Installation Help Contents

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Understanding PC/TCP Concepts

After you install 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.

For users who want to know how PC/TCP works, the following topics describe 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.

Networks and Network Operating Systems
Identifying Computers and Users on the Network
Clients and Servers
Drivers
Kernels
Working with Computer Files That Control PC/TCP
Going Beyond Your Network

For detailed procedures, see the book *Managing PC/TCP*. If you do not have a hardcopy of the book, you can install and use the PC/TCP Reference Desk online documentation viewer in Windows to search for procedures.

Networks and Network Operating Systems

A network is made up of computers linked together by cables or telephone lines. For example, 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 computer types. PC/TCP contains the software that lets PCs on a network exchange information and communicate with the other machines.

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.

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 hostname.

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

This hostname field	Identifies
Hobbes	The hostname. The name assigned to one computer.
xyz	The subdomain. The name of the hosts 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).

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.

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.

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.

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. When you install PC/TCP, you must install or use an existing driver.

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, 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.

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. You can use the PC/TCP DOS or Windows Configure application to change values in your PCTCP.INI file or edit the PCTCP.INI file manually with a text editor.

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.

Going Beyond Your Network

Using PC/TCP, you can access services or programs on other computers to do your day-to-day work. PC/TCP 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.

Using the PC/TCP Installation Program

Choose the following buttons, or type the keyboard equivalent, to move through this installation program. Some screens may not contain all of the following commands.

Continue	Accepts the information you entered in the current screen and moves to the next screen in the installation program.
Back	Returns to the previous screen.
Exit	Ends the installation process. You must run the program again to correctly install PC/TCP.
Help	Displays online help, including a product overview for new users and information on how to use this system with a keyboard or mouse.

Using the Keyboard

Instead of using the mouse, you can use the keyboard to move to information fields and select buttons and boxes.

To do this:	Press:
Accept information and continue	ENTER (or RETURN) key.
Select a button	ALT + the underlined letter in the button name.
Move to a field	ALT + the underlined letter in the field label.
Move through screen fields	TAB key. (SHIFT + TAB to move in reverse direction).
Scroll through items in a list	Arrow key (up or down).
Toggle between radio buttons	Arrow key (up or down).
Toggle a check box	Space bar.
Expand a list box	ALT + arrow key (up or down).

Verifying Installation Prerequisites

Before you install PC/TCP software, you should review installation requirements. The following topics outline prerequisites for running the installation program and define the information that you may need to provide when running the program.

Verifying Hardware and Software Prerequisites
Installing Your Network Card
Verifying Network Interface Drivers
Installing Other Network Operating Systems
Reviewing Required Installation Information

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.

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.

Windows Prerequisites:

Processor	VxD implementation: 386 (or higher) TSR implementation: Standard mode: 286 (or higher) 386 Enhanced mode: 386 (or higher)
Disk Space	5 - 8 MB
Memory	Standard Mode: 1 MB, 386 Enhanced Mode: 2 MB
Operating Systems	Microsoft Windows Version 3.1, Microsoft Windows for Workgroups Version 3.11

DOS Prerequisites:

Processor	286 (or higher)
Disk Space	2 - 4 MB
Memory	640K
Operating Systems	DOS Version 3.3 and higher

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.

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

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)

Reviewing Required Installation Information

You may need the following information when you run the installation program. If you are upgrading, the installation program detects and displays your existing configuration for you. If you do not know the following information, ask your system administrator.

This pair of numbers is printed on either disk 1 or disk 2 of your distribution diskettes:

Serial Number
Authentication Key

Network Interface Card Information

See the documentation that came with your network interface card for the following settings:

Name of Network Card
Frame (Network) Type
Interrupt Vector (IRQ)
Input/Output (I/O) Address
Base Memory Address

Network Information

See your system administrator for the following information:

Internet (IP) Address of Your PC
Subnet Mask
IP Address of Default Router (3 maximum)
Hostname of Your PC
Domain Name of Your Host
IP Address of DNS (Domain Name System) Server (3 maximum)

Selecting a New Installation Method

For new installations, choose Express or Custom install. Both methods will prompt you for required information, such as the destination directory and Internet Protocol (IP) addresses, and offer you the choice to update system files.

Express:

Detects your system's network environment and drivers and installs all PC/TCP applications. This is the fastest installation option and requires the least user input. This option is recommended for users new to networking software.

Custom:

Lets you choose the PC/TCP kernel implementation (PC/TCP OnNet only) and applications you would like to install. This option is recommended for system administrators and users who need to limit the amount of disk space required by PC/TCP installation.

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Understanding PC/TCP Concepts

Selecting an Upgrade Method

Choose an upgrade method from the following options. Each option copies new PC/TCP files, updates (overwrites) existing files, and deletes obsolete files.

Express:

Quickly upgrades your existing PC/TCP installation by determining your system's network environment and drivers and installing all PC/TCP applications. The installation program uses the existing configuration information in your PCTCP.INI file. This is the fastest upgrade option, but you will not see or be able to change installation information.

Note: If you upgrade to PC/TCP OnNet, the installation program configures your system for use with the VxD implementation of the PC/TCP kernel (VXDPCTCP.386). Use the Custom upgrade method to choose the previous implementation of the PC/TCP kernel (VPCTCP.386).

Custom:

Lets you choose the PC/TCP kernel implementation (PC/TCP OnNet only) and applications you would like to install. This option displays your existing PC/TCP installation information as you move through the program. You can change your settings at any time by following the instructions on the screen.

New:

Begins a new PC/TCP installation (does not use installation information from a previous version of PC/TCP software). You will be prompted for all installation information.

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Understanding PC/TCP Concepts

Selecting a Reinstallation Method

Choose one of the following reinstall options.

Add:

Allows you to add a network driver or install additional PC/TCP components. For example, you can use this option to add a SLIP or PPP driver after installing an Ethernet driver, or to add a PC/TCP component that you did not originally install. Note that you cannot use this option to remove existing files.

New:

Begins a new PC/TCP installation and prompts for all installation information (does not use settings in your existing PCTCP.INI configuration file). To ensure this installation does not conflict with a previous installation, you may want to install to a different destination directory. If you install to your existing PC/TCP directory, existing files will be overwritten.

Using the PC/TCP Installation Program
Understanding PC/TCP Concepts

Entering the Serial Number and Authentication Key

Enter the serial number and authentication key printed on the label of either Disk 1 or Disk 2 of your PC/TCP distribution diskettes, or on the label of the PC/TCP CD-ROM.

If you are upgrading, your previous serial number and authentication key should appear in the appropriate field. Choose Continue to accept the displayed values.

If you do not enter a serial number and authentication key, you can continue with the installation process, but you must add this information to your PCTCP.INI file in order to use PC/TCP software. You can use the PC/TCP Configure application to provide this information after installing.

Using the PC/TCP Installation Program
Understanding PC/TCP Concepts

Entering the Destination Directory

Enter the full path of the directory in which you want to install PC/TCP files; for example, c:\pctcp. If the specified directory does not exist, the installation program creates that directory.

By default, PC/TCP installs to the c:\pctcp directory.

Choosing Network Connectivity

Choose the type of network connectivity that matches your environment.
Note: The Network Connectivity choice applies to PC/TCP OnNet only.

Windows (VxD kernel):

Choose this option if you work primarily in Windows, use applications that load *after* Windows starts, and have limited available PC memory. The VxD configuration minimizes conventional memory usage and maximizes network and application performance in Windows.

DOS and Windows (TSR kernel):

Choose this option if you want full network connectivity in DOS and Windows, use applications that load *before* you start Windows, and have adequate available PC memory.

The network connectivity (and kernel) type you select is transparent to PC/TCP applications. Generally, the PC/TCP VxD and TSR implementations support the same configuration options.

Depending on the option you choose, the installation program will automatically update your AUTOEXEC.BAT and PCTCP.INI files with the appropriate TSR or VxD kernel information.

Using the PC/TCP Installation Program
Kernel Concepts

Selecting PC/TCP Components

Select the PC/TCP components you would like to install based on the tasks you want to perform. The components you choose will be added to a default set of files that provide basic networking functionality, including the PC/TCP kernel.

The amount of disk space required to install the selected components is shown at the bottom of the screen. If you are upgrading, these totals indicate the additional disk space required to add new files or update existing files.

Select "Install DOS programs for Selected Components" to install the equivalent DOS files for the following components.

Using Network Files and Printers:

Share files on remote systems, manage files and directories on remote hosts with DOS commands, and print files on remote printers.

Exchanging Mail and News:

Use electronic mail and bulletin boards, access news groups, and chat with other users on your network.

Logging In to a Remote Host:

Log in to a remote host, create multiple connections to a host, exchange data with a remote host, or execute DOS commands on a remote host.

Transferring Files:

Transfer single or multiple files between your PC and other systems (hosts) on the network, or set up your PC as a file transfer server.

Printing:

Use DOS commands to send print jobs to network printers, and use a print redirector to manage   print jobs.

Archiving and Restoring Files:

Back up 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.

Note: If you do not select a component at this time, you can add that component later by running the installation program again.

Using the PC/TCP Installation Program
Understanding PC/TCP Concepts

Selecting or Updating an Existing Driver

The installation program detected a network driver on your system.

If you use other network operating systems concurrently with PC/TCP software, you should use your existing driver. The installation program will configure your system to share that driver with any other network operating systems.

To use the existing driver:

Select the driver, then Choose Continue.

To use a different driver or network card:

Select None, then Choose Continue. The installation program will show you a list of alternate cards and drivers.

To use a serial port:

Select None, then Choose Continue. The installation program will show you a list of alternate cards and drivers. Select the appropriate serial port from that list.

Using the PC/TCP Installation Program
Understanding PC/TCP Concepts

Selecting a Network Card or Serial Port

Select the name of the network card you have installed in your PC. The card type depends on the type of network you have, such as Ethernet, Token-ring, or X.25. To find the name of your network card, refer to the vendor-supplied documentation that accompanied that card.

You can also select a serial port for networking over a serial line using SLIP or PPP. If you do select a serial port, ensure that you select the protocol appropriate for the system to which you will connect.

Select Other to use a network card not displayed in the list; you can supply an NDIS2 driver or updated Packet Driver. The installation program will prompt you for the manufacturer's diskette that contains the appropriate network driver. Note that if you want to use an NDIS3 driver, you must install Microsoft's Windows for Workgroups using that driver before running the PC/TCP installation program.

Select None to continue the installation without selecting a network card. In this case, you must manually install and configure the appropriate network card and driver before you can use PC/TCP.

If you cannot determine the type of network card installed in your system, see your system administrator.

Using the PC/TCP Installation Program
Driver Concepts

Selecting Network Card or Serial Port Settings

Enter the information for your network card or serial port in the appropriate field. If any of the following fields are grayed-out on your screen, that field is automatically set or not needed. Refer to the card manufacturer's documentation for recommended settings.

Network card settings:

Interrupt Vector (IRQ)   The Interrupt vector used by your network card (the electronic signal the card uses to communicate with your PC). Some common settings are 3 and 5.

Base I/O Port   The input/output channel used by your network card to send signals to your PC's Central Processing Unit (CPU). Enter this in hexadecimal notation, such as 0x300 or 0x360.

Base Memory Address   The base memory address (RAM address) for your network card (the location in your PCs memory used by the card to communicate with other computers). Enter this value in hexadecimal notation, such as 0xD000 or 0xD400.

Serial port settings:

Serial Port   The port on your system used to connect your PC to a modem or serial line. Possible values are COM1, COM2, COM3, and COM4.

Baud Rate   The speed at which data is transmitted over a serial line, measured by the number of signal changes per second. The higher the baud rate, the faster the data transmission. Common values for baud rate include 2400, 4800, and 9600.

Choose Additional to configure other network card or serial port settings (if there are any for your card or port). Typically you do not have to configure additional settings, in which case the installation program uses the defaults for those settings.

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Understanding PC/TCP Concepts

Configuring Additional Card/Serial Port Settings

Specify any additional settings for your network card or serial port in the appropriate field(s). Typically, you can use the existing default for an additional setting.

Note that some parameters are marked as "Not Present." This means that the parameter is optional; you do not have to use this parameter, but if you do, you must supply a value.

To configure a setting:

1. Select the setting to configure in the Additional Settings box.
2. Select the value for that setting in the Values box.
3. Choose Set to register that value, then choose OK.

Choose Revert to use the value previously displayed for that parameter. You can also choose Cancel to return to the "basic" card/serial port dialog without making changes.

Refer to the card manufacturer's documentation for more information on additional settings.

Using the PC/TCP Installation Program
Understanding PC/TCP Concepts

Selecting a Network Type

The installation program could not detect the network type (or *frame type*) of your network card, or that card supports multiple network types.

The installation program uses the network type to determine the appropriate PC/TCP kernel to configure on your system. The network type refers to the way in which transmitted data is packaged (or "framed") for that network. For example, most Ethernet networks use the DIX-Ethernet network (frame) type.

Select the network type used on your network, then choose Continue. If you do not know this information, ask your system administrator.

Using the PC/TCP Installation Program
Understanding PC/TCP Concepts

Entering Internet Protocol (IP) Addresses

Enter the following IP addresses in the appropriate field.

IP Address   Enter the IP address of your PC, using dot notation. An IP address uniquely identifies your PC to others on the network. For example: 123.145.51.125

Subnet Mask   Enter the IP address of your subnet mask. The subnet defines a smaller network with the larger Internet network. If possible, the installation program provides the appropriate subnet mask for your system based on your IP address. For example: 255.255.255.0

Router(s)   Enter the IP address of your network router. A router directs network traffic between hosts on your network. You can specify one to three router addresses. For example: 123.145.51.4

If you do not know this information, ask your system administrator.

Using the PC/TCP Installation Program
Understanding PC/TCP Concepts
Identifying Computers and Users on the Network

Entering Domain Name System (DNS) Information

Enter the following Domain Name System (DNS) information in the appropriate field.

Host name   Enter the host name of your PC. A host name can be used interchangeably with your IP address to identify your system on the network. For example, mypc.

Domain name   Enter the domain name of your PC network. A domain name represents the work group or organization to which your system belongs. For example: xyz.com

DNS Server Addresses Enter the Internet address for each DNS server on your network. A DNS server translates IP addresses to domain names, and domain names to IP addresses. Note that you must specify at least one DNS Server, and may specify up to three. For example: 123.145.55.123.

If you do not know this information, ask your system administrator.

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