

PMfax User's Guide

Fax Software Solutions

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Introduction

Note: This User's Guide is for PMfax for OS/2 version 3, but users of PMfax for Linux version 4 will also find it to be useful. Some features are changed for PMfax for Linux, however, so please refer to the readme file for details. For example, PMfax for Linux provides Postscript printer emulation and printer installation is handled differently by Linux. In PMfax for Linux version 4, the readme file is available on the Help menu.

This 32-bit version of PMfax is fully enabled for the OS/2 Workplace Shell and takes full advantage of the latest OS/2 user interface standards. If you know how to use the OS/2 Workplace Shell, then you already know how to use most features in PMfax.

Using the PMfax printer driver, you can create faxes by printing from your OS/2, DOS and Windows applications running on OS/2. The PMfax application program can then send these faxes, receive faxes from others, or print faxes to any OS/2 printer.

Basic features include support for:

- sending and receiving faxes (unlimited pages),
- normal and fine resolution,
- portrait and landscape orientation,
- multiple page lengths (letter, legal, A4, etc.),
- drag-and-drop printing and viewing, and
- built-in IBM Proprinter emulation in the fax printer driver so your DOS and Windows programs can also create and send faxes.

Advanced features are numerous, including:

- a configurable toolbar
- fax editing, drawing, and import/export,
- optional automatic printing upon receipt,
- gray-scale viewing for enhanced readability,
- multiple phone books,

- enhanced log selection and maintenance, and
- printer driver commands.

Optical character recognition (OCR) and LaserJet printer emulation (PCL5) are available for purchase. LAN versions with automatic routing, multiline support for up to 96 fax lines and programming interfaces for developing your own "fax enabled" applications are also available. See [Keller Group's web site](#) for information on upgrades and optional features.

New in Version 3

Users of previous versions will notice the following new features in version 3:

- *Cover Sheets* - flexible drag-and-drop layout and editing with the new **Edit Cover sheet** command
- *Universal Log* - now supports fax, voice, text and data items with drag-and-drop features
- *Voice Support* - including integration with OS/2 Multimedia and powerful REXX scripts for voice mail, remote retrieval, paging, forwarding, fax-on-demand, and interactive fax response
- *REXX API* - control fax and voice with REXX
- *Internet E-Mail Faxing* - cooperates with OS/2 e-mail packages to send and receive faxes, forward voice/fax items to your mailbox, etc.
- *Port Sharing* - data programs can use the COM port while PMfax stays in receive mode
- *Log Colors* - use Ctrl-Drag to select text colors
- *Multi-Character Search* - in log and phone book
- *Enhanced Drawing Tools* - box, ellipse, arrow
- *Priority Sending* - to send this fax before others
- *Hold Mode* - to suspend or "hold" faxing
- *Intelligent Retry* - resend unsent pages only
- *Edit Cut Command* - to separate "stuck" pages
- *Recipient Editing* - double-click to review/edit
- *Embedded Printer Commands* - Windows and DOS programs can embed >>TO for auto-send
- *More LPT Ports* - utility to create LPT4 - LPT9 for use with additional fax printer objects
- *Caller ID Support* - with suitable fax modems
- *T.30/T.33 Support* - for auto-routing with LANs
- *Enhanced Hardware Support* - for fax modems, Class 2.0, Mwave, Brooktrout, GammaLink
- *LAN and Multiline* - new versions and features
- *Translations* - for more than 25 languages

See the [Reference Manual](#) and **on-line Help** for details and information on other new features.

Installation

To install the PMfax software:

1. Install and test your fax hardware following the instructions provided by your hardware vendor.
2. Read the [README](#) file. It may have special information about installing and configuring the program for your hardware.
3. Follow the instructions that came with your PMFAX.EXE program to install the software.

Depending on the PMfax distribution that you have, there may be an INSTALL program that you run to install the software. If so, you can run this program and enter values as needed:

- You can use the same directory as the *Install to*, *Fax data directory* and *Working directory*.
- If necessary, change the *Fax hardware type* to match the general type of your fax hardware.
- If you leave *Create program object* checked, the install program will create a program object on your desktop for starting PMfax.
- For the *Application Printing* port, select an LPT device that isn't used by your printers. DOS and Windows programs will use this LPT device for creating and sending fax documents.
- The INSTALL program will install the FxPrint printer and modify your CONFIG.SYS file. You should reboot your system after installing.

If you have the web download version of the program, simply unpack the self-extracting download file in the desired "program directory" location and the extraction program will tell you what to do. The first time that you run PMfax it will install itself and the FxPrint printer driver. When you run it again, it will let you set your port and hardware settings and then run normally.

Using the Program

To start PMfax:

- Double-click the PMfax icon on your desktop.

If this is the first time that you have started PMfax, it will display the settings notebook.

Be sure to check these pages:

- **Ports** - to set the port that is used by your fax hardware.
- **Modem** - to check the transmission speed and line type.
- **Modem Type** - for fax modems, to select important values for your modem. See the README.DOC file for the recommended settings for your modem.

To get help:

- Check the message line as you move the mouse over a toolbar button or menu item.
- Press F1 to get extensive help information on any menu item that you have highlighted.
- Choose an item from the Help menu.

For ease of use:

- *Try the toolbar.* The buttons in the toolbar provide "single-click" access to the menu items. When you put the mouse over a toolbar button, the message line tells you about the button. You can drop fax file objects on some of the buttons to send, print or view the fax.
- *Use pop-up menus.* As with other Workplace Shell operations, a right-click of the mouse will provide a pop-up menu. The contents of the pop-up menu will vary based on what the mouse is on when you press the right mouse button.
- *Take advantage of the Workplace Shell features.* PMfax is integrated with the Workplace Shell. If you know how to use folders and objects on your desktop, then you already know how to use PMfax.

To modify the way PMfax starts up:

- See the numerous start-up parameters as documented in the [reference manual](#), or start PMfax with the `-?` parameter to have it display a list of parameters.

Toolbar Features

The toolbar provides "single-click" command access. When you put the mouse over a toolbar button, the message line tells you about the button.

The **Toolbar** page in the PMfax settings notebook includes:

- *toolbar settings* - to position the toolbar at the top or side of the workspace, or to disable the toolbar, and
- *message line settings* - to position the message line at the top or bottom of the workspace, or to disable the message line.

Arrange the toolbar the way you want it to be! Using drag-and-drop with your right mouse button, it's fast and easy to:

- remove a button by dragging it off the toolbar,
- change the order by dragging the buttons, and
- add any command to the toolbar by dragging the command from any menu to the toolbar.

That's right... Just display any pull-down or pop-up menu, then drag a command from the menu with the right mouse button and drop it on the toolbar!

Pop-up Menu Features

Pop-up menus also provide a fast way to select a command. A right-click of the mouse will provide a pop-up menu. The contents of the pop-up menu will vary based on what the mouse is on when you press the right mouse button.

For example, if you right-click on the workspace background *outside of the fax page* when viewing a fax document, you see the pop-up menu for dealing with fax documents.

If you right-click *on the fax page*, you instead see the pop-up menu for dealing with a fax page.

The pop-up menus will always show you the commands that you are likely to need in a given situation. In fact, the contents of the "fax page" menu will change when you use different editing tools.

Pop-up menus are also used in the log and phone book windows.

If you start using pop-up menus, you will soon find that they are the fastest way to work.

Desktop Features

PMfax supports all the popular user interface features of the OS/2 Workplace Shell. These features, together with the toolbar and pop-up menus, make PMfax both powerful and easy to use.

If you use an OS/2 application that supports printing of its document file objects by dropping them on printer objects, then you can drop them on the FxPrint printer object to create and send a fax. Most OS/2 word processors now support this feature.

More drag-and-drop - Double-click on a PMfax fax file object or log item to view the fax, or drag and drop a PMfax fax file object or log item to do many useful things. For example, you can drop it...

- on any printer object to print it,
- on the PMfax program object or into the PMfax workspace to view it, or on the fax document that you're viewing to append it,
- on the Send toolbar button to send it,
- on the Print toolbar button to print it,
- on any of the View or Orientation toolbar buttons to view it in that size or orientation, or
- on the Log toolbar button or into the log to add it to the fax log for later viewing or sending, or you can drag from the log to folders or desktop.

Resizable windows - Drag the borders of the program, log and phone book windows to suite your preferences, and PMfax will remember the sizes.

Fonts and Colors of your choice - Drag fonts from the OS/2 Font Palette or colors from the OS/2 Color Palette and drop them in many places. PMfax will remember the fonts and colors. Drop fonts in the log, in the phone book, on the message line, or on the status window. To select a font for fax editing, drop the font on the fax page that you are viewing. Drag colors from the OS/2 Color Palette to the workspace or log, or press the Ctrl key when dragging colors to the log to change the color of each status type.

You can even "sign your document" or paste a bitmap image, PCX image or text file by dragging and dropping it on the fax page!

Sending

The **Fax Send** command sends the fax or text that is being viewed in the PMfax workspace, or sends a cover-page-only fax if the workspace is empty. Select this command from the Fax pull-down menu, the workspace's pop-up menu, or the toolbar.

The **Fax Send** command displays a dialog box.

Use the *Manual* button to enter the recipient for the fax. You can enter multiple recipients, and each will appear in the *To* list. If you make a mistake, double-click on a recipient to edit or delete the entry.

Other fields and buttons allow you to change cover sheet information, select deferred transmission, and other features. You can select from various cover sheets. The *Preview* button lets you see what your cover sheet will look like.

Just press the *Send* button to send the fax. As we will see on the next pages, the status window will show you what is happening as the fax is being sent, and the log will report on the status of your fax.

Future sections discuss phone books and cover sheets, and manual dialing is described in the on-line *Help*.

Receiving

The **Fax Receive All calls** command tells PMfax to answer incoming calls and receive fax documents. Select this command from the Fax pull-down menu or the toolbar.

PMfax sends and receives faxes using background threads, so it can receive faxes without disrupting your work. A small status window keeps you informed of the background activities. You can hide the status window, and it will automatically appear when something happens.

When a fax is received, PMfax plays tones and the status window will display a count of received faxes. A right-click in the status window will provide a pop-up menu of useful commands. The **Open received** command will display the "next received fax" so that you can view or print the fax.

Note that PMfax also has *current call* and *one call* receive modes. When you have your telephone and fax hardware on the same telephone line, use **Receive current call** to have PMfax receive "right now" on a connected call, or use **Receive one call** to have PMfax answer just the next ringing call as a fax.

Auto-start in receive mode - PMfax will start up in **Receive all calls** mode if you start it with the `-R` optional parameter. You can put the `-R` in the *Parameters* field of the program object's Settings notebook.

The Log

The **Fax Open log** command displays the log. Select this command from the Fax pull-down menu, pop-up menus, or the toolbar. The log shows all fax activity and is your primary display for managing the fax documents. It's your "File Manager" for faxing.

You can view a fax document by double-clicking on the line in the log, or by selecting the log entry and using the *Open* command on the pop-up menu. Similarly, you can select a log entry and use *Print* to print the fax, *Resend* to send a fax again (perhaps one that didn't successfully transmit before), or *Delete* to remove the log entry. If you delete the last log entry for a fax document (the *Id* value), then the fax document file is deleted, too.

The *Edit log* command lets you enter notes about the fax or enter the name and company information for a received fax. You can also enter notes on the Send dialog when you are sending a fax.

Font & Color / Drag-and-drop - To change the font, drag a font from the OS/2 Font Palette and drop it in the log. Drag a background color from the OS/2 Color Palette, and use Ctrl-Drag to change text colors.

Size - Change the size of the log window with your mouse, and it will stay that size.

Searching - In the Search field, type to match on name, company, fax number, voice number or notes.

Extended Selection - Click and drag (or select the first and use Shift-Click) to select a range. Ctrl-Click will select additional entries or deselect an entry.

Cleaning the log - The *Clean* command removes "informational" log entries and keeps the final status.

Date format - The date format is determined by your *month display* setting on the Program page of PMfax settings and by your system country/date setting. A four-digit year is displayed if you select numeric month display and the system date mode is yy-mm-dd or yy-dd-mm.

Viewing and Printing

The commands on the View menu allow you to adjust the size and orientation of the fax page. You can enlarge the fax page to read it on your screen, rotate the page to read landscape pages, or flip the page to read faxes that were sent upside down. All of these commands are also available in the toolbar.

The **Fax Print** command will print the fax to paper. Select this command from the Fax pull-down menu, the workspace's pop-up menu, or the toolbar. If you have multiple printers installed on your system, first select the printer that you want to use with the **Fax Printer setup** command.

Drag-and-drop viewing - Drop a fax file object on any of the View or Orientation toolbar buttons to view it in that size or orientation.

Gray scale display - Try Gray scale display on the View menu. It improves the readability of many fonts and images. To see the difference, toggle it on and off with the F5 function key.

Drag-and-drop printing - Drop a fax file object on the Print toolbar button to print it.

Printing without viewing - You can directly print a fax from the fax log without needing to view it. Just right-click on the entry in the log and use the *Print* command on the pop-up menu. Or select multiple entries from the log and print them all.

Printing options - Check options on the Printer page of the Settings notebook to automatically print faxes upon receiving or successful sending, or add a fax information line at the top of printed faxes.

Phone Books

If you might send a fax to the same person again, use the phone book rather than entering the information every time. To use the phone book, press the *Phone book* button on the Send dialog (rather than using the *Manual* button on the Send dialog as we did before).

To select a phone book entry for sending, just double-click on it. Use the pop-up menu commands to enter, modify or delete entries.

The *To* list on the Send dialog shows who will receive the fax. To send the same fax to several recipients (with each person getting a cover sheet that is addressed just to them, but all getting the same subsequent pages), repeatedly use the *Phone book* or *Manual* buttons on the Send dialog or make multiple selections in a phone book. To edit or delete a recipient, double-click on its line in the *To* list.

Font - To change the font, drag a different font from the OS/2 Font Palette and drop it in the phone book.

Size - Change the size of the phone book window with your mouse, and it will stay that size.

Searching - Type in the Search field to match on name, company, fax number, voice number or notes, or drag the scrollbar thumb to find an entry.

Extended Selection - Click and drag (or select the first and use Shift-Click) to select a range. Ctrl-Click will select additional entries or deselect an entry.

Multiple phone books - Type a new name (up to 8 characters if on FAT file system) in the Phone book field to create a new phone book, then add your entries. Use the pull-down list to select a phone book.

Faxing - OS/2 Applications

The FxPrint printer driver is a true OS/2 printer driver, and you use it just like any other OS/2 printer driver. The FxPrint printer driver turns your print job into a fax document file, and an optional Send pop-up dialog allows you to send the fax.

Conventional printing - To create and send a fax from an OS/2 application:

- Use the OS/2 application's **Printer setup** command to select the FxPrint printer object.
- Then use the OS/2 application's **Print** command.

Drag-and-drop printing - If you are using an OS/2 application that supports printing of its document file objects by dropping them on a printer object, then you can drop them on the FxPrint printer object to

create and send a fax. Most OS/2 word processors now support this feature.

You can configure the FxPrint printer driver for various page lengths, orientations, and other settings. The on-line help explains the various options in detail.

Note that you can create several printer objects which use the FxPrint printer driver, and each can have different "Job Properties" in its settings notebook.

Printer driver commands - As described in the [Reference Manual](#), the printer driver supports special commands for creating and sending faxes without using the Send dialog. A developer's toolkit adds more commands for graphics, fonts and form filling.

Faxing - DOS Applications

The FxPrint printer driver provides emulation for the IBM Proprinter X24 printer, so your DOS programs can create and send fax documents by printing to the FxPrint printer object's LPT device.

By default, the FxPrint printer object is attached to LPT3 by the INSTALL program. FxPrint should be attached to an LPT device that is not used by any other printer object. You can check and set the LPT device on the Output page of the FxPrint printer object's settings notebook.

Note: Use the LPT49 utility program if you are already using LPT3 for other purposes and you need additional LPT ports.

To create and send faxes from DOS programs running on OS/2:

- Have your DOS program use LPT3 for printing (or whatever LPT device you have set on the Output page of the FxPrint printer object).
- If possible, tell your DOS program that LPT3 is an IBM Proprinter X24 printer. This will allow the DOS program to use the Proprinter's fonts and graphics. To produce a fax document that is easier to read, tell your DOS program to use the Proprinter's "Elite PS" font or a bold font.

If you want the results to be larger on the fax page, change the *LPT Emulation* setting from "IBM Proprinter X24E" to "IBM PP X24E Enlarged" by using the *Job Properties* button on the Printer driver page of the FxPrint printer object's settings notebook.

LaserJet Emulation - If your DOS program prefers to print to a LaserJet printer, then you may want to get the optional PCL5 emulation feature. This allows your DOS and Windows programs to print to the fax printer driver as if it was a LaserJet III printer. If the PCL option is installed, change the *LPT Emulation* setting to "HP LaserJet PCL" by using the *Job Properties* button on the Printer driver page of the FxPrint printer object's settings notebook.

Faxing - Windows Applications

As described in the previous section, the FxPrint printer driver provides emulation for the IBM Proprinter X24 printer (or, with the PCL5/LaserJet option, the LaserJet printer). Your Windows programs can print to the Proprinter (or LaserJet) Windows printer driver, and that printer driver can pass the data to the FxPrint printer object's LPT device to create a fax document.

You must do a onetime installation/configuration of the Windows printer driver. To do this:

- Run a full-screen Windows session, such as by double-clicking on the WIN-OS/2 Full Screen object in the Command Prompts folder.
- Open the Windows **Control Panel** (in the Main Group), then open **Printers**.
- Press the *Add* button, select **IBM Proprinter X24** (or **HP LaserJet III** if using the PCL emulation option), then press the *Install* button. You will be prompted to insert a printer driver diskette for installing the Windows printer driver. If you are running OS/2 for Windows, this will be one of your Windows installation diskettes. If you are running regular OS/2, this will be one of your OS/2 installation diskettes.
- Press the *Connect* button and set the printer driver's device to the same LPT device used by the FxPrint printer driver (like LPT3.OS2).
- Installing and using the ATM (Adobe) fonts is recommended (see your OS/2 documentation).
- Check the FxPrint printer object's *LPT Emulation* setting (by using the *Job Properties* button on the Printer driver page of the FxPrint printer object's settings notebook) to verify that it is emulating the correct printer type.

To create and send faxes from Windows programs running on OS/2:

- Use the application's **Printer setup** command to select the Proprinter printer driver (or, if using LaserJet emulation, the LaserJet driver) .
- Then use the application's **Print** command.

If you want Proprinter output to be larger on the fax page, change to "IBM PP X24E Enlarged" emulation.

Signatures & Rubber Stamps

Adding your signature to a fax document is easy with PMfax. You can also use the same technique for pasting images or text on the fax document.

For a signature or "rubber stamp" image, you first need to save a copy of the image in a bitmap file or PCX file. PMfax can create these files from any portion of a fax document, so use these steps:

1. Using a conventional fax machine to send and your PMfax program to receive, send yourself a document which has your signature.
2. View the received fax with PMfax and use the mouse's left button to drag a box around the signature area.
3. Use the **Edit Export** command to save the marked area to a bitmap or PCX file.

Once the signature or image is in a file, you can easily paste it on your fax document:

- **Drag-and-drop** - Drag the signature file object and drop it on you fax document. You can put a shadow of your signature file object on your desktop or in a convenient folder so that you can easily find it for signing your fax documents. Create a folder of useful images.
- **Command** - The **Edit Import** command can be used from the pull-down menu or toolbar to select the signature or image file for pasting.

The signature or image will appear on the fax page in a blue "graphic paste-up box". Use the mouse to drag the box or the pop-up menu for special effects, then click the left mouse button outside of the box or press the Enter key to drop the signature into the fax.

Pasting other images - Use these same techniques to paste any bitmap or PCX file. To collect useful images such as logos and letterheads, first get the image in a fax document, then save it to a BMP or PCX file with the **Edit Export** command. To get the image in a fax document, you can print a fax from your drawing application, paste images using **Edit Paste** or **Edit Import**, or receive the fax.

Pasting text - Text files can also be pasted on a fax page using drag-and-drop or **Edit Import**. The font is selected with the **Edit Font** command.

Fax Editing

PMfax has editing tools which you can use to modify a fax document. If you modify a received fax document, the log will contain both the original document and your edited version. You can type your response on the fax and send it back.

The editing tools are on the Edit pull-down menu, and include the Mark tool, Text tool, Draw tool and Erase tool. The pop-up menu changes to include special options for your current tool, and to allow you to quickly change to a different tool.

By default, you are using the Mark tool and nothing is marked, so the right mouse button provides a pop-up menu of editing tools and actions.

To mark an area on the fax page, drag a box with the left mouse button. Using the left mouse button, you can move or stretch a marked area. The pop-up menu shows commands that operate on the marked area.

The Text tool provides a blue "Text paste-up box" for typing text. Before typing, you can use the left mouse button to position the box and it's margins, and the **Edit Font** command to select the font. As you type, pressing Enter will move down a line and wrap any extra text to the new line.

The Draw tools are for drawing lines, boxes, ellipses, arrows and check marks on the fax. Press the left mouse button and move the mouse to draw.

And the Erase tool provides an "eraser". Press the left mouse button to erase.

Even more drag-and-drop - Drop a fax file object, or a whole group of them, on the fax document in the workspace to append them, or on the Insert toolbar button to insert then before the current page.

Cover Sheets

Cover sheet-only fax - If a fax document is in the workspace, the **Fax Send** command sends that fax document and (optionally) attaches a cover sheet. If the workspace is empty, it sends a cover sheet-only fax.

Comment field - You can include comment text on your cover sheet. In some situations, it's convenient to just send a cover sheet-only fax with comment text.

Full size versus "short" - The *Full size* checkbox specifies whether the cover sheet should be as long as the first page of your fax document or just long enough to include the cover sheet information.

Defaults for cover sheet - The default values for the cover sheet are set on the **Cover** and **Comment** pages in the Settings notebook. To save time, select your default cover sheet and set your "From" information in the Settings notebook.

Both simple (BMP) cover sheets and advanced (CVR) cover sheets are supported. The pull-down box on the Send dialog lets you select a cover sheet. You can easily customize or create your own cover sheets.

CVR Cover Sheets - The new CVR cover sheets are powerful, easy and fun. The background of the cover sheet is a fax image, so it can contain any mixture of fonts and graphics at any position on the page. To create a cover sheet:

1. Start with a single-page fax document. This can be any fax document which you create with the edit tools, print from another application, receive as a fax or scan in. (Use **Edit Import** to paste BMP files on the page.) This document is the background for the cover sheet, and it should include everything which will appear on the cover sheet except the information fields.
2. Select the **Edit Cover sheet** command to display the information fields. Drag the information fields to the desired positions on the fax page. Information fields which are placed on the bottom edge of the fax page are disabled and will not appear on the cover sheet.
3. While in **Edit Cover sheet** mode with the fields displayed, use the **Fax Save file TIFF-F** command to save the fax to a file with the CVR extension ("*filename.CVR*") in your fax data directory (where the FAX.LOG file is located).

When the cover sheet file is saved, it records the font from the *Cover Sheet Font* field on the **Comment** page of the Settings notebook, and it will use this font for the cover sheet information fields. The information fields are merged onto the background when the cover sheet is sent.

The height of the *Comment* field will automatically expand if the comment text is too long to fit within the specified size. It will extend borders and push down images which appear below the Comment field. For example, you can have a box around the comment and your signature below the comment, and these items will be adjusted as the comment field grows.

To modify an existing CVR cover sheet, open the file using the **Fax Open file TIFF-F** command, edit the document as desired, then save it to a CVR file in your fax data directory while in Cover sheet mode.

BMP Cover Sheets - If you select a bitmap file (BMP) as your cover sheet, PMfax will center it at the

top of the cover sheet and add standard cover sheet text items to the bottom of the cover sheet. The cover sheet bitmap can contain graphics, logos, text, or whatever you wish. To ensure that the bitmap is in the best format and size for use on the cover sheet:

1. First get the image onto a fax page. Use any technique for creating the fax... the editing tools, "printing" from other applications, pasting from Clipboard, **Edit Import** from BMP or PCX files, or sending a fax from a conventional fax machine and receiving it with PMfax.
2. View the fax with PMfax and use the left mouse button to drag a box around the area you wish to use as the cover bitmap.
3. Use **Edit Export Bitmap** to save the marked area to a bitmap file in your fax data directory. All BMP files in your fax data directory (where your FAX.LOG file is located) will appear in the Send dialog's *Cover sheet* list.

Color images will be converted into monochrome bitmaps using the steps above. Experiment with the **Edit Contrast** command to get the best result.

Phone Books - More Features

In addition to the phone book features that were discussed earlier, PMfax phone books support distribution groups, dial macros and other features. You can also create new phone books with your text editor or by exporting them from other applications.

Multi-character searching - You can type in the *Search* field of a phone book to find an entry. The characters are matched against all items in the phone book (Name, Company, Fax, Voice and Notes). The first matching item will be highlighted, then you can use cursor keys, PageUp, PageDown, Home and End to change to other matching phone book entries.

Distribution groups - Group names provide a way of selecting a set of recipients from a phone book. Enter a group name (any alphanumeric name that you like) in the *Group(s)* field in the phone book records, then use the **Select group** command from the phone book's pop-up menu to select all matching records from the phone book. A phone book record can be in multiple groups by specifying a list of group names in its *Group(s)* field. The **Select group** command will match on a substring from the group name (e.g., "ware" selects "software" and "hardware" groups).

Phone book format - Phone book files are stored in "comma-separated value" text files with a .PBK extension. This format can be edited with a text editor or exported from many database/spreadsheet programs. Details on the format are in the [PMfax Reference Manual](#). For broadcasting, you can keep each broadcast list as a separate phone book and use the **Select all** pop-up menu command for sending.

Dial macros - You can use dial macros in any fax phone number. The macros are assigned in the Settings notebook. They allow you to use simple code names for commonly-used dialing sequences like long distance access codes or calling card numbers.

Alpha phone numbers - Telephone "numbers" like 555-HELP may be nice to remember, but they are hard to dial. Why not let the program figure out the numbers for you? If a fax number includes a double-quoted alpha string (such as 555-"HELP"), the letters will be automatically converted to the

corresponding telephone digits.

Broadcasting

It's easy to send the same fax document to many different people (i.e., "broadcast"). PMfax is an outstanding platform for broadcasting. Some of the features which support broadcasting include:

Cover sheets - Each recipient can get a cover sheet which is addressed only to them since PMfax dynamically creates and attaches the cover sheets. You can use short cover sheets to save transmission time. Or, if you use the *Include 'To:' line* page header option to put the recipient's name and company in the page header, you may not need to include a cover sheet at all.

Overlay and mail merging - Rather than using a standard cover sheet, you can easily turn your document into a special cover sheet using the **Edit Cover sheet** command and send a "cover sheet only" broadcast. PMfax will merge your selected cover sheet items onto your document at your desired positions on the page. Some third-party word processors also support "mail merge" with PMfax.

Shared fax file - Unlike some other fax packages which create a copy of the fax file for every recipient, PMfax keeps a single copy of the document on disk even though you may be sending the document to thousands of people. This makes it feasible to do large broadcasts without using much disk space.

Reliability - PMfax is proven to work in many mission-critical situations by customers who broadcast thousands of faxes per day.

Database independence - Rather than making you maintain a separate database which duplicates your existing information, PMfax uses ASCII files for phone books in a format that is easily exported (and imported) by all popular database and spreadsheet programs. You can generate your broadcast list by exporting from your database program.

Scalability - PMfax can easily expand to accommodate increases in volume. You can add additional lines to each machine (up to 96 lines per machine, using Multiline Upgrade options with LAN or Multiline versions) or add multiple cooperating machines (using the Multiple Fax Server Facility).

Fax hardware choices - Depending on your requirements and budget, you can select from many different types of fax hardware.

Intelligent retry and scheduling - PMfax supports advanced features such as intelligent retry (sending just the failed pages of a multipage transmission), priority sending (so you can send an urgent fax even though numerous faxes are already waiting to send), automatic busy call blocking to optimize the use of multiple lines when sending to other multiline fax locations, and automatic retry of all send failures or just "busy" failures at your option.

Programming interfaces - You can automate your broadcasting using the printer commands, REXX API, Enhanced Printer Driver Toolkit or API Toolkit.

To broadcast:

1. Use a phone book file, or a group name within your phone book, to specify your broadcast list. As

described in the previous section, the broadcast list can be a separate phone book and the **Select all** pop-up menu command can be used to select all records in a phone book.

2. Create your fax document by "printing" to FxPrint, using the edit tools, receiving the fax from a fax machine, etc. Test it carefully. Before resending a received fax document, you may wish to use the **Edit Crop page** command to remove header lines which were added by the sending fax machine, or use the other edit tools to clean up the fax document. Use the **Fax Save file** command to keep a copy.
3. Set the *Busy times to retry* and *Busy minutes between retries* values on the Fax page of the Settings notebook, and other values as needed.
4. View the fax, then use the **Fax Send** command to select the phone book entries and start the broadcast. If desired, use the *Delay* button to specify when the sending should begin.
5. Use the **Clean** command from the log's pop-up menu to monitor delivery. The clean command deletes information about retried log entries (such as *Busy* and *No answer* events that were retried) and leaves just the final status for each recipient. Select the unsuccessful entries and use the **Retry** command from the pop-up menu to check the fax number and try again.

Log Cleanup

The log is the primary way of managing your fax documents and determining the status of the fax documents that you send. Periodically, you will want to delete items from the log.

Several log maintenance commands are provided to make it easy to remove items from the log and delete unwanted fax documents from your disk.

- You can drag (move) or Ctrl-drag (copy) items from the log to a folder or the desktop. You may want to create a library of reusable fax documents by dragging them to a folder, using direct editing (Alt-Click) to give them a meaningful name, and then later dragging them to the workspace or log to use them again.
- The **Clean** command on the log's pop-up menu removes log entries which were retried but keeps the log entry for the final attempt. This makes it easier to determine whether or not a fax was successfully delivered. For example, the *Busy times to retry* value on the Fax page of the Settings notebook may cause several attempts to be made if the call gets a *Busy* or *No answer* result, and each attempt is in the log.
- The **Delete** command on the log's pop-up menu removes the selected log entries and, unless another log entry is using the fax document, also deletes the associated fax document.
- The **Fax Delete** command, also available on the workspace's pop-up menu, deletes the fax document that you are currently viewing and all log entries that are using that document.
- The **Utilities Maintain log** command provides additional tools for maintaining your log, including the ability to delete log entries before a specified date, entries older than a specified number of days, or entries that were successfully sent. You can schedule automatic daily processing to maintain your log. Use the *Help* button on the dialog for details.

Printing the log - The **Utilities Print log** command can be used to print the log, or to fax it if you "print"

it to the FxPrint printer driver.

OCR

[The OCR option is available for PMfax version 3.x and earlier. This engine is licensed from Calera (now part of Caere) and only supports English text. They have never updated the engine and have never delivered international support for OS/2. Due in part to the lack of support for this engine, the OCR option may not be supported in our version 4 products.]

Note - A fax document is a challenge for any OCR engine, and it is unrealistic to expect perfect OCR results given the relatively limited resolution of a fax image. OCR results will be poor if the fax image is of poor quality or if the fax document is normal resolution. The best results will be obtained from *fine resolution, computer-generated* fax documents (not scanned by a fax machine) using fonts like Helvetica or Courier with a *large point size* of at least 12 points.

The optical character recognition (OCR) option is used to convert a fax document back into text. A fax page is an image, and while you can cut and paste the fax image into many word processors as a graphic, there are times when you may want the actual text so that you can edit and reformat the text.

If you purchase the OCR option, the **Fax Save file via OCR** and **Edit Export via OCR** commands are added to the PMfax pull-down menus. Naturally, you can also drag these commands to the toolbar for easy access.

Fax Save file via OCR will process either the *current page* or the *entire fax document*. The results are saved to a file that you specify, and you can then edit the text file or import the text into your word processor. The text must be on the fax pages in normal portrait orientation (not upside down or landscape) for this command.

Edit Export via OCR will process the *marked region* of the fax page, and can save it either directly to the Clipboard or to a file. This is a fast and convenient way of converting the part of the fax document that you really need. It also allows you to deal with text that is faxed to you upside down or in landscape orientation without editing the fax pages since you can just use the View options to correctly display the text and then mark a region.

Printer Commands

The FxPrint printer driver supports special commands that make it easy to create and send fax documents. This section shows examples of a few commands. See the **Printer Driver Reference** chapter in the [PMfax Reference Manual](#) for details, including examples of using commands from other applications.

If you include command lines like the following in a text file and copy the text file to the LPT port that is being captured by the FxPrint printer object, you can automatically send a fax. Normal lines of text are converted into a fax document. Some examples:

>>FONT= Helvetica Bold, 12

selects an OS/2 font for converting the text. The FxPrint printer object's *Emulation* mode must be set to >>FONT to indicate that you want to control the font with this command rather than using a different printer emulation.

>>TO= Joe Smith, "Smithy, Inc.", 1 612 555-5555

specifies the recipient's name, company and fax number for automatic transmission (the Send pop-up dialog is suppressed).

>>AT= 10p

specifies a deferred time/date for sending.

>>FROM= Jim Jones, Jones Co., *, *

>>INFO= "Cover sheet comment"

specifies other cover sheet information.

When printing from DOS or Windows applications, printer driver commands can be used in documents that are printed to FxPrint using PCL or Proprinter emulation. **The commands must be in a LaserJet or Proprinter printer font.** The fax printer driver will automatically remove the commands from your document. For example, you can embed >>TO commands to automatically send the fax document.

Note - The **Enhanced Printer Driver Toolkit** adds printer driver commands for pasting images, attaching other fax documents and positioning text. The **Client/Server API Toolkit** provides full-featured control of fax sending, receiving, routing and status reporting from your OS/2 applications.

Voice and Voice Scripts

When used with supported voice/fax hardware, PMfax can also be your answering machine, voice/fax mailbox, or fax-on-demand system.

See the [readme](#) file for details on supported hardware for voice functions. See the **Voice** page in the Settings notebook to enable the voice features and select the *Answer script* that you want to use.

If you enter an asterisk (*) character as the *Answer script* and have voice enabled, the program will answer calls with a default built-in script. When a call is answered, it plays your outgoing message and receives a voice message or fax from the caller. The voice message or fax will appear in the log. You can change your outgoing message with the **Utilities Outgoing message** command.

Download voice files from our web download area and unpack them in your PMfax program directory to get advanced answer scripts and voice prompts. The advanced answer scripts are REXX programs that include usage information in the file. Standard scripts include:

V_MBX.CMD - This advanced fax/voice mailbox system receives faxes and voice messages from callers. Using your password, you can call your system to modify your greeting, retrieve voice messages, retrieve faxes, or do "on demand" retrieval of fax and voice items from your log. You can also configure

the script to provide *forwarding* by fax, voice or e-mail and *paging* by beeper, voice or fax.

V_FOD.CMD - This full-featured information retrieval system provides *fax-on-demand*, *interactive fax response*, *voice-on-demand* and *text-on-demand* services.

Scripts which demonstrate advanced multiline features (v_mbx4.cmd) and LAN multiuser and multi-mailbox features (v_mbxlan.cmd) are also included. The LAN version allows each LAN user to remotely retrieve their faxes and voice messages.

You are encouraged to modify the scripts to provide new features and to share your modified scripts with others. Voice scripts and information are provided at our web site: <http://www.cds-inc.com/>.

REXX API

PMfax supports a REXX programming interface.

As discussed in the previous section, voice *Answer scripts* are written in REXX. You can customize the scripts to provide special systems for fax-on-demand, voice mail and other purposes.

But the REXX API also includes a set of functions which can be used in any REXX program to provide fax services, including:

FxRxQueue

send fax documents

FxRxPrint

print fax documents

FxRxStatus

check on the status of a job

FxRxFind

retrieve/count new items from log

FxRxMode

change receive mode

FxRxDelete

delete log entries

FxRxParse

decode log or phone book records

FxRxFormat

encode log or phone book records

FxRxTextToFax

convert text file into fax file

FxRxImport

put fax, voice, text or data into log

FxRxExport

get fax, voice, text or data from log

FxRxSelect

switch to a LAN user's log

FxRxPath

report the log/program directory

Using REXX, you can create advanced applications which deal with voice, fax and text. You can use the REXX library to control receive mode, send faxes, check job status, process items from the log, print or delete fax files, modify phone book records, generate reports from the log or phone books, and more.

The full REXX API is documented in the [REXX API Reference](#) document. You can distribute your REXX applications without royalty to other licensed users of the retail products, and you are encouraged to share your REXX scripts.

Check the download area at <http://www.cds-inc.com/> for sample REXX scripts and information.

Internet E-Mail Faxing

PMfax can send and receive documents via e-mail when used with cooperating e-mail products. See the [PMfax Reference Manual](#) for details and a list of cooperating e-mail products.

When PMfax and the cooperating e-mail products are used for sending and retrieving the e-mail messages, faxes and voice messages are transparently delivered and appear in the PMfax log as received items.

You can forward your faxes and voice messages to your e-mail mailbox using the *-Z* start-up parameter or voice answer scripts. When travelling, you can then access your messages and faxes by retrieving your e-mail messages, and the faxes and messages will appear as "received" items in PMfax so you can view and play them just as you would back at your office.

To enable sending via e-mail - enter the appropriate *E-Mail* command for your e-mail software on the **Program** page of the Settings notebook. This command is called to submit documents to your e-mail software. The *E-Mail* command line should include the tokens %FILE%, %ADDRESS% and %SUBJECT%. The software will substitute the appropriate items for these tokens when executing the command line.

Example for Post Road Mailer v2.0:

```
c:\dir\prmfax %FILE% %ADDRESS% %SUBJECT%
```

Example for PMMail v1.53 (last item is account dir):

```
PMMSSEND /F %FILE% %ADDRESS% %SUBJECT% USER_D1.ACT
```

To send faxes by e-mail - simply specify an e-mail address in place of a fax telephone number in PMfax. PMfax will call the cooperating e-mail software to "send" the fax (or text). The e-mail software will encode the document file and send it to the intended recipient as an e-mail message attachment. You can use an e-mail address as the fax telephone number in PMfax phone book entries or anywhere you

would normally enter a fax number.

When your cooperating e-mail software retrieves a PMfax e-mail message, it can call our FxRcv.exe utility program to automatically place it in the PMfax log as a received document.

See the *Internet Services and Relay Systems* chapter in the [Reference Manual](#) for advanced features.

Special Hardware Issues

Be sure to see the [readme](#) file for settings and notes for different types of fax hardware.

For fax modem users: PMfax can use your standard serial port device driver (COM.SYS) for fax modems. We also have a special device driver (FMD.SYS) that can be used for some special circumstances.

When a FMD port is selected, PMfax uses FMD.SYS to access the serial ports. FMD.SYS is optimized for fax/voice activity and supports special features in the Pro and LAN products (such as port sharing, discussed below).

When a COM port is selected, PMfax uses the COM ports (via COM.SYS, SIO.SYS, or device drivers) for accessing the serial ports. This allows you to use special COM device drivers for intelligent serial port cards such as Digiboard, Artic, or Hayes ESP (via SIO). When a COM port is used, "shared port" is not available, but "wait for line" still works (see below).

Private vs Shared Mode - To protect applications from each other, OS/2 allows only one application to "own" a device at any point in time. PMfax must own the fax modem's port when it is sending or receiving a fax. It also needs to own the port to answer incoming calls, but the way in which it does this is controlled by the *Private* checkbox on the **Modem** page of the Settings notebook.

When *Private* is checked, PMfax owns the port whenever it is in receive mode. An internet dialer or data program cannot use the port when it is owned by PMfax. To use the modem for data calls, first take PMfax out of receive mode using the **Fax Receive Off** command, the FxRcv.exe utility program, or the FxRxMode call in the REXX API.

When *Private* is not checked (the default), a new "shared" mode provides two useful features:

Shared Port - For receiving (when a FMD port is used), the port is not acquired until the phone rings, so you can keep PMfax in receive mode while using the modem for outbound data program activity. The port is only "in use" when PMfax is actually receiving or sending a fax. This uses the FMD.SYS device driver, and operates with virtually no system overhead.

Wait for Line - For sending, if the port is in use by another program when PMfax wants to send a fax, PMfax will wait for up to one hour for it to become available before reporting an error.

IMPORTANT: "Shared port" uses the hardware ring indicator in your modem and port. If your modem or cable does not provide the necessary signals, PMfax will not know that the line is ringing. **If PMfax does not answer incoming calls when in receive mode, set the *Private* checkbox on the Modem page.**

Caller ID - If you have Caller ID services and a modem which supports it, you can tell your modem to capture Caller ID information and give it to PMfax. To use Caller ID: (a) check *Private* on the Modem page so that the port is open and ready, (b) set *Answer Rings* on the Modem page to 2 or more (Caller ID data comes after the first ring), and (c) enter a *Special command* on the Modem Type page to enable Caller ID in your modem. This command is #CID=1 for Rockwell chipsets, #VCID=1 for Cirrus chipsets, or S40.2=1 for Zyxel. Caller ID information is placed in the Name field in the log record.

Special I/O and IRQ Settings - If you want to load the FMD.SYS driver, you add lines to the end of your config.sys file to load the FMD.SYS driver (like the lines already there to load COM.SYS). The driver will automatically locate standard serial ports. To use a nonstandard port, add a port/IOaddress/IRQ triplet such as (3 , 3E8 , 4) to the FMD.SYS line in config.sys. On MicroChannel machines with other boards sharing the IRQ with your COM port, add the S parameter to tell FMD.SYS to share the IRQ.

For SatisFAXtion/200 and /400 users: To use these internal coprocessor boards, first follow Intel's normal procedure for installing the board and Intel's DOS software. Board configuration is done with Intel's SETUP program (AT-bus) or Reference Diskette (MicroChannel). Copy the DOWNLOAD.* and LOADER.* files, which are decompressed by Intel's SETUP program, to the PMfax program directory. Get the fax hardware adapter for SatisFAXtion boards from our web download area.

PMfax loads and initializes the board when you put PMfax into receive mode or send a fax. Once initialized by PMfax, you can also use the board's data modem feature. Data and fax line sharing is supported, so you can leave PMfax in receive mode.

If You Have Problems

Hints and suggestions for some problems are listed below. Most problems are due to improper modem settings and are easily corrected. *See the [readme](#) file for notes and suggestions about your fax hardware.*

Port selection - Be sure that PMfax is using the correct port by checking the *Ports* page in the program's settings. If your fax hardware is turned on and attached to the specified port, you will hear it pick up the phone line and dial when you tell PMfax to send a fax. If it doesn't, try testing your fax modem with a data communications program to make sure it is properly attached and working.

Modem settings - Look at the *Modem Type* page in the program's settings and check the settings for your fax hardware. See the [readme](#) file for the recommended settings for your modem. If your modem is not listed (we only list modems that require unusual settings, so it is perfectly fine if yours is not listed), check your modem manual to determine if your modem uses the Class 1, Class 2, Class 2.0 or SendFax command set for fax. If your modem supports both Class 1 and Class 2.0 and you are having problems in Class 2.0 mode, try changing it to Class 1. As noted in the [readme](#) file, some modems also need additional check boxes or special commands (&C1, etc.) on the *Modem Type* page.

Modem sends but won't answer incoming calls - Confirm that PMfax is set for receiving (using the **Fax Receive All calls** command). If *Private* is not checked on the Modem page of the Settings notebook, try setting it. (As discussed in the previous section, the shared port feature uses the hardware ring

indicator in your modem and serial port. If your modem or cable does not provide the necessary signals, PMfax will not see the line ringing.)

Need LPT ports for FxPrint - If the normal LPT ports (LPT1, LPT2 and LPT3) are in use, you can create additional LPT ports for use by the fax printer driver. The LPT49 utility will create LPT4 through LPT9 on your system. You can install the fax printer object on any of these LPT ports. You can also create multiple fax printer objects on different LPT ports and each printer object can have different job properties (orientation, resolution, length, emulation).

Problems faxing from Windows applications - If you are trying to fax from a Windows application and your resulting fax document consists of hundreds of pages but your original document was only a few pages, the cause is probably a "printer type" mismatch. Check the FxPrint printer object's job properties by opening its Settings notebook, going to the **Printer driver** page, and pressing the *Job properties* button. Be sure that the Emulation setting corresponds with the type of the WIN-OS2 printer driver that you installed and set up as described in the **Faxing - Windows Applications** section in this manual. If necessary, change the *Emulation* setting or install a different WIN-OS2 printer driver (see the **Faxing - Windows Applications** section).

Finding the fax directory - If the program can't seem to find the fax log, or if you have changed the location of your fax data directory (which contains FAX.LOG, FAX.IDX, *.FAX and *.PBK files), then you must tell PMfax where it is. To do this, start PMfax with the parameter of *-Lnewdir* where *newdir* is the full pathname of the directory which contains the FAX.LOG file. You only need to do this once, and PMfax will then remember it.

Finding the Status window - If you can't find the Status window on OS/2, it might be positioned outside of your visible desktop. Press Ctrl-Esc to get the Window List and double-click on Status Window. If you don't see it, press Alt-F7 and move your mouse until you see a gray rectangle, then click your mouse to place the rectangle (the Status window) on your desktop.

Capturing details to track down problems - The program can capture detailed information on its activities, including all the commands and responses with your fax hardware. ***Technical support will need this information to provide assistance.*** To report a problem, first start PMfax with a parameter of *-V*, recreate your problem, close PMfax, and fax or upload a copy of the VOUT file (found in your fax data directory) to technical support.

Options and Toolkits

Options are available for the Standard version:

- optical character recognition (OCR)
- LaserJet printer emulation (PCL5)
- LAN versions with automatic routing
- multiline support for up to 96 fax lines
- programming interfaces for developing your own "fax enabled" applications and for use in client/server development

If you need more faxing capacity, you can easily add more fax lines to your existing computer rather than needing to use additional machines. A **multiline upgrade** will give you this feature. Regardless of whether you are using fax modems, Brooktrout boards or GammaFax boards, you can use multiple fax lines simultaneously with a multiline upgrade. A multiline upgrade can be used as a stand-alone system or with the LAN version to provide a multiline fax server.

The **LAN version** allows LAN workstation users to share a fax server. OS/2 workstation users get all the features of the stand-alone PMfax product, and support for Windows, NT and DOS workstations is also available. The LAN version supports privacy and security for each workstation user; automatic routing of received faxes based on DID, DTMF, OCR, T.30/T.33 subaddress, CSID/TSI or line routing; E-mail interfaces; and many other features.

Developer toolkits are available (free!), including the **Enhanced Printer Driver Toolkit** for creating and sending sophisticated fax documents from your files and applications, and the **Client/Server API Toolkit** for full-featured control of fax sending, receiving, routing and status reporting from your OS/2 applications. If you need proven and fully-supported developer tools for faxing on OS/2, see the Keller Group web site.

Contact your reseller or Keller Group for upgrades, options and details.

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PMfax Reference Manual

Fax Software Solutions

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Chapter 1 - Introduction

*This is a **reference** manual. See the [User's Guide](#) for general information on installing and using the PMfax product.*

PMfax is an application for managing fax documents using a computer and compatible fax hardware. PMfax works with all fax modems that follow the common fax command sets (Class 1, 2, 2.0, etc.) and also supports other types of fax hardware (details in the [README](#) file).

PMfax supports a fax printer driver so your applications can directly "print" and send fax document, but this is only a small part of what PMfax can do. The PMfax program is a full-featured application that supports extensive functions for the creation, viewing and editing of fax documents. PMfax version 3 added voice support, enhanced API interfaces and many other features. PMfax version 4 added even more features and extended these features to multiple operating systems.

New Features

The following new features and options were added in PMfax for OS/2 version 3, and are now available for all platforms in PMfax version 4:

Enhanced cover sheets are now supported, including full editing so you can position the fields anywhere on your cover sheet, place your signature after the comment field, and put logos and images anywhere on the page. You can even use borders which will automatically stretch to accommodate long cover sheet comments.

Voice support for telephone voice/fax hardware is provided, including integration with Multimedia audio, voice scripts that you can modify and enhanced for doing voice mail, remote message and fax retrieval, fax-on-demand, forwarding, paging and other voice/fax answering services. Supported hardware includes many voice/fax modems and Brooktrout TR114 boards.

The new **universal log** supports fax, voice, text and data items in the log. Icons in the log identify the type of the item and show if a fax has been printed. New page numbering shows if a cover sheet is used, how many pages were successfully sent before a failure, and so forth. Text items can be converted into a fax or sent, including use of printer driver commands to control fonts and formats. In the LAN version, the voice, text and data items can be routed to other workstations just like fax items.

Internet E-Mail support is provided. This allows you to send and receive documents via e-mail with some Internet e-mail products. When our fax software and cooperating e-mail products are used for sending and retrieving the e-mail, the document is transparently delivered to the receiver and appears in their log as a received document. You can forward your fax and/or voice messages to your Internet e-mail mailbox, so you can access your messages and faxes by retrieving your e-mail messages and your faxes and messages will appear as "received" items in the fax software. Support for advanced Relay Systems is also provided.

You can now **drag-and-drop "anything"** in the log. You can use drag-and-drop to copy or move objects of all types (fax, voice, text and data) from the log to the desktop or a folder. All log record information stays with the file as extended attributes, so the object can be fully restored to the log when you drag it back. You can also append multiple faxes together by dragging them from the log, desktop or folder to the workspace, play a voice message by dragging it to the workspace, or view text and data (hexdump) items by dragging them to the workspace.

A full **REXX API** is included. REXX programs can now be used to control receive mode, send faxes, check job status, process items from the log, print or delete fax files, modify phone book records, generate reports from the log

or phone books, and more. The REXX interface lets you create advanced applications which deal with voice, fax, text and e-mail. The complete REXX API is documented and included in the retail version. You can distribute your REXX applications without royalty to other licensed users of the retail products. Your REXX programs will work with all supported hardware, and will even work with our multiline and LAN versions.

Multi-character searching in the log and phone books makes it fast and easy to locate the item that you need.

Enhanced drawing tools for lines, boxes, circles, ellipses, arrows and check marks are provided for the Edit Draw command. Now it's even easier to fill out forms and fax them back!

Printer driver commands can now be embedded in the documents from your Windows or DOS programs for automatic sending and other features.

You can use **drag-and-drop from the Color Palette** to change the workspace color or log background color, and Ctrl-Drag to set colors for different status types in the log.

Priority sending is provided to allow an important fax to be sent before other spooled fax jobs.

Hold mode is provided to temporarily suspend faxing or gracefully shut down a busy system.

The **intelligent retransmission option** can be selected to resend just the unsent pages. The ability to specify a page range is also included in the Resend command.

You can do **automatic retry just for BUSY failures** or all failures. Some users prefer to check the fax number before retrying other types of failures.

The **Utility Maintain log** command now supports automatic daily operation and the ability to archive the documents and log entries to an archive directory.

A new **Cut command** will separate pages that were "stuck together" when faxed to you.

You can now **modify a previously sent cover sheet** and resend the document (by using Ctrl-double-click on a log item) or modify a previously sent cover sheet and apply it to your current document (by using Alt-double-click on a log item).

New **recipient editing** lets you review, edit or delete items in your list of recipients before sending. Double-click on a recipient in the Send dialog to get a recipient edit/delete dialog.

With **COM support** for fax modems you can use both COM devices (from COM.SYS, SIO.SYS or other third-party device drivers) and FMD devices (from our FMD.SYS device driver).

The **Shared option** for fax modems waits for the line to become available for sending if your data communications program is using it, and (with FMD ports) allows your data communications programs to use the fax modem without taking PMfax out of receive mode.

The ability to accept "**hot handoff**" **calls from data programs** for data/fax line sharing is now supported. Data programs which use this feature can pass the call to the fax program after they have answered the phone and determined that it is a fax (rather than data) call. Ask your data communications software supplier if they support this feature.

You can start **current call receiving from the command line** or with a program icon using a new start-up parameter, thereby making it easier for you to share a line for voice and fax calls.

Prompting for client data is supported so you can generate charge-back reports or do other tracking on all your fax usage.

T.30/T.33 Subaddress Routing is supported with Class 1 fax modems and Brooktrout cards. This can be used to automatically route faxes to the recipient when faxing to our LAN products or other LAN fax systems which support

this standard. To use outbound Subaddress Routing, simply put a ' (single quote) character after the regular fax number followed by the route digits.

The **LPT49 utility** is included to add LPT ports so you can install the fax printer driver on LPT4 - LPT9 if you are already using LPT1, LPT2 and LPT3 for other printers.

The **fax printer driver** is now faster and takes advantage of new Warp features. It also supports word wrapping in >>FONT emulation mode.

Hardware support is enhanced and now includes Brooktrout, GammaLink, Class 2.0 modems, modems with Caller ID and other fax hardware. See the User's Guide and on-line Help for information on using Caller ID.

The **LAN and Multiline versions** now support multiple fax servers, enhanced automatic routing (by DID, DTMF, OCR, T.30/33 Subaddress, TSI/CSID, or line number), multiuser voice messaging and remote fax/voice retrieval, routing groups, "first page only" viewing option for manual routing, customizable notification options, improved support for Notes e-mail, new interface for the fax administrator, automatic busy call blocking for optimized throughput between multiline systems, and more.

The OS/2 programs are now **translated into more than 25 languages** including Czech, Danish, Dutch, Finnish, French, German, Hungarian, Italian, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, UK English, Catalan, Bulgarian, Turkish, Greek, Brazilian Portuguese, Slovenian, Japanese, Korean, Traditional Chinese, and Simplified Chinese.

Chapter 2 - Installation Reference

This section contains additional detail about installing the software. The information in the User's Guide will be sufficient for most users, but you can consult this section for additional details and special circumstances.

Before installing PMfax, see that your fax hardware is properly installed. Consult your fax hardware documentation for instructions on hardware installation. The appendices and the README file many contain additional information about your fax hardware.

Installing the Software

1. **Read the README file that is included on the distribution diskette.** This file contains the latest information about installation and fax hardware. Additional information about fax hardware is in the appendices of this manual.
2. **Install the program and fax printer driver as follows.** (If you purchase PMfax on a CD from a reseller, see the instructions with your CD.)
 - **Download the PMfax distribution file for your operating system, save it to the directory that you want to be your PMfax program directory and execute the self-extracting distribution file.** The distribution file will unpack the necessary files and provide you with instructions.
 - **Run the PMfax program to install.** PMfax automatically runs in "self-install" mode the first time it runs after unpacking the distribution file. (If you wish to force PMfax to reinstall itself later, you can use the `-install` command line parameter.)
 - **Run the PMfax program again,** and it will prompt you to select the port and set the configuration values for your fax hardware. See the README file for any special settings that may be required for your fax hardware.
3. **On OS/2, install the WIN-OS/2 printer driver if you will be printing from Windows applications.** See the section called *Faxing - Windows Applications* in the User's Guide for instructions.

Selecting the LPT device for the fax printer: By default, the INSTALL program installs the fax printer object as LPT3, but you can select another LPT device if necessary to avoid conflicts with your other printers. Most platforms provide at least three logical printer devices for your use (LPT1, LPT2 and LPT3).

If your OS/2 system loads LAN drivers, the LAN software may provide additional devices such as LPT4 - LPT9 for your use. If not, we provide the "LPT49" utility on the distribution diskettes to make these ports available. If you use a device such as LPT4 and wish to print faxes from Windows applications on OS/2, you must edit the WIN.INI file (in the directory \OS2\MDOS\WINOS2) to add lines like "LPT4:=" to the [PORTS] section to make these additional printer devices available in WIN-OS/2. After adding these lines to the WIN.INI file and restarting WIN-OS/2, you can set the Proprinter or LaserJet printer to this port (see the User's Guide's *Faxing - Windows Applications* section).

Notes on Printer Drivers

There are two different ways in which printer drivers are used:

Printing fax documents to paper - The PMfax application program uses your "real" printers for printing its fax documents to paper. You probably installed the necessary printer drivers for your printers when you installed your operating system. The printing of fax documents to paper does not involve the FxPrint printer driver.

Creating fax document by using the Print command in your other applications - This requires the FxPrint printer driver. The FxPrint printer driver is typically used by *other* applications, not by the PMfax application program itself. By default, PMfax has already installed the FxPrint printer driver for you.

On OS/2, you should verify both the printer object and printer driver settings. Most applications use the printer object settings, but some OS/2 applications incorrectly use the printer driver settings, so it is best to make any changes in both places. To do this, display the pop-up menu for the FxPrint printer object by pointing at the printer object and clicking mouse button 2. Click on the arrow to the right of **Open**, then click on **Settings**. Click on the **Printer driver** tab. Now press the *Job properties* button to see the printer object's configuration, or double-click on the FxPrint icon in the notebook's *Printer driver* window to see the printer driver's configuration. The fields are described in the on-line help.

Note: Leave the fax printer driver associated with a logical device name (like LPT3) on the **Output** page of the printer object's settings notebook. The logical device name is used when printing to the fax printer driver from WIN-OS/2 and DOS applications on OS/2. Don't use a COM device since OS/2 will only redirect DOS and WIN-OS/2 output if an LPT device is used.

Note on printing from WIN-OS/2 applications: The FxPrint printer driver is an OS/2 printer driver. WIN-OS/2 applications running on OS/2 require a WIN-OS/2 printer driver for printing. Before you can print fax documents with your WIN-OS/2 applications, you must install a WIN-OS/2 printer driver from your OS/2 installation diskettes and associate it with the same logical device (like LPT3) that is used by the FxPrint printer driver. See the *Faxing - Windows Applications* section in the User's Guide for instructions.

Updating from a Previous Version

You should always backup your system prior to installing a new version. You can update your fax program by installing the new version into the same directory as your previous version.

When installing over a previous version with the Web downloaded version of PMfax, the self-extracting distribution file will automatically retain your past work when you unpack it in your PMfax program directory.

When installing over a previously installed version with a version of PMfax on CD with the INSTALL program, the INSTALL program will provide a pop-up prompt before overwriting a program data file that you have modified. You can retain your past work by telling the INSTALL program not to overwrite the FAX.LOG, FAX.IDX (current fax index number) and DEFAULT.PBK (phone book) files.

If you change the setting of the *Fax data directory* when running the INSTALL program to update your system, you must move your data files to the new data directory after running the INSTALL program if you want to retain your past work. Move the FAX.LOG, FAX.IDX, *.FAX, *.MSG, *.TXT, *.PBK, *.CVR and *.BMP files to the new fax data directory.

For best results when updating, do the following:

1. Close all applications that might access the fax printer driver.
2. Reboot your system.
3. If you have any fax printer objects in folders, open those folders so that all printer objects are visible on your desktop.
4. Run the INSTALL program (CD-based) or the PMfax program with the `-install` parameter (Web-based).

Note that OS/2 locks printer drivers once they have been accessed by any application. But if the above procedure is used, the program will automatically delete the old FxPrint printer driver and old FxPrint printer objects, then install and configure the new FxPrint printer driver and printer object.

Chapter 3 - Start-up Reference

This section contains additional detail about starting the software. The information in the User's Guide will be sufficient for most users, but you can consult this section for additional details and special circumstances.

Double-click on the PMfax program object to start the program.

Before sending or receiving fax documents with the PMfax software, you must check the configuration values and make any necessary changes. **Be sure to check the README file to see if special settings are required for your fax hardware.**

To exit PMfax, choose the **Fax Exit** command, or close the PMfax window. If the program is performing a background activity when you exit the program, you will be prompted to confirm the action. Examples of background activities are sending, waiting to send (i.e., fax document are spooled for transmission), receiving and printing.

Initial Start-up and Configuration

The first time that you run the PMfax program after running INSTALL, the program will display its Settings notebook so you can select your fax port and configure your fax hardware. You can also use the **Utilities Settings** command to display the Settings notebook whenever you wish.

The **Ports** page will display the list of fax ports (lines) in your system. Double-click on a line to toggle the line status to *Send/Receive*, *Send*, *Receive*, *Standby* or *Off*. (A *Standby* line is for multiline and/or API use, and it will appear in the status window but will not be used by the fax program for normal sending or receiving.) The ports list will depend on your type of fax hardware. If your fax hardware ports do not appear, then the fax hardware or drivers are not correctly installed and you should consult the appendix that is appropriate for your type of fax hardware for instructions.

The **Modem** page(s) will display important settings your type of fax hardware. Use the *Help* button for detailed explanations.

Starting with a Command

If you prefer, you can start PMfax at an OS/2 prompt or from a command (CMD) file. If the PMFAX.EXE file is in your current directory or in your search path, simply type PMFAX to start the program. If not, type the full pathname of the PMFAX.EXE file.

For example, the command to start the program in receive mode is:

```
PMFAX -R
```

You can provide the name of a file (TIFF Class F fax file, Wave audio file, or text file) as a parameter, and the program will display or play the specified file:

```
PMFAX c:\xyz\myfax.tif
```

If the program is already running when you again call it with a filename parameter, the running copy will display the specified file. This is a command line way of telling the program to display a fax or play a voice message.

Starting Automatically

You can tell your OS/2 system to automatically start the PMfax program every time it boots. Put a shadow of the PMfax program object in the Startup folder to make this happen.

Another way to automatically start PMfax is to add commands to your C:\STARTUP.CMD file. For example, if your CONFIG.SYS file includes the fax directory in the PATH, adding this line to C:\STARTUP.CMD will automatically start PMfax in receive mode each time you boot:

```
START PMFAX -R
```

If the PMFAX directory is not in your path, use the full pathname of the PMFAX.EXE file to start the program.

Start-up Parameters

Parameter	Action
<i>filename</i>	A file name may be provided as a parameter, and the program will display the specified file. If the program is already running when you again call it with a filename parameter, the running copy will display the specified file (i.e., you can call the program multiple times, but a single running copy is maintained). This is a command line way of telling the program to display a fax or play a WAVE file.
-INSTALL	Force PMfax to install (or reinstall) itself, including its fax printer driver and icons.
-R -RC -R1	Receive - Turns receive mode on to answer calls and receive fax documents. Use -R for "receive all calls", -RC for "receive current call", or -R1 for "receive one call" mode.
-V	Verbose output - Writes a 'verbose' debugging log to the file 'vout' in your fax data directory (the directory which contains your fax.log file). On Linux, a 'vout2' file may also be created. The file(s) should be sent to technical support personnel if you have a problem. If you are having a problem sending or receiving with your fax hardware, restart the program with this optional parameter, try the send or receive operation again, then exit the program. The vout/vout2 file(s) shows how your fax hardware is responding to all commands.

-L <i>newdir</i>	Log directory - Explicitly specifies the fax data directory. The <i>newdir</i> is the pathname of the drive and directory that contains the FAX.LOG file and other fax data files (FAX.IDX, *.FAX, *.PBK, etc.). If you move your fax data directory, you can use this parameter to tell the program where to find the fax data files (the program remembers the location, so the parameter is only needed once). If you have multiple fax data directories, you can use this parameter to force the program to use the correct fax data directory. With a workstation copy of the software in LAN private mode, the software infers the userid from the <i>newdir</i> pathname so you can use another user's fax data directory (given appropriate LAN permissions).
-I <i>inifile</i>	Ini file - Explicitly specifies the full pathname to the fx.ini file where PMfax settings are stored. For example: PMFAX -I c:\pmfax\fx.ini
-O <i>workdir</i>	Working directory - Explicitly specifies the working directory for PMfax.
-P	Previous log directory - With a workstation copy in LAN private mode, this tells the program to use the previous fax data directory rather than querying the userid from the LAN Server software and using this to determine the appropriate fax data directory.
-D	Disk check - Disables disk space check. By default, the program disables sending/receiving and notifies user with a pop-up message if available space on the fax data drive falls below 10kbytes.
-D <i>kk</i>	Modifies the automatic check for space on the fax data drive to use <i>kk</i> kbytes as the limit rather than the default of 10 kbytes. For example, -D 100 causes the program to disable sending/receiving if available space falls below 100 kbytes (100 x 1024 bytes).
-SI -SB -SS -S##	Status window adjustments - Forces the status window to be totally invisible (-SI), stay in background rather than making itself visible when a receive event occurs (-SB), show itself right away rather than waiting for a background event (-SS), or change its size to display the indicated number of fax lines (for example, -S16).
-FI -FM -FX	Fax window adjustments - Makes the fax window be totally invisible (-FI), start minimized (-FM) or start maximized (-FX). Invisible operation can be used when controlling the program through the API Toolkit interface as a hidden fax engine.
-C 351,850	Overrides the country code (like 351) and code page (like 850). By default, the values from your OS/2 system setup are used.
-H	Start in "hold mode". No send/receive until you uncheck the Fax Hold command, use FxRcv -release, or use REXX FxRxMode().
-K -K#	CALL CONSOLIDATION - Automatically consolidates jobs which are spooled to the same fax number at the same priority. Consolidation means that the software will try to send the jobs during a single telephone call rather than making a separate call for each job. If the optional number is included after the -K, consolidation will include both jobs that are spooled for sending now and jobs that are spooled for sending up to that number of minutes in the future. Using the "resend unsend pages only" setting is recommended. The fax software automatically "unwinds" the consolidated job to provide a final status for each individual job, so consolidation is largely transparent to the sender. Consolidation is useful when sending multiple fax jobs to a paper fax machine since it generally reduces total transmission time (and each job retains its own cover sheet and header lines, so jobs can be separated by the receiver). Consolidation should be avoided when sending to LAN fax systems since it may be difficult to separate and route the jobs to the individual recipients.

-N#	<p>"HOT CALL" RECEIVING - Can be used to receive a "current call" fax (when you've answered a call and then realize that someone is sending you a fax) or as a way for a data program to pass "hot" calls to PMfax and have PMfax receive the fax. "Hot" means that the COM port is already open and the modem has already picked up the call, so we need to receive on the attached port without resetting the modem or dropping the call. It doesn't matter whether or not the PMfax program is running. You tell PMfax what to do by using the "-n" parameter followed by an appropriate value. The value is a number composed of the following bits:</p> <p>bit 0 0 means reset the modem and take it offhook</p> <p>1 means assume modem is already connected</p> <p>bit 1 0 means we open our configured port</p> <p>1 means you are providing an open COM handle</p> <p>bit 2 0 means we will stay running & display the fax</p> <p>1 means we will log the received fax and exit</p> <p>For example:</p> <p>-n0 current call receive, then display the fax</p> <p>-n7,10 hot receive on open COM handle 10, then exit</p>
-Z faxnum -Z -Z abc	<p>FORWARDING / RELAY MODE - If -Z is used with a "fax number" (example: -Z 1612555555), the software will automatically forward all received faxes to the designated fax number. If the E-Mail command is configured in the settings notebook, -Z can also be used with an e-mail address (example: -Z user@ibm.net) to automatically forward all received items (fax, voice, etc.) via e-mail. If used without a value or with a value of less than four characters, the software runs in "relay mode" with the "relay authorization code" being the provided value (or "++" if no value is provided). See the chapter on "Internet Services and Relay Systems" for detail.</p>

Various data communications programs now support "hot call handoff" to PMfax. This allows these programs to answer an incoming call from a data or fax caller, handle the call themselves if it is a data call, or pass the answered call to PMfax if it is a fax call. Check with your OS/2 data communications software company to ask if they support this feature, or see the Documents area at <http://www.cds-inc.com> for a current list of software packages which provide this support.

Environment Variables

A few environment variable settings are available for optimizing performance or overcoming conflicts with certain hardware.

FAXTMP Environment Variable - If desired, you can tell PMfax where to store the temporary files that it creates as it runs. This allows you to use a RAM disk or a different disk drive as the temporary storage area. The temporary files are primarily used to hold fax document pages that have been modified but not yet saved to the fax document file. Using a RAM disk can provide improved performance when paging through modified fax documents.

To use this optional feature, add a line of the following form to your CONFIG.SYS file:

```
SET FAXTMP=D:\TMP
```

where D: is the drive and \TMP is the directory on the drive which you wish to use for the temporary files. Note that fax pages can get quite large (approximately 50 kbyte per page), and the specified drive should have sufficient space

to hold multiple fax pages so as to avoid interfering with your ability to edit fax documents. If no FAXTMP environment variable is used, the PMfax program uses the fax log directory for its temporary files.

SATISFAX_IOADDR Environment Variable - By default, the program will automatically locate the SatisFAXtion fax coprocessor boards that are installed in your system. In rare cases, the nondestructive I/O reading commands that PMfax uses to locate SatisFAXtion boards may interfere with other hardware adapter boards in some systems. You can override the automatic locating features by using an environment variable to tell PMfax where to look for the SatisFAXtion board(s). For example, you can tell PMfax that your board is set for 310H by adding a line of the following form to your CONFIG.SYS file:

```
SET SATISFAX_IOADDR=310
```

For the PMfax multiline version, this can be a list of addresses:

```
SET SATISFAX_IOADDR=310,320,330
```

Chapter 4 - Printer Driver Reference

This section contains additional detail about the fax printer driver. The information in the User's Guide will be sufficient for most users, but you can consult this section for additional details and special circumstances.

For user instructions on how to print faxes from your OS/2, DOS and Windows applications, consult the PMfax User's Guide.

Configuring the Printer Driver

The FxPrint printer driver has configuration options, including an *Action* setting that allows you to select whether or not you want the Send pop-up dialog box whenever you print to the printer driver.

As part of their Printer setup dialog box, most OS/2 applications let you temporarily change the printer configuration items by pressing a *Setup* button. The *Setup* button displays the Printer Driver Configuration dialog box. Changes made in this way apply only to the particular application, and such changes are usually temporary.

To make changes that will be remembered and used as the default settings by all applications, you should make your configuration changes to the FxPrint printer object. Actually, while most applications use the printer object settings, some OS/2 applications incorrectly use the printer driver settings, so it is best to make any changes in both places.

To do this, display the pop-up menu for the FxPrint printer object by pointing at the printer object and clicking mouse button 2. Select **Settings** from the pop-up menu. Click on the **Printer driver** tab.

Now press the *Job properties* button to see the printer object's configuration dialog box, or double-click on the FxPrint icon in the notebook's Printer driver window to see the printer driver's configuration dialog box. The same dialog box is used for both, but the values for the object and driver might be different.

Page Length selects the page size for your fax pages.

Orientation selects either portrait or landscape mode. Landscape mode is sometimes used to print spreadsheets or other documents that are too wide to fit in a normal 8.5" page width.

Resolution selects either fine (200x200 dpi) or normal (200x100 dpi) resolution for your fax document. Using fine mode will improve the quality of your fax documents, but the fax documents will be larger and therefore take longer to transmit.

Action lets you choose the printer driver's processing action:

Send pop-up the printer driver will provide a pop-up dialog box to give you the option of immediately sending the fax

document. This dialog box is like the Fax Send dialog box in the PMfax application program. Most Fax Send options are available to you, including the use of cover sheets, header lines, phone books and deferred transmission.

Log entry the printer driver will write the fax file and place an entry in the PMfax log with a status of *Print*. You can then use the PMfax application program to view, edit and send the fax document.

Tones is used to enable beeping tones during printer driver operation. If *Tones* is *On* but no tones occur when you print to the printer driver, that means that the printer driver is not being accessed, so any problem is probably due to an OS/2 configuration issue.

LPT Emulation is used to select the desired type of printer emulation. This setting will not affect printing from true OS/2 applications that use printer drivers, but it will affect printing from DOS applications, Windows applications and direct printing to the LPT device. The emulation settings may include the following:

>>*FONT* will recognize all >> fax printer driver commands as described in the *Printer Driver Commands* section later in this chapter. If you wish to use the >>*FONT* command and certain other >> commands, emulation must be >>*FONT*. Some commands, such as >>*TO*, can be used in all emulations if a printer font is used for the command which allows it to pass through to FxPrint as text characters.

IBM Proprinter X24E emulates the IBM Proprinter X24 printer. Because it is assumed that Proprinter codes will be used for font control, the >>*FONT* fax printer driver command will not be recognized. Proprinter output is directly mapped onto the fax page, producing optimal quality but at a slightly reduced size.

IBM PP X24E enlarged is like the *IBM Proprinter X24E* setting, but it enlarges the output to use the entire fax page.

HP LaserJet PCL (if available) emulates the LaserJet III printer's Printer Control Language (PCL5). Because it is assumed that PCL commands will be used for font and page control, the >>*FONT* and >>*PAGE* printer driver commands will not be recognized. To use the PCL emulation, tell your other applications to treat the FxPrint printer device like a LaserJet III, IIP, II or IIP printer. Do not use IIID or IID settings since duplex commands may corrupt your results.

HP PCL normal res light alters the way that the PCL emulation produces normal resolution fax documents. If you are using the HP LaserJet PCL emulation setting and feel that the fax document is too dark, use this setting to put *less ink* on the page for a lighter result.

What if you sometimes want a certain printer configuration, and other times want different printer settings? One approach is to create multiple OS/2 printer objects. You can create multiple printer objects which use the same printer driver (FxPrint), and each printer object can have its own name, *Job property* settings, and LPT port. *For example, you might want one printer object with its Job properties set to >>FONT emulation for using the printer driver commands, and another set to Proprinter or LaserJet emulation for use by your DOS and Windows programs.*

What if you don't have available LPT ports for the printer objects? If the normal LPT ports (LPT1, LPT2 and LPT3) are in use, you can create additional LPT ports for use by the fax printer driver. The LPT49 utility will create LPT4 through LPT9 on your system. You can install the fax printer object on any of these LPT ports. You can create multiple fax printer objects on different LPT ports and each printer object can have different job properties (orientation, resolution, length, emulation).

Note that the printer driver turns any *printing* application into a *faxing* application. Some ideas and suggestions:

- Use OS/2 applications for the best results and performance.
- Use the Adobe outline fonts for best text quality. Be sure that you have installed the Adobe fonts that come with OS/2. If you are printing from Windows applications, you may want to install and use the Adobe fonts for WIN-OS/2.

The printer driver allows you to use each application for what it does best. For example, you could use a drawing application to create artwork, then use the printer driver (or PCX files) to place it in a fax document. Use a desktop

publishing application to create complex documents, and then use the printer driver to convert them into fax documents. Or use a database report generator application to extract data from a database, build a fancy report with embedded graphics, and print it to create a fancy fax document. Rather than printing it to paper, print it to the FxPrint "printer" to make a beautiful fax!

Printer Driver Commands

This information is included, without support, for those who want to use advanced "developer" features of the printer driver.

Additional printer driver commands, documentation and examples are available in the "Enhanced Printer Driver Toolkit". The enhanced printer driver provides additional commands for pasting images, adding graphics, and attaching other fax documents. It is a fax description language for creating and broadcasting fax documents.

The "Client/Server API Toolkit" is also available. The API is for developers who are writing applications in the C Language or another OS/2 programming language. The API provides a powerful interface for developing client-server applications that use the fax engine, including support for stand-alone, LAN and multiline versions. All toolkits are free and can be obtained from the Keller Group web site (<http://www.cds-inc.com/>).

Other applications can use PMfax as a *fax server*. Complexities of creating fax documents and dealing with fax hardware are handled by PMfax, and by using the services of PMfax, the applications will work with all types of fax hardware supported by PMfax.

The PMfax printer driver (FxPrint.DRV) provides special commands that can be used by other applications to automatically send fax documents. For example, another program could convert a report or e-mail message into a fax document and spool the fax document to PMfax for transmission. Or the developer of a word processor with a mail merge feature could implement a "fax merge" feature which automatically transmits fax documents using PMfax.

Creative users can also use printer driver commands for many purposes. For example, you might wish to use the commands that are described in this section to do the following:

- By copying text to the printer driver's LPT device, you can convert ASCII text into a fax document and send the fax document.
- By copying a few commands to the LPT device, you can send a cover-page-only note to a specified fax number, or broadcast the note to multiple people.
- By placing commands in a special file, you can tell the printer driver to automatically send the next print job to a specified fax number. Many applications can use their built-in macro language to write the file.

The printer driver commands have a simple syntax. A command must start at the beginning of a line, and all text until the end of the command's line is assumed to be part of the command. All command lines start with a special tag that consists of two greater-than characters (">>"), the command name in upper case, and an equal sign ("="). Everything on the command's line after the equal sign is the parameter list for the command. The parameter list is a "Comma-separated value" list where parameters are interpreted just like the elements in a phone book record (i.e., parameter values that contain comma characters or double quotation marks must be enclosed in double quotation marks, and double quotation marks that are part of a parameter value must be doubled). If an asterisk ("*") is specified for a parameter, the default value for the parameter is used.

Important - The FxPrint printer driver can only interpret the special commands if it receives them as ASCII text. It can't recognize the commands if they have been converted to a printer-specific or graphics format. Specifically:

1. When printing from DOS or Windows applications, printer driver commands can be used in documents that are printed to FxPrint using PCL or Proprinter emulation. **The commands must be in a LaserJet or Proprinter printer font so that they will pass through to FxPrint as recognizable text characters.** The fax printer driver will automatically remove the commands from your document. For example, you can embed >>TO commands to automatically send the fax document.

2. In general, you cannot include the >> commands in your OS/2 word processor's document and expect the printer driver to see the commands. If your application prints in a plain ASCII mode directly to the LPT device or has a mechanism for passing text commands to the printer (like the FaxPhoneNumber macro in DeScribe 5.0), or if you use your editor to create a plain ASCII file that you copy to the LPT device, then you can include the >> commands in your file. But if your application prints graphically to the OS/2 printer driver, use the FAX.GGS file as described later in this section rather than >> commands in your word processor's file.
3. If you are using the OS/2 Workplace Shell's drag-and-drop feature to drop your text file on the FxPrint printer object, your file object's type must be *Printer-specific* rather than *Plain Text*. When a *Plain Text* file object is dropped on a printer object, the Workplace Shell does the text-to-image conversion, and this prevents the printer object from seeing the special commands.

Send Commands

The Send commands specify cover sheet, header line and destination information for the fax document that will follow. If a destination fax number is specified, then the printer driver's pop-up dialog box will be suppressed and the fax document will be directly spooled for transmission, otherwise (assuming the send pop-up action is selected in the FxPrint printer object's job properties) the pop-up dialog box will be displayed with any specified >>FROM=, >>INFO= and >>AT= command information overriding the default field values. If information that will appear on the cover page is specified, then the cover page is enabled, otherwise the cover page is disabled. If header line text is specified, then header lines are enabled, otherwise header lines are disabled. The send commands are as follows:

>>TO= *name, company, faxnumber*

This command is used to spool fax jobs for transmission. The *faxnumber* is required, and is the telephone number (including dial macros, if desired) that will be dialed to reach the recipient's fax machine. If a *name* or *company* is specified, then generation of a cover sheet is implicitly enabled. If either *name* or *company* is omitted, then it will not appear on the cover sheet (if any). Use of this command suppresses the pop-up dialog box for sending. Multiple >>TO= commands can be used, and will cause the fax document to be spooled to each recipient (i.e., broadcast).

>>FROM= *name, company, phonenumber, faxnumber*

This specifies the sender information that will appear on the cover sheet (and implicitly enables the generation of a cover sheet). If a parameter is omitted, then the corresponding line will not appear on the cover page. If an asterisk ("*") is specified for a parameter, then the default value (as set in the Settings notebook of the fax application program) is used.

>>INFO= *comment, heading, notes, bitmap, size*

The *comment* value is the comment text for the cover page. The *heading* value is the text for the page header (and implicitly enables page headers). The *notes* value is the note text that will appear in the fax log. The *bitmap* is the name of the bitmap file that will be used on the cover sheet. If a *comment* or *bitmap* is specified, then generation of a cover sheet is implicitly enabled. If either *comment* or *bitmap* is omitted, then it will not appear on the cover sheet (if any). If an asterisk ("*") is specified for *comment*, *heading* or *bitmap*, then the default value (as set in the Settings notebook of the fax application program) is used. The *size* value is 0 for a short cover sheet, 1 for a full-length cover sheet or 2 for no cover sheet. If no cover sheet is desired, this should be the last command since other commands may implicitly re-enable the cover sheet.

>>AT= *time, date*

The *time* and *date* values are used just like the *Time* and *Date* fields on the send pop-up dialog box to specify the time and date for transmission of the fax document. If the >>AT= command is not used, then the >>TO= commands will be spooled for immediate transmission.

Text Conversion Commands

Any text lines that do not start with a command tag are interpreted as normal text that is to be placed in the fax

document. The text is placed on the fax page using the current font and point size. A margin is automatically placed at the top, left and bottom sides of the page. In version 3 and later, long text lines will automatically word wrap to successive lines, or the user can include carriage return and line feed characters. A new page is automatically started when the bottom of the current page is reached, or the user can force a new page using a form feed character or the >>PAGE command.

By default, the characters are placed on the fax page using 10 point Courier font with tab stops of 8 character widths. The >>FONT command can be used to change the font, point size and tab size values. The leading (line spacing) is about 120% of the point size, so the default font and margin settings will provide 66 lines per page.

IMPORTANT NOTE: The >>FONT command is only recognized when the printer object is configured with its *LPT Emulation* set to >>FONT. If a different printer emulation mode is used, you must use the printer control codes of the emulated printer to control fonts.

The >>FONT line will appear in the fax document as normal text if the printer object's emulation setting is not >>FONT.

>>FONT= *font, points, tabchars*

The *font* can be the name of any font that is installed in OS/2 (using the Adobe fonts is recommended). Use the **Edit Font** command in the fax application program to see the names of the installed fonts. Example font names are Courier Bold, Helvetica Italic, Times New Roman, etc. If the *font* value is omitted, the font is not changed. If an asterisk ("*") is specified as *font*, the default font is selected.

The *points* is the point size of the font. If the points value is omitted, the point size is not changed. If an asterisk ("*") is specified as *points*, the default point size (10 point) is selected.

The *tabchars* is the number of average characters widths that will be used for tab stops. If the *tabchars* value is omitted, the value is not changed. If an asterisk ("*") is specified as *tabchars*, the default value (8) is selected.

Other Commands

>>DOC

This command separates fax jobs from a mail merge even when the printing application prints all merged documents as a single print job. Start your mail merge template with >>DOC followed by the >>TO command and other commands, if any. When FxPrint sees the >>DOC, it ends any current document and starts a new one, thereby separating each repeating document and sending it as a distinct fax job.

>>PAGE= *length, orientation*

The *length* is the page length in inches. The *orientation* is the value 0 (zero) for portrait orientation or 1 (one) for landscape orientation. If this command appears before any data is "printed" on the current page, then the new values will apply to the current page of the fax document, otherwise this command will cause a form feed with the new values taking effect on the new page in the fax document. If an asterisk ("*") is specified for either value, that value is not changed, in which case the value from the printer object (if the first page) or from the previous page (for subsequent pages) will be used. This means that the line ">>PAGE=*,*" will cause the same behavior as a form feed character in ASCII text.

Note: The >>PAGE command is only recognized when the printer object is configured with *LPT Emulation* set to >>FONT or an IBM Proprinter mode. If a different printer emulation mode is used (PCL emulation), you must use the printer control codes of the emulated printer to control fonts, and the >>PAGE line is treated as normal text.

>>FILE= *filename*

This command causes the fax file to be stored in the specified *filename* rather than placed in the fax log. The resulting file is in TIFF-F format (same as the *.FAX file that is associated with a fax log entry). If this command is used, any send commands (>>FROM, >>INFO, >>AT, >>TO, etc.) are ignored and no entry will be added to the fax log.

Note: The >>FILE command must be the first command sent to the fax printer driver.

Using Commands in the FAX.GGS File

The printer driver looks for a file called FAX.GGS in the fax data directory when starting a print job. If it finds this file, it assumes that the file contains printer driver commands and it applies these commands to the print job. For example, if the FAX.GGS file contains the line ">>TO=,,555-5555", the printer driver will spool the fax for transmission to 555-5555. The printer driver deletes the FAX.GGS file, so the contents of the FAX.GGS file apply only to one print job.

This works regardless of the type of printing... it can be from an OS/2 application, from a DOS application, from a Windows application, or from a text file that is copied to the FxPrint LPT device. It works for plain text printing and for emulation printing (Proprinter or PCL). If your word processor can write the FAX.GGS file using its macro language, it can now send a fax!

Functionally, this approach is similar to the way that some Windows fax products support DDE for specifying a fax number, but it's more general since you only need to write a file and the file can contain as many lines of >> commands as you desire.

CAUTION: The FAX.GGS contents will be used for the "next" print job. To ensure that the correct print job is transmitted, make sure that no other program prints to the printer driver between the time that you write the FAX.GGS file and the start of your print job. This is only a concern when using the FAX.GGS file method for passing the commands to the printer driver. The other methods include the printer commands within the printer data stream itself, thereby ensuring that the commands apply to the intended fax document.

Using Commands in Text

Printer driver commands can be included in text that is written to the FxPrint printer object's logical printer device (i.e., LPT3). While there are many ways to write text data to a logical printer device, it can be as simple as using a COPY command. For example, by placing appropriate command text and document text in a file, a fax document can be created and transmitted by simply copying the file to the printer device with the command:

```
COPY filename LPT3
```

Programs can also open the logical device and then directly write ASCII characters to the device. The printer driver commands can be used by all programs and command files that can access the logical device, including OS/2 programs and command files, DOS programs and command files, Windows programs, and even workstations that are using the logical printer device across a LAN as a shared LAN printer device.

Important: If you are using the OS/2 Workplace Shell's drag-and-drop feature to drop your text file on the FxPrint printer object, your file object's type must be *Printer-specific* rather than *Plain Text*. When a *Plain Text* file object is dropped on a printer object, the Workplace Shell does the text-to-image conversion, and this prevents the printer object from interpreting the special commands. *Printer-specific* files are sent directly to the printer object.

Note: A cover-page-only fax is created if printer driver command lines are written to the printer device without including any lines of normal text. Normal text causes a fax document to be created as described in the earlier section on *Text Conversion Commands*.

The following example file shows the use of printer driver commands. By copying this file to the logical printer device (e.g., LPT3), a fax document that contains text in several different fonts and point sizes will be created and sent to three recipients.

```
>>FROM=Joe Sender, Joe's Company Inc., 555-7788, 555-7766
>>INFO=Comment text for cover page, Joe's Co. Inc., Test,*
>>AT=5p, 3may92
>>TO=Bill Smith, Smith Corp.,555-5566
>>TO="Jim "JB" Brown", Brown & Sons, 555-9999
```

```
>>TO=Mark Jones, "Universal Fax, Inc.", 1 (213) 555-1122
```

This text will appear in the default font (Courier 10 point).

```
>>FONT=,16
```

Or you can make the current font bigger (this is Courier 16 point).

```
>>FONT=Courier Bold Italic,18
```

This text will be even bigger, bolder and italic.

You can have as many lines of text as you want.

When the end of the page is reached, a new page is started.

The default page length is a job property of the printer object, or can be changed on a page-by-page basis with the >>PAGE command.

```
>>FONT=Helvetica
```

This will be in Helvetica font, still in the 18 point size.

```
>>FONT=Times New Roman, 90
```

This is HUGE!

```
>>FONT=*,*
```

And back to the default font (Courier,10 point).

Using Commands in OS/2 Applications

Developers of applications that support printing to OS/2 printer drivers can extend their applications to directly spool fax documents by adding a few additional calls to their normal printing code. This is true even for applications that use GPI calls for printing (i.e., applications that support fonts and graphics).

The following example code shows how the >>TO= command and other printer driver commands can be passed to the FxPrint printer driver before issuing the application's standard printing commands.

Note: You must be the developer (not just a user) of the OS/2 application to use this method. Developers can use this method to provide a **Fax** command within their application, to add a fax merge option as part of their mail merge feature, or to build other fax transmission features directly into their program.

If you are a *user* of the application (but not the *developer* of the application), then you will generally need to use either the printer driver's pop-up dialog box or the method described in the previous section called *Using Commands in the FAX.GGS File* for sending fax documents from the OS/2 application.

```
VOID
    spool_fax(
    VOID )
    {
    HDC hdc;
    HPS hps;
    DEVOPENSTRUC dop;
    SIZEL sizl;
    PCHAR title = "MyFaxProg";
    PCHAR from = ">>FROM=Sam Sender, Sam's Company, 555-1111, 555-2222\r\n";
    PCHAR to = ">>TO=Rick Receiver, Rick Inc., 555-3333\r\n";
    PCHAR info = ">>INFO=Please read this fax, Sam Co., Cover.bmp\r\n";
    POINTL ptl;
    LONG n;
    ULONG faxid;
```

```

/* Fill in device open structure with selected printer information */
memset( &dop, 0, sizeof( DEVOPENSTRUC ) );
dop.pszLogAddress = printer_logname;
dop.pszDriverName = printer_drvname;
dop.pdriv = printer_drvdata;
dop.pszDataType = "PM_Q_RAW";
dop.pszComment = title;

/* Open printer device context */
hdc = DevOpenDC( hab, OD_QUEUED, "*",
sizeof( dop ) / sizeof( PVOID ), (PDEVOPENDATA)&dop, NULL );

/* Open printer presentation space (if needed for Gpi calls) */
sizl.cx = sizl.cy = 0;
hps = GpiCreatePS( hab, hdc, &sizl,
GPIF_DEFAULT | GPIT_NORMAL | GPIA_ASSOC | PU_LOENGLISH );

/* Signal start of document */
DevEscape( hdc, DEVESC_STARTDOC, (LONG)strlen( title ), title, NULL, NULL );

DevEscape( hdc, DEVESC_RAWDATA, (LONG)strlen( from ), from, NULL, NULL );
DevEscape( hdc, DEVESC_RAWDATA, (LONG)strlen( to ), to, NULL, NULL );
DevEscape( hdc, DEVESC_RAWDATA, (LONG)strlen( info ), info, NULL, NULL );

/* Generate the document (with Gpi or more DevEscape raw text calls) */
ptl.x = 100;
ptl.y = 100;
GpiMove( hps, &ptl );
ptl.x = 700;
ptl.y = 1000;
GpiBox( hps, DPO_OUTLINE, &ptl, 50, 50 );
ptl.x = 200;
ptl.y = 900;
GpiCharStringAt( hps, &ptl, strlen( title ), title );

/* Signal end of document and get fax log id number */
n = sizeof( faxid );
DevEscape( hdc, DEVESC_ENDDOC, 0L, NULL, &n, (PBYTE)&faxid );

/* Close printer */
GpiDestroyPS( hps );
DevCloseDC( hdc );
}

```

Chapter 5 - Voice Script Reference

This information is now in the [Voice Script Reference](#) document.

Chapter 6 - REXX API Reference

The REXX API allows you to "fax enable" your REXX programs, customize the voice answer scripts, and augment the product with your value-added features. The REXX API provides a wonderful opportunity for creating customized voice, fax, text and e-mail applications and delivering them to a diverse user community with:

No special toolkit required - Everything you need to use the REXX API is included in the PMfax retail product (version 3 or later).

No runtime royalty - The end user just needs a copy of the PMfax retail product. (REXX is not supported in the Lite BonusPak version.)

Fax hardware independence - The REXX programs can work with all supported hardware types (fax modems, Brooktrout, etc.).

Multiline support - The REXX programs will work with our multiline versions. One REXX script can handle all lines, and the script can provide different services on each line.

Advanced features support - All the advanced options are available, including support for multiple file servers from a single fax server, multiline fax servers with up to 96 lines per cpu, and multiple fax servers on the LAN.

The documentation for the REXX API is maintained in a separate [REXX API Reference](#) document in the documentation area at the Keller Group web site. Please see that document for details.

Chapter 7 - Internet Services and Relay Systems

This information is now in the [Internet Faxing and Relay Systems](#) document.

Chapter 8 - Utility Programs and Usage Analysis

FxRcv - Change Receive Mode, View Fax, Print Fax...

The FxRcv program, found in your fax program directory, can communicate with the PMfax program to change receive mode, display a fax, print a fax, and more. You can use the FxRcv program from a command line, command file or your own program.

The FxRcv program is especially useful with fax modem hardware. Because the operating system will not allow two programs to access the COM port at the same time, and because the same COM port is used for both fax and data communications with a fax modem, you cannot use the fax modem for a data communications call while PMfax is sending a fax, receiving a fax, or set in receive mode (if you have "Private" checked on the Modem page). PMfax must have the COM port open while it is waiting to receive in Private mode so that it can see when the phone is ringing. Using FxRcv, you can automatically change the program's receive mode from a command file which runs your data communications program. For example:

```
rem Turn off PMfax receive mode
\PMfax\FxRcv -off
rem Go you your data program's directory, and run it
chdir \comm_dir
```

```
comm.exe
rem Turn PMfax receive mode back on
\PMfax\FxRcv -all
```

You can also use FxRcv in a startup script to automatically start PMfax ('FxRcv -start'), and if you want it to be in receive mode you can follow that with the 'FxRcv -all' command.

At a command prompt, execute the FxRcv program without any parameters to see its help information.

Examples of using FxRcv:

```
FxRcv -off      turn receive mode off (Fax Receive Off)
FxRcv -all     turn receive mode on (Fax Receive All calls)
FxRcv -cc     like Fax Receive Current call command
FxRcv -one    like Fax Receive One call command
FxRcv -hold   hold all new send/receive activity (shutdown)
FxRcv -release resume activity (after using -hold)
FxRcv -view faxfile.tif view the fax file (TIFF-F files)
FxRcv -print faxfile.tif print the fax file (TIFF-F files)
FxRcv -print 1234      print the fax with id# 1234
FxRcv -print log      like Utilities Print log command
FxRcv -start         starts the fax program
FxRcv -stop         shutdown the fax program
FxRcv -rcvd faxfile.tif starts & add file to log as received job
    or
FxRcv -rcvd faxfile.tif from-id subject-notes
```

FaxChart Line Usage Program

The OS/2 FaxChart utility program can analyze your fax usage based on "lines used", "number of calls" or "minutes of line usage" for various date ranges and time periods. It reads your usage data from either the log or activity report file, then charts the results graphically as line, area or bar charts (with or without 3D). FaxChart helps you study your usage patterns and determine when to add additional fax lines.

You can download this free utility from the World Wide Web at <http://www.cds-inc.com>. The program is written in VX-REXX Client/Server Edition.

Charge-Back Reporting

You can make the software prompt the user for "client information" when sending a fax, and even prevent them from sending a fax without selecting a valid client number. This information is saved in the "notes" field of the log and the activity report, from which you can generate charge-back and usage reports.

Prompting is controlled by the FxNotes.INI file in the log directory (for stand-alone systems or shared mode LAN systems) or the public directory (for private mode LAN systems). The file may contain:

1. a "=Prompt Text" line to specify the prompt,
2. a second line with just "=" if you wish to prevent the user from sending a fax without selecting a customer number, and
3. additional lines which specify the values which will be displayed in a pull-down list for user selection. Each value can be up to 40 alphanumeric characters.

For example:

- 1) If the file exists but is empty, the user gets a prompt box but no pull-down list, and can enter a value or leave it

blank.

2) If the file contains only "**=Enter Customer Number**", the user gets a retitled prompt box but no pull-down list, and the user can enter a value or leave it blank.

3) If the file contains:

=Enter Customer Number

Cust 1, Matter 1

Cust 1, Matter 2

Cust 2

Cust 3

then the user gets a retitled prompt box and a pull-down list, and can select a value from the list, enter a different value, or leave it blank.

4) If the file contains:

=Enter Customer Number

=

Cust 1, Matter 1

Cust 1, Matter 2

Cust 2

Cust 3

then the user gets a retitled prompt box and a pull-down list, and **MUST** select a value from the list in order to send a fax.

Chapter 9 - Keypad Commands

A fax document is a set of one or more pages. One page is displayed at a time.

Scroll bars or cursor keys are used to view the current page.

The *page stack* areas or PgDn/PgUp keys are used to turn pages.

The *next page stack* is the pile of page edges under your current page. When you turn a page, a *previous page stack* appears to the left of the next page stack, showing the edges of the pages that have been turned.

To turn the page, click the left mouse button on the *next page stack* or press the PgDn key. To turn back to the previous page, click the left mouse button on the *previous page stack* or press the PgUp key.

You can use the Home and End keys on the keypad to go to the first and last pages in the document, respectively. To jump directly to a specified page, use the **View Go to page** command.

A blank page, indicated by the dashed page edge, is always available at the end of the fax document in case you want to append something to the document. When on the last page of the fax document, double-click on the *next page stack* or press Ctrl+PgDn to append a blank page.

Down	Scroll current page down
Ctrl+Down	Scroll current page down one window
Up	Scroll current page up
Ctrl+Up	Scroll current page up one window
Right	Scroll current page right
Ctrl+Right	Scroll current page right one window
Left	Scroll current page left
Ctrl+Left	Scroll current page left one window
PgDn	Go to top of next page
PgUp	Go to top of previous page

Home	Go to top of first page
End	Go to top of last page
Ctrl+End or Ctrl+PgDn	When on last page, append a blank page to the end of the document

Appendices

Appendix A -- Fax Hardware Overview

Important: If you experience any difficulty when trying to send or receive fax documents:

- 1) First read the README file to see if special settings are needed for your fax hardware.
- 2) Start the program with the optional **-V** parameter as described in Chapter 3 and try the operation again. This creates a detailed debugging log in the 'vout' file in your fax data directory that shows how your fax hardware is responding to all commands. The contents of this file may help you identify the problem, and technical support will want to have this file to assist you with your problem. On Linux, both a 'vout' and 'vout2' file may be created, and both should be provided to technical support.

The PMfax software uses different adapter files (*.ADP files) to deal with different types of fax hardware. As part of the installation process, you indicate the type of your fax hardware, and the INSTALL program copies the appropriate adapter file into the FAX.ADP file so that the PMfax program can use it to talk to your fax hardware.

Fax modems are one common type of fax hardware. With a fax modem, software communicates with the modem by reading and writing a COM port. Fax software controls the fax modem using special commands, and there are several standard fax command languages (Class 1, Class 2, Class 2.0, SendFax). PMfax uses the same adapter file for all fax modems, and you select the appropriate configuration settings for your particular fax modem on the *Modem Type* page of the PMfax settings notebook. Use the **Utilities Settings** command in the PMfax program to display the Settings notebook.

SatisFAXtion boards (specifically, the original SatisFAXtion board, the SatisFAXtion/200 internal board and the SatisFAXtion/400 internal board) are another type of fax hardware. They are a proprietary type of coprocessor board, and they use a special adapter file. See Appendix C for help with the SatisFAXtion boards. (This can get confusing because most other SatisFAXtion products are Class 1 fax modems, including the SatisFAXtion/100, /300, and /400e.)

Brooktrout boards and *GammaFax boards* are other types of coprocessor boards, and they also use special adapter files. Multiline versions of these boards are available, and this may be especially attractive for use with the LAN version of PMfax in cases where large numbers of lines or automatic DTMF/DID routing is desired.

Support for other fax hardware is under development. See the README file for the latest information on supported fax hardware.

Appendix B -- Fax Modems

Types of Fax Modems

A fax modem is a hardware device that installs as a standard serial (COM port) device and allows your computer to send and receive fax transmissions on a telephone line. Some fax modems are boards that install inside your computer, while others are external units that attach to your computer's serial port.

PMfax supports many different fax modems. The README file lists the modems that may need special configuration

values. If you are trying to use a fax modem that doesn't seem to be compatible, please use the `-V` parameter to see how your fax modem is responding, and send this information to Technical Support.

Some old fax modems, including older modems that are send-only or that send at a maximum of 4800 bps, use the *SendFax* command language. For these modems set the *Modem Type* to *SendFax* on the Modem Type page in the PMfax Settings notebook.

Other old fax modems use versions of the 1990 draft of the *Class 2* standard (sometimes called TR29.2 Class 2). This informal "Class 2 specification" evolved considerably, and there are several variations. For these modems set the *Modem Type* to *Class-2* on the Modem Type page of the PMfax Settings notebook. Some Class-2 modems need special check boxes set on the Modem Type page (see the README file for details).

A newer Class 2.0 (TIA-592) standard was approved several years ago. This "Class 2.0" is different than the "Class 2" standard. Support for Class 2.0 is in PMfax version 3 and later. See the README file for recommended modem settings.

Many other fax modems use the EIA/TIA-578 (Class 1) standard. For these modems set the *Modem Type* to *Class-1*. Some Class 1 modems need special check boxes set on the Modem Type page for proper operation (see the README file).

Caller ID

If you have Caller ID services from your telephone company and you are using a modem that supports your telephone company's Caller ID services, you can tell your modem to capture the Caller ID information and report it to the software. To use Caller ID: 1) Sign up for caller id service from your telephone company. 2) You must be in "Private" mode (on Modem page of Settings) so that we have the port open and ready at the first ring. 3) You must set "Answer Rings" (on Modem page of Settings) to 2 or more since Caller ID data comes between first and second ring. 4) You must enter a "Special command" (on Modem Type page of Settings) to enable Caller ID in your modem. This command is `#CID=1` for Rockwell chipsets, `+VCID=1` for Cirrus chipsets, or `S40.2=1` for Zyxel. Caller ID information is placed in the Name field in the log record.

The Fax Modem Driver (FMD.SYS)

A fax modem is treated as a standard serial device. The OS/2 COM.SYS device driver allows programs to access such serial devices through logical device names such as COM1, COM2, etc. The COM.SYS device driver, which was automatically installed if you requested serial device support during the OS/2 installation process, works well when using the asynchronous data communication features of your modem with most data communications applications.

However, for the synchronous communications involved in transmitting a fax, a special device driver provide some advantages. The distribution diskette includes a special fax modem device driver (FMD.SYS). The FMD.SYS device driver allows efficient and reliable fax transmission and fax reception, even on busy OS/2 systems.

In version 3 and later, PMfax can use either your COM devices or its own FMD devices for accessing the fax modem. See the [Special Hardware Issues](#) chapter in the User's Guide for details on "COM vs. FMD" and other settings which control the way in which PMfax answers the phone and uses the fax modem.

To install the FMD.SYS device driver, it is necessary to add a line to the end of your CONFIG.SYS file and then reboot your system so that the changes take effect. The INSTALL program can modify your CONFIG.SYS file for you, or you can do it manually. If you installed the PMfax software in the default directory and your fax modem is installed as a standard COM device (COM1, COM2, COM3 or COM4), the CONFIG.SYS line is like this:

```
DEVICE=C:\PMFAX\FMD.SYS
```

If your fax modem is installed at a nonstandard I/O address or interrupt, you can specify the port number, I/O address and interrupt on the line, like this:

```
DEVICE=C:\PMFAX\FMD.SYS (3,3E8,4)
```

You can add the N option which disables all port detection and causes PMfax to show all standard ports on the Ports page of the PMfax Settings notebook, like this:

```
DEVICE=C:\PMFAX\FMD.SYS N
```

If PMfax detects a PCMCIA modem card, it automatically skips the port tests (just like the N option) since the PCMCIA modem might not be installed yet. This will cause all standard ports to appear in on the Ports page. Or you can explicitly identify the port that will be used by the PCMCIA modem. For example, if the modem will be on COM2, the FMD.SYS line could look like this:

```
DEVICE=C:\PMFAX\FMD.SYS (2,2F8,3)
```

On a machine with the MicroChannel architecture, if your machine contains other boards which share the IRQ with your COM port, you must add the S option to the line in your CONFIG.SYS file to tell the FMD.SYS device driver to also share the IRQ, like this:

```
DEVICE=C:\PMFAX\FMD.SYS S
```

If you want the FMD.SYS driver to load in "no logo" mode (without reporting version number or the detected ports), use the L option:

```
DEVICE=C:\PMFAX\FMD.SYS L
```

If you have a multiline version of the program, note that FMD.SYS will support interrupt sharing for fax ports. (On AT-bus machines, OS/2 doesn't allow simultaneous use of a shared interrupt with COM.SYS or other device drivers.) For example, some internal fax boards or multiport serial boards (such as the STB 4-COM) can add ports at various I/O addresses and interrupts. The following line would enable FMD.SYS to use four STB ports at special addresses, with all ports sharing interrupt 12:

```
DEVICE=c:\PMFAX\Fmd.sys (1,1A8,12) (2,1E8,12) (3,1F8,12) (4,2A8,12)
```

With the multiline fax program, all ports could be used by PMfax at the same time. The ports used by the FMD.SYS driver do not need to be the same as the ports used by the IBM COM.SYS driver, so it is possible to attach several fax modems and still have the COM ports available for use. See the README file for information on multiline configurations and serial port cards.

Your other data communication programs can continue to use the data modem features of your fax modem through the COM devices. Only the PMfax application uses the FMD devices that are supported by the special FMD.SYS driver.

But note that a COM and FMD device are attached to the same serial port, and OS/2 only allows one application to open a given port at a time. For example, if PMfax is sending or receiving (or waiting to receive in *Private* mode) using the FMD2 device, then the COM2 device is not available. Once PMfax is done with the FMD2 device (i.e., no longer sending or receiving, and receive mode is *Off* if using *Private* mode), then the COM2 device is available and can be opened by another program.

If you wish to control receive mode from a command line or command file, see the FxRcv.exe program in the **Utility Programs** chapter. Using this utility program, you can take PMfax out of receive mode so that you can make a data call with your fax modem.

Fax Modem Hints and Special Settings

If you are not sure which modem type (Class-1, Class-2 or Class-2.0) to use, it's fine to try different types and see what works. Using the wrong modem type will result in an error when you try to send a fax, but it won't hurt anything. If necessary, consult your fax modem documentation or manufacturer to determine the fax command set.

The fax program allows special commands and check boxes on the *Modem Type* page of the Settings notebook to compensate for certain modem quirks and problems.

If your modem type is listed in the README file, see our specific recommendations. Otherwise, first try your modem without using any of the check boxes. Use the necessary check boxes on the *Modem Type* page only if you experience problems:

Check Box	When and Why Needed
<i>Skip TCF read</i>	This skips the normal reading of the Class 1 training signal. Use this with the IBM L40SX laptop internal fax modem.
<i>Check TCF signal</i>	For most Class 1 modems, this will provide enhanced speed downgrading. This may improve the quality of faxes received over noisy lines.
<i>Receive EOP delay</i>	Use on USRobotics Courier and Sportster Class 1 modems. These modems need a small (.4 sec) delay after receiving a page before issuing the next command otherwise they have receive failures.
<i>Alternate bit order</i>	Use on Multitech and Everex Class 2 modems. There is some disagreement in how Class 2 bit ordering should be implemented. These modems use bit ordering where transmitted data is consistent with received data. If this setting is wrong for your modem, sent and/or received faxes will be totally garbled.
<i>No DLE escape</i>	Use on Adtech and some Zoltrix Class 2 modems. These modems don't properly use DLE characters to flag DLE data characters in the data stream. Indicated by received faxes with horizontal streaks.
<i>XON receive start</i>	Use on Everex Class 2 modems. The Class 2 specification states that a DC2 character should start data flow of a received page. This modem requires an XON (DC1) instead, otherwise fax receiving will fail with a timeout error.
<i>Use HW FIFO (16550A)</i>	Fax modems and serial ports utilizing the 16550A chip can benefit from using this setting. This turns on the high performance buffering in the 16550A chip (it's ignored if you don't have one). System interrupt overhead can be reduced by about 90%!
<i>No baud rate stepdown</i>	The IBM L40SX laptop internal fax modem can't transmit at other than 9600bps. Forces send retraining to stay at the set transmission rate. It does not affect receiving.
<i>Special command</i>	Use with various modems that require additional initialization commands to be more compatible with our software. Some modems need a command to turn on XON/XOFF handshaking (such as &H2 with the Courier/Sportster Class 1 modems). You can specify a modem command string of one or more commands. Do NOT include the AT command prefix. The special commands normally apply to both fax and voice modes, but you can apply commands to just one mode using vertical bars ("bothcmds faxcmds voicecmds).

Appendix C -- SatisFAXtion Boards

This appendix discusses the Intel SatisFAXtion fax coprocessor boards, including the original SatisFAXtion, SatisFAXtion/200 and SatisFAXtion/400 internal.

This appendix does NOT apply to several other Intel SatisFAXtion products such as the SatisFAXtion/100, SatisFAXtion/300 and SatisFAXtion/400e. These SatisFAXtion products are Class 1 fax modems as discussed in the *Fax Modems* appendix. It also does NOT apply to the SatisFAXtion/500 which is incompatible with the SatisFAXtion/400.

For the SatisFAXtion fax coprocessor boards, a special SatisFAXtion fax hardware adapter file is used as the Fax.adp file in the fax program directory. This adapter knows how to download the necessary Intel code into the SatisFAXtion card and start it up. Configuring your SatisFAXtion card must be done with the programs supplied by Intel as described below.

The PMfax program will automatically locate the SatisFAXtion board that is installed in your system. If you suspect that the test used to locate SatisFAXtion boards might be interfering with other boards in your system, you can tell PMfax the I/O address setting of your SatisFAXtion board by using the SATISFAX_IOADDR environment variable as discussed in the *Environment Variables* section in Chapter 3.

SatisFAXtion Board Setup

To use an Intel SatisFAXtion board (original/200/400 models) with PMfax, you must first follow Intel's procedure for installing the board and installing Intel's DOS software. Intel's setup software will run on OS/2, so it is not necessary to boot DOS. When running Intel's SETUP program, use the NOREBOOT parameter so that the program will not attempt to reboot your OS/2 system:

```
SETUP NOREBOOT
```

Unlike fax boards that use switches or jumpers for board configuration settings, the SatisFAXtion boards use a "switchless" technique in which a special software program writes hardware configuration settings into an EEROM. The Intel installation procedure will initially program the EEROM, and the PMfax software then uses the hardware configuration settings. The EEROM values are set by the Intel software as follows:

Micro Channel boards: As described in Intel's installation instructions that came with your board, Micro Channel boards are configured by using your computer's Reference Diskette. This allows you to program the FAX I/O port address, interrupt level, modem COM port and other values into the board. The default values should work on most machines. You can change the board's hardware options later by using the Reference Diskette again.

Classic (AT) Bus boards: As described in Intel's installation instructions, Intel's SETUP.EXE program is used to verify or change the Fax I/O address and modem COM port settings. The default values should work on most machines. When exiting the SETUP program, if SETUP asks if it should update your CONFIG.SYS file or quit without updating, choose Quit. You can change the board's hardware options later by running SETUP again.

After installing and configuring your SatisFAXtion board, install the PMfax software as described in Chapter 2, being sure to select *Intel SatisFAXtion* as the *Fax hardware type* in the INSTALL program. Since the Intel software uses the C:\FAX directory as the default program directory, you should use a different directory (such as C:\PMFAX) as your PMfax Program directory and Working directory to avoid mixing the Intel and PMfax files.

Then copy Intel's LOADER.* and DOWNLOAD.* files from your Intel directory to your PMfax program directory. The PMfax program requires these files for loading and initializing the SatisFAXtion board. (For the /200 and /400, these files are compressed on the Intel diskette. Intel's SETUP program unpacks the files.) Once you have configured your board and copied the LOADER.* and DOWNLOAD.* files to the PMfax program directory, the other Intel files are no longer needed by PMfax.

SatisFAXtion Data Modem Feature

If you want to use the SatisFAXtion board's data modem feature, the board must have been configured (as described above) to enable the COM port and select an available COM port (like COM2). Also verify that you loaded Serial Device Support when you installed OS/2, or install it now if necessary. Your CONFIG.SYS file will contain a line the form DEVICE=C:\OS2\COM.SYS if Serial Device Support is installed. If you change the SatisFAXtion COM port selection, you must reboot your system so that the OS/2 COM driver can attach to your new COM port.

Each time that you cold boot your computer, you must run the PMfax program and cause it to load and initialize the SatisFAXtion board before using the data modem feature. **This initialization occurs when you put PMfax in receive mode or when you send a fax, NOT when you simply start PMfax with receive mode off.** Once

initialized, your data communications programs can use the data modem feature at its configured COM port (like COM2).

Once the SatisFAXtion board has been initialized, the data modem feature will continue to work when you turn PMfax receive mode off, or end the PMfax program, or even after you warm boot your system. You do NOT need to turn PMfax receive mode off to use the data modem feature - PMfax can stay in receive mode while you use the telephone line for data and will answer incoming calls after your data call is completed. You can even spool fax transmissions while the data modem feature is being used - the PMfax program will wait up to one hour for the data call to complete so that it can use the telephone line to sent the fax.

Using the Intel Hand Scanner on OS/2

The following notes and observations, offered purely on an "as is" basis, may be of interest to persons who wish to use the Intel Hand Scanner (Logitech ScanMan, Model256) on OS/2 with versions of the SatisFAXtion board which include a scanner port.

Since the PMfax program handles the firmware loading and initializing of the SatisFAXtion board on OS/2, it's quite easy to install and use the scanner to paste images onto fax pages in your fax documents. The following instructions assume that you have already installed and tested your SatisFAXtion board with PMfax as described in the User's Manual, and you are now adding the scanner.

Installing the Scanner and Intel SCAN.EXE Program:

1) Configure your SatisFAXtion board to enable the scanner feature. You'll need to know the Scanner I/O address, DMA level and Interrupt (IRQ) value for the next steps, so write them down. The procedure depends on the type of your computer:

MicroChannel computer - Boot your system's Reference Disk, select Set Configuration, then select Change Configuration to display the SatisFAXtion configuration information. Set the scanner interrupt level to be the same as the fax interrupt level. Select a Scanner I/O address and DMA level.

AT-bus computer - Run the Intel SETUP program, go to the Advanced Setup/Set up hardware screen, and select a value for "Scanner I/O, DMA". Do not have the program install the scanner software or modify your CONFIG.SYS file.

2) Copy the HHSCAND.SYS and SCAN.EXE files from the "Intel SatisFAXtion Scanner Driver" disk to a directory on your hard disk. For this example, I'll assume these are placed in the c:\fax directory.

3) Since you will often paste the scanned image into a fax document and fax it, it's convenient to use a standard file name in your fax working directory to hold the latest scanned image. Create a dos batch file (SCAN.BAT) in the same directory as SCAN.EXE to first make sure that the file is deleted (since SCAN.EXE won't run if the output file already exists), then scan a new image into the file. For example, SCAN.BAT can contain the lines: "DEL c:\myfaxdir\scan.pcx", then "c:\fax\scan.exe c:\myfaxdir\scan.pcx".

4) Create a new program object, such as by dragging one from the Program template to your desktop. In the program object's settings notebook, enter the following: For *Path and file name*, enter the pathname of the batch file (such as c:\fax\scan.bat). Click on the **Session** page in the settings notebook, and select *Dos full screen*. Press the *Dos settings* button, select the "DOS_DEVICE" setting, and set its value to be the path of the HHSCAND.SYS file followed by the address, interrupt and DMA parameters that you configured above (for example: c:\fax\hhscand.sys /A=280 /I=5 /D=3). Press the Save button to save the dos settings. Click on the **General** page in the settings notebook and change the *Title* to something meaningful, like "Scan". Close the settings notebook.

Using the Scanner with the Intel SCAN.EXE Program:

1) Have the fax program initialize the SatisFAXtion board before using the scanner. An easy way to ensure that the board is initialized is to put the program into receive mode for a few seconds.

- 2) To scan something, double-click on your new "Scan" program object. Use the Scan utility as described in the Intel documentation. When you save the scanned image, it will be in the scan.pcx file.
- 3) In the fax program, use the **Edit Import PCX** command to paste the scan.pcx file into fax documents. You can edit the scanned image using the fax program's editing tools, then send a fax, save the image as an OS/2 bitmap file for use as your cover page bitmap, or save it as a bitmap or PCX file for use as a logo or signature that you can paste on your fax documents.

Appendix D -- Other Fax Hardware

Brooktrout Boards

The Brooktrout fax boards are high-performance, multi-channel fax coprocessor boards. These boards are especially useful for situations where multiline support is required. The TR114 board family is particularly flexible, and PMfax can use TR114 boards for voice features and automatic LAN routing. The TR114 board can also be ordered with DID or T1 support.

A suitable version of Brooktrout's OS/2 driver is required for Brooktrout boards, and the TR112, TR114 and TruFax boards have been tested. If you don't have the necessary Brooktrout OS/2 files, you can obtain them from our web download area.

To install the Brooktrout fax hardware, first follow the instructions in Brooktrout's hardware guide to install your Brooktrout fax boards, then follow the instructions in the PMfax README file to install the Brooktrout OS/2 driver software.

Next install the PMfax software normally, specifying Brooktrout as your type of fax hardware, then configure the PMfax program using the PMfax Settings notebook (displayed by the **Utilities Settings** command):

1. On the **Ports** page, select the Brooktrout unit number(s) that you want to use for sending and/or receiving.
2. On the **Modem** page, verify the *Bfax config file* pathname. If you wish to use DTMF routing of incoming fax documents with a LAN version of the software, also specify the number of desired DTMF digits and the length of time to wait for the digits. When DTMF input is enabled, callers hear a prompt tone when the call is answered and can enter a "fax extension number" using their telephone key pad.
3. If you have a Brooktrout DID board and wish to use DID routing of incoming fax documents with a LAN version of the software, set the number of DID digits in the Brooktrout BTCALL.CFG configuration file. Since DID lines can only be used for incoming calls, you will probably want to include some regular (loop) telephone lines in your system for sending. See the PMfax LAN Guide for additional notes about DID and DTMF routing.

GammaLink GammaFax Boards

The GammaFax adapter allows the operation of intelligent GammaFax boards, such as the CPi, CP, CP MC, and XPi. The four port boards also work, including the CP4-LSI and the MLCP4 with DTI-124 T1 interface board. (XP and XP MC boards are NOT supported since they are non-programmable and do not support API access.)

Since the program interfaces with the board via the GammaFax Dispatcher, it will operate simultaneously with many other GammaFax software products which also use the GammaFax Dispatcher.

See the PMfax README file for instructions on installing the GammaFax support software.

Appendix E -- Status Codes

The log identifies the status of each log entry by using the following values in the *Status* field (sorted alphabetically):

Status	Meaning	Action
BadRcv	General failure during fax receive	Try reception again. Could be a noisy line.
BadSnd	General failure after training was completed	Try again. Could be caused by a noisy line or fax hardware defect.
Busy	Dialed ok, but line was busy	Try again. Can set retries on Fax page of settings notebook for auto retry.
CfgErr	Configuration file error	Your fax hardware requires a configuration file. Check file path and file contents. Consult fax hardware documentation.
DialTn	Dial tone detected after dialing	Human answered and hung up? Using tone dialing on a pulse line?
Edit	Fax document created or modified but not yet sent	If desired, open the document and send it.
Hangup	Remote machine hung up unexpectedly.	Try again. Repeated failures may mean that your fax hardware and the remote fax hardware are incompatible, in which case you should try using different fax hardware or check with the fax hardware vendors for ROM upgrades.
Killed	Aborted by <i>Stop</i> command on status window pop-up menu	Use <i>Retry</i> command in log to send again if desired.
MdmErr	Modem command error	Incompatible? Wrong ADP file? Use "-V" parameter to see details.
NoAnsr	Dialed ok, but no answer	Check phone number. Try again.
NoCarr	Dialed ok, but no fax carrier was detected (or carrier dropped during the call)	Is the receiving end a fax machine? Check phone number and retry.
NoDial	No dial tone was detected	Is the phone line attached to your fax hardware? Check line and try again.
NoDrv	Specified FMD device cannot be found, does not respond, or is in use by another program	Close other programs that are using the device. Device driver installed? (See Appendix B.)

Noise	Bad data received from fax hardware	Probably a noisy line. Try again. If problem persists, try another phone line if possible.
NoMem	No memory available	Your OS/2 system is seriously bottlenecked. Close unneeded applications and/or obtain more memory for your computer.
NoTrn	Dialed ok, a fax machine answered, but training failed	Try again. Could be caused by a noisy line or fax hardware defect.
Print	Fax document created by the fax printer driver	Open the document to view, edit and send it.
Rcvd	Successfully received, not yet displayed/read	Open the fax document to read it.
Read	Successfully received and read	
Send	Currently sending	
Sent	Successfully sent	
Spool	Spoiled to send (maybe at a future date or time)	
SysErr	Software failure	Could be caused by inability to find or read the fax file, as from disk error.
TmeOut	No response from command to fax hardware	Fax hardware turned off or incompatible? Try again.
Voice!	Voice detected after dialing (Supported only by certain fax hardware) (Note: to avoid repeatedly calling a person, no retries are done)	Wrong phone number? This could be a voice mail system that requires special interaction, or a phone company message telling you that "all lines are temporarily busy" or "the number has been changed." Dial the call manually to investigate? Try again.

Appendix F -- Phone Book File Format

This information is now in the separate [Phone Book File Format](#) document.

Appendix G -- TIFF Class F File Format

This information is now in the separate [TIFF Class F Format](#) document.

Appendix H -- Problems and Troubleshooting

If you experience problems when trying to send a fax, be sure you have correctly installed your fax hardware. Consult your fax hardware documentation for instructions on its installation. See the appropriate appendix for a discussion of your type of fax hardware. If necessary, contact your fax hardware vendor for assistance in installing your fax hardware.

If you experience difficulty when trying to send or receive fax documents, you should start the program with the optional -V parameter as described in Chapter 3 and try the operation again. This creates a detailed debugging log in the 'vout' file in your fax data directory that shows how your fax hardware is responding to all commands. The contents of this file may help you identify the problem, and if you contact technical support, they will usually want to know the contents of this file to assist you with your problem. On Linux, both a 'vout' and 'vout2' file may be created and both should be provided to technical support.

Printing Problems and Issues

This section addresses problems with printing a fax document on your real (hardcopy) printer and printing to FxPrint to create faxes from other applications.

Need LPT ports for FxPrint

For OS/2, if the normal LPT ports (LPT1, LPT2 and LPT3) are in use, you can create additional LPT ports for use by the fax printer driver. The LPT49 utility will create LPT4 through LPT9 on your system. You can install the fax printer object on any of these LPT ports. You can also create multiple fax printer objects on different LPT ports and each printer object can have different job properties (orientation, resolution, length, emulation).

Can't print to FxPrint printer device from DOS or Windows

Open the Settings notebook for the FxPrint printer object, go to the Printer driver page, and press the *Job Properties* button. Set the *Tones* field to *On*. This will enable beeping tones during printer driver operation. If *Tones* is *On* but no tones occur when you try to print to the printer driver, that means that the printer driver is not being accessed, so the problem is probably due to an OS/2 configuration issue. Make sure that the OS/2 Print Spooler is enabled, because it is the spooler that provides LPT redirection for DOS and Windows applications. Check the Output page in the Settings notebook and make sure that an available LPT device is being used for the FxPrint printer object. Try a different, available LPT device if possible. Don't use a COM device for the FxPrint printer object since OS/2 will only redirect DOS and WIN-OS/2 output if an LPT device is used. (You can test operation on an LPT port by using a command like "COPY \CONFIG.SYS LPT3" at a command prompt.)

Problems faxing from Windows applications

If you are trying to fax from a Windows application and your resulting fax document consists of hundreds of pages but your original document was only a few pages, the cause is probably a "printer type" mismatch. Check the FxPrint printer object's job properties by opening its Settings notebook, going to the **Printer driver** page, and pressing the *Job properties* button. Be sure that the Emulation setting corresponds with the type of the WIN-OS2 printer driver that you installed and set up as described in the **Faxing - Windows Applications** section in the User's Guide. If necessary, change the *Emulation* setting or install a different WIN-OS2 printer driver (see the **Faxing - Windows Applications** section in the User's Guide).

Printer driver configuration changes don't affect application

Most applications use the printer object settings, but some OS/2 applications incorrectly use the printer driver settings, so it is best to make any changes in both places. To change the default values, display the pop-up menu for the FxPrint printer object by pointing at the printer object and clicking mouse button 2. Click on the arrow to the right of **Open**, then click on **Settings**. Click on the **Printer driver** tab. Now press the *Job properties* button to see the printer object's configuration dialog box, or double-click on the FxPrint icon in the notebook's *Printer driver* window to see the printer driver's configuration dialog box. The same dialog box is used for both, but the values for the object and driver might be different.

DOS application prints too "light"

If using the IBM Proprinter emulation, tell your DOS program to use the Proprinter's "Elite PS" font or a bold font rather than the default Proprinter font. Consider using the optional LaserJet/PCL5 emulation. The LaserJet provides printer fonts which are darker than the Proprinter printer fonts.

Printing slows the system

Printing a fax to paper is computationally intensive since a fax page is a large bitmap and this bitmap must be resized and copied into the printer driver. This can result in sluggish system performance when a fax is being printed to paper. You can lower the priority of the print thread (using the *Idle priority* check box on the Printer page of the PMfax settings notebook) to avoid sluggish system performance, but be sure to note the warning below.

WARNING - DOS command windows and DOS applications run at normal priority even when they are idle, and this often prevents any "idle" priority activity from running, so fax printing may pause when DOS processes are running. You can prevent this by lowering the *IDLE_SENSITIVITY* DOS setting for your DOS objects, but this might prevent some DOS programs from running normally. So in general, **DO NOT SET THE "IDLE PRIORITY" CHECK BOX IF YOU WANT TO PRINT FAXES WHILE DOS PROCESSES ARE ACTIVE.**

Printing speed

PMfax for OS/2, being a well-behaved OS/2 Presentation Manager program, always uses OS/2 printer drivers for its printing. Fax documents, being large bitmapped images, must be printed using your printer's graphics mode. These are big bitmaps, so large amounts of data must be sent to the printer. This takes time. If you find the time to be excessive, consider the following suggestions:

1) *Try printing with a lower graphics resolution.* Most printers support different resolutions. A fax page must be converted to the printer's resolution for printing. The image size for each page is almost 1 Mbyte at 300 dpi, but less than 256 kbyte at 150 dpi. You may sacrifice some print quality, but each page will print much faster at a lower resolution.

2) *Laser printer user's - consider upgrading to a printer (and an OS/2 printer driver) that supports PCL 5.* Printers such as the LaserJet II have a relatively slow parallel port and their PCL4 language requires that every bit be sent to the printer, which means that it can take about three minutes to print a 300 dpi page. Some newer printers, such as the LaserJet III and 4, have a faster parallel port and their PCL 5 language supports special codes in the data stream to significantly reduce the number of bytes that need to be transmitted to the printer. This provides faster printing for images like fax documents.

Printer error when printing a fax document on LaserJet

Unless the printer has enough available memory, it may produce an error when you attempt to print a full-page fax document. Since a fax document is an image, it is printed in graphics mode. In general, you must have at least one megabyte of printer memory to print a full page of high resolution (300 dpi) graphics on a LaserJet printer. Even if you have more memory than this in your printer, portions of the memory may be used up by downloaded fonts or other data from other programs. In this case, resetting the printer may correct the situation and allow printing of full-page high-resolution graphics. If you do not have enough memory to print in high-resolution, or if you want to speed printing, you can use a lower resolution for printing fax documents. You can use the PMfax **Fax Printer setup** command to change the printer resolution.

Other Problems and Errors

Finding the fax directory

If the program can't seem to find the fax log, or if you have changed the location of your fax data directory (which contains FAX.LOG, FAX.IDX, *.FAX and *.PBK files), then you must tell PMfax where it is. To do this, start PMfax with the parameter of *-L newdir* where *newdir* is the full pathname of the directory which contains the FAX.LOG file. You only need to do this once, and PMfax will then remember it.

Finding the Status window

If you can't find the Status window, might be positioned outside of your visible desktop. On OS/2 press Ctrl-Esc to get the Window List and double-click on Status Window. If you don't see it, press Alt-F7 and move your mouse until you see a gray rectangle, then click your mouse to place the rectangle (the Status window) on your desktop.

"Start Minimized" isn't available in settings notebook

The OS/2 2.0 and 2.1 releases have a strange behavior that makes it difficult to start the program minimized, but it is possible. The "Start minimized" check box is on the Session page in the program object's settings notebook. But if a valid OS/2 program name is indicated on the Program page, the entire Session page is dimmed out. To change the "Start minimized" check box, temporarily invalidate the program name on the Program page (just removing the last 'e' from the file name is sufficient), go to the Session page and change the "Start minimized" check box, then go back to the Program page and restore the correct file name. (Or use the -FM start-up parameter.)

Error message: Can't find or load 'FAX.ADP'.

The program cannot find the specified hardware adapter file which is required for using the fax hardware, or the IOPL setting in your CONFIG.SYS file must be changed. As part of the installation procedure, the FAX.ADP file should have been placed in the same directory as the PMFAX.EXE program file. If you continue, the program will run in a "no hardware" mode in which you cannot send, receive or configure the fax hardware, but you can do fax editing and other commands. Verify that a valid FAX.ADP file is present in your fax directory (reinstall if necessary). Your CONFIG.SYS file should also contain the line "IOPL=YES". If you prefer to list individual files in your IOPL list, be sure to include FAX and FxPrint in the list.

Error message: Can't find fax adapter function 'xxxx', or

Error message: Error loading fax adapter dialog box

This usually means that there is a version mismatch between your program and the FAX.ADP file. This file should have been placed in the fax program directory. Try reinstalling the program to ensure that the EXE and FAX.ADP files match. The appropriate FAXxx.ADP file should have been copied into the FAX.ADP file by the INSTALL program (or you can copy the file manually if necessary).

Error message: Fax modem on 'FMDx' does not respond correctly.

The fax hardware did not respond to a command, or responded incorrectly. This can occur when no fax hardware is attached, the fax hardware is not turned on, the *Modem Type* settings are incorrect, or the wrong ADP file is installed. See the README file for information on the correct *Modem Type* values. Run the program with the "-V" optional parameter to obtain a verbose debugging log.

Error message: Fax modem driver 'FMDx' is not loaded or not responding.

The FMDx device cannot be found. This could be because the FMD.SYS device driver is not loaded (see the *Fax Modems* appendix). If your fax modem also functions as a data modem, try to verify that your modem is properly installed and working by talking to it with a communications program. Run the program with the "-V" optional parameter to obtain a verbose debugging log.

Error message: Fax device 'FMDx' is unavailable.

Another program, perhaps your data communications program or another copy of the fax program, is using the corresponding COM port or has the COM port open. Terminate other programs that try to use the fax device. See the *Fax Modems* appendix for additional information about FMD devices and COM devices.

Fax hardware dials but fails

This is most often caused by noise on the phone line. To hear the noise, some fax hardware lets you use a *Speaker* item on the Modem page of the PMfax Settings notebook to keep the speaker turned on. Occasionally getting a noisy phone line is a normal occurrence, and based on your configuration settings, the program will automatically retry a call when this happens. If your line is consistently noisy, try unplugging extension phones or other attached phone lines that may be causing noise. If possible, use a different phone line. Run the program with the "-V" optional parameter to obtain a verbose debugging log.

Modem sends but won't answer incoming calls

Confirm that PMfax is set for receiving (using the **Fax Receive All calls** command). If *Private* is not checked on the Modem page of the Settings notebook, try setting it. (The shared port feature uses the hardware ring indicator in your modem and serial port. If your modem or cable does not provide the necessary signals, PMfax will not see the line ringing.)

Program cannot display help

Check to see that the file FX001.HLP is in the same directory as your PMFAX.EXE file. (Translations use FX###.HLP where ### is the country code of the translation.)

FxPrint printer driver cannot display help

Check to see that the file FX001.HLP is in the same directory as your FxPrint.DRV file. Note that the INSTALL program will place these files in the PMfax program directory, but if you install the printer driver using OS/2 system utilities rather than the PMfax INSTALL program, the OS/2 system may place them in C:\OS2\DLL\FXPRINT.

Gray scale display technique looks strange

The **View Gray scale display** technique uses the *Monitor type* value on the Program page of the PMfax Settings notebook to select optimal gray values for your monitor. If your color monitor is showing partially colored letters on your fax document, you probably have this set to *Plasma monochrome* rather than *Color*. If the letters on your monochrome monitor look too light when using the Gray scale display technique, try using the *Plasma monochrome* setting to darken the letters.

Fax documents containing images take too long to send

Because of the way that fax documents are compressed and transmitted, the use of large areas of fine-grained patterns will slow fax transmission. If you are concerned about minimizing transmission time and thereby minimizing your long-distance telephone charges, you may want to use solid black, solid white or coarse patterns for large charts and images. Watch out for large areas that look gray... there is only black and white in a fax document, so a gray area is actually made up of alternating black and white dots, and this is especially slow to send.

Inverted Bitmaps

Fax documents are black-and-white images, so when you cut and paste with the fax program, you are dealing with black-and-white bitmaps. These bitmaps contain 0 and 1 values to represent the image. Unfortunately, the meaning of the 0 and 1 values is somewhat ambiguous. If you think in terms of a printer device, you would probably say that 1 means "ink", so a 1 value is black and a 0 value is white. But if you think like a video display device, you would probably say that 1 means "intense", so a 1 value is white and a 0 value is black. If you guess wrong, the image will be inverted.

For version 1.05 and earlier, we interpreted bitmap images in a way that was compatible with Microsoft Word for OS/2. But the OS/2 2.x Workplace Shell and OS/2 2.x Clipboard Viewer, as well as many other OS/2 applications, take the opposite interpretation. We therefore inverted the way that we read and write bitmaps.

If a bitmap is inverted when you paste it, simply click the right mouse button to get the pop-up menu and invert the image. Do this when the graphic paste-up box is still displayed (before you press the Enter key or click the mouse outside of the paste-up box).

If your bitmap files are inverted, you can fix them. To invert a bitmap file, use the **Fax New** command to get a blank fax page in your workspace, use the **Edit Import Bitmap** command to get the BMP file image in a graphic paste-up box, click the right mouse button to get the pop-up menu and invert the image, then use the **Edit Export Bitmap** command to save the inverted image back to the file.

Remember to check your cover sheet bitmaps. You can use the **Fax Send** command and then press the *Preview* button to see if your cover bitmap needs to be fixed.

Glossary

API

Application Programming Interface. A library of function calls and data structures intended to be called by other application software. The API encapsulates the complexity of dealing with a specified hardware and/or software component. Under OS/2, an API can be implemented as a Dynamic Link Library (DLL). See also: DLL, Device Driver.

ASCII (American Standard Code for Information Interchange)

A standard character set used by many types of computers. In common computer usage, an "ASCII file" means a text file.

Auto Dial

The ability of a modem to dial a phone number automatically, as opposed to you having to manually dial the number.

Baud Rate

The data transmission speed, measured in bits per second. Group III fax modems commonly use 9600 or 14400 bps.

BPS

Bits Per Second. See Baud Rate.

Broadcast

Sending the same fax document to many different people.

CCITT

Acronym for the International Telegraph and Telephone Consultative Committee (now called ITU-T), a group that establishes standards for international telecommunications services. CCITT Group III, commonly called "Group 3", is the standard protocol for today's fax communications.

COM Port

Communications Port. A computer's input/output port for serial communications. A standard modem device, including a fax modem board, communicates with the computer through a COM Port.

Device Driver

A system software component that isolates the operating system and application programs from the details of a physical device. Drivers run as part of the operating system kernel and provide a low-level interface. An API is commonly used to turn this low-level interface into a higher-level interface that is more suitable for use by application developers. The OS/2 COM.SYS driver and the FMD.SYS driver are device drivers. See also: API.

DLL

Dynamic Link Library. Under OS/2, a DLL is a form of software library that can be called from any OS/2-supported development language. The linkages to the functions in a DLL are dynamically established when needed.

DOS

The single-tasking operating system commonly used on personal computers. OS/2 can simulate the DOS operating system in its DOS Compatibility Box, allowing DOS applications to run on OS/2. See OS/2.

DPI

Dots Per Inch. A measure of graphics resolution. A normal-resolution fax is approximately 200 dpi horizontally and 100 dpi vertically, while a fine-resolution fax is approximately 200 dpi both horizontally and vertically.

IRQ

Interrupt ReQuest level. An interrupt-driven device, such as a COM Port device, connects to an IRQ level for processing. Typically, COM1/COM3 use IRQ4, COM2/COM4 use IRQ3.

G3 data

Compressed fax data in a standard format as defined by Recommendation T.4, Volume VII, Fascicle VII.3, Terminal Equipment and Protocols for Telematic Services, The International Telegraph and Telephone Consultative Committee (CCITT), Geneva, 1985, pages 16 through 31. Unlike TIFF Class F which supports multiple images (pages) per file, a G3 data file generally represents a single page.

Modem

MOdulator/DEModulator. A modem is a device for converting between digital values (used by computers) and analog signals (transmitted on standard phone lines).

OCR

Optical Character Recognition. The process of analyzing a scanned document (like a fax) to turn it into text.

OS/2

A multi-tasking operating system for personal computers. Unlike DOS, OS/2 was designed to execute multiple programs at the same time, and to allow a given program to be doing multiple things at the same time.

PM Bitmap

A standard OS/2 Presentation Manager data format, usually uncompressed image data.

Presentation Manager

The graphical user interface (windowing system) for OS/2.

Pulse Dialing

Using a series of pulses to represent each digit when dialing a phone number (rotary dialing). See Tone Dialing.

Text File

A file containing only text characters. See ASCII.

TIFF

Tag Image File Format. A non-proprietary industry standard for image data developed by Aldus Corporation and leading scanning vendors for desktop publishing images.

TIFF Class F

One of the defined classes of TIFF files, intended for use by facsimile applications. PMfax uses TIFF Class F as its standard format for storing and exporting fax documents.

Tone Dialing

Using a combination of tones to represent each digit when dialing a phone number. Also known as DTMF dialing or Touchtone dialing. See Pulse Dialing.

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Readme - PMfax

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SPECIAL NOTES

DOWNLOADING & INSTALLING

For all platforms, the procedure for downloading and installing is the same:

1. Download the appropriate PMfax distribution file and save it to any desired "fax program directory" on your system.
2. The PMfax distribution file is a self-extracting zip file, so execute it to unpack. (On Linux, first set execute permission on the download file.)

3. Run *'pmfax'* to start the program. The Linux program runs in Lite mode by default, but converts to Pro mode if you enter a serial number on the Product Information screen.

NOTES FOR LINUX USERS

If you are using PMfax for Linux, please note the following special features and instructions.

File permissions - Because Linux is a secure multi-user system, file permissions can be an issue. Both the PMfax program and the print daemon will need rw access to the PMfax directory and data files, so you will generally want to do *chmod a+rw* on the PMfax directory, then go to that directory and do *chmod a+rw ** to set rw access on all the files. PMfax also needs rw access to the /dev/ttyS device for your modem (/dev/ttyS0 for COM1, /dev/ttyS1 for COM2, etc.). As is always the case on Linux, running as a user (rather than as root) is recommended for normal activities, but you will need to use 'su' to set permissions.

Using fxfilter - PMfax for Linux includes the fxfilter program to pass Postscript or text data to the PMfax program. Postscript data is converted into a fax document, and PMfax automatically converts text to fax when necessary. For applications that let you specify a print command, use fxfilter as their print command and they can create fax documents. You can also pipe directly to fxfilter (e.g., *ls | fxfilter*, or *ls | mpage | fxfilter*).

For systems using standard lpd printing - Installing and using the fax printer (fx)- You can create a standard print queue to create fax documents, and this is needed by some applications. Once this is created, the *lpr -Pfx* command will pass Postscript or text data to the PMfax program and programs that select a print queue can use 'fx' just like they use 'lp' and other printers. Printer setup is done differently on various Linux distributions, so the fax printer queue (fx) must be manually installed. To do this, edit your /etc/printcap file and create a new section for fx that is like your other printers but using /dev/null for the :LP= device and fxfilter for the :if= filter. For example, on many Linux distributions the new section will look like this (assuming that you've installed the PMfax files in /home/userid/pmfax):

```
fx:\
:sd=/var/spool/lpd/fx:\
:sh:\
:mx#0:\
:LP=/dev/null:\
:if=/home/userid/pmfax/fxfilter:
```

You must also create the :sd= spool directory and set its owner.group setting and file permissions to match the other spool directories on your Linux system. For example, Caldera requires that you do a *chown daemon.lp fx* on this directory to make it work, and other distributions may use different owner and group settings.

Some systems (Redhat 7.0 and others) are very secure and seem to require that you copy the fxfilter program to the /var/spool/lpd/fx directory and set ownership on this file to root.root ('chown root.root fxfilter'). If you do this, then change the :if line in the above example to be /var/spool/lpd/fx/fxfilter.

For systems using CUPS printing - Installing and using the fax printer (fx)- For systems like Mandrake 7.2 that use the CUPS printing system, the method of creating the fax printer is a bit different. The steps are as follows:

1. Be sure you have PMfax for Linux v4.0g or later.
2. Copy the fxfilter program from the PMfax directory to the /usr/lib/cups/backend directory.
3. Insert the following text into the /etc/cups/printers.conf file:

```
<Printer fx>
Info fax printer
```

```

Location
DeviceURI fxfilter:/dev/null
State Idle
Accepting Yes
JobSheets none none
</Printer>

```

4. Restart cupsd or reboot your system so that CUPS will see the changes and create the fx printer.

Background send/receive operation - PMfax for Linux can continue to send and receive faxes even when you are logged out. After starting PMfax in the normal way, you can exit the user interface and leave the fax engine running in background. You can even log out. When you start PMfax again, it attaches to the running fax engine so you can view received faxes and check the status of fax jobs. To have PMfax for Linux run in this way, please note the following:

- The PMfax Pro version is required for this advanced feature.
- The background fax engine uses Xvfb (already provided in the PMfax directory).
- Running as super user (root), issue the command `chmod 777 /tmp/.X11-unix` to allow proper operation with Xvfb.
- If PMfax shows both a "Shutdown and exit" and an "Exit" command on its Fax menu, this indicates that it is running with the background fax engine. Using "Exit" will close the PMfax user interface but leave the fax engine running. Using "Shutdown and exit" will terminate both the fax engine and the user interface.
- If there is a problem starting Xvfb or the background process, the "Shutdown and exit" command will not appear on the Fax menu and PMfax will run as a normal program.

"PMfax already running" error - You will see this error if the loopback port is not started on your system. To start your loopback port:

```

# configure loopback
/sbin/ifconfig lo 127.0.0.1
/sbin/route add -host 127.0.0.1 lo

```

Features added after v4.0 initial release - Some features have been added to PMfax Pro for Linux after the initial release, and you can upgrade your system to include these features by downloading and unpacking the PMfax for Linux distribution file again. (Your faxes, phone books, Pro serial number and other work will be retained.)

- Embedded printer driver commands (>>TO >>FROM >>INFO >>AT) are now supported in the printer data stream (v4.0e)
- The program `fxrcv` now has a `-rexx` option (`fxrcv -rexx scriptname`) and can support all the FxRx calls (v4.0e)

Features not yet supported - PMfax for Linux does not currently support certain features and special fax hardware supported by PMfax for OS/2. Most users will find everything they need in PMfax for Linux, but some things either aren't needed on Linux or have not yet been implemented, including:

- Log color settings
- Certain OS/2 command line options (`-n`, `-install/uninstall`, `-a`, `-c`, `-f`, `/t`)
- Drag/drop file archiving
- Internationalization
- Brooktrout and GammaFax hardware support
- FxAPI

- LAN version

HARDWARE

MODEM HARDWARE

PMfax supports a very wide variety of modem hardware. Most modern modems support either the Class 1 or Class 2.0 fax command set, but PMfax also supports some older fax command sets.

To configure PMfax to use your fax modem, do the following:

1. On the Utilities/Settings/Ports page, select the port used by your modem.
2. On the Utilities/Settings/Modem/Modem Type page, select your modem's fax command set (Class 1 or Class 2.0).

When in doubt, first try Class 1. If you get a "modem error" message when you try to send a fax, then try Class 2.0. Selecting the wrong values will not hurt anything, so give it a try and see what works best for your hardware.

Using an external modem is often easier than using an internal modem. Some modems are "Winmodems" that only work when used with a Windows software driver, so they won't work on other operating systems. Some "Plug and Play" internal modems can be difficult to install on non-Windows systems because their "switchless" configuration uses drivers or software that may require Windows.

When it comes to fax and voice support, the best modem is not necessarily the fanciest or the most expensive. Simple modems based on standard Rockwell or Lucent chip sets provide very good performance for both fax and voice. Modems that send data at high speed still send faxes at a maximum of 14.4 kb (for compatibility with the millions of fax machines - after all, that's what makes faxing so useful), so a simple modem using a standard chip set may be better than a fancy data modem using a proprietary chip set.

Modems are very inexpensive these days, so you may want to test a few different modems from several manufacturers. Modems use different command subsystems for data, fax and voice activities, so the best data modems are not necessarily the best for fax or voice functions.

Additional notes are below. Manufacturers are constantly changing their modem hardware and firmware so it is difficult to reference specific model numbers, but if your modem doesn't seem to work correctly these notes may suggest a fix.

VOICE - USING PMFAX VOICE FEATURES WITH MODEM HARDWARE

See the Utilities/Settings/Modem/Modem Voice page for selecting the voice command set and mode of operation for your hardware, and then enable the voice features on the Utilities/Settings/Voice page.

Using a voice/fax modem based on the Rockwell or Lucent chip set is recommended, but others are also supported. Some modems do not support voice, so check your modem's package or documentation to determine if it is a voice/fax modem.

Some modems do not follow our supported voice data standards and must be run in "native" mode. These modems, when used in "wave" mode, will have either poor sound quality or total noise. If you change to "native" mode, you must attach your speaker/microphone/telephone directly to you modem and record a new outgoing

message and new copies of any other voice prompt files using your modem to get them into your modem's native format.

On some systems, checking the "Use HW FIFO (16550A)" checkbox on the Modem Type settings page is also required for good voice quality. On OS/2, loading our fmd.sys driver and then selecting the FMD port on the Utilities/Settings/Ports may also improve voice quality.

Some examples of modems that have been tested or reported to work are listed below, but many others also work just fine:

Voice with "Rockwell command set" and "wave format" (Multimedia support):

Cardinal - 14.4/28.8 Fax Modems with Voicemail/Speakerphone

Practical Peripherals - 336 Ext Voice Model No. 5638US

Reveal - Quad Office/MV500/Decathlon XL

Zoom - Voice VFP 14.4V

Shark - Multimedia Baby Tiger 288-R

Radicom - 33.6 voice

Motorola - 56k VoiceSurfer (External)

VOBIS/Elsa - Highscreen Bahn Boostar 56k future

Voice with "Rockwell command set" and "native" format:

Hayes - Optima 288 V.34/V.FC+FAX+VOICE

Voice with "U.S. Robotics command set" and "native" format:

USRobotics - Sportster internal Voice 28.8 w/Voicemail Model 1171

USRobotics - Sportster external Voice 28.8 w/Voicemail Model 1172

Voice with "US Robotics command set" and "Wave format":

USRobotics - Sportster 56000 Voice V4.5.1 or later (ATI3 to check)

Voice with "ZyXEL command set" and "native" format:

ZyXEL - Omni 288s

Voice with "Cirrus Logic command set" and "wave format" (OS/2 Multimedia):

Jaton Communicator - (CL-MD3452 chipset with IS-101 voice)

Voice with Brooktrout adapter and "wave format" (OS/2 Multimedia):

Brooktrout - TR114 series

FAX - NOTES FOR CERTAIN MODEMS

For most Class 1 modems, using the 'Check TCF signal' on the Utilities/Settings/Modem/Modem Type page will provide enhanced speed downgrading and may improve the quality of received faxes. On a few modems, engaging this switch will cause the modem not to initialize properly. We don't recommend using this switch with older US Robotics Sportster modems.

Most modems do NOT need any special settings. If your model of modem is not in the list, try Class 1 or Class 2.0 without any special settings and test your modem by sending a fax with the PMfax software. (You select the fax command set on the Utilities/Settings/Modem/Modem Type page.)

If you get a "modem error" message when you try to send a fax with the Class 1 setting, then change it and try Class 2.0. Selecting the wrong values will not hurt anything, so see what works best for your hardware.

A few older modems that may need special settings are listed below. The special settings are changed on the Utilities/Settings/Modem/Modem Type page, and any necessary "Special command" string is entered in the "Special command" field at the bottom of that page.

DELL - Digtan (older Dell desktop units)
Class-2, XON Receive start, no DLE esc

DELL - Datarace (older Dell laptop units)
Class-1, Special command \J0\Q2

Dynalink - V1433VQE
Class 1, Check TCF Spec cmd \A3\N3%C3%E2S24=15S38=10

ELSA - 2460, MicroLink 14.4T/TM/TL
Class-2, Special command \Q1
14.4T with ROM 2.01 also needs Special command &K1&R7

Everex - EverFax 24/96 (COM1/2 only)
Class-2, Alt bit order, XON Receive start

Megahertz - 96/96 FAX/Modem (P296FMV)
Class-1, Special command \J0\Q1

Megahertz - 14400 Fax/Modem (XJ244)
Class-2, XON Receive start, No DLE Esc

Megahertz - 14400 Fax/Modem (XJ1144)
Class-1, Special command &K4

MICC - 9642 Class-2 MicroCom user reported:
Class-1, Special command &C1

MultiTech - MultiFaxPC MT932, Multi Modem MT932EAF, II, V.32 Fax
Class-2, Alt bit order

Nokia 7110 GSM cellular phones
Fax type: Class 1, Special command +ONEBAUD=19200

Reveal - Quad Office/VM500/Decathlon XL
Class-1, Special command &C1

Supra - SupraFAXmodem V.32bis
Class-1 or Class-2 Silent Answer feature is supported
Special command +FAA=2 for Class 2 with Silent Answer,
and +FEA=2 for Class 1 with Silent Answer

USRobotics - Courier HST Dual Std w/Fax
Class-1, Special command &H2, Receive EOP delay

USRobotics - Sportster 14,400 or 28,800
Class-1, Receive EOP delay, Special command &H2&I0&R1
If sending to Pitney Bowes machines, also use S36=0
Do not use 'Check TCF signal' with this modem

USRobotics - Sportster Voice 28.8 with Personal Voicemail Model 1171/1172
Class-1, Receive EOP delay, Special command &H2&I0&R1S36=0
Do not use 'Check TCF signal' with this modem.
With the "X2 upgrade" installed, uncheck Receive EOP delay.

USRobotics - Sportster Voice 33.6
Class-2.0 Special command &H2&I0&R1S36=0

USRobotics - Sportster 56000 Voice (x2 modem)
Need V4.5.1 FLASH ROM or later from USR (ATI3 to check)

```
Class-1 (or try Class-2.0) Special command &H2&I0&R1S36=0
USRobotics - Courier 28800
Class-1, Special command &H2&I2, Receive EOP delay
USRobotics - V.terbo 21600 w/14400 Fax
Class-1, Receive EOP delay
USRobotics - Worldport 2496 V.42bis, 9696 MNP5 FAX
SendFax
USRobotics - Worldport 9696 V.42 w/Fax, 14400 V.42 w/Fax
Class-1, Special command &H2
Zoltrix - 33.6 fax/data/voice (TI RK Voice chipset - user tested)
Class-2.0 Spec cmd: &A3&B1&H1&R2&D2&C1X4S0=0S7=90
(#CID=1 for caller ID enabling)(not supported for voice)
Zoom - 56kbps FAX modem, Model 2819
Class-1, Skip TCF read
```

MULTILINE NOTES

If you have purchased additional line options for your program, you can install multiple fax hardware devices and fax telephone lines, and then do simultaneous fax sending and/or receiving on these lines. PMfax can support up to 96 lines per CPU, and the LAN product has optional "multiple fax server" support for even more capacity.

On a given CPU, the multiple fax hardware devices must be of the same type. The same Utilities/Settings configuration pages control the configuration for all the fax hardware devices. The Ports page is used to configure the individual fax lines for sending, receiving or both. The selected lines are automatically used for simultaneous sending/receiving.

Fax modems - Either internal or external fax modems can be used, and while the modems do not need to be identical, they must all use the same values on the Utilities/Settings/Modem/Modem Type page. Each fax modem must be on a separate serial port in your system and the serial ports should generally be standard hardware chips (8250, 16450, 16550, or 16550A equivalents). See the next section for a discussion of serial boards (both "non-intelligent" and "intelligent") for adding serial ports. For large port counts, we recommend using ports with 16550A UARTs and Class 2.0 fax modems.

Brooktrout boards - PMfax for OS/2 will support use of Brooktrout hardware. If you have properly installed the runtime software drivers from Brooktrout, the Brooktrout ports will appear on the Utilities/Settings/Ports page in PMfax. It is possible to run up to 96 lines using Brooktrout fax hardware. You can download the needed Brooktrout files from our web download area or contact Keller Group technical support for details. See the installation notes below for details on [Brooktrout](#) hardware.

GammaLink boards - PMfax for OS/2 will support use of GammaFax hardware. If you have properly installed the runtime software drivers from Dialogic, the GammaFax ports will appear on the Ports page in the Settings notebook. The fax program interfaces with the GammaFax boards via the GammaFax Dispatcher, so it can operate simultaneously with many other GammaFax software products which also use the GammaFax Dispatcher. See the installation notes below for details on [GammaFax](#) hardware.

SERIAL CARDS AND COM DRIVERS (UARTS, INTELLIGENT PORTS)

The multiline versions of PMfax can support up to 96 fax lines, but it can be difficult to find enough ports, interrupts or slots to attach modems to your PC. A serial port board might be the answer.

Conventional Serial Boards - Boards that provide real hardware UART ports (compatible with standard PC serial ports) are supported. On OS/2, our optimized device driver (FMD.SYS) allows you to use nonstandard port I/O addresses, nonstandard interrupts and shared interrupts. On other platforms, the documentation from the board vendor will usually tell you how to use your operating system's serial driver with the board. For large systems, we generally recommend using boards with 16550A UARTs and Class 2.0 fax modems.

16550A UART Support - The fax software can take advantage of 16550A UART chips if they are used in your PC serial port, internal fax modem or serial board. The use of 16550A UARTs is not required, but they will decrease the system load during fax sending and receiving with fax modem hardware since the 16550A hardware buffering substantially reduces the interrupt rate.

Intelligent Boards - "Intelligent" serial boards (and some types of nonstandard fax modems) do not provide physical UART ports, so they cannot be used through the usual serial drivers. Instead, the board vendor provides a special driver that makes their ports accessible as logical serial devices, and the ports can only be accessed through their proprietary driver. Be sure that the board vendor provides a driver for your operating system if you wish to use these boards. With a suitable driver installed, the ports will appear on the Utilities/Settings/Ports page in PMfax.

BROOKTROUT HARDWARE

For your convenience, we provide Brooktrout's drivers for use with the current PMfax release in the Download area at our web site.

To install the Brooktrout fax hardware, follow the instructions in Brooktrout's hardware guide to install your Brooktrout fax boards and drivers.

The following instructions describe installation of the Brooktrout OS/2 driver software, and may also apply to other platforms:

[The destination directory for the Brooktrout software is assumed to be C:\BFAX for the following steps. Please change the commands as needed for your installation directory.]

1) To create the install directory, type:

```
MKDIR C:\BFAX
```

2) Copy BFAX.SYS, FAXINIT.EXE, *.CFG, and *.PEX into C:\BFAX. If a directory other than C:\BFAX is used, BTCALL.CFG will need to be edited and all four paths changed from C:\BFAX to the proper directory.

3) Edit your C:\CONFIG.SYS to add an appropriate line like this one:

```
DEVICE=C:\BFAX\BFAX.SYS D1 I12 N24
```

This line is for DMA channel 1, interrupt 12, and 24 channels. These settings should match the jumpers set on the boards. Modify the D1 or I12 as appropriate. The N24 (or other number) is only required for more than 16 channels. Please make sure any DEVICE= lines from older Brooktrout BFAX drivers are removed from your CONFIG.SYS and that there are no device conflicts with the DMA channel and interrupt number you have

chosen.

4) Edit your C:\STARTUP.CMD to add the following line:

```
C:\BFAF\FAXINIT
```

(or put "RUN=C:\BFAF\FAXINIT.EXE" after the BFAF.SYS line in your CONFIG.SYS).

5) Install the OS/2 fax software. With PMfax version 4, select Brooktrout as the fax hardware. If you have a CD-based copy of PMfax v3 and use the install.exe program, select "Brooktrout BFAF" as the fax hardware type when running install. If you have a web-downloaded copy of PMfax v3, be sure to replace the default fax.adp file in the web download with the version of this file for Brooktrout hardware by getting the "Brooktrout fax adapter" file from our web download area.

6) You will need to reboot for OS/2 to load the new BFAF.SYS driver.

7) On the Utilities/Settings/Brooktrout screen, specify the path:

```
C:\BFAF\BTCALL.CFG
```

Note that FAXINIT.EXE, BFAF.SYS, *.PEX, and *.CFG are from Brooktrout. We will do our best to help out, but any real problems should be addressed to Brooktrout.

We have noticed some things about Brooktrout's FAXINIT program. There is an undocumented range of addresses that FAXINIT looks for. Here is what we know about FAXINIT:

FAXINIT doesn't load firmware into the cards, it just finds them. After it peeks around at the board addresses, it tells the BFAF.SYS driver where they are. (The driver then tells TR114 cards what DMA to use.) This means that FAXINIT needs to know where to look. FAXINIT will automatically find cards at the following addresses:

```
140 144
210 214 218 21C
220 224 228 22C
230 234 238 23C
240 244 248 24C
250 254 258 25C
260 264 268 26C
270 274 278 27C
```

If your card address is not on this list, it WILL NOT be found by default.

If you choose nonstandard addresses, you must create a configuration file listing the port address of each card, even if some of the cards have standard addresses. Addresses must be in hex format. For example, if you have 3 cards, with nonstandard addresses at 300, 350, and 354, list them in your configuration file in the following way:

```
addr 300
addr 350
addr 354
```

or:

```
addr 300
addrs 350 2
```

To execute FAXINIT when you are using nonstandard addresses, use the following command where filename is

the name of your configuration file:

```
faxinit -n filename
```

GAMMAFAX HARDWARE

PMfax supports used of the intelligent GammaFax boards, such as the CPi, CP, CP MC, and XPi. Multiport boards also work, including the CP4-LSI and the MLCP4 with DTI-124 T1 interface board. (XP and XP MC boards are NOT supported since they are non-programmable and do not support API access.)

PMfax for OS/2 requires use of GammaLink's GammaFax OS/2 dispatcher (version 5.3). The following instructions describe installation of the GammaLink OS/2 driver software, and may also apply to other platforms:

Install the GammaFax OS/2 software as directed in GammaLink's instructions. It is recommended that the GammaFax software be installed in a directory different than the fax program. For our examples that follow, we are assuming that the GammaFax software is installed in the directory "C:\FAX". Be sure to modify the pathnames if you use different directories.

Verify that the command script files (C:\FAX\GFQM.CMD and C:\QF.CMD) correctly reflect the GammaFax software's installation directory. For example, if the GammaFax OS/2 software is installed in C:\FAX, the first line of both the files should be "SET GFAX=C:\FAX".

Verify that your CONFIG.SYS file includes the line "SET GFAX=C:\FAX". (You will need to reboot your system so that the changes to your CONFIG.SYS file will take effect.)

Edit the configuration file, C:\FAX\GFAX.\$DC, to include the lines below, in addition to or replacing the lines provided by the GammaFax installation program. The gfx lines should be repeated for each GammaFax channel to be controlled by the fax adapter and the value 1 should be replaced with the logical channel number.

To setup each line:

```
gfxshutdown 1 3          *changed from default 0 for API direct control
```

To enable DTMF LAN routing for each line:

```
gfxdtmftimeout 1 6 15    *added to control DTMF interdigit and total t/o
gfxdigits 1 4 3072       *added for 4 DTMF digits and * or # termination
gfxdtmftone 1 440 500    *added to use 440 cps .5 second DTMF prompt
```

Please refer to the "GammaFax Reference Manual" for more information about the configuration file (chapter 4 "Configuring the GammaFax System" in version 5.x).

An example of a complete configuration file is included at the end of this section.

Start C:\FAX\GFQM.CMD in an OS/2 window. If desired, you can add C:\FAX\GFQM.CMD to your STARTUP.CMD or create a program object with the Path and File Name set to C:\FAX\GFQM.CMD and place the object in your startup folder.

Start the fax program and set the ports to be controlled using the Ports page in the Settings notebook. Also in the Settings notebook, set the proper phone line type (recognizable dial tone or not) and dialing style (tone or pulse).

This is an example of a 2-line multiline configuration file, and also demonstrates the use of DTMF input for

routing incoming faxes.

From what we understand, the CPI and XPi boards are like the CP and XP, but with built-in DTMF reception - the CP board requires an optional daughter board for DTMF input.

The lines in this example were rearranged so all that reference a channel are grouped together. This does not affect the operation.

```

chassis 1
buffers 4
numchan 2

channel 1 0 GFAX1.01
country 1 1
init 1
load 1 C:\FAX\GFXCX.BIN
gfxshutdown 1 3          *changed from default 0 for API direct control
gfxdtmftimeout 1 6 15   *added to control DTMF interdigit and total t/o
gfxdigits 1 4 3072     *added for 4 DTMF digits and * or # termination
gfxdtmftone 1 440 500  *added to use 440 cps .5 second DTMF prompt

channel 2 1 GFAX1.02
country 2 1
init 2
load 2 C:\FAX\GFXCX.BIN
gfxshutdown 2 3          *changed from default 0 for API direct control
gfxdtmftimeout 2 6 15   *added to control DTMF interdigit and total t/o
gfxdigits 2 4 3072     *added for 4 DTMF digits and * or # termination
gfxdtmftone 2 440 500  *added to use 440 cps .5 second DTMF prompt

```

SOFTWARE/APPLICATIONS

SCANNER SUPPORT

Native scanner support software is available from several vendors, and most of the scanner packages can easily be used to scan and fax documents with our fax software. Because any scanning software can generally print the scanned image to your printer, it can also print the scanned image to our fax printer driver to convert it into a fax document.

For the OS/2 platform, information on using some of the OS/2 scanner packages with the fax software:

Applause and other scanning and OCR products [Solution Technology - <http://www.stiscan.com/>] - Image utilities for OS/2 - support for HP ScanJet and Logitech scanners. Scanned images can be turned into fax documents by printing to FxPrint, Clipboard cut/paste, or using Applause's Edit/Scale to FAX command and then using File/Save As to produce a DCX-format file which can be read with the fax program's Fax/Open file/DCX command.

CopyShop/2 [Trafalgar Business Systems - <http://www.tbsny.com/>] - Utility for "scan & fax", "scan & print" and "scan & view" using HP ScanJet scanners. By selecting FxPrint as the printer for CopyShop/2, you get a

"single-button" way to scan a document and get the Fax Send dialog. For multi-page faxes, it supports automatic document feeders and, for those without auto feeders, it allows a series of single page scans to be treated as a single fax job.

Galleria [Bitware Australia, information at <http://www.os2ss.com/select/applications/graphics/galleria.html>] - Image utility for OS/2 - support for HP ScanJet scanners. Scanned images can be turned into fax documents by Clipboard cut/paste or printing to FxPrint.

INTEGRATION WITH OTHER APPLICATIONS

PMfax is designed to cooperate with other applications. Some examples:

SCANNING - As described above, some scanner packages support "scan and fax" with the fax software.

INTERNET E-MAIL FAXING - The software can send and receive fax documents via e-mail by cooperating with various Internet E-mail products. When our fax software and cooperating e-mail products are used for sending and retrieving the e-mail, the fax document is transparently delivered to the receiver and appears in their fax log as a received document. Advanced "Internet Relay Systems" for Internet fax delivery are also supported. See our web page on [Internet Faxing](#) for the latest information on this feature.

FAX MERGING - Some OS/2 word processors, including DeScribe v5.0 and IBM Works (in the BonusPak), support fax merging within their mail merging features. Other word processors (even Windows or DOS word processors) can often support such automated faxing by embedding the >>TO and >>DOC printer driver commands in their document or by using word processor macros which pass the >>TO command to the FxPrint printer driver in various ways as described in the Reference Manual. You can also do a type of "fax merging" with the new Edit/Cover sheet command in the fax software.

PHONE BOOK SHARING - The Personal Contact Management Utility (pLog) from Oberon Software supports the fax phone books, so you can maintain a common phone book for both fax and voice auto-dialing. The phone book files use a simple, standard format (comma-separated value ASCII) that can be imported and exported by most spreadsheet and database programs. Specifications for all PMfax data file formats are available in the Documents area at our web site.

SERIAL PORT SHARING - The "shared mode" feature can often allow data programs to make outbound calls while the fax software remains in receive mode. But even if you are using "private mode", you can use the fxrcv utility program in a command file to exit receive mode, call your data program, then enable receive mode again. Some programs (TE/2 from Oberon Software, Golden CommPass from Creative Systems Programming Corp, and others) provides fields or scripts using the fxrcv commands to manage the port sharing.

QUICK START GUIDE

PMfax allows you to send, receive and print faxes of unlimited length. It also includes a fax printer driver that works with the fax program for creating and sending faxes by "printing" from your other applications. Features include normal and fine fax resolution, multiple page lengths and printer emulation for print capture from your other applications.

If you have the Lite version and you send or receive faxes on a regular basis, you will want to upgrade to the Pro version. The Pro version has many additional features, including a configurable toolbar, fax markup and editing, drawing, import, export, automatic printing, gray-scale viewing for enhanced on-screen readability, multiple

phone books, enhanced log selection and maintenance, and printer driver commands. You can also get LAN versions with automatic routing, multichannel support for up to 96 fax lines and programming interfaces for developing your own "fax enabled" applications. To purchase the Pro version or program options, see the information on the program's Help Product Information screen or contact [Keller Group](http://www.cds-inc.com/) (<http://www.cds-inc.com/>).

READING THE DOCUMENTATION - A Quick Reference Guide and other documentation is included on the program's Help menu. Complete manuals and other documentation are available in the Documents area at the web site (<http://www.cds-inc.com/>).

CONFIGURING THE PROGRAM - In the fax program's Settings notebook, set the port used by your fax modem on the Ports page, your modem baud rate and line type on the Modem/Modem Settings page, and your fax modem values on the Modem/Modem Type page. The Lite product supports fax modems which follow the Class 1, Class 2, Class 2.0 and SendFax standards.

TO GET HELP - Check the message line as you move the mouse over a toolbar button or menu item, or press F1 for extensive on-line help information. The Lite version includes the same help system as the Pro product, so some of the described features are not in the Lite version.

TRY THE TOOLBAR - The buttons in the toolbar provide "single-click" access to the menu items. When you put the mouse over a toolbar button, the message line tells you about the button. In the Pro version, the toolbar is configurable using drag-and-drop (drag the buttons, or drag menu commands to the toolbar).

USE POP-UP MENUS - Pop-up menus are always available in PMfax, and the contents of the pop-up menu will vary based on what the mouse is on when you press the right mouse button. Different pop-up menus will appear if you right-click on the main program window, the status window, the fax log window, or the phone book window.

TAKE ADVANTAGE OF THE DESKTOP FEATURES

Drag-and-drop - To the extent that your operating system provides support for it, PMfax supports various drag-and-drop features. For example, on OS/2 you can drop fax file objects on any printer object to print it, on the fax program object or into the fax workspace to view it, on the Send toolbar button to send it, on the Print toolbar button to print it, on any of the View or Orientation toolbar buttons to view it in that size or orientation, or on the Log toolbar button to add a copy of the fax to the fax log for later viewing or sending.

Resizable windows - Drag the borders of the program, log and phone book windows to suite your preferences, and the program will remember the sizes.

Fonts of your choice - Fonts can be selected in Utilities/Settings, and the program will remember your font choices.

FAXING FROM OTHER APPLICATIONS

The "fx" printer driver (called FxPrint on OS/2) is included with PMfax, and you use it just like any other printer on your system. Rather than printing to paper, the fx printer driver turns your print job into a fax document file, and an optional Send Fax pop-up window allows you to send the fax.

To create and send a fax from an application, use the application's Printer Setup command to select the fx printer object, then use the application's Print command.

You can configure the fx printer for various page lengths and other settings on the Utilities/Settings menu in PMfax.

OS/2: PRINTING FAXES FROM DOS APPLICATIONS

On OS/2 you can use either the fx printer (Postscript emulation) or the FxPrint printer (as in PMfax version 3). The FxPrint printer driver provides emulation for the IBM Proprinter X24 printer, so your DOS programs can create and send fax documents by printing to the FxPrint printer object's LPT device.

By default, the FxPrint printer object is usually attached to LPT3. FxPrint should be attached to an LPT device that is not used by any other printer object. You can check and set the LPT device on the Output page of the FxPrint printer object's settings notebook.

To create and send faxes from DOS programs running on OS/2, have your DOS program use LPT3 for printing (or whatever LPT device you have set on the Output page of the FxPrint printer object). If possible, tell your DOS program that LPT3 is an IBM Proprinter X24 printer. This will allow the DOS program to use the Proprinter's fonts and graphics. To produce a fax document that is easier to read, tell your DOS program to use the Proprinter's "Elite PS" font or a bold font.

If you want the results to be larger on the fax page, change the LPT Emulation setting from "IBM Proprinter X24E" to "IBM PP X24E Enlarged" by using the Job Properties button on the Printer driver page of the FxPrint printer object's settings notebook.

If your DOS program can only produce high-quality printed output when using a LaserJet printer, then you may want to upgrade to the Pro version and the optional PCL5 emulation feature. This allows your DOS and Windows programs to print to the fax printer driver as if it was a LaserJet III printer.

OS/2: PRINTING FAXES FROM WINDOWS APPLICATIONS

On OS/2 you can use either the fx printer (Postscript emulation) or the FxPrint printer (as in PMfax version 3). As described in the previous section, the FxPrint printer driver provides emulation for the IBM Proprinter X24 printer. Your Windows programs can print to the Proprinter Windows printer driver, and that printer driver can pass the data to the FxPrint printer object's LPT device to create a fax document.

You must do a onetime installation/configuration of the Windows printer driver. To do this:

1. Run a full-screen Windows session, such as by double-clicking on the WIN-OS/2 Full Screen object in the Command Prompts folder.
2. Open the Windows Control Panel (in the Main Group), then open Printers.
3. Press the Add button, select IBM Proprinter X24, then press the Install button. You will be prompted to insert a printer driver diskette for installing the Proprinter Windows printer driver. If you are running OS/2 for Windows, this will be one of your Windows installation diskettes. If you are running regular OS/2, this will be one of your OS/2 installation diskettes.
4. Press the Connect button and set the printer driver's device to the same LPT device used by the FxPrint printer driver (like LPT3.OS2).
5. Installing and using the ATM (Adobe) fonts is recommended (see your OS/2 documentation).

To create and send faxes from Windows programs running on OS/2, use the application's Printer setup command to select the Proprinter printer driver, then use the application's Print command.

If you want the results to be larger on the fax page, change the LPT Emulation setting from "IBM Proprinter X24E" to "IBM PP X24E Enlarged" by using the Job Properties button on the Printer driver page of the FxPrint printer object's settings notebook.

If you upgrade to the Pro version and the optional PCL5 emulation feature, then your Windows programs print to the fax printer driver as if it was a LaserJet III printer.

IF YOU HAVE PROBLEMS

Most fax problems are due to improper modem settings and are easily corrected. Be sure to see the notes and suggestions about your fax hardware at the beginning of this file.

Port selection - Be sure that the fax program is using the correct port by checking the Utilities/Settings/Ports page. If your fax hardware is turned on and attached to the specified port, they you will hear it pick up the phone line and dial when you tell the fax program to send a fax. If it doesn't, try testing your fax modem with a data communications program to make sure it is properly attached and working.

Modem settings - Look at the Utilities/Settings/Modem/Modem Type page and check the settings for your fax hardware. See the [Modem Hardware](#) section of this document for the recommended settings for your modem. If your modem is not listed, check your modem manual to determine if your modem uses the Class 1, Class 2, Class 2.0 or SendFax command set for faxing. If your modem supports both Class 1 and Class 2.0 and you are having problems in Class 2.0 mode, try changing it to Class 1. As noted in the modem information at the start of this file, some modems also need additional check boxes or special commands.

Finding the fax directory - If the fax program can't seem to find the fax log, or if you have changed the location of your fax data directory (which contains FAX.LOG, FAX.IDX, *.FAX and *.PBK files), then you must tell the program where it is. To do this, start the fax program with the parameter of

`-L newdir`

where newdir is the full pathname of the directory which contains the FAX.LOG file. You only need to do this once, and the fax program will then remember it.

Capturing details to track down problems - The fax program includes a facility for capturing detailed information on its activities, including all the commands and responses with your fax hardware. Technical support will need this information to provide assistance. To report a problem, first start the fax program with a parameter of `-V`, recreate your problem, close the fax program, and e-mail a copy of the vout file (found in your fax data directory) to technical support. On Linux, there may be both a vout and vout2 file, and both should be e-mailed to technical support.

WANT MORE?

GET IT ALL WITH THE FULL RETAIL VERSIONS (PMfax Pro and PMfax LAN)

The Pro products add many features, including:

- Powerful fax editing, including the ability to sign your faxes with your signature image, append other fax

documents and type on a fax in any font.

- Extended selection in the fax log so you can print or delete multiple faxes with a single command, a Clean command to remove "informational" log entries like "busy" or "no answer", and other log maintenance and fax archiving features.
- Multiple selection in the phone book, and support for multiple phone books and distribution groups.
- A gray-scale feature for improved viewing of faxes with smaller fonts and images.
- Options for automatically starting in receive mode and automatically printing faxes when received or when sent.
- A utility program for changing receive mode from the command line or a command file (for example, to turn off receive mode so your data program can use the fax modem), or to tell the program to view or print a fax.
- LAN versions, multiline versions, developer toolkits for doing fax broadcasting or fax integration, and more.

For information on upgrading to the full retail version or purchasing program options, see the information on the program's Help Product Information screen or see our web site (<http://www.cds-inc.com/>).

NEW FEATURES & DOCUMENTATION

NEW IN PMFAX LITE

Some of the new features added in version 3:

- Class 2.0 fax modems are now supported.
- Voice answering machine functions are added for use with supported voice/fax modems. When enabled, you can use the same line to record voice messages and receive faxes.
- Enhanced cover sheets are supported. In addition to the standard cover sheets where you can select a bitmap image, you can also select from some enhanced cover sheets which are provided for your use. The Pro version can create and edit these enhanced cover sheets.
- The FMD.SYS driver is no longer required. The Lite version now uses your standard serial devices.
- The ability to accept "hot handoff" calls from data programs for data/fax line sharing is now supported. Data programs which use this feature can pass the call to the fax program after they have answered the phone and determined that it is a fax (rather than data) call. Ask your data communications software supplier if they support this feature.
- Various keyboard improvements are included for using the fax program and its settings notebook.

Version 4 adds support for Linux with the fx printer with Postscript emulation and complete documentation in HTML with an integrated HTML help browser.

NEW IN PMFAX PRO

Some of the new features added in version 3:

- Enhanced cover sheets are now supported, including full editing so you can position the fields anywhere on your cover sheet, place your signature after the comment field, and put logos and images anywhere on the

page. You can even use borders which will automatically stretch to accommodate long cover sheet comments. [The Lite version includes some new enhanced cover sheets, but does not support cover sheet creation or editing.]

- Voice support for telephone voice/fax hardware is provided, including integration with Multimedia audio, REXX scripts that you can modify and enhanced for doing voice mail, remote message and fax retrieval, fax-on-demand, forwarding, paging and other voice/fax answering services. Supported hardware includes many voice/fax modems and Brooktrout TR114 boards. [The Lite version supports a basic voice answering machine for fax modems but does not support REXX scripts.]
- Internet E-Mail support is provided. This allows you to send and receive fax documents (and voice, text and data items) via e-mail with various Internet e-mail products. When our fax software and cooperating e-mail products are used for sending and retrieving the e-mail, the document is transparently delivered to the receiver and appears in their fax log as a received document. The new -Z startup parameter and some of the voice scripts can forward your fax and/or voice messages to your Internet e-mail mailbox, so you can access your messages and faxes by retrieving your e-mail messages and your faxes and messages will appear as "received" items in the fax software. The new "Relay" support also makes it easy to set up Internet "forwarding nodes" and "Internet Relay Systems" for sending faxes through the Internet and avoiding long-distance telephone charges.
- The new universal log supports fax, voice, text and data items in the log. Icons in the log identify the type of the item and show if a fax has been printed. New page numbering shows if a cover sheet is used, how many pages were successfully sent before a failure, and so forth. Text items can be converted for faxing with the click of a button, including use of printer driver commands to control fonts and formats. In the LAN version, the voice, text and data items can be routed to other OS/2 workstations just like fax items.
- You can now drag-and-drop "anything" in the log on OS/2. You can use drag-and-drop to copy or move objects of all types (fax, voice, text and data) from the log to the desktop or a folder. All log record information stays with the file as extended attributes, so the object can be fully restored to the log when you drag it back. You can also append multiple faxes together by dragging them from the log, desktop or folder to the workspace, play a voice message by dragging it to the workspace, or view text and data (hexdump) items by dragging them to the workspace.
- A full REXX API is included. REXX programs can now be used to control receive mode, send faxes, check job status, process items from the log, print or delete fax files, modify phone book records, generate reports from the log or phone books, and more. The REXX interface lets you create advanced applications which deal with voice, fax, text and e-mail. The complete REXX API is documented and included in the retail version. You can distribute your REXX applications without royalty to other licensed users of the retail products. Your REXX programs will work with all supported hardware, and will even work with our multiline and LAN versions.
- Multi-character searching in the log and phone books makes it fast and easy to locate the item that you need.
- Enhanced drawing tools for lines, boxes, circles, ellipses, arrows and check marks are provided for the Edit Draw command. Now it's even easier to fill out forms online!
- Printer driver commands can now be embedded in the documents from your Windows or DOS programs for automatic sending and other features.
- You can use drag-and-drop from the OS/2 Color Palette to change the workspace color or log background color, and Ctrl-Drag to set colors for different status types in the log.
- Priority sending is provided to allow an important fax to be sent before other spooled fax jobs.
- Hold mode is provided to temporarily suspend faxing or gracefully shut down a busy system.
- The intelligent retransmission option can be selected to resend just the unsent pages. The ability to specify

a page range is also included in the Resend command.

- You can do automatic retry just for BUSY failures or for all failures. Some users prefer to check the fax number before retrying other types of failures.
- The Utility Maintain log command now supports automatic daily operation and the ability to archive the documents and log entries to an archive directory.
- A new Cut command will separate pages that were "stuck together" when faxed to you.
- You can now modify a previously sent cover sheet and resend the document (by using Ctrl-double-click on a log item) or modify a previously sent cover sheet and apply it to your current document (by using Alt-double-click on a log item).
- New recipient editing let's you review, edit or delete items in your list of recipients before sending. Double-click on a recipient in the Send dialog to get a recipient edit/delete dialog.
- The retail version now allows you to use COM devices (from COM.SYS, SIO.SYS or other third-party device drivers) or the FMD devices (from our FMD.SYS device driver). [The BonusPak Lite version now uses only COM ports, while the retail version also provides the FMD device driver for port sharing and other features.]
- The Shared option for fax modems waits for the line to become available for sending if your data communications program is using it, and (with FMD ports) allows your data communications programs to use the fax modem without needing to take PMfax out of receive mode.
- The ability to accept "hot handoff" calls from data programs for data/fax line sharing is now supported. Data programs which use this feature can pass the call to the fax program after they have answered the phone and determined that it is a fax (rather than data) call. Ask your data communications software supplier if they support this feature.
- You can start current call receiving from the command line or with a program icon using a new startup parameter, thereby making it easier for you to share a line for voice and fax calls.
- Prompting for client data is supported so you can generate charge-back reports or do other tracking on all your fax usage.
- T.30/T.33 Subaddress Routing is supported with Class 1 fax modems and Brooktrout cards. This can be used to automatically route faxes to the recipient when faxing to our LAN products or other LAN fax systems which support this standard. To use outbound Subaddress Routing, simply put a ' (single quote) character after the regular fax number followed by the route digits.
- The LPT49 utility is included to add LPT ports so you can install the fax printer driver on LPT4 - LPT9 if you are already using LPT1, LPT2 and LPT3 for other printers.
- The fax printer driver is now faster and takes advantage of new Warp features. It also supports word wrapping in >>FONT emulation mode.
- Hardware support is enhanced and now includes Mwave, SatisFAXtion, Brooktrout, GammaLink, Class 2.0 modems, modems with Caller ID and other fax hardware. See the User's Guide or on-line Help for instructions on using Caller ID.
- The new LAN and Multiline versions now support multiple fax servers, enhanced automatic routing (by DID, DTMF, OCR, T.30 Subaddress, TSI/CSID, or line number), multi-user voice messaging and remote fax/voice retrieval, routing groups, "first page only" viewing option for manual routing, customizable notification options, improved support for Notes e-mail, new interface for the fax administrator, automatic busy call blocking for optimized throughput between multiline systems, and more.
- The OS/2 programs are now translated into more than 25 languages including Czech, Danish, Dutch, Finnish, French, German, Hungarian, Italian, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, UK English, Catalan, Bulgarian, Turkish, Greek, Brazilian Portuguese, Slovenian, Japanese, Korean,

Traditional Chinese, and Simplified Chinese.

- If you are using the Lite version, contact Keller Group (<http://www.cds-inc.com/>) or your software reseller to purchase the Pro version.

Some of the features added in PMfax for Linux version 4:

- Complete documentation in HTML, with integrated HTML help browser
- Postscript fax printer emulation support
- PNM/PBM image file support for flexible import/export
- Improved gray scale color conversion for imported images
- Integrated selection of fax hardware adapters

NEW IN PMFAX LAN

Some of the LAN features added in version 3:

- LAN/MULTILINE - multiple fax server facility (multiple cooperating CPUs)
- LAN - Voice support, including true multi-user routing & remote retrieval
- LAN - OCR Routing
- LAN - T.30/T.33 Subaddress Routing
- LAN - TSI/Called Subscriber ID Routing
- LAN - Line-based Routing
- LAN - selecting and routing multiple items with one route command
- LAN - routing groups for routing to distribution groups
- LAN - routing all log items, not just received faxes (voice/text/data)
- LAN - "view first page only" security for manual routing
- LAN - fax "Stop" command from OS/2 workstations
- LAN - public phone book creation from OS/2 workstation (add '(p)' to name)
- LAN - flexible options to customize notification upon send/receive/error
- LAN - immediate use of any WS.INI changes that you make from your scripts
- LAN - Lan User Administration utility (container-based, run on workstation)
- LAN - Options Maintain logs command to clean workstation logs from server

DOCUMENTATION FOR SOME NEWER FEATURES

PRIORITY SENDING - If you check the "Priority" checkbox on the Fax Send dialog, your job will be sent before other "normal priority" jobs. This is useful if there are other jobs already waiting to send (such as during a broadcast), but you want your job to send right away. This works for both stand-alone and LAN versions. API users can use the new priority field in the FXINFO structure, and enhanced printer driver users can use the new priority argument to the >>AT printer driver command (>>AT=,,1 for high priority).

PRIVATE/SHARED PORT - Fax modem configuration includes a "Private" checkbox. When checked, we use the port in "private" mode where we acquire the port when waiting for incoming calls and expect the port to be

immediately available when we send a fax (like past operation). When not checked, we use the port in a new "shared" mode which provides useful features:

1. **WAIT FOR LINE** - For sending, if the port is in use by another program when we want to send a fax, we will wait for up to one hour for it to become available before reporting an error. When you release the port (such as by closing your data program), we will send any spooled faxes that are scheduled for transmission.
2. **SHARED PORT** - For receive mode, if you are using our OS/2 version with the optional FMD.SYS driver, the port is not acquired until the phone actually rings, so you can leave the fax software in receive mode while using the fax modem for outbound data program activity. The port is only "in use" when we are actually receiving or sending a fax. No need to use the FxRcv utility or commands to take the program out of receive mode anymore! (This uses our OS/2 FMD.SYS device driver, and operates with virtually no system overhead.)

***IMPORTANT NOTE:** The shared port feature depends upon the hardware ring indicator in your com port chip. If you are using an external fax modem and your cable does not provide the necessary signals, the fax software will not know that the line is ringing and will therefore not answer the incoming calls. IF THE SOFTWARE DOES NOT ANSWER INCOMING CALLS WHEN SET IN RECEIVE MODE, CHECK THE "PRIVATE" CHECKBOX ON THE MODEM PAGE OF THE SETTINGS NOTEBOOK.*

LAN - ENHANCED LAN ROUTING AND ROUTING GROUPS - For LAN systems running in private mode, the routing capabilities have been substantially enhanced:

1. You can now route any type of fax... not just received faxes.
2. You can select multiple faxes in the log and route the entire set of faxes with a single Route command in the log pop-up menu.
3. Routing supports "groups". Just as in phone books, you can now specify "group names" for workstation users in the FxRdr program, and the Route command adds a Group button for selecting a routing group.

CLIENT NUMBER DATA FOR CHARGE-BACK REPORTS - You can now make the software prompt the user for "client information" when sending a fax, and even prevent them from sending a fax without selecting a valid client number. This information is saved in the "notes" field of the fax log and the activity report, from which you can easily generate charge-back reports and usage reports. This is controlled by the presence of the FxNotes.INI file in the log directory (for stand-alone systems or shared mode LAN systems) or the public directory (for private mode LAN systems).

- The file may contain:
 - A "=Prompt Text" line to specify the your prompt.
 - A second line with just "=" if you wish to prevent the user from sending a fax without selecting a customer number.
 - Additional lines which specify the values which will be displayed in a pull-down list for user selection. Each value can be up to 40 alphanumeric characters.
- For example:
 - If the file exists but is empty, the user gets a prompt box but no pull-down list, and the user can enter a value or leave it blank.
 - If the file contains only "=Enter Customer Number", the user gets a retitled prompt box but no pull-down list, and the user can enter a value or leave it blank.
 - If the file contains:

```
=Enter Customer Number  
Cust 1, Matter 1  
Cust 1, Matter 2
```

Cust 2

Cust 3

then the user gets a retitled prompt box and a pull-down list, and the user can select a value from the list, enter a different value, or leave it blank.

- If the file contains:

=Enter Customer Number

=

Cust 1, Matter 1

Cust 1, Matter 2

Cust 2

Cust 3

then the user gets a retitled prompt box and a pull-down list, and the user **MUST** select a value from the list in order to send a fax.

"HOT CALL" RECEIVING - There's now an easier way to receive a "current call" fax (when you've answered a call and then realize that someone is sending you a fax), and even a way for a data program to pass "hot" calls to our program. ("Hot" means that the COM port is already open and the modem has already picked up the call, so we need to receive on the attached port without resetting the modem or dropping the call.) Unlike the previous way of doing current call receiving with program commands or the FxRcv utility program, it doesn't even matter whether or not our program is running! You tell us what to do by using the new "-n" parameter followed by an appropriate value. The value is a number composed of the following bits. For example: -n0 does a current call receive, then displays the fax, and -n7,10 does a hot receive on open COM handle 10, then exits.

bit 0

0 means reset the modem and take it offhook

1 means assume modem is already connected

bit 1

0 means we open our configured port

1 means you are providing an open COM handle

bit 2

0 means we will stay running & display the fax

1 means we will log the received fax and exit

COLOR DRAG/DROP IN LOG FOR OS/2 - You can drag/drop colors from the OS/2 Color Palettes to the workspace background and the log display using OS/2 drag/drop standards (drop to change background color, Ctrl-drop to change foreground color). All the different status types (sent, received, error, edit) in the log are independently changeable by using Ctrl-drop on the different status line types. As before, you can drag/drop fonts from the OS/2 Font Palette, too.

HOLD MODE - The program now includes Fax/Hold commands, a -H startup parameter, and fxrcv utility program parameters for "hold mode". When in hold mode, no new send or receive jobs will be started, but current activity will complete gracefully. This is useful for laptop users when no phone line is available or for shutting down LAN/multiline systems.

T.30/T.33 SUBADDRESS ROUTING - We now support IS-141 T.30 / T.33 Subaddress Routing with Class 1 fax modem and Brooktrout cards. To use outbound Subaddress Routing, simply put a ' (single quote) character after the regular fax number followed by the route digits. Inbound, the route digits are treated just like digits from DTMF or DID for automatic LAN routing.

NEW FOR API USERS - FxKill function for killing fax jobs which are sending or spooled Priority Sending and

"priority" field in FxSend's FXINFO structure. Also the ">>AT" command in the enhanced printer driver has been extended to include a priority argument. The format of the command is now ">>AT=time,date,priority". For example ">>AT=,,1" sets the priority flag.

NEW DRAWING TOOLS - Added to the edit menu are five new drawing tools! Line, arrow, box, ellipse, and check have been added for better mark up capability. The draw command still does freehand line drawing... but for straight lines, the new line command allows dragging of a line from a first point to a second. The arrow, box, and ellipse all work with the same dragging style. Try it!

PHONEBOOK AND LOG SEARCH - A new field has been added to the phonebook and log screens to allow an incremental search. The arrow keys end can be used to find the next and previous entries. Home and end keys will go to the first and last matches.

AUTOMATIC BUSY CALL BLOCKING (MULTILINE SYSTEMS) - If sending with multiple lines to the same fax number (such as to several people in a company), the system automatically determines how many fax lines are available at the recipient's site and the additional spooled jobs to that number are done sequentially after the currently connected jobs complete. This avoids unnecessary BUSY attempts, yet continues to send jobs in parallel (and thereby get them delivered much sooner) if the recipient has multiple fax rollover lines available.

ADDITIONAL LPT PORTS ON OS/2 - If all your normal LPT ports (LPT1, LPT2 and LPT3) are in use, now you can create additional LPT ports for use by the fax printer driver. The LPT49 utility will create LPT4 through LPT9 on your system. You can install the fax printer object on any of these LPT ports. You can also create multiple fax printer objects on different LPT ports and each printer object can have different job properties (orientation, resolution, page length, emulation, etc.).

EMBEDDED PRINTER COMMAND IN DOCUMENTS - Printer driver commands can now be placed directly in various word processor documents that are being printed to our LPT port using emulation (such as from DOS or Windows programs). For example, if

>>TO=Mark,Keller Group,555-5555
is in a document and is sent to the printer using a printer font (so that the characters are visible to the printer driver), the fax printer driver will automatically send the document. The command won't appear in the fax that is sent.

LAN - MULTIPLE FAX SERVER FACILITY - If you need extra fax capacity in your fax server or fax broadcast system or want to spread your fax lines across multiple processors, now it's easy with this optional feature! The Multiple Fax Server Facility applies multiple OS/2 machines to the task of fax sending and/or receiving (i.e., multiple fax servers). The multiple fax servers are transparent to users of the LAN or broadcast system, and can be used with all other features (multiline options, e-mail options, DID routing, Multi-LAN Group Facility, etc.). Each fax server is independently started or stopped, and can even use a completely different type of fax hardware. Now the number of fax lines in your server or broadcast platform is virtually unlimited!

LAN - FAX STOP FROM WORKSTATION - The workstation software, the redirector, and the server program have been changed to allow a workstation's private-mode fax in Spool or Send status to be selected from the log and be stopped. Just right click on the log entry and select 'Stop'.

LAN - CREATING SHARED PHONE BOOKS FROM WORKSTATION - The phone book list now indicates which phone books are "public phone books" (i.e., shared with other LAN users) by placing a " (p)" after the phone book name in the list. LAN workstation users can also create a new public phone book by including the " (p)" suffix on the phone book name. Phone books which are created without this suffix are private phone books for the LAN workstation user.

LAN - CUSTOMIZING NOTIFICATION PROCESSING - The FxRdr (LAN redirector) program now accepts command line parameters to override the default notification processing. You can control the level of

notification separately for command notification (-nc#), e-mail notification (-ne#) and print notification (-np#) where # is 0 to notify only for receive or bad receive events, 1 to also notify on bad send events, and 2 to also notify on successful send events.

LAN - DYNAMIC ADMINISTRATION AND NEW INTERFACE - The FxRdr (LAN redirector) program now reads the workstation configuration file (WS.INI) whenever it is modified and automatically creates the private fax directories for any new users that are found in the file. This allows you to use your own programs or scripts to update the fax users from your LAN user information without needing to restart the FxRdr program.

LAN - NEW NOTES/CC:MAIL E-MAIL GATEWAY OPTIONS - New options were added to FxVIM to control the file type used on received e-mailed faxes. FxVIM will by default attach standard PCX image pages in ccMail and attach a Tiff class-F file in Notes. This behavior can be overridden with new command line options: -PCX will force multiple PCX page attachment, -DCX will force DCX file attachment, -TIF will force Tiff class-F file attachment, and -NOFAX will turn off all file attachment.

INTERNET E-MAIL SUPPORT - In the Pro and LAN products, the software can send and receive fax documents and voice messages via e-mail by cooperating with various Internet E-mail products. When our fax software and cooperating e-mail products are used for sending and retrieving the e-mail, the fax document or message is transparently delivered to the receiver and appears in their fax log as a received item. See the technical notes about Internet Faxing in the Documents area of our web site for details. Some features include:

- If you specify an Internet e-mail address in place of a fax telephone number, the software will call the cooperating e-mail software to "send" the fax. The e-mail software will encode the fax document and send it to the intended recipient as an e-mail message. You can use an Internet e-mail address in place of a fax telephone number in phone book entries or anywhere you would normally enter a fax telephone number.
- When your cooperating Internet e-mail software retrieves the e-mail message, it can place it in the fax software's log as a received document. The retrieved document looks like a fax document (or voice message) which was received over the phone line. The cooperating e-mail software will decode the contents of the e-mail message and call the fxrcv utility program (fxrcv -rcvd <file> <from> <subject>) to have the fax software "receive" the document.
- Voice messages can also be received via e-mail, and automatic forwarding of received fax documents and voice messages via e-mail is useful. Some of the Answer scripts (set on the Settings/Voice page) will forward your fax and/or voice messages to your Internet e-mail mailbox. When you are travelling, you can access your messages and faxes by retrieving your e-mail messages, and your faxes and messages will appear as "received" items in your fax software so you can view and play them just as you would back at your office.
- The "Relay" support also makes it possible to set up Internet "forwarding nodes" and "Internet Relay Systems" for sending faxes through the Internet and avoiding long-distance telephone charges.

CALLER ID SUPPORT - If you have Caller ID services from your telephone company and you are using a modem that supports your telephone company's Caller ID services, you can tell your modem to capture the Caller ID information and report it to the software. To use Caller ID: 1) Sign up for caller id service from your telephone company. 2) You must be in "Private" mode (on Modem page of Settings) so that we have the port open and ready at the first ring. 3) You must set "Answer Rings" (on Modem page of Settings) to 2 or more since Caller ID data comes between first and second ring. 4) You must enter a "Special command" (on Modem Type page of Settings) to enable Caller ID in your modem. This command is #CID=1 for Rockwell chipsets, +VCID=1 for Cirrus chipsets, or S40.2=1 for Zyxel. Caller ID information is placed in the Name field in the log record.

DISTINCTIVE RING SUPPORT - If you have distinctive ring service from your telephone company and you are using a modem which supports it, you can tell your modem to answer only on specific ring patterns. Also, for those creating their own answer scripts, a new Rexx call: FxLnLine('DRING') will return the ring type. To use

distinctive ring:

1. Sign up for distinctive ring service from your telephone company.
2. You must enter a "Special command" (on Modem Type page of Settings) to enable distinctive ring in your modem. This command is -SDR=n for Rockwell chipsets (where n has bits set for the type of ring to answer: bit 1 = ring type 1, bit 2 = ring type 2, bit 4 = ring type 3). So -SDR=3 will answer on both ring type 1 and 2. Please check your modem commands manual for more details.

IMPORTING FAX FILES - You can import fax documents from other services or applications if they are stored in TIFF Class F format (and many applications and services now use this format). The Fax/Open file/TIFF command in PMfax will open and display the fax, then you can save, print or send the fax using normal PMfax commands. You can also use the fxrcv utility program to add the fax to the PMfax log as a received job using fxrcv parameters such as *"fxrcv -rcvd faxfile.tif"* or *"fxrcv -rcvd faxfile.tif from-id subject-notes"*.

VOICE MONITORING - If you would like to listen to the caller as they record a voice message, you can see if your modem will support this feature. It's not standard in all modems, but there is a special command that tries to put the modem into monitoring mode. Try adding '+monitor' (without the quotes) to the Special Command field on the Modem Type page of the PMfax settings. It could work with your modem.

<end of readme>

Internet Faxing and Relay Systems

[E-Mail Services](#)

[Forwarding](#)

[Relay Systems](#)

[Technical Notes](#)

This topic is evolving as we work with developers of Internet products. The following e-mail products are currently known to work with the Keller fax software:

- [Post Road Mailer v2.0](#)
- [PMMail v1.53](#)
- [MR/2 Internet Cruiser Edition for OS/2 v1.12](#)

E-Mail Services

Cooperating e-mail programs can work with Keller fax software (version 3 and later) to support transparent sending and receiving via e-mail. Most popular OS/2 Internet e-mail products now support this feature (see above).

Keller fax software can support sending and receiving of all its log items (fax, voice, text and data items) via e-mail. When the fax software and a cooperating e-mail program are used for sending and receiving via e-mail, the items are transparently delivered and appear in the fax log as received items.

There are also ways to automatically forward received faxes and voice messages. When you are traveling, you can have all your faxes and messages forwarded to your e-mail mailbox and then retrieve them by accessing your mailbox. This automatic forwarding can be done with the `-Z` parameter (discussed below) or by some of the voice answer scripts (such as `V_MBX.CMD`).

To enable sending via e-mail, enter the appropriate E-Mail command on the Program page of the fax settings notebook. This command is provided by the developer of the OS/2 e-mail program. The fax software calls the e-mail command and passes it the file, e-mail address and e-mail subject strings. The fax software will automatically replace the `%xxxx%` tokens with the appropriate values when calling the command.

For Post Road Mailer version 2.0, an example e-mail command would be specified in the fax settings notebook as:

```
c:\dir\prmfax %FILE% %ADDRESS% %SUBJECT%
```

For PMMail version 1.53, an example e-mail command would be:

```
c:\pmmail\PMMSSEND /F %FILE% %ADDRESS% %SUBJECT% USER_D1.ACT
```

where `USER_D1.ACT` is the account directory to send from (be sure that `PMMSSEND.EXE` is in the same directory as `PMMAIL.EXE` and your account directory).

For MR/2 ICE version 1.12, an example e-mail command would be:

```
c:\mr2i\mr2i /Q %FILE% %ADDRESS% %SUBJECT% /XS
```

To send via e-mail, simply specify an e-mail address in place of a fax telephone number. Keller fax software will accept e-mail addresses in all fax number fields, including in the phone books.

For receiving via e-mail, Keller fax software provides a command line utility that the e-mail program can call when it retrieves one of our messages. By calling this utility, the fax software will "receive" the fax, thereby making it appear that the fax (or voice message, text file or data file) was received like a normal fax. See the release notes with your e-mail software to configure your e-mail software for this feature. If your e-mail program doesn't handle this automatically, see the Technical Notes below for instructions on how the FxRcv utility can be used.

Forwarding

Keller fax software can forward all received items to another fax number or e-mail address. The fax software can send fax or text items to a fax number (automatically converting text into a fax), so you can forward received faxes to a fax number. Keller fax software can send all items (fax, voice, text and data) via e-mail, so you can forward received faxes and voice messages to an e-mail address.

Forwarding is controlled by starting the fax software using the `-Z` startup parameter with a fax number or e-mail address, such as `"-Z 1612555555"` to forward to a fax number or `"-Z user@ibm.net"` to forward to an e-mail address. (Forwarding is also supported by some of the voice answer scripts.)

If you are forwarding to an e-mail address, you must configure your e-mail software to automatically send the e-mail messages. If you have "Shared" checked and "Alt COM" unchecked on the Modem page of the fax settings notebook, the fax software and your e-mail program can even share a modem for dial-up Internet access while leaving the fax software in receive mode.

Uses of the forwarding feature include:

1. When you are working at a different location, you can forward all your faxes to a fax machine at that location. When a fax is received, it is automatically sent to the forwarding fax number and the log will retain a copy of the fax and show the status of the forwarding.
2. When you are traveling, you can have all your faxes and voice messages automatically sent to your e-mail mailbox. When you dial in and download your e-mail from your laptop computer with a cooperating OS/2 e-mail program, it can pass all the faxes and voice messages to the fax and they will appear in the fax log as received items so that you can view them and listen to them with the fax software.
3. You can have a "forwarding node" anywhere in the world! And it can send you all the received faxes and messages via Internet without incurring long-distance or international telephone charges! For example, your machine in London can receive faxes and/or voice messages and forward them to an Internet mailbox. Your machine at your local office can have its e-mail software automatically read the mail and have all the faxes and messages appear in your fax log as received items.

Relay Systems

Keller fax software can pass a "relay authorization code" and "routing list" in the faxes and e-mail messages which it sends. When the fax software receives a document with this information, it can use the

routing list to retransmit the document to a specified fax number or e-mail address. As we will see, this is a very powerful feature with many interesting uses.

A "relay authorization code" is a one-, two- or three-letter prefix which serves to verify that the sender is authorized to submit a relay request. The relay authorization code is set with the `-Z` startup parameter, or defaults to `++` if `-Z` used without specifying a value. User's who wish to provide a "public" relay service will typically use the default, while companies which wish to have a private intra-company relay service will use a special relay authorization code for their company.

The "routing list" is a list of one or more fax numbers or e-mail addresses for retransmission. When you send the proper relay authorization code followed by a routing list to a copy of the fax software which is running in relay mode (i.e., with `-Z`) it will retransmit the document to the first destination in the routing list. If there are additional destinations in the routing list, the fax software will pass along the relay authorization code and the additional destinations when it retransmits the document.

To use the relay system, you provide the relay information when you send from the fax software, and the relay information is then passed along through the faxing and e-mailing steps. The following points will show how this is used (for the purposes of these examples, we are assuming that the default relay authorization code of `++` is being used):

1. When you send from the fax software, the user can provide the relay routing information by appending it to the "fax number" with three periods used as a separator. Specifying the fax number as `user@ibm.net...++555-5555` will e-mail the document to the document to `user@ibm.net` and pass along relay information of `++555-5555` to have the document retransmitted via fax. A fax number of `555-5555...++user@ibm.net` will fax the document to `555-5555` and pass along relay information of `++user@ibm.net` to have the document retransmitted via e-mail.
2. The subject line is used when passing along relay information via e-mail. For example, the subject line would be `EMAIL FAX...++555-5555` in the first example above. If `user@ibm.net` is working as a relay node to automatically receive e-mail messages and pass them to the fax software, and if `++` is the relay authorization code, then `user@ibm.net` will automatically fax the document to `555-5555` upon receipt. Note that you can write jobs which originate from e-mail applications (rather than needing to be sent from the fax software) but still go to a relay node if you use a suitable subject line in the e-mail message.
3. The fax TSI (local ID) value in the fax protocol is used when passing along relay information via fax. Actually, the `555-5555...abc` fax number format is a general way of having the fax software override its default local ID value and use `abc` as the local ID value for a fax job, and this feature can be used to pass routing information to LAN fax systems or to provide customized local ID values when sending to certain recipients. (The fax protocol limits the length of the TSI value to 20 characters.)
4. While less commonly used, compound addresses, such as `++user@ibm.net...555-5555...joe@somewhere.com`, are also supported. (Be careful of the 20 character limit when using fax transmission.)

Uses of relay systems include the following:

1. **Private Relay Systems** ("Intranet fax") - Companies or organizations can easily create their own private relay system to reduce long-distance fax charges. For example, by running relay nodes in London and Denver which use the company's secret relay authorization code (such as `xyz`), an

employee in London can send a fax to a customer in Minneapolis by faxing through the Denver relay node ("denver@ibm.net...xyz1 612 555-5555"). By using Internet as the transport method, many faxes can be converted into local calls even for international faxing.

2. **Public Relay Systems** ("Internet fax") - Internet users may decide to start a public "fax for free" network using the the fax software and cooperating e-mail programs. For example, if user@ibm.net is willing to offer free outbound faxing for local calls, other users from anywhere in the world could relay a fax through this user by using the fax software to send to "user@ibm.net...++555-5555". If users throughout the world are willing to provide local relay services to others, and willing to publish their relay addresses so that others can learn of them, a useful "Internet fax" service can result. Eventually, it is even conceivable that an Internet fax routing service could be provided to automatically route a long-distance or international fax request to a suitable relay node for delivery.
3. **E-mail applications** can take advantage of the outbound faxing services of a fax relay node. While this can be done directly using the fax software's REXX API, it can also be done by e-mailing a message to a relay node with a subject such as "EMAIL FAX...++555-5555" or by directly calling the FxRcv command with such a subject string. This makes it very easy to write scripts to "fax me my e-mail".

If required, the REXX API (included in retail fax products) or the Client/Server 'C' API Toolkit (available separately) can be used to provide special features. For example, you can use the REXX API in various ways to provide services which are compatible with the -Z relay processing but also provide additional services such as status return notification. Or you can use the C API to provide special dialer functions for the fax software which will reject non-local calls. We anticipate that useful add-on components will be prepared by Keller Group and third parties, and shared with others via <http://www.cds-inc.com>.

[Note: See the [file download area](#) to get the FxDrl7.EXE program. This program rejects non-local calls unless you provide a password!]

Technical Notes

These notes provide the developer information to allow you to develop e-mail support for Keller fax software. This is intended for the developers of e-mail packages or those who wish to develop their own e-mail commands for use with Keller fax software.

Sending

The fax software will call your e-mail command to send a document. The file, e-mail address and e-mail subject string will be provided as parameters of the call to the e-mail command. The file may be of any type (fax TIFF-F file, voice Wave file, text file or generic data file). Your e-mail command must encode the file (UUENCODE or MIME) and send it as an attached file with the provided subject and address.

By convention, the fax software will use a subject line which starts with the characters "EMAIL FAX". The file from the fax software will have an extension of .FAX, .MSG, .TXT or .DAT. The complete subject line should be used in the e-mail message and the original file name should be used for encoding since the receiving e-mail package may use these features to identify the received e-mail and pass it to

the fax software.

If desired, you may want to include an "X-" header line in the message to identify that the file originates from Keller fax software. For example, Post Road Mailer v2.0 includes the following line in the message, and it automatically calls our utility when it downloads an email message which contains this header line: "X-PrmFax: Keller PMfax/Post Road Mailer". However, it is best not to depend upon a specific X-header line since Keller-compatible e-mail may originate from many sources.

Receiving

The FxRcv utility program in Keller fax software version 3 and later (retail products) lets you "receive" a document into the fax log. The e-mail software can have the user specify the pathname to the FxRcv program in the e-mail program settings, or the e-mail program can automatically find the FxRcv program in the fax program directory by querying our program directory from OS2.INI using the "Fax" app name and "ExeDir" key name.

When the e-mail package retrieves any email that should be passed to Keller fax software, it should decode it and then call our program using a call of the form "FxRcv -rcvd ". The fax software will make a copy of the file and place it in the fax log as a received item. An example of a call is:

```
FxRcv -rcvd "c:\dir\file.abc" "<user@ibm.com> Mark " "EMAIL FAX..."
```

How does the e-mail software recognize that the file is intended for Keller fax software? The best way is to look at the subject and see if it starts with "EMAIL FAX". Another way is to look at the extension on the attached file and assume that *.FAX and *.MSG extensions (and usually *.TXT and *.DAT) should be passed to the fax software. You can also look for the X-PrmFax header line (as is done in Post Road Mailer v2.0), but not all compatible e-mail messages will include this header. Some e-mail products provide "built-in" detection of Keller fax messages and pass the messages to the fax software automatically. Others will allow you to execute "filter" programs based on the subject and/or extension, and you can use the FxRcv program through these mechanisms to automatically pass the files to the fax software. Otherwise you can manually take a decoded file and use the "Fax Open file" command or call FxRcv to "receive" it in Keller fax software.

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Voice Features & Scripts

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If you have questions on supported fax/voice hardware or hardware settings, see the [README](#) file.

- [Voice Features](#)
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-

Voice Features

When used with supported voice/fax hardware, Keller's fax software can also be your answering machine, voice/fax mailbox, or fax-on-demand system.

See the README file for details on supported hardware for voice functions. See the **Voice** page in the Settings notebook to enable the voice features and select the Answer script that you want to use.

If you enter an asterisk (*) character as the Answer script and have voice enabled, the program will answer calls with a default built-in script. When a call is answered, it plays your outgoing message and receives a voice message or fax from the caller. The voice message or fax will appear in the log. You can change your outgoing message with the **Utilities Outgoing message** command.

Copy the files from the **Voice Diskette** into your fax program directory to get advanced answer scripts and voice prompts. Or better yet, get the latest version of the voice scripts from our [File Download Area](#) at our Web site.

The advanced answer scripts are REXX programs that include usage information in the file. Standard scripts include:

V_MBX.CMD

This advanced fax/voice mailbox system receives faxes and voice messages from callers. Using your password, you can call your system to modify your greeting, retrieve voice messages, retrieve faxes, or do "on demand" retrieval of fax and voice items from your log. You can also configure the script to provide forwarding by fax, voice or e-mail and paging by beeper, voice or fax.

V_FOD.CMD

This full-featured information retrieval system provides fax-on-demand, interactive fax response, voice-on-demand and text-on-demand services.

V_MBX4.CMD

Similar to V_MBX.CMD, but demonstrates advanced multiline features for a four-line system.

V_MBXLAN.CMD

Similar to V_MBX.CMD, but provides a multiuser LAN system with multiple mailboxes. The LAN version allows each LAN user to remotely retrieve their faxes and voice messages.

You are encouraged to modify the scripts to provide new features and to share your modified scripts with others. Voice scripts and information are provided on the World Wide Web at <http://www.cds-inc.com/>.

Voice Script Reference

Advanced Voice/Fax Mailbox System

V_MBX.CMD is an advanced voice/fax mailbox system which can be used with stand-alone, multiline, or LAN versions of Keller fax software. A copy of this script can be [viewed here](#).

Features of the V_MBX.CMD script include the following:

- Callers can send a fax, leave a voice message, listen to an announcement, or enter the special password to enter remote retrieval mode.
- In the password-protected remote retrieval mode, you can modify your greeting message, retrieve your new voice messages, retrieve your new fax messages (or have them faxed to a telephone number that you enter), get a fax of your log (or the last part of it), and do "fax on demand" from your log.
- You can set values on the Voice page of the Settings notebook to provide **automatic forwarding** of received faxes by fax, forwarding of received voice messages to a voice telephone number, and forwarding of faxes and/or voice messages by e-mail (using the "e-mail faxing" support as described in the User's Guide). You can also set values to provide **paging** when faxes or voice messages are received by calling your beeper, by calling a specified voice telephone number and playing a voice message, or by sending a fax to a designated fax number.

When you call a system which is running the V_MBX script, it provides the following interaction with the caller:

- The V_MBX script plays your outgoing message (OGM). The caller can press the '#' or '*' key to skip the outgoing message and immediately record their message, otherwise the script will provide a beep and record the caller's message if no special action is taken.
- If the call is from a fax device and your fax hardware detects the caller's fax (CNG) tones, the script automatically receives the fax.
- If the caller enters '2' during the playing of the outgoing message, the script plays the announcement and then returns to the outgoing message again so that the caller can leave a message on the same call.
- If the caller enters '9' during or immediately after the playing of the outgoing message and then enters the user-configurable access code followed by the '#' key, the script enters its remote retrieval mode so the caller can hear received voice messages, have received faxes sent to them via fax, and other features. When in this mode, the keys on the telephone do the following:

1 - HELP

Play help message which describes these commands

3 - GREETING

Enter new outgoing message (change greeting)

4 - PREV MSG

Play previous voice message

5 - REPLAY MSG

Play current voice message (again)

6 - NEXT MSG

Play next voice message

7 - GET FAXES

Retrieve new fax messages by fax

8 - GET LOG

Retrieve fax log by fax

9 - FOD LOG

Retrieve voice/fax msgs from log ("on-demand")

The features are controlled by setting "script variables" on the Voice page of the Settings notebook. The variables are described in detail in the V_MBX.CMD file.

LAN/Multiuser Voice/Fax Mailbox System

V_MBXLAN.CMD is a slightly different advanced voice/fax mailbox system. This version is designed for use with the LAN version which allows multiple people to share the fax hardware while providing each LAN user with a private fax/voice log. Features include the following:

- Callers can select a LAN user by their extension, hear both a company greeting and the extension's personal greeting, send a fax (to an extension, or to the company), leave a voice message (to an extension, or to the company), listen to an announcement, or enter their extension and private password for remote retrieval mode.
- In the password-protected remote retrieval mode, each LAN user can independently modify their personal greeting message, retrieve their new voice messages, retrieve their new fax messages (or have them faxed to a telephone number that they enter), get a fax of their log (or the last part of it), and do "fax on demand" from their log.

When you call a system which is running the V_MBXLAN script, it provides the following interaction with the caller:

- This script plays the general outgoing message (OGM). The caller can enter the extension (Route ID) of a LAN user followed by the '#' key to hear that user's personal outgoing message and then record a message or send a fax directly to them. If the caller doesn't enter any extension or enters '0#' or '#', the caller can record a message to the "receptionist" (the administrative router of the LAN system).
- The caller can press the '#' or '*' key to skip the outgoing message and immediately record their message, otherwise the script will provide a beep and record the caller's message if no further action is taken.
- If the call is from a fax device and your fax hardware detects the caller's fax (CNG) tones, the script automatically receives the fax.

- If the caller enters '2' during playing of the outgoing message, the script plays the "announcement" and then returns to the outgoing message again so that the caller can leave a message on the same call. If a LAN user's extension is selected, the LAN user's personal announcement is played, otherwise the system's main announcement is played.
- If the caller enters '9' during or immediately after the playing of the outgoing message and then enters the user-configurable access code followed by the '#' key, the script enters its remote retrieval mode so the caller can hear received voice messages, have received faxes sent to them via fax, and other features. When in this mode, the keys on the telephone do the following:

1 - HELP

Play help message which describes these command

2 - SET CODE

Changes LAN user's private access code

3 - GREETING

Enter new outgoing message (change greeting)

4 - PREV MSG

Play previous voice message

5 - REPLAY MSG

Play current voice message (again)

6 - NEXT MSG

Play next voice message

7 - GET FAXES

Retrieve new fax messages by fax

8 - GET LOG

Retrieve fax log by fax

9 - FOD LOG

Retrieve voice/fax msgs from log ("on-demand")

0 - TOP

Return to top level and play outgoing message again

Fax-On-Demand System - And then some...

The V_FOD.CMD is a fax-on-demand system, but it shows you how to do much more than just your basic fax-on-demand. The script can be used with stand-alone, multiline and LAN systems.

The numerous features of this system include:

- Both one-call and two-call fax-on-demand (FOD)
- Interactive fax response (generate data and fax it)
- Both text file and fax image file support
- Voice-on-demand (VOD)
- Drag/drop creation of FOD/VOD document library

- Voice announcement
- Voice messaging from caller
- Fax receiving from caller
- Can be customized to support call blocking, different features on different lines of a multiline system or different extensions in a DID system, internet faxing, etc.
- Full source code in REXX - modify as needed

This script does much more than just "fax-on-demand" since it also supports "voice-on-demand" (playing user-selected voice message files) and "text-on-demand" (converting user-selected text files to fax format and faxing them). It shows how you can execute your own programs to dynamically gather data (such as from your database) and send it as a fax document. It's really a powerful "document-on-demand" system that you can customize to meet your needs.

The V_FOD script provides the following interaction with the caller:

- This script plays a greeting message and asks the user to select 1 (fax-on-demand), 2 (voice message), 3 (send a fax), 4 (hear announcement message), or 5 (replay the greeting message).
- If the call is from a fax device and your fax hardware detects the caller's fax (CNG) tones, the script automatically receives the fax.
- If a caller does not enter any key (such as if calling from a phone which doesn't support touch tones), the script automatically goes to "please leave a voice message" mode.
- When the user selects fax-on-demand, they can enter document numbers to select one or more documents. Each document can be a fax, text or voice message document. When voice documents are selected, they are played to the caller. When fax and text documents are selected, they are gathered as a list and then either faxed to the caller on this current call ("one-call" fax-on-demand - if caller called from a fax machine) or faxed to a number which the caller enters ("two-call" fax-on-demand).

Setting up the documents for your fax-on-demand system is also very easy. The program's standard document file name format is used for the "on-demand" documents (FX000001.FAX for fax documents, FX000001.TXT for text documents, FX000001.MSG for voice message documents). Any fax, voice or text item that can appear in the log can be used as an "on-demand" document. You can create the documents in many different ways (faxing to the program, printing through the FxPrint printer driver, using the program's editing tools, recording voice messages using the **Fax New message** command or the answering machine features, etc.).

If a script variable (FODDIR) is not set, then this script will use your documents directly from your log and the "document number" is the "ID" number in the program's log.

If the FODDIR script variable is set to a different directory, then the script uses the documents which are found in that directory. For actual use, you will usually want to do this so that you can control the document numbers yourself. For example, you may wish to have an "index fax" as document 1000 (file FX001000.FAX) so that callers can order a list of all available documents, then have different categories of documents as document 1100, 1101, 1200, 1201, etc. This is easy to do using your choice of techniques:

1. DRAG/DROP - Create a folder, drag (to move) or Ctrl-drag (to copy) the documents from the log to your folder, and use direct editing (Alt-Click) to edit the file names to use your desired

document numbers.

2. **COMMAND LINE** - Create a directory, then copy the desired files from the log directory to your desired file names in your directory (or use the **Fax Save file** command).

The script uses document 9999 as a special case to show how to call another program to generate text, convert the text to a fax and send the fax to the caller. You can use this approach with a database query or your programs to provide "interactive fax response" services.

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REXX API Reference

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The REXX API allows you to "fax enable" your REXX programs, customize the voice answer scripts, and augment the product with your value-added features. Note that the full REXX API is supported on OS/2 (both the line control and the external API) while PMfax for Linux currently supports only the line control API.

The REXX API provides a wonderful opportunity for creating customized voice, fax, text and e-mail applications and delivering them to a diverse user community with:

No special toolkit required

Everything you need to use the REXX API is included in the retail product (version 3 or later).

No runtime royalty

The end user just needs a copy of the retail product. (REXX is not supported in the Lite BonusPak version.)

Fax hardware independence

The REXX programs can work with all supported hardware types (fax modems, Brooktrout, etc.).

Multiline support

The REXX programs will work with our multiline versions. One REXX script can handle all lines, and the script can provide different services on each line.

Advanced features support

All the advanced options are available, including support for multiple file servers from a single fax server, multiline fax servers with up to 96 lines per CPU, and multiple fax servers on the LAN.

For examples of REXX scripts, see the [V_MBX.CMD voice script](#) or see the files available in our [File Download Area](#) at our [web page](http://www.cds-inc.com) (http://www.cds-inc.com).

Note the following about the REXX API:

1. The API consists of two types of functions. The **FxLn functions** (Line Control REXX Functions) can be called only within REXX scripts which are running as an "Answer Script" or "Dial Script" in the retail product to answer incoming calls and interact with the caller. The **FxRx functions** (External REXX Functions) can be called from any REXX code on OS/2, including applications that are written in VisPro REXX, VX-REXX or other REXX tools to provide your applications with a full Presentation Manager interface.
2. All functions are automatically loaded by the fax program, so it is not necessary to call RxFuncAdd or do any registration prior to use. If the retail product is running, you can use the functions.
3. The functions are hardware independent to the extent which is possible, but hardware does differ in some capabilities as noted.
4. Errors in answer scripts show a "REX####" error code in the log, and you can use "Edit log" or call

"help REX####" for explanation.

- Avoid using relative pathnames since the working directory may change. Use full pathnames or FxRxPath() with file names.

You should also understand the difference between a **document index number** and a **job tag number**. The *index number* (displayed as the "ID" field in the log) is a shorthand name for a document. An index number generally has a matching file in the fax data directory.

The *job tag number*, on the other hand, corresponds to a unique send or receive job. For example, when you send a fax with an API call, the call returns a job tag number, and you can then use the tag number to monitor the status of the job, delete your job, etc. You can send the same document (one index number) to many people (many job numbers) and still track the status of each job independently.

Each job has its own log record with cover sheet and header information. The fax software dynamically adds the cover sheet and header information when sending a fax, so one copy of the fax file (one index number, and one file on disk) can be shared by multiple jobs.

When using the external REXX functions, you will usually obtain a tag number from calls such as FxRxQueue(), FxRxImport() or FxRxFind(), then use this tag number in your subsequent calls.

External REXX Functions

The following functions can be called from any REXX program on OS/2:

FxRxBeep(tone, ...)

Beeps PC speaker at *tone* frequency (e.g., 354), and can optionally specify duration in tenths of a second by using a *tone* value of the form 'freq,tenths', such as FxRxBeep('354,10'). A sequence of tones can be specified, such as FxRxBeep(354, 2100, '354,20', 440).

FxRxDelete(tag# / -index#)

Returns: OK or NOTOK

Deletes the log entry and file specified by a job tag number or a document index number (a negative number is an index).

FxRxExport(tag# / -index#, file_name)

Returns: OK or NOTOK

Exports a copy of the file, specified by its job tag number or document index number (a negative number is an index). The file can be a TIFF-F fax, Wave audio, text or data file.

FxRxFind(type, state[, 'NOTES=text'][, 'stemvar'])

Returns: tag# or count# or NOTOK or OK

The *type* is 'FAX', 'MSG', 'TXT', 'DAT', or 'ANY'.

The *state* is 'RCVD', 'READ', 'N_RCVD', 'N_READ', 'NEXT' or 'PREV'.

Finds a log item and assigns job tag values. RCVD will return the next unowned 'Rcvd' status job (e.g., to process new received faxes and messages). READ finds any unowned item. "Unowned" means that it doesn't have a LAN owner ID or tag (from previous API access). N_RCVD and N_READ counts up the number of matching jobs still available for processing. NEXT or PREV find the next record of the specified type (unowned or not). If a *NOTES* value is specified, only records with a matching Notes field value are considered, so this can be used for stand-alone

"multi-mailbox" systems by using the Notes field to specify the "user". *Stemvar* is only specified for state of RCVD, READ, NEXT or PREV and is filled in like FxRxParseLog so that all log entry fields can be accessed.

Additional comments: When playing through messages using NEXT or PREV, this call will return OK when the ends of the log are reached. If NEXT or PREV are used when no record has first been selected using RCVD or READ, NEXT will return the first matching record record in the log or PREV will return the last matching record in the log.

FxRxFormatLog('stemvar')

FxRxFormatRpt('stemvar')

FxRxFormatPbk('stemvar')

FxRxFormatWSIni('stemvar')

Returns: record or NOTOK

The inverse of the FxRxParse functions. Given the stem variable with elements set, it creates and returns the record (a string containing comma-separated ASCII values) for writing to a log, activity report, phone book or WS.INI file.

FxRxImport(file)

Returns: tag# or NOTOK

Imports the file into the fax log and returns the job tag number for the log record. The *file* can be a TIFF-F fax, Wave audio, text or data file. The *file* can also be a comma-separated list of fax file names ('file1, file2, file3, ...') and they are appended and placed in the log in fine resolution.

FxRxIndexToFax(index#)

Returns: file_name

Given a document index number, returns the file name (TIFF-F fax, Wave audio, text, or data file).

FxRxMode(mode)

Returns: OK or NOTOK

Changes the fax program's receive mode setting. The *mode* is 'OFF', 'CC', 'ONE', 'ALL', 'HOLD', or 'RELEASE'.

FxRxParseLog(log_line, 'stemvar')

FxRxParseRpt(report_line, 'stemvar')

FxRxParsePbk(phonebook_line, 'stemvar')

FxRxParseWSIni(ws_ini_line, 'stemvar')

Returns: OK or NOTOK

These functions parse a line (record) as read directly from a log file, activity report file, phone book file or WS.INI (LAN redirector) file and return the elements in a REXX compound variable. For example, after calling FxRxParseLog(logline, 'Rec'), you can then access items from the logline record as the compound variables Rec.!Status, Rec.!Name, Rec.!Pages, etc. The elements depend on type:

Log: !ID, !Date, !Time, !Pages, !Status, !Elapsed, !Line_Id, !Flags, !Retries, !Cover_File, !Name, !Company, !Fax, !Voice, !From_Name, !From_Company, !From_Phone, !From_Fax, !Comment, !Heading, !Notes, !Remote_Id, !Owner_Id, !Range, !Last_speed

Rpt: !ID, !Date, !Time, !Pages, !Status, !Elapsed, !Line_Id, !Fax, !Notes, !Remote_Id, !Owner_Id

Pbk: !Name, !Company, !Fax, !Group, !First, !Voice

WSIni: !User_ID, !WS_ID, !Full_Name, !Flags, !Printer, !Route_ID, !Group

FxRxPath(*pathtype*)

Returns: path or NOTOK

The *pathtype* is 'LOG', 'EXE', 'WRK', 'PGM', or 'ARG'.

Returns the directory pathname (with trailing '\' character) for the requested pathtype. LOG is the log/data directory, EXE is the fax program directory, and WRK is the original working directory when the fax program was started. In addition, PGM will return the program path and arguments which were last used to start the fax program (for auto-starting the program again), and ARG will return the argument list which was last used to start the fax program.

FxRxPrint(*index#* | *faxfile* [, *print_queue*])

Returns: OK or NOTOK

Prints a fax file, specified by a document index number or file name. If no print queue is provided, prints to fax software's current printer.

FxRxQueue(*file*, *to* [, *optn*] ... [, *optn*])

Returns: tag# or NOTOK

The *file* is a document index#, fax file name, or a comma-separated list of index# and/or fax files.

The *to* is of the form: 'TO= name, company, fax#'

The *optn* is any of the following in any order:

'FROM= name, company, phone#, fax#'

'INFO= comment, heading, notes, bitmap, size, headctrl'

'AT= time, date'

'LINE=faxlinenumber'

Sends a fax document. If the *file* parameter is a string containing a comma-separated list of index numbers or fax file names, all specified files are appended and sent as the fax at fine resolution. The other parameters are strings of the same basic form as printer driver commands, except that 'CC' can be used as the fax# in the TO parameter to specify a "current call" send. Bitmap can be the bitmap file name or cover sheet file name for the cover sheet, or * to use the default setting. Headctrl is usually omitted, but you can specify 0 to disable all page headers, 1 for single-line headers, 2 for two-line headers (with the "To:" line), or * (or nothing specified) to use the default setting. If TO and INFO (with comment) are specified, you can omit the file argument to send a "cover sheet-only" fax. The LINE option will force the fax to send on the specified line number (for a multiline configuration).

FxRxSelect(*fax_lan_user*)

Returns: OK or NOTOK

The *fax_lan_user* is a routeid, userid, fullname, or serverpath. This call is used to switch from the server's log directory to a LAN user's log directory so that you can subsequently process jobs from the user's log using other FxRx calls. The user is specified with route ID or name or directory. If a LAN workstation routeid, userid or fullname is specified, this value is used to find the LAN user in the WS.INI/GROUP.INI files and determine the user's log directory. Subsequent FxRxQueue calls will send from the LAN user's log, and FxRDR or the fax program will be alerted to process queued jobs. If the parameter is Null or blank or not a known user, the server's log directory is selected. Note that this call affects FxRx calls only, and FxLn calls will continue to use the server's log.

FxRxStatus(*tag#* [, '*var*'])

Returns: status, Spool or NOTOK

Given a job tag number, returns the job's status value (the string as it appears in the 'Status' column of the log display). If a variable name is provided and result is not NOTOK, then the variable is set to 1 if this is a "final" status (auto retries are exhausted) or 0 if not.

FxRxTagToIndex(*tag#*)

Returns: index# or NOTOK

Given a job tag number, returns the document index number for the job.

FxRxTextToFax(*textfile*, *faxfile*, [, *queue*])

Returns: OK or NOTOK

Converts the text file to a fax file. The current printer queue settings are used, so long lines will wrap if the printer is configured for >>FONT emulation and will truncate if in other emulations (such as PCL5 or Proprinter). The queue is the print queue name, as shown as the "Physical Name" on the first page of a printer object's Settings notebook, and defaults to FxPrint if no queue is specified. This command can be used to do a "print to file" operation through any queue (not just those using FxPrint.DRV).

FxRxCvtDate(*userdate*) Returns: internal date or ""

FxRxCvtTime(*usertime*) Returns: internal time or ""

FxRxConDate(*internaldate*) Returns: condate# or 0

FxRxConTime(*internaltime*) Returns: contime# or 0

FxRxnlsDate(*internaldate*) Returns: nls date

FxRxnlsTime(*internaltime*) Returns: nls time

Utility calls for time and date conversions. The FxRxCvt functions will accept a wide variety of formats and return a standard format. The internal date/time formats are used in the log records and activity report records. The con date/time values can be used for comparing dates/times with other dates/times. The NLS date/time is in your OS/2 system's standard format based on your OS/2 country settings.

Line Control REXX Functions

The following functions can be called only within REXX scripts which are running as an "Answer Script" or "Dial Script" called by the fax program. These scripts are set on the *Voice* page of the Settings notebook. See the separate document for details on [voice scripts](#).

For examples of REXX scripts, see the [V_MBX.CMD voice script](#) or see the files available in our [File Download Area](#).

FxLnInit()

Called first in a script. Initializes the LREC compound variable (the log record for this call), sets LID to the call's line number (LID=1 for the first line), and sets script variables (OGM, CODE, etc.) from the Voice page in the Settings notebook.

FxLnTerm()

Called last in a script. If LREC.!Status is non-blank, it writes the record to the log using the LREC values. Fatal script errors appear in the log with a "REX####" status (#### = error code). Use the

OS/2 help system (e.g., type "help rex006" at an OS/2 command prompt) for an explanation of the error.

FxLnPlay([*index#* / *msgfile*])

FxLnRecord([*msgfile*] [, 'SECS=*xx*'])

Returns: OK DTMF FAX DATA or NOTOK

These functions play or record a voice message file on the connected call. If no parameter is provided, the LREC.!ID (index) message file is played/recorded. Record will automatically assign index and set values in LREC if necessary. Returns OK if message is completed, DTMF if user entered a DTMF digit, or FAX or DATA if hardware detected that the call was a fax or data call. Play will return NOTOK if line is known to be hungup. Record will return OK if recording is terminated by hangup or silence detection or by reaching the maximum record seconds (specified with the SECS parameter), but will return NOTOK if line is known to be hungup when Record is called.

Fax Modem Note: At the time of writing, fax modems using the Rockwell chipset do not support hangup detection, so a Record which is not terminated by pressing a key will have some noise at the end until silence detection or dial tone detection terminates the recording, and any future calls to Play or Record will return NOTOK after such a termination by silence detection since silence cannot be differentiated from hangup with the Rockwell chipset.

Brooktrout Note: At the time of writing, Brooktrout TR114 boards might not detect fax CNG signals during voice play or record, and DTMF detection may be unreliable during voice play.

Note: This call is not affected by FxRxSelect, so *index#* is always from the main log.

FxLnSend([*file*])

FxLnReceive([*fax_file_name*])

Returns: OK or NOTOK, sets LREC

The *file* is a document *index#*, fax file name, or a comma-separated list of *index#* and/or fax files. These functions send or receive a fax document on the connected call. If the *file* parameter is a string containing a comma-separated list of index numbers or fax file names, all specified files are appended and sent at fine resolution. If no parameter is specified, it sends the LREC.!ID (index) document or receives into the current index. Receive will automatically assign the index if necessary. Values are set in the LREC record, so results of the send or receive can be read in the LREC compound variable as with FxRxParseLog (status is LREC.!Status, etc.). NOTE: This call is not affected by FxRxSelect, so *index#* is always from the main log.

FxLnDtmf(*num*, *tout*, 'var')

Returns: OK DTMF FAX DATA NOTOK

Returns DTMF tones in the *var* variable, waiting to get *num* number of tones or for up to *tout* seconds before returning. Return codes are like FxLnRecord ('DTMF' if digits entered, 'OK' if none). Can be called with no parameters to flush the DTMF buffer.

FxLnIndex()

Returns: index

Called in special situations where another index is required. Obtains a new index value and puts it into variable LREC.!ID.

FxLnLine('DIAL *fax#*')

Returns: OK or NOTOK

Hangs up the line and then dials out a new call, such as for paging. If *fax#* starts with the '!' character, then it will dial without hanging up first.

FxLnLine('HANDLE')

Returns: the open COM port handle number

Provides the current COM port handle number, such as for a "hot handoff" situation.

FxLnLine('DRING')

Returns: the distinctive ring type (0, 1, 2, or 3)

When fax modem distinctive ring is being used, this call will return the ring type that was received for the current call. This allows you to provide different services for different ring types on the same line.

FxLnLine('CALLERID')

Returns: "CALLERNAME CALLERNUMBER", or "" if none

Provides the Caller ID values if Caller ID is available and enabled. The Caller ID name (if available) and Caller ID number is returned in a string with a space character between them.

Returns a blank string if Caller ID information is not available or not enabled. (Build 3.01.01p and later)

FxLnLine('DID')

Returns: DID digit string, or "" if none

Provides the DID digit string, if available, for an incoming call which uses DID lines, T1 lines, or T.30 subaddress digits. Returns a blank string if this information is not available or not enabled. (Build 3.01.02 and later)

FxLnLog()

Returns: OK or NOTOK

Called in special situations to write a record to the log using values from LREC, then clear LREC. This call is not usually needed since FxLnTerm automatically writes the log record.

FxLnMsg('text')

Puts text into the status window for the current line.

FxLnRpt()

Returns: OK or NOTOK

Writes a record to the activity report file using values from LREC.

FxLnTone(*tone*, ...)

Returns: OK or NOTOK

Plays DTMF tones or pure tones on the phone. *Tone* is the frequency (such as 1850 or 2100) or a DTMF digit (such as 2 or '#'), and can optionally specify the duration in tenths of a second by using a *tone* value of the form 'freq,tenths'. A sequence can be specified.

FxLnVout('text')

Adds text to the VOUT (debug) file if fax program was started with -V. Various information is automatically written to the VOUT file by the REXX calls, but this can be used to add additional information to the VOUT for debugging.

CDS Inc.

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Phone Book File Format

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This information is included for those who may want to create or modify phone book files.

Version 3 phone books are compatible with version 2.

The version 2 phone book adds new fields to the phone book record in a way that is upwardly compatible with version 1.x phone books. However, users who are upgrading from version 1.x of the product may wish to edit their phone books (either with the product or with a text editor) to take advantage of new fields.

Any file in the fax directory that has the extension .PBK is assumed to be a phone book file and will automatically appear in the *Phone book* pull-down list in the Phone book dialog box.

A phone book file is stored in "Comma-separated values" (CSV) text file format. This format can be imported and exported by various applications including Excel and many database programs. Since the phone book files contain only ASCII text, you can also create and edit them with a text editor.

Each phone book entry is a line in the file. Each line consists of elements separated by commas. If the element contains comma characters or double quotation marks, the element is enclosed in double quotation marks. Double quotation marks within quoted elements are doubled. Examples of simple phone book lines are shown below. Newer versions of the program may be adding additional elements to the end of the line, so examine your current phone book file to determine the use of additional (optional) fields.

Version 1.x phone book record elements:

name, company, faxnumber, group

Initial version 2.x phone book record elements:

lastname, company, faxnumber, group, firstname, voicenumber

Note that you can place the entire name in the first element (as was done in version 1.x), or split the name between the lastname and firstname elements. Some examples:

Jim Smith,,1 123 555-5555

Jim Smith,JimCo Inc.,1 (123) 555-5555,Group1

Smith,,1 (123) 555-5555,Group1,Jim,123/555-5556

Smith,"JimCo, Inc.",1 123/555-5555,Group1,Jim

"Jim ""JimBo"" Smith",,1 (123) 555-5555,Group1,,(123) 555-5556

"Smith","JimCo","1 (123) 555-5555","Group1","Jim","x345"

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