8.9 The lpr/mail filters don't appear to work

If sending data via lpr or mail seems to vanish use lpr to debug the problem. Verify that the filters are owed by the fax administrator and are setuid to that administrator. Lpr a simple document and check /var/spool/fax (lw-log) to see if any errors occur. Usually the error message found in the lw-log file will be enough to help to solve the problem.

8.10 User cannot connect to faxserver

If a user defines a server password incorrectly they may lose the ability to connect to the faxserver. If this happens you may need to edit their .faxrc file by hand and remove or fix the password entry line (FAXServerPassword:).

rect ownership of that port, or have a cable which is not talking to the modem and requires a null-modem connector to function properly (swaps pins 2&3 on the rs232 cable). Some possible debug steps are:

- Check /usr/xpressfax/data/faxdevices for the modem in question and verify that the /dev specified is correct. NOTE: if you edit this file by hand be sure and keep all the <tab>'s where they are!! This is critical!! We also advise you to termindate all fax-modem devices from the faxdevice module before editing this file as the running faxmodem processes udpate this file and may over-write your changes if you are not careful.
- Verify that the /dev from the above file is owned by the same uid that owns the binary /usr/xpressfax/sbin/xpressfax_modem.
- Verify that the modem is physically plugged in and powered up. Verify that it is attached to the specified port for the /dev entry.
- Verify that the /etc/ttytab entries for the device or it's peer (eg: /dev/ttya for /dev/cu0a) are set to "off" and that the word "local" DOES NOT appear on the line. If you modify this file issue a "kill -HUP 1" to have changes to effect.

If all of this still fails and the TX and RX lights on the modem never blink while you are "restarting" a faxmodem you should verify that the modem is working properly. Try plugging it into a different serial port and using "tip" to communicate directly with it. If you issue "AT" commands and see no response something is wrong. You may need to "tip" to the modem and do an "AT&F" to force the restore of factory default settings.

8.8 The faxmodem never hangs up the phone

Verify that the device you are using (typically /dev/cu0a or /dev/cu0b) and counterpart device (/dev/ttya and /dev/ttyb) have had the "local" flag removed from /etc/ttytab for their entries and are turned "off" in /etc/ttytab. If /dev/cu0a is used then /dev/ttya in the /etc/ttytab file should read:

ttya "/usr/etc/getty std.9600" unknown off

Verify that the EEPROM settings for /dev/ttya or /dev/ttyb are set to reflect hardware carrier detect and to only raise DTR when the port is opened. This latter is used to force the modem to hangup when the device is closed. If the SPARC keeps DTR high all the time the modem will not automatically hangup!

/usr/etc/eeprom ttya-ignore-cd=false
/usr/etc/eeprom ttya-rts-dtr-off=true

In general, the faxmodems "TR" light should be off as the SPARCstation boots. When the faxmodem daemon talks to the modem the "TR" light will go on and stay on.

If there is an entry in /etc/services for “faxserverd” it points to TCP port other than 1234 or the file has been modified since the faxserverd was run by the software you may wish to restart the faxserverd or kill off the old daemon and restart a new one (/usr/xpressfax/sbin/xpressfax_serverd).

The message “**Demo - Unlicensed as user <username>**” indicates that the ***XpressFax*** Package has been installed but has not yet been licensed. It also indicates the user name under which the faxserver daemon is running. If this is NOT the user name of the fax administrator verify that /usr/xpressfax/sbin/xpressfax_serverd is running setuid to the desired user-id. NOTE: Running under the wrong uid may result in the inability of the faxserver daemon to read or write critical data files and thus will prevent the package from working correctly. If you feel you should have a valid license run the “faxlicense” module to relicense the software and then use “show_license” to verify your license.

The message “**Networked X modems,Y clients and Zusers as user <username>**” indicates that the package is licensed for “X” modems “Y” floating users and “Z” fixed license users and is running the faxserver daemon as <username>. Again, if this user is not your authorized fax administrator problems may result as defined in the previous paragraph.

8.6 Verify Sanity of Primary Fax Administrators .faxrc file

The primary fax administrator’s .faxrc must contain “sane data”. That is, the directories and files which it points to much be correct and writable by the primary fax administrator. Note that programs like “lpd_filter” and “mail_filter” which run setuid to this use use the ~/.faxrc file of this user to acquire critical information.

Based on the user name returned in the show_license message (above) verify that the .faxrc file for this user exists and contains valid data. In specific, make sure that ~<username>/.faxrc records contain valid hard-paths to data files (eg: if the home directory is setup to be /home/users/xpressfax then make sure that the path /usr/xpressfax is not present in ~<username>/.faxrc.

8.7 Inability to communicate with the modem

If the software functions but you are unable to send any faxes you need to verify that your modem and modem cable are properly attached and that the port they are attached to is properly configured. We suggest “terminating” and “restarting” the faxmodem from the faxdevice module while watching the lights on the modem. If the lights never flash it is likely that you have either defined an incorrect serial port for the device, incor-

8.3 Environment variables

If you did not install the software in /usr/xpressfax or if the account you are using does not have the home directory of /usr/xpressfax (eg: you did not make a special fax administrator account with home directory of /usr/xpressfax) then make sure that you have set the correct path and environment variables.

```
setenv XPRESSFAX_HOME /usr/xpressfax
setenv XPRESSFAX_FAXRC $XPRESSFAX_HOME/.faxrc
set path = ($path $XPRESSFAX_HOME/bin)
rehash
```

8.4 LD_LIBRARY_PATH - if you see “ld.so” errors

If you see “ld.so” errors it is likely that you have installed the software somewhere other than /usr/xpressfax and have not set the LD_LIBRARY_PATH variable to find the “lib” directory where the runtime dynamic libraries for xpressfax have been stored. Do something on the order of:

```
setenv LD_LIBRARY_PATH “$LD_LIBRARY_PATH:$XPRESSFAX_HOME/lib”
or
setenv LD_LIBRARY_PATH $XPRESSFAX_HOME/lib
```

8.5 Check license state and xpressfax_serverd

Login or su to the primary administrators account and run the “show_license” command. This will attempt to connect to the faxserver host defined in the current users faxrc file.

The message “**Sorry, unable to connect to faxserver to read license.”** indicates that the software was unable to connect to a faxserver. Check the following:

The current user has a .faxrc file in their home directory, or the environment variable XPRESSFAX_FAXRC has been set to point to a valid .faxrc file.

The .faxrc file line reading “FAXServerHost:<tab>hostname” exists and hostname is the name of the host you are running the faxserver on (probably this host if you just installed the software)

Verify that a daemon isn’t running on that specified host by using telnet. Type “telnet <hostname> 1234”. if you get a “telnet: connect: Connection refused.” then the xpressfax_serverd hasn’t been run on the machine or failed.

CHAPTER 8 Installation Trouble Shooter

This chapter contains several diagnostic methods and solutions for common errors or snags which might result if the installation of the ***XprsesFax Package*** is not done correctly.

8.1 Extraction from Tape

The first thing to verify is that the package is fully extrated from tape. Does /usr/xpressfax or your selected extraction point exist? Does it contain the directories listed below:

.	.faxrc	bin	install
..	.login	data	lib
.Xdefaults	.openwin-init	doc	sbin
.bannerrc	.openwin-menu	filters	tmp
.cshrc	.openwin-sy	g3	utils
.faxbanner_image	Any	inbound	

8.2 Ownerships

If all these files are present, check their ownership. Almost everything should be owned by the user you have selected to be the primary fax administrator. The exceptions are sbin/xpressfax_faxmaild and bin/faxlicense which should be owned and setuid to root. The files filters/lpd_filter, filters/mail_filter, sbin/xpressfax_serverd and sbin/xpressfax_modem should be owned by the fax administrator but must be setuid to the user. In addition any devices in /dev used by the faxmodem should be owned by the fax administrator account.

NOTE: /var/spool/fax (or whatever you named your fax spooler directory) **must be owned by daemon and should have permissions “drwxr-s-r-x”.**

NOTE: ~xprfax/filters/fax_filter MUST BE set-uid to the fax administrator account (default xprfax).

7.3 Testing the dialer

./dialer “” “” 818 8185551212
ATTD5551212

./dialer “” “” 818 01155555555
ATTD01155555555

and so on...

CHAPTER 7

Cutomization of FaxModem Dial Driver

The modem driver used to control each faxmodem has a built in routine used to compute the control string required to dial numbers on the faxmodem. This string is built using the defined values of “prefix”, “postfix”, “area code”, and the fax phone number defined for the fax being transmitted.

7.1 The Default dialer routine and source code

The default routine takes these four parameters and returns an “ATTD<number>” string. This routine is outlined below. Some countries and sites which use a PBX may wish to use an alternate dialing routine. ***XpressFax*** provides for such a requirement by checking for and using a program called “dialer” which may be located in the spool directory for each faxmodem (eg: /usr/xpressfax/Any for the default ‘modem1’). If such a program exists it will be used in place of the existing dial string generation routine. This program is passed the arguments “prefix”, “postfix”, “area code”, and “fax phone number” (each in quotes to allow for spaces and other user defined characters). It is expected to return the correct command dial string with a newline at the end (eg: printf(“ATTD5551212\n”)). A sample dialer.c program which uses the internal ***XpressFax*** dial routine is included with the package in **/usr/xpressfax/utils/dialer.c.** To compile it issue “cc -c dialer.c -o dialer” and place the dialer executable in the correct modem spool directory (eg: /usr/xpressfax/Any).

7.2 Installing an Alternate Dialer

To create, install and test the dialer one might type:

```
cd /usr/xpressfax/utils
cc -o dialer dialer.c
mv dialer /usr/xpressfax/Any
cd /usr/xpressfax/Any
```

CHAPTER 6 Registering New Users

This chapter outlines the steps required to add a new faxuser:

- Login as the fax administrator to the faxserver host.
- Run the 'faxregister' module, either by hand or by clicking on the "Edit UserList" button of the faxserver module.
- Add User Name and User Address for each user. Each User Address must take the form "user@hostname". The "user" here must be the valid login name in /etc/passwd or in the YP/NIS database for the user. The "hostname" should be the name of a host which runs the xpressfax_faxmaild process.

  For example, to add "John Uhley" with login name "uhley" on machine xpressware.com the following would be entered:

  User Name: *John Uhley*
  User Address: *uhley@xpressware.com*

- Click on the "**Add**" button to add the new user to the database. Note that only the licensed number of users maybe added.
- Login as the user (or have the user login). Start the openwin package if the users login process does not do this for you (type '/usr/openwin/bin/openwin' to start openwindows).
- Modify the users path (look in .login and/or .cshrc files) to include /usr/xpressfax/bin. Also set the environment variable XPRESSFAX_HOME and LD_LIBRARY_PATH as necessary:

  setenv XPRESSFAX_HOME /usr/xpressfax
  **setenv LD_LIBRARY_PATH **
  $LD_LIBRARY_PATH:$XPRESSFAX_HOME/lib
  set path = ($path $XPRESSFAX_HOME/bin)

- Logout and log back in as the user to have this change take effect. Be sure to start openwin again if necessary.
- Run "new_faxrc" as the user to create default data files and directories.
- Finally, run "faxmail" as the user. Future logins by the user need only run "faxmail" and associated modules.

5.10 Using Alternate Cover Pages in QuickFax

In replacing the cover page PostScript file used to generate the quickfax cover page the user will have to hand-edit the PostScript document to make sure that the macros defined above are present (when desired) as full text strings. Editors like FrameMaker often take text typed in (eg: the word “DATESTRING”) and generate multiple Post-Script text-generating lines for this single word. This is to do proper kerning and the like, but will prevent the macro-replace software from finding the word DATESTRING and replacing it. Thus scan your document “ps” file and hand edit it to make sure that text strings like DATESTRING are not broken into multiple PostScript command lines:

For example, the direct “Print” output from FrameMaker of our default cover page for quickfax generated the lines:

(DA) 270 642 T
(TESTRING) 294.65 642 T

We had to change this to:

(DATESTRING) 270 642 T

In order for our software to be able to find “DATESTRING”.

5.11 Moving Memos Generated by QuickFax and FaxTransmit

Memos generated by QuickFax and Faxtransmit on the cover page are started at default X,Y coordinates 100,350 in the PostScript coordinate system. These starting constants may be altered by a users .faxrc definitions for FAXBannerX and FAXBannerY.

FAXBannerX:<tab>100
FAXBannerY:<tab>350

5.8 The QuickFax Cover Page

The QuickFax Module's Cover Page is generated from a fixed PostScript file. Several keywords in this PostScript file are replaced with user defined text strings before the PostScript is imaged into a fax cover page. The default cover page for quickfax is hard coded into the quickfax module but may be replaced by defining the full path to an alternate PostScript file in a users .faxrc file. The variable "FAXQuickCover" is used. For example, if an alternate PostScript file to be used as a cover page for quickfax resided in /usr/xpressfax/utils/alternate.ps a users faxrc file should read:

FAXQuickCover:<tab>/usr/xpressfax/utils/alternate.ps

5.9 QuickFax Macros

The Following "macros" are used in quickfax cover page generation. The PostScript file used to generate the cover page will have these macros replaced by their defined values.

DATESTRING	**Current Date TimeStamp**
FROMNAME	**Contents of the From Name Dialog**
FROMORG	**Contents of the From Organization Dialog**
FROMVOICE	**Contents of the From Voice Number Dialog**
FROMFAX	**Contents of the From Fax Dialog**
TONAME	**Contents of the To Name Dialog**
TOORG	**Contents of the To Org. Dialog**
TOFAX	**Contents of the To Fax Number Dialog**
PAGECOUNT	**The number of pages in this transmit.**
TEXT0	**Line 0 of cover page text**
TEXT1	**Line 1 of cover page text**
TEXT2..14	**Line 2->14 of cover page text**

5.6 .bannerrc macros

The ASCII String portion of a “BT” record may also contain a number of macros. These are defined below:

${FROM}	Replaced by the defined .faxrc FAXAuthor string
${FROM_ORG}	Replaced by defined .faxrc
${FROM_VOICE}	Replaced by defined .faxrc
${FROM_FAX}	Replaced by defined .faxrc
${TO_NAME}	Replaced by current faxes “to” field
${TO_ORG}	Replaced by current faxes “org” field.
${TO_PHONE}	Replaced by current faxes “phone” field.
${TO_PAGES}	Replaced by the page count for this fax
${DATE}	Replaced by date timestamp.

5.7 Example of adding banner information to the “Server”

The lines below illustrate how to add some text to the default .bannerrc file. This file, by default, is installed in /usr/xpressfax/.bannerrcTo add to the defined default banner_rc.

Example:

Add the line “If you have any questions call us anytime” under the date stamp.

Solution .bannerrc file:

BT<tab>270,645<tab>${DATE}
BT<tab>270,590<tab>${FROM}
BT<tab>270,570<tab>${FROM_ORG}
BT<tab>270,550<tab>${FROM_VOICE}
BT<tab>270,530<tab>${FROM_FAX}
BT<tab>270,470<tab>${TO_NAME}
BT<tab>270,450<tab>${TO_ORG}
BT<tab>270,430<tab>${TO_PHONE}
BT<tab>270,390<tab>${TO_PAGES}

BT<tab>270,370<tab>If you have any questions call us anytime

The default bannerrc file places the name of the sender, the destination name, organization and phone number of the image, the number of pages in the image and the date the image is sent on the banner page.

5.3 Banner “Overlay”

In this mode the standard “Server” banner is generated using the server’s defined banner image and bannerrc data.Any user defined .bannerrc parameters will also be added to the background image. This allows users to add additional text lines to a banner page. The format of the users .bannerrc file is the same as that for the servers and is also reviewed later in this chapter. For example, in overlay mode the user could add the message “If you have any questions feel free to call me” near the bottom of the screen by adding the following line to their .bannerrc file:

BT<tab>100,100<tab>If you have any questions feel free to call me

5.4 Banner “Users”

If the banner mode is set to “Users” then the user defined banner image and bannerrc file are used to create a fax banner for the fax image. Thus if the default data files defined in the faxtransmit configuration module were Banner Image = “/home/users/bob/data/my_cover_page” and Banner RC = “/home/users/bob/data/.banner_rc, a banner page would be generated prior to sending the fax to the faxserver. The background of the page would be the fax image in my_cover_page and any additional text/data defined in bob’s .banner_rc file would be placed on top of this image.

5.5 Structure of the bannerrc file

Each bannerrc file consists of text lines of the following structure:

BT<tab>x,y<tab>ASCII String

The pixel size of a screen is now 610 x 790 and the 0,0 coordinate is in the bottom left hand corner. This is because text is now generated via a text to postscript to fax method.

CHAPTER 5

Banner Pages (Cover Pages)

The ***XpressFax*** Package provides four methods of cover page generation for outbound faxes and a fifth, seperate method, for QuickFax cover page geneartion.

For the faxtransmit module the method of cover page generation is selectable on a per-user basis from the faxtransmit module's "configuration panel". Each of the four modes is reviewed below:

REVISION 1.0.5 greatly changed the internal mechanism for banner page generation. Users who have previously customized their ".bannerrc" files will have to change the coordinates to a new scheme.

5.1 Banner "None"

If "None" is selected only the actual image will be transmitted -- no banner page will be generated by the faxserver at transmit time.

5.2 Banner "Server"

If "Server" is selected a banner page will be generated by the faxserver. By default the background image defined for the faxserver account (default /usr/xpressfax/.faxbanner_image) will be used as the background image. The default image may be replaced with any image using the faxedit or the faxload module. The faxserver configuration panel contains a field "Banner Image" which may be changed to point to an alternate fax document location. The default is /usr/xpressfax/.faxbanner_image. This same field may also be modified from the fax-tranmsit configuration panel.

In addition to the background fax image the data in the file ".bannerrc" in /usr/xpressfax is used to fill in additional data for the banner page. The format of this file is reviewed later in this chapter. The path to this file is also defined in the faxtransmit configuration module under the heading "Banner RC".

4.5 Converting your incoming mail to fax images

Incoming mail may contain fax images forwarded via the faxemail module of the *XpressFax* Package. The “email2fax” program may be used to automatically scan a users mailbox, extracting such images and placing them into the users inbound fax queue. Any extracted images will be deleted from the mailbox of the user.

4.4 Recognized Fax Router Commands

The following lists the possible commands which may preceed the “FAXBegin:” command.

FAXAuthor: <name>
FAXto: <name><tab><org><tab><phone>
FAXto_name: <name>
FAXto_org: <org>
FAXto_phone: <phone>
FAXOrigName: <name of orig document>
FAXModem: <faxmodem>
FAXtmp: <temp directory to use while building images>
FAXPhonebook: <phonebook file to lookup names in [unused]>
FAXList: <fax list name to transmit this document to>
FAXListbook: <full path to faxlist book>
FAXServerHost: <server host to use>
FAXServerPasswd: <server password to use>
FAXNotifySuccess: <user@host>
FAXNotifyFailure: <user@host>
FAXNotifyRetry: <user@host>
FAXUserLog: <user@host>
FAXRetryCount: <value>
FAXXmitAfter: <time>
FAXAutoRoute: <autoroute true/false>
FAXBannerServer:
FAXBannerOverlay:
FAXBannerUser:
FAXBannerRC: <full path to bannerrc file>
FAXBannerImage: <full path to banner iamge file>
FAXRetryDelay: <time in seconds>
FAXMemoBegin:
FAXMemoEnd:
FAXfrom: <ascii name of from>
FAXphone: <phone number>
FAXsubject: <organization name>
FAXname: <name>

FAXBegin:

NOTE: All commands which take an argument must have a “:<space>” to be recognized. **Release 1.0.5 relaxes the requirement that the colon be followed by a space. Thus “FAXname:BOB” and “FAXname: BOB” are identical. Case is now also ignored, making “FAXname:”, “faxname:” and “FaXNAme:” equivalent.**

4.3 Line Printer Links

A link through the standard lpd (line printer daemon) software may also be setup by running "/usr/xpressfax/install/install_lpd.sh". This script sets up a printer entry in /etc/printcap which allows registered faxusers to send text or postscript files to a "printer" which will actually queue the documents as fax images in the outbound fax queue. As with the Mail Alias, the name, organization and phone number must be specified. This information may be specified using the "-J" option of lpr, which allows users to specify the job name of a document. Sending the "textfile" to "John Uhley" of "XpressWare" at "818 584 1048" would be done by typing:

lpr -Pfax -J"John Uhley, XpressWare, 818 584 1048" textfile

As with the mail filter link, the line printer link may also use internal fax router commands in the beginning of the printed document to specify destination and router options. The example shown above could also have been executed by doing:

lpr -Pfax
FAXto_name: John Uhley
FAXto_org: XpressWare
FAXto_phone: 818 584 1048
FAXBegin:
<rest of "text file" placed here>
<ctrl d>

4.2 Mail Aliases

A mail alias may be set up to allow registered fax users to queue outgoing fax image via text based electronic mail. This alias may be installed using the "/usr/xpressfax/install/install_mail.sh" script. Once installed, it allows users to send email to an alias ("fax" is default), specifying the destination name, organization, and phone number in the subject line. A typical example might be to send the file "textfile" to "John Uhley" of "XpressWare" at "818 584 1048". This would be accomplished by typing:

Mail fax
Subject: **John Uhley,XpressWare,818 584 1048**
~r textfile
<ctrl d>

The text file specified may contain fax routing commands which will be consumed by the filter. Text before these commands will not appear in the fax image produced. The delimeter between router information and the fax document is the "FAXBegin:" command. For example, the following might be used to duplicate the example shown above using embedded fax router commands:

Mail fax
Subject:
FAXto_name: John Uhley
FAXto_org: XpressWare
FAXto_phone: 818 584 1048
FAXBegin:
~r textfile
<ctrl d>

Note that these commands may also be embedded directly into postscript documents. In this case the first page of the postscript document will be processed and stripped from the actual image produced. The key word "FAXBegin:" is used to make the determination as to if the first page is a fax router page or not. Note that any data after the FAXBegin:, but still on the first page of the document, will be lost.

An example of a method of allowing users to send a fax to a specific user/site can be seen below:

/etc/aliases entry:

```
xpressware: "|/usr/xpressfax/filters/mail_filter -n XpressWare -o \
        Xpressware -p 8185841048"
```

user types:

```
Mail xpressware
<and enters text>
```

CHAPTER 4 XpressFax Input Filter

The *XpressFax* Package provides registered faxusers with a number of ways to queue documents generated outside of *XpressFax* directly into the outbound fax queue for transmission to remote fax sites. These methods of sending a fax are most useful when trying to integrate with existing application programs in the users environment. This document describes several of the basic links currently being distributed with the package. Note that many these links will only work if the user is a registered fax user.

4.1 fax_filter

The fax_filter binary is a multipurpose input filter. Symbolic links from “sendfax”, “lpd_filter”, and “mail_filter” all effect the function of this filter software.

If executed as “sendfax” with no arguments, the user is queried for the source image name, default to stdin, and a single destination name, organization and phone number. The document specified is then queued as a fax. TIFF Fax files, ASCII text files, and PostScript files may all be queued in this manner.

If executed as “lpd_filter”, as done via the lpd program link via /etc/printcap, data sent via a “lpr” request is queued. The Job field may be used to specify a single fax destination. In addition, fax router commands placed at the top of the text or postscript document being printed may also be used to control the destination and options of the image being queued for faxing.

If executed as “mail_filter” processing of mail messages as passed via an /etc/aliases hook is done. This includes processing of X-Sun-Attachment type mail generated by Sun MailTool.

Examples of the use of the fax_filter in several of these modes are reviewed in the nxt section:

3.8 The forwardfax binary

A command line program called “forwardfax” has been added to allow command line forwarding of fax images. The format is:

forwardfax username@hostname faxfile [... faxfile ...]

3.9 The FaxDevice Module

The FaxDevice module has been updated since the initial release to give the fax administrator more control over the fax queue. The table below reviews the functionality of the faxdevice module:

Queue Now	Queue for immediate transmit
Requeue	Queue for transmit in ~10 minutes
Delete	Delete from queue
Hold	Hold in Queue
TopQ	Move to top of queue
DownQ	Move down one entry in queue
BottomQ	Move to bottom of Queue
UpQ	Move up one entry in queue
Replace Item Phone	Replaces currently selected queue item’s fax phone number with the contents of the Item Number dialog box.

In addition, the following buttons have the functionality defined below:

Hangup	Hangup phone line, reset modem driver
Terminate	Hangup phone line, kill xpressfax_modem process. USER MUST RESTART OR REBOOT SYSTEM.
Restart	Termiantes current xpressfax_modem process and forks a new one.

Items in the second table mimic those found in the faxdevice module's table of outbound queued faxes. One or more items may be selected by clicking the left mouse or middle mouse buttons on the item(s). Operations may then be executed on the items.

Typical operations include "Delete", "TopQ", "BottomQ", "Requeue", "RequeueNow", and so on. The following restrictions, however, apply:

- Normal users may only operate on items which they queued. Thus user "bob" cannot typically delete an item queued by user "Sally".
- Users listed in the /etc/group file (or the YP/NIS group file) under a group named "xprfax" will be allowed to operate on any fax in the queue, even if they did not queue it. Thus if the xprfax group were defined as below in /etc/group "Bob" could delete or move images queued by "sally", but not vice-versa.

  ```
  xprfax:*:40:bob,john,sam
  ```

- If there is an "*" in the /etc/group list for "xprfax" then ANY user may operate on ANY fax in the queue:

  ```
  xprfax:*:40:*
  ```

3.7 The faxq binary

A command line binary called "faxq" has also been supplied. This binary may be used the shell scripts and popen()'s to list items in a faxmodem queue. It may also be used to delete items from a queue. Examples are shown below:

List out all items in short form from defined default modem for this user:

```
faxq
```

List out all items in short form currently in modem1's queue:

```
faxq modem1
```

List out all items in short form currently in modem2's queue:

```
faxq modem2
```

List out all items in long form in modem1's queue:

```
faxq -l modem1
```

Remove item faxsf00000 from modem1's queue:

```
faxq -rm modem1 faxsf00000
```

retry count and duration as well as several other parameters “on the fly” for each transmit requested.

An additional configuration option called “Memo” has also been added to the faxtransmit configuration panel. When set to “Yes” this will case an additional panel to pop-up when the actual “Transmit” button is pressed. This panel allows users to enter a text memo which will be convert to fax format and inserted after the banner page but before the actual fax pages of a document. The memo panel will appear after “Transmit” has been pressed but before the Query Panel appears.

Finally, faxtransmit may now be run without selecting an image. This allows users to transmit memo-only data.

3.5 The faxedit module

The “Import” button will open a panel allowing users to specify a text file or XWD file name for importing into a faxedit image.

- Import Text — The user must set the faxedit mode toggle “Text” and must click the left mouse button in the image window before executing the import command. Text will be imported from that specified file. Note that this is provided as a method for importing text into a document but is not suggested for general use. Use the “Quick Load” or “Load Image” module to convert text directly into a fax document.
- Importing XWD — The importing of XWD images is currently in an experimental stage. Only 1 bit depth xwd files may be imported, but a shell script “/usr/xpressfax/bin/xwd8to1” is provided to allow users to convert 8 bit depth xwd files into 1 bit depth importable xwd files. When this mode is selected the xwd file will be read into the cut buffer. The “Paste” mode may then be used to paste images into the image window.
- Importing TIFF — The importing of TIFF (or other ***XpressFax*** fax images) may also be requested from this panel. TIFF files will appear as pages appended to the end of the current document.

3.6 The FaxQueue Module

The faxqueue module was created to allow ***XpressFax*** users to examine and modify entries in the outbound fax queue. It gives users some of the powers granted to the fax administrator in the faxdevice module.

Running faxqueue with no arguemnts will select the currently defined default modem for the user and its outbound fax queue. Two tables are displayed, one of modems and one of the queue items for the currently selected modem. The user may click on the modem table to display the queue for that table.

3.3 Faxmail

Several undocumented additions have been added to the faxmail module since the printing of the manual. These are described below:

- The faxmail module configuration panel has been updated to allow users to specify the extension filter to be used in the "Name" filter option. This extension was previously set to ".tif", but is now default to any file (a null dialog). If not null only files which contain the defined string will appear in faxmails list of files.
- The faxmail module configuration panel has a new toggle switch called "Allow Text". If this toggle is set to "Yes" then both text and postscript files may be displayed in the faxmail image table. This is implemented using "popen" and is a fairly expensive operation, but some sites may wish to list fax image files, text files and PostScript files from 'faxmail'.
- The faxmail module has a new button called "Quick Load" which, when the filter toggle is set to "Name", may be used to quickly convert text or postscript file to fax image files. The user must have write permission in the same directory as the source file as the new file created will be called "<filename>.fax".
- The faxmail module "View/Edit Image" button may now run different edit modules. If the image selected is PostScript then the program /usr/openwin/bin/pageview will be run instead of faxedit. If the image selected is text then the user defined environment variable EDITOR is used to start a text editor for the text file. For example if EDITOR is defined as below a "vi" window will be opened for the image. The second option would cause the package to run the xview program 'textedit' instead of 'vi'.:

  setenv EDITOR "/usr/openwin/demo/xterm -e /usr/ucb/vi"

  setenv EDITOR "/usr/openwin/bin/xview/textedit"

- A new button "Fax Queue" has been added to run the faxqueue module. This new module allows to user to examine the outbound faxqueue for each faxmodem and to delete, hold, and move about the queue those fax items owned by the user. Users in group "xprfax" (if it exists) may operate on any fax in the queue (even if they do not own it). If the "xprfax" group has an "*" defined in it ANY user may operate on any queue item.

3.4 The faxtransmit module

The faxtransmit module has been udpated to accept both text and PostScript files as well as fax TIFF image files from the command line. If a non-TIFF file is specified a single warning box will appear to notify the user that a temporary fax-TIFF file is being generated for the faxtransmit session. This file will be deleted when the "Quit" button is selected.

An additional configuration option called "Query" has been added to the faxtransmit configuration panel. When set to "Yes" this will cause an additional panel to pop-up when the actual "Transmit" button is pressed. This panel allows users to select modem,

CHAPTER 3

Additions and Updates from the printed manual.

3.1 Fax

A new toplevel panel has been added to the ***XpressFax*** package. This module is run by executing the "fax" program in /usr/xpressfax/bin. It causes an icon-button panel to appear. This panel may be used to run other ***XpressFax*** modules (eg: faxmail, faxqueue, faxserver, faxphone). In addition, an icon-button called "QuickFax" will bring up a new simplified fax transmit panel which may be used to fax text, PostScript and FrameMaker documents with a minimum of keystrokes.

3.2 QuickFax

The QuickFax module is actual a subset of the new "fax" module. QuickFax presents the fax users with a short form for quickly faxing memos and attached text, PostScript and FrameMaker documents to a single destination.

QuickFax provides a "from information" set of dialogs which should be filled in by the user with their name, organization, voice number and fax number. A save button is provided so that this information need only be entered once per user. A second set of dialogs is provided to allow the user to enter the name, organization and fax number to which a fax is to be sent. Exact name matches will automatically fill in the organization and fax number fields from the users private phonebook database.

A text entry field, the first 15 lines of which will appear on the cover page, is also provided. If more than 15 lines are entered additional fax pages will be created.

An import button is provided to import text into the text field or to attach text, PostScript or FrameMaker documents to the end of the fax. A "Show Attach" button will show the attachment fields.

Individual attachments may be deleted by clicking on an attached filename icon and selecting the "Delete Attachment" button. All attachments may be deleted using "Clear Attachments".

The Transmit button transmits the fax with all defined attachments.

2.6 Dialer Support

Additional dialer support and source code for two dialer programs has been included in this release. The source code resides in the /usr/xpressfax/utils directory. If compiled and installed in a spool directory as the binary "dialer" these dial programs will be used to generate the "AT" string used to dial the faxmodem. This allows you to parse the phone number, area code, prefix and postfix strings to generate an appropriate dial string for your location. The program must output the dial string to stdout with a newline at the end... eg: ATTD5551212\n

2.7 GhostScript Support

The default conversion process from ASCII Text and PostScript to a fax is now done by a modified version of GhostScript, the FSF's PostScript Interpreter. If you would rather use OpenWindows xnews software just comment out the three lines in /usr/xpressfax/bin/ps2x which exec the pstofax.sh program. Copies of the modified GhostScript source are available for a minimal copy charge.

2.8 OwnerShip Issues

Some of the data files and binaries which make up the package require special ownership. These are outlined below:

setuid-root	/usr/xpressfax/sbin/xpressfax_faxmaild /usr/xpressfax/bin/faxlicense
setuid-<Fax Admin-Acct>	/usr/xpressfax/sbin/xpressfax_serverd /usr/xpressfax/sbin/xpressfax_modem /dev/<devs used by xpressfax_modem> /usr/xpressfax/filters/mail_filter /usr/xpressfax/filters/lpd_filter /usr/xpressfax/filters/fax_filter
Fax-Admin-Acct	/usr/xpressfax/.faxrc /usr/xpressfax/data/<all data files> /usr/xpressfax/tmp /usr/xpressfax/Any /usr/xpressfax/g3

Incorrect ownerships will result in the failure of the package.

2.3 Queue Changes

The old queue mechanism used by faxmodem drivers to find outbound fax images scanned the directory to find queue files. This made it difficult, if not impossible, to control the ordering of outbound faxes. A new mechanism has been implemented in this release which uses the file "QUEUE" to list the order of faxsf control files to be transmitted. The faxdevice module has been updated, and a new "faxqueue" module has been written, to allow both users and fax administrators to view and control items in these queues. Users and administrators may now "topq", "bottomq", "upq" and "downq" items to control their exact ordering. Buttons for "requeue", "hold", "requeue now", and "delete" have also been supplied.

This change gives both the user and the fax administrator much tighter control over the ***XpressFax*** queues. A new command line module called "faxq" has also been supplied to allow command line listing of outbound queues as well as deletion of items from the queues.

Release 1.0.5 also added a toggle switch in the faxqueue module to allow the name displayed for each queued item to alternate between the spooler file name and the user who queued the request.

2.4 Fax Transmit Memo & Query Panels

Two optional panels, Memo and Query, have been added to the faxtransmit module. After clicking on "Transmit" the memo and/or query modules will appear. The Memo panel contains both an 80x10 and an 80x24 text window into which both banner page and additional optional memo pages may be typed by the user. This memo gets inserted after the cover page but before the fax image data. The query panel contains last minute options, such as which modem to transmit through and the delay between retries for the current fax image transmission. Both panels are optional, and may be enabled or disabled via the faxtransmit configuration panel.

2.5 Logging

Per-User logging is also standard with this release. A file called ".faxlog" will be created in each users home directory. As faxes are queued to the server and as they are transmitted, retried, or fail a line will be added to this file. The user may review the log of his or her faxes by looking at this text file.

CHAPTER 2

Changes in the Software From Initial Release

2.1 Administrative Account and Environment Variables

The initial release of the package required the existence of an xprfax account. This release allows any user to be the primary fax administrator and makes use the fixed group name “xprfax” to allow group or global administrative rights to be granted to users on your system. Note that the faxserver, faxoutbound and faxdevice modules must still be run by the primary fax administrator on the faxserver host.

The previous release of the software also required that it be located in /usr/xpressfax or that a symbolic link be established from that directory to the install point. An environment variable, XPRESSFAX_HOME, is now used to allow situation of the software ANYWHERE on the system. This environment variable **MUST BE SET BY EACH USER BEFORE USING THE XPRESSFAX SOFTWARE. The following line should thus be added to each users .login and/or .cshrc files:**

```
setenv XPRESSFAX_HOME /usr/xpressfax
```

Additionally, the environment XPRESSFAX_FAXRC may be set to the location of a users .faxrc file. This used to be defined as the <users home directory>/.faxrc file, but may now be any file. Note that the users must have write access to the .faxrc file as the configuration modules all write to .faxrc.

```
setenv XPRESSFAX_FAXRC $HOME/.faxrc
```

2.2 Dynamic Libraries (/usr/openwin/lib and /usr/xpressfax/lib)

The distribution now uses sun dynamically loadable libraries to reduce the code size. The environment variable LD_LIBRARY_PATH may need to be set to include /usr/xpressfax/lib in order for the package to work. This path must also include /usr/openwin/lib in order to locate the Xt libraries used by the package:

```
setenv LD_LIBRARY_PATH \
  $LD_LIBRARY_PATH:/usr/openwin/lib:/usr/xpressfax/lib
```

1.3.4 Verifying *XpressFax* license status

The program "/usr/xpressfax/bin/show_license" has been included to allow users to verify that license status of the package. Running this program will describe the status of the XpressFax package as well as the user name of the primary fax administrator.

A licensed and functional package will return a message like:

Networked 1 modems, 0 clients and 5 users as user xprfax

A host which is not running the xpressfax_serverd will respond with the following message. Run "/usr/xpressfax/sbin/xpressfax_start_daemons" to restart all daemons and modem drivers or "/usr/xpressfax/sbin/xpressfax_serverd" to restart the critical fax-server daemon alone.

Sorry, unable to connect to faxserver to read license.

A host which is running the xpressfax_serverd which has not been properly licensed will respond with the following message. Login as the specified user or as root and run "/usr/xpressfax/bin/faxlicense" to properly license the package.

Demo - Unlicensed as user xprfax

1.3.2 /etc/inetd.conf

By default, the ***XpressFax*** package will start two daemons and multiple modem drivers from /etc/rc.local on the faxserver host. Expert users may choose to edit the script in /usr/xpressfax/sbin/xpressfax_start_daemons to only start the modem drivers from /etc/rc.local. The two daemons may be run via inetd.conf instead by adding the following lines:

```
faxmaild      stream  tcp  nowait  root     \
              /usr/xpressfax/sbin/xpressfax_faxmaild xpressfax_faxmaild -i

faxserverd    stream  tcp  nowait  xprfax   \
              /usr/xpressfax/sbin/xpressfax_serverd xpressfax_serverd -i
```

Note: If these lines are added be sure and comment out the lines in the xpressfax_start_daemons script which also start the faxserver and faxmaild's.

1.3.3 /etc/ttytab

SPARCstation ports must be configured to maintain DTR only when the port is opened. References to the ttya and ttyb devices in /etc/ttytab must not contain the word "local", as this will keep DTR and/or software carrier high at all times. This will most likely result in the inability of the XpressFax modem drivers to hangup the modem and reset it by dropping DTR.

To verify that the ttya and ttyb (or cu0a and cu0b) devices are behaving correctly, plug in the faxmodem with the supplied serial cable and power it up. As the SPARCstation is rebooting the "TR" light on the modem should be off. Once the faxmodem driver begins talking to the modem this light should stay on. As a simple test, once you have installed the software package and have rebooted the machine, run the 'faxdevice' module on 'modem1'. Clicking on the "Terminate" button should result in the "TR" light of the modem turning off. Clicking on the "Restart" button should (in a short time) cause this light to turn on (solid). During the restart process the TX and RX lights will also flash (though not remain on solid).

If this is NOT the case, and "TR" remains on all the time, then the tty line to which you have attached your modem is not keeping DTR low when the tty line is closed. Verify that software carrier and 'local' mode for the line have been properly disabled and try the above test until "TR" turns off when the "Terminate" option is requested.

- **Login as root** on the host which is to be the faxserver. The faxmodems will physically attach to this host.
- Run OpenWindows (**/usr/openwin/bin/openwin**)
- Decide on which user will be the primary fax administrator. T**his users home directory MUST be the install point for the software**. We suggest the login name below (of course, you should change the password from "*" to a real password using passwd).

xprfax:*:5000:40:XpressFax account/usr/xpressfax:/bin/csh

- Run "**extract_unbundled**", answering "yes" or hitting return to select defaults.
- When the ***XpressFax*** faxlicense module appears license the software with the information supplied by your vendor.
- Logout and log back in to the fax administrators account. Run "show_license" to verify that you are licensed and run "faxmail" to bring up the primary user interface for the package.

Note that the default installation defines a single faxmodem on serial port B of your SPARCstation. A device node, /dev/cu0b, is created during the installation process if it does not already exist and is chowned to the defined primary fax administrator account. **Make sure that you are not running a getty on /dev/ttyb as this will prevent the fax modem driver from communicating on serial port B.** Edit the file /usr/xpressfax/data/faxdevices to change the device associated with this default faxmodem if necessary.

1.3 Additional Installation Suggestions and Important Notes

1.3.1 /etc/services

The ***XpressFax*** modules move fax data between clients via two daemons. These daemons run on ports 1234 and 1235 by default. The lines below should be added to the "**/etc/services**" file on your YP/NIS master or locally on each ***XpressFax*** host if your are not using YP/NIS. Note that the software will run fine without these entries, but it would be a good idea to have them defined. Also note that these entries are used if they are present, so moving the faxserverd and faxmaild to other port numbers can be done by changing the entries in /etc/services from 1234/tcp and 1235/tcp to other port numbers.

```
faxserverd   1234/tcp          # host->faxserver
faxmaild     1235/tcp          # host->host
```

Make sure that the word "local" DOES NOT appears in /etc/ttytab on any serial port being used with a faxmodem.

CHAPTER 1

Installation Guide for the XpressFax Package on Sun SPARCstation Platforms

The *XpressFax* Package is a network based fax system for the UNIX environment, providing both users and administrators with a simple, yet robust, graphical interface for the viewing, creation, printing and transmission of fax images. This guide is included with the distribution of the *XpressFax* package to assist the system manager in the installation and activation of the package.

1.1 Materials

Each copy of the *XpressFax* Package for the SUN SPARCstation platform comes with a single 1/4" distribution tape, a copy of the Fax Users Guide, a copy of the Fax Administrator's Guide, and this set of installation notes. In addition to this material a Class Two Fax Modem with serial cable, power supply and RJ11 phone cord may also have been shipped by your vendor.

1.2 Quick Installation

The binaries and data files which make up t**he *XpressFax* package require up to 16Mb of disk space**. The default extraction location is /usr/xpressfax.The software should be installed on the machine to which the physical faxmodem or faxmodems are to be attached. Typical networked installation sites will use NFS to mount this directory onto each client machine on their network. It is also acceptable to duplicate the installation of the binaries on client hosts at the obvious expense of the duplicate use of the disk space needed to house the installation.

This section quickly outlines the process of installing the ***XpressFax*** Package. Before installing the software you should acquire an ***XpressFax*** license string from your vendor. The vendor will need to know the serial number of your ***XpressFax*** tape and the hostid of your faxserver machine.

CHAPTER 5 Banner Pages (Cover Pages) 18
5.1 Banner “None” 18
5.2 Banner “Server” 18
5.3 Banner “Overlay” 19
5.4 Banner “Users” 19
5.5 Structure of the bannerrc file 19
5.6 .bannerrc macros 20
5.7 Example of adding banner information to the “Server” 20
5.8 The QuickFax Cover Page 21
5.9 QuickFax Macros 21
5.10 Using Alternate Cover Pages in QuickFax 22
5.11 Moving Memos Generated by QuickFax and FaxTransmit 22

CHAPTER 6 Registering New Users 23

CHAPTER 7 Cutomization of FaxModem Dial Driver 24
7.1 The Default dialer routine and source code 24
7.2 Installing an Alternate Dialer 24
7.3 Testing the dialer 25

CHAPTER 8 Installation Trouble Shooter 26
8.1 Extraction from Tape 26
8.2 Ownerships 26
8.3 Environment variables 27
8.4 LD_LIBRARY_PATH - if you see “ld.so” errors 27
8.5 Check license state and xpressfax_serverd 27
8.6 Verify Sanity of Primary Fax Administrators .faxrc file 28
8.7 Inability to communicate with the modem 28
8.8 The faxmodem never hangs up the phone 29
8.9 The lpr/mail filters don’t appear to work 30
8.10 User cannot connect to faxserver 30

CHAPTER 1 Installation Guide for the XpressFax Package on Sun SPARCstation Platforms 1
1.1 Materials 1
1.2 Quick Installation 1
1.3 Additional Installation Suggestions and Important Notes 2

CHAPTER 2 Changes in the Software From Initial Release 5
2.1 Administrative Account and Environment Variables 5
2.2 Dynamic Libraries (/usr/openwin/lib and /usr/xpressfax/lib)5
2.3 Queue Changes 6
2.4 Fax Transmit Memo & Query Panels 6
2.5 Logging 6
2.6 Dialer Support 7
2.7 GhostScript Support 7
2.8 OwnerShip Issues 7

CHAPTER 3 Additions and Updates from the printed manual. 8
3.1 Fax 8
3.2 QuickFax 8
3.3 Faxmail 9
3.4 The faxtransmit module 9
3.5 The faxedit module 10
3.6 The FaxQueue Module 10
3.7 The faxq binary 11
3.8 The forwardfax binary 12
3.9 The FaxDevice Module 12

CHAPTER 4 XpressFax Input Filter 13
4.1 fax_filter 13
4.2 Mail Aliases 14
4.3 Line Printer Links 15
4.4 Recognized Fax Router Commands 16
4.5 Converting your incoming mail to fax images 17

XpressFax Installation Guide

Written by ***John Uhley***

Edited by ***Michael J. Lazzaro***

Debugging and QC by ***Jae Chung***

Copyright (c) 1990, 1991 and 1992 by XpressWare & John Uhley
All rights reserved

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical, photocopying, recording, facsimile or otherwise, without prior written permission from XpressWare. facsimile or otherwise, without prior written permission from XpressWare.

The information contained in this document is subject to change without notice.

Printed in U.S.A.

Sun, SPARC, SPARCstation, SunOS, and OpenWindows are registered trademarks of Sun Microsystems, Inc.
DEI is also a trademark of Dabney House, Inc.
XpressFax a trademark of XpressWare and John Uhley
GhostScript is Copyright (C) 1989, 1991 Free Software Foundation, Inc.
SPRINT is a trademark of SPRINT.
MCI is a trademark of MCI
PostScript is a registered trademark of Adobe Systems Incorporated.
DEC is the registered trademark of Digital Equipment Corporation.
WATS is a trademark of AT&T.

Ghostscript is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY. No author or distributor accepts responsibility to anyone for the consequences of using it or for whether it serves any particular purpose or works at all, unless he says so in writing. Refer to the Ghostscript General Public License for full details.

Everyone is granted permission to copy, modify and redistribute Ghostscript, but only under the conditions described in the Ghostscript General Public License. A copy of this license is supposed to have been given to you along with Ghostscript so you can know your rights and responsibilities. It should be in a file named COPYING. Among other things, the copyright notice and this notice must be preserved on all copies.

XpressFax™

All Rights Reserved
Copyright (C) 1991, 1992

XpressWare and John Uhley
PO BOX 51118
Pasadena, California
91115-1118

xpressfax@xpressware.com

(818) 793-8613

XpressFax Installation Guide -- Release 1.0.5
Sun SPARCstation Platforms
September 10th, 1992

READ ME FIRST