

Personal Communications for Windows, Version 5.7



# 3270 Emulator User's Reference



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**Note**

Before using this information and the product it supports, read the information in "Notices", on page 87.

**Third Edition (September 2003)**

This edition applies to Version 5.7 of Personal Communications (program number: 5639-I70) and to all subsequent releases and modifications until otherwise indicated in new editions.

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## About This Book

IBM® Personal Communications for Windows® reference books are comprised of four volumes: a 3270 Emulator User's Reference, a 5250 Emulator User's Reference, a VT Emulator User's Reference and an Administrator's Guide and Reference. These volumes provide information for using IBM Personal Communications iSeries™ for Windows operating systems (hereafter called PC400) and IBM Personal Communications for Windows operating systems. In this book, *Windows* refers to Windows 95, Windows 98, Windows NT®, Windows Me, Windows 2000, and Windows XP. When information applies only to a specific operating system, this is indicated in the text. *PC/3270* refers to the 3270 portion of the combined package. Throughout this book, *workstation* refers to all supported personal computers. When only one model or architecture of the personal computer is referred to, only that type is specified.

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## Who Should Read This Book

This book is intended for the person who uses Personal Communications on a workstation to access hosts using 3270 terminal emulation.

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## How to Use This Book

This book contains reference information that you might need to refer to when installing or operating Personal Communications.

Personal Communications is designed to use various communication adapters and to work with other workstation and host system software. Refer to the appropriate documentation for the products you use.

## Command Syntax Symbols

Parentheses, brackets, ellipses, and slashes have the following meanings or uses:

- ( ) Parentheses enclose operands that govern the action of certain command options.
- [ ] Brackets indicate an optional command argument. If you do not use the optional item, the program selects a default.
- ... Ellipsis after an argument indicates that you can repeat the preceding item any number of times.
- / For 3270, a slash must precede the Time Sharing Option Extensions (TSO/E) password. A slash must also precede parameters of DOS commands entered from the command line.
- \ A backslash is included as part of any directory name. An initial backslash indicates the first-level directory, and an additional backslash is inserted in the directory name to indicate another level.

All directives, operands, and other syntax can be typed in either uppercase or lowercase, unless otherwise indicated.



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## **Part 1. General Information**



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## Chapter 1. Personal Communications Highlights

Personal Communications brings the power of personal networking to your workstation by providing a variety of connectivity options supporting local area network (LAN) and wide area network (WAN) environments. Whether you need host terminal emulation, client/server applications, or connectivity, Personal Communications offers a robust set of communications, networking, and administrative features.

Personal Communications is a full-function emulator package with an easy-to-use graphical interface, which includes many useful features such as file transfer and dynamic configuration, and emulator APIs including the IBM Host Access Class Library.

Personal Communications also provides a variety of SNA-based client application programming interfaces (APIs). You can create applications that use the peer-to-peer client APIs, which are based on LU 6.2 (and provided by Personal Communications). Using these APIs you can simultaneously access and process information on peer workstations.

With Personal Communications, you can participate in Advanced-Peer-to-Peer Networks (APPN) as an end node, and use the advanced network features, high-performance routing (HPR), and dependent LU requester (DLUR).

Personal Communications provides the following functions:

- **zSeries™ Connections**

- LAN** LAN via IEEE 802.2  
3270 Communications Server for Windows  
Telnet3270  
3270 via iSeries  
APPC 3270 via LAN  
Microsoft® SNA client over FMI  
Dependent Logical Unit Requester (DLUR)  
VT-over-Telnet (TCP/IP)  
3174 Peer Communication
- COAX** SNA Distributed Function Terminal  
Non-SNA Distributed Function Terminal
- COM port**  
Telnet 3270  
SNA-over-Async  
IBM Global Network® (not in Japan)  
Home3270  
IBM Global Network - SNA-over-Async  
Dependent Logical Unit Requester (DLUR) via  
SNA-over-Async  
Hayes AutoSync  
APPC 3270 via SNA-over-Async  
APPC 3270 via Hayes AutoSync  
VT-over-Async  
VT-over-Telnet (TCP/IP)  
X.25 Hayes AutoSync  
X.25 DLUR via Hayes AutoSync

- X.25 APPC 3270 via Hayes AutoSync
- 5250** 3270 via iSeries  
Dependent Logical Unit Requester (DLUR)
- SDLC** Synchronous Data Link Control  
3270 via iSeries (passthru)  
APPC 3270 via SDLC  
Dependent Logical Unit Requester (DLUR)
- SNA/IP**  
LU 0, 1, 2, 3  
APPC 3270  
LU 0, 1, 2, 3 via DLUR
- IBM ISA/MCA WAC**  
Synchronous Data Link Control  
3270 via iSeries (passthru)  
APPC 3270 via SDLC  
Dependent Logical Unit Requester (DLUR)  
X.25 Qualified Logical Link Control  
X.25 3270 via iSeries  
APPC 3270 via X.25  
X.25 DLUR  
Communications Server Client  
Communications Server
- IBM-EEDLC**  
LU (0, 1, 2, 3) via DLUR  
APPC 3270
- OEM** LU (0, 1, 2, 3)  
3270 via iSeries (passthru)  
APPC 3270  
Dependent LU Requester (DLUR)
- **iSeries Connections**
- LAN** LAN via IEEE 802.2  
Telnet5250 over TCP/IP  
VT over Telnet  
Telnet5250 over IPX/SPX
- 5250** Twinaxial Data Link Control (APPC)  
Twinaxial Data Link Control (Console)
- COM port**  
SNA-over-Async  
Hayes AutoSync  
SNA-over-Async (Console)  
VT over Async  
VT over Telnet  
Telnet 5250  
X.25 Hayes AutoSync
- SDLC** Synchronous Data Link Control
- SNA/IP**  
5250
- IBM ISA/MCA WAC**  
Synchronous Data Link Control (WAC)  
X.25 Qualified Logical Link Control
- IBM-EEDLC**  
5250
- OEM** APPC 5250
- **ASCII Emulator Connections**
- LAN** VT over Telnet



- COM port**
    - VT-over-Async
    - VT over Telnet
- **S/3X Emulator Connections**
  - 5250 Twinaxial Data Link Control (Console)
- **Client/Server Connections**
  - LAN LAN via IEEE 802.2
  - Twinaxial**
    - Twinaxial Data Link Control (APPC)
  - COM port**
    - SNA-over-Async
    - Hayes AutoSync
    - X.25
  - SDLC** Synchronous Data Link Control
  - IBM WAC**
    - Synchronous Data Link Control
    - X.25
  - AnyNet<sup>®</sup> SNA over TCP/IP**
    - APPC
  - Enterprise Extender**
    - HPR over IP
- **Configuration of SNA Node (APPN) Sessions**
  - Emulator
  - Client/server applications
- **SNA Node Operations**
  - Starting and stopping resources
  - Deleting resources
  - Displaying resource information
  - Changing session limits
  - Initiation of path switches
- **Log Viewer**
  - View Message Log, Trace Log, and Merged Log files
  - Summary and Detail views
  - Set default Message Log size and location
  - Filter and search Log files
  - Message Log entries Help
- **Trace Capability**
  - 3270/5250 emulator data
  - APPN<sup>®</sup> and APPC API data
  - Connectivity data, such as LAN or SDLC
  - User services data, such as node initialization
- **APPC Applets**
  - Display SNA sense data (GETSENSE)
  - Transfer files (AFTP and AFTPD)
  - Check connection (APING)
- **Sample Programs**
  - Located in \Personal Communications\samples subdirectory
- **Installation and Configuration**
  - Partial installation option
  - Program sharing on a network server
  - Automatic detection of installed communication adapters
  - Dynamic change of communication configurations
  - Automatic Dial Facility (Async (IGN), SDLC, Home3270, SNA-A)

- Silent Installation
- ASCII SNA-node configuration
- Verification of ASCII configuration
- **OEM Adaptor Cards**

An open API enables vendors and other equipment manufacturers (OEMs) to provide adapter cards that allow for additional connectivity options, for example, additional X.25, ISDN, SDLC or twinax support.
- **Host Session Function**
  - Up to 26 sessions
  - Variable screen size and automatic font scaling
  - Function settings (of the host code page, for example) for each session
- **Host Graphics Support**
  - Built-in vector graphics support for GDDM<sup>®</sup> and other graphics applications
- **File Transfer Function**
  - Easy operation through graphical user interface (GUI) windows
  - Batch transfer of multiple files
  - Concurrent file transfer through multiple sessions
  - Background file transfer
  - File transfer invocation by macro
  - OfficeVision/MVS<sup>™</sup> Import/Export functions
  - VT File Transfer (XModem and YModem)
- **Edit (Cut and Paste) Function**

You can use the clipboard to cut, copy, and paste a selected area. In addition, you can paste data in other applications, such as spreadsheet programs, that support the PasteLink function.

  - Support of spreadsheet data format (Sylk, Biff3, Wk3 formats)
  - Copy Append
  - Paste Next
  - Paste to Trim Rectangle
  - Paste Stop at Protected Line
- **Graphical User Interface (GUI)**
  - Customizable 3D iconic tool bar
  - 3D-button hotspots
  - Pop-up keypad
  - Macro function, including record and play
  - VBScripts, including record and play
  - Keyboard-function setup and remapping
  - Mouse-button-function setup and remapping
  - Display setup (cursor type, graphics, sound, colors, for example)
  - Automatic font size adjustment or fixed font size
  - Window-appearance setup
  - Menu-bar customization
  - 3270 Light Pen emulation by using a mouse
  - Status bar with history
  - Page setup (Text and Graphics)
  - Revised Configuration Dialog
  - Online help
- **Print Function**
  - Printer session (for PC/3270: SCS, LU 3, or non-SNA)
  - Graphics local print
  - Printing with the Windows NT printer drivers
  - Print function by printer definition table (PDT)
  - Multiple host-print functions in multiple sessions
  - Print-job control by SNA bracket timeout

- PDF-to-PDT conversion tool
- PC400 print function by OS/400<sup>®</sup> Host Print Transform (HPT)
- PC400 printing supported by the iSeries Advanced Print Support Utility
- ZipPrint
- **Programming Interfaces**
  - 16/32-bit Emulator High-Level Language Application Programming Interface (EHLLAPI)
  - 16/32-bit Dynamic Data Exchange (DDE)
  - 32-bit Node Operations Facility (NOF)
  - 16/32-bit Personal Communications API (PCSAPI)
  - 32-bit Advanced Program-to-Program Communication (APPC)
  - 32-bit Common Programming Interface for Communications (CPI-C)
  - 32-bit Automation Object API
  - 32-bit ActiveX/OLE 2.0
  - Host Access Beans for Java<sup>™</sup>
  - ActiveX Controls
- **PC400 Client Function**
  - Data transfer
  - PC Organizer
  - Text Assist
  - Enhanced Programmable Terminal User Interface (ENPTUI)



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## Chapter 2. Problem Analysis

This chapter describes the information that will help you analyze problems with Personal Communications, and ways to report a problem to IBM. For detailed information about contacting IBM, refer to *Quick Beginnings*.

For information about Personal Communications and support, refer to the following Web sites:

- The Personal Communications home page provides access to general product information, and download services. To view this page, use an Internet browser and go to the following Internet address or Universal Resource Locator (URL):  
`http://www.ibm.com/software/network/pcomm`
- The Personal Communications support page provides links to code fixes, tips, newsgroups, support options, and services. To view this page or to submit a software defect report, use an Internet browser and go to the following Internet address:  
`http://www.ibm.com/software/network/pcomm/support`

Personal Communications provides several utilities to help you with problem analysis. They can be invoked by selecting their icons from the **Programs** → **IBM Personal Communications** → **Administrative and PD Aids** subfolder on the Windows **Start** menu.

The following sections describe these utilities and how to use them.

---

### Log Viewer

The Personal Communications log viewer utility enables you to view, merge, sort, search, and filter information contained in message and trace logs. Use the log viewer during problem analysis to work with message and trace log entries. The default name of the message log output file is PCSMSG.MLG; its file extension must be .MLG. The file extension for trace logs must be .TLG.

To view message or trace logs:

1. From the Administrative and PD Aids subfolder, click **Log Viewer**; or, from an active session, click **Actions** → **Launch** → **Log Viewer**.
2. From the list of logged messages, double-click a message to display the message text.

For more information about log viewer functions, refer to *Administrator's Guide and Reference*.

---

### Trace Facility

The Personal Communications trace facility enables you to log trace information for certain Personal Communications functions.

To start a trace, perform the following steps:

1. From the **Administrative and PD Aids** folder, click **Trace Facility**; or, from an active session, click **Actions** → **Launch** → **Trace Facility**. The trace status on the title bar displays the current state:

**Active** Trace data is being collected by the trace facility.

**Inactive**

No trace data is being collected.

2. From the main dialog box, click **Set Up** to set the desired trace system parameters.
3. Click **OK** to return to the main trace dialog box.
4. From the main trace dialog box, select the type of data you want to trace from the **Function Name**, **Component Name**, and **Trace Option** list boxes.

**Function Name**

A specific set of Personal Communications features, such as 3270/5250 Emulator or User Services.

**Component Name**

The name of a specific part of a function, such as API data (for the 3270 Emulator function) or Node Initialization (for the User Services function).

**Trace Options**

The options associated with a particular component, such as EHLLAPI (for the API component) or API trace (for the Node Initialization component).

5. Start tracing data by clicking **Start**, or apply changes to the trace options by clicking **Apply**.
6. Run the operation that you want to trace.
7. Optionally, stop the trace by clicking **Stop**.
8. Save the trace data to your hard disk by clicking **Save**.
9. Click **Format** to specify a formatted trace file name and to format the trace data. The Information Bundler utility should be used immediately after the trace is complete to ensure that the correct information is gathered.

**Note:** If you have changed the default path for the formatted trace file, the Information Bundler will not find the trace information. Copy the trace files to the system-class application data directory.

10. Click **OK**.
11. Click **Clear** to clear the trace buffer where you saved a trace.
12. Use the log viewer to view the formatted trace log.

---

## Information Bundler

The Personal Communications Information Bundler utility gathers system files, trace and log files, and registry information and creates a self-extracting .EXE file. This .EXE file is sent to support personnel via FTP for problem resolution. This utility should be executed immediately after the trace is complete to ensure that the correct information is gathered. To use the information bundler utility:

1. From the **PD Aids** folder in the Personal Communications program group, double-click the **Information Bundler** icon; or, from an active session, click **Actions** → **Launch** → **Information Bundler**.
2. A .EXE file containing system and Personal Communications information is created in the Personal Communications system-class application data directory. By default this file is called X12345.EXE. Refer to the installation documentation for the location of the system-class application data directory for each Windows operating system.

---

## Internet Service

The Internet Service utility enables you to send the .EXE file containing diagnostic data collected by the Information Bundler to an FTP server. This utility will not work unless TCP/IP is configured and you have a direct connection to the internet. To use Internet Service:

1. Double-click the **Internet Service** icon located in the Personal Communications program group; or, from an active session, click **Actions** → **Launch** → **Internet Service**.

The Internet Service window contains four data fields that must have valid values before you can submit your problem report.

2. Verify that the FTP Address field contains the default address **testcase.software.ibm.com**. This is the service anonymous FTP server.
3. Type your e-mail address in the field provided.
4. In the Problem Determination Filename field, type the file name and path of the .EXE file created with the Information Bundler. This file is located in the Personal Communications installation directory.
5. In the PMR Number field, type the PMR number that you received as a result of contacting IBM support personnel.
6. When all fields in the window have been filled with valid values, click **Transmit** to submit your problem determination information.





---

## **Part 2. Using Personal Communications**



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## Chapter 3. Considerations for Using PC/3270 Sessions

This chapter contains hints and tips for using PC/3270 sessions. Supplementary information other than the items described in this book may be included in the Readme HTML file in the Personal Communications directory.

---

### Power Management

Personal Communications complies with Windows 2000 Power Management requirements for handling sleep events. This support minimizes session interruptions due to network disconnections caused by sleep on Windows 2000 and subsequent versions.

**Note:** In this context, the term "sleep" means that the system is on standby or is in hibernation. To applications such as Personal Communications, standby and hibernation are the same.

The benefits of this power management system include the following:

- Power consumption is reduced via the Advanced Configuration and Power Interface (ACPI); the system is able to enter a lower power state (or sleep mode) that appears to be "off" but is still powered enough to enable the system to power up (or wake) to handle timed events or device related needs such as receiving a fax.
- The PC is instantly available to the user because it can rapidly return from a low power state to a fully-functional state.
- Customers can rely on their PCs to power down and up in a way that is easily understood and predictable.

The following Personal Communications components are affected by this Power Management arrangement:

- Emulator sessions
- Transfers that utilize an emulator session

### Sleep Permission

Before entering a sleep state (stand by or hibernate), Windows 2000 normally requests permission from the applications that are running. When one or more emulator sessions are connected and Windows signals that the user is available for interaction, Personal Communications asks the user to grant or deny sleep permission. If the user grants permission, Personal Communications logs the event and then notifies Windows. When user interaction is not possible, sleep permission is denied.

When Personal Communications is not in the connected state, Windows 2000 may automatically sleep, without prompting the user for permission.

You can specify a setting in the User Preference Manager that allows the system to standby or hibernate without prompting. In default mode (unchecked), if there is at least one connected session, you will be prompted to allow the system to standby or hibernate. If there are no connected sessions, Personal Communications allows the system to standby or hibernate without prompting. Refer to *Quick Beginnings* for information on using the User Preference Manager.

## Critical Sleep

When Windows 2000 resumes after an emergency suspension, Personal Communications may display and log a warning message.

---

## Host-Session Window Operations

### Cursor Color

By default, PC/3270 draws the underline cursor in white. If the background color of the current field is white, the color of the underline cursor automatically switches to black. PC/3270 draws the block and half-block cursors in the same color as the current field, reversing the background and foreground colors. This behavior is identical to a 327x terminal.

If you want to change the default cursor color assignment, modify the pcswin.ini file and add the CursorColor value to the Session stanza, as follows:

```
[Session]
CursorColor=<red_value> <green_value> <blue_value>
```

Here, <red\_value>, <green\_value>, and <blue\_value> are integers from 0 to 255 that specify the color intensity for each color primitive respectively. The color values range from 0 0 0 for black to 255 255 255 for white. PC/3270 then draws the underline cursor and the block cursors in this new color, mixing this new color with the existing screen colors using an XORed (exclusive or) operation. The value 0 0 0 (black) is not recommended because XORing 0 0 0 with any existing color results in the existing color, which makes the cursor invisible.

If you select a blinking cursor, it will always be drawn white, mixing the white with the existing screen colors using an XORed operation. You cannot change the cursor color when it is blinking.

### Releasing Insert Mode with Attention Keys

As on a non-programmable terminal, you can release insert mode when you press an Attention key. If you want this to happen, add this parameter to the [Keyboard] section of the workstation profile (\*.WS):

```
[Keyboard]
ResetInsertByAttn=Y          <- Added.
```

### Scroll Bar

If you choose **Font** from the Appearance menu in the host session window and choose **Fixed Size** from the Select Display Font window, the entire operator information area might not appear on the screen. If you specify **With Scroll Bar**, the OIA will not scroll. The session window size is restricted to be smaller than the screen size.

### Scroll-Lock Key

When the Scroll Lock keyboard indicator is turned on, the cursor movement keys and the Page Up and Page Down keys are used to scroll windows only when you specify **With Scroll-Bar** in the Window Setup window. If you specify **Without Scroll-Bar**, you cannot use the Scroll Lock key, because the entire screen is displayed. For example, cursor-movement keys do nothing in Scroll Lock mode.

## 3270-Session Screen-Size Control

Although you can specify the screen size of the 3270 session in the PC/3270 configuration, the final screen size is determined by the host according to the SNA BIND negotiation.

Sometimes, you might want to use a particular screen size when it is difficult to have the host VTAM<sup>®</sup> table changed. The following method will satisfy your requirement; however, because it violates SNA rules, some applications that refer to the VTAM table only might not work.

Modify your workstation profile (.WS) to insert the following line into the [LU] section:

```
[LU]
InfScreenSize=Y
```

Personal Communications processes byte 24 of the host BIND image correctly and according to the SNA architecture. Byte 24 is the last 2 bytes of PSERVIC=X'028000000000000000000000300' (03 in this case) in the log mode.

If byte 24 is X'03', the default screen size is 24 x 80 and the alternate is what you configured with PC/3270.

If byte 24 is X'00' or X'02', the default and alternate screen sizes are 24 x 80.

If byte 24 is X'7E' or X'7F', bytes 20–23 in the BIND control the default and alternate screen sizes.

If you have X'03' in the BIND image, you can customize whatever screen size you want. The host will query Personal Communications and use the alternate screen size.

The following table shows the details of the BIND image processing:

Byte in BIND by Host					==>	Result (Screen size)	
24	20	21	22	23		Default	Alternate
==	==	==	==	==		=====	=====
a) 00	--	--	--	--	==>	24 x 80	24 x 80
b) 02	--	--	--	--	==>	24 x 80	24 x 80
c) 03	--	--	--	--	==>	24 x 80	R x C
d) 7E	Rd	Cd	--	--	==>	Rd x Cd	Rd x Cd
e) 7F	Rd	Cd	Ra	Ca	==>	Rd x Cd	Ra x Ca

Legend: RxC: Screen Size defined by PC/3270 configuration  
(R,C) = (24,80) , (32,80) , (43,80) or (27,132)

Rd: Rows in the default screen size mode

Cd: Columns in the default screen size mode

(Rd,Cd) = (24,80) , (32,80) , (43,80) or (27,132)

Rd\*Cd <= R\*C

Ra: Rows in the alternate screen size mode

Ca: Columns in the alternate screen size mode  
(Ra,Ca) = (24,80) , (32,80) , (43,80) or (27,132)  
Ra\*Ca <= R\*C

PC/3270 supports Query Replies. Make sure that the Query Reply of Implicit Partition returns the final screen size upon receipt of the BIND command.

## Customizing a Display Translation Table

PC/3270 displays the host EBCDIC character using the workstation (ANSI) graphic symbol so that the character defined by the zSeries EBCDIC host code page is displayed correctly using the same graphic symbol defined by ANSI. However, you might need your original translation, because your host or workstation application is not designed to use the standard translation.

You can use your original translation table if you refer to the following procedure as an example. Note that the data integrity caused by the user-defined table is your responsibility.

The following procedure is an example of how to remap left and right brackets.

1. Terminate all running 3270 sessions
2. Modify the PC/3270 workstation profile (\*.WS).  
[Translation]  
IBMDefaultView=N  
DefaultView=C:\Personal Communications\PRIVATE\BRACKET.XLT
3. Create the display translation table file (.XLT). In this example, the following BRACKET.XLT file is created in the Personal Communications private subdirectory.

```
[Profile]
id=XLT
Description=User-defined Display Translation Table
```

```
[Option]
Replace=Y
```

```
[SB Xlate]
; EBCDIC=ANSI
; The next line displays EBCDIC X'AD' as
; an ANSI X'5B' (left bracket)
AD=5B
; The next line displays EBCDIC X'BD' as
; an ANSI X'5D' (right bracket)
BD=5D
```

4. Create your own keyboard layout (.KMP) if you need to enter your new left and right brackets graphic symbols:

```
[Keyboard]
KEY27=ansi dd
KEY28=ansi a8
```

The information on the right should be lowercase characters. PC/3270 translates ANSI X'dd' into EBCDIC X'ad'. It is displayed as [ by the table created in step 3.

5. Click on the PC/3270 icon corresponding to the modified workstation profile.

---

## Support for Long File Names

Like Windows, Personal Communications supports long file names. You can give any name (up to 255 characters) to a file; you are not limited to eight characters with a three-character extension. You can use spaces in the file name, but not the symbols /, \, :, \*, ?, ", <, >, or |. In addition, the tilde ( ) character should not be used in CMS or MVS host file names.

---

## File Transfer Function

### Host File Name and Reserved Words

You should not use the following words as a VM file name or file type, as a MVS data set name, or as a CICS<sup>®</sup> file name, because they are reserved for use as option commands:

- ASCII
- APPEND
- TIME
- CLEAR
- NOCLEAR
- SILENT
- QUIET
- PROGRESS
- JISCI
- SO
- NOSO
- BLANK
- USER
- CRLF
- BINARY
- NOCRLF

### Changing the Packet Size When Import/Export Is Idle

When import/export is idle, select **Preferences** → **Transfer** from the **Edit** menu. When you change the packet size on the Setup window, end import/export, and then rerun it.

### Wait Option for Multiple File Transfer

If multiple file transfers do not succeed, insert the following statement into the [Transfer] section of your .WS file:

```
[Transfer]
wait=1000
```

This parameter causes a 1000 msec (1 sec) delay between file transfers. If this does not help, you might need to increase the value again.

### NOTRUNC and BLANK Options (SBCS Only)

If you want to add trailing blanks (spaces) to fill the logical record length for each record when downloading a text file, use the following options in the **Additional Options** edit field of the Transfer-Type Definition window.

```
NOTRUNC : for VM/CMS (PTF# UR35492)
NOTRUNC : for MVS/TSO (PTF# UR34797)
BLANK : for CICS
```

## Setting the VTAM PSERVIC Statement

File transfer problems can occur if extended attribute support has not been set on in the VTAM PSERVIC statement. For extended attribute support, set on the high order bit in PSERVIC byte1 (zero byte origin) as follows: `x'xx80xxxxx...'`.

---

## Graphic Functions

This section provides information, restrictions, and considerations for graphic functions.

### Graphics Protocols

Personal Communications allows you to use host graphics applications, such as GDDM and others. Two types of graphics are supported:

- Vector
- Programmed symbols

Two protocols are supported for vector graphics:

- Advanced
- Native

See *Configuring Graphics* in the online helps for a description of these protocols and to learn how to configure your sessions for graphics.

The following functions are supported:

- Multiple mixed alphanumeric and graphics host sessions
- Use of standard OS/2<sup>®</sup> printing and plotting facilities
- Creation of PIF (Picture Interchange Format) files
- Clipping graphics data into the clipboard

### Vector Graphics

Vector graphics are computer graphics in which display images are generated from display commands and coordinate data. Personal Communications provides vector graphics support for the OS/2-Link (advanced) or the 3179G or GOCA (native) protocols. Choose the protocol that is appropriate for your host applications.

**Advanced Protocol:** Use the advanced protocol when you have GDDM Version 2 Release 3 or later and are using any of the following operating systems:

- MVS
- VSE
- VM/SP
- VM/XA SP™

**Note:** The advanced protocol is not supported by the CICS pseudo-conversational mode with versions of GDDM earlier than Version 3, and not by IMS/VS at all. It is, however, supported by the CICS pseudo-conversational mode with GDDM Version 3 Release 1 or later.

The advanced protocol is equivalent to that used by OS/2-Link, so it supports the same subsystems. However, no download of code from the host system is required for Personal Communications because all the OS/2-Link graphics modules are integrated into the program.

**Native Protocol:** Choose the native protocol when you intend to use older GDDM versions or non-GDDM host-graphics applications, such as those originally



intended for use on 3270 nonprogrammable terminals as the 3179G, 3192G or 3472G. The native protocol also allows IMS/VS users to display GDDM graphics.

**Note:** A 3174 controller requires a terminal to respond within a certain time; if it does not, a machine check 207 message appears. If you are using a coaxial attachment for graphics in native mode, this can happen for various reasons, such as the complexity of the graphics drawing-orders or the speed of your workstation. In this case, you should change to advanced mode.

### **Programmed Symbols**

Raster graphics are displayed with programmed symbols, which are downloaded to your workstation. Personal Communications support up to six sets (PSA through PSF) of triple-plane and multiple-color programmed symbols.

Use programmed symbols as the graphics type when you intend to use host graphics applications originally written for the 3279G terminal.

Graphics applications use one or both of these methods to display graphical screens. Personal Communications allows you to enable or disable support for vector graphics and programmed symbols. Choose the type of support that our host applications require.

**Note:** If you use the OS2-Link (advanced) protocol under the GDDM program, do not choose programmed symbols. Also, do not choose programmed symbols when you use the OS2-Link protocol with other applications.

**Enabling Programmed Symbol Sets:** PC/3270 provides up to six sets of triple-plane programmed symbols, depending on the type of graphics support that you choose. By default:

- Two sets (PSA and PSB) of single-plane programmed symbols are usable if you choose both programmed symbols and vector graphics.
- Three sets (PSA, PSB, and PSE) of single-plane programmed symbols and three sets (PSC, PSD, and PSF) of triple-plane programmed symbols are usable if you choose programmed symbols, but not vector graphics.

You can change the number of programmed-symbol sets and triple or single planes available for each programmed-symbol set by editing the [3270] section of the workstation profile:

```
PSSPlanes=xxxxxx
```

Each *x* represents a number (0, 1, or 3) that indicates how many planes are to be available for each set; the first column indicates the number of planes for PSA, the second column for PSB, and so on. For example, to enable six triple-plane programmed symbol sets, enter the following:

```
PSSPlanes=333333
```

To enable two single-plane and two triple-plane sets, enter the following:

```
PSSPlanes=113300
```

### **How to Handle Errors Caused by Insufficient Memory**

Graphic execution module PCSGRP.DLL uses a large amount of global memory for graphic drawing or printing. When the workstation has insufficient installed memory, results might not be correct. For example, an area might not be clearly shaded.

In this case, increase the amount of installed workstation memory by at least 1 MB. For host graphic printing, add 1 more megabyte.

Memory might have to be further extended depending on the host graphic application and printer driver used.

## Drawing-Buffer Size

The drawing-buffer size varies depending on the contents set for Redraw of a graphic function.

To set **Redraw**, click **Preferences** → **Appearance** → **Display Setup** from the **Edit** menu in the session window. Select **Graphics** from **Category**.

Selecting **Host** from the optional items of **Redraw** requires no buffer.

If you select **Retained**, the graphic execution module stores all redrawing data into a buffer. Such a buffer is called a *retained buffer*. The buffer size varies depending on the complexity of the graphic data from an application program. For example, a simple table has a buffer size of 10 KB to 20 KB, while a complicated graphic image has a buffer size of 200 KB to 300 KB.

When you select **Bitmap** to set **Redraw**, the buffer size will be the same as the sum of the retained buffer size and compatible bit map size:

$$(\text{Height}) \times (\text{Width}) \times (\text{Number of planes}) \times (\text{Bits/Pixel}) / 8 \text{ bytes}$$

For example, when you select a 7x12 font for a VGA 16-Color Display Model 2 (24x80), the bitmap size is:

$$(7 \times 80) \times (12 \times 24) \times 1 \times 4 / 8 = 80 \text{ KB}$$

When you select a 12x20 font for an IBM PS/55 High-Resolution 256-Color Display Model 2, the bitmap size is:

$$(12 \times 80) \times (20 \times 24) \times 1 \times 8 / 8 = 460 \text{ KB}$$

## Using Bitmaps for Drawing

The graphic execution module uses a bit map compatible with the display unit to draw an area instruction in overpaint mode. An image instruction requires one plane bit map.

$$\text{(Buffer for area)} = (\text{Area width}) \times (\text{Area height}) \times (\text{Number of planes}) \times (\text{Bits/Pixel}) / 8$$

$$\text{(Image buffer)} = (\text{Image width}) \times (\text{Image height}) / 8$$

## Print Buffer Size

The retained buffer must be used for printing. The retained buffer is the same size as that used for redrawing. This is also applied when you specified **Bit Map** for **Redraw** on the Display Setup window.

If graphic printing is called in Bitmap mode, the graphic printing module generates a bitmap compatible with the connected printer, draws an image on the bitmap, and transfers the bit image to the printer.

This operation is generally performed quickly. When memory is frequently swapped, the process slows down in proportion to the number of swap operations. If a large bit map is not allocated, the graphic printing module prints a graphic image normally using only the retained buffer.

Example:

Proprinter (240x144 DPI) character size:

Bitmap size =  $(240 \times 8) \times (144 \times 11) \times 1 \times 1 / 8 = 380 \text{ KB}$

Example:

EPSON (ESC/P) (360x180 DPI color) character size:

Bitmap size =  $(360 \times 8.5) \times (180 \times 11) \times 3 \times 1 / 8 = 2.3 \text{ MB}$

**Note:** With some printers, different printing results might be obtained in bitmap mode and non-bitmap mode. If the desired results are not obtained, change the current bitmap mode. For example, specify non-bitmap mode to print in bitmap mode.

## Edit-Copy Buffer

An editing operation causes the graphic execution module to copy a bit map and DIBitmap to the clipboard. The bit map is compatible with the display; DIBitmap is a 4-bit/pixel bit map.

## Printer Fonts

The printer driver can handle two font sets, the device font and GDI font. The device font is a hardware font built into the printer. The GDI fonts are System (without brackets) or other software fonts for Windows.

When you select a font set for graphic printing from the Printer Control window, use the GDI fonts for the following reasons:

- In bitmap mode, a GDI font can be used for printing. However, the device font cannot be used, because an image cannot be drawn on a memory bit map when using the device font.
- In bitmap mode, the device font cannot be used for printing when OR and exclusive OR attributes are mixed.

## Plotter

Because a plotter does not support a raster, the following restrictions are imposed on drawing. Use a plotter for figures and tables that have mainly lines.

- No shading is supported.
- Some shading patterns cannot be distinguished.
- Image order drawing requires much time, and the final printout is of poor quality.
- The OR and exclusive OR are not correctly reflected.

## Hole in Screen Caused by Clearing a Graphic Character

When a character overlaps a graphic image, the graphic image is cleared at the position where the character is to be displayed. When you enter a null character or space having the transparent attribute at the position where a graphic image is displayed, the graphic image in that character cell is not cleared.

If you select **Host** or **Retained** to set **Redraw** on the Display Setup window, when characters in a graphic image are cleared, a hole appears in the graphic area. This is because these two modes do not have a bitmap image, and partial redrawing cannot be performed on the screen.

If you select **Bitmap** mode as **Redraw Graphics**, you can find no hole on the graphic region by the application that overrides any alphanumeric characters (as well as NULL and SPACE) on the graphic image.

To restore the screen, perform either of the following actions:

- Press the PA3 key to have the application program redraw the screen.
- Minimize and restore the graphic image retained in Retained mode, then redraw it or select Bitmap mode.

**Note:** When you change the setting of **Redraw** in the Display Setup window, the set contents are valid from the next drawing.

## Miscellaneous Restrictions for Graphic Functions

If advanced protocol is selected, graphic functions cannot be used in the IMS/VS and CICS pseudo-conversational mode with versions of GDDM earlier than Version 3.

## Considerations for Graphics Functions

### Native-Graphics Datastream

If the host sends an Object Structured Field (Object Picture, Object Data, Object Control) with a zero value in the length field, Personal Communications rejects it and displays PROG754.

### Printout to LPT1

When you use a host application that prints to your PC's LPT1, you must first select the printer in the Printer Setup dialog of the File menu.

---

## Print Processing

### Using a Printer with the Non-SNA DFT Attachment

For the non-SNA DFT attachment, PC/3270 regards any print job within 30 seconds after the previous one as a continuous job with the previous one. It determines the job end artificially by a timeout value.

You can change the standard timeout value by modifying the [CNDFT] section of the workstation profile (\*.WS):

```
[CNDFT]
PrTimeOut=nn
```

**Note:** The variable nn is the decimal value of the timeout in seconds.

### Print Job Control Using SNA Timeout

PC/3270 treats the data packet, which begins with an SNA Begin Bracket (BB) and ends with an SNA End Bracket (EB), as one job, and spools it to the Windows print manager. However, some applications might not use SNA BB and EB appropriately, and an unexpected page eject can occur. This section describes two timeout controls that you can customize.

## Concatenation of Multiple Print Jobs

When a new print job comes from the host before the timer specified by the workstation profile expires, the job is concatenated to the previous one, and they are regarded as one job. You can change the timer value by specifying the following parameter in the [printers] section of the workstation profile (\*.WS):

```
[printers]
ConcatenateTime=nn
```

**Note:** The variable nn is as follows; its unit is one second:

0	No concatenation of print jobs
1 – 32767	Concatenation of print jobs by this timeout value

When a non-SNA attachment is used, the timer should not be specified in the workstation profile.

## Termination of a Print Job

If an end of a print job (SNA End of Bracket) does not come from the host before the timer specified by the workstation profile has expired, the job is automatically terminated. You can change the timer value by specifying the following parameter in the [printers] section of the workstation profile (\*.WS):

```
[printers]
TerminateTime=nn
```

**Note:** The variable nn is as follows; its unit is one second:

0	No automatic termination of a print job
1 – 32767	Automatic termination of a print job by this timeout value

When a non-SNA attachment is used, the timer should not be specified in the workstation profile.

## SCS TRN Command (LU 1)

You can change the operation of the SCS TRN command by adding a parameter to the [printers] section of the workstation profile (\*.WS):

### ATRN=Y

Transfers data that is controlled by the SCS TRN command to the printer driver without conversion. This parameter is the default for SBCS. In the cases below, this parameter is assumed to be ATRN=N.

- The printer driver does not support PASSTHRU.
- The printer driver supports the BANDING function.
- BANDING=Y is specified in the [printers] section of the workstation profile (\*.WS).

When you use a printer driver for which the PASSTHRU function is incomplete, sense code X'1003' is returned to the host system for the SCS TRN command.

This is the default value.

### ATRN=N

Converts data that is controlled by the SCS TRN command and transfers the result to the printer driver. This parameter is the default for DBCS.

**Note:** The SCS TRN command (LU 1) is available in PDT mode only.

## SCS SPD/SLD Command (LU 1)

If the selected font cannot be used with the values specified for CPI or LPI, this command temporarily switches to a valid font.

## Ignoring Blank Pages

If you cannot print a blank page correctly, check for the following things:

- Some printers ignore a blank page if so specified with the **Printer Setup** option (or setting the printer's DIP switches). Check whether the printer is set to enable this option.
- Some printer drivers ignore a blank page if so set with the **Printer Driver Setup** option. Check whether this option is supported by the printer driver.

## Printing Reverse-Display Characters with GDI Fonts

Some printer drivers that do not support reverse-display character printing print reverse-display characters as spaces. To avoid this, add the **REVERSE=N** line to the [printers] section of the workstation profile (\*.WS).

## CPI/LPI of Device Fonts

If the printer driver cannot use the device font for the specified CPI or LPI, data can be printed with other CPI or LPI values.

## Printing Reverse-Display Characters with Device Fonts

Most printer drivers do not support reverse-display-character printing with device fonts.

## PCSEERR999 Error Messages

Message PCSEERR999 - Personal Communications internal error: *module-name - xxx* might appear when there is insufficient memory. Because the print job remains in the print manager, you should delete it.

## Printable Area

Characters might not be printed over a large enough area, depending on the printer driver used. When using a printer driver that allows you to set the margins, specify the minimum margins to maximize the printable area.

## SVF Control Code

If the maximum print line (MPL) is less than the paper size in the SVF control code, a page feed is performed when the printing position reaches MPL.

## PDT Mode

Printing in PDT mode is restricted as follows:

- A graphic image is printed through the Windows printer driver specified in **File** → **Printer Setup**, even if the printer is set up for PDT mode.
- APL characters cannot be printed.
- PostScript printers are not supported.

## SDDL U Considerations

PC/3270 supports the self-defining dependent logical units (SDDL U) function of ACF/VTAM<sup>®</sup> Version 3 Release 4.1 (MVS) or Version 3 Release 4 (VM). SDDL U provides the ability to dynamically create dependent LUs on predefined PUs and to reconfigure dependent LUs without interruption to any other user on the network and without intervention by system programming or operations staff.

PC/3270 SDDL U is supported for all connections except DFT (coaxial connection).

PC/3270 network stations support SDDL U by:

- Accepting a format-1 Activate PU (ACTPU), which signals that VTAM requires a Network Management Vector Transport (NMVT) containing the Product Set ID (PSID) and LOCADDR of the LU.
- Using LOCADDRs 02, 03, 04, and so on, in that sequence, by default. However, if you specify the LU addresses explicitly, it will use the addresses that you specify.
- Sending an unsolicited NMVT to VTAM when an LU switches on.

### PSID Definitions

PC/3270 defines the default PSID for each LU type. Generally, the PSID contains such things as the machine type and the model number. The following table describes the machine type and model number definitions for each LU type supported by PC/3270.

*Table 1. Machine Types and Model Numbers for Supported LU Types*

Machine Type	Model Number	LU Type	Screen/Buffer Size
3270	002	Display Model 2 screen	24 rows by 80 columns
3270	003	Display Model 3 screen	32 rows by 80 columns
3270	004	Display Model 4 screen	43 rows by 80 columns
3270	005	Display Model 5 screen	27 rows by 132 columns
3270	DS2*	Printer 3270 data stream	24 rows by 80 columns
3270	DS3*	Printer 3270 data stream	32 rows by 80 columns
3270	DS4*	Printer 3270 data stream	43 rows by 80 columns
3270	DS5*	Printer 3270 data stream	27 rows by 132 columns
3270	00A	Display	48 rows by 80 columns
3270	00B	Display	62 rows by 160 columns
3270	00C	Display	24 rows by 132 columns

\* PC/3270 assumes that the 3270 data stream is the default printer-session type. If you use the SNA Character String (SCS) data stream, you must use a different designation for the PSID, such as 3270SCS. You must define this yourself, as shown in the next example.

### Assigning User-Defined PSIDs

You can replace the default PSID values with your own definitions or define new PSIDs, by preparing a PSID definition file or by changing the Windows workstation profile. The PSIDs you use must be defined to VTAM.

Add a statement such as the following one to the [LU] definition in the workstation profile. This example supersedes the default PSID with LUA0001.

```
PSID = LUA0001
```

---

## Default Key Function Assignments

This section lists the functions assigned, by default, to each key on your keyboard.

For more information about each function, refer to the **Keyboard** choice on the Help menu.

You can change the default key assignments to the following default function tables, by selecting **Keyboard Setup** from the Assist menu.

When the Keyboard Setup window appears, select one of the following choices:

- 3270 for a 3270 keyboard layout
- 5250 for a 5250 keyboard layout
- 3270+5250 for a combined keyboard layout
- VT for a DEC VT220 keyboard layout

Personal Communications includes two .KMP keyboard map files that map the standard Win32 hotkeys for Cut, Copy, and Paste to Ctrl+X, Ctrl+C and Ctrl+V, respectively. The key values for the following functions have also been changed: Page Up (3270 only), Page Down (3270 only), Enter and New Line. You can utilize these keyboard map files, or can add these key values to an existing map file.

For 3270 sessions, the .KMP file provided is pcswinkb3.kmp. The remapping is given in the following table.

*Table 2. Win32 Keyboard Map Functions for a 3270 Layout*

Function of Key	Key
Edit Cut	Ctrl+X
Edit Copy	Ctrl+C
Edit Paste	Ctrl+V
Page Up	PF7
Page Down	PF8
New Line	Right Ctrl

## Setting the 3270 Keyboard Layout Default

To make the 3270 keyboard layout defaults available, do the following:

1. Click **Preferences** → **Keyboard** from the **Edit** menu. The Keyboard dialog box is displayed.
2. Select the **IBM Default** radio button next to Current Keyboard.
3. Click **OK**.

## Default Key Functions for a 3270 Layout

Table 3 shows the default key functions for PC/3270. The key used is the same for all the supported keyboard types.

*Table 3. Default Key Functions for a 3270 Layout*

Function of Key	Key
APL	Ctrl+F8
Attention	Esc
Alternate Cursor	Alt+F11
Backspace	← (Backspace)
Back Tab	Shift+→
Back Tab Word	Alt+←
Break	Break
Change Format Toggle	Alt+F3
Change Screen	Ctrl+PageUp
Clear	Pause



Table 3. Default Key Functions for a 3270 Layout (continued)

Function of Key	Key
Color Blue	Ctrl+Shift+F5
Color Field Inherit	Ctrl+Shift+F8
Color Green	Ctrl+Shift+F3
Color Pink	Ctrl+Shift+F2
Color Red	Ctrl+Shift+F1
Color Turquoise	Ctrl+Shift+F6
Color White	Ctrl+Shift+F7
Color Yellow	Ctrl+Shift+F4
Cursor Blink	Ctrl+F10
Cursor Down	↓ or 2(pad)
Cursor Left	← or 4(pad)
Cursor Right	→ or 6(pad)
Cursor Select	Ctrl+F9
Cursor Up	↑ or 8(pad)
Delete Character	Delete or .(pad)
Delete Word	Ctrl+Delete or Ctrl+.(pad)
Document Mode Toggle	Alt+F1
Dup	Shift+Insert <sup>2</sup>
Edit Copy	Ctrl+Insert
Edit Cut	Shift+Delete
Edit Paste	Shift+PageDown or Ctrl+Shift+Insert
Edit Undo	Alt+← (Backspace)
End Field	Pad End
Enter/Control	Shift+Ctrl
Erase EOF	End <sup>2</sup>
Erase Field	Shift+End <sup>2</sup>
Erase Input	Alt+End <sup>2</sup>
Fast Cursor Down	Alt+↓ or Alt+2(pad)
Fast Cursor Up	Alt+↑ or Alt+8(pad)
Field Mark	Shift+Home <sup>2</sup>
Graphic Cursor	Alt+F12
Highlighting Field Inherit	Alt+3(pad)
Highlighting Reverse	Alt+*(pad)
Highlighting Underscore	Alt+6(pad)
Home	Home or 7(pad)
Insert	Insert or 0(pad)

Table 3. Default Key Functions for a 3270 Layout (continued)

Function of Key	Key
Jump Next	Alt+PageUp
Mark Down	Shift+↓
Mark Left	Shift+←
Mark Right	Shift+→
Mark Up	Shift+↑
Move Mark Down	Ctrl+↓ or Ctrl+2(pad)
Move Mark Left	Ctrl+← or Ctrl+4(pad)
Move Mark Right	Ctrl+→ or Ctrl+6(pad)
Move Mark Up	Ctrl+↑ or Ctrl+8(pad)
PA1	Alt+Insert <sup>2</sup>
PA2	Alt+Home <sup>2</sup>
PA3	Shift+PageUp <sup>2</sup>
Pause	Ctrl+F7
PF1 to PF12	F1 to F12
PF13 to PF24	Shift+F1 to F12
Play	Ctrl+F6
PS Field Inherit	Ctrl+Shift+(pad)0
Print (Local Copy)	Not assigned
Quit (Device Cancel)	Alt+Left Ctrl
Record	Ctrl+F5
Reset/Control	Left Ctrl
Response Time Monitor	Ctrl+F11
Rule	Ctrl+Home
Sys Request	Shift+Esc
Tab Field	→  or Shift+→  (pad)
Tab Word	Alt+→
Test	Ctrl+PageDown
Transparency Field Inherit	Ctrl+Shift+8(pad)
Transparency Opaque	Ctrl+Shift+/(pad)
Word Wrap Toggle	Alt+F2
<b>Note:</b>	
<sup>2</sup> Indicates the key on the main keyboard.	
(pad) Indicates a key on the numeric keypad.	
<b>Note:</b> The Enhanced keyboard has some duplicated keys. The functions of the duplicated keys are the same except when you specify a single key. For example, <i>Del</i> means any Delete key, whereas <i>Pad Del</i> specifies only the Delete key on the numeric keypad.	

## Default Key Functions for the Combined Package

Table 4 shows the default key functions for the combined package. The key used is the same for all the supported keyboard types.

When you use the 3270+5250 keyboard layout, the key definitions for the 3270 and 5250 layouts are combined with those listed here.

Table 4. Default Key Functions for the Combined Package

Function of Key	Key
Change Screen	Not assigned
Character Advance	Shift+BackSpace
Help	Not assigned
Host Print	Not assigned
PA3	Not assigned
Roll Down	PageUp
Roll Up	PageDown
Printer Setup	Not assigned

---

## Keyboard Setup

You can use Keyboard Setup to modify the function defined for each key on the keyboard, except some reserved keys.

You can define the following functions for the keys.

- Performing a key function
- Playing a macro
- Entering characters

**Note:** By default, the Enter function is assigned to the Ctrl key. To change this assignment or, if you are using a non-IBM compatible keyboard and the Enter key does not work properly, you need to customize your keyboard. For 3270 and 5250 sessions, you may use the keyboard map files provided with Personal Communications (see “Win32 Cut, Copy, and Paste Hotkeys” on page 32).

## Keyboard File

When you specify a key, you can save the new keyboard layout in a file (.KMP). If you create two or more keyboard files, you can alternate between them as required.

To assign a function to a key on the keyboard:

1. Select **Preferences** → **Keyboard** from the **Edit** menu
2. When the Keyboard Setup window appears, select **Customize**.

**Note:** Select **Spain** from the Language menu during keyboard setup if you want Catalan support.

3. Assign the key functions, referring to the online help for detailed instructions.
4. Save your changes and exit the Customize Keyboard window.
5. Click **OK** after completing the setup.

You can reset either the entire keyboard or specific keys to defaults:

- To reset the entire keyboard, set the current keyboard to **IBM Default** in the Keyboard Setup window.
- To reset specific keys, select a key in the Customize Keyboard window and then select **Default** from the Current Actions for Selected Key box.

**Note:** There are seven keys that you cannot redefine and they are gray or dimmed in Keyboard Setup. These keys are Alt, AltGr, Print Screen, Scroll Lock, CapsLock, NumLock, and Shift.

## Win32 Cut, Copy, and Paste Hotkeys

Personal Communications includes two .KMP keyboard map files that map the standard Win32 hotkeys for Cut, Copy, and Paste to Ctrl+X, Ctrl+C and Ctrl+V, respectively. The key values for the following functions have also been changed: Page Up, Page Down, Enter, and New Line. You may utilize the new keyboard map files or may add these new key values to an existing map file.

For 3270 sessions, the default .KMP file is pswinkb3.kmp. The remapping is given in the following table.

*Table 5. New Keyboard Map Functions for a 3270 Layout*

Function of Key	Key
Cut	Ctrl+X
Copy	Ctrl+C
Paste	Ctrl+V
Page Up	PF7
Page Down	PF8
Enter	Enter
New Line	Right Ctrl

---

## Usage Notes for Sessions in OLE Documents

### Changing Fonts

If you are using an In-Place embedded session, then changing the font face name, switching between automatic sizing and fixed size, or changing the size for a fixed size font can result in an incorrect display on the screen. To correct the display, adjust the size of the session object window slightly.

### Initial Selection of Font

The initial font selection for a embedded or linked session is determined by its Session ID (a letter A – Z) just like a regular session. Therefore, the initial font may change if other sessions are already active. Further, to prevent In-Place embedded sessions from having adverse effects on subsequent sessions, font changes made during use of In-Place embedded sessions are not saved.

### WordPad

Personal Communications session objects created in Microsoft WordPad documents by the drag-and-drop method cannot be used after the document has been saved

and closed. This limitation may be fixed by some future version of WordPad. For the present, you should only create Personal Communications objects in WordPad by using the Insert-Object menu item.

Some versions of Microsoft Word and Microsoft WordPad incorrectly save the state of embedded objects that are displayed as icons. If you open a document that contains a Personal Communications session object that was created to display as an icon, and the object is activated, then it may activate In-Place instead of as a separate window. This problem may be fixed in future versions of these containers.

## WordPro

If you attempt to open a link to a Personal Communications session in a Lotus® WordPro document, current versions of WordPro may give unpredictable results. This limitation may be fixed by some future version of WordPro. For the present, you should only use embedded Personal Communications objects in WordPro documents. You can use the “Display as Icon” option if a separate window is desired.

## Updating Linked Files

Files that are linked into Word 97 or Excel 97 do not update automatically. You must manually save the linked file before your edits are reflected in the container window.

---

## Inactivity Timeout for Communication Links

The Inactivity Timeout automatically disconnects a link after it has been idle for a specified length of time. Its purpose is to avoid excessive charges on dial-up links, such as switched-line connections with SNA/A, Asynchronous IIN, Hayes AutoSync, or SDLC. Inactivity Timeout is not recommended for other types of connections.

To enable Inactivity Timeout, add the following statement to the PU section of your workstation profile (.WS file):

```
[PU]
  InactiveTimeout=xx
```

The value xx, in the range 1 to 999, is the number of minutes a link remains connected when there is no activity over it. The default value, InactiveTimeout=0 disables Inactivity Timeout.

**Note:** The Inactivity Timeout function monitors only attention keys (that is, the Enter, Clear, and PFx keys). It is recommended that you set a comparably longer value for xx if, for example, you expect to key in large amounts of data on the screen before pressing the Enter key.

---

## Environment Considerations

The following are environmental considerations for Personal Communications.

### Virtual Memory

If you receive a message stating that the system is low on virtual memory, increase the virtual memory paging file. If you get this message as you are trying to open new host sessions or starting a Personal Communications function such as File

Transfer, it is apparent that virtual memory settings should be increased. Refer the operating system documentation for instructions on how to increase the size of the paging file.

## Emulator Session Icons

Emulator session icons that were not migrated during installation of Personal Communications Version 5.7 will not function correctly if they were not created in the application data directory specified during installation of Version 5.7. The icons can be updated by using the **File** → **Import** option from the Session Manager. This option will not copy the prior icons to the application data directory specified during installation; the icons must be moved manually

## Disabling CDRA Tables

This release uses the standard IBM CDRA translation tables when converting between ASCII and EBCDIC. From some code page pairs, the standard tables differ from those that Personal Communications has used in the past. For code pages that were supported in prior releases, you can configure Personal Communications to use the old tables. A switch is available in PCSWIN.INI to disable the use of CDRA tables. This switch is located in the Translate section and is named UseOnlyPCOMM. This switch takes a binary value and is defaulted to FALSE (except for Japan, Korea, Taiwan, and PRC where it defaults to TRUE). For the code pages that are new to Version 5.7, you must use the standard tables. Setting the switch will apply to all sessions, as well as data transfer and command line file transfer.

---

## Chapter 4. Transferring Files

Personal Communications File Transfer enables you to transfer one or more files between a host system and workstation at the same time. Transfer types and translation tables can be defined in advance.

### Host Requirements

For PC/3270 File Transfer in SBCS mode, you need one or more of the following host file-transfer programs (referred to as IND\$FILE):

- IBM 3270-PC File Transfer Program, 5665-311 (MVS/TSO)
- IBM 3270-PC File Transfer Program, 5664-281 (VM/SP 2.1)
- IBM CICS/VS 3270-PC File Transfer Program, 5798-DQH (CICS/VS 1.5)

For PC/3270 File Transfer in DBCS mode, you need one or more of the following host file-transfer programs (referred to as APVUFILE):

- VM/CMS File Transfer Program, 5799-BWK (Japan)
- VM/CMS File Transfer Program, 5799-PGX (Korea, China, Taiwan)
- MVS/TSO File Transfer Program, 5799-BWJ (Japan)
- MVS/TSO File Transfer Program, 5799-PGY (Korea, China, Taiwan)
- CICS (MVS, VSE) File Transfer Program, 5799-BWL (Japan)
- CICS (MVS, VSE) File Transfer Program, 5799-PGZ (Korea, China, Taiwan)

### Note:

PCT400 was withdrawn from marketing 3/98.

You can perform the following file transfer functions:

- Send files to the host system
- Receive files from the host system
- Use lists of files
- Create templates to define file names and transfer types
- Define transfer types
- Set transfer options
- Modify translation tables
- Import or export files (PC/3270 CICS only)
- Create interactive document profile (IDP) files (PC/3270 CICS only)
- Transfer files via the XMODEM or YMODEM protocols

---

## Sending Files to the Host System

To send a file from your workstation to the host system:

1. Sign on to the host system.
2. Click **Send File to Host** from the **Actions** menu of the session window. (You can also select the **Send** button on the tool bar.)

The Send File to Host window appears.

3. Specify the name of the workstation file to be sent to the host system by entering the name in the **PC File** text box, or click the **Browse** button to open a dialog box for selecting the file.

4. Enter the name under which the file will be stored on the host; then enter or select the **Transfer Type**. If a template is provided for the file type you are transferring, the host file name and the transfer type appear automatically.

#### Using List Files

Select **Open List**; then select the list to be used for transfer. See "Creating List Files" on page 37 for details of how to create list files.

5. Click **Send**.

The file is sent to the host system. The send status appears in the Send a File Status window.

---

## Receiving Files from the Host System

To transfer a file from the host system to your workstation:

1. Sign on to the host system.
2. Click **Receive File from Host** from the **Actions** menu. (You can also select the **Receive** button from the tool bar.)

The Receive File from Host window appears.

3. Specify the name of the host file to be received. Enter the name in the **Host File** text box, or specify it as follows:

#### Using the Clipboard button

If you have copied one or more host file names to the clipboard, you can paste the names into the transfer list; click the **Clipboard** button to open a dialog box for this. Select one or more of the pasted file names to be transferred. Then click **OK**.

4. Enter or modify the suggested name under which the file will be stored on the workstation, and enter or select the **Transfer Type**; or click the **Browse** button to open a dialog box for selecting a location for the file.

#### Using List Files

Select **Open List**, and select the list to be used for transfer. (See "Creating List Files" on page 37 for an explanation of how to create list files.)

If a template is provided for the file type you are transferring, the workstation file name and the generated transfer type appear automatically.

5. Click **Receive**.

The receive status appears in the **Receive a File Status** window.

---

## Using List Files

If the same files are transmitted frequently, you can create a list of the files and save it.

A list file can be used for both Send and Receive. The default list file extension is .SRL.



## Creating List Files

To create a list file:

1. Select **Receive File from Host** from the **Actions** menu or **Send File to Host** from the **Actions** menu of the session window; or click the **Send** or **Receive** buttons on the tool bar.

The corresponding window appears.

2. Select a file to be transferred from the **Host-File Name** or **PC-File Name** list box by pointing to the name of a file to be selected. While holding down the Ctrl key, click the left mouse button.

The file name, its corresponding workstation or host file name (according to the available templates), and the transfer type appear in the **Transfer List** part of the window.

**Note:** You can also click the **Browse** button (for sending files) or the **Clipboard** button (for receiving files) to open the corresponding dialog box, which allows you to select files for transferring; when you click **OK**, the selected files are shown in the **Transfer List**.

3. Click the **Add to List** button to include a selected file in the **Transfer List**.
4. After all desired files have been selected, click **Save List**.

The Save File-Transfer List File As window appears.

5. Enter or select a list name, and click **OK**.

## Editing Lists

To edit the contents of a previously created list:

1. As explained in “Sending Files to the Host System” on page 35 and “Receiving Files from the Host System” on page 36, display the Send File to Host or Receive File from Host window.

2. Select **Open List**.

The Open File-Transfer List File window appears.

3. Select the name corresponding to the list file to be edited, then click **OK**.
4. The contents of the selected list appear in the Send File to Host or Receive File from Host window.
5. Edit the contents of the list file.

### Changing the contents of a list

Choose the file to be changed from the list, and overwrite the items to be changed in the text box; then click the **Update in List** button.

### Removing a file from the list

Choose the file to be removed, and click **Remove from List**.

### Adding a file to the list

Double-click the file to be added from the list of host or workstation files.

6. Select **Save List**.

The Save File-Transfer List File As window appears.

7. Enter a name and then click **OK**.

---

## Managing Templates

A *template* is a set of rules to be used by the workstation to automatically generate a workstation or host file name and transfer type when you specify a file to be sent or received.

You can have up to 32 templates. They are automatically numbered from 1 to 32.

When you specify a file to be transferred, the workstation scans the templates, starting from template 1. It uses the first matching template to generate a name for the transferred file and the transfer type.

To manage a template:

1. Click **Receive File from Host** from the **Actions** menu or **Send File to Host** from the **Actions** menu of the session window; or click the **Send** or **Receive** buttons on the tool bar.

The Send File to Host or Receive File from Host window appears.

2. Select **Template**.

The Template window appears. The contents of the window depend on the connected host system.

## Adding Templates

The list box for the Template window lists the currently stored templates.

To add a template:

1. Select any template from the list box.

The contents of the selected template appear under the list box.

2. Change the workstation or host file names or extensions by overwriting them; then select the transfer type. (For details of the transfer types, see “Defining Transfer Types” on page 39.)

3. Click **Add**.

The window for determining where in the list to display the new template appears.

4. Select a template number and specify whether to display the new template before or after the template that has that number. Click **OK**.

The new template is added to the list in the appropriate position.

## Replacing and Deleting Templates

To change the contents of a currently stored template, or to delete a template:

1. Select the template to be changed or deleted.

The contents of the selected template appear under the list box.

2. To change the contents, overwrite the appropriate part and then click **Replace**.

To delete a template, click **Delete**.

The selected template is changed or deleted, and the contents of the template list box are changed.

## Testing Templates

To test the contents of an added or changed template:

1. Select the template to be tested from the list box.

The number of the selected template appears in the Test Templates box in the lower part of the window.

2. Select or enter data for the following items:

### Test Mode

Determine which mode is to be used for the test: the mode in which a file is transmitted from the workstation to the host system (send), or the mode in which a file is transmitted from the host system to the workstation (receive).

### Templates

Determine which templates to test: only the template selected in step 1, or all registered templates.

### Source File

Enter the name of the file to be used for the test.

3. Click **Test**.

**Target File** indicates the name that has been generated by the template.

**Note:** Testing a template does not transfer a file.

---

## Defining Transfer Types

Transfer types define the option information used for controlling file transfer. Up to 32 transfer types can be defined for each host system. Text, binary, and append (excluding CICS) are the defaults.

To add or change transfer types:

1. Click **Edit** → **Preferences** → **Transfer** from the session window.

2. Click the tab for your host type or modem protocol.

The property page for the selected host or modem protocol appears. The items that appear depend on the selected host system.

3. Enter transfer-type names in the **Transfer Type** box, or select them from the drop-down list.

4. Select or enter the required items (see “Items to Be Specified”).

To add or replace a transfer type, click **Save**. To delete a transfer type, click **Delete**.

5. A dialog box displays, asking for confirmation. Click **OK**.

## Items to Be Specified

Choosing the appropriate property page enables you to set the items described in the following sections.

### File Options

The file options that can be used depend on the type of the connected host system and the host code page selected when the session was configured. Table 6 on page 40 lists the mode values for the file transfer options. Table 7 on page 40 lists the transfer options.

Table 6. Mode Values for File Transfer Options

Mode	Host Code Page
DBCS	930 (Japan Katakana) 930 (Japan Katakana - Extended) 939 (Japan Latin - Extended) 1390 (New Japanese Katakana - Extended) 1399 (New Japanese Latin - Extended) 933 (Hangeul) 1364 (Hangeul 1364) 935 (Simplified Chinese) 937 (Traditional Chinese) 1371 (Taiwan 1372)
SBCS	Others

Table 7 lists the options for PC/3270.

Table 7. Transfer File Options

File Option	Host System	Mode	Conversion Details
ASCII	VM/CMS MVS/TSO ICS	SBCS DBCS	<p>Converts codes as follows when a file is sent:</p> <ul style="list-style-type: none"> <li>• Converts 1-byte workstation codes to EBCDIC codes</li> <li>• Converts 2-byte workstation codes to IBM host DBCS codes</li> <li>• Adds SO (hex 0E) and SI (hex 0F) before and after the DBCS field</li> <li>• Converts RS (hex 1E) and US (hex 1F) to SO (hex 0E) and SI (hex 0F)</li> </ul> <p>Converts codes as follows when a file is received:</p> <ul style="list-style-type: none"> <li>• Converts EBCDIC codes to 1-byte workstation codes</li> <li>• Converts IBM host DBCS codes to 2-byte workstation codes</li> <li>• Removes SO (hex 0E) and SI (hex 0F) from before and after a DBCS field</li> </ul>
JISCII	VM/CMS MVS/TSO CICS	DBCS	<p>Converts codes as follows when a file is sent:</p> <ul style="list-style-type: none"> <li>• Converts 1-byte workstation codes to EBCDIC codes</li> <li>• Converts 2-byte workstation codes to IBM kanji codes</li> <li>• Adds SO (hex 0E) and SI (hex 0F) before and after the kanji field</li> <li>• Converts RS (hex 1E) and US (hex 1F) to SO (hex 0E) and SI (hex 0F)</li> </ul> <p>Converts codes as follows when a file is received:</p> <ul style="list-style-type: none"> <li>• Converts EBCDIC codes to 1-byte workstation codes</li> <li>• Converts IBM kanji codes to 2-byte workstation codes</li> <li>• Removes SO (hex 0E) and SI (hex 0F) from before and after a kanji field</li> </ul>

Table 7. Transfer File Options (continued)

File Option	Host System	Mode	Conversion Details
<b>CRLF</b>	VM CMS MVS/TSO CICS	SBCS DBCS	<p>Converts codes as follows when a file is sent:</p> <ul style="list-style-type: none"> <li>• Does not remove CRLF (hex 0D0A) from the end of each line. The code is treated as a delimiter for each record.</li> <li>• Removes EOF (hex 1A) from the end of the file.</li> </ul> <p>Converts codes as follows when a file is received:</p> <ul style="list-style-type: none"> <li>• Adds CRLF (hex 0D0A) to the end of each line.</li> <li>• Adds EOF (hex 1A) to the end of the file.</li> </ul> <p>Removes EOF from the existing file, and appends EOF to the end of the added file when APPEND is specified.</p>
<b>APPEND</b>	VM/CMS MVS/TSO	SBCS DBCS	<p>Appends the sent file to the existing host file.</p> <p>Appends the received file to the existing workstation file.</p>
<b>SO</b>	VM/CMS MVS/TSO CICS	DBCS	<p>This option is valid only for DBCS when used with the <i>JISCI</i> and <i>ASCII</i> options when receiving a file. SO (hex 0E) and SI (hex 0F) are converted to RS (hex 1E) and US (hex 1F).</p>
<b>NOSO</b>	VM/CMS MVS/TSO CICS	DBCS	<p>This option is valid only for DBCS when used with the <i>JISCI</i> and <i>ASCII</i> options when sending a file.</p> <ul style="list-style-type: none"> <li>• SO (hex 0E) and SI (hex 0F) are not added before and after the DBCS field.</li> <li>• RS (hex 1E) and US (hex 1F) are not converted to SO (hex 1E) and SI (hex 0F).</li> </ul>
<b>BLANK</b>	VM/CMS MVS/TSO CICS	DBCS	<p>This option is valid with the <i>CRLF</i> option when receiving a file. BLANK (hex 40) is not removed from the end of each line.</p>
<b>USER</b>	VM/CMS MVS/TSO CICS	DBCS	<p>This option is valid only for DBCS when used with the <i>JISCI</i>, <i>ASCII</i>, and <i>SO</i> options when receiving a file. SO (hex 0E) and SI (hex 0F) are not converted to RS (hex 1E) and US (hex 1F); they are written to a file without being converted.</p>

### Record Format

Valid only for VM/CMS and MVS/TSO when APPEND is not specified for file transmission. You can select any of the following:

- **Default**
- **Fixed** (fixed length)
- **Variable** (variable length)
- **Undefined** (undefined mode for MVS/TSO only)

If you select the **Default** value, the record format is selected automatically by the host system.

Specifying **Variable** for VM file transfer enables host disk space to be used efficiently.

### Logical Record Length (LRECL)

Valid only for VM/CMS and MVS/TSO when APPEND is not specified for file transmission.

Enter the **logical record length** to be used (host record byte count) in the **LRECL** text box. If **Variable** and **Undefined Mode** are specified as the record format, the logical record length is the maximum record length within a file. The maximum value is 32767.

The record length of a file sent from a workstation to the host system might exceed the logical record length specified here. If so, the host file transfer program divides the file by the logical record length.

When sending a text file from a workstation to a host, if the text file contains 2-byte workstation codes (such as kanji codes), the record length of the file is changed because SO and SI have been inserted.

To send a file containing long records to the host system, specify a sufficiently long logical record length.

Because the record length of a workstation file exceeds the logical record length, a message does not appear normally if each record is divided. To display a message, add the following specification to the [Transfer] item of the workstation profile:

```
DisplayTruncateMessage = Y
```

### **TSO Allocation Parameter (MVS/TSO)**

Valid only for MVS/TSO when **APPEND** is not specified for file transmission. The following items can be specified:

#### **[Allocation Amounts]**

##### **Primary**

Enter the number of tracks or cylinders allocated to this file transfer.

##### **Secondary**

If the primary allocation is not sufficient for the entire file transfer, enter additional storage capacity allocated to the file transfer.

#### **[Allocation Units]**

##### **Tracks**

Specify this parameter to allocate a host file by track. Ask your system manager whether to use tracks or cylinders as the unit.

##### **Cylinders**

Specify this parameter to allocate a host file in units of cylinders.

##### **AVblocks**

Specify this parameter to allocate a host file in units of blocks.

#### **[Block size]**

This item is used only to create a new data set. Enter the block size of a new host data set, in bytes, in the text box. If this item is omitted, the workstation assumes the value that appears in the **Logical Record Length** box. The maximum value is 32767. If **AVblocks** is selected, the block size is the block size of the new data set.

### **Additional Options**

You can enter the required host command options in the **Additional Options** text box.

---

## Setting General Transfer Options

To set advanced options:

1. Click **Edit** → **Preferences** → **Transfer** from the session window.  
The setup dialog is displayed.
2. Change the required settings on the property page labeled **General**. Click **Bidi Options** to modify options for Arabic or Hebrew sessions.
3. Click **OK**.

The following sections contain information about the items which can be defined for file transfer options.

### Bidi Options

The following options apply if the session is configured for an Arabic or Hebrew host code page.

- Host File Orientation
- PC File Orientation
- Lam-Alef Expansion
- Lam-Alef Compression
- Symmetric Swapping
- Round Trip
- Numeral Shape

Refer to the *Quick Beginnings* document or the online help for information about these options.

### Host Type

You can specify from the drop-down list box the type of host (MVS/TSO, VM, or CICS) to which your workstation is connected.

### Host Command

You can specify host command to be called when file transfer starts. If nothing is entered in this text box, IND\$FILE or its equivalent for other countries is used for 3270 SBCS and DBCS sessions.

### Default PC Directory

You can specify the default directory that appears in the Send File to Host or Receive File From Host window. To select the directory, click the **Browse** button.

### Default Partitioned Data Set (MVS/TSO Only)

You can specify the MVS partitioned data set to be used as the default.

### Default VM Disk (VM Only)

You can specify the VM disk to be used as the default.

### PC Code Page

When a file is transferred, EBCDIC codes are converted to 1-byte workstation codes, and vice versa. A valid value is automatically selected from among the following values for SBCS sessions: 437, 737, 806, 813, 819, 833, 850, 852, 854, 857, 858, 860, 861, 862, 863, 864, 865, 866, 869, 874, 912, 915, 916, 920, 921, 922, 1008,

1089, 1124, 1125, 1127, 1129, 1131, 1133, 1153, 1155, 1156, 1157, 1158, 1160, 1164, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, and 1258; and from the following values for DBCS sessions: 897 and 1041 (Japanese); 1088 and 1126 (Hangeul); 1114 (Simplified Chinese and Traditional Chinese)—according to the host code page specified when the workstation is configured. For an explanation of how to select host code pages, see the online help for the host code page.

## Packet Size

The amount of memory (in bytes) used by the workstation for transmission and reception. If a large value is entered, a file is transferred more quickly, but the memory overhead is larger. The default value is 12288. In the case of Telnet3270, you can specify a packet size larger than 8000 bytes by adding the following line to the Telnet3270 stanza in your workstation profile:

```
SendBufferSize=nnnn
```

## File-Transfer Timeout

You can define the time the workstation waits for a response from the host system (in seconds). If the host system does not respond, the transfer is canceled, and an error message appears. A number in the range 20–65535 (or 0) can be specified. The default is 60 seconds for ASCII sessions; for all others, it is 30 seconds. Specify an appropriate value such that the error message does not appear too early. If you specify 0, a timeout is not set.

If a packet or block size is relatively large for low-speed lines, such as SDLC or COM port lines, it is recommended that 150 seconds or greater be specified.

## Extension for List-Files

You can change the default extension (.SRL) of file-transfer list files.

## Clear Session Before Transfer

You can specify whether a Clear command is sent to the host system before a file is transferred. Choose any of these option buttons:

### Default

A Clear command is sent before a file is transferred (VM/CMS or CICS only).

**Yes** A Clear command is sent for MVS also.

**No** A Clear command is not sent for any host system.

## Show Status Window

You can choose the method of displaying the file-transfer-progress status.

### In Session

When file transfer starts, the status window appears. The name of the file being transferred and the transfer progress appear.

### In icon

When file transfer starts, the status icon appears on the screen. If the icon is restored, the status window appears.

## Enhanced Protocol (SBCS Global Network Connection Only)

This option enables faster file transfer in most cases. The packet size for Enhanced Protocol is fixed, so the File Transfer Packet Size setting is ignored.



## Lam-Alef Expansion (Arabic Only)

If you want the Lam-Alef characters transferred from the host to be expanded into the two-character representation for Windows, click this check box.

**Note:** This will change the size of the record on the personal computer; this should not be a problem for normal text files, but exercise caution when formatted files and databases are being transferred.

---

## Setting Up the Translation Table

You can create or edit the translation table to be used for sending or receiving files.

When you use a DBCS session as the host session, that is, when 930 or 939 (Japanese), 933 or 1364 (Hangeul), 935 (Simplified Chinese), or 937 (Traditional Chinese) is specified during configuration as the host code page, you can create and change a translation table for the user-font area. A DBCS translation table is then used for displaying a screen, printing, and sending and receiving files.

## Changing the Translation Table

To change the translation table:

1. Click **Edit** → **Preferences** → **Transfer** from the session window.
2. Click the **Translation Table** tab on the resulting window.  
The Translation-Table Setup property page appears.
3. The table currently being used (IBM default or the name of a user-defined table) is shown. Choose either **IBM Default** or **User-Defined**.
4. If you choose **User-Defined**, enter a translation-table name in the **File Name** text box, or select a name by clicking **Browse**.
5. Click **OK**.

## Customizing the Translation Table

You can create a user-specific translation table for transmission or reception, or you can edit an existing translation table.

To create or edit a translation table:

1. On the **Translation Tables** property page, click **Customize** in the Upload or Download window.

The Customize Translation window appears.

If you chose **IBM Default** or if you chose **New** from the File menu, the default values appear in the table.

### Translation source codes

PC code-points when an upload translation table is edited. Host code-points when a download translation table is edited.

### Translation target codes

Host code-points when an upload translation table is edited. PC code-points when a download translation table is edited.

2. Double-click the code to be changed in the table, and change the value in the entry field that subsequently appears.
3. Click **Save** or **Save As** from the File menu.
4. If asked, enter a name in the Save Translation File As window and click **OK**.
5. Click **Exit** from the File menu of the Customize Translation window.

## User-Font Area (DBCS Only)

For DBCS sessions, the following code ranges can be defined by the user with the DBCS translation table:

### Host kanji code

First byte: from X'69' to X'7F'

Second byte: from X'41' to X'FE'

### Workstation kanji code

First byte: from X'F0' to X'F9'

Second byte: from X'40' to X'7E', from X'80' to X'FC'

### Host kanji numbers

The host kanji-numbers area corresponds to the user-font area of host kanji codes. For example, the host kanji number 10561 corresponds to the host kanji code 6941.

### JIS KUTEN numbers

From section 95 to section 114 (from 1 to 94)

### Traditional Chinese host code

From X'C241' to X'E2FD' (low byte X'41' to X'FD', skipping X'7F')

### Traditional Chinese workstation code

From X'FA40' to X'FEFE' (low byte X'40' to X'7E', X'A1' to X'FE')

From X'8E40' to X'A0FE' (low byte X'40' to X'7E', X'A1' to X'FE')

From X'8140' to X'8DFE' (low byte X'40' to X'7E', X'A1' to X'FE')

From X'8181' to X'8C82' (low byte X'81' to X'A0')

From X'F9D6' to X'F9FE'

### Simplified Chinese host code

From X'7641' to X'7FFD' (low byte X'41' to X'FD', skipping X'7F')

### Simplified Chinese workstation code

From X'8DA1' to X'A0FE' (low byte X'A1' to X'FE')

### Hangeul host code

From X'D441' to X'DDFD' (low byte X'41' to X'FD', skipping X'7F')

### Hangeul workstation code

From X'C9A1' to X'C9FE' (low byte X'A1' to X'FE')

From X'FEA1' to X'FEFE' (low byte X'A1' to X'FE')

From X'8FA1' to X'A0FE' (low byte X'A1' to X'FE')

---

## Import/Export (3270 CICS Only)

Import/Export is an office system communication program and an application program executed under the IBM Customer Information Control System (CICS).

Clicking **Import/Export** loads a module into workstation memory. You can then start Import or Export from a menu on the host screen.

When you export a document from the host, the workstation receives two files: one is the file itself, and the other is the interchange document profile (IDP) file, which contains document header information.

When you **Import** a file to a host system, it must be accompanied by an IDP file of the same name. If the necessary IDP file does not exist, you can create it as described in "Creating IDP Files" on page 47.

To transmit files using Import/Export:

1. Verify that the window of the host session is active and ready for file transfer.
2. Click **Import/Export** from the **Actions** menu of the session window.  
The minimized Import/Export Status window appears.
3. Click **Import** or **Export** from the host application menu.
4. Specify the host and workstation file names of the file to be transferred. Run Import or Export.  
When Import or Export starts, the Import/Export Status window is maximized.  
After the file is transferred, the window is closed.

---

## Creating IDP Files

To send a document to the host system using Import, you must have an IDP file that includes information on the document. If you have previously exported the file, you should have an IDP. If not, or if you have deleted the IDP file, you must create an IDP file.

To create an IDP file:

1. Click **Edit** → **Preferences** → **Transfer** from the session window.
2. Click the **IDP Files** tab on the setup window.
3. Enter the name for the IDP file to be created, or click **Browse** to select it.  
The IDP file has the same name as the file to be transferred, and the extension (.IDP).
4. Click **OK**.

---

## File Transfer Commands for PC/3270

You can send data files to and receive them from IBM host systems that are running:

### CICS/MVS

Customer Information Control System running under MVS

### CICS/VSE

CICS running under Virtual Storage Extended

### MVS/TSO

Multiple Virtual Storage/Time Sharing Option

### OV/MVS

OfficeVision/MVS

### VM/CMS

Virtual Machine/Conversational Monitor System

For more information on using these commands, click **Send File to Host** from the **Actions** menu and **File Transfer from Command prompt** in the help panel.

## File Transfer Methods

You can transfer files in the following ways with PC/3270:

- By clicking **Receive File from Host** from the **Actions** menu or **Send File to Host** from the **Actions** menu of the workstation window
- By using the **SEND** and **RECEIVE** commands at the DOS command prompt
- By using an EHLLAPI application that invokes file transfer
- By using a macro that has send or receive commands as macro statements

- By clicking the **Send** or **Recv** icon on the tool bar

## Requirements and Restrictions

Install the file transfer program, IND\$FILE, on your host system. Ask your system administrator for additional file transfer procedures and precautions. An alternate host command name can be used by defining a DOS environment variable IND\_FILE in AUTOEXEC.BAT or in a particular DOS box. For example:

```
SET IND_FILE = MYXFER
```

Similarly, for DBCS sessions, you can define a DOS environment variable IND\_FILE in AUTOEXEC.BAT or in a particular DOS box. For example:

```
SET IND_FILE = MYXFER
```

You should not use the following words as a VM file name or file type, as an MVS data set name, or as a CICS file name, because they are reserved for use as option commands.

```
ASCII, APPEND, TIME, CLEAR, NOCLEAR, SILENT, QUIET, PROGRESS,  
JISCI, SO, NOSO, BLANK, USER, CRLF, BINARY, NOCRLF
```

If you want to send to or receive from a subdirectory other than \Personal Communications, you must specify the full path name.

## Sending and Receiving Files from the DOS Command Prompt

The workstation is the point of reference for the SEND and RECEIVE commands: You send from the workstation to the host and receive from the host to the workstation.

To send or receive a file:

1. Make sure you are logged on to your host.
2. Make sure the **Ready** message of the host system is displayed, except if you are transferring files through the command option of the ISPF application.

**Note:** In the latter case, you must specify the NOCLEAR option for the file transfer command.

If your screen is blank, make sure that no applications are running and that your host session is not in a *holding* state.

**Note:** If you receive any messages from host application programs while you are transferring files, the transfer might not succeed. To prevent messages from interfering, enter the appropriate host command to set messages off temporarily. When file transfer is finished, set messages on again.

3. Switch to your DOS window session or DOS full-screen session.
4. If you use a hard disk, make sure the SEND.EXE and RECEIVE.EXE files are in your current directory or in your path. If you want to send to or receive from a subdirectory other than \Personal Communications, you must specify the full path name.
5. Type the appropriate SEND or RECEIVE command at the DOS command prompt.

Details on the SEND and RECEIVE commands and their options are explained in the following sections.

## Using the VM/CMS SEND Command

Use the following information when sending a file to VM/CMS:

Figure 1 shows the command and information that you must provide. Enter it as shown (including parentheses). You can use either uppercase or lowercase letters.

### Notes:

1. **b** means to insert a space. There must *not* be a space between **h:** and **fn**.
2. For DBCS sessions, insert a left bracket (l) before **(options)**.

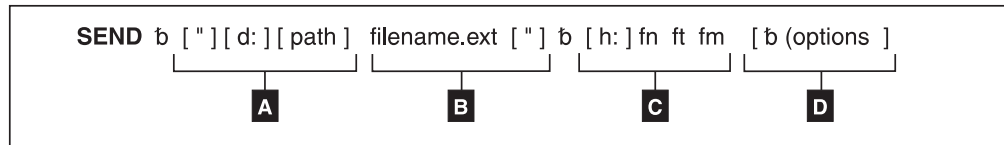


Figure 1. VM/CMS SEND Command Syntax

- A** The workstation drive and path of the file to send.
- B** The name of the workstation file to send.
- C** Host session specifications for the file to be sent to the host.
- h:** The short name of the session (which can be omitted if it is **a**)
- fn** File name
- ft** File type
- fm** File mode
- D** Optional changes made to the file during transfer. More than one option can be selected. Valid options are:
- APPEND
  - ASCII
  - CLEAR
  - CRLF
  - JISCII (for Japanese DBCS sessions)
  - LRECL *n*
  - NOCLEAR
  - NOSO
  - PROGRESS
  - QUIET
  - RECFM *x*
  - TIME(*n*)

The parts of the VM/CMS SEND command are:

**SEND** The command.

**d:** The name of the diskette or hard disk drive on which the file is located.

**path** The path to the subdirectory that the file is in.

**filename.ext**

The name of the file to be sent, including the extension.

**h:** The short name of the host session to which you want to send the file. The default is **a:**.

**fn ft fm**

The name the file is to have on your VM/CMS disk. You must specify the

file name (fn) and file type (ft). You can omit file mode (fm) if you want the file placed on your A-disk. You can create a new name or use a name that is already on your disk. If you use a new name, the file that you send is added to your disk. If you use the name of an existing file, the file that you send either replaces or is added to the old file. (Refer to the description of the APPEND option.)

**(options or [(options (for DBCS)**

These options can be specified:

**APPEND**

Specifies that the file being sent is to be added to the end of an existing VM/CMS file. Omit this option if you want the file to replace an existing file. You cannot specify the LRECL n or RECFM x option if you use the APPEND option.

**ASCII** Performs the following:

- Converts 1-byte workstation codes to EBCDIC codes.
- Converts 2-byte codes to IBM host DBCS codes.
- Inserts SO/SI characters into the DBCS field and, if control characters (→ or ←) are found, converts the control characters to SO/SI characters.

**CLEAR**

Clears the workstation window at the beginning of the file transfer. **CLEAR** is the default.

**CRLF** Specifies preserving of the carriage return and line feed codes. You need the ASCII and CRLF options for text or source files that you want to view or edit, such as SCRIPT files. You do not need them for binary files, such as programs.

**JISCII** This option is valid for Japanese DBCS sessions only and performs the following:

- Converts 1-byte workstation codes to EBCDIC codes.
- Converts 2-byte codes to IBM kanji codes.
- Inserts SO/SI characters into the DBCS field and, if control characters (→ or ←) are found, converts the control characters to SO/SI characters.

**LRECL n**

Specifies the file's record length. Include a record length only if you want the file to have a record length on your VM/CMS disk other than 80. Replace n with the record length you want. If you omit this option, the record length is set to 80 for fixed-length records or to a maximum of 80 for variable-length records.

**NOCLEAR**

Suppresses the sending of a Clear command at the beginning of the file transfer.

**NOSO**

This option is valid only for DBCS when used with the JISCII or ASCII option and performs the following:

- Does not convert SO (hex 0E) and SI (hex 0F) before and after the DBCS field.
- Does not convert RS (hex 1E) and US (hex 1F) to SO (hex 0E) and SI (hex 0F).

## PROGRESS

Shows a message indicating that the file transfer is in progress or has ended. Such messages do not show the current transferred bytes.

## QUIET

Does not show any messages.

## RECFM x

Specifies the file record format. Use this parameter to specify variable-length or fixed-length records in the file. Replace x with V for variable or F for fixed. By default, the file has fixed-length records unless you specify the CRLF option; then the file has variable-length records unless you specify otherwise.

## TIME(n)

Specifies the length of time n, in units of 30 seconds, that the program waits for a response from the host before it sends an error message. Replace n with an integer value in the range from 0 through 2184. If you specify 0, timeout will not be set. The default is 1. To avoid a premature error message, specify an adequate value. In cases of large packet sizes, of large block sizes, or for slow communication lines (such as SDLC and COM port), 5 (150 seconds) is recommended. There should be no blank spaces between TIME and (n).

**Command Syntax for Sending Files to VM/CMS:** The following examples show the command syntax you can use to send files to a VM/CMS host. The parameters of the SEND command can be combined into a single set of parentheses.

**Note:** For Japanese DBCS sessions, use the JISCII rather than the ASCII option. For Hangeul, Simplified Chinese, and Traditional Chinese DBCS sessions, use the ASCII rather than the JISCII option.

- To send a workstation file from your default drive and add it as a new file on your VM/CMS A-disk:

```
SEND pc.txt a:cmsfile script a (ASCII CRLF LRECL 72 RECFM V
```

```
SEND pc.txt a:cmsfile script a [(JISCII CRLF LRECL 72 RECFM V (for DBCS)
```

**Note:** If you use a command that exceeds one line, do not press Enter when you fill that line; continue typing your command.

This command sends a workstation file named PC.TXT from your default drive to your host in your host session named a. You do not need to specify the workstation drive if the file you are sending is on the current drive. The command creates a new file, named CMSFILE SCRIPT, on your A-disk. The records in the file can vary in length up to 72 characters.

- To send a workstation file from your default drive to replace a file on your VM/CMS A-disk:

```
SEND pc.txt a:cmsfile script a (ASCII CRLF
```

```
SEND pc.txt a:cmsfile script a [(JISCII CRLF (for DBCS)
```

This command sends a workstation file named PC.TXT from your default drive to your VM/CMS A-disk in your host session named a. You do not need to name the workstation drive if the file you are sending is on the default drive. The file replaces a SCRIPT file named CMSFILE. The new CMSFILE has the same record length and format as the old CMSFILE.

If you do not have a file called CMSFILE SCRIPT on your A-disk, PC.TXT is added to your A-disk as a new file called CMSFILE SCRIPT. The records in the file are 80 characters long and have fixed length.

- To send a binary workstation file from a drive other than your default drive:

**SEND a:pc.exe c:cmsfile exebin b (recfm v**

This command sends a workstation file named PC.EXE from a diskette in drive A to your VM/CMS B-disk in your host session named c. It is a new file, or it replaces a file named CMSFILE.

When transferring a binary file, you must specify a variable record format (**recfm v**), otherwise, blank characters are added to the file.

- To send a file from your hard disk and add it to the end of a file on your VM/CMS A-disk:

**SEND c:pc.txt cmsfile script a (ASCII CRLF APPEND**

**SEND c:pc.txt cmsfile script a [(JISCI CRLF APPEND (for DBCS)**

This command sends a workstation file named PC.TXT from your hard disk to your host session. You do not need to name the host session if you are sending to the a session. The file is added to the end of a script file named CMSFILE on your VM/CMS A-disk.

- To send a file from a subdirectory on your hard disk to your VM/CMS A-disk:

**SEND c:\sd1\pc.txt cmsfile script a (ASCII CRLF**

**SEND c:\sd1\pc.txt cmsfile script a [(JISCI CRLF (for DBCS)**

This command sends a file named PC.TXT from subdirectory SD1 on your hard disk to your host session. It replaces a SCRIPT file named CMSFILE on your VM/CMS A-disk.

## Using the VM/CMS RECEIVE Command

Use the following information when receiving a file from VM/CMS:

Figure 2 shows the command and information you must provide. Enter it as shown (including parentheses), except that you can use either uppercase or lowercase letters.

### Notes:

1. **b** means to insert a space. There must *not* be a space between **h:** and **fn**.
2. For DBCS sessions, insert a left bracket (**(**) before **(options**.

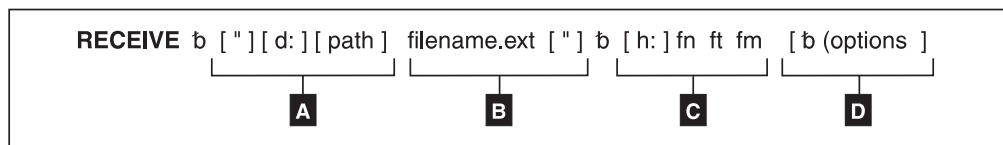


Figure 2. VM/CMS RECEIVE Command Syntax

- A** The workstation drive and path of the file to be received.
- B** The name of the workstation file to be received.
- C** Host session specifications for the file to be received from the host.
  - h:** The short name of the session (which can be omitted if it is a)
  - fn** File name



**ft** File type  
**fm** File mode

**D** Optional changes made to the file during transfer. More than one option can be selected. Valid options are:

- APPEND
- ASCII
- BLANK
- CLEAR
- CRLF
- JISCII (for Japanese DBCS sessions)
- NOCLEAR
- PROGRESS
- QUIET
- SO
- TIME(n)
- USER

The parts of the VM/CMS RECEIVE command are:

#### RECEIVE

The command.

**d:** The name of the diskette or hard disk drive on which the file is to be received.

**path** The path indicating the directory to which the file is to be stored.

#### filename.ext

The name of the workstation file, including the extension. Use a new name or one that already exists. If you use a new name, the file that you receive is added to your diskette or hard disk. If you use the name of an existing file, the file that you receive either replaces or supplements the existing file. (Refer to the APPEND option.)

**h:** The short name of the host session from which you want to get the file. The default is a:.

#### fn ft fm

The name of the file you want to receive from your VM/CMS disk. The file name **fn** is required.

#### (options or [(options (for DBCS)

These options can be specified:

##### APPEND

Specifies that the file being received is to be added to the end of an existing file. Omit this part of the VM/CMS file that is received to replace an existing file.

##### ASCII

 Performs the following:

- Converts EBCDIC codes to 1-byte workstation codes.
- Converts IBM host DBCS codes to 2-byte codes.
- Removes SO and SI characters from a DBCS field.

##### BLANK

This option is valid with the CRLF option. Use it to retain BLANK (x'40') at the end of each line.

**CRLF** Specifies the carriage return and line feed codes. You need ASCII

and CRLF for text or source files that you want to view or edit, such as SCRIPT files. You do not need them for binary files, such as programs.

**CLEAR**

Clears the workstation window at the beginning of the file transfer.

**JISCII** This option is valid for Japanese DBCS sessions only and performs the following:

- Converts EBCDIC codes to 1-byte workstation codes.
- Converts IBM kanji codes to 2-byte codes.
- Removes SO and SI characters from a DBCS field.

**NOCLEAR**

Suppresses the sending of a Clear command at the beginning of the file transfer.

**PROGRESS**

Shows a message indicating that the file transfer is in progress or has ended. Such messages do not show the current transferred bytes.

**QUIET**

Does not show any messages.

**SO**

This option is valid only for DBCS when used with the JISCII or ASCII option; it converts SO (hex 0E) and SI (hex 0F) to RS (hex 1E) and US (hex 1F).

**TIME(n)**

Specifies the length of time, in units of 30 seconds, that the program waits for a response from the host before it sends an error message. The value *n* is an integer value in the range from 0 through 2184. If you specify 0, timeout is not set. The default is 1. To avoid a premature error message, specify an adequate value. In cases of large packet sizes, of large block sizes, or for slow communication lines (such as SDLC and COM port), 5 (150 seconds) is recommended. There should be no blank spaces between TIME and (*n*).

**USER**

This option is valid only for DBCS with the options JISCII, ASCII, and SO. SO (hex 0E) and SI (hex 0F) are not converted to RS (hex 1E) and US (hex 1F); they are written to a file without being converted.

**Command Syntax for Receiving Files from VM/CMS:** The following examples show the command syntax you can use to receive files from a VM/CMS host. The parameters of the RECEIVE command can be combined into a single set of parentheses.

**Note:** For Japanese DBCS sessions, use the JISCII rather than the ASCII option. For Hangeul, Simplified Chinese, and Traditional Chinese DBCS sessions, use the ASCII rather than the JISCII option.

- To receive a file from your VM/CMS A-disk to your default drive for a workstation session:

**RECEIVE pc.txt a:cmsfile script a (ASCII CRLF**

**RECEIVE pc.txt a:cmsfile script a [(JISCII CRLF (for DBCS)**

This command sends a SCRIPT file CMSFILE from your VM/CMS A-disk in a host session named A to your workstation session. It adds the file to your default drive (diskette or hard disk) with the name PC.TXT.

- To receive a file from your VM/CMS B-disk and replace a file on a drive other than your default:

```
RECEIVE a:pc.txt a:cmsfile script b (ASCII CRLF)
RECEIVE a:pc.txt a:cmsfile script b [(JISCI CRLF (for DBCS))
```

This command sends a SCRIPT file named CMSFILE SCRIPT from your VM/CMS B-disk in a host session named A to a drive other than the default for your PC session. It replaces a file named PC.TXT on a diskette in drive A.

- To receive a file from your VM/CMS A-disk and add it to the end of a file on your hard disk:

```
RECEIVE c:pc.txt a:cmsfile script a (ASCII CRLF APPEND)
RECEIVE c:pc.txt a:cmsfile script a [(JISCI CRLF APPEND (for DBCS))
```

This command sends a SCRIPT file named CMSFILE SCRIPT from your VM/CMS A-disk in a host session named A to your workstation session. It adds the contents of CMSFILE to the end of a file named PC.TXT on your hard disk.

- To receive a file from your VM/CMS A-disk and place it in a subdirectory on your default drive:

```
RECEIVE \sd1\pc.txt a:cmsfile script a (ASCII CRLF)
RECEIVE \sd1\pc.txt a:cmsfile script a [(JISCI CRLF (for DBCS))
```

This command sends a SCRIPT file named CMSFILE SCRIPT from your VM/CMS A-disk to your default drive. It creates or replaces a file named PC.TXT in a subdirectory named \SD1.

## Using the MVS/TSO SEND Command

Use the following information when entering the SEND command to the MVS/TSO host:

Figure 3 shows the command and information you must provide. Enter text as shown (including parentheses), except that you can use either uppercase or lowercase letters.

### Notes:

1. **b** means to insert a space. There must *not* be a space between **h:** and **fn**.
2. For DBCS sessions, insert a left bracket ([) before **options**.

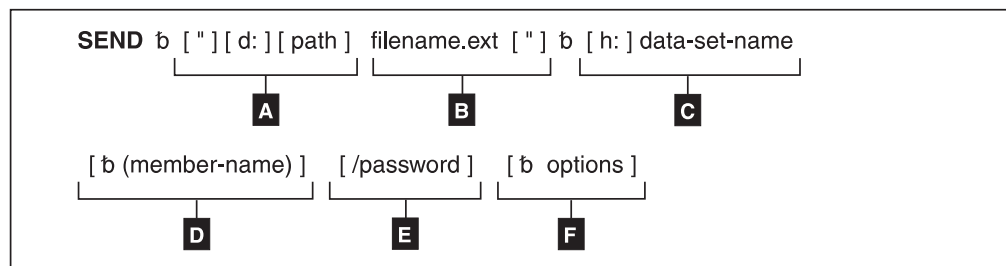


Figure 3. MVS/TSO SEND Command Syntax

- A** The workstation drive and path of the file to send.
- B** The name of the workstation file to send.

- C** The short name of the host session and the data set name of the file to send.
- D** The member name if the file is in a partitioned data set.
- E** The password of the data set if it has one.
- F** Optional changes made to the file during transfer. More than one option can be specified. Valid options are:
  - APPEND
  - ASCII
  - BLKSIZE(n)
  - CLEAR
  - CRLF
  - JISCII (for Japanese DBCS sessions)
  - LRECL(n)
  - NOCLEAR

You must use the NOCLEAR option when you are transferring files while in ISPF command mode on the host.

- NOSO
- PROGRESS
- QUIET
- RECFM(x)
- SPACE(n[,n1]) unit
- TIME(n)

The parts of the MVS/TSO SEND command are:

**SEND** The command.

**d:** The name of the diskette or hard disk drive where the file is located.

**path** The path indicating the directory where the file is located.

**filename.ext**

The name of the file to be sent. Include the extension if the file has one.

**h:** The name of the MVS/TSO host session to which you want to send the file. You can omit this name if you have only one host. If you have more than one host, this is the short name of the MVS/TSO host session. The default short name is A.

**data-set-name**

The data set name that the file you send is to have on your MVS/TSO volume; this name is required. Enclose the data set name with the member name in single quotation marks if you are using a fully qualified data set name.

This option creates a new name or uses a data set name already on your TSO volume. If you use a new name, the file that you send is added to your MVS/TSO volume. If you use the name of an existing data set, the file you send either replaces or supplements the existing data set. Refer to the APPEND option.

**(member-name)**

The member name if the file is to be put into a partitioned data set. If you use member-name, you cannot use LRECL(n), BLKSIZE(n), RECFM(x), and SPACE(n, [n1]) unit.

**Note:** If someone else is using the partitioned data set, you cannot send a file to your MVS/TSO host.

**/password**

The password of the data set, if the data set has a password.

**options or [(options (for DBCS)**

These options can be specified:

**APPEND**

Specifies that the file being sent is added to the end of an existing MVS/TSO data set. Omit this option if you want the file to replace an existing MVS/TSO data set. You cannot use LRECL(n), RECFM(x), SPACE(n[,n1]) unit, or BLKSIZE(n) options if you use the APPEND option.

**Note:** This option is not valid when sending data to a member of a partitioned data set.

**ASCII** Performs the following:

- Converts 1-byte workstation codes to EBCDIC codes.
- Converts 2-byte codes to IBM host DBCS codes.
- Inserts SO and SI characters in the DBCS field.

**BLKSIZE(n)**

Specifies the size of the blocks of data in a new data set on your MVS/TSO volume. This part is optional. To set the block size for a new data set, replace n with the new size. If you omit this option, the block size is determined in the following manner:

- If the record format is variable, the block size is 6233.
- If the record format is fixed, the block size is the largest multiple of the record length that is less than 6233:

$$\text{BLKSIZE} = \text{LRECL} * (6233/\text{LRECL})$$

If you use the (member-name) or APPEND option, do not use this option.

**CLEAR**

Clears the workstation window at the beginning of the file transfer.

**CRLF** Specifies the global use of carriage return and line feed codes. You need to specify ASCII and CRLF options for sending text or source files that you want to view or edit, such as SCRIPT files. You do not need them for binary files.

**JISCI** This option is valid for Japanese DBCS sessions only and performs the following:

- Converts 1-byte workstation codes to EBCDIC codes.
- Converts 2-byte codes to IBM kanji codes.
- Inserts SO and SI characters in the DBCS field.

**LRECL(n)**

Specifies the record length for a new data set on your MVS/TSO volume, where n is a whole number from 1 through 32760 representing the number of characters per record. If you want to set the record length for a new data set, replace n with the new length. If you omit this option, the record length is set to 80 for

fixed-length records and to 255 for variable-length records. If you use the (member-name) or APPEND options, do not use this option.

**NOCLEAR**

Suppresses the sending of a Clear command at the beginning of the file transfer. This option is required for ISPF command mode.

**NOSO**

This option is valid only for DBCS when used with the JISCII or ASCII option and performs the following:

- Does not insert SO (hex 0E) and SI (hex 0F) before and after a DBCS field.
- Does not convert RS (hex 1E) and US (hex 1F) to SO (hex 0E) and SI (hex 0F).

**PROGRESS**

Shows a message indicating that the file transfer is in progress or has ended. Such messages do not show the current transferred bytes.

**QUIET**

Does not show any messages.

**RECFM(x)**

Specifies the record format for a new data set on your MVS/TSO volume, where x = V, F, or U. For variable-, fixed- or undefined-length records in the data set, replace the x with V, F, or U, respectively.

If you omit this option, the record format of the host data set is determined by the setting of the CRLF parameter: if you specify CRLF, the data set has variable-length records; if you do not specify CRLF, it has fixed-length records. If you use the (member-name) or APPEND options, do not use this option.

**SPACE(n[,n1]) unit**

Specifies an amount of space to be set aside for a new data set on your MVS/TSO volume. To set aside a certain number of blocks, tracks, or cylinders for the new data set:

- Provide unit as the type of space you want (AVBLOCK, TRACKS, or CYLINDERS).
- Give n as the amount of space that you want the data set to occupy (in the unit of measure you select).
- If the data set needs more space than you ask for with n, give n,n1 where n1 is the size of additional space to be used only when necessary.

These values are similar to the values on the ALLOCATE command of MVS/TSO.

If you omit this option, you get space for one block. The length of the block is set by the BLKSIZE(n) or LRECL(n) options. If you use the (member-name) or APPEND options, do not use this option.

**TIME(n)**

Specifies the length of time, in units of 30 seconds, that the program waits for a response from the host before it sends an error message. The value n is an integer value in the range from 0

through 2184. If you specify 0, timeout is not set. The default is 1. To avoid a premature error message, specify an adequate value. In cases of large packet sizes, of large block sizes, or for slow communication lines (such as SDLC and COM port), 5 (150 seconds) is recommended. There should be no blank spaces between TIME and (*n*).

**Command Syntax for Sending Files to MVS/TSO:** The following examples show the command syntax you can use to send files from your workstation to an MVS/TSO host:

**Note:** For Japanese DBCS sessions, use the JISCII rather than the ASCII option. For Hangeul, Simplified Chinese, and Traditional Chinese DBCS sessions, use the ASCII rather than the JISCII option.

- To send a file from your default drive to replace a file on the MVS/TSO host:

```
SEND pc.txt g:ds.script ASCII CRLF
SEND pc.txt g:ds.script [JISCII CRLF (for DBCS)
```

This command sends a workstation file named PC.TXT from your default drive to your MVS/TSO host in a host session named G. It creates or replaces a data set named DS.SCRIPT on your MVS/TSO volume.

- To send a file from a drive other than the default to your MVS/TSO host:

```
SEND a:pc.txt g:ds.script ASCII CRLF
SEND a:pc.txt g:ds.script [JISCII CRLF (for DBCS)
```

This command sends a workstation file named PC.TXT from a diskette in drive A to your MVS/TSO host in a host session named G. It replaces a data set named DS.SCRIPT on your MVS/TSO volume.

- To send a file from your default drive to your MVS/TSO host and add it to the end of an MVS/TSO data set:

```
SEND a:pc.txt g:ds.script ASCII CRLF APPEND
SEND a:pc.txt g:ds.script [JISCII CRLF APPEND (for DBCS)
```

This command sends a workstation file named PC.TXT from a diskette in drive A to your MVS/TSO host in a host session named G. It adds the file to the end of a data set named DS.SCRIPT on your MVS/TSO volume.

- To send a file to your MVS/TSO host and add it to the end of a data set that has a password:

```
SEND a:pc.txt g:ds.script/odyssey8 ASCII CRLF APPEND
SEND a:pc.txt g:ds.script/odyssey8 [JISCII CRLF APPEND (for DBCS)
```

This command sends a workstation file named PC.TXT from a diskette in drive A to your MVS/TSO host in a host session named G. It adds the file to the end of a data set named DS.SCRIPT on your MVS/TSO volume. This data set has a password of odyssey8.

- To send a file from a subdirectory on your hard disk to a partitioned data set on your MVS/TSO host:

```
SEND c:\sd1\pc.txt g:ds.script (m1) ASCII CRLF
SEND c:\sd1\pc.txt g:ds.script (m1) [JISCII CRLF (for DBCS)
```

This command sends a workstation file named PC.TXT from a subdirectory named \SD1 on your hard disk to your MVS/TSO host in a host session named G. It creates or replaces a member named M1 in a partitioned data set named DS.SCRIPT on your MVS/TSO volume.

- To send a file from your default drive and add it as a new data set on your MVS/TSO volume:

```
SEND pc.txt g:ds.script/aeneid20 ASCII CRLF LRECL(132)
      BLKSIZE(132) RECFM(V) SPACE(20,10) TRACKS
SEND pc.txt g:ds.script/aeneid20 [JISCI CRLF LRECL(132)
      BLKSIZE(132) RECFM(V) SPACE(20,10) TRACKS (for DBCS)
```

This command sends a workstation file named PC.TXT from your default drive to your MVS/TSO host. It adds the file as a new data set named DS.SCRIPT on your MVS/TSO volume. A password of aeneid20 is assigned. The records in the data set can vary in length up to 132 characters. Data blocks are the same length as the records. Twenty tracks are set aside for this data set. If more tracks are needed, they are added in groups of 10.

## Using the MVS/TSO RECEIVE Command

Use the following information when receiving a file from MVS/TSO:

Figure 4 shows the command and information you must provide. Enter it as shown (including parentheses), except that you can use either uppercase or lowercase letters.

### Notes:

1. **b** means to insert a space. There must *not* be a space between **h:** and **fn**.
2. For DBCS sessions, insert a left bracket (**[**) before **(options)**.

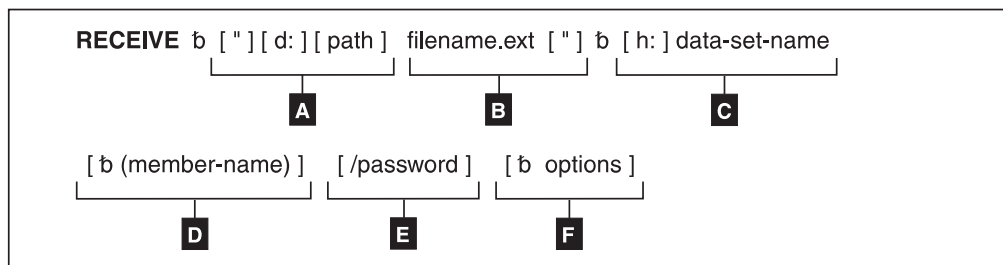


Figure 4. MVS/TSO RECEIVE Command Syntax

- A** The workstation drive and path to the directory where the file is to be stored.
- B** The name of the workstation file to receive.
- C** The short name of the host session, and the data set name of the file you are receiving.
- D** The member name if the file is put in a partitioned data set.
- E** The password of the data set, if any.
- F** Optional changes made to the file during transfer. More than one option can be specified. Valid options are:
  - APPEND
  - ASCII
  - BLANK
  - CRLF



- JISCII (for Japanese DBCS sessions)
- PROGRESS
- QUIET
- SO
- TIME(n)
- USER

The parts of the MVS/TSO RECEIVE commands are:

#### RECEIVE

The command.

**d:** The name of the diskette or hard disk drive where the file is to be located. Use A:, B:, C:, D: through Z:. This part is optional if the file is received on the current drive.

**path** The subdirectory where you want the data set located. This part is optional.

#### **filename.ext**

The name the file is to have on your diskette or hard disk. Creates a new name or uses a name that is already on your diskette or hard disk.

If you use a new name, the data set that you receive is added to your diskette or hard disk. If you use the name of an existing file, the data set that you receive either replaces or supplements the existing file. (Refer to the APPEND option on page 61.)

**h:** The short name of the MVS/TSO session where the data set is located. If you have only one host, this part is optional. Use this option if you have more than one host. The default short name is A.

#### **data-set-name**

The name of the data set or the partitioned data set that contains the member you want to send to your workstation session. You must use the qualified name. Enclose the data set name with the member name in single quotation marks if you are using a fully qualified data set name.

#### **(member-name)**

The member name of a partitioned data set to send to your workstation session. This part is optional. Use it only if the data set is a member of a partitioned data set.

#### **/password**

The password of the data set. Use it only if the data set has a password.

#### **(options or [(options (for DBCS)**

These options can be specified:

#### **APPEND**

Adds the data set to the end of an existing file. Omit this part if you want the MVS/TSO data set to replace an existing workstation file.

#### **ASCII** Performs the following:

- Converts EBCDIC codes to 1-byte workstation codes.
- Converts IBM host DBCS codes to 2-byte codes.
- Removes SO and SI characters from a DBCS field.

#### **BLANK**

This option is valid with the option CRLF; it retains BLANK (hex 40) at the end of each line.

**CRLF** Specifies the use of carriage return and line feed codes. You need ASCII and CRLF for text or source files that you want to view or edit, such as SCRIPT files. You do not need them for binary files.

**JISCII** This option is valid for Japanese DBCS sessions only and performs the following:

- Converts EBCDIC codes to 1-byte workstation codes.
- Converts IBM kanji codes to 2-byte codes.
- Removes SO and SI characters from a DBCS field.

**PROGRESS**

Shows a message indicating that the file transfer is in progress or has ended. Such messages do not show the current transferred bytes.

**QUIET**

Does not show any messages.

**SO** This option is valid only for DBCS when used with the JISCII or ASCII option; it converts SO (hex 0E) and SI (hex 0F) to RS (hex 1E) and US (hex 1F).

**TIME(n)**

Specifies the length of time, in units of 30 seconds, the program waits for a response from the host before it sends an error message. Replace n with an integer value in the range from 0 through 2184. If you specify 0, timeout is not set. The default is 1. To avoid a premature error message, specify an adequate value. In cases of large packet sizes, of large block sizes, or for slow communication lines (such as SDLC and COM port), 5 (150 seconds) is recommended. There should be no blank spaces between TIME and (n).

**USER** This option is valid only for DBCS when used with the JISCII, ASCII and SO options. SO (hex 0E) and SI (hex 0F) are not converted to RS (hex 1E) and US (hex 1F); they are written to a file without being converted.

**Command Syntax for Receiving Files from MVS/TSO:** The following examples show the command syntax you can use to receive files from your MVS/TSO host to your workstation:

**Note:** For Japanese DBCS sessions, use the JISCII rather than the ASCII option. For Hangeul, Simplified Chinese, and Traditional Chinese DBCS sessions, use the ASCII rather than the JISCII option.

- To receive a data set from an MVS/TSO host to the default drive for your workstation session:

```
RECEIVE pc.txt g:ds.script ASCII CRLF
```

```
RECEIVE pc.txt g:ds.script [JISCII CRLF (for DBCS)
```

This command sends a data set named DS.SCRIPT from your MVS/TSO volume in a host session named G to your OS/2 session. It creates or replaces the file on the default drive with the name PC.TXT.

- To receive a data set from an MVS/TSO host to a drive other than your default drive:

```
RECEIVE A:pc.txt g:ds.script ASCII CRLF
```

```
RECEIVE A:pc.txt g:ds.script [JISCII CRLF (for DBCS)
```

This command sends a data set named DS.SCRIPT from your MVS/TSO volume in a host session named G. It replaces a file named PC.TXT on a diskette in drive A.

- To receive a data set from an MVS/TSO host and add it to a workstation file:

```
RECEIVE a:pc.txt g:ds.script ASCII CRLF APPEND
```

```
RECEIVE a:pc.txt g:ds.script [JISCI CRLF APPEND (for DBCS)
```

This command sends a data set named DS.SCRIPT from your MVS/TSO volume in a host session named G. It adds the data set to the end of a file named PC.TXT on the diskette in drive A.

- To receive a data set from an MVS/TSO host and place it in a subdirectory on your hard disk:

```
RECEIVE c:\sd1\pc.txt ds.script ASCII CRLF
```

```
RECEIVE c:\sd1\pc.txt ds.script [JISCI CRLF (for DBCS)
```

This command sends a data set named DS.SCRIPT from your MVS/TSO volume in a host session named G. It creates or replaces a file named PC.TXT in a subdirectory named \SD1 on your hard disk.

- To receive a data set that has a password from an MVS/TSO host to your default drive:

```
RECEIVE A:pc.txt g:ds.script/odyssey8 ASCII CRLF APPEND
```

```
RECEIVE A:pc.txt g:ds.script/odyssey8 [JISCI CRLF APPEND (for DBCS)
```

This command sends a data set named DS.SCRIPT from your MVS/TSO volume in a host session named G. The data set has the password odyssey8. The data set is added to the end of a file named PC.TXT on the diskette in drive A.

- To receive a member of a partitioned data set from an MVS/TSO host to your DOS session:

```
RECEIVE c:\sd1\pc.txt g:ds.script (m1) ASCII CRLF
```

```
RECEIVE c:\sd1\pc.txt g:ds.script (m1) [JISCI CRLF (for DBCS)
```

This command sends a member named M1 from a partitioned data set named DS.SCRIPT in a host session named G. The member is placed on your hard disk in a subdirectory named \SD1. It replaces or creates a file named PC.TXT.

- To receive a member of a partitioned data set that has a password to your Windows session:

```
RECEIVE a:pc.txt g:ds.script (m2)/ili1 ASCII CRLF APPEND
```

```
RECEIVE a:pc.txt g:ds.script (m2)/ili1 [JISCI CRLF APPEND (for DBCS)
```

This command sends a member named M2 from a partitioned data set named DS.SCRIPT in a host session named G. The data set has a password of ili1. The member is added to a file named PC.TXT on the diskette in drive A.

## Using the CICS SEND Command

Please note the differences between the Personal Communications GUI and Command Line syntaxes. These two syntaxes are not interchangeable.

**Using CICS SEND with the Personal Communications GUI:** Use the following information when sending a file to CICS using the Personal Communications graphical user interface (GUI):

Figure 5 shows the command and information you must provide. Enter it as shown (including parentheses), except that you can use either uppercase or lowercase letters.

**Notes:**

1. `b` means to insert a space. There must *not* be a space between `h:` and `fn`.
2. For DBCS sessions, insert a left bracket (`(`) before **(options)**.

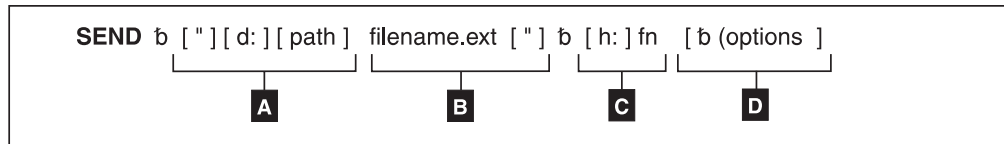


Figure 5. CICS SEND Personal Communications GUI Syntax

- A** The workstation drive and path of the file to send.
- B** The name of the workstation file to send.
- C** The short name of the host session, and the host file name of the file to send.
- D** Optional changes made to the file during transfer. More than one option can be specified. Valid options are:
  - ASCII
  - BINARY (for SBCS sessions)
  - CLEAR
  - CRLF
  - JISCII (for Japanese DBCS sessions)
  - NOCLEAR
  - NOCRLF (for SBCS sessions)
  - NOSO
  - PROGRESS
  - QUIET
  - TIME(n)

**Note:** For SBCS sessions, the default options are ASCII and CRLF; for DBCS sessions, the default option is BINARY.

**Using CICS SEND with the Personal Communications Command Line:** Use the following information when sending a file to CICS using the Personal Communications command line:

Figure 6 on page 65 shows the command and information you must provide. Enter it as shown (including parentheses), except that you can use either uppercase or lowercase letters.

**Notes:**

1. `b` means to insert a space. There must *not* be a space between `h:` and `fn`.
2. For DBCS sessions, insert a left bracket (`(`) before **(options)**.

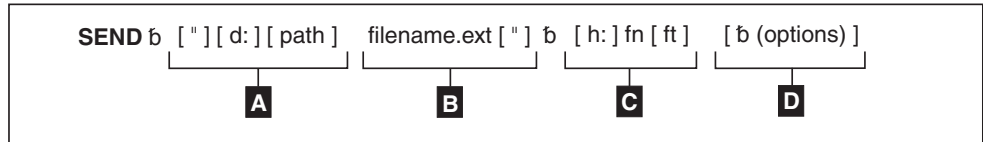


Figure 6. CICS SEND Command Line Syntax

- A** The workstation drive and path of the file to send.
- B** The name of the workstation file to send.
- C** The short name of the host session (h:), the host file name (fn), and the file type (ft).
- D** Optional changes made to the file during transfer. More than one option can be specified. Valid options are:
  - ASCII
  - BINARY (for SBCS sessions)
  - CLEAR
  - CRLF
  - JISCII (for Japanese DBCS sessions)
  - NOCLEAR
  - NOCRLF (for SBCS sessions)
  - NOSO
  - PROGRESS
  - QUIET
  - TIME(n)

**Note:** For SBCS sessions, the default options are ASCII and CRLF; for DBCS sessions, the default option is BINARY.

**CICS SEND Command Description and Options:** The parts of the CICS SEND command are:

**SEND** The command.

**d:** The name of the diskette or hard disk drive where the file is located.

**path** The path to the subdirectory that the file is in.

**filename.ext**

The name of the file to be sent, including the extension.

**h:** The short name of the host session where you want to send the file. If you have only one host, this part is optional. The default is session **A**.

**fn** The name the file is to have on your CICS disk. You must specify the file name. You can create a new name or use a name that is already on the disk.

**ft** The type of file in CICS. For use only with command line syntax, see "Using CICS SEND with the Personal Communications Command Line" on page 64.

**(options or [(options (for DBCS)**

These options can be specified:

**ASCII** Performs the following:

- Converts 1-byte workstation codes to EBCDIC codes.
- Converts 2-byte codes to IBM host DBCS codes.

- Inserts SO and SI characters in a DBCS field and converts the control characters ← and →, if they are present, to SO and SI characters.

The default is ASCII CRLF. You need these control terms for text or source files that you want to view or edit, such as SCRIPT files. You do not need them for binary files.

**Notes:**

1. CRLF and NOCRLF are mutually exclusive options.
2. BINARY and ASCII are mutually exclusive options.
3. The assumed defaults, if the optional parameters are omitted, are CRLF ASCII.

**BINARY**

Specifies that the data in the file is binary data. The data can be encrypted, compiled programs, or other data. It is not translated by the host file transfer program but copied unaltered into a temporary storage queue.

This option is valid for SBCS sessions only.

**CLEAR**

Clears the workstation window at the beginning of the file transfer.

**CRLF** Specifies carriage return and line feed codes in the text file.

**JISCII** This option is valid for Japanese DBCS sessions only and performs the following:

- Converts 1-byte workstation codes to EBCDIC codes.
- Converts 2-byte codes to IBM kanji codes.
- Inserts SO and SI characters in a DBCS field and converts the control characters ← and →, if they are present, to SO and SI characters.

**NOCLEAR**

Suppresses the sending of a Clear command at the beginning of file transfer. This option is required for ISPF command mode.

**NOCRLF**

Specifies that the PC file does not consist of logical records delimited by carriage return and line feed characters. No concatenation or splitting of records is performed by the CICS file transfer program.

The file is written into a temporary storage using one item on the queue to represent each inbound data buffer. The items on the CICS temporary storage queue can be of different lengths, but none can be more than 32767 characters.

This option is valid for SBCS sessions only.

**NOSO**

This option is valid only for DBCS when used with the JISCII or ASCII option and performs the following:

- Does not insert SO (hex 0E) and SI (hex 0F) before and after a DBCS field.
- Does not convert RS (hex 1E) and US (hex 1F) to SO (hex 0E) and SI (hex 0F).

## PROGRESS

Shows a message indicating that the file transfer is in progress or has ended. Such messages do not show the current transferred bytes.

## QUIET

Does not show any messages.

## TIME(n)

Specifies the length of time, in units of 30 seconds, the program waits for a response from the host before it sends an error message. Replace n with an integer value in the range from 0 through 2184. If you specify 0, timeout is not set. The default is 1. To avoid a premature error message, specify an adequate value. In cases of large packet sizes, large block sizes, or for slow communication lines (such as SDLC and COM port), 5 (150 seconds) is recommended. There should be no blank spaces between TIME and (n).

**Command Syntax for Sending Files to CICS:** The following examples show the command syntax you can use to send files from your workstation to your CICS host.

**Note:** For Japanese DBCS sessions, use the JISCII rather than the ASCII option. For Hangeul, Simplified Chinese, and Traditional Chinese DBCS sessions, use the ASCII rather than the JISCII option.

- To send a workstation file from your default drive and add it as a new file on your CICS host:

```
SEND pc.txt a:cicsfile (ASCII CRLF)
```

```
SEND pc.txt a:cicsfile [(JISCII CRLF) (for DBCS)]
```

**Note:** Enter the complete CICS SEND command on one line.

This command sends a workstation file named PC.TXT from your default drive on your workstation to your host session A. You do not need to provide the workstation drive name if the file you are sending is on the current drive. The command creates a new file named CICSFILE.

- To send a basic workstation file from a drive other than your default to replace a file on your CICS host:

```
SEND a:myprog.exe a:basprog
```

This command sends a workstation file named MYPROG.EXE from a diskette in drive A to your CICS host in your host session named A. It is written to a file named BASPROG, replacing any existing file by that name in host session A.

## Using the CICS RECEIVE Command

Please note the differences between the Personal Communications GUI and Command Line syntaxes. These two syntaxes are not interchangeable.

**Using CICS RECEIVE with the Personal Communications GUI:** Use the following information when receiving files from CICS using the Personal Communications GUI:

Figure 7 on page 68 shows the command and information you must provide. Enter it as shown (including parentheses), except that you can use either uppercase or lowercase.

**Notes:**

1.  means to insert a space. There must *not* be a space between `h:` and `fn.`
2. For DBCS sessions, insert a left bracket (`(`) before **(options)**.

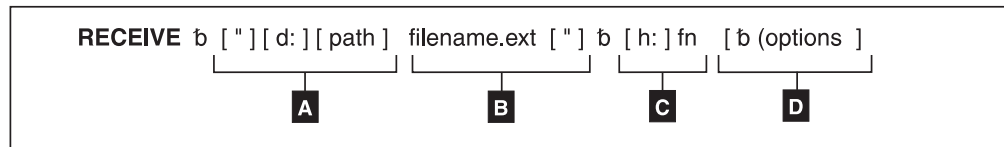


Figure 7. CICS RECEIVE Personal Communications GUI Syntax

- A** The workstation drive and path where the file is to be received.
- B** The name of the workstation file.
- C** The short name of the host session (h:) from which you are receiving the file, and the host file name (fn).
- D** Optional changes made to the file during transfer. More than one option can be specified. Valid options are:
  - ASCII
  - BINARY (for SBCS sessions)
  - BLANK
  - CLEAR
  - CRLF
  - JISCII (for Japanese DBCS sessions)
  - NOCLEAR
  - NOCRLF (for SBCS sessions)
  - PROGRESS
  - QUIET
  - SO
  - TIME(n)
  - USER

**Note:** The default options for SBCS sessions are ASCII and CRLF; the default option for DBCS sessions is BINARY.

**Using CICS RECEIVE with the Personal Communications Command Line:** Use the following information when receiving files from CICS using the Personal Communications command line:

Figure 8 on page 69 shows the command and information you must provide. Enter it as shown (including parentheses), except that you can use either uppercase or lowercase.

**Notes:**

1.  means to insert a space. There must *not* be a space between `h:` and `fn.`
2. For DBCS sessions, insert a left bracket (`(`) before **(options)**.



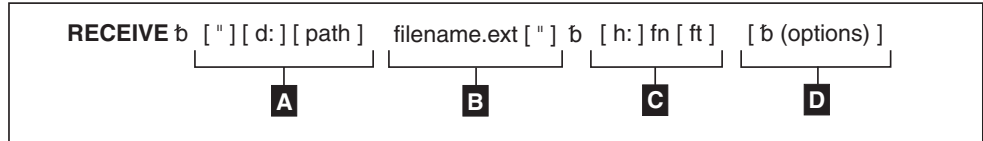


Figure 8. CICS RECEIVE Command Syntax

- A** The workstation drive and path where the file is to be received.
- B** The name of the workstation file.
- C** The short name of the host session (h:) from which you are receiving the file, the host file name (fn), and the file type (ft).
- D** Optional changes made to the file during transfer. More than one option can be specified. Valid options are:
  - ASCII
  - BINARY (for SBCS sessions)
  - BLANK
  - CLEAR
  - CRLF
  - JISCII (for Japanese DBCS sessions)
  - NOCLEAR
  - NOCRLF (for SBCS sessions)
  - PROGRESS
  - QUIET
  - SO
  - TIME(n)
  - USER

**Note:** The default options for SBCS sessions are ASCII and CRLF; the default option for DBCS sessions is BINARY.

**CICS RECEIVE Description and Options:** The parts of the CICS RECEIVE command are:

**RECEIVE**

The command.

**d:** The name of the diskette or hard disk drive where the file is to be received.

**path** The path to the subdirectory where the file is to be located.

**filename.ext**

The name of the workstation file, including the extension. You can create a new name or use a name that is already on your workstation diskette or hard disk. If you use a new name, the file that you receive is added to your diskette or hard disk. If you use the name of an existing file, the file that you receive either replaces or supplements the existing file. Refer to the APPEND option.

**h:** The short name of the CICS session where the data set is located. If you have only one host, this part is optional. The default session is A.

**fn** The name of the file you want to receive from your CICS host.

**ft** The type of file in CICS. For use only with command line syntax, see "Using CICS RECEIVE with the Personal Communications Command Line" on page 68.

### (options or [(options (for DBCS)

These options can be specified:

#### **ASCII** Performs the following:

- Converts EBCDIC codes to 1-byte workstation codes.
- Converts IBM host DBCS codes to 2-byte codes.
- Inserts SO and SI characters in a DBCS field and converts the control characters ← and →, if they are present, to SO and SI characters.

The default is ASCII CRLF. You need ASCII and CRLF control terms for text or source files that you want to view or edit, such as SCRIPT files. You do not need them for binary files.

#### **Notes:**

1. CRLF and NOCRLF are mutually exclusive options.
2. BINARY and ASCII are mutually exclusive options.
3. The assumed defaults, if the optional parameters are omitted, are CRLF ASCII.

#### **BINARY**

The data in the file is binary data. The data can be encrypted data, compiled programs, or other data. It is not translated by the host file transfer program but is copied without changes into the workstation file.

This option is valid for SBCS sessions only.

#### **BLANK**

This option is valid only when used with the CRLF option; it retains BLANK (hex 40) at the end of each line.

#### **CLEAR**

Clears the workstation window at the beginning of the file transfer.

#### **CRLF** Specifies the use of the carriage return and line feed codes.

#### **JISCI** This option is valid for Japanese DBCS sessions only and performs the following:

- Converts EBCDIC codes to 1-byte workstation codes.
- Converts IBM kanji codes to 2-byte codes.
- Inserts SO and SI characters in a DBCS field and converts the control characters ← and →, if they are present, to SO and SI characters.

#### **NOCLEAR**

Suppresses the sending of a Clear command at the beginning of file transfer. This option is required for ISPF command mode.

#### **NOCRLF**

Specifies that the host computer file does not consist of logical records. The items in the temporary storage queue are sent in order and concatenated in your workstation into a single string of data.

This option is valid for SBCS sessions only.

#### **PROGRESS**

Shows a message indicating that the file transfer is in progress or has ended. Such messages do not show the current transferred bytes.

**QUIET**

Does not show any messages.

**SO**

This option is valid only for DBCS when used with the JISCII or ASCII option; it converts SO (hex 0E) and SI (hex 0F) to RS (hex 1E) and US (hex 1F).

**TIME(n)**

Specifies the length of time, in units of 30 seconds, the program waits for a response from the host before it sends an error message. Replace n with an integer value in the range from 0 through 2184. If you specify 0, timeout is not set. The default is 1. To avoid a premature error message, specify an adequate value. In cases of large packet sizes, of large block sizes, or for slow communication lines (such as SDLC and COM port), 5 (150 seconds) is recommended. There should be no blank spaces between TIME and (n).

**USER**

This option is valid only for DBCS when used with the options JISCII, ASCII, and SO. SO (hex 0E) and SI (hex 0F) are not converted to RS (hex 1E) and US (hex 1F); they are written to a file without being converted.

**Command Syntax for Receiving Files from CICS:** The following examples show the command syntax you can use to receive files from your CICS host to your workstation.

**Note:** For Japanese DBCS sessions, use the JISCII rather than the ASCII option. For Hangeul, Simplified Chinese, and Traditional Chinese DBCS sessions, use the ASCII rather than the JISCII option.

- To receive a file from your CICS host to your default drive for a workstation session:

```
RECEIVE pc.txt A:cicsfile (ASCII CRLF)
```

```
RECEIVE pc.txt A:cicsfile [(JISCII CRLF) (for DBCS)]
```

This command sends a file named CICSFILE from your CICS host in session A to your workstation session. It adds the file to your default drive (diskette or hard disk) with the name PC.TXT.

- To receive a basic file from your CICS host and replace a file on a drive other than your default:

```
RECEIVE a:myprog.exe a:myprog
```

This command sends a file named MYPROG from your CICS host in session A to a drive other than the default for your workstation session. It replaces a file named MYPROG.EXE on a diskette in drive A.

## Configuring File-Transfer Code Translation

When you transfer a file between the host and the workstation using the ASCII option (JISCII, for Japanese DBCS sessions), the host-system file-transfer program performs translation from EBCDIC to ASCII (JISCII, for Japanese DBCS sessions) or vice versa, according to the host and PC code pages specified during PC/3270 configuration. However, you might want to use different translation from that supplied by IBM. For the details, refer to Chapter 4, "Transferring Files", on page 35.



---

## Chapter 5. Printing

You can use Personal Communications to print from display or printer sessions. For considerations and restrictions on printing, refer to Chapter 3, "Considerations for Using PC/3270 Sessions", on page 15.

---

### Display Sessions

From display sessions, you can print all (**Print Screen**) or part (**Trim Print**) of the screen of your session window on a workstation printer. For more information, refer to *Quick Beginnings* or the online help.

From a 3270 display session, you can also use the ZipPrint utility to print PROFS® or OfficeVision® (OV) notes, calendars, documents, CMS files, XEDIT workspaces, and host-session screens. See the online help for more information.

Using the **File → Print Screen Collection → Collect Screen** feature, you can add a capture of all or part of the screen to a collection of captures. You can then print all the collected captures at the same time, using the **File → Print Screen Collection → Print Collection** feature. After printing, the collected captures are deleted.

All the collected screens can be deleted without printing by clicking **File → Print Screen Collection → Purge Collection**. An individual screen or part of the collection cannot be deleted.

The **File → Print Screen Collection → Print Collection on Exit** option ensures that the collected screens are printed before you close or disconnect the session. This option is enabled by default. To end the session without printing the collected screen, clear the Print Collection on Exit option. All the collected screens are then deleted when you close or disconnect the session.

**Note:** The Collect Screen feature works independently of the normal Print Screen function. You can still use Print Screen to print individual screens, while collecting multiple screens.

You can add the **Collect Screen** and **Print Collection** functions to the toolbar, a popup keypad, a custom keyboard map, or a mouse customization, using the **Edit → Preferences** menu in the session window. The settings in the Page Setup dialog are used (shared with the normal Print Screen function).

In PDT mode, there is an option available for printing more than one screen in a page. Refer to the *Administrator's Guide and Reference* for more information.

---

### Printer Sessions

From printer sessions, you can direct printing from a zSeries system to a workstation printer.

**Note:** When you use a host application which prints to your workstation's LPT1, you must first select the printer in the **Printer Setup** dialog of the **File** menu.

Configure a printer session to designate a workstation printer as a system printer that will use either a Windows printer driver or a printer definition table (PDT) provided with Personal Communications.

- Use Windows printer drivers for Personal Communications to print files based on printer setup parameters, such as scaling, duplex options, and page orientation, that you define in **Printer Setup**.
- Use PDT files for Personal Communications to print files based on page setup information, such as control codes and the printer output format, defined in the PDT. You can customize PDTs to define your own controls, by editing the corresponding printer definition file (PDF) and converting it to a PDT.

---

## Telnet 3270E Printer Association

The Telnet 3270E standard lets you specify an association between a display and a printer session. This is unique to telnet, and is not available in the SNA environment. When you configure a display session, Personal Communications lets you specify an associated printer session. This function is implemented on Communications Server and zSeries TN3270E servers.

The association starts at the telnet server. In the server's configuration, there is a one-to-one correspondence when defining associated printers. When LU names and relations are already defined by the server, the server will assign the printer LU for the client. Each printer LU is configured as associated with a particular display LU.

Advantages of this association are as follows:

- If sessions are associated, the person who configures the client workstation does not have to know any detail about the printer session because the associated pairs are defined at the telnet server.
- When you start the display session, the associated printer session is started automatically. If the printer session is configured to direct output to a printer that is near you, and if you ensure that your host applications print to that session, it is obviously convenient.

**Note:** Stopping a TN3270E session will automatically close an associated printer session, if that option was selected when configuring the session.

---

## Setting Up the Printer

Following is a description of how to set up your printer with either a Windows printer driver or a PDT file.

For an explanation of how to customize a PDT, refer to Chapter 3, "Considerations for Using PC/3270 Sessions", on page 15.

You can map a key sequence to bring up the Printer Setup dialog. There is no default key combination for this function. See "Default Key Function Assignments" on page 27 for more information about keyboard functions.

## Defining a Printer for a Session

To choose or change the Windows printer driver to be used, follow these steps:

1. Click **Printer Setup** from the **File** menu of the session window.

The Printer Setup window lists the available printers.

2. Select a printer from the list box. If desired, select the check box **Show this dialog before every print**.

**Note:** The **Default** selection causes the current Windows default printer to be used.

3. Confirm that **Use PDT** is not selected.

## Using PDT Files

To use a PDT file:

1. Click **File** → **Printer Setup** from the menu bar of the session window.  
The Printer Setup window appears.
2. Click the printer to be used from the list box.
3. Click **Setup**; specify the paper size.
4. Click **OK**.
5. Click the **Use PDT** check box, then **Select PDT**.  
The Select PDT file window appears.
6. Do one of the following:
  - To use an existing PDT, select the PDT file to be used; then click **OK**.
  - To use a PDF that you have modified, you must first convert it to a PDT. To do so:
    - a. Click **Convert PDF**.
    - b. Select the PDF file to be converted from the list, then click **Convert**.  
The window displays the result of the conversion. If there are any errors during the conversion, they are listed in the window.
    - c. When you select **Save List**, the window list is saved in \*.LST file in the PDFPDT subdirectory.  
To close without saving the list, click **Close**.  
After the file is converted, control returns to the Select PDT file window and the converted PDT file appears in the list.
    - d. Select the PDT file; then click **OK**.
7. Click **OK** in the Printer Setup window.

---

## PDT Files

### Basic Support

PDTs (printer definition tables) are compiled from PDFs (printer definition files). PDFs contain printer commands that must be understood/supported by your printer.

The following are the basic printer languages:

**PCL** Printer Control Language (Hewlett-Packard)

**PPDS** ProPrinter Data Stream (IBM)

**ESC/P** Printer Control Language (Epson)

**POSTSCRIPT**

(No PDFs for this language)

Many printers support two or more of these languages. Most print drivers use a PJI (Printer Job Language) to switch between languages and to perform other job control functions, such as setting the number of copies.

You do not need a PDF for each different printer model; with the increasing number of models, PDFs are named for the printer language, not the printer model.

Older SBCS PDFs and PDTs are not shipped with Personal Communications, but are available at the following website:

<http://www.ibm.com/software/network/pcomm>. If you have already modified PDFs, any PDF and PDTs with names different from those in Table 8 are retained during an install.

**Note:** All DBCS PDFs and PDTs are still shipped with Personal Communications.

The End\_Job statement in a PDF contains the printer commands that are sent to the printer at the end of each print job. If the End\_Job contains a character defined as form feed (FFF in the PDT), a form feed (FF) is sent to the printer. FF in the End\_Job statement is not needed if the host application ends the job with the FF, as is commonly done. Some print drivers add the FF if needed, and most print drivers ignore extra FFsl. So the FFF is usually protection against the host application not using a FF, and usually causes no problem. However, if you get an extra blank page, remove the FFF.

**Note:** This procedure is valid for host printer sessions but not for Print Screen from a display session

*Table 8. Old Printer Definition Files*

Printer Definition File (PDF) Name	Remarks
esc_p	(3270 only) (DBCS only)
ibm5577	(No FFF) (DBCS only)
ibm5577a	(No FFF)
ibm5577b	(No FFF)
ibm5585	(No FFF) (3270 only) (DBCS only)
ibm5587	(No FFF) (3270 only) (DBCS only)
lbp4	
lips3a4	(No FFF) (DBCS only)
lips3b4	(No FFF) (DBCS only)
nppages	(No FFF) (3270 only)

The supplied basic\_ascii PDF does not contain any printer commands, which results in only ASCII text being sent to a printer or file. An accompanying PDT is also shipped. This PDF is for SBCS only.

## Double-Byte Character Support

The PDTs provided by Personal Communications and the corresponding printers are listed in Table 9 on page 77. The DBCS PDTs are as follows:

- IBM5577.PDT
- IBM5577B.PDT
- IBM5585.PDT



- IBM5587.PDT
- ESC\_P.PDT
- LIPS3A4.PDT
- LIPS3B4.PDT
- ESC\_BIG5.PDT
- ESC\_CNS.PDT
- ESC\_5550.PDT
- ESC\_TCA.PDT
- KS\_JO.PDT
- KS\_WAN.PDT
- KSSM\_JO.PDT
- KSSM\_WAN.PDT
- NPPAGES.PDT

Table 9 lists the printers to use with supported PDTs.

*Table 9. Printer Models and Supported PDTs*

File Name	Printer Name/Model
IBM5577.PDT	IBM 4208-501, -5C2, -5K2 IBM 4216-510 IBM 5572-B02 IBM 5573-HC2 IBM 5575-B02, -F02, -H02, BC2, -FK1E IBM 5577-B02, -G02, -H02, FC2, -HC2, -KC2,-HK2 IBM 5579-H02, -KC2
IBM5585.PDT	IBM 5585-H01, -HC1 IBM 5587-G01 IBM 5587-H01 (with extended functions) IBM 5589-H01
IBM5587.PDT	IBM 5587-G01 IBM 5587-H01 (without extended functions)
ESC_P.PDT	ESC/P printer for China or Japan
ESC_BIG5.PDT	ESC/P printer with Big5 DBCS code
ESC_CNS.PDT	ESC/P printer with CNS DBCS code
ESC_5550.PDT	ESC/P printer 5550 DBCS code
ESC_TCA.PDT	ESC/P printer with TCA DBCS code
KS_JO.PDT	KS printer with combination code
KS_WAN.PDT	KS printer with completion code
KSSM_JO.PDT	KSSM printer with combination code
KSSM_WAN.PDT	KSSM printer with completion code
NPPAGES.PDT	IBM NP12, NP17, NP24 printers for Japan

Table 10 lists the PDTs that are supported for DBCS only.

*Table 10. DBCS Supported PDTs*

File Name	Printer Name/Model
NPPAGES.PDT	IBM NP12, NP17, and NP24 in PAGES mode (Japan only)
IBM5585.PDT	All types of IBM 5585 printers
IBM5587.PDT	All types of IBM 5587 printers
IBM5577.PDT	All types of IBM 5577 printers

Table 10. DBCS Supported PDTs (continued)

File Name	Printer Name/Model
IBM5577B.PDT	IBM 5577-S02/T02 for Postal Bar Code Support (Japan only)

## Page Setup Parameters

You can set Page Setup parameters, such as the maximum number of lines per page, the maximum number of columns, and fonts. These parameters are initially set to the defaults. Use this function to change specific control items.

**Note:** When a PDT file is used, this function cannot be used.

You can set the following parameters.

Table 11. Page Setup Parameters — Text

Parameter	Description
<b>CPI</b>	Specifies the number of characters to be printed per inch. If CPI was not set previously, a CPI value suitable for the font selected from the Font list box is assumed as the default.
<b>LPI</b>	Specifies the number of lines to be printed per inch. If LPI was not set previously, an LPI value suitable for the font selected from the Font list box is assumed as the default.
<b>Maximum Number of Lines per Page</b>	Specifies the maximum number of lines per page. A number in the range 1–255 can be specified. The default is 66. See Note 1.
<b>Maximum Number of Characters per Line</b>	Specifies the maximum number of characters per line. A number in the range 1–255 can be specified. The default is 132. See Note 2.
<b>Font</b>	Lists, in the list box, the monospaced fonts that can be used with the currently selected printer.  The fonts in brackets [ ] are device fonts specific to the printer driver. The other fonts are graphics display interface (GDI) fonts printed in bit map formats.
<b>Notes:</b>	
1. When you set this to a value other than the default, Personal Communications uses it to scale the LPI and font to the best fit for the page.	
2. When you set this to a value other than the default, Personal Communications uses it to scale the CPI and font to the best fit for the page.	

From a Personal Communications display session, you can set additional parameters by selecting the **Text Options** tab, as follows:

Table 12. Page Setup Parameters — Text Options

Group	Options	Setting
<p><b>Print Options</b> The following options can be selected as print options. These options are not available for the printer session.</p>	<p><b>Suppress null lines</b></p>	<p>Determines whether to delete lines containing only null or non-printable characters (null or non-printable field characters, and field attributes) or to print them as null lines.</p> <p><b>Selected</b> Null lines are not printed.</p> <p><b>Not selected</b> Null lines are printed.</p> <p>This option can be used when:</p> <ul style="list-style-type: none"> <li>• The <b>Print Screen</b> command is used</li> <li>• LU type 3 printing, or non-SNA printing is done</li> <li>• The combination of bits 2 and 3 of the WCC is not 00.</li> </ul>
	<p><b>Print nulls as spaces</b></p>	<p>Determines whether to print NULL control codes as null characters.</p> <p><b>Selected</b> The codes are printed as blanks.</p> <p><b>Not selected</b> The codes are treated as null characters.</p> <p>This option can be used when:</p> <ul style="list-style-type: none"> <li>• The <b>Print Screen</b> command is used</li> <li>• LU type 1 or 3 printing, or non-SNA printing is done.</li> </ul>
	<p><b>Ignore FF when at first print position</b></p>	<p>Determines whether to ignore the FF code at the beginning of the buffer address.</p> <p><b>Selected</b> The FF code is ignored and not executed.</p> <p><b>Not selected</b> The FF code is executed.</p> <p>This option can be used when:</p> <ul style="list-style-type: none"> <li>• The <b>Print Screen</b> command is used</li> <li>• LU type 1, LU type 2, LU type 3, or non-SNA printing is done.</li> </ul>

Table 12. Page Setup Parameters — Text Options (continued)

Group	Options	Setting
	<b>FF takes a print position if followed by data</b>	<p>Determines whether to print null characters if data follows the FF code.</p> <p><b>Selected</b>            FF is executed, and a blank character is printed at the beginning of the next page. Therefore, the next data is printed in the second column of the line.</p> <p><b>Not selected</b>            FF is executed, and the next data is printed at the beginning of the first line on the next page.</p> <p>This option can be used when:</p> <ul style="list-style-type: none"> <li>• The <b>Print Screen</b> command is used</li> <li>• Host initiated local copy and LU type 3 printing, or non-SNA printing is done</li> <li>• In both PDT and standard modes</li> </ul>
<b>Suppress auto new line when:</b>	<b>CR at maximum print position +1</b>	<p>Determines whether to perform automatic new line when CR is the maximum number of columns to be printed away from the first column.</p> <p><b>Selected</b>            Automatic new line is not done. The characters after the CR code are printed on the same line.</p> <p><b>Not selected</b>            Automatic new line is done.            Determines whether to perform automatic new line/carriage return before new line/carriage return (NL) is done when NL is the maximum number of columns to be printed away from the first column.</p>

Table 12. Page Setup Parameters — Text Options (continued)

Group	Options	Setting
	NL at maximum print position +1	<p><b>Selected</b> Automatic new line is not done.</p> <p><b>Not selected</b> After automatic new line is done, new line is done again.</p> <p>This option can be used when LU type 3 printing or non-SNA printing is done and the combination of bits 2 and 3 of the WCC is 00.</p> <p>This option cannot be used in 5250 sessions.</p>
<b>Form Feed Position</b> <b>Note:</b> This cannot be used for 5250 sessions.	Any position	Determines that printing can start at any position on the page.
	Column 1 only	Determines that printing starts at column 1 of the page.

From a Personal Communications 3270 session, you can set additional parameters by selecting the **Graphics** tab.

Table 13. Page Setup Parameters - Graphics

Parameter	Description
Scaling	By default, the screen size (display resolution) is mapped to the printed page size (printer resolution)—this is called <b>BestFit</b> . It is done automatically if you change either resolution (including changing printers). The <i>/2</i> , <i>/3</i> , and <i>/4</i> values reduce the printed page size.
Black-on-White	<p>This option allows you to determine how the black pixels on the screen are printed.</p> <p><b>Yes</b> Black pixels are printed as white pixels. Pixels other than black are printed as black pixels when you use a monochrome printer. When you use a color printer, they are printed in the same color as on the screen.</p> <p><b>No</b> Black pixels are printed in black. Pixels other than black are printed as white pixels when you use a monochrome printer. When you use a color printer, they are printed in the same color as on the screen.</p>

To set or change setup items:

1. Click **File** → **Page Setup** from the menu bar of the session window.  
The Page Setup window appears.
2. Select the tab that contains the parameters you want to change.

**Note:** To switch from the current settings back to the defaults, select **Default**.

3. When all the items have been set, click **OK** or **Apply**.

---

## Printing to Disk

If you are using a PDT, you can save a host print-job or the contents of the session window (Print Screen) to a workstation file instead of printing it.

Two types of Print-to-Disk function are provided by Personal Communications:

### **Print-to-Disk Append**

Appends multiple host print jobs or print screen jobs to a single workstation file.

### **Print-to-Disk Separate**

Saves each host-print job or screen to a separate workstation file. You can specify the file name, but the extension is automatically assigned as a decimal number from 000 to 999. If you delete a file, its number will be re-used. When all 999 numbers have been used, the extension is automatically assigned a decimal number from 1000 to 9999.

### **Notes:**

1. Print-to-Disk is not available for the Print-Graphics function.
2. Print-to-Disk can be used only when you use a printer definition table (PDT) file.

To set up Print-to-Disk:

1. Click **File** → **Printer Setup** from the menu bar in the session window.  
The Printer Setup window lists the supported printers.
2. Select **Print to Disk Append** or **Print to Disk Separate** from the list box.
3. Click **Select PDT**.  
The Select PDT file window appears.
4. Select a PDT file from the list; then click **OK**.  
The Printer Setup window reappears.
5. Click **Setup**.  
The File Selecting window appears.
6. Specify a file name, drive, and path; then click **OK**.

**Note:** If you specify the name of an existing file, subsequent print jobs are appended to the data in the original file in the case of Print to Disk Append.

---

## Printing Japan Postal Bar Code

In support of the new postal bar code implemented in Japan, Personal Communications provides print capabilities for postal bar codes.

---

## Workstation Profile Parameter for Code Page

Occasionally a font does not support the desired code page. The wrong characters may be printed within the specific character set (Latin 2, for example). Personal Communications has a workstation profile parameter that allows the program to use a different code page that is supported by the desired font.

You can use the **PrinterFontCodePage** parameter if the following conditions are met:

- If you can specify the printer font code page with which the desired font is encoded.
- If Personal Communications provides the translation table for the host code page and the printer font code page.

However, since some Personal Communications releases may require manual adjustment of the workstation profile, try using different fonts before altering the .ws file. Fonts are listed in the Personal Communications Page Setup panel for all display sessions and 3270 host print sessions. For 5250 print sessions, the PCSPD.DAT file can be manually changed to control the fonts used. The Courier New font should support most languages and corresponding code pages.

To edit the .ws file, you must change the PrinterFontCodePage parameter to the value of the supported code page you wish to use. This option must be put in the [printers] section, and is case-sensitive. See the following example for the proper parameter syntax. The parameter does not need to be placed immediately after the [printers] section label.

```
[printers]  
PrinterFontCodePage=852
```

In this case, the desired font is encoded with code page 852. Personal Communications uses a different, existing translation table to translate data from EBCDIC to 852, versus using the standard Windows code page.





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## Part 3. Appendixes



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## Appendix. Notices

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