LAB 3 – Configuring Basic Network File and Printer Sharing

Overview

In this lab you will be configuring computers in order to facilitate file and printer sharing using the Windows XP operating system. By configuring basic network protocols, services and settings, you will connect to peer student computers to print and share files.

You will be configuring virtual machines that run Windows XP but that have no networking software configured.

Starting the Virtual Machine

You will find a virtual machine in the folder
C:\Virtual Machines\Windows XP Professional (Lab3)
Run the virtual machine named Windows XP Professional.vmx

Sign on to the virtual machine using the following credentials:

Username: csstudent
Password: abc123

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I INSTALLING NETWORK COMPONENTS

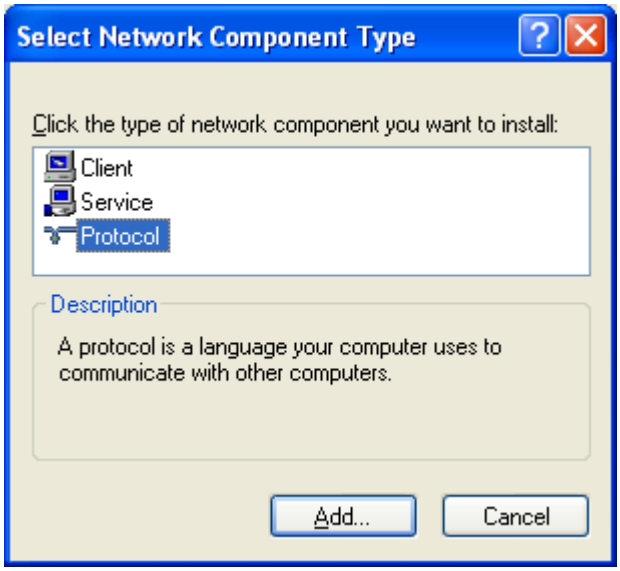
Network Protocol

In order for two computers to communicate on a network, they both must utilize a **protocol.** For this lab, we will be using the **NWLink/IPX/SPX/NetBIOS Compatible Transport Protocol**.

1. Open the **Control Panel**
2. Open **Network Connections**
3. Right-click on **Local Area Connection**
4. Select **Properties**

*(**You will notice that there is TCP/IP installed, but it is not enabled. We will not be using TCP/IP for the network protocol in this lab.)*

Install the **NWLink IPX/SPX/NetBIOS Compatible Transport** protocol by clicking on **Install** and selecting **Protocol** in the **Select Network Component Type** window.



Note: This may require a restart.
Click **Add** and then select the protocol to install in the resulting window. Click **OK** to complete the installation.

Your networking protocol has been installed and you should see the following window:

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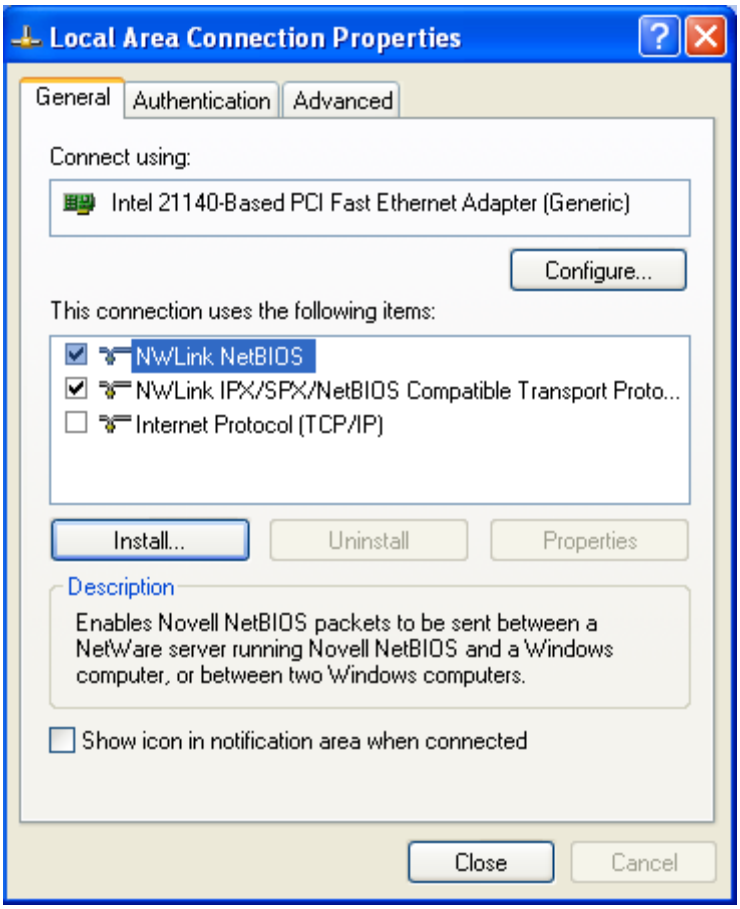

Client and Services Software

Now that the computers are able to "talk" to each other, we need to provide a service that is useful to us. This requires additional application layer services such as network client-server software, and file or printer sharing functionality.

Follow the same procedure that you used to install a network protocol, but this time select the network **Client** named **Client for Microsoft Networks.** Repeat the process for the **Service** named **File and Printer Sharing for Microsoft Networks.**

Note: Again this may require a restart.

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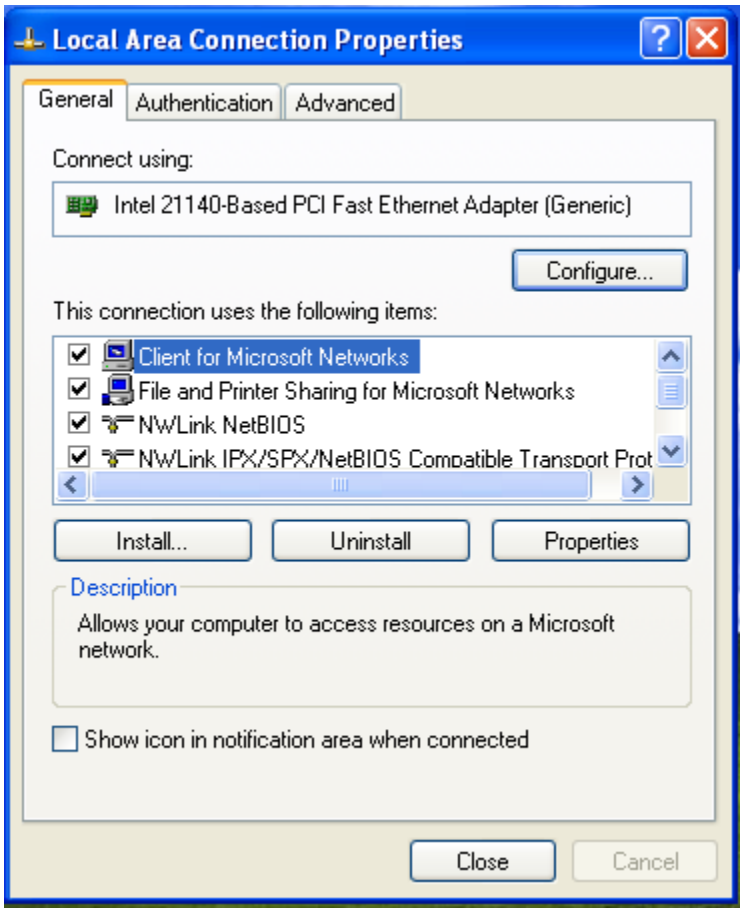
When you have completed the installs, your **Local Area Connection Properties** should look like this:



Click **Close** to dismiss the window.

In order to communicate with another computer on a network, there must be a mechanism to uniquely identify the computer you want to utilize from all others on the network. Our lab simply requires a unique **Computer Name** be assigned to each one. Select a name for your computer. Write it on the whiteboard at the front of the lab so others will be sure to select a unique name.

Record your computer name: _____

A workgroup logically defines computers into smaller, more identifiable and manageable groups. For our lab, all computers will be members of the same workgroup: **CS254**

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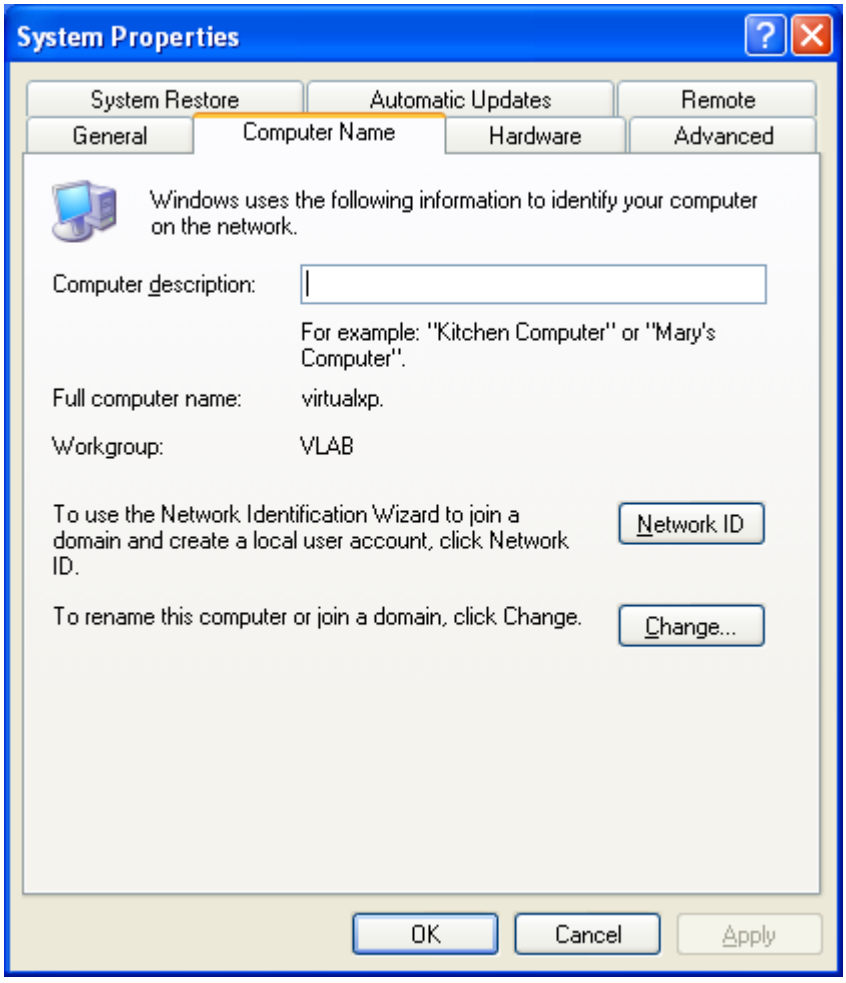
To configure the computer's identifying characteristics, open **Control Panel** then click on **System**, then select **Computer Name** tab. You should see a window similar to this:



Change the computer name and workgroup using the **Change** button. Fill in the fields appropriately and click **OK** to commit the changes. You will need to restart the virtual machine to complete the process.

Once your computer has rebooted, check for others who have completed these steps. Drill down in **My Network Places** (found on the left sidebar after opening **My Computer**) and see if other computers have showed up in the **Microsoft Windows Network** under the **CS254** workgroup.

Team up in working pairs to complete the remainder of the lab.

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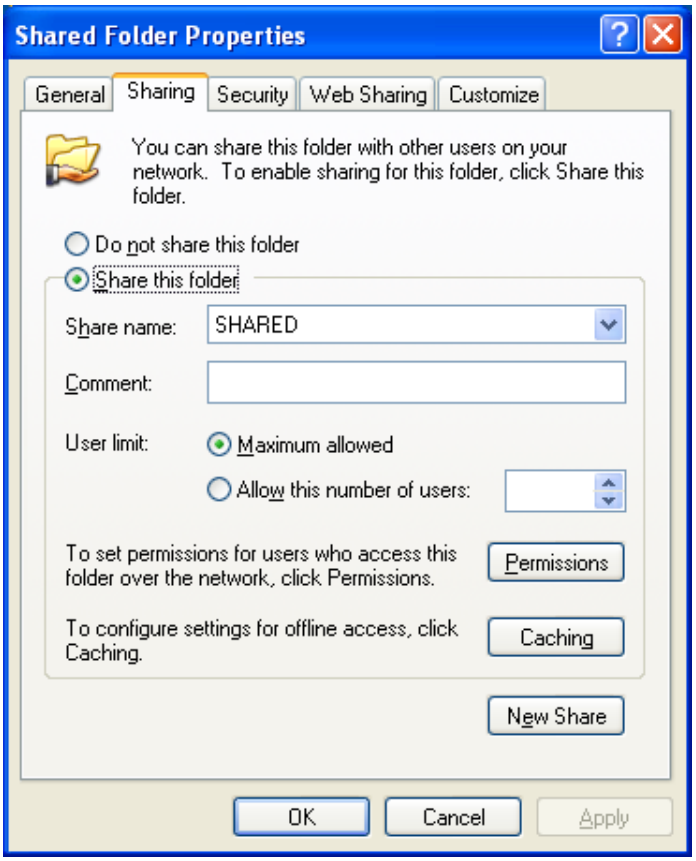
II Configuring Shared Folders

In order to share files and folders across a network, you must explicitly define what areas of your disk you will allow other computers to connect to.

First do the following: Open **Windows Explorer** and select **Tools → Folder Options . . . → View** from the menu and then uncheck **Use simple file sharing** (the last checkbox). Click **OK** to close the dialog box.

Create a new folder on the root of your C: drive and name it **"Shared Folder"**. In **Windows Explorer** expand **My Computer**. Single-click on **C: Drive** and select **File → New → Folder** from the menu bar. Name the folder **"Shared Folder"**.

After the folder is created, right click on it (still in Windows Explorer) and select **Sharing and Security**. Select to share the folder and give it a share name of **SHARED**. (This may require working through the Network Setup Wizard and specifying the name of the computer and the name of the workgroup – again.) Click **OK** to close the dialog box.



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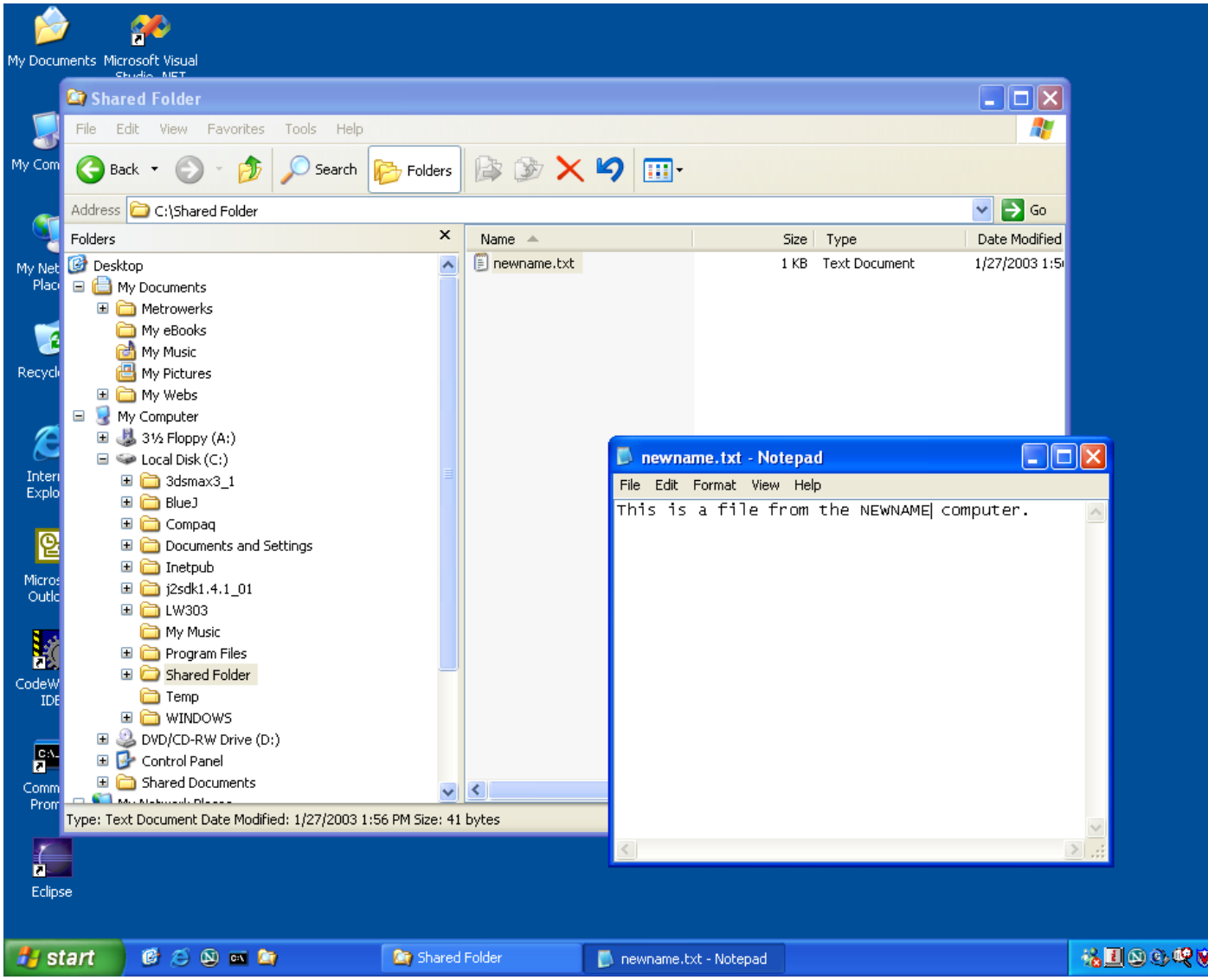
Using **NOTEPAD**, create a file and place it in the **Shared Folder** folder on your computer. To help identify which computer the file was created on, name the text file the same as your own computer name.



Now that both computers have a document to share, connect to your partners' computer and copy the text file to your own desktop.

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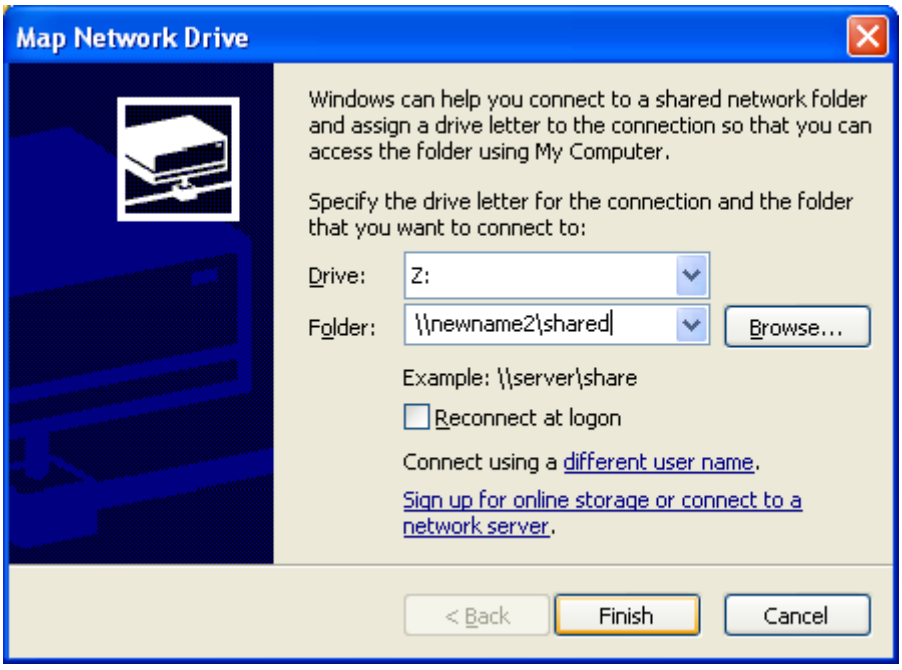
Open **Windows Explorer** and select **Tools → Map Network Drive** from the menubar.



Select a drive letter you want to use to access your partners' data by using the pull-down menu labeled **Drive:**

In the **Folder** list, you may either click **Browse** to enter the location of your partners' shared folder, or you may enter a Universal Naming Convention (UNC) path to your partners' shared folder. A UNC path looks like this:
\\<servername>\<shared name of the folder>.

Click **Finish** to complete the operation.

TESTING THE SHARED FOLDER

Open **Windows Explorer** and navigate to the drive letter you selected to map to your partners' computer.

Copy the text file you see to your own desktop and edit it by placing text similar to the following:

"This file was edited on <your own computername> computer."
Save your changes.

Attempt to copy the newly updated file from your desktop to the mapped drive. Does it let you?

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Managing Shared Permissions

- Open **Windows Explorer** and right click on the folder you just shared.
- Select **Sharing and Security . . .**
- Click the **Permissions** button in the **Sharing** tab
- Check **Allow → Change** for Everyone
- Click **OK**

Now try to copy your updated version of the text document from the desktop to the mapped drive of your partners' computer. Permissions should allow you to do so.

III Installing and Sharing a Printer

Another network resource that is beneficial to share is printing. This allows a single print device to be shared between many computers.

In this lab, there are no printers connected to our two-computer network, so we will simulate one by adding a printer device that stores output to a file instead of printing it on paper.

Follow these steps to install and share a "File" printer on each computer:

- Click **Start → Printers and Faxes**.
- Double-click **Add Printer**.
- Click **Next**, then you should see a screen like this:

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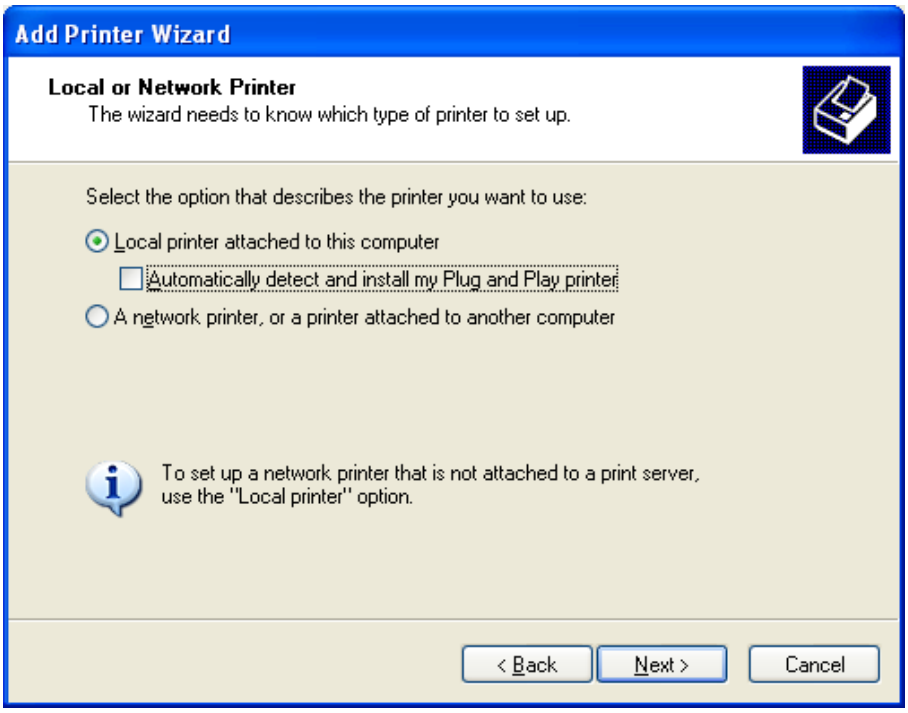
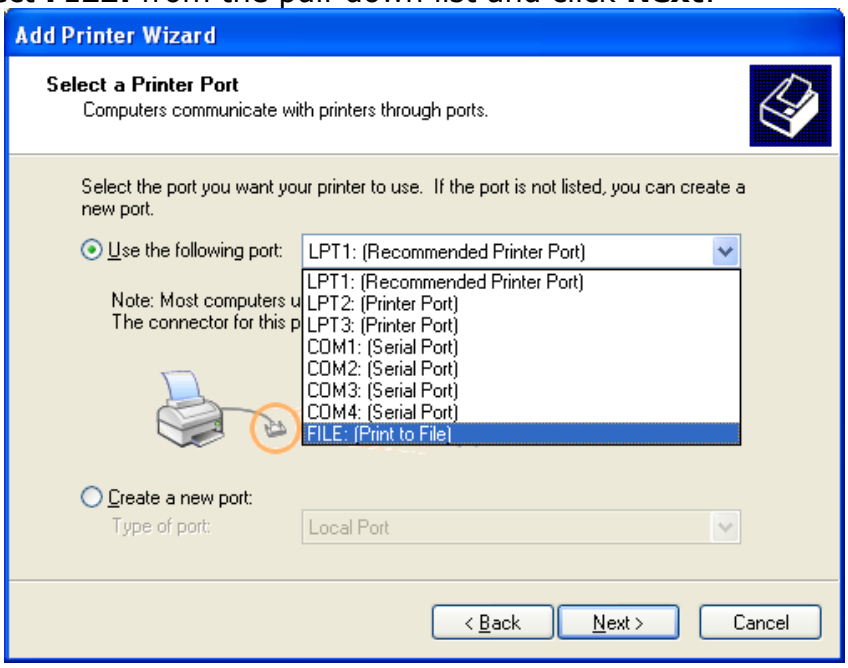


Select **Local printer attached to this computer**, and ensure that the **"Automatically detect and install my Plug and Play printer"** checkbox is de-selected.
Click **Next**.

You should see a dialog box like this.
Select **FILE:** from the pull-down list and click **Next**:



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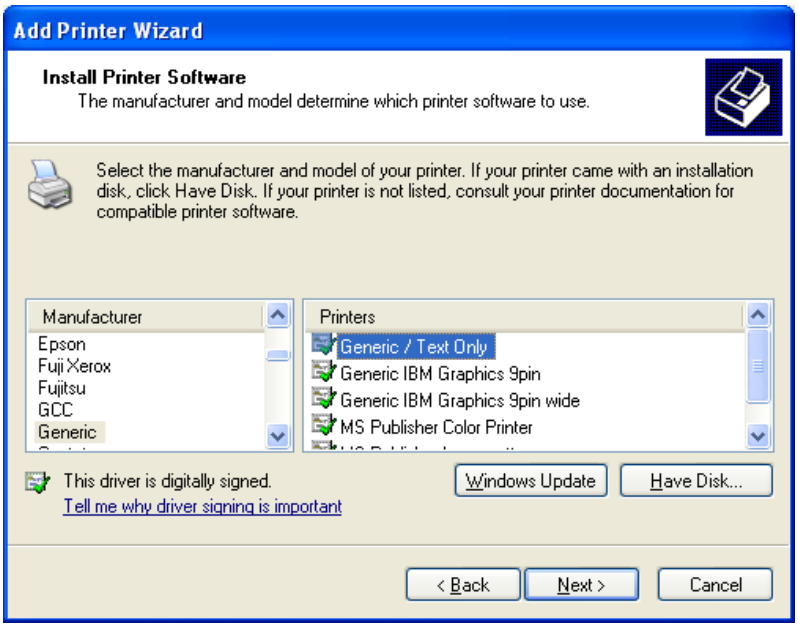
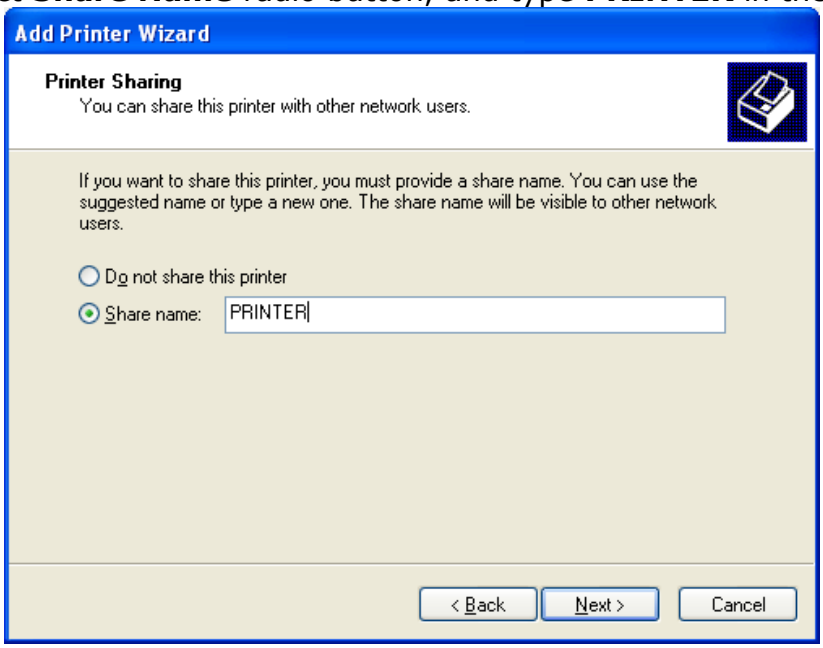
You will be then presented with a printer selection dialog box. Select **Generic** in the left-hand **"Manufacturer's"** pane. Then select **Generic / Text Only** from the right-hand **"Printers"** pane.



Click **Next** to continue.

You can click **Next** to select the default name for the printer. You will then be asked if you would like to share the printer on the network. Select **Share Name** radio button, and type **PRINTER** in the text box.



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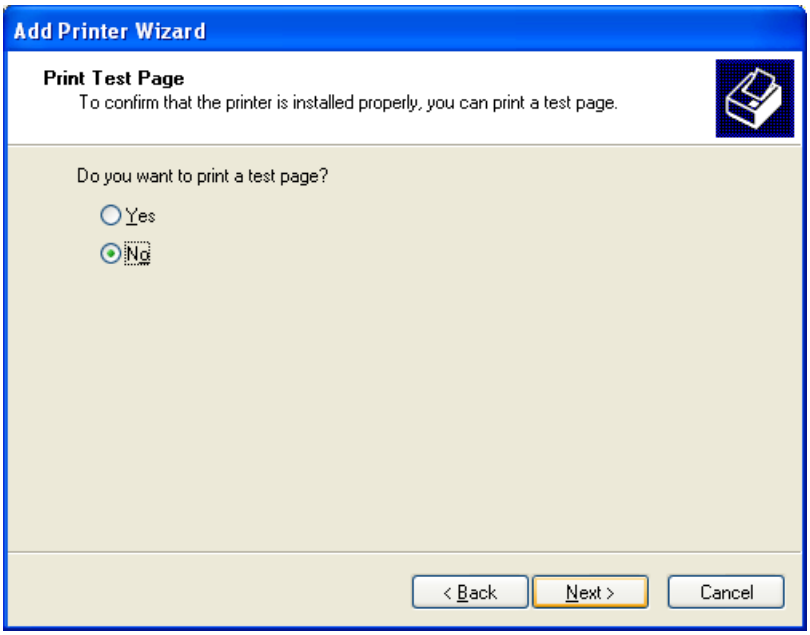
- Click **Next**.
- Click **Next** to dismiss the **Location and Description** pane.
- Click **No** to print a test page.



- Click **Next** and **Finish**

Now that both computers have a shared printer installed, you will connect to your lab partners' printer and each print a file to the "remote" printer. Because the printer is a file-printer, a dialog box will display on your partners' computer when you print to it.

Before that happens, you must install your "network" printer, so you may print to it over the network. If you have closed down your windows, you can get back to the printer dialog window via **Start → Printers and Faxes**.

Double-click **Add a Printer**. Click **Next**. This time, you will select to install a network printer. Click **Next**.

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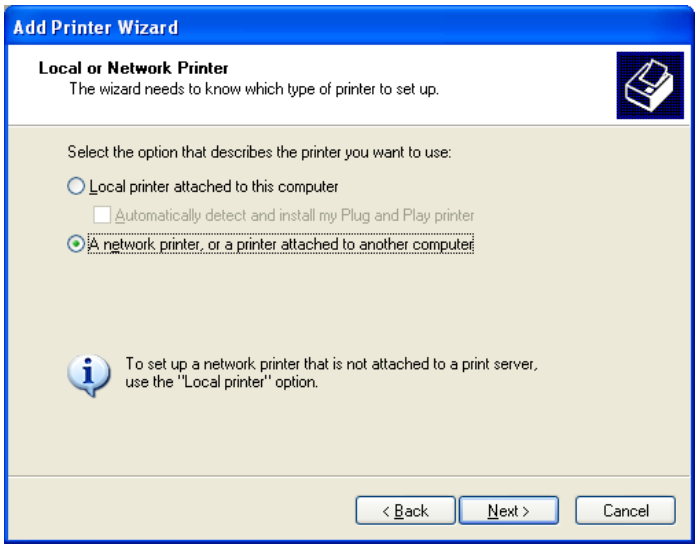
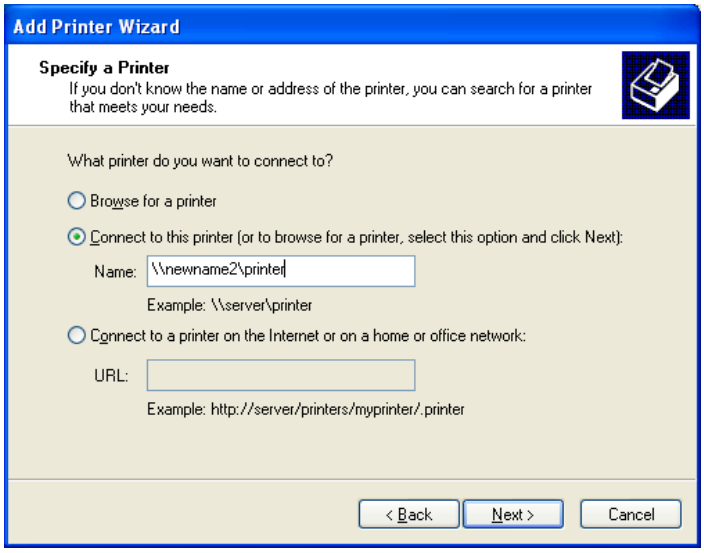


Select **Connect to this printer** and click **Next**. Type the UNC path for your partners' shared printer



The UNC path is **\\<partners'_computer_name>\PRINTER.**
(You could also browse the network for the printer.)

Click **Finish** and the printer is installed. Verify that the printer is installed by looking at the **Printers and Faxes** dialog from the start menu.

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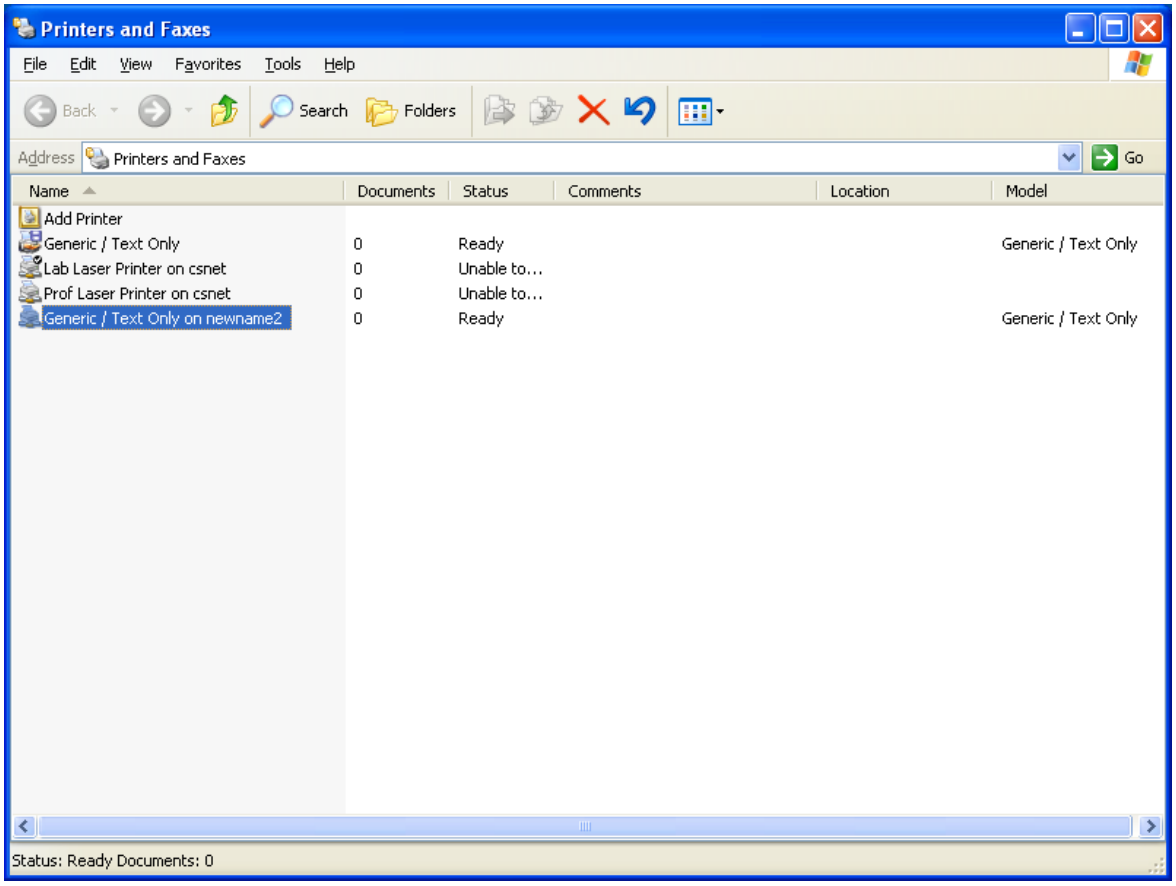
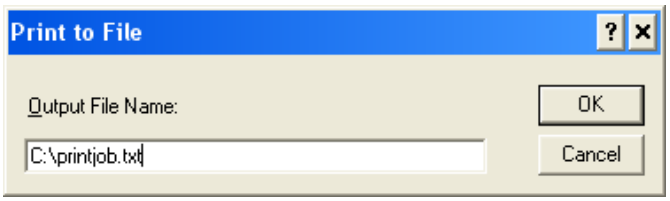


Now open your text document in the **Shared Folder** folder and print it to the network printer. Be sure to select the printer identified with your partners' computer name.

Once you submit the print job, a dialog window should appear on your partners' computer, asking where to save the output. Have your partners save it to their C: drive.



If the printer had actually been a print device, the output would print on paper, instead of being saved in a file.

Verify that the "printing" worked by checking your partners' computer.

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When you are finished be sure to power down your virtual machine before logging off.

REVIEW:

Answer the following questions from your lab experience:

1. Once the physical components are installed, both computers need to communicate using the same _____.
2. The network protocol used in this lab was _____.
3. Another example of a network protocol is _____.
4. Once the protocol is installed, a _____ and network services also need to be installed.
5. A computer can be identified on the network by name. What name did you give your computer? _____
6. A _____ logically groups computers in to more identifiable groups.
7. List some advantages to networking computers and sharing resources over a network.

_____

_____

_____

_____

_____

BRAIN TEASER (Bonus):

Last week we used the PING utility to test connectivity between two computers. At the conclusion of this lab, attempt to PING your partners' computer. Does it work or not? Explain why the computer exhibits this behavior.