



BFX Migration Tool
for
IBM z/OS Systems

Release 1.0.4

User Guide

Revision Record

Revision	Description
01 (09/2018)	Initial release.
01-1 (02/2019)	Correct install procedure
01.0.1 (6/2019)	Clarify BFXJS starting procedure; Fixed the following issues: 8220 Correct the installation procedure in the documentation 8343 Note BFXJS startup proc changes required when replacing current code path with MIG tool 8346 MIG tool does not appear to follow parser rules on - and . for comments 8351 getservbyname returning a NULL pointer 8354 Does not parse 1.2 BFX parameters
1.0.2 (8/13/2019)	8408 Add a #NoOffersFound for BFX jobs without an ID= (JOBSUBMIT)
1.0.3 (8/2020)	8803 Manual installation does not reference changing #NoOffersFound
1.0.4 (11/2020)	8921 Maximum offers 300 8931 Issue tracker IBM migtool 1.0.3 8936 Offer matching issue 8938 MIG318E not issued for 3 character code versions 8940 MIGXXXC messages are inconsistent 8942 Update message appendix

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Preface

This manual describes the BFX Migration Tool software for NetEx customers deploying new versions of BFX products on IBM zOS platforms. 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 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.

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These references are made for informational purposes only.

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.
<i>user entry</i>	<i>This font</i> 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.

Contents

Revision Record	ii
Preface.....	iii
Notice to the Reader.....	v
Corporation Trademarks and Products.....	v
Document Conventions.....	vi
Definitions.....	vi
Contents	vii
Figures.....	vii
BFX Migration Tool Overview	1
Introduction.....	1
System Requirements.....	2
OFFER Table	2
BFXJS	4
Installation Procedures.....	5
IBM zOS	5
Using the Migration Tool	7
BFXJS	7
Inserting the Migration Tool into the Production Execution Path	7
Migrating to a New BFX Version.....	7
Appendix A. Migration Tool Messages	9

Figures

Figure 1. Sample OFFER Table File	1
Figure 2. Visual overview of BFX Migration Tool implementation.	2

BFX Migration Tool Overview

Introduction

The BFX migration tool is a utility which runs in tandem with one or more versions of BFX or Secure BFX. The purpose of this utility is to allow the customer to select which BFX jobs will run with various versions of installed BFX/Secure BFX. 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 version, and when they were ready, cut the new version of software into production. With the release of Secure BFX, this conversion would require all systems using BFX to cut-over 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 release of BFX to a new release based on the BFX OFFERID. Fall back procedures would consist of removing the OFFERID rules except the default rule which points to the initial version on each system.

The migration tool utilizes a customizable file to specify which BFX version jobs use based on OFFERID. If no offer ID is found, the entry in the NoOffersFound is utilized. This should only be the case when a JOBSUBMIT command is executed, without a SEND or RECEIVE. The file utilizes some wildcard characters to ease in migrations. Once all Jobs are migrated to the newer BFX version the old version can be removed, and the customer can continue to run as is. When another version is installed, this tool can be used to migrate to the new version by installing the new version and adding rules to the OFFER Table to systematically test the new version selectively by job.

This tool is based on a text-based OFFER Table. Depending on the OFFER name, different versions of BFX can be executed. If the run stream contains multiple Offer IDs, the last OFFER Id will determine the code load. This is an example of an OFFER table file. This is an example of an OFFER table file.

```
#ProgramFiles
# Maximum code loads 3
# v1 is the UDP version of BFX
v1 NETEX.H211.LOAD
# v2 is the Secure BFX
v2 NETEX.H215.LOAD
#
#OfferNames
# Maximum offers 300
tes* v2
te*t* v1
* v1
#NoOffersFound
* V1
```

Figure 1. Sample OFFER Table File

System Requirements

Installation of each BFX version must be placed in a uniquely named load library. Both local and remote hosts must run compatible products (i.e. Secure BFX H305 on a Unisys OS2200 host to Secure BFX H215 on an IBM zOS host).

BFX MIGRATION TOOL OVERVIEW

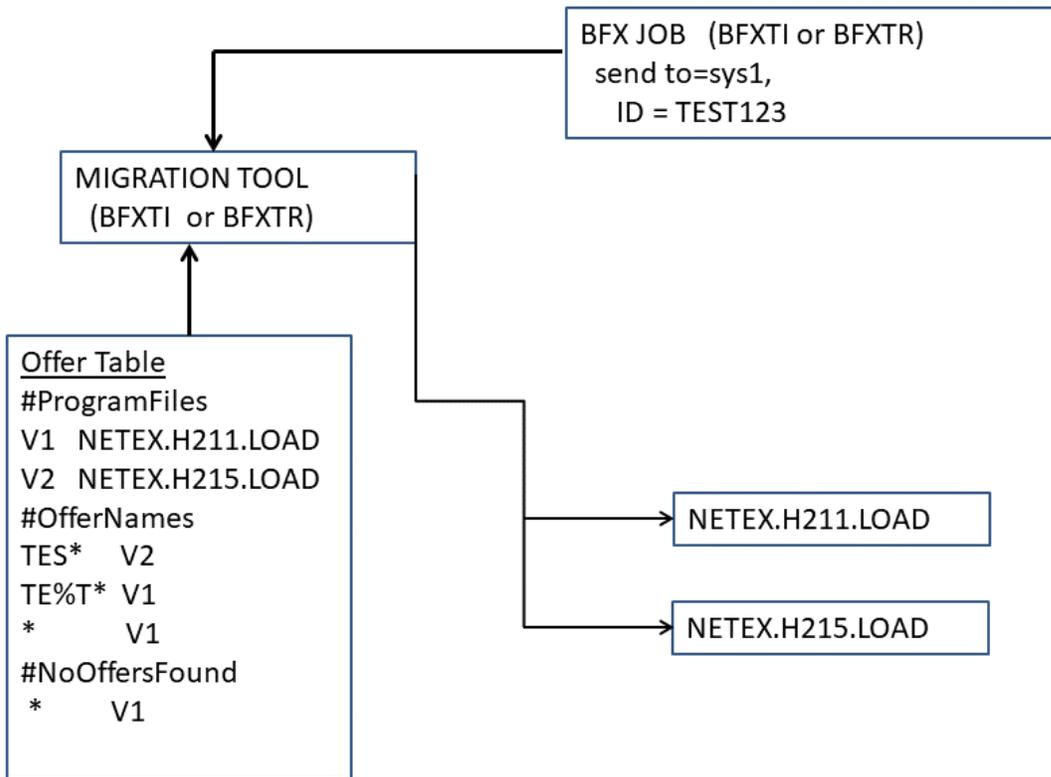


Figure 2. Visual overview of BFX Migration Tool implementation.

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 location is specified at installation time. It must contain at least a default statement to utilize one of the versions of BFX or Secure BFX. This is an EBCDIC text file. 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	<i>NONE</i>	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]	<i>[location of the version]</i>	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	<i>NONE</i>	Defines the start of the BFX Job OFFER names (IDs).
[OFFERIDS]	<i>[versionID]</i>	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.
*	<i>[wildcard string]</i>	This character matches one or more characters to the end of the string when matching an OFFERID.
%	<i>[wildcard character]</i>	This character matches exactly one character in the matching of an OFFERID.
#NoOffersFound		This is a section Identifier. It is required.
*	<i>[versionID]</i>	When an OFFERID is not found in the BFX run stream, this entry will specify the version of code to be executed. Only 1 entry can be listed.

Note 1: All data may be entered in upper, lower or mixed cases alphanumeric characters (i.e. “V1” is the same as “v1”) and will 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 comparison 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, 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 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.

BFXJS

The migration tool does not impact the BFXJS. You must start a copy of BFXJS for each BFX version you will be using. If you are running a H211 version of BFX, you must start a BFXJS from the H211 library if you wish to submit jobs. If you run the H215 version of BFX, you must start a BFXJS from the H215 library if you wish to submit jobs. If you wish to use H215 to run both secure job submission and non-secure job submission, you must start two copies of BFXJS, one running secure, one running nonsecure.

Installation Procedures

IBM z/OS

1. Contact NETEX Support to receive a download link.
2. Two files will be supplied
 - a. an install job
 - b. a distribution package.
3. Follow the instruction for FTPing the install job and the distribution package to your z/OS system. The HLQ used will be the HLQ used for files need by the Migration Tool.
 - a. Connect via FTP to your z/OS system.
 - b. Change the directory to your desired high-level qualifier:
cd 'high-level-qualifier'
 - c. If necessary, change the location of your local directory to the location of the distribution file:
lcd 'directory-name'
 - d. Transfer the install file in ascii mode
ascii
quote site lrecl=80 blksize=3120 recfm=fb
quote site prim=6 sec=1 tracks
put install install
 - e. Transfer the xmit file in bin
quote site lrecl=80 blksize=3120 recfm=fb
quote site prim=20 sec=20 tracks
bin
put distpkg.xmits distpkg.xmit
 - f. Quit your FTP client
4. Edit the HLQ.install job.
 - a. Change the HLQ parameter in the MIGRATION TOOL PARAMETERS section to match the HLQ of the DISTPKG.XMIT file you FTPed to your system.
 - b. Save and run the install job.
5. This will create four datasets.
 - a. HLQ.DISTLOAD distribution load library
 - b. HLQ.DISTOBJ required object modules
 - c. HLQ.DISTSAMP sample data
 - d. HLQ.OFFERS a sample offer table

6. Specify the dataset name that will be the location of the Offers table.
 - a. Edit the HLQ.DISTSAMP(MVOFFERS) member.
 - b. Update the HLQ parameter on line 38 to specify the HLQ of your installation datasets
 - i. `//STEP EXEC OFFERS,HLQ='NETEX.MIGT0100'`
 - c. On the line starting with OFFERS, replace the existing dataset name with the dataset name that will contain your Offer Table. This name must be enclosed in a single quote marks ('). It must be a sequential dataset.
 - i. `OFFERS DC CL44'NETEX.MIGT0100.OFFERS'`
 - d. Submitting the job will assemble a module and include it in the links of BFXTI and BFXTR.
7. Update the dataset HLQ.OFFERS table.
 - a. Update the #ProgramFiles sections with the code identifiers and the location of the corresponding BFX load library.
 - b. Update the #OfferNames section as required.
 - c. Your last entry should be an * to specify the default BFX load library to use.
 - d. Update the #NoOffersFound section as required.

Using the Migration Tool

You may use a //STEPLIB to point to the migration tool load library for initial testing. The migration tool load library contains both a BFXTI and a BFXTR executable. They both process the table in the same manner. If you wish to see the output of the migration tool, a //STDOUT DD SYSOUT=* may be added to the test job. THIS IS NOT REQUIRED. It will list the contents of the Offer table, the OFFERID in the job, which rule was matched, and the load library used.

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. The System Administrator should perform the following steps:

1. Copy your current production BFX load library to a newly allocated dataset.
2. Update your BFXJS proc to point to the new dataset name,
3. Enter a descriptor and the new dataset name in the ProgramFiles section of the Offer Table.
4. Make sure the table has the rule * V1 so that all jobs go to the installed BFX.
5. When there are no BFX transfers processing, delete the current production BFX load library (you just copied it). Reallocate the dataset and copy migration tool (migtool) DISTLOAD, to your old production BFX load library dataset.
6. All jobs should run as normal. (If not, to fall back copy the new dataset back to the production load library dataset.)

Migrating to a New BFX Version

1. Install the new version of BFX.
2. In the ProgramFiles section, specify a descriptor and the dataset name for the new version (up to three load libraries 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. Ensure 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, ensure 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.
8. 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 version of BFXTI/BFXTR.

All existing BFX jobs will then load either the BFXTI or BFXTR migration version of the tool. The migration tool will inspect the offer table and load the correct version of BFX to use from the table. To test a different version of code, update the offer table on both systems, if necessary, and a different version of code will be used.

Appendix A. Migration Tool 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 BFX 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='%s'

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 version 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 location 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

MIG109I %s: line %d

Severity: I

Explanation: The migration tool is logging the offer control file name and line number associated with the last error message issued. The contents of the line may also be displayed in a continuation message.

User Response: This is informational only. No response is required

MIG201W ID= was coded with no offerid

Severity: W

Explanation: The migration tool failed to find the offer id in the BFX parameters. The NoOffersFound entry will be used. The table will be used as if the offered was not found.

User Response: Ensure the ID parameter is coded.

MIG202W Offer ID=%s is greater than 8 characters

Severity: W

Explanation: While processing the BFX input, an offer id was found. It was over the 8-character maximum. The NoOffersFound entry will be used. The table will be used as if the offered was not found.

User Response: Correct the BFX input.

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 Allocation of 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\$

MIG306E No match found

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 offer.

MIG307E Code version %s not found

Severity: E

Explanation: The code version specified in the offer table does not match any listed in the ProgramFiles section.

User Response: Ensure all offers match a valid code version in #ProgramFiles.

MIG309E Line exceeds maximum size of %d

Severity: E

Explanation: The migration tool read a line that exceeded the maximum.

User Response: Break the line into smaller lines.

MIG310E #ProgramFiles must be the first statement

Severity: E

Explanation: The offer table file does not start with #ProgramFiles.

User Response: Ensure the #ProgramFiles statement is the first line in the offer file.

MIG311E Code location exceeds %i characters

Severity: E

Explanation: The path to the BFX code exceeds the maximum.

User Response: Correct the input, shorten the path, or contact technical support.

MIG312E Maximum of 3 code versions may be specified

Severity: E

Explanation: More than three code versions were defined in the #ProgramFiles section of the offer table file.

User Response: Delete unused entries in the #ProgramFile section.

MIG313E Code versions are limited to 2 characters

Severity: E

Explanation: Code versions are limited to two characters.

User Response: Correct the code identifier.

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.

MIG316E Offer patterns are limited to 8 characters

Severity: E

Explanation: The offer pattern exceeds the 8-character limit.

User Response: Correct the offer pattern.

MIG317E Maximum of 3000 offer patterns may be specified

Severity: E

Explanation: More than 3000 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.

MIG323E Can't open offer table %s errno=%i

Severity: E

Explanation: The migration tool failed to open the offer table file. The reason for the failure is displayed.

User Response: Ensure the correct file is being used, and the file exists with read permissions.

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.

MIG332E Code version not specified

Severity: E

Explanation: A 2-character code version was missing in the #OfferNames or #NoOfferFound section. **User**

Response: Correct the entry in the offer table file.

MIG334E Code location not specified

Severity: E

Explanation: While processing the #ProgramFiles section, a code version was entered, without specifying the code location.

User Response: Add the code location for this code version.

MIG335E Duplicate code version %s

Severity: E

Explanation: While processing the #ProgramFiles section a duplicate code version was found. The value is printed.

User Response: Make the code descriptor unique or delete the duplicate.

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 exists. Contact technical support.

MIG340E Only 1 entry is allowed in NoOffersFound

Severity: E

Explanation: Only 1 entry is allowed in the NoOffersFound section.

User Response: Delete the extra entries.

MIG341E #NoOffersFound not found -- required

Severity: E

Explanation: The #NoOffersFound section is missing. This is required.

User Response: Add a line to the offers table: #NoOffersFound

The next line should be an * followed by at least one space and the version of code to be executed when an Offer ID does not exist.

MIG342E #NoOffersFound requires 1 entry

Severity: E

Explanation: Only 1 entry is allowed, and it must be coded

User Response: Specify an * followed by the version of code you wish to execute when no Offer ID is specified.

MIG343E #OfferNames requires at least 1 entry

Severity: E

Explanation: At least 1 entry is required in this section.

User Response: The last entry should be * *version* to be used when a match was not made from previous entries. The version specifies the code load to use.

MIG344E #ProgramFiles requires at least 1 entry

Severity: E

Explanation: At least 1 entry must be specified. The maximum is 3 entries.

User Response: This entry contains a 2 character version followed by the dataset name of the BFX code. The version id is used in the other sections of the table

MIG345E Offer name must be * in the #NoOffersFound section

Severity: E

Explanation: An * is the only valid offer name in the NoOffersFound section.

User Response: Change the offer id to an *

MIG346E Allocation of prog_parms failed

Severity: E

Explanation: Memory allocation failed for program parms

User Response: Check region size

MIG347E Allocation of savearea failed

Severity: E

Explanation: Memory allocation failed for savearea

User Response: Check region size.