neTeX

BFX Migration Tool

for

IBM AIX Systems

Release 1.0.1

User Guide

Revision Record

Revision	Description
01 (09/2018)	Initial release.
1.0.1 (06/2019)	Clarify starting of appropriate BFXJS; Fixes for the following issues:
	8345 MIG tool does not appear to follow parser rules on for comments
	8347 Note BFXJS startup proc changes required when replacing current code ... with MIG tool
	8353 Does not parse 1.2 BFX parameters
	8358 Jobs appear to have no commands

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Preface

This manual describes the BFX Migration Tool software for NetEx customers deploying new versions of BFX products. The migration tool consists of a front end that allows a customer to choose which processes use one of several BFX versions/products to facilitate a smooth transition.

This manual is intended for all users of the migration tool and contains all of the information necessary to expand the user's ability to the fullest extent of the software.

The manual is divided into 3 parts:

"BFX Migration Tool Overview" gives a basic description of the migration utility.

"Installation Procedures" explains the installation steps by operation system.

"Using the Migration Tool" describes how to use the Migration Tool.

Preface

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

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.

Definitions

BFX	Bulk File Transfer is a family of NetEx software products. Secure BFX is an equivalent but incompatible product family that supplies security to the transfers.
NetEx™	NETWORK EXECUTIVE software; a proprietary transport protocol.

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BFX Migration Tool Overview

Introduction

The BFX Migration is a utility which runs in tandem with BFX or Secure BFX products. The purpose of this utility is to allow the customer to select which BFX jobs will run with various installed BFX/Secure BFX products. However, Secure BFX jobs can only run between hosts that run Secure BFX and BFX jobs can only run between hosts that run BFX (legacy). This tool allows customers to migrate to newer versions of BFX or Secure BFX based on BFX Jobs.

In the past, customers typically tested a new product, and when they were ready, cut the new software into production. With the release of Secure BFX, this conversion would require all systems using BFX to cutover at the same time. If one system had a problem, all systems would have been required to fall back to the previous version. This tool will allow customers to migrate from one BFX to a new product based on the BFX Job OFFERID. Fall back procedures would consist of removing the OFFERID rules except the default rule which points to the initial product on each system.

The migration tool utilizes a customizable file to specify which BFX version jobs use based on OFFERID. The file utilizes some wildcard characters to ease in migrations. Once all Jobs are migrated to the newer BFX the old one can be removed and the customer can continue to run as is.

This tool is based on a text-based OFFER TABLE. Depending on the OFFER name, different BFX products can be executed. This is an example of an OFFER table file.

```
#ProgramFiles
#  V1   is the UDP version of BFX
V1   /usr/share/nesi/bfx
#  V2  is the Secure BFX
V2   /usr/share/nesi/sbfx
#
#OfferNames
tes*      V2
te%t*   V1
*         V1
```

Figure 1. Sample OFFER Table File

BFXJS

The migration tool does not impact the BFXJS. You must start a of copy of BFXJS for each BFX version you will be using. If you are running a H621 version of BFX, you must start a BFXJS from the H621 library if you wish to submit jobs. If you run the H625 version of BFX, you must start a BFXJS from the H625 library if you wish to submit jobs. If you wish to use H621 to run both secure job submission and non-secure job submission, you must start two copies of BFXJS, one running secure, one running nonsecure.

System Requirements

Installation of each BFX product must be placed in a uniquely named location. Both local and remote hosts must run compatible products (i.e. Secure BFX H305 on a Unisys OS2200 host to Secure BFX H6255 on an IBM AIX host).
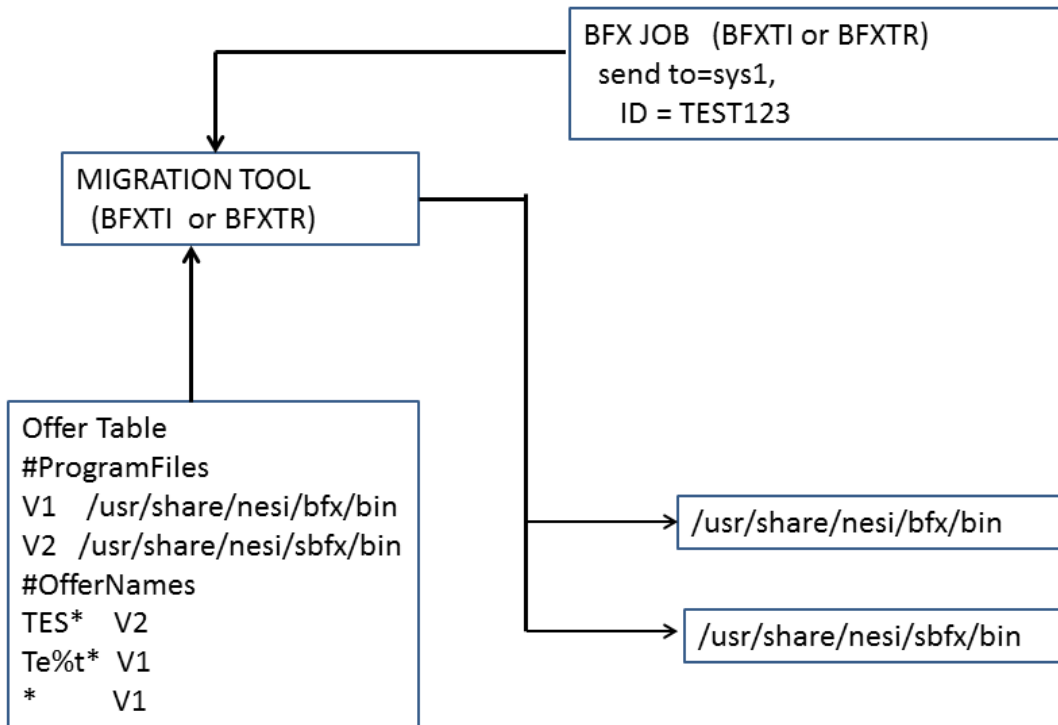
BFX MIGRATION TOOL OVERVIEW

```
                                        ┌─────────────────────────────┐
                                        │ BFX JOB  (BFXTI or BFXTR)   │
              ┌─────────────────────────│   send to=sys1,             │
              │                         │      ID = TEST123           │
              ▼                         └─────────────────────────────┘
   ┌──────────────────────┐
   │ MIGRATION TOOL       │──────────────┐
   │  (BFXTI  or BFXTR)   │              │
   └──────────────────────┘              │
              ▲                          │
              │                          │
   ┌──────────────────────┐              │
   │ Offer Table          │              │
   │ #ProgramFiles        │              │    ┌──────────────────────────┐
   │ V1  /usr/share/nesi/bfx/bin │       └───▶│ /usr/share/nesi/bfx/bin  │
   │ V2  /usr/share/nesi/sbfx/bin│            └──────────────────────────┘
   │ #OfferNames          │
   │ TES*   V2            │                    ┌──────────────────────────┐
   │ Te%t*  V1            │───────────────────▶│ /usr/share/nesi/sbfx/bin │
   │ *       V1           │                    └──────────────────────────┘
   └──────────────────────┘
```

Figure 2. Visual overview of BFX Migration Tool implementation.

OFFER Table

The OFFER Table file contains fixed name tags and values which allow the site to customize the migration of new versions of the BFX or Secure BFX on a JOB basis. The OFFER Table file will be located at /usr/share/nesi/mig/offers. This file must exist. It must contain at least a default statement to utilize one of the versions of BFX or Secure BFX. This is a text file of character strings in the local host character set and is edited manually. Comments may be added to this file by coding a hash mark (#) in the first column, anywhere after the #ProgramFiles statement. The following describes the keywords and wildcard characters.

Fixed Name Tag	Value	Description
#ProgramFiles	*NONE*	Must be the first line in this file. This identifies the ProgramFiles section of the OFFER File.
#		Comment. Must be in the first column. Comments are ignored by the program but are helpful for describing the intentions of the OFFER file.
[version ID]	*[location of the version]*	A unique two-character identifier, followed by at least one space and the location of the load library. Each ID must be unique (i.e. V1, V2). (Maximum of 3 entries.) Refer to Note 1.
#OfferNames	*NONE*	Defines the start of the BFX Job OFFER names (IDs).
[OFFERIDS]	*[versionID]*	Each entry in the OFFER name section is an OFFERID followed by at least one space and the two-character identifier referring to the version of code to execute. The OFFERID may contain the following wildcards representing any characters or string. (Maximum of 300 entries) Refer to Note 2.
*	*[wildcard string]*	This character matches one or more characters to the end of the string in the comparison of an OFFERID.
%	*[wildcard character]*	This character matches exactly one character in the comparison of an OFFERID.

Note 1: All data may be entered in upper, lower or mixed cases alphanumeric characters (i.e. V1 is the same as v1). For AIX code locations will remain as entered. **On other systems they may be converted to UPPERCASE.**

Note 2: On all systems, OFFERIDs will be converted to UPPERCASE.

OFFERIDs are compared to the OFFERID in the BFX job. The order of the compare is from top to bottom. The wildcard characters are helpful shortcuts when groups of jobs are to be run on one version of the product. The first match will be the entry used.

Using the OFFER Table file in Figure 1. Sample OFFER Table File, if the BFX job specified an OFFERID of TEST123, the v2 code load would be used. TEST123 matches TES* rule. If the OFFERID of TEXT123 was used, TEXT123 does not match the TES* rule. The next rule will be inspected. The next rule TE%T* matches TEXT123, so the V1 code base will be used. It is recommended that an entry specifying an * be the last rule in the table. This will match any offer name. In the sample table, the V1 code load would be the default. If a match is not found, the program ends in error.

When migrating to the Secure BFX, the tables on the local side and the remote side must match to ensure the connection can be established. The (legacy) UDP version of BFX cannot communicate with the Secure products. These tables are read and checked at the start of each job. Updating the table is effective immediately.

Installation Procedures

IBM AIX

The BFX Migration Tool installation uses the RPM package management utility. Secure BFX installs in the same fashion as all other RPM-based software distributions.

A link to the distribution can be obtained from NetEx Support. The installation steps are:

Execute RPM as 'root' to install or upgrade the software:

If this is an initial installation, install the software as super user with the command:

> # rpm –i bfxmigtool-1.0.1.ppc.rpm

This will copy the execution environment to /usr/share/nesi/mig

Customers do NOT have the option of installing bfxmigtool into a user-defined directory location. (Subsequent installs will install in the same locations.)

The OFFER Table file will need to be created and located at /usr/share/nesi/mig/offers. After installation there will be an example file called OffersUnix in the install directory.

Upgrade Procedure

The BFX Migration Tool upgrade uses the RPM package management utility. Secure BFX upgrade in the same fashion as all other RPM-based software distributions.

A link to the distribution can be obtained from NetEx Support. The upgrade steps are:

Execute RPM as 'root' to upgrade the software:

If this is an initial installation, follow the Install Procedures.

Upgrade the software as super user with the command:

> # rpm –U bfxmigtool-1.0.1.ppc.rpm

This will copy the execution environment to /usr/share/nesi/mig

Customers do NOT have the option of installing bfxmigtool into a user-defined directory location. (Subsequent installs will install in the same locations.)

Using the Migration Tool

BFXJS

The migration tool does NOT impact or work with BFXJS in any way. You will still need to start the appropriate copies of BFXJS from each library to ensure proper operation. If the dataset name changes during the "install into production" phase, then the corresponding BFXJS run stream must be updated to point to the new location for BFXJS.

Inserting the Migration Tool into the Production Execution Path

The migration tool was design to be implemented so a site can continue to operate production jobs while systematically test a new version on a job by job basis. Initially, the Migration Tool will need to be inserted into the execution path for BFXTI and BFXTR. On each of the systems which are migrating, the System Administrator should perform the following steps:

1. Note the execution path of production bfxti and bfxtr

    Example: which bfxti

    /usr/share/nesi/bfx/bin/bfxti

2. Copy the current production bfxti and bfxtr to a new location.

    Example:

    mkdir   /usr/share/nesi/bfx/newbin

    cp /usr/share/nesi/bfx/bin/bfxti /usr/share/nesi/bfx/newbin/bfxti

    cp /usr/share/nesi/bfx/bin/bfxtr /usr/share/nesi/bfx/newbin/bfxtr

3. Note the new execution path of the bfxti and bfxtr location.

4. Edit the OFFER Table file on the System and put the new execution path for bfxti and bfxtr on V1.

    Example:

    #ProgramFiles

    # Maximum code loads 3

    V1 /usr/share/nesi/bfx/newbin

5. Make sure the table has the rule * V1 so that all jobs go to the installed BFX.

    Example:

    #OfferNames

    # Maximum offers 300

    *   V1

6. Copy the Migration bfxti and bfxtr from the Migration Tool path to the production execution path.

7. All jobs should run as normal. (If not, to fall back copy the bfxti and bfxtr from the new location path to the execution path.)

Migrating to a New BFX Version

Once the Migration tool is functioning with the production BFX you can now begin to systematically verify a new BFX product job by job.

1. Install the new BFX.

2. In the ProgramFiles section, specify a descriptor and the path for the new product (up to three products can be tested.)

3. Edit the OFFER Table to add the OFFERID of the job to test and point it to the new version descriptor.

4. Insure the * rule is the last rule in the file, and the associated code load to use.

5. If testing is being done to another system, insure it is running compatible products (i.e. Secure BFX only runs to other Secure BFX products.)

6. Run the test job.

7. Repeat with more jobs as necessary.

When you are ready to make the new version the new production, change the default rule at the bottom to point to the new version descriptor. All specific OFFERID rules can be deleted.

NOTE: If at any time a back out is necessary, the rules for the specific OFFERIDs can be removed from all OFFER Table files and leave the default rule so that all jobs are running with the initial of BFXTI/BFXTR.

Appendix A. Migration tool Error Messages

The migration tool generates a variety of messages during execution. Shown below is a complete list of messages with the suggested response for each. Also shown is the severity of the message.

```
MIGnnns message text
```

MIG   This indicates that this is a Migration Tool message.

nnn   This is the error number. Messages are listed in this order.

s   This indicates the message severity. The following codes are used:

        I   - informational messages

        W   - warning messages

        E   - error messages

        C   -continuation message

message text   This area displays the text of the message.

The following are the messages issued by the Migration Tool.

MIG100I Network Executive System Migration Tool %s
Severity: I
Explanation: The migration tool is logging the start of an execution, and the release level.
User Response: This is informational only. No response is required

MIG101I Offer Table ='%s'
Severity: I
Explanation: The migration tool is logging the location of the offers control table.
User Response: This is informational only. No response is required

MIG102I Using offer id=%
Severity: I
Explanation: The migration tool is logging the offer id used in the BFX job.
User Response: This is informational only. No response is required

MIG103I Match found Offer=%s, table=%ss
Severity: I
Explanation: The migration tool is logging the matching offer table entry.
User Response: This is informational only. No response is required

MIG104I Using Code %s
Severity: I
Explanation: The migration tool is logging the code descriptor that will be used to locate the code base.
User Response: This is informational only. No response is required

MIG105I Using Load Library %s
Severity: I
Explanation: The migration tool is logging the code base used for the file transfer.
User Response: This is informational only. No response is required

MIG106I Found Offer=%s
Severity: I
Explanation: The migration tool is logging offer id found in the BFX job.
User Response: This is informational only. No response is required

MIG107I Migration Table
Severity: I
Explanation: The migration tool is printing the contents of the offer table
User Response: This is informational only. No response is required

MIG108I BFX ends rc=%
Severity: I
Explanation: The migration tool is logging the return code from BFX. This return code is set for the job.
User Response: This is informational only. No response is required

MIG300E Parms limited to 200 chars
Severity: E
Explanation: Parameters on the exec statement is limited to 200 characters.
User Response: Contact technical support. Check and see if some abbreviation could be used to reduce the length of the parameters on the EXEC statement. Consider using //SYSIN DD * to get the BFX control statements inputted.

MIG301E Alloction of tpf.bfxtemp for 1000 failed
Severity: E
Explanation: The migration tool is attempting to create a file in TPF$. The allocation failed.
User Response: The meaning of the error is printed. Correct the error or try increasing the allocation of TPF$

MIG302E Open failed for bfxtemp in tpf$
Severity: E
Explanation: The migration tool attempted to open a file in TPF$. The reason for the failure is listed.
User Response: Correct the error and rerun the job.

MIG303E Offer table error (%s)
Severity: E
Explanation: An error occurred while processing the named offer table
User Response: Further information will be listed in other error messages.

MIG304E No offerid found
Severity: E
Explanation: The migration tool failed to find the offer if in the BFX parameters.
User Response: Ensure the ID parameter is coded.

MIG305E Invalid offer name =%s
Severity: E
Explanation: The migration tool detected an invalid Offer Id.
User Response: Ensure the offer id is 8 characters or less.

MIG306E End of table before a match
Severity: E
Explanation: The migration tool did not match any entries in the offer table.
User Response: Add the offer id to the table or ensure the last entry is an *. This will match any offered.

MIG307E Code location not found
MIG307E Looking for code %s
Severity: E
Explanation: The code identifier used in the offer table, does no match any codes listed in the ProgramFiles section.
User Response: Ensure all offers match a valid ProgramFile location.

MIG308E Code Location must end in a ".".
Severity: E
Explanation: The code location displayed does not end with a ".".
User Response: Add the ending "." to the code location.

MIG309E Line exceeds maximum size of %l s
MIG309E %s
Severity: E
Explanation: The migration tool read a line that exceeded the maximum. The start of the line is listed.
User Response: Break the line into smaller lines.

MIG310E #ProgramFiles must be the first statement
MIG310E %s
Severity: E
Explanation: The Offer table does not start with #ProgramFiles. The line is listed.
User Response: If this is a comment statement, move it after the #ProgramFiles statement**.** Add the #ProgramFiles if the correct file is being processed.

MIG311E Code Path exceeds %i
MIG311E path=%s
MIG311E input=%s
Severity: E
Explanation: The path to the BFX code exceeds the maximum. The path is listed, as well as the input line specifying the path
User Response: Correct the input, shorten the path, or contact technical support.

MIG312E Maximum of 3 code loads maybe specified
Severity: E
Explanation: A maximum of three separate code loads may be specified.
User Response: Delete unused entries in the #ProgramFile section.

MIG313E Code versions are limited to two characters
Severity: E
Explanation: Code versions are limited to two characters.
User Response: Correct the code identifier. If this is an offer id, the #OfferNames card is missing at the end of the #ProgramFiles section and before the input for the offers.

MIG314E #OfferNames not found -- required
Severity: E
Explanation: While processing the offer table the **#OfferNames** statement was not found. This statement is required after the #ProgramFiles and the associated entries.
User Response: Insert this statement before any offer entries in the offer table.

MIG315E Line exceeds maximum size of %lu
MIG315E %s
Severity: E
Explanation: The migration tool read a line that exceeded the maximum. The start of the line is listed.
User Response: Break the line into smaller lines.

MIG316E Offer exceeds maximum
MIG316E %s
Severity: E
Explanation: The Offer exceeds the 8-character limit. The line is listed.
User Response: Correct the offer id.

MIG317E Max offer patterns exceed (%i)
Severity: E
Explanation: More than 300 offer patterns were entered into the offer table.
User Response: Use of wildcarding should allow the entries to be consolidated. A % will match a single character. An * will match to the end of the offer.

MIG318E Invalid code load specified - 2 characters
MIG318E %s
Severity: E
Explanation: Code load identifiers are limited to two characters. The input line is displayed.
User Response: Correct the identifier.

MIG319E Can't open BFX input file %s errno=%i
MIG319E %s
Severity: E
Explanation: The migration tool failed to open the file containing the BFX input parameters. The reason for the failure is displayed.
User Response: Correct the error and rerun the job.

MIG320E Offer ID not found
Severity: E
Explanation: While processing the BFX input, the offer id was not found.
User Response: Correct the BFX input to include an ID = statement.

MIG321E Offer Id > 8 Characters Offer=%s
Severity: E
Explanation: While processing the BFX inputs, an offer id was found. It was over the 8-character maximum.
User Response: Correct the BFX input

MIG322E No program parms found
Severity: E
Explanation: The migration tool was expecting to process parameters on the EXEC statement. The parms were not found.
User Response: Check the syntax of the parameters on the EXEC statement.

MIG323E Can't open offertable %s errno=%i
MIG323E %s
Severity: E
Explanation: The migration tool failed to open the offer table. The reason for the failure is displayed.
User Response: Ensure the correct file is being used, and the file exists with read permissions.

MIG324E Allocation of addfile for 1000 failed
MIG324E %s
Severity: E
Explanation: The migration tool attempting to assign a file in TPF and failed. The reason for the failure is displayed.
User Response: Correct the error.

MIG325E Open failed for addFile in tpf$
MIG325$ %s
Severity: E
Explanation: The migration tool failed to open a file in TPF$. The reason is displayed.
User Response: Correct the error/

MIG326E Open failed for bfxlcl input in tpf$
MIG326E %s
Severity: E
Explanation: The migration tool attempting to read in the bfx parameters from TPF$. The reason for the failure is displayed.
User Response: Correct the error.

MIG327E FACSF of @add failed rc=%i
Severity: E
Explanation: When attempting to @add in the updated run, FACSF issued a return code. The reason is displayed.
User Response: Correct the error.

MIG328E Execl failed errno=%i\n"
Severity: E
Explanation: When attempting to start the BFX transfer, an error occurred when loading the BFX code. The reason is displayed.
User Response: Correct the error and rerun

MIG329E Offer Table Location Not Installed
MIG329E Update and run MVOFFER in DISTSAMP
Severity: E
Explanation: The Offer table was not linked in with the migration tool code. Update the dataset name and the HLQ in the MVOFFER member of DISTSAMP.
User Response: Run the required job.

MIG330E UCSINFO func 3 failed status=%i
Severity: E
Explanation: An error occurred while issuing func code 3 for UCSINFO.
User Response: Check the UCSINFO documentation for the meaning of the error. Correct and rerun.

MIG331E UCSINFO func 17 failed status2=%i
Severity: E
Explanation: An error occurred while issuing func code 17 for UCSINFO.
User Response: Check the UCSINFO documentation for the meaning of the error. Correct and rerun.

MIG332E Code descriptor missing
Severity: E
Explanation: A 2-character code descriptor was missing in the #ProgramFiles section. The input line is printed.
User Response: Correct the input card.

MIG334E   Code path not specified
Severity: E
Explanation: While processing the #ProgramFiles section, a code descriptor was entered, without specifying the code location. The input line is printed.
User Response: Add the code location for this code descriptor

MIG335E Duplicate ID coded %s
Severity: E
Explanation: While processing the #ProgramFiles section a duplicate code descriptor was detected. The value is printed.
User Response: Make the Code descriptor unique or delete the duplicate.

MIG336E Missing offername
Severity: E
Explanation: While processing the #Offername section, an input card without an offer name was detected. The card is printed.
User Response: Correct the input.

MIG337E UCSINFO func 13 status=%i
Severity: E
Explanation: An error occurred while issuing func code 13 for UCSINFO.
User Response: Check the UCSINFO documentation for the meaning of the error. Correct and rerun.

MIG338E SVC99 failed - Error code =(0x)%x dec=%d Information code = %d
Severity: E
Explanation: While trying to dynamically allocate the correct load library, The SVC 99 failed.
User Response: Check the dataset name that is being used. Validate the library exits. Contact technical support.