COPSTalk

Version 2.5

Users Guide

AppleTalk services for Windows 95

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Getting Started

What COPSTalk does

In simple terms, COPSTalk allows you to use AppleTalk printers and file servers and to share these resources with Macintosh computers.

More specifically, COPSTalk is an AppleTalk network client for Windows 95 PCs. It allows computers running Windows 95 to access AppleTalk-capable PostScript printers, other printers which use AppleTalk (PAP) and AppleTalk Filing Protocol (AFP)-compliant file servers, including AppleShare servers and Macintosh computers running System 7 Personal File Sharing, as well as AFP servers from third parties such as Novell's NetWare for Macintosh and Microsoft's Windows NT Services for Macintosh.

COPSTalk 2 takes advantage of the Windows 95 user interface for networking wherever possible, so that users who are familiar with the networking functions of Windows 95 will find it quite easy to use.

What's new in version 2.5?

COPSTalk 2.5 adds support for the AppleShare-over-IP features of Apple's AppleShare IP 5.0 server, as well as third-party AFP-over-IP products such as OpenDoor Networks' ShareWayIP. When you connect to an AppleShare IP 5.x server, COPSTalk automatically detects this and uses AFP-over-IP. This feature enables you to log into any AFP-over-IP server in the world that's available via the Internet.

What it doesn't do

COPSTalk does **not** turn your PC into an AFP server; others on the network can't log into your PC from a Mac. Also, the Windows 95 version of COPSTalk doesn't run on any version of Windows NT; COPS expects to release a version for Windows NT 4.x in early 1998.

COPS Support

COPS support department can be reached as shown below. Our hours are 9 a.m. to 6 p.m. Eastern time.

Voice=770-840-0817 Fax=770-448-7821
Internet=support@copstalk.com
Web Site=http://www.copstalk.com

There is an HTML document in the COPS directory which will facilitate using the Internet to connect to COPS and other relevant sites. Open copsweb.htm with any browser.

Standard Installation

If you are uncomfortable adding programs or configuring Network Protocols and Adapters, you may go to the section titled "Detailed Installation", page 4; otherwise, follow the steps below and then go to Chapter 2, "Using COPSTalk".

✔Remove any earlier versions of COPSTalk, AppleShare PC, Farallon PhoneNET PC, or Miramar MacLan Connect (see Appendix C for details).

✔Run "SETUP.EXE" from the floppy provided and step through the screens or select "Fast Install".

✔Add Client for AppleTalk Networks (COPSTalk) via the network Control Panel.

✔Re-boot.

✔Configure printers and server connections.

✔Enjoy.

Appendix A contains a list of the files and changes made to your system.

System Requirements

In order for COPSTalk to function correctly, you must have certain hardware and software. These requirements are detailed below. COPSTalk 2.5 is designed for Windows 95. The minimum requirements for COPSTalk are the same as those for Windows 95.

Windows Version

COPSTalk 2.5+ is for use only with Windows 95. The Microsoft Windows 95 Service Pack 1 and Password List Update are also required. These may be obtained from Microsoft.

386 or better

In order to run Windows 95 and COPSTalk 2.5, your computer must have at least an 80386 processor. This includes 486 and Pentium™ based machines.

4MB RAM minimum, 16 recommended

Microsoft recommends that you have at least 8MB of RAM to run Windows 95. Windows 95 and COPSTalk 2.5 will function with as little as 4MB of RAM, but a more practical minimum is 8MB, and for optimum performance you should have at least 16MB.

Disk space

Once it is installed on your hard drive, COPSTalk 2.5 will occupy approximately 2MB of disk space. You should have at least 3MB free before attempting to install COPSTalk.

Network adapter

COPSTalk is a network client, and thus requires a compatible network adapter card. Currently, COPSTalk supports all Ethernet network adapters on Microsoft's Windows 95 Hardware Compatibility List. Contact the hardware manufacturer for the appropriate Windows 95 driver. COPSTalk also includes drivers for COPS' line of LocalTalk adapters (the LT-95 and LT-I) and for common LocalTalk adapters from Farallon and Dayna. COPSTalk does not support TokenTalk (AppleTalk over TokenRing).

TCP/IP

To use the AppleShare IP features of COPSTalk 2.5, you must have installed the TCP/IP protocol in the Windows 95 Network Control Panel

Detailed Installation

COPSTalk uses an installation program called SETUP.EXE. This program records information such as your name, company name, and COPSTalk serial number, copies the necessary files for COPSTalk to your hard drive, and adds the required entries to your Windows 95 Registry.

Once the SETUP.EXE program is finished, you will need to use the Windows 95 Network Control Panel to install and configure the AppleTalk client software, including the AppleTalk protocol stack and (if you are not already using the Windows 95 built-in networking or if you're installing a LocalTalk adapter) the drivers for your network adapter.

Appendix A contains a list of the files and changes made to your system.

Add/Remove Programs Control Panel

The first step in installing COPSTalk 2.5 is to start the SETUP.EXE program. Follow these steps:

✔Insert the COPSTalk Setup & Program Disk.
✔Click on the Start button in the Taskbar.
✔Select "Settings".
✔From the "Settings" sub-menu, select "Control Panel".

Select Add/Remove Programs

✔Double-click on the "Add/Remove Programs" icon.

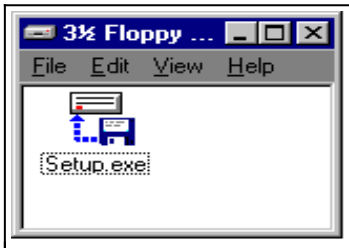
✔Click on the “Install” button.

✔Click on the “Next” button.

✔When the Add/Remove Programs wizard locates the A:\SETUP.EXE file, click on the “Finish” button.

✔The COPSTalk Setup program will start.

Alternatively, you may use the Start menu and run SETUP.EXE or double-click on the SETUP.EXE icon on the floppy.



SETUP.EXE

COPSTalk Setup program

The Setup program will perform most of the installation process for you. Please read each screen carefully; not all are shown in this manual.

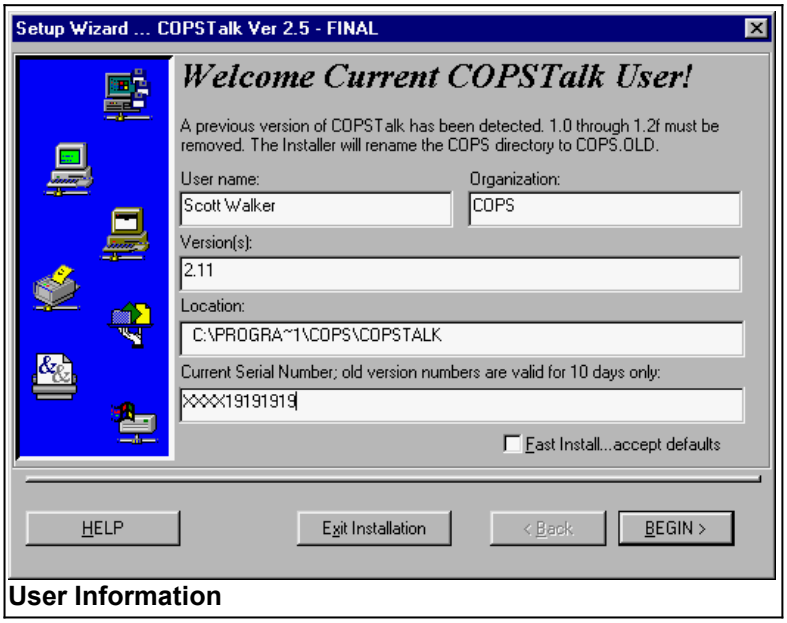
License Agreement

The license agreement screen details the terms and conditions under which COPSTalk 2.5 is licensed to you. Please review these conditions and indicate whether you accept or reject these terms by clicking the corresponding button. If you reject the terms, the SETUP.EXE program will abort without installing COPSTalk 2.5.

COPSTalk is licensed for use by a single computer. COPSTalk will check periodically for duplicate serial numbers in use on your network. If duplicates are found, services may be disabled.

New User Information

You will be prompted to enter your name, company name, and the serial number found on your COPSTalk disks.



User Information

The name and company name fields will accept any text you enter; the serial number field will check whether the serial number you enter is a valid COPSTalk serial number, and will prompt you to retype the serial number if the validation process fails.

The AppleShare IP features of COPSTalk will be enabled only if you have a COPSTalk 2.5 serial number or if you have an AppleShare bundle serial number. If you have only a COPSTalk 2.1 serial number, COPSTalk 2.5 will be installed with all of the most recent files, but the AppleShare IP features will be disabled.

You may select "Fast Install…accept defaults" and Setup will bypass the remaining screens. However, you will not have the option to enter an updated COPSTalk 2.5 serial number.

Previous Users

If COPSTalk versions 1.0 through 1.2 are detected, the setup program will warn you that you should remove the earlier version before completing the installation. If an earlier version of COPSTalk 2.x is detected, you will be notified that if you continue, your existing version will be updated.

If you have COPSTalk 2.11 or earlier installed with a COPSTalk serial number (four letters followed by eight numbers), you'll need to obtain a new serial number from COPS to enable the AppleShare IP features of COPSTalk 2.5. If you have already obtained a new serial number before installing COPSTalk 2.5, enter the new serial number now in place of the existing serial number. If you continue

without entering a COPSTalk 2.5 serial number, the installer will warn you that the AppleShare IP features will not work until you enter the new serial number. You can change your serial number at any time using the COPSTalk Utility (see the section on the COPSTalk utility below for details).

The AppleShare IP features of COPSTalk will be enabled only if you have a COPSTalk 2.5 serial number or if you have an AppleShare bundle serial number. If you have only a COPSTalk 2.1 serial number, COPSTalk 2.5 will be installed with all of the most recent files, but the AppleShare IP features will be disabled.

Be sure to remove all traces of COPSTalk 1.x, Miramar, Apple or Farallon AppleTalk products.

Select COPSTalk main directory

SETUP will prompt you for the location to install the COPSTalk application files. Unless you have a compelling reason to specify a different directory, you should accept the default location (C:\ PROGRAM FILES\COPS\COPSTALK).

Backing up old files

SETUP will ask you whether you want to preserve backups of any files changed or replaced by the COPSTalk SETUP process. It will also prompt you

for a location to store the backup files. Again, unless you have a specific reason to do otherwise, you should have the installer back up changed files, and you should accept the default backup location (C:\ PROGRAM FILES\COPS\COPSTALK\BACKUP).

Enter COPSTalk Items in START MENU

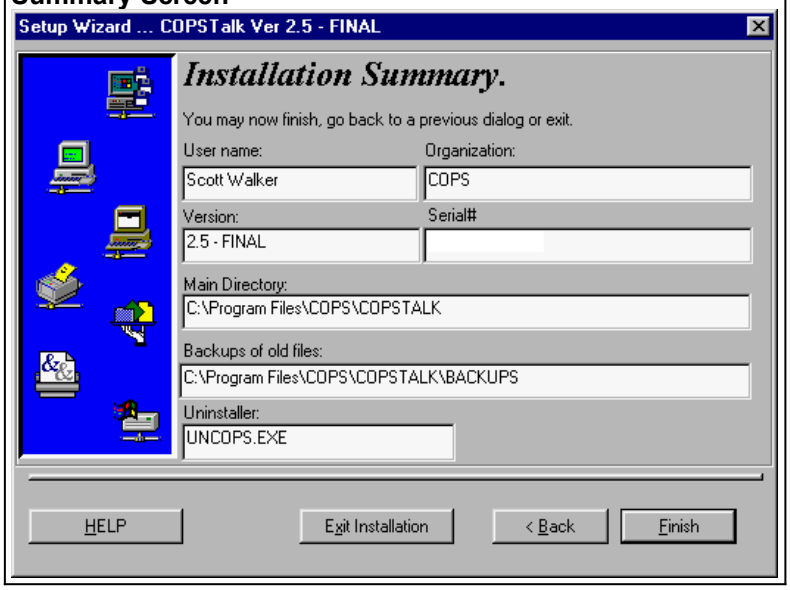
Next, the setup program will ask whether it's OK to add the COPSTalk applications to your Start Menu. Enter your selection and click "Next". Items entered in Start/Programs/COPSTalk are:

✔COPSTalk Utility.
✔Extension Mapping utility.
✔Help.
✔AppleShare IP Host Editor
✔Release Notes.
✔HPFIX.
✔COPS Web Page.

Installation Summary

Before proceeding with copying files and creating/updating registry entries, the setup program will present an Installation Summary screen with the information it has collected from you so far, including the user name, organization, COPSTalk version number to be installed, serial number, destination directory for the COPSTalk program files, name of the COPSTalk un-install program, and the backup directory.

Summary Screen

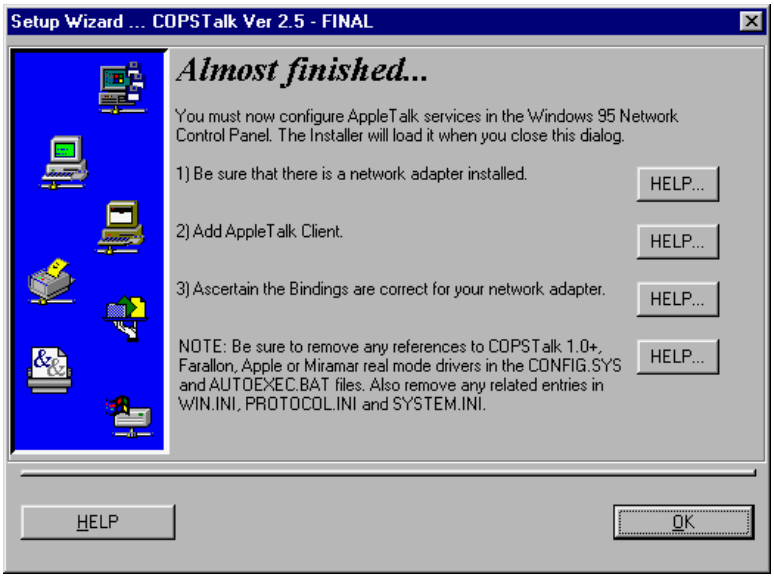


If you need to change any of the information in this screen (except the version number and uninstall program name), click on the “Back” button to move backward through the previous screens one at a time. Once you’re satisfied with the information you’ve entered, click on the “Finish” button to complete the installation.

A Progress Indicator will show you what is being copied.

Finishing

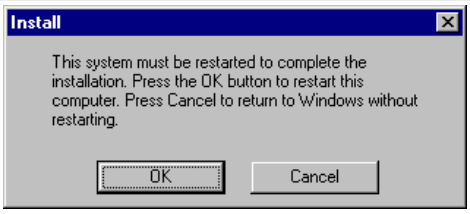
Setup is now finished.



Finally finished—well, almost

The setup program may warn you that you need to restart before you can use COPSTalk (e.g. if updating and replacing DLLs and/or VXDs). Help is available for the most important steps.

☞ **At this point, the Windows 95 Start Menu contains all of the COPS items including HELP and Release Notes.**



Restart Message

It is recommended that you Cancel the restart and use the **Windows Network Control Panel (**the Installer will load it for you). Remember that

COPSTalk won't be active until you have added the Client for AppleTalk Networks through the Network Control Panel and restarted your computer.

Final Steps

The final steps to install COPSTalk 2.5 are:

✔Open the Windows Network Control Panel.

✔Add Client->COPS, Inc.->Client for AppleTalk Networks (COPSTalk).

✔Ensure that the AppleTalk Protocol is bound to the correct Ethernet or LocalTalk network adapter. COPSTalk should be bound to the Dial-Up Adapter **only if** your computer does not have another network adapter and you plan to use the AppleShare IP feature of COPSTalk 2.5 to connect to a remote AppleShare IP 5.x or other AFP-over-IP server.

✔If you plan to use the AppleShare IP features of COPSTalk, ensure that the TCP/IP protocol is installed.

✔Restart.

✔Configure Printers.

✔Establish Server connections.

Before closing the Network Control Panel, double-check that the AppleTalk Protocol is NOT bound to the Dial-Up Adpater. This is the most common problem in installing COPSTalk 2.x. The AppleTalk protocol should be bound to the Dial-Up Adapter only if there is no other network adapter present and you plan to connect to AppleShare IP servers via the Internet.

Using the Network Control Panel

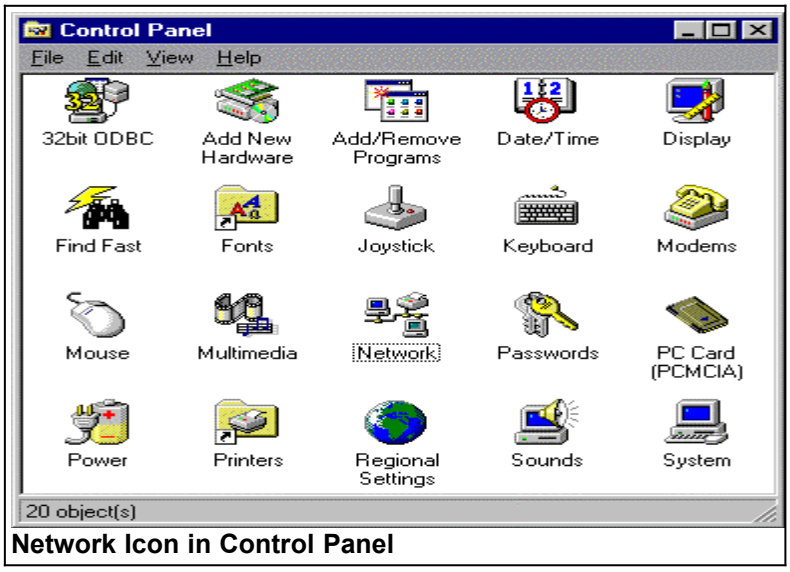
Once the COPSTalk 2.5 SETUP.EXE program has finished, the next step is to use the Windows 95 Network Control Panel to install and configure the AppleTalk client software. If you have already installed other Windows 95 network services, skip to “Add AppleTalk Client” below. If you exited from the Setup program without running the Network Control Panel and now want to finish configuring COPSTalk, follow the steps below.

✔Click on the “Start” button in the Taskbar.

✔Select “Settings”.

✔From the “Settings” sub-menu select “Control Panel”.

✔In the “Control Panel” window, find the “Network” icon and double-click on it.



Network Icon in Control Panel

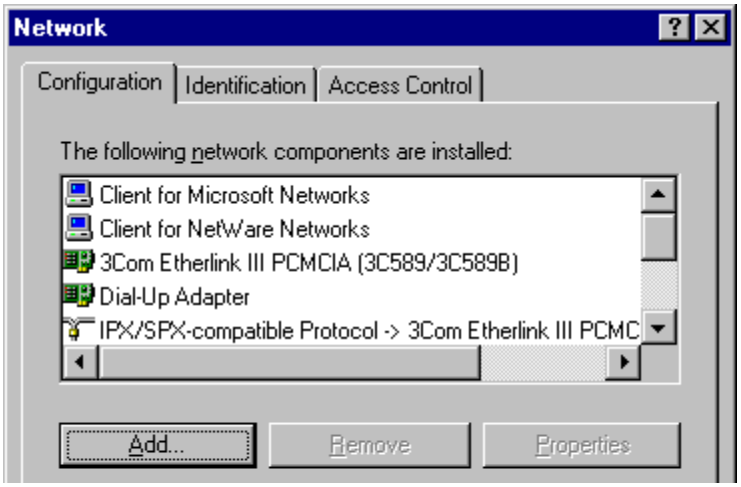
If you’re using a Plug-and-Play network adapter and the network card is already installed in your machine, chances are that the appropriate driver for the adapter and certain Microsoft built-in

networking software are already installed. The network components that are already installed will be listed, with an icon to the left of each one to indicate the type of component: a network client, a network adapter, a protocol, or a service. In order for COPSTalk to function, you'll need to install at least one network adapter. If there are other network components installed, you should be able to install COPSTalk along with them.

If the network adapter you want to use is already installed, proceed to "Add AppleTalk Client" below.

Add Network Adapter if necessary

If there are no network components installed, click on the "Add" button then select "Adapter" as the type of component to add. Locate the name of the manufacturer of your network adapter in the list on the left. Click on the manufacturer's name. Then select the model of adapter in the list on the right. Drivers for the LocalTalk adapters that COPSTalk supports may be found under "COPS", "Dayna", or "Farallon" in the manufacturers list.

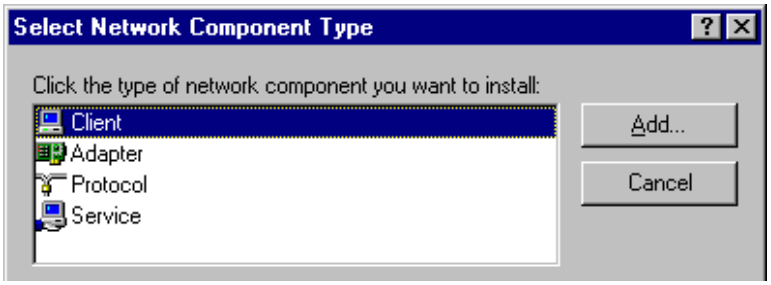


Network Control Panel

If you are unable to locate the name of the manufacturer of your network adapter but you have a disk from the manufacturer that includes Windows 95 drivers for your adapter, click on the “Have Disk” button, then locate the directory on your disk that contains the Windows 95 driver and setup information for your adapter. Select the appropriate entry for your adapter and click OK. The driver for your adapter should now appear in the list of installed network components.

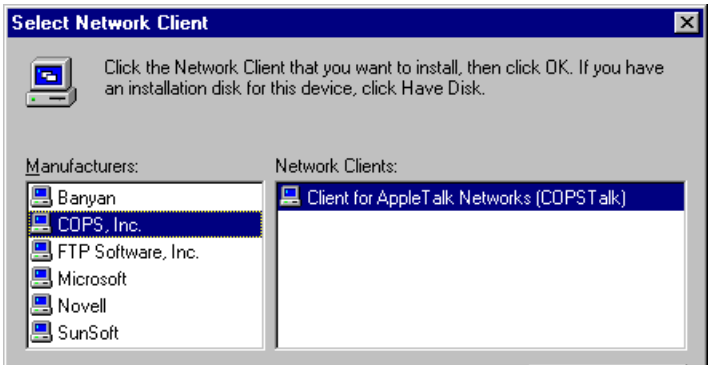
Add AppleTalk client

The next step is to add the AppleTalk client software to the installed network components. In the Network Control Panel, click “Add”, then select “Client.”



Add Client

From the list of manufacturers, select “COPS, Inc.”. “Client for AppleTalk Networks (COPSTalk)” should appear in the list of network clients on the right-hand side. Make sure the “Client for AppleTalk Networks (COPSTalk)” is highlighted, then click OK.



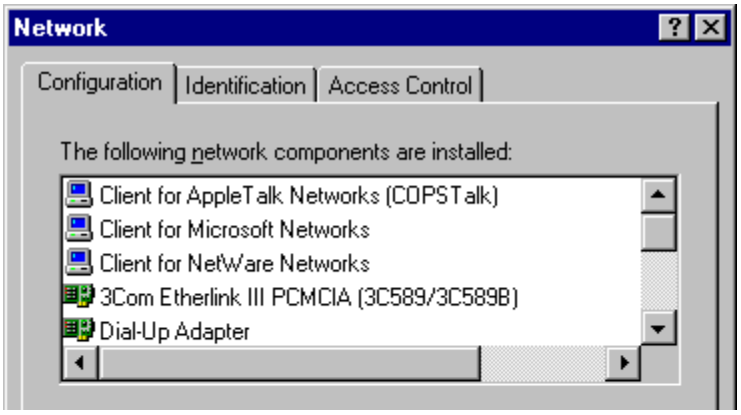
Choose COPS, Inc. in Add Network Client Dialog

The “Client for AppleTalk Networks (COPSTalk)” should now appear in the list of installed network components with a small computer icon next to it (indicating that it’s a network client), along with the “AppleTalk Protocol” with a small network icon next to it, indicating that it’s a network protocol. If the client shows up but not the AppleTalk protocol, click the “Add” button again, select “Protocol”, select

"COPS, Inc." from the manufacturer list, then select "AppleTalk Protocol" and click OK. The AppleTalk protocol should now be added to the list of installed network components.

> ☞ **This version of COPSTalk allows only one instance of the AppleTalk protocol and you may see a warning dialog if Windows attempts to bind AppleTalk to more than one adapter.**

Before closing the Network Control Panel, make sure that the Client for AppleTalk Networks is bound to the AppleTalk protocol stack and that the AppleTalk protocol stack is bound to the driver for your network adapter.



Network Control Panel after adding COPSTalk

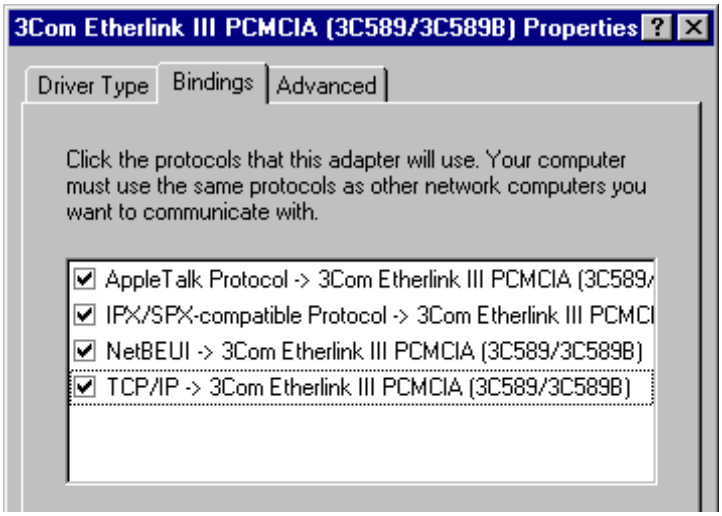
Make sure TCP/IP is installed (for AppleShare IP features)

If you plan to use COPSTalk to access AppleShare IP 5.x or other AFP-over-IP servers, make sure that the TCP/IP protocol is installed and bound to your network adapter. If you're using COPSTalk on a laptop or other computer that does not have a

network adapter other than the Dial-Up Adapter, bind both the TCP/IP protocol and the AppleTalk protocol to the Dial-Up Adapter.

Check/configure bindings

Click on the driver for your network adapter, click on the "Properties" button, and select the "Bindings" tab. In the list of bindings for the adapter, you should see the AppleTalk protocol, with a checked check box next to it.



Check Bindings property sheet

If the AppleTalk protocol appears in the list but the check box is not checked, click on the check box to select it.

If the AppleTalk protocol does not appear in the list, click the "Cancel" button to close the property sheet for the adapter and check the list of installed network components to determine whether there is another adapter driver installed. If so, click on the

other adapter, then click on the “Properties” button and then select the “Bindings” tab.

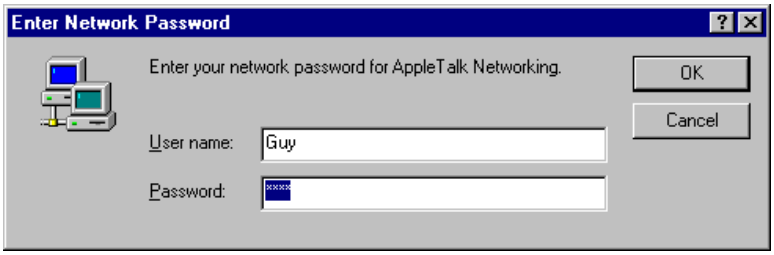
If the AppleTalk protocol is bound to this adapter instead of the one you want it bound to, un-check the checkbox next to the AppleTalk protocol and click “OK” to close the property sheet. Then select the adapter you want to bind the AppleTalk protocol to and click the “Properties” button, then select the “Bindings” tab. An unchecked item for the AppleTalk protocol should appear in the list of possible bindings for the adapter. Click the check box next to the AppleTalk protocol, then click OK to close the property sheet.

The AppleTalk client and protocol software should now be configured. Click OK to close the Network Control Panel. Windows 95 will alert you that your computer needs to be restarted.

If you’re ready to start using COPSTalk, answer “Yes” to restart your computer. If you need to do other things before restarting, answer “No”, but remember that AppleTalk services will not be available until after you restart.

Initial Login – AppleTalk Networking

When you restart your computer after installing COPSTalk, you will see a new AppleTalk login dialog (see below). This dialog provides Windows 95 with your default user name and password. When you attempt to connect to a server, COPSTalk will first try to use this user name and password for the connection. If the name or password are not valid for the server you’re connecting to, COPSTalk will then present another dialog asking for the correct user name and password.



AppleTalk Log in

If you're able to have your network administrator or other users on your network configure all of the servers you'll be connecting to with the same user name and password, you may never have to enter your name and password to log in to any resources on your network, if you enter this name and password as your AppleTalk user name and password at startup.

If your AppleTalk user name and password are the same as your user name and password for the other network client software you're running, you may only see the initial, primary Windows 95 network login dialog.

Uninstalling COPSTalk

If you decide for some reason to remove COPSTalk from your system, follow these steps:

✔Open the Add/Remove Programs Control Panel.
✔Select “COPSTalk 2.50.xx.xx”.
✔Click the “Add/Remove” button.
✔Select “Automatic”.
✔Open the Network Control Panel.
✔Highlight the line for “AppleTalk Protocol,”
✔Click “Remove”.
✔Close the Network Control Panel,
✔Answer “Yes” when prompted to restart the computer.

If you have installed programs after COPSTalk requiring Microsoft Foundation Class Libraries version 4.0+, you should select Custom Uninstall and be sure to not remove the MFC files MFC40.DLL and MSCVRT.DLL.

Using COPSTalk

COPSTalk is designed to behave and to be used in the same ways as the native Windows 95 network client/protocol packages. The standard Windows 95 user interface elements for dealing with network services (the Network Neighborhood browser and the Explorer) are used wherever possible. If you are not familiar with the general concepts involved in using the Network Neighborhood and Explorer to browse and select network servers and printers, you should review your Windows 95 documentation.

Caveats

Below are several warnings gleaned from problems uncovered by early users.

Don’t attempt to transfer files to or from an unmapped drive. COPSTalk will perform much better if the remote volume is attached to a drive letter on your PC. Microsoft also encourages mapping.

Don’t use slashes in zone names. COPSTalk may have trouble seeing devices in a zone whose name includes a backslash (\) or forward slash (/).

Don’t use illegal characters in server names. When some characters (e.g., \, /, :, ‘, ", ?, <, >, |) are used in a server’s name, you may have trouble connecting to the server. Look out for “curly quotes”.

Don’t attempt to store Macintosh applications or fonts on your PC’s hard drive.

File Services

The AppleTalk Filing Protocol (AFP) client services in COPSTalk work very similarly to the NetWare and Microsoft Networking client services that are included with Windows 95. There are slight differences in the areas of user authentication (logging in) and in the handling of file and folder names across different platforms, but Windows 95's support for networking at the operating system level has made it possible to integrate AppleTalk services quite seamlessly into the PC environment.

In COPSTalk 2.5, it's possible to connect not only to servers on your local network, but to any AFP-over-IP server (e.g., an AppleShare IP 5.x server) in the world that is available on the Internet. The procedure for connecting to a non-local server is described after the procedure for connecting to a local server.

If you need to connect to an AppleShare IP 5.x server on your local network, do not attempt to use the procedure for connecting to remote AFP-over-IP servers for connecting to local servers. Doing so will result in crashes and other undesired behavior. COPSTalk will automatically use AFP-over-IP to connect to AppleShare IP Servers. For other AFP-over-IP servers on your local network, follow the instructions below for connecting to remote servers.

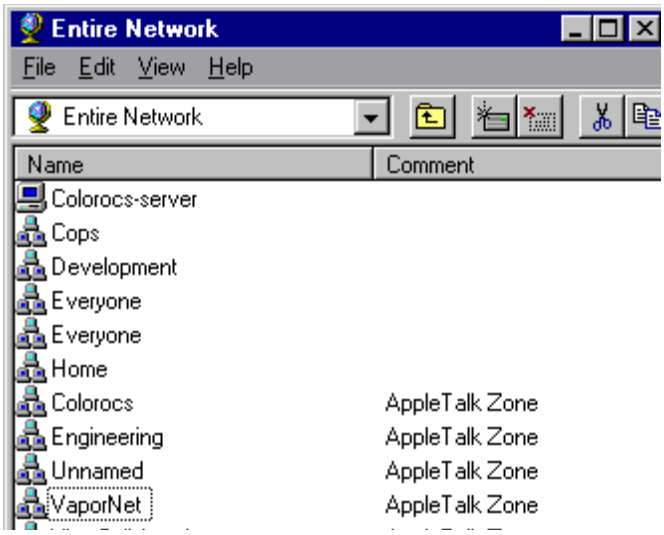
Locating local servers

The first step in using files on an AFP server is to find the server. Follow these steps:

✔Double-click on the Network Neighborhood icon on your Desktop.

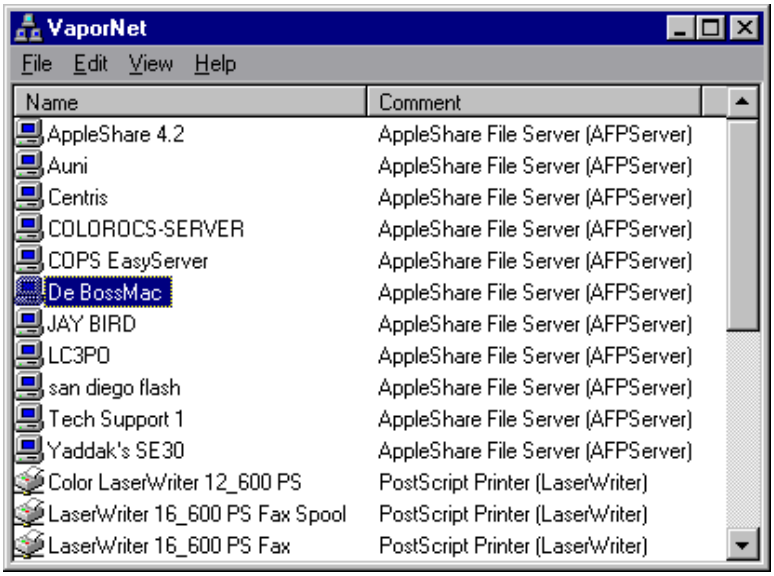
✔In the Network Neighborhood window, double-click on the “Entire Network” icon.

✔In the Entire Network window, locate the icon for the AppleTalk Zone that contains the server you want to access; if there are no zones on your network, locate the icon labeled “Isolated AppleTalk Network”. Double-click on the zone or network icon (in this case, VaporNet).



Browsing Network, Zone list

You should now see a window displaying all of the AFP servers and PostScript printers in the selected zone. AFP servers will have a small computer icon to the left of the name, while PostScript and ImageWriter printers will have a printer icon next to the name.

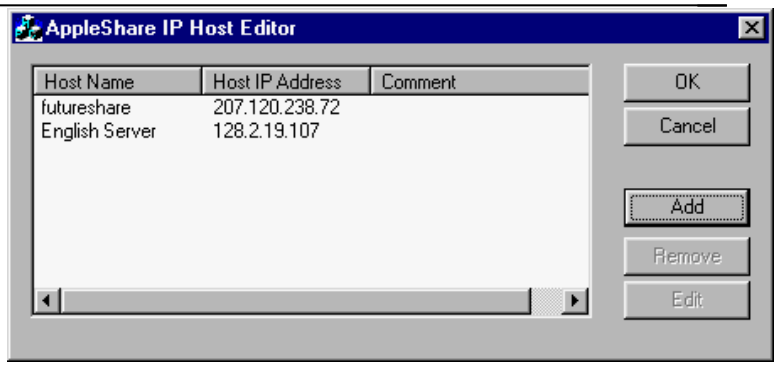


Servers & Printers

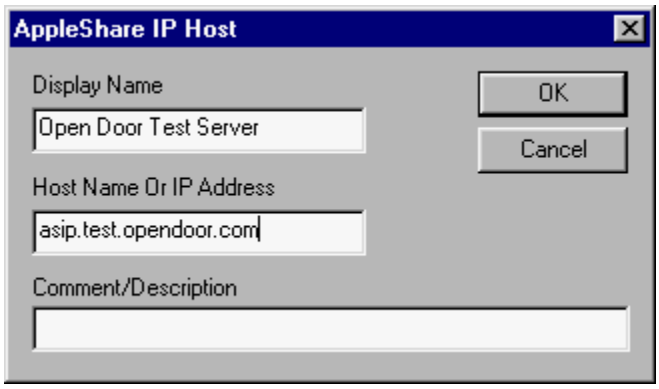
You're now ready to log in to AFP servers.

Connecting to non-local AFP-over-IP servers

To connect to a remote AppleShare IP 5.x server or a local server that supports AFP-over-IP (such as Open Door Networks ShareWay IP Gateway), you need to know the host name or IP address for the server. This information should be available from the administrator of the server you're trying to access. Once you have the information, open the COPSTalk AppleShare IP Host Editor (Start Menu→ Programs → COPSTalk→AppleShare IP Host Editor). The main window shows the descriptive name and host name or IP address for any servers that are already configured. To add a server, click on the "Add" button, then enter a descriptive name for the server in the "Host Name" field.



Then, enter either the numeric IP address for the server (e.g., 207.120.238.72), or the Internet name for the server (e.g., afp.domain.dom). If you enter a name rather than the numeric IP address, the AppleShare IP Host Editor will attempt to resolve the name to the numeric IP address.



If it is able to successfully resolve the name, the IP address will be recorded. If not, you will see a warning message. The AppleShare IP Host Editor currently relies on the numeric IP address to locate servers, so if it is unable to determine the IP address, it is unable to store the information about the server.

Once you've configured a remote server via the AppleShare IP Host Editor, it will appear in the AppleShare IP Hosts "virtual zone" within the "Entire Network" window of the Network Neighborhood.

WARNING: Do not configure a local AppleShare IP 5.x server to be accessed through the AppleShare IP Host Editor, then attempt to connect to the server via the standard Network Neighborhood→Zone→Server procedure. Doing so may result in crashes and other undesired behavior. For any particular server, you can either configure the server via the AppleShare IP Host Editor, or connect to it via the standard method, but not both.

Note regarding ShareWay IP Gateway: To connect to a server using AFP-over-IP through the ShareWay IP Gateway, you must configure the server through the AppleShare IP Host Editor. Logging into a server that is available through the ShareWay IP Gateway by locating it in the usual AppleTalk zone will NOT connect via AFP-over-IP.

Logging in to servers

Before you can access files on an AFP server, you must "log in" to the server by supplying a user name and password combination that is valid for that server. This may differ somewhat from the way

other Windows 95 network clients work, where the “user authentication” process is handled when you first start up your computer and log in to the network.

Unlike Windows 95 network resources that use “user-level” authentication, where a single user name/password combination is used for all resources, it’s possible (even likely) that you’ll have a different user name and password on each AFP server on your network. Thus with AFP servers, the user authentication process happens when you first attempt to connect to a particular server. See Chapter 3, “Cross-platform issues”, for a more detailed discussion of share-level vs. user-level authentication.

To log in to an AFP server, follow these steps:

✔In the zone or network window that contains the icon for the server you want to access, double-click on the server’s icon. For remote AppleShare IP servers, double-click on the “AppleShare IP Hosts” icon in the Network Neighborhood window, then double-click on the server’s icon. If a remote server you want to use is not listed, add it using the AppleShare IP Host Editor (see previous section).

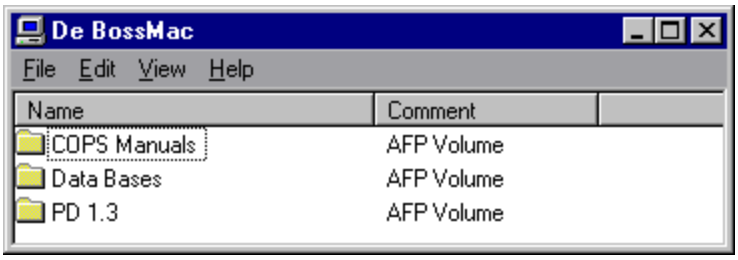
✔You will be presented with the “Enter Network Password” dialog box.

✔Enter the appropriate user name and password for your account on the target server.

✔ If you do not have an account on the server, but the server allows guests to log in, you may click on the “Connect as guest” check box; (with this box checked, the user name and password fields in this dialog box are ignored).

Enter Password

Once you've entered the user name and password, or clicked on the "Connect as guest" check box, click the "OK" button. If the name and password you supplied are valid for the server, a window will open displaying the volumes available on the server.



Select Volume

Double-click on a volume icon to display the files and folders contained within that volume.

If you are unable to connect to a server using what you believe is a valid user name and password, contact the administrator of that server and confirm the user name and password. Make sure that the user name and password do not contain any characters that are illegal for user names/passwords on either the Mac or the PC, and that there are no trailing spaces after either the

user name or the password as specified on the server. Finally, if you are still unable to log in, have the server administrator enable guest access and try logging in as a guest. If that works, try establishing a new user account with a different user name and password and log in using that.

Exploring versus Mapping

Windows 95 allows you to browse or explore servers and directories, open, save and copy files to servers by opening any server and volume. You may also map any AFP volume to a drive letter; this is preferable since it works more smoothly while within applications.

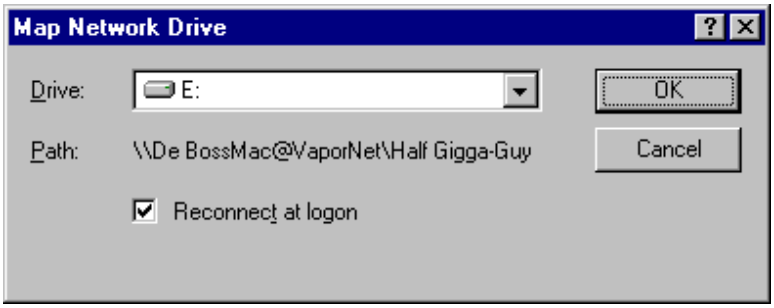
Always Map Drives

It is strongly recommended by both Microsoft and by COPS that you always map a drive if you are going to create, open or save files from within applications. Application installers may not work correctly across the network unless you map the drive.

☞ Always map drives

Mapping server volumes as drive letters

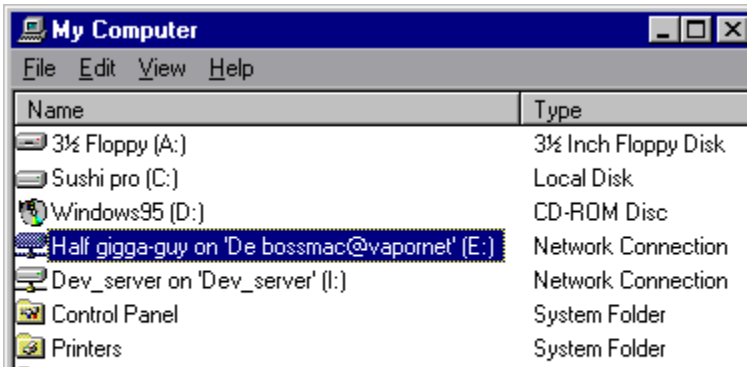
To map a server volume to a DOS-style drive letter (e.g., so that the volume appears as drive “e:” on your PC), connect to the server as described above, select the volume that you want to map, and select “Map Network Drive” from the “File” menu.



Map AFP Volume to Drive

To have Windows 95 automatically mount a volume each time you start your computer, click the "Reconnect at logon" checkbox in the "Map Network Drive" dialog box.

Once a drive is mapped, it shows up in the list of resources available to your computer. In the example below Half gigga-guy on De bossmac@Vapornet is mapped to "E:".

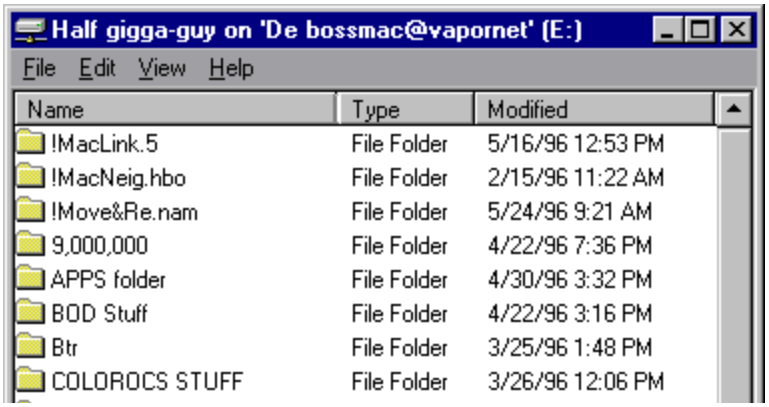


My Computer showing AFP Volume

Servers and/or AFP Volumes containing "\" or "/" will cause problems with mapping as drive letters. For best results, have the administrator or owner of the server eliminate these characters.

AFP Volume contents

Once you've connected and mapped a drive, you can browse the AFP volume.



Browsing a Volume

Copying files

Once you have logged into an AFP server, you should be able to copy, move, and access files on the server just as you do with files on any other type of network server. COPSTalk fully supports long file names across platforms, truncating names if necessary and translating illegal characters.

Extension Mapping

Windows 95 and the Macintosh each have their own mechanism for associating files with applications, so that when you double-click on the file the appropriate application is launched. Windows 95 uses extensions (a period followed by a series of characters) to associate files with applications. COPSTalk provides an Extension Mapping Utility discussed in a later section of this manual.

Printing Services

COPSTalk uses the Printer Access Protocol (PAP), a component of AppleTalk, to communicate with printers. Most PAP printers are PostScript (type LaserWriter); but it is possible to print to other printers that use PAP such as AppleTalk ImageWriters and ImageWriter LQs.

AppleTalk printers have three identifying characteristics:

- ✔ AppleTalk name
- ✔ AppleTalk type
- ✔ Printer Driver

The name is what you see when browsing the net or using the Chooser (see COPSTalk Utility). The name may be changed.

AppleTalk type identifies which type of printer such as LaserWriter, ImageWriter, etc. Type has no correlation with Manufacturer; all PostScript printers regardless of make or model are of the Type LaserWriter. The type may be changed.

The printer driver is provided by the printer manufacturer. For example, Apple Computer may have many different LaserWriter Type devices. LaserWriter Plus, LaserWriter Pro 630. LaserWriter 16/600, etc.

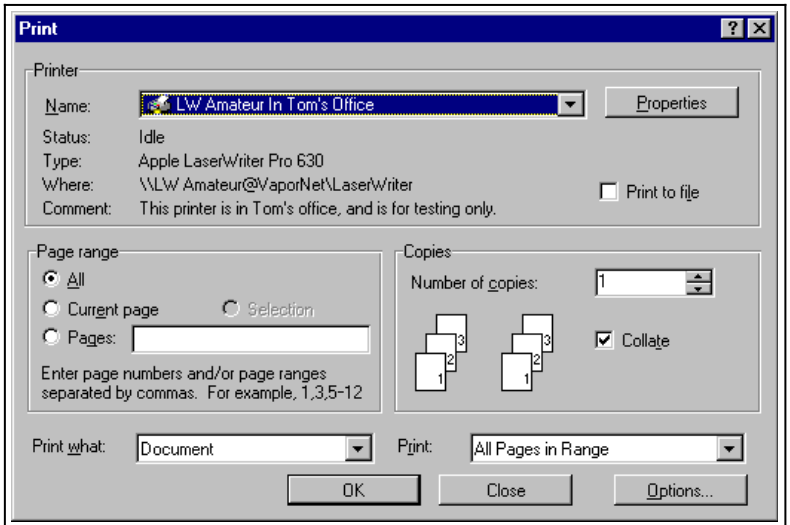
Finally, you can enter an even more descriptive name and a comment during configuration.

Below you can see these characteristics (see Print Dialog):

✔Name: (LW Amateur in Toms' Office) as defined by the Windows user.

✔Type: as defined by the Manufacturer (Apple LaserWriter Pro 630) (not to be confused with AppleTalk Type).

✔Where: which includes the AppleTalk Name and AppleTalk Type (LW Amateur & LaserWriter). Also shown is the AppleTalk Zone, VaporNet.



Typical Print Dialog

Configuring Print Drivers

If you're comfortable configuring network printers, you may skip this section.

In order to use the AppleTalk services provided by COPSTalk to print to your AppleTalk-capable printers, you'll need to configure your print drivers to output to an AppleTalk printer instead of a parallel port or another type of network connection. The exact sequence of steps depends on whether you're setting up the printer driver from scratch, or you have already set up the printer driver to print using another communication method and now wish to change to AppleTalk.

Configuring a printer

To configure an entirely new printer driver to print to an AppleTalk printer, follow these steps:

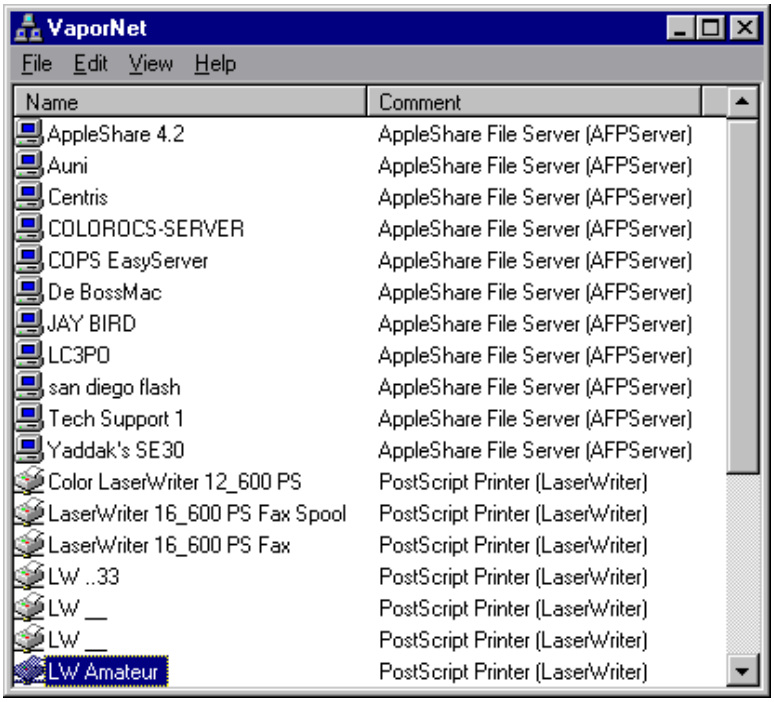
✔Double-click on the Network Neighborhood icon.

✔Double-click on the Entire Network icon.

✔Locate the AppleTalk Zone that contains the printer you want to configure. Double-click on its icon.

✔Within the AppleTalk Zone, double-click on the icon for the printer (LW Amateur in the example below).

(If you don't see an icon for the printer you want to use, confirm that the printer is available via AppleTalk, then see the section below on "Configuring non-PostScript printers".)



Selecting your first printer, “LW Amateur”

✔Windows will remind you that the printer needs to be configured; click “YES” in the dialog.

✔Windows 95 will start the Add Printer Wizard.

✔You will be asked whether you print from MS-DOS-based programs. Once you’ve entered your answer, click on the “Next” button.

✔In the next dialog box, select the name of the manufacturer of your printer from the list on the left side of the dialog box.

✔Select the model name of your printer from the list on the right-hand side.

- If you cannot find a listing for the manufacturer of your printer, or you cannot find your printer model listed, but you have a disk from the printer manufacturer with Windows drivers on it, click on the “Have Disk” button, then locate the setup files for your printer on the disk.

- If you cannot find an appropriate listing for your printer and you do not have a disk containing drivers for your printer, contact your printer's manufacturer to find out whether one of the printer drivers provided with Windows will work with your printer.

✔Once you've selected the appropriate print driver, click on the "OK" button.

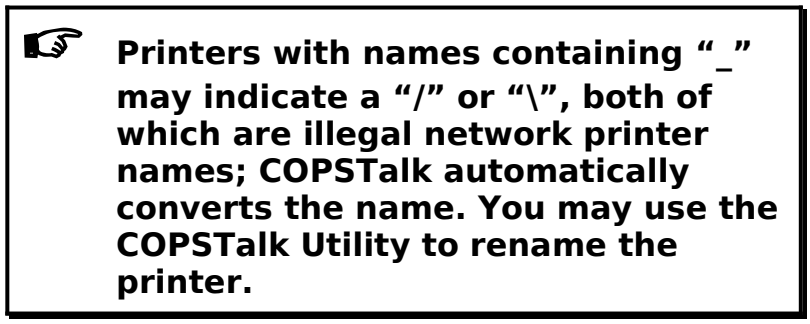
✔The Add Printer Wizard will now prompt you for a name for the printer.

- You can accept the default name or enter a new, more descriptive name; the name you enter here is strictly for your convenience in identifying the different printers installed on your computer.

✔In the same Wizard screen, you're asked to specify whether you want to set up this printer as the Windows default printer (i.e., the printer that documents will be sent to unless you specify otherwise). If this is the only printer you intend to configure, or if it's the printer you expect to print to most frequently, answer yes; otherwise, answer no.

✔When you're satisfied with the name and default printer selections, click the "Next" button.

✔At this point, the Add Printer Wizard will ask whether you want to print a test page.



Additional Configuration items

The Add Printer Wizard is now finished. You may wish to make additions to the configuration such as

adding a comment, changing data type, spooling etc. This is done performing the following steps:

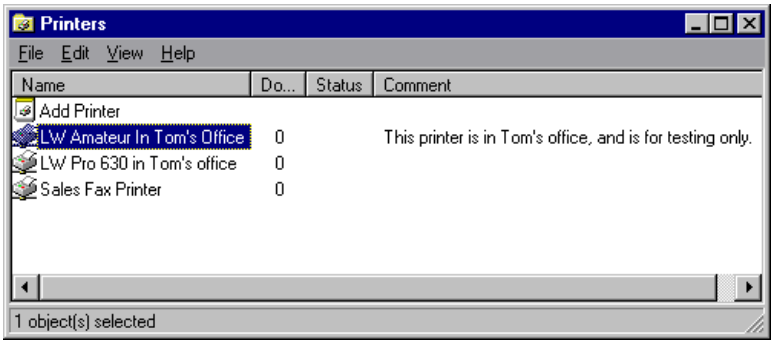
✔Click on the “Start” button in the Taskbar.

✔Select “Settings”.

✔Select “Printers”.

✔Single-click on the icon for the printer you want to modify.

✔Select “Properties” from the file menu.

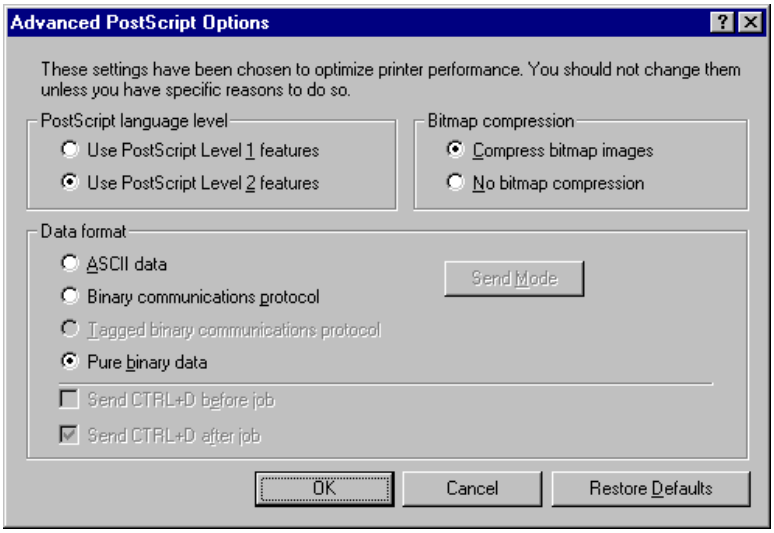


Current Printer List

You may make changes to any of the properties. We recommend you change the data type as shown below.

Configuring data type

To ensure optimum performance and prevent certain types of potential PostScript errors, you should set your printer driver to output pure binary data. To do this, open the property sheet for the printer driver (right-mouse-button-click on the icon for the driver), click on the “PostScript” tab, click the “Advanced” button, and in the section for “Data Format”, select “Pure binary data”, then close the property sheet.



Advanced PostScript Options Dialog

Configuring non-PostScript printers

In addition to allowing you to print to any AppleTalk-capable PostScript printer, COPSTalk also allows you to print to non-PostScript printers that have an AppleTalk interface. Doing so, however, requires a few additional steps. If a printer you want to use doesn't appear in the zone window (or the Isolated AppleTalk Network window) in the Network Neighborhood, follow these steps:

✔Close the zone window or the Isolated AppleTalk Network window (if they are open).

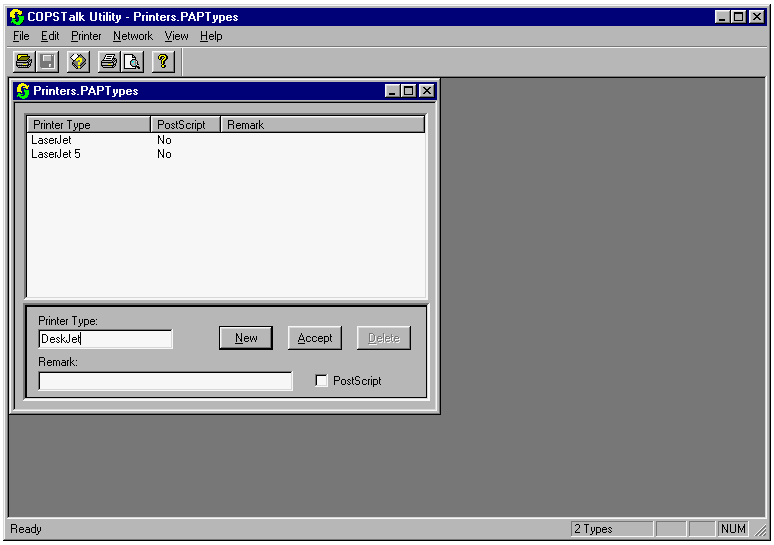
✔Launch the COPSTalk Utility (Start Menu → Programs → COPSTalk → COPSTalk Utility)

✔From the "Network" menu, select "Lookup", then select the zone for the printer you wish to use.

✔Locate the name of the printer you wish to use. Make careful note of the text in the "Type" column next to the printer name. You will need to reproduce this text *exactly* later.

✔From the “Printers” menu in the COPSTalk Utility, select the “Printer Type Entry” item.

✔In the dialog box that appears, click on the “New” button, then enter the device type of the printer you wish to use *exactly* as it appeared in the Network Lookup window. If you wish to enter a comment to help you identify the printer type, you can do so in the “Remark” field. Leave the “PostScript” checkbox *unchecked* unless you are absolutely certain you should check it.



✔Click on the “Accept” button to confirm the entry, then click the close box in the upper right corner of the dialog box. Answer “Yes” when prompted to save changes.

✔Double-click on the Network Neighborhood icon.

✔Double-click on the Entire Network icon.

✔Locate the AppleTalk Zone that contains the printer you want to configure. Double-click on its icon.

✔Within the AppleTalk Zone, double-click on the icon for the printer.

Windows will remind you that the printer needs to be configured; click "YES" in the dialog.

✔Windows 95 will start the Add Printer Wizard.

✔You will be asked whether you print from MS-DOS-based programs. Once you've entered your answer, click on the "Next" button.

✔In the next dialog box, select the name of the manufacturer of your printer from the list on the left side of the dialog box.

✔Select the model name of your printer from the list on the right-hand side.

- If you cannot find a listing for the manufacturer of your printer, or you cannot find your printer model listed, but you have a disk from the printer manufacturer with Windows drivers on it, click on the "Have Disk" button, then locate the setup files for your printer on the disk.
- If you cannot find an appropriate listing for your printer and you do not have a disk containing drivers for your printer, contact your printer's manufacturer to find out whether one of the printer drivers provided with Windows will work with your printer.
- If you are trying to configure a Hewlett-Packard DeskWriter printer, you should be able to use the driver for the corresponding DeskJet model. For instance, for the DeskWriter 600, the DeskJet 600 driver should work.

✔Once you've selected the appropriate print driver, click on the "OK" button.

✔The Add Printer Wizard will now prompt you for a name for the printer.

- You can accept the default name or enter a new, more descriptive name; the name you enter here is strictly for your convenience in

identifying the different printers installed on your computer.

✔In the same Wizard screen, you're asked to specify whether you want to set up this printer as the Windows default printer (i.e., the printer that documents will be sent to unless you specify otherwise). If this is the only printer you intend to configure, or if it's the printer you expect to print to most frequently, answer yes; otherwise, answer no.

✔When you're satisfied with the name and default printer selections, click the "Next" button.

✔At this point, the Add Printer Wizard will ask whether you want to print a test page.

Configuring Additional Printers

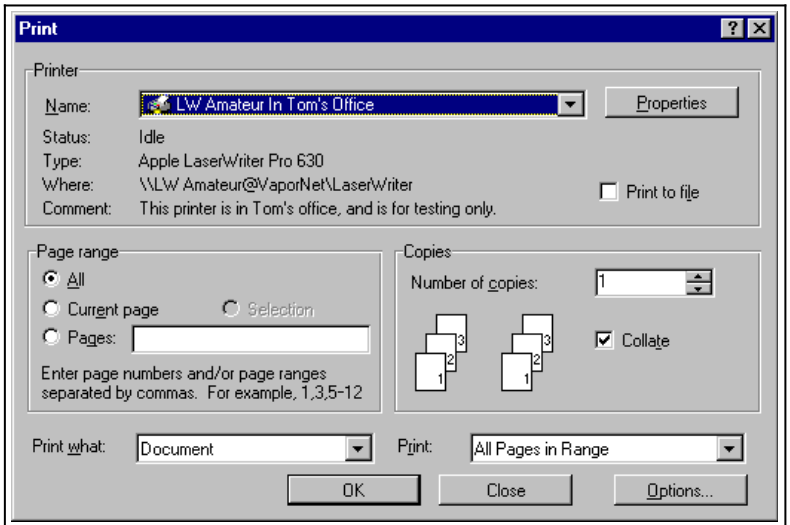
Repeat the steps above to configure from scratch each of the printers on your AppleTalk network that you expect to use. Under Windows 95 you should have an additional instance of the appropriate print driver for each network printer.

For example, if you have two Apple LaserWriter 810 printers, you would have two instances of the "Apple LaserWriter 810" driver in your "Printers" folder, each one configured to output to a different network printer. By default, Windows 95 uses the name of the printer driver with "(Copy 2)", "(Copy 3)", etc. appended to the name for additional instances of the printer driver, but you can change the name associated with each instance to be a more descriptive name (a good strategy would be to make the printer driver name match the AppleTalk network name of the printer it's configured to output to).

Changing current printer

To change the selected printer for a single print job, select "Print" from the "File" menu. In the Print

dialog box, click on the down arrow next to the name of the currently selected printer.



Print Dialog

You should see a pop-up list of the print drivers that are currently configured on your computer. Select the driver that is configured for the printer you want to use. If the printer driver is the correct one, you should see the AppleTalk name of the printer in the "Where" section of the print dialog box, such as:

```
Where: \\LW Amateur@VaporNet\LaserWriter
```

If this field doesn't show the correct printer name, select the correct printer driver. If none of the printer drivers currently configured on your computer are set to print to the printer you want to use, click "Cancel" and follow the instructions above for configuring your printer drivers.

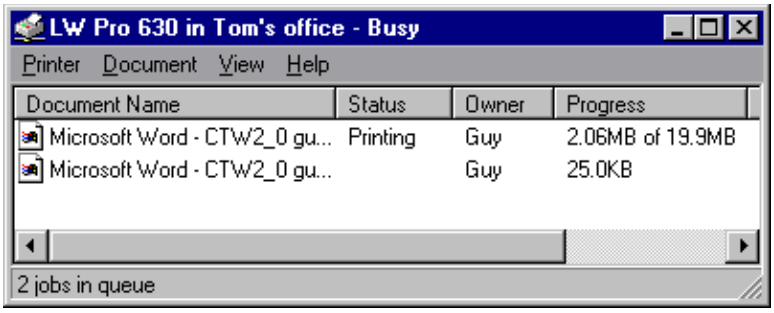
Changing default printer

If you want to set up a particular printer as your default printer (so that all print jobs go to it unless

you specify otherwise), click the “Start” button in the Taskbar, select “Settings”, then “Printers”. In the Printers folder, locate the instance of the printer driver that you want to make the default. Click on the icon with your right mouse button and select “Set As Default” from the pop-up menu.

Printer Status

PAP provides for a Printer Status to be received from the printer by COPSTalk. This is different than the Status in the Printers Window. PAP Status is displayed in the printers title bar (e.g. LW Pro 630 in Tom’s office - Busy).



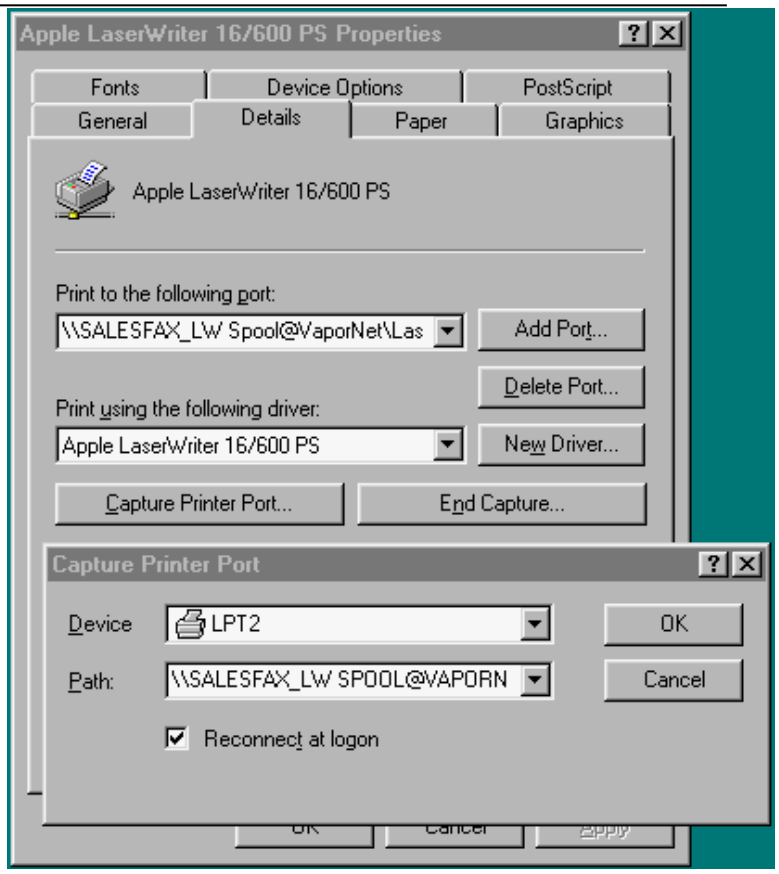
Printer Window

In the example above, the PAP status is “Busy”. Messages include, Busy, Idle, Waiting, PrinterError, Paper out, etc.

The Status in the lower part of the window is the print process status such as Printing, Spooling, Off-Line, etc.

Capturing a printer port

In order to print from certain older DOS- and Windows 3.1-based applications, you may need to “capture” a network printer and associate it with a virtual printer port (LPT1, LPT2, LPT3, etc.). To do



this, first configure the printer you want to capture as described above. Next, open the Property Sheet for the printer by right-mouse-clicking on the icon for the printer in the Network Neighborhood zone window and selecting “Properties” from the context menu, or by selecting Start Menu → Settings → Printers, then right-mouse-clicking on the icon for the printer and selecting “Properties” from the context menu. Then click on the “Details” tab, and click the “Capture Printer Port” button. In the “Capture Printer Port” dialog box, select the port you want to capture from the “Device” pop-up menu, then select the printer from the “Path” pop-

up menu. If you want this capture to be re-established each time you start your computer, click the “Reconnect at logon” check box.

There is no guarantee that this mechanism will work for all applications. Some older programs have special printing requirements or make assumptions about the printer ports that are not valid with a captured network printer.

Cross-platform Issues

User authentication

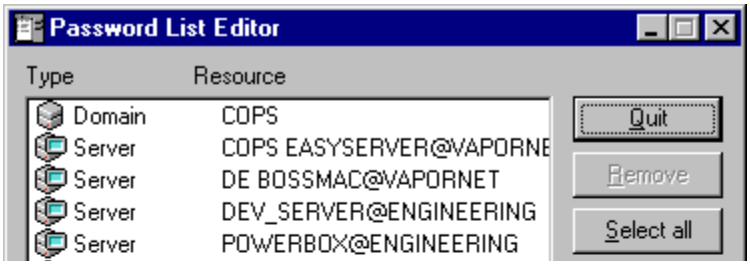
User-level access control allows the user to log on once with one user name and one password to gain access to multiple servers. Share-level access control requires the user to provide a name and password each time the user attempts to connect to a server. Macintosh networking convention mandates share-level access.

Each time you attempt to log on to a Macintosh acting as a file server, you will be prompted to provide a user name and a password. If the Macintosh has guest access enabled, you can log on as a guest, but you will still see a user name and password prompt each time you log on.

Windows 95 networking convention, on the other hand, expects that there will be a single user name for all network resources (though the passwords for each may be different). PC users who are accustomed to the user-level networking features of Windows 95 and Windows NT may be frustrated by having to remember distinct user names and passwords for each Macintosh server. For this reason, we encourage network administrators to configure their Macintoshes with the end user's convenience in mind. In many environments, security considerations preclude the administrator from offering guest access to all of the networked Macintoshes. However, if the administrator takes advantage of the Users and Groups control panel on the Macintosh side, each PC user need only remember one unique user name and password, even if he must use it for each logon.

Password editor

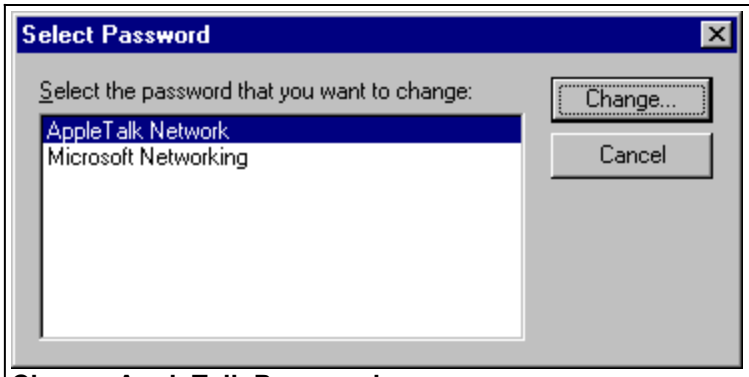
Microsoft provides a Password editor (PWLEDIT.EXE, located on the Windows 95 CD-ROM in the \ADMIN\APPTOOLS\PWLEDIT subdirectory) which you may use to delete logon sets.



Microsoft Password Editor

You may not view or change passwords using the Password Editor.

If you wish to change your AppleTalk or Microsoft password, you need to use the Password Control Panel, and click on “Change Other Passwords”.



Change AppleTalk Password

A Brief Tour of AFP & Macintosh details

COPSTalk connects to AFP (AppleShare type) Servers. For a complete overview of AFP servers see your network administrator.

Servers

A server is a computer or other device that provides access to files and services from clients on a network. Servers may be dedicated devices or software running in a workstation allowing sharing of its files.

Volumes

A server may publish its files as one or more volumes; normally, the entire disk is a volume.

Users and Groups

Users are those allowed to use a particular server, they are assigned passwords and rights (privileges) to files, folders/directories and volumes. Users may be placed into groups and privileges may be assigned to the group.

Files, Folders and Directories

Different platforms use various terms for the file structure. The two most common are Macintosh with its folders and DOS/Windows with directories. For all practical purposes, they are the same.

Access Privileges

AFP provides for many levels of access privileges. For instance, you have privileges to view the contents of a directory/folder, but not read or write files. You may be able to write to a directory/folder but not see its contents. These privileges are

established by the owner or administrator of the folder or directory.

AFP servers may be configured to limit certain file/folder activity. Normally you have complete access to all folders. The table below lists the possibilities.

- See all files and folders and make changes.
- See all files and folders and NO changes.
- See folders only and make changes.
- See folders only and NO changes.
- See files only and make changes.
- See files only and NO changes.
- Make changes only.
- No privileges.

File/Folder Info

There may be additional information including comments associated with a file; COPSTalk will display this information.

Type & Creator

The Macintosh uses type and creator codes to identify the type of data in a file and to associate a file with a particular application. This is analogous to the extension of a DOS/Windows file, where these two functions are combined.

Resource/data forks

Macintosh computers use their own unique scheme for managing the information in a file. Macintosh files contain two components, a data fork and a resource fork. The data fork contains information about the file that both Macs and PCs can access, information about the actual contents of the file. The resource fork contains information that is only

usable for a Macintosh; this includes application code, icons, dialog boxes, menus, etc. When a Macintosh file is copied to your PC through COPSTalk or any other method, the information in the resource fork is lost.

Fortunately, losing the information in the resource fork does not prevent the PC user from accessing the contents of most files. In fact, to facilitate cross-platform use, many common applications (QuarkXPress, for example) do not store any information in the resource fork. There are, however, some cases where the differing filing conventions of PCs and Macintoshes mean that you cannot access crucial information.

One example is the composition of a Macintosh font – all of the font data is contained in the resource fork, and there is no data fork. Macintosh applications, control panels, extensions, desk accessories, etc. are also composed mostly or entirely of information in the resource fork, there is little or no information in the data fork. This is evident when you copy a large Mac file to your PC and it is listed with Zero bytes or less than indicated on the Mac. These types of files cannot be copied to the PC and back to the Mac without losing critical information.

DO NOT ATTEMPT TO STORE MAC APPLICATIONS or FONTS ON YOUR PC.

In practical terms, you can copy any file from an AFP server, usually a Mac, and use it – applications permitting – in Windows or DOS. Many applications provide transparent file conversions; popular

programs such as Microsoft Excel and Word, Adobe PageMaker, Adobe Illustrator, QuarkXPress, Claris FileMaker, Word Perfect for DOS, Windows and Macintosh, etc. provide automatic file conversions.

COPSTalk automatically maps PC extensions to Mac type and creator codes so that when you copy a file from the PC to the Mac the type and creator codes are set appropriately.

Path length

The maximum length for a filename in the Mac OS is 31 characters. However, under the Mac OS, files may be stored inside folders that are nested inside other folders, to a theoretically infinite depth.

The maximum length for a filename in Windows 95 is 255 characters, but this is also the maximum length for the full file path name, including the names of the directories that enclose the file.

There are only two situations where the length of a file name may cause problems when using COPSTalk.

1. When attempting to copy a Windows 95 file to the Mac whose name exceeds the 31 character limit for Macintosh file names, you will be told to rename the file.

2. In the case of a Macintosh directory structure being copied to a Windows 95 computer that would result in a path name that exceeds the 255 character limit on path names under Windows 95, an error message will result.

Character sets

While the range of legal characters in a file names on both platforms is quite large, there are differences in the mapping of ASCII values to printable characters between the platforms.

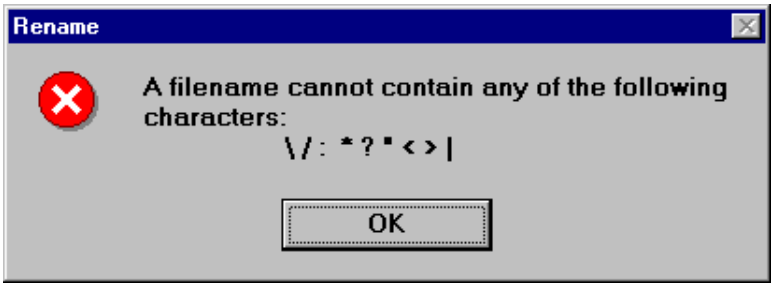
A common instance is the bullet character on the Mac (“•”), which is fairly popular for use in file names, and is created by typing option-8 on the Mac. This character is displayed differently by Windows 95.

From the point of view of each operating system, the file names are identical. The names are merely being *displayed* differently because of differences in the character sets across the platforms. When there is an apparent difference in file names as a result of a difference in the character sets on the two machines, no change is made to the file name when it is copied in either direction.

COPSTalk includes comprehensive mapping between the differing character sets. In most cases, this allows the PC user and the Macintosh user to see files and folders by the same name. You can enable full character mapping on the Advanced Properties page of the Client for AppleTalk Networks in the Network control panel. If you've upgraded from COPSTalk 2.10 or earlier, you'll need to remove and re-add the Client for AppleTalk Networks to see the Advanced Properties. *(Note: Using this setting may compromise compatibility with DOS window operations and with applications that use DOS-style file system calls.)* Note that there are some characters that are unique to either the Windows or Mac character sets; these characters will still display differently.

Name truncation and modification

Both the Macintosh and Windows 95 reserve certain characters for system functions and do not allow these characters to be used in file names. On the Mac, for instance, the colon (":") cannot be used, since it is used internally in specifying file paths as a delimiter between folder names. A larger range of characters is reserved on the PC: the characters "\/:*?"<>|" cannot be used in file names.



Illegal Characters warning

The AFP client software in COPSTalk makes every effort to maintain file names across both platforms, and in general the names will be preserved when browsing and copying. However, the limitations imposed by each platform do have a number of implications for viewing and copying files between Windows 95 and the Mac. For instance, Mac users are accustomed to being able to use slashes in file names, which are of course still illegal in Windows file names, even under Windows 95.

Mac to Windows 95

When you attempt to copy a file from a Mac or other AFP server to the PC that contains a character in its name that is invalid for use in a DOS/Windows file name, COPSTalk relies on the server to provide a

version of the file name that is valid for DOS/Windows.

All AFP-compliant servers provide a mechanism for supplying truncated file names to clients that cannot use the Macintosh file naming conventions. Generally, the AFP server provides a name that is a shortened version of the name, with a unique character at the beginning to indicate that the name has been truncated, and any characters that are not legal on the client machine removed or converted to other characters.

The exact algorithm for truncating names and removing illegal characters is, however, up to the designers of the AFP server, and some do a better job than others of providing short names that bear some relationship to the original name.

Windows 95 to Mac

If you try to copy a file from a Windows 95 machine to an AFP server and the name contains a character that isn't valid for a Macintosh file name, the Windows 95 MS-DOS short file name will be used to create the file on the server.

COPSTalk Utility

COPSTalk includes an application called the COPSTalk Utility that allows you to download PostScript files to your printers, change your PC's default AppleTalk zone, and obtain information about your AppleTalk network. The functions of each menu item in the COPSTalk utilities are detailed below. The utility can be launched via the Start menu or by double-clicking on the COPSTalk Utility program in your COPS directory.

File menu

Download...

This menu item allows you to download a PostScript file or multiple files from your PC to a PostScript printer. To download a file, select this item, then locate the file you want to download. Highlight it and click "OK".

Multiple files are selected using the Shift and/or Ctrl keys.

To change the destination printer, use the "Choose" item in the "Printer" menu.

Print

The "Print" menu item prints the contents of the COPSTalk Utility network lookup window.

Printer menu

Choose...

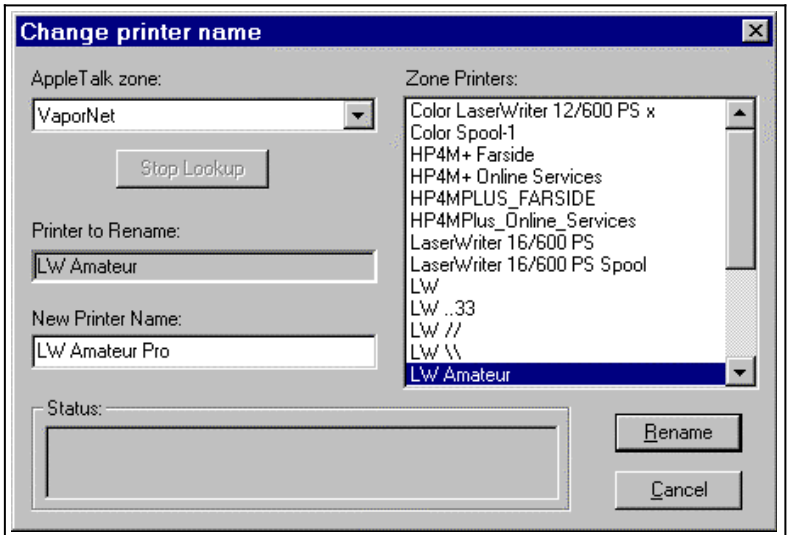
The "Choose" menu item allows you to specify which printer to send data to using the "Download" command in the "File" menu.

Status…

The “Status” menu item presents a dialog allowing you to specify which printer you want to check, then displays the current status message returned from the selected printer.

Change name…

The “Change name” menu item allows you to change the name published by the printer on the AppleTalk network. The method used should work with nearly all PostScript printers. There is a chance, however, that it won’t work with certain devices, particularly software RIPs for high-end output devices.



Rename Dialog

Use this option with discretion – the change you make will affect **all** users on your network. Rules to remember:

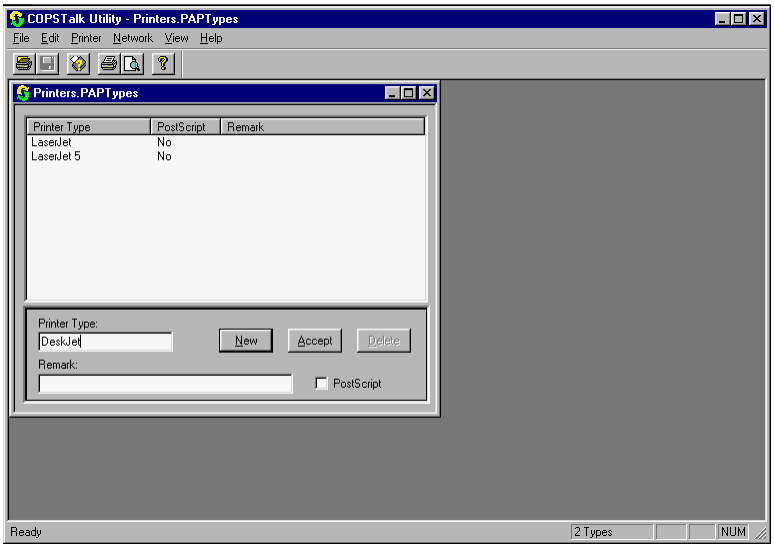
The AppleTalk name for the printer can consist of any 31 or fewer characters; the colon (“:”), at-sign (“@”), equal sign (“=”), and asterisk (“*”) are not legal for use in AppleTalk device names.

Printer Type Entry…

This option allows you to tell COPSTalk about additional types of printers on your network that support AppleTalk. To use this item, you should first determine the AppleTalk device type of the printer you wish to use by using the “Lookup” item from the COPSTalk Utility “Network” menu to find the printer. Make careful note of the text in the “Type:” column next to the printer name. Then, follow these steps:

✔From the “Printers” menu in the COPSTalk Utility, select the “Printer Type Entry” item.

✔In the dialog box that appears, click on the “New” button, then enter the device type of the printer you wish to use *exactly* as it appeared in the Network Lookup window. If you wish to enter a comment to help you identify the printer type, you can do so in the “Remark” field. Leave the “PostScript” checkbox *unchecked* unless you are absolutely certain you should check it.



✔Click on the “Accept” button to confirm then entry, then click the close box in the upper right corner of the dialog box. Answer “Yes” when prompted to save changes.

All printers on your network of the type you entered should now be available when you browse using the Network Neighborhood or the “Browse…” button in the Add Printer Wizard.

Network menu

Information

The “Information” menu item presents a tab dialog with two tabs: “General” and “Adapter”.

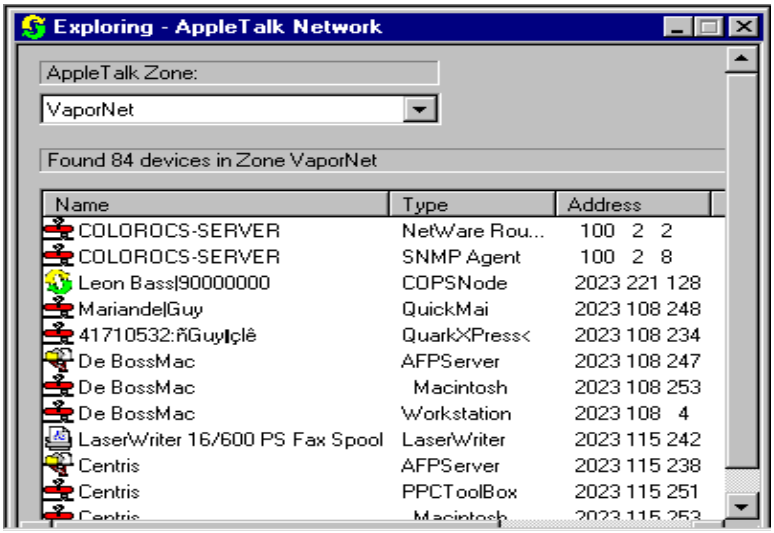
General

The “General” tab contains information about the current AppleTalk network identity of your computer—its AppleTalk network and node numbers, and its current default local zone.

Network & node numbers

Devices on an AppleTalk network use an addressing scheme that allows the devices to automatically configure themselves at startup. The AppleTalk address of a device consists of three parts: a network number, a node number, and a socket number.

The network number is analogous to the street name part of a postal address; many devices may share a single network number. The node number is analogous to the building number part of a postal address; each computer on AppleTalk has a single node number, which must be unique among all the computers that share the same network number. Finally, the socket number is analogous to an apartment or suite number; it uniquely identifies a particular service or entity within the computer. COPSTalk only displays the network and node numbers, since there may be any number of sockets in use on the computer at any given time, and their socket numbers may change depending on the order in which they are created.

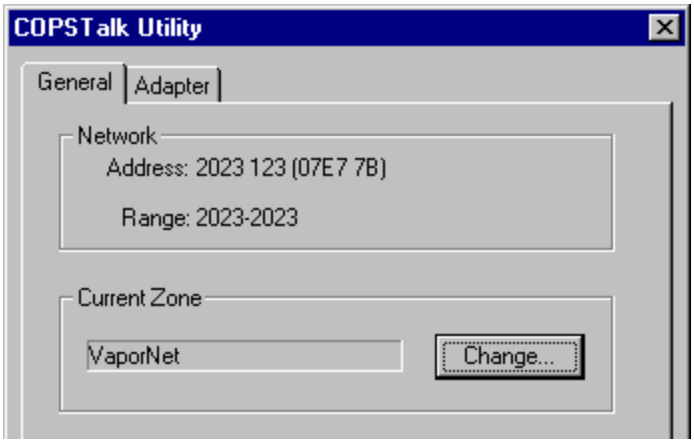


Exploring the Network with the COPSTalk Utility

The COPSTalk Utility displays the network number first, followed by the node number and socket. This information cannot be modified; the AppleTalk address is dynamically determined at startup.

Current Zone

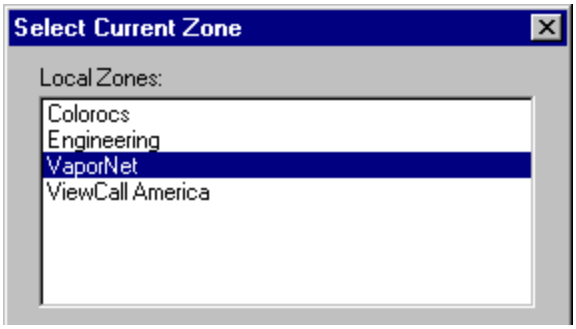
On an AppleTalk network with multiple zones, it may be useful to specify which zone your computer should appear in.



Workstation Info

The “Current Zone” item of the “General” tab shows you which zone your computer is currently in, and provides a “Change” button that allows you to change this setting.

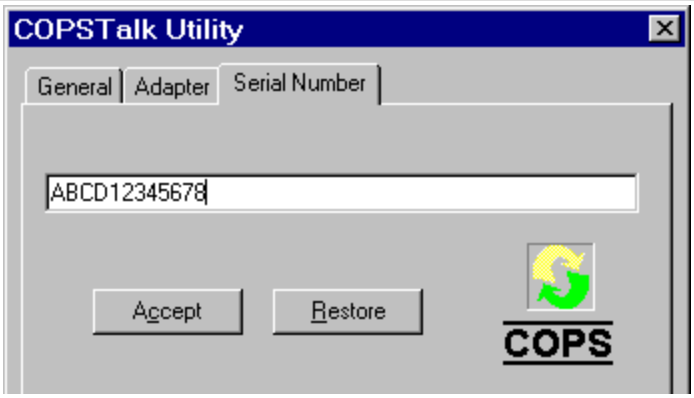
Only zones that are “local” zones can be selected as the zone for your computer. A “local” zone is one that is controlled by a router on the same physical network as your computer. You cannot, for instance, assign your computer to a zone that is controlled by a router at a remote site. If you believe you should be able to assign your computer to a particular zone, but it does not show up in the list of zones available when you click on the “Change” button, contact your network administrator.



Selecting Default Phase 2 Zone

Change Serial Number

If you are converting from an evaluation version or from a previous number, enter the new number here.



COPSTalk serial number editor

Adapter

The “Adapter” displays the hardware address of the network adapter in use by AppleTalk services on your PC. This information may be useful for network administrators in troubleshooting problems on your network.

Lookup

The “Lookup” menu item allows you to view a list of all network entities in the AppleTalk zone you specify. To change the sorting of the items in the list, simply click on the heading of the column you want the list sorted by.

Print

Allows you to print the list of items in the network lookup window.

Help menu

About COPSTalk Utility

Displays the About COPSTalk Utility splash screen.

Help Topics

Displays the list of the COPSTalk Utility help topics.

Help on Help

Opens the Windows 95 Help system with information on how to use the help system.

Extension Mapping Utility

COPSTalk ships with a pre-built table of common extension/type-creator code mappings, as well as a utility called Extension Mapping for modifying and adding additional mappings. The active extension mapping file is always called EXTMAP.AFPMAP, and is located in the program directory you specified for COPSTalk during the installation process (C:\ Program Files\COPS\COPSTalk by default).

Under Windows 95, the extension provides two key pieces of information: the application that created the file, and type of data contained in the file. Microsoft Excel, for example, has several extensions associated with it, each of which begins with “XL”: “.XLS” for an Excel spreadsheet, “.XLW” for an Excel workbook, “.XLA” for an Excel add-in, and so forth.

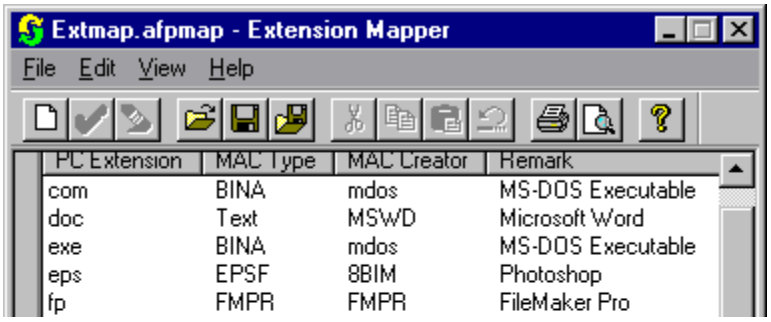
On the Macintosh, every file has a record in a database that contains information about the file, including 4 four-character type and creator codes. These codes are not ordinarily visible, but there are a number of utility programs that allow you to view and edit these codes. The two codes perform the same two functions as the extensions under Windows 95; the type code identifies the type of data in the file, and the creator code identifies the application that created it.

For example, FileMaker Pro 3 has both Macintosh and Windows versions; databases created by the Windows version use the “.FP3” extension, whereas databases created by the Mac version have a type code of “FMPR” and a creator code of “FMPR”.

Below is a short list of sample mappings; note that Excel has several types, yet all have the same creator.

PC Extension	Mac type code	Mac creator code	Comment
Com	BINA	mdos	MS-DOS Executable
exe	BINA	mdos	MS-DOS Executable
eps	EPSF	8BIM	Photoshop
pm3	ALB3	ALD3	PageMaker 3.0
pm4	ALB4	ALD4	PageMaker 4.0
pcd	PCDI	PCDv	Kodak Photo CD
doc	TEXT	MSWD	Text, Microsoft Word
rtf	TEXT	MSWD	Rich Text Format, Microsoft Word
txt	TEXT	ttxt	SimpleText Document
tif	TIFF	8BIM	Tagged Image File Format, Photoshop
qxd	XDOC	XPRS	QuarkXPress
xlc	XLC	XCEL	Microsoft Excel Chart
xlm	XLM	XCEL	Microsoft Excel Macros
xls	XLS	XCEL	Microsoft Excel Spreadsheet
xlw	XLW	XCEL	Microsoft Excel Workbook

The Extension Mapping main window consists of the menu bar, an optional toolbar area, the table of extension mappings, an edit area, and an optional status bar area. The toolbar items correspond to various menu items – to find out what a toolbar item does, position your cursor over the button and leave it there for a second or two. The name of the toolbar item will appear superimposed on the button. The status bar area is similar to the status bar in other Windows 95 applications. The status bar shows the current status, the total number of items in the extension mapping list, whether the list has been modified since the last save, and whether the CAPS LOCK and NUM LOCK are active.



COPSTalk Extension Mapping Utility

File menu

Revert

The "Revert" menu item reloads the EXTMAP.AFPMAP file from disk, abandoning all changes since the file was last saved.

Save

The "Save" menu item saves the extension mapping file being edited.

Save As…

The "Save As" menu item saves the current extension mapping file and provides you with the opportunity to specify a new file name or location for the file.

Merge…

The "Merge" menu item reads an extension mapping file that you specify and adds the contents of the file to the current extension mapping file. If the same extension occurs in both the current file and the file being merged, the Extension Mapping utility will ask whether you want to replace all duplicates with the mappings specified in the file being merged, or whether you want to merge only

unique entries, ignoring any duplicates in the file being merged, or whether you want to confirm each duplicate entry.

Print

Allows you to print the current extension mapping file.

Print Preview

Displays the contents of the current extension mapping file as they will appear when printed.

Print Setup…

Allows you to view and change the print layout and options to be used when printing the extension mapping file.

Exit

Closes the current extension mapping file and exits from the Extension Mapping application.

Edit menu

The Edit menu contains the standard Windows 95 Edit menu items (Undo, Cut, Copy, Paste, and Clear), as well as three additional items: New Entry, Accept, and Delete.

New entry

The “New entry” menu item creates a new extension mapping entry.

Accept

Adds the extension mapping item being edited (the one in the edit area at the bottom of the application window) to the extension mapping table.

Delete

Removes the extension mapping item being edited from the extension mapping table.

View menu

Toolbar

Hides or displays the toolbar area of the application window.

Status bar

Hides or displays the status bar area of the application window.

Help menu

Help contents

Displays the contents of the Extension Mapping Help file.

About Extension Mapping

Displays the About Extension Mapping splash screen.

HPFIX Utility

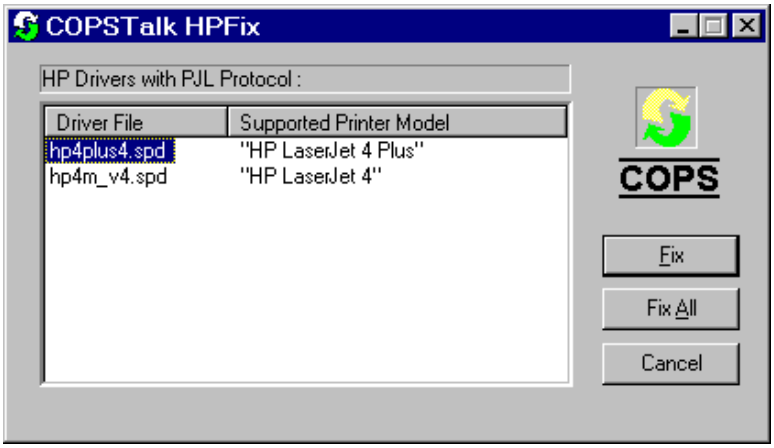
Certain Hewlett-Packard printer drivers for Windows 95 are configured in such a way that they are unable to successfully print to PostScript printers over AppleTalk. The problem is that the drivers use commands in Hewlett-Packard's PJL language to configure the printer for PostScript printing, but the printers do not recognize anything other than PostScript when the data is being received via AppleTalk. The result is a PostScript error when the printer receives the PJL commands. This may also occur with printer drivers from other manufacturers who have based their printers and drivers on Hewlett-Packard's.

In order to allow COPSTalk users to work around this problem, COPS has developed a utility program called HPFIX.EXE. This utility modifies the Simplified Printer Description (SPD) files for the affected printers to prevent the driver from using PJL commands. This should not result in any loss of functionality in the printer and should not affect print quality or speed in any way. This change to the SPD file is, of course, not supported by Hewlett-Packard. COPS offers this option to its users to be implemented at their discretion, and COPS cannot be responsible for any unintended or unforeseen consequences. If you prefer not to implement this option, you may be able to successfully print to your Hewlett-Packard printer via COPSTalk by using a printer driver for a different manufacturer and model of PostScript printer, but you may not be able to use all of the features of your printer.

You should use HPFIX.EXE if you have tried printing through COPSTalk to a newer HP printer and receive PostScript errors with "undefined" as the

offending command, even with the print driver set to not send Control-D characters before or after jobs.

To run HPFIX, open the directory that contains the COPSTalk program files (usually C:\Program Files\COPS\COPSTalk), then double-click on the icon for HPFIX.EXE. The program will start up and will search your system for Hewlett-Packard SPD files that use PJL commands.



HP Fix driver list

Any such SPD files that are found will be displayed in a list box, with the full model name of the printer and the SPD file name. If no applicable SPD files are found, no entries will be displayed. You may select individual files to modify by clicking on the line that contains the printer name. You may also select multiple contiguous lines by holding down the Shift key and clicking each line, or non-contiguous lines by holding down the Control key and clicking each line. You should only select the lines that correspond to printers you'll be printing to via COPSTalk; for any printers that are directly

connected to your PC, or that you're printing to via other network protocols, you should not modify the file. If you have more than one instance of the same printer model, one or more connected via AppleTalk and one or more via other communication methods, you will need to make this modification in order to print successfully via AppleTalk.

Once you've selected the SPD files you wish to modify, click on the "Fix" button to perform the change. (Clicking the "Fix All" button will change all available SPD files, whether they're selected in the list box or not.) The HPFIX utility will make backup copies of all of the affected files, saving them with a ".SPDX" extension, and will then modify the SPD files. Click "Exit" to quit from HPFIX.

Appendices

A. What Setup did to your system

Setup copied files to various locations and created Registry entries.

No changes are made to AUTOEXEC.BAT, CONFIG.SYS, WIN.INI, SYSTEM.INI, PROTOCOL.INI or any other system file or INI file by the Installer.

Files List

COPSTalk Setup copied several files to different locations as follows:

✔To the Windows System Directory

- ✔ COPSTalk VXDs & DLLs

  ATKIFS. VXD
  ATALK32.DLL
  ATKN31.VXD
  ATKNP32.DLL
  ATKPP32.DLL

- ✔ Microsoft Foundation Class files

  MFC40.DLL
  MSVCRT40.DLL

✔To the Windows INF Directory

Netctw.inf
Netctwt.inf

✔To the Windows Temp Directory (all are removed)

INSUTILS.DLL
WRENAME.DLL
INSTALL.LOG
RELEASE.TXT
Sounds used during setup

✔To the COPS/COPSTalk Directory (or your designated location)

- ✔ COPS Applications & Help

  COPSUTIL.EXE
  EXTMAP.EXE
  ASIPHE.EXE
  EXTMAP.AFPMAP
  CPXAU20.DLL
  COPSTALK2.HLP
  COPSTALK2.CNT

RELEASE.TXT
UNCOPS.EXE
INSTALL.LOG
COPSWEB.HTM

☞ **If you wish to remove COPSTalk and if you have installed programs after COPSTalk requiring the Microsoft Foundation Class Libraries version 4.0+, you should select Custom Uninstall and be sure to not remove the MFC files MFC40.DLL and MSCVRT.DLL.**

Registry entries

Entries were made by the Setup program and by the Windows Network Control Panel. These are too numerous to detail here; however, the Uninstaller (UNCOPS.EXE) will remove all entries made by Setup and deleting AppleTalk Protocol from the Network Control Panel will remove all entries made during configuration. Entries made by using COPSTalk such as Password Entries, recent servers and printers shall remain in the Registry.

B. Troubleshooting

Installation & Setup

I can't see any devices on the AppleTalk network…

Do you see AppleTalk zones in the Network Neighborhood browser?

Double-click the Network Neighborhood icon on the desktop. Double-click on the Entire Network icon. Do the AppleTalk zones on your network appear in the Entire Network window? If there are no zones on your network, does an icon labeled "Isolated AppleTalk Network" appear?

Yes, I see zones or an icon labeled Isolated AppleTalk Network

Double click on the zone that contains the devices you want to connect to, or on the Isolated AppleTalk Network icon.

No, I don't see any zones, and there's no icon labeled Isolated AppleTalk Network.

Make sure that the COPSTalk 2.5 software has been installed, and that the AppleTalk components have been added through the Network Control Panel.

Do you see AppleTalk devices on the network?

Double click on the zone that contains the devices you want to connect to, or on the Isolated AppleTalk Network icon.

Yes, I see AppleTalk devices within the zone I selected, or in the Isolated AppleTalk Network window.

COPSTalk is functioning correctly. If you do not see the device you're trying to locate, check that you're looking in the correct zone, and that the device is turned on and is connected to the network.

No, I don't see any devices in the Isolated AppleTalk Network window, and there are no AppleTalk zones listed in the Entire Network window.

Open the Network Control Panel and make sure that the AppleTalk Protocol and Client for AppleTalk Networks (COPSTalk) are installed.

Are the AppleTalk Protocol and Client for AppleTalk Networks (COPSTalk) installed?

Click on the Start button in the Taskbar and select Settings, then select Control Panel. Double-click on the Network Control Panel. Does the list of installed network components include the AppleTalk Protocol and the Client for AppleTalk Networks (COPSTalk)?

Yes, the AppleTalk Protocol and Client for AppleTalk Networks (COPSTalk) are installed

Check that the AppleTalk Protocol is bound to the correct network adapter.

No, the AppleTalk Protocol, the Client for AppleTalk Networks, or both, are not installed.

Install the Client for AppleTalk Networks (COPSTalk). This will automatically install the AppleTalk Protocol as well. Restart your computer and try looking in the Network Neighborhood again.

Is the AppleTalk Protocol bound to the correct network adapter?

In the Network Control Panel, determine whether there is more than one network adapter installed. Each network adapter that is installed will have an icon representing a network card to the left of its name. If there is more than one network adapter installed, its possible that COPSTalk is bound to the incorrect adapter. This is likely to be the problem if one of the network adapters you have installed is

Microsoft's Dial-Up Adapter driver for running the Microsoft Network or Internet client software over a dial-up connection through your modem. The AppleTalk Protocol should be bound to the network adapter that is physically connected to the rest of the network at your site; it is not designed to work with the Dial-Up adapter.

Click on the driver name for the adapter you want to bind AppleTalk to. Click on the Properties button, then click on the Bindings tab if it is not already displayed. You should see the AppleTalk Protocol listed among the protocols that are bound to the adapter.

Yes, the AppleTalk Protocol is bound to the correct adapter.

If there are other network protocols installed on your computer and bound to the adapter you want to use with COPSTalk, determine whether those protocols are functioning correctly. An easy way to do this is to check whether any other devices show up in any of the Network Neighborhood browser windows.

No, the AppleTalk Protocol isn't bound to the correct adapter.

Determine which adapter the AppleTalk Protocol is bound to by highlighting the driver name for each of the other adapters and clicking the Properties button, then clicking the Bindings tab if it is not already displayed.

Once you determine which adapter the AppleTalk Protocol is bound to, un-bind it by un-checking the check box next to AppleTalk Protocol in the Bindings property sheet for the adapter. Click OK to close the property sheet for the incorrect adapter, then click on the name for the adapter you want to

bind AppleTalk to and click the Properties button. Click on the Bindings tab. You should now see the AppleTalk Protocol, with an un-checked check box next to it. Click on the check box to bind the AppleTalk Protocol to the adapter, then click OK to close the property sheet and click OK to close the Network Control Panel. Restart your computer and try looking in the Network Neighborhood again.

Are other network protocols functioning?

If you have installed other Windows 95 networking components, determine whether they're functioning correctly. Open the Network Neighborhood window by double-clicking the Network Neighborhood icon on the desktop. Do you see any workgroup, domain, or computer icons in the Network Neighborhood window?

Yes, the other network protocols appear to be functioning.

Open the Network control panel and remove the AppleTalk Protocol (this should remove the Client for AppleTalk Networks as well). Close the Network control panel and answer "No" when Windows 95 prompts you to restart. Open the Add/Remove Programs control panel, select "COPSTalk", and click "Remove". Restart your computer and run the COPSTalk SETUP.EXE program again. If you still cannot see other devices, contact COPS Technical Support.

No, the other network protocols don't seem to be working either.

Check whether your computer is correctly connected to the network (see next question). If so, check for resource conflicts with your network adapter. Open the System control panel, select the "Device Manager" tab, click on the "Network

Adapter" branch to open it, and check the icon for your network adapter: is there a question mark or exclamation point icon over it? If so, it's likely that there's a resource conflict between your network adapter and another device in your computer, or that the driver for the adapter is not correctly installed. You can use the System control panel to change settings for most Plug & Play devices; non-Plug & Play devices may require you to change jumper or switch settings, or to use a utility program, to change the settings on the device. Once you've resolved any conflicts, restart your computer and try the AppleTalk network again.

If the problem persists, remove all installed network components from the Network control panel, reinstall the driver for your network adapter, reinstall COPSTalk, and try again. If this also fails, contact COPS Tech Support.

Is your computer correctly connected to the network?

First, determine whether your computer is connected to an Ethernet or LocalTalk network. If it is Ethernet, determine whether you're using coaxial cable (also known as thinnet or 10BASE-2) or unshielded twisted-pair wiring (also known as 10BASE-T).

For coaxial (10BASE-2) networks, each workstation should be connected to a BNC T-connector, which in turn should be connected to two cables (one on either side of the T-connector) or to one cable and a terminator plug. **You cannot plug the coaxial cable directly into the BNC connector on your network adapter** – you must use a T-connector.

For twisted-pair (10BASE-T) cable, the RJ-45 plug on the cable should be plugged directly into the RJ-

45 jack on your network adapter. The other end of the cable connects to a hub; generally, there can be only one device connected to each port on the hub. Most 10BASE-T adapters have indicator lights that signal whether the link between the adapter and the hub is intact and functioning correctly. Check the documentation for your adapter to determine the function of each of the lights. If your adapter has a link status indicator light, but it does not come on when the computer is powered on an the network cable is plugged in to the adapter, the cable is bad or is not correctly connected to the hub. Some cards also indicated reversed polarity in the cable by causing the link status light to flash – in this case you'll need to replace the cable with one that is correctly wired.

There is one instance where a hub is not required for use with a 10BASE-T network: when there are only two devices being connected, and a specially made crossover cable is used. In this instance, the cable is plugged directly into the network adapter on each computer. This will not work with a standard 10BASE-T patch cable – you must use a crossover cable that has the send and receive pairs reversed from their standard configuration. Such cables are usually available from network supply vendors – you should be very explicit in explaining what you need.

For LocalTalk networks, a LocalTalk connector plugs into the network adapter, with standard telephone wire plugged into an RJ-11 jack on the connector. Most LocalTalk connectors have two RJ-11 jacks, allowing devices to be daisy-chained together. If a device is at the end of the chain, the second jack is occupied by a terminating resistor plug. A few LocalTalk connectors have lights that

indicate the presence of a signal on the wire; most do not.

Yes, my computer is connected to the network.

Check whether the other devices on your AppleTalk network are powered on and correctly connected to the network. If there are Macintosh computers on your network, or other PCs that are running COPSTalk, determine whether they can see and communicate with other devices.

No, my computer is not connected to the network.

Connect the computer to the network and try again. If you are still unable to communicate with other devices, check that the other devices are powered on and correctly connected to the network.

Are the other devices on your AppleTalk network powered on and connected to the network?

Yes, the other devices are on and connected.

Contact COPS Tech Support.

No, the other devices are not on and connected.

Power on or connect the other devices, and try again. If you're still unable to communicate with other devices, contact COPS Tech Support.

I can see some devices, but not a particular device I want to use.

Is the device powered on and connected to the network?

Yes, the device is on and connected.

Check whether the device is visible in a different zone on your network.

No, the device is not on or is not connected.

Power on or connect the device, and try again. If you still can't see the device, try looking in the other zones on your network.

Is the device visible in a different zone?

Double-click the icons in the Entire Network window for the other zones on your network to see whether the device is located in a different zone. If there are no zones or only one zone on your network, check whether the device is visible from other workstations on the network.

Yes, the device is visible in a different zone.

Select the device and proceed normally. If you believe that the device should be located in a different zone, contact your network administrator.

No, the device is not visible in another zone, or there is only one zone on the network.

Check whether other workstations on the network can see the device.

Can other workstations on the network see the device?

Yes, the other workstations can see the device.

Contact COPS Tech Support. Please be prepared to tell us the type of device you're having a problem with (printer, file server, print server, etc.), the manufacturer and model (for printers), the type of computer (for file and print servers), and the software you're using (for file and print servers).

No, other workstations on the network cannot see the device either.

The problem is likely to be with the device itself. Try restarting it. If that doesn't work, check the

documentation for the device to determine whether it is configured correctly. If it's a Macintosh running File Sharing or the AppleShare File Server (or Print Server), make sure that it's set to communicate on the same type of network as your other devices (i.e., Ethernet or LocalTalk). Double-check the network connection between this device and the rest of the network. If all else fails, contact the manufacturer or your dealer for assistance.

When I start Windows 95, I get an error message indicating that one or more of the items necessary for COPSTalk failed or is missing.

Make a note of the item(s) involved. Check the C:\WINDOWS\SYSTEM directory to determine whether the item is there. If the named item is present in the correct location, try removing and reinstalling COPSTalk. If it continues to fail, contact COPS Tech Support

When I double-click on Entire Network, Windows says "Unable to browse the network".

or

When I launch COPSTalk Utility, I get the message "Can't start ATALK32.DLL".

Both of these error messages indicate that Windows cannot perform even the most basic of network functions. The best approach in this situation is to check for resource conflicts with your network adapter. Open the System control panel, select the "Device Manager" tab, click on the "Network Adapter" branch to open it, and check the icon for your network adapter. Is there a question mark or exclamation point icon over it?

Yes, I see an exclamation point or question mark.

It's likely that there's a resource conflict between your network adapter and another device in your computer, or that the driver is not correctly installed. You can use the System control panel to change settings for most Plug & Play devices. Non-Plug and Play devices may require you to change jumper or switch settings, or to use a utility program, to change the settings on the device. Once you've resolved any conflicts, restart your computer and try connecting to the network again.

No, I don't see an exclamation point or question mark.

You may have a resource conflict that Windows 95 is not detecting. A good approach in this situation is to remove all the installed network components from the Network control panel and reboot, allowing Windows to reinstall the driver for you. You'll then need to restore COPSTalk to the Network control panel.

If you're not using a Plug and Play network adapter, you'll still want to remove and reinstall all the network components from the Network control panel; you'll then need to reinstall the driver manually. If this is the case, make sure that you do not recreate the resource conflict. Run the configuration utility for the network adapter from the adapter's driver diskette. Keep Windows from touching the resources you assign by using the following method. Go to the System control panel, click on the Device Manager tab, double-click on "Computer", then click the Reserve resources tab. From here, you'll be able to specify resource settings that Windows can't use but your non-Plug & Play network adapter can. Don't forget to restore

the Client for AppleTalk Networks to the Network control panel.

Printing

I get a PostScript error when I try to print a job.

Most PostScript errors are the result of problems with the document being printed, or of using an inappropriate printer driver for the printer you're outputting to. COPSTalk simply acts as a conduit for transmitting the data generated by the print driver to the printer – it makes no changes to the data, so there is little or no chance of COPSTalk causing a PostScript error.

There are a couple of steps you can take to minimize certain errors that may result from the fact that most PC print drivers assume that the data is being transmitted via a communication channel other than AppleTalk. One is to configure the print driver not to append a Control-D to the beginning or end of a print job. To change this setting, open the property sheet for the print driver (right-mouse-click on the print driver icon and select "Properties " from the pop-up menu), click on the "PostScript" tab, click the "Advanced" button, and make sure that the options for sending Control-D characters before and after print jobs are unchecked.

You may also want to change the data format for the print driver to "**Pure binary data**"; this will prevent Control-D characters from being sent to the printer, and will also allow print jobs containing binary data (bitmap images, etc.) to be sent to the printer much more efficiently. To make this change, open the PostScript tab of the property sheet for the print driver as described above, click the "Advanced" button, and click the appropriate option.

My jobs print successfully, but they don't look like they're supposed to.

As discussed in the preceding section, there is little or nothing COPSTalk can do to affect the data being transmitted between the printer driver and the printer; COPSTalk simply acts as a conduit. If a print job doesn't appear the way you believe it should, check that you're using the correct printer driver for your manufacturer and model of printer, and that all of the options in the printer driver are set correctly for the output you're trying to obtain. Also, make sure that you've configured the application you're using correctly. If the problems persist, contact your application vendor or printer manufacturer or dealer.

File sharing

When I copied a file, the name changed. What happened?

COPSTalk makes every effort to preserve file names across platforms. However, there are some cases where the file system of the computer you're using imposes constraints on the names of files. When COPSTalk encounters a situation where the name of the file being copied from one platform to another cannot be preserved on the target platform, it creates the file with a valid name for the target platform. In the case of a Macintosh file name that contains characters which are illegal on the PC, the name used is the AFP "short name" provided by the AFP server for DOS systems – i.e., it will be eight characters with a three character extension. If the file is a Windows 95 file being copied to the Mac, and if there are characters used in the Windows 95 name which are invalid on the Mac, the name used will be the Windows 95 MS-DOS file name – again, this will be an 8.3 name. There is one case where COPSTalk is unable to successfully change the

name: when the file is a Windows 95 file name longer than 31 characters, you will be unable to copy the file to the Macintosh unless you first change the name.

I can see a particular server, but I get an error message when I try to log in.

Pay close attention to the text of the error message; does it indicated that the user name or password supplied is invalid, or that there's another type of error? If the message says that the password or user name is incorrect, check with the person responsible for the server to determine whether that user name/password combination is in fact valid for that server. If the server supports guest logins, try connecting as a guest. If you are consistently unable to log in to a particular server, try logging in from a different workstation. If you are unable to log in from other stations on the network, the problem is likely to be with the server. If you can successfully log in from the other workstation, have the administrator of the server create a new account on the server with a different user name and password, and try logging in using that information. If that works, delete the old account you're having problems with and recreate it on the server.

I'm using a Hewlett-Packard printer and I get a PostScript error whenever I try to print using the HP driver for my printer? What's wrong?

The problem you're running into is a result of assumptions HP makes in their print drivers and in the emulation switching logic of their printers that can cause problems when printing via AppleTalk from a PC. Even when you're using a PostScript driver for the printer, the HP PC drivers prepend a

small header in HP's proprietary PJL printer control language that tells the printer to switch to PostScript mode. This is not a problem when printing to the printer via other communication methods. The assumption is, however, that if the data is coming in via AppleTalk, it is going to be pure PostScript – the emulation switching features, and thus the ability to correctly interpret and execute the PJL code, is disabled for the AppleTalk communication port. Hence, the PostScript interpreter in the printer gets the raw PJL code, which it doesn't know how to interpret.

To fix the problem, you simply need to modify the .SPD file for the printer you're using to tell the print driver not to send PJL code. COPS has developed and included with COPSTalk 2 a utility that will make this modification for you called HPFIX.EXE. Simply run this utility, locate the file to modify (the file will usually begin with "HP" and have a ".SPD" extension, and will be located in the \WINDOWS\SYSTEM directory). The utility will remove PJL from the list of protocols that the printer supports, after saving a copy of the original file with a ".SPDX" extension.

You can also make the modification yourself, if you prefer. First make a copy of the original file as a backup, giving it a ".SPDX" extension. Open the SPD file in a text editor, locate the line that begins "*Protocols:", and remove the string "PJL" from the list. Save the file. You should now be able to print successfully.

C. Removing old versions or competitive products

COPSTalk 1.0 through 1.3

COPSTalk 2.5 will not co-exist with earlier versions. You must remove all drivers and programs related to earlier COPSTalk versions before installing COPSTalk 2. The setup program will attempt to locate these products. If any of the following lines exist in the indicated configuration files, comment them out before proceeding. In the examples below, an asterisk ("*") is a wildcard, matching any text string. For example, in the CONFIG.SYS file, you should comment out any device line that ends with a ".DOS" extension.

CONFIG.SYS

```
device=c:\lanman\*.dos
device=c:\cops\copslpt.sys
```

AUTOEXEC.BAT

```
\lanman\cops5et2
\lanman\copset2
\lanman\slow5et2
\lanman\cops5lt
\lanman\copszlt
\cops\copsnode
\cops\copshare
\cops\copslpt
```

The following lines may also occur in your AUTOEXEC.BAT file, and in most circumstances should be commented out as well; they may be used by other programs, however, so you should confirm that they are not needed for other programs before removing them:

```
\windows\net init
\windows\net start
\*\netbind.*
\*\lsl.com
\*\odinsup.com
```

SYSTEM.INI

In the [386Enh] section, you should delete the following line:

```
device=copsvm.386
```

If you have been using COPSTalk 1.2 with Windows for Workgroups or Windows 95, you will probably need to eliminate the [network drivers] section of the SYSTEM.INI file as well. The only exception is if you are using another network protocol or service that requires real-mode drivers. If you aren't sure whether you need to retain the [network drivers] section, try commenting it out; if all of your programs and devices continue to function as expected, you probably don't need the section.

PROTOCOL.INI and WIN.INI

Entries in these files are no longer used with COPSTalk 2. You should not need to remove or comment out anything from either of these files to allow COPSTalk 2 to run correctly, as long as the NET INIT and NET START lines are removed from the AUTOEXEC.BAT file.

Farallon PhoneNET PC or AppleTalk PC

All references to real mode drivers must be removed. Please see your PhoneNET PC documentation for details on un-installing PhoneNET PC.

Miramar

You cannot run Personal MacLAN Connect versions 5.5 or earlier alongside COPSTalk 2.5. Versions newer than 5.51 will co-exist with COPSTalk. Version 6.0+ will not work concurrently with COPSTalk.

D. Using Adobe's PostScript Drivers

You may have a problem setting up AppleTalk printers to use Adobe's PostScript Printer Driver 4.1. This is a result of the fact that Adobe's proprietary setup program for the 4.1 driver doesn't operate in the same manner as Windows 95's Add Printer Wizard. For that reason, we offer a workaround that will allow you to use the Adobe PostScript driver.

The following instructions assume that you have already set up drivers for each of the printers on your AppleTalk network. If you haven't already done that, do it now; simply double-click on the printer's icon in the Network Neighborhood to launch Windows 95's Add Printer Wizard and follow the directions from there.

To use Adobe's driver, you must first obtain a valid PostScript Printer Description (PPD) file for any output device you wish to print to; to obtain the PPD file for your printer, contact the manufacturer or consult Adobe (many PPDs can be found on their Type on Call CD). When installing the Adobe PostScript Driver, you'll be asked whether you are printing to a local or to a network printer -- select local. You'll then be prompted to find the PPD file associated with your printer. After you've done that, you'll need to select the local port you wish to print to; select "FILE: creates a file on disk." When you reach the final screen, you'll say no to the queries about using this driver as the default driver and about printing a test page. Repeat this process for each printer model on your AppleTalk network. When you've installed all the drivers you wish to install, quit Adobe's setup program. Once you've completed this process, you will have installed a

dummy printer driver for each printer model on your network.

Go to the Network Neighborhood and double-click on a printer whose driver you wish to change. When that printer's window appears, select Properties from the Printer menu. From the printer's Properties sheet, click on the Details tab; there will be an area that says "Print using the following driver:". Use the driver that takes the form AdobePSManufacturerModel. Click OK. You can now use the Adobe driver to print from within your applications.

Glossary

Access privileges The privileges established by the owner or administrator of an AFP server specifying whether users can access and/or write to folders and/or files.

Adapter *See* network adapter.

AppleShare Apple Computer's AFP server software.

AFP server Any server using the AppleTalk Filing Protocol. The most common are Apple's AppleShare servers and the built-in Personal File Sharing services of System 7+. Some third-party AFP servers run on platforms other than the Macintosh, e.g., Helios' EtherShare, IPT's UShare, COPS' EasyServer, and others.

AppleTalk Apple Computer's proprietary networking architecture. LocalTalk, EtherTalk, and TokenTalk are subsets of AppleTalk.

Client The role a computer is playing when it accesses the resources on a server. COPSTalk is a client for AppleTalk networks.

Coaxial cable *See* 10BASE-2.

Creator code The four-letter code associated with a Macintosh file that tells the Finder which application should be used to open the file. See also type code.

Data fork One of the two forks that constitute a Macintosh file. The data fork is the part of a Macintosh file that is transferred when you copy a file from an AFP server to your PC. *See also* resource fork.

Directory	The structure in a PC's filing system that can contain files and other directories.
Domain	In Windows NT, a networked set of workstations that are administered as a group. A member of a domain can log onto and access his account from any workstation within the domain.
EtherTalk	The variety of AppleTalk used with Ethernet cabling.
Extension mapping	The process of associating certain DOS file extensions with Macintosh type and creator codes. If a file with a known extension is copied from a PC running COPSTalk to a Macintosh, an appropriate type code and a creator code will be added. When the copied file's icon is double-clicked on the Macintosh, the correct application will launch. The COPSTalk Utility includes a built-in set of common mappings.
File fork	One of the two forks that constitute a Macintosh file, the data fork or the resource fork.
File extension	The part of a DOS filename that follows the period. An example is the .txt associated with text files.
File Sharing	The feature of Macintosh computers (System 7 and later) that allows them to act as a server on a network.
Folder	A structure that contains files and other folders.
Guest	When guest access is enabled, Macintoshes running Personal File Sharing can allow users to connect to a shared volume

	without entering a user name and password.
Hub	A multiport repeater required by 10BASE-T networks.
LAN	Local area network. A structure that supports data and resource sharing among computers located on the same premises.
LocalTalk	The low-speed variety of AppleTalk included with every Macintosh. LocalTalk support will be included in the first upgrade to COPSTalk 2.5.
Network	A group of computers that share a common cabling system.
Network adapter	A hardware device used for connecting a computer to a network.
Network Neighborhood	An icon on the Windows 95 desktop through which one can access networked resources.
NDIS	Network Device Interface Specification. One of the two standards for providing an interface between a network adapter and system software. COPSTalk requires that network cards use NDIS drivers.
ODI	Open Driver Interface. One of the two standards for providing an interface between a network adapter and system software. Often used in Novell NetWare environments.
Owner name	The name assigned to a Macintosh’s owner through the Sharing Setup control panel.
Path	The route through which data must travel to reach a specified resource.
Port	A mechanism allowing a PC to send output to connected

	devices, e.g., a printer port. The port COPSTalk uses for print jobs is a network path to the output device.
PostScript	The language used by computers to communicate with high-quality output devices. Every print job sent to a PostScript printer is a series of instructions (a PostScript file) sent to the printer's PostScript interpreter.
Printer driver	The software that allows an application to generate a PostScript file appropriate for a given printer.
Print Manager	The Windows software that manages print jobs.
Print spooler	A machine running software that allows it to retain print jobs until an output device is ready to print the job.
Protocol	A language used by networked computers to communicate. An example is AppleTalk.
Resource fork	One of the two forks that constitute a Macintosh file. The resource fork contains Macintosh-specific information that is not transferred when a Macintosh file is copied to or from a PC. Macintosh fonts and applications store all their information in the resource fork.
RJ-45	The connector type used when attaching a 10BASE-T cable to a network adapter. Looks like a larger version of a standard phone connector.
Server	A computer whose principal function is to provide access to its resources (e.g., files, applications, fonts).

Service	A network component that can be added through the Windows 95 Network Control Panel. An example is File and Printer Sharing for Microsoft Networks.
Spooler	*See* print spooler.
10BASE-T	Also known as unshielded twisted pair, a type of ethernet cabling. 10BASE-T requires the use of a hub in almost all instances.
10BASE-2	A type of ethernet cabling, also known as thinnet. 10BASE-2 requires the use of terminators.
T-Connector	The T-shaped device that attaches to the locking BNC connector on a 10BASE-2 network adapter.
Terminator	A device at the end of a length of network cabling, necessary for 10BASE-2.
Thinnet	*See* 10BASE-2.
Twisted pair	*See* 10BASE-T.
Type code	The four-letter code associated with Macintosh files that tells an application what task it should expect to perform when opening a file. A type code of TEXT would tell a word processing program to open a file as plain, unformatted text.
Volume	The hard drive or folder that an AFP server publishes on a network.
Workgroup	A collection of computers running Windows NT and/or Windows for Workgroups that are grouped together under a single name for browsing and sharing purposes.
Zone	A named entity consisting of two or more computers. If an

AppleTalk zone is not named, Windows will identify it as “Isolated AppleTalk Network”; the Macintosh will show the zone name as “*”.