



**Program Directory for
IBM Integration Bus
for z/OS**

10.1.0

Program Number 5655-AB1

FMIDs HAMJA10

for use with
z/OS

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GI13-4481-00

Note

Before using this information and the product it supports, be sure to read the general information under Appendix E, "Notices" on page 30.

Contents

| | |
|---|----|
| 1.0 Introduction | 1 |
| 1.1 Integration Bus Description | 1 |
| 1.2 Integration Bus FMIDs | 2 |
| 2.0 Program Materials | 3 |
| 2.1 Basic Machine-Readable Material | 3 |
| 2.2 Program Publications | 3 |
| 2.3 Program Source Materials | 3 |
| 2.4 Publications Useful During Installation | 4 |
| 3.0 Program Support | 5 |
| 3.1 Program Services | 5 |
| 3.2 Preventive Service Planning | 5 |
| 3.3 Statement of Support Procedures | 6 |
| 4.0 Program and Service Level Information | 7 |
| 4.1 Program Level Information | 7 |
| 4.2 Service Level Information | 7 |
| 5.0 Installation Requirements and Considerations | 8 |
| 5.1 Driving System Requirements | 8 |
| 5.1.1 Machine Requirements | 8 |
| 5.1.2 Programming Requirements | 8 |
| 5.2 Target System Requirements | 9 |
| 5.2.1 Machine Requirements | 9 |
| 5.2.2 Programming Requirements | 9 |
| 5.2.2.1 Installation Requisites | 9 |
| 5.2.2.2 Operational Requisites | 10 |
| 5.2.2.3 Toleration/Coexistence Requisites | 10 |
| 5.2.2.4 Incompatibility (Negative) Requisites | 11 |
| 5.2.3 DASD Storage Requirements | 11 |
| 5.3 FMIDs Deleted | 15 |
| 5.4 Special Considerations | 15 |
| 6.0 Installation Instructions | 16 |
| 6.1 Installing Integration Bus | 16 |
| 6.1.1 SMP/E Considerations for Installing Integration Bus | 16 |
| 6.1.2 SMP/E Options Subentry Values | 16 |
| 6.1.3 Sample Jobs | 16 |
| 6.1.4 Prepare the installation environment | 18 |
| 6.1.4.1 Global zone | 18 |
| 6.1.4.2 Target and distribution zones | 18 |

| | |
|--|-----------|
| 6.1.5 Allocate SMP/E Target and Distribution Libraries | 19 |
| 6.1.6 Allocate, create and mount ZFS Files (Optional) | 19 |
| 6.1.7 Allocate File System Paths | 20 |
| 6.1.8 Create DDDEF Entries | 20 |
| 6.1.9 Perform SMP/E RECEIVE | 20 |
| 6.1.10 Perform SMP/E APPLY | 21 |
| 6.1.11 Perform SMP/E ACCEPT | 22 |
| 6.1.12 Run REPORT CROSSZONE | 23 |
| 6.1.13 Cleaning Up Obsolete Data Sets, Paths, and DDDEFs | 23 |
| 6.2 Activating Integration Bus | 24 |
| 6.2.1 File System Execution | 24 |
| Appendix A. Migration Considerations | 25 |
| Appendix B. Customizing the sample installation manually | 26 |
| Appendix C. Automated Customization of Installation JCL | 27 |
| Appendix D. High-Level Qualifiers and Symbolic Parameters | 28 |
| D.1 High-Level Qualifiers | 28 |
| D.2 Symbolic Parameters | 28 |
| Appendix E. Notices | 30 |
| E.1 Trademarks | 30 |
| Reader's Comments | 31 |

Figures

| | |
|---|----|
| 1. Basic Material: Unlicensed Publications | 3 |
| 2. Publications Useful During Installation | 4 |
| 3. PSP Upgrade and Subset ID | 5 |
| 4. Component IDs | 6 |
| 5. Driving System Software Requirements | 9 |
| 6. Target System Mandatory Installation Requisites | 10 |
| 7. Target System Mandatory Operational Requisites | 10 |
| 8. Total DASD Space Required by Integration Bus | 11 |
| 9. Storage Requirements for SMP/E Work Data Sets | 12 |
| 10. Storage Requirements for SMP/E Data Sets | 13 |
| 11. Storage Requirements for Integration Bus Target Libraries | 14 |
| 12. Integration Bus File System Paths | 14 |
| 13. Storage Requirements for Integration Bus Distribution Libraries | 14 |

| | | |
|-----|--|----|
| 14. | SMP/E Options Subentry Values | 16 |
| 15. | Sample Installation Jobs | 17 |
| 16. | High-Level Qualifiers For Data Set Names | 28 |
| 17. | Symbolic Parameters | 28 |

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 Integration Bus for z/OS. This publication refers to IBM Integration Bus for z/OS as Integration Bus.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic program materials and documentation for Integration Bus.
- 3.0, “Program Support” on page 5 describes the IBM support available for Integration Bus.
- 4.0, “Program and Service Level Information” on page 7 lists the APARs (program level) and PTFs (service level) that have been incorporated into Integration Bus.
- 5.0, “Installation Requirements and Considerations” on page 8 identifies the resources and considerations that are required for installing and using Integration Bus.
- 6.0, “Installation Instructions” on page 16 provides detailed installation instructions for Integration Bus. It also describes the procedures for activating the functions of Integration Bus, or refers to appropriate publications.

Before installing Integration Bus, 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; after which, keep the documents for your reference. Section 3.2, “Preventive Service Planning” on page 5 tells you how to find any updates to the information and procedures in this program directory.

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

Do not use this program directory if you install Integration Bus 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 Integration Bus Description

With IBM Integration Bus utilize robust performance and resource optimized capabilities to address diverse integration requirements to meet the needs of any size project.

Help your entire organization make smarter business decisions by providing automated access, visibility and control over data as it flows through your business applications and systems.

Gain greater developer productivity with leading development tools with accelerators to accelerate time to market of business services.

Connect through an array of heterogeneous applications and systems, removing the need for complex point-to-point connectivity.

Deliver a standardized, simplified and flexible integration foundation to help you more quickly and easily support business needs and scale with business growth."

1.2 Integration Bus FMIDs

Integration Bus consists of the following FMIDs:

HAMJA10

2.0 Program Materials

An IBM program is identified by a program number. The program number for Integration Bus is 5655-AB1.

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 Integration Bus. 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 16 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for Integration Bus in the *CBPDO Memo To Users Extension*.

2.2 Program Publications

Figure 1 identifies the basic unlicensed publications for Integration Bus. The IBM Integration Bus for z/OS 10.1 Program Directory is available from the IBM Publications Center website. To access the program directory use a web browser with internet access to navigate to <https://www.ibm.com/resources/publications> and search for GI13-4481.

IBM Integration Bus for z/OS 10.1 License Information document is available from the IBM Terms website. To access the license use a web browser with internet access to navigate to: <https://www.ibm.com/terms> and search for GC34-7487.

Figure 1. Basic Material: Unlicensed Publications

| Publication Title | Form Number | Media Format |
|--|-------------|-------------------------|
| Program Directory for IBM Integration Bus for z/OS 10.1. | GI13-4481 | IBM Publications Center |
| IBM Integration Bus for z/OS 10.1 License Information | GC34-7487 | IBM Terms website |

2.3 Program Source Materials

No program source materials or viewable program listings are provided for Integration Bus.

2.4 Publications Useful During Installation

You might want to use the publications listed in Figure 2 on page 4 during the installation of Integration Bus.

Additionally, IBM Integration Bus 10.1 documentation is published in IBM Documentation, which can be viewed from a web browser with internet access at <https://ibm.biz/iib10-1docs>.

| <i>Figure 2. Publications Useful During Installation</i> | |
|--|--------------------|
| Publication Title | Form Number |
| <i>IBM SMP/E for z/OS User's Guide</i> | SA23-2277 |
| <i>IBM SMP/E for z/OS Commands</i> | SA23-2275 |
| <i>IBM SMP/E for z/OS Reference</i> | SA23-2276 |
| <i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i> | GA32-0883 |

Note: These publications can be found in IBM Documentation. Use a web browser with internet access to refer to: <https://www.ibm.com/docs/en/zos/2.5.0?topic=zos-smpe>

3.0 Program Support

This section describes the IBM support available for Integration Bus.

3.1 Program Services

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

3.2 Preventive Service Planning

Before you install Integration Bus, 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-REQUIRESERVICE fix category in SMP/E to ensure you have all the recommended service installed. Use the **FIXCAT(IBM.PRODUCTINSTALL-REQUIRESERVICE)** operand on the **APPLY CHECK** command. See 6.1.10, “Perform SMP/E APPLY” on page 21 for a sample APPLY command

If you obtained Integration Bus as part of a CBPDO, HOLDDATA is included.

If the CBPDO for Integration Bus 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:

<https://esupport.ibm.com/customercare/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 <https://www.ibm.com/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 Integration Bus are included in Figure 3.

Figure 3. PSP Upgrade and Subset ID

| UPGRADE | SUBSET | Description |
|---------|---------|-----------------|
| MQMINT | HAMJA10 | INTEGRATION BUS |

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 4 on page 6 identifies the component IDs (COMPID) for Integration Bus.

| <i>Figure 4. Component IDs</i> | | | |
|--------------------------------|---------------|-----------------------|-----------------------|
| FMID | COMPID | Component Name | RETAIN Release |
| HAMJA10 | 5655AB110 | INTEGRATION BUS | A10 |

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of Integration Bus. 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

You can find the APARs against previous releases of Integration Bus that have been incorporated into this release by going to: <https://www.ibm.com/support/pages/node/713119>

4.2 Service Level Information

No PTFs against this release of Integration Bus have been incorporated into the product package.

Frequently check the Integration Bus 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-REQUIRESERVICE)** 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 Integration Bus. 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 Integration Bus.

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 5. Driving System Software Requirements

| Program Number | Product Name | Minimum VRM | Minimum Service Level will satisfy these APARs | Included in the shipped product? |
|----------------|--------------------|------------------|--|----------------------------------|
| 5650-ZOS | z/OS | V2.4.0 or higher | N/A | No |
| 5655-G44 | IBM SMP/E for z/OS | V3.6.0 | 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 https://www-01.ibm.com/software/support/lifecycle/index_z.html.

5.2 Target System Requirements

This section describes the environment of the target system required to install and use Integration Bus.

Integration Bus 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.

Figure 6. Target System Mandatory Installation Requisites

| Program Number | Product Name | Minimum VRM | Minimum Service Level will satisfy these APARs | Included in the shipped product? |
|----------------|--------------|------------------|--|----------------------------------|
| 5650-ZOS | z/OS | V2.4.0 or higher | | No |

Note: Installation might require migration to new z/OS releases to be service supported. See <http://www.ibm.com/support/pages/lifecycle>.

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.

Integration Bus 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.

Figure 7. Target System Mandatory Operational Requisites

| Program Number | Product Name and Minimum VRM/Service Level |
|----------------|--|
| 5650-ZOS | z/OS V2.4.0 and higher |

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.

Integration Bus has no conditional operational requisites.

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.

Integration Bus 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.

Integration Bus has no negative requisites.

5.2.3 DASD Storage Requirements

Integration Bus libraries can reside on all supported DASD types.

Figure 8 lists the total space that is required for each type of library.

| <i>Figure 8. Total DASD Space Required by Integration Bus</i> | | |
|---|--|--------------------|
| Library Type | Total Space Required in 3390 Trks | Description |
| Target | 50 | |
| Distribution | 23306 | |
| File System | 33750 | |

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 19

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, with some exceptions. If the value in the "ORG" column specifies "PDS", the data set must be a PDS. If the value in "DIR Blks" column specifies "N/A", the data set must be 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 not be in the LPA, with some exceptions. If the value in the "Member Type" column specifies "LPA", it is advised to place the data set in the LPA.
- These data sets can be in the LNKLIST.
- These data sets are not required to be APF-authorized, with some exceptions. If the value in the "Member Type" column specifies "APF", the data set must be APF-authorized.

Figure 9 (Page 1 of 2). Storage Requirements for SMP/E Work Data Sets

| 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 |
|-------------------|------------------|-------------|-----------------------|-----------------------|---------------------------|--------------------------|
| SMPWRK1 | E | PDS | FB | 80 | 200 | 20 |
| SMPWRK2 | E | PDS | FB | 80 | 100 | 20 |
| SMPWRK3 | E | PDS | FB | 80 | 9000 | 150 |

Figure 9 (Page 2 of 2). Storage Requirements for SMP/E Work Data Sets

| Library DDNAME | T Y P E | O R G A N I Z A T I O N | R E C O R D S | L R E C O R D S | No. of 3390 Trks | No. of DIR Blks |
|---------------------------|----------------------------|--|--|--|-------------------------------------|------------------------------------|
| SMPWRK4 | E | PDS | FB | 80 | 100 | 20 |
| SMPWRK6 | E | PDS | FB | 80 | 5000 | 700 |
| SYSUT1 | E | SEQ | - | - | 9000 | - |
| SYSUT2 | E | SEQ | - | - | 100 | - |
| SYSUT3 | E | SEQ | - | - | 100 | - |
| SYSUT4 | E | SEQ | - | - | 100 | - |

The following table provides an estimate of the storage needed in the SMP/E data sets for Integration Bus. You must add the estimates to those of any other programs and service that you install to determine the total additional storage requirements.

Figure 10. Storage Requirements for SMP/E Data Sets

| Library DDNAME | T Y P E | O R G A N I Z A T I O N | R E C O R D S | L R E C O R D S | No. of 3390 Trks | No. of DIR Blks |
|---------------------------|----------------------------|--|--|--|-------------------------------------|------------------------------------|
| SMPPTS | E | PDS | FB | 80 | 8000 | 80 |
| SMPSCDS | E | PDS | FB | 80 | 8000 | 80 |
| SMPMTS | E | PDS | FB | 80 | 8000 | 80 |
| SMPSTS | E | PDS | FB | 80 | 8000 | 80 |

The following figures describe the target and distribution libraries and file system paths required to install Integration Bus. The storage requirements of Integration Bus 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.

Figure 11. Storage Requirements for Integration Bus Target 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 |
|----------------|-------------|---------------|------------------|-------------|-----------------------|-----------------------|---------------------------|--------------------------|
| SBIPJCL | PROC | ANY | U | PDSE | FB | 80 | 10 | N/A |
| SBIPPROC | SAMP | ANY | U | PDSE | FB | 80 | 20 | N/A |
| SBIPSAMP | SAMP | ANY | U | PDSE | FB | 80 | 10 | N/A |
| SBIPAUTH | PROGRAM | ANY | U | PDSE | U | 0 | 10 | N/A |

Figure 12. Integration Bus File System Paths

| DDNAME | T Y P E | Path Name |
|----------|------------------|----------------------------|
| SBIPHFSB | N | /usr/lpp/mqsi/V10R1M0/IBM/ |
| SBIPHST | N | /usr/lpp/mqsi/V10R1M0/IBM/ |

Figure 13. Storage Requirements for Integration Bus Distribution Libraries

| 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 |
|----------------|------------------|-------------|-----------------------|-----------------------|---------------------------|--------------------------|
| ABIPJCL | U | PDSE | FB | 80 | 10 | N/A |
| ABIPHFSB | U | PDSE | VB | 32000 | 23104 | N/A |
| ABIPHST | U | PDSE | VB | 32000 | 161 | N/A |
| ABIPSAMP | U | PDSE | FB | 80 | 21 | N/A |
| ABIPAUTH | U | PDSE | U | 0 | 10 | N/A |

5.3 FMIDs Deleted

Installing Integration Bus 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 Integration Bus 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

Integration Bus 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 Integration Bus.

Please note the following points:

- If you want to install Integration Bus 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 Integration Bus

6.1.1 SMP/E Considerations for Installing Integration Bus

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of Integration Bus.

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.

| <i>Figure 14. SMP/E Options Subentry Values</i> | | |
|---|---------------|---|
| Subentry | Value | Comment |
| DSSPACE | 100,100,800 | |
| 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 Integration Bus:

The sample installation jobs are sorted by name into an order in which to run them in sequence (after editing) to install Integration Bus. The exact order in which to run the jobs is not absolutely critical.

Running the jobs in either the sequence they are listed in the list below or in the text of this chapter is acceptable.

Appendix C, “Automated Customization of Installation JCL” on page 27 Automated highlights an automated way to customize Integration Bus.

Figure 15. Sample Installation Jobs

| Job Name | Job Type | Description | RELFILE |
|----------|-----------|---|----------------|
| BIPASYSJ | SMP/E | (Optional) Customize the sample installation JCL. | IBM.HAMJA10.F1 |
| BIPBGBLZ | GZONE | (Optional) Create a new SMP/E Consolidated Software Inventory (CSI) GLOBAL zone | IBM.HAMJA10.F1 |
| BIPCTGTZ | TZONE | Define SMP/E TARGET zones to CSI created by BIPBGBLZ job. | IBM.HAMJA10.F1 |
| BIPDDISZ | DZONE | Define SMP/E DISTRIBUTION zones to CSI created by BIPBGBLZ job. | IBM.HAMJA10.F1 |
| BIPEALOC | ALLOCATE | Allocate the TARGET and DISTRIBUTION libraries. | IBM.HAMJA10.F1 |
| BIPFAZFS | ALLOMTZFS | Allocate and mount zFS data set. | IBM.HAMJA10.F1 |
| BIPGMKEX | MKDIR | Run the BIPZMKDR EXEC job to create file system paths for Integration Bus. | IBM.HAMJA10.F1 |
| BIPHDEF | DDDEF | Define SMP/E DDDEFs for Integration Bus. | IBM.HAMJA10.F1 |
| BIPIRCV | RECEIVE | Perform SMP/E RECEIVE for installation. | IBM.HAMJA10.F1 |
| BIPJAPLY | APPLY | Apply base and maintenance. | IBM.HAMJA10.F1 |
| BIPKACPT | ACCEPT | Accept base and maintenance. | IBM.HAMJA10.F1 |

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.9, “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.

You can also copy the sample installation jobs from the product files by submitting the following job. Before you submit the job, add a job card and change the lowercase parameters to uppercase values to meet the requirements of your site.

```

/STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//IN DD DSN=IBM.fmid.Fy,UNIT=SYSALLDA,DISP=SHR,
// VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=SYSALLDA,
// SPACE=(TRK,(primary,secondary,dir))

```

```
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=IN,OUTDD=OUT
/*
```

See the following information to update the statements in the previous sample:

IN:

filevol is the volume serial of the DASD device where the downloaded files reside.

OUT:

jcl-library-name is the name of the output data set where the sample jobs are stored.

dasdvol is the volume serial of the DASD device where the output data set resides.

Customize each of the sample jobs listed in Figure 15 on page 17. Each sample job contains comments with specific instructions for customization.

6.1.4 Prepare the installation environment

6.1.4.1 Global zone

If you are installing into an existing global zone, check that:

- The PEMAX option entry is set to 9999, or left to default.
- The DSSPACE options entry specifies at least 800 directory blocks.

If you are installing into a new global zone, edit and submit sample job BIPBGBLZ to create a new SMP/E global zone for Integration Bus. Ensure that the JOB statement is valid for your system. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: BIPBGBLZ has a number of steps, all of which should complete with a return code of 0.

If any of the return codes is not 0, inspect the job output to determine what caused the problem and correct it, then rerun the job from the step that failed.

6.1.4.2 Target and distribution zones

If you need to create new target and distribution zones for Integration Bus, edit and submit the following sample jobs:

- BIPCTGTZ to create a new target zone.
- BIPDDISZ to create a new distribution zone.

Ensure in each case that the JOB statement is valid for your system. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: 0

Both jobs consist of a number of steps, all of which should complete with a return code of 0.

If any of the return codes is not 0, inspect the job output to determine what caused the problem, correct it, and then rerun the job from the step that failed.

6.1.5 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job BIPEALOC to allocate the SMP/E target and distribution libraries for Integration Bus. Consult the instructions in the sample job for more information.

Make sure the data sets are allocated on the required volumes.

Expected Return Codes and Messages:

You will receive a return code of 0 if this job runs correctly.

6.1.6 Allocate, create and mount ZFS Files (Optional)

This job allocates, creates a mountpoint, and mounts zFS data sets.

If you plan to install Integration Bus into a new z/OS UNIX file system, you can edit and submit the optional BIPFAZFS job to perform the following tasks:

- Create the z/OS UNIX file system
- Create a mountpoint
- Mount the z/OS UNIX file system on the mountpoint

Consult the instructions in the sample job for more information.

The recommended z/OS UNIX file system type is zFS. The recommended mountpoint is */usr/lpp/mqsi/V10R1M0/*.

Before running the sample job to create the z/OS UNIX file system, you must ensure that OMVS is active on the driving system. zFS must be active on the driving system if you are installing Integration Bus into a file system that is zFS.

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.

```
MOUNT FILESYSTEM('#dsn')
MOUNTPOINT('/usr/lpp/mqsi/V10R1M0/')
MODE(RDWR) /* can be MODE(READ) */
TYPE(ZFS) PARM('AGGRGROW') /* zFS, with extents */
```

See the following information to update the statements in the previous sample:

#dsn is the name of the data set holding the z/OS UNIX file system.

`/usr/lpp/mqsi/V10R1M0/` is the name of the mountpoint where the z/OS UNIX file system will be mounted.

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

6.1.7 Allocate File System Paths

The target system zFS data set must be mounted on the driving system when running the sample BIPGMKEX job since the job will create paths in the 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 zFS file system is mounted to the driving system. zFS must be active on the driving system if you are installing Integration Bus into a file system that is zFS.

If you plan to install Integration Bus into a new zFS file system, you must create the mountpoint and mount the new file system to the driving system for Integration Bus.

The recommended mountpoint is `usr/lpp/mqsi/V10R1M0/`.

Edit and submit sample job BIPGMKEX to allocate the zFS paths for Integration Bus. 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: You will receive a return code of 0 if this job runs correctly.

6.1.8 Create DDDEF Entries

Edit and submit sample job BIPHDDEF to create DDDEF entries for the SMP/E target and distribution data sets and directories for Integration Bus.

6.1.9 Perform SMP/E RECEIVE

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

You can also choose to edit and submit sample job BIPIRECV to perform the SMP/E RECEIVE for Integration Bus. Consult the instructions in the sample job for more information.

You will receive a return code of 0 if this job runs correctly.

6.1.10 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job APPLY to perform an SMP/E APPLY CHECK for Integration Bus. 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.

6.1.11 Perform SMP/E ACCEPT

Edit and submit sample job BIPKACPT to perform an SMP/E ACCEPT CHECK for Integration Bus. 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.

6.1.12 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 Integration Bus, 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.

6.1.13 Cleaning Up Obsolete Data Sets, Paths, and DDDEFs

The following data sets, which were allocated and used by previous releases of this product, are no longer used in this release. You can delete these obsolete data sets after you delete the previous release from your system.

- None

The following file system paths, which were created and used by previous releases of this product, are no longer used in this release. You can delete these obsolete file system paths after you delete the previous release from your system.

- /usr/lpp/mqsi/V10R0M0/*

The following DDDEF entries, which were created and used by previous releases of this product, are no longer used in this release. You can delete these obsolete DDDEF entries after you delete the previous release from your system.

- SBIP10*

6.2 Activating Integration Bus

6.2.1 File System Execution

If you mount the file system in which you have installed Integration Bus in read-only mode during execution, then you do not have to take further actions to activate Integration Bus.

If you mount the file system in which you have installed Integration Bus in read-only mode during execution, complete the following tasks to activate Integration Bus:

If you have included a mount statement in BPXPRMxx PARMLIB member for this file system, ensure it includes the operand MODE(READ).

To change the file system to read only in Unix System Services, execute the following USS commands:

1. `umount -o immediate pathname`
2. `mount -t zfs -d destdsys -f fsname -r pathname`

For a detailed explanation of the above commands, refer to the z/OS UNIX System Services Command Reference, listed in Figure 2 on page 4.

If you wish to use SMF to provide statistics and accounting, the SBIPAUTH library and all the other libraries listed in the Integration Bus STEPLIB must be APF authorized.

During the installation of Integration Bus, The object bipimain is APF authorized

Integration Bus is fully operational after the SMP/E installation is completed. You do not have to do further customization to activate this function.

Appendix A. Migration Considerations

If you are migrating from V10.0.0 to V10.1.0:

- Before running the Allocate job BIPEALOC, edit and do a global change from 'NEW,CATLG' to 'MOD,CATLG'. This will give the job a return code 0.
- The following data sets need to be enlarged to the sizes in the BIPEALOC installation job.
 - ABIPJCL
 - ABIPHFSB
 - ABIPSAMP
 - SBIPJCL
 - SBIPPROC
 - SBIPSAMP
 - SBIPAUTH

Appendix B. Customizing the sample installation manually

You can customize the sample jobs manually using your preferred editor. (Alternatively, you can use BIPASYSJ to customize the jobs. See Appendix C, “Automated Customization of Installation JCL” on page 27.) If you choose to customize the sample jobs manually, you will find that comments are provided in the JCL to help you. However, you should read the rest of 6.0, “Installation Instructions” on page 16 before you start.

If you want to customize the sample installation jobs manually, these are the jobs that you must customize. The figures in Appendix D, “High-Level Qualifiers and Symbolic Parameters” on page 28 show the values you must tailor and have space for you to record your choices.

Copy the installation sample scripts into another PDS, THQ.TBIPINST and customize them there.

- BIPBGBLZ** Sets up an SMP/E global zone.
- BIPCTGTZ** Sets up an SMP/E target zone.
- BIPDDISZ** Sets up an SMP/E distribution zone.
- BIPIRECV** Runs the SMP/E RECEIVE step for Integration Bus.
- BIPEALOC** Allocates the Integration Bus target and distribution libraries.
- BIPGMKEX** Creates the File System tree for Integration Bus. Calls exec BIPZMKDR

Attention.

Read the instructions in the JCL very carefully. Pay particular attention to the parts of the File System tree that must be in place before the job is run.

- BIPDDISZ** Defines Integration Bus target and distribution libraries to SMP/E.
- BIPJAPLY** Runs the SMP/E APPLY step for Integration Bus.
- BIPKACPT** Runs the SMP/E ACCEPT step for Integration Bus.

There are a number of other members that may be in DHQ.UBIPINST. You do not need to customize them manually. They are:

- BIPZMKDR** Exec called by BIPGMKEX
- BIPASYSJ** Automated customization job.

Appendix C. Automated Customization of Installation JCL

Automated customization of installation JCL makes tailoring each piece of JCL individually unnecessary, reducing the chances of making a mistake.

Edit BIPASYSJ and follow the instructions in the job to define the values you want to use to tailor the installation JCL. The figures in Appendix D, “High-Level Qualifiers and Symbolic Parameters” on page 28 show the values you must tailor and have space for you to record your choices.

Submit BIPASYSJ. Expected return code 0.

A return code of 4 means that the JCL has been automatically updated, but there may be some JCL jobs which could not be updated correctly. The job output from the automatic update job will indicate which members may require further manual updates to run correctly.

Appendix D. High-Level Qualifiers and Symbolic Parameters

D.1 High-Level Qualifiers

Use Figure 16 to plan the high-level qualifiers for the Integration Bus data sets.

Figure 16. High-Level Qualifiers For Data Set Names

| Parameter name in the sample JCL provided | Example value | Your value | Description |
|---|---------------|------------|----------------------------|
| -SHLQUAL- | HLQ.SMPE | | Integration Bus SMP/E HLQ |
| -THLQUAL- | HLQ.TLIB | | Integration Bus TARGET HLQ |
| -DHLQUAL- | HLQ.DLIB | | Integration Bus DISTBN HLQ |

D.2 Symbolic Parameters

Use Figure 17 to plan the symbolic parameters for the Integration Bus sample jobs.

Figure 17 (Page 1 of 2). Symbolic Parameters

| Parameter name in the sample jobs | Example value | Your value | Description |
|-----------------------------------|---------------|------------|---|
| -MOUTPUT- | THQ.TBPZINST | | PDS name of modified Installation scripts |
| -MINPUT- | DHQ.UBPZINST | | PDS name of unmodified Installation scripts |
| -SMPVOL- | VOLSER | | Disk volume used by SMP/E |
| -SMPUNIT- | UNITTYPE | | Disk unit type used by SMP/E |
| -TARVOL- | VOLSER | | Disk volume serial for target data sets |

Figure 17 (Page 2 of 2). Symbolic Parameters

| Parameter name in the sample jobs | Example value | Your value | Description |
|-----------------------------------|---------------|------------|---|
| -DISVOL- | VOLSER | | Disk volume serial for distribution data sets |
| SYSALLDA | 3390 | | Disk unit type for other data sets |
| -GZONECSI- | GZONE | | Global Zone CSI name |
| -TZNAME- | TZONE | | Target Zone CSI name |
| -DZNAME- | DZONE | | Distribution Zone CSI name |
| -PathPrefix- | /Service | | File system target path prefix |
| -TAPEUNIT- | 3590 | | Tape unit type for SMP/E receive job |
| -TAPEVOLB- | ZMQSI | | Tape unit type for SMP/E receive job |
| -ZFSNAME- | ZFSNAME | | File System cluster data set name |
| -ZFSVOL- | ZFSVOL | | File System cluster data set disk volume |

Appendix E. Notices

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