Personal Communications for Windows, Version 5.5

IBM

# VT Emulator User's Reference

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> **Note**
>
> Before using this information and the product it supports, read the information in "Appendix. Notices" on page 57.

**First Edition (September 2001)**

This edition applies to Version 5.5 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

Beginning with Version 5.5, IBM® Personal Communications for Windows® reference books were separated into 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 AS/400® 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, and Windows 2000. When information is applies only to a specific operating systems, this is indicated in the text. 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.

## Who Should Read This Book

This book is intended for the person who installs and uses Personal Communications on a workstation to connect to ASCII hosts.

## 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.

\\     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.

## Where to Find More Information

This section discusses getting help when you are installing, configuring, or using Personal Communications.

# Online Help

The help facility describes how to install, configure, and use Personal Communications. Online help is very extensive and includes information about every aspect of configuring and using Personal Communications.

Use help to obtain the following information:
- Menu choices
- Operation procedures
- Operations in windows
- Meanings of the terms displayed in windows
- Causes of errors and the corresponding actions to take
- Mouse-based operations
- Operation without a mouse
- Detailed explanations of specific terms
- Further technical information about Personal Communications
- Detailed explanations of operator information area (OIA) messages

To display online help, select choices from the **Help** menu or press **F1**.

You can use Personal Communications online help just as you use the online help for Windows.

# Messages and Alerts

Online messages are displayed by Personal Communications, but a message does not always mean an error occurred. For example, a message might tell you that an operation is in progress or has been completed. A message can also prompt you to wait for the completion of an operation.

## Messages That Appear in Pop-Up Windows

While using Personal Communications, you may see messages appear in pop-up windows, but not necessarily as a direct result of your actions. These messages can appear for a number of reasons, outlined in the following sections.

**System-Fault Messages:**  For Windows NT, if a message does appear in a pop-up window, you can paste its contents into the Windows NT clipboard. To do this:

1. Click **Details** on the pop-up window.
2. Mark the text that you want to copy.
3. Click the marked text with the right mouse button and then click **Copy**.
4. Start an editor, such as Notepad, and click **Paste** from the **Edit** menu.
5. Save the file in case an IBM Service Representative needs this information to diagnose your problem.

**Security-Related Messages:**  Personal Communications optionally utilizes Secure Sockets Layer (SSL) to establish sessions with servers; this may require input from you (for example, a password). Refer to *IBM Personal Communications Version 5.5 Administrator's Guide and Reference* for details.

**System-Policy-Related Messages:**  Your Personal Communications workstation configuration can be controlled centrally using facilities for managing system policies. Refer to *IBM Personal Communications Version 5.5 Administrator's Guide and Reference* for details.

### OIA Messages

Personal Communications displays messages in the operator information area (OIA) or in a pop-up window. Messages from Personal Communications are displayed in the message window; messages from the host system regarding the condition of the session are displayed in the OIA of the session window.

The OIA is the bottom line of the session window. An OIA message indicates the status of Personal Communications as well as information about the workstation, host system, and attachment method.

All of the OIA indicators, reminders, and messages are described in the online help. To view this information:

1. Select **Index** from the **Help** menu.
2. Select **The operator information area messages**.

   To look up a specific OIA message, select **Search**. When the Search window appears, type the letters that appear in the OIA. For example, MACH or PROG. If a lightning bolt appears, type COMM.
3. Double-click the index entry that matches your search.
4. Scroll through the window until you find the number that appears in your OIA.

### Alerts
Alerts may be generated which correspond to specific Personal Communications messages. See the *Administrator's Guide and Reference* for more information.

## Personal Communications Library

The Personal Communications library includes the following publications:
- *IBM Personal Communications for Windows, Version 5.5 CD-ROM Guide to Installation*, GC31-8079-06
- *IBM Personal Communications AS/400 for Windows, Version 5.5 CD-ROM Guide to Installation*, GC31-8080-06
- *IBM Personal Communications for Windows, Version 5.5 Quick Beginnings*, GC31-8679-02
- *IBM Personal Communications for Windows, Version 5.5 Access Feature*, SC31-8684-02
- *IBM Personal Communications for Windows, Version 5.5 5250 Emulator User's Reference*, SC31-8837-00
- *IBM Personal Communications for Windows, Version 5.5 3270 Emulator User's Reference*, SC31-8838-00
- *IBM Personal Communications for Windows, Version 5.5 VT Emulator User's Reference*, SC31-8839-00
- *IBM Personal Communications for Windows, Version 5.5 Administrator's Guide and Reference*, SC31-8840-00
- *IBM Personal Communications for Windows, Version 5.5 Emulator Programming*, SC31-8478-05
- *IBM Personal Communications for Windows, Version 5.5 Client/Server Communications Programming*, SC31-8479-05
- *IBM Personal Communications for Windows, Version 5.5 System Management Programming*, SC31-8480-05
- *IBM Personal Communications for Windows, Version 5.5 CM Mouse Support User's Guide and Reference*
- *IBM Personal Communications for Windows, Version 5.5 Host Access Class Library*, SC31-8685-02

- *IBM Personal Communications for Windows, Version 5.5 Configuration File Reference*, SC31-8655-04

These books are also available (except in DBCS versions) in PDF format and are optionally installed or viewed from the CD-ROM.

In addition to the printed books, there are HTML documents provided with Personal Communications:

*Host Access Class Library for Java*
> This HTML document describes how to write an ActiveX/OLE 2.0–compliant application to use Personal Communications as an embedded object.

*Host Access Beans for Java*
> This HTML document describes Personal Communications emulator functions delivered as a set of Java Beans.

# Part 1. General Information

# 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.

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:

- **System/390® Connections**
  - **LAN**    LAN via IEEE 802.2
    - 3270 NWSAA or Communications Server for Windows NT®
    - Telnet3270
    - 3270 via AS/400
    - 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 AS/400
    - Dependent Logical Unit Requester (DLUR)
  - **SDLC**   Synchronous Data Link Control
    - 3270 via AS/400 (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 AS/400 (passthru)
APPC 3270 via SDLC
Dependent Logical Unit Requester (DLUR)
X.25 Qualified Logical Link Control
X.25 3270 via AS/400
APPC 3270 via X.25
X.25 DLUR

**API Client**
NetWare for SAA® Client
Communications Server Client
Communications Server

**IBM-EEDLC**
LU (0, 1, 2, 3) via DLUR
APPC 3270

**OEM** LU (0, 1, 2, 3)
3270 via AS/400 (passthru)
APPC 3270
Dependent LU Requester (DLUR)

- **AS/400 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® 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® 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® 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™ 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® Host Print Transform (HPT)
  - PC400 printing supported by the AS/400 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™
  - ActiveX Controls
- **PC400 Client Function**
  - Data transfer
  - PC Organizer
  - Text Assist
  - Enhanced Programmable Terminal User Interface (ENPTUI)

# 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 Locater (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, see "Chapter 7. Log Viewer Functions" on page 53.

## 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 User Services.

   **Component Name**
   The name of a specific part of a function, such as 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 path for the formatted trace file, the Information Bundler will not find the trace information. Copy the trace files to the Personal Communications private subdirectory.

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 directory. By default this file is called 12345.EXE.

# 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

# Chapter 3. Considerations for Using VT Sessions

This chapter contains hints and tips for using VT sessions.

Supplementary information other than the items described in this book may be included in README.TXT 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.

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

# 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 through 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 WordPro are likely to trap. 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 may 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 recommend 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.

## Other 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. You can increase the size of the virtual memory paging file on Windows NT as follows:

### For Windows NT and Windows 2000

1. Click **Start** → **Settings** → **Control Panel**.
2. On the Control Panel, double-click on the **System** icon.
3. Select the Performance tab on the System Properties panel and then click **Change** .
4. Select the appropriate drive and increase the maximum size value.
5. Click **Set** to establish the new size.
6. Click **OK** on the Virtual Memory panel.
7. Click **Close** on the System Properties panel.
8. You will be prompted to restart your computer. You should close any open applications and restart your computer.

## Emulator Session Icons

Emulator session icons that were not migrated during installation of Personal Communications Version 5.5 will not function correctly if they were not created in the application data directory specified during installation of Version 5.5. 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

## Migrating from Windows 95 or Windows 98 to Windows NT or Windows 2000

On Windows NT or Windows 2000, Personal Communications installs itself as an entry in the Common area of the Start/Programs menu (that is, below the split line on the Programs menu). Personal Communications for Windows 95 or Windows 98 places itself in the Private area of the Programs menu—above the split line on the Programs menu. When you install Personal Communications on a machine where Personal Communications Version 4.1 for Windows 95 or Windows 98 was previously installed, the Personal Communications for Windows 95 or Windows 98 icons will not automatically be removed from the Private area of the Programs menu. You can manually remove these icons by clicking the **Taskbar** with the right mouse button and clicking **Properties** → **Start Menu Programs** → **Remove**.

## 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 5.5 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. VT Emulation

For connection to ASCII hosts, Personal Communications provides the **VT Emulator** for VT340, VT100, and VT52 terminals. ASCII hosts commonly use these terminal control sequences as standards for session presentation, and many ASCII-host application programs assume a VT-compatible terminal. VT emulation allows your personal computer or workstation to operate as if it were a VT terminal. Software that is designed to operate a VT340, VT100, or VT52 terminal should work correctly with the Personal Communications VT emulator.

Although the keyboard layout on VT terminals is similar to that of the personal computer, there are some exceptions. The default mapping of keys for VT emulation appears in the *IBM Personal Communications Version 5.5 Administrator's Guide and Reference*.

For file transfer to and from ASCII hosts, using the XMODEM and YMODEM protocols, see "Using XMODEM and YMODEM" on page 37.

VT connections to non-ASCII hosts, such as the IBM System/390 (S/390) are also possible if you have the appropriate communication devices.

## Configuring a VT Session

Use the **Customize Communication - ASCII Host** panel to select values for the parameters that define your ASCII host session. There are two types of parameters: Session and Link.

### Customizing the VT over Async Attachment

1. Click **Communication** from the WorkStation-window menu bar.
2. Click **Configure...** from the **Communication** menu. The Customize Communication window appears.
3. Select **VT over Async** attachment.
4. Click **Session Parameters**.

   The Session Parameters Host window appears.
5. Set the session parameters (see "Session Parameters" on page 20).
6. Click **Link Parameters**.

   The VT Async Attachment window appears.
7. Set the Communication and Automatic-Dial Facility parameters, and click the **Advanced...** button to set advanced parameters.
8. Click **OK** until the Customize Communication window disappears.

   Customization is complete.

### Customizing the VT over Telnet Attachment

1. Click **Communication** from the WorkStation-window menu bar.
2. Click **Configure...** from the **Communication** menu.

   The Customize Communication window appears.
3. Select the ASCII host and then select the **LAN** or **COM Port** interface.

   The available attachments appear.

4. Select **VT over Telnet** attachment.

5. Click **Session Parameters**.

   The Session Parameters — ASCII Host window appears.

6. Set the Session Parameters (see "Session Parameters").

7. Click **Link Parameters**.

   The TelnetASCII window appears.

8. Enter the host name or IP address.

9. Optionally enter the port number, change the terminal ID, or select the **Auto-reconnect** check box.

10. Click **OK** until the Customize Communication window disappears.

    Customization is complete.

## Session Parameters

These parameters correspond to setup choices on a VT340 terminal.

**Online/Local**

In the **Online** state, the emulator receives data from the host computer, and can send data to it. In the **Local** state, data you enter on the keyboard appears on the screen, but is not sent to the host; data from the host is held, and not presented on the screen until you change the state to **Online**.

**Operating Mode**

Select **Char** if the host does not echo the characters you type on your keyboard. The VT emulator displays them as it sends them to the host.

Select **Echo** if the host echos your keyboard characters for display. The VT emulator displays them only as they return from the host.

If you see doubled characters, you should select **Echo** instead of **Char**. **Echo** is the default.

**Machine Mode**

There are four machine modes. These are:

**VT340 mode, with 7-bit controls**

This is the default. This mode is recommended for most applications.

**VT340 mode, with 8-bit controls**

The emulator is set for an 8-bit environment with 8-bit controls.

**VT100 mode**

This mode is intended for situations requiring strict compatibility with the VT100 terminal. In general, the VT340 7-bit mode is appropriate for applications that expect a VT100.

**VT52 mode**

This mode is only for applications designed for the VT52 terminal.

**Screen Size**

You can choose the number of rows and columns that the session screen displays. The choices are

• Rows: 24, 36, 48, 72, and 144

- Columns: 80 and 132

The defaults are 24 rows and 80 columns.

**Type of Host Code-Page**

The choices are for the host code page are National, PC, and Multinational. Multinational which selects the 8–bit DEC Supplemental Graphic Character Set is the default. If you select National, then you must select a country from the Host Code Page pull-down list. The PC option selects the PC Code Page 437.

**Host Code-Page**

Select a National host code page. The choices are as follows:
- Belgian
- Canadian French
- Danish
- Finnish
- French
- German
- Italian
- Norwegian
- Spanish
- Swedish
- Swiss French
- Swiss German
- United Kingdom
- United States

## Optional Parameters

These parameters correspond to setup choices on a VT340 terminal.

**Reverse Screen Image**

Check this box to reverse the foreground and background colors.

**User Feature Lock**

Check this box to lock the following functions so that the host cannot change them.
- Auto Repeat
- Keyboard Lock
- Reversed Screen Image
- Tab Stops

**Auto Wrap**

Check this box if you want the VT emulator to start a new line whenever the current row of characters reaches the end of line.

**Auto-Answer Back Message**

Check this box if you want the VT emulator to send a message automatically to the host, once a connection has been established.

**Answer Back Message**

Enter the message, which is a maximum of 31 characters, to send to the host when communication is established.

**Conceal**

If you check this box, your answerback message is not displayed in the

configuration window. After you conceal your message, the **Conceal** box has no effect, and the message remains concealed until it is changed.

**User Defined Key Lock**

Check this box to lock user-defined keys. For example, you can select **User Defined Key Lock** and define the values of the F6 to F20 keys. These keys are then locked with those values and cannot be redefined by the host.

**Transparent Mode**

Check this box to cause the VT emulator to display control characters rather than interpreting them.

**VT ID** The attributes of the selected model are sent to the host computer. Choose one of the following: **VT100 ID**, **VT101 ID**, **VT102 ID**, **VT220 ID**, **VT240 ID**, **VT320 ID**, or **VT340 ID**.

**History Window Buffer Size**
You can choose the size of the buffer used to store the history lines for the session; these lines can then be viewed in a scrollable window. The choices are 16KB, 32KB, 64KB, 128KB, and 512KB. The default is 64KB.

## Advanced ASCII Host

The **Advanced** button takes you to the Advanced ASCII Host dialog. The Advanced Options dialog contains all of the configuration options needed for the Local editing feature of VT340 Emulation. The following list defines these configuration options. Default settings are indicated in italic.

**Graphics Cursor**
Determines whether the graphics input cursor is shown when in graphics mode.

**Sixel Scrolling**
When this option is selected, a sixel graphics image scrolls to the next row when the last column is reached.

**MacroGraph Reports**
Controls the ability of the host to retrieve stored macro graph procedures. Possible values are *Enabled* or Disabled.

**Edit Mode**
Selects whether local editing is available and the current mode of operation. Possible values are *Unavailable*, Interactive, or Edit.

**Erasure Mode**
Determines which characters can be erased in edit mode. Possible values are *Unprotected* or All.

**Edit Key**
Determines how the VT340 emulation switches between interactive and edit mode. Possible values are *Immediate* or Deferred.

**Transmit**
Determines how the VT340 emulation sends a block of data to the host system in edit mode. Possible values are *Immediate* or Deferred.

**Application Keys**
Determines how the unshifted function keys F6 through F20 work in edit mode. Possible values are *Disabled*, Immediate, Prefix, or Suffix.

**Guarded Area**
Determines whether protected characters can be sent to the host system. Possible values are *All* or Selected.

**Selected Area**
Determines whether the VT340 emulation can send all characters or only selected characters to the host system. Possible values are *All* or Selected.

**Multiple Area**
Determines whether VT340 emulation can send all selected areas on the page, or only the area selected with the cursor. Possible values are *Multiple* or Single.

**VT131 Transfer**
When **Line Transmit Mode** is disabled, this feature selects an ANSI-style or VT131-style data transmission. The size of the block depends on **Transfer Termination Mode**. Possible values are *ANSI* or VT131.

**EOL Characters**
Allows you to select characters used to indicate the end of a line (EOL) in a data block. By default the VT340 emulation sends a carriage return (CR). Up to six hexadecimal characters can be specified.

**EOB Characters**
Allows you to select characters used to indicate the end of a data block (EOB). This feature has no default. Up to six hexadecimal characters can be specified.

**Page Coupling**
Determines whether to automatically display a new page when the cursor moves to a new page in page memory. Possible values are *Enabled* or Disabled.

**Line Transmit Mode**
Allows you to send characters one line at a time to the host system. Possible values are *Disabled* or Enabled.

**Transfer Termination Mode**
When **Line Transmit Mode** is disabled, this feature determines whether the VT340 emulation sends a partial page or the scrolling region. Possible values are *Enabled* or Disabled.

**Space Compression Mode**
Determines how the VT340 emulation sends unused character fields and spaces in a data block. Possible values are *Disabled* or Enabled.

# Link Parameters

The **Configure Links** button take you to a panel for configuring the details of the connection to the ASCII host computer. The panel you see depends upon the attachment type that you chose for your ASCII host. There are two types:
- VT over Async
- VT over Telnet

## Configuring Links for VT over Async

The VT over Async attachment connects to an ASCII host through a protocol converter, using normal telephone lines or a direct connection.

For VT over Async attachment, you must define the following items.

**Attachment Parameters**
- Communication Port
- Line Speed in bps
- Data Bits
- Parity
- Stop Bits

**Advanced Configuration Parameters**
- Flow Control
- XOFF Point
- Modem Signal Detection
- Break Signal Length

**Additional Configuration Information**
- Automatic-Dial
- Modem Name
- Primary/Backup Phone
- Title
- Configure Phone/Modem
- Automatic-Dial Facility
- Automatic-Dial Utility
- Dial / Stop Dialing
- Hang up
- Manual Dial
- Auto-exit after connection
- Modem-signal indicator

## Attachment Parameters

**Communication Port**

Select the number of the communications port though which your async connection will be established. The choices are COM1, COM2, COM3, and COM4. The default is COM1.

**Line Speed (bps)**

Line speed is the data transmission speed in bits per second.

If you have a 14,400 or 28,800 baud modem, its use of V.42bis compression technology allows you to take advantage of the highest speeds that your system supports. For a 14,400 baud modem, select a line speed of 57,600 or lower; for a 28,800 baud modem, select 115,200 or lower.

If you are not successful with these high speeds, you may need to select a lower line speed. For example, if your COM port does not have a FIFO buffer, you might need to select a lower speed. When a connection attempt fails or is not reliable at a higher speed, try a lower speed.

The default speed is 9600 bps.

The maximum usable speed depends on the capability of the processor or the communication port. If your connection fails, try a slow speed.

If you use the 8250 UART, your line speed should not be higher than 19,200 bps.

**Data Bits**
Select the number of bits that constitute a character, either 7 or 8. Your choice should match the value your ASCII host uses. The default is 8.

**Parity**

Parity is a method for detecting transmission errors. An extra bit is appended to some unit of data, usually a byte. That bit is set to 0 or 1, making the total number of 1 bits an even number (for even parity) or an odd number (for odd parity). The valid parity type is None, Odd, Even, Space, or Mark. None means that no parity bit is sent or expected. Mark and Space mean that the parity position is always set to 1 or 0, respectively, and that received parity is not checked.

Select the same parity used on your remote system.

The default is None.

**Stop Bits**

One or two stop bits signify the end of each asynchronously-transmitted character. Select the same value, 1 or 2, as used by your remote system. The number of stop bits in use may depend upon the line speed. The default is 1.

## Advanced Configuration Parameters
The following advanced configuration parameters are available:

**Flow Control**

Select the method for controlling the flow of data between the emulator and the modem or the ASCII host. The choices are:

**XON/XOFF**
The software flow control method places the characters DC3 and DC1 into the data stream to stop and start the flow of data. This method, no longer common, allows the session user to pause incoming data for reading, by using the Control-S and Control-Q keys. DC3 is X'13', or XOFF; it is initially mapped to Control-S. DC1 is X'11', or XON; it is initially mapped to Control-Q. The keyboard positions are remappable.

**Hardware**
The hardware flow control method uses the electrical signals RTS (Request to Send) and CTS (Clear to Send). If your modem is using high-speed data compression, or if you are performing XMODEM or YMODEM file transfers, this method is mandatory.

**Both**   This method uses both hardware and XON/XOFF flow control; it is the default.

**None**   If you select **None** there is no flow control.

**XOFF Point**

For software flow control, the XOFF point is the level (in bytes) at which the XOFF signal is sent to the modem or ASCII host. The options (64, 256, 512, and 1024) specify the space remaining in the buffer. For example, if you select 64, the XOFF signal is sent when 64 bytes of space remain in the buffer.

**Modem Signal Detection**

Select the method that the VT emulator will use to determine whether data can be sent on the asynchronous line. The options are:

**None** The VT emulator will assume that the line is ready, ignoring CD, CTS and DSR.

**Ignore CD**
The VT emulator will ignore Carrier Detect, which some modems artificially force high. Use this option if your host is connected through a null modem cable; most null modems do not support CD.

**All** The VT emulator will monitor CD, CTS (Clear to Send) and DSR (Data Set Ready).

**Break Signal Length**

The break signal is an intentional framing error on the asynchronous line, used as an attention signal to the host. Some hosts expect the break to be a particular length. The default value is 250 milliseconds. The other options are 500, 1000, and 2000 milliseconds. Select the value required by your host.

## Additional Configuration Information

**Automatic-Dial**
Click **Yes** for Automatic-Dial; then use the **Configure Phone/Modem** if you need to provide more detailed information than is shown. Click **No** if you are using a leased-line connection; you will not use the Automatic-Dial Facility.

**Modem Name**
When running Windows 95, Windows 98, Windows NT, Windows Me, or Windows 2000, the modem information is handled through the operating system control panel modem applet. This drop-down list contains all the modems defined to Windows; select the one you wish to use.

**Primary Phone**
This entry is the primary phone number that should be dialed, in order to gain access to the network. It can include a delay for the dial tone and access codes for an outside line or for long-distance services.

**Backup Phone**
This entry specifies a backup phone number. If you specify a backup number, it is dialed automatically after an attempt to contact the gateway or host through the primary number fails. If you leave this option blank, backup dialing does not happen.

**Title** This optional entry is text to describe the connection that you are configuring. The text will be displayed when the number is dialed, but it has no effect on the connection.

**Configure Phone/Modem**
When Personal Communications is running on Windows 95, Windows 98, Windows NT, Windows Me, or Windows 2000, phone and modem configuration is handled through the operating system's modem utility.

Clicking this button allows you to adjust the details of the modem configurations.

**Automatic-Dial Facility**
The automatic-dial facility establishes a connection to the host when you start a session.

To use the automatic-dial facility, you must store the dial information, telephone numbers, communication-line information and modem-control information in a file. For details, see the online help. The following functions are provided to enable you to create and change a dial-configuration file:

- Configure Phone/Modem
- Automatic-Dial Utility

**Automatic-Dial Utility**

The automatic-dial utility enables you to configure and use the automatic-dial function.

The automatic-dial utility window appears when **Show AutoDial Utility** in the Communication menu (on the session-window menu bar) is selected and the Automatic-Dial Facility starts.

**Dial / Stop Dialing**

This push-button either starts or stops dialing, depending on the current dialing status.

**Dial**    Click **Dial** to dial the specified telephone number and establish a connection.

**Stop Dialing**

Click **Stop Dialing** to stop the dial process immediately.

**Hang up**

Clicking **Hang up** sends the modem-hang-up string and disconnects your PC from the remote computer.

**Manual Dial**

**Manual Dial** enables you to use a nonpublic telephone line or operator assist to dial the number.

**Auto-exit after connection**

Choose **Auto-exit after connection** if you want the automatic-dial utility window to close after a connection is established. The window will otherwise remain open.

**Modem-signal indicator**

On Windows 95, Windows 98, Windows NT, Windows Me, and Windows 2000 systems, use the operating system's modem utility to monitor modem signals.

# Configuring Links for VT over Telnet

The VT over Telnet attachment is an application that uses TCP/IP (Transmission Control Protocol/Internet Protocol) and that enables remote logon to an ASCII host. TCP/IP provides connectivity functions for both local area networks (LAN) and wide area networks (WAN) and includes the ability to route information between LANs and WANs. The major TCP/IP networks—the Internet—use a standardized addressing procedure to ensure that IP addresses are unique and that communication between enterprises is possible.

The VT over Telnet attachment for Personal Communications requires a TCP/IP stack that supports the Windows Sockets Version 1.1 interface. WSOCK32.DLL must be in the Windows system directory or the current path to provide the interface for the stack program and to support the Windows Sockets V1.1 interface.

For the VT over Telnet attachment, you must define the following attachment parameters.

- Host Name or IP Address (mandatory)
- Port Number (optional)
- Terminal ID (optional)
- Auto-reconnect (optional)

**Host Name or IP Address**

Specify either the alphabetic name of the target host or its numeric IP address.

**Host Name**

The name of the target host is a string—for example: host.test.ibm.com

**Host IP Address**

The 32-bit Internet address of the target host is in dotted-decimal notation—for example: 0.0.0.0

**Port Number**

Specify the decimal number of the target host's Telnet port. The default, 23, is the standard Telnet port.

**Terminal ID**

The VT emulator and the Telnet server use the terminal ID for negotiating an appropriate connection. Ask your Telnet administrator for your host's correct terminal ID. When the default box is selected, the default values are selected from the Machine Mode, as shown in the following table:

| Machine Mode | Default Terminal ID |
|---|---|
| VT340 | DEC-VT220 |
| VT100 | DEC-VT100 |
| VT52 | DEC-VT52 |
| ANSI | ansi |

**Auto-reconnect**

If the session is disconnected from the host, and if this box is selected, you will be re-connected automatically.

The default is not selected.

# Using A VT Session

Your Personal Communications VT session works as if you were using a VT340, VT100, or VT52 terminal. For AS/400 or mainframe VT connections, the protocol converters have defined VT keyboard sequences, such as F1 or PA1.

The following tables are provided:

- Characters generated by VT Compose Key
- Characters displayed in transparent mode
- OIA line display messages

Refer to the *Administrator's Guide and Reference* for default mapping of the VT340 keyboard to the PC keyboard, as used by the Personal Communications VT emulator.

## Compose Key

The VT emulator supports the VT340 compose key for generating special characters on the display. Before using the compose key, define a key combination that represents it.

Using the compose key involves three separate actions:
1. Press and release the compose key.
2. Press and release the first character (see Table 1).
3. Press and release the second character.

The first and second characters may be typed in either order, except when the table specifies that they must be entered as shown,

Table 1 shows the appearance and name of each special character, the character pair that generates the character, and an indication whether the order of entering the characters is significant.

*Table 1. Character Generation (Special Characters)*

| Generated Character | | Compose Key, Plus This Pair | | |
|---|---|---|---|---|
| **Appearance** | **Description** | **First** | **Second** | **Order** |
| Á | A acute | A | ' | either |
| á | a acute | a | ' | either |
| Â | A circumflex | A | ˆ | either |
| â | a circumflex | a | ˆ | either |
| À | A grave | A | | either |
| à | a grave | a | | either |
| Å | A ring | A | * | either |
| | | A | ° | either |
| å | a ring | a | * | either |
| | | a | ° | either |
| Ã | A tilde | A | | either |
| ã | a tilde | a | | either |
| Ä | A umlaut | A | " | either |
| ä | a umlaut | a | " | either |
| Æ | AE ligature | A | E | as shown |
| æ | ae ligature | a | e | as shown |
| ´ | apostrophe | ' | space | either |
| @ | at sign | a | a | either |
| | | A | A | either |
| \ | backslash | / | / | either |
| \ | backslash | / | < | either |
| Ç | C cedilla | C | , | either |
| ç | c cedilla | c | , | either |

*Table 1. Character Generation (Special Characters)  (continued)*

| Generated Character | | Compose Key, Plus This Pair | | |
|---|---|---|---|---|
| Appearance | Description | First | Second | Order |
| ¢ | cent sign | c | / | either |
| | | C | / | either |
| | | c | \| | either |
| | | C | \| | either |
| ˆ | circumflex accent | ˆ | space | either |
| } | close brace | ) | - | either |
| ] | close bracket | ) | ) | either |
| » | close French quote | > | > | either |
| @ | commercial at | a | a | either |
| | | A | A | either |
| © | copyright mark | c | o | either |
| | | C | O | either |
| | | c | 0 | either |
| | | C | 0 | either |
| ° | degree sign | 0 | ˆ | either |
| | | ° | space | either |
| | | # | space | either |
| É | E acute | E | ' | either |
| é | e acute | e | ' | either |
| Ê | E circumflex | E | ˆ | either |
| ê | e circumflex | e | ˆ | either |
| È | E grave | E | | either |
| è | e grave | e | | either |
| Ë | E umlaut | E | " | either |
| ë | e umlaut | e | " | either |
| a̲ | feminine ordinal indicator | a | _ | either |
| | | A | _ | either |
| ½ | fraction one-half | 1 | 2 | as shown |
| ¼ | fraction one-quarter | 1 | 4 | as shown |
| ß | German ess-tset | s | s | either |
| µ | Greek mu | / | u | as shown |
| | | / | U | as shown |
| » | guillemets, closing | > | > | either |
| « | guillemets, opening | < | < | either |
| Í | I acute | I | ' | either |
| í | i acute | i | ' | either |
| Î | I circumflex | I | ˆ | either |
| î | i circumflex | i | ˆ | either |
| Ì | I grave | I | | either |

*Table 1. Character Generation (Special Characters)  (continued)*

| Generated Character | | Compose Key, Plus This Pair | | |
|---|---|---|---|---|
| Appearance | Description | First | Second | Order |
| ì | i grave | i | ` | either |
| Ï | I umlaut | I | " | either |
| ï | i umlaut | i | " | either |
| ¡ | inverted exclamation | ! | ! | either |
| ¿ | inverted question mark | ? | ? | either |
| º | masculine ordinal indicator | o | _ | either |
| | | O | _ | either |
| µ | micro sign | / | u | as shown |
| | | / | U | as shown |
| · | middle dot | . | ˆ | either |
| Ñ | N tilde | N | ~ | either |
| ñ | n tilde | n | ~ | either |
| # | number sign | + | + | either |
| Ó | O acute | O | ' | either |
| ó | o acute | o | ' | either |
| Ô | O circumflex | O | ˆ | either |
| ô | o circumflex | o | ˆ | either |
| Ò | O grave | O | ` | either |
| ò | o grave | o | ` | either |
| Ø | O slash | O | / | either |
| ø | o slash | o | / | either |
| Õ | O tilde | O | ~ | either |
| õ | o tilde | o | ~ | either |
| Ö | O umlaut | O | " | either |
| ö | o umlaut | o | " | either |
| Œ | OE ligature | O | E | as shown |
| œ | oe ligature | o | e | as shown |
| { | open brace | ( | - | either |
| [ | open bracket | ( | ( | either |
| « | open French quote | < | < | either |
| ¶ | paragraph sign | p | ! | either |
| ± | plus-or-minus sign | + | - | either |
| £ | pound sterling sign | l | - | either |
| | | L | - | either |
| | | l | = | either |
| | | L | = | either |
| " | quotation mark | " | space | either |

*Table 1. Character Generation (Special Characters)  (continued)*

| Generated Character | | Compose Key, Plus This Pair | | |
|---|---|---|---|---|
| **Appearance** | **Description** | **First** | **Second** | **Order** |
| § | section sign | s | o | either |
| | | S | O | either |
| | | s | ! | either |
| | | S | ! | either |
| | | s | 0 | either |
| | | S | 0 | either |
| ' | single quote | ' | space | either |
| ß | ss German | s | s | either |
| ¹ | superscript 1 | 1 | ^ | either |
| ² | superscript 2 | 2 | ^ | either |
| ³ | superscript 3 | 3 | ^ | either |
| | tilde | | space | either |
| Ú | U acute | U | ' | either |
| ú | u acute | u | ' | either |
| Û | U circumflex | U | ^ | either |
| û | u circumflex | u | ^ | either |
| Ù | U grave | U | | either |
| ù | u grave | u | | either |
| Ü | U umlaut | U | " | either |
| ü | u umlaut | u | " | either |
| | | vertical line | / | ^ | either |
| Ÿ | Y umlaut | Y | " | either |
| ÿ | y umlaut | y | " | either |
| ¥ | yen sign | y | - | either |
| | | Y | - | either |
| | | y | = | either |
| | | Y | = | either |

## Transparent Mode

Table 2 shows the symbol displayed for each character and control code when the VT emulator is in transparent mode. The characters at AA and BA are the feminine and masculine ordinals, respectively. The characters at 1E, 1F, 80, and 9E are underlined, although they may not appear underlined on the output.

*Table 2. Character Generation (Transparent Mode)*

| | 0x | 1x | 2x | 3x | 4x | 5x | 6x | 7x | 8x | 9x | Ax | Bx | Cx | Dx | Ex | Fx |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| x0 | @ | P | | 0 | @ | P | | p | | p | Ÿ | ° | À | Đ | à | ð |
| x1 | A | Q | ! | 1 | A | Q | a | q | a | q | ¡ | ± | Á | Ñ | á | ñ |
| x2 | B | R | " | 2 | B | R | b | r | b | r | ¢ | ² | Â | Ò | â | ò |
| x3 | C | S | # | 3 | C | S | c | s | c | s | £ | ³ | Ã | Ó | ã | ó |

Table 2. Character Generation (Transparent Mode)  (continued)

|     | 0x | 1x | 2x | 3x | 4x | 5x | 6x | 7x | 8x | 9x | Ax | Bx | Cx | Dx | Ex | Fx |
|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| x4 | D̲ | T̲ | $ | 4 | D | T | d | t | d̲ | t̲ | ¤ | ´ | Ä | Ô | ä | ô |
| x5 | E̲ | U̲ | % | 5 | E | U | e | u | e̲ | u̲ | ¥ | µ | Å | Õ | å | õ |
| x6 | F̲ | V̲ | & | 6 | F | V | f | v | f̲ | v̲ | ¦ | ¶ | Æ | Ö | æ | ö |
| x7 | G̲ | W̲ | ' | 7 | G | W | g | w | g̲ | w̲ | § | · | Ç | × | ç | ÷ |
| x8 | H̲ | X̲ | ( | 8 | H | X | h | x | h̲ | x̲ | ¨ | ¸ | È | Ø | è | ø |
| x9 | I̲ | Y̲ | ) | 9 | I | Y | i | y | i̲ | y̲ | © | ¹ | É | Ù | é | ù |
| xA | J̲ | Z̲ | * | : | J | Z | j | z | j̲ | z̲ | ª | º | Ê | Ú | ê | ú |
| xB | K̲ | [̲ | + | ; | K | [ | k | { | k̲ | {̲ | « | » | Ë | Û | ë | û |
| xC | L̲ | \̲ | , | < | L | \ | l | \| | l̲ | \|̲ | ¬ | ¼ | Ì | Ü | ì | ü |
| xD | M̲ | ]̲ | - | = | M | ] | n | } | m̲ | }̲ | – | ½ | Í | Ý | í | ý |
| xE | N̲ | ^̲ | . | > | N | ^ | m |   | n̲ |   |   | ¾ | Î | Þ | î | þ |
| xF | O̲ | _̲ | / | ? | O | _ | n | Œ | o̲ | œ | ‾ | ¿ | Ï | ß | ï | ÿ |

## OIA Line Display Messages

During VT emulation, messages unique to VT can appear in certain columns of the OIA line. These columns display only VT messages, and do not display any of the messages that would appear there in 3270 or 5250 mode. Table 3 shows the meaning of each VT-specific message. Columns that are not mentioned in the table show messages common to all Personal Communications modes.

Table 3. OIA Line Display Messages (VT only)

| Columns | Message | Meaning |
|---------|---------|---------|
| 1 through 7 | VT340 7 | Machine mode is VT340, seven-bit control. |
|  | VT340 8 | Machine mode is VT340, eight-bit control. |
|  | VT100 | Machine mode is VT100. |
|  | VT52 | Machine mode is VT52. |
|  | VTANSI | Machine mode is VTANSI. |
| 9 through 12 | LOCK | Keyboard is locked. |
| 30 through 39 | OVERSTRIKE | New characters replace the character at the cursor position in Local Edit mode. |
|  | INSERT | New characters move characters in page memory to the right in Local Edit mode. |
| 61 through 64 | HOLD | Screen is in hold mode. |
| 66 through 69 | EDIT | Local Edit mode is enabled. |
| 71 through 72 | Pn (n=1 through 6) | Current page number. |

## Scrollable History Display

Depending on the size of the history buffer set (see "Configuring a VT Session" on page 19) for your session, you can use the Windows scroll bar control to view history data from the current session.

# 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

## Setting the VT Keyboard Layout Default

To make the VT 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 the VT Emulator Layout

Table 4 shows the default key functions for VT220, VT100 and VT52. The key used is the same for all the supported keyboard types. The VT emulator keyboard gets selected as the default only when the VT Component is selected in the installation path.

*Table 4. Default Key Functions for a VT Emulator Layout*

| Function of Key | Key |
|---|---|
| Backspace | ← (Backspace) |
| Break | Ctrl+Pause |
| CAN | Ctrl+← (Backspace) |
| Cursor Down | ↓ or 2(pad) |
| Cursor Left | ← or 4(pad) |
| Cursor Right | → or 6(pad) |
| Cursor Up | ↑ or 8(pad) |
| Edit Copy | Ctrl+Insert |
| Edit Cut | Shift+Delete |
| Edit Paste | Shift+PageDown or Ctrl+Shift+Insert |
| Edit Undo | Alt+← (Backspace) |
| ESC | ESC |
| Jump Next | Alt+PageUp |
| New Line | ↵ (Enter) |
| Mark Down | Shift+↓ |
| Mark Left | Shift+← |

*Table 4. Default Key Functions for a VT Emulator Layout  (continued)*

| Function of Key | Key |
| --- | --- |
| Mark Right | Shift+→ |
| Mark Up | Shift+↑ |
| Move Mark Down | Ctrl+↓  or<br>Ctrl+2(pad) |
| Move Mark Left | Ctrl+←  or<br>Ctrl+4(pad) |
| Move Mark Right | Ctrl+→  or<br>Ctrl+6(pad) |
| Move Mark Up | Ctrl+↑  or<br>Ctrl+8(pad) |
| PF6 to PF12 | F6 to F12 |
| PF13 to PF20 | Shift+F1 to F8 |
| Rule | Ctrl+Home |
| Tab Field | →|  or Shift+→| |
| VT Enter | Shift+Enter(pad) |
| VT Find | End²  or<br>1(pad) |
| VT Hold | Pause |
| VT Insert | Insert or 0(pad) |
| VT Next | Page Down²  or<br>3(pad) |
| VT Numpad 0 to VT Numpad 9 | Shift+0(pad)  to<br>Shift+9(pad) |
| VT Numpad Comma | Shift++(pad) |
| VT Numpad Minus | -(pad) or Shift+-(pad) |
| VT Numpad Period | Shift+.(pad) |
| VT PF1 to VT PF4 | F1 to F4 |
| VT Prev | Page Up²  or<br>9(pad) |
| VT Remove | Delete  or  .(pad) |
| VT Select | Home²  or<br>7(pad) |
| VT User F6 to VT User F12 | Ctrl+F6 to F12 |
| VT User F13 to VT User F20 | Ctrl+Shift+F1 to F8 |

| | |
| --- | --- |
| ² | Indicates the key on the main keyboard. |
| (*pad*) | Indicates a key on the numeric keypad. |

**Note:** 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, *Del* means any Delete key, whereas *Pad Del* specifies
only the Delete key on the numeric keypad.

# Chapter 5. ASCII Host File Transfer

## Setting Preferences

You can set up your Workstation to perform file transfers; some preferences need to be set first, as described in this section. Other facilities to simplify handling of transfers are also described.

## Using XMODEM and YMODEM

Personal Communications allows you to transfer files to and from ASCII hosts that support the XMODEM and YMODEM protocols. In order to use XMODEM or YMODEM, you must have established a connection to an ASCII host.

For file transfer over asynchronous lines, you must select eight data bits and hardware flow control. See "Configuring Links for VT over Async" on page 23 for details.

### Choosing a Protocol

You have four choices for protocols. The one you select will depend upon the protocols supported by your ASCII host and by your particular requirements. The following table shows the capabilities of the protocols:

| | Downloading | | Uploading | |
|---|---|---|---|---|
| | **Single File** | **Multiple Files** | **Single File** | **Multiple Files** |
| XMODEM | Yes | No | Yes | No |
| XMODEM1K | Yes | No | Yes | No |
| YMODEM | Yes | Yes | Yes | Yes |
| YMODEMG | Yes | Yes | Yes | Yes |

**XMODEM**

The XMODEM protocol is a single-file half-duplex protocol that performs error checking. Data is transmitted in 128-byte packets. Error checking, either by CRC or by checksum, occurs automatically. The Personal Communications implementation of XMODEM first tries CRC. If the sender fails to acknowledge the first three requests for CRC, XMODEM shifts to the checksum mode.

**XMODEM1K**

The XMODEM1K protocol is the same as XMODEM, except that it always uses CRC and has a larger packet size of 1024 bytes. Because some hosts are not able to handle the 1024-byte packets, there is a need for both XMODEM and XMODEM1K

**YMODEM**

The YMODEM protocol is similar to XMODEM, but it allows you to send multiple files in a single transfer. You may use a set of unique file names, or you may specify groups of files.

**YMODEMG**

The YMODEMG protocol is the same as YMODEM, supporting multiple files, but it does not supply error checking. It assumes that the data always transfers correctly, and is only for use with error-correcting modems. For large amounts of data it can achieve much greater throughput than YMODEM because it does not wait for packet acknowledgment.

### XMODEM and XMODEM1K
To use XMODEM, click **Edit → Preference → Transfer** in your Personal Communications session. The Transfer Preferences window appears. Select the **XMODEM** or **XMODEM1K** protocol, and optionally click on the tab for the selected modem protocol to define the **Transfer Type** or to change advanced settings.

When receiving a file, in the Receive File from Host dialog box, enter the file name in the **PC File** field or select a personal computer file name from the drop-down listbox. The transfer type is automatically generated according to the templates.

### YMODEM and YMODEMG
To use YMODEM, click **Edit → Preference → Transfer** in your Personal Communications session. The Transfer Preferences window appears. Select the **YMODEM** or **YMODEMG** protocol, and optionally click on the tab for the selected modem protocol to define the **Transfer Type** or to change advanced settings.

When receiving a file, you cannot select the personal computer file name, but you can change the default transfer type, the drive, and the directory, if necessary.

## 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. 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 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.

## 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.

## 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. The original default types

are: **delete** (deletes a file on abort), **over** (overwrites existing files) and **none** (does not delete on abort, and does not overwrite).

To add or change transfer types:

1. Click **Edit → Preference → Transfer**.
2. Click the tab for the modem protocol you have selected. The items that appear depend on the selected host system.
3. Enter transfer-type names in the **Transfer-Type** text box, or select them from the drop-down list.
4. To add or replace a transfer type, click **Save**. To delete a transfer type, click **Delete**.
5. Depending on the transfer type, select one of the following file receive options:

   **Delete File on Abort**
   > With this option, if a file transfer is aborted then the incompletely received file is automatically deleted.

   **Overwrite Existing File**

   > With this option, any existing file with the same name as the incoming file is overwritten.

   > If you do not select this option, then a new name is given to the incoming file, according to the following scheme:

| | |
|---|---|
| Existing file: | EXAMPLE.TXT |
| First contender becomes: | EXAMPLE.TX1 |
| Second contender: | EXAMPLE.TX2 |
| Tenth contender: | EXAMPLE.T10 |
| Hundredth contender: | EXAMPLE.100 |
| 999th contender: | EXAMPLE.999 |

6. Click **OK**.

These options are independent of each other.

# File Transfer Templates

For sending ASCII files, Personal Communications automatically generates Host file names and transfer types. For receiving ASCII files via XMODEM and XMODEM1K, Personal Communications generates a transfer type. In both situations, templates define the rules for file name and transfer type generation.

## Defining Templates
The templates are common for all sessions and are used for both sending and receiving files. For ASCII host file transfer, you can define up to three templates for each protocol.

To display the templates panels, click the **Templates** button in the **Send File to Host** or **Receive File from Host** panel.

You can add, delete, or replace templates; you can also test templates to see how Personal Communications generates the target file name and transfer type.

When defining templates, you can use * (asterisk) for the global searching of file names; for example, *.EXE for all files that have a file name extension of EXE.

### Automatic Generation of File Names

The templates are numbered from 1 to 32; when Personal Communications generates file names, the templates are searched, starting from 1, and the first template that matches is used.

### Example of ASCII Protocol Template

The following example shows the use of templates for ASCII host file transfer. When sending files, Personal Communications automatically generates a host file name from a personal computer file name, and vice versa. It also generates a transfer type. When receiving files, Personal Communications automatically generates only transfer types, and only for the XMODEM and XMODEM1K protocols.

For more information about templates, refer to the *Administrator's Guide and Reference*.

Following are the definitions of the three default templates. The template is selected from the available choices by matching the name of the file being transmitted or received against each template's file specifications.

| Template Number | Wildcard specification for PC File | Wildcard specification for host File | Type |
|---|---|---|---|
| 1 | *.exe | *.* | delete |
| 2 | *.txt | *.* | over |
| 3 | *.* | *.* | none |

**Send Example:** If you enter `program.exe`, Personal Communications selects template 1, and displays `program.exe delete` in the list box.

**Receive Example:** (XMODEM AND XMODEM1K only) If you enter `program.exe`, Personal Communications selects template 1, and displays `program.exe delete` in the list box.

## Working with Lists of Files

For transferring a group of files it is convenient to use a list. A list makes it easier to transfer the same groups of files frequently, with a single command. Even if you are transferring a group of files only once, a list can help prevent errors. A list of files is itself a file.

You can transfer multiple files at once by using the send/receive list; it is accessible from the Send Files to Host or Receive Files from Host windows. For either window, the files selected are displayed in a **Transfer List**. This list can be saved, and later retrieved and modified. For instructions on selecting a file, see "Receiving Files From an ASCII Host" on page 41 and "Sending Files to an ASCII Host" on page 42.

### File Name Extension for List Files

By default, send/receive list files have a file name extension of .SRL. You can change this default on the property page with the **General** tab, by clicking **Preferences → Transfer** from the **Edit** menu.

**Note:** Personal Communications does not recognize a file as a send/receive list file unless its name has the specified extension.

### Remove From List

By clicking the **Remove** button, you can delete the selected file from a send/receive list.

### Open List File

If you click the **Open List** button, the Open File-Transfer List File dialog box appears, allowing you to manipulate the file names in the list.

### Save List File

If you click the **Save** button, the Save File-Transfer List File As dialog-box appears and you can save the list of files.

### Changing a List of Files

You can make changes to a list of files to be transferred:

**Change the Personal Computer or Host File Name:** When you select a file to send or receive, Personal Communications automatically generates a host or personal computer file name by using templates. To change the generated file name, just type over it.

**Note:** When receiving a file from an ASCII host, you specify the host file name on the host system.

For receiving files, you can select a personal computer file from the dialog obtained by clicking the **Browse** button.

**Note:** The browse function is not available when *receiving* files from an ASCII host; it is available when sending files, but only when using the YMODEM or YMODEMG protocols.

**Delete File Names From List:** To delete a file from the list, select it from the list and click the **Remove** button.

**Add More File Names To List:** To add more files to the list, select a file in the **PC File** list box with Ctrl + left mouse-button, or type a file name in the **PC File** entry field and press Enter.

## Receiving Files From an ASCII Host

**Receive File From Host** allows you to receive files from a host system to your personal computer; with one command, you can receive a single file or several. If you often receive the same list of files, you can save the list of file names and receive all the files with one command.

For ASCII host file transfer, the host system must support one of two protocols, XMODEM or YMODEM.

### Selecting a Workstation Directory

To receive files to a workstation directory, you can key in the directory information or click the **Browse** button to open the Browse dialog and select the directory; this can be done as part of setting preferences (setting the **Default PC Directory** field) or at the time of the file transfer.

## Selecting Files to Receive

For ASCII host file transfer, select the file to receive on the host system.

Follow these steps to receive one or more files from an ASCII host:

1. For the COM port interface (VT over Async attachment only), set the **Flow Control** to **Hardware**. To display the window for setting flow control, follow these steps:

   a. Click **Configure** from the **Communication** menu in an active session; or click **Programs** → **IBM Personal Communications** → **Start or Configure Sessions** from the Windows **Start** menu. Start the desired profile from the Session Manager, then click the **Configure** button. The **Customize Communication** window appears.

   b. Click the **Link Parameters** button. The **VT Async Attachment** window appears.

   c. Click the **Advanced** button to display a second attachment window with the **Flow Control** field; select **Hardware**.

   d. Click **OK** in each window successively to return to your Personal Communications session window.

2. Prepare the host system. The exact method of preparation, including selection of file names, depends on the kind of host system to which you are connected. Contact your host-system administrator for details.

   **Note:** The host system must support one of two protocols: XMODEM or YMODEM.

3. Click **Edit** → **Preference** → **Transfer** to display the Transfer Preferences window. Select the type of protocol you want to use from the drop-down list box on the property page with the **General** tab.

4. In the **Default PC Directory** field, type the workstation directory where the file or files should be sent; or, click the **Browse** button to open a dialog and select the directory.

5. To change the transfer parameter defaults for the protocol you selected, click the tab to display the property page for the selected modem protocol.

6. When all preferences have been set, click **OK**.

7. Click **Receive File from Host** from the **Actions** menu. The **Receive File from Host** window appears.

8. For XMODEM and XMODEM1K, click the **Browse** button to open a dialog and select a personal computer file name or names, or enter the names in the **PC File** entry field. The transfer type is automatically generated and appears in the **Transfer Type** entry-field.

9. For YMODEM and YMODEMG, select the transfer type and click the **Browse** button to open a dialog and change the directory, if you desire.

10. Click the **Receive** button to display the **Receive Files Status** window and start the transfer.

## Sending Files to an ASCII Host

Send file to host allows you to send files from your personal computer to the host system; with one command, you can send a single file or several files. If you often send the same list of files, you can save the list of file names, and subsequently send all the files with one command.

**Note:** This is supported using the YMODEM and YMODEMG protocols only.

## Selecting Files to Send

There are several ways to select files to send:

### Basic Methods

Type a file name in the **PC File** field and press Tab; a host file name and a transfer type are generated automatically according to the templates.

Select files from the dialog obtained by clicking the **Browse** button.

### Select From a Send/Receive List

If you have saved a list of file names in a send/receive list, click the **Open List** button and select the list you want to use; the file names saved in the list appear.

**Note:** For ASCII host file transfer, you can use the send/receive list only with the YMODEM and YMODEMG protocols (not with XMODEM or XMODEM1K).

### Advanced Method

The Browse window, obtained by clicking the **Browse** button, displays all the files in the current directory; you can display only certain types of files if you want to.

For example, if the directory has many files and you want to display only files that have the extension .DOC, you can type `*.doc` in the **PC File** field and click the **Browse** button; the resulting dialog shows only files that have the extension .DOC.

## Changing the Host File Name or the Transfer Type

When you select a file to send, Personal Communications automatically generates a host file name and selects a transfer type from the default templates. You can change the file name by typing over the text in the **Host File** field; you can change the transfer type by selecting a different one from the **Transfer Type** drop-down list.

## Saving a List of Files to Send

If you frequently send the same set of files, it is a good idea to save the names in a list, called a send/receive list.

**Note:** For ASCII host file transfer, you can use the send/receive list only with the YMODEM or YMODEMG protocols (not with XMODEM or XMODEM1K).

## Sending a List of Files

Select the list, then click the **Send** button.

# 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.

# Chapter 6. Printing

You can use Personal Communications to print from 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.

**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.

## 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.

### 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.

# 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 5. Page Setup Parameters — Text*

| Parameter | Description |
|---|---|
| **CPI** | 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. |
| **LPI** | 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. |
| **Maximum Number of Lines per Page** | 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. |
| **Maximum Number of Characters per Line** | 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. |
| **Font** | Lists, in the list box, the 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. |
| **Notes:** | |
| 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 6. Page Setup Parameters — Text Options*

| Group | Options | Setting |
|---|---|---|
| **Print Options** The following options can be selected as print options. These options are not available for the printer session. | **Suppress null lines** | 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.<br><br>**Selected**<br>    Null lines are not printed.<br><br>**Not selected**<br>    Null lines are printed.<br><br>This option can be used when:<br>• The **Print Screen** command is used<br>• LU type 3 printing, or non-SNA printing is done<br>• The combination of bits 2 and 3 of the WCC is not 00. |
| | **Print nulls as spaces** | Determines whether to print NULL control codes as null characters.<br><br>**Selected**<br>    The codes are printed as blanks.<br><br>**Not selected**<br>    The codes are treated as null characters.<br><br>This option can be used when:<br>• The **Print Screen** command is used<br>• LU type 1 or 3 printing, or non-SNA printing is done. |

*Table 6. Page Setup Parameters — Text Options  (continued)*

| Group | Options | Setting |
|---|---|---|
| | **Ignore FF when at first print position** | Determines whether to ignore the FF code at the beginning of the buffer address.<br><br>**Selected**<br>     The FF code is ignored and not executed.<br><br>**Not selected**<br>     The FF code is executed.<br><br>This option can be used when:<br>• The **Print Screen** command is used<br>• LU type 1, LU type 2, LU type 3, or non-SNA printing is done.<br><br>This option cannot be used in 5250 sessions. |
| | **FF takes a print position if followed by data** | Determines whether to print null characters if data follows the FF code.<br>**Selected**<br>     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.<br>**Not selected**<br>     FF is executed, and the next data is printed at the beginning of the first line on the next page.<br><br>This option can be used when:<br>• The **Print Screen** command is used<br>• Host initiated local copy and LU type 3 printing, or non-SNA printing is done<br>• In both PDT and standard modes<br><br>This option cannot be used in 5250 sessions. |

*Table 6. Page Setup Parameters — Text Options  (continued)*

| Group | Options | Setting |
|-------|---------|---------|
| **Suppress auto new line when:** | **CR at maximum print position +1** | Determines whether to perform automatic new line when CR is the maximum number of columns to be printed away from the first column.<br>**Selected**<br>    Automatic new line is not done. The characters after the CR code are printed on the same line.<br>**Not selected**<br>    Automatic new line is done.<br>    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.<br><br>This option cannot be used for 5250 sessions. |
|  | **NL at maximum print position +1** | **Selected**<br>    Automatic new line is not done.<br><br>**Not selected**<br>    After automatic new line is done, new line is done again.<br><br>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.<br><br>This option cannot be used in 5250 sessions. |
| **Form Feed Position**<br>**Note:** 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. |

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.

# Chapter 7. Log Viewer Functions

The Personal Communications log viewer utility enables you to view, merge, sort, search, and filter information contained in message and trace logs. You can use the viewer during problem determination 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. Note that the Help per Message Log Item functionality is available only for message logs.

## Viewing Message and Trace Logs

To view message or trace logs:
1. From the **Administrative and PD Aids** folder, click **Log Viewer**; or, from an active session window, click **Actions → Launch → Log Viewer**.
2. From the list of logged messages, click on one of the details on the log entry in the bottom pane.

**Note:** If the logger device driver determines that the product kernel driver-generated log is full and cannot log a message, it will create an entry in the Windows log. The information logged may include which log failed, as well as the location and reason for the failure.

## Changing Message Log Size and Location

The Personal Communications log viewer utility allows you to modify the size and location of message log files, and change the name of the default message log file. The size of a log file is counted in kilobytes and can range from a minimum of 4Kb to a maximum limited only by available hard disk space.

To modify the location and size of the log:
1. From the **Log Viewer** main menu, click **Options** and then click **Configure Message Log Settings...** A Windows common dialog box is displayed.
2. From the dialog box, browse the directory structure and choose the destination directory and file name for the message log.
3. Using the spin control counter field, use the up and down arrows to increase or decrease the log file size (in kilobytes).
4. Select **OK** to save settings and exit the window.

## Merging Message and Trace Logs

The Personal Communications log viewer utility allows you to open and merge message and trace log entries in the same log viewer window. You can merge any combination of message and trace log files.

- .MLG into .TLG
- .TLG into .TLG
- .TLG into .MLG
- .MLG into .MLG

To merge message and trace log files:
1. From the Log Viewer window, select the message or trace log file window where the files will be merged.
2. Click the **File** menu, then click **Merge** and choose a file to be merged.

## Sorting Message and Trace Logs

The Personal Communications log viewer utility allows you to sort message and log files in ascending and descending order. To sort files in ascending order, click the column header one time, or right mouse click the data. Click the column header, or right mouse click the data a second time to sort in descending order.

Message and logs can also be sorted by selecting the data to be sorted, and right mouse clicking to display the pop-up menu. Click **Sort**.

## Searching Personal Communications Logs

To search the log files, click **Edit → Find** on the **Main** menu.

Type your search string in the provided box. You can refine your search by checking the **Match case** check box if your search is to be case-specific. If you want to limit your search to only complete words, select the **Match whole word only** check box.

Clicking **Find Next** takes you to the next instance where your search string appears highlighted in the log.

Clicking **Cancel** will stop the search.

## Filtering Personal Communications Logs

Messages can be filtered by component only. Traces can be filtered by component, by process ID, and by thread ID.

To filter the message or trace record list, do the following:

1. Decide what parameter by which you want to filter. For example, in the message log, you may want to filter your view so that it contains only messages issued by a particular component. (Filtering by component is the default.)
2. Click the left mouse button to highlight the item that has the value by which you want to filter.
3. Right click in the appropriate column list area.
4. Click **Filter In**, **Filter Out** or **Sort**.

   **Filter In** allows only those items selected to be in the resulting view. **Filter Out** removes the selected items from the resulting view. **Sort** allows you to sort entries in ascending or descending order based upon the entry selected. This function works much like sorting by column header. Filters are cumulative, so you can filter the results of your first filter.

To restore your original view, click **View** and then **Refresh**, or you can press **F5**.

# Part 3. Appendixes

# Appendix. Notices

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**VT Emulator User's Reference**

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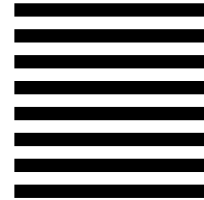Fold and Tape        **Please do not staple**        Fold and Tape

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