Faximum

Fax Messaging Server

FMS 2 Reference Manual

Release 2

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The most up-to-date version of this manual may be downloaded from our web server at http://www.faximum.com/fms/manual.

Please Read This First

If you are reading this manual on paper or from a CD-ROM then it is probably already out-of-date. To get the latest information on the Faximum Messaging Server please visit http://www.faximum.com/fms/release

This version was updated 6 May 2002 5:49 am.

We welcome your suggestions on how we may improve our documentation. Please send to support@faximum.com

If you are completely averse to reading manuals and just want to get the software installed as quickly as possible (and know what you are doing), then please refer to the *README* document. This is normally part of the software (either as downloaded or on media) but is also available through http://www.faximum.com/fms/readme (which will have the most recent version).

Similarly, if you have obtained the software on a CD-ROM, please visit the above web site to see if there is a more recent version of the software available.

Installation Skills

While every effort has been made to make the installation and configuration of the Faximum Message Software as easy as possible, one must recognise that the installation and configuration of any software product that integrates communications software, email servers, and networking infrastructure will require a certain level of knowledge about networking. If you are not familiar with the configuration of your network and email infrastructure you may wish to contact the person(s) who manage your network to obtain any assistance necessary to ensure the successful installation of FMS.

Activation Key

Before you will able to use the software included in this distribution you will have to obtain a confidential activation key from Faximum Software. Please visit http://www.faximum.com/register in order to obtain your activation key.

Applicability

This manual applies to the following products and options:

- Faximum Messaging Server (FMS)
- Faximum Messaging Server PLUS (FMS+PLUS)

For more information on the differences between these products please see ."Faximum Messaging Server + PLUS" on page 87.

The software described in this manual is available (or will shortly be available) for the following platforms:

- HP-UX 11
- IBM AIX/6000 4.3
- Caldera Open Linux Server 3.1
- Caldera (SCO) OpenServer 5
- Caldera Open UNIX 8
- Caldera Volution Messaging Server
- Sun SPARC Solaris 8
- SuSE eMail Server III
- RedHat Linux 7.2 (Intel)

For the latest information on product availability please refer to the FMS web site http://www.faximum.com/fms/

For information on the fax modems support and recommended for use with this software please see http://www.faximum.com/modems/

Table of Contents

CHAPTER 1

Introduction

Thank you for considering using the Faximum Messaging Software to provide you with the fax component of your integrated messaging system. We at Faximum are committed to developing "best of breed" fax/email integration.

With FMS you can send and receive faxes as easily as you handle email. FMS does away with the need to install, learn, or pay for separate fax client software on every desktop. Integrated messaging will increase your users' efficiency and reduce your costs.

You can configure FMS so that each user or department has its own fax number without having to have multiple phone lines and fax machines. And faxes sent to that user's or department's fax number are received by FMS and converted to an email message sent to the designated user(s).

As for sending faxes, all you need do with FMS is address a text message to FAX=1-604-926-8182@your.domain.com and it will be delivered to the specific fax number.

Or, if you want to fax a Microsoft Word document (say), you just "print to fax" and the document will be converted into fax format and attached to your email message to the FMS server for delivery to the specified fax machine.

For more information on the features and benefits of the Faximum Messaging Server please refer to the marketing literature (also available at http://www.faximum.com/fms/).

This manual contains detailed information on how to configure and use the Faximum Messaging Server and its related products. This version of the manual

was prepared on 2002.05.06. You may browse the most recent version of the manual at http://www.faximum.com/fms/manual/

> **Please note that the installation and configuration of the Faximum Messaging Server requires a good understanding of your email network configuration. If you are not the person responsible for the installation and maintenance of your email server perhaps you ought to involve that person in the decisions that will need to be made to install FMS properly.**

If you prefer, Faximum Software can provide software installation and configuration assistance for a nominal fee. Please see "Software Installation Service" on page 20.

What You Really Need to Know

The installation instructions are in the README file that accompanied the software with some additional details in the next chapter. If you do not have your README file, please browse http://www.faximum.com/fms/readme

Sending a fax merely means addressing your email to the fax phone number. For example "FAX=1-604-926-8182@fax.company.com" where fax.company.com is the domain name of the machine on which FMS is installed. If you want to know more, see Chapter 3 which tells you what else you can do.

If you are the system administrator, the README file and installation chapter will outline the main configuration tasks you need to know about. Once the software is installed, you can also point your web browser to http://fax.company.com:7437/ (where fax.company.com is the domain name of the machine on which FMS is installed) and walk through the various configuration options.

The rest of the manual contains more details than you need to know. Ignore it for now. Use FMS. Benefit from FMS. Then later return to chapter 3 to learn how much more FMS can do for you.

Guide to this Manual

The following describes the contents of each of the following chapters.

APPENDIX B File Structures page 97

This appendix describes the internal structure and format of the files that control the configuration of the Faximum Messaging Server including the master configuration file, the mime-types file, and the user database.

APPENDIX C Dialogic GammaFax Support page 109

This appendix provides the detailed information on configuring the FMS product to work with Dialogic Gammalink fax boards.

APPENDIX D Man Pages page 113

This appendix provides the detailed reference information (in traditional UNIX man page format) for each executable component of the FMS product.

APPENDIX E Faximum Installation Service page 173

This appendix outlines the information needed by Faximum in order to provide consulting and installation advice on your FMS system.

APPENDIX F Error Codes page 175

This appendix provides a list of errors codes that are generated by the various FMS components along with detailed information on the cause and corrective action required.

APPENDIX G Help Screens page 177

This appendix contains screen shots of most of the webpages displayed by the webadmin interface. These pages are those displayed from within the webadmin interface when the Help! button is pressed on a page.

CHAPTER 2 *Installation*

The README file that accompanies the Faximum Messaging Software provides detailed instructions on how to install FMS in the most common configuration. Please start your installation by reading the README file.[1]

This chapter provides the following additional information beyond that covered by the README file:

If you are installing the Faximum Messaging Server PLUS (i.e. the FMS on top of Faximum PLUS) then please refer to CHAPTER 5 "Faximum Messaging Server + PLUS" on page 87.

After you have completed the basic installation and configuration of FMS as outlined in the README file, you may wish to explore your options for further customisation of your installation as described by the following topics in the next chapter:

1. The FMS README files for all platforms may be found at http://www.faximum.com/fms/readme

- "Cover Sheet, Defining a (FMS Only)" on page 30
- "Faxes, Receiving" on page 40
- "Faximum Messaging Server, Administering a" on page 42

Software Installation Service

If you would prefer, Faximum Software provides a software installation service for all of its products. Please see "Faximum Installation Service" on page 173 for more information.

Email Infrastructure Requirements

Since the Faximum Messaging Software products integrate faxing with email it is obviously necessary that you have a working Internet (SMTP) email system in place. This means that you need to be able to do two things with your existing network (prior to the installation of the Faximum Messaging Server):

- you must be able to send email from any user system (that wishes to be able to send faxes) to the server you plan to use to host the FMS product; and
- you must be able to send email from the server you plan to use to host the FMS product to any user who wishes to be able to send or receive faxes.

Please see "Email Infrastructure, Testing Your" on page 33 for instructions on how to test your email system.

Normally the above two requirements mean that you need to be running your own SMTP email server within your LAN. If, however, your email server is hosted externally (i.e. perhaps by your ISP) then it is still possible to configure FMS to work in this environment. This is, however, beyond the scope of this manual and if you have such a network you are encouraged to contact support@faximum.com for information on how to configure FMS in this situation.

There are two ways of configuring the Faximum Messaging Software:

1. FMS as a delivery agent for *sendmail, Postfix,* or other MTA running on your fax server; or
2. FMS as a independent SMTP server (MTA).

Since the first method is much easier to configure and operate it is the default method used by the installation script. In order for this method to work, however, you must be running *sendmail* or *Postfix* as the native email server on the system you are planning to use to run the FMS software. If you want to verify that *sendmail* or *PostFix* is running on a particular server please see the tests outlined in the section "Sendmail, Testing for" on page 69.

If you are not running *sendmail* or *Postfix* then you ought to contact support@Faximum.com. We will either show how FMS can be integrated with your email or recommend you configure FMS as an independent SMTP server.

If you would like more information on these two approaches please see:

1. "Faximum Messaging Software as a Sendmail Delivery Agent, Configuring" on page 44; and
2. "Faximum Messaging Software as an SMTP Server, Configuring" on page 45.

Supported Email Clients

The Faximum Messaging Software will work with any email program that can generate/handle MIME attachments. The FMS has been tested with Eudora, Eudora Pro, KMail, Netscape Communicator, Outlook, and Outlook Express. Customers with other email clients are asked to contact Faximum Technical Support to report their experience.

In order to view received faxes on your desktop it is necessary to have a TIFF-F file viewer installed. Normally MS Windows and Mac OS X come with such a viewer. Please contact Faximum if your system has difficulty viewing TIFF-F attachments.

Viewers for other systems are available from Faximum. Please visit
http://www.faximum.com/fms/viewers

When sending messages through the FMS it is important that attachments be added in MIME format. Some email clients, such as Eudora also support attachments in uuencode or BinHex formats. These are not IETF (Internet) standards and are not supported by FMS.

Supported Analog Fax Modems

While the Faximum Messaging Server will work with most Class 2 and 2.0 fax modems, one must understand that with Class 2 and 2.0 fax modems the responsibility for properly handling the Group 3 fax protocol (ITU Standard T.30) resides entirely with the firmware within the modem. Unfortunately the quality of such firmware varies widely with different modem manufacturers and indeed with different modems form the same vendor. Further complicating matters is the fact that some vendors make changes to their modems that (negatively) affect the quality of their Class 2/2.0 support without changing the modem model number. For this reason the list of recommended and supported modems continues to vary with time.

At the time this manual was written (02.05.06) Faximum Software recommends the following modems for use with the Faximum Messaging Server:

- MultiTech MT-1932ZDX
- MultiTech MT-2834ZDX
- MultiTech MT-2834ZDXb

For the most up-to-date list please visit our web server at
http://www.faximum.com/modems

As a service to its customers, Faximum Software resells MultiTech modems. Please contact us for current availability and pricing.

While the Faximum Messaging Server will work with many other fax modems (such as those from Hayes, Practical Peripherals, US Robotics, Zoom, and others), our users have received mixed results (some have no problems while others have not been satisfied with their performance). You may wish to use any such modems you have on hand for the evaluation of the Faximum Messaging Server as long as you understand that problems may arise that have nothing to do with the correct operation of our software. If you are planning to purchase a modem

for use with our software we would recommend a modem from the above list (or from the list on our web site).

Supported Digital (ISDN) Fax Modems

Faximum Software recommends the ZyXEL Elite 2864 modem for use with ISDN phone lines. This modem supports the proper handling of "Called Number Identification" and can be used to support the automatic routing of received faxes to the correct recipient (when used with FMS+PLUS). For more information on this modem please see http://www.zyxel.com/

Supported DID Devices

Supporting DID trunks (trunks that permit multiple phone numbers to be associated with a single or group of phone lines for the purposes of automatically routing received faxes) requires special equipment to connect the DID lines to the fax server. Please see http://www.faximum.com/did/ for more information on this topic.

Supported Fax Boards

Please see http://www.faximum.com/modems/ for the latest information or write to support@faximum.com

Digi Acceleport RAS 8

Digi manufacturers a range of multi-port analog fax boards that are supported by Faximum Software.

Patton DataFire RAS

Patton Electronics manufacturers a range of high-density ISDN and T1/E2 fax boards (going up to 60 ports on a single board) that are supported by Faximum Software.

Dialogic Gammalink Boards (*SCO OpenServer only)*

By special arrangement Faximum Software can provide a version of FMS for Caldera (SCO) OpenServer that supports any Dialogic GammaLink Fax board supported by the GammaLink Development Kit (GDK) Release 1.0.5.

For more information please refer to APPENDIX C “Dialogic GammaFax Support” on page 109.

Users planning to use the Faximum Messaging Server with Dialogic GammaLink fax boards ought to contact Faximum Technical Support (support@faximum.com) for additional information on configuring the Faximum Messaging Server to work with these boards.

CHAPTER 3

FMS Encyclopedia

Introduction to Zero-Search Time Documentation

This manual is organised in a manner you probably have never seen before. Instead of trying to teach you all about the software, this manual provides detailed instructions on how to perform those tasks you want to do. Instead of requiring you to learn about large part of the software before you can use any part of, and instead of requiring you shovel through lots of unrelated documentation before you find what you need to know, this manual is task oriented making it trivial to locate just the information you need, when you need it.

This technique was first popularised by Peter Schorer in his book *How to Create Zero-Search-Time Computer Documentation* (which is highly recommended to those who have to write documentation). Please note that the ideas are Mr. Schorer's, any shortcoming in our implementation of them is ours and ours alone. In other words, please do not judge Mr. Schorer's design methodology by our imperfect use of his concepts.

Information, Locating

To find information on how to perform a specific task, think first of the thing you want to affect (i.e. the noun) and then the action you wish to perform on that thing (i.e. the verb). Then look for an entry of the form *Noun, Verb* below.

In addition to these *Noun, Verb* entries you can also look up common nouns (e.g. *Log File*) and common verbs (e.g. *Printing*) to obtain information on these topics.

And finally you can also flip to the index at the end of this manual.

While this might not result in literally zero search time, we hope that you will find the search time much much less than with other manuals you may have had to use. If not, *let us know!*

If there is a task you wish to perform and cannot find in this manual, *we want to know!* Email your question to support@faximum.com making it clear that you have tried to locate the information in this manual. Not only will you get an answer, you will be helping us make the next edition of this manual more useful and comprehensive.

Applicability Warning

FMS can be installed by itself or along with the Faximum PLUS fax server. Those entries below that only apply to FMS by itself as labelled **FMS ONLY**, while **FMS+PLUS ONLY** marks entries that apply to the combination of FMS and PLUS. If you have any question as to which version of the Faximum Messaging Software you have, please see "Faximum Messaging Server + PLUS" on page 87.

Access, Controlling

The Faximum Messaging Server is designed to only accept email messages from users listed in the user database (see "User Account, Adding/Modifying a" on page 75). This is to prevent unauthorised users from being able to send faxes, possibly incurring toll charges.

If you are running a corporate LDAP directory and wish FMS to access it for authorisation information instead, please contact support@faximum.com for more information.

See also "Security" on page 67.

Access Codes, Dialling

If your phone system requires that access codes (e.g. 9,) be dialled before a number or account numbers after a number then you can configure FMS to do

this by editing the appropriate fax-line file (by default located in /etc/opt/faximum/dev) and add either or both a dial-prefix and dial-suffix parameter specifying the digits (and pauses) to be dialled before or after the number.

If, after specifying a prefix and/or suffix, you need to enter a number that is to be dialled *without* either the prefix or suffix being added, merely start the number with two - characters. This will disable the addition of the prefix or suffix.

To insert pauses in the access codes put commas (e.g. ",") in the prefix and/or suffix as required. (For information on adding pauses to dialled strings other than in the prefix and suffix strings see "Pauses, Inserting (when dialling)" on page 53).

Account, Updating Your FMS

Every user of the FMS system must have an account. While creating the account is the responsibility of the FMS administrator (see "User Account, Adding/Modifying a" on page 75), there are a number of parameters that you can modify yourself.

First, point your web browser at your FMS system (see "Faximum Messaging Server, Administering a" on page 42). This will then ask you for your name and password. Please use your account name and password as assigned by your FMS administrator. Then select the Configure / Your Account link.

You will then be presented with a form (see "Update User" on page 202) that will display the current settings for the following parameters and allow you to modify any of them:

- Full Name
  - Your full name (used in list of potential recipients when manually routing faxes).
- Password
  - Your password for accessing the FMS administrative functions (such as this form to update your own account parameters).
- Delivery Email Address

  - The email address you would like used when faxes are to be delivered to you by email.
- Delivery Format (Text/HTML)
  - Your preference for email format when faxes are delivered to you by email.

There are other parameters associated with each user but these may only be changed by the FMS administrator (see "User Account, Adding/Modifying a" on page 75 and "Update User" on page 202).

Accounting Log, Viewing

The accounting log contains an entry for every time the FMS system dialled a fax number (whether successful or not). The accounting log can either be viewed using your web browser by pointing it at the FMS system (see "Faximum Messaging Server, Administering a" on page 42) and selecting the View / Accounting Log link, or directly on the FMS system by accessing the acct file in the FMS spool directory (/var/opt/faximum by default).

The detailed format of the accounting log is described in APPENDIX B "File Structures" on page 97. See also "Account Log" on page 187.

Activation Key, Obtaining a

In order for the Faximum Messaging Server to operate you must obtain an activation key from Faximum Software. This is true even if you only plan to evaluate the software.

The easiest way to obtain and install your licence key is to install the Faximum Messaging Server and then point your browser at your FMS web server (see "Faximum Messaging Server, Administering a" on page 42).

FMS will detect that you do not yet have a key and will display information on how to obtain one.

If you would prefer to obtain a licence key prior to your installation, then please visit http://www.faximum.com/register.

If you would prefer to install your licence key manually then (create if necessary and) place the key in the file /etc/faximum.lic

Make sure that after you have edited this file that it is readable by all users (i.e. the permissions are at least r--r--r--).

Attachments, Sending

The basic Faximum Messaging Server can fax email messages that have ASCII (i.e. text) or TIFF-F (i.e. fax) files as MIME attachments.

For more information on TIFF-F files, please see “TIFF-F Files” on page 75.

It is possible to extend the capabilities of the FMS system to handle attachments such as Microsoft Word and other proprietary file formats. There is a detailed description of the capability below (see “Files, Faxing” on page 48) or you may wish to contact your system administrator to learn of the file formats currently supported by your FMS installation.

Banner, Defining the Top-of-Page **FMS ONLY**

The banner that appears at the top of every page that is faxed is defined in the system configuration parameters (see “Company Identification Parameters (FMS Only)” on page 47 as well as “System Configuration” on page 195).

Commas, Inserting in Dialling String

For information on inserting commas (i.e. pauses) in dialled numbers please see:

- “Access Codes, Dialling” on page 26

- "Pauses, Inserting (when dialling)" on page 53

Configuration

There are a number of entries in this chapter that are related to the configuration of the FMS software:

- "Configuration Files" on page 30
- "Cover Sheet, Defining a (FMS Only)" on page 30
- "Faximum Messaging Server, Configuring" on page 46

Configuration Files

The configuration information for the FMS system is stored in a number of files than are normally manipulated by using your web browser (see "Faximum Messaging Server, Administering a" on page 42). It is possible, however, to edit these files manually to change the system configuration.

APPENDIX B "File Structures" on page 97 describes these files in detail.

Cover Sheet, Defining a **(FMS ONLY)**

The cover sheet definition file is called cover and is found in the FMS configuration directory (/etc/opt/faximum by default) in the coversheet subdirectory. You can change the layout of the cover sheet by editing this file.

The company name, address, and phone numbers that appear on the cover sheet are defined in the FMS system configuration file (see "Company Identification Parameters (FMS Only)" on page 47).

If you wish to add your company logo to the cover sheet, create a black-and-white TIFF file at 200 dpi resolution that is no larger then 3" x 1". Replace the

file fax.tif in the coversheet directory (by default, /etc/opt/faximum/coversheet) and it will be incorporated into the cover sheet.

If you do not wish your faxes to have a cover sheet then (a) make sure that all of your faxes go out with sufficient identification information on the first page to inform the recipient of the origin of the fax and (b) delete the coversheet definition file.

For more information on the control language used to define cover sheets, please see *asciitiff* on page 117.

Daemons, Starting and Stopping

In order to handle the functions of the Faximum Messaging Server there are a number of processes that run in the background (such processes are called *daemons* in UNIX nomenclature, not to be confused with *demons*).

TABLE 1. Faximum Messaging Servers Daemons

Program Name	Started by	Purpose
faxgetty	/etc/init	Handles incoming fax calls
faxsched	/opt/faximum/etc/init.d.script[a]	Schedules outbound faxes
fms-httpd	/opt/faximum/etc/init.d.script[a]	Web server to handle administrative functions
SCO Merge & the WFCD[b]	manually	Handles automatic conversion of Microsoft Word (and other) files. Optional.[b]
swiftefg[c]	/opt/faximum/etc/init.d.script[a]	Handles SMTP email messages intended for fax delivery.

a. This script is also linked into the appropriate directories in /etc so that it is run automatically during system startup and shutdown. The /opt/faximum directory is the default installation directory for FMS and may be changed by your system administrator.

b. SCO Merge and WFCD are not available for Linux. Alternatives may be available. Please contact Faximum Software for details.

c. The swiiftefg program is only run as a daemon when FMS has been configured to handle SMTP traffic directly. This is not the normal configuration and by default swiiftefg is run by the systems email server (sendmail or Postfix) as needed to deliver messages by fax.

These background processes (with the exception of SCO Merge and the WFCD) are started automatically whenever the FMS system is rebooted.

The faxsched and X11 font server (used by FMS) can be started and stopped by using the webadmin interface, clicking on the View / Fax Daemon Status, and clicking on the appropriate Start or Stop link. See "FMS Daemon Status" on page 183.

The faxgetty daemon can be started or stopped by clicking on the Configure / Fax Lines link, selecting the fax line of interest, changing the Fax Mode to enable or disable fax reception (as desired), and clickin on the Update button.

Note that system performance is slightly better if FMS does not have to configure the modem to receive faxes so only enable reception if you need to receive faxes.

All of the fax daemons (other than faxgetty) can be started by running (as root):

```
/opt/faximum/etc/init.d.script start
```

or stopped by running:

```
/opt/faximum/etc/init.d.script stop
```

Disk Space Consumption, Estimating

The exact amount of disk space consumed by the Faximum Messaging Software for your specific platform is outlined in the README file for your distribution. This will usually be between 6 and 15Mb for the software itself.

Received faxes that remain on the fax server (i.e. before being routed and deleted) will consume between 20 and 100Kb per page (depending on the resolution and density/complexity of the image. Similarly faxes that are queued for transmission will consume similar amounts of disk space.

Documentation

Please see “Manual, Viewing” on page 51.

Email Infrastructure, Testing Your

As mentioned in the installation section of this manual (“Installation” on page 19), the Faximum Messaging Software is designed to add faxing capabilities to your existing email system. Obviously this means that your email system must be able to exchange email messages from any user who wishes to use FMS and the FMS system.

You can test that your email system is able to do this by running the following tests. Since these tests run independently of the FMS software you can perform these tests before you have installed the FMS product.

In the discussions below we will refer to the server system you have chosen to host the FMS software as the FMS server and will assume that the domain name for this server is *fax.company.com*.In the examples below please change *fax.company.com* to the actual domain name for the system that will be running the FMS software. Similarly we will use the email address *user@company.com* in our examples; please change this to an actual email address within your organisation.

Email Test 1 - Server to User

To test the ability of the FMS server to email your users try running the following command on your FMS server:

```
date | /usr/lib/sendmail user@company.com
```

After running this command, check to verify that a short message containing the date (output from the *date* command) has arrived at the specified user’s email account. If there was no error when you ran the above command but the message did not arrive then please check with your network administrator to determine the cause of the failure of your email system.

Note: if the above command fails with an error message complaining that “/usr/lib/sendmail” not found then this indicates either (a) that your *sendmail*

executable is not in the /usr/lib directory or (b) that you do not have sendmail or Postfix installed.

Please see "Sendmail, Locating" on page 68 for information on how to determine the correct pathname to use for *sendmail*.

If you cannot find your *sendmail* executable then you may not have sendmail or Postfix (or an email server that provides equivalent functionality) installed. If this is the case please contact Faximum Software for instructions on how to proceed.

Email Test 2 - User to Server

To test the ability of your users to send email to the FMS server please try to send a message from any user system to root@fms.company.com

After your test message has been sent, check on the FMS server that *root* has received your message. If it has not then please check with your network administrator to determine the cause of the failure of your email system.

Exchange, Microsoft

See "Microsoft Exchange, Using FMS with" on page 52.

Fax Lines, Configuring

Normally the first fax line will be automatically configured as part of the installation process and the only other steps that you need take are to ensure that the port being used for the fax modem has been disabled for logins.

DID Fax Lines (FMS+PLUS ONLY)

If you are planning to use automatic fax routing based on DID (see "Received Faxes, Automatic Routing of (FMS+PLUS only)" on page 55) then you will need

to edit the fax line configuration file(s) to specify that incoming calls are to proceed with the DID handshake.

The fax line configuration files are normally located in the /etc/opt/faximum/dev/ directory and are normally named fax-line-1, fax-line-2, etc.

For DID operation the class2-type parameter must be set to multitech-did. Note that this option will only work with certain MultiTech modems and customers ought to check with Faximum Software for current details of supported and recommended modems.

Fax Queue, Managing the

To view and manage requests in the FMS fax queue access the FMS webadmin interface ("Faximum Messaging Server, Administering a" on page 42) and click on Manage / Fax Queue (see "Queue Status" on page 181).

This will display:

- all of the requests in the queue (if you have Administrator privilege)
- all of *your* requests in the queue (if you haven't)

You can display the details of any displayed fax request by clicking on the sequence number link. If the request has not yet been sent you will then be able to suspend, activate, or delete the request by clicking on the appropriate link (see "Request Status" on page 182).

Requests that have been successfully sent or have failed after the specified number of retries will remain in the queue list for (a default of) seven days (see "Spool Files, Housekeeping" on page 74).

Fax Viewer (Linux), Installing & Using

The Faximum Fax Viewer for Linux may be found in the directory /opt/faximum/fms/bin/xtiffdisplay (by default). You may also download a copy from our web site at http://www.faximum.com/fms/viewers.

See also:

- "Fax Viewer (Other Platforms), Installing & Using" on page 36
- "Fax Viewer (UNIX), Installing & Using" on page 36
- "Fax Viewer (Windows 3.x), Installing & Using" on page 38
- "Fax Viewer (Windows 9x & NT), Installing & Using" on page 38

Fax Viewer (Other Platforms), Installing & Using

Faximum Software does not currently provide a viewer for TIFF images for OS/2 or the Macintosh. If you need a viewer for a platform not current supported please contact Faximum Technical Support at support@faximum.com to express your interest in such a viewer and to obtain current information on such viewers.

See also:

- "Fax Viewer (Linux), Installing & Using" on page 35
- "Fax Viewer (UNIX), Installing & Using" on page 36
- "Fax Viewer (Windows 3.x), Installing & Using" on page 38
- "Fax Viewer (Windows 9x & NT), Installing & Using" on page 38

Fax Viewer (UNIX), Installing & Using

HP-UX 9.x, 10.x

Faximum recommends the "imageview" program that is provided by HP as part of the HP-UX platform. For more information on this product please consult your HP-UX documents.

SCO OpenServer 5

Although SCO provides an image viewing program as part of SCO OpenServer (consult your SCO documentation for information on the *xview* program), this viewer is not designed to view fax images. Therefore Faximum provides its own fax viewer for SCO OpenServer customers. The viewer may be found in the directory /opt/faximum/fms/bin/xtiffdisplay (by default). You may also download a copy from our web site at http://www.faximum.com/fms/viewers.

SCO UnixWare 7

SCO does not currently provide an image viewing program as part of SCO UnixWare. Therefore Faximum provides its own fax viewer for SCO UnixWare customers. The viewer may be found in the directory /opt/faximum/fms/bin/xtiffdisplay (by default). You may also download a copy from our web site at http://www.faximum.com/fms/viewers.

Sun Solaris

There are two options for Sun Solaris:

- Sun provides a viewer called imagetool (please consult the documentation for your Solaris system) which can handle TIFF images.
- Faximum also provides a copy of its fax tiff viewer for Solaris. The viewer may be found in the directory /opt/faximum/fms/bin/xtiffdisplay (by default). You may also download a copy from our web site at http://www.faximum.com/fms/viewers.

Other UNIX Platforms

For fax viewers on UNIX platforms not covered above we recommend the xv program by John Bradley. More information on this product may be obtained from http://www.trilon.com/xv/.

We also request that you send a message to support@faximum.com indicating the platform for which you need a viewer. We may have more current information but even if we haven't, knowing what platforms are in demand will influence our plans to port our UNIX fax viewer to other platforms.

See also:

- "Fax Viewer (Linux), Installing & Using" on page 35
- "Fax Viewer (Other Platforms), Installing & Using" on page 36
- "Fax Viewer (Windows 3.x), Installing & Using" on page 38
- "Fax Viewer (Windows 9x & NT), Installing & Using" on page 38

Fax Viewer (Windows 3.x), Installing & Using

Since Windows 3.1 and 3.11 have not been shipping in volume for some time, we no longer ship a Windows 3.x viewer with our software. Customers who still need such a viewer may obtain one at no additional charge by contacting Faximum Technical Support at support@faximum.com.

See also:

- "Fax Viewer (Linux), Installing & Using" on page 35
- "Fax Viewer (Other Platforms), Installing & Using" on page 36
- "Fax Viewer (UNIX), Installing & Using" on page 36
- "Fax Viewer (Windows 9x & NT), Installing & Using" on page 38

Fax Viewer (Windows 9x & NT), Installing & Using

Installing Imaging For Windows

The Imaging for Windows package (a.k.a. the Windows Fax Viewer, the Wang Image Viewer) is normally installed on Windows 95, 98, and NT systems by default. On Windows 95 look for c:\windows\wangimg.exe. On Windows 98 look for C:\windows\kodakimg.exe. On Windows NT look for c:\Program Files\Windows NT\Accessories\ImageVue\wangimg.exe.

Using Imaging for Windows

The *Imaging for Windows* package is normally associated with the .tif file extension so that when you click on the fax attached to an email message it ought to automatically invoke the viewer. Similarly, if you are using the Windows Explorer and double-click on a fax file (with a .tif extension) your system ought to launch the *Imaging for Windows* fax viewer.

If your system is not properly associating the *Imaging for Windows* package with .tif files then add the .tif file type to your system configuration. You can either reinstall the *Imaging for Windows* package (which ought to update your configuration) or you can add the .tif file type manually (see the information on *File Types* in the on-line help for Windows for details on how to do this).

See also:

- "Fax Viewer (Linux), Installing & Using" on page 35
- "Fax Viewer (Other Platforms), Installing & Using" on page 36
- "Fax Viewer (UNIX), Installing & Using" on page 36
- "Fax Viewer (Windows 3.x), Installing & Using" on page 38

Faxes, Annotating

See "Received Faxes, Annotating" on page 55.

Faxes, Broadcasting

You can send a fax to a list of recipients merely by putting the fax numbers for all of the recipients on your email. For example, let us assume you have a list of recipients.

Jane Doe	ACME Concrete	250 555-1212
Jim Smith	Smith Consulting	604 926 8182
Harry Jones	Ajax Supply	416 117 2234

To broadcast a fax to this list you would compose your message and email it to the following list of addresses.

> Jane_Doe/ACME_Concrete/FAX=1-250-555-1212@fax.company.com
> Jim_Smith/Smith_Consulting/FAX=1-604-926-8182@fax.company.com
> Harry_Jones/Ajax_Supply/FAX=1-416-117-2234@fax.company.com

The only real limit to the size of your broadcast is the capacity of your email client. With that said, if you need to be able to send hundreds or thousands of broadcast faxes on a regular basis you may wish to consider using Faximum PLUS which is specifically designed to handle large fax broadcasts.

Faxes, Printing

You can print the faxes you receive from the Faximum Messaging Server by viewing the fax on your desktop and printing the fax using the fax viewer (see "Fax Viewers" on page 36).

The FMS+PLUS administrator can also configure the system to automatically print faxes as they are received.

Faxes, Receiving

The FMS software can receive faxes and (depending on how your system administrator has configured the software) automatically email received faxes to the intended recipients (FMS+PLUS); print the fax (FMS+PLUS); or store the fax in a general inbox directory that can be viewed and routed manually (FMS and FMS+PLUS).

If a fax is delivered to you by email, all you need do on most systems is to click on the icon representing the received fax file and you system will start the appropriate viewer (see *Fax Viewers* on pages 36-38). On systems that do not permit you to invoke a fax viewer from within your email client you will have to save the attached fax file and run the fax viewer manually.

Please contact your FMS system administrator to learn how your system has been configured to handle received faxes. If you are the FMS system administrator please see “Received Faxes, Handling” on page 61.

Faxes, Routing

See “Received Faxes, Handling” on page 61.

Faxes, Scheduling

The Faximum Messaging Server attempts to send your fax as soon as it can. If you need to delay the transmission of your fax until later you have two options:

1. Tell your email program not to transmit the email message until later (Eudora Pro and other email client have this option); or
2. Upgrade to the FMS+PLUS software which provides the ability to manually or automatically (depending on the destination and phone discount schedule) schedule faxes.

Faxes, Sending

To send a fax using the Faximum Messaging Server, merely address your message as illustrated in this example:

```
Jane_Doe/ACME_Company/1-604-926-8182@fax.company.com
```

You can have up to four name fields before the fax number, for example:

```
Name/Title/Department/Company/1.604.926.8182@fax.com-
pany.com
```

If any of the name fields contain spaces then use an underscore (_) and it will be replaced with a space when the fax is sent. Some punctuation (such as period, hyphen) are permitted, all others must be omitted or else the message may not go

through. In particular, do not use parenthesis to punctuate the phone number (or any other part of the address).

The field immediately before the @ symbol must be the phone number.

Your FMS system administrator will tell you what domain name to use (fax.company.com in the above example).

For information on the types of files you can attach to your email message, please consult your FMS system administrator and see “Files, Faxing” on page 48.

Faximum Messaging Server, Administering a

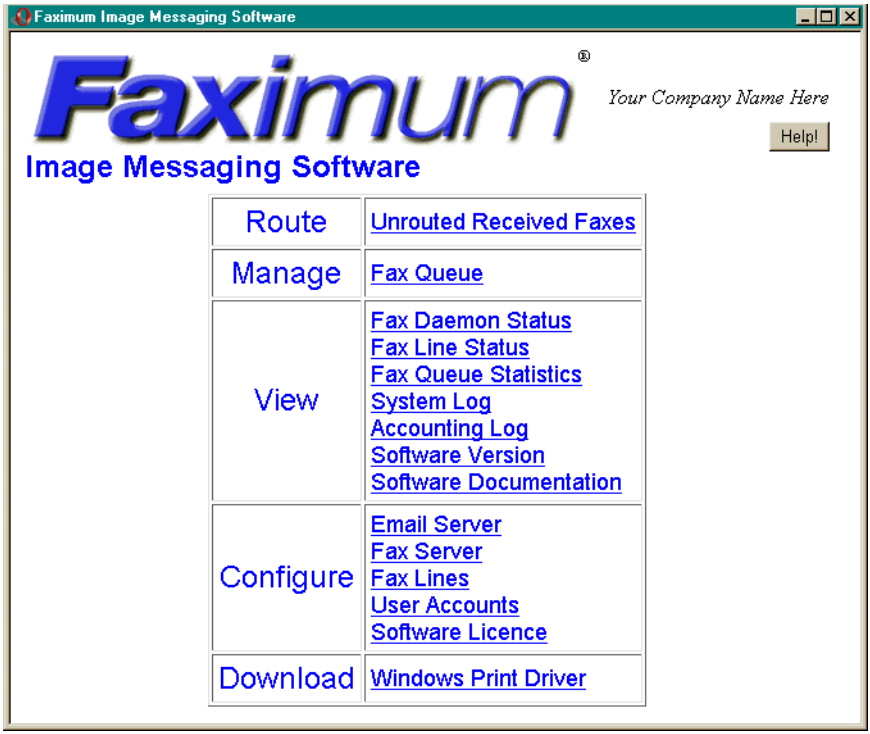
All of the key configuration and administration functions for the FMS are accessed by using a web browser (Netscape Navigator/Communicator, or, if nothing better is available, Internet Explorer). This is referred to as the FMS webadmin interface.

FMS includes its own web server that is accessed at the same domain name as used when sending email to the FMS for delivery by fax.

For example, if you have assigned the name fax.company.com to the FMS then merely enter the following URL from your web browser:

http://fax.company.com:7437/

When you browse this URL you will see a page that looks something like the following



Section	Webadmin Function	Details	Screen Shot
Route	Unrouted Received Faxes	page 61	
Manage	Fax Queue	page 35	page 181

Section	Webadmin Function	Details	Screen Shot
View	Fax Daemon Status		page 183
	Fax Line Status		page 184
	Fax Queue Statistics		page 185
	System Log	page 75	page 186
	Accounting Log	page 28	page 187
	Software Version	page 76	page 188
	Software Documentation	page 51	page 189
Configure	Email Server	page 33	page 190
	Fax Server	page 46	page 195
	Fax Lines	page 34	page 198
	User Accounts	page 27	page 202
	Software Licence	page 73	page 203
Download	Windows Print Driver	page 77	

Note that many of these items require a user name and password to access (see "User Account, Adding/Modifying a" on page 75) for information on how user names and passwords are assigned.

When the system is first installed the only user name is *admin* and there is no password needed. You ought to put a password on the *admin* account at your earliest convenience.

Faximum Messaging Software as a Sendmail Delivery Agent, Configuring

When FMS is configured as a sendmail delivery agent, email intended to be delivered by fax is passed to the sendmail server running on the fax host. Sendmail receives the email (either directly from your desktop or indirectly from another email server), recognises the email address as being a fax number, and passes the message to FMS for delivery.

This is the normal method of configuring FMS and will be done as part of the configuration performed after the software has been installed.

In this situation, email messages that are to be delivered by fax are addressed as follows:

Jane_Doe/Company_Name/FAX=1-604-926-8182@host.company.com

where everything to the left of FAX is optional and host.company.com is the domain name of fax host (which may be the same domain name as your corporate email server if FMS is installed on your corporate email server).

In order to use this method the following conditions must exist:

1. you must be running sendmail on the server you intend to use as your FMS server system;
2. you must be able to send email from any desktop machine you want to fax from to the FMS server;
3. you must be able to send email from the FMS server to any desktop machine you want to fax to or from.

Specific techniques to test that these conditions exist for your network are outlined elsewhere in this manual:

- see “Sendmail, Testing for” on page 69
- see “Email Infrastructure, Testing Your” on page 33

Faximum Messaging Software as an SMTP Server, Configuring

When FMS is configured as an email server, email from the desktop systems is first passed to an email server that handles all of your desktop email (regardless of whether it is to be delivered by fax or email). The email server recognises fax email by the distinctive domain name used to address this email and passes the fax email message to FMS. FMS (which may be running on the same system as the email server or on another system) accepts the email message and delivers the message by fax.

This is *not* the normal method of configuring FMS and should only be used after consulting with Faximum Software.

In this situation, email messages that are to be delivered by fax are addressed as follows:

Jane_Doe/Company_Name/FAX=1-604-926-8182@fax.company.com

where everything to the left of the fax number is optional and fax.company.com is the unique domain name assigned to FMS.

There are two variations of the FMS as Email Server approach:

- Method 2A - FMS as the only SMTP email server on the fax host;
- Method 2B - FMS as an alternate SMTP email server on the fax host.

In order to use method 2A the following conditions must exist:

1. the faxhost must not be running any email server;
2. there must not be any need for the faxhost to receive any non-fax email messages.

In order to use method 2B the following condition must exist:

1. the faxhost operating system must support IP aliasing;
2. the primary email server on the faxhost must be able to be configured to only handle email to the primary IP address;

See also: "SMTP" on page 73.

Faximum Messaging Server, Configuring

See also "System Configuration" on page 195.

Operational Parameters

Minimum Free Blocks

This parameter specifies the minimum amount of free disk space that must be available on the file system containing the FMS Spool Directory before FMS will

answer incoming fax calls. This prevents incoming faxes from consuming all available disk space with the resulting problems with the general operation of the FMS system.

Minimum Idle Fax Lines

This parameter only applies to multi-line FMS systems and limits the number of lines that can be used at the same time. This parameter prevents all available fax lines from being used to send faxes thus leaving no lines free to handle incoming calls.

Maximum Number of Retries

This parameter tells the FMS fax scheduler how many attempts to make to send a fax before deleting the request and reporting it as failed.

Delay Between Retries

This parameter tells the FMS fax scheduler how many minutes to wait before retrying a fax that has not yet been successfully sent. Obviously if the server is busy handling other requests it may take more than the number of minutes specified by this parameter before the fax is actually retried.

Fax Resolution

Most fax machines permit faxes to be sent at either standard (approx. 98 dpi vertically and 204 dpi horizontally) or fine (approx. 196 dpi vertically and 204 dpi horizontally) resolution. This parameter specifies which resolution is to be used for faxes sent by the FMS.

Company Identification Parameters (FMS ONLY)

The following table lists the fax identification information that can be specified. Note that under US law it is mandatory to set this information prior to sending faxes using the FMS (for more information on this requirement, please see http://www.faximum.com/fms/uslaw).

The parameters: *Company Name*, *Address Lines 1*, *Address Line 2*, *Address Line 3*, and *Address Line 4* are used on the cover sheet that is sent with every fax. The *company name* is also used on the top-of-page banner that appears at the top of every faxed page (unless another top-of-page banner is explicitly specified).

Top-of-Page Banner

This parameter specifies the top-of-page banner that appears at the top of every faxed page. If this parameter is left blank then the FMS will use a default banner.

The following variables may be used in this parameter:

TABLE 2. Top-of-Page Banner Variables

Variable	Description
$p	the current page number
$t	the total number of pages in this fax
%c	the current time and date

Files, Faxing

The base Faximum Messaging Server will fax email messages that have ASCII (i.e. text) or TIFF-F attachments. Frequently users will want to fax documents that have been created using various applications such as Microsoft Word, Excel, Powerpoint, or documents that are in Adobe Acrobat (a.k.a. PDF) format. The Faximum Messaging Server provides two mechanisms to enable users to fax such documents:

- your system administrator can install SCO Merge on the FMS system which will enable the FMS to convert file attachments in Microsoft Word (or other proprietary file formats) into the appropriate format for transmission by fax; or
- you can install the FMS Print Driver on your Windows desktop system to enable you to convert Microsoft Word documents (or other proprietary file formats) into TIFF-F files that can be sent to the FMS system. (See “Windows Print Driver, Downloading and Installing” on page 77).

There are advantages and disadvantages to each mechanism which are described fully below. Note that it is possible to have both mechanisms available to users and let them choose the approach that works best in each situation.

In most situations we recommend the second approach.

Mechanism I - SCO Merge *(SCO OpenServer/UnixWare only)*

One approach is to install SCO Merge on the FMS system. The FMS will then pass any documents in Microsoft Word (and certain other formats, see "Install the File Viewers" on page 65) to a utility running on SCO Merge that will convert the file into fax format for transmission by the FMS.

SCO Merge is only available for SCO OpenServer and SCO UnixWare. Faximum continues to monitor the Linux Wine and other Windows under Linux projects and hopes to be able to deliver similar functionality in the future for Linux users. If this feature is important to you please contact Faximum Software for current information.

Installation instructions for SCO Merge and the related FMS Windows File Conversion Daemon (WFCD) may be found on page 63.

Advantages

- no need for users to install any software on their client systems
- can send the same document to both email and fax addresses in the same message–the email recipients will receive an editable version of the document while the fax recipients will receive a printed version of the document

Disadvantages

- can only fax entire document (not page ranges)
- can only fax certain file formats[1]
- need to purchase and install a copy of SCO Merge on the FMS system
- SCO Merge must be running continuously on system console

See also:

- "SCO Merge Installation" on page 63

1. Although it is frequently possible to extend this support by purchasing and installing a copy of the necessary application(s) under SCO Merge on the FMS system.

Mechanism II - The FMS Print Driver *(both SCO & Linux)*

The other approach is for each user (who wishes to fax proprietary format files) to install the FMS Print Driver on his Windows system. With this software installed on your Windows[1] system you merely "print to Faximum" from any application. This will cause the printed output to be captured and converted to fax format. Then a dialogue window will pop up asking you for the name and fax number of the recipient to whom you wish to send the document. When that information is completed your email client will be invoked (using MAPI)[2] with the converted document already attached and the email address filled in.

Advantages

- enables you to fax selected pages from a document (rather than the entire document as is done using the SCO Merge/WFCD approach described previously);
- allows you to see exactly how the document will look when it is faxed (by clicking on the attachment in your email client and viewing the fax file);
- enables you to fax files in any format that your desktop supports (rather than just the limited set supported by the SCO Merge installation);
- avoids the need to purchase and install a copy of SCO Merge.

Disadvantages

- requires users to download, install, and maintain driver software on their desktop system;
- requires users to send separate messages when emailing a document to both email and fax recipients otherwise the email recipients will receive an uneditable TIFF-F file rather than an editable Microsoft Word file (for example)[3].

1. The FMS Print Driver is currently only available for Microsoft Windows 95, 98, Me, NT 4 and Windows 2000. Faximum is planning to support Microsoft Windows XP and other operating systems in the near future. Please visit http://www.faximum.com/fms/fmsprint for current information or to register your interest in support for as specific platform.
2. The FMS Print Driver will only work if your email client supports MAPI and that support is enabled. For example Eudora Pro supports MAPI but that support can be turned on and off through the "Options" menu item.

See also:

- "Windows Print Driver, Downloading and Installing" on page 77.

Log Files

The FMS software maintains two log files:

- an accounting log (see page 28); and
- a system log (see page 75).

Key, Obtaining a Software Activation

Please see "Activation Key, Obtaining a" on page 28.

Manual, Viewing

The FMS manual is shipped as part of the software and can be accessed by pointing your browser at the FMS system (see "Faximum Messaging Server, Administering a" on page 42) and selecting the View FMS Manual link.

The manual is also available on the Faximum web server at http://www.faximum.com/fms/manual

The manual is in Adobe Acrobat format (also known as PDF). If your system does not already have installed the Adobe Acrobat Reader needed to view the manual, please visit http://www.adobe.com/acrobat to obtain a free copy.

3. In some situations, sending a TIFF-F version of a document rather than the actual MS Word document is to be preferred: (a) the resulting document cannot easily be edited (i.e. if you do not wish the recipient to be able to modify it) and (b) TIFF-F files cannot contain macros viruses as can MS Word files and therefore some firewalls will strip MS Word attachments but not TIFF-F attachments!

If you wish, you can also access the manual PDF file directly on the FMS server in the FMS home directory (normally /opt/faximum/fms) by looking in http/manual for a file with the .pdf extension.

Merge, Configuring SCO

See “SCO Merge Installation” on page 63.

Modem, Adding a

If you wish to add a second (or subsequent modem) to your Faximum Messaging Server, then please see TechNote #199 (www.faximum.com/technotes/199).

Note that in all cases you must have a licence for as many fax lines as you wish to use. The number of lines your licence is good for is included on the activation key you were sent to enable your software. If you need to purchase additional fax line licences, please contact Faximum Software Sales at +1 (604) 925-3600 (Pacific Time) or email sales@faximum.com

Modem, Configuration

Normally there no modem configuration required. The FMS software will send the necessary commands to the modem to enable it to operate in the manner required by the fax software. If you are working on phone lines that do not support DTMF (a.k.a. touch-tone) dialling and require pulse dialling, then be sure to enable Pulse Dialling (see “Fax Line Update” on page 198).

Microsoft Exchange, Using FMS with

If you wish to use the Faximum Messaging Server with Microsoft Exchange you will need to make sure that you have configured Microsoft Exchange to communicate with FMS using SMTP (the Internet email protocol).

The component of Microsoft Exchange that handles SMTP is called the Internet Mail Connector (for Exchange 4.0) or the Internet Mail Service (for Exchange 5.x). For information please consult your Exchange documentation. Additional information may be found at http://www.swinc.com/resource/exch_smtp.htm

Password, Changing

If you wish to change your own password, point your browser to the FMS webadmin home page and select the Configure/Your Account link.

If you have FMS Administrator privileges then you can change any user's password by pointing your browser to the FMS webadmin home page and selecting the Configure/User Accounts link and then selecting the appropriate user.

Password (admin), Removing

If the only FMS administrator has forgotten his password then the only option is for the system administrator (i.e. root user for the system on which FMS has been installed) to temporarily delete the password and have the FMS Administrator immediately assign a replacement password.

1. Locate the FMS users file. By default this file is located in /etc/opt/faximum/users but can be relocated anywhere. If the file is not in this location then examine the fms-config-directory parameter in the /etc/opt/faximum/faximum.conf file to determine the name of the directory that contains the users file.
2. Edit the file (as the root user) and remove the password parameter for the [admin] entry.

Pauses, Inserting (when dialling)

Pauses that are to be dialled with all numbers (i.e. as part of access codes) are specified by adding commas (e.g. ",") to the dial-prefix or dial-suffix parameters as explained in "Access Codes, Dialling" on page 26.

Ad hoc pauses that are to be added to a fax number specified in an email address are problematic since commas are not permitted as characters in email addresses. To address this issue, the FMS gateway will translate two or more periods (e.g. ".") that appear contiguously in an email address into a sequence of commas. The number of commas inserted will be one less than the number of periods.

Port Number, Changing the Webadmin

As described elsewhere ("Faximum Messaging Server, Administering a" on page 42) you access the webadmin functions of FMS by pointing your browser to the FMS server at port 7437 (i.e. http://yourserver.com:7437/). This port number was chosen since it is assigned to Faximum Software by IANA and therefore is unlikely to collide with any other use.

If, for whatever reason, you need to change the port number used by FMS then you will need to follow these steps:

1. Terminate the *fms-httpd* daemon by typing (as root):
   ```
   /opt/faximum/etc/init.d.script stop
   ```
2. Edit the /etc/opt/faximum/faximum.conf file and change the following parameter appropriately:
   ```
   fms-httpd-port = 7437
   ```
3. Restart the fms-httpd daemon by typing (as root):
   ```
   /opt/faximum/etc/init.d.script stop
   ```

Postfix

Postfix is a popular email server package written by Wietse Venema and originally called the IBM Secure Mailer (see http://www.postfix.org/).

Postfix is the underlying MTA (Mail Transfer Agent) for the Caldera Volution Messaging Server (http://www.caldera.com/products/volutionmsg/) and the SuSE eMail Server III (http://www.suse.com/us/products/suse_business/email_server/index.html).

FMS is designed to work with Postfix and will recognise and configure Postfix MTAs appropriately (see “Email Server Configuration Options” on page 190 and “Configure Email Server” on page 193).

Received Faxes, Annotating

In order to annotate received faxes you will need a fax viewer that supporting annotation. Currently only the *Imaging for Windows* viewer supports annotations (see “Fax Viewer (Windows 9x & NT), Installing & Using” on page 38).

NOTE - if you wish to fax an image that has been annotated using the *Imaging for Windows* viewer you must select the *Make Annotations Permanent* option from the *Annotation* pull-down menu or else your annotations will not appear when you fax the image.

Received Faxes, Automatic Routing of **(FMS+PLUS ONLY)**

The Faximum Messaging Server supports the automatic routing of received faxes by assigning a unique fax phone number to each user that needs to receive faxes directly and automatically. When someone wishes to send a fax directory to that user, he merely send the fax to the unique fax phone number assigned to that user.

At the FMS system either DID or ISDN technology is used to enable multiple unique phone numbers to be carried over a single phone line. In this manner it appears that your organisation has a separate fax line and machine for each user when, in fact, you may have only one (DID or ISDN) line.

Do not feel, however, that it is necessary to have DID or ISDN in order to use FMS to efficiently receive and route faxes. Manual fax routing (described in the next section) is much much faster than having to handle printed faxes and distribute them by hand. Indeed, it is possible to use FMS to manually route five to ten received faxes per minute! And with FMS the administrator can enable everyone in the group to look at the cover page (only) of unclaimed faxes so that someone expecting a fax can obtain it immediately without having to wait for someone to route it -- all with more security than is possible with a standard fax machine.

DID Fax Routing (FMS+PLUS ONLY)

In short, DID (a.k.a. Direct Inward Dialling) enables you to assign each user his or her own unique fax phone number without having to pay for separate phone line for each user.

In many areas one can obtain a special type of telephone line (a.k.a. trunk) called an analog DID line (trunk). With a DID line it is possible to have many different phone numbers associated with the trunk. When someone dials any of the numbers associated with the DID line the telephone central office (C.O.) sends a special signal down the DID indicating the number that was dialled. FMS (when configured with the proper modem and hardware) receives this information and looks up in the user accounts (see "User Account, Adding/Modifying a" on page 75) to see which user(s) are associated with that DID number and routes the received fax accordingly.

So with a DID trunk one only has to pay for a single phone line (albeit usually more expensive that a standard analog phone line) yet is able to assign a unique fax number to as many of your users who warrant it.

With the Faximum Messaging Server there are two ways to arrange for faxes to be routed to an individual based on the DID number dialed:

- you can associate specific DID numbers with one or more users by entering the DID number along with the user's name and email address in the FMS user database (see "User Account, Adding/Modifying a" on page 75);
- you can arrange for all received faxes to be passed to a shell script (along with the DID number associated with the received fax). The shell script can then perform any manner of database lookup or query to obtain the email address of the intended recipient which is then passed to *swiiftfeg* to deliver the fax ("Fax Routing Using Shell Scripts (FMS+PLUS only)" on page 58).

The advantage of the first method is that for smaller groups of users the web-based administrative tool makes it easy to manage users and their DID numbers.

The advantage of the second method is that for larger groups of users the ability to use an existing LDAP directory or other database (even a flat file) to store the DID numbers and related email addresses.

FMS administrators who wish to configure their system to handle DID ought to contact their reseller or Faximum Technical Support for further information. Since special modems and/or hardware is required to support DID, you

ought to contact Faximum prior to ordering your fax modems and phone lines.

Special Note to FMS+PLUS Users

If you are using FMS on top of Faximum PLUS or Faximum Client/Server and you wish to use the first method outlined above (using the FMS user database) then you must configure your Faximum PLUS or Faximum Client/Server product to pass all received faxes to the FMS dispatch program.

Configuring FMG with the Faximum Client/Server

If you are using the FMS+PLUS with the Faximum Client/Server and you wish to use the FMS User Database (as opposed to using a shell script to route your received faxes) you need to:

- define an *action* that will call the FMS dispatch program (you may need to adjust the pathname in the example below to match the location of your FMS software):

  ```
  /opt/faximum/fms/lib/dispatch
  ```

- specify that all faxes that arrive are to be passed to this script by registering for a TSI of * (i.e. the wildcard that will match all TSI values).

More information on this may be found in the on-line help under the topic *Incoming Fax Routing* in the *Receiving a Fax* section.

Configuring Faximum PLUS

If you are using the FMS with Faximum PLUS and you wish to use the FMS User Database (as opposed to using a shell script to route your received faxes) you need to:

- define an entry in the *Action* database that will call the FMS dispatch program (you may need to adjust the pathname in the example below to match the location of your FMS software):

  ```
  /opt/faximum/fms/lib/dispatch
  ```

- specify that all faxes that arrive are to be passed to this script by adding a record in the *Dispatch* database that will invoke the *Action* you have just defined whenever any fax arrives. This record would have an asterisk (* - the wildcard) in all fields except that *Dispatch Name* and *Action* fields.

More information on this may be found in the *Reference Manual* in Chapter 2 under the topics *Action Database* and *Dispatch Database*.

ISDN Fax Routing (FMS+PLUS ONLY)

In some areas it is possible to obtain an ISDN line with multiple directory numbers (a.k.a. DNs). When a call is received on the ISDN line a special message is sent indicating the DN that was used. This information is used by the FMS to determine the user that ought to receive the fax.

This mechanism is similar to using DID as described above. The choice between ISDN and DID will often depend on what is available from your telephone company. In cases in which both are available, frequently DID is more cost-effective for larger numbers of users while ISDN with multiple DNs more economical for smaller numbers.

For more information on how FMS associates a specific ISDN DN with a user or group of users, please see "User Account, Adding/Modifying a" on page 75.

FMS administrators who wish to configure their system to handle ISDN ought to contact their reseller or Faximum Technical Support for further information. Since special modems and/or hardware is required to support ISDN, you ought to contact Faximum prior to ordering your fax modems or ISDN lines.

Fax Routing Using Shell Scripts (FMS+PLUS ONLY)

As mentioned above, one of the methods available for the automatic routing of faxes using DID is to have the Faximum fax server pass all received faxes to a shell script along with the DID number associated with the received fax and leave it to the shell script to look up the associated DID number.

To configure this approach you need to:

- configure the fax server to pass all faxes to your script
- write the script

The method to configure the fax server depends on the fax server you are using:

Configuring Faximum Client/Server

With the Faximum Client/Server you need to:

- define an *action* which will call your shell script and pass it the name of the TIFF file that contains the received fax as well as the DID number (for example:

```
/opt/faxscripts/route $did $file
```

- specify that all faxes that arrive are to be passed to this script by registering for a TSI of * (i.e. the wildcard that will match all TSI values).

More information on this may be found in the on-line help under the topic *Incoming Fax Routing* in the *Receiving a Fax* section.

Configuring Faximum PLUS

With the Faximum PLUS you need to:

- define an *action* which will call your shell script and pass it the name of the TIFF file that contains the received fax as well as the DID number (for example:

  ```
  /opt/faxscripts/route $did $file
  ```

- specify that all faxes that arrive are to be passed to this script by adding a record in the *Dispatch* database that will invoke the *Action* you have just defined whenever any fax arrives. This record would have an asterisk (* - the wildcard) in all fields except that *Dispatch Name* and *Action* fields.

More information on this may be found in the *Reference Manual* in Chapter 2 under the topics *Action Database* and *Dispatch Database*.

Configuring Faximum Messaging Server

With FMS you need to pick or add a user in the user database ("User Account, Adding/Modifying a" on page 75) and:

- enter the path name of your shell script in the *Delivery Program* field and pass it the name of the TIFF file that contains the received fax as well as the DID number (for example:

  ```
  /opt/faxscripts/route $did $file
  ```

- specify that all faxes that arrive are to be passed to this script by putting an asterisk (* - the wildcard) into the *DID Number* field.

Writing the Fax Routing Script

The next step is to write the script that will look up the email address associated with the DID number and deliver the received fax. Obviously the exact approach used will depend on the method you wish to use to look up the email address. In the example below we assume that the file /var/faximum/did-table is a flat file with two fields, the first being the DID number and the second being the email address (with spaces separating the two fields). For example:

```
4108  joe@company.com
4109  jill@company.com
```

A simple script to handle this type of DID lookup might be written as follows:

```
# Simple Fax Routing Script
#
# - look up the DID number
a=`grep "^$1" /var/faximum/did-table`
#
#  - if there was no match then send it to the "fax-
manager"
if [ "${a}X" = X ]
then
  addr=faxmanager@company.com
else
  addr=`expr "$a" : '[0-9]* *\(.*\)'`
fi
/opt/faximum/fms/lib/swiiftefg -a $addr $2
#
# - log the details so we can keep track of what has
happened
echo `date` $1 $2 $addr
#
# - create a backup copy of all faxes just in case
mv $2 /tmp
```

Obviously you will need to change faxmanager@company.com to the name of the person you wish to receive all "unroutable" faxes.

Take care when copying this script to make sure you accurately transcribe the three different types of quotation marks (`'") used in this script.

If you have problems trying to get the script to work you can obtain a trace of its operation by adding the following lines at the start of the script:

```
#!/bin/sh
exec > /tmp/dbg.$$ 2>&1
set -x
```

This will cause a detailed record of everything executed in the script to be written to a file in the /tmp directory in files that start with dbg. An examination of these files ought to shed light on the problem. If not, send the trace(s) to Faximum Technical Support for analysis.

Received Faxes, Handling

The Faximum Messaging Server can be configured in four different ways to handle incoming faxes:

1. not to receive faxes at all

   With this configuration the fax modems are not enable to receive and will ignore any incoming calls. This will also result in slightly faster sending of faxes since the fax scheduler does not need to tell the faxgetty daemon to release the modem for transmission each time it goes to send a fax.

2. to receive faxes and place them all in the unclaimed inbox

   If neither form (see below) of automatic fax routing is available then FMS will place all received faxes into the unclaimed inbox. Any user with postmaster privilege (see "User Account, Adding/Modifying a" on page 75) can browse the faxes in the unclaimed inbox and route them to the intended recipient.

3. to receive faxes and route them based on DID number **(FMS+PLUS ONLY)**

   In short, DID (a.k.a. Direct Inward Dialling) enables you to assign each user his or her own unique fax phone number without having to pay for separate phone line for each user. Please see the next section ("Received Faxes, Automatic Routing of (FMS+PLUS only)" on page 55) for more information. NOTE this feature is only available with FMS+PLUS.

4. to receive faxes and route them based on multiple ISDN DN numbers

   ISDN routing is the same as DID routing described above except using digital (i.e. ISDN) phone lines instead of analog phone lines. See also below.

Received Faxes, Manual Routing of

Faxes that are received on FMS systems that do not have automatic routing (see above), or faxes that are received on system that have automatic routing but which cannot be associated to any specific user, are placed in an inbox known as *unclaimed*.

Any user with *postmaster* privileges (see "User Account, Adding/Modifying a" on page 75) can:

- view a list of the faxes in the unclaimed inbox;

- view the first page of any fax;
- delete any fax; and
- route (i.e. email) any fax to any user.

To view a list of the *unclaimed* faxes, point your web browser at the FMS system (see "Faximum Messaging Server, Administering a" on page 42) and select the Route Received Faxes link. This will display a page listing the faxes in the *unclaimed* inbox.

From this list you can select to view or delete any fax.

When you have selected the view link, the first page of the fax will be displayed. From this page you can:

- enlarge the view of the fax;
- rotate the view of the fax;
- delete the fax; and
- route (i.e. email the fax).

In order to maintain the confidentiality of received faxes you will only be able to view the first page of the fax.

Received Faxes, Routing of

The FMS software can be configured to support automatic or manual routing. For more information on fax routing contact your FMS system administrator (or see "Received Faxes, Routing of" on page 62).

Received Faxes, Viewing

In order to view received faxes you will need (a) an image viewer and (b) and email program that is configured to use that viewer to display fax (i.e. .tif) attachments. Different operating systems have different viewers available. Please see the appropriate section depending on your platform (see Fax Viewers on pages 36-38).

With the FMS+PLUS product (see “Faximum Messaging Server + PLUS” on page 87) you can also view your received faxes using any web browser.

Resolution, Setting Fax

All faxes sent by the FMS system are sent at the resolution set in the system configuration parameters (see “System Configuration” on page 195).

SCO Merge Installation

(SCO OPENSERVER/UNIXWARE ONLY)

SCO Merge is only available for SCO OpenServer and SCO UnixWare. Faximum is monitoring the progress of the Linux Wine project and hopes to be able to provide comparable functionality for Linux users sometime in the future.

Background

You do not need to install SCO Merge unless you want to be able to handle file attachments in formats other than ASCII text and TIFF. And you can install it at any time. We recommend that you wait until you have finished testing the basic operation of the FMS before proceeding to install, configure, and test SCO Merge (if you decide to install it at all).

The basic FMS installation can accept email messages with text or TIFF attachments and convert them into fax format and send them to a fax machine.

Some of your users may wish to attach files in formats other than ASCII or TIFF. For example, they may wish to be able to fax documents that they have created in (say) Microsoft Word.

For these users there are two approaches available:

- you can install SCO Merge to enable FMS to convert Microsoft Word documents that are attached to email messages sent to the FMS; or

- the user can install the FMS Print Driver and convert his Microsoft Word (or other documents) into TIFF format on his desktop before sending the resulting TIFF file to the FMS for delivery by fax.

For more information on these two approaches please see “Files, Faxing” on page 48.

In short, if you want your users to be able to attach Microsoft Word and other proprietary file formats to the messages they transmit via the FMS, you must install SCO Merge.

On the other hand, if your users are willing to install the FMS Print Driver on their systems and use it to fax Microsoft Word (and other proprietary file formats) then you need not install SCO Merge.

Obviously, this is not a decision that needs to be made immediately.

You can obtain a free 60-day evaluation copy of SCO Merge to use with your Faximum Messaging Server by visiting the Caldera website.

To purchase a permanent licence to SCO Merge please contact your Caldera (SCO) reseller.

SCO Merge Installation

(SCO OPENSERVER/UNIXWARE ONLY)

There are three major steps to installing SCO Merge so that it can be used by the FMS to convert attachments.

1. Install SCO Merge
2. Install the Faximum Windows File Conversion Daemon (WFCD)
3. Install the Appropriate File Viewers

Install SCO Merge

Install SCO Merge according to the instructions that accompany the software. As mentioned above, you can obtain a free 60-day evaluation copy of SCO Merge from SCO’s web site. After the SCO Merge software itself is installed, then you must log on as a non-root user and run SCO Merge in order to install the WFCD.

Install the WFCD

The Faximum Windows File Conversion Daemon (WFCD) is a program that is installed under SCO Merge and that handles the communications between the FMS and the Windows 95 File Viewers.

To install this program you need to copy the WFCD.EXE file from the /opt/faximum/fms/mswin directory (or download it from http://www.faximum.com/fms/wfcd) and place it in a directory that is visible from within SCO Merge.

Then run the program (using either Windows Explorer or by selecting the "Run" option from the "Start" menu).

Install the File Viewers

In order to actually convert files into fax format you will need to install the appropriate file viewer.

TABLE 3. WFCD File Support

File Type	File Extension	File Viewer
Adobe Acrobat (PDF–Portable Document Format)	.pdf	Adobe Acrobat Reader
Hypertext Markup Language (HTML–the file format for web pages)	.htm .html	Microsoft Internet Explorer
Microsoft Excel	.xls	Microsoft Excel File Viewer
Microsoft PowerPoint	.ppt	Microsoft PowerPoint File Viewer
Microsoft Word	.doc	Microsoft Word Viewer

With the exception of Microsoft Internet Explorer which is automatically installed when you install Windows 95 under SCO Merge, all of the other file viewers must be installed before the WFCD can handle the associated file format.

Additional information on how to tell FMS that a particular viewer is installed and available may be found in "Mime Types File" on page 104.

The viewers listed above are available from the Adobe and Microsoft websites.

SCO Merge Configuration

(SCO OPENSERVER/UNIXWARE ONLY)

In order to have the SCO Merge software properly (and reliably) work with the FMS it is necessary to change two of the default configuration parameters for SCO Merge.

SCO Merge Default Parameters

In order that the FMS can monitor the operation of SCO Merge and detect when Microsoft Windows hangs or crashes it is necessary for SCO Merge to run in the foreground. By default, SCO Merge will put itself in the background making it impossible to reliably detect failures. To change this default behaviour you will need to edit the file /etc/default/merge and change the parameter:

```
MERGE_AUTOBACKGROUND=on
```

to read

```
MERGE_AUTOBACKGROUND=off
```

SCO Merge X11 Font Server Configuration

When SCO Merge is installed it makes changes to the X11 Font Server configuration file. Unfortunately there is a bug that causes SCO Merge to crash regularly if this change is left in the X11 Font Server configuration file.

To restore the X11 Font Server configuration file to its original (pre-SCO Merge) form, enter the following commands while logged onto your SCO system as root.

```
cd /usr/lib/X11/fs
mv config config.new
cp config.mrgbak config
```

SCO Merge Operation

(SCO OPENSERVER/UNIXWARE ONLY)

In order for the FMS to be able to utilise the file viewers under SCO Merge, SCO Merge (and the WFCD) must be running continuously. Unfortunately the current release of SCO Merge cannot be run in the background and must be executing on

the console (or an X11 terminal). This means that you will need to log on to your console and run SCO Merge (and leave it running forever) in order for the FMS to be able to access SCO Merge and the WFCD.

While you can run SCO Merge merely by typing win, the problem is that neither SCO Merge nor Windows 95 is particularly stable. For this reason Faximum provides a program that will run SCO Merge and monitor both SCO Merge as well as Windows 95 and the WFCD utility. If a failure is detected with any of these components the monitor program will terminate SCO Merge and restart it. To invoke the monitor program and have it run SCO Merge and keep an eye on it, type:

```
/opt/faximum/lib/mergemon
```

Security

There are a couple of areas of concern with the security of the operation of the Faximum Messaging Server.

Controlling Access to the Fax Delivery Services of the FMS

Since the FMS can incur long distance phone charges when delivering messages by fax it is important to prevent unauthorised users from using your FMS to delivery their messages.

The details of how to configure the FMS to limit access to the FMS message delivery functions is described in “Access, Controlling” on page 26.

It is important to understand that it is possible for unauthorised users to fool the FMS into thinking it is handling a message from an authorised user since it is not difficult to spoof the *From* address of an email message. In order to prevent unauthorised users from accessing your FMS server you may need to configure your email network to prevent unauthorised or external users from being able to send email that can reach your FMS server.

Faximum Software is also working to support S/MIME and other forms of email authentication. Contact Faximum Software if this feature is of interest.

Sendmail

Sendmail is a very popular MTA (mail transfer agent) for UNIX written originally by Eric Allman. Since sendmail is the standard MTA on most UNIX and Linux systems, the Faximum Messaging Server products are designed (but not exclusively tied) to work closely with sendmail.

More information on sendmail may be obtained from the Sendmail company (http://www.sendmail.com/) and the Sendmail Consortium (http://www.sendmail.org/).

O'Reilly and Associates (www.ora.com) have published the definitive book on sendmail, **sendmail,** 2nd Edition By Bryan Costales & Eric Allman 2nd Edition, January 1997, ISBN 1-56592-222-0 (see http://www.oreilly.com/catalog/sendmail2/).

Sendmail, Locating

Running some of the tests (e.g. "Testing Sendmail Manually" on page 71) described in this manual requires you to run the sendmail program manually. To do this you need to know the pathname of your sendmail command. On systems (such as Linux) that support the whereis command you can ask your system:

```
whereis sendmail

sendmail: /usr/sbin/sendmail /etc/sendmail.cf /etc/sendmail.cw
/etc/sendmail.mc /usr/lib/sendmail /usr/lib/sendmail.hf /usr/man/man8/sendmail.8
```

Note that this command will return all files related to sendmail. The first one is usually the executable file (/usr/sbin/sendmail in this case). You can verify that this file is sendmail by running the following command:

```
/usr/sbin/sendmail -bv postmaster
```

The proper response is something like:

```
root... deliverable: mailer local, user root
```

An error response that indicates that your pathname for sendmail is wrong would be something like:

```
/usr/sbin/sendmail: No such file or directory
```

If you do not have access to the whereis command you may have to go looking for sendmail the hardway, by using the ls command. Try the following commands to see which one(s) reveal sendmail's location on your machine:

```
ls -l /usr/bin/sendmail
ls -l /usr/sbin/sendmail
ls -l /usr/lib/sendmail
ls -l /etc/sendmail
ls -l /lib/sendmail
```

If you guess wrong your response will be similar to:

```
ls: /bin/sendmail: No such file or directory
```

If you have found it, ls will report something like:

```
-rwsr-sr-x   1 root     root     299364 Apr 19  1999 /usr/sbin/sendmail
```

or perhaps:

```
lrwxrwxrwx   1 root  root 39 Apr 10  1995 /usr/lib/sendmail -> /opt/K/SCO/Send-
Mail/8.6.8g/lib/sendmail
```

Sendmail, Testing for

Testing for Sendmail Through the Webadmin Interface

You can test your email server by:

1. browsing the FMS webadmin interface (see "Faximum Messaging Server, Administering a" on page 42)
2. clicking on Configure / Email Server (see "Email Server Configuration Options" on page 190)
3. clicking on Test Email Configuration

This will display information on which email server you are using (sendmail or Postfix), at least as far as FMS can determine.

It is possible to configure sendmail and Postfix to mask their identity in which case not only with FMS be unable to identify them, it will be unable to configure them to work with FMS. In this case you will need to contact support@faximum.com for assistance.

Testing Sendmail Manually

If you want to verify if your (or any) server is running sendmail (and to determine the version), merely connect to that server on port 25 using telnet. For example, run the following command (either from UNIX or Windows):

```
telnet engg3.faximum.com 25
```

If the server is running sendmail then the response will be of the form:

```
220-engg3.faximum.com Sendmail 8.6.8 ready at Tue, 29 Feb 2000 04:07:30
220 ESMTP spoken here
```

To close the session, merely type QUIT

Sendmail.cf

The sendmail.cf file is the configuration file for the *sendmail* MTA (see “Sendmail” on page 68). This file tells *sendmail* how to recognise and process email addresses. This file is modified during the installation of the Faximum Messaging software so that *sendmail* will recognise email intended to be passed to the Faximum Messaging software for delivery by fax.

See also:

- “Sendmail” on page 68

Sendmail.cf, Testing Changes

It is possible to test the changes to your sendmail.cf file necessary to support the Faximum Messaging software.

Testing Sendmail Through the Webadmin Interface

You can test that your sendmail server has been properly configured to handle email addresses containing a FAX= component by:

1. browsing the FMS webadmin interface (see "Faximum Messaging Server, Administering a" on page 42)
2. clicking on Configure / Email Server (see "Email Server Configuration Options" on page 190)
3. clicking on Test Email Configuration

The result ought to be as shown in "Email Server Test Results" on page 192

Testing Sendmail Manually

If your prefer, you can run similar tests to those available through the webadmin interface by running sendmail manually as shown below. (See also "Sendmail, Locating" on page 68

The simplest test is to run the sendmail address verify test by type a command similar to:

```
/usr/lib/sendmail -bv fax=1@engg3.faximum.com
```

where engg3faximum.com is replaced by the domain name of your fax server. If the sendmail.cf file has been properly edited, the response will be similar to the following:

```
fax=1@engg3.faximum.com... deliverable: mailer faximum, host engg3.faxi-
mum.com,
```

Note in particular the part that says deliverable: mailer faximum. If it says deliverable: mailer smtp or mailer esmtp then the sendmail.cf file is not correct!

Another response that may be seen is:

```
fax=1@engg3.faximum.com... User unknown.
```

This is also an indication that the sendmail.cf file has not been properly modified to support FMS.

A more advanced test is to run sendmail in the address test mode by typing:

```
   ./sendmail -bt
ADDRESS TEST MODE (ruleset 3 NOT automatically invoked)
Enter <ruleset> <address>
> ?
> 3,0 fax=1@engg3.faximum.com
```

This will cause sendmail to produce output similar to the following:

```
rewrite: ruleset  3   input: fax = 1 @ engg3 . faximum . com
rewrite: ruleset  9   input: fax = 1 @ engg3 . faximum . com
rewrite: ruleset  9 returns: fax = 1 @ engg3 . faximum . com
rewrite: ruleset  6   input: fax = 1 < @ engg3 . faximum . com >
rewrite: ruleset  6 returns: fax = 1 < @ engg3 . faximum . com >
rewrite: ruleset  3 returns: fax = 1 < @ engg3 . faximum . com >
rewrite: ruleset  0   input: fax = 1 < @ engg3 . faximum . com >
rewrite: ruleset  0 returns: $# faximum $@ engg3 . faximum . com $: FAX = 1
```

If the last line includes the component `$# faximum` then your sendmail.cf is working fine. Otherwise contact Faximum Technical Support.

Serial Port, Configuration

There is no specific configuration you need to perform on the serial port you are using to connect the fax modem to your server. The port must be disabled for logins but this will be done automatically when you configure the FMS fax line (see “Fax Line Update” on page 198).

Simple Mail Transport Protocol

See “SMTP” on page 73.

SMTP

SMTP (Simple Mail Transport Protocol) is the underlying protocol for exchanging email on the Internet. More detailed information on the protocol may be found at http://www.imc.org/.

Software Activation Key

Before the FMS software will send and receive messages you must install an FMS software licence key. This key is obtained either from your reseller (if you have purchased FMS) or from Faximum Software itself (if you are evaluating the software).

Once you have the key you must put it into your key file. This is done by pointing your web browser at your FMS system (see "Faximum Messaging Server, Administering a" on page 42) and selecting the FMS Licence Update link.

This will verify your user name and password (you must have *administrator* privileges, see "User Account, Adding/Modifying a" on page 75) and display your current licence file (see "Software Activation Keys" on page 203). Add your new licence to this file and press the Update button.

Alternatively, you can edit the /etc/faximum.lic file on your FMS system directly.

Should you decide to add users or fax lines to your server in future you will also need to obtain a licence key to activate them.

Spool Directory, Locating

By default the transient files related to the FMS product are stored in /var/opt/faximum. This directory is specified by the spool-directory parameter in the /etc/opt/faximum/faximum.conf file.

For more information on the contents of the FMS spool directory, see "/var/opt/faximum" on page 95.

Spool Files, Housekeeping

On most systems the script /opt/faximum/lib/faximum.daily will be run once a day and handles the removal of old queue files and archiving of log files. If you wish to change how long such files are kept then you will need to edit this script directly.

Support, Obtaining

Faximum Software provides several levels of Technical Support. For a list of the current offerings please see http://www.faximum.com/support/policy or call Faximum Software at (604) 925-3600.

Faximum also maintains a database of common problems and their solution which is available at http://www.faximum.com/support/technotes

If you have a suggestion for a product improvement or think you have found a bug in our software please let us know (regardless of whether you have a Technical Support Contract or not). You can send such messages by email to support@faximum.com or by fax to (604) 926-8182.

SWIIFT

The product formerly known as SWIIFT (Suite of Web Intranet/Internet Fax Tools) has been renamed the Faximum Messaging Server+PLUS. For more information on the FMS and FMS+PLUS products please see "Faximum Messaging Server + PLUS" on page 87.

System Log, Viewing

The system log contains an entry for every significant event on the FMS system. The system log can either be viewed using your web browser by pointing it at the FMS system (see "Faximum Messaging Server, Administering a" on page 42) and selecting the View / System Log link, or directly on the FMS system by accessing the log file in the FMS spool directory (/var/spool/faximum by default).

The system log webpage is shown in "System Log" on page 186.

TIFF-F Files

TIFF-F files are a type of TIFF image file designed to store faxes. For more detailed information include the TIFF standard itself, please browse http://www.faximum.com/tiff-f

For more information on testing TIFF-F files to see if they are compatible with the Faximum Messaging Software, please see TechNote #071 (browse http://www.faximum.com/technotes/071).

User Account, Adding/Modifying a

For every user that will be permitted to send or receive faxes using the FMS there needs to be an entry in the FMS user database. The table below outlines the information required for each user.

TABLE 4. User Configuration Information Worksheet

Parameter	Fill in Your Value
Account Name (short user name)	
Full Name (user's full name)	
Password	
Email Address for Sending Faxes	
Email Address for Delivering Faxes	

TABLE 4. User Configuration Information Worksheet

Parameter	Fill in Your Value
Privileges (Administrator/Postmaster)	
Email Format (Plain/HTML)	

To update the user database, browser your FMS system (see "Faximum Messaging Server, Administering a" on page 42) and select the Configure / User Accounts link. This will bring up the webpage shown and explained in "Update User" on page 202.

User Privileges

When defining a new user (see "User Account, Adding/Modifying a" on page 75 and "Update User" on page 202) there are two privileges that can be granted:

Administrator Privilege

This privilege enables a user to access all of the system configuration options through the webadmin interface.

Postmaster Privilege

This privilege enables a user to access the View / Unrouted Received Faxes link on the webadmin interface which permits the viewing of received faxes and routing them to the appropriate users (when using manual fax routing, see "Received Faxes, Manual Routing of" on page 61).

Version Information, Viewing Software

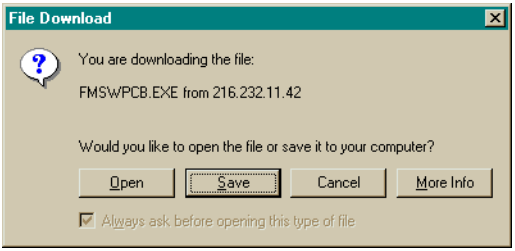
To obtain information on the current version of the FMS software you are using, please point your web browser to the FMS system (see "Faximum Messaging Server, Administering a" on page 42) and select the View / Software Version link.

This will produce the screen shown in “Software Version” on page 188.

Windows Print Driver, Downloading and Installing

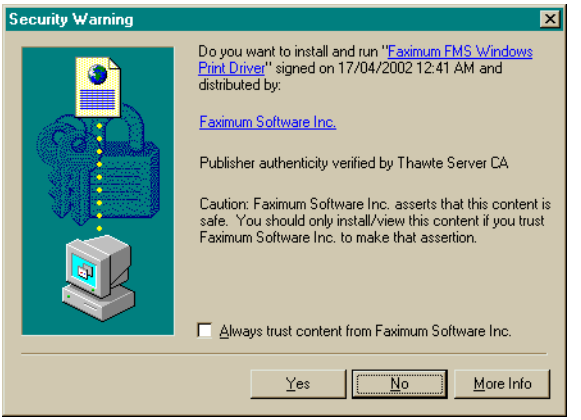
As mentioned elsewhere (see “Background” on page 63 and “Files, Faxing” on page 48) an alternative method for faxing Microsoft Word (and other MS Windows) is to install the Faximum Messaging Server Print Driver on your Windows desktop system. This will allow you to “print to fax” from any Windows application and have the resulting “printed” output faxed by the FMS server.

You can download and install the FMS Windows Print driver from the FMS webadmin interface by clicking on the Download / Windows Print Driver link. Once you have selected the source of the driver package (either your local server or the Faximum webserver) and clicked on the appropriate link you will be presented with a dialog box similar to the following (this is from Internet Explorer):

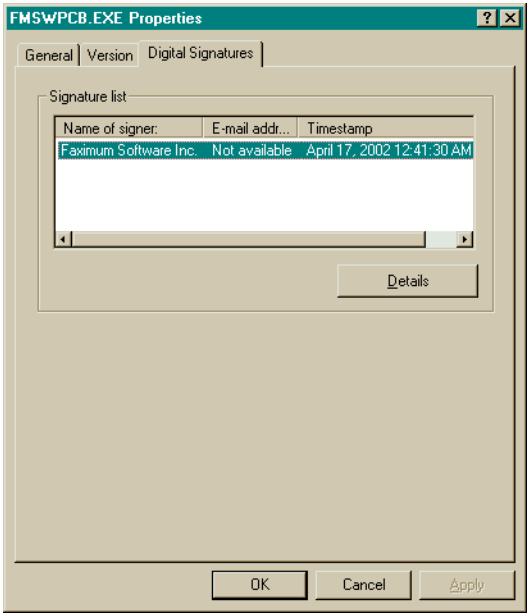


If you select the Open button from the above dialog then (again, with Internet Explorer) you ought to see the following dialog box which verifies that the pack-

age you are about to download and install has been signed by Faximum Software Inc.



If you are using a different browser you may not see the above message but if you download the FMSWPCB.EXE driver installation package you can later verify that it has been signed by Faximum Software by using *Windows Explorer*, selecting the FMSWPCB.EXE file, click on the *File:Properties* menu item, and then selecting the *Digital Signatures* tab. This ought to show something similar to the following (the timestamp may vary):



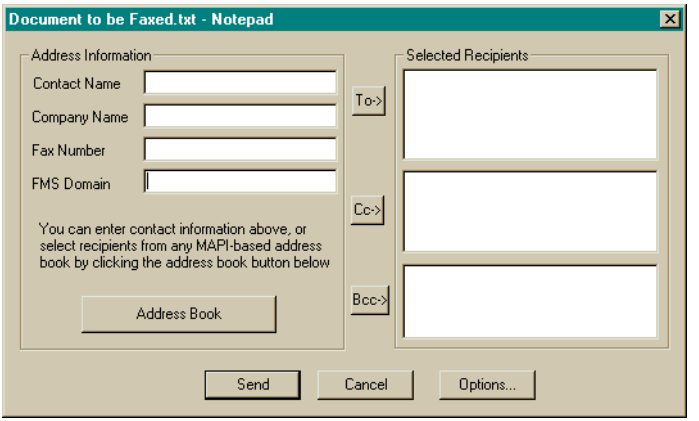
Windows Print Driver, Using the

Once you have download and installed the FMS Windows Print Driver (see above) you can then “print to fax” from any Windows application.

From your application, bring up the printer dialog (usually by selecting “Print Setup...” or “Print...” or “Page Setup...” from the “File” menu of your application) and selecting the FaximumMS printer.

Then print.

This ought to bring up a dialog box similar to the following:



If you do not see this it may be that it has appeared *underneath* another one of your windows and you will need to select this window from your task bar.

You can either:

- enter an ad hoc recipient by completing the Contact Name, Company Name, Fax Number, and FMS Domain fields,and click on the To, CC, or Bcc button (depending on which recipient list you want this recipient to appear) or;
- you can click on Address Book (if you have an address book maintained by Outlook or another MAPI-compliant email program) and select an entry from there.

You can add as many ad hoc recipients as you wish. You need not enter a Contact or Company Name, only a fax number is required.

A Note on the FMS Domain

This field is the domain name your system administrator has told you to use for all email messages that are to be delivered by FMS.

"Your Company Name Here", Changing

See "Company Identification Parameters (FMS Only)" on page 47.

CHAPTER 4

Troubleshooting

Should you experience problems with the operation of the Faximum Messaging Server there are a number of steps you can take to diagnose and correct the problem depending on your level of comfort with the technical issues involved.

Sending Your Support Provider Essential Information

While the first step is to contact your reseller, it will help them immeasurably to provide them with some background information on your system. You can do this by logging on to your FMS server as root and running the following command:

```
/opt/faximum/lib/diagnostic.sh reseller@company.com
```

where reseller@company.com is replaced by the email address of your reseller. This will cause a summary of information about your FMS software and its recent operations to be emailed to your reseller. This will assist them immeasurably in diagnosing the cause of the problem and in suggesting a solution. Be sure to follow-up this message with another explaining the nature of the problem you are experiencing (so that your reseller understands the reason for receiving this diagnostic information).

If you are evaluating the software or have a Support Contract with Faximum Software then you may send this diagnostic information to support@faximum.com

Diagnosing the Problem

If you wish to diagnose the cause of your problem yourself then the place to start is the system log (see “System Log, Viewing” on page 75).

The FMS system log will record many of the problems that might affect your FMS system. If the cause of the problem is not obvious from the system log then please contact your reseller for assistance.

Unable to View System Log

If you are unable to view the system log because attempts to browse the FMS system fail (i.e. unable to successfully point your browser to http://fax.company.com where fax.company.com is replaced by your FMS domain name) then this indicates:

- the FMS web server is not running (see “FMS Web Server Not Running” on page 84); or
- your domain name server has not been properly configured to resolve the FMS domain name (see “FMS Domain Name Not Being Resolved” on page 85).

FMS Web Server Not Running

Before the FMS system will respond to requests from your web browser you must have started the FMS web server. This is one of the FMS daemons that is normally started when your system is rebooted. You can also start the daemons manually (see “Daemons, Starting and Stopping” on page 31).

If you have rebooted your system or started the FMS daemons manually and yet still cannot access the FMS web server then verify that the FMS web server by running the following command (as *root*) on the FMS system:

```
ps -ea | grep fms-httpd
```

If you do not see the fms-httpd process then something is preventing the FMS web server from running.

Please see techNote #235 (available at www.faximum.com/technotes/235) for guidance on resolving this problem.

This problem may also require assistance from Faximum Technical Support. If you are unable to resolve the problem after following the steps in TN#235, please email the diagnostic information described at the beginning of this page to support@faximum.com

FMS Domain Name Not Being Resolved

This problem will only arise if you have configured FMS to operate as a stand-alone SMTP server (please see "Faximum Messaging Software as an SMTP Server, Configuring" on page 45).

As mentioned in the chapter on installing FMS you not only need to pick a unique network name for the Faximum Messaging Server but you must also make sure that whatever method your network uses for resolving network names (/etc/hosts files, DNS, NIS, etc.) is properly configured to resolve the FMS Domain Name you have chosen.

To verify if this has been done successfully, try running the following command on any UNIX or Windows (from the MS-DOS window) system on your network:

```
ping fax.company.com
```

where fax.company.com has been replaced by the FMS Domain Name you have picked (and used during installation). You ought to get a response similar to:

```
Reply from 204.174.3.1: bytes=32 time=54ms
```

If you receive an error such as "Bad IP Address" or something similar then the problem is with your network and you will need to work with your network administrator to ensure that your network is properly configured so that your FMS Domain Name can be resolved.

Manually Inspecting the Log

If you are unable to use your web browser to access the FMS system log then you can, from a shell window on your FMS system, look at the file directly by changing into the /var/opt/faximum directory and examing the file named log.

CHAPTER 5

Faximum Messaging Server + PLUS

The Faximum Messaging Software can be installed in two ways:

- as a stand-alone email/fax gateway and fax server combination (called the Faximum Messaging Server); and
- as a combination of the FMS and Faximum PLUS products (called FMS + PLUS).

Some of the features of the FMS+PLUS product that go beyond the combination of the feature sets of the two products:

- received faxes can be automatically routed using DID (or ISDN DDI) technology
- automatically routed faxes can either be delivered in their entirety (i.e. as a TIFF-F attachment) or stored on the server with the URL alone being emailed to the intended recipient
- received faxes can be stored on the server and the ability to view, print, and manage them on the server using a web browser (as opposed to having received faxes delivered as email)
- received faxes can be automatically printed on any network printer
- faxes can be sent using a web browser, optionally attaching documents from a library of saved literature
- detailed accounting records can be kept (i.e. the ability to charge faxes to specific client or project accounts)
- fax can be scheduled to reduce tool charges -- automatic delayed long-distance faxing, and least-cost routing -- FMS sends all faxes as soon as possible
- users can select from multiple cover sheet designs as part of the FMS address

- received faxes can be passed to specified programs to handle either all faxes or only faxes routed to a specific user (this can result in the automatic printing of received faxes or other action)

FMS+PLUS-Specific Configuration Parameters

As you are no doubt aware, every fax request that is sent to a Faximum PLUS must have an account, class of service, and style specified. With the FMS+PLUS this can be done explicitly (see the next section) or by default. In order that email messages that do not specify these parameters are successfully sent, you must specify in the faximum.conf file the default values for these parameters.

Please edit the faximum.conf file and add three lines of the form:

```
efg-account = Default
efg-class = Default
efg-style = Default
```

Please change the right hand side to the appropriate value for your system.

Specifying Parameters

In order to allow FMS+PLUS users complete control on how their messages are handled by the system, it is possible to specify in an email message the values for the account, class of service, and style databases (thus overriding the defaults set in the faximum.conf file as described above).

There are two methods. One can set the parameters in the email address itself or one can specify the parameters in the headers of the email message. For example, one could compose an email message addressed to:

```
Jane/ACME_Company/style=invoice/FAX=9268182@fax.company.com
```

which would cause the style called “invoice” to be used for this fax request.

Alternatively, one could place the following email header in the message:

```
x-fxm-style=invoice
```

Similarly one can use either of the above techniques to specify the account or class.

APPENDIX A *Inventory*

This appendix lists the files associated with the Faximum Messaging Server and provides a short explanation for each. Files marked with an asertisk (*) are part of the FMS+PLUS product (and not FMS).

Many of the executable files located in the bin and lib directories are further documented in APPENDIX D on page 113.

/etc/opt/faximum/faximum.conf

The faximum.conf file provides the master configuration files used by all of the FMS components. For detailed information on the contents of this file, please see "/etc/opt/faximum/faximum.conf File" on page 97.

/etc/faximum.lic

This file contains the software activation key that you need to enable the software.

/etc/init.d/faximum

The faximum start-up script is used to start the daemons associated with the FMS software (see "Daemons, Starting and Stopping" on page 31). This is actu-

ally a link to the /opt/faximum/etc/init.d.script file. Depending on the version of Linux or UNIX you have installed FMS on, these links may appear in other /etc directories such as /etc/rc.d/init.d, /etc/rc2.d, /etc/init.d/rc2.d, etc. and etc.

/opt/faximum/

The /opt/faximum/ directory is the default installation directory for the Faximum Messaging Server. You may change this directory after installation. All of the directories listed below are relative to this path name.

bin/

The bin directory contains executable programs that can be usefully run apart from their use within FMS.

asciitiff. This file is a link to either fsasciitiff or pkasciitiff (see below).

fsasciitiff. This program is used to convert text (ascii) files into TIFF (i.e. fax) format. This version of the program uses the X11 Font Server to provide the necessary font bitmaps.

pkasciitiff. This program is used to convert text (ascii) files into TIFF (i.e. fax) format. This version of the program uses the font bitmaps found in the font/ directory (see below).

tiffcat *. This utility concatenates separate TIFF-F files into a single multi-page TIFF file.

tiffhp *. This utility converts TIFF-F files into HP PCL print streams suitable for printing faxes on printers that understand the HP PCL printer control language.

tiffls. This utility lists the directory information from a TIFF-F file. This utility can be used to analyse the structure of a TIFF file.

tiffps *. This utility converts TIFF-F files into PostScript print streams suitable for printing faxes on printers that support PostScript.

tifftiff. This utility reformats TIFF-F files into a form appropriate for faxing.

convert/

The convert directory contains the conversion scripts used by the Faximum Messaging Server to process text and attachments into TIFF-F (i.e. fax) format.

ascii. The ascii script handles all text attachments.

mswin. The word script is used to handle Microsoft Word attachments when the optional Windows File Convert Daemon has been installed and configured.

tiff. The tiff script is used to handle TIFF-F files.

font/

This directory contains the files that provide the bitmap font information used by the pkasciitiff program (see above).

http/

This directory contains the programs executed through the FMS web server as well as the directory that contains the FMS manual.

FMSWPCB.EXE. The FMS Windows Print Driver installation package. This file, signed by Faximum Software Inc., is the installation program for the FMS Windows Print Driver.

fmsadmin.cgi. The fmsadmin module generates the web pages that comprise the FMS administration interface (see “Faximum Messaging Server, Administering a” on page 42).

help.cgi. A shell script used to implement the Help buttons on the fmsadmin web pages.

manual/. This subdirectory of the http directory contains the HTML and PDF files that comprise the on-line documentation for FMS.

swiiftfwg.cgi. The swiiftfwg module implements the Fax/Web Gateway. With the FMS product this implements the ability to view the fax cover sheet using a

web browser. On FMS+PLUS is enables users to view and manage faxes stored on the server.

lib/

The lib directory contains many of the executables that make up the daemons and other executables related to the Faximum Messaging Server.

checkfms. This program will attempt to connect to the FMS swiiftefg daemon and report if this was successful. This utility can be used to verify if the network has been properly configured (although it will not verify the FMS domain name) and if the swiiftefg daemon is running properly.

diagnostic.sh. This program will collect information about your FMS system that can be used by technical support personnel to diagnose problems with your system. See “Sending Your Support Provider Essential Information” on page 83.

dispatch*. This program is run by faxcico after a fax is received and handles the routing of the fax. If DID or ISDN routing is enabled then dispatch will look up the user database to determine to whom the received fax ought to be routed. If DID or ISDN is not available, then the fax will be placed in the general delivery fax inbox.

faxcico. The faxcico module is the workhorse of the fax server component of the FMS. It is run by faxgetty to handle incoming faxes and by faxsched to send outgoing faxes.

faxgetty. The faxgetty module is run by the init daemon from the inittab file and is responsible for handling incoming calls on the fax modem and for determining if the incoming call is a data or fax call.

faximum.daily. This script is normally run daily by the cron process and it performs various housekeeping functions such as truncating log files.

faxlisten. The faxlisten module is started by the fms script (see above) and is responsible for handling incoming calls on Dialogic GammaLink fax boards.

faxsched. The faxsched daemon manages to fax queue and determines when to send the next fax request. It monitors the fax queue (normally /var/spool/faximum/destinations) and invokes faxcico as necessary to send each request.

fms-httpd. The fms-httpd daemon is the FMS web server. By shipping an integral web server, Faximum avoids the problems associated with having users configure their own web server to interface with the swiiftfwg.cgi and fmsadmin.cgi modules.

mergemon. This utility is used to monitor SCO Merge (on FMS systems where SCO Merge is being used to handle MS Windows proprietary file attachments. See xxyyzz for more information.

modemtab. This file contains information used by the faxcico module to recognise different types of fax modems and to adjust its behaviour accordingly.

newpasswd. This program can be used by FMS system administrators who wish to manipulate the users file directly (see “Users File” on page 107). This program will take a password string and produce the SHA-1 hashed version used in the users file by FMS.

permchk. This program will check the ownership and permissions of files associated with the FMS product and, optionally, fix any problems that are detected.

permchk.list. This is the data file used by permchk to determine what the ownership and permissions ought to be for the files that make up the FMS product.

sendfax. The sendfax module accepts a control file from swiiftefg and prepares the actual fax request. Note that sendfax is intended for use only by swiiftefg and that the direct use of the sendfax module is not supported.

swiiftefg. The swiiftefg (SWIIFT Email/Fax Gateway) module is the key component that handles the email-to-fax function for the FMS. Swiiftefg contains a full ESTMP email server as well as the code needed to manage the conversion of attachments to a fax message to be passed to sendfax.

swiiftfeg. This module (Fax/Email Gateway) is used by the fmsdispatch program and the swiiftfwg component to convert a received fax file (i.e. TIFF-F file) into a form that can be sent by email.

/etc/opt/faximum

By default, the files that contain the information on the configuration of the Faximum Messaging Server are found in the /etc/opt/faximum directory. By separating the configuration files from the (static) executable and data files in the /opt/faximum directory makes updating the software much easier.

All of the path names listed below are relative to /etc/opt/faximum.

coversheet/. This directory that contains the files that describe the format of the cover sheets generated by FMS when sending faxes.

dev/fax-line-1. This file contains the configuration information for the first fax modem line. Files for the second and subsequent fax lines (if there are more than one) are named fax-line-2, etc.

httpd-config. This file provides the configuration information used by the FMS web server (the httpd daemon described above)

mime-types. This file contains the information needed by the Faximum Messaging Server to determine how to handle files that are attached to email messages passed to the FMS. For more information on the contents of this file please see “Mime Types File” on page 104.

users. This file contains the detailed information on every user authorised to use the Faximum Messaging Server. For more information on the contents of this file please see “Users File” on page 107.

/var/opt/faximum

By default, the files that contain the information on fax requests in progress (or waiting to be sent) as well as the log files for the Faximum Messaging Server are found in the /var/opt/faximum directory.

All of the path names listed below are relative to /var/opt/faximum.

acct. This is the accounting log which contains an entry for every time the fax modem takes a phone line off-hook (see also “Accounting Log, Viewing” on page 28).

destinations. This directory contains subdirectories that contain the actual fax requests waiting to be sent.

deststatus. This directory contains the files used by FMS to record the status associated with active destinations.

devstatus. This directory contains the files used by FMS to record the status associated with the fax modems.

inbox. This directory contains subdirectories used to store received faxes before delivery to users.

log. This is the system event log which records all events of significance in the operation of the FMS daemons and components (see also “System Log, Viewing” on page 75).

seqno. This file is used to record the sequence number used by the FMS components.

APPENDIX B

File Structures

/etc/opt/faximum/faximum.conf File

This describes the format of the system parameter file in detail.This file contains those parameters that affect the operation of the system as a whole.

General Structure

The system parameter file is a flat text file that contains information on system-wide configuration parameters. A sample faximum.conf file appears below:

```
company-addr1 = "Building 17, Mail Stop 234"
company-addr2 = "1234 Anywhere Street"
company-addr3 = "Anytown, AB"
company-addr4 = "Canada, A1B 2C3"
company-name = "ACME Software Inc."
default-retry-delay = 5
default-retry-limit = 4
fms-banner = "ACME Software  1 234 567 8999  %c"
fms-config-directory = /etc/opt/faximum
fms-directory = /opt/faximum
fms-hostname = fax.company.com
fms-ip-addr = 0.0.0.0
font-server = fax.company.com:7100
resolution = standard
spool-directory = /var/opt/faximum
```

The parameters themselves are defined below (see “Parameters” on page 98). Note that some parameters are only used with FMS while some others are only used with the FMS+PLUS. Furthermore, some FMS parameters apply only to the

SMTP Daemon configuration and some FMS parameters apply only to the *Sendmail Delivery Agent* configuration. Those below not marked are used in all configurations.

Location

The Faximum Messaging Server configuration file is always named /etc/opt/faximum/faximum.conf.

Parameters

company-addr1..4. The four company address parameters are used to identify the company sending the fax on the cover sheet (see also *company-name* below). [Recommended]

company-name. This parameter is used to identify the company sending the fax on the cover sheet as well as on the top-of-page banner. Note that under US law it is mandatory that every fax identify the sender. See "Company Identification Parameters (FMS Only)" on page 47 for more information. [Recommended]

default-retry-delay, default-retry-limit. *(FMS Only)* These parameters control the retry strategy employed by the FMS scheduler when attempting to resend faxes that have failed. The delay is the minimum number of minutes before a failed fax is to retried and the limit is the maximum number of attempts that ought to be made. [Recommended]

Note that some countries (i.e. Germany) have laws that control the permitted settings of these parameters. Furthermore in these countries the modem may attempt to enforce these permitted settings which can cause the FMS system to malfunction if the FMS parameters conflict with the retry strategies permitted by the modem (and the law). This is not an issue in North America.

efg-account. *(FMS+PLUS Only)* This parameter specifies the default account to use for messages that do not specify an explicit account.

efg-class. *(FMS+PLUS Only)* This parameter specifies the default account to use for messages that do not specify an explicit account.

efg-style. *(FMS+PLUS Only)* This parameter specifies the default account to use for messages that do not specify an explicit account.

efg-debug. This parameter specifies if debug files are to be created when outbound messages are handled. These files are placed in the /tmp directory and have names starting with the string efg.dbg.

Example: efg-debug = yes

efg-priority. *(FMS+PLUS Only)* This parameter enables one to specify a correspondence between the priority of email messages (as specified by the Priority or X-Priority email header) and a Class of Service defined in the underlying Faximum fax server. For example, if your email client defines priorities as number (1, 2, 3, 4, and 5), the you might define this as

efg-priority[1] = Low
efg-priority[2] = Low
efg-priority[3] = Normal
efg-priority[4] = High
efg-priority[5] = High

Remember that the class names used on the right hand side must be defined in your Faximum PLUS or Client/Server system or else this will cause faxes to fail to be delivered.

efg-submitfax. (FMS+PLUS Only) The location of the submitfax API that is used to link the FMG with the underlying Faximum Fax Server. For example:

swiift-efg-submitfax = /opt/FAXclient/lbin/submitfax

efg-addr-params. If set to *no* disables the use of style= and other parameters within email addresses. [Optional]

efg-addrtype. Specifies the default value for the *-t* option to the swiiftefg program. Normally need not be set. [Optional]

efg-api. Specifies which of the two Faximum APIs the email/fax gateway is to use when passing requests to the fax server. Defaults to *sendfax.* With FMS+PLUS this parameter can be set to either *sendfax* or *submitfax*. [Optional]

efg-debug. If set to *yes* enables the creation of special trace files in the /tmp directory documenting the internal operation of the email/fax gateway. [Optional]

efg-notify. If set to *no* disables the sending of email to inform users of successful email/fax transmissions. Default is to send email. Note that email is always sent in case of a failure to deliver the message by fax. If this parameter is set to *no* it will be overriden (and email sent) if the return-receipt-to header is set in the email message. [Optional]

efg-priority[value]. *(FMS+PLUS only)* Most email clients permit the setting some indication of the priority of the message. The *efg-priority* parameter is used to map email priority values to Faximum PLUS classes of service. Unfortunately there is no standard for the values used in the Priority email header. Some use numbers (1 = highest priority, 5 = lowest) while others use strings (e.g. *normal*, *urgent*, *bulk*, etc.). You will find a default set of values in the faximum.conf file that ships with the FMS product. Users interested in exploting this feature will have to examine the headers generated by the email clients used by their users to see what values need to be configured. [Optional]

efg-submitfax-faxhost. Specifies the domain name of the server running the server component of the Faximum Client/Server product. This parameter is only needed when using FMS on top of the Faximum Client/Server product.

fms-banner. *(FMS Only)* This defines the string that will appear at the top of every page that is faxed by the FMS. See “Top-of-Page Banner” on page 48.

fms-config-directory. This is the location of the FMS configuration files. By default this is /var/opt/faximum.

fms-coversheet. Specifies the default cover sheet to be used. With FMS+PLUS this can be overridden by the style= parameter. Defaults to ../coversheet/cover in the directory specified by the *fms-config-directory* parameter. [Optional]

fms-directory. This is the location of the FMS executable files (i.e. programs) and static data files. By default this is /opt/faximum.

fms-hostname. *(FMS/SMTP Daemon Only)* This is the network host name that is associated with the *fms-ip-addr*.

fms-ip-addr. *(FMS/SMTP Daemon Only)* This is the IP address that the Faximum Messaging Server will use for accepting email messages to be delivered by fax.

font-server. This defines the host and port number where FMS can contact an X11 Font Server. See "Company Identification Parameters (FMS Only)" on page 47. [Required only if using the X11 Font Server]

fms-submitfax. This defines the path name of the *submitfax* utility. By default the FMS components look in the lib subdirectory of the FMS installation directory. [Optional]

resolution. *(FMS Only)* This defines the fax resolution that FMS will use when sending faxes. See "Fax Resolution" on page 47.

spool-directory. This is the location of the FMS temporary files.

Fax Line File(s)

This describes the contents of the fax line file(s) which describe the parameters associated with each fax phone line connected to (and under the control of) the Faximum Messaging Server.

General Structure

There are two types of fax line files: those that describe external Class 2/2.0 fax modems and those that describe Dialogic Gammalink boards.

Both types of fax devices require the following common set of parameters:

```
device-type = eia592
line-type = default
number-of-rings = 1
pulse-dial = no
```

```
tsi = "1 604 926 8182"
receive-only = no
```

External Class 2/2.0 fax modems require the following set of parameters:

```
class2-type = auto
data-receive = no
device = /dev/tty1a
fax-speed = 19200
modem-init-string = ATM0S0=0S7=45&D2&C1
speed = 19200
uucp-lock-file = /var/spool/uucp/LCK..tty1a
```

Dialogic Gammalink fax boards require the following set of parameters:

```
channel = 1
chassis = 0
```

Location

The fax line file(s) are located in the dev directory in the FMS configuration directory (which is /etc/opt/faximum by default). The fax line file(s) can be named anything but Faximum Software recommends that the first be called fax-line-1, the second fax-line-2, etc.

Parameters Common to Fax Modems and GammaLink Boards

device-type. This parameter indicates the type of fax device described by this fax line file. Currently supported values are eia592 for external Class 2/2.0 fax modems and gammalink for Dialogic GammaLink devices.

line-type. This parameter will be used in future releases for advanced fax scheduling purposes. In the current release this parameter must be set to default.

number-of-rings. This parameter specifies the number of rings that must be detected before an incoming call is answered.

pulse-dial. This specifies that the phone line associated with this fax device does not support tone (DTMF) dialling.

tsi. This specifies the tsi (transmitting station ID (tsi), otherwise known as the fax number to be associated with this device.

receive-only. This parameter allows you to specify that a line is to be used for inbound faxes only. (If you wish to specify that a line is for outbound use only merely configure your system not to start a faxgetty or faxlisten process on the line in question).

Parameters Used by Fax Modems (only)

class2-type. This parameter specifies which variation of the fax Class 2 or 2.0 standard this device supports.

data-receive. This parameter specifies if incoming data calls are to be permitted (and handled) on this line.

device. This specifies the name of the tty port being used to connect to the external fax modem.

fax-speed. This parameter specifies the baud rate to be used when communicating with the modem. Unless you really know what you are doing, do not change this parameter from the installation default of 19,200.

modem-init-string. This parameter specifies the modem initialisation string to be sent to the modem. Changing this parameter can cause the software to fail

speed. Unless otherwise instructed by Faximum Technical Support, this parameter ought to be set to the same value as the fax-speed parameter (see above).

uucp-lock-file. This parameters specifies the name of the UUCP lock file to use to avoid collisions in modem use between FMS and UUCP.

Parameters Used by GammaLink Boards (only)

channel. This specified the number of the channel this fax line file refers to (the first channel on a board is channel 1).

chassis. This specifies the number of the Dialogic Gammalink board to use (the first Gammalink board in the system is chassis 0).

Mime Types File

This describes the types of email attachments that the FMS will accept and provides information to the FMS on how to convert attachments into a format that can be faxed.

In order to fully understand the structure of this file it would be useful to review the sections of the manual that describe the Windows File Conversion Daemon (WFCD) and SCO Merge (see “Files, Faxing” on page 48).

Normally it would not be necessary for the FMS administrator to change this file. Indeed, inappropriate changes can cause the FMS to fail to handle any messages at all.

General Structure

The mime types file is a flat text file that contains information used by the FMS to recognise the type of a file attached to an email message and to determine how (or even if) to process it. For example:

```
text        *   text *  *
text/plain   *   text *  *
text/x-vcard *   ignore
text/html    doc mswin @/var/tmp/fms_win95_heartbeat
```

Each line contains up to five fields. Continuation lines are not permitted. Fields may be separated by any number of white-space characters.

Field 1 - MIME Content Type

The first field is the mime type as reported by in the message itself. Trailing wild-cards are permitted (e.g. text/*).

Field 2 - File Name Extension

The second field is the name of the file extension. It may be either the extension (without the .) or *.

When the SWIIFT EFG has an attachment to convert, it scans this file in order and takes the first line that matches the first two fields.

Field 3 - Processing Flag

Possible flag values:

ascii	attachment is (will be) in ASCII format
error	attachment cannot be handled, fail entire message
ignore	attachment should not be handled, continue with warning
mswin	attachment is in an MS Windows file format
pcl	attachment is (will be) in PCL-5 format (see also below)
ps	attachment is (will be) in PostScript format (see also below)
text	attachment is (will be) in ASCII format
tiff	attachment is (will be) in TIFF-F format

The difference between ascii and text is that an attachment of type ascii will be added to the fax as a separate attachment starting on a new page, while an attachment of type text will be included on the coversheet message in-line with other text components.

Use of the mswin, pcl, and ps flags requires that the appropriate conversion engine be installed. In particular, use of the mswin flag requires that SCO Merge and the Windows File Conversion Daemon be installed (see “Mechanism I - SCO Merge (SCO OpenServer/UnixWare only)” on page 49). The pcl and ps flags require the installation of a PCL and PostScript (respectively) conversion engine. These components are not part of FMS.

Field 4 - Conditional File (optional unless Field 5 is present)

This field provides a method by which the software can determine on the fly if this type of attachment can be handled. This field can either provide a filename (if not rooted then it is taken as relative to the fax software home directory). For example, if this field contains convert/pcl then this type of conversion will only be supported (attempted) if the file convert/pcl exists in the FMS home directory.

An alternate form of this field is to put an @ symbol in front of a rooted path name. In this case the file named is read to see if the file name extension is contained in the file. If it is not (or the file itself does not exist) then the conversion is failed. This method is used to communicate with the WFCD.

If the conversion fails, then the message as a whole will be rejected.

Field 5 - Conversion Command (optional)

If the fifth field (command) is blank, then it means that the attachment requires no additional processing before being included in the fax. If the field is not blank, then it must specify a shell command line that will convert the attachment into one of the supported file types, as specified by the third column (the flag value).

The shell environment variable $input will contain the name of the input file (to be converted) and $output will contain the name of the output file (to be created and to contain the results of the conversion).

Location

The mime types file is called mime-types and is stored in the configuration directory for the Faximum Messaging Server. The configuration directory is defined by the config-dir parameter in the /etc/faximum.conf file. The user can specify the directory to use during installation but by default the directory is /var/faximum.

Users File

This describes the format of the user parameter file in detail. The users file contains all of the information related to users who are authorised to use the FMS system.

NOTE: Faximum is currently exploring the use of LDAP and LDIF to provide FMS with the equivalent information to the users file. Any FMS customers who are running LDAP are invited to contact Faximum Software for current information on integrating FMS with LDAP.

General Structure

The user parameter file is a flat text file that contains information on every user authorised to use the Faximum Messaging Server. For each user there is a section that contains the user's "account name" (which must be unique) along with the parameters related to that user. For example:

```
[Jane]
delivery-email = jane.doe@company.com
delivery-program = ""
did = 1234
email-format = html
from-email = doe@mailserv.company.com
full-name = "Jane Doe"
ip-addr-range-lower = 204.174.2.1
ip-addr-range-upper = 204.174.2.254
mail-format = text
password =
privileges = admin,postmaster
```

Each section begins with the '[name]' line that provides the common name for this user. The sections for the different users are concatenated one after the other in the file.

Location

The user parameter file is called users and is stored in the configuration directory for the Faximum Messaging Server. The configuration directory is defined

by the config-dir parameter in the /etc/opt/faximum/faximum.conf file. The user can specify the directory to use during installation but by default the directory is /etc/opt/faximum.

APPENDIX C

Dialogic GammaFax Support

This appendix provides detailed information on the Faximum Messaging Server's support for Dialogic GammaFax boards.

Supported Operating Systems

At the time this version of the Faximum Messaging Server was developed, Dialogic/GammaLink had only released support for their fax boards on SCO (Caldera) OpenServer 5 and not for SCO UnixWare 7 or Linux.

Therefore if you wish to use FMS with Dialogic/GammaLink fax boards you will need to be running SCO OpenServer 5.

Supported Fax Board

Faximum has a special version of FMS built using the GammaLink Developers Kit for UNIX (GDK/UNIX) Version 1.0.5e for SCO OpenServer 5. This is available to customers who need to support this hardware.

According to the information provided to Faximum by Dialogic/Gammalink, the GDK supports the following fax boards:

- CPi/100
- CPi/200
- XPi/200

- CP4-LSI Series II
- CPD/220
- CP4/SC (supports PEB)
- CP6/SC (supports PEB)
- CP12/SC (supports PEB)
- CPi/200 BRI

Configuring the Dialogic GammaLink Board(s)

Before trying to configure the Faximum Messaging Server you will need to install the GDK 1.0.5e device drivers (available from Dialogic) and configure the drivers to work with your GammaLink fax boards. Please refer to the documentation from Dialogic.

The gfax.cfg File

The configuration of the Dialogic/GammaLink boards is critical and is covered in the documentation provided by Dialogic/GammaLink. For the information of customers using the CPi/100 board (the board used by Faximum Software to test its software), here is the /usr/gl/fax/gfax.cfg file used by us:

```
chassis 1
buffers 0
numchan 1

controlt 60
queuet   45
updatet 300

channel     1 0 GFAX1.01
country     1 1
init        1
boardtype   1 0x06c5
load        1 /usr/gl/fax/bin/gfxcx.bin
csid        1 GammaFax 1
```

```
gfxecm      1 1 1
gfccontrol  1 36 0
gfxshutdown 1 2
```

Configuring FMS to Use GammaLink Board(s)

To configure FMS to use a port on a GammaLink fax board you will need to create or edit the appropriate *fax-line* file (see "Fax Line File(s)" on page 101). If you also wish to receive faxes you will need to obtain a new start-up script from Faximum so that the *faxlisten* program (which is used to manage fax reception on GammaLink boards) is properly started when the system is booted.

APPENDIX D

Man Pages

The following pages describe the major executable components of the Faximum Messaging Software products.

Please note that every command is not part of every product and so some of the programs described in this section may not be available on your system. Each man page lists the products in which it is included.

List of Man Pages

NAME

Introduction to the manual pages

DESCRIPTION

The following pages provide detailed descriptions of the various programs that make up the various software products from Faximum Software. Because many of these commands are part of more than product and because these manual pages are part of more than one product manual, each has a section near the beginning of each manual page which lists the products that contain the command being described.

The abbreviations used in this "**AVAILABILITY**" section are as follows:

CS	Faximum Client/Server
ELS	Faximum ELS
FMS	Faximum Messaging Server
MFAX	Faximum Mfax Package
PCL	HP PCL[1] emulator add-on
PLUS	Faximum PLUS
PS	Adobe PostScript[2] add-on
TIFF	Faximum TIFF Utilities Package

1.PCL is a trademark of Hewlett-Packard Company and is used here solely to identify a printer control language and is not intended to imply any connection between the Hewlett-Packard Company and this product.

2.PostScript is a registered trademark of Adobe Systems and is used here solely to identify a printer control language and is not intended to imply any connection between Adobe and this product..

NAME

asciitiff - convert an ASCII file into a TIFF image

AVAILABILITY

ELS, PLUS, C/S, MFAX, FMS

SYNOPSIS

asciitiff [*options*] *file1 file2...*

DESCRIPTION

Asciitiff converts an ASCII file into a raster image stored in a TIFF file. In addition to supporting a number of options, *asciitiff* also handles a number of embedded commands that affect its operation.

If the *-o* option is not used to name an output file, the output file is named by taking the input file name and adding .tif. If the file name already ends in a "." extension, then it is replaced with .tif.

No input file or a file with the name '-' implies standard input.

Note that there are two versions of *asciitiff*: *pkasciitiff* which is designed to use bit-mapped fonts; and *fsasciitiff* which is designed to use fonts supplied by an X11 font server. Since the X11 font server can provide a much wider range of fonts than are provided in the bit-mapped fonts supplied with *pkasciitiff*, the *fsasciitiff* version of asciitiff is recommended for use whenever possible.

OPTIONS

-a Appends to an existing TIFF file (otherwise, overwrites existing file). The file is created if it does not already exist.

-d Produces debugging output describing the internal operation of asciitiff.

-D *name=value*
Sets the value of the named variable to the specified value (see the define and replace commands below).

-f *font* Uses the named font as the current font.

The syntax of the font name must be appropriate for the version of *asciitiff* being used. Please see the section below on fonts.

For the *pkasciitiff* version the default font is fax.12.

For the *fsasciitiff* version the default font depends on the platform being used but it usually something like:
--courier-medium-r-normal-*-*-120-200-200-m-*-iso8859-1*
With *fsasciitiff* you can determine the current default font by running:
asciitiff -d < /dev/null
and looking for the line that starts "default font is".

-I *dir* Adds dir to the list of directories searched when including a TIFF file (see the tiffinclude and tiffoverlay commands below).

-h Produces high (fine) resolution output (204 d.p.i. horizontally and 196 d.p.i. vertically). This is the default.

-i *indent* Sets the indentation on the left-hand side of the page. The value may be suffixed by i to indicate inches (the default), c for centimeters, or p for pixels.

-l Produces low (standard) resolution output (204 d.p.i. horizontally and 98 d.p.i. vertically).

-o *file* Uses the named file as the TIFF output file.

-O *overlay-file*
Uses the named file (which must be a TIFF image in either standard or fine resolution) as the letterhead overlay. If the overlay file contains only one TIFF image, this image is overlayed only on the first page rendered by asciitiff. If the overlay file contains more than one TIFF image, the first image is overlayed on the first page rendered by asciitiff, and the second overlay file image is overlayed on every subsequent page rendered by asciitiff. *(PLUS only)*

-P *page-number*
Changes asciitiff*'s* idea of the current page number thus affecting which page of the overlay-file is used. For example, asciitiff -O *ovfile* -P 2 ... causes asciitiff to overlay the second page of *ovfile* on every page rendered by asciitiff. This option makes sense only when used with the -O option and with a multi-page overlay file.

-q Runs quietly (without producing messages indicating the progress and number of pages converted).

-s *size* Sets the size of the page to be created. The value may be suffixed by i to indicate inches (the default), c for centimeters, or p for pixels.

-t Trims trailing whitespace from the bottom of each page.

COMMANDS

Asciitiff recognises input of the form $[*command arguments*] as a command to *asciitiff*. In any of the following commands where a position expression (i.e. *centre-x*) is required, you may use an expression. Expressions may use any of the standard arithmetic operators (*, '/', '+', or '-') as well as parentheses.

. Represents the current position.

$ Represents the maximum possible value.

@ Represents the position last remembered using the mark command (see below).

Constants may be followed by i to indicate inches, p to indicate pixels, or c to indicate centimetres.

By default, the horizontal unit is in units of a character width, and the vertical unit is in units of (character) lines. The upper left corner is (0,0). The x axis (the first number of the pair) is the horizontal position across the line. The y axis (the second number of the pair) is the vertical position down the page.

NOTE: Decimal numbers must start with a digit (i.e. 0.5 rather than just .5).

The following lists the commands and their actions.

arc *centre-x centre-y start-x start-y end-x end-y*
Draws an arc with its centre at *(centre-x, centre-y)* starting at *(start-x, start-y)* and continuing until it reaches a line drawn from *(centre-x, centre-y)* to *(end-x, end-y*).

box *start-x start-y end-x end-y [radius]*
Draws a box with the upper left corner at *(start-x, start-y)* and the lower right corner at *(end-x, end-y*). If the optional fifth parameter *radius* has been supplied, then the box is drawn with rounded corners of the specified radius.

circle *centre-x centre-y radius*

Draws a circle with a radius of *radius* and a centre at *(centre-x, centre-y*).

cut *[page-length]*

Ends the current page at position *page-length* or if no argument, at the current position.

date *format-string*

Inserts the date and time at the current position. The *format-string* may contain any of the time format specifiers supported by the strftime 'C' library routine. See the manual page on strftime(I) in this appendix for details on the format specifiers.

If *format-string* is omitted, the default specifier %C is used.

define *variable value*

Sets the value of *variable* to *value.* The value of a named variable may be accessed using the replace command (see below).

font *fontname*

Changes the current font (fax.12 by default) to the specified font. The *fontname* consists of the name of a font followed optionally by a decimal point and a point size. If the point size is not specified then the current point size is used. Note that the font specified (in the appropriate point size) must exist in one of the font directories (see below). Note that the list of available fonts is different for the two resolutions. In particular, some of the smaller fonts are not available when producing standard (low) resolution output.

ifdef *arg1 arg2*

Conditionally includes *arg2* at the current position if *arg1* is defined.

ifndef *arg1 arg2*

Conditionally includes *arg2* at the current position if *arg1* is not defined.

include *filename*

Includes the contents of the specified (text) file.

line *start-x start-y end-x end-y*

Draws a line from *(start-x, start-y)* to *(end-x, end-y*).

moveto *x y*

Moves the current point to the specified location.

replace *variable [default-value]*

Substitutes the value of the names variable. If the variable has not been defined, then use the default value specified. The second parameter (the default value) need not be specified.

need *distance*

Ensures that there is at least *distance* space available. If the distance between the current position and the end of the page is less that *distance,* the current position is moved to the top of the next page. The value may be suffixed by i to indicate inches (the default), c for centimeters, or p for pixels.

set *parameter*

Sets a system parameter. System parameters include:

point-size which defines the default font point size to use;

line-width which specifies how wide lines are to be drawn (for arc, circle, box, and line commands);

indent which specifies the size of the left margin so that characters are not placed too close to the edge of the page (note that the CCITT recommendation indicates that characters closer than 6.7mm to the edge of the page may not be printed by the receiving FAX);

first-page-bottom-margin which specifies the bottom margin on the first page (which is useful when creating cover sheets that incorporate letterhead that has printing on the bottom of the page).

set-mark *x y*

Sets the current mark (remembered position) to the coordinates specified (usually '.' or the current location). The *x* or *y* component of the remembered position may be referenced by using the @ character in place of either the *x* or *y* parameter. For example, to return to the marked position, use $[moveto @ @].

shell *command*

Executes the shell command and inserts the resulting output at the current position.

tiffinclude *filename [[[[start-x] start-y] end-x] end-y]*

tiffoverlay *filename [[[[start-x] start-y] end-x] end-y]*

Includes the specified TIFF image at the specified location. Note that the difference between tiffinclude and tiffoverlay is that in the case of tiffinclude, the image being included is considered to be opaque and obscures any underlying image while with tiffoverlay, the image being overlaid is considered to be transparent and any underlying image will show through. If either of the starting positions is omitted, then 0 is assumed. If either of the ending positions is omitted, then $ is assumed.

asciitiff also recognises the following special characters in the input stream and processes them appropriately: *formfeed*; *tab*; *backspace*; *newline*; *carriage return*; *reverse linefeed* (ESC 7); *reverse half-linefeed* (ESC 8); and *forward half-linefeed* (ESC 9).

FONTS

As mentioned earlier in this manual page, there are two versions of *asciitiff* each with there own syntax for font names.

The *pkasciitiff* version finds its bit-mapped fonts in the *.../font/204x196* (for the fonts used for producing high-resolution output) and in *.../font/204x98* (for low-resolution output). The *font* directory is in the directory where the Faximum software is installed.

The *pkasciitiff* font names are merely the names of the files in these font directories so to obtain a list of available fonts merely list the contents of these directories. For example, *cmr.20* is *Computer Modern Roman* (a serif font) in 20-point size.

The *fsasciitiff* version uses the X11 standard font naming convention called *X11 Logical Font Descriptions* (XLFD). An XLFD consists of thirteen components. Take, for example, the following XLFD font name:

-bitstream-prestige-medium-r-normal--0-0-85-85-m-*-iso8859-1*

Each of these components specifies an independent aspect of a font. In order, the components are:

1	foundry name	the organisation that "invented" the font examples: bitstream, adobe
2	family name	the name of the font family example: prestige, courier, helvetica
3	weight	tbe thickness of the strokes example: bold, medium, normal
4	angle/slant	tbe code for the angle of the characters (italic, oblique, roman, ...) example: i, o, r
5	width name	tbe width of the characters example: normal, condensed
6	other style info	other information on the character style example: sans
7	pixel size	tbe height of the characters in pixels example: 20, 24
8	point size	tbe height of the characters in decipoints example: 100, 120
9	x resolution	tbe number of pixels per inch horizontally example: 75, 200 (for fax always specify 200)
10	y resolution	tbe number of pixels per inch vertically example: 75, 200 (for fax always specify 200)
11	character spacing	tbe code for the character spacing (monospace, proportionally space, ...) example: m, p
12	character width	ten times the average character width in pixels example: 90, 149
13	character set	the name of the character set encoding example: iso8859-1, jisz0208.1983-0

With some older X11 systems it was acceptable to drop components that were not of interest by merely placing two hyphens in a row, for example:

-bitstream-prestige-medium-r-normal--0-0-85-85-m-0-iso8859-1

Some newer X11 systems will not accept this syntax and so it is strongly recommended that fields for which any value will be accepted be replaced with an asterisk, for example:

-bitstream-prestige-medium-r-normal--0-0-85-85-m-0-iso8859-1*

To obtain a list of all of the available scalable fonts on your server, sign on to the X display connected to your system and issue the following command:

```
xlsfonts | grep 0-0- > /tmp/fonts
```

If you get an "xlsfonts: not found" error you may have to look for the directory that contains this command (try /usr/bin/X11) and issue the command as follows:

```
/usr/bin/X11/xlsfonts | grep 0-0- > /tmp/fonts
```

Select one of the fonts in the */tmp/fonts* list.

If your console is running the X11 server but you are connected using a remote terminal, you may be able to get *xlsfonts* to run remotely by defining the DISPLAY environment variable. For example:

```
DISPLAY=hostname:0.0
export DISPLAY
```

Where *hostname* is the network name for your system.

As an aside if you want to see the various fonts available on your system, run the *xfontsel* utility from your X11 display (see your system's documentation on this command for more details).

You can change the default font used by fsasciitiff either by setting an environment variable (LORES_ASCII_FONT and HIRES_ASCII_FONT) or by setting the asciitiff-lores-ascii-font and asciitiff-hires-ascii-font parameters in the */etc/faximum.conf* file.

NOTE Faximum also has special versions of asciitiff to support the Japanese character sets (JIS-0201 and JIS-0208). Please contact Faximum Software for details.

FILES

.../faximum/font/204x196
: high resolution font directory

.../faximum/font/204x98
: low resolution font directory

SEE ALSO

convert, strftime

Faximum TechNote 171 (www.faximum.com/technotes/171)

NAME

convert... - render and convert files to TIFF-F

AVAILABILITY

ELS, PLUS, C/S, MFAX, TIFF, FMS

SYNOPSIS

convert-script [*options*] *files*

DESCRIPTION

The file conversion scripts (in /usr/fax/convert) provide a standard interface to the various programs used to convert files into fax (TIFF-F) format.

Faximum supports a number of file formats (ASCII, TIFF, PCL, PostScript). When a file is to be sent by fax it must first be converted into fax (TIFF-F) format. There is a program for each of the different file formats (asciitiff(C), tifftiff(C), pcltiff(C), and pstiff(C), respectively). Unfortunately each of these programs takes a slightly different set of parameters and arguments. To make converting files easier, some scripts have been written to accept a standard set of parameters and call the appropriate conversion program. This manual page describes this standard set of parameters.

OPTIONS

-a Appends to an existing TIFF file (otherwise overwrites existing file). The file is created if it does not already exist.

-h Produces high (fine) resolution output (204 d.p.i. horizontally and 196 d.p.i. vertically). This is the default.

-l Produces low (standard) resolution output (204 d.p.i. horizontally and 98 d.p.i. vertically).

-o *file* Uses the named file as the TIFF output file. This option is required when using convert scripts.

-O *overlay-file*
Uses the named file (which must be a TIFF image in either standard or fine resolution) as the letterhead overlay. If the overlay file contains only one TIFF image, this image is overlayed on every page rendered by asciitiff. If the overlay file contains more than one TIFF image, the first image is overlayed on the first page rendered by asciitiff, and the second

overlay file image is overlayed on every subsequent page rendered by asciitiff.

-P *page-number*
: Changes asciitiff's idea of the current page number thus affecting which overlay TIFF page is overlayed. For example, asciitiff -O *ovfile* -P 2 ... causes asciitiff to overlay the second page of *ovfile* on every page rendered by asciitiff. This option makes sense only when used with the -O option and with a multi-page overlay file.

-s *size*
: Sets the size of the page to be created. The value may be suffixed by i to indicate inches (the default), c for centimeters, or p for pixels.

-t
: Trims trailing whitespace from the bottom of each page.

FILES

.../faximum/convert/*
: conversion scripts

SEE ALSO

asciitiff, pcltiff, pstiff, tifftiff

NAME

faxcico - send/receive daemon

AVAILABILITY

ELS, PLUS, C/S, FMS

DESCRIPTION

The faxcico program handles the actual transmission and reception of fax files. It is called by faxsched(D) and faxlisten(D) as necessary and is usually not invoked directly.

NOTES

Faxes that fail after being partially transmitted are restarted after the last page known to have been successfully received. At least two pages must have been received before partial retransmission will be attempted, otherwise the entire request starting at the first page will be sent on the next try.

If specified, faxcico will use the retry-coversheet entry in the control file; otherwise, /usr/fax/coversheet/retry.tif is used if it exists.

faxcico will write-lock the control file using fcntl() before attempting to transmit the request. Control files that cannot be write-locked are skipped.

SEE ALSO

sendfax

NAME

faxsched - fax request scheduler

SYNOPSIS

faxsched [-d]

DESCRIPTION

Faxsched manages out-going fax requests, calling **faxcico** whenever appropriate to deliver a fax request. faxsched normally examines the queues once every minute looking for new requests.

Faxsched maintains a checkpoint file in */vsr/opt/faximum/scheddump* that contains **faxsched**'s process id and information on the last attempted delivery time of any queued requests. The process id is used by programs such as **sendfax** to notify **faxsched** that new fax requests have been submitted and that a queue run should be performed immediately.

Normally, **faxsched** should be invoked at boot-time from a system startup file. Only one **faxsched** may be active; **faxsched** will exit if it detects that another is already active.

OPTIONS

-d This option is used to have faxsched generate debug output.

FILES

.../faximumx/lib/faxcico
fax transmit

/var/opt/faximum/scheddump
scheduler checkpoint file

/etc/*/*/S99faximum
Faximum daemon startup file

SEE ALSO

faxq, sendfax

NAME

sendfax - low-level FAX request handler

AVAILABILITY

ELS, PLUS

SYNOPSIS

sendfax [*options*] [*files*]

DESCRIPTION

Sendfax queues fax requests for delivery by faxcico. Files not already in TIFF format will be converted.

This program provides programmers (as well as Faximum itself) with a low-level API. This is the lowest-level interface to the faxsched fax scheduler. For higher-level interfaces look at **fxm** and **submittfax**. For a low-level interface which bypasses the fax spooler, see **mfax**.

OPTIONS

-d	Turn on debug messages.
-e *script*	Use the next argument as the list of newline-terminated commands for sendfax**.**
-j	Prints the request sequence on standard output. The sequence number can be used to track the request.
-k	Delete the files provided as arguments after they have been read. The files will not be deleted if any errors are detected by sendfax.
-m	Mail back error messages. Normally, error messages are displayed on the user's terminal. With this option, if any errors occur, they are collected in a file and mailed to the user.
-q	Quiet mode. All job progress messages are suppressed.
-r	Do not notify the fax scheduler when the fax requests are queued. This delays possible delivery of fax requests until faxsched does a queue run, or another sendfax is run without this option. Normally faxsched examines the queues once every minute or whenever a fax line becomes idle.

sendfax reads input from a command-line script (if the -e option is used), from any file names listed on the command line, or from standard input if

no other sources of input are specified. Each line of input is interpreted as a command, or data for the most recent command. A line containing only an end ends input data for the most recent command. Commands are:

file — Specifies the files to be sent and the conversions required. Following the file command is a list of lines each containing: a tagname; the path to the file; file type and conversion options; and a list of options.

The tagname is used elsewhere to identify the file. Its name is arbitrary but must be unique.

The file type specifies the conversion required. For example, ***ascii*** will convert a standard ascii file to a standard-resolution fax. Conversion options (such as resolution and page length) may also be specified. For example, "***ascii -h -s 14***" will generate a fine-resolution fax paginated to legal size paper.

See the directory *.../faximum/convert/* for a list of all the supported conversions and refer to the manual page **convert**(C) for information on the conversion options.

Only two options are supported: ***nocopy*** and ***delete***. **sendfax** normally makes its own copies of files to send in the spool area. *nocopy* will prevent copying of a file if the file requires no conversion (i.e. type tiff with no conversion options) and is readable to faxcico. Delete will delete the file when it has been copied to the spool area. No files will be deleted if any part of the **sendfax** request fails.

default — Sets defaults for each fax request. The default section consists of a list of *name* = *value* pairs terminated with an *end* statement. For every fax request that follows, this default list will be copied to the list of request parameters. Any parameter explicitly listed in a fax request will override any default. This option is intended as a means of specifying parameters common to every fax request.

fax — Submits a fax request. The fax command requires a single argument specifying a unique name for the destination (usually the fully qualified telephone number with no imbedded white space). This name will be used as the name of the queue directory in the spool directory (in *.../faximum/destinations*).

Following this command, there should be a list of *name* = *value* pairs specifying the parameters for this particular fax request. Except for the list of data files, all parameters are copied verbatim into the spooled control file for this request. Any parameter starting with *data-file* is assumed to be a data file for transmission. The *value* part of this data file parameter must be a tagname from a preceding file command. This tagname is replaced by the absolute path name of the (possibly converted and copied) file to be transmitted.

preview [*preview-program*]
Previews files to be transmitted. An optional argument specifies the path to the preview program; tiffdisplay is the default preview program. An end terminated list of tagnames, one per line, follows. The absolute path names of the files named by these tagnames are given as command-line arguments to the preview program. A non-zero exit status from the display program indicates to sendfax that no faxes are to be submitted and no further processing is required. This would normally occur if the user wished to cancel the request after previewing it.

print Prints a fax request. This command requires a list of arguments containing the shell command to execute and a list of arguments for that command. The argument *$data-file1* will be replaced by the path names of the end terminated list of tagnames that follow the print command.

background
Tells sendfax to continue operating in the background so that the foreground task can continue operation. This keyword is usually placed after the preview section so that the printing (if any) and scheduling of the fax transmission can continue in the background. The background command (unlike the previous commands) is not followed by a line containing end.

signal Causes *sendfax* to send a signal to a specified process. The signal number is the first argument and the operating system process id the second.

The *faximum.conf* file (see config) may also contain defaults for many of these fields. The per request control file always overrides the global defaults contained in *faximum.conf*.

Valid *name* = *value* pairs follow. Note that only the *device* and *data-file...* parameters are required. All others are optional. If the parameter value contains white space, it *must* be quoted. The value component may be quoted using the same syntax as the shell, and may include any of the following escape sequences: \b (backspace), \e (escape), \f (formfeed), \n (newline), \r (carriage return), \t (tab), and *nnn* (character with octal value *nnn*).

For example:

```
name = value
name = "value value value"
name = "This \" string is funny"
```

abort-time = *number*

This specifies the time when the fax request is to be abandoned, at which point mail is sent to the originator reporting the problem and a message is placed in the system log file. The time value may be specified in one of three formats. A value of the form *@seconds* specifies an absolute time in seconds from the epoch (the standard format for the return value from the time system call). The form *+seconds* specifies a number of seconds since the request was submitted to sendfax. The form *!seconds* specifies a number of seconds since the request was first eligible to be sent (i.e. satisfied the limitations of the eligible-date and time-to-send parameters), regardless of whether a line was available at that time.

account-number = *string*

Any information provided will be copied verbatim into the accounting log file. By convention this string is of the form: "*<billing code> <person> <company>*"

alternate-count = *number*

This value specifies the maximum number of attempts that are to be made using the primary telephone number before trying the secondary telephone number. Once *alternate-count* attempts have been made, the system will try the *secondary* and *primary* telephone numbers alternately until successful or until one of the time or retry limits is reached.

alternate-device = *device name*

This value specifies the fax line and telephone number(s) to use when *alternate-count* attempts have been made using the primary telephone lines (see the device parameter below for more information on the format of this value).

banner = *string*

The string specified will be placed at the top of every transmitted page. Strings of the form *$p* will be replaced with the current page number, and *$t* will be replaced with the total number of pages in the FAX. Strings that start with a % symbol will be passed directly to the strftime(I) routine, which replaces the string with date and time information.

batch = *yes/no*

Specifies if a request can be batched with other requests that are queued for the same destination (i.e. transmitted during the same call).

completion-program = *program-pathname*

Can be called when a fax request is no longer considered for transmission because either it was successfully transmitted, or faxsched/faxcico will not attempt to retry at a later date. This program requires two arguments: the path to the control file and a brief message explaining why the request will no longer be considered for transmission. For security reasons, the completion-program must have fax's home directory (usually */opt/faximum*) as the first part of its path name. It is the responsibility of completion-program to dispose of the request control file. (This feature is available only with Faximum PLUS.)

data-file1 = *string*

This specifies the tagname (see the file section above) of the first file to be sent (similarly for data-file2, data-file3...).

data-queued = *date/time-string*

Date a fax request was queued. Defaults to current date/time.

device = *device name*

This specifies the name of the FAX line to use and the actual string of digits to dial. This is the primary (fax line and) telephone number to use. (See alternate-count and alternate-

device). The format is *fax line name:telephone number* or *fax line name:telephone number:delay*.

The *fax line name* may be one of the following: the name of the fax line configuration file in the /usr/fax/dev directory; the name of the device special file (in /dev); or @ followed by the line-type to use (faxcico will use any entry in /usr/fax/dev that has the specified line-type and that is idle).

The *telephone number* is the string of digits to dial (possibly with the delay characters ',' and ';'). The *delay* is the time in minutes from when the request was submitted until the system considers using the specified line.

If the system supports more than one phone line, there may be more than one *fax line name:telephone number* on the same line (separated by blanks, with the entire list in double quotation marks). The list is scanned from left to right for the first idle line.

eligible-date = *number*

This parameter specifies (in seconds since the epoch) the earliest (date and) time when this request may be considered for transmission. This is used to postpone transmission of a request until some later time and date. Note that delaying the FAX until a specified telephone discount period is usually done using the time-to-send parameter.

filter-value = *value*

This parameter specifies the filter value to use on the FAX modem for this transmission. If not specified, then the default filter value from the device configuration file (in the directory /usr/fax/dev) will be used. Not all fax modems use or support a filter value, and the purpose and range of valid values varies. Please refer to your fax board/modem's documentation for further information.

handle = *value*

This parameter specifies an arbitrary identification string that the application submitting the request can use for to identify the request (i.e. Purchase Order number or whatever). This value is put in the *acct* log and passed to the *completion-program*. This feature is only available in the Faximum PLUS product.

notify = *yes/no*
: If set to ‘yes’, the user who submitted the request will receive E-mail upon successful completion of the transmission (unsuccessful transmissions always result in E-mail).

priority = *number*
: This specifies the priority of the fax request. If there is more than one fax request to send, the fax scheduler will choose the one with the numerically higher priority value.

reschedule-time = *number*
: This parameter specifies the time at which this request is to be handed to the rescheduler (*.../faximum/lib/resched*) for possible escalation to more expensive telephone lines. Note that no such program is provided as part of Faximum; if this option is used, the user must provide the resched program.

retry-coversheet = *tag*
: This allows a user to specify a coversheet to be used only if a fax is partially transmitted and must be restarted. As with data-file, tag must be the tagname of a file listed in the file section of the input script.

retry-delay = *number*
: This specifies the delay (in minutes) between redial attempts. If not specified, the default delay is taken from the system configuration file (~fax/config).

retry-limit = *number*
: This parameter places an absolute maximum limit on the number of attempts that the fax scheduler will make to send this fax in the event that the telephone number does not answer or is busy. If not specified, the default limit is taken from the system configuration file (~fax/config).

sent-by = *username*
: User name to be used for E-mail and accounting.

suspend-completed-requests = *yes/no*
: This causes successfully transmitted request control files to be renamed from cf... to ff....

suspend-failed-request = *yes/no*
: This causes failed requests to be suspended (i.e. the control

file prefix is changed from cf... to sf.... and is no longer considered by faxsched for transmission). Renaming the sf... file cf... will cause faxsched to reconsider the fax for transmission.

time-to-send = *number*
This specifies the interval during which attempts may be made to send this FAX (expressed as three time-intervals: the first applies Monday through Friday, the second on Saturday, and the third on Sunday). (Example: "1800-2400 1800-2400 0800-2400"). This is used to ensure that a FAX is only sent during certain telephone discount periods.

tsi = *string*
This specifies the transmitting station identification string. The *string* ought to be the fully qualified (country code, etc.) telephone number of the incoming FAX line for the company sending the fax.

tsia = *string*
This specifies the alphanumeric transmitting station identification string. Some fax boards support an alphanumeric identification string in addition to the standard numeric TSI.

EXAMPLE

This is an example of a minimal sendfax file that faxes a single ASCII file (which is deleted after being queued to send).

```
file
        body /tmp/fcvr.BAAa10927 ascii delete
end
fax 16135551212
        device = fax-line-1:16135551212
        data-file1 = body
end
```

The following example shows the use of several sendfax command options.

```
file
        cover /tmp/fcvr.BAAa10927 ascii delete
        body1 /usr/doe/images/lit.tif tiff nocopy
        body2 /tmp/graph.ps "ps -h -s 14"
end
```

```
preview
        cover
        body1
        body2
end
background
print "tiffps $data-file1 | lp -dlaser"
        cover
        body1
        body2
end
default
        banner = "Company Inc. +1 234 567 9876 %c Pg $p/$t"
        tsi = "1 234 567 9876"
        priority = 99
        retry-count = 30
        retry-delay = 1
        completion-program = /usr/fax/lib/myscript.sh
        time-to-send = "1800-0800 1800-0800 0000-2400"
end
fax 16135551212
        device = @ddd:16135551212 @fx1:5551212
        data-file1 = cover
        data-file2 = body1
        data-file3 = body2
end
fax 16049268182
        device = fax-line-1:16049268182
        retry-delay = 10
        data-file1 = cover
        data-file2 = body1
        data-file3 = body2
end
```

FILES

faximum.conf
: system configuration file (for defaults)

.../faximum/convert/*
: input file conversion programs

.../faximum/dev/*
: fax line configuration files

.../faximum/destinations/*
: spool area

.../faximum/log
fax log file

.../faximum/acct
fax accounting file

SEE ALSO

asciitiff(C), convert(C), faxsched(C), transmitfax(C), strftime(I)

Appendix E.

Name

swiiftefg- convert an ASCII file into a TIFF image

Availability

FMS

SYNOPSIS

swiiftefg -a *fax-email-address* [-c] [-d] -f *from-email-address* [-h *host-name*] [-l *locale*] -t 1 [-v]

DESCRIPTION

The **swiiftefg** program implements the Email/Fax Gateway (EFG) part of the various Faximum Fax Messaging Server products. This component takes an email message from an SMTP MTA (Mail Transfer Agent, such as sendmail or Postfix), extracts the fax number and other cover sheet information, and passes the request on to the specified fax server.

This program is not intended to be called directly (except for the purpose of testing the gateway), rather it is normally called by the MTA to deliver an email message addressed to the email/fax gateway.

The following describes the arguments and parameters expected by the gateway. *Please note that the current version of the gateway has been designed to work with sendmail and Postfix.* If you are trying to integrate **swiiftefg** with other mail systems please contact Faximum Technical Support (support@faximum.com) for assistance as well as modifications (if necessary) to the **swiiftefg** tool to make it easier to integrate with your system.

-a *fax-email-address*

This argument provides swiiftefg with the fax number and other information for the cover sheet. The format of the *fax-email-address* depends on the address type argument (**-t**), described below.

-c This will cause the copyright information for the program to be displayed. No other parameters will be processed.

-d This will cause detailed debugging information to be written to a file in the `/tmp` directory with a name starting with `efg.dbg.`

-f *from-email-address*

This argument provides the address of the person who sent the email message to the EFG. This address is used both to verify the authority of the sender to access the EFG as well as to provide the address to which the fax server will send confirmation once the fax has been successfully sent.

This address may or may not include a host name component. If the *@domain.name* component is missing then the EFG takes the host name component from the **-h** argument (if present).

-h *host-name*

This argument specifies the default host name to be used if the *from-email-address* (above) does not include a host name component.

The EFG will delete any trailing periods from the host-name (some *sendmail* implementations add a period to the host name before passing it to delivery agents).

-l locale-*name*

This argument specifies the name of the locale to be used when processing messages. This will be used as the second argument to a setlocale(LC_ALL, locale) call (see **setlocale(3)** in your system documentation) and will also affect the message catalogue used for messages issued by the EFG. Finally, the locale name will be used as the value of the LANG environment variable when conversion program from the mime.types file are run.

-t *n* This parameter specific the format or type of the *email-fax-address* parameter. The current version of the WFG only supports one address format type, specified with a value of 1. *This*

*argument must appear before the **-a** argument on the command line.*

Type 1 addresses are of the format: *name*/*title*/*dept*/*company*/*fax-number* where all of the components except the *fax-number* are optional. If fewer than five components are provided then the EFG interprets the address parts as follows:

fax-number
name/fax-number
name/company/fax-number
name/title/company/fax-number

Embedded spaces in the various address components can be represented by an underscore ("_") character.

The fax number is passed unchanged to the fax server and ought to be in whatever format your fax server is configured to accept.

Other address format types will be defined and supported as the standards for email-fax addresses evolve. Please contact Faximum Technical Support (support@faximum.com) should you need the EFG extended to handle a different address format.

-v This will cause the version information for the program to be displayed. No further parameters or input will be processed.

USING THE EFG

The Email/Fax Gateway is usually configured (see below) so that email messages sent to addresses of the form:

name/company/FAX=faxnumber@server.company.com

are passed to **swiiftefg** which examines the message headers (in order to set the appropriate fax transmission parameters), converts any attachments into a format that can be handled by the fax server, and then passes the request to the fax server for conversion into fax format and for transmission.

Note that the standard EFG can handle attachments of text (i.e. ASCII), TIFF-F, and PostScript and/or PCL (depending on the capabilities of your fax server).

Additional software is available from Faximum to extend the capabilities of the EFG to handle attachments from common desktop productivity

applications such as Microsoft Word and Excel. Please contact info@Faximum.com for current information on such add-ons.

EMAIL HEADERS

The EFG examines the mail headers of messages it processes for Faximum-specific headers.

If it finds any of the following headers, it will use the value specified instead of the default value from the `/etc/opt/faximum/faximum.conf` file.

X-fxm-account

X-fxm-class

X-fxm-notify

X-fxm-style

If it finds any of the following headers, it will use the value specified instead of the value taken from the email-fax-address (if any).

X-fxm-company

X-fxm-department

X-fxm-name

X-fxm-title

CONFIGURATION

The configuration of the EFG falls into two parts. First you must reconfigure the *sendmail* or *Postfix* program on the system that will be running the EFG (this need *not* be the same system that is running the Faximum Fax Server) and then you will need to configure the EFG itself (by editing the `/etc/opt/faximum/faximum.conf`). Both of these are described in detail below.

Sendmail Configuration

BEFORE reconfiguring sendmail on your system please verify that sendmail is working. This can be done by typing the following command:

date | /usr/lib/sendmail root@fax.server.com

where `fax.server.com` is replaced by the hostname of the system (you may need to change the pathname of the *sendmail* command depending on where sendmail is located on your system). After running this command, verify that the root account on your system received email containing the output of the *date* command. DO NOT PROCEED beyond

this point until you have verified that sendmail is working properly on your system! If sendmail is not working on your system then please follow the instructions for your system to configure sendmail so that it will work. There is no point in configuring sendmail to work with the SWIIFT EFG if it is not properly configured to handle email in the beginning.

With FMS, the configuration of sendmail is performed as part of the email configuration option within the webadmin interface.

The instructions below are only needed if you wish to manually configure sendmail to work with **swiiftefg**.

The *sendmail* configuration file, `sendmail.cf`, must be edited to tell *sendmail* that email addressed to `something/FAX=something@hostname` is special and ought to be passed to **swiiftefg** for processing. You will need to consult the sendmail documentation for your system to (a) locate the `sendmail.cf` file (e.g. on most systems this file is in the `/etc/mail` directory) and (b) determine how to best reconfigure sendmail to work with **swiiftefg**. Because *sendmail* can be configured in many different ways, the instructions below on how to add the necessary configuration information for **swiiftefg** are, of necessity, general in scope. You will need to examine the `sendmail.cf` file for your system to determine how to best make the necessary changes. If you prefer, Faximum offers a `sendmail.cf` configuration service for a modest fee whereby you email support@faximum.com your `sendmail.cf` file and the engineers at Faximum will make the necessary changes.

If you plan to modify your `sendmail.cf` file yourself and you find the documentation available for your system's *sendmail* to be lacking, then consult the highly recommended book **sendmail** by Costales, Allman, and Rickert; published by O'Reilly & Associates, Inc. (http://www.ora.com/). (The authors of **swiiftefg** and this manual page owe a great deal to this book.)

The `sendmail.cf` changes affect two areas. First, rule set 0, which determines which mail delivery agent will handle delivery for a particular recipient address, must be modified to indicate that email addresses of the form `something%fax@domain.name` are to be passed to the EFG.

This is done by adding the following line to the beginning of rule set 98:

```
RFAX=$* < @ $=w . >          $#faximum $@$j$: FAX=$1
R$*/FAX=$* < @ $=w . >       $#faximum $@$j$: $1/FAX=$2
```

This rule (hence the leading `R`) matches addresses that start with something (the `$*` part of the rule), followed by `FAX=n`, followed by the `@` sym-

bol and the domain name of the fax server (stored in the *w* macro which is accessed through the expression *$=w*).

If this rule matches the address, then sendmail is to use the *faximum* delivery agent, passing it the hostname (identified by the `$@`) and the user name (indentified by the `$:,` with `$1` representing the something we matched before the `%fax` sequence).

The second area of the `sendmail.cf` file that we must modify is the section that defines the delivery agents. We need to add the following lines:

```
Mfaximum,   P=/opt/faximum/lib/swiiftefg,
F=DFMhuC, M=100000,
A=swiiftefg -t 1 -f $f -a $u -h $h
```

Let's look at each part of this line in detail.

Mfaximum This identifies the name of the mail delivery agent

P=/opt/faximum/lib/swiiftefg

This specifies the pathname of the **swiiftefg** program (your pathname may vary depending on where you installed the software).

F=DFMhuC

These flags tell sendmail to:

- D force date information to appear in the message header
- F force the from information to appear in the message header
- M force the message-id information to appear in the message header
- h preserve uppercase in the hostname
- u preserve uppercase in the username
- C add @domain to the recipient address that lacks one.

M=100000

This specifies the maximum message size (in bytes, including all attachments). If your users are sending only text mes-

sages, then 100000 ought to be more than enough. If your users are attaching TIFF files, however, 100000 will only be enough for a couple of pages and will probably need to be increased. This field is optional so if you do not wish to impose any limit on the size of messages passed to the EFG, merely drop this parameter altogether.

A=swiiftefg -t 1 -f $f -a $u -h $h

This specifies the exact command line that is to be run when this delivery agent is to be invoked. `$f` contains the sender's email address, `$u` the recipient's email address, and `$h` the recipient's hostname.

Testing the Sendmail Configuration

To test that these changes to sendmail.cf have been made properly, please run the following command:

```
/usr/lib/sendmail -bv snort/FAX=9999@node.acme.com
```

(with `node.acme.com` replaced with the name of the server running the EFG). Note also that on some machines the sendmail executable may be located in a different directory. Consult the documentation for your system in order to locate the sendmail program.

You ought to get a response similar to the following (which will normally appear as a single line but which appears here as several lines):

```
snort/FAX=9999@node.acme.com...
  deliverable: mailer faximum, host node.acme.com,
  user snort/FAX=9999
```

If the part "mailer faximum" indicates a mailer other than faximum then the reconfiguration of the sendmail.cf file has not be done properly.

If this test is successful, then run sendmail with the -bt flag and type in the following:

```
/usr/lib/sendmail -bt
```

sendmail will reply:

```
                ADDRESS TEST MODE (ruleset 3 NOT automatically invoked)
Enter <ruleset> <address>
```

Then type:

```
0 snort/FAX=999@engg3.faximum.com
```

and you ought to see:

```
rewrite: ruleset  0   input: snort / FAX = 999 @ engg3 . faximum . com
rewrite: ruleset  0 returns: $# faximum $@ engg3 . faximum . com $: snort / 999
```

If you see something like:

```
rewrite: ruleset  0 returns: $# error $: I don't understand ...
```

then there is a problem with the changes you have made to the sendmail.cf file.

If you are unable to get these tests to succeed, then please email support@faximum.com and include:

your sendmail.cf file;

the output from the sendmail -bv test; and

the output from the sendmail -bt test.

/etc/opt/faximum/faximum.conf Parameters

The parameters in the `/etc/opt/faximum/faximum.conf` that affect the operation of **swiiftefg** are described below.

Note that the examples below are intended to illustrate the form that the values might take on a hypothetical system. You will need to adapt these examples for your particular configuration.

efg-access

This parameter provides the list of user name patterns (in **regcmp(2)** regular expression format) that are permitted to access the EFG. Note that since the patterns are not automatically anchored, if the pattern is a substring of the user's name it will match (unless you anchor the pattern using ^ or $). You may optionally precede a pattern with a minus sign (-) to cause the specified users to be denied access to the server. Example:

```
efg-access = @faximum.com,
    -@sales.faximum.com,jane@acme.co.nz
```

(This example may appear on two lines because of the limitations of the printed format but ought to appear as a single line in your configuration file.)

efg-debug

This optional parameter indicates whether a trace log file (useful for testing) is to be created by **swiiftefg** when it runs. If the

parameter value is `yes`, a files in `/tmp` with names starting with `efg.dbg.` will be created and will contain the details of every message processed by **swiiftefg**. Example:

efg-debug = yes

When you are first testing the EFG it is recommended that this parameter be set to yes. If you experience problems with the operation of **swiiftefg** you can email the /tmp/efg.dbg.* files to Faximum Technical Support for analysis.

efg-submitfax

This parameter specifies the pathname of the program used to pass the fax request to the fax server. On systems that use Faximum's Client/Server product, this will be the pathname of the **submitfax** program, for example:

/opt/FAXclient/lib/submitfax.

efg-faxhost

This parameter specifies the domain name of the fax server host. It will be passed to **submitfax** to indicate the fax server that is to be used. Example:

efg-faxhost = fax.server.faximum.com

efg-notify

This parameter specified (yes/no) if the fax server ought to send an email message to the sender when the fax is successfully sent (a message is always sent if the fax fails).

efg-account

efg-class

efg-style

These mandatory parameters specify the default values for the *account*, *class*, and *style* to be used by default if no other parameters are provided within the message headers.

The exact meaning of each parameter will depend on the underlying fax server being used with **swiiftefg**. In the case of the Faximum PLUS, the *account* parameter is used to keep track of the project the fax is to be charged to, the *class* parameter is used to control the priority and scheduling of the fax, and the *style* parameter controls the appearance (i.e. cover sheet, forms overlay, resolution, and page length) of the fax.

For more information on the Account, Class, and Style databases, please refer to the on-line help or documentation for your Faximum fax server software. If you are using **swiiftefg** with a fax server from another vendor please contact Faximum Technical Support for assistance.

For information on the available Accounts, Classes, and Styles, please see the configuration of your Faximum fax server.

Example:

```
efg-account = Sales-Dept
efg-class = Panic
efg-style = Corporate-Coversheet (Fine)
```

efg-priority[*priority*] = *class_name*

These optional parameters (there can be any number of parameters of this form with different *priority* names) indicate to **swiiftefg** how to convert different email priorities into fax priorities.

For each priority name that your email program might generate you can specify a corresponding class (a.k.a. fax priority) for the resulting faxes. In this manner, important (i.e. "first-class") email message will go to the front of the queue while unimportant faxes (i.e. "bulk") could be scheduled to be sent after midnight when phone rates are the lowest.

Names of priorities vary from mailer to mailer but commonly seen priorities include: numbers (i.e. 1 is the highest priority, 5 is the lowest), first-class, normal, special-delivery, urgent (or u), and bulk.

For example:

```
efg-priority[first-class] = Rush
efg-priority[special-delivery]= Panic
```

Swiiftefg looks first for a `Priority:` header in the email message and if one is not found, it then looks for an `X-Priority:` header.

For more information on the Account, Class, and Style databases, please refer to the on-line help or documentation for your Faximum fax server software. If you are using **swiiftefg** with a fax server from another vendor please contact Faximum Technical Support for assistance.

For information on the available Accounts, Classes, and Styles, please see the configuration of your Faximum fax server.

efg-mime-types-file

The `mime.types` file specifies how the swiiftefg tool is to convert MIME attachments into one of the base file types that the underlying fax server knows how to handle. This file is usually shared by the *swiiftwfg* utility and is documented in a separate mime.types file appendix. Example:

```
efg-mime-types-file = /opt/SWIIFT/lib/mime.types
```

TROUBLESHOOTING

If your sendmail.cf file passes the –bv and –bt tests outlined above and yet faxes sent through the Email/Fax Gateway are not getting through then please follow the following steps to isolate the cause.

The first step is to try to determine where the failure is occurring. Faxes sent through the EFG are first handled by sendmail, then passed to the **swiiftefg**, and then passed to the underlying fax server.

The easiest way to see how far the request is getting before it fails is to edit your /etc/opt/faximum/faximum.conf file and set the efg-debug parameter to yes. For example:

```
efg-debug = yes
```

With this parameter set, send an email message to the EFG and then look in the /tmp directory for files with names starting with efg.dbg. These files will contain detailed information on the handling of the request and ought to shed some light on why the request is failing. If the cause is not obvious, then email these files to support@faximum.com for analysis.

If no files are created in /tmp even with the efg-debug parameter set then this indicates that the problem is with sendmail. Look in the sendmail log file (called syslog and normally found in the /var/log or /usr/adm directories). Again, if the reason is not obvious, then email the last 100 or so lines to support@faximum.com.

NOTE, on SCO systems the sendmail program is, by default, configured not to log much information. In order to obtain the information needed to diagnose sendmail problems on SCO systems you will need to edit the /usr/lib/sendmail.cf file and change the log level to 9. For example:

```
# log level
OL9
```

One common cause for email not to be passed to the **swiiftefg** is because the attachments make the message larger then the limit specified by the M= parameter (see the section on sendmail.cf configuration above). On some systems sendmail will drop oversized messages quietly without any warning or error message.

SECURITY

Since the transmission of faxes through the EFG can incur long-distance charges, it is important for the EFG administrator to realise that the EFG believes the *From:* information given it by the sendmail (or other mail server) when checking the `efg-access` list described above.

Unfortunately the underlying email protocols are not secure and it is not difficult for a malicious user to cause email to be sent that has fictitious From: headers. In this manner an unauthorised user could appear to the email server (and hence to the EFG) as an authorised user and causes faxes to be sent (and phone bills to be incurred) that ought not be permitted.

Until secure email protocols become widely supported, the only method to reduce the likelihood of this problem is to install the EFG on a mail server that is protected from external access (both direct and indirect) by using firewalls and careful configuration of other mail servers behind the same firewall.

Faximum Software is monitoring the progress of the S/MIME secure email proposals and once support for this approach becomes generally available, Faximum will add support for S/MIME to SWIIFT as a means of reliably authenticating the originator of email messages sent to the EFG.

If any customer is running a secure email system with authentication and wishes to have SWIIFT verify the originator of email messages, please contact Faximum Technical Support (support@faximum.com) for more information.

SEE ALSO

See the documentation for the *sendmail* utility on your system. Further information on sendmail may also be found at http://www.sendmail.org/

Name

swiiftfeg- convert an ASCII file into a TIFF image

Availability

FMG, FMG

Synopsis

swiiftfeg -a *email-address* [-c] [-d] [-l *locale*] [-m *message-file*] [-s *subject*] [-v] *tiff-file*

Description

The *swiiftfeg* tool implements the Fax/Email Gateway (FEG) which takes a received fax, converts it into a MIME email message with the fax as an *image/tiff* type attachment, and calls *sendmail* to send the message.

Obviously the recipient of the messages needs to both (a) be running an email user agent that can handle MIME attachments and (b) have a viewer program that can handle TIFF-F attachments. Faximum provides such viewers for common operating systems as part of its SWIIFT package.

-a *email-address*

This argument contains the email address or addresses that are passed unchanged to *sendmail*. Multiple recipients may be specified as long as the list contains no embedded spaces or is enclosed in quotation marks.

-c This will cause the copyright information for the program to be displayed. No other parameters will be processed.

-d This will cause detailed debugging information to be written to a file in the `/tmp` directory with a name starting with `feg.dbg.`

-l *locale-name*

This argument specifies the name of the locale to be used when processing messages. This will be used as the second argument to a `setlocale(LC_ALL, locale)` call (see **setlocale(3)** in your system documentation) and will also affect the message catalogue used for messages issued by the FEG. Finally, the locale name will be used as the value of the `LANG` environment variable when conversion program from the mime.types file are run.

-m *message-file*

This optional argument specifies the path name of the file that is to be sent in the email message indentifying the received fax. If this argument is not present, the FEG will generate an email message similar to the following example:

Please find attached the following fax:

From: 1 604 926 8182
Pages: 2
Received at: 23 Dec 1997
Duration: 120 (seconds)
Fax Line: fax-line-1

Obviously the ability of the FEG to generate such a message depends upon the calling fax server having written the appropriate information in the TIFF file headers. The Faximum products do this but if the FEG is integrated with other fax servers this information may be absent (and the resulting email message description less informative).

-s *subject-line*

This optional argument specifies the path subject line to be sent in the email message indentifying the received fax. If this argument is not present, the FEG will generate a subject line similar to the following example:

Fax from 1 604 926 8182 (2 pages)

-v This will cause the version information for the program to be displayed. No further parameters or input will be processed.

Configuration

/etc/opt/faximumfaximum.conf Parameters

The parameters in the `/etc/opt/faximum/faximum.conf` file that affect the operation of the FEG are described below.

feg-sendmail

This optional parameter indicates which program is to be run to deliver the email message. The program will be passed the email addresses on the command line and the file containing the MIME message including the fax and all appropriate headers will be set up as the standard input to this program. If this

parameter is not specified then `/usr/lib/sendmail` will be used by default. Example:

```
feg-sendmail = /opt/BETTERMAIL/mailagent
```

feg-debug

This optional parameter has the same effect as setting the "-d" argument on the command. Example:

```
-feg-debug = yes
```

Fax Server Configuration

The FEG only handles the delivery of the fax to the user by MIME-email. It is the responsibility of the fax server to receive the fax and to pass it to the FEG for ultimate delivery.

The method of configuring the fax server will depend on the fax server being used. With Faximum PLUS or Client/Server it is necessary to configure the *Action* and *Dispatch* databases of the fax server.

For example, with the Faximum Client/Server product you would bring up the Fax Routing window (accessed through the Administration pull-down menu), select the criteria by which the fax server is to determine which faxes are to be routed to whom (i.e. by sending machine TSI, by receiving fax phone line, or by Direct Inward Dialling extension number), and specify that `swiiftefg` is to be called (with the appropriate email address) to deliver the fax.

Please see your Faximum manuals or on-line help for further information. Note that routing by DID (or the ISDN equivalent, DNIS) is a feature recently added to Faximum's products. If your server does not support DID/DNIS you may wish to contact Faximum Technical Support (support@faximum.com) for an upgrade.

See Also

See the documentation for the *sendmail* utility on your system.

NAME

tiffcat - concatenate TIFF files

AVAILABILITY

ELS, PLUS, C/S, MFAX, TIFF, FMS

SYNOPSIS

tiffcat -o *output files ...*

DESCRIPTION

The tiffcat program concatenates all of the named files into a single TIFF file. If any of the TIFF images contain a PageNumber tag it is updated. Images will otherwise remain untouched (and will retain their existing compression level). Note that tiffcat will neither create nor update the SubFileType of NewSubFileType tags to reflect the fact that the output file is a multi-page image. All TIFF files created by Faximum already contain the correct NewSubFileType tag.

The command tiffcompress may be used to create a multi-image TIFF file with the appropriate PageNumber and NewSubFileType tags.

SEE ALSO

tiffcompress, tiffsplit

NAME

tiffcompress - TIFF image compressor

AVAILABILITY

ELS, PLUS, C/S, TIFF

SYNOPSIS

tiffcompress [-c *compression*] -o *output file1 file2 ...*

DESCRIPTION

tiffcompress concatenates and reformats the TIFF images in the input files (*file1*, *file2*, etc.) creating a new output TIFF file.

-c *compression*

Arguments to -c can be a hex number (prefixed by 0x), an octal number (prefixed by 0), or a decimal number (no prefix). Compression may be one of the following values:

1 - no compression;

2 - CCITT Group 3 1-D Modified Huffman with no EOL codes;

3 - CCITT Group 3 1-D Modified Huffman with EOL codes and no padding;

0x43 - CCITT Group 3 1-D Modified Huffman with byte-aligned EOL codes; or

32773 - PackBits compression.

-o *output* Specifies the output file.

The default compression used by Faximum for TIFF files it creates is 0x43 (this is compliant with the requirements of TIFF Class F files).

Some graphics or word processing programs cannot handle all forms of compression. WordPerfect for example, cannot handle type 0x43 but can handle compression types 1 and 2. When in doubt, try compression type 1.

NAME

tiffcut - extract a rectangular part of a larger image

AVAILABILITY

ELS, FMS, PLUS, TIFF

SYNOPSIS

tiffcut [-x *n*] [-y *n*] [-h *n*] [-w *n*] -o *outputfile inputfile*

DESCRIPTION

The tiffcut utility extracts an arbitrary rectangle from a TIFF file and creates a new TIFF file containing the portion of the image cut out of the original TIFF file.

OPTIONS

-x *n* Sets the distance from the left edge of the image where the cut rectangle starts. By default, the cut starts at the left edge of the image.

-y *n* Sets the distance from the top edge of the image where the cut rectangle starts. By default, the cut starts at the top edge of the image.

-h *n* Sets the height of the cut rectangle. By default, the cut rectangle ends with the bottom of the image.

-w *n* Sets the width of the cut rectangle. By default, the cut rectangle ends with the right edge of the image.

In all of the above, the distance (by default) is in inches. If desired, you can suffix the number with c for centimeters, i for inches, and p for pixels.

EXAMPLE

This example extracts a signature from a page that has been scanned in (or received by fax). This example assumes that the signature is contained within an area that is one inch top to bottom and three inches left to right, and that the upper left-hand corner of the signature area is four inches down from the top of the page and two inches in from the left edge of the page.

```
tiffcut -x 2i -y 4i -h 1i -w 3i -o signature page.tif
```

NAME

tiffhp - convert TIFF files to HP PCL

AVAILABILITY

ELS, PLUS, MFAX, TIFF

SYNOPSIS

tiffhp [*options*] *files ...*

DESCRIPTION

The tiffhp program converts TIFF format files to Hewlett-Packard's PCL format for printing on HP compatible printers. The converted TIFF files are written on standard output. tiffhp could, for example, be used to print a document on the default printer using the following command:

tiffhp *file* | lp

Note that on some systems (for example SCO) the binary output of the tiffhp comand will not be properly passed to the printer unless the "raw" or "graphics" option to the lp command is used. For example:

tiffhp *file* | lp -og

Please refer to the documentation for your lp print spooler command for details.

OPTIONS

-c	Generate compressed PCL output. This option is applicable only to printers that support compressed graphics. This includes the HP DeskJet printer, LaserJet III and higher, and LaserJet IIP printer, but does not include the HP LaserJet or LaserJet IID printers.
-150	Print at 150 dpi. This is the default.
-200	Print at 200 dpi. This will usually give the highest quality output but not all PCL printers support 200 dpi. If you experience problems using this option then please select either 150 or 300 dpi operation.
-300	Print at 300 dpi. Output quality will be improved at the expense of *much* larger print files. Contrary to normal expectations, 300 dpi will not produce better output quality than 200 dpi, in fact on most faxes the output will look better at 200dpi than 300 dpi.

-p *paper* Set paper type. The following paper types are supported: letter, legal, executive, a4, com-10, comarc, c5, dl.

-o *list* Convert only those pages specified in *list* of pages. Pages can be any combination of a comma-separated list of page numbers or ranges. Ranges have the form *X*-*Y*; a missing *X* implies page one, a missing *Y* implies the last page.

-r Suppress the printer reset command before every page. By default the tiffhp command resets the printer between pages. If you are also using special lp flags to arrange for the fax to be printed using a specific paper tray this reset command may interfere with the paper selection command. In this case try running tiffhp using the -r flag.

HP's PCL language, unfortunately, varies from printer to printer. Also, some printers have insufficient memory to print at 300 dpi. tiffhp's default options have been chosen to generate output printable on any HP PCL compatible printer. Improved performance can be realized, however, by taking advantage of the compressed graphics support available with the newer printers and using the -c option to tiffhp. Note that compressed output is roughly half the size of uncompressed print files.

SEE ALSO

lp print spool command for your operating system

tiffps from the Faximum documentation

NAME

tiffps - convert TIFF files to PostScript

AVAILABILITY

ELS, PLUS, MFAX, TIFF

SYNOPSIS

tiffps [*options*] *files ...*

DESCRIPTION

The tiffps program converts TIFF format files to PostScript format for printing on PostScript compatible printers. The converted TIFF files are written on standard output. tiffps could, for example, be used to print a document on the default printer using the following command:

tiffps *file* | lp

Note that the output of the tiffps command contains only ascii characters and therefore no special lp flags are needed to handle the output of tiffps (unlike tiffhp).

The standard preamble file (see below) is configured to print on letter-sized paper (8.5" x 11"). If you need to support legal (8.5" x 14") or other sizes please edit the preamble file (the comments inside the file indicate what needs to be changed).

OPTIONS

-c *copies* Request the specified number of copies be printed.

-m *length* Set the longest page (in inches) that will be squeezed to fit on one page (default is set within the preamble file and is normally 14.5"). TIFF images longer than this value are split into multiple pages.

-p *preamble-file*
Replace the standard preamble with the file specified (must be in the preamble directory). Please refer to the standard preamble file for guidance on how to make changes to suit your printer and paper.

! Although tiffps uses a very fast and compact run-length compression algorithm, the generated PostScript files are still many times the size of the original TIFF file, usually between four and eight times as large. (This is still a fraction of the size they would be if uncom-

pressed PostScript image data were generated.) Therefore running tiffps on a large TIFF file can create an extremely large PostScript file, one that may overflow the spool area.

FILES

.../faximum/ps/standard.ps
standard preamble

SEE ALSO

tiffhp

The documentation on your UNIX/Linux line printer spooler command (called lp or lpr).

The *PostScript Language Reference, Third Edition* (available online at *http://partners.adobe.com/asn/developer/technotes.html*)

LAST UPDATED

May 6, 2002 5:48 am

NAME

tiffsplit - split a multi-page TIFF file into single-page files

AVAILABILITY

ELS, PLUS, FMS, TIFF

SYNOPSIS

tiffsplit *file* [*name*]

DESCRIPTION

tiffsplit splits a multi-page TIFF file into separate single-page files. The first page is placed in a file called *name*aa, the second in *name*ab, and on up to *name*zz**.** If *name* is not specified, then x is used as the default.

SEE ALSO

tiffcat

NAME

tifftiff - TIFF image reformatter

AVAILABILITY

ELS, PLUS, TIFF, FMS

SYNOPSIS

tifftiff [-a] [-c *compression*] [-s *length*] [-h] [-l] [-O *overlay*] [-o *output*] *file1 file2 ...*

DESCRIPTION

tifftiff concatenates and reformats the TIFF images in the input files (*file1*, *file2*, etc.) creating a new output TIFF file. It handles images that are smaller or longer than the standard page size, and ensures that the output file is strictly TIFF-F compliant.

-a Images are to be appended to the output file (rather that overwriting it).

-c *compression*

Arguments to -c can be a hex number (prefixed by 0x), an octal number (prefixed by 0), or a decimal number (no prefix). Compression may be one of the following values:

1 - no compression;

2 - CCITT Group 3 1-D Modified Huffman with no EOL codes;

3 - CCITT Group 3 1-D Modified Huffman with EOL codes and no padding;

0x43 - CCITT Group 3 1-D Modified Huffman with byte-aligned EOL codes (the default); and

32773 - PackBits compression.

-h, -l Specifies the resolution of the output file. Only one may be specified. If neither is specified, use the resolution of the first TIFF file (not the overlay file).

-o Specifies the output file. No output file causes tifftiff to use a scratch file, and then copy this scratch file back to the original file.

-O *overlay-file*

Uses the named file (which must be a TIFF image in either

standard or fine resolution) as the letterhead overlay. If the overlay file contains only one TIFF image, this image is overlayed on every page rendered by tifftiff. If the overlay file contains more than one TIFF image, the first image is overlayed on the first page rendered by tifftiff, and the second overlay file image is overlayed on every subsequent page rendered by tifftiff. *(PLUS Only)*

-s *length* Specifies the page length. If the image is longer than this, it is cut into multiple pages. If the image is shorter than this, it is centered vertically on the page. If the -s option is not specified, the page length is the longer of the image size and the overlay size (if one is specified). If the overlay is larger, the image will be centered vertically.

If the image is narrower than the page, then the image is centered horizontally.

APPENDIX E

Faximum Installation Service

If you would prefer, Faximum Software provides a software installation service for all of its products. If your computer has a dial-up or telnet connection, one of Faximum Software's engineers can dial up your computer and perform the necessary network configuration and software installation. There is, of course, a modest fee for this service. Please contact Faximum Sales (+1 604 925 3600, sales@faximum.com) for further information and to arrange for us to handle your installation.

In order to have the information necessary to plan the installation, Faximum will need the answers to the following questions. If you would prefer to discuss any of these questions with an installation engineer in order to fully understand the ramiftions of each installation option this also can be arranged as part of the installation service.

1. What operating system are you intending to use to host the Faximum Messaging Server?
2. Are you running DNS? Internally or externally (i.e. on a server on your LAN or on a server external to your LAN)?
3. Do you plan to use the same fax server to handle outbound traffic and inbound traffic?
4. Is the machine that is to be the outbound fax server currently running an email (SMTP) server?
5. If yes, what email server is it running (sendmail or ??)?
6. Is the machine(s) that is to be the fax server currently running a web (HTTP) server?
7. If yes, what web server is it running (Apache or ??)?

8. If yes, do you want to run FMS (the cgi-bin components) under your existing web server or do you wish to assign a different port number to FMS and use the FMS mini-web server?
9. What client machines (HP-UX, Win95, Win98, WinNT 3.51, WinNT 4.0, Win2K, Mac, etc.) do you intend to use to originate email/fax messages?
10. What client machines (HP-UX, Win95, Win98, WinNT 3.51, WinNT 4.0, Win2K, Mac, etc.) do you intend to use to receive/view fax/email messages?
11. What email clients (Eudora, Outlook Express, elm, etc.) are you planning to use?
12. Is the SMTP server that your client machines use to send email the same as the server to be used for outbound faxes?
13. Are your client machines using POP3 or IMAP4 for inbound email messages?
14. Is your POP3/IMAP4 server the same machine as the fax server or a different machine?
15. Is dial-up or telnet access available to the fax server(s) so that Faximum staff can access the systems to perform the installation and/or configuration?

APPENDIX F

Error Codes

This section provides a detailed explanation of the error codes and messages generated by the Faximum Messaging Software..

Code		Explanation/Corrective Action
C101	What:	FMS installation script could not one or more files needed for the installation.
	Why:	This is caused either by having a corrupt installation package or by deleting installation files before runing the installation script.
	Fix:	Obtain a new set of installation files either from the media or from Faximum Software's web site. If this does not resolve the problem, contact Faximum Technical Support.
C102	What:	A check sum test of the installation files indicates that one or more of the files have been corrupted or damaged.
	Why:	This is caused either by having a corrupt installation package or by errors in transfering (i.e. using FTP) the files to your system..
	Fix:	Obtain a new set of installation files either from the media or from Faximum Software's web site. If this does not resolve the problem, contact Faximum Technical Support. If using FTP to transfer the installation files from one machine to another, make sure you use *binary* mode and not ASCII mode.

Obviously there are many many more error messages to be added to this chapter. We apologise for the delay in completing this section and invite you to email any error messages you need interpreted to support@faximum.com

APPENDIX G

Help Screens

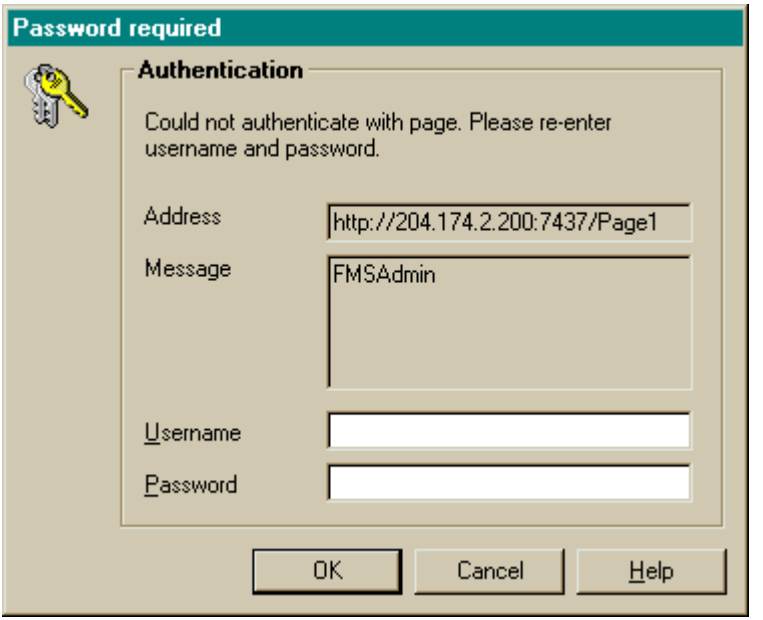
This section provides (a) a picture of every screen available through the web-based FMS administration tool and (b) the information accessible through the Help! buttons on these screens.

Start Screen

This screen appears when you have pointed your browser at the FMS URL (http://your.fms.domain:7437/) but either you have not previously logged into FMS or your browser has forgotten the password to be used with this site.

To login, click on either the Faximum logo or the “Faximum Messaging Server 2.0” banner.

When you do this you will see a screen similar to the following (the exact appearance will depend on the browser you use, this example is from Opera):



The address will, of course, be the address of your FMS server. If you have an account on this FMS server then enter your user name and password. If you have not created any accounts on your new FMS server, then enter admin as the username and leave the password field blank.

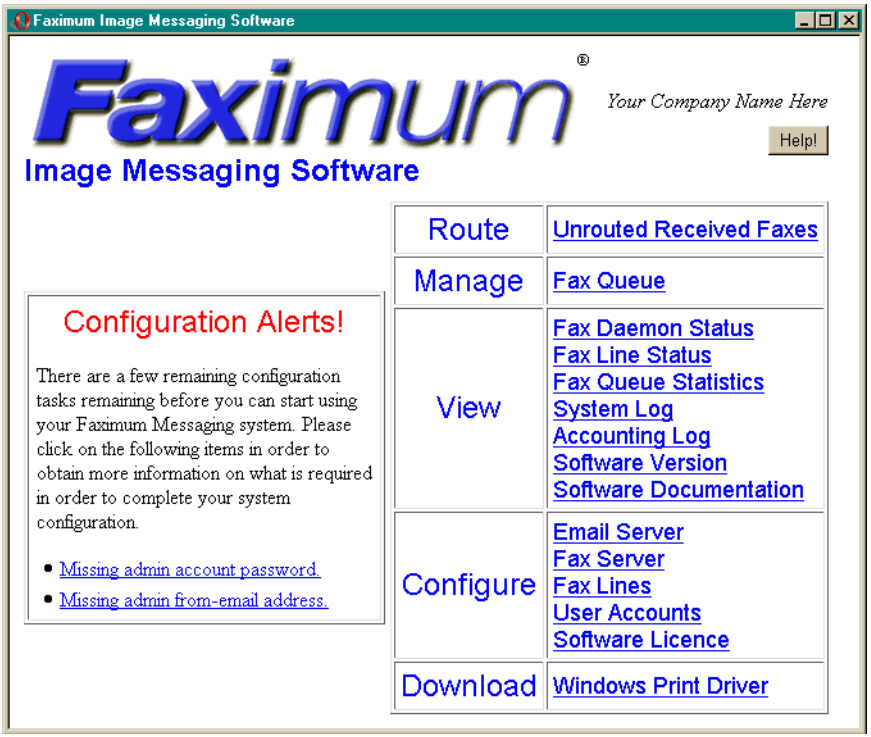
If you have forgotten your password then you can ask your FMS server administrator to change your password. If you are the FMS administrator and:

(a) need to change a user's password, please see "Password, Changing" on page 53;

(b) have forgotten your admin password, please see "Password (admin), Removing" on page 53.

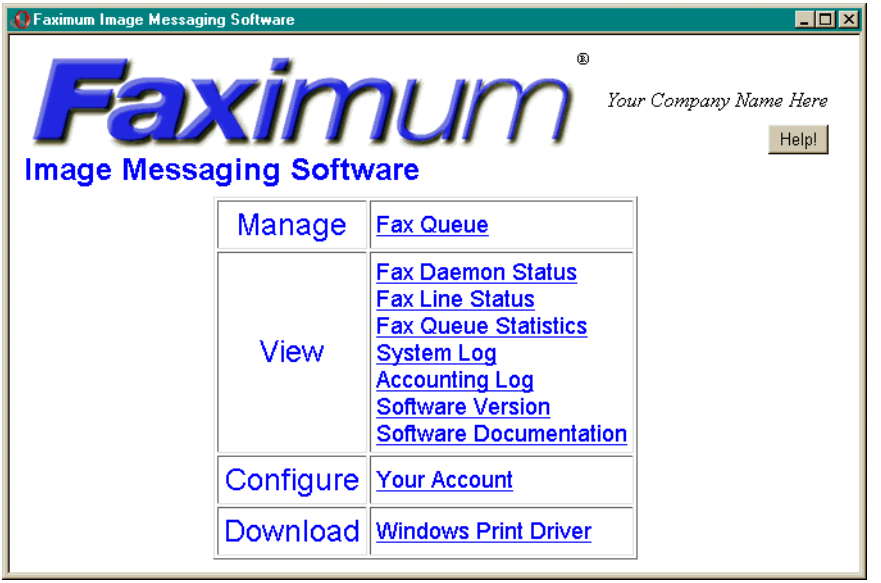
With some browsers (most notably Opera) you must put something in the password field, even if your account has no password.

Home Page



The FMS home page is divided into two areas. On the left (“Configuration Alerts”) will normally only appear when you first use FMS and will guide you through the configuration steps that are needed before you can start sending and receiving faxes using FMS. In the example above we show only a couple of remaining configuration item but the list below shows all of the possible alerts and links to the sections in this manual that describe the issue in detail. On the right are the various screens available. Note that the above screen shows the links available to an FMS user with admin privileges (see “User Privileges” on page 76).

Users without admin privileges will see a subset of these choices as shown below.



For more information on these various screens, either select the screen of interest and then press the Help! button or see below.

Configuration Alerts

The following lists the six different configuration areas that need to be addressed immediately after the installation of the FMS software.

- identification (page 195)

  to specify your company identification information that will appear on the cover sheet and elsewhere
- fax line (page 198)

  to specify the serial communications port (i.e. the /dev/ttyxx special file) that the fax modem is connected to
- missing admin account password (page 202)

  to specify the admin account password to protect access to the FMS administrative functions

- missing admin from-email address (page 202)

  to specify the email address from which email from the FMS administrator will originate (so that faxes from this user will be accepted by the FMS server)
- faxsched daemon (page 183)

  to enable the operation of the faxsched daemon which is responsible for scheduling all outbound faxes
- email configuration (page 193)

  to configure your email server (i.e. sendmail or Postfix) to recognise email with a FAX= address and to pass these messages to the FMS server for delivery

You ought to address all of the configuration alerts before allowing users to access the system. Click on each link in the configuration alert box and complete the requested function. If you have any questions about the configuration required merely press the Help! button on that page.

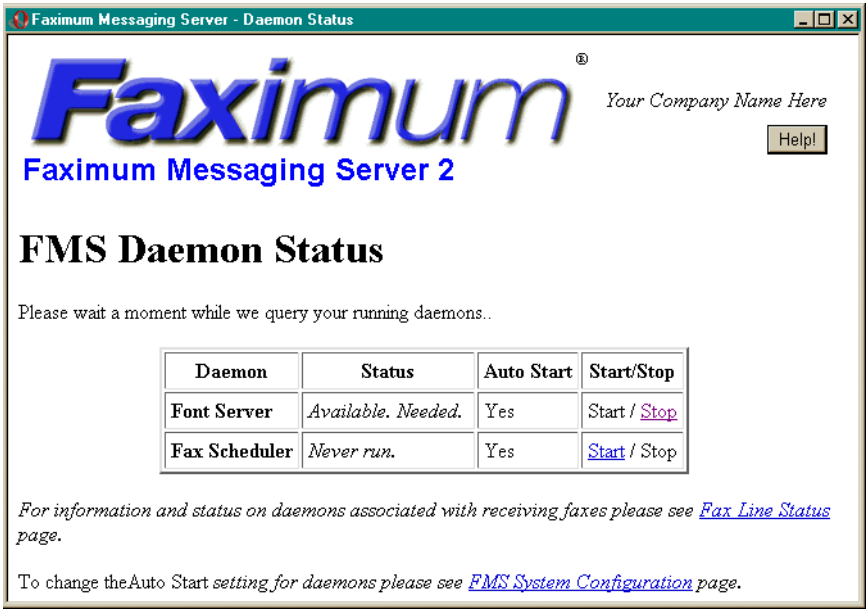
Queue Status

This page lists all of the requests (active or recently handled) in the queue. To obtain more information on a specific request, click on the request's sequence number (Seqno). This will bring up the *Request Status* page shown below.

Request Status

This page provides detailed information on a request selected using the Queue Status page. Depending on the current status of this request it may be possible to activate, suspend, or delete the request.

FMS Daemon Status



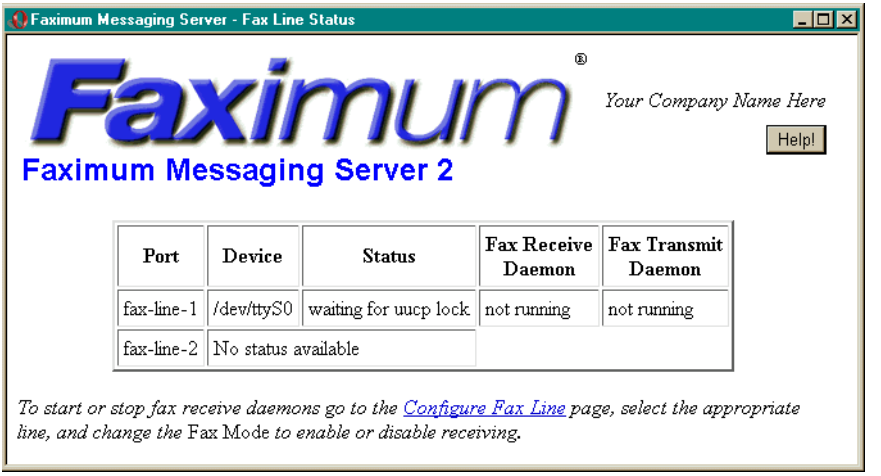
This screen shows the current status of the font server and FMS fax scheduler daemons. It also allows you to start or stop these daemons.

The font server, if available, is used by the FMS system to convert text documents into fax format.

The fax scheduler is responsible for managing the sending of outbound faxes. If you are using FMS only to receive faxes then there is no need to run the fax scheduler.

If you wish to receive faxes then you also need to make sure that the appropriate *faxgetty* daemons are runing. This is done using the Fax Line Status page as indicated above.

Fax Line Status

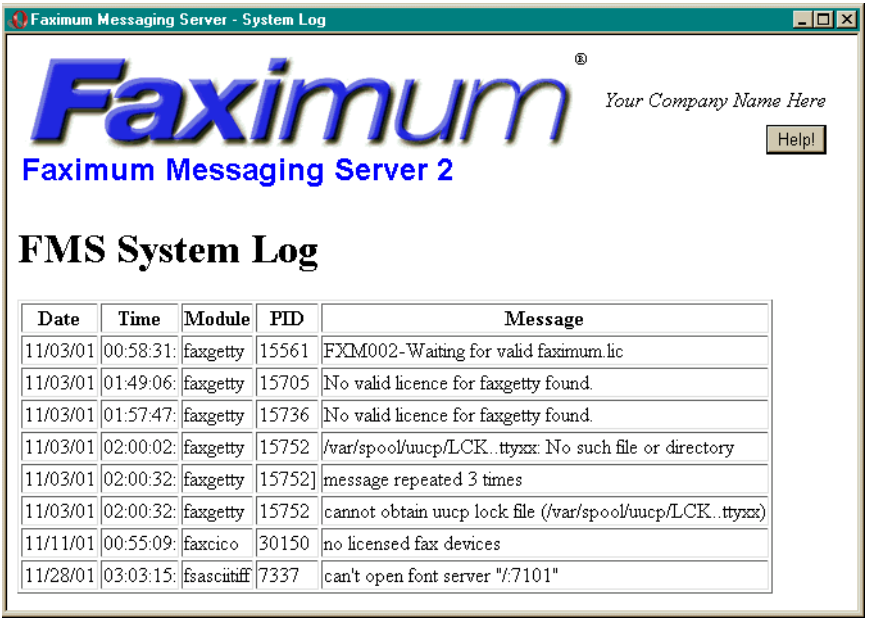


The Fax Line Status page shows the current status of all the fax lines on your FMS server. If you wish to change the configuration of any of your existing fax lines or add additional fax lines you will need to go to the Configure Fax Line page. Note that the maximum number of fax lines you can configure is limited by the number permitted by your licence. To license additional fax lines please contact Faximum Software.

Queue Statistics

This page provides a statistical summary of the user's faxes over the past while. If the user had *admin* privileges then it will also provide a summary of all users' faxes.

System Log

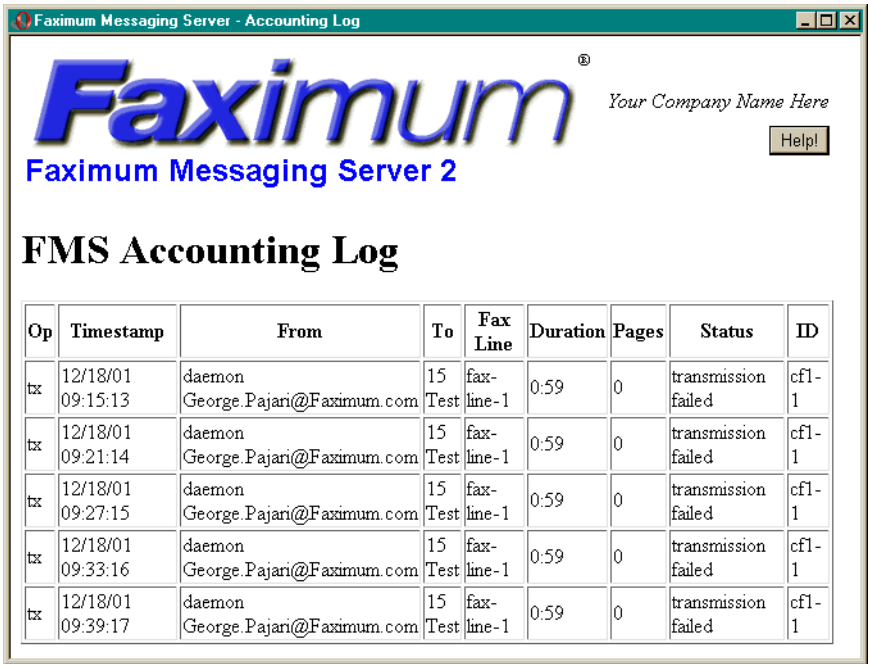


Date	Time	Module	PID	Message
11/03/01	00:58:31:	faxgetty	15561	FXM002-Waiting for valid faximum.lic
11/03/01	01:49:06:	faxgetty	15705	No valid licence for faxgetty found.
11/03/01	01:57:47:	faxgetty	15736	No valid licence for faxgetty found.
11/03/01	02:00:02:	faxgetty	15752	/var/spool/uucp/LCK..ttyxx: No such file or directory
11/03/01	02:00:32:	faxgetty	15752]	message repeated 3 times
11/03/01	02:00:32:	faxgetty	15752	cannot obtain uucp lock file (/var/spool/uucp/LCK..ttyxx)
11/11/01	00:55:09:	faxcico	30150	no licensed fax devices
11/28/01	03:03:15:	fsasciitiff	7337	can't open font server "/:7101"

The FMS System Log records all the events of significance. This can be used to monitor the operation of the system as well as to provide information on problems that might be detected by the fax server software.

Whenever problems are suspected in the operation of the FMS software this is the first place where the system administrator ought to go to obtain information to assist in diagnosing the suspected problem.

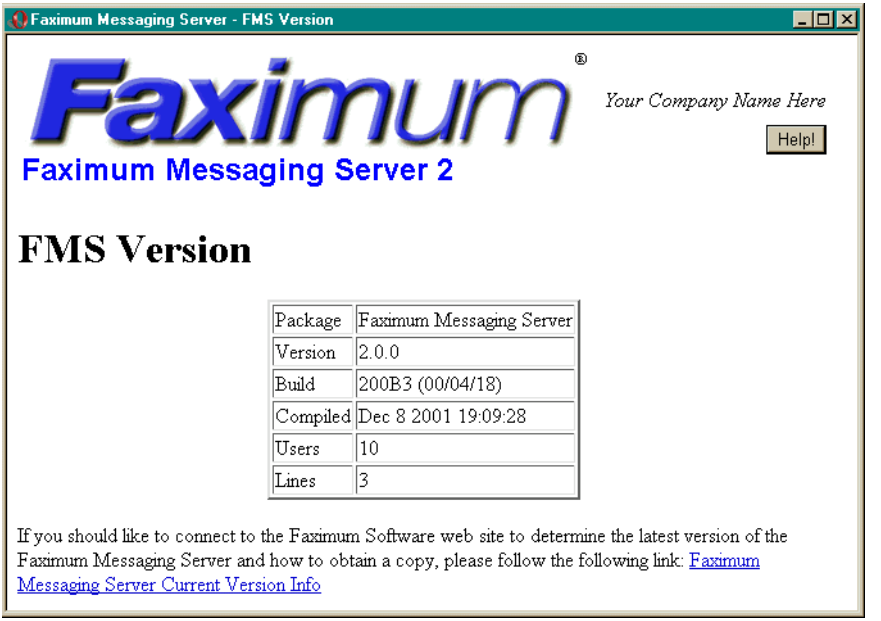
Account Log



Op	Timestamp	From	To	Fax Line	Duration	Pages	Status	ID
tx	12/18/01 09:15:13	daemon George.Pajari@Faximum.com	15 Test	fax-line-1	0:59	0	transmission failed	cf1-1
tx	12/18/01 09:21:14	daemon George.Pajari@Faximum.com	15 Test	fax-line-1	0:59	0	transmission failed	cf1-1
tx	12/18/01 09:27:15	daemon George.Pajari@Faximum.com	15 Test	fax-line-1	0:59	0	transmission failed	cf1-1
tx	12/18/01 09:33:16	daemon George.Pajari@Faximum.com	15 Test	fax-line-1	0:59	0	transmission failed	cf1-1
tx	12/18/01 09:39:17	daemon George.Pajari@Faximum.com	15 Test	fax-line-1	0:59	0	transmission failed	cf1-1

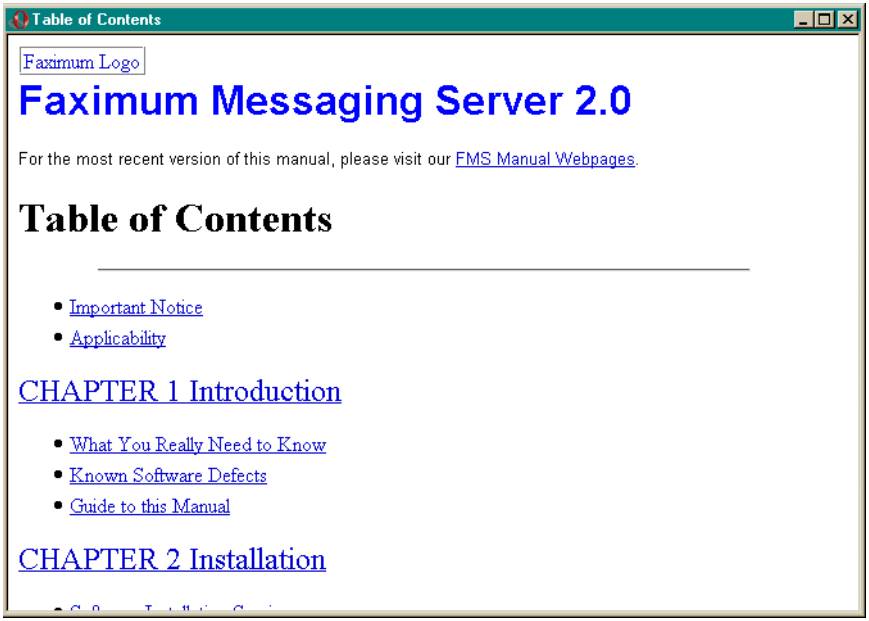
The Account Log contains an entry for every time the fax server dialled a number or answered an incoming call.

Software Version



The FMS Version page provides details on the version of the software being used. It also provides a convenient link to Faximum's website showing the current release information.

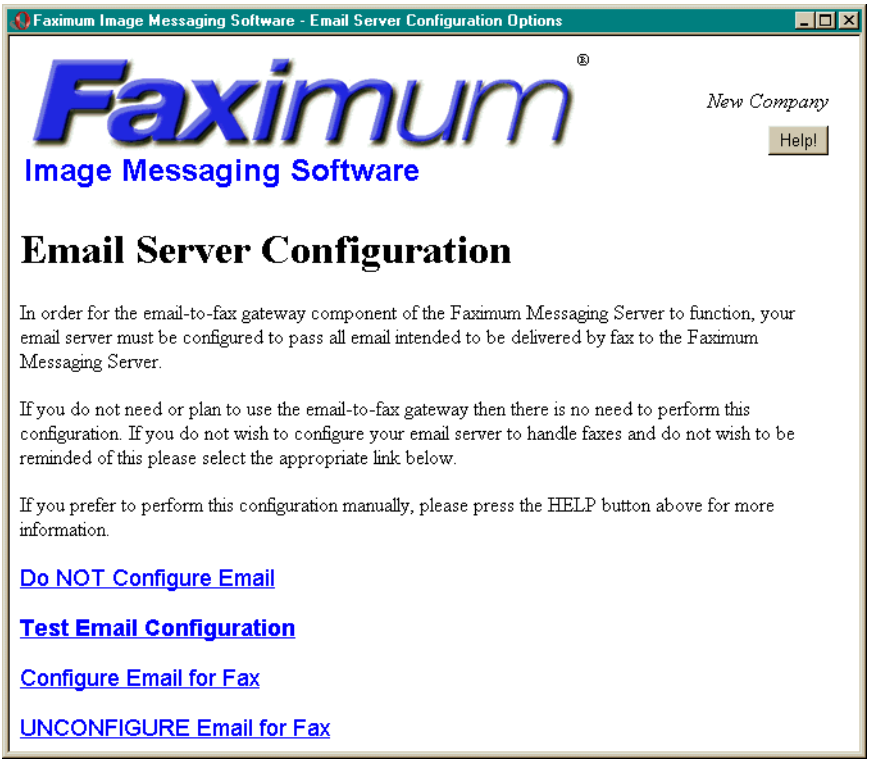
FMS Documentation



The entire FMS manual (this document) is available on-line in both web (HTML) and printable (PDF) formats. You can access the manual either by selecting the Software Documentation link from the home page or by pressing the Help! button on any page. In the first case you will be taken to the table of contents (shown above), in the second case you will be taken to that part of the manual relevant to the page you were viewing when you press the Help! button (from whence you can jump to any part of the manual).

There is also a link at the top of the Table of Contents to the version of the manual available on Faximum's website. By comparing the dates of the manual on your server with that on Faximum's website you can determine if you have the most recent.

Email Server Configuration Options



This page is used to configure, test, and unconfigure the email server on the system you are using to host the FMS software.

In order to be able to send email messages addressed to fax numbers it is necessary for the email server on the FMS host be configured to recognise the distinctive format of fax email addresses. If this configuration is not performed then email addressed to fax numbers will be rejected (bounced) with errors such as "Unknown user".

If you are planning to use FMS for inbound (i.e. for receiving) faxes only then there is no need to configure your email server to recognise fax email addresses. In this case please click on the Do NOT Configure Email link. This will tell FMS that you are not planning to configure your email server and FMS will remove the warning from the configuration alerts on the FMS homepage.

The current release of FMS is designed to work with either sendmail (the default email server with most Linux and UNIX distributions) and Postfix (the email server that ships with the Caldera Volution Messaging Server and the SuSE eMail Server III products). If you are not running either of these email servers then please contact Faximum for further information on how to integrate FMS with your email server.

If you are unsure what email server you are running you can click on Test Email Configuration to see if FMS recognises your email server.

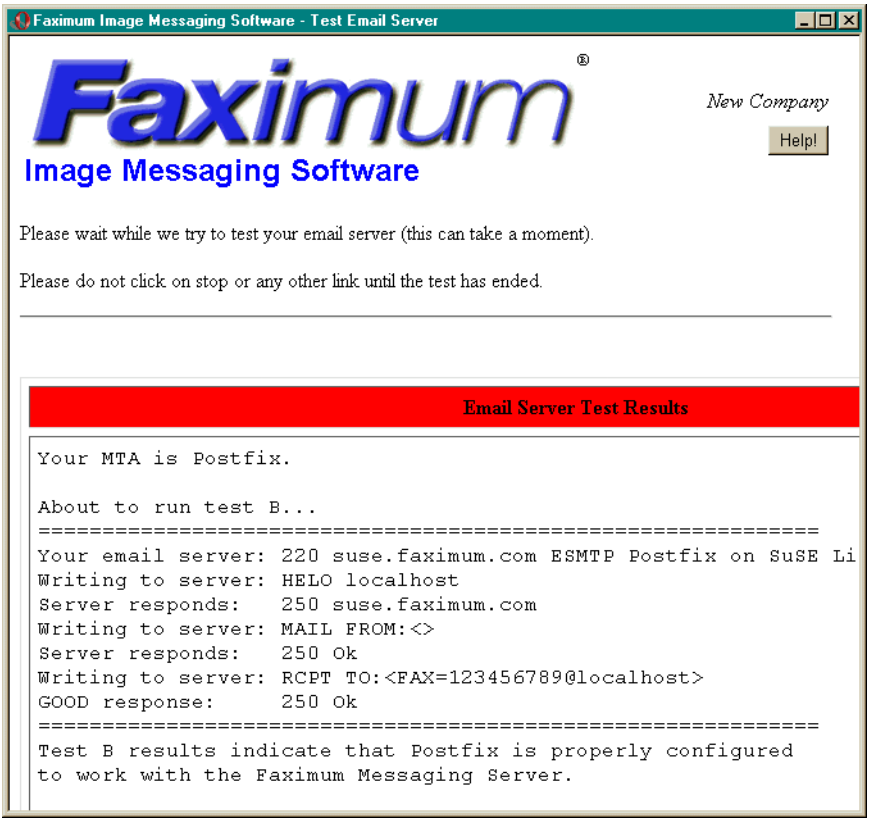
Note that it is possible for sendmail and Postfix to be configured so that they cannot be identified externally. If you are running sendmail or Postfix but the Test Email Configuration link does not detect that fact then contact Faximum for assistance.

Clicking on the Configure Email for Fax will run the appropriate configuration script to enable your sendmail or Postfix email server to handle fax email addresses.

NOTE - some sendmail installations generate their configuration file (sendmail.cf) from a master M4 file. On such systems making changes to the underlying sendmail configuration can cause the sendmail.cf file to be overwritten by a new sendmail.cf generated from the M4 file. This will cause FMS to malfunction. On such systems you will need to re-run the Configure Email for Fax link to update the new sendmail.cf file to work with FMS.

Should you need to restore your email server to its original configuration (as it existed when you previously ran the Configure Email for Fax function) then you can click on the UNCONFIGURE Email for Fax). Normally one would never have to use this function but if, for some unknown reason, your email server starts to behave strangely then you can immediately back out from the changes and then consult with Faximum Software to address the issue.

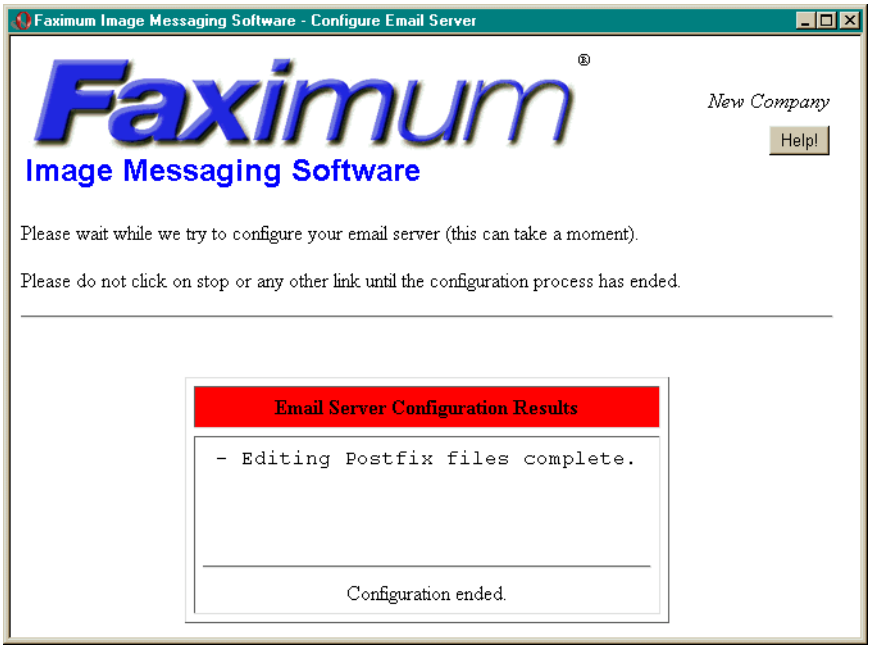
Email Server Test Results



This screen shows the results of testing the email server that is running on the FMS host system. If the script indicates that your email server cannot be contacted or identified then please contact Faximum Software for assistance.

For more information on configuring your email server see “Email Server Configuration Options” on page 190.

Configure Email Server



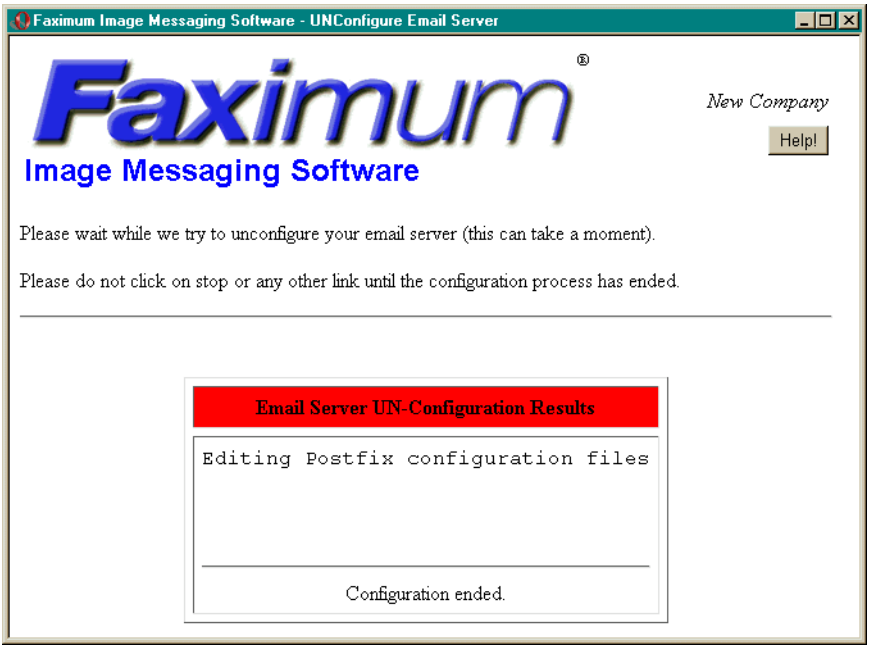
This screen shows the results of configuring the email server that is running on the FMS host system. The above example illustrates the results from configuring a Postfix server. Results for sendmail will be similar.

It is possible to configure sendmail and Postfix to mask their identity in which case not only will FMS be unable to identify them, it will be unable to configure them to work with FMS.

If the script indicates that your email server cannot be configured or identified then please contact Faximum Software (support@faximum.com) for assistance.

For more information on configuring your email server see “Email Server Configuration Options” on page 190.

Unconfigure Email Server

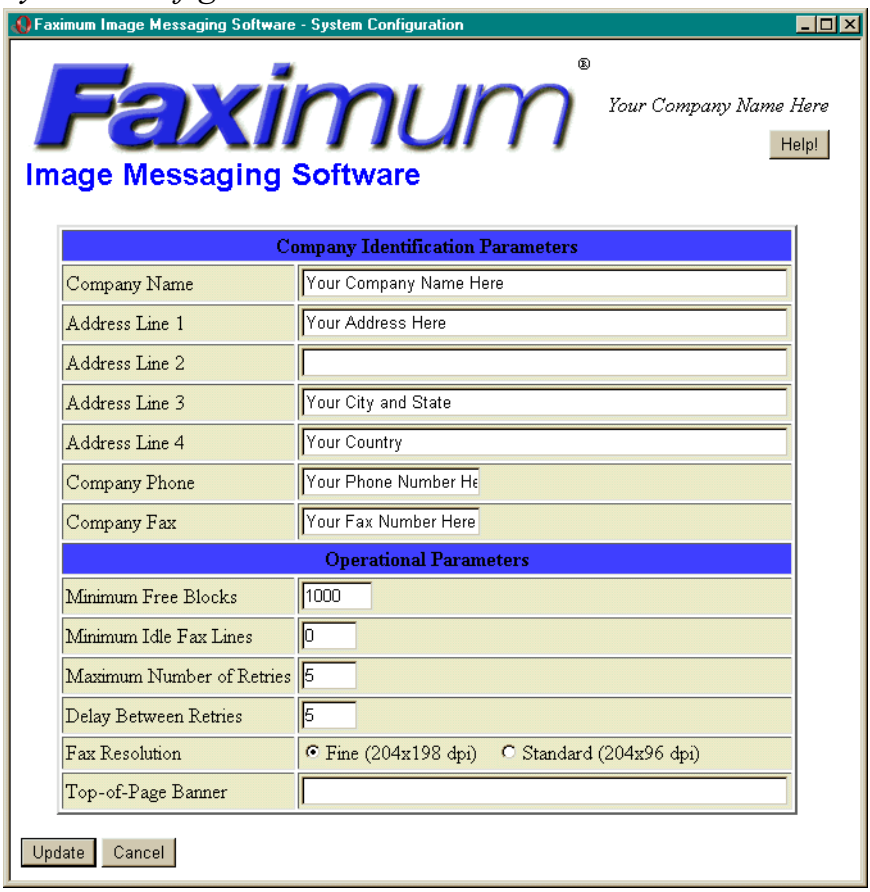


This screen shows the results of restoring the original configuration for the email server that is running on the FMS host system. The above example illustrates the results from unconfiguring a Postfix server. Results for sendmail will be similar.

If the script indicates that your email server cannot be unconfigured or identified then please contact Faximum Software for assistance.

For more information on configuring your email server see “Email Server Configuration Options” on page 190.

System Configuration



The System Configuration page lists all of the important configuration parameters that apply to the FMS server as a whole (parameters related to fax lines and users are managed through their own specific pages).

The identification section provides the information used to complete the cover sheet and default top-of-page banner.

The Minimum Free Blocks parameter specifies the number of disk blocks that must be available in order to safely receive a fax. If the free space on the disk par-

tition used for the FMS spool directory falls beneath this value then FMS will not answer incoming calls (mimicing the behaviour of a fax machine that has run out of paper).

The Minimum Idle Fax Lines parameter is only significant when the FMS system has more than one fax line and tells the outbound fax scheduler not to assign fax requests to all available fax lines (so that one or more lines will remain available for incoming fax calls).

The Maximum Number of Retries parameter specifies the number of attempts that ought to be made to deliver faxes.

The Delay Between Retries specifies the minimum number of minutes the fax scheduler is to wait before retrying a failed fax. Note that with heavily loaded systems the actual delay may be much longer.

The Fax Resolution parameter specifies the resolution used for faxes delivered by FMS. Fine resolution faxes look better but take longer to transmit.

The Top-of-Page Banner parameter specifies the text that is to appear at the top of every page faxed by the FMS software. FMS will generate a reasonable default top-of-page banner based on the company name from the identification section (above) but you can specify the exact format of the banner by completing this field (and, optionally, using the variables described below).

The following variables are recognised and replaced when they appear in the banner string:

- %c - the time and date of the transmission in local format
- %x - the preferred date representation for the current locale without the time
- %X - the preferred time representation for the current locale without the date
- $p - the current page number
- $t - the total number of pages in the fax

For more information on the various time formats available using the % format specification please refer to the documentation for the *strftime* library routine (i.e. “man strftime”).

Remember that the changes you make to these parameters will not be stored until/unless you click on the Update button.

Select Fax Line

This page lists all of the fax lines that have been defined for your server and, if your licence permits, enables you to add additional fax lines.

The Add button will only appear if you have not defined all of the lines permitted by your licence.

The Update button allows to configure the line you have selected from the list of lines already defined

The Delete button allows you to delete a line that you have already defined.

It is not recommend to delete the definition of a line while the *faxsched* or *faxgetty* daemons are running.

The Test Modem button will attempt to verify that a fax modem is connected to the port specified for the fax line your have selected.

The Reset Modem button will attempt to restore the fax modem to factory default parameters. Normally this is not required as the FMS software will configure the modem prior to each transmission or reception but it is possible for a modem that has been used with other software to be configured in a manner that prevents the FMS software from properly initialising the modem.

Fax Line Update

These parameters provide the configuration information for a single fax line available to FMS to send and/or receive faxes. The parameters are explained below:

Fax Line Name - the name used within FMS to identify this fax line. By convention this name is in the form of fax-line- followed by a number starting at 1. You may choose any name that does not contain blanks or strange punctuation.

Device Name - the path name of the Linux (UNIX) special device file that specifies the communications port the fax modem is connected to

UUCP Lock File - the pathname for the lock file to be used to coordinate the sharing of the fax modem (both between the FMS send and receive daemons and, if needed, with other software using the modem). If the modem is dedicated to the exclusive use of FMS (the normal situation) then this path name can specify any unique name (i.e. /var/lock/LCK..ttyS0).

DO NOT USE THE SAME UUCP LOCK FILE NAME FOR MORE THAN ONE FAX LINE!

Fax Mode - whether this line is to be used for sending faxes, receiving faxes, both, or not at all.

Class 2 Type - the type of fax modem in use. Normally FMS will automatically identify the modem and this can be left as *Auto*. Setting this to match your modem type will slightly improve performance.

Modem Init Speed - the baud rate (speed) to use to initialise the fax modem. Do not change this from 19200 unless asked to by Faximum Support.

Modem Fax-Mode Speed - the baud rate (speed) to use when the modem is in fax modem. Do not change this from 19200 unless asked to by Faximum Support.

Line Type - the name for the trunk group that this fax line is part of. Used for advanced scheduling and least-cost routing when multiple lines exist. Do not change from *default* unless suggested by Faximum Support.

Modem Init String - the command string sent to the modem to intialise it. Do not change from ATM0S0=0S7=45&D2&C1 unless suggested by Faximum Support.

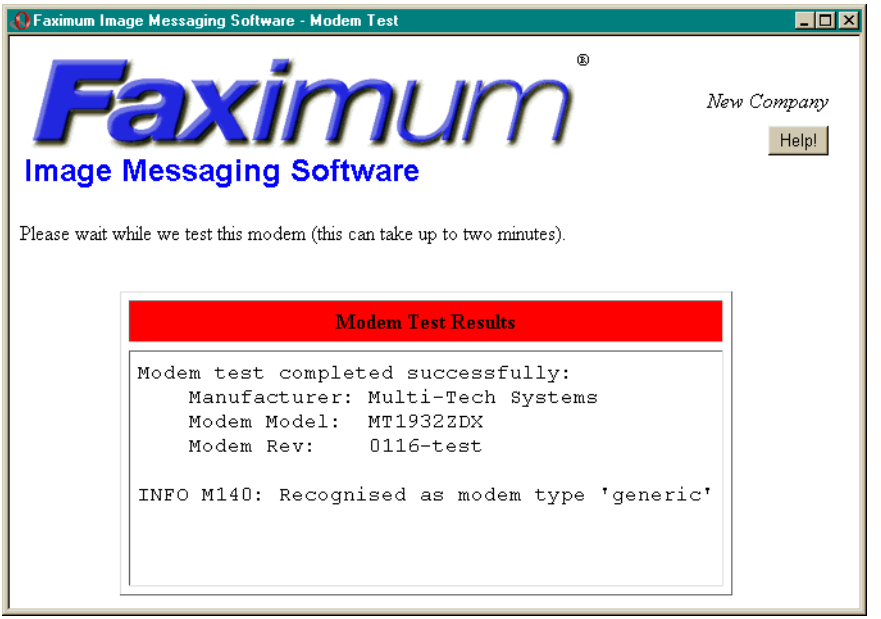
Number of Rings - the number of rings to wait before answering an incoming call.

Pulse Dial - the type of dialling to use (DTMF or "Touch Tone" is the default)

Station ID - the fax number to be sent during the handshake with the far-end fax machine for it to put in its log. Ought to be your organisation's published fax number (i.e. not necessaily the number for the phone line this fax line is connected to).

Remember that the changes you make to these parameters will not be stored until/unless you click on the Update button.

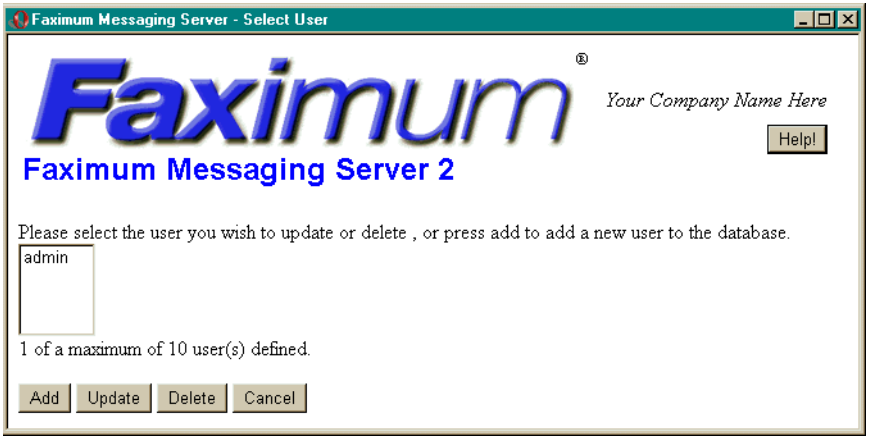
Modem Test Results



This shows the results of a successful modem test. If the modem test fails then please check the following:

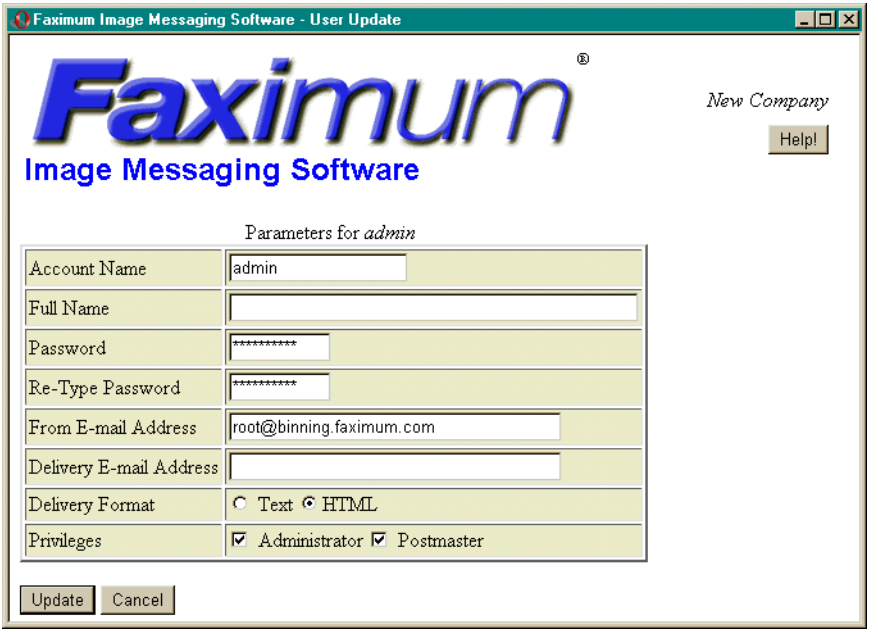
- the modem is properly connected to the server
- the communications port specified in the fax line configuration is actually the port the modem is connected to
- the modem is switched on
- the modem is a supported modem

Select User



This page lists all of the users currently defined for your FMS fax server and enables you to select one for editing or (if you have not defined as many users as your licence permits) to add new users.

Update User



This screen shows the parameters for the specified user that may be changed by a user with *Administrator* privileges. An unprivileged user will see a much smaller set of parameters that they can change (and they are limited to changing the parameters for their own account only).

Account Name - the short name for this account

Full Name - the actual name of the user

Password - the password for this account (never displayed)

Re-Type Password - used to verify that a new password has been entered correctly

From E-mail Address - the email address that this user will send fax messages from (used to determine if a message to be sent by fax has originated from an email account authorised to use this FMS server)

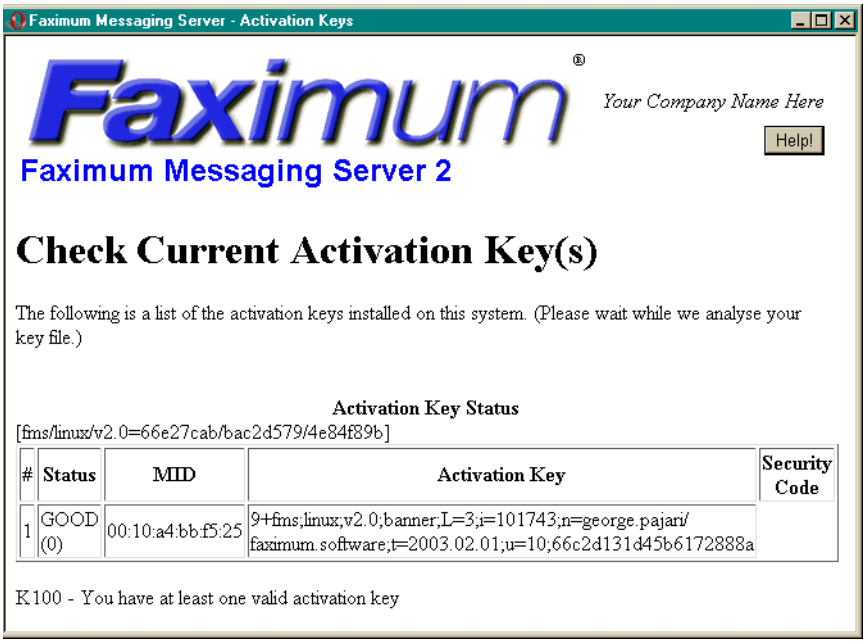
Delivery E-mail Address - the email address that faxes routed to this user are to be sent to

Delivery Format - the format to use for email messages sent to the user

Privileges - the privileges this user enjoys when accessing the FMS webadmin interface (see "User Privileges" on page 76).

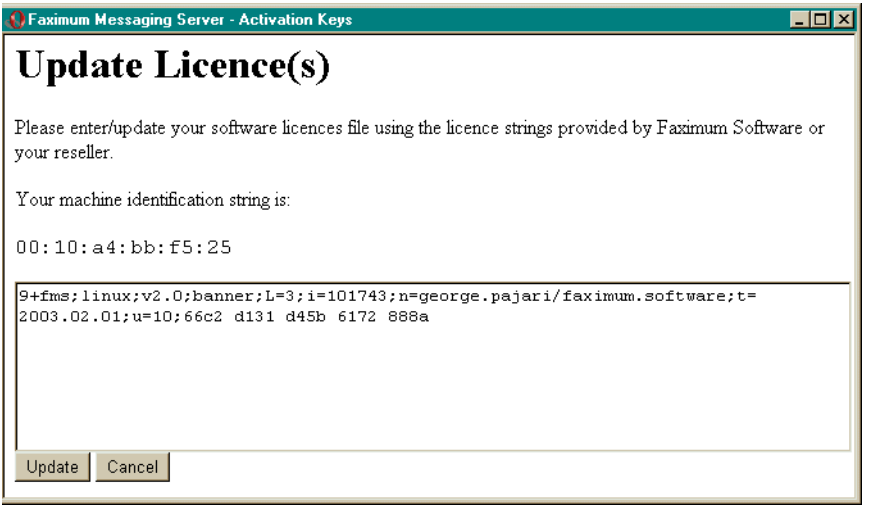
Remember that the changes you make to these parameters will not be stored until/unless you click on the Update button.

Software Activation Keys



This webpage is sufficiently long it has been divided into two in order to fit the limitations of the printed version of the manual. The first half, shown above, displays the current software activation keys that have been loaded into you system

(along with an indication of whether or not they are valid and have been correctly entered). the second half, shown below, enables you to add additional licences you may have received from Faximum Software but copying from the email message containing the new key and pasting into the window below.



Remember that the changes you make to your licence file will not be stored until/unless you click on the Update button.

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Colophon

Historically, the last page of specially designed and produced books (and originally, all books were special) was the colophon which is, to quote the Chicago Manual of Style[1], "an inscription including the facts of production".

Designed by George Pajari, based on a template from Adobe Corporation.

Composed in Times Roman and Helvetica using Adobe FrameMaker 5.5 running on Windows95 and HP-UX.

Adobe Acrobat (PDF) version produced using Adobe Distiller 3.02.

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A Note on Some Design Elements

The student of book design will notice two major departures from traditional page layout. First, the page numbering starts at 1 with the title page and is continuous throughout the book. This is to aid those viewing the book using Adobe Acrobat so that the page numbers displayed by Acrobat match the page numbers in the text. Secondly, the page number appears at the top and bottom of every page. This is to make it easier to see the page number when Acrobat is showing only the top half or bottom half of the page.

1. From *The Chicago Manual of Style*. 13th Ed. Chicago: The University of Chicago Press, 1982. pp.30.