Connecting Print Partner V series to Windows NT 4.0 using an Axis Token Ring Box.

Introduction

This document describes how to use Windows NT Workstation or Server 4.0 as a print server for Fujitsu's Print Partner V series printer range using an Axis Token Ring adapter. A print server is the place on the network where print jobs are queued up prior to being sent to the printer. It is possible for a printer to have just one queue on a dedicated server, or to have a queue on each machine on the network. Typically a dedicated server is used on large networks, and a queue for each machine is used on smaller workgroup networks. Whether you need to set up a server or a queue for each machine, the setup of Windows NT 4.0 is more or less the same. The differences are, on a server you need to share the queue so that every body else can use it, and in multiple queue environments you need to repeat the procedure on each machine that needs to connect to the printer.

Setup Procedure

1) Install the Axis Token Ring network adapter; see the Axis user's manual. Connect the printer to its mains supply, and then plug in its network connection. Switch on the printer and the adapter.

2) Now set up the IP address of the Axis Token Ring network adapter.

3) Lastly install the printer on your Windows NT machine. Repeat this procedure as required where multiple printer queues are required.

Setting the IP Address of the Axis network adapter

Axis supply a utility called NetPilot, which can be used on NT to set the IP address of the Token Ring adapter. The down side of using NetPilot is that you must be running the IPX/SPX or NetBEUI protocol for it to work. To use this method, see 'Using NetPilot to Set the IP Address'. If NetPilot is not available, or you do not want to install IPX/SPX or NetBEUI on to your system, the IP address can be set manually; to do this see 'Setting the IP Address Manually'.

Using NetPilot to Set the IP Address

NetPilot is a utility supplied by Axis, which enables the installation of their Token Ring adapter via a Wizard. To use NetPilot you must be running the NetBEUI or IPX/SPX protocol. To check which protocols to are running:

1. Start Windows control panel; you will find this on the start menu under settings.

2. Double click the Networks Icon, and select the protocols tab.

3. Check that either NetBEUI or IPX/SPX is listed as an installed protocol.

If you do not have NetBEUI or IPX/SPX installed, you can install NetBEUI by:

1. Click the add button on the protocols tab.

2. Select 'NetBEUI Protocol' from the 'Network Protocol' list box, and click ok.

3. NT will then install the protocol and ask you to restart the system.

It is now necessary to install the NetPilot Utility, do this by:

1. Insert the Axis Utilities disk into drive a:

2. Select 'Run' from the Start menu and type:

   a:\setup

3. Click the ok button.

4. Follow the online instructions to complete the installation of NetPilot.

Now start the NetPilot utility, you will find it under 'Programs' on the Start menu. Assuming the Axis adapter is powered up, NetPilot will find the adapter on the network. Display the adapter by clicking on the 'New Axis Units' folder. The adapter can now be installed by:

1. Select the adapter to be installed and click the install button to start the installation Wizard.

2. In 'Installation options' select 'Install with Installation Wizard'.

3. The 'Installation Wizard' will now start; the first step displays the current name of the adapter. There is no need to change this name, just click next.

4. The next step allows you to select the network environment. Check TCP/IP, and uncheck the other environments. Click 'next' to continue.

5. Now enter the IP address you have chosen for the adapter. If you are not sure about IP addresses, see IP addresses. The Subnet Mask and Default Router can be left set to 0.0.0.0. Click 'next' to continue.

6. Leave 'Set Set Configuration Protection' unchecked, and click the finish button.

7. The adapter will now be set up, when the installation is complete, click ok.

8. The adapter is now set up, and will appear in NetPilot's 'Network Print Servers' folder.

Setting the IP Address Manually

The easiest way of manually setting the IP address of an Axis Token Ring adapter is the 'Ping Arp' method. To do this:

1. Connect the Axis Token Ring adapter to you network; note the adapter has a default IP address of 192.63.253.80, so insure that this is not going to interfere with your network. Power up the adapter and let it initialise.

2. To set up the IP address of the Axis adapter you need to know three values these are:

   a) The IP address of the Token Ring adapter on your NT machine. This needs to be on the same network as the Axis adapter.

   b) The 'serial number' of the Axis Token Ring adapter; see the documentation that comes with the adapter.

   c) The IP address that you want to set the Axis adapter to; again this must be on the same network as the NT machine network adapter.

3. Add a static entry into the Arp table of the NT machines token ring adapter by:

   a) Open a Command Prompt window from the Start menu on the NT machine.

   b) Type in the following command and press the enter key:

   arp –s <IP Address> <Physical Address> <Interface Address>

   where:

   <IP Address> = The IP address to which you want to set the Axis Token Ring adapter to.

<Physical Address> = The serial number of the Axis token ring adapter. The Axis documentation refers to this as the node address. Note the Windows NT Arp utility requires each pair of digits to be separated by hyphens and not colons e.g.

00-40-8c-10-00-86

<Interface Address> = This is the IP address of the Windows NT Token Ring adapter, which is on the same ring as the Axis Token Ring adapter. Note if you only have one network adapter installed in your NT machine, you can leave this parameter out.

4. Ping the Axis Token Ring adapter by typing the following command in the Command Prompt window you opened above:

ping <IP Address>

If this command is successful, you will see reply messages coming back to you. If you receive the timeout message, the adapter has not been set. In this case switch the Axis Token Ring adapter off and back on again, and try the ping command again.

5. Lastly remove the static entry in the Arp table, by typing in the following command, and pressing the enter key.

arp –d <IP Address>

Installing the Printer on Windows NT 4.0

The final step in this process is to set up a new LPR port, set up a printer queue, and load a printer driver. Windows NT 4.0 has a Wizard to help you do this. Note for this next section to work, you need to have the TCP/IP protocol and TCP/IP printing services installed, if your not sure see Installing TCP/IP protocol and TCP/IP printing services. To use the Add Printer Wizard:

1) Logon to Windows NT 4.0 as an administrator, if you do not know how to do this, you need to contact your MIS department.

2) Press the **Start** button and select 'settings ▸ printers'. In the 'printers window', double click on the 'Add printers' icon. The 'Add printer wizard' will now start.

3) In the first step, select 'My computer', and then click 'Next'.

4) You now need to add a new port. Click the 'Add Port' button.
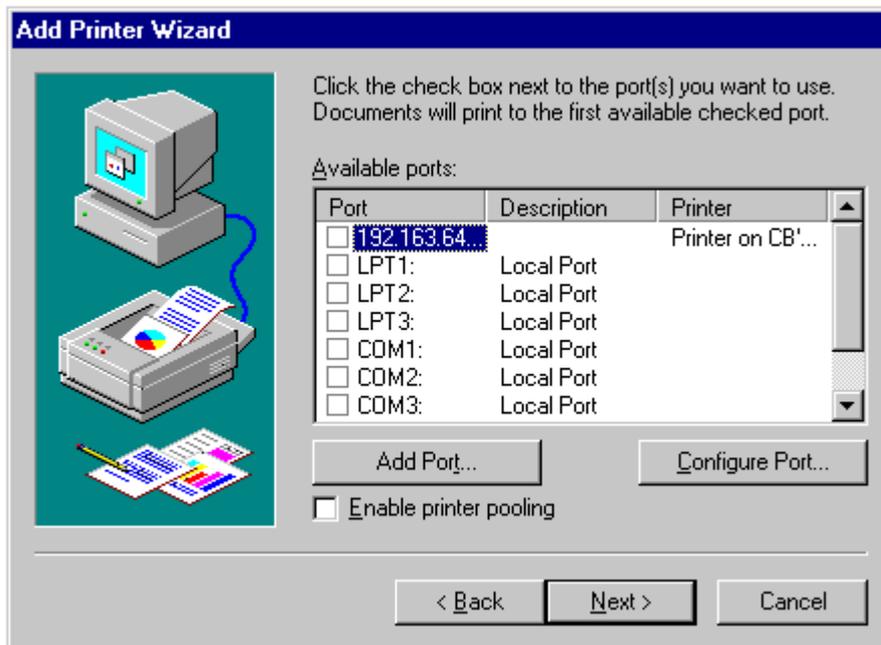
5) Select 'LPR Port' and click the 'New Port' button.
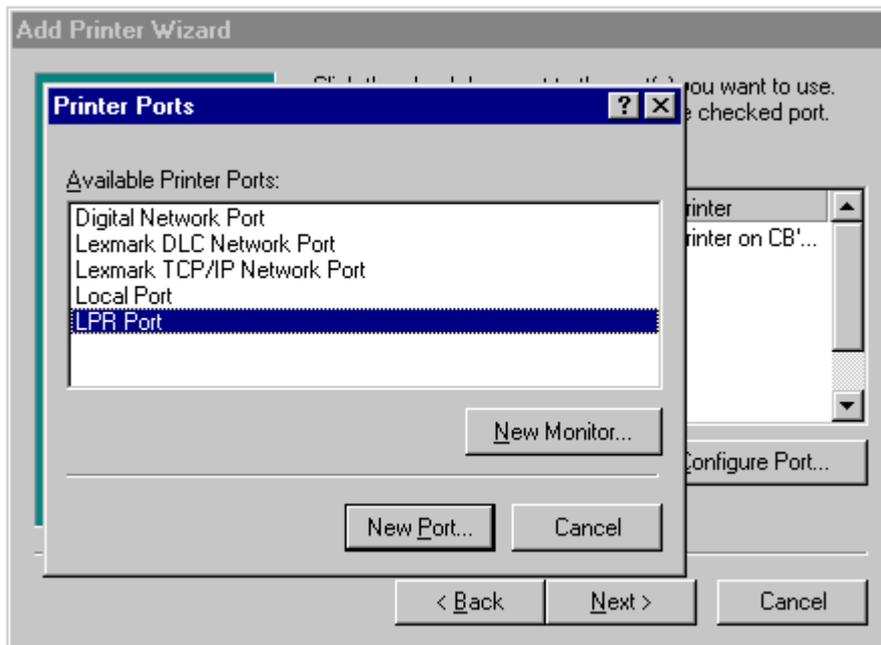
6) In the top box you need to type the IP address set in step 4 of 'Setting the IP address of the printers adapter card'. The bottom box refers to the name of a queue, which may be set up on the printer; in this case you can leave it blank. Click OK, then next.
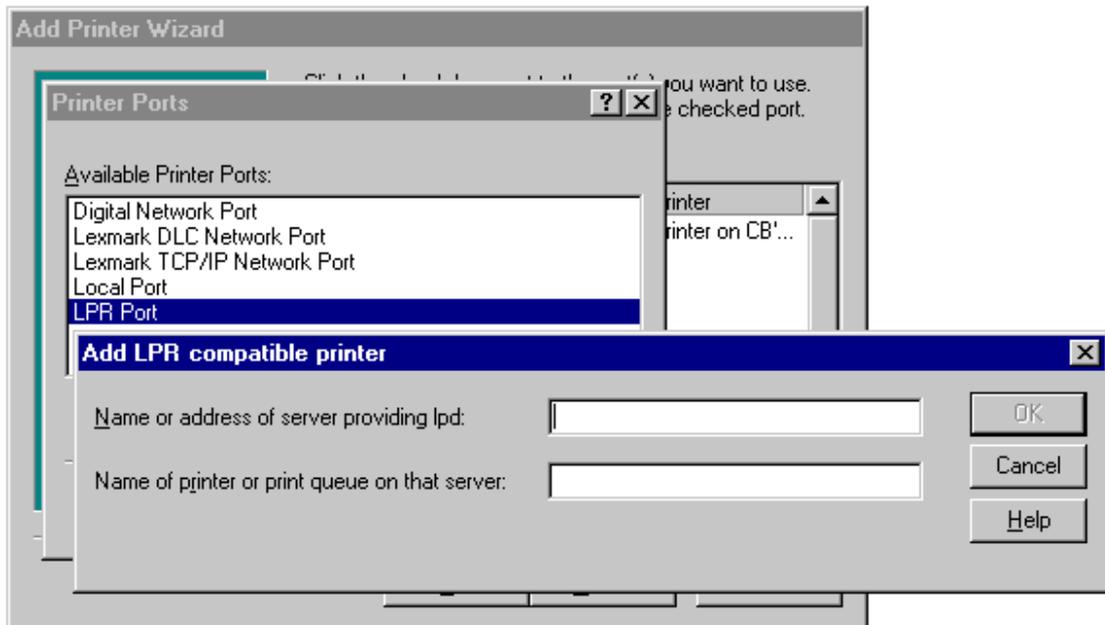
7) You now need to install a printer driver. The Printer Wizard will need to load this from your Windows NT 4.0 CD-ROM, make sure this is loaded into your machine. If you have a postscript compatible printer select the 'HP LaserJet 4/4M PS' printer driver, otherwise select the 'HP LaserJet 4M' driver. Note Print Partner Windows NT 4.0 printer drivers will be available from your Fujitsu reseller eminently.
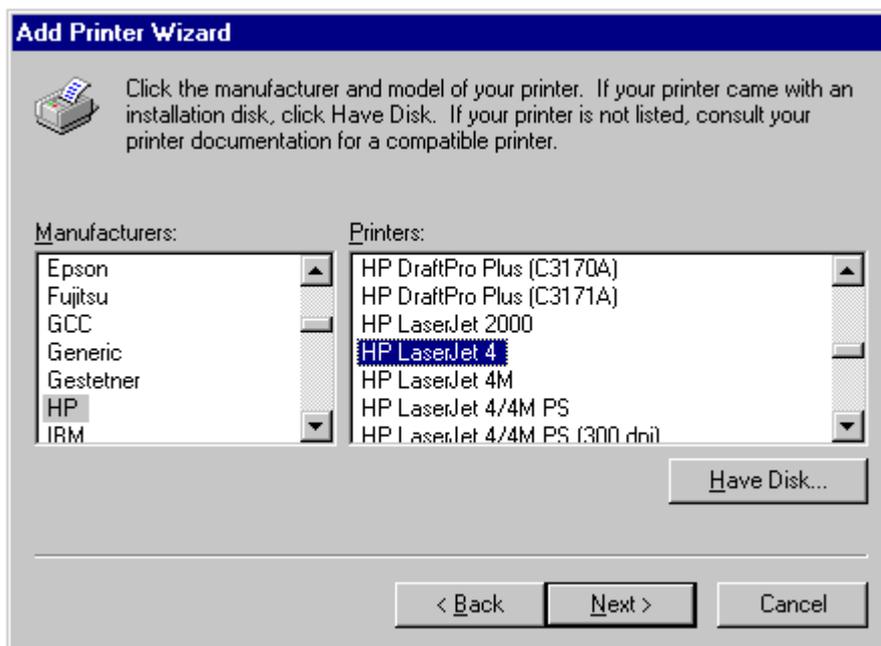
8) If you already have the printer driver you have just selected installed on your system, the Add printer wizard will ask you if you want to replace it. If you are updating the driver, you will want to replace the existing driver, otherwise just keep the existing one. Note you will only see this step, if the 'Add printer Wizard' finds the driver you selected already installed.

9) Now you need to give the printer a name. Try to use a name that tells the user what type of printer it is, and its location, for example pp14floor2. If you would like this printer to be the default printer i.e. the printer that gets used automatically by Windows applications, click yes, otherwise click no.
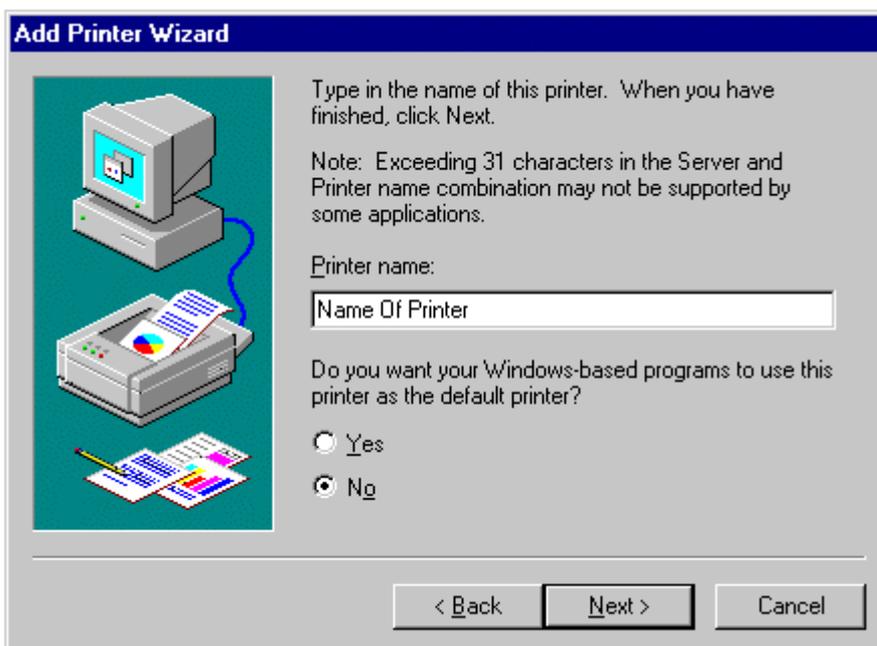
10) If you 'share' the printer, you make it available to other users on the network to use. If your are setting up a print server you will want to do this. In the workgroup situation, you will be setting the printer up on each machine, in which case you may not want to share it. When a printer is shared, it needs to given a share name. The share name is the name by which the printer is known on the network. You can either use the same name set in step 9, or give it another name. If your client machines use any of the operating systems listed by the Add Printer Wizard select them here. This will load the printer drives for these operating systems on to the server, when the clients want to print, the server can down load the correct printer driver to them.
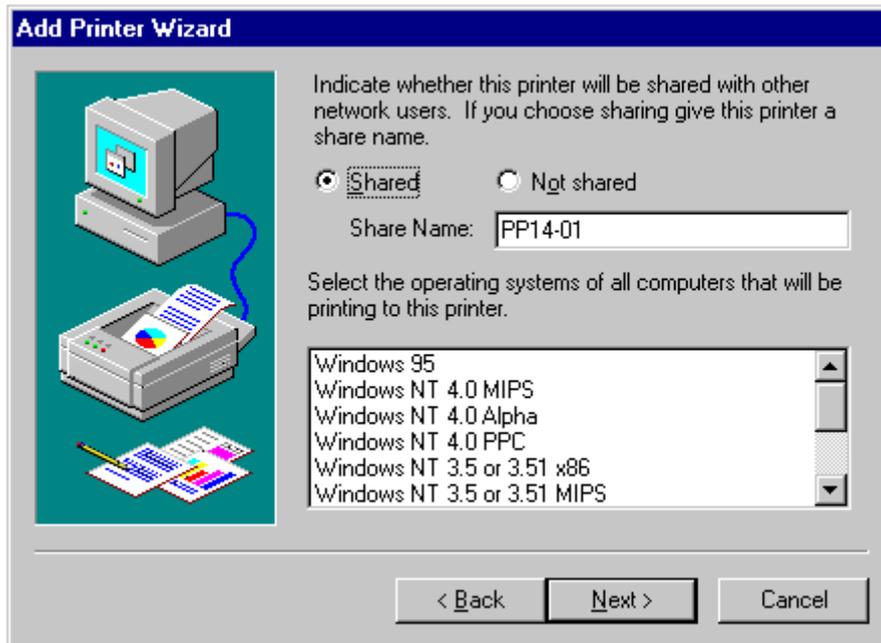
11) In the last step, Windows can print out a test page for you. If you select yes, wait for the test page to be printed, then tell windows that the page printed ok. If you say no, windows will try to debug the installation for you.

IP addresses

IP addressing is the system used to address computers on the Internet and many private networks. The IP address performs a similar function to your postal address or telephone number, allowing one computer on a network to reliably communicate with another.

It is important that you first contact your system administrator and ask them to assign an IP address, netmask and gateway address.

If you do not have a system administrator the information below will help you to assign an address. However if you have an Internet connection you should contact your Internet Service Provider (ISP) for advice first.

To make it easier to read and use IP numbers are normally represented as four numbers separated by full stops, for example:

192.168.125.101

Each of the four numbers can be in the range 0 to 255, though 0 and 255 are normally reserved for other uses, so you should avoid using them.

To prevent two computers from having the same address, all IP addresses are assigned by the Internet Assigned Number Authority (IANA).

The IANA have set aside groups of numbers for use on private networks. If you have no system administrator to assign numbers for you, these are the numbers you should use. The table below identifies 254 numbers, which should be more then enough. Note it is possible to have many more IP address than this, but you need a better understanding of IP addressing then I can explain here.

IP Address
192.168.125.1
192.168.125.2
:
and so on
:
192.168.125.253
192.168.125.254

Assign a number to the printer, and to each computer, which needs to connect to the printer. Make sure you do not have any duplicate numbers on your network.

The Netmask you should use with these numbers is:

255.255.255.0

The Gateway on the printer should be set to:

0.0.0.0

This means that you do not have a gateway on your network. If you do, ask the gateway administrator for advice. When setting up NT you just leave the box blank.

Installing TCP/IP protocol and TCP/IP printing services

In order to print using a LPR (Line Printer Remote) port to print to a network printer from Windows NT you must have the TCP/IP protocol and TCP/IP printing services installed. To do this:

1. Logon to Windows NT 4.0 as an administrator, if you do not know how to do this, you need to contact your MIS department.

2. Press the **Start** button and select 'settings ▸ control panel'. In the 'control panel window', double click on the 'Network' icon. The 'Network' control panel will now start.

3. On the 'Protocols' tab, click the Add button.
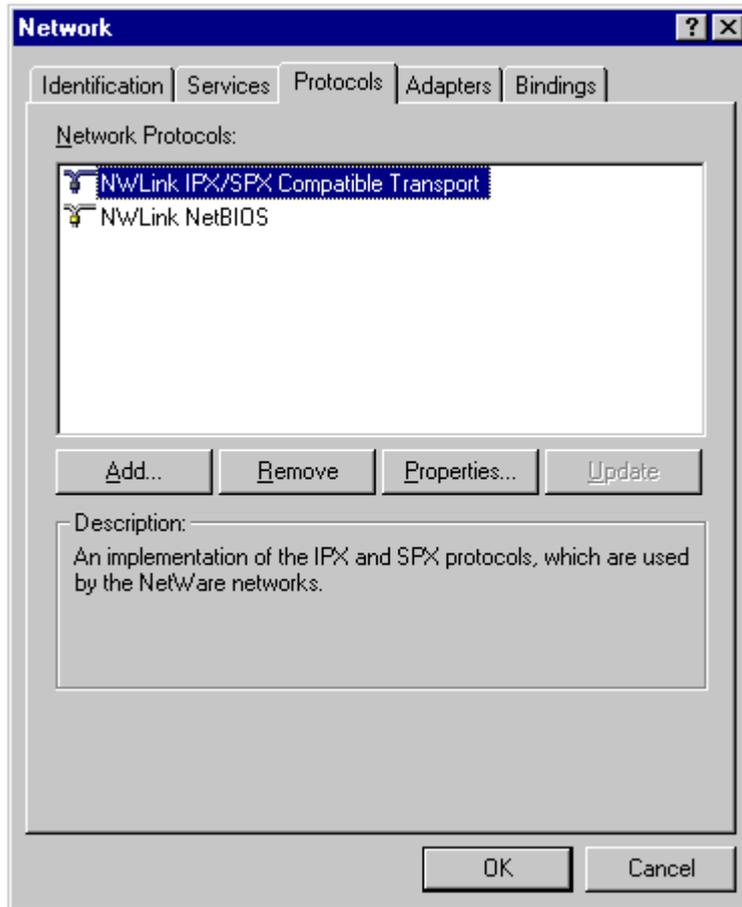
4. Now select the TCP/IP Protocol, and click ok.

Network ? X

Identification | Services | Protocols | Adapters | Bindings

Network Protocols:

Select Network Protocol ? X

Click the Network Protocol that you want to install, then click OK. If you have an installation disk for this component, click Have Disk.

Network Protocol:

- NetBEUI Protocol
- NWLink IPX/SPX Compatible Transport
- Point To Point Tunneling Protocol
- Streams Environment
- TCP/IP Protocol

Have Disk...

OK   Cancel

OK   Cancel

5. You will then be asked if you would like to use a DHCP server to set up your IP address. Click no unless you have been advised otherwise by your system administrator. If you are going to use DHCP you do not need the steps below to manually set an IP address.
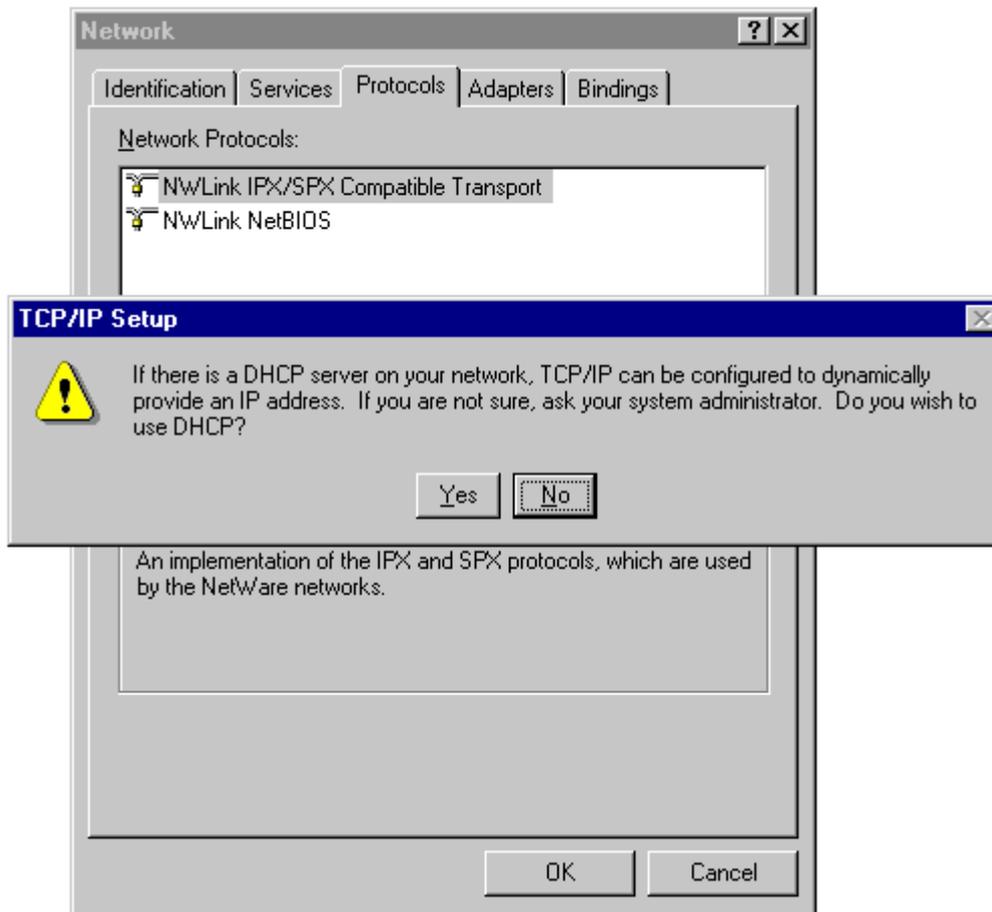
6. Setup will now ask where it should get the files it need from, this would normally be your CD-ROM drive. Insure the path is correct and click Continue.
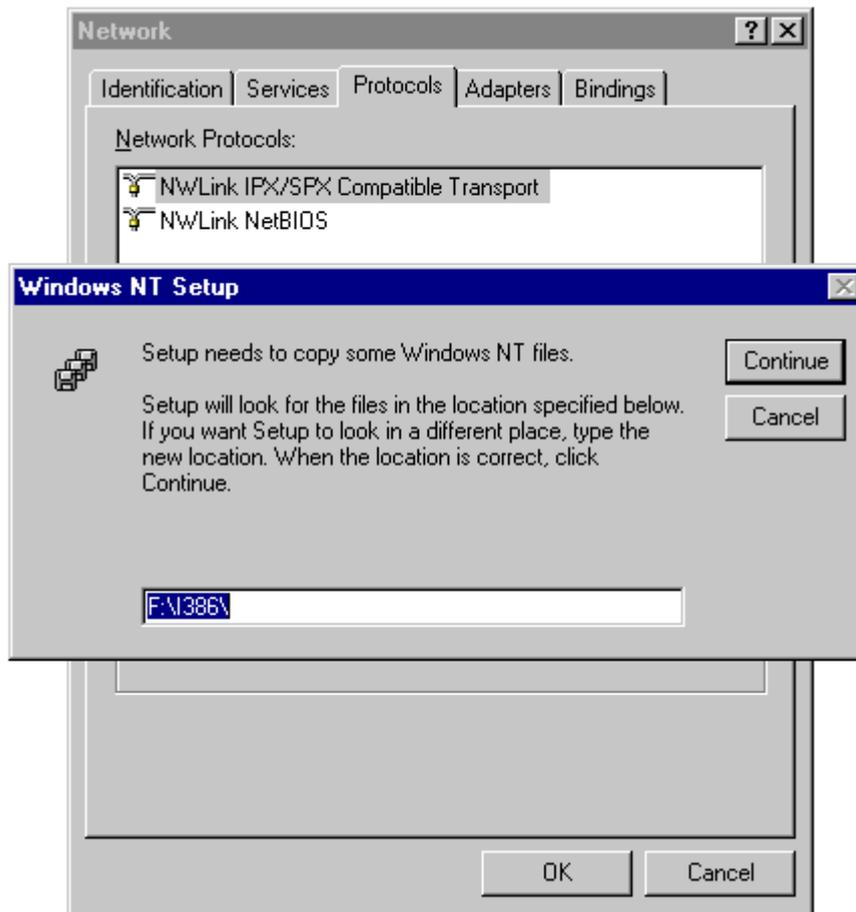
7. The next box confirms that the protocol has been installed ok. Click Close.
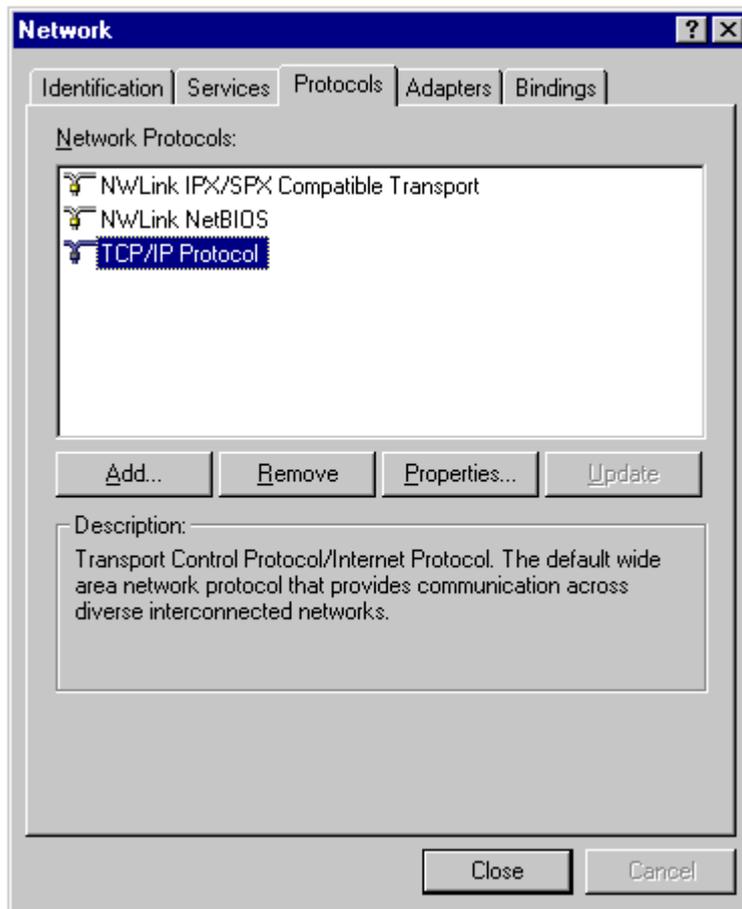
8. You now need to enter an IP address and Subnet Mask. If you're not sure about IP addresses see IP addresses. Type in the IP address that you have assigned to the NT machine and hit the Tab key, NT will automatically enter the correct Subnet Mask. You do not need to set a Default Gateway, unless your system administrator advises otherwise. Click OK.
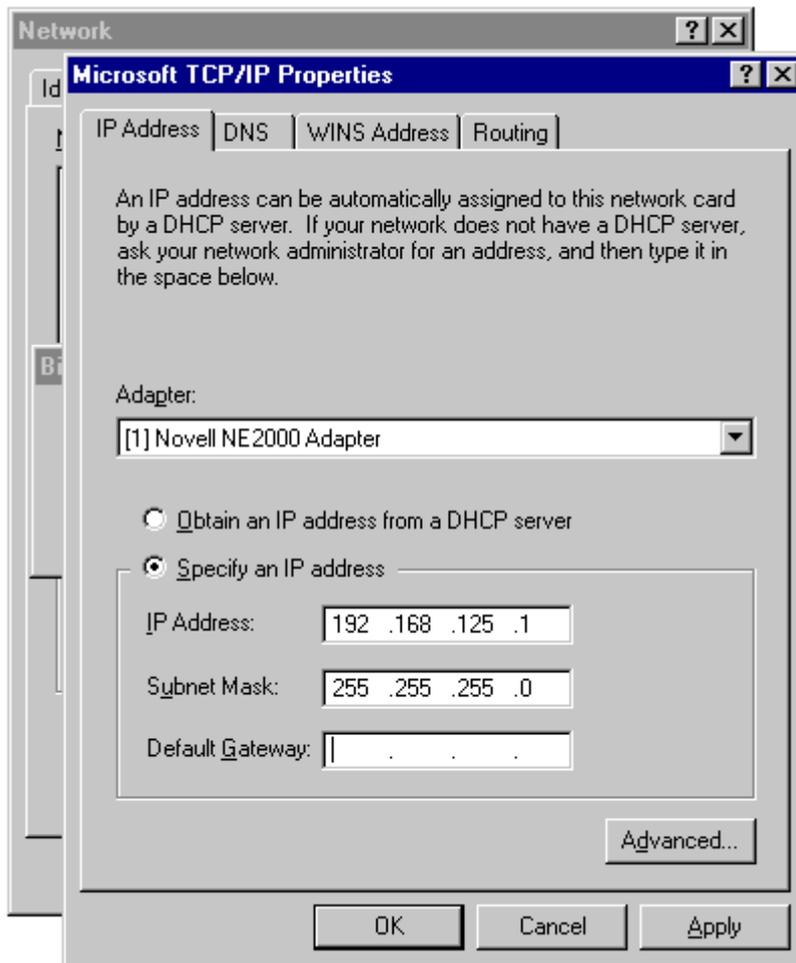
9. TCP/IP is now set up on your machine, but you need to reboot for the settings to take effect. Click Yes.

10. You now need to install TCP/IP printing services. Logon as an administrator again, and restart the networks control panel. On the Services tab, click the Add button.
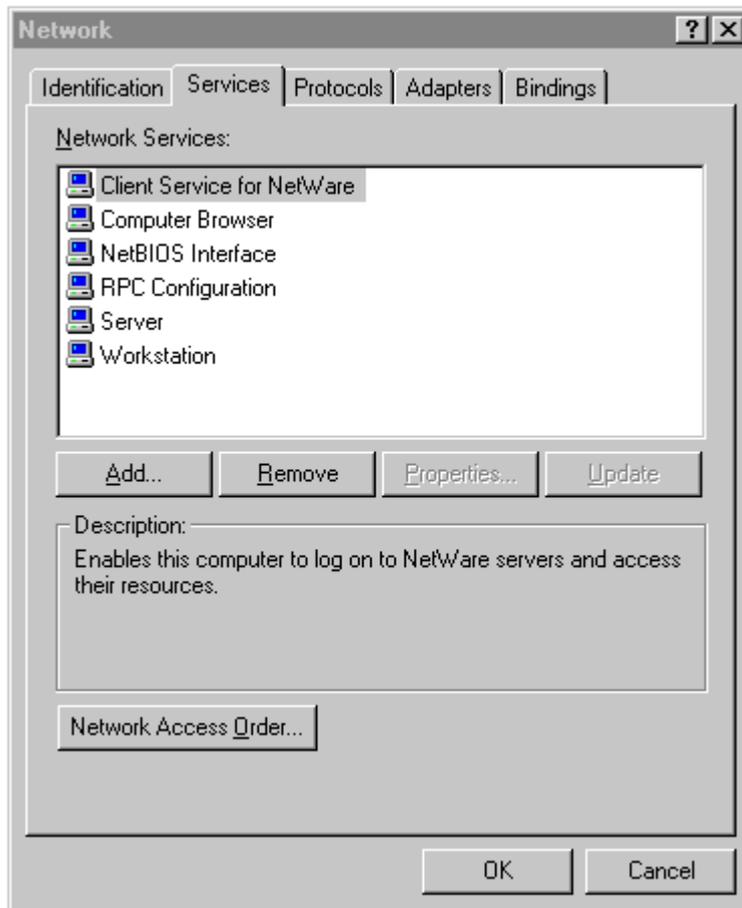
11. Select Microsoft TCP/IP Printing, and click OK.
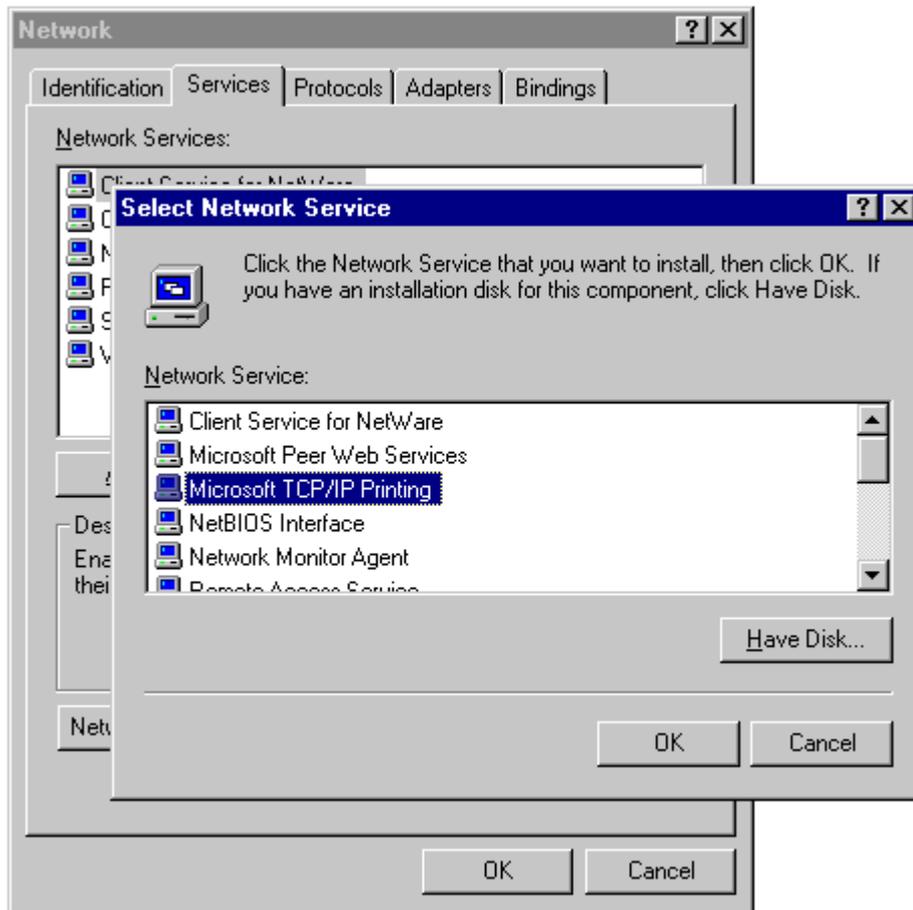
12. Setup will now ask where it should get the files it needs; this would normally be your CD-ROM drive. Insure the path is correct and click Continue.

Network ? ☒

| Identification | Services | Protocols | Adapters | Bindings |

Network Services:

- 🖳 Client Service for NetWare
- 🖳 Computer Browser
- 🖳 NetBIOS Interface

Windows NT Setup ☒

Setup needs to copy some Windows NT files.

Setup will look for the files in the location specified below. If you want Setup to look in a different place, type the new location. When the location is correct, click Continue.

F:\I386\

Continue

Cancel

Network Access Order...

OK   Cancel

13. The next box confirms that TCP/IP Printing has been successfully installed. Click Close.
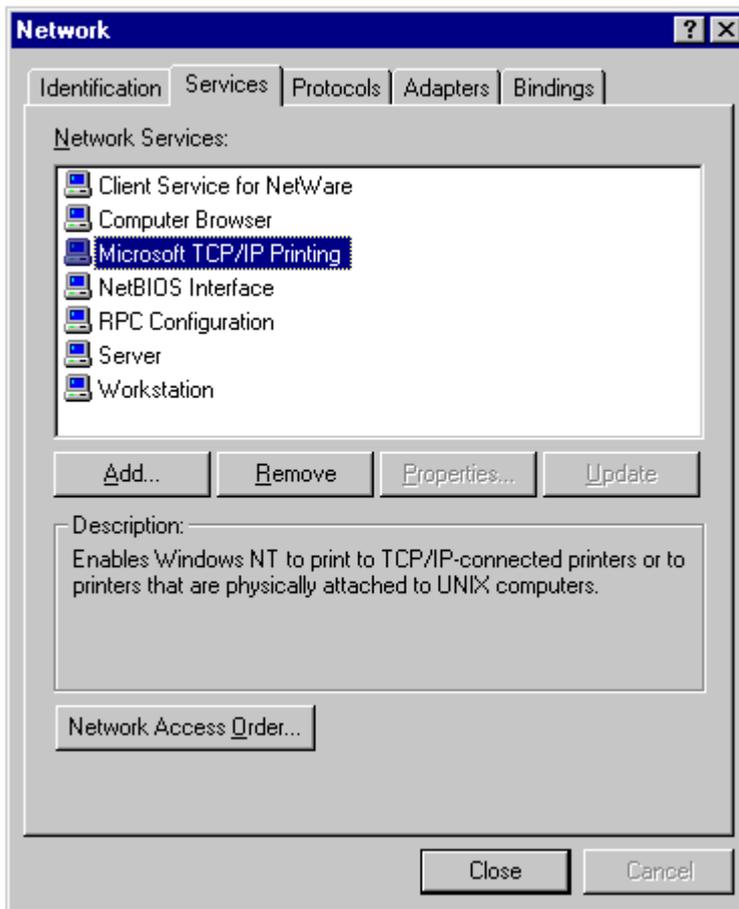
14. TCP/IP Printing is now set up on your machine, but you need to reboot for the settings to take effect. Click Yes.