H262TI Print File Transfer Utility (PFX™)

for OpenVMS on HP Integrity Systems

Release 2.0

Software Reference Manual

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Preface

This manual describes how to use and install the Network Executive Software H262TI Print File Transfer (PFX™) utility. PFX is an extension of Network Executive Software Bulk File Transfer (BFX™) utility. BFX in turn is used in conjunction with the Network Executive Software NETwork Executive (NETEX®) family of software products.

This document contains the following sections:

- "Introduction" describes PFX.
- "Using PFX" describes how to setup and configure the various files needed by the PFX Utility.
- "Installation" describes how to install the PFX Utility.
- "Operator Interface" describes how the operator can manipulate the print queue.
- "Internal Operation" describes the internal operation of the PFX Utility on the HP Integrity OpenVMS host. Understanding this section will be of use in understanding the logical process of PFX, but is not required for proper operation.
- "Technical Data" describes the protocol used in framing PFX data images.
- "Appendix A. PFX Messages" lists the PFX Utility error messages.

Reference Material

The following manuals contain related information.

Number	Title and Description
MAN-REF-H267IPI	*H267IP/H267IPI NetEx/IP® Requester for Hewlett Packard Integrity OpenVMS Systems Software Reference Manual*
460364	*H261 Bulk File Transfer BFX™ Utility for VMS Software Reference Manual*
MAN-REF-LOSW	*NESiGate NetEx/IP Offload LAN-to-IP Gateway Reference Manual*

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The diagnostic tools and programs described in this manual are **not** part of the products described.

Notice to the Customer

The installation information supplied in this document is intended for use by experienced System Programmers.

Document Conventions

The following notational conventions are used in this document.

Format	Description
`displayed information`	Information displayed on a CRT (or printed) is shown in **`this font`**.
`user entry`	*`This font`* is used to indicate the information to be entered by the user.
UPPERCASE	The exact form of a keyword that is not case-sensitive or is issued in uppercase.
MIXedcase	The exact form of a keyword that is not case-sensitive or is issued in uppercase, with the minimum spelling shown in uppercase.
bold	The exact form of a keyword that is case-sensitive and all or part of it must be issued in lowercase.
lowercase	A user-supplied name or string.
value	Underlined parameters or options are defaults.
<label>	The label of a key appearing on a keyboard. If "label" is in uppercase, it matches the label on the key (for example: <ENTER>). If "label" is in lowercase, it describes the label on the key (for example: <up-arrow>).
<key1><key2>	Two keys to be pressed simultaneously.
No delimiter	Required keyword/parameter.

Glossary

BFX: Network Executive Software ("NESi") Bulk File Transfer (BFX™) utility. BFX is used in conjunction with NESi's NETwork EXecutive (NETEX®) family of software products for use on IP networks.

buffer: A contiguous block of memory allocated for temporary storage of information in performing I/O operations. Data is saved in a predetermined format. Data may be written into or read from the buffers.

header: A collection of control information transmitted at the beginning of a message, segment, datagram, packet, or block of data.

host: A data processing system that is connected to the network and with which devices on the network communicate. In the context of Internet Protocol (IP), a host is any addressable node on the network; an IP router has more than one host address.

Internet Protocol (IP): A protocol suite operating within the Internet as defined by the *Requests For Comment* (RFC). This may also refer to the network layer (level 3) of this protocol stack (the layer concerned with routing datagrams from network to network).

ISO: Acronym for International Standards Organization.

NETwork EXecutive (NetEx): A family of software designed to enable two or more application programs on heterogeneous host systems to communicate. NetEx is tailored to each supported operating system, but can communicate with any other supported NetEx, regardless of operating system.

NetEx can reside on the host, on a processor interface board (obsolete), or in a NesiGate LO appliance. The latter two cases use host-resident drivers as interfaces.

NetEx is a registered trademark of Network Executive Software.

Open Systems Interconnection (OSI): A seven-layer protocol stack defining a model for communications among components (computers, devices, people, and et cetera) of a distributed network. OSI was defined by the ISO.

processor interface (PI): A PI interfaces a minicomputer with an adapter. The PI is a board(s) that contains a microprocessor and memory. The processor interface is generally installed in the host. Some types of PIs contain NetEx.

path: A route that can reach a specific host or group of devices.

SOE: BFX/PFX parameter to stop on error (SOE).

TCP/IP: An acronym for Transmission Control Protocol/Internet Protocol. These communication protocols provide the mechanism for inter-network communications, especially on the Internet. The protocols are hardware-independent. They are described and updated through *Requests For Comment* (RFC). IP corresponds to the OSI network layer 3, TCP to layers 4 and 5.

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Introduction

General

The Network Executive Software Print File Transfer (PFX™) product is a utility software package that allows users of Network Executive Software NETwork EXecutive (NETEX®) and Bulk File Transfer (BFX™) communications software to transfer print files between similar or dissimilar types of processors on various networks. PFX contains the facilities to select the transfer files and to make the file format conversions necessary for proper printing on the receiving host. Once introduced to the system, PFX operates completely independent of any user.

PFX is designed to allow print transfers to take place between mainframe operating systems of mixed manufacture. NETEX software is designed to handle all communication considerations between different mainframes.

The PFX utility is actually made up of two separate units: the Transfer utility (identified as Hxx2T) and the Server utility (identified as Hxx2R). This manual describes the Hewlett Packard Integrity OpenVMS H262TI PFX utility.

PFX Advantages

PFX provides the following advantages for its host network:

- **Improved Printer Utilization** - PFX allows printers to be concentrated on one host. In this way multiple hosts will have direct access to a group of printers. This will result in higher printer utilization rates and may decrease the number of printers needed.
- **High Cost Printer Justification** - PFX may cost justify a very high speed printer (e.g., laser printer) when it services more than one host. Multiple hosts will ensure sufficient printing is available to keep the device busy.
- **Specialty Printer Justification** - A printer with special capabilities can be shared by multiple hosts. PFX removes special operational problems in getting a print file from the point of origin to a host that can do the printing.
- **Low Operations Costs** - With many printers concentrated in one area, fewer operators will be needed.
- **Increased Network Accessibility** - Print files can be directed to any destination that can be reached by the secondary host. This makes the entire network of the receiving host available to the originating host.
- **Print Load Balancing** - PFX can be used to balance the printing load. An operator can select print file queues for transmission to other devices when an excessive load develops.
- **Printer Resource Backup** - For critical applications a printer on one host can serve as a backup resource for a printer on another host. If problems develop with a printer, the operator can move the print to the backup device with a simple command.

Description of Operation

PFX uses a transfer utility and a server utility to accomplish print file transfers. The transfer utility obtains files from any of the sending host's print queues, then formats the files and transfers them to the receiving host. The server utility takes in the formatted files and places them on the receiving host's print queue.

A one-to-one correspondence must exist between copies of PFX transfer and server utilities. This matching principle allows the control of one transfer/server combination to operate totally independent of any other file transfers.

Using PFX

Background information

The PFX Utility is implemented under HP OpenVMS as a modified print symbiont using the PSM$ library routines. Because of this, the PFX Utility appears as a normal print queue on the system, and users need only specify the correct queue name on their PRINT command to route files to PFX. Additionally, users can specify /FORM or /PARAMETER qualifiers to give PFX additional information about what to do with the print jobs.

Any examples in this section are based on a single print queue named REMOTE_PRINTER that will route files to a remote host named MBI. In practice, a host may have multiple PFX-served print queues, each one connected to a single remote PFX server Utility.

In order to use the PFX Utility, three files need to be created,

PFXT_ROOT:queue_name.INP (Input File)

PFXT_ROOT:queue_name.CFG (Configuration File)

PFXT_ROOT:queue_name.JOB (Job File)

"PFXT_ROOT" is a logical defined by the installation procedure. "queue_name" is the name of the printer queue used by the PFX Utility program.

The input file contains parameters that the PFX Utility reads in when it is started. The configuration file contains information that the PFX Utility sends to the PFX Server it is connected to that determines what happens to the print job once the Server receives it. The job file is the file that is submitted by the PFX Utility to start the PFX server on the remote machine. The use of the job file is optional, depending on the parameters specified in the PFX input file.

The PFX Utility also creates an output file:

PFXT_ROOT:queue_name.OUT

This file will contain PFX message logged during print job processing.

Input file

The input file, PFXT_ROOT:queue_name.INP, consists on one or more lines of parameters. Lines beginning with an asterisk are considered comments lines, and are not scanned for parameters. Scanning of the input file ends when an end of file is detected by the PFX Utility. The following tables summarize the parameters that can be specified.

Figure 1 on page 4 lists the parameters for HP OpenVMS. The paragraphs following the figure describe all the parameters in detail.

Parameter	Description
[BLOCK=number]	Size of block during print job transfer
[DELAYBUSY=number]	Maximum delay for busy
[DELAYNOFR=number]	Maximum delay for not offered
[DELAYTIME=number]	Delay time between failed connects
[HOST=string]	Name of remote host
ID=string	Offered name of PFX Utility job
[JBLOCK=number]	Size of block during job file transfer
[JID=string]	Offered name of BFXJS job
[MSGLVL=number]	Severity of messages to be logged
[NOSUBMIT]	No submission of job on remote host
[NOTIMESTAMP]	No printing of timestamp on messages
[OFFERTIMEOUT=number]	Timeout for offer
[READTIMEOUT=number]	Timeout for read
[REMOTE=string]	Name of remote host
[RMTJOB=string]	Name of remote job
[TIMESTAMP]	Print timestamp on messages
[TO=string]	Name of remote host

Figure 1. Summary of PFX Utility Parameters

Parameters

BLOCK (optional) Specifies the maximum size (in bytes) of buffers sent to the remote host. Normally this parameter will be specified as a fairly large value. The default is 4096.

DELAYBUSY (optional) Specifies the maximum amount of time (in seconds) to be spent attempting to connect to BFXJS when attempts are failing because the target job is busy. Default is 300.

DELAYNOFR (optional) Specifies the maximum amount of time (in seconds) to be spent attempting to connect to BFXJS when attempts are failing because the target job has not offered itself through NETEX. Default is 30.

DELAYTIME (optional) Specifies the delay (in seconds) between failed connect attempts. Default is 5.

HOST (optional) Specifies host of PFX Server. This is the same as the REMOTE parameter. The default is blanks (intrahost).

ID (required) Specifies a unique identifier for the program in the remote host. The identifier specified by the ID parameter may be any uppercase, alphanumeric string, one to eight characters in length. This parameter must agree with the destination host job.

JBLOCK (optional) This parameter specifies the block size (in bytes) to use in exchanging the job file with the remote host. The default is 800.

JID (optional) ID used when submitting the PFX server job to the remote host. The identifier specified by the JID parameter may be any uppercase, alphanumeric string, one to eight characters in length. The default value is BFXJS.

MSGLVL (optional) Specifies the type of messages that the user wishes to see in the PFX output file. Use '4' for file start/end messages. Use '8' for more important messages only. To see all messages, use a value of '0'. The default is 4.

NOSUBMIT (optional) Determines if a batch job is submitted on the remote machine to start the PFX server utility. If NOSUBMIT is specified, no batch job is submitted. The default is for a batch job to be submitted.

NOTIMESTAMP (optional) This parameter specifies that no timestamp should be used on PFX messages. The default is for PFX messages to have a timestamp.

OFFERTIMEOUT (optional) This parameter specifies the maximum time (in seconds) that the PFX Utility will wait for the PFX Server to connect. The default is 1800.

READTIMEOUT (optional) This parameter specifies the maximum time (in seconds) a NETEX read request will remain outstanding. The default is 0 (no timeout specified).

REMOTE (optional) Specifies host of PFX Server. The identifier specified by the REMOTE parameter may be any uppercase, alphanumeric string, one to eight characters in length. The default is blanks (intrahost).

RMTJOB (optional) Specifies the name used when requesting status on a remote job. The name specified by the RMTJOB parameter may be any uppercase, alphanumeric string, one to eight characters in length. The default is blanks.

TIMESTAMP (optional) Selects the printing of a timestamp on the PFX messages. The timestamp will give the time of day that the message was sent to the print file. The default is for PFX messages to have timestamps.

TO (optional) Specifies host of PFX server. This is the same as the REMOTE parameter. The default is blanks (intrahost).

The following is an example of the parameters for the HP OpenVMS host.

```
MSGLVL = 0
TO = MBI
ID = PFX01
BLOCK = 4096
```

This parameter set instructs PFX to print all messages, send to host MBI, and offer id PFX01, with a block size of 4096 bytes.

Configuration File

The configuration file contains information that the PFX Utility sends to the PFX Server to which it is connected. This determines what happens to the print file once the Server receives it. The information is selected according to what the /PARAMETER qualifier was on the print command that queued the print job. If no /PARAMETER was specified on the print command, the /FORM qualifier is used. If no /FORM qualifier was specified, the default form for the print queue is used.

The configuration file, PFXT_ROOT:queue_name.CFG, contains a set of images for each /PARAMETER or /FORM qualifier value allowed for the print queue. The set consists of the first 31 characters of the parameter or form value followed by the open image, followed by zero or more open-data images to send to the remote host with a print job.

The following lines illustrate the images for two form or parameter names (DEFAULT and LASER) on HP OpenVMS. These images are fixed format. See the PFX Server Utility manual for your remote host for what these images should be.

```
DEFAULT
02ONEDD
//ONEDD DD SYSOUT=Z,DCB=(RECFM=FBA,LRECL=133,BLKSIZ=2660)
           OUTPUT=LINEPTR
LASER
01LASER
//PRINT DD SYSOUT=I,DCB=(RECFM=FBA,LRECL=133,BLKSIZE=2660)
```

The values DEFAULT and LASER are required headings. The lines “02ONEDD” and “01LASER” give the number of lines that follow (01) and the name of the printer (ONEDD and LASER). The line “OUTPUT = LINEPTR” directs returned messages to the printer LINEPTR.

Job File

The PFX Utility may also need a file, PFXT_ROOT:queue_name.JOB, to start the PFX Server on the remote host, depending on which method is used, automatic job submission or manual job submission.

For automatic job submission, the .JOB file for the print queue is sent to the remote host’s BFXJS program. (BFXJS must be executing before the job is submitted.) BFXJS receives the file and submits it for scheduling to the remote host’s operating system. When the started job calls the PFX Server, it connects to the HP OpenVMS PFX and print transfers can begin. The format of the .JOB file is dependent on the remote host it is going to. Refer to the appropriate PFX Server manual for more information.

The manual submission method requires that the job on the remote host be started manually after the HP OpenVMS PFX transfer program is started. The HP OpenVMS PFX .INP file would need the additional parameter NOSUBMIT. The procedure to manually bring up the remote PFX server utility is dependent on the remote host. See the appropriate PFX Server manual for more information.

Output File

When the PFX print symbiont process is first created, it creates its output file, PFXT_ROOT:queue_name.OUT. Any PFX messages are written to this file. If the PFX Utility terminates unexpectedly, this file should be examined for the reason. See “Appendix A. PFX Messages” on page 19 for a list of messages that PFX can issue to this file.

Starting the PFX Utility

The following command will create and start a print queue for the PFX Utility.

```
$ INITIALIZE/QUEUE REMOTE_PRINTER -
        /PROCESSOR=PFXSMB -
        /DEFAULT=(NOBURST,FLAG=ONE,NOTRAILER) -
        /NOENABLE GENERIC -
        /RETAIN=ERROR -
        /START
```

Note the "/PROCESSOR" qualifier. It indicates that a special version of the print symbiont, copied to SYS$SYSTEM: during installation, should be used. This special print symbiont contains the code needed to communicate with the PFX Server program on the remote host through NETEX. Also note the "/RETAIN" qualifier. It indicates that any jobs that are aborted because of errors should be retained by the HP OpenVMS queue manager. These aborted jobs can then be examined later to determine the cause of the error, corrected, and reprinted.

When the PFX Utility print queue is first started, the PFX Utility program will attempt to connect with a remote PFX Server. The "INITIALIZE/QUEUE/START" (or the "START/QUEUE") command will normally not complete until either a connection to a remote PFX Server succeeds, or fails, according to the parameters in the .INP file. Because of the possibly long delay when issuing the "INITIALIZE/QUEUE/START" command, it is suggested that the PFX Utility queue not be started from the system manager's startup procedure, SYS$MANAGER:SYSTARTUP.COM, but rather from a batch procedure submitted by the startup procedure, or started by a system operator. If the connection fails, the "INITIALIZE/QUEUE/START" command will return an error, and the output file for the print queue should be examined for the cause of the error.

Additional information on print queues can be found in an appropriate OpenVMS system manager's reference manual.

Submitting a Print Job

To submit a print job to the PFX Utility, a user issues the command:

```
$ PRINT/QUEUE=queue_name print_file_name
```

Where "queue_name" is the name of a PFX Utility print queue, and "print_file_name" is the name of the file to be printed. The user could also include optional "/FORM" or "/PARAMETER" qualifiers to tell PFX more information on how to print the job. The exact meaning of these qualifiers to PFX is determined by the contents of the .CFG file for that print queue. If the user specifies both the "/FORM" and the "/PARAMETER" qualifiers, the value of the "/PARAMETER" qualifier is used to select the data from the .CFG file. If the value of the "/FORM" or "/PARAMETER" is not defined in the .CFG file, the print job will be aborted when the PFX Utility attempts to send the job to the remote host.

Installation

Prerequisites

The prerequisites for installing H262TI PFX are:

- An Integrity host running OpenVMS version 8.3 or later with Network Executive Software NETEX transport software
- At least one other host with an appropriate set of NETEX and PFX software

Installing the PFX Utility

This product is now distributed as a file or by CD-ROM in the OpenVMS BAKCUP utility file format. The CD is not in OpenVMS format so it must be read from a Joliet-compatible system (e.g., Windows XP). The distribution file, "H262TI020.bck", should be transferred to a directory on the OpenVMS system.

The next step is to decide which device the H262TI files will be installed on and to create a directory on that device. This device must have at least 1000 free blocks. Normally the directory is called "[NESI.PFXT]". If such a directory already exists, skip the "CREATE/DIRECTORY" command below. However, it is advisable to backup and delete existing files from this directory before installing the release tape to avoid any conflicts with previous releases of the PFX Utility.

The following is a list of steps to install the base release.

1. Login to the system manager's account (SYSTEM).
2. Save any previous PFXTI configuration files.
3. Create or identify a temporary directory on the OpenVMS system where the installation data set may be loaded into.
4. Transfer the "H262TI020.bck" file to the directory created in step #3.
5. Once the data set is loaded into the host directory, its file attributes must be modified. Use the following command to change the attributes of the data set.

   ```
   $ SET FILE/ATTR=(RFM=FIX,LRL=32256) H262TI020.BCK
   ```

6. Run OpenVMS Backup Utility to extract the distribution:

   ```
   $ BACKUP/LOG H262TI020.BCK/SAVE XXX:[YYY]
   ```

   Where "XXX:[YYY]" is the directory created in step #3.

7. All of the necessary installation files are now on disk. Execute the "SET DEFAULT" command.

   ```
   $ SET DEFAULT XXX:[YYY]
   ```

8. Start the installation process by execute the command "@INSTALL":

   ```
   $ @INSTALL
   ```

   This will install the PFX Utility on your system.

Post Installation Considerations

We recommend that the following line should be added to the system manager's startup procedure, "SYS$MANAGER:SYSTARTUP.COM":

```
$ @SYS$MANAGER:PFXT_STARTUP
```

This command will define a system-wide logical name needed by the PFX Utility.

Operator Interface

The operator interface for the HP OpenVMS PFX utility is the same as the normal HP OpenVMS queue manipulation commands used to stop, start, and query the status of the PFX Utility. Additional information on print queue commands can be found in the appropriate OpenVMS System Manager's Reference Manual. In addition, NetEx/IP may be interfaced through its own operator interface. Refer to the NetEx/IP manuals listed in the Preface.

Internal Operation

The PFX Utility is implemented as a single-threaded print symbiont under the control of the OpenVMS job controller (SYS$SYSTEM:PFXSMB.EXE). The PFX symbiont sends print jobs through NETEX to a remote host for printing. The PFX symbiont is written using the OpenVMS PSM$ routines. More information on these routines can be found in the OpenVMS Utility Routines Reference Manual.

Initialization

When the PFX symbiont is started, either with the "INITIALIZE/QUEUE/START" command or the "START/QUEUE" command, the OpenVMS job controller will create the PFX symbiont process and send a "start stream" command to it. When the print symbiont first starts up, it calls PSM$REPLACE to replace the default symbiont job completion and output routines. It then calls PSM$PRINT to start the print symbiont. When the print symbiont's output routine receives the "start stream" command it performs the following steps:

- Opens the output file PFXT_ROOT:queue_name.OUT. The PFX symbiont will write operational messages into this file.
- Reads the input parameter file PFXT_ROOT:queue_name.INP. This file contains the PFX parameters necessary to establish a session with a PFX Server.
- Opens the configuration file PFXT_ROOT:queue_name.CFG and scan it for correct syntax.
- Optionally submits a job, through the BJXJS utility on the remote host, to start the PFX Server.
- Waits for the remote PFX Server to start and establish a NETEX session with it.
- Waits for the OpenVMS job controller to issue further commands.

Sending Print Jobs

When the OpenVMS job controller has a file for the PFX print symbiont to transfer, the following commands will be sent to the PFX print symbiont:

- **Start task**. The PFX symbiont scans the configuration file and extracts information for the file using the value of the /PARAMETER or /FORM qualifier as a key. If the requested information cannot be found, the print job will be aborted. It then sends this information to the PFX Server as open images and open-data images.
- **Write**. The PFX symbiont scans the buffer, which contains the print information with embedded carriage control characters, converts it to ANSI format print images, and sends them to the PFX Server. If a print image is greater than 255 characters, it will be separated into multiple print images. When an end of job is detected, a close image is sent. The PFX symbiont will then wait for an acknowledgement from the PFX Server. If it does not receive this acknowledgement, the current print job will be aborted.

PFX Symbiont Termination

When the OpenVMS job controller has been informed to terminate print operations (because of a "STOP/QUEUE/NEXT" command), it sends a "stop stream" command to the PFX symbiont. The PFX symbiont will then send a message to the PFX Server and wait for the NETEX session to terminate.

Technical Data

Overview

The protocol used by PFX is based on BFX protocol. In a sense it is a layer placed on top of BFX. The BUFFER LEVEL (BUFLEV) associated with the BFX header is used to determine the meaning of the associated images. The associated images fall into four classes; open, open-data, print-data, and close.

Each image is a flag or control character followed by data. Each of the image classes, except print-data, has a unique flag character which is used only for debug as discussed in "Use of Flag Characters" on page 17. The print images have an ANSI printer control character.

The basic flow for each file to be printed is to send an open image, send open-data images (if present), send the print-data images, and send a close image. Each of these images is discussed below.

The Open Image

The first image sent from the sending PFX to the destination PFX is an open image. It is also sent to open a new file after the previous file is closed. The image format is a dollar sign flag character ('$') followed by two fields. The first field of 2 characters is a count of the open-data images to follow. This is followed by the group or data set name.

BUF LEV	**BUF LEN**	**IMAGE 1234. . . . .10. . . . . . 81**
14	81	$NNdataname

where:

Column 1 is the flag character of dollar sign ($).

Columns 2 and 3 are the count of open-data images to follow. This is a right-justified zero-filled numeric value. The value '00' indicates no open-data images follow this image. The value is often limited by the destination host to a fairly small number (about 5).

Columns 4 to 11 are the dataname. The dataname is an 8 character parameter passed to the destination host.

Columns 12 to 81 are currently undefined. These columns should be set to blanks to allow for future expansion. These may someday be used for passwords, userid, or other data.

Open-Data Images

Zero or more open-data images are passed after the open image. The content of these images is unspecified past the flag character. The meaning of these images depends on the host that processes them.

BUF LEV	BUF LEN	IMAGE 12 81
12	81	%OPEN-DATA

where:

Column 1 is the flag character of percent sign (%).

Columns 2 to 81 are defined by the receiving host.

Print Images

The real data to be passed are the print-images. The print-images are in ANSI format. Column 1 has the print control character and the rest of the columns contain the print image. The total image may be from one (1) to the maximum length print line (normally 128, 132, or 160 plus one for the control character).

BUF LEV	BUF LEN	IMAGE 1 2 . . . . NN
1	NN	CPRINT-DATA

where:

Column 1 is the print control character (C). This comes from the ANSI-DEFINED set of ' ', '0', '-', '+', and '1'. Others in the range '2' through '9' are sometimes used.

Columns 2 to NN contain the print image itself. The buffer length indicates how long the image is. A buffer length of one indicates there is only a control character and no image. This often occurs on a page eject ('1').

Close Image

The close image indicates the end of a print file. This image should initiate the close and perhaps the free process for the print file.

BUF LEV	BUF LEN	IMAGE 1 2 4 81
13	NN	/EOF

where:

Column 1 is the flag character of slash (/).

Columns 2 to 4 contain 'EOF'. This character string is passed more for documentation than anything else. It serves no real function.

Columns 5 to 81 are currently undefined and should be set to blanks.

Forms Control Buffer

PFX assumes that the Forms Control Buffer is setup so that a '1' print command goes to the top line on the page. In some installations, the Forms Control Buffer is defined so that the '1' print command goes to the third or forth line on the page. There are two methods of handling this problem. Either a different forms control buffer can be specified for the print files sent from the sending host, or a different forms control channel can be used.

Use of Flag Characters

The flag characters on the open, open-data, and close images are defined to aid in testing. A new implementation may be tested without being directly connected to a current implementation. To test a new implementation, the current implementation should transfer several print files onto tape by specifying a normal record module as opposed to the special record module. This tape can then be input to the new implementation and sent across a BFX link to test the new implementation's receiving record module. The opposite can be used to test a sending module.

Once the implementation is debugged, these special characters can be ignored. Or, they can be left in to make saving of print files to tape easier.

The Total PFX Data Stream

An example of a total PFX transfer follows:

BUF LEV	**BUF LEN**	**IMAGE** **1. . . . .** **81**
14	81	$01RMTPRT
12	56	%RMTPRT DD SYSOUT=A,DCB(RECFM=FBA,LRECL=133,BLKSIZE=2660
1	38	1 This is the first image to be printed
1		\
1		/
1		\
1	37	This is the last image to be printed
13	81	/EOF
		.
		.
		.
		.
		(Repeat this until all transfers are done.)

Appendix A. PFX Messages

PFX generates a variety of messages during the course of execution. Shown below is a complete list of messages with the suggested response for each. Also shown is the severity of the message (as compared with the MSGLEVEL parameter to determine if the message should be logged) and the modules that may issue the message.

```
BFXnnns message text
```

where:

BFX indicates that this is a BFX/PFX message.

nnn the message number. The messages are listed in this order.

s the message severity. The following codes are used:

I - informational messages

E - error messages

S - severe error messages

F - fatal error messages

message text - the message text.

The following are the messages issued by modules which are common to BFX and PFX. Messages numbered BFX8nn are unique to PFX.

BFX001F JOB SUBMISSION FAILED.

Message level: 15 (Fatal error)

Description: Transfer Initiate was unable to submit a job to the remote host. If Stop on Error (SOE) was specified, the BFX program will terminate.

Response: The reason for job submission failure will be indicated in a previous message. Take the corrective action indicated by the previous message's description.

BFX002F BFX EXECUTION ABORTED.

Message level: 15 (Fatal error)

Description: The BFX program has detected a condition that makes it impossible to successfully continue execution. If the SOE parameter was specified, the BFX program will terminate.

Response: The reason for the terminal failure will be indicated in previous BFX messages. Take the corrective action indicated by the previous message's description.

BFX004I BFXJS STARTED.

Message level: 4 (Detailed informational)

Description: The BFXJS program has been started and is ready to offer Job Submission services.

Response: None.

BFX006W UNRECOGNIZED PARAMETER:

Message level: 12 (Severe error)

Description: An input statement to the BFX program contains a string that is not a recognized parameter. The string will follow the error message. BFX will not transfer any files after encountering this error, but will continue to read the input file.

Response: Correct the syntax error and resubmit the job.

BFX007W PARAMETER NOT VALID FOR THIS JOB; IGNORED:

Message level: 9 (Recoverable error)

Description: A parameter that is not applicable to the BFX program was encountered. The parameter in question will follow the message. The statement is ignored.

Response: Although processing will continue, the probable cause is an operations or setup error. Verify that the remainder of the BFX run proceeded as intended.

BFX009W PARAMETER IGNORED; ONLY VALID ON FIRST TRANSFER:

Message level: 9 (Recoverable error)

Description: A parameter statement that is applicable only to the first transfer (such as ID =) was encountered. The parameter in question will follow the message. The statement is ignored.

Response: Although processing will continue, the probable cause is an operations or setup error. Verify that the remainder of the BFX run proceeded as intended.

BFX011F ID = BFX IDENTIFIER OMITTED.

Message level: 15 (Fatal error)

Description: The ID parameter which uniquely identifies the BFX job on the initiating machine was not supplied. There is no default for this parameter.

Response: Supply the ID parameter and rerun the job.

BFX012W SPECIFIED BUFFER SIZE TOO LARGE. MAXIMUM:

Message level: 15 (Severe error)

Description: The BLOCK or JBLOCK parameter specified a value greater than the indicated maximum. BFX will not transfer any files after encountering this error, but will continue to read the input file.

Response: Correct the BLOCK or JBLOCK parameter and resubmit the job.

BFX014F ERRORS PREVIOUSLY FOUND. EXECUTION OF TRANSFER BYPASSED.

Message level: 13 (Severe error)

Description: Errors were encountered parsing preceding input statements. The syntax of the input statements for following transfers will be checked, but the transfers will not occur.

Response: Correct the errors indicated by the preceding error messages and resubmit the job.

BFX015I BFXTI STARTED.

Message level: 4 (Detailed informational)

Description: This message indicates that BFXTI has started and will proceed to accept commands.

Response: None.

BFX016I BFXTR STARTED.

Message level: 4 (Detailed informational)

Description: This message indicates that BFXTR has started and will proceed to accept commands.

Response: None.

BFX017I START OF FILE TRANSFER NUMBER nnnnn

Message level: 3 (Detailed informational)

Description: This message indicates that the BFX program has started processing the input statements for the indicated file transfer.

Response: None.

BFX018I PARAMETERS FOR TIDS TRANSFER ARE:

Message level: 2 (Detailed informational)

Description: The BFX program will produce a log of various file transfer parameters.

Response: None.

BFX019F AMBIGUOUS PARAMETER:

Message level: 12 (Severe error)

Description: An input statement to the BFX program contains a string that is a valid abbreviation for more than one parameter name. The string will follow the error message. BFX will not transfer any files after encountering this error, but will continue to read the input file.

Response: Correct the syntax error and resubmit the BFX jobs.

BFX020F NETEX COMMUNICATIONS SUBSYSTEM IS NOT RUNNING.

Message level: 15 (Fatal error)

Description: When the BFX program attempted to establish communications, it found that the NETEX subsystem was not currently running on the local host. Processing is terminated, as data transfer is not possible without NETEX.

Response: Consult with operations to determine whether NETEX should have been active. Resubmit the job when NETEX is active.

BFX021F NETEX COMMUNICATIONS SUBSYSTEM IS BEING SHUT DOWN.

Message level: 15 (Fatal error)

Description: During the connection process or in the middle of a job or file transfer, the BFX program received an indication that NETEX is abruptly terminating. This can be caused by operator cancellation of NETEX or by internal NETEX software problems. Processing is terminated, as no further data transfer will be possible until NETEX is restarted.

Response: Consult with operations to determine the cause of the NETEX shutdown. Resubmit the job when NETEX is once again active. File cleanup procedures may be needed if a file transfer was in progress at the time of the failure.

BFX022F NETEX SYSTEMWIDE CAPACITY EXCEEDED.

Message level: 15 (Fatal error)

Description: During the process of establishing communications, NETEX returned an indication that it cannot handle a new connection because a limiting number of NETEX connections are already in use. Processing is terminated, as it is uncertain when the condition will clear up.

Response: Inform operations or the NETEX system programmer of the problem. If the problem occurs frequently, NETEX will have to be given more resources to handle extra connections.

BFX024F REMOTE HOST CEASED COMMUNICATING.

Message level: 15 (Fatal error)

Description: During the transfer of a file or a job, the BFX program received an indication from NETEX that all communications will the other host have ceased. This is generally caused by a system crash on the remote host, abrupt failure or operator cancellation of NETEX on the remote host, or a hardware failure in the physical connection between the two hosts. Processing is terminated, as no further data transfer is possible.

Response: Consult with operations to determine the cause of the failure. Resubmit the job when the connection is once again active. File cleanup procedures may be needed if a file transfer was in progress at the time of the failure.

BFX025F REMOTE BFX ABORTED EXECUTION.

Message level: 15 (Fatal error)

Description: During the transfer of a file or a job, the BFX program received an indication from NETEX that the BFX program on the remote host terminated abnormally. Processing is terminated, as no further data transfer is possible.

Response: Examine the output from the job on the remote host to determine the cause of the failure. Correct the error and resubmit the job.

BFX026F REMOTE HOST NETEX NOT PRESENT.

Message level: 15 (Fatal error)

Description: When an attempt was made to connect to the remote BFX program, the NETEX subsystem on the local machine reported that no NETEX subsystem was present on the remote host. Processing is terminated, as data transfer is not possible without NETEX.

Response: Consult with operations to determine whether NETEX should have been present on the remote host. Resubmit the job when NETEX is available on both hosts.

BFX027F SPECIFIED HOST IS NOT ON THE NETWORK.

Message level: 15 (Fatal error)

Description: When BFXTI was attempting to connect to BFXJS, or when BFXTR was attempting to connect back to the initiating BFXTI, the local NETEX subsystem returned an indication that the host name specified is not on the network specified in the Network Configuration Table. Processing is terminated, as data transfer is not possible.

Response: The probable cause of this error is an erroneous HOST parameter. A second possibility is that the installation has changed the host names used by NETEX. Correct the error and resubmit the job.

BFX028F ACCESS TO SPECIFIED HOST DENIED.

Message level: 15 (Fatal error)

Description: When BFXTI was attempting to connect to BFXJS, or when BFXTR was attempting to connect back to the initiating BFXTI, NETEX informed the program that access to the specified host has been denied by the local computer operator. Processing is terminated, as communications between the two hosts cannot take place.

Response: Computer operations is using a feature of NETEX that can temporarily prohibit access to a host that is undergoing maintenance, performing classified or confidential work, etc. Consult with operations to determine when communications with the remote host will once again be permitted. Resubmit the job at that time.

BFX029F ACCESS TO LOCAL NETEX DENIED.

Message level: 15 (Fatal error)

Description: When the BFX program was attempting to establish communications, NETEX informed the program that access to the local host has been denied by the local computer operator. Processing is terminated, as communications cannot take place.

Response: Computer operations is using a feature of NETEX that can temporarily prohibit access to a host that is undergoing maintenance, performing classified or confidential work, etc. Consult with operations to determine when communications with the remote local will once again be permitted. Resubmit the job at that time.

BFX030F NETEX ERROR: NRBSTAT = ssss, NRBIND = iii.

Message level: 15 (Fatal error)

Description: NETEX has reported an error to the BFX program that is not an intercepted condition. “ssss” is the four digit status code returned by NETEX; “iii” is the data or event indication type. Processing is terminated, as the actual severity of the error is not known by the BFX program.

Response: Refer to NETEX documentation to determine the cause of the error. Frequently this error will be caused by earlier, more comprehensible errors. If other BFX error messages precede this one, take the corrective action suggested by those messages.

BFX031S SPECIFIED ID IS BUSY.

Message level: 12 (Severe error)

Description: When BFXTI was attempting to connect to BFXJS, or when BFXTR was attempting to connect back to the initiating BFXTI, NETEX informed the program that the OFFERed application was currently in use by some other network application. The connection attempt was retried a number of times (until the DELAYBUSY time period elapsed), but the application remained in use.

Response: If the remote application was not expected to be busy, consult with operations. Otherwise, it may be necessary to specify a higher value for DELAYBUSY and resubmit the job.

BFX032S SPECIFIED ID NOT OFFERED ON SPECIFIED HOST.

Message level: 12 (Severe error)

Description: When BFXTI was attempting to connect to BFXJS, or when BFXTR was attempting to connect back to the initiating BFXTI, NETEX informed the program that the OFFERed application was not currently available. The connection attempt was retried a number of times (until the DELAYNOFR time period elapsed), but the connection was never completed. Either BFXJS (first case above) or the initiating BFXTI (second case) failed before OFFERing itself, or response times on the remote machine are very slow.

Response: Examine the output from the remote job to determine whether the job failed before OFFERing itself. If so, correct the error that caused the failure and resubmit the job. If this situation is caused by slow response times on the remote host, it may be necessary to specify a higher value for DELAYNOFR and resubmit the job.

BFX033S NO RESPONSE FROM REMOTE BFX PROGRAM.

Message level: 12 (Severe error)

Description: The local BFX program expected to receive data or a message from the remote BFX program, but none was received within a reasonable time. The probable cause of this error is that the remote BFX program has become "hung", either because of a programming error, or because of very slow response times on the remote host.

Response: If response times are slow on the remote host, it may be necessary to specify a higher value for READTIMEOUT and resubmit the job. If a programming error is suspected and user-written modules are in use, ensure that they are not at fault.

BFX034S READ OR OFFER TIMEOUT

Message level: 12 (Severe error)

Description: The timeout specified on an SREAD or SOFFR request has expired before the request was satisfied. For SOFFR, the probable cause is that the remote job did not start in time.

Response: If nothing unusual is reported on the other side of the transfer, try setting READTIMEOUT and/or OFFERTIMEOUT to higher values.

BFX040F NETEX COMMUNICATIONS SUBSYSTEM TERMINATED.

Message level: 15 (Fatal error)

Description: During the connection process or in the middle of a job or file transfer, the BFX program received an indication that NETEX is abruptly terminating. This can be caused by operator cancellation of NETEX or by internal NETEX software problems. Processing is terminated, as no further data transfer will be possible until NETEX is restarted.

Response: Consult with operations to determine the cause of the NETEX shutdown. Resubmit the job when NETEX is once again active. File cleanup procedures may be needed if a file transfer was in progress at the time of the failure.

BFX042S BFX PROGRAM TIMED OUT TO NETEX.

Message level: 15 (Fatal error)

Description: The BFX program suspended execution for a sufficiently long time that NETEX terminated the connection between the two BFX programs. The current transfer is aborted, but the remaining transfers will be attempted.

Response: This is generally due to difficulties in system tuning, or exceptionally long delays in such activities as tape mounting. If the problem was not caused be operational errors, the NETEX system programmer may have to raise the NETEX READTO parameter to compensate for the long delay.

BFX043F BFX PROTOCOL ERROR -- PREMATURE DISCONNECT.

Message level: 15 (Fatal error)

Description: The remote BFX program terminated the connection at a time when termination was not anticipated by the local BFX program.

Response: This is an internal BFX error. It should be brought to the attention of installation BFX support personnel.

BFX044S REMOTE BFX PROGRAM TIMED OUT.

Message level: 15 (Fatal error)

Description: The remote BFX program suspended execution for a sufficiently long time that the remote NETEX terminated the connection between the two BFX programs. The current transfer is aborted, but the remaining transfers will be attempted.

Response: This is generally due to difficulties in system tuning, or exceptionally long delays in such activities as tape mounting. If the problem was not caused be operational errors, the NETEX system programmer for the remote host may have to raise the NETEX READTO parameter to compensate for the long delay.

BFX04SF BFX PROTOCOL ERROR - PREMATURE END MESSAGE.

Message level: 15 (Fatal error)

Description: The remote BFX program sent an End-of-File message before the End-of-File record was received.

Response: This is generally caused by user-written block and/or record modules. Recode the user module to send the last record of the file with an EOF record level, and then send the End-of-File message.

BFX046F BFX PROTOCOL ERROR - DATA AFTER EOF.

Message level: 15 (Fatal error)

Description: The remote BFX program sent data after sending a record with an EOF record level.

Response: This is generally caused by user-written block and/or record modules. Recode the user module to send only the last record of the file with an EOF record level.

BFX047I JOB SUBMITTED.

Message level: 7 (Informational)

Description: The job file sent to BFXJS was submitted to the system batch queue.

Response: None.

BFX048S JOB SUBMISSION FAILED. RC = cccccccc.

Message level: 12 (Severe Error)

Description: The job file submission failed. The error is described by the system status code cccccccc.

Response: Correct the error indicated by the status code and resubmit the job.

BFX049I JOB FILE NOT STARTED.

Message level: 11 (Informational)

Description: The job file received was not started due to previously encountered errors.

Response: Correct the problem indicated by previous error messages and resubmit the job.

BFX080I FILE fffffffffff RECEIVED.

Message level: 6 (Informational) and BFXJS.

Description: The file fffffffffff was received. This message is generated if the receiving record module does not return a message on EOF.

Response: None.

BFX082I FILE fffffffffff SENT.

Message level: 6 (Informational)

Description: The file fffffffffff was sent. This message is generated if the sending record module does not return a message on EOF.

Response: None.

BFX085F BFX PROTOCOL ERROR - MESSAGE IN DATA BLOCK.

Message level: 15 (Fatal Error)

Description: A message record was found inside a data block. Messages must appear in their own blocks, one to a block.

Response: This is generally caused by user-written block modules. Correct the block module and re-submit the job.

BFX103S BMOD bbbbbbbb AND RMOD rrrrrrrr COMBINATION NOT FOUND.

Message level: 12 (Severe error)

Description: The Block Module and Record Module combination specified by the BMOD and RMOD parameters was not compiled into the current copy of the BFX program. The current transfer is aborted, but the remaining transfers will be attempted.

Response: This error will be seen either because the BFXUIM module was not updated to include the block/record module combination requested, or because of use of the incorrect module name.

BFX107S JMOD jjjjjjjj NOT FOUND.

Message level: 12 (Severe error)

Description: The Job Submission Module specified by the JMOD parameter was not compiled into the current copy of the BFX program. The current transfer is aborted, but the remaining transfers will be attempted.

Response: This error will be seen either because the BFXUIM module was not updated to include the job submission module requested, or because of use of the incorrect module name.

BFX111S RECORD MODULE INITIALIZATION FAILED.

Message level: 12 (Severe error)

Description: A user-written Record Module returned an Abort code (BUFLEV=16) when called for initialization. The module did not supply a message with the abort code, so this default message is printed. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Correct the condition that caused the user module to return the Abort code and resubmit the job. It is good form for user modules to supply a message under these circumstances.

BFX112S BLOCK MODULE INITIALIZATION FAILED.

Message level: 12 (Severe error)

Description: A user-written Block Module returned an Abort code (BUFLEV=16) when called for initialization. The module did not supply a message with the abort code, so this default message is printed. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Correct the condition that caused the user module to return the Abort code and resubmit the job. It is good form for user modules to supply a message under these circumstances.

BFX113S SENDING RECORD MODULE ABORTED TRANSFER.

Message level: 12 (Severe error)

Description: A user-written Sending Record Module returned an Abort code (BUFLEV=16) during the transfer of a file. The user module did not supply a message with the abort code, so this default message is printed. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Correct the condition that caused the user module to return the Abort code and resubmit the job. It is good form for user modules to supply a message under these circumstances.

BFX114S RECEIVING RECORD MODULE ABORTED TRANSFER.

Message level: 12 (Severe error)

Description: A user-written Receiving Record Module returned an Abort code (BUFLEV=16) during the transfer of a file. The user module did not supply a message with the abort code, so this default message is printed. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Correct the condition that caused the user module to return the Abort code and resubmit the job. It is good form for user modules to supply a message under these circumstances.

BFX115S SENDING BLOCK MODULE ABORTED TRANSFER.

Message level: 12 (Severe error)

Description: A user-written Sending Block Module returned an Abort code (BUFLEV=16) during the transfer of a file. The user module did not supply a message with the abort code, so this default message is printed. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Correct the condition that caused the user module to return the Abort code and resubmit the job. It is good form for user modules to supply a message under these circumstances.

BFX116S RECEIVING BLOCK MODULE ABORTED TRANSFER.

Message level: 12 (Severe error)

Description: A user-written Receiving Block Module returned an Abort code (BUFLEV=16) during the transfer of a file. The user module did not supply a message with the abort code, so this default message is printed. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Correct the condition that caused the user module to return the Abort code and resubmit the job. It is good form for user modules to supply a message under these circumstances.

BFX117S SENDING RECORD MODULE ABORT PROCESSED.

Message level: 12 (Severe error)

Description: A user-written Sending Record Module was called with an Abort code (BUFLEV=16) during the transfer of a file. The user module did not supply a message on return, so this default message is printed.

Response: Correct the condition indicated by previous error messages and resubmit the job. It is good form for user-written modules to supply a message under these circumstances.

BFX118S SENDING BLOCK MODULE ABORT PROCESSED.

Message level: 12 (Severe error)

Description: A user-written Sending Block Module was called with an Abort code (BUFLEV=16) during the transfer of a file. The user module did not supply a message on return, so this default message is printed.

Response: Correct the condition indicated by previous error messages and resubmit the job. It is good form for user-written modules to supply a message under these circumstances.

BFX119S RECEIVING RECORD MODULE ABORT PROCESSED.

Message level: 12 (Severe error)

Description: A user-written Receiving Record Module was called with an Abort code (BUFLEV=16) during the transfer of a file. The user module did not supply a message on return, so this default message is printed.

Response: Correct the condition indicated by previous error messages and resubmit the job. It is good form for user-written modules to supply a message under these circumstances.

BFX120S RECEIVING BLOCK MODULE ABORT PROCESSED.

Message level: 12 (Severe error)

Description: A user-written Receiving Block Module was called with an Abort code (BUFLEV=16) during the transfer of a file. The user module did not supply a message on return, so this default message is printed.

Response: Correct the condition indicated by previous error messages and resubmit the job. It is good form for user-written modules to supply a message under these circumstances.

BFX121S MAXIMUM RECORD LENGTH EXCEEDS NEGOTIATED BLOCK SIZE.

Message level: 12 (Severe error)

Description: When the two BFX programs established a connection, the negotiated block size as determined by the user-specified parameters was insufficient to hold the largest logical record in the file to be sent. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Adjust the BLOCK parameter in one of the two BFX programs so it is sufficient to transfer the file. Note that a header of 6 bytes (bit mode) or 8 bytes (character mode) is prefixed to each record transferred.

BFX123F FILE TRANSFER PROTOCOL SEQUENCE ERROR.

Message level: 15 (Fatal Error)

Description: The file transfer information sent to the receiving BFX was found to be incorrect. A record numbering check indicated that records are missing, duplicated, or out of sequence. This may be due to an internal BFX or NETEX error, or to a user-written Block Module that is incorrectly sending data to the standard Network Executive Software's Receiving Block Module. The current transfer is aborted, but the remaining transfers will be attempted.

Response: If the error was caused by a user-written Block Module, correct the coding error that caused incorrect data to be sent. If only Network Executive Software's BFX code was used, bring the error to the immediate attention of Network Executive Software personnel.

BFX124S MODE= PARAMETERS NOT CONSISTENT FOR BOTH BFX JOBS.

Message level: 12 (Severe error)

Description: In a BFX program pair, one side had MODE= BIT specified and the other had MODE= CHAR. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Correct the erroneous specification and transfer the files that were not sent.

BFX125S MAXIMUM RECORD LENGTH EXCEEDS BUFFER SIZE.

Message level: 12 (Severe error)

Description: The length of the longest record in the file to be sent (or the physical block size of a sequential-only device) exceeds the length of the BFX buffers. The size of the buffers is determined when the BFX programs are compiled and linked. Normally, these buffers are 32767 bytes long (the largest block size allowed by NETEX). The current transfer is aborted, but the remaining transfers will be attempted.

Response: If the file in question has any records that are more than 32767 bytes long, it cannot be transferred by the Network Executive Software-supplied block and record modules; the user must supply modules to transfer the file. If the longest record in the file is less than 32768 bytes long, this error indicates that the BFX programs have been generated with smaller than normal buffers. Discuss the problem with your system manager.

BFX2011 FILE fffffffffff TRANSFERRED; nnnnnn RECORDS RECEIVED.

Message level: 6 (Informational)

Description: This message is issued when the receiving BFX processes the last record of the file. When issued, it indicates that the last record was received and that the output file was successfully closed. “fffffffffff” is the logical name of the fIle used for output; “nnnnnn” is the number of records that were written to the output file.

Response: None.

BFX203E FILE fffffffffff TRANSFER ABORTED; nnnnnn RECORDS RECEIVED.

Message level: 10 (Error)

Description: This message is issued by the receiving BFX when the file transfer process is aborted either due to the loss of NETEX communication or because of some other error detected by the BFX program. “fffffffffff” is the logical name of the file used for output; “nnnnnn” is the number of records that were written to the output file before the abort caused the transfer to stop. The current transfer is aborted, but the remaining transfers will be attempted. The original error will be reported by other BFX messages.

Response: Correct the error that caused the abort. Transfer the file again.

BFX205I FILE fffffffffff TRANSFERRED; nnnnnn RECORDS SENT.

Message level: 6 (Informational)

Description: This message is issued after the sending BFX transmits the last record of the file. When issued, it indicates that the last record was sent, the input end-of-file condition was detected, and the file was successfully closed. “fffffffffff” is the logical name of the file used for input; “nnnnnn” is the number of records that were read from the input file.

Response: None.

BFX206E FILE ffffffffffff TRANSFER ABORTED; nnnnnn RECORDS SENT.

Message level: 10 (Error)

Description: This message is issued by the sending BFX when the file transfer process is aborted either due to the loss of NETEX communication or because of some other error detected by the BFX program. “ffffffffffff” is the logical name of the file used for input; “nnnnnn” is the number of records that were read from the input file before the abort caused the transfer to stop. The current transfer is aborted, but the remaining transfers will be attempted. The original error will be reported by other BFX messages.

Response: Correct the error that caused the abort. Transfer the file again.

BFX210S CANNOT OPEN INPUT FILE ffffffffffff. RC = cccccccc.

Message level: 12 (Severe error)

Description: The sending BFX program was unable to open the input file whose logical name is specified by "ffffffffffff'. The return code "cccccccc" is in hexadecimal. Under OpenVMS V3.0 and later, the return code is always a valid OpenVMS status code. Under versions prior to 3.0, RC must be translated by the formula

(RC - '188004'X) / 8

to obtain the FORTRAN I/O error number. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Correct the reason for the open failure. Transfer the file again.

BFX211S CANNOT OPEN OUTPUT FILE ffffffffffff. RC = cccccccc.

Message level: 12 (Severe error)

Description: The sending BFX program was unable to open the output file whose logical name is specified by “ffffffffffff”. The return code “cccccccc” is in hexadecimal. Under OpenVMS V3.0 and later, the return code is always a valid OpenVMS status code. Under versions prior to 3.0, RC must be translated by the formula

(RC - '188004'X) / 8

to obtain the FORTRAN I/O error number. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Correct the reason for the open failure. Transfer the file again.

BFX212S FILE ffffffffffff PERMANENT I/O ERROR. RC = cccccccc.

Message level: 12 (Severe error)

Description: During the process of reading or writing the file whose logical name is “ffffffffffff”, a permanent I/O error occurred. The return code “cccccccc” is in hexadecimal. Under OpenVMS V3.0 and later, the return code is always a valid OpenVMS status code. Under versions prior to 3.0 RC must be translated by the formula

(RC - '188004'X) / 8

to obtain the FORTRAN I/O error number. The current transfer is aborted, but the remaining transfers will be attempted.

Response: Determine the cause of the I/O error. If the error can be corrected, do so and transfer the file again.

BFX220I SENDING FILE ffffffffffff.

Message level: 4 (Informational)

Description: The sending BFX has successfully opened the input file and is ready to begin transfer of data. Transmission will begin as soon as this message is issued. “ffffffffffff” is the logical name of the input file.

Response: None.

BFX221I RECEIVING FILE ffffffffffff.

Message level: 4 (Informational)

Description: The receiving BFX has successfully opened the output file and is ready to receive file data. “ffffffffffff” is the logical name of the output file.

Response: None.

BFX301I OFFERING ssssssss; BLOCK SIZE bbbbb.

Message level: 2 (Diagnostic)

Description: The BFX program has issued a NETEX SOFFR to wait for the responding BFX program to connect to it. The name offered is “ssssssss”, which is the JID or ID parameter specified in an input statement. The block size that the offering program would like to use is “bbbbb”.

Response: None.

BFX303I CONNECTING TO ssssssss ON HOST hhhhhhhh; BLOCK SIZE bbbbb.

Message level: 2 (Diagnostic)

Description: The BFX program has issued a NETEX SCONNECT to with a previously offered BFX program. The name to connect to is “ssssssss”, which is the JID or ID parameter specified in an input statement. “hhhhhhhh” is the host name specified in a HOST parameter statement. The block size that the connecting program would like to use is “bbbbb”.

Response: None.

BFX304I CONNECT COMPLETE.

Message level: 2 (Diagnostic)

Description: A previously issued NETEX SCONNECT has completed successfully.

Response: None.

BFX305W CONNECT FAILED; ssssssss BUSY.

Message level: 1 (Diagnostic)

Description: A previously issued NETEX SCONNECT did not succeed because the application named "ssssssss" was in use by some other network application. The BFX program will retry the connection at intervals determined by the DELAYTIME parameter until the SCONNECT succeeds or until the time specified by the DELAYBUSY parameter elapses.

Response: None.

BFX306W CONNECT FAILED; ssssssss NOT OFFERED.

Message level: 1 (Diagnostic)

Description: A previously issued NETEX SCONNECT did not succeed because the application named "ssssssss" was not offered on the remote host. This is not always a terminal error. It can be caused by connecting to BFXJS during a small "window" between batch job submissions, or to BFXTI if a job is submitted from a heavily loaded machine to a very responsive one. The BFX program will retry the connection at intervals determined by the DELAYTIME parameter until the SCONNECT succeeds or until the time specified by the DELAYNOFR parameter elapses.

Response: None.

BFX307I OFFER COMPLETE.

Message level: 2 (Diagnostic)

Description: A previous NETEX SOFFER request has completed successfully.

Response: None.

BFX308I CONFIRM ISSUED.

Message level: 2 (Diagnostic)

Description: A NETEX SCONFIRM is being issued in response to a previously completed SOFFER.

Response: None.

BFX309I CONFIRM COMPLETE.

Message level: 2 (Diagnostic)

Description: A previously issued NETEX SCONFIRM has completed successfully.

Response: None.

BFX310I CONNECT CONFIRM READ ISSUED.

Message level: 2 (Diagnostic)

Description: Following a successful SCONNECT request, the BFX program has issued an SREAD to obtain the SCONFIRM response from the other program.

Response: None.

BFX311I CONNECT CONFIRM COMPLETE.

Message level: 2 (Diagnostic)

Description: The SREAD issued to accept an SCONFIRM message from the remote BFX program has completed successfully. The NETEX session establishment process is now complete.

Response: None.

BFX312I BLOCK SIZE bbbbb, DATAMODE dddd, LCM lll.

Message level: 2 (Diagnostic)

Description: This message is issued by the BFX program when the session negotiation process is complete. “bbbbb” is the NETEX block size that will be used during file transfer. “dddd” is four hexadecimal digits that give the NETEX DATAMODE to be used based on the requirements of the two BFX programs. “lll” is the Least Common Multiple size negotiated, and will be greater than one when the connection is to a processor which has more than one character per “word”.

Response: None.

BFX313S OFFER OF ssssssss FAILED.

Message level: 12 (Severe Error)

Description: The NETEX SOFFER of “ssssssss” failed. The offer is not retried.

Response: A NETEX-type error message will have preceded this message. Take action based on that error message and resubmit the job.

BFX314S CONNECT TO ssssssss FAILED.

Message level: 12 (Severe Error)

Description: The NETEX SCONNECT to “ssssssss” failed. The CONNECT was retried a number of times, but continually failed.

Response: A NETEX-type error message will have preceded this message. Take action based on that error message and resubmit the job.

BFX317W CONNECT FAILED. SESSION LIMIT EXCEEDED.

Message level: 01 (Diagnostic)

Description: A previously issued NETEX SCONNECT (see message BFX303I) failed because the NETEX maximum sessions limit had already been reached. NETEX will retry the CONNECT a number of times at intervals determined during the FX generation or at run time.

Response: None.

BFX318W OFFER FAILED. SESSION LIMIT EXCEEDED.

Message level: 01 (Diagnostic)

Description: A previously issued NETEX SOFFER (see message BFX301I) failed because the NETEX maximum sessions limit had already been reached. NETEX will retry the OFFER a number of times at intervals determined during the FX generation or at run time.

Response: None..

BFX323I CONNECTING TO REQUEST RECEIVER ssssssss ON HOST hhhbbhhh.

Message level: 2 (Diagnostic)

Description: The BFX program has issued a NETEX SCONNECT to the remote job status request receiver on the indicated host.

Response: None.

BFX324I CONNECT TO REQUEST RECEIVER COMPLETE

Message level: 2 (Diagnostic)

Description: A previously issued NETEX SCONNECT to the remote job status component has completed successfully.

Response: None.

BFX330I CONNECT CONFIRM READ ISSUED

Message level: 2 (Diagnostics)

Description: Following a successful SCONNECT request, the BFX program has issued an SREAD to obtain the SCONFIRM response from the request receiver.

Response: None.

BFX3311 CONNECT CONFIRM READ COMPLETE

Message level: 2 (Diagnostic)

Description: The SREAD issued to accept an SCONFIRM message from the remote job status component has completed successfully. The NETEX session establishment process is now complete.

Response: None.

BFX334S CONNECT TO REQUEST RECEIVER ssssssss FAILED.

Message level: 12 (Severe error)

Description: The NETEX SCONNECT to the remote job status request component failed. If the component was busy, the CONNECT was retried five times but never succeeded.

Response: A NETEX-type error message will have preceded this message. Take action based on that error message and resubmit the job.

BFX340S REMOTE JOB NOT FOUND.

Message level: 12 (Severe error)

Description: The remote job status component has reported that the remote job has stopped executing or was never started.

Response: Determine the cause of the remote job's premature termination, correct the problem, and resubmit the job.

BFX341I REMOTE JOB IS QUEUED.

Message level: 4 (Informational)

Description: The remote job status component has reported that the remote job is queued or is executing. It has not yet connected to BFXTI, however, so BFXTI will reoffer itself.

Response: None.

BFX342S CANNOT COMMUNICATE WITH REMOTE STATUS REQUEST RECEIVER.

Message level: 12 (Severe error)

Description: An error occurred during communications with the remote job status component. Since BFXTI was unable to determine the status of the remote job, it will reoffer itself once using the OFFERTIMEOUT value.

Response: A NETEX-type error message will have preceded this message. Take action based on that error message and resubmit the job.

BFX401F ERROR DECODING PARAMETER VALUE. FORTRAN ERROR NUMBER:

Message level: 12 (Severe Error)

Description: The value specified in an input statement to be assigned to a parameter was not a valid integer. The FORTRAN error number returned from the READ statement that attempted to decode the value will follow the message. BFX will not transfer any files after encountering this error, but will continue to read the input file.

Response: Correct the incorrect parameter value and

BFX402F VALUE MUST BE SPECIFIED FOR THIS PARAMETER -- NO DEFAULT:

Message level: 12 (Severe Error)

Description: No value was specified in an input statement to be assigned to a parameter that does not have a default value (such as ID). BFX will not transfer any files after encountering this error, but will continue to read the input file.

Response: Supply a value for the parameter and resubmit the job.

BFX403F MODE MUST BE BIT OR CHARACTER.

Message level: 12 (Severe Error)

Description: A string (or abbreviation) other than "BIT" or "CHARACTER" was specified in a MODE= input statement. BFX will not transfer any files after encountering this error, but will continue to read the input file.

Response: Correct the incorrect string and resubmit the job.

BFX404I INPUT STATEMENTS ARE:

Message level: 2 (Diagnostic)

Description: This message is generated by the BFX program before the input statements are read. The input statements will be echoed to the log file.

Response: None.

BFX40SF MESSAGE LEVEL MUST BE 0 TO 16 INCLUSIVE: IGNORED.

Message level: 9 (Error)

Description: The value specified in an input statement to be assigned to the message level parameter (MSGLEVEL=) was outside of the range 0-16 inclusive. The statement is ignored.

Response: Supply a valid message level and resubmit the job.

BFX406F ERROR READING INPUT STATEMENT. FORTRAN ERROR NUMBER:

Message level: 12 (Severe Error)

Description: A FORTRAN READ of an input statement failed. The FORTRAN error number returned from the failing READ statement will follow the message.

Response: Correct the problem that caused the READ error and resubmit the job.

BFX407W PARAMETER VALUE TOO LONG; TRUNCATED. MAXIMUM:

Message level: 9 (Error)

Description: A string value specified in an input statement to be assigned to a parameter was longer than the parameter field itself. The string is truncated to fit in the field. The maximum length of the field in question is printed following the message. Processing will continue normally.

Response: Unexpected results may occur because of the truncation. If so, supply a valid length string and resubmit the job.

BFX408I ALL FILE TRANSFERS HAVE BEEN PROCESSED.

Message level: 4 (Informational)

Description: End-of-file was reached on the SYS$INPUT file. All requested file transfers have been processed (although some may have aborted or may have been bypassed).

Response: None.

BFX801I nnnnnnn RECORDS RECEIVED AT nnnnnnn BITS PER SECOND.

Message level: 15 (Informational)

Description: This message is issued when the receiving BFX processes the last record of the file. “nnnnnnn” is the number of records that were received at the ‘nnnnnnn’ rate.

Response: None.

BFX801I nnnnnnn RECORDS SENT AT nnnnnnn BITS PER SECOND.

Message level: 15 (Informational)

Description: This message is issued when the sending BFX processes the last record of the file. “nnnnnnn” is the number of records that were sent at the ‘nnnnnnn’ rate.

Response: None.

PFX-specific messages

The following messages are unique to PFX.

BFX830I PFX SENDER STARTED.

Message level: 4 (Error)

Description: The PFX Utility will begin reading the input file.

Response: None.

BFX831I START OF PRINT FILE TRANSFER.

Message level: 4 (Informational)

Description: The PFX Utility read in the input file.

Response: None.

BFX832I PRINT FILE TRANSFERRED. nnnnnn RECORDS SENT.

Message level: 6 (Informational)

Description: The last line of the print job was transferred.

Response: None.

BFX833I SENDING PRINT FILE.

Message level: 3 (Informational)

Description: This indicates that the PFX Utility is sending a job file to the PFX Server.

Response: None

BFX834E ALL PRINT FILES SENT.

Message level: 4 (Informational)

Description: This message indicates that the PFX Utility is shutting down normally.

Response: None.

BFX835E PRINT FILE TRANSFER ABORTED. 000000 RECORDS SENT.

Message level: 10 (Error).

Description: This message is issued by the PFX Utility when the file transfer process is aborted either due to the failure of NETEX communication or because of some other error detected by the PFX utility. “fffffffffff” is the logical name of the file used for input; “nnnnnn” is the number of records that were read from the input file before the abort caused the transfer to stop. The current transfer is aborted, but the remaining transfers will be attempted. The original error will be reported by other BFX messages.

Response: Correct the error that caused the abort and print the file again.

BFX840E ERROR OPENING CONFIGURATION FILE. RC = cccccccc.

Message level: 12 (Error)

Description: An error was encountered opening the configuration file. “cccccccc” is the OpenVMS error number in hexadecimal.

Response: Correct the error and restart the PFX Utility.

BFX841E ERROR READING CONFIGURATION FILE. RC = cccccccc.

Message level: 12 (Error)

Description: An error was encountered reading the configuration file. "cccccccc" is the OpenVMS error number in hexadecimal.

Response: Correct the error and restart the PFX Utility.

BFX842E END-OF-FILE READING CONFIGURATION FILE

Message level: 12 (Error)

Description: End of file was unexpectedly encountered while reading the configuration file.

Response: This problem was most likely caused by an incorrectly formatted configuration file. Check and correct the configuration file then restart the PFX Utility.

BFX843E ERROR REWINDING CONFIGURATION FILE. RC = cccccccc.

Message level: 12 (Error)

Description: An error was encountered rewinding the configuration file. "cccccccc" is the OpenVMS error number in hexadecimal.

Response: Correct the error and restart the PFX Utility.

BFX844E INVALID FORM NAME SPECIFIED IN PRINT COMMAND: ffffffff

Message level: 12 (Error)

Description: An invalid /FORM or /PARAMETER was used in the PRINT command the submitted the print job to the print queue. "ffffffff" is the bad name.

Response: Correct the form name and resubmit the job.

BFX845E ERROR OPENING INPUT (STARTUP) FILE. RC = cccccccc.

Message level: 12 (Error)

Description: An error was encountered opening the input file. "cccccccc" is the OpenVMS error number in hexadecimal.

Response: Correct the error and restart the PFX Utility.