Office Extend Fax
NT Edition

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INTRODUCTION

FAX Overview

Office Extend FAX is a "client/server" system. It consists of one or more PC-based fax servers that handle the actual delivery and receipt of fax documents, along with clients for various platforms which submit documents to the server(s) for delivery. Supported client platforms include the Hewlett-Packard 3000 running MPE/V or MPE/iX, PCs running Windows 95, Windows NT, and some Unix systems.

The Office Extend FAX Server itself is supported on one or more Windows NT based computers.

REQUIREMENTS

For the Fax Server

- Windows NT (Workstation or Server)
- Supported Class I/II/2.0 fax card or modem
- Network connection from HP3000 to NT Server
- Microsoft Internet Information Server (IIS) (for web interface only)

For HP3000 Clients

- TCP/IP transport (which is bundled in FOS with MPE/iX 5.0 or later).
- MPE V, MPE/XL, or MPE/iX

INSTALLING THE FAX SERVER

From the Internet or CD

1. Uninstall any current version of the software.
2. Choose a destination directory. The default is typically "c:\program files\Office Extend\". But if you run a multivolume disk system, you may choose to install the software on one of your larger volumes. The system stores logs, fax requests, and TIFF files in subdirectories of the program installation directory. *(Hint: The amount of storage required can be limited by choosing smaller values for fax- and log-retention times).*
3. Unzip (if necessary) and run SETUP.
4. Run the software. See the section entitled *Configuring the Fax Server* for details on initial choices for system parameters.

Web Interface Installation

The web interface to Office Extend requires Microsoft's Internet Information Server (IIS). This software is provided free of charge in both the NT server and workstation versions.

1. Install Microsoft's IIS software. Right click your Network Neighborhood icon on your desktop, choose Properties, select the Services tab. If *Microsoft Internet Information Services* (NT server version) or *Microsoft Peer Web Services* (NT workstation) does not appear, choose the Add button and install.
2. Determine your "Inetpub" directory. Typically this is "C:\Inetpub". Copy the file OEFaxNT.dll from the ISAPI directory under the Office Extend system installation directory (e.g., c:\program files\office extend\ISAPI\OEFaxNT.dll) to the .\Inetpub\scripts directory. With default paths, this would be:

   c:\program files\office extend\ISAPI\OEFaxNT.dll → c:\Inetpub\scripts\OEFaxNT.dll

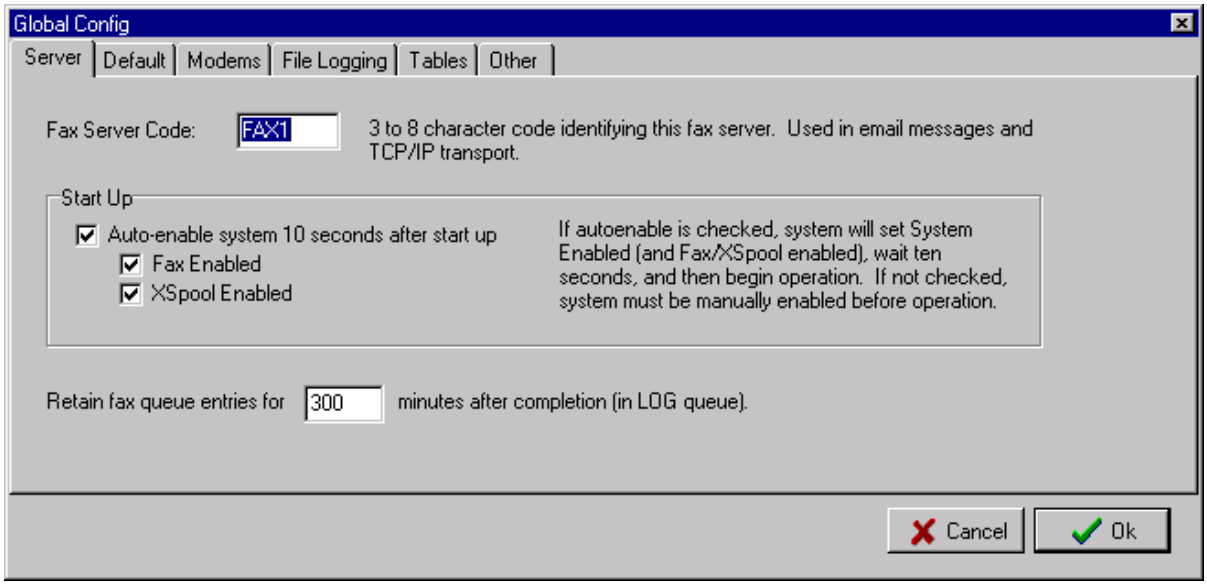
3. Note that IIS loads this DLL when you first access Office Extend's web interface (see the *Web Interface* section) and does not unload it until the IIS service or the system is restarted. If you experience a problem replacing the file in the .\Inetpub\scripts directory such as "Access Denied", you'll need to stop and restart the Internet Server service and attempt the replacement again.

CONFIGURING THE FAX SERVER

Global Configuration Screen

The System | Config screen consists of the following sections: Server, Default, Modems, File Logging, Tables, and Other. Each section will allow you to enter a group of related settings. Brief explanations of the configuration items appear on the screen itself. More detailed documentation is included below.

Config – Server



Fax Server Code ..... In multiserver installations, this code must uniquely identifies a server. Customers typically use some kind of office code; e.g., CHQ, SEA1, SEA2, etc.

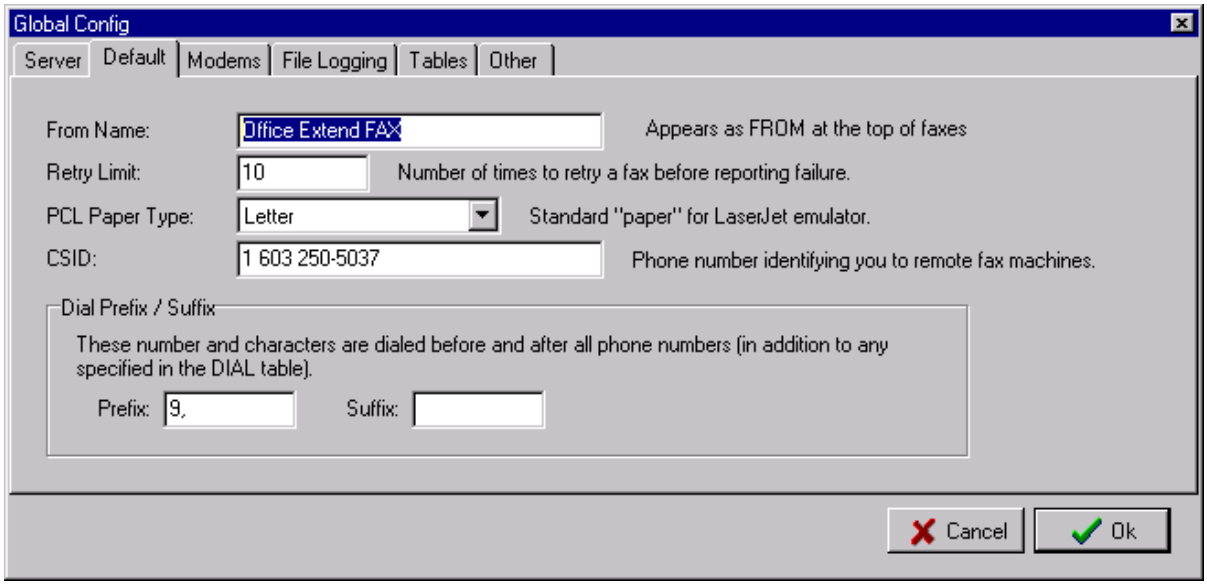
AutoStart

Start Up / Auto-enabled .... causes system to enable some or all operations shortly after start up.

LOG Queue Retention ..... specify the number of minutes the system should retain fax request entries after they have been completed. Typically, entries are retained so that they can be reviewed via the web interface.

Config – Default

This screen configures the default parameters for fax requests. Some of these may be overridden in *routing strings*; e.g., in FORMS= parameters on the HP3000. The applicable routing parameter keyword is shown in **(BOLD)**. Routing parameters are also documented in the *Routing Parameters* section of the manual.



From Name ..... Appears as the FROM in the heading line at the top of fax transmissions **(FROM)**.

Retry Limit..... The number of times the system will reattempt to send a fax that has failed for some reason; e.g., line busy, no answer, etc. If this limit is exceeded, the fax is logged as "failed". **(RETRIES)**

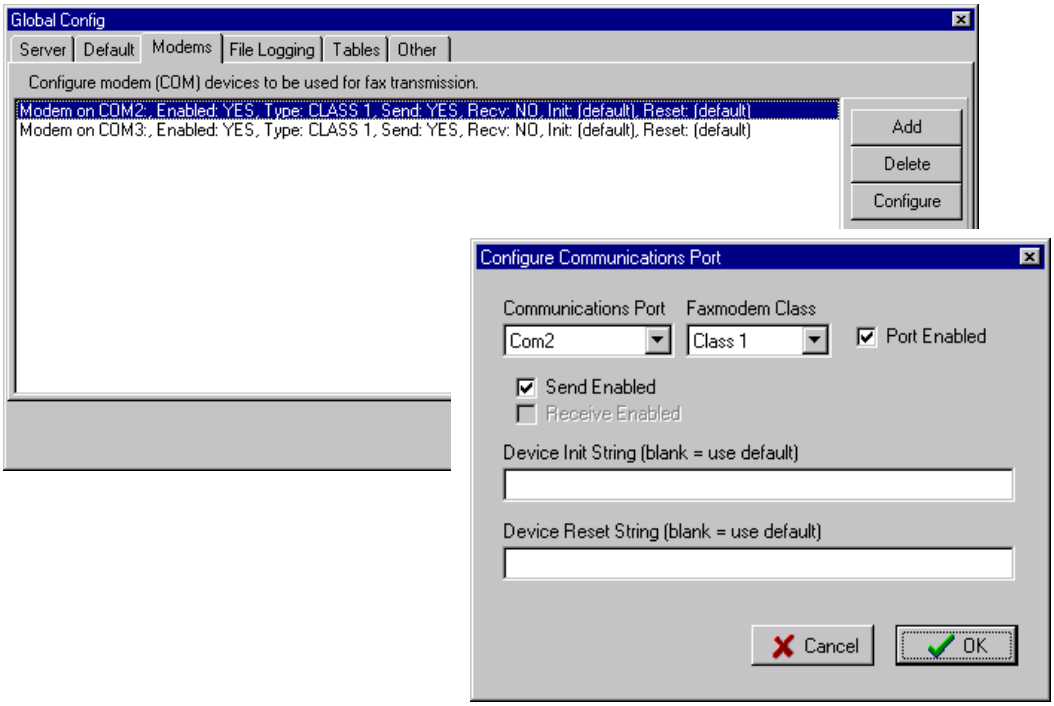
PCL Paper Type ..... The system has an integral LaserJet emulator. This parameter specifies the virtual "paper type" that will be used during the conversion. **(PAPER)**

CSID ..... Fax machines exchange identifiers when a connection is first established. The CSID parameter specifies what identifier will be sent to remote fax machines during this exchange. It is typically the area code and number of your main fax machine.

Dial Prefix / Suffix..... Many installations require that a "9" be dialed to gain access to an outside line. Office Extend has extensive phone number parsing, routing, and dialing capabilities *(see Tables)*. In simpler arrangement, when it is always correct to dial a "9," before all numbers, this global prefix specification can be utilized. Specification of a suffix results in the entered numbers being dialed after every phone number. For customers utilizing the dial table capability of the system, it is recommended that these fields be blank.

Config – Modems

This screen is used to configure the fax modems that will be utilized by the system. Pressing "Add" or "Configure" brings up the next screen:



Port ..... The name of an installed NT serial communications port.

Faxmodem Class..... Fax modems support protocols called "Class I", "Class II", or, confusingly, "Class 2.0". Class I is default. See the technical documentation for your particular modem to choose the correct type.

Port enabled..... If checked, the port may be used by the system. If not checked, the port is "disabled" and the system will not schedule outbound faxes, nor receive inbound. The system may automatically disable a port if it detects certain conditions; e.g., "no dial tone".

Send enabled..... If checked, the modem will be used to send outbound faxes.

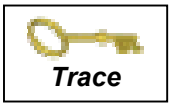
Receive enabled..... If checked, the modem will answer and receive inbound faxes.

Init string ..... In unusual cases, the default "modem init" string may need to be overridden.

Init string ..... In unusual cases, the default "modem init" string may need to be overridden.

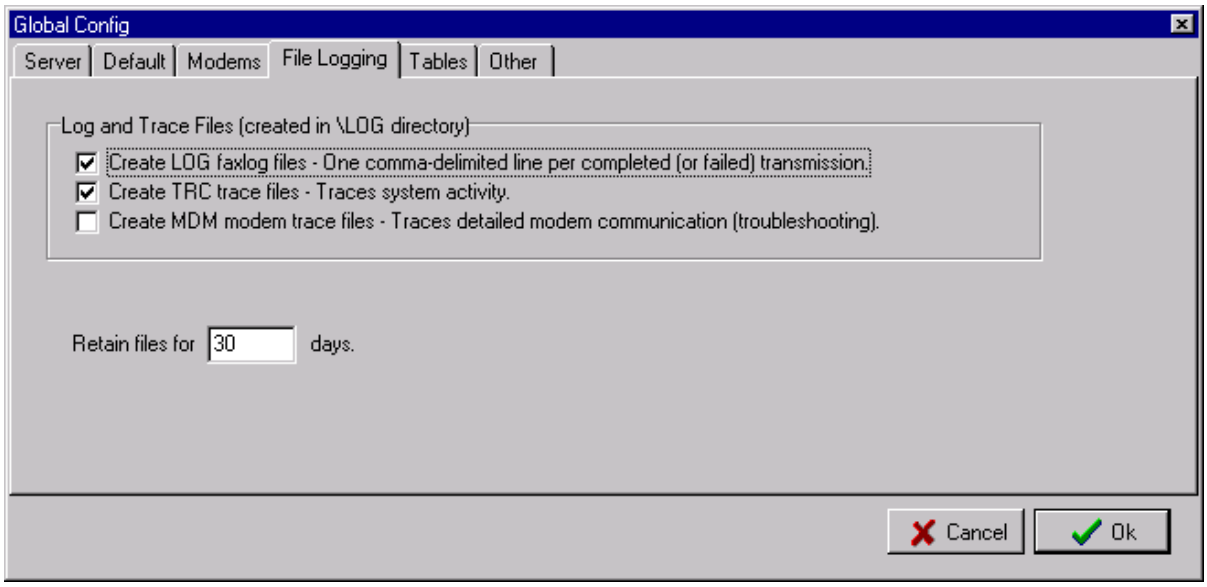
Note: modifications to modem parameters do not take effect until the Office Extend Fax program is restarted.

Config – File Logging



The system can create a number of different log file types in the \LOG directory. The comma-delimited format *fax log* (.LOG) files can be imported into Excel or a database systems for

reporting and statistical purposes. The (.TRC) trace files detail system activity. The (.MDM) files provide detailed debug logs of fax modem activity and are intended for troubleshooting only.

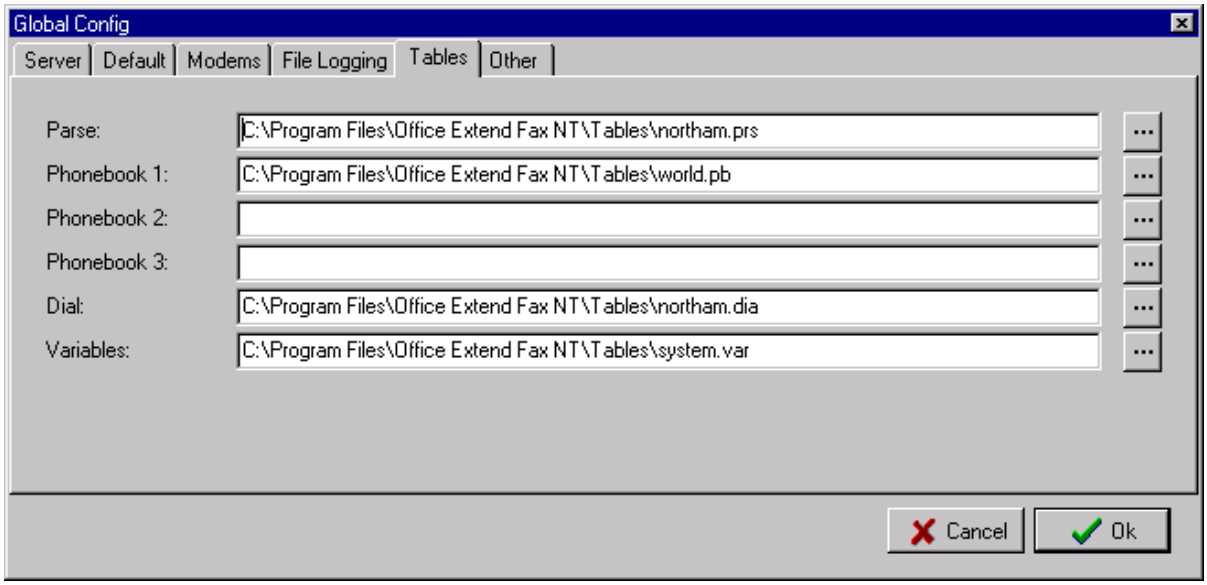


Retain files..... The fax system scans the \LOG directory hourly and deletes files older than the specified number of days.

Config – Tables

The system can be configured to perform phone number manipulation ranging from the addition of simple number prefixes (e.g., “dial 9”) to sophisticated international dialing arrangements, local vs. long distance exchange specification, WAN routing, etc.

In addition, “phone books” can be used to provide dialing and “attention” shorthand (with the “TO” parameter). Phone books are also used to specify WAN routing.



Parse ..... Table used to convert requested numbers to a standard format.

Phonebook1-3..... Expands “TO <name>” requests with specified phone number, attention, or other parameter. The books are searched in order (1 to 3).

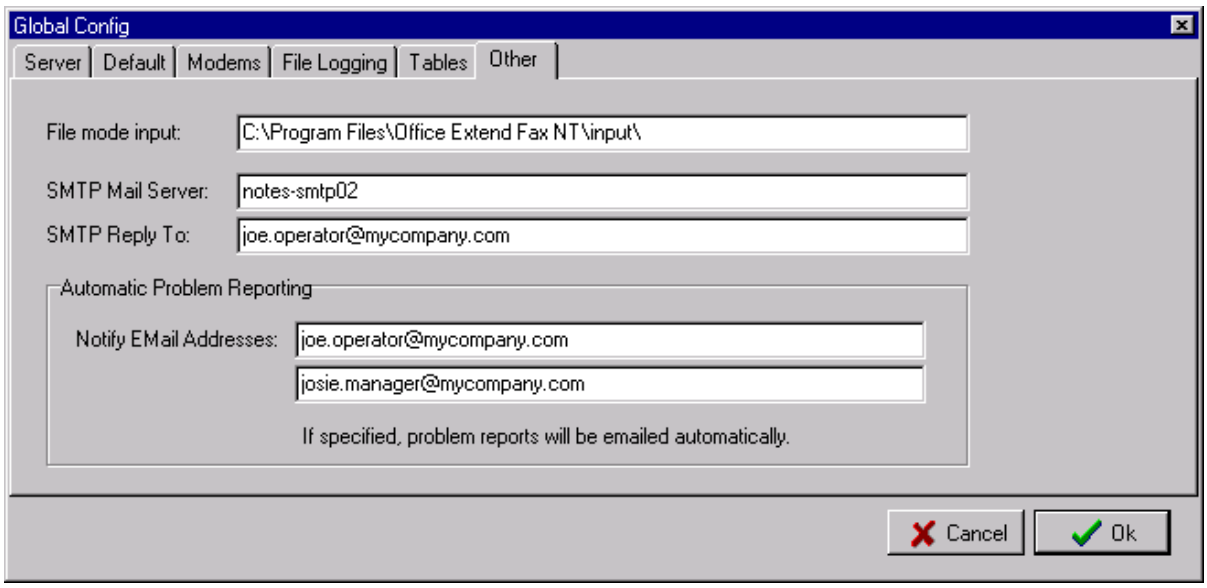
Dial ..... Tables used when a fax is actually transmitted. Typically converts the standard (“X”) format to a dialing string.

Variables..... Specifies parameters used in other tables (e.g., parse and dial) such as MAC (my area code), etc. Also links to other “lookup” tables such as LEX (local exchanges).

Note: for details, see the *Tables* section of the manual.

Config – Other _____

This screen configures other system parameters.



File mode input..... Specifies directory scanned for file mode fax requests (see *File Mode Input*).

SMTP Mail Server..... The TCP name (or address) of a standard SMTP mail server.

SMTP Reply To..... Email address used as "reply to" when sending system-generated SMTP mail messages.

Automatic Problem Reporting

The system can be configured to send email messages to system operators in the event of certain system malfunctions or conditions.

Notify Addresses ..... Specifies up to two email recipients for system-generated warning messages.

Note: This facility will be enhanced in subsequent versions of the product.

Starting and Stopping the Server

To start the Fax server:

- Locate the officeextend.exe file (usually in the \program files directory) and start it. You will probably want to copy a shortcut into your server's "STARTUP" group so it is launched automatically when the server starts up.

To shut down the Fax server:

- Locate the Office Extend window on the server display. Select the "SYSTEM" option from the main menu bar then the "EXIT" option.

To temporarily pause the Fax server:

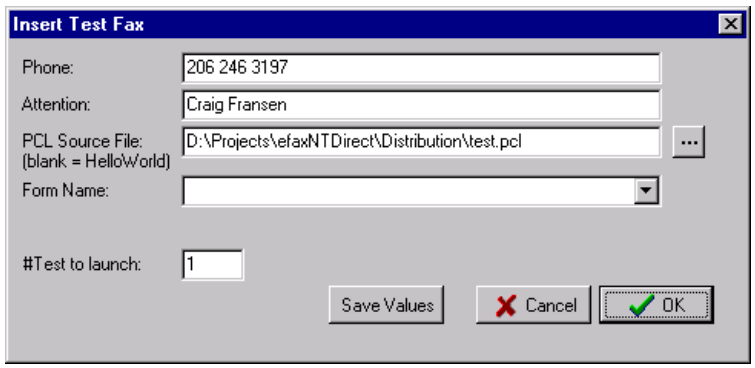
- Locate the Office Extend window on the server display. Click the System Enabled checkbox at the top of the screen. The system will only operate if this box is in its "checked" state; click the checkbox to resume.

Monitoring the progress of a fax, canceling, etc.

See Web Interface for details.

Testing the system

Select "System / Insert test fax" from the main menu. This will submit a test fax into the system. Specify additional parameters as desired.



phone ..... enter phone number to be dialed. This is the requested number and may be modified by Parse and Dial table entries. Use System/Simulator to see how phone numbers will be manipulated by the system.

attention ..... enter an attention string, if desired.

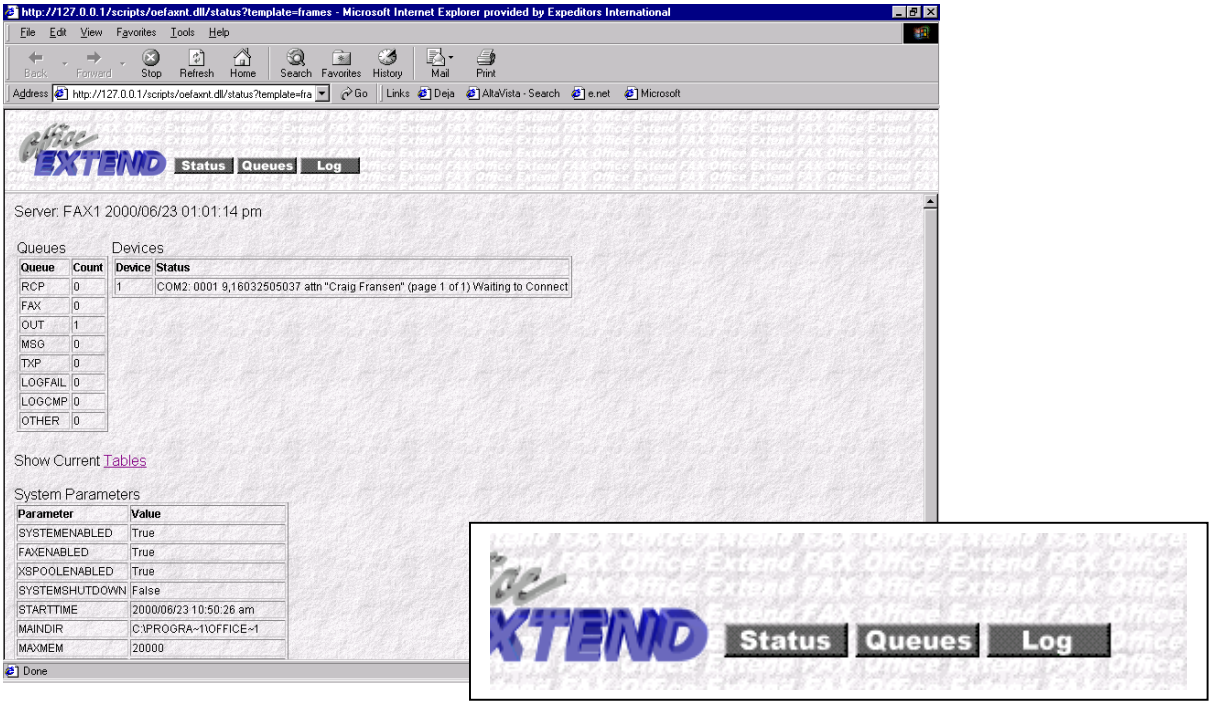
PCL source file ..... if specified, the file will be converted and submitted for transmission. If no file is specified, a "this is a test fax" page is generated.

form name..... if specified, the output will be "overlaid" by the form.

tests to launch ..... enter the number of tests to launch.

WEB INTERFACE

Office Extend Fax provides full-featured control of the system from a standard web browser.



Connecting to the Server

The standard "homepage" for an Office Extend Fax server is

`HTTP://(servername)/scripts/oefaxnt.dll/status?template=frames`

The server will request a logon. You must logon as a user with "administrator" privileges to manage the fax system. *Note: this requirement will be relaxed in future versions of the system.*

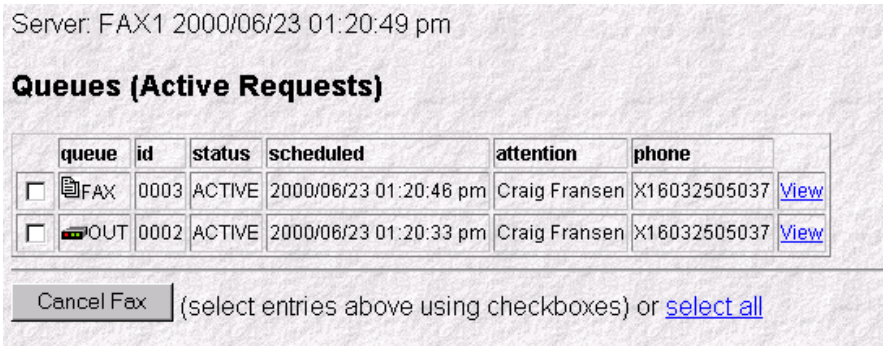
Select one of the buttons in the top frame (Status, Queues, or Log) to navigate to these modes.

A line to *Tables* provides a view of current system table settings as well as a web-based *Simulator* function.

Status View

The status view provides an overall look at server operation. The number of entries in the various queues, a snapshot of fax board activity, and the values of various system parameters are provided.

Queues View



This view displays all fax requests that are "active"; i.e., being submitted, converted, awaiting transmission, or being transmitted by a fax board.

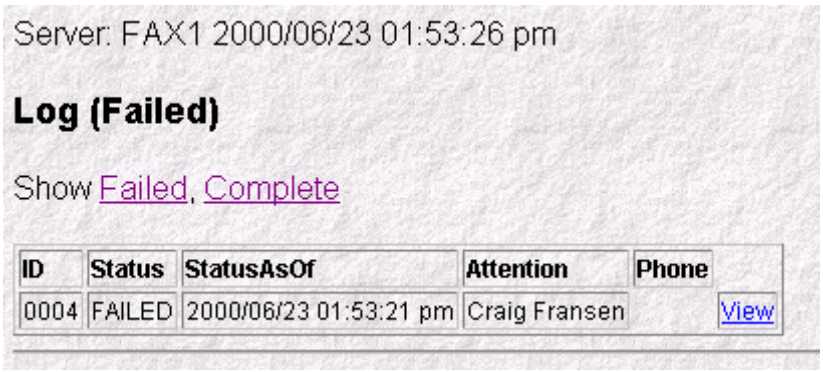
Cancel a Fax

To cancel an active request, click and check the box next to the entry to be canceled, then click the Cancel Fax button. Multiple entries may be selected, if desired, or click "select all" to select all entries.

Note: the system does not provide any verification from you before canceling the requests.

Click View to display a Fax Detail screen (see below).

Log View

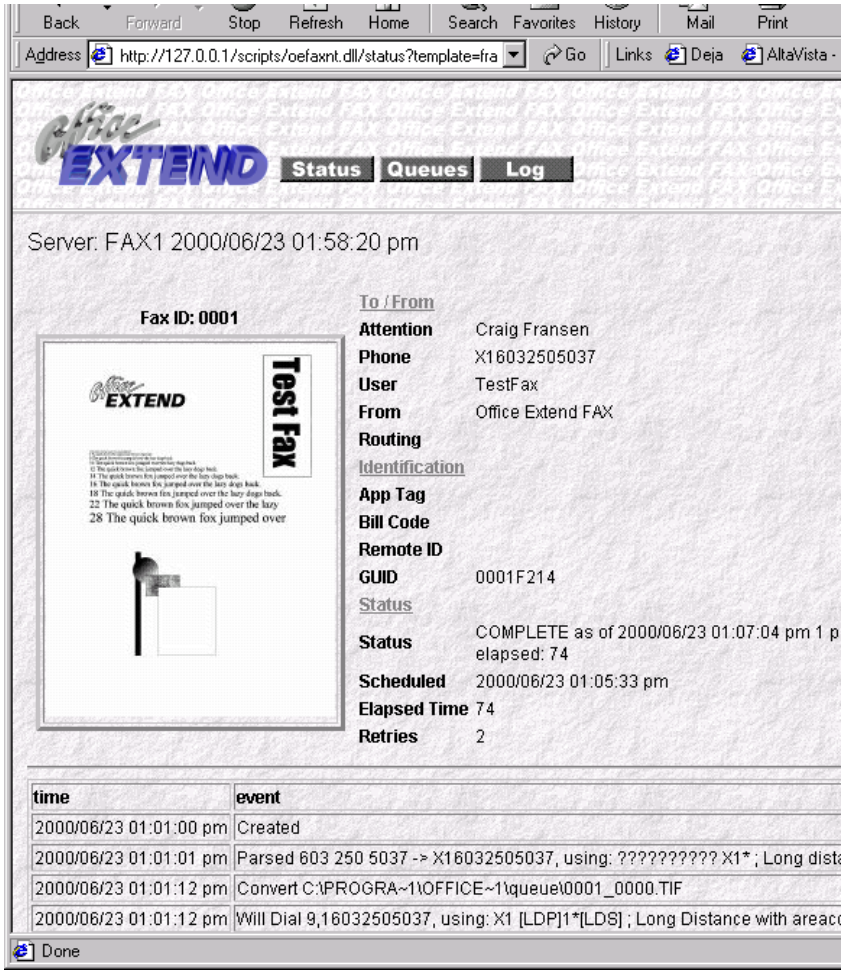


The log view shows completed or failed faxes. Click on the Failed or Complete links to select either the "failed" or "completed" list of requests.

Click View to display a Fax Detail screen (see below).

Fax Detail

The fax detail view lists the attributes and events concerning a particular fax request.



FAX SERVER TABLES

Tables Overview

Office Extend FAX utilizes tables to direct many of its operations such as dialing and WAN routing. The product is shipped with default tables which will accommodate most simple server configurations. For more complicated arrangements, such as unusual PBX dialing or multiple / remote Office Extend FAX servers, the system allows an administrator to specify exact behavior for any or all of the following functions:

Parse Can be used to convert phone numbers requested to a standard format. This feature is often required in WAN-routing situations.

Dial Controls dialing behavior.

Lookup Used to store special auxiliary information such as local dialing exchanges.

Phonebook Provides a way for clients to request fax transmissions by specifying "TO <name>" instead of "PHONE <phonenumber> ATTN <attention>".

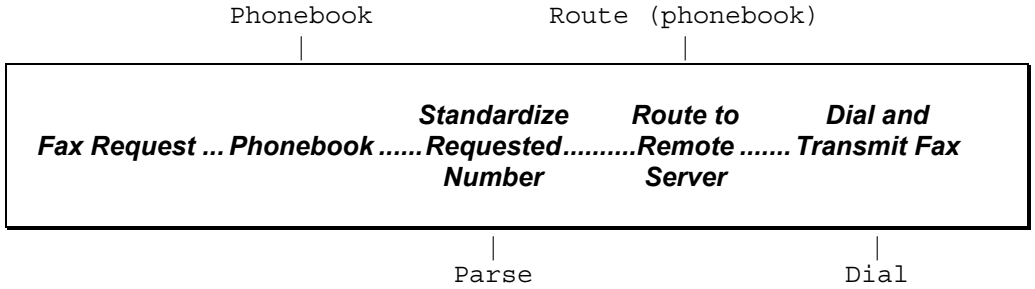
Tables are entered into ASCII files and then specified in the System / Config / Tables menu selection. Although each table has a specific function and particular format (described below), some general rules apply:

- Tables consist of one or more columns in the ASCII file. A column is defined to be text separated from the next column by "white space" (one or more space or tab characters).
- Comments may be specified within the ASCII file by entering a semicolon (;) followed by a line of comment.

Office Extend Fax automatically "imports" these ASCII file representations of its tables whenever it detects that the "modified date" of the file has changed. Alternatively, the fax system administrator can utilize the System / Refresh Tables menu selection to cause the system to update all tables immediately.

Tables and the Fax Process

The following figure describes the general flow of a fax request through the system and which tables are involved in the various stages:



Tables: PHONEBOOK

Phonebook tables provide a way for client applications to specify fax destinations using the shorthand notation “TO <entry>” rather than detailing all of the parameters such as PHONE, ATTN, etc.

```
ADANA     ATTN "Turnak Int'l - Adana" PHONE "X903224359301"
ADL       ATTN "Adelaide" PHONE "X61884478515"
AUCK      ATTN "EI - Auckland" PHONE "X6492751114"
CANTE     ATTN "Cante Boree" PHONE "X3465215922"
ZAN       ATTN "EI - Alexandria" PHONE "X2034834767"
ZWA       ATTN "Z.W.A. - Amman" PHONE "X9626819683"
```

A Typical Phonebook

A fax request made using the “TO <name>” syntax causes the system to attempt to find the requested entry in one of the three phonebooks which may be specified. If an entry is found, the system logically substitutes all of the parameters following the name column in the phonebook for the “TO <name>” parameter.

For example, using the phonebook described above, a request of the form ‘TO ADL’ would be exactly equivalent of one requesting ‘ATTN “Adelaide” PHONE “X61884478515”’.

Any valid Office Extend FAX routing parameters (such as BILL <billcode>, etc.) can be specified in a phonebook.

Tables: PARSE

A “parse” table is typically used to convert client-requested phone numbers to a standard format for use in routing or to adhere to an organization standard.

Office Extend FAX uses the client-requested phone number as input to the table. The operation of the parser, driven by the PARSE table specified, yields a result that replaces the requested phone number.

The “X” Format for WAN Routing

In configurations in which Office Extend FAX servers communicate internationally, it is important to convert local phone number requests to a format that can be interpreted by any of the WAN-connected servers.

In North America, for example, international numbers are dialed with a “011” followed by the country code and then the number. In other parts of the world, a “00” or other prefix is used. If a fax request using a “011” format were transported to the United Kingdom and dialed without modification, the requested call would not go through and the fax would fail.

Many customers have adopted the “X” format as a standard for specifying phone numbers within the Office Extend FAX system. This format is defined simply as the letter “X” followed by the country code and then the number. For example, a number requested as “011-44-784 436” would be represented in “X” format as “X44784436”.

The PARSE table below can be used to convert North American format numbers to "X" format. Similar tables are available for use in other countries.

```
; If-begins     Return-Result              Comments
;
  X             X*                         ; Already in correct format
  1??????????   X1*                        ; Long distance with areacode
  1???????      X1[mac]*                   ; Long distance without areacode
  011           X*                         ; International
  ???????       X1[mac]*                   ; Local number
  ?             X*                         ; Other numbers
```

A Typical PARSE Table

How the PARSE Table Operates

The Office Extend FAX parser uses the requested phone number and the specified table to yield a standardized result.

The requested phone number is tested against the first column of each PARSE table entry in turn. If it matches (as described below), then the second column of that entry is evaluated and returned as the result. If it does not match, the parser proceeds to the next entry in the table. If no entry matches, the requested phone number is returned unchanged as the result.

PARSE Table Match Algorithm

First, all characters other than alpha (A-Z) and numeric (0-9) are stripped from the request. The parser then sets up two pointers: one pointing to the first character of the input (the requested phone number) and one pointing to the first character of the "match" column (the first column of the table).

```
          01144784436        X*
          ^                  ^
```

Pointers to the "input" and "match" strings.

The parser tests the first character of the input against the match string. If it matches, then both pointers are moved to the right one character position. This process repeats until the match fails or until all the characters of the match string are exhausted.

If the match fails, the parser proceeds to the next PARSE table entry. If the match succeeds, the parser evaluates the second column of the table and returns the result.

In the example above, the match would fail because "0" does not match "X". The parser would continue through the table until it reached this entry:

```
Step 1    01144784436        011    X*
          ^                  ^
Step 2    01144784436        011    X*
          -^                 -^
Step 3    01144784436        011    X*
          --^                --^
Step 4    01144784436        011    X*
          ---^               ---^
```

A Matching Entry

In this example, the pointers are moved to the right one character at a time and the match is succeeding; i.e., "0" in the input string matches "0" in the match string, "1" matches "1", etc.

In Step 4 the parser has moved the pointers and determined that the match string has been exhausted without a match failure—in other words, the match succeeded. It is time to evaluate the result.

The Result

It is important to notice where the pointer was left in the input string. This is because it is the characters at or following that pointer that are used in the evaluation of the result. In the example above, the parser will use the remaining characters of the input (here "44784436") in conjunction with the *result* expression (column two in the PARSE table—for this entry "X*") to generate a result for the parse operation.

The parser will begin with the "X" specified and then substitute the remaining input characters ("44784436") for the "*" in the result expression yielding "X44784436" as the final result of the PARSE table operation.

Special MATCH Operators

In addition to literal *match* string characters, the following special characters and sequences can be used in *match* expressions:

? A "wild card" matches any single input character.

. As explained above, normally the system will use the characters at and following the last position of the input string pointer in evaluating the result expression. A period appearing in the *match* expression can be used to override this to specify the result position explicitly. Upon encountering the ".", the parser will remember this explicit result position, move one character to the right in the match string, and continue the match operation.

[name] A name enclosed in square brackets ([ ]) denotes a "variable lookup". Upon encountering an expression of this form, the parser will retrieve the string in the Variables Table for the specified variable and substitute it at that position in the match string.

For example, assume we're evaluating the match string "1[MAC]*" and the Variables Table looks like this:

```
; Sample VAR table
; Defines [] and {} vars utilized in other tables
[LCP] '9,'          ; Local Call Prefix
[LCS] ''            ; Local Call Suffix
[LDP] '9,'          ; Long Distance Prefix
[LDS] ''            ; Long Distance Suffix
[IDP] '9,011'       ; International Dialing Prefix
[IDS] ''            ; International Dialing Suffix
{LEX} 'lex.lku'     ; Local exchange look-up table
[MAC] '206'         ; my area code
```

The parser would retrieve the "206" string for the MAC= in the file, substitute it for the [MAC] expression in the match and proceed with the match operation.

"1[MAC]*" in this case would be equivalent to matching "1206*".

{lookup} A name enclosed in curly braces ({ }) denotes a LOOKUP table retrieval (see below).

Tables: Lookup

"Lookup" tables are typically used to detect and processes calls to "local exchanges". See the following section for details. This section describes how the lookup table works.

Upon encountering an expression of this form, the parser translates the {var} entry to a filename by finding it in the Variable Table (see {LEX} example above).

The parser then starts through the specified table (lex.lku in the example). It matches each entry in the first column of the lookup table with a corresponding number of characters in the source. For example, if the first line of the lookup table were "5125" then the parser would attempt to match four characters of the source as "5125". Say the next line of the lookup table were "123". Then the parser would match three characters, and so forth.

If any entry in the lookup table matches, then the parser considers the lookup {var} expression a match and proceeds with subsequent characters in its source string.

The matching entry (if any) in the lookup table is retained for use in evaluating the result strings (see below). If multiple entries match, the longest match in the lookup table is used.

Lookup Expressions in Result Strings

Although rare, a lookup expression may also be used in the result expression. The expression is replaced by the results of the original lookup. If the lookup entry has two columns, then the value of column two is used, otherwise the value of column one (the match entry) is used.

Local Exchanges

Lookup tables are typically used to detect phone numbers to "local exchanges". In Seattle (area code 206) for example, it is not possible to dial "next door" with a number like "1 206 246 3711". All you get is the pleasant voice advising you that "it is not necessary to dial a '1' …". The only way to reach this number is to dial "246 3711". Conversely, there are some exchanges in Seattle for which you must dial the "1 206" part.

To solve this, two entries are put into the Dial Table:

```
X1[MAC].{LEX}  [LCP]*[LCS]   ; Local exchange
X1             [LDP]1*[LDS]  ; Long Distance with areacode
```

Say that the "lex.lku" file contains an entry for "246" but not for "553". The first entry in the dial table would match X12062463711 (the "X1" matches, my area code is "206" and the {LEX} table contains the following characters "246).

So for this number, the result `[LCP]*[LCS]` is evaluated, yielding "9,2463711" (LCP is "9,").

But the first entry would not match X12065531159. The X1206 part passes muster, but "553" does not appear in the {LEX} file. The parser continues with the next Dial Table entry.

This one matches, and the result `[LDP]1*[LDS]` is evaluated, yielding "9,12065531159" (LDP is also "9,").

Even more complicated situations exist. Feel free to contact Fransen/King for advice.

FILE MODE INPUT

The system can be configured (see *Configuring the Fax Server, Other*) to scan a specified directory for fax requests in the form of .TIF or .PCL files. These requests utilize a special naming convention to specify fax transmission parameters. Alternatively, the files can be named using just a client (and possibly sequence number) with parameters imbedded within the file.

Typically, files are generated by other user-developed applications and written to this directory for fax transmission.

The format of the filename is as follows:

<clientspec>[_<seq>] [<fax params …>].[PCL | TIF]

where

clientspec.....*(required)* Client name. Appears in status displays (e.g., web browser) as the owner of this fax request. In later versions, the client name may be used to allow client-level security access.

seq.....*(optional)* separated from the clientspec by an underline ("_"), the seq parameter is used to create uniquely-named files. Otherwise, identical filenames would be generated if the same client and fax parameters were specified.

fax parameters.....*(optional)* Any valid fax parameters may be specified (see *Fax Parameters*). Use blanks as delimiters.

PCL.....a request file with a PCL extension contains HP LaserJet PCL data. Typically, this is generated by a PC application (such as a Word mailmerge, etc.). Note that plain ASCII text is also valid PCL and acceptable.

TIF.....a request file with a TIF extension should contain one or more pages of TIFF-formatted images. For best results, these should be B/W, 200 DPI.

Examples

```
CRAIGF PHONE '2463197' ATTN 'Gunney Saks'.PCL

CRAIGF_0002 PHONE'2463197' ATTN 'Gunney Saks' NOTIFY
'joe.blow@mycompany.com' INFO 'Third request' ERRSONLY.PCL

CRAIGF_12389.PCL
```

(where the file contains a routing string of the form [FAX: param param ...])

Special Characters

Windows does not allow certain characters in filenames. These characters include:

ASCII codes 0 to 31 and 127 to 255 (“special” non printing characters)

\ / : ? " < > |

& (used by Office Extend, see below)

If you need to specify any of these characters in file mode input filenames, replace them with the character sequence below. Office Extend will convert these sequences back to their equivalents before processing the parameters of the file.

Codes 0-31, 127-255	&nn where nn is hex equivalent
#	&23
\	&5C
/	&2F
;	&3B
?	&3F
"	&22
<	&3C
>	&3E
|	&7C
&	&26

INSTALLING THE HP3000 SOFTWARE

XSpool Installation

A Note on Security

Some sites may not wish to put the XSPOOL system into the SYS account. If such is the case, the system can be installed in any account which possesses OP, PH, MR, and if on a "classic", PM capabilities, in addition to the normal IA, BA, SF, etc. The XSPOOLJ job's MPE user must possess OP capability to properly download spool files originating in any account.

You'll need to adjust the instructions as required, substituting your group and account for XSPOOL.SYS.

- Download the HP3000 software from http://www.OfficeExtend.com
- Unzip the file to a disk directory on a PC.
- Sign onto the HP3000 as MANAGER.SYS and create the XSPOOL group (if it does not already exist):

  :HELLO MANAGER.SYS

  :NEWGROUP XSPOOL;CAP=IA,BA,PH,MR

  NOTE: PM capability is required for older MPE V machines

- Upload the HP3000 software using Reflection. *If you do not have a copy of Reflection or prefer a tape installation, contact Fransen/King.*
- Load Reflection.
- Log on to the group and account which will house the host XSPOOL system. Usually this would be:

  :HELLO MANAGER.SYS,XSPOOL

- Press ALT-Y to bring up the Command Line.
- CD (change directory) to the Windows directory containing the unzipped files.
- Type UPLOAD.WRQ and press Enter.
- Contact Fransen/King for license "unlock" codes:

License Codes

```
:run xspool;parm=9000
XSPOOL ** HP3000 Intersystem Spooling Utility ** Rev 990309
Copyright Fransen/King, Ltd. 1992-9, All rights reserved.

Your site code is: AL94
Please enter validation code: (enter code 1)
        Please enter code #2: (enter code 2)
Please enter your company name: Acme Mfg.
You entered: 'Acme Mfg.'.  Is this correct? (Y/N) y
Fransen/King thanks you for your purchase!
Licensed to: Acme Mfg.

[Cmd]: e

END OF PROGRAM
:
```

SETTING UP THE HP3000

Overview

The Office Extend Fax software on the HP3000 runs as a background job, monitoring the system print spooler for documents to send to the fax server. Documents can queue up in the system spooler at any time but to be transmitted to the server the background job must be running.

Before the background job can be started, you must have spooled device(s) available, and tell the software where the fax server is, and what spooler queue to monitor.

Step 1 - Creating the Spooled Device(s)

Documents to be faxed get sent to your HP3000's print spooler. While you can intermix fax reports with non-fax reports on any spooled device (if you differentiate the reports by differing priorities for example) we recommend that you create a separate "pseudo printer" on your system (called "FAX") to reduce confusion and ease management.

On MPE/V ("classic") HP3000s:

1. Determine an available HPIB device number.
2. Determine the DRT number corresponding to that HPIB device.
3. Using SYSDUMP, add a device using device name "HP2563", an unused logical device number, and the DRT number you determined above.
4. Specify "FAX" (or whatever name(s) you wish) for the device class.

On MPE/iX (HPPA/RISC) HP3000s:

1. Enter :SHOWDEV to determine the logical device numbers in use - and pick logical device numbers that aren't being used to assign to the new devices you are about to add.
2. Run NMMGR.PUB.SYS
3. Select "DTS" to enter the DTS configuration area.
4. Select "Go to Profiles".
5. Enter a new profile name (we recommend you use the same name for the profile as you are going to use for the printer device class - i.e. "FAX"), choose "Printer" as the type, and press "Add".
6. Leave the default values for all fields except the "Device Classes" area; in that area enter the name of the device class you're going to use for the "printer" (we suggest "FAX" if you only have one server.
7. Press the "Save Data" key and return to the previous screen. Repeat the previous step for each device you need to add.
8. When you have entered all the new profiles you need, return to the previous screen and choose "Go to DTC". If presented with a choice, select any appropriate DTC type; we suggest a DTC 48.

9. After reviewing the list of currently configured DTC's, if necessary, choose a new name for the DTC you are about to configure. The name should NOT be one listed on the screen(s) you are viewing. The name "PHANDTC" is suggested. Choose "ADD".

10. Configure the new DTC by filling in the appropriate fields as follows:

Field	**Enter the value**
DTC Name	New DTC name (e.g. "PHANDTC")
DTC Lan address	08-00-99-FF-FF-FF-FF-FF (this field will not appear if you are running OpenView - this is normal).
DTC Node name	Enter the new DTC name followed by your domain and organization (e.g. "PHANDTC.domain.org")
DTC Type	DTC16 (or 48) (this field may not appear)
IP Address	(leave blank)
Card #	0 - D (this field may not appear) 1 - ? (use "D" for as many cards as you require)

11. When the screen has been filled, press "Save Data" to create the new DTC.

12. Press "Config Card"

13. Enter the logical device numbers you chose in the first step. If applicable, enter a "D" (direct) for card type. For each logical device number, enter one of the profile names you created.

14. Press "Save Data" and then "Validate Link/DTS". You may get a series of warnings, but you should get no errors during validation. This operation may take some time.

15. Repeatedly press (f8) until you exit NMMGR.

16. Cross-validate in SYSGEN (may not be necessary on MPE/iX 5.5 and later).

17. Reboot your system, if necessary. This step may be necessary for the new logical device numbers you've created to become active.

Step 2 - Setting up the Fax Configuration __

Now that you have spooled devices to deposit outbound faxes in, you must tell the fax software on the HP3000 just which devices to monitor, and where the fax server software is.

The fax software monitors the spooled devices you specify, watching for new spool files destined to be faxed.

To configure the fax software, you run the XSPOOL program.

:RUN XSPOOL.XSPOOL.SYS

1. Specify the name of the fax server (it's "node" name on your network)

   [Cmd]: HOST node TARGET nodename.domain.org
   a. "node" can be any (shorthand) name for the host you're referring to, though we recommend you use the first part of the fully qualified name.
   b. "nodename.domain.org" is the fully qualified name of the computer you are referring to - in this case the name of the computer (PC) which is running the fax server software. This name must be "resolvable" by the HP3000 - that is, it must be in the HOSTS.NET.SYS, NMMGR directrory, accessible by a network PROBE from the HP3000, or resolvable via DNS if your HP3000 has DNS enabled.

2. Test the connection to the fax server (assuming you have started the software on the fax server already). Use the ECHO command; for example:

```
[Cmd]: ECHO FAXSERV

Using packet size 4000.  Press CTL-Y to terminate ...

                              ---- Bytes/Sec ----
Bytes Transferred  Seconds  This Period Overall
=================  =======  =========== =======
688000             5        137600      137600
```

   Use the (shorthand) node name you used when adding the host entry. If the systems can "talk" to each other over the network, you will see a display of bytes transmitted.

   Press Control-Y to stop the test.

3. Now specify the name of the spooled device/printer where reports to fax will be found. Any number of fax "devices" can be configured - each routing to a separate fax server (if you have multiple fax servers). Each device is linked to a particular fax server, and each "device" entry has an associated outfence (separate from the MPE spooler outfence) and an UP/DOWN status. To create a device entry called "FAX" enter the following:

   a. [Cmd]: DEVICE FAX HOST node NATIVE PRINTER FAX
      - "node" is the computer named in the "HOST" command earlier
      - This creates a device entry in the fax client software called "FAX"
      - "NATIVE PRINTER FAX" at the end of that command must always be used. The first "FAX" name is the device name.

   b. You can verify the device you just added by entering:

```
[Cmd]: LISTDEV FAX

MPE
Device   Stat OutF Host     Type   Destination
-------- ---- ---- -------- ------ --------------------
FAX        UP    7 FAXSERV  NATIVE FAX
```

   c. Note the status (UP in this case) and the outfence (7 in this example). Individual devices can be temporarily suspended by "downing" the device. For example:

```
[Cmd]: DEVICE FAX DOWN
[Cmd]: LISTDEV FAX

MPE
Device   Stat OutF Host     Type   Destination
-------- ---- ---- -------- ------ --------------------
FAX      DOWN    7 FAXSERV  NATIVE FAX
```

   d. Also, you can change the outfence for a device with the DEVICE command. Only spool files with an output priority greater than the outfence for the device will be picked up and sent to the fax server. You can control the delivery of faxes by the setting of the fax device outfence in XSPOOL. For example;

```
[Cmd]: DEVICE FAX OUTFENCE 12
[Cmd]: LISTDEV FAX

MPE
Device   Stat OutF Host     Type   Destination
-------- ---- ---- -------- ------ --------------------
FAX      UP     12 FAXSERV  NATIVE FAX
```

4. Now, you may want to change the default settings for how often the spooler monitor process checks for new faxes. To display the current settings, enter "control" at the command prompt in XSPOOL. For example:

[Cmd]: CONTROL

```
System Parameters
=================
   SCANDELAY: 60
       SELEQ: [DEV=FAX AND STATE=READY]
        STOP: NO
```

"Scandelay" reports the number of seconds that the monitor process pauses between scans of the system spooler (looking for documents to fax). The default is 60 seconds - the spooler will be scanned once a minute. Increasing the delay lowers the amount of CPU resources used on by the server job, but increases the delay between the time a report is generated and when it is queued for delivery by the fax server. To change the setting enter:

```
[Cmd]: CONTROL SCANDELAY 120
```

The "SELEQ" item reports the spooler scanning parameters. If your fax documents are being sent to a different printer, you may want to adjust the setting. For example, if you did not choose to configure a printer device on your HP3000 called fax, but instead just want to send fax documents to your system (LP) printer, with a priority of "3" to differentiate them from regular printfiles, you could enter:

```
[Cmd]: CONTROL SELEQ "DEV=LP AND PRI=3"
```

Starting and Stopping the Server

To start the Fax server:

- :STREAM XSPOOLJ.XSPOOL.SYS

To shut down the Fax server:

```
:RUN XSPOOL.XSPOOL.SYS

[Cmd]: CONTROL STOP

   System Parameters
   =================
      SCANDELAY: 120
          SELEQ: [DEV=FAX AND STATE=READY]
           STOP: YES
```

- The job will logoff within a few minutes

Overview

The Office Extend Fax client software on the HP3000 runs as a background job, monitoring the system print spooler for documents to send to the fax server. Documents can queue up in the system spooler at any time, but to be transmitted to the server, the background job must be running. In addition, any spool files queued up for a given fax device must be in the "READY" state and have an output priority greater than the outfence (the XSPOOL device outfence - not the MPE spooler outfence which is ignored) for that device.

Once the spooler monitor process finds a spool file that meets the criteria to be faxed, it establishes a network (TCP/IP) connection to the fax server and begins transmitting the contents of the spool file to the server. Once the file is received on the server, it is scheduled for delivery, and the spool file on the HP3000 is deleted and the monitor process searches for another spool file to transfer. (Spool files are NEVER deleted until receipt on the server is confirmed). If the transfer fails for any reason, the monitor process marks its table entry for that device as **DOWN** or **DELAYED** and records the error message returned by the gateway unit. If **DOWN**ed, no further spool files for that MPE device class will be considered for transfer until the operator determines the reason for the failure and **UP**s the device in XSPOOL. If **DELAYED**, the monitor process will automatically retry the transfer at a later time.

After the fax has been delivered (or the server determines that the fax cannot be delivered) the server returns a confirmation report to the HP3000.

Submitting a fax from the HP3000

To submit a fax to the server from the HP3000 you need merely create a spool file with the necessary routing information in it. Routing directives are a set of keywords or keyword/value pairs. There are two methods for incorporating routing information into a spool file with the Office Extend Fax system:

1. Enter the routing information in the ;FORMS= parameter of the printer file equation. For example:

   - `FILE OUT;DEV=FAX;FORMS=Phone "1-703-451-3720" Attn "Tech Support".`

2. Place the routing information within the spool file itself, by simply writing appropriately formatted routing commands in the output file as your application creates it. Fax routing directives are written into the beginning of the spool file in lines beginning with "[fax:" and ending with a "]" (don't include the quotes). For example:

   - [fax: phone "1-703-451-3720" attn "Tech Support" bill "supacct"]

The routing keywords and their values are documented below:

TO <key>	Causes the server to look up "key" in one of the configured phonebooks (see Tables). Typically, all additional parameters are obtained from that entry.
PHONE <number>	A string (in quotes) specifying the phone number to dial (may be abbreviated as "P")
ATTN <string>	A quoted string specifying the recipient of the fax. Informational only, this string will appear at the top of each page (may be abbreviated as "A").
FORM <formname>	If included, the file named <formname>.TIF will be used as a page overlay. The TIF file must exist in the \forms directory on the server and be a black/white image no larger than 1720/2200 pixels in width/height (parameter may be abbreviated as "F"). *See Forms Overlays for details.*
PAPER <paper>	Specifies a paper type for PCL conversion. <paper> may be one of: LETTER, A4, LEGAL.
INFO <string>	A quoted string containing arbitrary information which will be returned intact to the FAXLOG file (may be abbreviated as "I").
CONFDEV <dev>	Can be used to specify which printer should be used (on the server) to print confirmation sheets for this fax.
CONF [<type>]	Used to override the default confirmation type on the fax server. <type> may be blank or one of: NONE, SHORT, LONG.
NOCONF	Specified that no confirmation sheets should be generated.
ERRSONLY	Specifies that only Problem-type confirmation sheets should be generated if required (may be abbreviated "EO").
NOERRSONLY	Specifies that all types of confirmation sheets should be generated if required (may be abbreviated "NOEO").
RETRIES <num>	Specifies the number of retries which should be attempted before failing the fax (may be abbreviated as "R").
BILL <billcode>	A billing code to apply to this fax (up to eight characters). Will appear in the LOG and in messages sent back to the HP3000 (see FAXLOG) (may be abbreviated as "B").
FROM <from>	Can be used to override the system default "from" string to appear at the top of transmitted faxes.

The FAXLOG log file

Office Extend Fax returns messages to the HP3000 monitor process indicating the success or failure of faxes scheduled from the HP3000. These messages are formatted and written to the file FAXLOG.

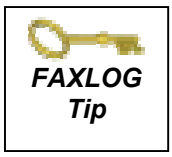
Application programs can use these records to update status information kept in databases, etc.

FAXLOG is not built automatically during the installation process. If you would like to make use of this facility:

```
:BUILD FAXLOG.XSPOOL.SYS;REC=-600,,V,ASCII;MSG;DISC=10000,1,1
```

The file format is:

Item	Length	Description
COMPCODE	4	One of CMP, ERR, CAN
STATUS	6	Status indicator
MESSAGE	80	Last error message
PHONE	47	Phone number dialed
DRAFT	1	D(draft) or F(fine) transmission mode
ATTN	32	Attention string
APPTAG	64	String specified by INFO.
DESC	80	Description of fax
CLIENT	9	The #O spoolfile number
SOURCEID	6	Source identifier
RETURNROUTE	27	(reserved)
REMOTECSID	22	The CSID reported by the remote fax machine
ELAPSED	6	Elapsed seconds
PAGES	6	Pages transmitted
STAMP	16	Timestamp indicating transmission time



WARNING: **Don't build FAXLOG if you're not going to use it. If you do not read the data from the FAXLOG file, it will slowly fill up. If it fills completely, XSPOOL will hang.**