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## Appendix A - More on Windows

### **Overview**

This file provides additional information for Windows environments. It should be used if you cannot find what you need in the M205/M206 Quick Reference Guide.

### **Key Features**

- M205/M206 configuration through a manual ARP method - See “Configure IP Address Using ARP” on page A-3
- communicating between different subnets - See “Communicating Across Routers” on page A-5
- altering the workgroup the M205/M206 displays in - See “Changing Workgroup Names” on page A-5
- changing the M205/M206 destination names used in Windows print setups - See “Changing Destination Names” on page A-6
- setting up TCP/IP services and installing new printers in Windows 95 environments - See “Windows 95 Workstation Setup” on page A-8
- setting up TCP/IP services, installing new printers, and troubleshooting in Windows NT environments - See “Windows NT Workstation Setup” on page A-10
- setting up TCP/IP services, installing new printers, and troubleshooting in Windows 3.x environments - See “Windows for Workgroups Workstation Setup” on page A-15

### **New Features**

- Microplex’s proprietary print solution for Windows - See “MPS Workstation Setup” on page A-9 or page A-12
- Using IPAssign to assign a temporary IP address while configuring the M205/M206 - See “Using IPAssign” on page A-3

## **M205/M206 Configuration**

In a Windows environment, TCP/IP is the data transfer protocol used for printing. This means that IP addresses and netmasks are required in your Windows stations along with appropriate TCP/IP software. Once these are set up, you will be able to detect the M205/M206 on your network.

There are also some optional settings that you may want to configure. This section offers alternative methods for configuring your M205/M206 within a Windows environment and mentions some of the more common optional settings available.

### **Print Methods Overview**

The recommended print methods for a Windows environment is to have a central host act as a spooler for jobs before they are sent to the print server/printer (see Figure 1: *Windows Integration*). The reason for this is that the central workstation has the ability to store the spooled jobs while they are waiting to go the printer. The Windows Print Manager would rather see the data get spooled centrally rather than having to hold on to the data until the print server can accept it.

There are two print methods available with the M205/M206 in a Windows environment:

- |         |  |
|---------|--|
| LPR     | Berkeley's Line Printer Protocol which uses TCP/IP to transfer data to the print server's built-in Line Printer Daemon   |
| NetBIOS | NetBIOS over TCP/IP is used to transfer data to the print server. This is further broken down into "net use", Microsoft's shared resource feature and Print Manager, Microsoft's management tool for printing. |

Choosing one of these methods depends entirely on what is available with your particular Windows software. Following is a list of what is supported within each operating system:

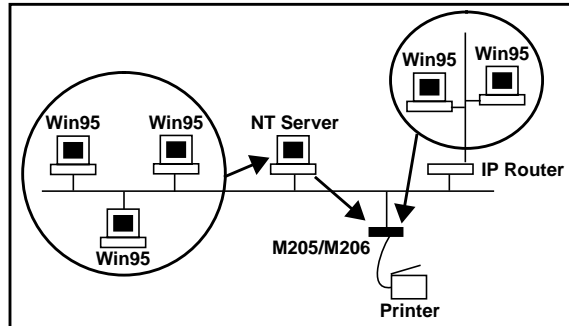
- |                        |   |
|------------------------|---|
| Windows NT             | LPR and NetBIOS (also applies to Windows NT/AS) |
| Windows for Workgroups | NetBIOS   |
| Windows 95             | NetBIOS   |

**Note:** LPR printing is supported in the Windows 95 environment with third party software.

Regardless of the operating system, you will have to complete these three steps:

1. Identifying the M205/M206 on the network using TCP/IP as the underlying protocol.
2. Configuring the M205/M206 with its mandatory TCP/IP settings (i.e. IP address and subnet mask).
3. Configuring a new printer on the Windows station.

**Figure 1: Windows Integration**



There are several configuration methods including: IPAssign, ARP, BOOTP, and RARP. Instructions for each of these methods are described in the following sections.

### Using IPAssign

IPAssign is a TCP/IP configuration utility for Windows. We recommend using it when you install our print servers in Windows environments. For information about how to use the Microplex IPAssign software, please refer to *IPAssign* on page 13 of the *M205/M206 Print Server Quick Installation and Configuration Guide*.

### Configure IP Address Using ARP

To configure the M205/M206 with its IP settings using a manual “arp” command, you will need to:

1. Log on to a Windows station with TCP/IP loaded and located on the same subnet as the M205/M206.
2. Find the Ethernet address for the M205/M206 on the bottom of the device. It must be entered as part of this procedure.
3. Use the “arp” command to add an entry into the Windows station’s ARP table for the M205/M206. This is the most common syntax for this command:

Syntax:

```
arp -s ipaddress ethernetaddress
```

Example for Microsoft TCP stacks:

```
arp -s 192.75.11.9 00-80-72-07-00-60
```

This example specifies an M205/M206 using IP address **192.75.11.9** and Ethernet address **00:80:72:07:00:60**. Please note in the example above that a “-” must be placed after every second character in the ethernet address.

4. Check to see if the ARP entry was accepted.

```
arp -a
```

You should see an entry in the listed ARP table with the IP address and Ethernet address specified in Step 3.

5. Try to “ping” this IP address to see if the M205/M206 can be seen on your network.

At this point, you should be able to communicate with the M205/M206 from your *local* Windows station. This means the print server knows about an IP address and subnet mask to abide by and has these settings in its *current* memory. However, if the M205/M206 is power cycled, these settings will disappear unless you store them into Flash. To do this, you will need to:

1. Telnet to the print server. This will bring up a login screen:

```
telnet ipaddress
```

**Note:** If prompted for a “User ID” and password first, type in “root” for the ID and press ENTER at the password prompt since there’s no password by default.

2. You should now see a prompt displayed that has the M205/M206’s IP address followed by a colon then root.

```
ipaddress:root>
```

3. Store the new IP address and netmask in the Flash (EEPROM) so the M205/M206 can remember its configuration after it is rebooted. See the *Appendix G - More on Commands* PDF file for additional information on command syntax.

```
store net ifnum addr ipaddress
```

```
store net ifnum mask netmask.
```

**Note:** for the M205/M206, the `ifnum` will always be 1.

4. Verify the IP address and netmask.

```
list stored net
```

5. Log out of the telnet session with quit then reboot the M205/M206 by powering the unit off then on. This will reset the unit and apply the changes to the stored settings.

6. Test the equipment and configuration after installation is complete.

```
ping ipaddress
```

Once you have configured the unit, you will notice the STAT LED flashing once per second. This means the M205/M206 is configured and organizable on the network. At this point, you can now configure your host.

**Note:** If you would like to communicate with the M205/M206 from across routers, you will need to fill in an entry within the “Routing” section. Please see *Communicating Across Routers* for further details.

## **Communicating Across Routers**

Since Windows environments rely on TCP/IP to communicate with the M205/M206, crossing routers becomes an issue.

After following one of the M205/M206 configuration methods mentioned within the Quick Reference Guide and within this file, you will most likely only be able to communicate with the print server from the *same* subnet. This means any hosts across a router will *not* be able to see your M205/M206.

To allow the M205/M206 to communicate across a router, it is best to store a default router/gateway within the print server so that any packets destined for another subnet get forwarded to this router automatically. The router (or series of routers) can then take over ensuring the packets get to their final destination on another subnet on your network.

To configure a default router/gateway within the M205/M206, you will need to:

1. Telnet to the print server. This will bring up a login screen:

```
telnet ipaddress
```

**Note:** If prompted for a “User ID” and password first, type in “**root**” for the ID and press ENTER at the password prompt since there’s no password by default.

2. You should now see a prompt displayed that has the M205/M206’s IP address followed by a colon then root.

```
ipaddress:root>
```

3. To view the print servers current settings type **list tcpip** then configure the M205/M206’s default router/gateway.

```
store tcpip route add|del default routerIPaddress  
ifnum
```

It’s easier to store one default entry rather than an entry per remote host or network, though it is possible to do this. The syntax for this method is:

```
store tcpip route add|del [host|net] IPaddress[/  
mask] routerIPaddress ifnum [metric]
```

4. Logout of the Telnet session with **quit**. Then reboot the M205/M206 by powering the unit off and on.

## **Changing Workgroup Names**

Windows environments define groups of related computers as “workgroups”. By default, the M205/M206 belongs to the workgroup called “WORKGROUP”. However, you may want to change this to suit your network better. To do this, you will need to:

1. Telnet to the print server. This will bring up a login screen:

`telnet ipaddress`

**Note:** If prompted for a “User ID” and password first, type in “**root**” for the ID and press ENTER at the password prompt since there’s no password by default.

2. After logging in, you should now see a prompt displayed that has the M205/M206’s IP address followed by a colon then root.  
`ipaddress:root>`

3. Store the M205/M206’s Workgroup name for Microsoft Networks. Microsoft Networks uses these names to organize groups of computers in Workgroups so that when browsing certain functions, users see only computers belonging to a particular workgroup rather than all the printers on the network.

`store pserver smp workgrp workgroupname`

**Note:** if no workgroup name has been specified, the default name is WORKGROUP (note: all capitals). This is a standard Windows default.

4. Logout of the Telnet session with **quit**. Then reboot the M205/M206 by powering the unit off and on.

### Changing Destination Names

When defining some printers within Windows environments, the M205/M206 requires that you specify a pre-defined destination rather than any name you’d like. For example, when creating a new printer under Windows NT, you are faced with a screen similar to *Figure 2*.

**Figure 2: Windows NT Print Setup Dialogue Box**



The first field requires the IP address for the M205/M206 and the second field must be filled in with an existing destination from the print server (e.g. d1prn). Otherwise, the M205/M206 won’t accept this as a valid network printer. *Table 1* outlines the default destinations to choose from:

**Table 1: M205/M206 Default Destinations**

Destination	Mapped I/O Port
d1prn	PRN
d2prn	PRN
d3prn	PRN
d4prn	PRN

Each of these names can be changed to something more meaningful. To do this, you will need to:

1. Telnet to the print server. This will bring up a login screen:

```
telnet ipaddress
```

**Note:** If prompted for a “User ID” and password first, type in “**root**” for the ID and press ENTER at the password prompt since there’s no password by default.

2. You should now see a prompt displayed that has the M205/M206’s IP address followed by a colon then root.

```
ipaddress:root>
```

3. Change the current name of the *destination* to a new name as indicated by *newname*. This *newname* must be nine characters or less or else it will be truncated and these names are case sensitive.

**Note:** When you change a destination name, you may have to reconfigure the host to reflect the change.

```
set dest destination name newname
```

```
set dest dlprn name laser
```

**Note:** When renaming a destination, you should keep the name similar to the I/O port or printer it points to on the M205/M206. For example, if you have an HP LaserJet IV off of the PRN1 port, you may want to use a name like “**lsr4prn**” for identification purposes.

4. Save these configurations to EEPROM. Enter:

```
save
```

5. Logout of the Telnet session with **quit**. Then reboot the M205/M206 by powering the unit off and on.

## General Workstation Configuration

### Configuring TCP/IP On Your Windows Workstations

Since TCP/IP is used as the data transfer protocol, IP addresses and netmasks must be assigned to your Windows workstation(s) if you haven’t already done so.

If you are not familiar with IP addresses and are sure that this network **will not** go onto the Internet, the following are some sample settings to use:

	IP Address	Netmask
Host 1	192.1.1.1	255.255.255.0
M205/M206	192.1.1.2	255.255.255.0
Host 2	192.1.1.3	255.255.255.0
and so on...		



The following sections will detail how you configure TCP/IP settings on the different Windows platforms.

#### **Windows 95 Workstation Setup**

##### **Windows 95 NetBIOS Network Software Installation**

1. Make sure that **File and Printer Sharing for Microsoft Networks** is installed in your **Network** setup. If not, you'll need to perform the following steps.
2. Open **Settings:Control Panel** folder.
3. Double click on the **Network** icon.
4. Select **Add**.
5. Select **Service**.
6. Select **File and Printer Sharing for Microsoft Networks** from the list.
7. Click **OK**.
8. Click **OK** again since this service will now show in the list to the left.

##### **Windows 95 IP Address and Netmask Configuration**

1. Open the **Settings:Control Panel** folder.
2. Double click on the **Network** icon.
3. Under the **Installed Network Software** list, select the entry dealing with the **TCP/IP Protocol**.
4. Click on **Configure**.
5. A dialogue box will come up asking for network settings. Fill in the IP address and netmask for this workstation and then click **OK**.

##### **Windows 95 New Printer Setup**

To configure a new printer on a Windows 95 station, you will need to:

1. Select **Settings:Printers** from the **Start** menu.
2. Double click on the **Add Printer** icon.
3. Select **Network Printer** from the second window of the **Add Printer** wizard that loaded.
4. At the next window, click on **BROWSE** to help fill in the network path of this printer.

5. At the **Browse for Printer** dialogue box that displays, double click on the appropriate workgroup containing the M205/M206. By default, the print server falls under the workgroup, **WORKGROUP**.
6. Continue searching the network until you see the M205/M206's name, "M\_XXXXXX", where "XXXXXX" equals the last six digits of the print server's Ethernet address found on the bottom of the device. (e.g. M\_001C1A)
7. Once you see the M205/M206, double click on it to display a list of four pre-defined destinations/queues to choose from.
8. Select a destination/queue for the printer; most likely you will use **d1prn**.
9. Click **OK** once you have selected the destination.
10. Back at the network path window, select **NEXT** since this path should now be filled in for you.
11. At the next window, select the appropriate **printer manufacturer** and **model** of the printer attached to the M205/M206 and click on **NEXT**.
12. Fill in a **name** for this new network printer at the next window and decide if you want this to be the default printer. This printer name can be anything you'd like as long as it's unique.
13. When prompted for a test page, select either **Yes** or **No** depending on the state of the attached printer and click on **FINISH**.

**Note:** Windows may ask for a disk or CD-ROM to load the appropriate printer driver to complete this new printer setup.

There should now be a new printer icon within the 'Printers' folder. This new network printer relies on NetBIOS over TCP/IP as the underlying protocol to print to the M205/M206.

### **MPS Workstation Setup**

Microplex has created its own print utility called "Microplex Printing Solution" or MPS. MPS relies upon TCP as the underlying printing protocol.

**Note:** MPS works with Windows 95 and Windows NT only.

To configure a new MPS printer on a Windows 95 or NT workstation, you will need to:

1. Insert the Microplex diskette labeled **MPS** into the floppy drive.
2. Load up the File Manager or WinFile and look under the floppy drive for an MPS ZIP file.
3. Double click on the MPS ZIP file to extract all files within it to a directory on the Windows station.

4. Once extracted to a directory, find the **Setup** file and double click on this to load the InstallShield Wizard.
5. Answer the prompts throughout the wizard and select **Yes** to restart your computer at the end.
6. Once your computer is rebooted, open the **Settings:Printer** folder to view your existing printers.

**Note:** MPS will only work with an existing printer. If you don't have an existing printer that you can alter, create one now (use any port settings you like since they will be changed in the following steps).

7. Select the printer that you want to use with MPS and click on the right mouse button to bring up a sub-menu.
8. Select **Properties** from this menu to display the current settings for this printer.
9. Click on the **Details** tab to display the printer's port settings.
10. Click on the **ADD PORT** button.
11. At the **Add Port** dialogue box that displays, click on the radio button labeled **Other**.
12. Click on **Microplex TCP/IP Printer Port** from within this "Other" list.
13. At the next dialogue box that displays, fill in the **host name** or IP address of the M205/M206 in the first field.
14. Fill in a valid TCP port number on the M205/M206 in the second field. Since there is only one port on this print server model, this will always be **4400**.
15. Click **OK** when done to return to the "Details" window. You should now see something about "MPS Port" within the "Print to following port:" field.
16. Click **OK** to close this printer's properties window.

You now have a new network printer which relies on MPS for peer to peer printing to a printer attached to the M205/M206.

### **Windows NT Workstation Setup**

### **Windows NT LPR Network Software Installation**

1. Go to the **Main** program group.
2. Double click on **Control Panel**.
3. Double click on **Network**.

4. A dialogue box will appear showing your current network settings. Under **Installed Network Software**, check to see if **MS TCP/IP Printing** shows. If it doesn't, you'll need to perform the following steps.
5. Select **Add New Software**.
6. Select **TCP/IP Protocol and Components**.
7. Click on **Continue**.
8. Select **TCP/IP Printing Support** from the TCP/IP components list that displays. You may also want to select **Connectivity Utilities**.
9. Click on **Continue**.

#### **Windows NT NetBIOS Network Software Installation**

1. Go to the **Main** program group.
2. Double click on **Control Panel**.
3. Double click on **Network**.
4. A dialogue box will appear showing your current network setting. Under **Installed Network Software**, check to see if **NetBIOS TCPIP->Streams Environment** appears. If not, you'll need to add this new software by clicking on the **Add New Software Button**.

#### **Windows NT IP Address and Netmask Configuration**

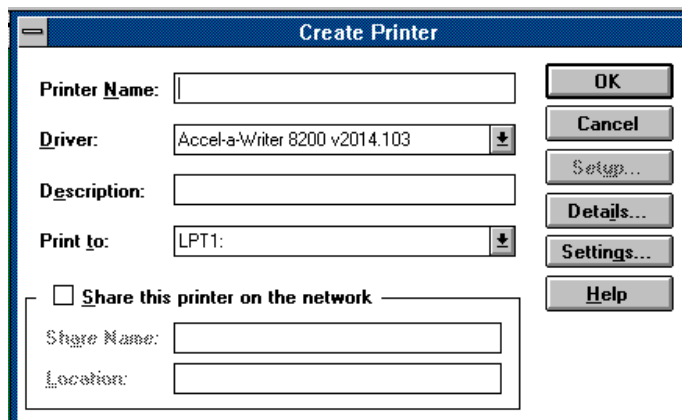
1. Go to the **Main** program group.
2. Double click on **Control Panel**.
3. Double click on **Network**.
4. Select **TCP/IP Protocol** from **Installed Network Software** list.
5. Click on the **Configure** button.
6. A dialogue box will come up asking for network settings. Fill in the IP address and netmask for this workstation and then click **OK**.

#### **Windows NT New Printer Setup**

To configure a new printer on a Windows NT station, you will need to:

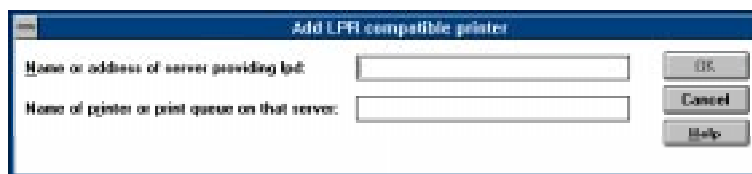
1. Open the **Control Panel**.
2. Double click on **Printers**.
3. Select **Create a Printer** from the **Printer** menu to display the dialogue box in *Figure 3*.

**Figure 3: Create a Printer Dialogue Box**



4. Define a **name** to represent this print setup and select the appropriate driver for the printer that will be used in this M205/M206 print setup.
5. Under the **Print To** field, select **Other...**
6. Select **LPR Port** from the list that displays and click **OK** to bring up a dialogue box similar to the one found in *Figure 4*.

**Figure 4: Add LPR Compatible Printer Dialogue Box**



7. Type in the **IP address or host name** of the M205/M206 in the first field.
8. Type in the name of a **pre-defined destination/queue** on the M205/M206 in the second field.

**Note:** This name *cannot* be any name you'd like. It must be a name of an existing destination/queue on the M205/M206 and it must be *lowercase* by default. You will most likely use “**d1prn**” for the prn port.

9. Click **OK** when done specifying these two fields.

You now have a new network printer which relies on the standard TCP/IP print protocol, LPD, to print remotely to a printer off of the M205/M206.

### **MPS Workstation Setup**

Microplex has created its own print utility called “Microplex Printing Solution” or MPS. MPS relies upon TCP as the underlying printing protocol.

**Note:** MPS works with Windows 95 and Windows NT only.

To configure a new MPS printer on a Windows 95 or NT workstation, you will need to:

1. Insert the Microplex diskette labeled **MPS** into the floppy drive.
2. Load up the File Manager or WinFile and look under the floppy drive for an MPS ZIP file.
3. Double click on the MPS ZIP file to extract all files within it to a directory on the Windows station.
4. Once extracted to a directory, find the **Setup** file and double click on this to load the InstallShield Wizard.
5. Answer the prompts throughout the wizard and select **Yes** to restart your computer at the end.
6. Once your computer is rebooted, open the **Settings:Printer** folder to view your existing printers.

**Note:** MPS will only work with an existing printer. If you don't have an existing printer that you can alter, create one now (use any port settings you like since they will be changed in the following steps).

7. **Select** the printer that you want to use with MPS and click on the right mouse button to bring up a sub-menu.
8. Select **Properties** from this menu to display the current settings for this printer.
9. Click on the **Details** tab to display the printer's port settings.
10. Click on the **ADD PORT** button.
11. At the "Add Port" dialogue box that displays, click on the radio button labeled **Other**.
12. Click on **Microplex TCP/IP Printer Port** from within this "Other" list.
13. At the next dialogue box that displays, fill in the **host name** or IP address of the M205/M206 in the first field.
14. Fill in a valid TCP port number on the M205/M206 in the second field. Since there is only one port on this print server model, this will always be **4400**.
15. Click **OK** when done to return to the "Details" window. You should now see something about "MPS Port" within the "Print to following port:" field.
16. Click **OK** to close this printer's properties window.

You now have a new network printer which relies on MPS for peer to peer printing to a printer attached to the M205/M206.

## Windows NT Troubleshooting

### Queue hangs

Hanging print jobs or queues with Windows NT 3.5x and 4.0 usually means there's a problem at the host end. Most likely the printer and print server are sitting on the network waiting for some form of activity but the host is not doing anything. This is very typical for any LPR printing with Windows NT 3.5 and is possible with NT 3.51 and 4.0 as well.

The first thing to check is that the printer is in fact ready to go, meaning it is willing to accept more data. The best way to do this is to use the **lpstat** command found on the print server. In fact, this command's output will tell you where exactly the problem is. Therefore, you'll want to telnet into the unit when the hanging occurs and issue **lpstat**. Search under the appropriate I/O port you are printing to and see if you see any messages like:

- “printing data - blocked”

If you see this message with the seconds to the right of the “blocked” message incrementing with every **lpstat** command you issue, then the printer is not allowing the print server to pass data to it. This will hang the print queue because the print server cannot take more data in its output buffer until the “blocked” message goes away (i.e. the printer sends the signal saying it's okay to send more data).

Once the printer is cleared of any error situation and the “blocked” message goes away, the print job should then go through and the queue should move along properly.

However, if the printer is in fact on-line and ready to print but you're still seeing “blocked” messages, there may be a problem with the communications between the print server's I/O port and the printer. Possibly the cable is faulty and the send signal isn't getting through to the print server or maybe the printer and print server aren't communicating properly. If this is the case, you need to look closely at the settings on both the printer's interface and the print server's I/O port interface. Another option is to try another printer to see if it works any better.

- “printing data - waiting”

Anytime you see this message, the print server says it knows about the print connection but it is waiting for the host to send data. Currently the unit's buffer has some room in it for more data but the host is not co-operating. Therefore, you need to look to the host to see why it is hung up. Look for errors that might lead you in the right direction and definitely make sure the host can still see the print server on the network using “ping” or “telnet”.

This “waiting” message is very common when using NT’s LPR client with NT version 3.5. Microsoft has a known bug that hangs up LPR printing periodically but this is supposed to be fixed with NT v3.51 according to Microsoft’s on-line Knowledge Base.

#### **Other Errors**

Printing in a Windows NT environment can produce various errors that are not always meaningful to the user. Some common ones are “Windows cannot write to this file.” or “A network error has occurred.”

In most cases, the errors are all related to the LPR bug with Microsoft NT 3.5. That or an error comes up because the print server cannot take more data for some reason (i.e. the printer is in an error state). Windows has a real problem if it can’t send all of the print job data right away so if it’s blocked from sending data, its spool file builds and builds leading to an error like the ones mentioned. Be sure to check the **lpstat** output on the print server to determine where the problem is and if it’s host related, keep the LPR bug in mind.

### **Windows for Workgroups Workstation Setup**

#### **Windows For Workgroups NetBIOS Network Software Installation**

1. Make sure that you have the **Microsoft TCP/IP-32** group in your **Program Manager**. If you do not have the file, **wfwt32.exe**, you can download it from:
  - CompuServe in “MS Software Library”
  - Microsoft’s FTP site, <ftp.microsoft.com>, under “Softlib/MSL-FILES”
  - Microplex’s FTP site, <ftp.microplex.com>, under “support/misc”
2. Once this is placed in a directory on your Windows for Workgroups (WfW or Windows 3.1x) station, you will need to double click on the **Network Setup** icon in the **Network Group**.
3. Click on **Drivers**.
4. Since the TCP/IP services will not yet be listed here, click on **Add Protocols**.
5. Select **Unlisted**.
6. Specify the directory where the file exists. A new **TCP/IP-32** program group will then be created which will include FTP, Telnet, etc.

**Note:** At this point, you will be prompted with a dialogue box asking for the TCP/IP network settings (i.e. IP address and netmask) for this WfW station. Fill these in at this time.



#### **Windows for Workgroups IP Address and Netmask Configuration**

Configuring an IP address and netmask for the WfW workstation is part of the procedure involved in installing NetBIOS Network Software.

#### **Windows for Workgroups New Printer Setup**

If you are running Windows 3.1 stations on your network, you will need to rely on either TCP/IP or IPX to print to the M205/M206. If IPX is used, you will have a print queue defined on a Novell file server which your Windows 3.1 stations will send their print jobs to. The M205/M206 will then service this print queue as either a PSERVER or an RPRINTER. Please see the Novell Configuration chapter within the M205/M206 Quick Reference Guide for further details.

If you want to rely on TCP/IP though, you will need a third party TCP stack loaded onto your Windows station since TCP/IP support did not automatically come with Windows until the introduction of Windows NT and Windows 95.

You may also be running a third party stack if you decided not to use Microsoft's. Some common TCP stacks today are FTP Software's OnNet, NetManage's Chameleon, and Frontier Technologies' SuperTCP. In each case, they allow your Windows 3.1 station to communicate with other TCP/IP devices. This means you can send print jobs to the M205/M206 as well.

The most common print method offered with Windows TCP stacks is LPR/LPD, a multi-platform remote printing protocol used on everything from PCs to mainframes. The LPR print setup is very simplistic involving only two parameters:

1. **M205/M206 IP address** - the IP address or host name of the print server you want to print to.
2. **M205/M206 destination/queue** - a pre-defined name on the print server telling the device which I/O port to send the jobs to. You will most likely use "**d1prn**" for the PRN port.

**Note:** This destination name is case sensitive and by default, all names are lowercase.

## **Windows for Workgroups Troubleshooting**

### **Printer and Network Errors**

Anytime you have several Windows for Workgroups (WfW) stations printing directly to a print server, you may run into various printer and network errors. The problem occurs when one station is sending a print job to the printer and another station tries to send a print job to the same printer at the same time. The print server tells the second station to hold on to its data until it has finished with the first job. However, the Print Manager on this second station doesn't like this and errors out. This requires that the user on the second station resubmit their job when the printer is clear again.

This problem will occur with any external print server that does not spool entire print jobs (which is the case for every print server on the market today). The Print Manager likes to send the data it spools immediately and if it can't do this (because the printer is already busy with another job) it will produce an error saying the network or printer is busy.

The best solution to this problem is to then have a central spooling station (like an NT server) which allows each WfW station to spool the print job immediately to the server's hard drive. The NT server then can sit with the print job until the print server/printer can take it. The print server then only deals with one station and it goes through each job as it gets queued up.

**Note:** It is not possible to set up a WfW station as the central spooling device since you cannot share a printer on the network that is already being shared. It is because a "net use" connection is used between this central station and the print server that causes the problem. However, a central NT station can offer a shared network printer to these WfW stations.