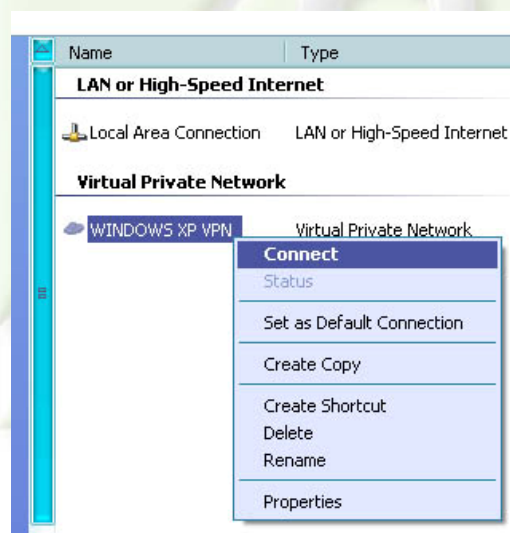


STEP 3: Connecting to the VPN Server from the Client

From the Client computer, from the desktop, right click on My Network Places, and click properties. This will open the Network Connections page. From here, you should see your new Virtual Private Network listed, as below.



Right click on the VPN connection 'Windows XP VPN' and click Connect, as below.



Enter the User name and Password and click Connect as below.



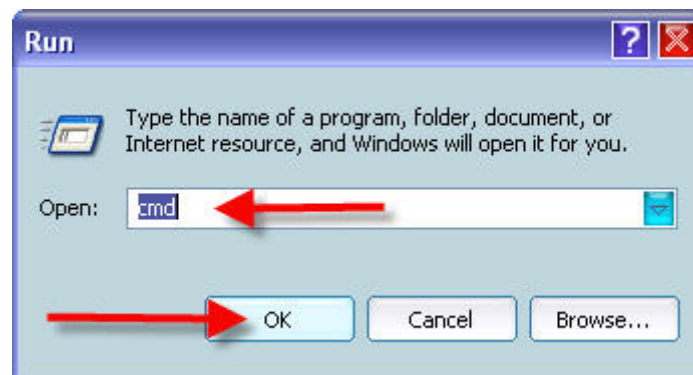
If all steps were followed correctly, you will see the following message...



After a few seconds, you will be connected to the VPN server. On the taskbar, you will see another icon for a network connection. If you hold the mouse over it, it will display the following information...



While still connected, from START, Run, enter 'cmd' and click OK.



At the command prompt type 'ipconfig /all' to view your current IP address information. Notice the IP address for your VPN connection is 192.168.x.x.

```
C:\ D:\WINDOWS\system32\cmd.exe
U:\>ipconfig /all

Windows IP Configuration

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

Ethernet adapter Local Area Connection:

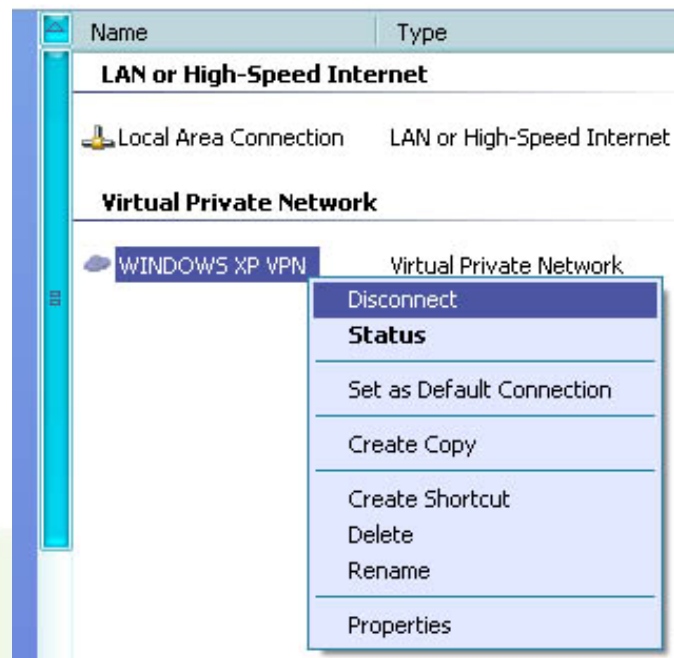
    Connection-specific DNS Suffix . : 
    Description . . . . . : 3Com EtherLink XL 10/100 PCI TX NIC
    (3C905B-TX)
    Physical Address. . . . . : 00-50-04-61-1B-0D
    Dhcp Enabled. . . . . : No
    IP Address. . . . . : 10.0.0.245
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.0.0.1
    DNS Servers . . . . . : 10.0.0.30
                           10.0.0.32

PPP adapter WINDOWS XP UPN:
    Connection-specific DNS Suffix . : 
    Description . . . . . : WAN (PPP/SLIP) Interface
    Physical Address. . . . . : 00-53-45-00-00-00
    Dhcp Enabled. . . . . : No
    IP Address. . . . . : 192.168.1.2
    Subnet Mask . . . . . : 255.255.255.255
    Default Gateway . . . . . : 192.168.1.2
    DNS Servers . . . . . : 10.0.0.30
                           10.0.0.32

    Primary WINS Server . . . . . : 10.0.0.30
    Secondary WINS Server . . . . . : 10.0.0.32

U:\>
```

From Network Connections, Right click on the VPN Connection 'WINDOWS XP VPN' and click disconnect, as shown below.



Right click on the VPN connection 'WINDOWS XP VPN' and click delete. After the VPN connection has been deleted, close all other windows.

Analysis:

- 1) For which applications are VPN's best suited?
- 2) After working with these utilities, what about VPN's do you feel you should study further? Why?
- 3) Why would you use a VPN over the Internet in a business situation when transferring sensitive data?

Summary Discussion

A classroom discussion should follow the lab. Review the lab questions and your analyses as a group. Share your experiences and knowledge with the class.

If You Want To Learn More

Research Virtual Private Networks at www.microsoft.com

Research PPTP at www.microsoft.com

Appendix:

The OS environment for this lab was Windows XP Professional, Version 2002, Service Pack 2 (8/04).

