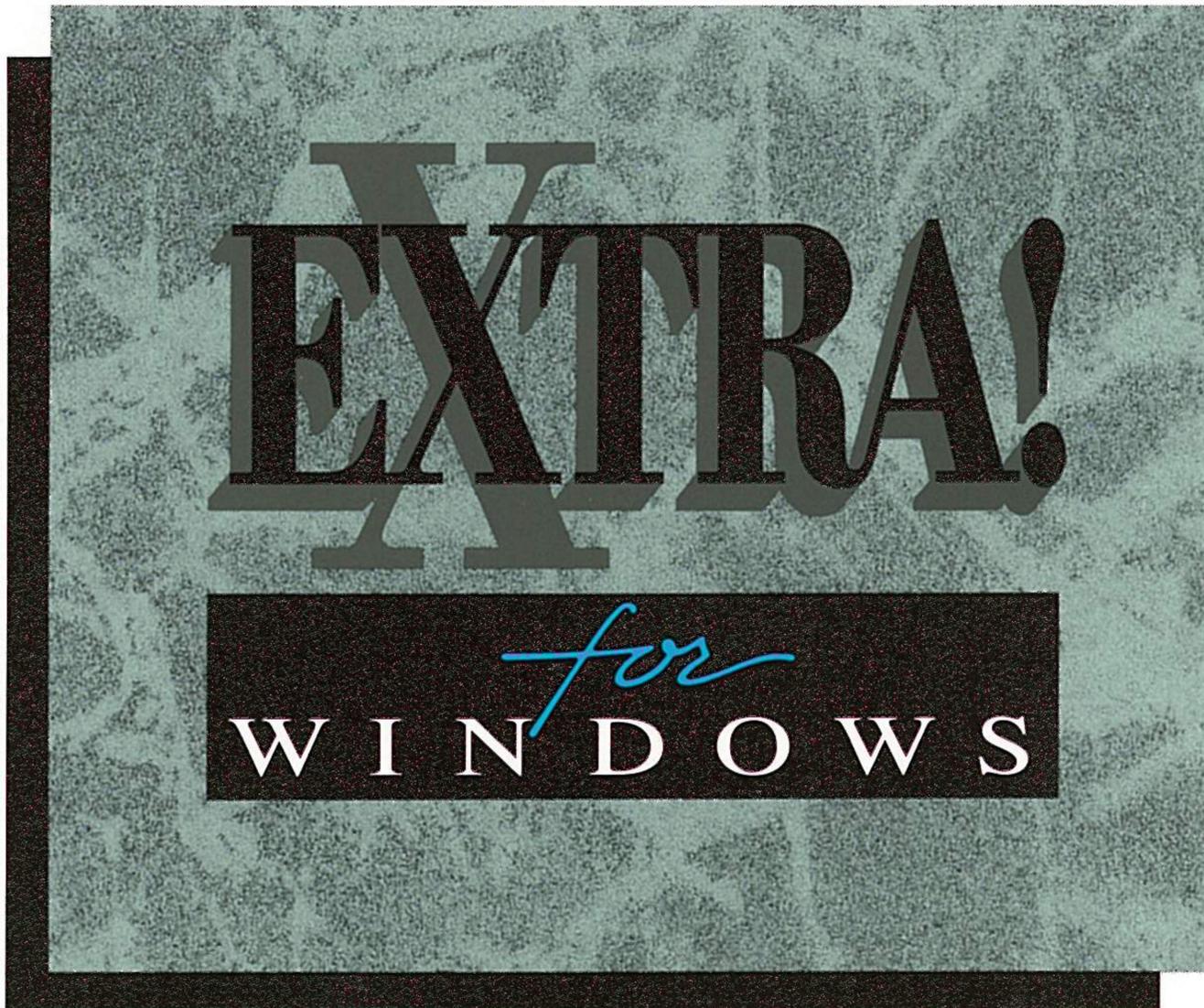


TM



**USER'S
MANUAL**

Attachmate



Extra!
for
Windows

User's Manual

Release 3.1

Technical Support: 1-800-388-3270

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This manual was written by Celine Aston, Cindy K. Hughes, and Steven L.W. Nelson. Graphics were designed by Kay Ashton.

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EXTRA! for Windows

EXTRA!

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Introducing EXTRA! for Windows

Welcome to *EXTRA! for Windows*, a software program that lets your PC or PS/2 communicate with an IBM mainframe computer. In effect, *EXTRA!* gives your PC a dual personality: It can act like a PC, giving you access to PC applications and the local processing power of a PC; or it can act like an IBM mainframe terminal, giving you access to powerful mainframe applications and data bases. For sharing data between mainframes and PCs, *EXTRA!*'s file transfer command allows you to move files easily between PCs and mainframes. *EXTRA!* gives you the best of both worlds.

EXTRA! runs in the Microsoft Windows environment, which means that you can work on several applications at the same time. You can effortlessly switch between mainframe and PC programs with just a click of a mouse or a few simple keystrokes. With *EXTRA!*, you can suspend one program while you work in another.

EXTRA!'s Features

EXTRA! provides you with a powerful arsenal of features: it offers access to multiple PC applications (both Windows-based and MS-DOS PC applications), multiple mainframe sessions (up to 26), flexible connection methods, and it allows you to transfer files between your PC and the mainframe. These features and others are described in more detail below.

Multiple Sessions

Multiple sessions let you get more work done in less time. For instance, you can write a letter using a PC application, while transferring files in a mainframe session. *EXTRA!* also allows you to cut and paste text between mainframe sessions (or Windows applications) using the Windows clipboard.

With *EXTRA!*, you can run up to 26 mainframe sessions at the same time, depending on the type of connection you have with the mainframe. And you can switch between these sessions with the click of a mouse or a few keystrokes. Some of these sessions can even emulate a mainframe printer, allowing you to print mainframe data to your local PC printer.

In addition to these mainframe and printer sessions, you can access multiple PC applications. This means that you can be running several Windows programs while continuing to work in a mainframe session. Since you probably won't use all of your sessions at the same time, *EXTRA!* lets you specify the number and type of sessions you want to use, and allocates only the amount of PC memory needed for those sessions.



Screen Layouts

As a Windows application, *EXTRA!* takes full advantage of the Windows environment by letting you display any combination of mainframe and printer sessions on your screen at the same time. You can arrange these windows on your screen any way you like, adjusting their color, size, and position, then save the "layout" for later use. Creating and saving screen layouts make it easy to work on multiple applications. It also saves you time since the mainframe and printer sessions that you use most often pop up automatically, complete with connections, when you start up *EXTRA!*

File Transfer

With *EXTRA!*, you can easily download files from the mainframe to your PC or upload them to the mainframe. *EXTRA!* guides you through this process with a set of easy-to-follow dialog boxes. You can even transfer two files simultaneously, allowing you to get more work done in less time. *EXTRA!* works with IBM's mainframe-based Send/Receive program (IND\$FILE). Send/Receive offers high-speed transfer of both text and binary files, as well as excellent error correction.

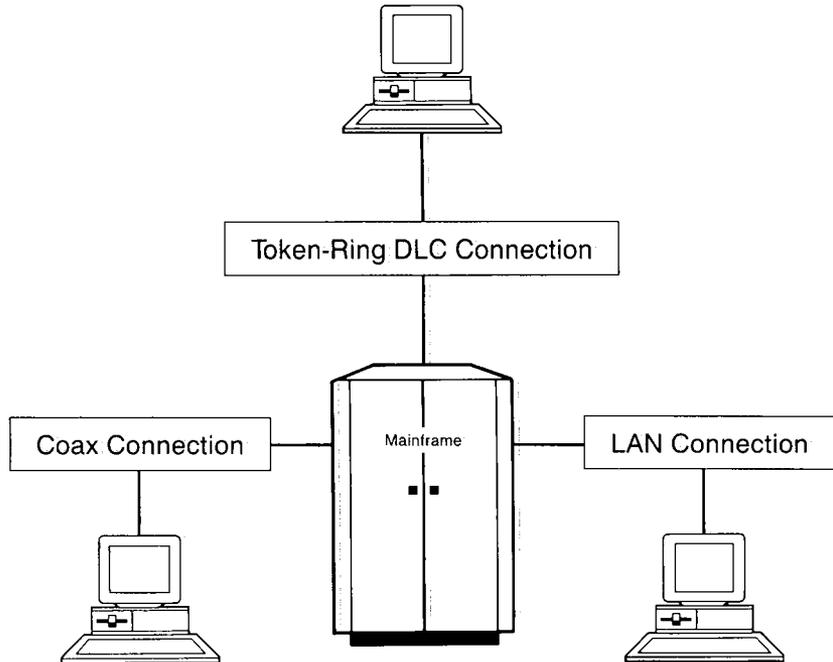
Since *EXTRA!* supports Windows Clipboard, it's simple to transfer blocks of text between mainframe sessions or PC applications.

Printing Mainframe Information

With *EXTRA! for Windows* you can easily print mainframe files to either your local printer or a file for later use. This feature, called Printer Emulation, allows your PC printer to act just like a 3287 mainframe printer. Printer Emulation lets you spend your time on more important tasks instead of running back and forth to the mainframe printer.

Flexible Connection Methods

EXTRA! can communicate with the mainframe in a variety of ways; the method is up to you. It can be customized to communicate with the mainframe through a coax adapter, a Local Area Network adapter, or a Token-Ring Interface Coupler (TIC). EXTRA! supports all Attachmate and IBM coax adapters. These connections are shown in the diagram below:



Display Support

EXTRA! provides a wide array of display screen features, including support for both color and monochrome monitors, and support for a variety of fonts. With some adapters, you can even view screens larger than the standard PC display, reducing the amount of scrolling you need to do. Even without these adapters, viewing mainframe sessions is easier in the Windows environment since all windows can be maximized to fill the entire screen.

EXTRA! can communicate with the mainframe in a variety of ways; the method is up to you. It can be customized to communicate with the mainframe through a coax adapter, a Local Area Network adapter, or a Token-Ring Interface Coupler (TIC). EXTRA! supports all Attachmate and IBM coax adapters. These connections are shown in the diagram below:

Terminal Keyboard Support

EXTRA! comes complete with a set of pre-defined keyboard layouts that turn your PC keyboard into a terminal keyboard. If you're used to a specific terminal keyboard layout, such as IBM's or IRMA's, you can continue using this same layout while working with *EXTRA!* in a mainframe session. *EXTRA!* provides templates for several layouts including Attachmate, IBM, and IRMA layouts. And you can easily choose a different terminal keyboard layout through *EXTRA!*'s configuration program.

About This Manual

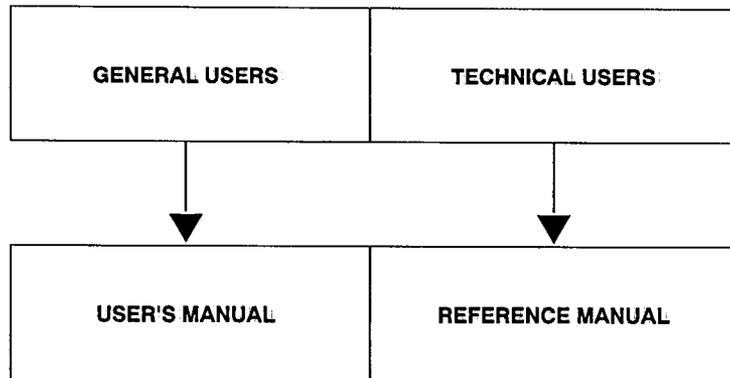
The *User's Manual* provides basic instructions on how to get started using *EXTRA!*, then shows you how to open mainframe sessions and jump between sessions. It also introduces users to a wide array of features including screen layouts, macros, printer emulation, and file transfer. In addition, the manual teaches you the basics of 3270 emulation and how *EXTRA!* acts just like a mainframe terminal.

To learn how to install and set up *EXTRA!*, refer to the *Reference Manual* included in your *EXTRA! for Windows* package. Your documentation is complemented by *EXTRA!*'s on-line Help, which provides step-by-step instructions on how to use many of *EXTRA!*'s features. There is also a README file that provides late-breaking updates to the product. Both *EXTRA!*'s on-line Help and its README file are explained in Appendix A of this manual.

Is This Manual Right For You?

This manual is written for users who have worked with Windows-based products in the past, but are newcomers to *EXTRA!* and micro-to-mainframe communications. To best use the *User's Manual*, you should be familiar with personal computers, the Windows environment, and at least understand what 3270 terminal emulation is. If you are not familiar with 3270 terminal emulation, or working in the Windows environment, refer to Chapter 1, "Understanding *EXTRA!* for Windows."

If you are responsible for installing and customizing *EXTRA!*, you should refer to the *Reference Manual*.



EXTRA! for Windows

Manual Conventions

 Important information can be found next to the note icon that appears in the outside margin, as shown here.

Throughout the *EXTRA! for Windows* documentation, the following conventions are used:

Menu or dialog box options appear in quotes, for example, Select "Edit" from the Special menu.

User input is presented in *italicized* type, as shown in the example below.

```
mkdir extrawin [Enter]
```

Mouse Instructions

EXTRA! can be used with either a mouse or a keyboard. As with most Windows-based software, *EXTRA!* can be used with either a single-button or a multiple-button mouse. Just make your selections by clicking the leftmost button. If you are not familiar with how to use a mouse, refer to the Microsoft Windows User's Guide for instructions.

Keyboard Instructions

The keys in the keyboard instructions are presented in brackets, such as [Alt]. As with most Windows-based applications, you can make a selection from a window's menu bar by following the instructions shown here:

- 1 From an opened window, press [Alt] then press the right or left arrow key to select a menu on the menu bar.
- 2 Press [Enter] to display the menu.
- 3 Press the up or down arrow keys to move to your desired selection and press [Enter] to make your selection.

 If you are using a standard PC/AT keyboard with Attachmate mapping (shown on page D-5 of the *Reference Manual*), you may have difficulty using the [Alt] key with any of the characters on the top row of the keyboard. A better method of using the keyboard with menu options is to press the [Alt] key to select the menu bar, then use the direction keys to select menus and commands. (Keyboard mapping is discussed in the *Reference Manual*.)

- 4 Press [Esc] to cancel a menu selection.

-OR-

- 1 From an opened window, press [Alt] + the letter underlined on the menu bar to display your selected menu.

For example, if your selection is File, you would simultaneously press [Alt] + [F].

- 2 Press the up or down arrow keys to move to your desired selection and press [Enter], or simply press the letter underlined in your menu selection.
- 3 Press [Esc] to cancel a menu selection.

If you do not know how to use a keyboard with Windows, refer to the Microsoft Windows User's Guide for more detailed instructions.

Your EXTRA! Software Package

The following items are included in your *EXTRA! for Windows* software package:

- *EXTRA! for Windows* software diskettes
- *EXTRA! for Windows* on-line Help - *EXTRA!*'s Help provides step-by-step instructions on-line, making it a breeze to learn how to use *EXTRA!* After *EXTRA!* has been installed, Help can be accessed by simply selecting Help from any of *EXTRA!*'s open windows.
- The *User's Manual* - This manual is aimed at general users who will be using *EXTRA!* for everyday tasks. It provides basic instructions on how to get started using *EXTRA!*, then introduces users to a wide array of features including printing mainframe files, transferring files, creating macros, etc.
- The *Reference Manual* - The *Reference Manual* is aimed at technical users, such as System Administrators, who are responsible for installing and customizing *EXTRA!* It provides a thorough overview on micro-to-mainframe connectivity, and explains how to set up *EXTRA!*, how to change the screen layout and colors, and how to troubleshoot any problems that may arise.
- The Quick Reference Card - This card provides a concise guide to *EXTRA!*'s commands.
- Keyboard Templates - These templates show you how to use your PC keyboard in the same ways that you would use a 3270 terminal keyboard. Together, the templates and your PC keyboard allow you to smoothly carry out mainframe commands.

Where to Go For More Information

For step-by-step instructions on how to use many of *EXTRA!*'s features, refer to *EXTRA!*'s on-line Help. It can be quickly accessed by selecting Help from any open *EXTRA!* window.

If you would like more information about *EXTRA! for Windows*, refer to Appendix A, "For More Information," or the Quick Reference Card. Attachmate also provides a toll-free technical support number: 1-800-388-3270.



1 Understanding EXTRA! for Windows

This chapter provides an overview of *EXTRA!* and terminal emulation. By reading this chapter, you'll learn what *EXTRA!* is and what it lets you accomplish, what 3270 terminal emulation means, and what is required for terminal emulation to occur. You'll also learn about windows, mainframe sessions, multiple sessions, screen layouts, and other *EXTRA!* terminology. Learning about these concepts will help you to successfully use *EXTRA!* to access the mainframe and to transfer files between the PC and mainframe.

If you already have a good understanding of this information, feel free to skip to Chapter 2, "Using *EXTRA!* for Windows."

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Discussion: What is EXTRA! and Terminal Emulation?

EXTRA! is a Windows-based software program that lets your PC perform 3270 terminal emulation. In other words, it allows your PC to act like an IBM 3270 terminal. The PC can exchange information with the mainframe, just like a 3270 terminal.

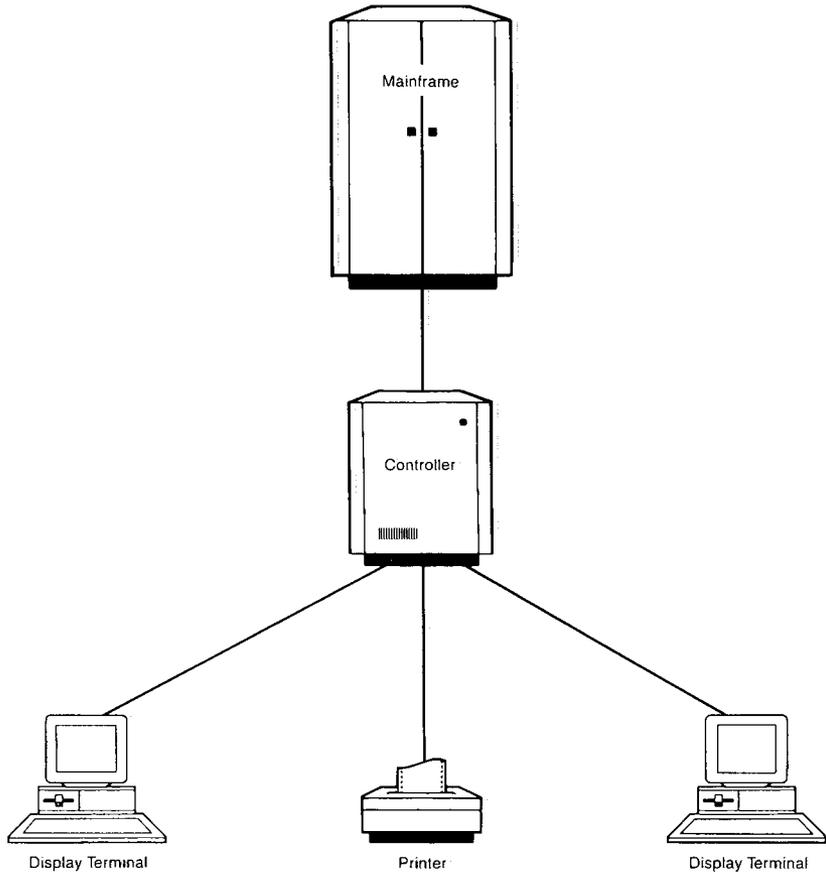
The 3270 is the predominant terminal used to access IBM mainframe computers. Introduced by IBM in 1972, it has become the industry standard, even with non-IBM vendors. In the past few years, it's become quite popular to emulate these devices on a PC through the use of hardware and software, such as Attachmate's *EXTRA!*

PCs have become more popular than terminals because PCs are more versatile. While many terminals are inexpensive, they are limited in function since they rely on the mainframe for processing. A PC performing terminal emulation, however, adds a new dimension to data processing by combining the muscle of a mainframe with the local processing ability of a PC.

For example, a retail store can use a PC running *EXTRA!* in "PC mode" to record sales transactions and to produce weekly sales and inventory reports. This same PC could then be used in "terminal emulation" mode to access the company's mainframe database for pricing and inventory information, and for uploading weekly reports to the mainframe. With 3270 terminal emulation, you get access to the mainframe's programs and databases, in addition to the local computing power of a PC. And since *EXTRA!* is a Windows-based application, you get the added benefit of a friendly user interface.

The 3270 System

The term "3270" actually refers to a family of products that fall into three basic categories: display terminals, printers and control units (also called Controllers). These components, which are shown below and discussed in the following paragraphs, make up the 3270 system. With *EXTRA!*, your PC can emulate the display terminals in this system, giving your PC access to mainframe applications and data.



Display Terminals

Display terminals connect to a control unit (described below). There are several variations of display terminals to accommodate different screen sizes and color combinations. In general, 3178 and 3278 terminals offer a monochrome display, while 3179 and 3279 terminals offer color displays (3178 and 3179 are newer models). Some special models like the 3179-G and the 3279-G also support mainframe graphic images.

Within each category, different screen sizes are offered. The Model 2 offers the same size display as a standard PC - 24 lines by 80 columns. The Model 3 is 32 by 80; the Model 4 is 43 by 80; and the Model 5 is 27 lines by 132 columns.

Printers

Like display terminals, printers also attach to the controller. The 3287 printer can accept data directly from the mainframe, or from the user of a display terminal who selects the "Print" or "Local Copy" command, as long as the terminal is attached to the same control unit.

Within the 3287 printer family, models range from those with very basic print functions to more sophisticated machines that support additional type styles and sizes, special margin control, color, and graphics.

Control Units

The control unit or controller connects display terminals and printers to the mainframe. The controller is used to maximize the efficiency of the link to the mainframe by combining and sequencing the messages of multiple devices. It can usually control up to 32 terminals or printers that are connected by coax cabling. And each device can be up to 5,000 feet (1,500 meters) away from the controller.

The Mainframe

The mainframe contains the applications and databases used by your organization, along with a special "Access Method" that manages locally-connected controllers. Usually this access method is VTAM (Virtual Telecommunications Access Method), which manages the entire mainframe network. It contains all of the information needed by the terminal, as well as information about every other device that has access to that mainframe.

EXTRA! Sessions

When your PC accesses the mainframe and its applications through *EXTRA!*, it establishes a connection. This connection is often referred to as a "session," or "mainframe session." Once a session has been established, data can move from either the PC to a mainframe or a mainframe to the PC. When you access PC applications, such as Excel or another Windows-based application, they are referred to as PC applications not sessions.

With *EXTRA!*, your PC can access up to 26 different mainframe sessions and multiple PC applications all at the same time. *EXTRA!* also supports Windows Clipboard feature, which lets you easily transfer information between PC applications and mainframe sessions.

Multiple Sessions

EXTRA! supports multiple sessions, which means that you can run up to 26 mainframe sessions at the same time, depending on your PC/mainframe environment. And you can easily switch between them with the click of a mouse or a few simple keystrokes. With multiple sessions, you can perform a variety of tasks at the same time. For example, you can send a file to the mainframe in one session and review a mainframe-database file in another session, all while running several PC applications. With *EXTRA!*, your PC is not monopolized by file transfer activity, so you don't need to take a break each time you transfer a file. Simply start the file transfer, then jump to another session and continue working while the file transfers in the background.

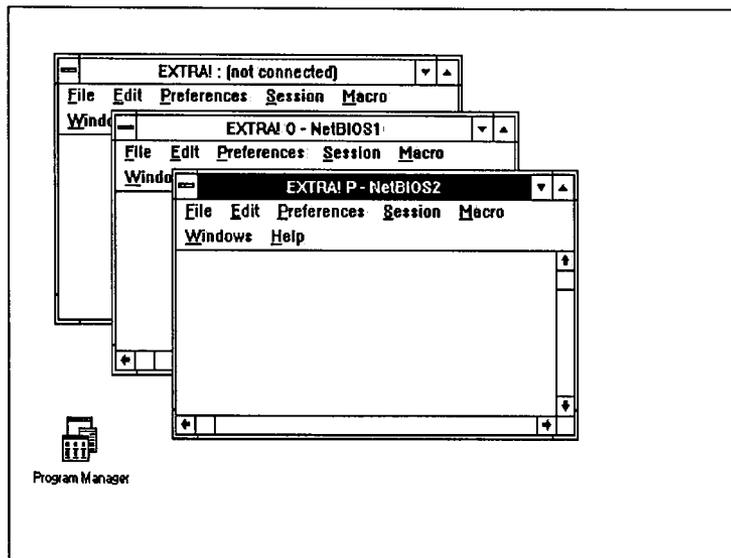
What are Windows?

Windows are the rectangular areas on your PC screen from which you can view and access mainframe session data and PC applications. The Windows environment perfectly complements *EXTRA!* since it provides a more visual way of working with several different mainframe and PC applications at the same time. With Windows, you can switch from one application to another without quitting any of them.

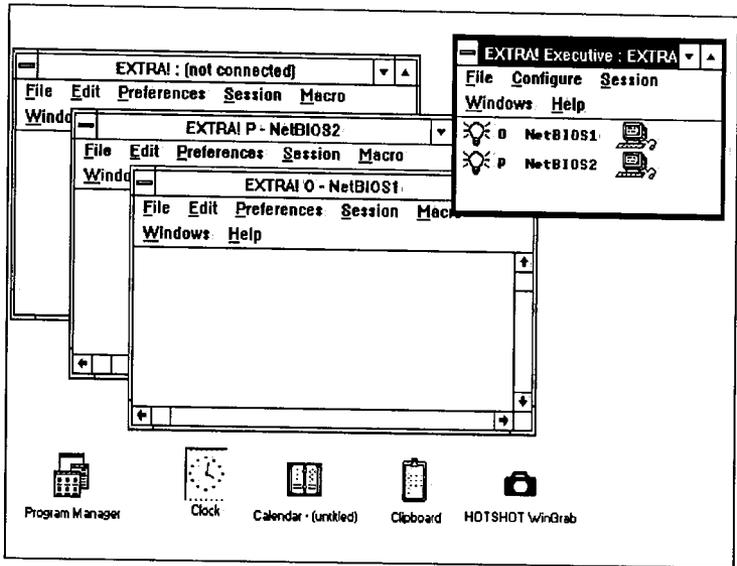
Window sizes vary from as small as an icon to as large as your PC screen. By using your mouse or arrow keys, it's easy to adjust a window's size or position on the screen. Changing window positions is discussed in more detail in the next section.

Arranging Windows

As explained previously, a window is an area on your PC screen that lets you "view" part or all of the data within a mainframe or PC session. The arrangement of mainframe windows on the screen is called the "Screen Layout." In addition to the arrangement of windows, *EXTRA!* layouts also include session connections and preferences. And through Screen Layouts' "Save" command, you can create your own unique screen layouts and save them for later use. Two examples of screen layouts are shown on these two pages. For more information about Screen Layouts, refer to Chapter 2 of this manual or the *Reference Manual*.



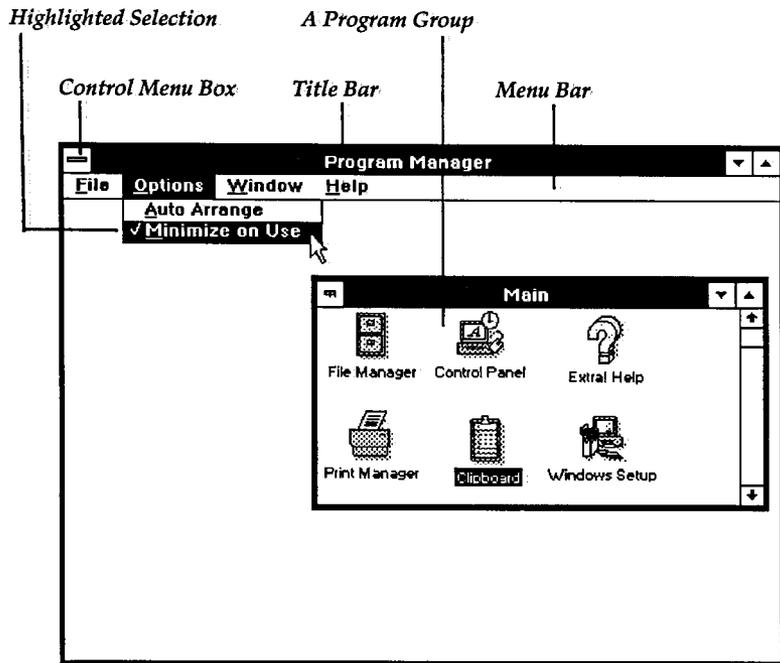
A screen layout with 3 mainframe sessions open. The Program Manager icon appears in the bottom left corner.

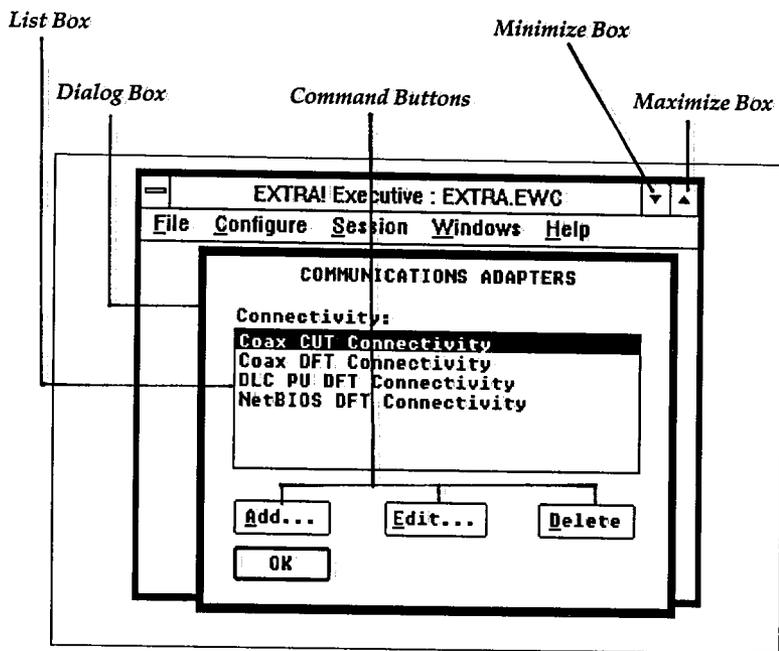


A screen layout with 2 connected mainframe sessions and an open EXTRA! Executive window. The 4 PC applications that also are running appear as icons.

Windows Terminology

Windows-based applications, such as *EXTRA!*, use a unique set of terminology that appears throughout its documentation. Much of this terminology describes the user interface: what the user sees on the screen when working with Windows. If you have worked with Windows applications in the past, these terms should be familiar to you. Each of the terms shown in the examples below are defined in the Glossary found in the back of this manual.





If you are not familiar with Microsoft Windows and its terminology, refer to the "Basic Skills" chapter of the Microsoft Windows User's Guide (version 3.0).

Conclusion

Now that you have a basic understanding of how *EXTRA!* and 3270 emulation work, you're ready to begin using *EXTRA!* Turn to Chapter 2, "Using *EXTRA!* for Windows," to get started.

If you would like to learn more about 3270 terminal emulation, turn to the first chapter of the *Reference Manual*, "An Overview of 3270 Connectivity."

2 Using EXTRA! for Windows

This chapter explains how to get started using *EXTRA!* to access the mainframe. It begins by teaching you how to start up *EXTRA!*, then shows you how to open a mainframe session, how to jump between sessions, and how to quit *EXTRA!*

This chapter also introduces you to these features:

- Screen Layouts
- Automatic Font Sizing
- Changing the Style and Size of Characters
- Printing Mainframe Information
- *EXTRA!*'s Macro Feature
- *EXTRA!*'s SmartPad Feature

For step-by-step instructions on how to use these features, refer to the "Emulator Window" section of *EXTRA!*'s on-line Help.

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Discussion: What You Need To Get Started

Before you begin using *EXTRA!*, you should be familiar with how to move around and make selections in the Windows environment. If you are new to Microsoft Windows, refer to the "Basic Skills" chapter of the Microsoft Windows User's Guide (version 3.0) for detailed instructions.

You also must make sure that your system has access to the following hardware and software:

- An IBM PC, PS/2 or compatible (286 or later) with enough memory to run *EXTRA!* (at least 640K of RAM).
- A hard drive with at least one megabyte of available storage.
- Microsoft Windows 3.0 or 2.xx. It must be installed and customized for your environment.
- *EXTRA! for Windows* software. It must be installed and customized for your environment.

 To run *EXTRA!* with Microsoft Windows 3.0, your PC needs at least 2 megabytes of memory. If you are running Windows/386 2.xx on a NETBIOS network, you also must run NETINTFC.COM before starting *EXTRA!* For more information, refer to Appendix B of the *Reference Manual*.

If *EXTRA!* was installed and set up by your company's System Administrator, he or she needs to provide you with the following information:

- What type of connection does your PC have to the mainframe: coax, local area network (LAN), or Token Ring DLC? If you are connected to the mainframe via Token-Ring DLC, you must run the DLCINTFC.EXE utility before starting *EXTRA! for Windows*. For more information on DLCINTFC.EXE and NETINTFC.COM (see note), refer to Appendix B of the *Reference Manual*.

- What keyboard template do you need for your keyboard? These templates show you where the 3270 terminal keys are located on your PC keyboard, so you can carry out mainframe commands using your PC's keyboard.

If you are the one who is responsible for installing and customizing *EXTRA!*, refer to your *Reference Manual*. The *Reference Manual* also provides an overview of terminal emulation, and detailed information about designing screen layouts, understanding mainframe messages, and troubleshooting problems.

This chapter begins by explaining how to access *EXTRA!* from the Windows Program Manager, and how to open up and jump between mainframe sessions. It then provides an overview of *EXTRA!*'s commonly-used features. Once you understand the product's features, you'll be ready to effectively use *EXTRA!*

Using EXTRA! - The Basics

In this section, you'll be given a quick tour of how to use *EXTRA!* You'll start with a brief refresher on how to get around in Windows, then learn the following: how to start up Microsoft Windows and *EXTRA!*, how to open a mainframe session, how to jump between mainframe sessions, and how to quit. Later in the chapter, you'll be introduced to some of *EXTRA!*'s commonly-used features. These include selecting a new screen layout, transferring information from one mainframe session to another, printing mainframe information, changing type styles in your mainframe session, and creating macros.

Getting Around in Windows

This section provides a brief review of two procedures that you'll use often while working with *EXTRA! for Windows*: selecting an active window and enlarging a window. It is assumed that you have worked with Windows-based applications in the past and that you are comfortable working in the Windows environment. For more detailed instructions on how to use Windows, refer to the Microsoft Windows User's Guide. If you already have a good understanding of this material and do not need a review, move ahead to the next section, "Accessing the Windows Program Manager."

This section does not provide instructions for making selections with a keyboard. These commands can be found in the "Basic Skills" chapter of the Microsoft Windows User's Guide (version 3.0).

Selecting an Active Window

When you have more than one window open, you need to select one of them to be your active window. The active window is the foremost window you see on your screen, the window that your commands will affect. If your windows are stacked, it is the top window.



Before you can click on a window to make it active, at least part of the window must be visible on the screen. To make a window visible, either reduce the currently active window or move it over until the desired window is exposed.

For example, if you want to make the EXTRA! Executive window your active window, simply select or "click on" any blank area in the EXTRA! Executive window. Notice that the window has now moved up front, and that the color of the window's title bar has changed.

Enlarging Your Window

For maximum visibility, you may want to enlarge your window so that the entire 3270 mainframe screen is visible. Windows provides a shortcut method for enlarging a window: Simply click on your window's maximize box (the up arrow located in the upper right corner). When you're finished with the window, you can just as easily reduce it to an icon by selecting the minimize box (the down arrow).

To learn how EXTRA! can automatically size the characters in your mainframe windows, see "Automatic Font Sizing" later in this chapter.

Once you know how to get around in Windows, you're ready to start using *EXTRA! for Windows*.

 Your screen may look different than the examples shown in this chapter, depending on how Microsoft Windows was set up when it was installed on your PC.

But before you begin, you should once again make certain that both *EXTRA!* and Microsoft Windows have been installed and configured on your PC. You also must know the name of the hard drive directory where your Microsoft Windows software is located. If you're not sure, ask your System Administrator. Now let's get started using *EXTRA! for Windows*.

Accessing the Windows Program Manager

Through the Program Manager, you can run a variety of Windows applications, including *EXTRA! for Windows*. To access the Program Manager, simply start up Microsoft Windows following the instructions shown below.

- 1 Move to the directory where your Microsoft Windows files are stored, by typing the following command after the DOS prompt:

```
cd \xxxxx [Enter]
```

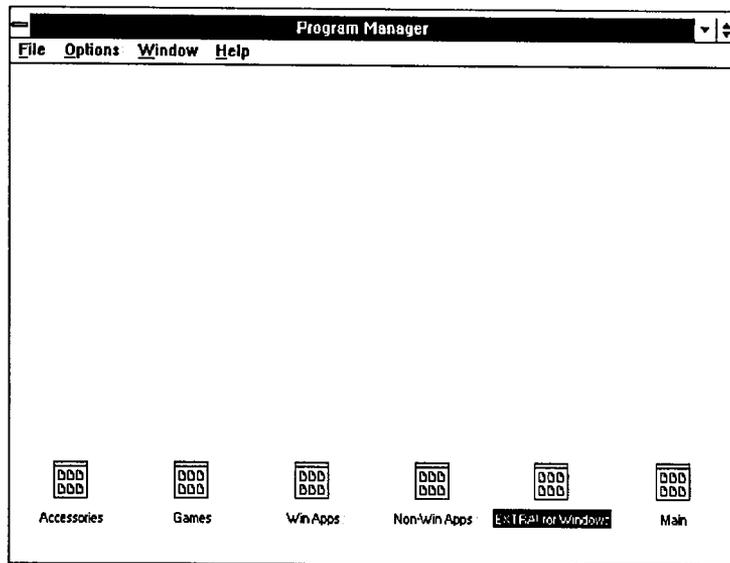
where *xxxxx* is the name of the directory that contains your Microsoft Windows software.

 You can run Windows or *EXTRA!* from any directory as long as the PATH statement located in the AUTOEXEC.BAT file has been modified during installation. You do not need to be in the exact directory that contains the *EXTRA!* or Windows software. The PATH statement lets DOS know where to locate these files.

- 2 At the directory's DOS prompt, type the command to run Microsoft Windows, for example:

win [Enter]

As the Windows software loads, your PC will display a screen with the Windows logo. After the logo, you will see the Windows Program Manager appear as shown below:

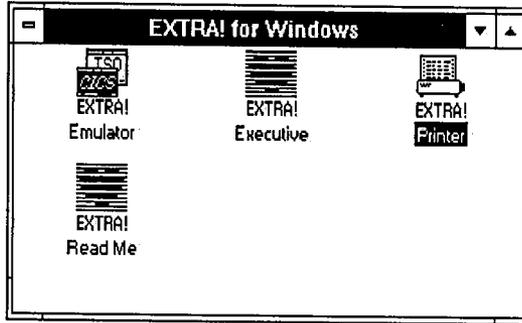


Opening a Mainframe Session

Once the Program Manager appears on your screen, you're ready to open the *EXTRA! for Windows* Program Group and begin using *EXTRA!* If the *EXTRA! for Windows* Program Group, displayed below, isn't on your screen, check with your System Administrator to see if *EXTRA!* has been installed on your PC.

The instructions on the following page explain how to bring up a mainframe session from the *EXTRA! for Windows* Program Group, shown below. To learn how to bring up a printer session, which emulates a mainframe printer, refer to Chapter 3, "Printing."

 Your windows may look somewhat different than the windows shown in this chapter, depending on the options that were selected when *EXTRA!* was set up on your PC.



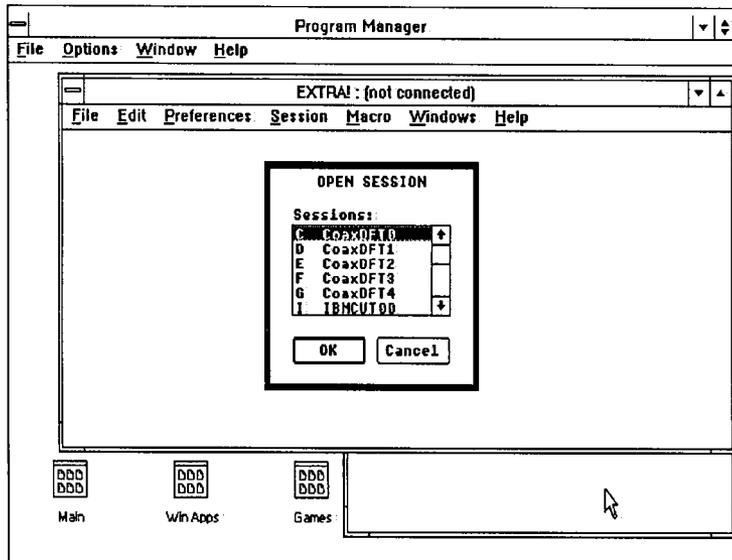
 These instructions explain how to open up a mainframe session. To open up additional mainframe sessions, either repeat these steps or select "New Terminal Session" from the Session menu of the EXTRA! Executive window.

- 1 From the *EXTRA! for Windows* Program Group, select and open the EXTRA! Emulator icon.

The EXTRA! Executive window temporarily opens, displaying the *EXTRA! for Windows* logo. Once this is displayed, the Executive window automatically shrinks down to an icon.

The EXTRA! Executive, which orchestrates all of *EXTRA!*'s files, is primarily used by your System Administrator to configure *EXTRA!* However, it also can be used to open up mainframe sessions (see note).

- 2 As the EXTRA! Emulator window opens, a list of the available mainframe sessions appears on the screen, as shown below:



Select one of the available mainframe sessions from the list, making sure that the connection type you select (COAX, IBMCUT etc.) matches the way your system is connected to the mainframe. For example, if you are connected through a Local Area Network (LAN), you could select "NETBIOS1."

- 3 After selecting an available session, click on "OK." The session will open, with its name appearing in the title bar of the window.

After you have opened a mainframe session, you or your System Administrator can obtain more detailed information about the session (type of connectivity, mainframe resource, etc.) by selecting "Host Resource" from the Emulator window's Session menu.

Jumping Between Mainframe Sessions

Once you know how to open a mainframe session, you're ready to learn how to jump from one mainframe session to another. It is assumed that you have followed the instructions shown in "Opening a Mainframe Session," and that you have at least two open mainframe sessions on your screen.

- 1 From your active mainframe session, select "Windows" from the menu bar.

The last option on the Windows menu shows the short and long names of the open mainframe sessions, along with shortcut keys for keyboard users.

- 2 Select the session where you would like to jump. Notice that the selected session is now the active window.

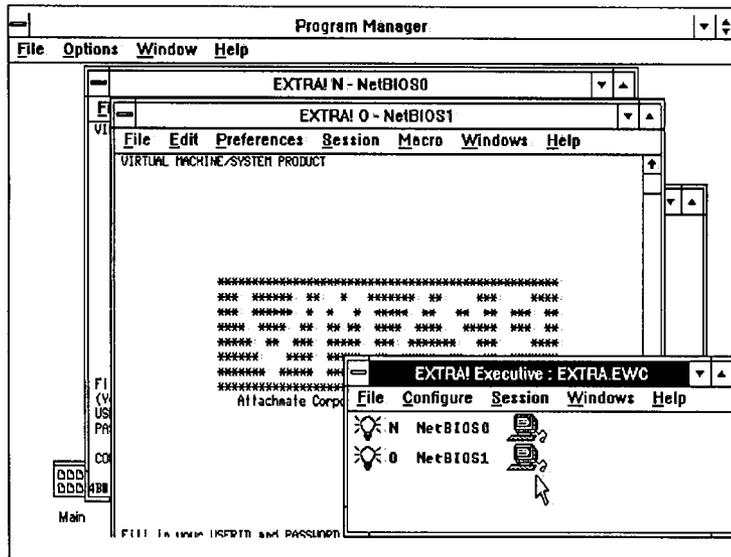
 Your previously selected session is still connected to the mainframe even though it is no longer the active window.

Other Jump Methods

In addition to the method shown in the previous section, you can jump to another session by selecting "Next Session" from the Windows menu. This option advances you to the next available session. Or you can simply click on any part of the mainframe session window where you would like to jump.

If you are jumping from the EXTRA! Executive window to a mainframe session, you can use the method shown below.

- 1 From your active EXTRA! Executive window, double-click on one of the terminal icons that represent the available mainframe sessions, as shown in the screen below:



- 2 Once you have selected one of the available mainframe sessions (N or O in the example above), you will automatically jump from the EXTRA! Executive window to that session.

Working Within a Mainframe Session

Once you've established a connection with the mainframe, you should see the mainframe's operating system logo. (It may take a moment to come up.) At the bottom of the window, you also will see a status line or Operator Information Area (OIA). The OIA is explained in more detail in *EXTRA!'s* on-line Help as well as in Chapter 5 of the *Reference Manual*, "Understanding Mainframe Messages."

Before you begin using the mainframe session, keep in mind that working in the 3270 environment is quite different from working in the Windows environment. To move the cursor or select text, follow the instructions shown on the following pages.

If Microsoft Windows is configured for the right mouse button instead of the left, substitute "Right Mouse Button" wherever "Left Mouse Button" is mentioned.

Moving and Selecting with a Mouse

To: _____	<u>Do the Following:</u>
Move the Mainframe Cursor	Move mouse pointer to desired cursor location. Press [Right Mouse Button].
Select (highlight) Text	Position the mouse pointer. Hold down the [Left Mouse Button] and drag the mouse until the block of text is highlighted. Release the button.
Cancel Selected Text	Position the mouse pointer anywhere in the mainframe session and click.

Selecting Program Function (PF) Keys with a Mouse

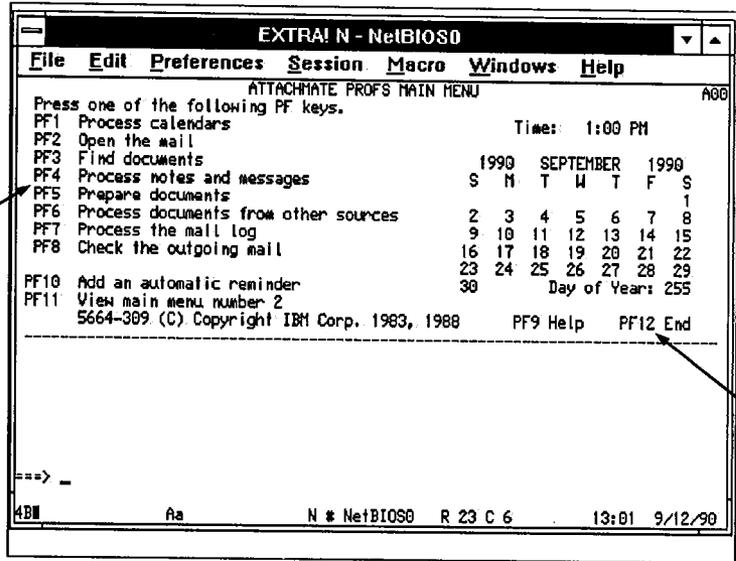
Many mainframe applications make use of function keys or "PF keys." Like the function keys on a PC keyboard, these keys allow you to carry out specific commands in a mainframe application.

 PF keys may or may not appear in your mainframe session since they are dependent on the mainframe application that you are using. If the application supports PF keys, *EXTRA!* allows you to access them with its Hotspots feature.

An application's available PF keys are usually listed at the bottom of the mainframe session. You can either press the actual keys on the keyboard, or use *EXTRA!*'s HotSpots feature to select the keys on-screen, using your mouse. To select PF keys on-screen, follow the instructions below:

- 1 Make sure that "HotSpots" is checked in the Preferences menu of your mainframe session window. If not, select "HotSpots."

- 2 In the mainframe session, double-click on the PF key number that you would like to select, as in the example below (PF1-PF12). By clicking on a PF number, its corresponding command will execute, just as if you had pressed an actual PF key.



Moving and Selecting with the Keyboard

<u>To:</u> _____	<u>Press:</u>
Move the Mainframe Cursor	[Arrow] keys
Create Selection Cursor	[Ctrl]/[Alt]/[Arrow] keys
Move Selection Cursor	[Ctrl]/[Alt]/[Arrow] keys
Remove Selection Cursor	[Ctrl]/[Alt]/[Esc] keys
Start Selecting Text	[Ctrl]/[Alt]/[Enter] keys
Stop Selecting Text	[Ctrl]/[Alt]/[Enter] keys
Cancel Selected Text	[Ctrl]/[Alt]/[Esc] keys

Quitting EXTRA! for Windows

This section explains how to close a mainframe session, and how to use the EXTRA! Executive window to completely exit *EXTRA!* and return to the Windows Program Manager.

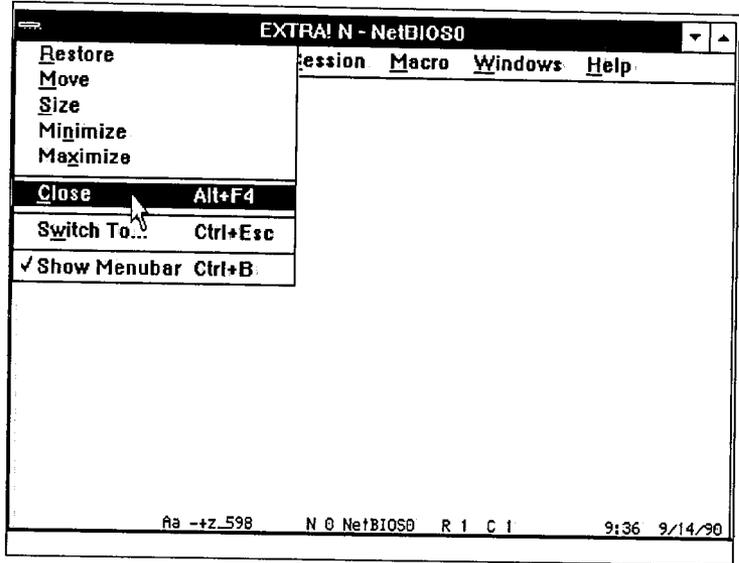
Closing a Mainframe Session

If you are running more than one mainframe session, repeat the instructions below for each opened session.

- 1 Log off of the mainframe application that you are running in your mainframe session.

 The control menu box is the small box in the upper left-hand corner of the window, as shown here.

- 2 In the mainframe session, select "Close" from the control menu box, as shown below:



- 3 After closing the session, you are no longer connected to the mainframe.

 Make sure that you have logged off your mainframe applications before using this method.

Quick Exit

To close your mainframe sessions and quit *EXTRA!* all in one step, follow the instruction below.

- 1 Select "Close" from the *EXTRA!* Executive window's control menu. *EXTRA!* stops running and returns you to Windows Program Manager.

If you have a mouse, you can quit by simply double-clicking the *EXTRA!* Executive window's control box.

 If you are finished using Microsoft Windows and would like to return to the DOS prompt, select Close from the Program Manager's control menu. Then select "OK" from the End Session dialog box.

Now that you are familiar with *EXTRA!*'s most commonly-used features, you're ready to learn about the program's more advanced features: selecting new screen layouts, copying data between sessions with the clipboard, changing the fonts that appear in your sessions, using the SmartPad, and recording macros.

Additional Tools

In addition to the features already presented in this chapter, *EXTRA! for Windows* provides a powerful array of tools that are available for your use. For example, *EXTRA!* lets you enhance the way your mainframe sessions appear on the screen by allowing you to select a personalized screen layout. You can also change the style and size of screen text, and automatically size text and windows. In addition, *EXTRA!* lets you copy information between windows, and print mainframe information to your local PC printer.

Other features include Macros and SmartPads. *EXTRA!* allows you to record keystrokes in a mainframe session, creating a macro that can be played back later. *EXTRA!*'s SmartPad feature provides a shortcut way to run these macros, and select frequently-used mainframe function keys.

This section introduces you to these features. For step-by-step instructions on how to use them, refer to *EXTRA!*'s on-line Help under "Emulator Window-Procedures."

Selecting a Screen Layout

The term "screen layout" refers to how your mainframe and printer sessions are arranged on your PC screen. With *EXTRA!*, you can easily choose a different layout for your sessions by selecting "Screen Layouts..." from one of the Session menus. For step-by-step instructions on how to select and load screen layouts, refer to *EXTRA!*'s on-line Help.

Once a screen layout has been selected and loaded, it will instantly pop up on the screen. If you want the layout to automatically appear when you first start up *EXTRA!*, simply select and run the .EWL file that contains the layout. The file can either be located in your *EXTRA!* for Windows Program Group or it can be found using Windows "File Manager." For more information on this feature, refer to "Shortcut for Loading Screen Layouts" in the Screen Layouts chapter of the *Reference Manual*.

If your preferred layout is not included in the Screen Layouts dialog box, you or your System Administrator can easily create and save a new, personalized layout. Simply move the mainframe sessions around on your screen until they are at the desired location, then use *EXTRA!*'s Screen Layouts dialog box to save the layout. Designing screen layouts is described in more detail in the *Reference Manual*.

Now that you've been introduced to *EXTRA!*'s screen layout feature, you're ready to move onto the next feature: changing the style and size of characters.

Changing the Style and Size of Characters

With *EXTRA!*, you can easily change the look of the characters that appear in your mainframe sessions. This flexibility is provided through the Preferences menu.

The Preferences menu, located in your mainframe session, lets you control the style and size of the fonts that appear in your session.

Font. A font is a set of characters that has the same type style and attributes.

This menu also lets you change the case of the characters to either Upper And Lower case, or UPPER CASE ONLY. The options for automatic font sizing, discussed below, are also provided in the Preferences menu.



If you would like to change the colors that appear in your mainframe session, see the instructions provided in the "Setting Up" chapter of the *Reference Manual*.

The step-by-step instructions explaining how to change a font's style, size, and case are presented in *EXTRA!*'s on-line Help under "Emulator Window-Procedures."

Automatic Font Sizing

Automatic Font Sizing allows *EXTRA!* to automatically choose a character size that will fit an entire 3270 screen into a mainframe session window. To turn on Automatic Font Sizing, simply select it from the Preferences menu.

Now whenever you change the size of a window, the size of the font will automatically change so that all the information that appears on a 3270 screen fits into your mainframe window.

Copying Text Between Windows

With *EXTRA! for Windows*, you can easily copy blocks of information from one mainframe or PC window to another. To do so, simply highlight the text you want copied and select "Copy" from your mainframe session's Edit menu. The text will be copied into Windows Clipboard. Once the text is in the Clipboard, you can jump to the window where you want it moved and select "Paste" from the Edit menu. The text then will be copied into the destination window, overwriting any existing text.

For step-by-step instructions on how to copy and paste text using the Clipboard, refer to Microsoft Windows on-line Help.

The next section provides helpful tips that may be useful while you are copying text between windows.

Copy/Paste Notes

- When pasting text to a mainframe session, be aware that this feature will place the text wherever the 3270 cursor is located. Make certain that there is enough room in your session to accommodate the inserted text, since it will overwrite existing text. If the 3270 cursor is placed in a protected field, the text will not be pasted and will remain in the Clipboard. The cursor changes color when it is placed into a protected field.
- If you want the incoming text to overwrite existing text, you can highlight the existing text and it will be overwritten when you select "Paste." Any incoming text that does not fit within the defined highlighted area will not be pasted.

- Before using this feature, be sure to consider how an application running in a destination window will react to the incoming text. For example, when pasting text into a window that is running a non-Windows application such as Lotus 1-2-3, the text will be placed on the edit line, even though you have placed the cursor elsewhere on the screen. Typically, this feature works best with word processing programs.
- When you are copying text between mainframe sessions, the text being copied will lose all formatting attributes and will take on the attributes of the destination mainframe session.
- When you use the Paste command to paste text into a mainframe session, *EXTRA!* tries to paste the text into the selected area. If there is no selected region, *EXTRA!* tries to paste the text into the field that the 3270 cursor is in. Any text in the field after the cursor will be shifted to the right. Any text that is shifted beyond the end of the field will be lost.

Printing Mainframe Information

With *EXTRA! for Windows* you can easily print mainframe information to either your local printer, or to a PC file for later use. This feature, called Printer Emulation, allows your PC printer to act just like a mainframe printer. Printer Emulation lets you spend your time on more important tasks instead of running back and forth to the mainframe printer.

 You can also print information that you have copied to the Clipboard by pasting it into Windows Notepad and printing it from there.

Printer Emulation is discussed in more detail in the next chapter, "Printing." For step-by-step instructions on how to print mainframe information, refer to *EXTRA!*'s on-line Help under "Printer Window-Procedures."

EXTRA!'s Macros

With *EXTRA!*, you can easily create and run your own personalized macros. Macros are basically a series of keystrokes that are recorded, given a name, then played back by pressing one or two "Shortcut Keys." Macros save you time by reproducing the keystrokes that you use most often while working with the mainframe. You no longer have to repeat tedious keystroke combinations over and over again. Instead, you can simply play one of the macros that you have created with *EXTRA!*

To create a macro, simply select "Record" from *EXTRA!*'s Macro menu, press the keystrokes that you want to record, and select "End Recording" from the same menu. Then give your macro a name and select your "Shortcut Keys," the keys that you will press when you play your macro.

For step-by-step instructions on how to create, record, and play macros, refer to *EXTRA!*'s on-line Help, under "Emulator Window-Procedures."

Shortcut Keys. Shortcut keys are key sequences that are used as a short cut for carrying out a command. For example, [Ctrl]/[O]. For a list of all the Shortcut keys, see Appendix B.

This feature even lets you insert pauses and messages into a macro, allowing you to prompt users for information while the macro is playing. It also lets you record where the cursor is located in a mainframe session. Mouse movements and cursors, however, cannot be recorded into a macro.

To cancel a macro while it is running, select "Cancel Playback" from the Macro menu.

Changing a Macro's Options

Using the Macro Manager, you can change a macro's settings, such as its name, description, or shortcut keys. You can also delete macros, run macros, or even add or remove them from the Macro menu.

Using SmartPad

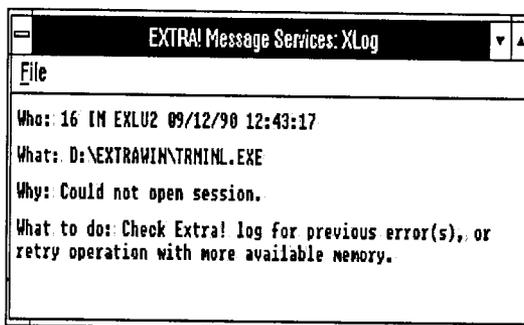
Another robust feature of *EXTRA!* is the SmartPad. The SmartPad allows you to execute an *EXTRA!* macro or a Workstation Control (WsCtrl) key by simply clicking on a button with the mouse. A complete list of WsCtrl keys with definitions can be found in Appendix C of the *Reference Manual*. The SmartPad looks like a small keypad that appears on your screen.

Each mainframe session can display one SmartPad, and only the SmartPad of the current mainframe session will be displayed. SmartPads can be created, edited, and switched between mainframe sessions. For step-by-step instructions on how to use and edit SmartPads, refer to *EXTRA!*'s on-line Help under "Emulator Window-Procedures."

WsCtrl Key. Workstation control keys are located on 3270-PC keyboards. Like the function keys on a PC keyboard, they are set aside for special functions.

The Message Services Window

If *EXTRA! for Windows* has problems performing an operation or needs to provide you with additional information, you will receive a message in *EXTRA!*'s Message Services window. The example below shows a sample message window:



The message window contains information about the problem and what the user can do to solve it.

If possible, perform the action or actions recommended by the Message Services window. For more information on what the various messages mean, see the Troubleshooting chapter in the *Reference Manual*.

All messages are recorded to a log file (default name of XLOG). You can look through the messages using the commands in the File menu of the Message Services window. If you call Attachmate's Technical Support department, the log file will help them solve the problem.

Conclusion

This chapter has explained the basics of using *EXTRA! for Windows*. These basics include: starting *EXTRA!*, opening sessions, jumping between sessions, and quitting *EXTRA!* It also introduced you to several of *EXTRA!*'s advanced features, including screen layouts, copying information between windows, changing text styles, macros, and *EXTRA!*'s SmartPad feature.

You're now ready to learn how to print mainframe files from your local printer using *EXTRA!*'s Printer Emulation feature. Turn to Chapter 3, "Printing," to get started.

3 Printing

Chances are the distance from your desk to your PC printer is a lot shorter than the distance to your mainframe printer. That's why *EXTRA! for Windows* offers printer emulation, a feature that allows your PC printer to act just like a 3287 mainframe printer. With printer emulation, you can use *EXTRA! for Windows* to print mainframe information on your local printer. So instead of running back and forth to the mainframe printer, you can spend your time on more important tasks.

This chapter begins with an overview that explains the basics of printer emulation, then explains what you need to know before getting started. The step-by-step procedures for using printer emulation can be found in the on-line Help system provided with *EXTRA!* The rest of the chapter introduces you to the menus that make up *EXTRA!*'s Printer Emulator application. It also explains how to check on and end your print job.

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Discussion: What is Printer Emulation?

Printer emulation allows a PC printer to emulate, or act like, a mainframe printer. With *EXTRA!*, mainframe data can be sent to a local PC printer, saving the time, expense, and inconvenience of using a mainframe printer. *EXTRA!* supports all PC printers supported by Microsoft Windows, including both low-cost printers for simple output and high-quality laser printers for more complex output. *EXTRA!* also supports shared printers, such as those that are used on a Local Area Network (LAN).

EXTRA! also lets you print to a DOS file, allowing a mainframe print job to be saved to a PC disk. The data then can be used in other PC applications or printed when your PC is not on-line to the mainframe, reducing mainframe connection costs. And printer emulation perfectly complements the Windows environment, allowing you to continue working in a PC application or mainframe session while a printer session prints from a mainframe application.

To accomplish printer emulation, *EXTRA!* uses an application called the Printer Emulator. The Printer Emulator has its own icon, *EXTRA!* Printer, similar to the *EXTRA!* Executive and *EXTRA!* Emulator icons. Opening this icon puts you into a printer window, where you can set up and control a printer session.

Now that you know the basics of printer emulation, you're ready to get started.

Using the EXTRA! Printer



The OIA is explained in *EXTRA!*'s on-line Help and in Chapter 5 of the *Reference Manual*.

To the mainframe, your printer session looks just like a mainframe printer. At the bottom of your printer session window is an Operator Information Area (OIA) like the one in a mainframe session. If the OIA for your printer session displays the "ONLINE" message, the printer session is turned on. If the OIA displays an "OFFLINE" message, the printer session is turned off. Before you begin using the EXTRA! Printer, check to make sure the printer session is ONLINE.

Before you can begin using *EXTRA!* for printer emulation, you need to make sure that *EXTRA!* has been properly configured for printing. Also make sure that you can print from Window and that the mainframe application you want to print from is running in one of your mainframe session windows.

This section explains how to bring up a printer session and how to check the status of your print job. Later on in this chapter, the EXTRA! Printer menus are presented. For step-by-step instructions on how to use these menus, refer to "Printer Window" in *EXTRA!*'s on-line Help.

Printer Types

There are two basic types of printer sessions; the session type is specified in the mainframe application that you are using.

Logical Unit Type 3 (LU3): This type of printer session lets you printer mainframe files, but only supports basic formatting commands such as the following: upper and lower case characters, carriage returns and line feeds, and form feeds.

Logical Unit Type 1 (LU1): This type of printer session is the more flexible of the two because it supports more complex formatting commands, such as tabs, margins, underlining, bold, italics, etc. This printer type also uses less mainframe formatting time than an LU3 session.

Starting a Printer Session

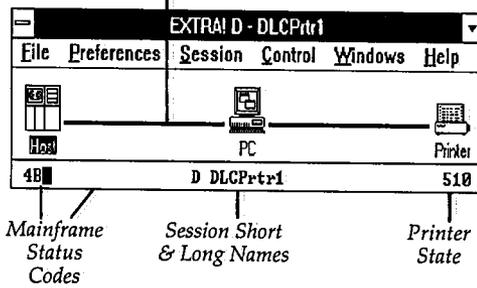
To start up a printer session, select and open the EXTRA! Printer icon, which appears in the *EXTRA! for Windows* Program Group.

Or, if you prefer, you can select "New Printer Session" from the Session menu in the EXTRA! Executive. When you first open a printer session, the OIA at the bottom of the EXTRA! Printer window will display the following information:

- A code showing the status of the connection between the printer session and the mainframe
- The short and long names of the session
- A message indicating the state of the printer
- The word "Idle", indicating that nothing is being printed

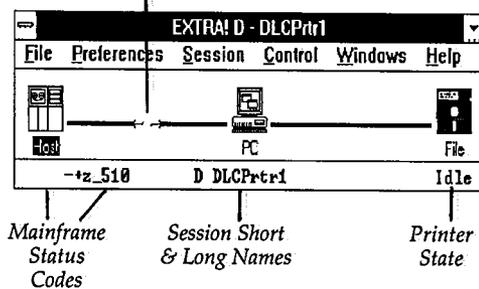
Inside the printer window will be a set of icons representing the connection between the mainframe (Host) and the PC, and whether the data will be printed to a printer or a file. Two sample EXTRA! Printer windows are shown on the next page.

Mainframe-PC Connection



The picture above shows a printer session window that's printing to a PC printer, illustrated by the printer icon. Notice that this session is connected to the host: the "Mainframe-PC Connection" is an unbroken line.

Mainframe-PC Connection



This second picture shows a printer session that is printing to a file, represented by the disk icon in the window. The session is not properly connected to the mainframe, as demonstrated by the Mainframe-PC Connection.

For more information on reading the EXTRA! Printer window, see the next section.

Checking on Your Print Job

You can easily check on the status of your print job by examining your EXTRA! Printer window, shown on the previous page. The OIA will show whether the printer is active or inactive and, in the right corner, will display whether the job is printing or not.

OIA Messages

The Operator Information Area (OIA) is at the bottom of the printer window; it provides information about the status of your print job and printer session through several messages. The most common messages are described below:

 All of the characters that appear within the Operator Information Area are explained in EXTRA!'s on-line Help and in Chapter 5, "Understanding Mainframe Messages," of the *Reference Manual*.

Mainframe-PC Connection The line between the Host and PC icons in the printer window represents the connection between the mainframe and the PC. If they are connected, the connection line in the picture is unbroken. If the PC is not connected to the mainframe, the line in the picture is broken.

Mainframe Status Code The codes that appear in the first part of the OIA show the status of the connection between the session and the mainframe. These codes are explained in EXTRA!'s on-line Help, and in Chapter 5 of the *Reference Manual*.

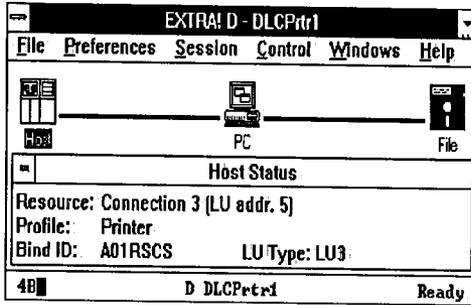
Session Short Name This is a single letter showing the short name of the session; in the previous example, it's "D."

- Session Long Name** This shows the long name of the session; in the previous example, it's "DLCPtrr1."
- Printer State** The messages here tell you the status of your printer session. "Ready" indicates that the session is ready to receive a print job. "Hold" indicates that the "Hold Print" command has been selected from the Control menu, causing the print job to pause. And numbers indicate how many lines of the job have been printed so far; in the first example, 510 lines have been printed.

Status Windows

If you double-click on one of the icons in the printer window, you can see a status window for that icon. The status window appears in the lower part of the printer window. You can display one status window at a time, but can change status windows by selecting other icons in the window.

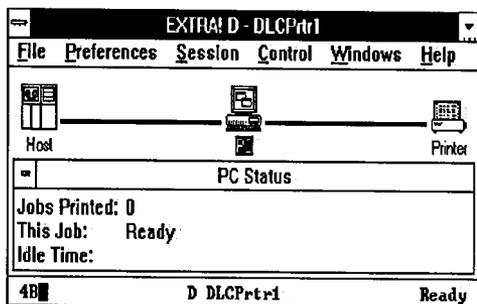
For example, opening the Disk icon in the printer window will display the Print File Status box (shown later). This box shows the name of the file that is printing, the current size of the file, and how much space is free on the disk. Each status window is described on the following pages.



The Host Status box

The Host Status box displays information about the mainframe session. You can display this box by double-clicking on the "Host" icon in the printer window.

- Resource** Shows the resource name and the Logical Unit number that the printer session is using.
- Profile** Show the session profile name that the printer session is using.
- Bind ID** Displays the ID number of the mainframe application the session is printing from.
- LU Type** Displays what type of Logical Unit the printer is emulating: LU1 or LU3 (see "Printer Types" on page 3-4).



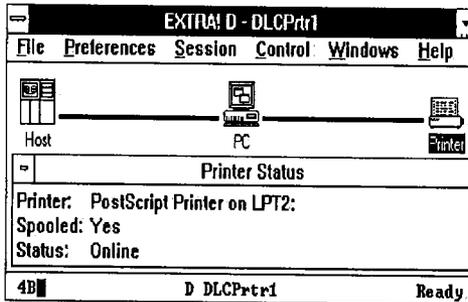
The PC Status box

The PC Status box displays information about the print job. You can display this box by double-clicking on the "PC" icon in the printer window.

Jobs Printed This field shows how many jobs have been printed during the time this session has been running.

This Job Tells whether the printer is ready to accept another job.

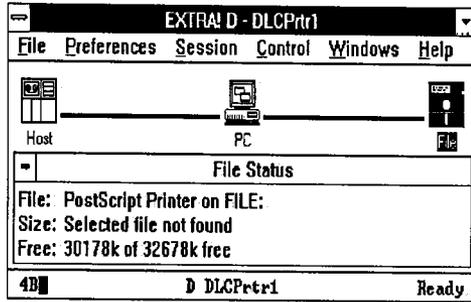
Idle Time Tells the amount of time that has passed since the mainframe last sent information to the PC. You can use the number here to help you set the Printer Time Out in the Preferences menu.



The Printer Status box

If you are printing to a local PC printer, the Printer Status box displays information about the printer. You can display this box by double-clicking on the "Printer" icon in the printer window.

- | | |
|----------------|---|
| Printer | Displays the name of the PC printer and the printer port the PC is using. |
| Spooled | Displays whether the print job is spooled using Windows' print spooler application. |
| Status | Displays the actual status of the PC printer—whether the printer is active or inactive. |



The File Status box

If you are printing to a file, the Print File Status box displays information about the file. You can display this box by double-clicking on the "Disk" icon in the printer window.

- File** Displays the name and path of the file you are printing, and the type of printer the file will be formatted for.

- Size** Displays the current size of the file.

- Free** Displays how much space is available on the disk where you are printing the file.

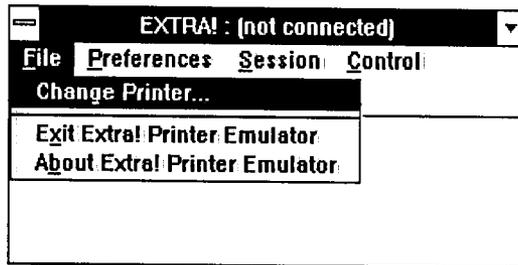
For step-by-step instructions on how to use the status boxes, refer to "Printer Window" in EXTRA!'s on-line Help.

The EXTRA! Printer Menus

This section describes all of the menus that make up *EXTRA!*'s Printer Emulator. For step-by-step instructions on how to use these menus and their commands, refer to *EXTRA!*'s on-line Help.

The File Menu

The File menu in the *EXTRA!* Printer lets you select the printer, or a file, where you want to print the mainframe information.



The following paragraphs describe the commands of the File menu.

Change Printer

With this command, you can select a printer, or you can tell *EXTRA!* to print the information to a file. You can set up the printers and connections in the dialog box that this command leads to. If you want to print the information to an unformatted text file, select "Generic/Text Only" for the printer and "File" for the printer port.

By sending the mainframe information to your printer, you can quickly receive a hard copy of your mainframe data. By sending the information to disk, you are not spending as much time on-line to the mainframe. Printing to a file lets you create a file that you can retrieve on your PC at a later time to edit and print, while off-line from the mainframe.

Exit EXTRA! Printer Emulator

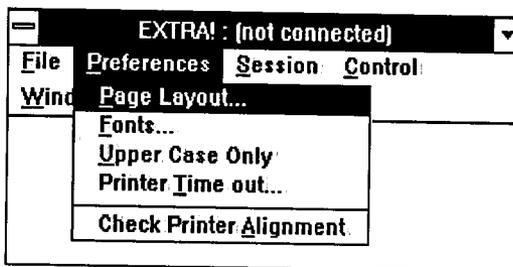
This command shuts down the EXTRA! Printer. Do not select this command if you are printing.

About EXTRA! Printer Emulator

This command displays a box with the version and copyright information about *EXTRA!*'s Printer Emulator application.

The Preferences Menu

A printer session has certain settings, called preferences, which allow you to specify items such as the page layout and the printer font. Opening a printer session automatically loads the default printer preferences. You can save preferences for a printer window by setting the preferences and saving the window in a screen layout (described in a later section, "The Session Menu").



You can select a different set of preferences, or change the existing printer preferences, while the printer session is open, but not while the session is printing. See *EXTRA!'s* on-line Help for the procedures on how to set the printer preferences.

You can save a set of preferences to use later. For instance, if you wanted to print a file to your PostScript printer, using the font Helvetica and left and right margins of 2 inches, you could open a printer window and any necessary mainframe session windows, set the printer preferences, and save the windows using the "Screen Layouts" command in the Session menu. Then any time you wanted to print using exactly those settings, you could open that Screen Layout before printing, rather than setting the preferences manually again.

Page Layout

Selecting the "Page Layout..." command from the Preferences menu displays the Print Page Layout dialog box on your PC screen. This dialog box lets you select the dimensions, margins, and line spacing of the printed page. These options are described in the following paragraphs.

PRINT PAGE LAYOUT

Page Size		Margins	
Width	<input type="text" value="8.5"/>	Top	<input type="text" value="1"/>
Height	<input type="text" value="11"/>	Left	<input type="text" value="1"/>
		Bottom	<input type="text" value="1"/>
		Right	<input type="text" value="1"/>
Line Print Settings			
Line Length		<input type="text" value="132"/>	<input checked="" type="checkbox"/> Line Wrap
Lines per Inch		Chars Per Inch	
<input checked="" type="radio"/> Host Default <input type="radio"/> Font Default <input type="radio"/> 6 LPI <input type="radio"/> 8 LPI <input type="radio"/> Custom <input type="text" value=""/> LPI		<input checked="" type="radio"/> Host Default <input type="radio"/> Font Default <input type="radio"/> 10 CPI <input type="radio"/> 12 CPI <input type="radio"/> Custom <input type="text" value=""/> CPI	
<input type="button" value="OK"/>		<input type="button" value="Test Layout"/>	
<input type="button" value="Cancel"/>			

Page Size: Here you can specify the width and height of the page. The size you enter for each of these settings specifies a number of inches. For example, a width of 8.5 specifies a page 8-1/2" wide.

Margins: These options let you select the top, bottom, and side margins of the page. All printing will occur between those margins. The sizes you enter are in number of inches; for example, setting "Top" to 1 specifies a margin of 1" at the top of the page.

Line Print Settings: The "Line Length" option specifies the maximum number of characters that can be printed per line.

The "Line Wrap" option applies to lines that run past the line length; if "Line Wrap" is selected, then longer lines will continue on to the next printed line on the page. If "Line Wrap" is not selected, then any line of data that goes beyond the line length will be cut off at that point and discarded.

Lines Per Inch: This setting specifies how many lines to print per inch (LPI) on the paper. The five options are: Host Default, Font Default, 6 LPI, 8 LPI, and Custom. "Host Default" will use the mainframe's default spacing. "Font Default" will use the default of the printer font you selected.

(see "Fonts..." on page 3-18). The options "6 LPI" and "8 LPI" are standard mainframe printer settings; they print 6 lines per inch and 8 lines per inch, respectively. The "Custom" option allows you to enter a number of lines per inch for the printer to use; enter the number you want in the box to the right of the word "Custom."

Characters Per Inch: This setting specifies how many characters to print per inch on the paper. The five options are Host Default, Font Default, 10 CPI, 12 CPI, and Custom. "Host Default" uses the default number characters per inch (CPI) specified by the mainframe. "Font Default" uses the default specified by the selected font. "10 CPI" and "12 CPI" print 10 and 12 characters per inch, respectively. The "Custom" option allows you to specify how many characters to print per inch; enter the number in the box to the right of "Custom."

Check Printer Alignment

This command leads to the Check Page Layout dialog box, shown below, letting you test how the printer settings that you entered earlier will print the information on the page.



Using this command is particularly useful if you are printing onto a form of some kind. In the "Print" text box, you can type in characters that will be used in the test print. "Row" and "Column" specify the row and column on the page where your test should begin printing. Row 1 would be the first row below the top margin. Column 1 would be the first column to the right of the left margin. Selecting "Print Now" prints the text onto the paper in the printer.

Fonts

This command displays the Fonts dialog box on your screen. In this dialog box you can select a printer font and size that you want to use with your print job. A font is a set of characters with a certain type style and size, such as Times-Roman, 12 point.

Upper Case Only

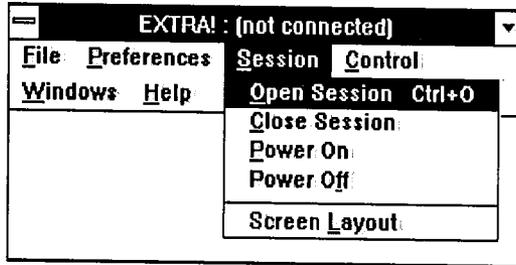
This command, when selected, prints all text in UPPER CASE letters. When it is not selected (a check mark does not appear next to it), then all text will be printed the same way it was typed in the mainframe application.

Printer Time Out

Selecting "Printer Time Out" opens the Print Job Timeout dialog box. In this dialog box, you can enter the number of minutes that the printer should wait before deciding that the print job is finished. Once the print job times out, the printer ejects the last page and is free to accept another print job.

The Session Menu

The commands in this menu allow you to open and close printer sessions and turn them on and off, much like the Session menu in the EXTRA! Emulator. You can also save and load screen layouts from this menu. The commands are described in the following paragraphs.



Open Session

This command displays the Open Session dialog box where you can select a printer session connection.

Close Session

This command ends the printer session's connection with the mainframe, but leaves the printer window open.

Power On

This command turns on a connected printer session, much like turning on the switch of a mainframe terminal.

Power Off

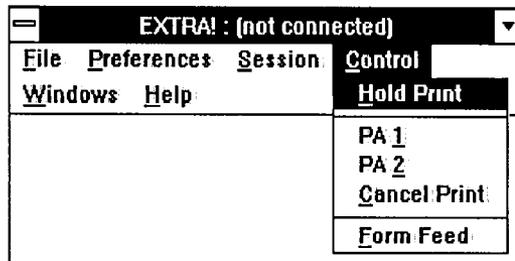
This command turns off a connected printer session, but keeps the mainframe connection. When you turn the session back on, you won't have to select a connection again.

Screen Layout

This command leads the user to the Screen Layouts dialog box, where the user can choose which of ten layouts to bring onto the screen. Screen layouts are the arrangement of mainframe sessions on the screen, defining such attributes as the position and size of the windows, session preferences, and connection of each session. From this box you can save a newly designed layout or load a saved layout. See Chapter 2 of this manual or Chapter 4 of the *Reference Manual* for more information about creating and using screen layouts.

The Control Menu

This menu acts like the front panel of a mainframe printer. You can pause the printer, cancel print jobs, and give other commands to the printer. The commands of this menu are described in the following paragraphs.



Hold Print

This command is like the "On-line" button on your printer: it is a toggle that allows you to put the printer on-line or off-line. When "Hold Print" is selected (a check mark appears next to it), the printer session will be off-line and the OIA will display "Hold." You must select this command before you can use any of the others in this menu.

PA 1 and PA 2

These two commands are specific to the mainframe application you're using, allowing you to reprint the job, or print just a page, etc. You must select "Hold Print" before selecting either of these commands. For more information, see "Support for PA1/PA2 Keys" at the end of this chapter. These commands are available to LU1 type printer sessions only. You can find out what type your printer session is by double-clicking on the Host icon in the printer window.

Cancel Print

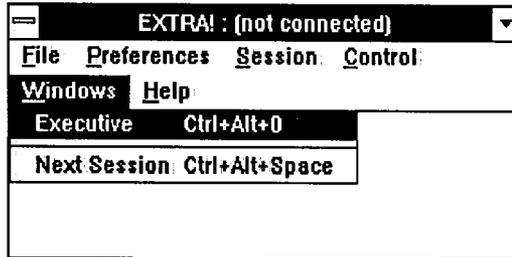
This command cancels the current print job. Once you select it, you are prompted to confirm that you want to cancel the job. You must select "Hold Print" before selecting this command. This command is available to LU1 type printer sessions only; you can find out what type your printer session is by double-clicking on the Host icon in the printer window.

Form feed

This command ejects the current sheet of paper from the printer, complete with whatever has been printed on it so far. It is just like the Form Feed button on most printers. You must select "Hold Print" before selecting this command.

The Windows Menu

The commands in this menu allow you to jump to other sessions, or to jump to the Executive window. This menu is the same as the Windows menu in both the EXTRA! Executive and the EXTRA! Emulator windows.



Executive

Makes the EXTRA! Executive window the active window, no matter where it was located previously.

Next Session

Makes the next window in the layout the active window, according to the order in which the windows were initially opened.

List of Sessions

Lists the sessions that are currently opened, enabling you to move directly to a particular window.

Ending a Print Job

 You can use the "Cancel Print" command with LU1 type printer sessions only.

You can stop a print job before it finishes printing by selecting the Control menu. Then select "Hold Print" and "Cancel Print." The Control menu in the EXTRA! Printer window gives you control over many of the functions of the EXTRA! Printer. Refer to *EXTRA!*'s on-line Help for more detailed instructions on cancelling a print job.

Support for PA1/PA2 Keys

 This feature is valid for LU1 mode only.

In addition to the EXTRA! Printer's basic features, *EXTRA!* also provides support for Program Attention (PA) keys. The PA keys send commands to the mainframe during printer emulation; the functions of these keys vary depending on the mainframe application that you're using. For example, you can use PA keys to tell a program to reprint a job or to reprint a portion of a job. The PA1 and PA2 key commands are in the EXTRA! Printer's Control menu. See *EXTRA!*'s on-line Help if you need instructions.

For more information about *EXTRA!*'s Printer Emulator, refer to "Printer Window" in *EXTRA!*'s on-line Help.

Conclusion

In this chapter you learned what printer emulation means and how to use the EXTRA! Printer to print from a mainframe application. You also learned how to check on a print job and how to end one.

The next chapter, "Using File Transfer," introduces you to EXTRA!'s File Transfer feature. This feature allows you to send files to and receive files from the mainframe, in three different mainframe operating systems (TSO, CMS, and CICS). With file transfer, you can transfer files in the background while you work with another mainframe session or a PC application.

4 Using File Transfer

This chapter describes the process for transferring either text or binary files between your PC and mainframe. Because *EXTRA! for Windows* makes use of Windows' multitasking capabilities, every file transfer will seem to be in the "background," allowing you to work in other windows or sessions while the file is being transferred.

In addition to describing the process, this chapter also contains a description of all the menu options and provides some tips on transferring files. The step-by-step procedures for transferring a file, including running a trace on a transfer, are provided in *EXTRA!*'s on-line Help (for a list of the procedures in Help, refer to page 4-9).

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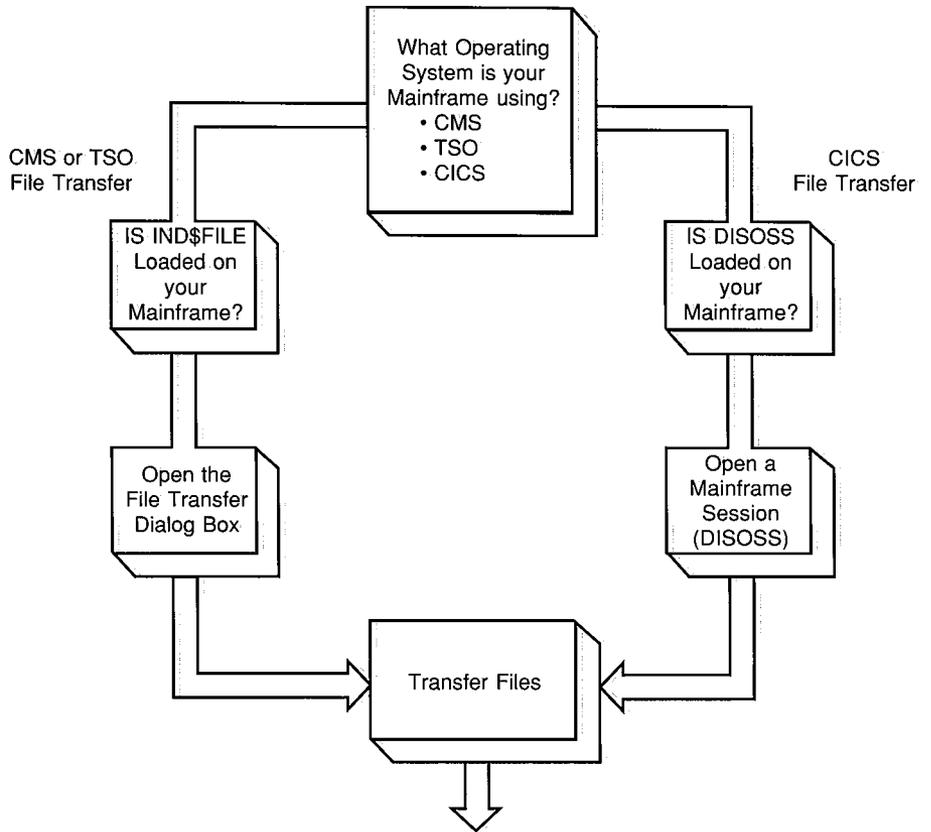
Discussion: What is File Transfer?

File Transfer means both sending a file from your PC and receiving a file at your PC. When we say "sending a file," we mean transferring a file from your PC to the mainframe. When we say "receiving a file," we mean transferring a file from the mainframe to your PC. Whether you are going to send or receive a file, the steps you follow will be the same.

Read this chapter to understand how the process works and then use the *EXTRA!*'s on-line Help to find out how to send or receive a file.

With *EXTRA! for Windows* doing most of the work, transferring a file is an easy process. Although *EXTRA!* simplifies the process, there are a few pre-conditions that you must know before you start a transfer. These pre-conditions include what operating system your mainframe is using and, depending on the system being used, how your mainframe stores files. The diagram on the next page illustrates the file transfer process from start to finish.

The File Transfer Process



What You Need To Know Before You Get Started

There are a few things you need to know before you begin using *EXTRA!*'s file transfer feature. This preliminary information is explained in the following sections and will help you select the correct file transfer options. If you have additional questions, contact your System Administrator.

What is Your Mainframe's Operating System?

One of the three operating systems listed below must be resident on the mainframe before you can use *EXTRA!*'s file transfer feature. Your logon window should tell you which system is running. If it doesn't, contact your System Administrator.

- **VM/CMS:** VM/CMS stands for Virtual Machine/ Conversational Monitor System. CMS is an interactive mainframe application that resides under the VM operating system. This system works with IBM's CMS IND\$FILE program (#5664-281) to transfer files.
- **MVS/TSO:** MVS/TSO stands for Multiple Virtual Storage/Time Sharing Option. TSO is an interactive mainframe application that resides under the MVS operating system. This system works with IBM's TSO IND\$FILE program (#5665-311) to transfer files.
- **MVS/CICS or VSE/CICS:** MVS/CICS stands for Multiple Virtual Storage/Customer Information Control System, and VSE/CICS stands for Virtual Storage Extended/Customer Information Control System. Under either of these operating systems, *EXTRA!* supports file transfers that use DISOSS.

The next section covers the applications that must be running on your mainframe when you transfer your files.

Mainframe Applications

Depending on the operating system your mainframe is using, you need one of the following mainframe applications loaded on your mainframe. If your mainframe is operating under VM/CMS or MVS/TSO, you need one of IBM's IND\$FILE programs. If your mainframe is operating under VMS/CICS or VSE/CICS, you need to have IBM's DISOSS program loaded on your mainframe.

IND\$FILE

IND\$FILE is a mainframe program that allows files to transfer between your PC and the mainframe. Contact your System Administrator and find out if IND\$FILE—sometimes called Send/Receive—is loaded on your mainframe. If it has been loaded under a different name, write it down. You will need to know the new name when you set up *EXTRA!* to transfer files.

Next, you will have to decide which format that you want to use to transfer your files. Jump to the next section, "What File Format Do You Want To Use," for a description of the two formats that are available.

DISOSS

DISOSS (Distributed Office Support System) is a mainframe program that allows files to transfer between your PC and the mainframe. It is a library program that works in conjunction with another IBM program called PS/CICS. Both these mainframe programs talk directly to *EXTRA!* on your PC. Contact your System Administrator and find out if DISOSS and PS/CICS are loaded on your mainframe.

You are now ready to transfer a file. From here you can go directly to the procedures in Help or, if you prefer, jump to "What Happens During a File Transfer."

What File Format Do You Want to Use?

VM/CMS and MVS/TSO allow you to transfer files in two different formats. They can be formatted as structured fields or as a 3270 data stream (buffered mode). The following section describes each format.

Structured Field vs. Buffered Mode

The structured fields format "packages" data before sending it. This format breaks your file into individual records, similar to the individual lines on a page. You specify the size, or length, of these records. This format greatly reduces the overhead necessary for transferring files, so files transfer faster. To use structured fields, EABs (Extended Attribute Bytes) must be set in the mainframe session that you are transferring the files in. (To learn about EABs, refer to your *EXTRA! for Windows Reference Manual*.) Structured fields are not supported if you are using a Coax CUT connection.

Buffered mode transfers data using the standard 3270 data stream, which has a limited set of characters and has to be translated twice during a transfer. Because of this double translation, buffered mode is slower than structured fields.

Are Structured Fields Supported?

If you decide that you want to transfer your files as structured fields, contact your System Administrator and find out if your mainframe supports them. Even though VM/CMS and MVS/TSO both support buffered mode, your mainframe's system might not support structured fields.

What Happens During a File Transfer

File transfer happens in the "background," which means that while you are transferring a file, you can perform other tasks on your PC. For example, while a file is being transferred, you can work in another mainframe session, a printer session, or even work in another PC application. When you are working in two mainframe sessions, you can perform two file transfers at the same time. For example, you can receive a file from a mainframe in one window, while sending a file to the mainframe in the other.

While the file is transferring, the File Transfer Status window will appear in the lower right corner of your screen. This window lists the filename of the file being transferred and the number of bytes that have been transferred. When the transfer is completed, the box disappears.

At any time during the file transfer, you can cancel the process and return to your mainframe session. See "What to Do if Your File Transfer Does Not Work" for more information on cancelling a file transfer.

Getting Started

To transfer files you begin in one of two places. If you are transferring files using MVS/CICS or VSE/CICS, you start from an open mainframe session. If you are transferring a file under VM/CMS or MVS/TSO, you begin from the File Transfer dialog box.

Once you're at the right place, simply follow the procedures found in *EXTRA!*'s on-line Help. These procedures walk you through the file transfer process.

 All the file transfer procedures are located under "Emulator Window Procedures." The procedure for tracing a file transfer is located under "Executive Window Procedures."

The list below shows you the procedures you will find in Help.

- Sending A File Using CMS
- Sending A File Using TSO
- Sending A File Using CICS
- Receiving A File Using CMS
- Receiving A File Using TSO
- Receiving A File Using CICS
- Tracing A File Transfer

 For more information on using *EXTRA*s on-line Help, refer to Appendix A, "For More Information."

The following section describes all the dialog boxes you will encounter while transferring a file, starting with the File Transfer dialog box.

The File Transfer Options

 If your mainframe is running under CICS, you do not need to use the File Transfer dialog box. Instead, you can transfer the file directly from an open mainframe session.

This section introduces you to the major dialog boxes that you might use when transferring a file under CMS or TSO. The first dialog box you see is the File Transfer dialog box. By using this box, you can either send or receive a file. Remember, when we say "sending" a file, we mean transferring a file from your PC to a mainframe. When we say "receiving" a file, we mean transferring a file from a mainframe to your PC.

File Transfer Dialog Box Options

The illustration below shows a typical File Transfer dialog box. Each of the options that appear in the box are described below.

The screenshot shows a dialog box titled "FILE TRANSFER". It contains the following elements:

- PC Filename:** A text field containing "MV_FILE".
- Host Filename:** A text field containing "MV_FILE TXT".
- Host Session:** A list box containing "N NetBIOS".
- Transfer Direction:** Two radio buttons: "Send to Host" (selected) and "Receive from Host".
- Transfer Method:** Two radio buttons: "Structured Fields" (selected) and "Buffered Transfer".
- Host System:** Two radio buttons: "CMS" (selected) and "TSO".
- Checkboxes:** Three checked checkboxes: "Remove Line Ends (CR/LF)", "Convert ASCII to EBCDIC", and "Append to Existing File".
- Buttons:** "OK", "Options...", and "Cancel".

PC Filename: This option identifies the name of the file as it appears, or will appear, in your PC's directory. To search for a specific file, click on "PC Filename" and another dialog box appears. With this dialog box, you can search through your PC's directory for the file.

Host Filename: This option identifies the name of the file as it appears, or will appear, in the mainframe's directory. You can click on "Host Filename" and one of the following dialog boxes, depending on the Host System option you've selected, will appear.

CMS HOST FILE PARAMETERS

File Name:

File Type:

File Mode:

TSO HOST FILE PARAMETERS

Dataset Name:

Member:

Password:

CMS Host File Parameters Dialog Box

File Name: This is a required option that identifies the name of the file as it appears, or will appear, in the mainframe's directory.

File Type: This is a required option that identifies the extension to the filename. It also identifies the type of information in the file.

File Mode: This is an optional parameter that tells CMS which mainframe minidisk is going to be used during the transfer. If you're sending a file, it tells CMS where to store the file on the mainframe. If you're receiving a file, it tells CMS where the file is located on the mainframe. If you use this parameter, you must select a minidisk that you have write-access to.

TSO Host File Parameters

Dataset Name: This is a required option that identifies the name of the file as it appears, or will appear, in the mainframe's directory.

Member: This option is required if the Dataset Name is a partitioned dataset. Your System Administrator may require you to save your file within a partitioned data set.

Password: This option specifies an existing TSO password for a protected dataset. It is ignored if the dataset you are going to access is not protected.

Host Session: This option specifies the mainframe session that will either send or receive the file.

Host System: (Default CMS) This option specifies the operating system that your mainframe is using.

Transfer Direction: (Default Send to Host) This option specifies whether you are sending the file to your mainframe or receiving the file at your PC.

 For information on IND\$FILE, refer to "Mainframe Applications," page 4-6.

Transfer Method: (Default Buffered) This option specifies the format of the file being transferred. The setting you choose depends on the mode that IND\$FILE is running on your mainframe. If you select Structured Fields, you can select a buffer size in the Options dialog box.

Remove Line Ends (CR/LF): This parameter is optional. This option is recommended when sending a file to a mainframe. Using it will help ensure that the file is readable on the mainframe. It removes all the end-of-line characters during the file transfer.

Convert ASCII to EBCDIC: This parameter is optional. This option is recommended when sending a file to a mainframe. It converts the file from ASCII to EBCDIC (an IBM character set code).

ASCII: American Standard Code for Information Interchange. PCs use ASCII to format text files for storage.

Append to Existing File: This parameter is optional. When selected, it adds the transferred file to an existing file. If you are sending the file, it will be attached to the end of the file specified in the Host Filename option. If you are receiving the file, it will be attached to the file specified in the PC Filename option. The default for this option is OFF.

File Transfer Send and Receive Options

The send and receive options are located in the File Transfer Send Options dialog box, shown below, or in the File Transfer Receive Options dialog box. One of these boxes will appear when you select the "Options. . ." button in the File Transfer dialog box.

The screenshot shows a dialog box titled "File Transfer Send Options". It contains several fields and options:

- Logical Record Length (LRECL):** A text box containing the value "80".
- Block Size (BLKSIZE):** An empty text box.
- Disk Space Allocation:** A section with two text boxes: "Initially Allocates:" and "On Overflow:".
- Buffer Size:** A section with three radio buttons: 2K, 8K, and 4K 32K.
- Record Format (RECFM):** A section with four radio buttons: Default, Fixed, Variable, and Undefined.
- Allocate Disk Space:** A section with three radio buttons: Tracks, Cylinders, and AVBLOCKS, Size: (with an empty text box below it).
- At the bottom are "OK" and "Cancel" buttons.

Logical Record Length (LRECL): This option specifies the maximum number of characters that each record (or line, for text files) can have when you are sending a file to a mainframe. The following special conditions apply.

- For new files, the default is 80 characters.
- For replacing an existing file, the default is the LRECL of the existing file.
- If you are appending a file, the default is the LRECL of the existing file.
- For sending a variable format file, the LRECL is reduced to the length of the longest record in the host file.
- If you are accessing a TSO partitioned dataset, do not set "LRECL." It was already specified when the dataset was created.

During a transfer, if the mainframe finds a record that is longer than the number set by this option, it splits the record into smaller chunks until all the resulting records are less than or equal to the file's LRECL.

Block Size (BLKSIZE): This option specifies the size of each data block stored on the mainframe disk when you are transferring a file under TSO. The following special conditions apply.

- If you are replacing or appending a file, BLKSIZE is ignored.
- When Record Format is set to Fixed, BLKSIZE must be an exact multiple of LRECL.
- When Record Format is set to Variable, BLKSIZE must be at least 4 greater than LRECL.
- When Record Format is set to Undefined, BLKSIZE will always be the same as LRECL. In this case you can only set one of the options—either BLKSIZE or LRECL—you cannot set both.

Disk Space Allocation: When transferring a file to a mainframe, these options specify how much disk space is allocated for the file. The amount of memory is specified in two parts: the initial allocation plus any overflow.

Initially Allocate: This option specifies how much disk space is initially allocated for the file. Try to set this option high enough so that there is no need to add any overflow.

On Overflow: This option specifies how much disk space is added if the file is larger than what was initially allocated.

If the file exceeds the initial allocation you specified in "Initially Allocate," the mainframe adds another block of disk space as specified by "On Overflow." If there still is not enough disk space, the

mainframe will continue to add more disk space until the file can fit or it has added 15 "On Overflow" blocks of disk space. The maximum disk space that can be used is the initial allocation, plus 15 times the overflow allocation.

Record Format (RECFM): These options specify the type of records that the mainframe file will contain.

Default: This option can be fixed, or it can be variable if "Delete Line Ends" was selected in the File Transfer dialog box.

Variable: This option allows the records of the mainframe file to vary in length. No spaces are added or deleted to change the record's length. Use this option with "Delete Line Ends" if you do not want the length of the records changed. For example, binary (program) files contain variable length records that should not be changed.

Fixed: This option makes all the records in the mainframe file the same length. The length of the records is set by "LRECL" for new files, or, if you're appending the file, it is set by the longest record of the existing file. Records with shorter lengths are padded with space characters and records of longer length are divided.

Undefined: This option leaves the record length as undefined. When you select this option, you can only set "LRECL" or "BLKSIZE," but not both. The mainframe will use the value you entered in one for both parameters. You will probably use Undefined seldom, if ever.

Buffer Size: This option applies to files being transferred in structured fields. In general, a larger buffer size will speed up the file transfer. *EXTRA!* automatically uses a smaller buffer size if there is not enough PC memory for the buffer size you choose with this option.

Allocate Disk Space: These options specify the type of units that will be used when you allocate disk space on your mainframe. You need to know how you want to store data to use this option effectively. If you have questions about storing data on your mainframe, contact your System Administrator.

Tracks: This option specifies that your mainframe files will be stored on tracks. A track is similar to a groove on an album. It is one concentric circle (i.e., track 39) on a disk.

Cylinders: This option specifies that your mainframe files will be stored in cylinders. A cylinder can be thought of as the same groove on a stack of albums. On your mainframe, a cylinder is the same track on a stack of disks.

AVBLOCKS, Size: This option specifies that your mainframe file will be stored in AVBLOCKS. An AVBLOCK is a section of a track. It is similar to a sector on a hard disk or floppy disk. The size (in bytes) determines how long the block of memory is. "Size" should match "BLKSIZE." The "Size" parameter is ignored for an existing file.

What To Do If Your File Transfer Does Not Work

If your file transfer does not work, you can either cancel the file transfer as it is running, or you can troubleshoot the problem by running a trace on the transfer. Both of these options are described below.

Cancelling a File Transfer

EXTRA! allows you to stop a file transfer at any time. To cancel a file transfer, select Abort File Transfer from the control menu of the File Transfer Status window. A prompt appears asking you to confirm the cancellation. When confirmed, the file transfer will end and the File Transfer Status window will disappear. When you cancel a transfer, the mainframe session that was transferring the file will remain open.

Tracing a File Transfer

EXTRA! provides you with a way to help troubleshoot your file transfer if it is not working properly. By using API Trace Services, you can create a file that contains a listing of all the activity between *EXTRA!* and the mainframe. (For a full description of API Trace Services, refer to Appendix B in your *EXTRA! for Windows Reference Manual*.) After creating a trace file, you can use it to see which tasks were successful and which tasks were not.

File Transfer Tips

Here are several tips that might help you transfer your files more efficiently.

- You can transfer two files simultaneously by using two different sessions. For example, you can send a file to the mainframe in one session at the same time you are receiving a file in another.
- Do not turn the power off in a mainframe session that is performing a transfer. This will cause the file transfer to fail.
- Do not change to a new screen layout while you are transferring a file because the session engaged in the file transfer may be turned off by the new layout.
- Do not type anything in the mainframe session that is engaged in a file transfer unless you are responding to a specific system message. Typing in the window can cause the file transfer to fail.
- Do not format diskettes while transferring a file. Diskette formatting can cause the file transfer to fail.

- Your text file is sent to the mainframe as a large record. (A record is a related group of fields and a field is a related group of characters, such as your social security number.) Records longer than the LRECL will be split into multiple host records.
- If you specify a host filename or datasetname that already exists on the mainframe when you send a file, your PC file will overwrite the mainframe file unless "Append to Existing File" is selected.

Conclusion

This chapter covered the information that you need to get started, background information on what is happening during a file transfer, and descriptions of the options you can select when you transfer a file.

As a review, here are the three things you need to know before you get started. You need to know what operating system your mainframe is using. You need to know if IND\$FILE or DISOSS is loaded on your mainframe. And you need to know if structured fields are supported on your mainframe.

Remember, you can always cancel the file transfer and try it again if you are having problems. If the problem persists, contact your System Administrator. If you still can't resolve the problem, feel free to call Attachmate's Technical Support at 1-800-388-3270.

Appendix A

For More Information

Other than your *EXTRA! for Windows User's Manual and Reference Manual*, there are additional sources where you can find valuable information on how to set up and use *EXTRA!*

EXTRA!'s on-line Help (discussed on the following pages) is your most important additional source of information. It contains valuable information that supplements what is in your user's and reference manuals.

In addition to Help, there are other sources that you may find helpful. One of these sources is *EXTRA!*'s README file. It contains late-breaking information about the current release of *EXTRA!* Peruse the README file if you can't find the information you need in the manuals or the on-line Help. If you still can't find the information that you need, feel free to call Attachmate's Technical Support at 1-800-388-3270.

At the end of this appendix, we've also included a list of additional reading materials that you may find helpful.

On-Line Help

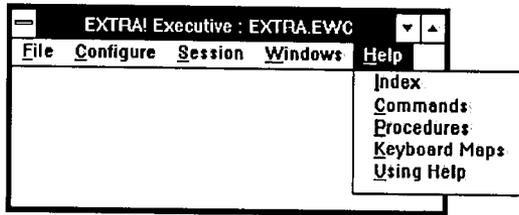
EXTRA! for Windows has an on-line Help system that allows you to access information while you are using *EXTRA!* With the information on-line, you'll be able to save time because you can access information instantly while you are using *EXTRA!*

 *EXTRA!*'s Help is only available if you are running Microsoft Windows 3.XX.

EXTRA!'s Help menu is very similar to the Help menu you have been using with Windows 3.00. It contains topics on the different commands *EXTRA!* uses, maps of the keyboards *EXTRA!* supports, procedures that you might need to use *EXTRA!*, and information on troubleshooting. You can find information on these topics by searching for a "keyword," or you can browse through information using "browse sequences." More than likely, you'll use a "keyword" to get to specific information, and then use "browse" to find any related information. (Both these procedures are discussed later.) However, when you have an *EXTRA!* window active, the [F1] key that you usually use to call Windows' help does not work because of the way *EXTRA!* maps your keyboard for 3270 emulation.

Using Help

You can bring up the Help window from any of *EXTRA!*'s open, active windows. Starting from your active window, pull down the Help menu (shown on the next page) and select one of the topics listed in the help menu. One of the topics, "Using Help," is the same on-line help aid found in your Windows Help menu. Because both systems are compatible, you can use this information to help you understand *EXTRA!*'s Help, just as you did with Windows' Help.



Here is a list of all the topics in the Help menu. Until you are familiar with how the help system is organized, "Index" will be your best bet for locating the information you need.

- | | |
|----------------------|---|
| Index | This index contains the overall perspective of how <i>EXTRA!</i> 's Help is organized. If you are not sure where the information you need is, the Index will guide you to the right spot. |
| Commands | This topic contains a list of all the commands you might need while using <i>EXTRA!</i> Each command is listed under its menu. |
| Procedures | This topic contains the step-by-step instructions you might need to use <i>EXTRA!</i> |
| Keyboard Maps | This topic contains maps of all the keyboards that <i>EXTRA!</i> supports. |
| Using Help | This topic teaches you how to use <i>EXTRA!</i> 's on-line Help. It is the same help aid that appears in Windows' Help. |

Finding Information Fast

To find information fast, use Help's keyword search feature. Using this feature is similar to searching through the index of your *User's Manual*.

Here is how to do a Keyword search.

- 1 Select "Index" from the Help menu.
- 2 Select "Search" to open the Search window.
- 3 From here, you have two ways to find a keyword. You can scroll through the "Search For. . ." list for an existing keyword, or you can enter your own. When you enter your own keyword, keep your eyes on the list as you type. Help will search through its list while you are typing, updating itself after every letter you enter.
- 4 Select one of the related topics displayed in the lower portion of the window. These topics will take you directly to the information you need.

Key Phrases (Underlined Text)

When using Help, you'll notice that some of the key phrases are underlined. These phrases are used as jump-off points to more information. Those phrases with a solid underline will lead you to related topics when you click on them. Those phrases with a dotted underline will bring up a pop-up definition window. The pop-up definition window will stay on your screen until you release your mouse button.

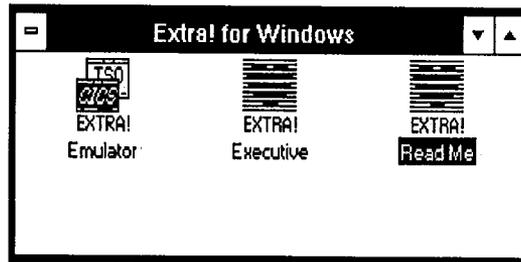
Getting Out of Help

Once you are in the Help window, you can exit by simply clicking twice on the Control menu in the upper left corner of the window. (If you don't have a mouse, select Close from the Control Menu.) This will take you out of the Help window and back to the active *EXTRA!* window.

The README File

An information file, called README!.TXT, is provided on *EXTRA!*'s program diskettes. It contains information that was not available at the time the manuals went to print.

Once *EXTRA!* is loaded, you'll see the *EXTRA!* README icon (shown below) in *EXTRA!*'s Program Group. Simply open this icon to view the README file (README!.TXT).



Printing the README! File

You can obtain a printed copy of the file using Notepad's "Print" command. But before getting started, make sure the README! file is displayed on your screen, and that you can print to a local printer from Windows.

When you're ready to print, select "Print" from the Notepad's File menu. The file will be sent to the printer Windows is connected to.

Supplemental Reading

The following publications can help you learn more about the operation of your personal computer, Microsoft Windows, 3270 emulation, and host communication peripherals.

- EXTRA! for Windows Reference Manual, Attachmate Publication.
- Microsoft Windows User's Guide, Microsoft Corporation Publication.
- Using Microsoft Windows/386, Microsoft Corporation Publication.
- IBM 3270 Information Display System 3274 Control Unit Description and Programmer's Guide, IBM Publication.
- IBM 3270-Information Display System Data Stream Programmer's Reference, IBM Publication.
- 3278 Display Station Operator's Guide, IBM Publication.

- IBM PC Guide to Operations, IBM Publication.
- DOS 3.3 Disk Operating System Reference, IBM Publication.
- IBM 3270 Personal Computer Control Program Guide, IBM Publication.
- IBM HLLAPI Programming Guide, IBM Publication.
- HLLAPI for Windows Programmer's Manual, Attachmate Publication.



Appendix B

Shortcut Keys

Shortcut keys allow you to carry out some of *EXTRA!*'s commands without selecting them from a pull-down menu. This appendix covers four types of Shortcut keys: Executive Shortcut keys, Emulator Shortcut keys, Printer Shortcut keys, and System Shortcut keys.

Executive Shortcut Keys

Executive Shortcut keys carry out the commands that can be selected from the Executive window menus. The Executive window must be active to invoke these commands.

Keystroke	Function
[Ctrl]/[E]	Message Services: This command brings up the Message Services window. In this window you can view messages in the file and set several options for the error log file.
[Ctrl]/[T]	API Trace Services: This command brings up the API Trace Services window, where you can start or review a trace on a file transfer, a HLLAPI application, or the Sessions Manager.
[Ctrl]/[A]	Host Attribute Mapping: This command allows you to select how the PC monitor will display mainframe session text colors and styles (highlighted, blinking, reverse video, or underlined).
[Ctrl]/[C]	Communications Adapters: This command allows you to select or change the settings used to communicate with the mainframe, or to set or change the connection adapter type (coax, NETBIOS LAN, or token-ring DLC).
[Ctrl]/[K]	Keyboard Mapping: This command allows you to select the type of PC keyboard you will be using.

Keystroke	Function
[Ctrl]/[L]	Lock Configuration: This command brings up the Lock Configuration dialog box. By using this command, you can lock the configurator so that only those users with the password can change settings. In the dialog box, you can select the options that you wish to lock.
[Ctrl]/[N]	Next Message: This command brings up the next message from the message log file and displays it in the Message Services window. You can toggle between messages by selecting Next Message and Previous Message.
[Ctrl]/[P]	Session Profiles: This command leads to the Session Profiles dialog box. In this dialog box you can select terminal models, EABs (Extended Attribute Bytes), and startup options to use with mainframe sessions.
[Ctrl]/[S]	Sessions: This command brings up the Sessions dialog box, allowing you to add, edit, or delete a session.
[Ctrl]/[V]	Previous Message: This command brings up the previous message from the message log file and displays it in the Message Services window. You can toggle between messages by selecting Previous Message ([Ctrl]/[V] and Next Message ([Ctrl]/[N]).

Keystroke	Function
------------------	-----------------

[Ctrl]/[Alt]/[X]

Call Session: This command makes the specified window ([X]) the active window if the session is already open.

[Ctrl]/[Alt]/[Spacebar]

Next Session: This command makes the next EXTRA! window on the screen the active window, according to the order in which the windows were initially opened.

Emulator Shortcut Keys

Emulator Shortcut keys carry out the commands that can be selected from the Emulator window menus. An Emulator window must be active to invoke these commands.

Keystroke	Function
------------------	-----------------

[Ctrl]/[Ins]

Copy: This command lets you copy the highlighted portion of the screen and place it in Windows' clipboard.

[Ctrl]/[L]

Next Larger Font: This command changes the session text to the next largest size in the selected type style. It also turns off Automatic Font Sizing.

Keystroke	Function
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[Ctrl]/[O]	Open: This command allows you to select which session you want opened from the list of available sessions.
------------	---

[Ctrl]/[P]	Show SmartPad: This command displays or removes the currently selected SmartPad on your screen. SmartPads can only be used with a mouse.
------------	---

[Ctrl]/[S]	Next Smaller Font: This command changes the session text to the next smaller size in the selected type style. It also turns off Automatic Font Sizing.
------------	---

[Ctrl]/[T]	File Transfer: This command allows you to transfer a file to or from the mainframe and specify the details of the transfer.
------------	--

[Ctrl]/[Alt]/[X]	Call Session: This command makes the specified window ([X]) the active window if the session is already open.
------------------	--

[Ctrl]/[Alt]/[0]	Executive: This command makes the EXTRA! Executive window the active window, no matter where it is located.
------------------	--

[Ctrl]/[Alt]/[Spacebar]	Next Session: This command makes the next EXTRA! window on the screen the active window, according to the order in which the windows were initially opened.
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Printer Shortcut Keys

Printer Shortcut keys carry out the commands that can be selected from the Printer window menus. A Printer window must be active to invoke these commands.

Keystroke	Function
------------------	-----------------

[Ctrl]/[O]	Open: This command allows you to select which session you want opened from the list of available sessions.
------------	---

[Ctrl]/[Alt]/[X]	Call Session: This command makes the specified window ([X]) the active window if the session is already open.
------------------	--

[Ctrl]/[Alt]/[O]	Executive: This command makes the EXTRA! Executive window the active window, no matter where it is located.
------------------	--

[Ctrl]/[Alt]/[Spacebar]	Next Session: This command makes the next EXTRA! window on the screen the active window, according to the order in which the windows were initially opened.
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System Shortcut Keys

System Shortcut keys carry out the commands that can be selected from any active window.

Keystroke	Function
[Alt]/[F4]	Close: Close is a Microsoft Windows command that closes a file (including an <i>EXTRA!</i> session) or a window.
[Ctrl]/[Esc]	Switch to . . .: This is a Windows command that brings up the Task List window. In this window you can review all the applications that Windows is running, or you can modify the layout of your screen.



Glossary

Active window. The window where the user is currently performing actions.

Advanced Program to Program Communications (APPC). A set of protocols designed by IBM that enable application programs to interact directly with each other on a peer-to-peer basis (rather than having to go through the mainframe), even when the programs are on separate and remote processors.

Advanced Peer-to-Peer Networking (APPN). An IBM application that allows users to establish sessions with remote applications without knowing the location of the application.

Alt key. A key on the PC keyboard that has no function when used alone, but is used to modify the function of another key. It is often used to control special 3270 functions such as terminal off/on, help, etc. The [Alt] key is also used to select menus in windows.

APPC. See *Advanced Program to Program Communications*.

APPN. See *Advanced Peer-to-Peer Networking*.

Application program. A program that performs specific tasks, such as a word processor or a database.

API (Application Program Interface). A programming interface to the 3270 emulation program that allows a PC application program to simulate the keystrokes of a human operator and communicate directly with the mainframe.

Arrow. The pointer that appears on your screen. It responds to your mouse and moves as your mouse moves across a flat surface.

ASCII. American Standard Code for Information Interchange. An 8-bit code, developed by the American National Standards Institute committee, for the exchange of information between communication devices.

Asynchronous transmission. A transmission scheme that uses *start/stop* bits to define a character and separate it from other characters. (Compare *synchronous transmission*.)

AUTOEXEC.BAT. A special batch file that is executed automatically when the PC is turned on or rebooted. It can be used to automatically start application programs.

Backup diskette. A diskette containing information copied from a fixed disk or from another diskette. It is used in case the original information becomes unusable.

Batch. The processing of a group of data that was entered previously. (Compare *interactive*.)

Batch file. A file containing one or more lines of DOS commands that will execute, usually in order, after the name of the batch file has been entered. Batch files all have the extension .BAT in their filenames.

Baud. A unit of measurement that indicates the electrical change from 0 to 1 across an electrical interface. How fast a modem can change it's tone to indicate a bit. Baud is a term often misused in describing data transmission rate, which should more accurately be expressed in bits per second (bps).

Binary file. A file that contains ASCII control characters and/or extended characters, which cannot be displayed on the screen. Codes in the file give instructions to the computer to perform commands, format text, etc. Many word processing document files are binary files due to the formatting codes. A text file, on the other hand, is meant to be read by the user—it displays regular ASCII characters (a, b, c, 1, 2, 3).

Bisynchronous (Bisync, BSC, or binary synchronous communication). A character-oriented, half-duplex data communications protocol. Bisync is the older of IBM's two transmission schemes for its mainframe computers and is gradually being replaced by SNA/SDLC.

Bit. Short for "binary digit." The smallest unit of information expressed in digital form as "0" or "1."

Block. A sequence of characters or bytes transmitted as a unit.

Boot. To load the operating system software (DOS) into a PC. When a PC is turned on with DOS on one of the disk drives, the PC automatically searches for, finds and loads the disk operating system (DOS). When a prompt (A:>, B:>, or C:>) appears, the operating system has been booted or loaded.

bps (bits per second). A measurement of data transmission speed.

Buffer. A storage medium used for holding data until that data can be transmitted to another device.

Byte. A group of 8 bits whose sequence represents one character.

Channel. A path for the transmission of information. On a mainframe, the channel is a high-speed interface to communications devices such as a 3X74 Control Unit or a 3X75 Communications Controller.

Character. A single unit of meaningful data, such as a letter or a number.

CICS (Communications Information Control System). A mainframe database application that offers limited relational functions but quick response time.

Check box. A small square box that appears in a dialog box and can be turned on or off. These generally appear in dialog boxes where you can set multiple options.

Circuit. A communications path between two points.

Click. Quickly pressing and releasing a mouse button.

Clipboard. A storage area for holding text and data for copying or moving.

Cluster. Several pieces of data terminal equipment, usually personal computers or intelligent terminals, arranged in close proximity to enable cabling between them. A grouping of terminals or processors connected to a common computer or communication device, such as a 3X74 Control Unit.

CMS (Conversational Monitor System). An interactive mainframe system that resides under the VM operating system. Provides editing and file management functions.

Coax adapter. A circuit board that provides a 3270 interface between a device, such as a PC or a controller, and a coaxial cable.

Coaxial cable. A transmission cable with one central conductor insulated from an outer conductor. Used for connecting 3270 terminals and processors for high speed communication purposes and offering high immunity to electrical interference and a low incidence of errors.

Code. A set of rules that determine how characters may be represented. (See ASCII and EBCDIC.)

Command button. A large oval button that appears in dialog boxes. The Cancel button cancels the command and the OK button carries out the command.

Communications adapter. A circuit board that provides an interface between a device, such as a PC, and a communication link.

Communication link. See *Data link*.

Compatible. Pertaining to computers that can run the same computer programs.

Configuration. The selection of various options to customize a software program for use in a specific computer environment.

Configuration file. A DOS file that specifies the characteristics of a system or subsystem.

CONFIG.SYS. The PC startup configuration file.

Control menu. The menu, appearing as a small box, to the left of the title bar. It appears in all Windows-based applications and is used to let you move, close, and change the size of windows.

Controller. A device, such as a 3X74 Control Unit, that acts as the electrical and logical interface between several display terminals and/or printers and the mainframe processor on a network.

Control panel. This window appears after selecting the Control Panel icon in the Program Manager. The program allows you to configure Microsoft Windows.

Control Unit Terminal (CUT). A 3X74 operational mode, designed for non-intelligent terminals, that allows one mainframe session.

Cooperative processing. Processing that allows two applications to communicate on a peer basis.

CMS router. A program running under VM/SP that uses the Server-Requester Programming Interface (SRPI) to route requests from the PC to the corresponding server on the mainframe. The CMS router is part of the CMSSERV command processor in VM/SP Release 4.

Current drive. The disk drive the PC is currently accessing.

CUT. See *Control Unit Terminal*.

Cyclic Redundancy Check (CRC). An error-checking scheme included in a packet before transmission and checked by the receiver.

Data communications. The transmission of data over electronic communication links between two or more physically separated computers.

Data Communications Equipment (DCE). Equipment, such as a modem or controller, that provides the functions required to establish, maintain, and terminate connections, conversions, and coding for communications between *data terminal equipment (DTE)*.

Data compression. The process of reducing the length of records or data by eliminating gaps, redundancy, and special encoding.

Data link. The equipment and rules (protocols) used for sending and receiving data.

Data Link Control (DLC). The native protocol of the IBM token-ring card.

Data set. A set of data treated as a unit.

Dataset. In TSO, this term refers to a file.

Datasetname. The first part of a dataset's name. The other parts are *member* and *password*.

Data stream. All the data transmitted over a communication facility during a single operation, such as a file transfer.

Data Terminal Equipment (DTE). Any device, such as a computer, terminal or printer, that acts as an origin of, or a destination for, data.

Data transformation. The translation of file formats from one file structure to another in order to achieve logical interconnection across a network.

DCA. See *Document Content Architecture*.

DCE. See *Data Communications Equipment*.

Dedicated lines. Private telephone circuits between two or more stations, switches, or subscribers.

Default. A value that is automatically used by the system when no overriding value is specified by the user.

Destination drive. The locally administered address of the token-ring interface coupler (TIC).

DFT. See *Distributed Function Terminal*.

Diagnostics. Special software routines that identify malfunctions.

Dialog box. A rectangular box that appears when a Windows application needs further information or is providing information.

Dialup. Access to a switched telephone network, usually through a dial or push-button phone.

DISOSS. See *Distributed Office Support System*.

Distributed Data Management (DDM). An IBM application that supports remote file access across an SNA network.

Distributed Function Terminal (DFT). (1) An operational mode that allows multiple concurrent logical terminal sessions. Contrast with *Control Unit Terminal (CUT)*. (2) A hardware/software protocol used to communicate between a terminal and a 3274 control unit.

Distributed Office Support System (DISOSS). An IBM mainframe-based system for translating, exchanging, and routing information. DISOSS is based on a store-and-forward technique.

Document Content Architecture (DCA). An IBM application that defines the form and content of office systems documents that are transferred through an SNA network.

Document interchange. The ability to transfer documents in both final and editable form over the network, regardless of the word processors used.

Document Interchange Architecture (DIA). An IBM application that defines the way in which requests and documents can be transferred through an SNA network.

DOS (Disk Operating System). A group of system programs that enables a personal computer to organize and use information on diskettes or fixed disks.

DOS prompt. A letter, followed by the > character, displayed by DOS to indicate that it is ready to process commands from the standard input device (usually the keyboard).

Double-click. Quickly pressing and releasing a mouse button twice.

Downloading. Transferring a file from a mainframe to an IBM PC or PC compatible computer.

Drag. Pressing the mouse button and holding it down while moving the mouse until the arrow is at the desired location, then releasing.

Drive specification. In DOS, the letter-colon pair that specifies a drive.

DTE. See *Data Terminal Equipment*.

Dumb terminal. A terminal connected to a mainframe that can send and receive information but has no processing capabilities of its own.

Duplex. A two-way transmission system, synonymous with full-duplex, in which information can be carried in both directions simultaneously.

EAB. See *Extended Attribute Byte*.

EBCDIC. See *Extended Binary-Coded Decimal Interchange Code*.

ECF. See *Enhanced Connectivity Facilities*.

EEHLLAPI. Entry Emulator High Level Language Application Program Interface. A limited subset of the IBM HLLAPI program that is included with the IBM PC 3270 Emulation Program, Entry Level.

Emulation. The process of imitating the functions of another system.

Enhanced Connectivity Facilities (ECF). A set of programs for interconnecting IBM Personal Computers and IBM System/370 mainframe computers operating with the MVS/XA or VM/SP environment.

Enter. To send information to the computer by pressing the Enter key.

Error control. The process of monitoring data transmissions to detect and correct errors.

Exclusive Mode Application. An application that gets most, but not all, of your PC's resources when it is running in an active window.

Extended Attribute Byte (EAB). Allows a PC to support 3270 Extended Attributes for display: highlighting, reverse image, blinking, and seven colors.

Extended Binary-Coded-Decimal Interchange Code (EBCDIC). An 8-bit data transmission code developed by IBM and used primarily for synchronous communications in IBM mainframe and compatible systems. EBCDIC is the standard code for large IBM systems.

Extension. An optional DOS parameter that, if used, immediately follows a filename. It consists of a period and 1-3 characters.

EXTRA! Emulator. An application in *EXTRA!* that emulates a 3270 terminal, allowing a user access to mainframe applications.

EXTRA! Executive. The application that controls all other *EXTRA!* applications.

EXTRA! Printer. An application in *EXTRA!* that emulates a mainframe printer, allowing a user to print mainframe data on a local PC printer.

EXTRA!'s on-line Help. A feature that offers information and instructions for using *EXTRA!* EXTRA!'s on-line Help functions just like Windows Help, from commands in a menu in an open *EXTRA!* window.

FEP. See *Front End Processor*.

Field. (1) An area in a record or panel used to contain a particular category of data. (2) The smallest component of a record that can be referred to by a name. (3) An area in a structured file defined in the form used to enter and display data.

File. A collection of related data that is stored and retrieved by an assigned name.

File Manager. A windows tool that allows you to view your files and directories.

Filename, DOS. In DOS, that portion of the file name that precedes the extension (this definition is used only for syntax descriptions). *Filename* also refers to the whole name of the file, including the extension.

Filename, VM/SP. The first part of a three part label for naming files on VM/SP. It can be up to eight characters long and include letters, numbers, and some special characters.

File transfer. The movement of a complete set of data from one computer to another, usually accomplished by dividing a file into a series of data blocks which are then reassembled at the receiving end.

Filetype, VM/SP. The second part of a three part label for naming files on VM/SP. It can be up to eight characters long and include letters, numbers, and some special characters.

Fixed disk. A flat, circular, nonremovable plate with a magnetized surface layer on which data can be stored by magnetic recording, also called a hard disk.

Fixed-width font. A font where each character takes up the same amount of space.

Floppy disk. A removeable disk (diskette) with a magnetized surface layer on which data can be stored by magnetic recording.

Font. A set of characters with a certain type style and attributes.

Format. (1) A defined arrangement of such things as characters, fields, and lines, usually used for displays, printouts, or files. (2) The pattern which determines how data is recorded.

Front end processor (FEP). A special purpose processor programmed to offload the mainframe of communications functions such as message handling, code conversion, and error control.

Full-duplex. A two-way transmission system in which information can be carried in both directions simultaneously.

Full-screen. Describes a standard DOS application that takes up the entire screen when it is run with Windows.

Function keys. (1) Keys that request actions but may not display or print characters. Included are the keys that normally produce a printed character, but when used with another key produce a function instead. (2) On 3270 PC and System/370 keyboards, these are program function keys.

Gateway. A device that uses *protocol conversion* to connect dissimilar communications systems. The gateway provides the translation from one set of protocols to another, such as a local area network to a mainframe.

Graphics adapter card. An adapter installed into a PC which processes graphics, enabling the PC to display graphic text and images.

Grayed. Describes an option that appears in a Windows menu or dialog box but it cannot be selected. These selections appear in gray type.

Half-duplex. A sequential, two-way transmission of data in which information can be transmitted in both directions, but only one direction at a time. (Compare *full-duplex*.)

Handshaking. Preliminary signal transfer between communicating elements to verify that communication has been established.

Hard drive. A flat, circular, nonremovable plate with a magnetized surface layer on which data can be stored in a PC. Also called a "fixed disk."

Hardware. The physical equipment, as opposed to the software, of a computer system.

Hexadecimal. This term applies to a system of numbers to the base sixteen. Hexadecimal digits range from 0-9 and A (ten) through F (fifteen).

High Level Language Application Program Interface (HLLAPI). Provides a high level interface to the 3270 control program for PC applications written in Basic, Cobol and other high level languages. HLLAPI allows PC programs to communicate directly with the mainframe.

Highlight. To select text, using the keyboard or the mouse, so that the text is displayed in reverse video.

Host. See *Mainframe*.

Host computer. The primary and controlling computer in a network usually provides services such as computation, data base access, and advanced programming function. Sometimes referred to as a host processor or mainframe. In the IBM environment, the host is usually an S/370, 4300, or 30XX series of computer. See also *Mainframe*.

Host graphics. Graphics images generated on an IBM mainframe computer and displayed on a 3270 terminal.

HotSpots. Program Function (PF) keys in a mainframe session that you can execute by clicking on with the mouse. HotSpots can be enabled and disabled in an EXTRA! Emulator window.

IBM. International Business Machines Corporation.

Icon. A graphic symbol that represents an object. That object may be a Windows application that is running in memory, or it can be a PC printer, or it can be a mainframe. You can enlarge an application icon to a window when you want to use the application. Other types of icons allow you access to information about the objects they represent.

Input device. A physical device, such as a keyboard or a mouse, used to provide data to a computer.

Intelligent terminal. A terminal or workstation with a built-in processor capable of sending, receiving, processing, and storing data. (Compare *dumb terminal*.)

Interactive. A condition in which an end user has an open channel to a computer system, permitting an immediate response to a request, inquiry, or command. (Compare *batch*.)

Interface. The boundary between two systems or devices or the logical connection at which two systems can interconnect. Also, a device that provides a logical connection between different transmission systems or equipment.

IRMA. A basic 3270 emulation system supplied by Digital Communications Associates, Inc.

Jump. To move to a mainframe session.

Keyboard. An input device consisting of various keys that allow the user to input data, control cursor and pointer locations, and to control the dialog between the user and the computer.

Keyboard maps. Diagrams of the keyboards supported by *EXTRA!* The templates show the locations on the keyboard for the different 3270 keys.

Keyboard templates. See *Keyboard Maps*.

Kilobyte (KB). 1,024 bytes (in common usage, a thousand bytes).

Leased line. A private communications line leased or rented from a common carrier, such as AT&T or MCI. Also see *Dedicated line*.

Line speed. The maximum transmission rate over a communications channel, usually expressed in bits per second (bps).

Link. A circuit or transmission path, including all equipment between a sender and a receiver on a network.

List box. A box within a dialog box that lists all items that a command could affect. The list box may have a scroll bar if there are additional selections that do not fit in the box.

Local. Pertaining to a device directly connected to your system without the use of a communication line.

Local area network (LAN). A collection of many computers in one area connected with wire and usually equipped with some sort of peripherals that the computers share. For example, a communications network within a limited physical area such as an office building or manufacturing plant. The three basic components of a LAN are the cards that plug into the computer to connect it to the network cabling and network-control hardware and software.

Logical Unit (LU). The port, or network addressable entity, through which users gain access to SNA and communicate with one another. Also called a resource or mainframe resource.

Logical Unit 6.2 (LU 6.2). Often used synonymously with *APPC*, LU 6.2 is an IBM protocol for the peer-to-peer communication of devices on an SNA network.

Logoff. A command for ending a mainframe session.

Logon. A command for beginning a mainframe session.

Macro. A series of keystrokes that have been recorded and given a name so that they can be replayed at will using shortcut keys.

Mainframe. The computer that provides processing capabilities for terminals and other attached devices.

Mainframe session. A terminal emulator session that has an open mainframe connection.

Maximize box. This box, located to the right of the title bar, enlarges a window to its maximum size when clicked on by a mouse.

Megabyte (MB). One million bytes.

Menu. A displayed list of items, also called commands, from which a user can make a selection.

Menu bar. This bar contains the names of the command menus in an application.

Micro-mainframe link. A hardware and software package specifically designed to accomplish communication between a PC and a mainframe computer.

Minimize box. This box, located to the right of the title bar, shrinks a window down to an icon when clicked on by a mouse.

Modem. A device that modulates and demodulates signals transmitted over a network. It converts computer data (digital) into audio signals for transmission across telephone lines.

Modulation. In data communications, the conversion of a digital signal to an analog signal.

Multiple sessions. Two or more mainframe sessions open and running simultaneously used to access multiple mainframe applications from a single terminal or PC.

Multiplexer. A device which combines several data channels by interweaving the data for transmission over one high speed channel.

Multidrop. A term used to indicate systems in which several points are served by the same circuit.

NETBIOS. Network Basic Input/Output System. Software developed by IBM that provides the interface between the PC's operating system, the I/O bus, and the local area network. Since its design, NETBIOS has become a de facto standard.

Network. A computer communications system linking a series of computer elements. A system of interconnected computing devices that can communicate and share resources. Networks may be private (for use by one customer) or shared (for the use of many customers).

Network Addressable Unit (NAU). Either a user or a device on an SNA network that has access to a variety of services. NAUs include *logical units* and *physical units*.

Network Interface Unit (NIU). A micro-based device that acts as a physical connection between the user's node and the communications medium and facilitates implementation of the network software.

Network management. Software and hardware that enable a manager to perform certain administrative, security, and accounting functions in managing the network: reconfigure the network topology, download software, monitor network performance, maintain departmental billing, and diagnose and troubleshoot problems.

Network server. A node on a local area network (LAN) that is configured to share its resources with the other PCs on the LAN.

Network station. A 3270 workstation on a local area network (LAN) that must use a *gateway* to communicate with a System/370, 30XX or any other IBM mainframe.

NIU. See *Network Interface Unit*.

Node. Any device such as a computer, terminal, or peripheral that is connected to a communications network.

Noise. Random signals occurring on a communications line (as a result of natural disturbances or system components) that degrade the performance of the line.

OIA. See *Operator Information Area*.

On-line help. Information and instructions about an application that you have access to while that application is running; information in electronic form, rather than printed form.

Operating system. Software that controls the running of a computer system. In addition, an operating system can provide services such as resource allocation, scheduling, input/output control, and data management.

Operator Information Area (OIA). The bottom line of all 3270 terminals, reserved as a status line, that displays information in text and symbols about the status of the terminal and the application that is running.

Option button. A small round button that appears in a dialog box, usually one of several options.

Parallel interface. A connection or port that permits *parallel transmission* of data (typically to a printer).

Parallel transmission. A method of information transfer in which all the bits comprising a character are sent simultaneously. (Compare *serial transmission*).

Parity. A communications error-detection scheme in which an error-checking bit is added to the end of each byte, transmitted, and then verified at the receiving end for limited error checking.

Path. A list of directories. The command files of these directories are accessible from any directory. When a command that exists in a directory in the path is entered, DOS looks in the current directory and all directories in the path until it finds the command DOS then executes it. The path is set using the path statement (also called the path command).

Path statement. A DOS command used to see or set the Path. Often set in the AUTOEXEC.BAT file.

Peer-to-peer communications. The ability of intelligent devices to communicate directly with one another without relying on the mainframe.

PF keys. PF (Program Function) keys are keys that tell a mainframe application to carry out some action. Like the Function keys (F1-F10) on a PC, they carry out actions specific to each application.

Physical Unit (PU). A term used in the SNA environment to identify the addresses for printers, terminals, PCs, and other devices on the network.

Physical Unit 2.1 (PU 2.1). An IBM protocol that facilitates cooperative processing by supporting multiple "conversations" within a single session.

Physical Unit ID (PUID). Normally an eight-digit number that is an SNA parameter that identifies the workstation to VTAM and determines the capabilities of the workstation as a 3270 device.

Plug compatible. In microcomputers, a term used to signify that a card or board of one computer is compatible with, or will fit, the I/O bus of another computer.

Point. A unit of measurement that is used to specify the height of a typeface.

Point-to-point. A network configuration connecting only two nodes.

Polling. A method of controlling the sequence of communication from multiple devices on a network, whereby the controller requests or invites individual terminals to transmit data. Polling enables the controller to manage the transmission of data from multiple devices in an orderly manner.

Pool. A collection of items where each item can be used by only one user at a time. For example, a pool of ports is a set of mainframe communication ports that can be connected to by sessions. Once a session has connected to a port, the port is no longer available in the pool until the connection is broken.

Port. A point of exit or entry for a data channel in a network, usually found on the *front end processor* or the *controller*. The point at which devices can be connected to computers or networks for transmitting or receiving data.

Preferences. Options and parameters that determine how a mainframe or printer session is going to look or act. For example, mainframe session preferences include screen fonts, automatic window sizing, and automatic font sizing; printer session preferences include printer fonts, page layout, and printer time-out time.

Presentation space. In the 3270 environment, a region in computer memory (either mainframe, or PC) that can be displayed, in whole or part, in a window on the screen. For example, a spreadsheet consisting of 4,096 rows and 4,096 columns is a presentation space that cannot be viewed in its entirety on one screen. However, it can be viewed in

sequence, part-by-part. Sometimes presentation space is used synonymously with session, although not all presentation spaces are sessions (technically, some internal components are presentation spaces).

Printer emulation. Acting like a printer; *EXTRA!* emulates a mainframe printer and allows you to print mainframe data to a local PC printer.

Printer Emulator. See *EXTRA! Printer*.

Printer window. The window where printer emulation takes place: the *EXTRA!* Printer window.

Program. A file containing a set of instructions conforming to a particular programming language syntax.

Program group. A collection of related program item icons that represent Windows applications.

Program group item. An application in a program group, represented by an icon. Running the icon starts up the application.

Program Manager. The main Windows application which manages all other Windows applications and the running of Windows itself.

Proprietary. A term used to denote a system developed and supported by one particular vendor.

Protocol. The set of rules or conventions that define the responsibilities and functions of computing devices. These rules enable computing devices to exchange information effectively.

Protocol conversion. The process of translating protocols from one computer system to another so that the two different systems can communicate.

PS/370. A mainframe-resident program used to perform office automation tasks under DISOSS.

PS/PC. A PC-resident program used to perform office automation tasks under DISOSS.

PUID. See *Physical Unit ID*.

Query. The action of posing a question to a program for example, searching data for desired information.

Queue. A line or list formed by items waiting to be processed.

Real mode. A Windows operating mode that provides maximum compatibility with applications written for Windows version 2.xx.

Record. A collection of fields treated as a unit.

Reminders. Messages appearing in columns 21 through 27 of the OIA, reminding you of the current communication status.

Remote Job Entry (RJE). A system of data communications in which data is processed off-line and transmitted as a batch to another system.

Request to send. A command that causes a modem to activate the carrier signal.

Requester. The program that relays a request to another computer through the Server-Requester Programming Interface (SRPI). Contrast with *Server*.

Resource. See *Logical Unit (LU)*.

Resource manager. See *Gateway*.

Response time. The amount of time elapsed between the generation of an inquiry at a communications terminal and receipt of a response at the terminal. Includes transmission time, processing time, and contention time between system components.

Restore box. The small box containing down and up arrows that appears to the right of the menu bar after a window is enlarged to its full size. When selected, it restores a window to its previous size.

Router. Provides a Server-Requester Programming Interface (SRPI), a request interface for requesters, and a reply interface for servers.

RS-232-C. An EIA standard for a common connection used in attaching microcomputers to peripherals. The RS-232-C standard specifies a 25-pin connector that provides low transmission speeds (up to 19.2 Kb/s) and is the cable standard used for serial communications.

SAP. See *Service Access Point*.

Screen capture. Creates a "snapshot" of an entire window screen. Can save screen images to disk or print on a PC printer.

Screen layouts. The way session windows are laid out on the screen, as well as the preferences selected in that window. A screen layout can be designed and saved, then loaded at a later time to reestablish a screen setup.

Screen model. A numeric identification defining the width and height of a screen display in terms of rows and columns.

Screen print. Allows the contents of the screen that is currently displayed to be printed at the PC printer.

Scroll bars. Horizontal and vertical bars that allow a user to view additional information in a window or dialog box.

SDLC. See *Synchronous Data Link Control*.

Select. To choose an item, such as a menu, command, or option.

Serial interface. A connection or port that permits *serial transmission* of data.

Serial transmission. A method of information transfer whereby the bits comprising a character are sent one at a time. (Compare *parallel transmission*).

Server. A processor that provides a particular service to the network, such as a communication server, file or disk server, and printer server.

Server, LAN. See *Network Server*.

Server-Requester Programming Interface (SRPI). (1) A protocol between Requesters and Servers when using Enhanced Connectivity Facilities (ECF). (2) A programming interface used by requester and server programs to communicate with the PC or mainframe routers.

Service Access Point (SAP). SAPs are supported by the network adapter of the mainframe communication device. The SAP number must be a multiple of four in hexadecimal.

Session. A series of conversations or interactions that take place between two SNA *Logical Units* such as a mainframe application and a 3270 display terminal. Also see *Mainframe Session*.

Session profile. A set of parameters that describe the way a mainframe session emulates a 3270 device—what terminal model, whether the session uses EAB's or not, etc.—and what type of device it emulates.

Shared address. A portion of memory used in reserve DOS.

Shielded. A term used to describe a cable or wire that is insulated against interference, using a grounded, metallic shield.

Shortcut keys. Key sequences that provide a shortcut for selecting a command.

SNA. See *System Network Architecture*.

SNA Distribution Services (SNADS). An IBM application within SNA that provides store and forward capabilities and allows for asynchronous transmission among users in an office automation environment.

Software. Programs, procedures, rules, and any associated documentation pertaining to the operation of a computer system. Contrast with *Hardware*.

SRPI. See *Server-Requester Programming Interface*.

Start/stop. The first/last bit or element carried in the asynchronous transmission of a character to either synchronize the receiver or return the circuit to the at-rest position.

Switched line. A communications link for which the physical path can vary depending on the use of the line.

Synchronous Data Link Control (SDLC). An IBM protocol for synchronous communications that operates within SNA. A discipline for managing synchronous, code-transparent serial-by-bit information transfer over a link connection. Compare with *Binary Synchronous Communications*.

Synchronous transmission. A mode of transmitting data whereby the data is sent as blocks of characters with controls at the beginning and end of each block that ensure constant timing, or synchronization. (Compare *asynchronous transmission*.)

System Network Architecture (SNA). An IBM proprietary plan for the design of a wide area network that includes specifications for communication protocols and session management.

Syntax. The rules for the construction of a command or program.

T-1. A technology providing high speed transmission over long-distance, leased lines (although also available over satellite, microwave, and fiber). T-1 lines, used to transmit voice and data, operate at 1.544 Mb/s and are multiplexed into 24 individual channels of 64Kb each.

Terminal emulation. Imitating the functions of a 3270 terminal, usually using a combination of hardware and software.

Terminal window. The window where terminal emulation takes place. Also known as a mainframe session window or an Emulator window.

Text box. An area in a dialog box where text must be typed because more information is needed to carry out a command.

Time Sharing Option (TSO). An interactive mainframe system that resides under the MVS operating system. Provides editing and file management functions.

Title bar. In Windows a horizontal bar at the top of a window that displays the name of the application in that window.

Token-Ring Interface Coupler (TIC). A high-speed interface that links a mainframe to a token-ring network.

Token-ring. A network with a ring topology that passes tokens from station to station.

TOKREUI (Token-Ring Extended User Interface). DLC hardware drivers for token-ring cards.

TSO. See *Time Sharing Option (TSO)*.

TTY teletype. A standard file format for ASCII, asynchronous communications, based upon early Teletype devices.

Twisted pair. Insulated 18-22 gauge wire, e.g., telephone cables. Often used in local area networks. Also used to carry coax communications in some environments.

Uploading. Transferring a file from a PC to a mainframe.

User. Anyone who requires the services of a computer system.

Variable. A name used to represent a data item with a value that can change while the program is running.

Virtual disk. A disk that appears to belong to an individual user but in fact is shared or available to all users on a network.

Virtual memory. A portion of your PC's memory that can be used by more than one application. Each application's data is continually swapped in and out of virtual memory.

VM. Virtual Machine. A mainframe operating system that provides time-sharing functions for several users, but appears to each user as a fully dedicated computer system.

VM/CMS. See *CMS*.

Wide Area Network (WAN). Any network that covers a large geographic area (50 miles or more) and may include packet-switching, public data, and value-added networks.

Window. A rectangular area on the screen for viewing an application. Every window may have a title bar, menu bar and scroll bars.

Windows application. An application that was designed especially for Windows and uses Windows' features such as menus and dialog boxes.

Windows Help. The on-line help feature for Windows.

Work area. The area in a window that displays the contents of a file, such as a document or drawing. It is sometimes called the client area.

Workstation. A single-user computer system designed for multiple active functions, such as word processing and mainframe access.

WsCtrl key. Workstation control keys are located on 3270-PC keyboards. Like the function keys on a PC keyboard, they are used for special functions. Using the [Alt] and [Ctrl] keys, *EXTRA!* allows your PC keyboard to imitate WsCtrl keys.

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