IBM

Program Directory for

IBM Transformation Extender

for z/OS

V09.00.00

Program Number 5655-R99

FMID HDTX900

for Use with
z/OS V01.13.00 and higher

Document Date: January 2016

GI13-3470-00

> **Note**
>
> Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 28.

Contents

Figures

1.0 Introduction

This program directory is intended for system programmers who are responsible for program installation and maintenance. It contains information about the material and procedures associated with the installation of IBM Transformation Extender. This publication refers to IBM Transformation Extender as Transformation Extender for z/OS.

The Program Directory contains the following sections:

- 2.0, "Program Materials" on page 3 identifies the basic program materials and documentation for Transformation Extender for z/OS.

- 3.0, "Program Support" on page 8 describes the IBM support available for Transformation Extender for z/OS.

- 4.0, "Program and Service Level Information" on page 10 lists the APARs (program level) and PTFs (service level) that have been incorporated into Transformation Extender for z/OS.

- 5.0, "Installation Requirements and Considerations" on page 11 identifies the resources and considerations that are required for installing and using Transformation Extender for z/OS.

- 6.0, "Installation Instructions" on page 19 provides detailed installation instructions for Transformation Extender for z/OS. It also describes the procedures for activating the functions of Transformation Extender for z/OS, or refers to appropriate publications.

Before installing Transformation Extender for z/OS, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that are supplied with this program in softcopy format and this program directory; then keep them for future reference. Section 3.2, "Preventive Service Planning" on page 8 tells you how to find any updates to the information and procedures in this program directory.

Transformation Extender for z/OS is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The program directory that is provided in softcopy format on the CBPDO tape is identical to the hardcopy format if one was included with your order. All service and HOLDDATA for Transformation Extender for z/OS are included on the CBPDO tape.

Do not use this program directory if you install Transformation Extender for z/OS with a SystemPac or ServerPac. When you use one of those offerings, use the jobs and documentation supplied with the offering. The offering will point you to specific sections of this program directory as needed.

1.1 Transformation Extender for z/OS Description

Transformation Extender for z/OS offers the following benefits:

Achieve complex data integration in transactional and operational environments across the enterprise.

Implement and re-use integration and business logic without low level coding.

Leverage the value of legacy systems in enterprise applications.

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Meet project-based, enterprise-wide needs for transactional and operational integration.

Comply with industry and regulatory standards for exchange of complex data.

1.2 Transformation Extender for z/OS FMIDs

Transformation Extender for z/OS consists of the following FMID:

HDTX900

FMID	Description	Comment
HDTX900	Transformation Extender	Contains the configuration, setup, and runtime components. Also contains:
		Transformation Extender for Application Programming
		Contains the configuration, setup, examples and runtime for the z/OS development kit, UNIX System Services development kit, and the IMS/TM and CICS execution environments.
		Transformation Extender with Command Server
		Contains the runtime and the examples for the Batch Command Server.
		Transformation Extender with Launcher
		Contains the configuration, setup, and runtime for the z/OS launcher.
		Transformation Extender for Integration Servers
		Contains the configuration, setup, and runtime for the ITX interfaces with IBM Integration Bus, IBM Business Process Manager, and IBM Business Process Manager Advanced.

Figure 1. FMID descriptions

2.0 Program Materials

An IBM program is identified by a program number. The program number for Transformation Extender for z/OS is 5655-R99.

Basic Machine-Readable Materials are materials that are supplied under the base license and are required for the use of the product.

The program announcement material describes the features supported by Transformation Extender for z/OS. Ask your IBM representative for this information if you have not already received a copy.

2.1 Basic Machine-Readable Material

The distribution medium for this program is physical media or downloadable files. This program is in SMP/E RELFILE format and is installed by using SMP/E. See 6.0, "Installation Instructions" on page 19 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for Transformation Extender for z/OS in the *CBPDO Memo To Users Extension*.

Figure 2 describes the program file content for Transformation Extender for z/OS. You can refer to the *CBPDO Memo To Users Extension* to see where the files reside on the tape.

Notes:

 1. The data set attributes in this table must be used in the JCL of jobs that read the data sets. However, because the data sets are in IEBCOPY unloaded format, their actual attributes might be different.

 2. If any RELFILEs are identified as PDSEs, ensure that SMPTLIB data sets are allocated as PDSEs.

Figure 2 (Page 1 of 2). Program File Content				
Name	**ORG**	**RECFM**	**LRECL**	**BLK SIZE**
SMPMCS	SEQ	FB	80	8800
IBM.HDTX900.F1	PDSE	VB	128	6144
IBM.HDTX900.F2	PDSE	U	0	6144
IBM.HDTX900.F3	PDSE	FB	80	8800
IBM.HDTX900.F4	PDSE	U	0	6144
IBM.HDTX900.F5	PDSE	VB	256	3860

Name		O R G	R E C F M	L R E C L	BLK SIZE
Figure 2 (Page 2 of 2). Program File Content					
IBM.HDTX900.F6		PDSE	VB	1024	31744

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for Transformation Extender for z/OS.

2.3 Program Publications

The following sections identify the basic publications for Transformation Extender for z/OS.

There are no licensed program publications for Transformation Extender for z/OS.

All program publications for Transformation Extender for z/OS can be found at the following website:

- http://www.ibm.com/support/knowledgecenter/SSVSD8_9.0.0

Figure 3 identifies the basic unlicensed publications for Transformation Extender for z/OS. Those that are in softcopy format publications can be obtained from the IBM Publications Center website at http://www.ibm.com/shop/publications/order/ and/or from the product Library page or knowledge center as listed below.

Publication Title	Form Number	Media Format
Figure 3 (Page 1 of 2). Basic Material: Unlicensed Publications		
Transformation Extender for z/OS Agreements and License Information	LC27-8242-00	http://www.ibm.com/shop/ publications/order/
Transformation Extender for z/OS for z/OS Program Directory	GI13-3470-00	http://www.ibm.com/shop/ publications/order/ -or- http://www.ibm.ibm.com/ software/integration/ wdatastagetx/library
IBM Transformation Extender CICS Adapter	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0

Figure 3 (Page 2 of 2). Basic Material: Unlicensed Publications		
Publication Title	**Form Number**	**Media Format**
IBM Transformation Extender Command Server	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender DB2 (z/OS ODBC) Adapter	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender DB2 (z/OS) Adapter	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender Execution Commands	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender FTP adapter	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender IBM MQ Adapter	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender IMS/DC Execution Option	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender Launcher	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender Performance Recommendations	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender Platform API	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender Utility Commands	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender What's New	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0
IBM Transformation Extender z/OS Configuration Guide	n/a	http://www.ibm.ibm.com/ support/knowledgecenter/ SSVSD8_9.0.0

No optional publications are provided for Transformation Extender for z/OS.

2.4 Program Source Materials

No program source materials or viewable program listings are provided for Transformation Extender for z/OS.

2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 4 during the installation of Transformation Extender for z/OS.

Figure 4 (Page 1 of 2). Publications Useful During Installation		
Publication Title	**Form Number**	**Media Format**
IBM SMP/E for z/OS User's Guide	SA23-2277	http://www.ibm.com/shop/ publications/order/
IBM SMP/E for z/OS Commands	SA23-2275	http://www.ibm.com/shop/ publications/order/
IBM SMP/E for z/OS Reference	SA23-2276	http://www.ibm.com/shop/ publications/order/
IBM SMP/E for z/OS Messages, Codes, and Diagnosis	GA32-0883	http://www.ibm.com/shop/ publications/order/
CICS Customization Guide	GA22-7770	http://www.ibm.com/shop/ publications/order/
CICS Resource Guide	SC34-6430	http://www.ibm.com/shop/ publications/order/
z/OS Communications Server IP CICS Sockets Guide	SC31-8776	http://www.ibm.com/shop/ publications/order/
UNIX System Services Planning	GA22-7809	http://www.ibm.com/shop/ publications/order/
UNIX System Services Command Reference	SA22-7802	http://www.ibm.com/shop/ publications/order/
DB2 UDB for z/OS Administration Guide	SC18-7413	http://www.ibm.com/shop/ publications/order/
DB2 UDB for z/OS ODBC Guide and reference	SC18-7423	http://www.ibm.com/shop/ publications/order/
IMS Planning and Customization	SC18-7817	http://www.ibm.com/shop/ publications/order/

Figure 4 (Page 2 of 2). Publications Useful During Installation		
Publication Title	**Form Number**	**Media Format**
WebSphere MQ for z/OS System Administration Guide	SC34-6585	http://www.ibm.com/shop/ publications/order/

3.0 Program Support

This section describes the IBM support available for Transformation Extender for z/OS.

3.1 Program Services

Contact your IBM representative for specific information about available program services.

3.2 Preventive Service Planning

Before you install Transformation Extender for z/OS, make sure that you have reviewed the current Preventive Service Planning (PSP) information. Review the PSP Bucket for General Information, Installation Documentation, and the Cross Product Dependencies sections. For the Recommended Service section, instead of reviewing the PSP Bucket, it is recommended you use the IBM.ProductInstall-RequiredService fix category in SMP/E to ensure you have all the recommended service installed. Use the **FIXCAT(IBM.ProductInstall-RequiredService)** operand on the **APPLY CHECK command**. See 6.1.8, "Perform SMP/E APPLY" on page 22 for a sample APPLY command

If you obtained Transformation Extender for z/OS as part of a CBPDO, HOLDDATA is included.

If the CBPDO for Transformation Extender for z/OS is older than two weeks by the time you install the product materials, you can obtain the latest PSP Bucket information by going to the following website:

http://www14.software.ibm.com/webapp/set2/psearch/search?domain=psp

You can also use S/390 SoftwareXcel or contact the IBM Support Center to obtain the latest PSP Bucket information.

For program support, access the Software Support Website at http://www-01.ibm.com/software/support/.

PSP Buckets are identified by UPGRADEs, which specify product levels; and SUBSETs, which specify the FMIDs for a product level. The UPGRADE and SUBSET values for Transformation Extender for z/OS are included in Figure 5.

Figure 5. PSP Upgrade and Subset ID		
UPGRADE	**SUBSET**	**Description**
TX	HDTX900	Transformation Extender

3.3 Statement of Support Procedures

Report any problems which you feel might be an error in the product materials to your IBM Support Center. You may be asked to gather and submit additional diagnostics to assist the IBM Support Center in their analysis.

Figure 6 on page 9 identifies the component IDs (COMPID) for Transformation Extender for z/OS.

Figure 6. Component IDs			
FMID	**COMPID**	**Component Name**	**RETAIN Release**
HDTX900	5655R9900	Transformation Extender	900

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of Transformation Extender for z/OS. The program level refers to the APAR fixes that have been incorporated into the program. The service level refers to the PTFs that have been incorporated into the program.

4.1 Program Level Information

The following APAR fixes against previous releases of Transformation Extender for z/OS have been incorporated into this release. They are listed by FMID.

- FMID HDTX900

PI47879	PI45179	PI42559
PI47819	PI45110	PI42412
PI47778	PI44957	PI42323
PI47419	PI44755	PI42321
PI47262	PI44706	PI41893
PI47048	PI44456	PI41379
PI46983	PI44138	PI41328
PI46742	PI43886	PI41295
PI46700	PI43887	PI41245
PI46693	PI43765	PI40909
PI46521	PI43707	PI40701
PI46047	PI43328	PI40231
PI45568	PI43231	PI40141
PI45554	PI43133	PI39948
PI45441	PI42818	PI39589
PI45342	PI42676	PI39419
PI45261	PI42665	

4.2 Service Level Information

No PTFs against this release of Transformation Extender for z/OS have been incorporated into the product package.

Frequently check the Transformation Extender for z/OS PSP Bucket for HIPER and SPECIAL attention PTFs against all FMIDs that you must install. You can also receive the latest HOLDDATA, then add the **FIXCAT(IBM.PRODUCTINSTALL-REQUIREDSERVICE)** operand on your APPLY CHECK command. This will allow you to review the recommended and critical service that should be installed with your FMIDs.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating Transformation Extender for z/OS. The following terminology is used:

- *Driving system*: the system on which SMP/E is executed to install the program.

  The program might have specific operating system or product level requirements for using processes, such as binder or assembly utilities during the installation.

- *Target system*: the system on which the program is configured and run.

  The program might have specific product level requirements, such as needing access to the library of another product for link-edits. These requirements, either mandatory or optional, might directly affect the element during the installation or in its basic or enhanced operation.

In many cases, you can use a system as both a driving system and a target system. However, you can make a separate IPL-able clone of the running system to use as a target system. The clone must include copies of all system libraries that SMP/E updates, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB.

Use separate driving and target systems in the following situations:

- When you install a new level of a product that is already installed, the new level of the product will replace the old one. By installing the new level onto a separate target system, you can test the new level and keep the old one in production at the same time.

- When you install a product that shares libraries or load modules with other products, the installation can disrupt the other products. By installing the product onto a separate target system, you can assess these impacts without disrupting your production system.

5.1 Driving System Requirements

This section describes the environment of the driving system required to install Transformation Extender for z/OS.

5.1.1 Machine Requirements

The driving system can run in any hardware environment that supports the required software.

5.1.2 Programming Requirements

Figure 7. Driving System Software Requirements				
Program Number	**Product Name**	**Minimum VRM**	**Minimum Service Level will satisfy these APARs**	**Included in the shipped product?**
Any **one** of the following:				
5694-A01	z/OS	V01.13.00	N/A	No
5650-ZOS	z/OS	V02.01.00	N/A	No

Note: SMP/E is a requirement for Installation and is an element of z/OS but can also be ordered as a separate product, 5655-G44, minimally V03.06.00.

Note: Installation might require migration to new z/OS releases to be service supported. See http://www-03.ibm.com/systems/z/os/zos/support/zos_eos_dates.html.

5.2 Target System Requirements

This section describes the environment of the target system required to install and use Transformation Extender for z/OS.

Transformation Extender for z/OS installs in the z/OS (Z038) SREL.

5.2.1 Machine Requirements

The target system can run in any hardware environment that supports the required software.

5.2.2 Programming Requirements

5.2.2.1 Installation Requisites

Installation requisites identify products that are required and *must* be present on the system or products that are not required but *should* be present on the system for the successful installation of this product.

Mandatory installation requisites identify products that are required on the system for the successful installation of this product. These products are specified as PREs or REQs.

Transformation Extender for z/OS has no mandatory installation requisites.

Conditional installation requisites identify products that are *not* required for successful installation of this product but can resolve such things as certain warning messages at installation time. These products are specified as IF REQs.

Transformation Extender for z/OS has no conditional installation requisites.

5.2.2.2 Operational Requisites

Operational requisites are products that are required and *must* be present on the system or products that are not required but *should* be present on the system for this product to operate all or part of its functions.

Mandatory operational requisites identify products that are required for this product to operate its basic functions.

Transformation Extender for z/OS has no mandatory operational requisites.

Conditional operational requisites identify products that are *not* required for this product to operate its basic functions but are required at run time for this product to operate specific functions. These products are specified as IF REQs.

Program Number	Product Name and Minimum VRM/Service Level	Function
Figure 8 (Page 1 of 2). Target System Conditional Operational Requisites		
Any **one** of the following:		
5655-AB1	IBM Integration Bus V10.00.00 or higher	Integration Server feature
5655-AB2	IBM Integration Bus Standard Edition V10.00.00	Integration Server feature
5655-Y02	IBM Business Manager Advanced for z/OS V08.05.00 or higher	Integration Server feature
Any **one** of the following:		
5655-S97	CICS Transaction Server for z/OS V04.01.00 or higher	CICS
5655-Y04	CICS Transaction Server for z/OS V05.01.00 or higher	CICS
Any **one** of the following:		
5635-A03	IMS V12.01.00 or higher	IMS support
5635-A04	IMS V13.01.00 or higher	IMS support
5635-A05	IMS V14.00.00 or higher	IMS support
MQ Series Support:		
5655-R36	WebSphere MQ for z/OS V07.00.01 or higher	MQ support
Any **one** of the following:		
5694-A01	USS on z/OS V01.13.00 or later	Unix System Services must be active
5650-ZOS	USS on z/OS V02.01.00 or later	Unix System Services must be active

Figure 8 (Page 2 of 2). Target System Conditional Operational Requisites		
Program Number	**Product Name and Minimum VRM/Service Level**	**Function**
Any **one** of the following:		
5605-DB2	DB2 for z/OS V10.01.00 or higher	DB2
5697-P31	DB2 VUE for z/OS V10.01.00 or higher	DB2
5615-DB2	DB2 UDB for z/OS V11.00.00	DB2
5697-P43	DB2 11.00.00 for z/OS VUE	DB2
Any **one** of the following:		
5655-DGG	IBM 31-bit JAVA SDK for z/OS V08.00.00 SR1 FP10 or higher	Java
5655-DGH	IBM 64-bit JAVA SDK for z/OS V08.00.00 SR1 FP10 or higher	Java

5.2.2.3 Toleration/Coexistence Requisites

Toleration/coexistence requisites identify products that must be present on sharing systems. These systems can be other systems in a multisystem environment (not necessarily sysplex), a shared DASD environment (such as test and production), or systems that reuse the same DASD environment at different time intervals.

Transformation Extender for z/OS has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites

Negative requisites identify products that must *not* be installed on the same system as this product.

Transformation Extender for z/OS has no negative requisites.

5.2.3 DASD Storage Requirements

Transformation Extender for z/OS libraries can reside on all supported DASD types.

Figure 9 lists the total space that is required for each type of library.

Figure 9 (Page 1 of 2). Total DASD Space Required by Transformation Extender for z/OS		
Library Type	**Total Space Required in 3390 Trks**	**File System Description**
Target	3,700	Target Datasets
Distribution	8,200	Distribution Datasets

Figure 9 (Page 2 of 2). Total DASD Space Required by Transformation Extender for z/OS		
Library Type	Total Space Required in 3390 Trks	File System Description
File System	11,000	/usr/lpp/dtx/V9R0M0 zFS or HFS file system

Notes:

1. For non-RECFM U data sets, IBM recommends using system-determined block sizes for efficient DASD utilization. For RECFM U data sets, IBM recommends using a block size of 32760, which is most efficient from the performance and DASD utilization perspective.

2. Abbreviations used for data set types are shown as follows.

   U   Unique data set, allocated by this product and used by only this product. This table provides all the required information to determine the correct storage for this data set. You do not need to refer to other tables or program directories for the data set size.

   S   Shared data set, allocated by this product and used by this product and other products. To determine the correct storage needed for this data set, add the storage size given in this table to those given in other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.

   E   Existing shared data set, used by this product and other products. This data set is *not* allocated by this product. To determine the correct storage for this data set, add the storage size given in this table to those given in other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.

   If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old release and reclaim the space that was used by the old release and any service that had been installed. You can determine whether these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

   For more information about the names and sizes of the required data sets, see 6.1.5, "Allocate SMP/E Target and Distribution Libraries" on page 20.

3. Abbreviations used for the file system path type are as follows.

   N   New path, created by this product.
   X   Path created by this product, but might already exist from a previous release.
   P   Previously existing path, created by another product.

4. All target and distribution libraries listed have the following attributes:

   • The default name of the data set can be changed.
   • The default block size of the data set can be changed.
   • The data set can be merged with another data set that has equivalent characteristics.
   • The data set can be either a PDS or a PDSE.

5. All target libraries listed have the following attributes:

- These data sets can be SMS-managed, but they are not required to be SMS-managed.
- These data sets are not required to reside on the IPL volume.
- The values in the "Member Type" column are not necessarily the actual SMP/E element types that are identified in the SMPMCS.

6. All target libraries that are listed and contain load modules have the following attributes:

- These data sets can be in the LPA, but they are not required to be in the LPA.
- These data sets can be in the LNKLST.
- These data sets are not required to be APF-authorized.

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
Figure 10. Storage Requirements for SMP/E Data Sets						
SMPLTS	E	PDSE	U	0	150	-
SMPMTS	E	PDS	FB	80	150	50
SMPPTS	E	PDSE	FB	80	19000	N/A
SMPSCDS	E	PDS	FB	80	150	50
SMPSTS	E	PDS	FB	80	150	50

The following figures describe the target and distribution libraries and file system paths required to install Transformation Extender for z/OS. The storage requirements of Transformation Extender for z/OS must be added to the storage required by other programs that have data in the same library or path.

Note: Use the data in these tables to determine which libraries can be merged into common data sets. In addition, since some ALIAS names may not be unique, ensure that no naming conflicts will be introduced before merging libraries.

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
Figure 11 (Page 1 of 2). Storage Requirements for Transformation Extender for z/OS Target Libraries								
SDTXCLST	Sample	TVOL2	U	PDSE	FB	80	2	-
SDTXCNFG	Sample	TVOL2	U	PDSE	VB	1024	2	-
SDTXLOAD	LMOD	TVOL1	U	PDSE	U	0	1700	-
SDTXLOD2	LMOD	TVOL1	U	PDSE	U	0	700	-
SDTXMAPS	Sample	TVOL2	U	PDSE	VB	256	10	-

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SDTXPENU	Sample	TVOL2	U	PDSE	FB	80	4	-
SDTXSAMP	Sample	TVOL2	U	PDSE	FB	80	40	-
SGTXLOAD	LMOD	TVOL1	U	PDSE	U	0	1200	-

Figure 11 (Page 2 of 2). Storage Requirements for Transformation Extender for z/OS Target Libraries

DDNAME	T Y P E	Path Name
SDTXHFS	N	/usr/lpp/dtx/V9R0M0/IBM

Figure 12. Transformation Extender for z/OS File System Paths

Library DDNAME	T Y P E	O R G	R E C F M	L R E C L	No. of 3390 Trks	No. of DIR Blks
ADTXCLST	U	PDSE	FB	80	2	-
ADTXCNFG	U	PDSE	VB	1024	2	-
ADTXHFS	U	PDSE	VB	256	4500	-
ADTXLOAD	U	PDSE	U	0	1700	-
ADTXLOD2	U	PDSE	U	0	700	-
ADTXMAPS	U	PDSE	VB	256	9	-
ADTXPENU	U	PDSE	FB	80	4	-
ADTXSAMP	U	PDSE	FB	80	40	-
AGTXLOAD	U	PDSE	U	0	1200	-

Figure 13. Storage Requirements for Transformation Extender for z/OS Distribution Libraries

5.3 FMIDs Deleted

Installing Transformation Extender for z/OS might result in the deletion of other FMIDs. To see which FMIDs will be deleted, examine the ++VER statement in the SMPMCS of the product.

If you do not want to delete these FMIDs at this time, install Transformation Extender for z/OS into separate SMP/E target and distribution zones.

Note: These FMIDs are not automatically deleted from the Global Zone. If you want to delete these FMIDs from the Global Zone, use the SMP/E REJECT NOFMID DELETEFMID command. See the SMP/E Commands book for details.

5.4 Special Considerations

Transformation Extender for z/OS has no special considerations for the target system.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of Transformation Extender for z/OS.

Please note the following points:

- If you want to install Transformation Extender for z/OS into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMPCSI and the SMP/E control data sets.

- You can use the sample jobs that are provided to perform part or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries that are required for SMP/E execution have been defined in appropriate zones.

- You can use the SMP/E dialogs instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing Transformation Extender for z/OS

6.1.1 SMP/E Considerations for Installing Transformation Extender for z/OS

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of Transformation Extender for z/OS.

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 14. Using values lower than the recommended values can result in failures in the installation. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. See the SMP/E manuals for instructions on updating the global zone.

Figure 14. SMP/E Options Subentry Values		
Subentry	**Value**	**Comment**
DSSPACE	(1000,500,100)	Specifies the primary and secondary (in Tracks) and the number of directory blocks to be allocated for each SMPTLIB dataset.
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install Transformation Extender for z/OS:

Figure 15. Sample Installation Jobs			
Job Name	**Job Type**	**Description**	**RELFILE**
DTXALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HDTX900.F3
DTXISMKD	MKDIR	Sample job to invoke the supplied DTXMKDIR EXEC to allocate file system paths	IBM.HDTX900.F3
DTXDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HDTX900.F3
DTXAPPLY	APPLY	Sample APPLY job	IBM.HDTX900.F3
DTXACCPT	ACCEPT	Sample ACCEPT job	IBM.HDTX900.F3

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.4, "Perform SMP/E RECEIVE" on page 20) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 15 to find the appropriate relfile data set.

6.1.4 Perform SMP/E RECEIVE

If you have obtained Transformation Extender for z/OS as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the Transformation Extender for z/OS FMIDs, service, and HOLDDATA that are included on the CBPDO package. For more information, see the documentation that is included in the CBPDO.

6.1.5 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job DTXALLOC to allocate the SMP/E target and distribution libraries for Transformation Extender for z/OS. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: The job is successful if RC=0 is received.

6.1.6 Allocate File System Paths

The target system HFS or zFS data set must be mounted on the driving system when running the sample DTXISMKD job since the job will create paths in the HFS or zFS.

Before running the sample job to create the paths in the file system, you must ensure that OMVS is active on the driving system and that the target system's HFS or zFS file system is mounted to the driving system. zFS must be active on the driving system if you are installing Transformation Extender for z/OS into a file system that is zFS.

If you plan to install Transformation Extender for z/OS into a new HFS or zFS file system, you must create the mountpoint and mount the new file system to the driving system for Transformation Extender for z/OS.

The recommended mountpoint is */usr/lpp/dtx/V9R0M0/IBM*.

Edit and submit sample job DTXISMKD to allocate the HFS or zFS paths for Transformation Extender for z/OS. Consult the instructions in the sample job for more information.

If you create a new file system for this product, consider updating the BPXPRMxx PARMLIB member to mount the new file system at IPL time. This action can be helpful if an IPL occurs before the installation is completed.

Expected Return Codes and Messages: The job is successful if RC=0 is received.

6.1.7 Create DDDEF Entries

If you choose to install Transformation Extender for z/OS V09.00.00 in the **SAME** Target Zone as prior releases (V08.04.01 or lower and all features), you must run a Dummy Delete job to delete the prior release before you run the new DTXDDDEF job. Failure to delete the prior release will cause an abend on the APPLY if installed in the same Zone. Otherwise, install Transformation Extender for z/OS in a new Target Zone and continue to the DTXDDDEF job.

Provided is a partial example of code to accomplish the delete. It is not intended to be run as-is. The prior release in this instance is HDTX845 (V08.04.01). If you have other releases or features installed/applied you will need to run the dummy delete for all. Once you have successfully deleted the prior version, you can continue to the DTXDDDEF job.

```
++FUNCTION(DUMMY01).
++VER (Z038)
  DELETE(HDTX845).
//SMPCNTL    DD *
  SET BDY(GLOBAL).
  RECEIVE S(DUMMY01).
  SET BDY(TZONE).
  APPLY S(DUMMY01) REDO.
  SET BDY(DZONE).
  ACCEPT S(DUMMY01) BYPASS(APPLYCHECK) REDO .
  SET BDY(TZONE).
   UCLIN.
   DEL SYSMOD(HDTX845).
   DEL SYSMOD(DUMMY01).
   ENDUCL.
  SET BDY(DZONE).
   UCLIN.
   DEL SYSMOD(HDTX845).
   DEL SYSMOD(DUMMY01).
   ENDUCL.
/*
```

Edit and submit sample job DTXDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for Transformation Extender for z/OS. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: The job is successful if RC=0 is received.

6.1.8 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job DTXAPPLY to perform an SMP/E APPLY CHECK for Transformation Extender for z/OS. Consult the instructions in the sample job for more information.

   The latest HOLDDATA is available through several different portals, including http://service.software.ibm.com/holdata/390holddata.html. The latest HOLDDATA may identify HIPER and FIXCAT APARs for the FMIDs you will be installing. An APPLY CHECK will help you determine if any HIPER or FIXCAT APARs are applicable to the FMIDs you are installing. If there are any applicable HIPER or FIXCAT APARs, the APPLY CHECK will also identify fixing PTFs that will resolve the APARs, if a fixing PTF is available.

   You should install the FMIDs regardless of the status of unresolved HIPER or FIXCAT APARs. However, do not deploy the software until the unresolved HIPER and FIXCAT APARs have been analyzed to determine their applicability. That is, before deploying the software either ensure fixing PTFs are applied to resolve all HIPER or FIXCAT APARs, or ensure the problems reported by all HIPER or FIXCAT APARs are not applicable to your environment.

   To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the PRE, ID, REQ, and IFREQ on the APPLY CHECK. The SMP/E root cause analysis identifies the cause only of *errors* and not of *warnings* (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings, instead of errors).

   Here are sample APPLY commands:

   a. To ensure that all recommended and critical service is installed with the FMIDs, receive the latest HOLDDATA and use the APPLY CHECK command as follows

   ```
   APPLY S(fmid,fmid,...) CHECK
   FORFMID(fmid,fmid,...)
   SOURCEID(RSU*)
   FIXCAT(IBM.ProductInstall-RequiredService)
   GROUPEXTEND .
   ```

   Some HIPER APARs might not have fixing PTFs available yet. You should analyze the symptom flags for the unresolved HIPER APARs to determine if the reported problem is applicable to your environment and if you should bypass the specific ERROR HOLDs in order to continue the installation of the FMIDs.

   This method requires more initial research, but can provide resolution for all HIPERs that have fixing PTFs available and are not in a PE chain. Unresolved PEs or HIPERs might still exist and require the use of BYPASS.

b. To install the FMIDs without regard for unresolved HIPER APARs, you can add the BYPASS(HOLDCLASS(HIPER)) operand to the APPLY CHECK command. This will allow you to install FMIDs even though one or more unresolved HIPER APARs exist. After the FMIDs are installed, use the SMP/E REPORT ERRSYSMODS command to identify unresolved HIPER APARs and any fixing PTFs.

```
APPLY S(fmid,fmid,...) CHECK
FORFMID(fmid,fmid,...)
SOURCEID(RSU*)
FIXCAT(IBM.ProductInstall-RequiredService)
GROUPEXTEND
BYPASS(HOLDCLASS(HIPER)) .
 ..any other parameters documented in the program directory
```

This method is quicker, but requires subsequent review of the Exception SYSMOD report produced by the REPORT ERRSYSMODS command to investigate any unresolved HIPERs. If you have received the latest HOLDDATA, you can also choose to use the REPORT MISSINGFIX command and specify Fix Category IBM.ProductInstall-RequiredService to investigate missing recommended service.

If you bypass HOLDs during the installation of the FMIDs because fixing PTFs are not yet available, you can be notified when the fixing PTFs are available by using the APAR Status Tracking (AST) function of ServiceLink or the APAR Tracking function of ResourceLink.

2. After you take actions that are indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

Note: The GROUPEXTEND operand indicates that SMP/E applies all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

Expected Return Codes and Messages from APPLY CHECK: You will receive a return code of 0 if this job runs correctly.

Expected Return Codes and Messages from APPLY: You will receive a return code of 0 if this job runs correctly.

6.1.9 Perform SMP/E ACCEPT

Edit and submit sample job DTXACCPT to perform an SMP/E ACCEPT CHECK for Transformation Extender for z/OS. Consult the instructions in the sample job for more information.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the PRE, ID, REQ, and IFREQ on the ACCEPT CHECK. The SMP/E root cause analysis identifies the cause of *errors* but not *warnings* (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings rather than errors).

Before you use SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. In this way, you can save the entries that are produced from JCLIN in the distribution zone whenever a SYSMOD that contains inline JCLIN is accepted. For more information about the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E Commands book for details.

After you take actions that are indicated by the ACCEPT CHECK, remove the CHECK operand and run the job again to perform the ACCEPT.

Note: The GROUPEXTEND operand indicates that SMP/E accepts all requisite SYSMODs. The requisite SYSMODS might be applicable to other functions.

Expected Return Codes and Messages from ACCEPT CHECK: You will receive a return code of 0 if this job runs correctly.

If PTFs that contain replacement modules are accepted, SMP/E ACCEPT processing will link-edit or bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder might issue messages that indicate unresolved external references, which will result in a return code of 4 during the ACCEPT phase. You can ignore these messages, because the distribution libraries are not executable and the unresolved external references do not affect the executable system libraries.

Expected Return Codes and Messages from ACCEPT: You will receive a return code of 0 if this job runs correctly.

6.1.10 Run REPORT CROSSZONE

The SMP/E REPORT CROSSZONE command identifies requisites for products that are installed in separate zones. This command also creates APPLY and ACCEPT commands in the SMPPUNCH data set. You can use the APPLY and ACCEPT commands to install those cross-zone requisites that the SMP/E REPORT CROSSZONE command identifies.

After you install Transformation Extender for z/OS, it is recommended that you run REPORT CROSSZONE against the new or updated target and distribution zones. REPORT CROSSZONE requires a global zone with ZONEINDEX entries that describe all the target and distribution libraries to be reported on.

For more information about REPORT CROSSZONE, see the SMP/E manuals.

6.2 Activating Transformation Extender for z/OS

If you mount the file system in which you have installed Transformation Extender for z/OS in read-only mode during execution, then you do not have to take further actions to activate Transformation Extender for z/OS.

6.3 Product Customization

Transformation Extender for z/OS is fully operational after the SMP/E installation is completed. You do not have to do further customization to activate this function.

6.4 General Information, References and IVP Information

The following sections describe general notes as well as configuration steps for each Transformation Extender for z/OS feature you have installed.

The IBM Transformation Extender z/OS Configuration Guide is available in the knowledge center (http://www.ibm.com/support/knowledgecenter/SSVSD8_9.0.0). The IBM Transformation Extender z/OS Configuration Guide contains the most current information about the release, including additional requirements, and configuration instructions. Reference the IBM Transformation Extender z/OS Configuration Guide for further configuration information.

For information about other Transformation Extender for z/OS features that you have installed, see the IBM Transformation Extender z/OS Configuration Guide and the documentation for those specific features.

For detailed information about using the adapters, see the IBM Transformation Extender adapter-specific documentation.

There are no required IVP steps, but reference the sections below for any IVP steps depending on the Tranformation Extender feature you may want to use.

6.4.1 Transformation Extender In Batch

The files that are installed for batch do not require you to do any configuration steps.

6.4.1.1 Installation Verification Program (IVP) steps

There are several IVP steps that you can do. The IVP steps are described in the following example readme files installed in the DTX.SDTXSAMP PDS and are used to test the various feature components.

   DTXBMRME

   - Burst Map example

   - used to verify that the feature installation was successful

   - The job is successful if RC=0 is received

   DTXDMRME (Optional)

   - DB2 Map example

   - run only if you will be using the DB2 adapter

   - The job is successful if RC=0 is received

   DTXMQRME (Optional)

   - WebSphere MQ example

   - run only if you will be using the IBM WebSphere MQ adapter

   - The job is successful if RC=0 is received

6.4.2 Transformation Extender In CICS

For the configuration instructions required for using the Transformation Extender for z/OS on your CICS environment, see the Configuration steps for the CICS environment section in the IBM Transformation Extender z/OS Configuration Guide in the knowledge center on on the web (http://www.ibm.com/support/knowledgecenter/SSVSD8_9.0.0).

6.4.2.1 Installation Verification Program (IVP) steps for the CICS environment

There are several IVP steps that you can do. The IVP steps are described in the following example readme files installed in the DTX.SDTXSAMP PDS and are used to test the various feature components. For the configuration steps required to run the examples to verify that the installation was successful, see the Loading maps section in the IBM Transformation Extender z/OS Configuration Guide that is available in the product knowledge center on the web (http://www.ibm.com/support/knowledgecenter/SSVSD8_9.0.0).

DTXRVRME

- Burst Map example
- used to verify that the feature installation was successful
  and to confirm that the feature components were installed
  into the target libraries and correctly defined to CICS
- The job is successful if RC=0 is received

DTXCDRME (Optional)

- DB2 Map example
- run only if you will be using the DB2 adapter and the DB2 plan
- The job is successful if RC=0 is received

DTXCMRME (Optional)

- WebSphere MQ example
- run only if you will be using the IBM WebSphere MQ adapter
- The job is successful if RC=0 is received

DTXCRRME (Optional)

- Resource Registry example
- run only if you will be using the Resource Registry
- for configuration requirements, see the (Optional) Defining and loading the Resource Name file
  section in the IBM Transformation Extender z/OS Configuration Guide that is available in the
  product knowledge center on the web
  (http://www.ibm.com/support/knowledgecenter/SSVSD8_9.0.0).
- The job is successful if RC=0 is received

6.4.3 Transformation Extender In UNIX System Services Environment

For additional configuration steps that are common to other Transformation Extender for z/OS features installed on UNIX System Services, see the Additional configuration on UNIX System Services section in the IBM Transformation Extender z/OS Configuration Guide found in the knowledge center on the web (http://www.ibm.com/support/knowledgecenter/SSVSD8_9.0.0).

6.4.3.1 IVP steps for the UNIX System Service Environment

There are no required IVP steps.

7.0 Notices

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Reader's Comments

Program Directory for IBM Transformation Extender, January 2016

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