

## *Getting Started*

**PC/TCP® OnNet™ 1.1 and PC/TCP® Network Software 3.0 (July 1994)**

Chapter 1 Installing PC/TCP Software

Chapter 2 Configuring PC/TCP Software

Chapter 3 Getting Started with PC/TCP

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PC/TCP® OnNet™ 1.1 and PC/TCP® Network Software 3.0 (July 1994)

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## Chapter 1

### Installing PC/TCP Software

PC/TCP® Network Software and PC/TCP® OnNet™ provide networking software that you can use to simplify your day-to-day work. Both PC/TCP products offer DOS and Windows programs that let you accomplish such tasks as sharing files and printers with users at other computers, transferring files, and exchanging mail.

This *Getting Started* guide contains

- The installation procedures for the PC/TCP installation program and Reference Desk online documentation viewer.
- An overview of the ways that you can configure PC/TCP software once it is installed.
- An introduction to networking concepts and PC/TCP applications.

## 1.1 Finding the Installation Information You Need

PC/TCP Network Software and PC/TCP OnNet provide the flexibility of installation methods for both the new and experienced user.

*If you are a new user of network software*, use the Express Install card that accompanied your PC/TCP installation diskettes. The Express Install card describes how to install PC/TCP and connect to the network in a matter of minutes. To learn more about the installation program or to control how PC/TCP is installed on your system, use the Custom installation procedure described in section 1.4, Running the PC/TCP Installation Program.

You can also use the PC/TCP Installation Checklist located on the inside back cover of this Getting Started guide. You can use this checklist to record information required by the installation program, such as the name of your network interface card and system addresses.

If you have questions about which installation method meets your needs, see section 1.3, Choosing an Installation Method.

### 1.1.1 Installation Steps Overview

The following outlines the major headings in this chapter and the steps required to install PC/TCP software. If you need an explanation of terms in this chapter, see Chapter 3, [Getting Started with PC/TCP](#).



Complete the hardware and software installation requirements defined in section 1.2, [Before You Begin](#).



Choose an installation method from those described in section 1.3, [Choosing an Installation Method](#).

You can install in Windows or DOS, and you can also choose between Express and Custom installation methods.



Run the installation program and provide required information, as described in section 1.4, [Running the PC/TCP Installation Program](#).



Verify installation changes to system files and your connection to the network, described in section 1.5, [Verifying PC/TCP Installation](#).

Add PC/TCP components or change network drivers; see section 1.6, [Adding Components or Changing Network Drivers](#).



Reference Desk

Install Reference Desk online documentation, as described in section 1.7, [Installing Reference Desk Online Documentation](#).





### 1.1.2 Related Installation Information

Managing PC/TCP contains manual installation information for the network administrator. If you need to review installation options for your site or to verify how PC/TCP installs with another network operating system, you can find this information in Managing PC/TCP.

If you do not have a printed copy of Managing PC/TCP or other PC/TCP manuals, you can access *all* procedures online in Windows with the PC/TCP Reference Desk documentation viewer. To ensure easy access to all PC/TCP documentation, you may want to install Reference Desk before running the PC/TCP installation program (see section 1.7, Installing Reference Desk Online Documentation). You can install Reference Desk at any time and use its search feature to find the specific information that you need.

The following lists the manual installation information contained in Managing PC/TCP.

| <b>If you need to</b>  | <b>See this chapter</b>   |
|--|---|
| Install over a network, or set up a customized site installation | <i>Managing PC/TCP</i> Chapter 2, <u>PC/TCP Installation Options</u>                          |
| Verify how PC/TCP installs with:                                 |   |
| Microsoft Windows for Workgroups                                 | <i>Managing PC/TCP</i> Chapter 3, <u>Installing PC/TCP with Windows for Workgroups</u>        |
| Novell NetWare   | <i>Managing PC/TCP</i> Chapter 4, <u>Installing PC/TCP with Novell NetWare</u>                |
| Microsoft LAN Manager  | <i>Managing PC/TCP</i> Chapter 5, <u>Installing PC/TCP with LAN Manager</u>                   |
| Banyan VINES   | <i>Managing PC/TCP</i> Chapter 6, <u>Installing PC/TCP with Banyan VINES</u>                  |
| DEC PATHWORKS  | <i>Managing PC/TCP</i> Chapter 7, <u>Installing PC/TCP with PATHWORKS</u>                     |
| Configure a network interface driver<br><b>or</b>                | <i>Managing PC/TCP</i> Chapter 22, <u>Troubleshooting the Kernel and Driver Configuration</u> |
| Troubleshoot an installation problem                             |   |

For more information on setting up a serial line network in Windows or DOS, see

- *Using PC/TCP in Windows* Chapter 8, Connecting to Remote Networks over a Modem or Serial Line.

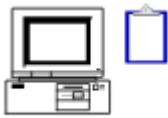
- *Using PC/TCP in DOS* Chapter 9, Connecting to Remote Networks over a Modem or Serial Line.

## 1.2 Before You Begin

Before you install PC/TCP software, you should review the installation requirements defined in this section. You may need the help of your system administrator to obtain or verify installation information, or these steps may have already been done for you.

You can use the PC/TCP Installation Checklist located on the inside back cover of this *Getting Started* guide to record required installation information.

### 1.2.1 Verifying Hardware and Software Prerequisites



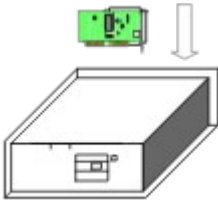
Ensure that your system meets the following hardware and software requirements.

If you have enough available memory, leave your existing PC/TCP kernel, other network operating systems, and drivers loaded so that the install program can detect your environment and install the appropriate kernel and driver.

If your PC does not have enough available memory, unload terminate-and-stay-resident programs (TSRs).

| Requirement       | PC/TCP in Windows  | PC/TCP in DOS              |
|-------------------|--|----------------------------|
| Processor         | VxD implementation: 386 (or higher)<br><br>TSR implementation: Standard mode: 286 (or higher) 386 Enhanced mode: 386 (or higher) | 286 (or higher)            |
| Disk Space        | 5 - 8 MB   | 2 - 4 MB                   |
| Memory            | Standard Mode: 1 MB<br><br>386 Enhanced Mode: 2 MB   | 640K                       |
| Operating Systems | Microsoft Windows Version 3.1<br><br>Microsoft Windows for Workgroups Version 3.11   | DOS Version 3.3 and higher |

### 1.2.2 Installing Your Network Card



The network interface card provides the physical connection between your PC and the network. The type of network card that you install depends on the type of network that your system is connected to, such as Ethernet or Token Ring.

You must install a network interface card on your PC before you can install PC/TCP. The exception to this is installations for networking over a modem or dedicated serial line using the SLIP (Serial Line Interface Protocol) or PPP (Point-to-Point Protocol) networking protocols.

The installation program uses the name and type of your network interface card to determine the appropriate driver and PC/TCP kernel to install on your system.

#### **To install your network interface card**

1. Refer to the manual that came with your network interface card, and set any jumpers or switches on the card that are necessary.
2. Run the diagnostics software that accompanied the network card. The card must pass the manufacturer's own diagnostics, if any, before you install PC/TCP software.
3. Compare the card's hardware and software settings with the memory and interrupt settings of the other devices installed in your PC. If any of these settings conflict, refer to the respective manuals for alternate settings.
4. Write down the name of your network card and other network interface card settings for use when running the installation program.

### 1.2.3 Verifying Network Interface Drivers



The network interface driver is an intermediate piece of software that allows PC/TCP network software to communicate with network hardware (your network interface card). Typically, the manufacturer of the network card supplies a disk containing a network driver.

When the PC/TCP installation program detects a network driver, the program configures your system appropriately for use with that driver.

You must decide which network interface driver you will use *before* you continue with the PC/TCP installation. Depending on the type of driver that you intend to use, you may need to install that driver before you run the installation program.

If you intend to use a Packet Driver, you can let the installation program select the appropriate driver for you, or you can provide an updated Packet Driver disk during installation.

If you intend to use an NDIS (Network Driver Interface Specification) driver, you can run the installation program and supply that driver when prompted to do so. An NDIS driver is typically used with Microsoft LAN Manager and Windows for Workgroups.

If you intend to use any of the following network interface drivers, you must install that driver *before* you run the installation program:

- ODI (Open DataLink Interface), typically used with Novell NetWare
- ASI (Adapter Support Interface), usually used with Token Ring
- DLL (Dynamic Link Layer), typically used with DEC PATHWORKS

For more information on the driver types supported by PC/TCP, see section 3.1.5, Drivers.

If you want to know how PC/TCP will install with your driver type, see *Managing PC/TCP* Chapter 22, Troubleshooting the Kernel and Driver Configuration.

## 1.2.4 Installing Other Network Operating Systems



You must install any other network operating system *before* you install PC/TCP software.

When you have properly installed another network operating system, the PC/TCP installation program detects that system and shares the appropriate driver.

You can use PC/TCP software with the following network operating systems:

- Microsoft Windows for Workgroups
- Novell NetWare
- Microsoft LAN Manager
- Banyan VINES
- DEC PATHWORKS
- Other network operating systems that use standard drivers (such as NDIS)

For more information on installing PC/TCP with another network operating system, refer to *Managing PC/TCP* Chapter 2, PC/TCP Installation Options and the appropriate chapter in Part II of *Managing PC/TCP*.

## 1.3 Choosing an Installation Method

You can choose to install PC/TCP software in Windows or DOS, depending on how you intend to use PC/TCP. You can also choose the Express or Custom installation method. Regardless of the network environment or installation method that you choose, the PC/TCP installation program

- Detects your network environment, including any previous version of PC/TCP, Microsoft Windows for Workgroups, and drivers used with other network operating systems already installed on your system (if any).
- Copies the files needed for basic network connectivity, and any additional PC/TCP components that you select (such as remote login or mail programs).
- Updates your system files and configures PC/TCP so that you can use PC/TCP alone or with other network operating systems.

Tables 1-1 and 1-2 define the installation options available for PC/TCP OnNet and PC/TCP Networking Software.

Table 1-1 PC/TCP OnNet Installation Options

| <b>If you install in</b> | <b>And choose</b> | <b>Your network environment is</b>  |
|--------------------------|-------------------|---|
| Windows                  | Express           | Windows only, including DOS sessions in Windows (no network connectivity from DOS)  |
|                          | Custom            | Your choice of:<br><br>Windows only, including DOS sessions in Windows (no network connectivity from DOS)<br><br><b>or</b><br><br>DOS and Windows |
|                          | Express or Custom | DOS only  |

PC/TCP OnNet Express in Windows configures your system for use with the “virtual device driver” (VxD) implementation of the PC/TCP kernel (using the VXDINIT.EXE loader and the VXDPTCP.386 kernel). This kernel implementation provides faster networking performance and requires the least amount of memory. This implementation also gives you access to the network from DOS sessions in Windows.

PC/TCP OnNet Custom in Windows lets you choose between the VxD and “terminate-and-stay-resident” (TSR) implementations of the PC/TCP kernel.



For more information on PC/TCP kernel implementations, see section 3.1.4, Kernels.

Table 1-2      PC/TCP Network Software Installation Options

| <b>If you install in</b> | <b>And choose</b> | <b>Your Network Environment is</b> |
|--------------------------|-------------------|------------------------------------|
| Windows                  | Express or Custom | DOS and Windows                    |
| DOS                      | Express or Custom | DOS only                           |

PC/TCP Network Software Express configures your system for use with the TSR implementation of the PC/TCP kernel. When you use Windows Express or Custom to install PC/TCP Network Software, you receive a special VxD (VPCTCP.386) that provides network connectivity in the Windows environment.

PC/TCP Network Software Custom lets you choose the PC/TCP components that you want to install. For more information on PC/TCP kernel implementations, see section 3.1.4, Kernels.

## 1.4 Running the PC/TCP Installation Program

If you want network connectivity in Windows only or both Windows and DOS, run the Setup program. If you require network connectivity in DOS only, run the Install program. Note that the DOS Install program does not install *any* PC/TCP Windows applications.

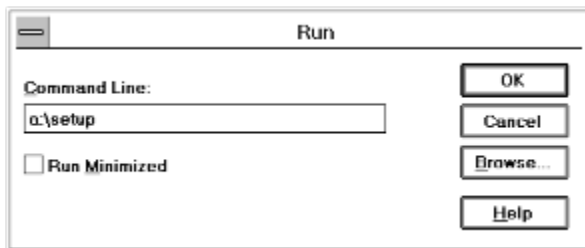
### To install PC/TCP software

1. Place Disk 1 in the disk drive.

—or—

Put the CD-ROM into the player.

2. **To install in Windows** – From the Program Manager File menu, choose Run; then type the drive letter and **setup**



**To install in DOS** – At the DOS prompt, type the drive letter and **install**

**a:\install**

Follow the installation program instructions and enter any required installation information, as defined in the following sections. You may need the help of your system administrator to obtain this information.

### To use the installation program

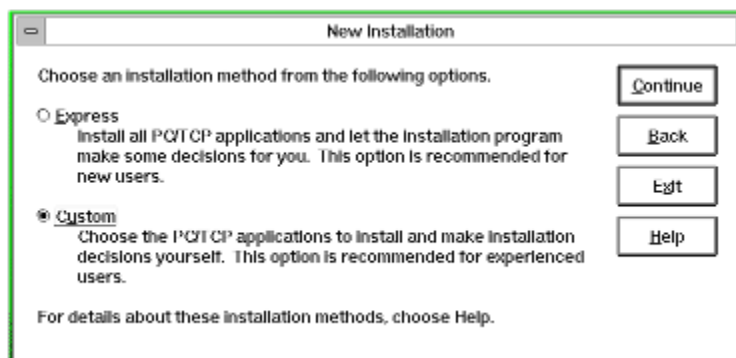
- Choose the Continue button to accept the information displayed or entered on a screen.
- Choose the Help button to display online help, including how to use the program with a mouse or keyboard.
- Choose the Back button at any time to return to a previous installation screen and view or change your information.

### 1.4.1 Choosing Express or Custom Installation

Choose the installation method that best meets your needs. PC/TCP offers the flexibility of an Express and Custom install, each intended for a specific group of users.

Choose Express to quickly install or upgrade using your existing configuration. Express selects the appropriate driver (if possible), copies all PC/TCP files, and configures your system with the appropriate implementation of the PC/TCP kernel. This option is recommended for new users. Note that the Express installation method does not show all program dialogs.

Choose Custom if you are an experienced user who wants to control which applications and PC/TCP kernel are installed. The Custom installation method does the same things as Express, but lets you control how they are done. The following sections describe the installation program dialog boxes for a Custom install (which displays all dialog boxes).



### Upgrading

If you are upgrading from a previous version of PC/TCP, you can choose between Express, Custom, and New installation methods.

Express and Custom display your existing configuration information as you move through the program. Both methods update existing PC/TCP files and delete obsolete files in the specified directory. Note that when you upgrade with Express, you cannot change all of your previous configuration information.

You can also choose New to begin a new PC/TCP installation that does not use your existing configuration information, but shows installation program defaults.

### 1.4.2 Entering the Serial Number and Authentication Key

Enter the serial number and authentication key printed on disk 1 or 2 of your PC/TCP distribution diskettes, in the form *nnnn-nnnn-nnnn*. These numbers uniquely identify your copy of PC/TCP software.

**Note:** If you do not enter a serial number and authentication key, you may continue the installation, but you must supply this information later (using the PC/TCP Configure utility) before you can use PC/TCP software.



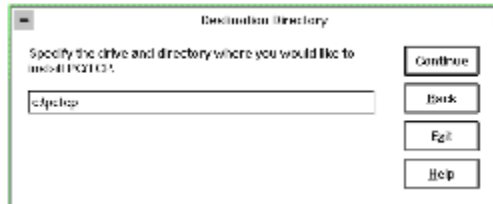
The screenshot shows a Windows-style dialog box titled "Serial Number / Authentication Key". Inside the dialog, the text "Enter your serial number and authentication key." is followed by a "Continue" button. Below this, a note states: "This information is printed on your distribution disks or can be provided by your network administrator." There are two input fields: "Serial Number:" containing "1234-1234-1234" and "Authentication Key:" containing "5678-5678-5678". To the right of these fields are three buttons: "Back", "Exit", and "Help".

| Serial Number / Authentication Key   |   |
|--|---|
| Enter your serial number and authentication key.   |   |
| <input type="button" value="Continue"/>  |   |
| This information is printed on your distribution disks or can be provided by your network administrator. |   |
| Serial Number:   | <input type="text" value="1234-1234-1234"/> |
| Authentication Key:  | <input type="text" value="5678-5678-5678"/> |
| <input type="button" value="Back"/>  |   |
| <input type="button" value="Exit"/>  |   |
| <input type="button" value="Help"/>  |   |

### 1.4.3 Entering the Destination Directory

Enter the full path to where you want to install PC/TCP files. If you want to install to some directory other than the default (C:\PCTCP), type in a directory name in place of the default.

If you are upgrading, the install program will update your existing PC/TCP files and delete any obsolete files.



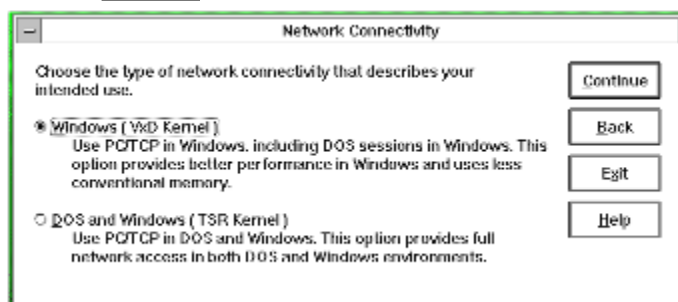
#### 1.4.4 Choosing Network Connectivity (Custom Only)

If you are installing in Windows, you can choose to have network connectivity in Windows only (which includes DOS sessions in Windows) or DOS and Windows. The choice that you make determines which PC/TCP kernel implementation is configured on your system.

**Note:** This option applies to Windows installations only.

If you choose Windows only, the PC/TCP installation program configures your system for use with the VxD implementation of the PC/TCP kernel, which uses less memory and provides better performance in Windows.

If you choose DOS and Windows, the PC/TCP installation program configures your system for use with the TSR implementation of the PC/TCP kernel. This option provides full network connectivity in DOS and Windows, but does not feature the improved Windows performance of the VxD kernel. For a description of PC/TCP kernel implementations, see to section 3.1.4, [Kernels](#).



### 1.4.5 Selecting PC/TCP Components (Custom Only)

Each PC/TCP component represents a group of files related to the networking tasks defined on this screen. By default, the installation program copies a base set of files that provide basic network connectivity. You can select additional components of PC/TCP software, or choose not to install specific components.

Select the applications that you want from the list displayed on the screen. The amount of disk space required to install the components that you select appears at the bottom of the screen.

For Windows installations, you can also choose whether to install the equivalent DOS programs for the components that you selected. To select this option, select “Install DOS Applications for Selected Components” at the top of the components list.

The following table describes the tasks that you can perform with each PC/TCP component; the programs or protocols related to that component appear in parentheses:

| Select this PC/TCP component                      | To install the files needed to  |
|---|---|
| Using Network Files and Printers<br>(InterDrive®) | Share files on remote systems, manage files and directories on remote hosts, and print to remote printers.  |
| Exchanging Mail and News                          | Use electronic mail and bulletin boards, access news groups, and “chat” with other users on the network.  |
| Logging In to a Remote Host<br>(Telnet, Rlogin)   | Log in to a remote host, create multiple print connections to a host, exchange data with a remote host, and execute DOS commands on a remote host.    |
| Transferring Files (FTP)                          | Transfer single or multiple files between your PC and others hosts on the network, or set up your PC as a file transfer server.                       |
| Printing (LPR)                                    | Send print jobs to network printers, and use a print redirector to manage print jobs.   |
| Archiving and Restoring Files<br>(Tar, Rmt)       | Back up a local or network mounted drive, restore a PC/TCP .TAR file to a DOS or UNIX system, or restore a UNIX /tar file to a system running PC/TCP. |

See *Managing PC/TCP* Chapter 2, PC/TCP Installation Options for information on identifying the PC/TCP files associated with each component.



#### 1.4.6 Selecting or Updating an Existing Driver

For both Express and Custom installs, the PC/TCP installation program determines the type of driver installed in your system (if any) and prompts you to use that driver or install a new driver.

Select the driver you want to use in the dialog list box, then choose Continue. Select None to install a new driver.

If the program cannot detect your driver, or if you choose to install a new driver, the program lets you select from a list of network cards and supported Packet Drivers. You can also provide a vendor-supplied NDIS driver.

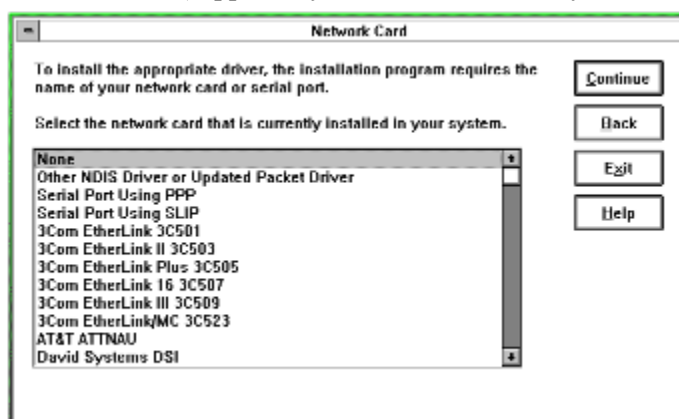
### 1.4.7 Selecting a Network Card

Select the name of the network card installed in your system from the list on the screen. You can also select a serial port for SLIP or PPP installations. The installation program determines the appropriate driver to install based on the network card.

To find the name of your network card, refer to the card documentation, packaging, or the network driver disk that accompanied the card.

Choose Continue when you have selected your card or serial port.

If you select None, you must manually install and configure the network driver for that card. If you select Other, the install program prompts you for the disk containing a Packet Driver or NDIS driver (supplied by the manufacturer of your network card).



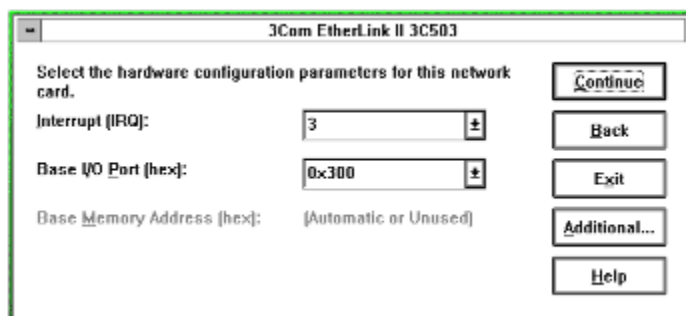
### 1.4.8 Selecting Network Card Settings

Select or enter the appropriate values for PC/TCP software to use for your network card.

The install program displays a list of values for the following settings. Refer to your network card documentation or packaging for appropriate values. The program may also display the phrase *Automatic* or *Unused*, which means that you do not have to configure that setting.

| Network Card Setting | Description   |
|----------------------|---|
| Interrupt (IRQ)      | The interrupt vector used by your network card (an electronic signal that the card uses to communicate with your PC). For example, 3 or 5.                |
| Base I/O Port (hex)  | The input/output channel for your network card (the channel that your card uses to send these signals) in hexadecimal notation (for example, 0x280).      |
| Base memory address  | The base memory address for your card (the location in your PC's memory used to communicate with the card) in hexadecimal notation (for example, 0xD000). |

You can view or configure other settings for your network card (if any) by choosing the **Additional** button.



#### Configuring Additional Card Settings

If there are additional configuration settings for your network card, the resulting dialog box displays a list of those settings and any default or range of values.

##### To view or change a particular setting

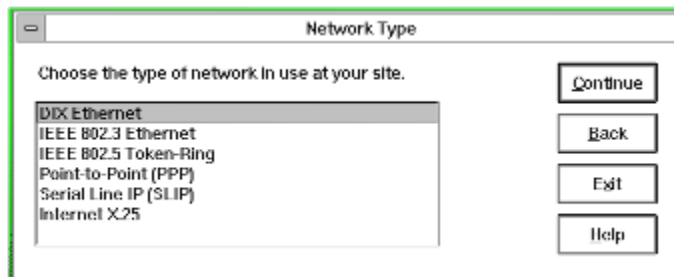
1. In the Network Card dialog box, choose the **Additional** button.
  2. In the Additional Settings box, select the appropriate network card setting.
  3. Enter the new setting in the Value field.
  4. To register the new value, choose **Set**.
- or—
- To display the original value for that setting, choose **Revert**.

### 1.4.9 Selecting a Network Type (Custom Only)

If you do not choose a network card or if your network card supports more than one network type, the program prompts you to select the network type appropriate for your installation.

The network type represents the kind of network to which your system is connected, defined by the way in which transmitted data is packaged (or “framed”) for that network.

If you are not sure which network type to select, see your system administrator.



### 1.4.10 Entering Internet Protocol (IP) Addresses

Enter the Internet Protocol (IP) addresses for your system and network routers (machines that direct network traffic between hosts). An Internet address uniquely identifies your PC and servers to others on the network. IP addresses follow a standard notation of four groups of numbers separated by periods; for example, 123.75.51.125.

Enter the appropriate IP address information for your host system and network. You must supply an IP address and Subnet Mask for your host. You may define up to three network routers.

| Address     | Description   |
|-------------|---|
| IP Address  | The address of your system.   |
| Subnet Mask | The address of the subnet that your system is on, in IP address notation (such as 255.255.255.0). If possible, the installation program supplies the appropriate subnet mask for your Internet address. |
| Routers     | The address(es) of your network routers.  |

For more information on Internet addresses, see section 3.1.2, [Identifying Computers and Users on the Network](#).

IP Configuration

Enter the following Internet Protocol (IP) configuration information.

You must supply an IP Address and a Subnet Mask.  
You may define up to 3 routers.

Continue

Back

Exit

Help

IP Address: 123.145.51.125

Subnet Mask: 255.255.255.0

Router(s): 123.145.51.1  
123.145.51.4

### 1.4.11 Entering Domain Name System (DNS) Server Addresses

Enter the host name or your system, the domain to which that host belongs, and the IP address of your network's Domain Name System (DNS) server.

Your host name is another way to uniquely identify your system on the network, and can be used interchangeably with your IP address. The domain name identifies the group or organization on the network to which your system belongs. The DNS server translates IP addresses to domain names, and domain names to IP addresses.

| Name or Address | Description |
|-----------------|-------------|
|-----------------|-------------|

|           |  |
|-----------|--|
| Host Name | Enter the host name of your system, for example, mypc. |
|-----------|--|

|             |   |
|-------------|---|
| Domain Name | Enter the domain name of your system network, separated by periods. For example, xyz.com. |
|-------------|---|

|                    |  |
|--------------------|--|
| DNS Server Address | Enter the IP address for each DNS server on your network, in the form 123.145.55.123. You must provide at least one DNS server address; you can specify up to three. |
|--------------------|--|

For more information on host and domain names, see section 3.1.2, [Identifying Computers and Users on the Network](#). For more information on domain names, refer to Chapter 3, [Getting Started with PC/TCP](#).

DNS Configuration

Enter the following Domain Name System (DNS) configuration information.

Host name: mypc

Domain name: xyz.com

DNS server address(es): 128.123.54.122  
128.123.54.100

Continue Back Exit Help

#### 1.4.12 Updating System Files

After you provide the required installation information and complete installation program screens, the program copies the appropriate files to the destination directory that you specified at the beginning of the program.

When all files have been copied, the installation program prompts you to update your DOS system files (AUTOEXEC.BAT and CONFIG.SYS).

Choose Yes to have the install program update your files. The previous version of these files is backed up to AUTOEXEC.FTP and CONFIG.FTP.

Choose No if you want to update your files manually at a later time. The installation program creates the temporary files AUTOEXEC.FTP and CONFIG.FTP that contain your PC/TCP installation information. You can use these files as a template for manually updating your DOS system files.

### 1.4.13 Restarting Your System

You must reboot (restart) your system to complete the installation and use PC/TCP software. Remember to remove the PC/TCP installation diskettes before rebooting your system.

If you do not let the installation program reboot your system for you, you must manually reboot your system before you can use PC/TCP software (ensure that you have updated your DOS system files before rebooting).

*Note: For Windows installations* – If you do not let the program reboot your system and the installation program prompts you to do so, you must exit Windows and enter the FTPCLEAN.EXE command from your top-level DOS directory. For example,

```
C:\> ftpclean.exe
```



#### 1.4.14 Testing Network Connectivity

After you have completed the installation program and rebooted your system, you need to verify that you are connected to your network.

In Windows, you can use the Windows Ping application or enter the **ping** command in a DOS session in Windows.

In DOS, enter **ping** and the network address of a functioning host on your network at the DOS prompt. For example,

```
C:\> ping -z 128.123.50.6
```

If the host responds, you have a successful installation. If the host does not respond, try the command without the **-z** option. (Also, try a different address.) For example,

```
C:\>ping 128.127.50.201
```

The **ping** command, without the **-z** option, provides detailed output that may help you understand what is wrong. For more information about the **ping** command, see the [\*Command Reference\*](#).

## 1.5 Verifying PC/TCP Installation

If you could not connect to the network or want to know what the installation program did to your system, you should read this section.

### 1.5.1 Verifying Changes to PC/TCP and System Files

Depending on your installation, the PC/TCP installation program creates or updates the PCTCP.INI configuration file, DOS system files, and other network or Windows files, if any.

The following sections outline potential changes to your system files. See *Managing PC/TCP* Chapter 22, Troubleshooting the Kernel and Driver Configuration for details on what install does for each driver or kernel type.

#### To verify changes to PCTCP.INI

By default, the installation program creates a PC/TCP configuration file called PCTCP.INI. Regardless of your network driver or kernel configuration, the installation program creates the file sections and parameters that you need for basic networking functionality.

The following example shows a sample PCTCP.INI file with the required information to run PC/TCP with an Ethernet over a Packet Driver configuration. Your PCTCP.INI file will look similar to the following example, but may contain different configuration information.

```
[pctcp general]
host-name = mypc

[pctcp addresses]
domain-name-server = 128.123.54.122
domain-name = xyz.com

[pctcp kernel]
interface = ifcust 0
serial-number = 1234-1234-1234
authentication-key = 5678-5678-5678

[pctcp ifcust 0]
router = 123.145.51.4
ip-address = 123.145.51.125
subnet-mask = 255.255.255.0
frame-type = DIX-Ethernet
interface-type = pktdrv
```

**Note:** The interface-type and frame-type parameters are always written to PCTCP.INI, even if they are not required by the kernel installed on your system.

See *Managing PC/TCP* Chapter 13, Configuring and Tuning the Kernel for more information on the PC/TCP configuration file.

#### To verify changes to AUTOEXEC.BAT

The installation program modifies your AUTOEXEC.BAT startup file as follows:

1. Adds the PCTCP directory to your system path.

2. Adds a PC/TCP environment variable, which points to the PCTCP.INI file.
3. If you are using a Packet Driver, adds an entry for that driver.
4. If you are using an NDIS driver, adds the NETBIND entry (if necessary).
5. If you are using an ODI driver, adds an entry specifying the Packet Driver-to-ODI driver converter ODIPKT.COM.
6. For TSR implementations, adds your kernel name (such as ETHDRV).  
For VxD implementations, adds the VXDINIT entry.

The following example shows a sample AUTOEXEC.BAT file that loads a SMC\_WD packet driver and the PC/TCP VxD loader VXDINIT:

```
set path=c:\pctcp
set PCTCP=c:\pctcp\pctcp.ini
SMC_WD 5 0x280 0xD000
VXDINIT 0x60
```

### **To verify changes to CONFIG.SYS**

If you are using an NDIS driver, the installation program modifies your CONFIG.SYS startup file as follows:

- Adds an entry specifying that driver.
- Adds an entry specifying the Packet Driver-to-NDIS2 driver converter DIS\_PKT.GUP.

The following example shows a CONFIG.SYS file that specifies the DIS\_PKT.GUP converter:

```
device=c:\pctcp\protman.dos /i:c:\pctcp
device=c:\pctcp\smartnd.dos
device=c:\pctcp\dis_pkt.gup
```

### **To verify changes to other system files**

Depending on the driver that you selected during installation, the PC/TCP installation program may update other system files. The installation program automatically updates the appropriate system files when you install with a packet driver (including SLIP and PPP), NDIS driver (NDIS3 or NDIS2), or ODI driver. For installations using other drivers, including ASI or DLL drivers, you must manually update your system files.

See *Managing PC/TCP* Chapter 22, Troubleshooting the Kernel and Driver Configuration for details on what system files the installation program creates or updates.

## 1.5.2 Troubleshooting PC/TCP Installation

If you cannot connect to the network, or if you do not have success using **ping**

1. Ensure that the PC/TCP environment variable PCTCP is set. You can confirm this variable by entering **SET** at a DOS prompt or in a DOS session in Windows.
2. Verify that you have valid entries in your PCTCP.INI file for serial number, authentication key, and IP addresses.
3. Verify that your system files (AUTOEXEC.BAT and CONFIG.SYS) have been updated.
4. Ensure that network driver parameters and configuration files (such as NET.CFG and PROTOCOL.INI) have been correctly updated.
5. Restart your system and record any system error messages.

If you still have problems connecting to the network, refer to *Managing PC/TCP* Chapter 22, Troubleshooting the Kernel and Driver Configuration.

## 1.6 Adding Components or Changing Network Drivers

After you have installed this release of PC/TCP software, you can use the installation program to add components or change your network driver. You may want to do this to add a PC/TCP component that you did not originally install or to revise your PC/TCP configuration to work with a different network driver (such as SLIP or PPP).

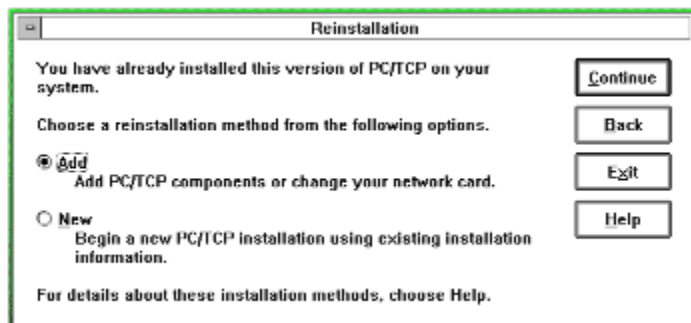
You can also choose to reinstall this version of PC/TCP software as if installing for the first time. You may want to do this if you need to install using all new configuration information.

Choose Add to select more PC/TCP components or change your network driver. The installation program begins at the Network Connectivity dialog box and proceeds to the Select PC/TCP Components dialog box.

**Note:** You cannot use this option to remove PC/TCP components. To remove PC/TCP files, delete all files in the destination directory that you specified at the beginning of the program, then restore your backup files for AUTOEXEC.BAT, CONFIG.SYS, SYSTEM.INI, and PROTOCOL.INI, if applicable. You should also remove the PC/TCP program groups from the Program Manager.

Choose New to reinstall this version of PC/TCP software. The installation program begins at the Serial Number/Authentication Key dialog box, and uses existing configuration information. Specify a different destination directory if you want to install multiple PC/TCP configurations.

*Caution:* If you install to the same directory, the installation program overwrites existing PC/TCP files.



## 1.7 Installing Reference Desk Online Documentation

If you use PC/TCP programs to access information services locally or on the Internet, you can now access these services from a Reference Desk menu. To take advantage of this Reference Desk feature, also install the supporting network programs (for example, FTP or TNVT).

You must install the Reference Desk viewer on your PC. You can install PC/TCP documentation on your PC or on a network file server. The following table summarizes disk space requirements:

| Installation Option                                    | Disk Space Requirement        |
|--|-------------------------------|
| Viewer only on your PC                                 | 450K on your PC               |
| Reference Desk and available PC/TCP manuals on your PC | Approximately 13MB on your PC |

### To install Reference Desk from the media

1. Insert Reference Desk floppy disk 1 into drive A.

—or—

Put the CD-ROM into the player.

2. *For disks* – From the Program Manager File menu, choose Run. Type the appropriate drive letter, **setup** then press Enter. For example,

a:\setup

*For CD-ROM* – From the Program Manager File menu, choose Run. Type the appropriate drive letter, directory name (\DOC), and **setup** Press Enter. For example,

d:\doc\setup

3. When you are prompted for a place to install PC/TCP documentation, you can

Specify a pathname to copy books to your hard drive. Then, select the books that you want to install. The Setup program copies the books, the documentation viewer, and related files to your hard drive.

—or—

Leave the books on CD-ROM or a network drive. In this case, the Setup program copies the documentation viewer and related files to your hard drive.

### 1.7.1 Supporting Network Installations from CD-ROM

If you are a system administrator, you can set up a network drive from which users can install and use the CD-ROM version of Reference Desk. To do so

- Put Reference Desk on a network file server; for example, on a system that supports Network File Sharing (NFS).
- Make the directory that contains Reference Desk files available on the network.
- Run client software such as PC/TCP InterDrive on users' systems.

#### **To set up network installations from CD-ROM**

1. Insert the CD-ROM in the player and copy all Reference Desk files from the directory \DOC to a directory that you plan to export as the Reference Desk installation area.

–or–

Leave the files on the CD-ROM; use it as the network drive if your file sharing software supports this option.

2. Make the network drive available using software that supports file sharing, for example, PC/TCP InterDrive. Refer to your vendor's documentation for specific instructions.
3. Instruct users to run SETUP.EXE from the network drive. Use instructions similar to those in the following procedure.

#### **To install Reference Desk from a network drive**

1. Install Reference Desk from the Windows Program Manager. Choose Run from the File menu, then type the network drive letter followed by the **setup** command; for example,

```
e:\setup
```

2. Follow the installation instructions. You can install books on your hard drive or leave them on the network server.
3. When the installation is complete, start Reference Desk from the Reference Desk icon in the PC/TCP WinApps group.

For more information on using Reference Desk, refer to *Using PC/TCP in Windows* Chapter 2, [Viewing Documentation Online](#).



## Chapter 1 Installing PC/TCP Software

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### 1.5 Verifying PC/TCP Installation

#### 1.5.1 Verifying Changes to PC/TCP and System Files

#### 1.5.2 Troubleshooting PC/TCP Installation

### 1.6 Adding Components or Changing Network Drivers

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#### 1.7.1 Supporting Network Installations from CD-ROM

## Chapter 2

### Configuring PC/TCP Software

When you have installed PC/TCP on your system, you have the configuration information that you need to connect to the network and accomplish your daily tasks. As you continue to use PC/TCP, you may need to customize your configuration to reflect changes in your network environment, use new PC/TCP components, or improve kernel or network performance.

This chapter briefly describes the various methods that you can use to configure PC/TCP components and the PC/TCP kernel. In general, you can use a variety of configuration methods including the PC/TCP configuration utilities, command-line options, and manual file editing. You can also configure PC/TCP parameters using a client configuration protocol.

This chapter includes sections that describe how to configure PC/TCP by

- Using the PC/TCP Configure utility (available in DOS and Windows).
- Manually editing the PCTCP.INI configuration file.
- Using the **pctcpfg** command and command-line options (in DOS and DOS sessions in Windows).
- Using DHCP (Dynamic Host Configuration Protocol) or Bootp (Bootstrap protocol) to obtain PC/TCP configuration parameters from a network server.

See *Using PC/TCP in Windows* and *Using PC/TCP in DOS* for details on which parameters affect PC/TCP DOS and Windows applications, and how to configure those parameters to use and manage your network. Note that some PC/TCP applications use parameters contained in their own configuration file (such as SESSION.INI).

## 2.1 Using the PC/TCP Configuration Utility

PC/TCP **Configure** lets you set configuration parameters for the PC/TCP kernel and programs installed on your system. The parameters that you set are stored in the PCTCP.INI configuration file in the directory where you installed PC/TCP files.

If you are experienced with PC/TCP configuration, you can also use the Configure utility to make changes to the PC/TCP kernel running on your system and to edit or create any PCTCP.INI file parameters.

This section contains information on how to

- Run the Windows or DOS Configure utility.
- Use the Configure utility commands and features.
- Open and save configuration files.
- Choose the Basic or Advanced configuration mode.
- Select and configure PC/TCP parameters.
- Configure the running kernel (Advanced Mode).
- Configure or create any PC/TCP parameter (Advanced Mode).

**Note:** This section uses examples from the Windows version of Configure. Exceptions or differences for DOS Configure are noted where applicable.

### 2.1.1 Running the Configuration Utility

You can run the Configure utility from Windows and DOS environments.

To run the Configure utility in Windows

From the PC/TCP WinApps program group, select the Configure icon.



—or—

From the Windows Program Manager File Menu, choose Run, then type **C:\PCTCP\WCONFIG.EXE**

To run the Configure utility in DOS

At the DOS system prompt, type `config`

```
c:\> config
```

## 2.1.2 Using the Configure Utility Commands and Features

Figure 2-1 shows the main menu of the PC/TCP Configure utility. From this menu, you can choose commands from the menu bar, display the icon bar, and select the PC/TCP parameters that you want to configure.

Configure also lets you create multiple configuration files, and some Advanced mode commands let you make immediate changes to your PC/TCP kernel.

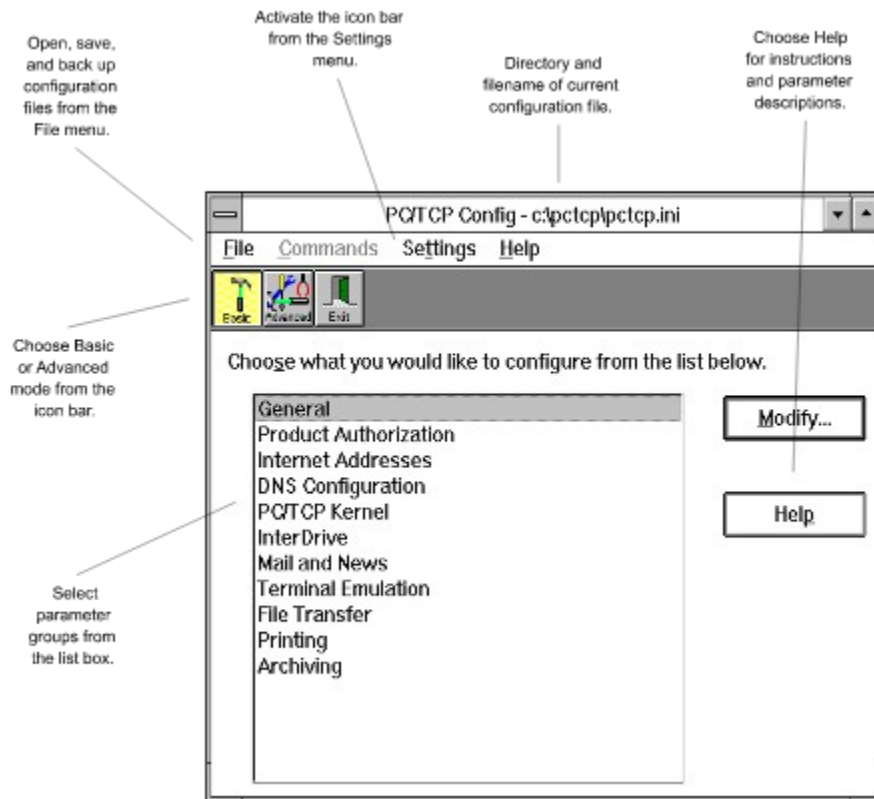


Figure 2-1 Configuration Utility Main Menu

### Using the Icon Bar (Windows Only)

In Windows, you can use the Configure icon bar to move quickly between configuration modes. By default, the icon bar is enabled.

#### To enable or disable the Configure icon bar

From the Settings menu, choose Display Icon Bar. By default, Configure displays the icon bar.

### Getting Help

Most Help topics display information about the parameters that appear in that dialog box; others contain a list of parameters from which you can choose the appropriate parameter.

In Windows, you can also “jump” from Configure online Help to the Reference Desk online documentation viewer by choosing the FTP Titles button. Reference Desk lets you view the electronic version of the PC/TCP manuals. See *Using PC/TCP in Windows* Chapter 2, Viewing Documentation Online for more information on how to use Reference Desk.

**To get online help**

Choose the Help button.

**–or–**

Select Help from the menu bar.

### 2.1.3 Opening and Saving Configuration Files

Before you start to make changes to your PC/TCP configuration file, you should review where and when your changes are saved and how to activate those changes.

The name of your current configuration file is listed in the Configure title bar; this name represents the directory and filename where your PCTCP.INI configuration file and other PC/TCP files are stored. By default, Configure opens the PCTCP.INI file located in the PC/TCP directory where you installed PC/TCP files during installation.

You can also use the File menu to create, open, and save other versions of the PC/TCP configuration file, but you can only use one file at a time. The file in use is determined by the PC/TCP environment variable, a pointer in your AUTOEXEC.BAT startup file. The installation program sets this variable to the destination directory that you specified during installation, usually C:\PCTCP. For example,

```
set PCTCP=c:\pctcp\pctcp.ini
```

To determine where your PC/TCP environment variable “points,” type **SET** at the DOS prompt (in DOS or a DOS Session in Windows). For more information on the PC/TCP environment variable and loading the PC/TCP kernel, see *Managing PC/TCP* Chapter 22, [Troubleshooting the Kernel and Driver Configuration](#).

#### **To save changes to your configuration file**

When you have finished making your changes, you must do the following to register those changes and use your new or revised PC/TCP configuration:

1. From the File menu, choose Save or Save As. If you choose Save As, Configure updates the filename in its title bar.

—or—

Choose Yes when Configure prompts you to save your changes.

2. Restart your system.

—or—

Exit and restart Windows (if applicable).

For the changes you make to take effect, you must unload and reload the PC/TCP kernel (the kernel only reads new settings in the PCTCP.INI initialization file when it loads). The kernel is loaded for you when you restart your system, provided that you did not change the entries in AUTOEXEC.BAT that the installation program created for you. If you are using the VxD implementation of the PC/TCP kernel, you can register your changes (unload and reload the PC/TCP kernel) by exiting and restarting Windows.

#### **To create a new configuration file**

1. From the File menu, choose New.

—or—

From an open configuration file, choose Save As.

2. When prompted, specify the drive, directory, and filename for the configuration file.

Typically, you will not need to create a new configuration file. This option is useful for system administrators who need to create multiple configuration files for users at their site.

### **To create a backup of your previous configuration file**

1. From the File menu, choose Backup.
2. From the Backup drop-down menu, choose None, One (the default), or Continuous.

By default, Configure updates (backs up) your configuration file each time that you save your changes. This means that the configuration that you had before you made changes is stored in a file with a .BAK extension (for example, PCTCP.BAK). If you exit Configure without saving your changes, Configure does not create a backup file.

You can also choose Continuous, which creates sequential backup files each time that you save your configuration file. For example, if your configuration file is the default PCTCP.INI and Continuous is enabled, Configure creates PCTCP.001, PCTCP.002, PCTCP.003 and so on each time you save your changes before exiting. These backup files are stored in the same directory as the configuration file; you can manually delete these files when you no longer need them.



## 2.1.4 Choosing Basic or Advanced Configuration Mode

Before you begin configuring PC/TCP, choose the configuration mode that matches your familiarity with PC/TCP and your intended use.

By default, Configure starts in Basic mode. Basic mode displays only the parameters needed to provide basic functionality for the PC/TCP applications that you installed. Basic mode also displays the default value (if any) for each Basic parameter; these values are used for the appropriate parameters unless you change the default. (If you want to know which parameters are currently contained in your PCTCP.INI file, use Advanced mode.)

Advanced mode displays all possible PC/TCP parameters for your system and identifies which of those parameters are currently in use. Advanced mode also lets you use the Commands menu, from which you can configure the active PC/TCP kernel. When you click on Present, you get the default value for that parameter.

### **To select the parameter mode**

From the icon bar, choose the Basic or Advanced icon.

—or—

From the Settings menu, choose Basic or Advanced.

## 2.1.5 Selecting and Configuring PC/TCP Parameters

Now that you have reviewed how your configuration file changes take effect and have selected a configuration mode, you are ready to select and configure PC/TCP parameters for your system.

### To select a PC/TCP parameter

1. From the main menu, select the parameter group that you want to configure from the list box, then choose the Modify button.

—or—

Double-click on that parameter group.

If you have questions about what PC/TCP parameters each program group contains, choose Help.

2. If there are subgroups for that parameter group, select the appropriate subgroup, then choose Modify.
3. Enter or revise the values for the parameters in that group, then choose OK.

Regardless of your configuration mode, the parameters shown in first-level dialogs provide basic functionality for that PC/TCP application or parameter group. You can also choose to view additional parameters for that application or group.

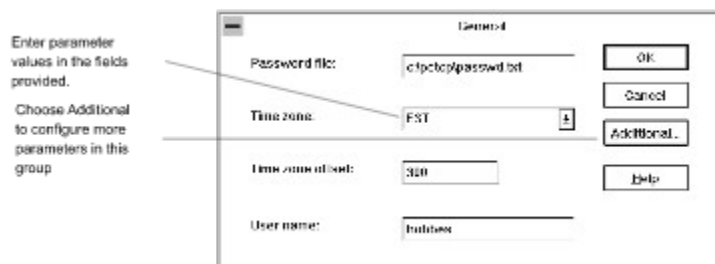
### To enter or revise a parameter

1. Use your mouse or keyboard to enter or set new values for the parameters that you want to configure. Choose Help for descriptions of the parameters displayed in that dialog box.
2. To accept the displayed values and return to the main menu, choose OK.

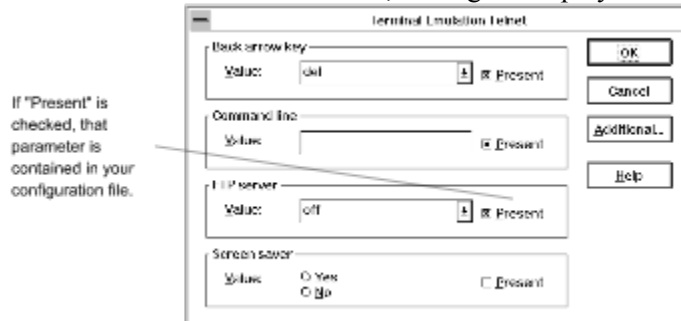
—or—

To return to the main menu without making changes, choose Cancel.

The following shows the first-level dialog box that appears if you select the General parameters group in Basic mode. Note that the values are shown for both parameters contained in your configuration file and for parameters with defaults (which you do not need to change unless you want to revise the setting for that parameter).



The following shows the first-level dialog box that appears if you select the Terminal Emulation, Telnet parameters group in Advanced mode. Note the Present check box to the right of the parameter field; Configure shows this box only in Advanced mode. If the Present box is checked, this means that the parameter is currently contained in your PC/TCP configuration file. If you click on the Present box, Configure displays the default value for that new parameter (if any).

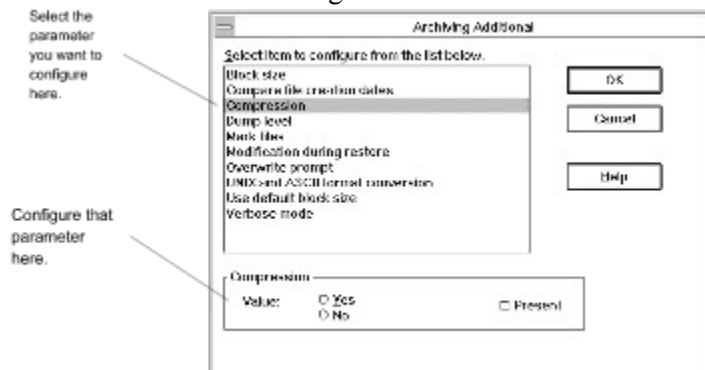


### To configure more settings for that application or program group

Choose the Additional button.

In both Basic and Advanced modes, Configure displays a list of the other parameters that you can configure in that parameter group.

Note that the format for this dialog box is different than the first-level dialog. In this dialog box, you select parameter names in the list box at the top and configure that parameter in the box at the bottom of the dialog box.



### To view the current setting for an additional parameter

1. Select the parameter name in the list box.  
The value for that parameter is shown in the box at the bottom of the dialog box.
  2. Enter or select parameter values as you have in the first-level dialog boxes.
  3. To accept the displayed or revised value, choose the Set button.
- or—
- To use the previous value for that parameter, choose the Revert button.

4. To return to the main menu, choose OK.

**–or–**

To return to the main menu without making changes, choose Cancel.

## 2.1.6 Configuring the Running Kernel (Advanced Mode)

If you are using the Advanced configuration mode, you can make changes to the PC/TCP kernel while it is still running on your system. This means that your changes to these parameters take effect immediately, and you do not need to unload and reload the PC/TCP kernel (by restarting your system or manually unloading the kernel).

Note that the changes that you make to the running kernel are also changed in your active configuration session. If you also want these changes made to your configuration file, save that file or choose Yes when Configure prompts you to save changes before exiting.

### To make changes to active PC/TCP kernel parameters

1. From the Commands menu, choose Running Kernel.  
The Configure Active Kernel Parameters dialog box appears.
2. Enter or set new values for the kernel parameters that you want to configure.

For descriptions of the parameters displayed in that dialog, choose Help.

To configure additional active kernel parameters, choose More.

3. To accept the displayed values and return to the main menu, choose OK.

—or—

To return to the main menu without making changes, choose Cancel.

The following shows the Running Kernel dialog box with current PC/TCP settings for the user hobbes. For more information on configuring the PC/TCP kernel, see *Managing PC/TCP* Chapter 13, [Configuring and Tuning the Kernel](#).

Configure Active Kernel Parameters

Enter values to configure running kernel

|             |   |  |
|-------------|---|--|
| Host Name:  | <input type="text" value="hobbes"/>         | <input type="button" value="OK"/>      |
| Domain:     | <input type="text" value="xyz.com"/>        | <input type="button" value="Cancel"/>  |
| IP Address: | <input type="text" value="128.124.51.130"/> | <input type="button" value="More..."/> |
| Host Table: | <input type="text"/>                        | <input type="button" value="Help"/>    |
| Router(s):  | <input type="text" value="170.124.51.4"/>   |  |
|             | <input type="text"/>                        |  |
|             | <input type="text"/>                        |  |

### 2.1.7 Configuring or Creating Any PC/TCP Parameter (Advanced Mode)

In Advanced mode, you can also configure a PC/TCP parameter using the Any Parameter option. This option is useful when you know exactly which parameter you want to configure and the program group to which that parameter belongs. System administrators can also use this option to create specialized PC/TCP parameters for their end users.

Before you use this option, you should be familiar with the contents of the PCTCP.INI configuration file, as described in section 2.2, [Editing the PCTCP.INI File](#). To specify the parameter that you want to configure, you need to know the PCTCP.INI section, subsection (if any), and parameter name in the format that the parameter appears in the PCTCP.INI file.

When you edit parameters using Any Parameter, Configure displays your settings in the appropriate configuration dialog box. Configure saves your changes to the active configuration file when you save that file.

#### To configure any PC/TCP parameter

1. From the Commands menu, choose Any Parameter.  
The Configure Any Parameter dialog box appears.
2. Enter the PCTCP.INI file section, subsection (if any), parameter name, and value in the PCTCP.INI file format.

Choose the Help button for a cross-reference list of PC/TCP parameter names as they appear in the Configure utility and the PCTCP.INI file.

3. To accept the displayed values and return to the main menu, choose OK.

—or—

To return to the main menu without making changes, choose Cancel.

The following shows how to configure the `user=` parameter in the `[PCTCP IDRIVE]` section of the PCTCP.INI file:

Configure Any Parameter

Enter PCTCP section, sub-section, name, and value.

Section:

Sub-section:

Parameter:

Value:

OK Cancel Help

## 2.2 Editing the PCTCP.INI File

You can also configure PC/TCP software by editing the PCTCP.INI configuration file. This file contains parameter groupings that relate to different PC/TCP programs.

The PCTCP.INI file is located in the directory in which you installed PC/TCP software (C:\PCTCP if you accepted the installation program default). The following shows the format of parameter sections and names in the PCTCP.INI file:

```
[pctcp general]
host-name = mypc

[pctcp addresses]
domain-name-server = 128.123.54.122
domain-name = xyz.com
```

Throughout this documentation set, references are made to PC/TCP parameters in PCTCP.INI file format. You can configure these parameters by editing the PCTCP.INI file or by configuring the equivalent parameter in the PC/TCP Configure utility.

For more information on PCTCP.INI file sections and parameters, see *Managing PC/TCP* Appendix A, [PC/TCP Configuration Parameters Reference](#).

For a cross-reference list of PCTCP.INI file and PC/TCP Configure utility parameter names, see the Configure online Help.

## 2.3 Using Command-Line Configuration

You can use the **pctcpcfg** command from the DOS command line (including a DOS session in Windows) or in a batch file to change parameters in the PCTCP.INI file or the PC/TCP kernel.

You specify which parameter to configure using the section name and subsection (if any) in which that parameter appears in the PCTCP.INI file. For example, the following command sets the hostname of your system to `mypc` in the `[pctcp general]` section of the PCTCP.INI file:

```
C:\>pctcpcfg general host-name mypc
```

The system responds with the text of the change that you specified:

```
Setting INI: [pctcp general] - host-name = mypc
```

You can also use the **pctcpcfg** command to display all parameters in a configuration file section, configure parameters in the running PC/TCP kernel, and create backup files.

See the [Command Reference](#) for more information on using **pctcpcfg** and command-line options.



## 2.4 Configuring PC/TCP Using the DHCP Client

You can also configure PC/TCP using DHCP or Bootp to obtain network configuration information, such as an IP address for your PC, from a network server. Each time that you start your PC, your PC sends a message to the server requesting the values of specific PC/TCP parameters. This central configuration method lets a system administrator standardize and quickly change network information for a large group of users.

To use this method of PC/TCP configuration, your system administrator must have set up a DHCP or Bootp server on your network. Once a server is set up, users on the network can obtain a temporary or permanent IP address and other network information, including server addresses, default routers, and Domain Name System (DNS) server addresses.

For more information about the DHCP and Bootp clients, see *Managing PC/TCP* Chapter 9, Configuring PC/TCP Remotely Using DHCP or Bootp.

## Chapter 2 Configuring PC/TCP Software

### 2.1 Using the PC/TCP Configuration Utility

#### 2.1.1 Running the Configuration Utility

#### 2.1.2 Using the Configure Utility Commands and Features

#### 2.1.3 Opening and Saving Configuration Files

#### 2.1.4 Choosing Basic or Advanced Configuration Mode

#### 2.1.5 Selecting and Configuring PC/TCP Parameters

#### 2.1.6 Configuring the Running Kernel (Advanced Mode)

#### 2.1.7 Configuring or Creating Any PC/TCP Parameter (Advanced Mode)

### 2.2 Editing the PCTCP.INI File

### 2.3 Using Command-Line Configuration

#### 2.4 Configuring PC/TCP Using the DHCP Client

## Chapter 3

### Getting Started with PC/TCP

Now that you have installed PC/TCP, you can begin using it to simplify your day-to-day work. Using PC/TCP, you no longer need to carry floppy disks to another PC to share or print files, or walk to another computer to use programs running on it. PC/TCP applications for both DOS and Windows let you

- Share files with users at other computers.
- Access large multiuser computers, as though your PC were directly attached to them.
- Print files or mail on a network printer.
- Exchange mail or messages with coworkers, instead of sending paper memos.
- Protect your work by backing up files on your PC to a remote tape drive.
- Communicate over long distances by dialing up connections over a telephone line.
- Access the Internet, if your site is authorized.

With this chapter, you can learn about general networking concepts that apply to PC/TCP, and what you can do using the applications.

## 3.1 Understanding PC/TCP Concepts

For users who want to know how PC/TCP works, this section describes terms frequently used in this and other networking products. If terms such as “kernel” and “network interface driver” are new to you, explanations in this section provide background that you can use to get started with PC/TCP.

### 3.1.1 Networks and Network Operating Systems

A network is made up of computers linked together by cables or telephone lines. As shown in Figure 3-1, an organization may have many types of computer systems installed, with very different hardware and software. The network software helps hide many of those differences, so that you can work with a variety of computers types. PC/TCP contains the software that lets PCs on a network exchange information and communicate with the other machines.

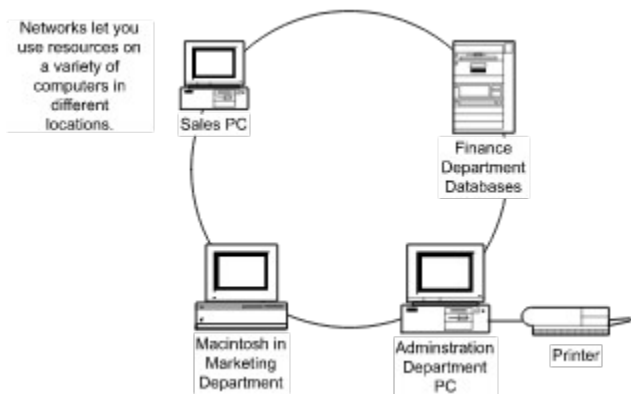


Figure 3-1 Sample Network

The hardware that connects machines in a network works according to defined standards. PC/TCP supports most of the standards on the market today, including Ethernet, Token Ring, Serial Lines, and AppleTalk.

A wide area network, or WAN, can span cities, states, or continents. A local area network, or LAN, is a network that occupies a smaller geographic area, such as an office or campus. A LAN may be divided into several smaller segments called “subnets,” connected by devices called “routers” or “gateways.”

Software that controls computers on a network is called the “network operating system” (NOS). Some examples include Banyan VINES, Microsoft Windows for Workgroups, and Novell NetWare. Although PC/TCP is not really a network operating system, it does provide the most significant features that network operating systems provide, such as filesharing and printing.

You can use PC/TCP at the same time as another network operating system. For detailed procedures, see the book *Managing PC/TCP*. If you do not have a hardcopy of the book, you can use the PC/TCP Reference Desk online documentation viewer in Windows to search for procedures as described in section 3.2.1, [Getting Help](#). For information about installing Reference Desk, see section 1.7, [Installing Reference Desk Online Documentation](#).

### 3.1.2 Identifying Computers and Users on the Network

A network is made up of connected computers, called “hosts.” The term “local” host usually refers to your own machine. You typically attempt to reach a “remote” host, or another machine on your network.

Each host has an “address” that you and the software can use to identify it. In a TCP/IP network, the address, which is called an “IP (Internet Protocol) address,” is written with four groups of integers separated by dots (.), such as 128.127.55.154. The groups of numbers identify the network, subnet, and host portion of the address.

PC/TCP lets you link the numeric address to an easier “host name.” For example, the computer with the IP address 128.127.55.154 might have the host name Hobbes. You can connect to it using either its IP address or host name.

A hostname also consists of fields separated by dots. Each field further defines the host. For example, with the hostname Hobbes.xyz.com,

| <b>This hostname field</b> | <b>Identifies</b>  |
|----------------------------|--|
| Hobbes                     | The hostname. The name assigned to one computer.   |
| xyz                        | The subdomain. The name of the host’s immediate network domain, which identifies the organization that operates the network.   |
| com                        | The domain. The largest domain to which the host belongs. Typically, domain names identify the type of institution to which the host belongs, for example, an educational (.edu), commercial (.com), or military institution (.mil). |

For more information on IP addresses or host names, see *Managing PC/TCP* Chapter 1, [Overview of TCP/IP Network Information](#).

In addition, people who are using computers on the network have their own user IDs. If you want to send mail to someone, you must address it to their user ID.

### 3.1.3 Clients and Servers

Once you install PC/TCP, you can begin to use it if you know names and addresses of “servers,” host systems that provide services to “clients” and other hosts on the network.

In most cases, your PC is a client of the servers. For example, users can give you access to their PCs by starting an FTP file transfer server program. You can use your FTP client program to connect to their machines and trade files. Some machines can have server programs, like print servers, running continuously. Network users can access these services whenever they need. With PC/TCP, you can also make your PC a server for other clients.

### 3.1.4 Kernels

At the core of the PC/TCP product is its “kernel.” The kernel is the program that is the basis of the networking software that passes information between connected hosts. The kernel manages system resources, network hardware devices, and memory, among other things. PC/TCP provides two types of kernels, each tailored to the type of PC operating environment that you use.

If you use Microsoft Windows, you may be running several programs simultaneously, like databases or graphics packages. PC/TCP needs to take up as little space as possible so that the other programs can work most efficiently.

For the Windows-only environment, the PC/TCP OnNet kernel is a “virtual device driver” (VxD). This means it was built according to guidelines that Microsoft recommends for networking in Windows. Using the VxD kernel, you can run PC/TCP networking programs from Windows and from a DOS session in Windows. You cannot network from DOS alone.

The other type of kernel is called a “terminate-and-stay-resident” (TSR) program. A TSR loads into memory when you execute it, then returns a DOS prompt, letting you perform other tasks. The TSR stays in memory until you unload it or reboot (restart) your PC. The TSR is a proven technology for DOS, but occupies more memory space than the VxD. Using the TSR kernel, you can use PC/TCP network programs in DOS. With a special VxD driver (not the same as the VxD kernel) loaded with the TSR kernel, you can also network in Windows.

If you are using PC/TCP OnNet, you can choose between the VxD and TSR kernels. If you are using PC/TCP Network Software, you receive the TSR kernel only.



### 3.1.5 Drivers

For the PC/TCP kernel to communicate with the network hardware, it needs an intermediate piece of software, called a “network interface driver.” The driver works with the network hardware, preventing the software from needing all the hardware details (see Figure 3-2). When you install PC/TCP, you must install or use an existing driver.

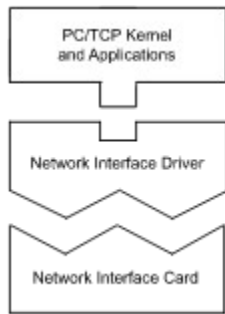


Figure 3-2 Interface Cards, Drivers, and the PC/TCP Kernel

Drivers are usually built and distributed by the vendors who make your network interface cards. FTP Software provides some drivers for you on the PC/TCP disks or CD-ROM. The /support directory on the anonymous FTP server, [ftp.ftp.com](ftp://ftp.com), also contains a repository of drivers.

There are several types of drivers available on the market today, each type developed by different networking companies. PC/TCP supports the following:

- Packet Drivers, defined by FTP Software in 1987
- NDIS (Network Driver Interface Specification) drivers, developed by Microsoft to work with LAN Manager and now Windows for Workgroups
- ODI (Open DataLink Interface) drivers, developed by Novell
- ASI (Adapter Support Interface) drivers, defined by IBM for their 802.5 Token-Ring and LAN Support program
- DLL (Data Link Layer) drivers for DEC for PATHWORKS

These drivers are called “shared drivers.” This means that PC/TCP can use the same network hardware that another NOS, like NetWare or Windows for Workgroups, is using. This lets your PC connect to more than one kind of network operating system at the same time, which is useful if you need to access resources or computers both on a TCP/IP and other type of network.

One reason some networks are difficult to install is because of the steps that you must take to set up the drivers. Each type of driver requires different installation steps. This release of PC/TCP Network Software and PC/TCP OnNet simplifies configuration by automatically detecting drivers that are already installed on your system and doing the rest of the configuration for you. If no drivers are installed, the PC/TCP installation program configures most new drivers for you.

### 3.1.6 Working with Computer Files That Control PC/TCP

Drivers, kernels, and network applications are controlled by DOS and Windows system files.

The drivers load through files such as AUTOEXEC.BAT and CONFIG.SYS, depending on the type of driver. These are DOS files that contain commands that execute each time that you start your PC, freeing you from having to execute the commands manually from the command line. Other files that initialize drivers include the NDIS driver PROTOCOL.INI file and the ODI driver NET.CFG file.

You can also load the PC/TCP kernel through AUTOEXEC.BAT, so that your PC automatically connects to the network when you turn it on.

A file called PCTCP.INI controls how PC/TCP works. When you set up PC/TCP, the installation and configuration programs use the data that you provide to update PCTCP.INI. The next time that you start your PC, those values are in effect by default. Some users prefer to edit the PCTCP.INI file manually with a text editor. You can see a list of the available file entries in *Managing PC/TCP* Appendix A, [PC/TCP Configuration Parameters Reference](#).

PC/TCP also makes use of Windows files, such as SYSTEM.INI and WIN.INI. Settings in these files go into effect each time that you load Windows.

## 3.2 Using PC/TCP Applications

PC/TCP provides a suite of networking programs for both DOS and Windows users. If you are new to PC/TCP, read this section to help choose the networking programs that suit your needs.

### 3.2.1 Getting Help

If you need online information about using PC/TCP applications, PC/TCP includes a Windows application called Reference Desk. The Reference Desk program contains online versions of *all* the PC/TCP hardcopy manuals, except the Master Index and the *Command Quick Reference*.

You can search for a word or several words in Reference Desk, like “file transfer,” and the program shows you sections of a PC/TCP manual that describe the topic. From there, you can go directly to the write-up where the topic is discussed in the online manual. For more information, see *Using PC/TCP in Windows* Chapter 2, [Viewing Documentation Online](#).

### 3.2.2 Learning About Hosts and Users on the Network

To help you learn about resources on your network, PC/TCP includes programs that indicate

- Who is logged in to a machine.
- The addresses of computers on your network, which you can use to reach the machines.
- The user IDs that you can use to contact people using your network.

For more information, see *Using PC/TCP in Windows* Chapter 3, Finding Hosts and Users on the Network. DOS users can refer to *Using PC/TCP in DOS* Chapter 2, Learning About Hosts and Users on the Network.

### 3.2.3 Transferring Files and Sharing Directories

PC/TCP provides several ways to let you transfer and share files with other users on your network from your PC.

An easy way to share files is through file transfer programs, like FTP. Using file transfer, you can get, put, or browse through files on another machine (see Figure 3-3).



Figure 3-3 Copying Files Between PCs

To learn more about transferring files, see *Using PC/TCP in Windows* Chapter 4, [Transferring Files](#). DOS users can see *Using PC/TCP in DOS* Chapter 3, [Transferring Files](#).

PC/TCP also provides ways for you to seamlessly share entire directories of files. It includes a Network File System (NFS) client program that lets you connect to (“mount”) file systems or directories on other machines. Those directories appear as though you have new drives, such as a drive named “I:\>”, on your PC (see Figure 3-4).

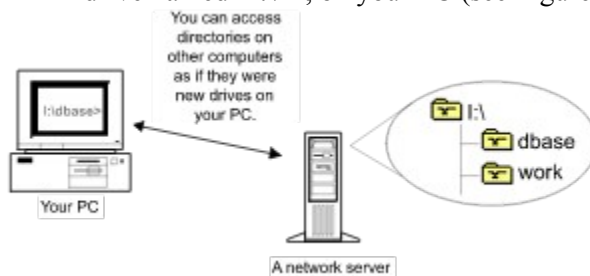


Figure 3-4 Connecting Directories to Your PC

To learn more about sharing file systems in Windows, see *Using PC/TCP in Windows* Chapter 6, [Sharing Network Files](#). DOS users can refer to *Using PC/TCP in DOS* Chapter 7, [Sharing Network Files with InterDrive](#).

### 3.2.4 Logging In to Multiuser Computers from Your PC

If your workplace has programs on large multiuser computers, PC/TCP remote login and terminal emulation programs let your PC use applications and resources on those computers. Your PC works as though it were a terminal connected directly to the larger machine (see Figure 3-5).

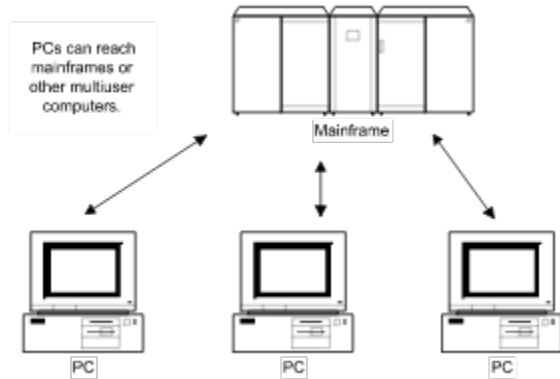


Figure 3-5 Accessing Mainframes from a PC

To learn more about PCs emulating terminals, see *Using PC/TCP in Windows* Chapter 5, Logging In to a Remote Host. DOS users can refer to *Using PC/TCP in DOS* Chapter 4, Logging In to a Remote Host.

### 3.2.5 Printing

If a PC in your office has a printer attached to it, you can connect that printer to a network so that several people can share it. PC/TCP has programs that let a PC manage a network printer. It also contains programs that you can use to send files over a network to print. See Figure 3-6.

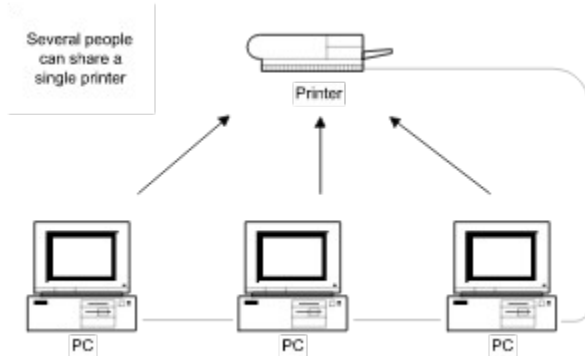


Figure 3-6 Sharing Printers

To learn more about printing from your PC, see *Using PC/TCP in Windows* Chapter 7, [Printing to a Network Printer](#). DOS users can refer to *Using PC/TCP in DOS* Chapter 8, [Printing to a Network Printer](#).

To learn more about setting up a print server, see *Managing PC/TCP* Chapter 16, [Configuring a PC as a Windows Print Server](#) and Chapter 17, [Configuring a PC as a DOS LPD Server](#).



### 3.2.6 Connecting to a Network While Away from the Office

If you travel and need to communicate with coworkers, the PC/TCP dial-up programs for Windows and DOS let you connect over a modem and a phone line to programs at your office or other sites. Users who have a home PC can use these programs to connect to a public bulletin board or database account. See Figure 3-7.

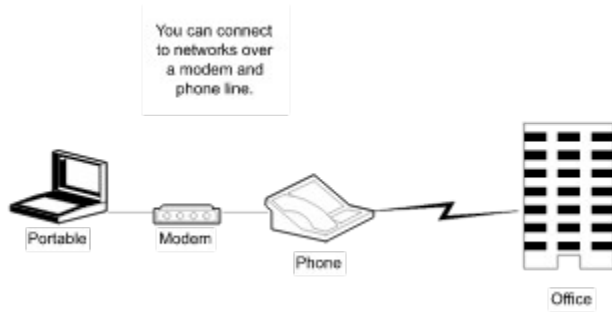


Figure 3-7 Accessing Networks over a Phone Line

To learn more about networking over modems and phone lines, see *Using PC/TCP in Windows* Chapter 8, Connecting to Remote Networks over a Modem or Serial Line. DOS users can refer to *Using PC/TCP in DOS* Chapter 9, Connecting to Remote Networks over a Modem or Serial Line.

### 3.2.7 Exchanging Mail, News, and Messages

Businesses have traditionally relied on paper memos and interoffice mail to pass information. PC/TCP mail programs let you send the same information, within minutes, to a single user or an entire group of users. The people that you contact can be at a computer next to you, in a different department or building, or in other locations around the world. See Figure 3-8.

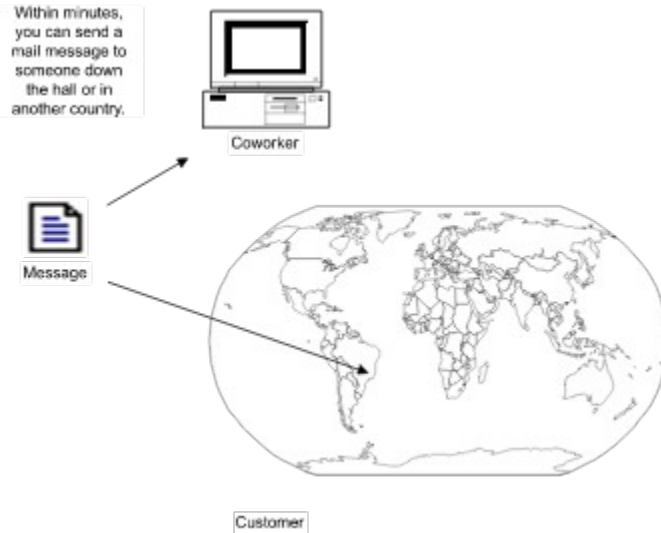


Figure 3-8 Exchanging Mail

To learn more about exchanging mail, see *Using PC/TCP in DOS* Chapter 10, Exchanging Mail and Network News.

You can also have interactive conversations with coworkers using the Dialog program from within Windows. See *Using PC/TCP in Windows* Chapter 9, Exchanging Messages.

### 3.2.8 Archiving and Restoring Files

To protect your work, PC/TCP gives you an easy way to back up and restore your files. The DOS and Windows operating systems both include programs to help copy or save your work to a disk. However, the PC/TCP archive programs provide you with a more powerful and flexible mechanism than those in DOS or Windows. They let you create automated scripts to do the same types of backups each time, compress files for you, and archive either to floppy disks at your PC or to larger tape drives on other machines. See Figure 3-9.

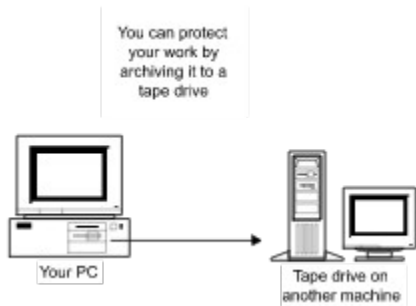


Figure 3-9 Archiving PC Files

To learn more about archiving files, see *Using PC/TCP in Windows* Chapter 10, Archiving and Restoring Files. DOS users can refer to *Using PC/TCP in DOS* Chapter 11, Backing Up and Restoring Files.

### 3.2.9 Managing a Network

Using additional PC/TCP programs, users who manage a network can

- Set up special installations with other network operating systems.

For details, see *Managing PC/TCP* Chapter 2, PC/TCP Installation Options through Chapter 8, Configuring NetBIOS.

- Configure and tune the network software.

See the installation procedures in *Getting Started* Chapter 1, Installing PC/TCP Software. For advanced details, see *Managing PC/TCP* Chapter 13, Configuring and Tuning the Kernel.

- Manage configuration for several PCs in one central location.

For details, see *Managing PC/TCP* Chapter 9, Configuring PC/TCP Remotely Using DHCP or Bootp.

- Add network security, using Kerberos programs.

For details, see *Managing PC/TCP* Chapter 12, Configuring Kerberos Security.

- Troubleshoot networking problems.

See *Managing PC/TCP* Chapter 19, Troubleshooting Host Connections through Chapter 23, Troubleshooting Windows Integration.

### 3.3 Going Beyond Your Network

Using PC/TCP, you can access services or programs on other computers to do your day-to-day work. It also gives you the ability to connect to the growing world of information at large.

PC/TCP is based on the TCP/IP (Transmission Control Protocol /Internet Protocol) suite. A “protocol” is a set of rules that dictate how data gets passed between computers on a network. The Department of Defense Advanced Research Projects Agency (DARPA) originally funded and developed TCP/IP for use on the Internet, the network originally used by research and academic communities. With the explosive growth of interest around an “information superhighway,” the size of the Internet continues to increase dramatically each year.

This means that you can use PC/TCP not only to connect to other TCP/IP computers in your company or campus, but with Internet access you can also use PC/TCP to exchange information with millions of users around the world. For information on accessing Internet services, see the Bibliography section of the *Master Index, Glossary, Bibliography*.

## Chapter 3 Getting Started with PC/TCP

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#### 3.1.3 Clients and Servers

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### 3.3 Going Beyond Your Network

