

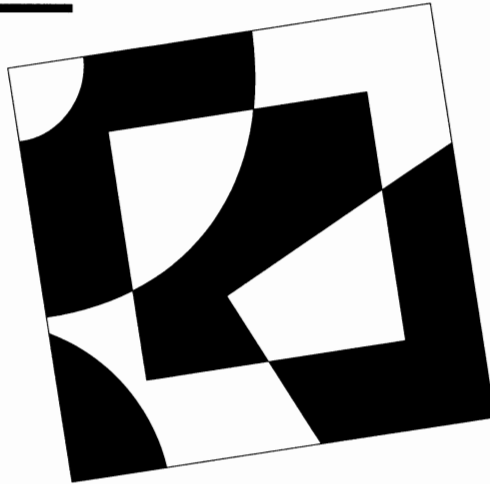
TANDEM CD READ™



**SOFTWARE INSTALLATION
FOR MICROSOFT WINDOWS
SOFTWARE**

 **TANDEM**

TANDEM CD READ™



SOFTWARE INSTALLATION FOR MICROSOFT WINDOWS SOFTWARE

This installation guide describes the techniques for installing the Tandem CD Read viewer for Microsoft Windows software.

Document History	Edition	Part Number	Product Version	Release ID	Date
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First Edition	081493	C30.07.01	N/A	February 1992
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New editions incorporate any updates issued since the previous edition. Update packages, which are issued between editions, contain additional and replacement pages that you should merge into the most recent edition of the manual.

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Printed in the United States of America. 97 96 95 94 93 92 10 9 8 7 6 5 4 3 2

Contents

About This Manual v

Installation Summary vii

Section 1 Hardware and Software Configurations

Configuration Options 1-2

Minimum and Recommended Hardware and Software 1-3

Factors Affecting Performance 1-4

Section 2 Connecting the CD-ROM Device

Contents of an Installation Kit 2-1

Avoiding Adapter Board Conflicts 2-2

Identifying Conflicts 2-3

Section 3 Installing the Tandem CD Read Product

Running the Installation Program 3-2

Section 4 Special Considerations for LAN Installations

Connecting the CD-ROM Device to the LAN Server 4-1

Installing on LAN-Attached PCs 4-2

Performance Issues for the LAN 4-2

Charting Performance 4-3

Transferring Library Files 4-5

Figures	Figure 1-1.	PC Configurations	1-1
	Figure 3-1.	Tandem CD Read Disc Directories	3-1
	Figure 3-2.	File Menu	3-3
	Figure 3-3.	Run Dialog Box	3-3
	Figure 3-4.	First Installation Program Screen	3-3
	Figure 3-5.	Second Installation Program Screen	3-4
	Figure 3-6.	Final Installation Program Screen	3-5
	Figure 4-1.	Response Times	4-4

Tables	Table 1-1.	Minimum and Recommended Configurations	1-3
	Table 2-1.	Standard I/O ADDRESS Assignments	2-4
	Table 2-2.	Standard INTERRUPT Assignments	2-7
	Table 2-3.	Standard DMA Assignments	2-8
	Table 2-4.	Standard SHARED MEMORY Assignments	2-9

About This Manual

The primary purpose of this manual is to help you install the Tandem CD Read software on your PC. Additionally, this manual contains information on PC hardware and software configurations, CD-ROM adapter boards, and performance factors for stand-alone PCs and PCs attached to local area networks (LANs).

Manual Organization Information within this manual is organized as follows:

- Installation Summary—summarizes, for experienced PC users, how to install the Tandem CD Read viewer and font mapping information using the installation program.
- Section 1—describes the different computer configuration options available to you, the factors affecting performance, and minimum and recommended hardware and software to help you determine the appropriate configuration for running the Tandem CD Read product.
- Section 2—lists the standard contents of a CD-ROM drive installation kit and explains how to avoid adapter board conflicts.
- Section 3—explains how to run the installation program, which installs the Tandem CD Read viewer and font mapping information on your PC's hard disk.
- Section 4—presents special installation and performance considerations for LAN servers and LAN-attached PCs.

Further Reading For additional information about the Tandem CD Read product and CD-ROM drives, refer to the following manuals:

- Tandem CD Read CD-ROM Drive Installation Manual* explains how to install the CD-ROM drive included in the Tandem CD-ROM drive kit. This manual is included in the kit.
- Tandem CD Read Quick Start for Microsoft Windows Software* provides an overview of how to use the Tandem CD Read viewer. This manual is included with the Tandem CD Read product.

Installation Summary

To access the contents of the Tandem CD Read compact disc, you must first connect a CD-ROM drive to your PC. If you bought your CD-ROM drive from Tandem, refer to the installation instructions included in the Tandem CD-ROM Drive kit. These instructions explain how to install, connect, and configure the CD-ROM adapter board and load the required Microsoft CD-ROM extensions file and the CD-ROM driver file. If you purchased your CD-ROM drive from another vendor, read that vendor's manual for CD-ROM drive installation instructions.

After connecting a CD-ROM drive to your PC, you're ready to install the Tandem CD Read product, which includes viewer software and font mapping information, on your PC's hard disk. The following pages summarize how to install the required software and font mapping information by using the installation program provided on the Tandem CD Read disc.

If you have PC experience, you may be able to install the Tandem CD Read product by reading only the installation summary contained on the following pages. If you do not have PC experience or are unsure of how to proceed, please read the rest of this manual. It describes the installation process in greater detail.

The Installation Program

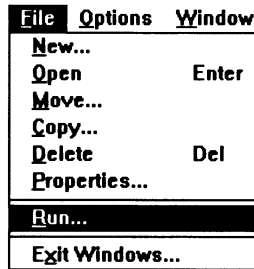
The installation program automatically creates a program group, called the Tandem Document Viewer, on your Windows desktop and creates a program item, called CD Read, within that group. The installation program copies the CDREAD.EXE file, which contains the Tandem CD Read viewer software, from the Tandem CD Read disc to a specified directory on your PC's hard disk.

The installation program also copies the contents of either the FONT.INI or FONTPLUS.INI file to your Windows initialization (WIN.INI) file. The FONT.INI file contains the table necessary to translate all Tandem library fonts to the four standard Windows application fonts; namely, Times, Courier, Helvetica, and Symbol. The FONTPLUS.INI file contains the table necessary to translate the most commonly used Tandem library fonts to the

Adobe Type Manager (ATM) and Adobe Plus Pack font enhancement programs.

To run the installation program and load the appropriate software files, perform the following steps:

1. Start the Windows software.
2. Insert the Tandem CD Read disc into your CD-ROM drive.
3. Select the Run option from the File menu.

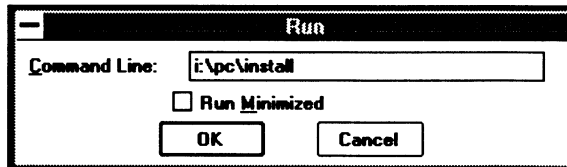


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4. At the Run dialog box, enter:

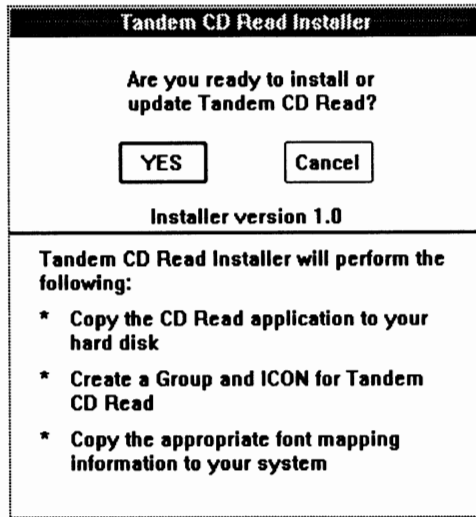
`x:\pc\install`

where *x* is the drive designation for the CD-ROM device connected to your PC. Click the OK button.



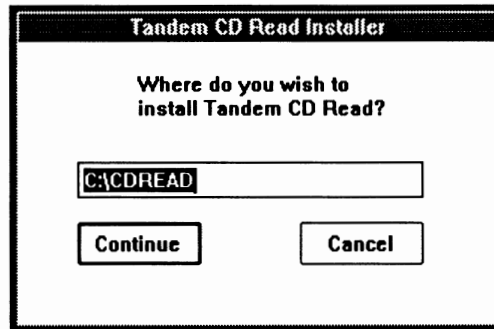
002

5. At the first Tandem CD Read installation program screen, click the Yes button to proceed with the installation or updating of the Tandem CD Read software.



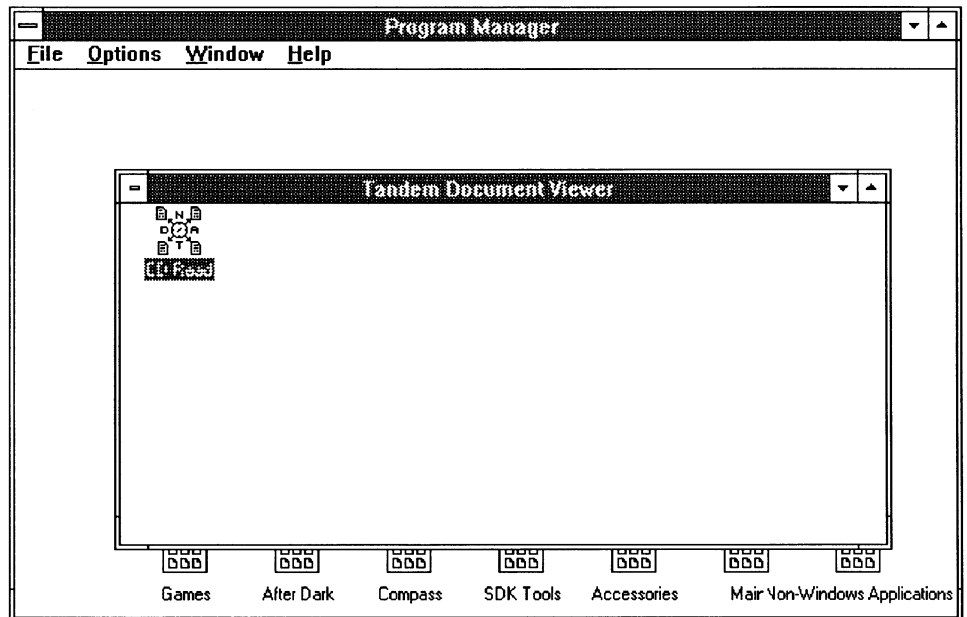
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6. At the next Tandem CD Read installation program screen, either click the Continue button to install the Tandem CD Read software in the default location shown, or enter another directory name and click the Continue button.



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7. At the final Tandem CD Read installation program screen, click the OK button to terminate the installation program. The Tandem CD Read software is now installed on your PC as a Windows application.



005

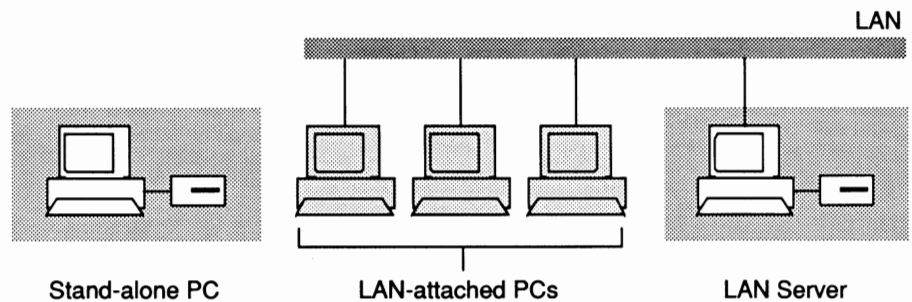
8. Restart the Windows software to initiate font mapping.

1 Hardware and Software Configurations

In this manual, three types of computers are mentioned for use with the Tandem CD Read product and CD-ROM devices: stand-alone PCs, LAN servers, and LAN-attached PCs. They are illustrated in Figure 1-1.

- Stand-alone PCs are microcomputers that function independently. They are not attached to a LAN and do not share resources, such as CD-ROM drives and hard disk drives, with other microcomputers.
- LAN-attached PCs are microcomputers that can function independently of other microcomputers but are attached to a LAN and share LAN resources, including CD-ROM drives and hard disk drives.
- LAN servers are typically microcomputers that control LAN resources, store common data files, and facilitate access to those resources and files by LAN-attached PCs.

Figure 1-1. PC Configurations



041

Before connecting a CD-ROM device to your system and installing Tandem CD Read software, you should consider:

- Configuration options for stand-alone PCs and LAN servers
- Minimum and recommended hardware and software for stand-alone PCs and LAN-attached PCs
- Factors affecting the performance of stand-alone PCs
- Factors affecting the performance of LAN servers and LAN-attached PCs

The first three considerations are addressed in this section. LAN-related performance factors are presented in Section 4, "Special Considerations for LAN Installations."

Configuration Options

The Tandem CD Read product allows you either to access online manuals from the Tandem CD Read disc using a CD-ROM drive or store the manuals on a high-capacity hard disk and access them from that disk. Consequently, the following configuration options are discussed in this manual:

1. A stand-alone PC with a CD-ROM drive
2. A LAN server with a CD-ROM drive
3. A LAN-attached PC with a CD-ROM drive
4. A LAN server with a 650 MB hard disk drive

To access online manuals from a LAN server's hard disk, the libraries containing the online manuals must first be copied from the Tandem CD Read disc to the hard disk. See "Transferring Library Files" in Section 4 for instructions on how to do this.

Note The maximum capacity of a CD-ROM disc is currently 650 MB. Consequently, a high-capacity hard disk drive containing at least 650 MB is recommended to accommodate the volume of data on the CD-ROM disc.

Which configuration option you implement depends on various business and technical considerations, including:

- The number of users requiring access to online manuals
- The location of those users
- Performance expectations (that is, anticipated system response time)
- Any cost constraints

For example, if you already have a LAN installed, consider the option of connecting a CD-ROM device to the LAN server. Because the LAN is already installed in this scenario, this option may be less expensive than connecting a CD-ROM drive to each LAN-attached PC.

Minimum and Recommended Hardware and Software

When installing the Tandem CD Read product on a stand-alone PC or a LAN-attached PC, consider the information in Table 1-1. The minimum configuration column lists the hardware and software required to run Tandem CD Read software. The recommended configuration column denotes the hardware and software that provide improved performance.

Table 1-1. Minimum and Recommended Configurations

Minimum Configuration	Recommended Configuration
IBM or compatible 286 PC with 2 MB RAM	IBM or compatible 386 PC with 4 MB RAM
Hard drive with 2 MB of free space	Hard drive with 5 MB of free space
Windows-compatible graphics adapter	Super VGA or other high-resolution adapter
14" monochrome monitor	14" or larger monochrome or color monitor
Access to a PostScript printer	Access to a PostScript printer
Mouse	Mouse
DOS 3.3 or higher	DOS 3.3 or higher
Microsoft Windows 3.0	Microsoft Windows 3.0
	Adobe Type Manager (ATM) and Adobe Plus Pack

The hardware and software you choose ultimately depends on performance expectations, the ease-of-use required by users, and cost considerations. For example, you must decide whether the slightly faster search capability of a stand-alone 386 PC compared to that of a 286 computer is worth the additional cost.

Factors Affecting Performance

When measuring the performance of a system on which Tandem CD Read software is installed, you are typically measuring the amount of time it takes for a user-initiated search function to complete. The search function cycle includes accessing the peripheral device, locating and opening the applicable document, retrieving the information, and displaying the results on the user's screen.

For a stand-alone PC, the primary factors that affect performance are:

- The speed of the CD-ROM drive, which generally runs slower than a device employing magnetic media (such as a hard disk drive)
- The amount of memory (RAM)
- The type of processor (386 computer compared to a 286 computer) and the speed of the processor (33 MHz compared to 8 or 16 MHz)

In addition to the preceding factors that affect actual performance, the speed at which a stand-alone PC monitor can redraw a screen to display requested data affects perceived performance.

To improve response time on a stand-alone PC, consider the following options:

1. Add more memory.
2. If you're using a 286 PC, switch to a 386 PC.

2 *Connecting the CD-ROM Device*

The CD-ROM drive, which should be installed by a qualified technician, can be obtained from Tandem or purchased from another vendor. If you bought your CD-ROM drive from Tandem, first refer to the installation instructions included in the Tandem CD-ROM Drive kit, which explain how to install, connect, and configure the CD-ROM adapter board and load the Microsoft CD-ROM extensions file and the CD-ROM driver file. Then, refer to Section 3, "Installing the Tandem CD Read Product" for instructions on how to install the Tandem CD Read software.

If you purchased your CD-ROM drive from another vendor, first read that vendor's documentation for hardware and software installation instructions. Then, refer to the remainder of this manual.

Contents of an Installation Kit

Whether you acquired your CD-ROM drive from Tandem or another vendor, the installation kit for a PC typically consists of the following hardware components:

- CD-ROM drive
- SCSI terminator
- CD-ROM adapter board
- Adapter board cable
- Power cable
- Disc caddy

The installation kit for a PC also typically consists of the following software components:

- CD-ROM device driver file
- Microsoft CD-ROM extensions (MSCDEX.EXE) file

For information on installing CD-ROM hardware and software in a LAN configuration, refer to Section 4, "Special Considerations for LAN Installations."

To make sure that the installation of the CD-ROM adapter board does not conflict with other adapter boards installed in the PC, refer to "Avoiding Adapter Board Conflicts," which immediately follows.

Avoiding Adapter Board Conflicts

PCs use several control signals to send data to and to receive data from adapter boards, which control a wide range of functions, ports, and peripheral devices. At least one and often more of these signals are used for every adapter. These signals can be assigned to four groups:

- I/O ADDRESS assignment
- INTERRUPT assignment
- DMA (direct memory access) assignment
- SHARED MEMORY assignment

Of these four groups, only the I/O ADDRESS assignment is required; that is, each and every adapter must have a unique I/O address. The other groups are optional; depending on design considerations, adapters may require one, all, or none of the others. The CD-ROM adapter board from Tandem uses only the I/O ADDRESS, INTERRUPT, and SHARED MEMORY assignments. The adapter does not assign a DMA channel.

Prior to installing the CD-ROM adapter board from Tandem, you should verify that the settings for I/O ADDRESS, INTERRUPT, and SHARED MEMORY do not conflict with any other adapter or device connected to your PC.

Note Adapter board conflicts typically cause operational errors and machine lock ups.

The preferred method for installing a CD-ROM adapter board is to configure the adapter using a currently unassigned setting. However, this may not always be possible. For example, the CD-ROM adapter board from Tandem can be configured to use either INTERRUPT 3 or INTERRUPT 5; however, use of either of these INTERRUPTs could interfere

with the standard INTERRUPT assignment for Serial Port 2 or Parallel Port 2, respectively.

When there is an adapter board conflict, consider reassigning or disabling one of the conflicting adapter boards to install the CD-ROM adapter. To reassign an adapter board, you either reset it manually with jumper switches or reset it programmatically with software supplied by the adapter board vendor.

Identifying Conflicts Using Tables 2-1, 2-2, 2-3, and 2-4 on the following pages, indicate:

- The default settings for your CD-ROM adapter board by completing the "Adapter Board Default Settings" column in each table. These default settings are the ones established by the adapter's vendor and listed in the vendor's documentation.
- Your current adapter assignments by filling in the "Your PC" column in each table. Be sure to enter assignments made for all adapter boards installed in your PC.

Once these tables are completed, you can identify which adapter boards and their respective functions, ports, and devices may be in conflict and then make the appropriate adjustments.

Table 2-1. Standard I/O ADDRESS Assignments (Page 1 of 3)

Hexadecimal Address Range	Assignment	Adapter Board Default Settings	Your PC
000-01F	DMA Controller 1		
020-03F	Interrupt Controller 1		
040-05F	Timer/counter		
060-06F	Keyboard Controller		
070-07F	Real Time Clock		
080-09F	DMA Page Register		
0A0-0BF	Interrupt Controller 2		
0C0-0DF	<< UNASSIGNED >>		
0E0-0EF	<< UNASSIGNED >>		
0F0	Clear x87 busy		
0F1	Reset x87 busy		
0F8-0FF	x87 Numeric Coprocessor		
100-10F	<< UNASSIGNED >>		
110-11F	<< UNASSIGNED >>		
120-12F	<< UNASSIGNED >>		
130-13F	<< UNASSIGNED >>		
140-14F	<< UNASSIGNED >>		
150-15F	<< UNASSIGNED >>		
160-16F	<< UNASSIGNED >>		
170-17F	<< UNASSIGNED >>		
180-18F	<< UNASSIGNED >>		
190-19F	<< UNASSIGNED >>		
1A0-1AF	<< UNASSIGNED >>		
1B0-1BF	<< UNASSIGNED >>		
1C0-1CF	<< UNASSIGNED >>		

Table 2-1. Standard I/O ADDRESS Assignments (Page 2 of 3)

Hexadecimal Address Range	Assignment	Adapter Board Default Settings	Your PC
1D0-1DF	<< UNASSIGNED >>		
1E0-1EF	<< UNASSIGNED >>		
1F0-1F8	Hard Disk Controller		
200-207	Game I/O		
210-21F	<< UNASSIGNED >>		
220-22F	<< UNASSIGNED >>		
230-23F	<< UNASSIGNED >>		
240-24F	<< UNASSIGNED >>		
250-25F	<< UNASSIGNED >>		
260-26F	<< UNASSIGNED >>		
270-277	<< UNASSIGNED >>		
278-27F	Parallel Port 2 (LPT2)		
280-28F	<< UNASSIGNED >>		
290-29F	<< UNASSIGNED >>		
2A0-2AF	<< UNASSIGNED >>		
2B0-2BF	<< UNASSIGNED >>		
2C0-2CF	<< UNASSIGNED >>		
2D0-2DF	<< UNASSIGNED >>		
2E0-2EF	<< UNASSIGNED >>		
2F0-2F7	<< UNASSIGNED >>		
2F8-2FF	Serial Port 2 (COM2)		
300-31F	Prototype Card		
320-32F	<< UNASSIGNED >>		
330-33F	<< UNASSIGNED >>		
340-34F	<< UNASSIGNED >>		

Table 2-1. Standard I/O ADDRESS Assignments (Page 3 of 3)

Hexadecimal Address Range	Assignment	Adapter Board Default Settings	Your PC
350-35F	<< UNASSIGNED >>		
360-36F	Reserved		
378-37F	Parallel Port 1 (LPT1)		
380-38F	SDLC bisynchronous 2		
390-39F	<< UNASSIGNED >>		
3A0-3AF	SDLC bisynchronous 1		
3B0-3BF	Monochrome display		
3C0-3CF	Reserved		
3D0-3DF	Color Graphics Adapter		
3E0-3EF	<< UNASSIGNED >>		
3F0-3F7	Floppy Disk		
3F8-3FF	Serial Port 1 (COM1)		

Table 2-2. Standard INTERRUPT Assignments

INTERRUPT	Assignment	Adapter Board Default Settings	Your PC
IR 0	System Timer		
IR 1	Keyboard		
IR 2	Cascade (from IR 8 through 15)		
IR 3	Serial Port 2 (COM2)		
IR 4	Serial Port 1 (COM1)		
IR 5	Parallel Port 2 (LPT2)		
IR 6	Floppy Disk		
IR 7	Parallel Port 1 (LPT1)		
IR 8	Real Time Clock		
IR 9	<< UNASSIGNED >>		
IR 10	<< UNASSIGNED >>		
IR 11	<< UNASSIGNED >>		
IR 12	<< UNASSIGNED >>		
IR 13	x87 Numeric Coprocessor		
IR 14	Hard Disk		
IR 15	<< UNASSIGNED >>		

Table 2-3. Standard DMA Assignments

DMA Channel	Assignment	Adapter Board Default Settings	Your PC
DMA 0	<< UNASSIGNED >>		
DMA 1	<< UNASSIGNED >>		
DMA 2	<< UNASSIGNED >>		
DMA 3	(Cascade)		
DMA 4	<< UNASSIGNED >>		
DMA 5	<< UNASSIGNED >>		
DMA 6	<< UNASSIGNED >>		

Table 2-4. Standard SHARED MEMORY Assignments

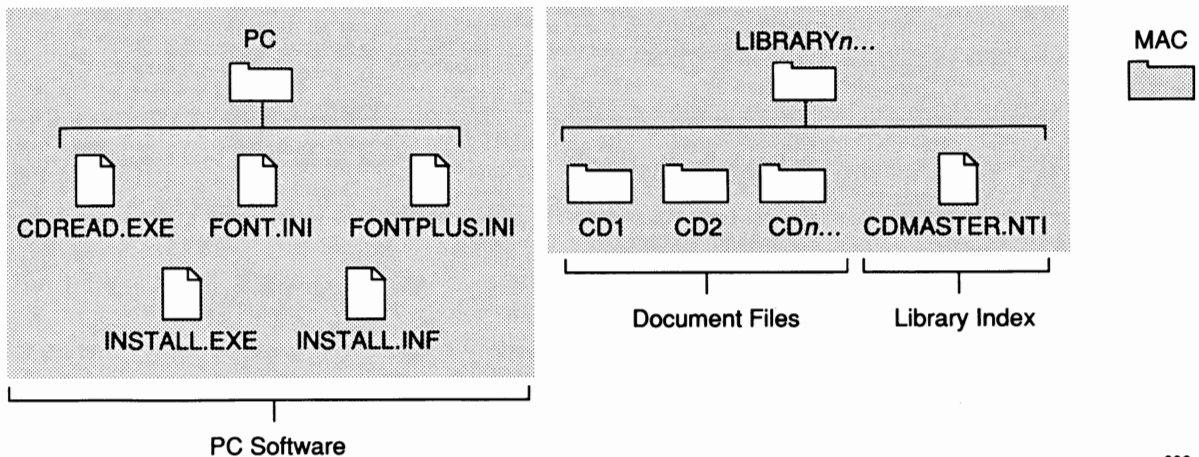
Hexadecimal Address Range	Assignment	Adapter Board Default Settings	Your PC
A000-A7FF	VGA or EGA		
A800-AFFF	VGA or EGA		
B000-B3FF	Monochrome Video		
B400-B7FF	<< UNASSIGNED >>		
B800-BFFF	CGA		
C000-C3FF	<< UNASSIGNED >>		
C400-C7FF	EGA ROM		
C800-CFFF	<< UNASSIGNED >>		
D000-D7FF	<< UNASSIGNED >>		
D800-DFFF	<< UNASSIGNED >>		
E000-E7FF	BIOS		
E800-EFFF	BIOS		
F000-F7FF	BIOS		
F800-FFFF	BIOS		

3 Installing the Tandem CD Read Product

Installing the Tandem CD Read product on your stand-alone PC involves creating a new program group and program item on your desktop and copying the Tandem CD Read viewer and the Tandem CD Read font mapping information to your PC's hard disk. You perform these tasks using the installation program included on the Tandem CD Read disc. However, before using the installation program, you should have:

- A working knowledge of DOS and Windows software.
- A CD-ROM drive installed and operational.
- Windows 3.0 software installed on your PC hard drive.
- The Tandem CD Read disc, the contents of which are shown in Figure 3-1. In addition to software files, the disc includes one or more library directories, each of which contains document files and a library index. When installing the Tandem CD Read software on a PC, ignore the MAC directory. It contains files used to install the Tandem CD Read software on an Apple Macintosh computer.

Figure 3-1. Tandem CD Read Disc Directories



006

△ Caution Do not attempt to start the Tandem CD Read software from the Tandem CD Read disc; doing so will produce application errors. Rather, install the required files on your PC's hard disk using the installation program and start the Tandem CD Read software locally from that hard disk.

For information on how to install the Tandem CD Read product in a LAN configuration, refer to Section 4, "Special Considerations for LAN Installations."

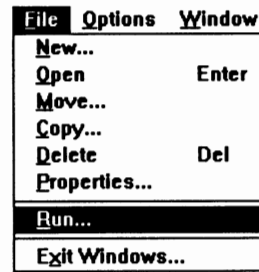
Running the Installation Program

The installation program automatically creates a program group, called the Tandem Document Viewer, on your Windows desktop and creates a program item, called CD Read, within that group. The installation program copies the CDREAD.EXE file, which contains the Tandem CD Read viewer software, from the Tandem CD Read disc to a specified directory on your PC's hard disk.

The installation program also copies the contents of either the FONT.INI or FONTPLUS.INI file to your Windows initialization (WIN.INI) file. The FONT.INI file contains the table necessary to translate all Tandem library fonts to the four standard Windows application fonts; namely, Times, Courier, Helvetica, and Symbol. The FONTPLUS.INI file contains the table necessary to translate the most commonly used Tandem library fonts to the Adobe Type Manager (ATM) and Adobe Plus Pack font enhancement programs.

To run the installation program and load the appropriate software files, perform the following steps:

1. Start the Windows software.
2. Insert the Tandem CD Read disc into your CD-ROM drive.
3. Select the Run option from the File menu at the top of the screen as illustrated in Figure 3-2.

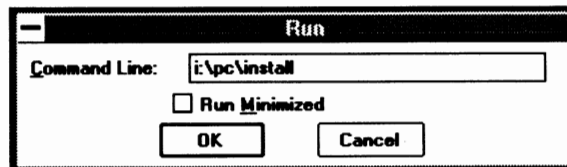
Figure 3-2. File Menu

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-
4. At the Run dialog box, enter:

`x:\PC\install`

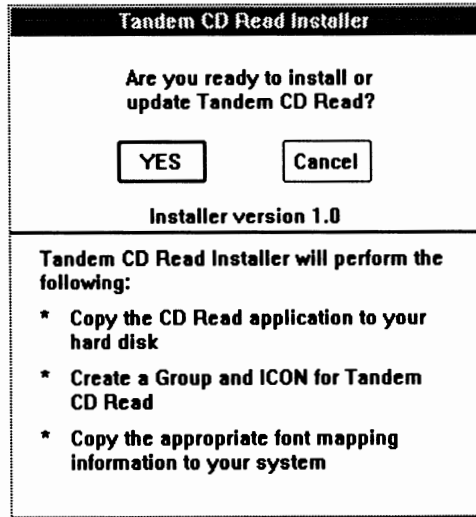
where *x* is the drive designation for the CD-ROM device connected to your PC. Click the OK button. The Run dialog box is illustrated in Figure 3-3.

Figure 3-3. Run Dialog Box

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5. At the first Tandem CD Read installation program screen (Figure 3-4), click the Yes button to proceed with the installation or updating of the Tandem CD Read software.

Figure 3-4. First Installation Program Screen



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- At the next Tandem CD Read installation program screen (Figure 3-5), either click the Continue button to install the Tandem CD Read software in the default location shown, or enter another directory name and click the Continue button.

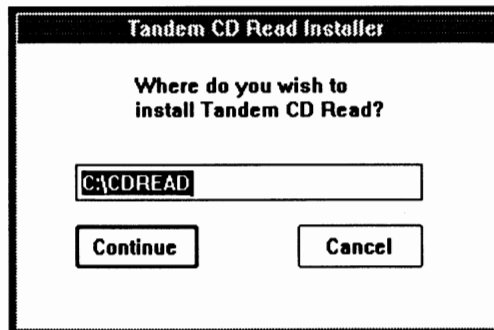
After you click the Continue button, the installation program displays screens indicating that it is:

- Copying the CDREAD.EXE file to the specified location

Note If you already have a copy of the CDREAD.EXE file installed in the target location, the installation program prompts you to proceed or cancel the installation. If you choose to proceed, the installation program does not overwrite the previous version of the CDREAD.EXE file residing on your PC's hard disk. You delete the previous version as indicated in Step 9 of this procedure.

- Installing the CD Read icon on your desktop
- Installing font mapping information by copying the contents of either the FONT.INI file or the FONTPLUS.INI file to the WIN.INI file

Figure 3-5. Second Installation Program Screen



004

7. At the final Tandem CD Read installation program screen (Figure 3-6), click the OK button to terminate the installation program. The Tandem CD Read software is now installed on your PC as a Windows application.

Figure 3-6. Final Installation Program Screen



007

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8. Restart the Windows software to initiate font mapping.
 9. Open the Tandem Document Viewer program group on your desktop. If more than one copy of the Tandem CD Read viewer resides in the program group after running the installation program:
 - a. Identify the outdated copy by its version number, which appears below the CD Read icon on your desktop and has the format *n.n.n*.
 - b. Select the icon for the outdated viewer.
 - c. Use the Delete option on the File menu to remove the icon.

4 *Special Considerations for LAN Installations*

The Tandem CD Read product works with a variety of local area networking products, including the Tandem Multilan network and the AppleTalk and MS-NET networks. Before using Tandem CD Read with other LAN products, identify any special considerations related to using a CD-ROM drive as a networked device by contacting your LAN software vendor.

This section provides information specific to local area network installations; namely, how to connect a CD-ROM device and how to install Tandem CD Read software on a LAN-attached PC. This section also describes performance issues related to running Tandem CD Read software in a LAN configuration and how to copy library files from the Tandem CD Read disc to a hard disk for improved performance.

Connecting the CD-ROM Device to the LAN Server

Although CD-ROM hardware (that is, the drive and adapter board) and CD-ROM software (that is, the device driver software and Microsoft CD-ROM extensions) can be connected to LAN-attached PCs, it is often more cost effective to install the CD-ROM hardware and software on a LAN server. When installing this hardware and software on a server, the LAN administrator determines the shared device name.

Refer to your LAN reference documentation for instructions on installing CD-ROM adapter boards in a server, attaching peripheral devices to the server, and installing the required CD-ROM drive software from your CD-ROM vendor.

Note The DOS config.sys file on a LAN server must be set for at least 40 open files (Files = 40) to support multiple user access to a Tandem CD Read library. However, as a general rule, allow four additional open files per user if you anticipate more than 10 simultaneous users.

Installing on LAN-Attached PCs

To install the Tandem CD Read software in a LAN configuration, follow the instructions provided for the installation program in Section 3, "Installing the Tandem CD Read Product." You use the installation program to copy the CDREAD.EXE file and the contents of either the FONT.INI or FONTPLUS.INI file from the CD-ROM drive connected to the LAN server to the hard disks of each LAN-attached PC.

Performance Issues for the LAN

The ability of users to access online documentation with an acceptable level of performance on a local area network can be affected by a variety of factors. Among these are:

- The location of the Tandem CD Read libraries, which contain the online manuals. The manuals can reside on the Tandem CD Read disc and be read by a CD-ROM drive or reside on a high-capacity hard disk.

In a LAN-based configuration, the response time of a CD-ROM drive attached to a server is consistently—but not significantly—slower than that of a hard drive attached to a server. The response time of a CD-ROM drive becomes significantly slower than that of a hard drive when multiple users are simultaneously accessing the Tandem CD Read libraries.

- Multiple users accessing different data simultaneously. For a LAN server with a CD-ROM device, performance degrades dramatically when three or more users simultaneously request information residing in different locations on the disc. Although the accessing of random data also affects the performance of a server with a hard disk, the impact on response time is much less significant.

Note When considering the impact of simultaneous access on performance, note that the probability of three or more LAN users simultaneously pressing the Enter key on their keyboards to initiate a search function, for instance, is very remote. This is true even in departments containing 100 users. From a system perspective, if multiple users do not press their Enter keys at exactly the same time, each user is defined as having single access (like on a stand-alone PC).

- The speed of the CD-ROM drive, which generally runs slower than a device employing magnetic media (such as a hard disk drive).
- The amount of memory (RAM) in the LAN-attached PCs.
- The number of users. Generally, to maintain acceptable response time, no more than five simultaneous users per CD-ROM drive is recommended.
- The type of LAN server processor (386 computer compared to a 286 computer) and the speed of the processor (33 MHz compared to 8 or 16 MHz).
- The type of LAN-attached PC processor (386 computer compared to a 286 computer) and the speed of the processor (33 MHz compared to 8 or 16 MHz).
- The type of local area network.

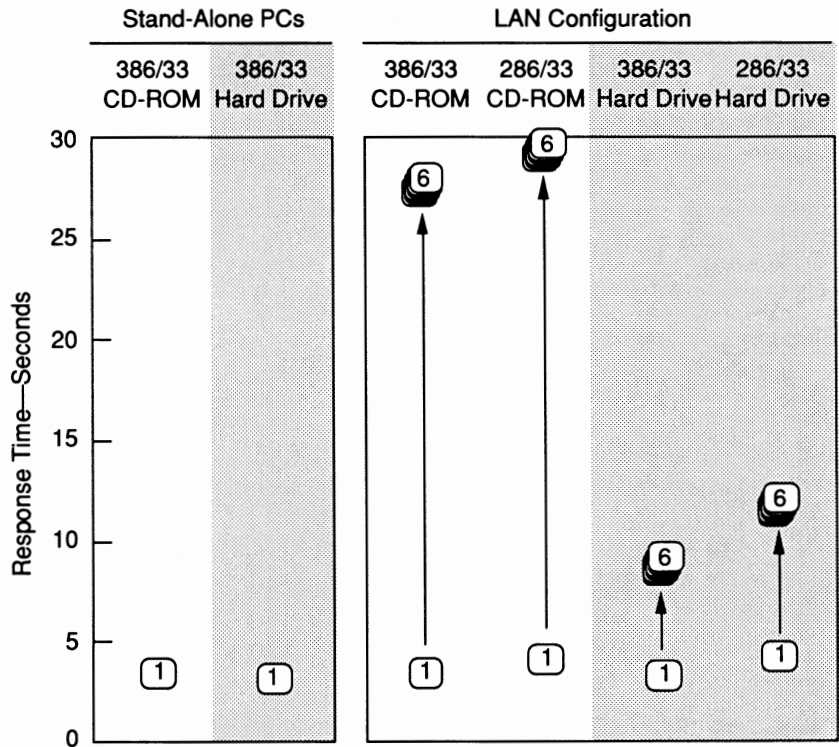
In addition to the preceding factors that affect actual performance, the speed at which the monitor on a LAN-attached PC can redraw a screen to display requested data affects perceived performance.

Charting Performance

In Figure 4-1, the response times of six different configurations, including two stand-alone PCs with either a CD-ROM drive or a hard drive, are charted. The four LAN configurations are shown on a continuum from lightly loaded (that is, without multiple users accessing different documents simultaneously) to heavily loaded (that is, multiple users accessing different documents simultaneously).

As you can see, the two stand-alone PC configurations represent the best response times overall. The LAN configurations using CD-ROM devices have the most dramatic decline in performance when the number of simultaneous users increases. The LAN configurations using hard disks, instead of CD-ROM devices, have a much less significant decline in response time when the number of simultaneous users increases. When the number of simultaneous users is low, all six configurations perform comparably well with no significant variance in response time among them.

Figure 4-1. Response Times



Legend

- 6 Six Simultaneous User Hits
- 1 One User Hit

Options for Improving Performance

To improve performance in a LAN-based configuration, consider the following options:

- If you're using a LAN server with a CD-ROM device, switch from the CD-ROM device to a high-capacity hard disk.

See "Transferring Library Files," which follows, for instructions on how to copy the Tandem CD Read libraries from the Tandem CD Read disc to a hard disk attached to a LAN server.

- Add more LAN servers with attached CD-ROM drives to the LAN configuration.
- Add more memory to the LAN-attached PCs.
- Connect additional CD-ROM drives to the existing LAN server.
- If you're using a 286 PC, switch to a 386 PC.
- Connect a CD-ROM drive to each LAN-attached PC.

Transferring Library Files

If you switch from a server-connected CD-ROM drive to a server-connected high-capacity hard drive to improve performance, you must copy the Tandem CD Read libraries from the Tandem CD Read disc to the high-capacity hard disk. To do so, perform the following steps. These steps assume that you have already copied the CDREAD.EXE file and the FONT.INI or FONTPLUS.INI file to the hard disks on the LAN-attached PCs. Instructions for copying these files are provided in Section 3, "Installing the Tandem CD Read Product."

1. Insert the Tandem CD Read disc into the CD-ROM drive.
2. At the DOS prompt (shown as `c:\ >`), copy the contents of the Tandem CD Read disc to your LAN server by entering:

```
c:\ > xcopy x:\*.* y: /s
```

where *x* is the drive assigned to your CD-ROM device and *y* is the target drive on your LAN server.

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Tandem welcomes your comments on the quality and usefulness of its software documentation. Does this manual serve your needs? If not, how could we improve it? Your comments will be forwarded to the writer for review and action, as appropriate.

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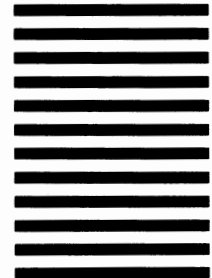
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