



**Program Directory for
IBM DB2 12 for z/OS
QMF Enterprise Edition**

V12.01.00

Program Number 5650-DB2

for Use with
z/OS

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Note

Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 38.

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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 DB2 QMF Enterprise Edition. This publication refers to IBM DB2 QMF Enterprise Edition as QMF Enterprise Edition.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 7 identifies the basic program materials and documentation for QMF Enterprise Edition.
- 3.0, “Program Support” on page 13 describes the IBM support available for QMF Enterprise Edition.
- 4.0, “Program and Service Level Information” on page 15 lists the APARs (program level) and PTFs (service level) that have been incorporated into QMF Enterprise Edition.
- 5.0, “Installation Requirements and Considerations” on page 16 identifies the resources and considerations that are required for installing and using QMF Enterprise Edition.
- 6.0, “Installation Instructions” on page 28 provides detailed installation instructions for QMF Enterprise Edition. It also describes the procedures for activating the functions of QMF Enterprise Edition, or refers to appropriate publications.

Before installing QMF Enterprise Edition, 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 13 tells you how to find any updates to the information and procedures in this program directory.

QMF Enterprise Edition 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 QMF Enterprise Edition are included on the CBPDO tape.

Do not use this program directory if you install QMF Enterprise Edition 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 QMF Enterprise Edition Description

QMF Enterprise Edition provides a complete business analytics solution for enterprise-wide business information across end-user and database platforms. QMF Enterprise Edition consists of the following capabilities:

- QMF for TSO and CICS
- QMF Enhanced Editor (new)
- QMF Analytics for TSO
- QMF High Performance Option (HPO)
- QMF for Workstation
- QMF for WebSphere
- QMF Data Service, including QMF Data Service Studio (new)
- QMF Vision (new)

New enhancements for each capability are as follows:

- **QMF for TSO and CICS** has significant improvements for the QMF for TSO/CICS client.
 - The QMF process of saving database tables, traditionally accomplished through the QMF SAVE DATA command, has been enhanced. QMF SAVE DATA intermediate results can now be saved to IBM DB2 Analytics Accelerator for z/OS 'Accelerator-only tables'. The ability to save intermediate results in Accelerator-only tables is also available for the command IMPORT TABLE and the new QMF RUN QUERY command with the TABLE keyword. This exploitation of the Accelerator may result in benefits such as improved performance, reduced batch window allocation for QMF applications, and reduced storage requirements.
 - By using the new TABLE keyword on the RUN QUERY command, you can now save data, using the SAVE DATA command, without needing to return and complete a data object. The RUN QUERY command with the TABLE keyword operates completely within the database to both retrieve data and insert rows without returning a report to the user.
 - Usability of the TSO client is improved by the enhanced editor feature (see the **QMF Enhanced Editor** section for more detail.).
 - Both the TSO and CICS clients now have the ability to organize queries, procedures, forms, and analytics into groups called folders, aiding in productivity and usability. QMF commands such as LIST, SAVE, ERASE, and RENAME have been updated to work with folders.
 - QMF TSO and CICS clients now have additional report preview options. After proper setting of the DSQDC_DISPLAY_RPT global variable, users will be able to enter a report mini-session, where queries can be run to view potential output without actually committing the results. The report mini-session can be useful for running and testing SELECT with change type queries. Upon exiting the report mini-session, the user will be prompted to COMMIT or ROLLBACK the query.
 - With Version 12, QMF's TSO and CICS clients deliver significant performance and storage improvements.

- Using the new QMF program parameter option DSQSMTHD, users can make use of a second data base thread. The second thread is to be used for RUN QUERY and DISPLAY TABLE command processing. Usage of a second data base thread can assist with performance issues on SAVE operations with an incomplete report outstanding. Additionally, usage of the second thread can reduce storage requirements for SAVE DATA commands on large report objects because rows will not need to reside in storage but can be retrieved from the data base and inserted into the new table as needed.
- Using the DSQEC_BUFFER_SIZE global variable, the QMF internal storage area used to fetch data base row data can be increased. By changing the default from 4 kilobytes to a value up to 256 kilobytes, QMF can increase the amount of data fetched in a single call to the data base. Less calls to the data base reduces the amount of time it takes to complete the report, which can result in significant performance improvements.
- QMF's TSO and CICS clients now integrates with QMF Data Service, enabling users of this interface to access a broader range of data sources. The support enables access to z/OS and non-z/OS data sources, including relational and nonrelational data sources (see the **QMF Data Service** section for a desc of accessible data types). This capability is available only through QMF Enterprise Edition.
- **QMF Enhanced Editor** (new) provides usability improvements to the TSO client by bringing customizable highlighting and formatting for SQL syntax, reserved words, functions, and data types, and parenthesis checking. The new query assist feature provides table name suggestions, column name and data type information, and suggested column value information, plus a preview pane.
- **QMF Analytics** for TSO has been enhanced as follows:
 - Three new statistics models have been added: Wilcoxon Signed-Rank Test, Mann-Whitney U Test, and the F-Test model.
 - A user-defined mapping capability has been added. OpenGIS WKT map definitions are available in either DB2 tables or exported data sets, which can be read to format user-specific maps.
 - Maps for Africa, North America, South America, and Germany have been added to the existing library of predefined maps.
 - The ability to choose columns for use in analytical analyses has been improved with enhanced data type targeting and information.
 - Mouse (graphics cursor) support is added for quicker interaction with the QMF Analytics for TSO functionality.
 - Saving analytics has been updated to display a list of existing analytics objects.
- **QMF for Workstation and QMF for WebSphere** add additional support for DB2 Analytics Accelerator and enable QMF objects to be used as virtual tables in QMF Data Service.
 - Administrators now have the ability to specify whether the DB2 Analytics Accelerator should be used by QMF users when available (by database and query) through new resource limit options on the data source or object.

- QMF Workstation and QMF for WebSphere can now write data to the DB2 Analytics Accelerator. Data can be saved as Accelerator-only tables or Accelerator-shadow tables. Queries could then be created against this data, enabling them to take advantage of the DB2 Analytics Accelerator.
- QMF will detect DB2 Analytics Accelerator appliances and display these appliances under the data source. Users can also see tables that exist on the DB2 Analytics Accelerator and even add additional tables to the DB2 Analytics Accelerator by dragging and dropping tables into the appliance folder.
- QMF-prepped data will be made accessible as virtual tables or stored procedures to external applications through data service connectors such as:
 - Mainframe Data Service for Apache Spark on z/OS
 - Rocket DV
 - Rocket Mainframe Data Service on IBM Bluemix
 - IBM DB2 Analytics Accelerator Loader
- **QMF Data Service** (new) enables DB2 QMF to access numerous data sources and greatly eliminates the need to move data in order to perform your analytics. It enables you to obtain real-time analytics insights using a high-performance in-memory mainframe solution.

The need for real-time information requires a high-performance data architecture that can handle the extreme volumes and unique requirements of mainframe data and that is transparent to the business user. DB2 QMF 's new data service includes several query optimization features, such as parallel I/O and MapReduce. Multiple parallel threads handle input requests, continually streaming and buffering data to the client. The mainframe MapReduce technology greatly reduces the elapsed time of the query by accessing the database with multiple threads that read the file in parallel.

Data definitions and schema information are extracted from a variety of places to create virtual tables. All of the implementation details are hidden to the user, presented instead as a single logical data source. The logical data source is easily administered through the new Eclipse-based QMF Data Service Studio. With QMF Data Service Studio, DB2 QMF now supports a broader range of data sources, including:

- **Mainframe:** Relational/nonrelational databases and file structures: ADABAS, DB2, VSAM, and Physical Sequential; CICS and IMS
- **Distributed:** Databases running on Linux, UNIX, and Microsoft Windows platforms: DB2, Oracle, Informix, Derby, and SQL Server
- **Cloud and big data:** Cloud-based relational and nonrelational data, and support for Hadoop

Data prepared in QMF will be made accessible as virtual tables to external applications through Data Service connectors such as:

- Mainframe Data Service for Apache Spark on z/OS
- Rocket DV
- Rocket Mainframe Data Service on IBM Bluemix
- DB2 Analytics Accelerator Loader
- **QMF Vision** (new) is a web client visualization interface that enables you to create, modify, and drill down on data visualizations that are displayed on a dashboard. Users have the ability to drag and drop whatever dimensions or measures are needed, or add more variables for increased drill-down

capability. Column, pie, treemap, geo map, line, scatter charts and many more chart objects are available. This gives a business user the ability to analyze data and provide insights that might not be readily apparent.

The most commonly requested guided analytics capabilities, such as outlier detection and cardinality, are now provided out of the box. These capabilities are integrated into the architecture for an intuitive analysis experience. For one-off decision making, you can quickly create simple reports using the tabular chart, which gives you a line-by-line view of summary data. Reports can be formatted to produce multilevel grouping, hierarchical structures, and dynamic cross tabulations, all for greater readability.

This enhancement simplifies the sharing of insights and collaboration with other users. Dashboards can be dropped into the chat window and other users can immediately start collaborating. They can discuss performance results, strategy, and opportunities and discover new insights about the data. Users can connect to new data sources as well as work with existing QMF queries and tables.

1.2 QMF Enterprise Edition FMIDs

QMF Enterprise Edition consists of the following FMIDs:

- HSQCC10 (QMF TSO/CICS Base)
- HHPCC10 (QMF HPO)
- HQDCC10 (QMF Data Service)
- JYQCC10 (QMF applications)
- JSQCC1E (QMF Enterprise Edition Identifier)

Notes:

- To install the QMF for TSO and CICS product, install FMIDs HSQCC10 (QMF TSO/CICS Base) and JSQCC1E (QMF Enterprise Edition Identifier).
- To install the features QMF Analytics for TSO and the QMF Enhanced Editor for QMF for TSO and CICS, install FMID JYQCC10 (QMF applications). QMF for TSO and CICS FMID HSQCC10 is a prerequisite.
- To install QMF HPO, install the FMID HHPCC10 (QMF HPO).
- To install QMF Data Service, install the FMID HQDCC10 (QMF Data Service).

2.0 Program Materials

An IBM program is identified by a program number. The program number for QMF Enterprise Edition is 5650-DB2.

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 QMF Enterprise Edition. 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 28 for more information about how to install the program.

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

Figure 1 describes the program file content for QMF Enterprise Edition. 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 1 (Page 1 of 2). Program File Content for QMF TSO/CICS Base

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HSQCC10.F1	PDS	FB	80	8800
IBM.HSQCC10.F2	PDS	FB	80	8800
IBM.HSQCC10.F3	PDS	F	400	400
IBM.HSQCC10.F4	PDS	FB	80	8800
IBM.HSQCC10.F5	PDS	FB	80	8800

Figure 1 (Page 2 of 2). Program File Content for QMF TSO/CICS Base

Name	O R G	R E C F M	L R E C L	BLK SIZE
IBM.HSQCC10.F6	PDS	FB	80	8800
IBM.HSQCC10.F7	PDS	F	400	400
IBM.HSQCC10.F8	PDS	FB	80	8800
IBM.HSQCC10.F9	PDS	U	0	6144
IBM.HSQCC10.F10	PDS	FB	80	8800
IBM.HSQCC10.F11	PDS	VB	32622	32626
IBM.HSQCC10.F12	PDS	FB	80	8800
IBM.HSQCC10.F13	PDS	FB	80	8800
IBM.HSQCC10.F14	PDS	FB	80	8800

Figure 2. Program File Content for QMF HPO

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HHPCC10.F1	PDS	FB	80	8800
IBM.HHPCC10.F2	PDS	FB	80	8800
IBM.HHPCC10.F3	PDS	FB	80	8800
IBM.HHPCC10.F4	PDS	FB	80	8800
IBM.HHPCC10.F5	PDS	FB	80	8800
IBM.HHPCC10.F6	PDS	FB	80	8800
IBM.HHPCC10.F7	PDS	U	0	6144
IBM.HHPCC10.F8	PDS	FB	80	8800
IBM.HHPCC10.F9	PDS	FB	80	8800

Figure 3. Program File Content for QMF Data Service

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HQDCC10.F1	PDS	FB	80	8800
IBM.HQDCC10.F2	PDS	FB	80	8800
IBM.HQDCC10.F3	PDS	FB	80	8800
IBM.HQDCC10.F4	PDS	FB	80	8800
IBM.HQDCC10.F5	PDS	FB	80	8800
IBM.HQDCC10.F6	PDSE	U	0	6144
IBM.HQDCC10.F7	PDS	FB	2048	18432
IBM.HQDCC10.F8	PDS	FB	80	8800
IBM.HQDCC10.F9	PDS	FB	80	8800
IBM.HQDCC10.F10	PDS	FB	80	8800
IBM.HQDCC10.F11	PDSE	U	0	6144
IBM.HQDCC10.F12	PDS	FB	80	8800
IBM.HQDCC10.F13	PDS	FB	80	8800
IBM.HQDCC10.F14	PDS	FB	2048	18432
IBM.HQDCC10.F15	PDS	FB	80	8800
IBM.HQDCC10.F16	PDS	FB	80	8800
IBM.HQDCC10.F17	PDS	FB	80	8800
IBM.HQDCC10.F18	PDS	FB	80	8800
IBM.HQDCC10.F19	PDS	FB	80	8800
IBM.HQDCC10.F20	PDS	FB	80	8800
IBM.HQDCC10.F21	PDS	FB	80	8800

Figure 4 (Page 1 of 2). Program File Content for QMF applications

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.JYQCC10.F1	PDS	FB	80	8800

Figure 4 (Page 2 of 2). Program File Content for QMF applications

Name	O R G	R E C F M	L R E C L	BLK SIZE
IBM.JYQCC10.F2	PDS	FB	80	8800
IBM.JYQCC10.F3	PDS	FB	80	8800
IBM.JYQCC10.F4	PDS	U	0	6144
IBM.JYQCC10.F5	PDS	FB	80	8800
IBM.JYQCC10.F6	PDS	U	0	6144
IBM.JYQCC10.F7	PDS	FB	80	8800
IBM.JYQCC10.F8	PDS	FB	80	8800

Figure 5. Program File Content for QMF Enterprise Edition Identifier

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.JSQCC1E.F1	PDS	U	0	6144

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for QMF Enterprise Edition.

2.3 Program Publications

The following sections identify the basic publications for QMF Enterprise Edition.

Figure 6 identifies the basic unlicensed publications for QMF Enterprise Edition. Those publications that are in softcopy format can be obtained from the IBM Knowledge Center website at:

http://www.ibm.com/support/knowledgecenter/SS9UMF_12.0.0/

<i>Figure 6. Basic Material: Unlicensed</i>		
Publication Title	Form Number	Media Format
Introducing DB2 QMF	GC27-8876	Internet
Installing and Managing DB2 QMF for TSO and CICS	GC27-8877	Internet
Developing DB2 QMF applications	SC27-8878	Internet
Using DB2 QMF	SC27-8879	Internet
DB2 QMF Reference	SC27-8880	Internet
DB2 QMF Messages and Codes	GC27-8881	Internet
DB2 QMF High Performance Option User's Guide for TSO and CICS	SC27-8882	Internet
Installing and Managing DB2 QMF for Workstation and DB2 QMF for WebSphere	GC27-8883	Internet
Getting Started with DB2 QMF for Workstation and DB2 QMF for WebSphere	SC27-8884	Internet
DB2 QMF Data Service Studio Getting Started Guide	GC27-8885	Internet
DB2 QMF Data Service Studio User's Guide	SC27-8886	Internet
DB2 QMF Data Service Solutions Guide	GC27-8887	Internet
DB2 QMF Data Service Customization Guide	GC27-8888	Internet
Getting Started with DB2 IBM QMF Vision	GC27-8889	Internet

2.3.1 Optional Program Publications

No optional publications are provided for QMF Enterprise Edition.

2.4 Program Source Materials

No program source materials or viewable program listings are provided for QMF Enterprise Edition.

2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 7 during the installation of QMF Enterprise Edition.

Figure 7. Publications Useful During Installation

Publication Title	Form Number	Media Format
<i>IBM SMP/E for z/OS User's Guide</i>	SA23-2277	http://www.ibm.com/shop/publications/order/
<i>IBM SMP/E for z/OS Commands</i>	SA23-2275	http://www.ibm.com/shop/publications/order/
<i>IBM SMP/E for z/OS Reference</i>	SA23-2276	http://www.ibm.com/shop/publications/order/
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA32-0883	http://www.ibm.com/shop/publications/order/

3.0 Program Support

This section describes the IBM support available for QMF Enterprise Edition.

3.1 Program Services

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

3.2 Preventive Service Planning

Before you install QMF Enterprise Edition, 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 6.1.10, “Perform SMP/E APPLY” on page 33 for a sample APPLY command.

If you obtained QMF Enterprise Edition as part of a CBPDO, HOLDDATA is included.

If the CBPDO for QMF Enterprise Edition 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 QMF Enterprise Edition are included in Figure 8 on page 14.

Figure 8. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
QMFC10	HSQCC10	QMF TSO/CICS Base
	HHPCC10	QMF HPO
	HQDCC10	QMF Data Service
	JYQCC10	QMF applications
	JSQCC1E	QMF Enterprise Edition Identifier

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 9 identifies the component IDs (COMPID) for QMF Enterprise Edition.

Figure 9. Component IDs

FMID	COMPID	Component Name	RETAIN Release
HSQCC10	566872101	QMF TSO/CICS Base	C10
HHPCC10	5668HPO00	QMF HPO	C10
HQDCC10	566872103	QMF Data Service	C10
JYQCC10	5668QCA00	QMF applications	C10
JSQCC1E	566872101	QMF Enterprise Edition Identifier	C1E

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of QMF Enterprise Edition. 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

All PTFs for previous releases of QMF for z/OS that were closed on or before August 15, 2016 are incorporated into QMF for z/OS V12.

4.2 Service Level Information

No PTFs against this release of QMF Enterprise Edition have been incorporated into the product package.

Frequently check the QMF Enterprise Edition 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 QMF Enterprise Edition. 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 QMF Enterprise Edition.

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 10. 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	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 QMF Enterprise Edition.

QMF Enterprise Edition installs in the DBS (P115) 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.

Figure 11 (Page 1 of 2). 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	02.01.00	N/A	No
Any one of the following:				
5605-DB2	DB2 for z/OS	10.01.00	N/A	No

Figure 11 (Page 2 of 2). Target System Mandatory Installation Requisites

Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
5697-P31	DB2 for z/OS VUE	10.01.00	N/A	No
5615-DB2	DB2 for z/OS	11.01.00	N/A	No
5697-P43	DB2 for z/OS VUE	11.01.00	N/A	No
5650-DB2	DB2 for z/OS	12.01.00	N/A	No
5770-AF3	DB2 for z/OS VUE	12.01.00	N/A	No

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.

QMF Enterprise Edition 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 12 (Page 1 of 2). Target System Mandatory Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5605-DB2	DB2 for z/OS V10.01.00 (all modes except CM8, CM8*, ENFM8, ENFM8*) with APARs PM50434 and PM72274
5697-P31	DB2 for z/OS VUE V10.01.00 (all modes except CM8, CM8*, ENFM8, ENFM8*) with APARs PM50434 and PM72274
5615-DB2	DB2 for z/OS V11.01.00
5697-P43	DB2 for z/OS VUE V11.01.00
5650-DB2	DB2 for z/OS V12.01.00
5770-AF3	DB2 for z/OS VUE V12.01.00
Any one of the following (for QMF under CICS only):	
5655-M15	CICS Transaction Server for z/OS V03.01.00
5655-M15	CICS Transaction Server for z/OS V03.02.00
5655-S97	CICS Transaction Server for z/OS V04.01.00

Figure 12 (Page 2 of 2). Target System Mandatory Operational Requisites

Program Number	Product Name and Minimum VRM/Service Level
5655-S97	CICS Transaction Server for z/OS V04.02.00
5655-Y04	CICS Transaction Server for z/OS V05.01.00
5655-Y04	CICS Transaction Server for z/OS V05.02.00

Note:

- APAR PM50434 add CURRENT QUERY ACCELERATION special register support.
- APAR PM72274 adds CURRENT GET_ACCEL_ARCHIVE special register support.
- For the DB2 QMF applications component, GDDM-PGF, a component in z/OS, is required for advanced graphical capabilities on TSO.
- When you use VSAM data access with Data Service, you need to add the following PTF:
 - RLS OA44111:
 - z/OS V02.01.00 UA75046

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.

QMF Enterprise Edition 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.

QMF Enterprise Edition 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.

QMF Enterprise Edition has no negative requisites.

5.2.3 DASD Storage Requirements

QMF Enterprise Edition libraries can reside on all supported DASD types.

The following tables list the total space required for each type of library.

Figure 13. Total DASD Space Required by QMF Enterprise Edition

Library Type	Total Space Required in 3390 Trks
Target	7336
Distribution	6488

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 6.1.8, “Allocate SMP/E Target and Distribution Libraries” on page 33.

3. 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.
4. 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.

5. 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.

The following figures describe the target and distribution libraries required to install QMF Enterprise Edition. The storage requirements of QMF Enterprise Edition must be added to the storage required by other programs that have data in the same library.

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 14. Storage Requirements for QMF for TSO/CICS 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
SDSQBASE	SAMP	Any	U	PDS	FB	80	9	5
SDSQCHRT	DATA	Any	U	PDS	FB	400	2	5
SDSQCLTE	CLIST	Any	U	PDS	FB	80	34	5
SDSQDBRM	MAC	Any	U	PDS	FB	80	10	5
SDSQEXCE	EXEC	Any	U	PDS	FB	80	21	5
SDSQEXIT	LMOD	Any	U	PDS	U	0	4	5
SDSQLOAD	LMOD	Any	U	PDS	U	0	1626	30
SDSQMAPE	DATA	Any	U	PDS	FB	400	5	5
SDSQMLBE	MSGENU	Any	U	PDS	FB	80	6	5
SDSQPLBE	PNLENU	Any	U	PDS	FB	80	22	10
SDSQPVRE	DATA	Any	U	PDS	V	32622	200	5
SDSQSAPE	MAC	Any	U	PDS	FB	80	51	15
SDSQSLBE	MAC	Any	U	PDS	FB	80	6	5
SDSQTLBE	TBL	Any	U	PDS	FB	80	17	5
SDSQUSRE	MAC	Any	U	PDS	FB	80	26	5

Figure 15. Storage Requirements for QMF HPO 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
SRAACLST	CLIST	Any	U	PDS	FB	80	20	5
SRAADBRM	MAC	Any	U	PDS	FB	80	40	5
SRAAEXEC	EXEC	Any	U	PDS	FB	80	5	5
SRAAISPM	MSGENU	Any	U	PDS	FB	80	25	20
SRAAISPP	PNLENU	Any	U	PDS	FB	80	160	30
SRAALOAD	MOD	Any	U	PDS	U	0	400	25
SRAASAMP	SAMP	Any	U	PDS	FB	80	30	10
SRAASKEL	DATA	Any	U	PDS	FB	80	120	5

Figure 16. Storage Requirements for QMF applications 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
SDYQCFG	DATA	Any	U	PDS	FB	80	5	5

Figure 17 (Page 1 of 2). Storage Requirements for QMF Data Service 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
SCQDBASE	SAMP	Any	U	PDS	FB	80	15	5
SCQDCLOD	MOD	Any	U	PDSE	U	0	10	n/a
SCQDCNTL	DATA	Any	U	PDS	FB	80	30	10
SCQDDBRM	MAC	Any	U	PDS	FB	80	50	5
SCQDEXEC	EXEC	Any	U	PDS	FB	80	60	5
SCQDLOAD	MOD	Any	U	PDSE	U	0	3000	n/a
SCQDMAP	DATA	Any	U	PDS	FB	2048	20	10
SCQDMENU	MSGENU	Any	U	PDS	FB	80	10	5
SCQDOBJX	DATA	Any	U	PDS	FB	80	35	5

Figure 17 (Page 2 of 2). Storage Requirements for QMF Data Service 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
SCQDPENU	PNLENU	Any	U	PDS	FB	80	50	25
SCQDRPC	MOD	Any	U	PDSE	U	0	60	n/a
SCQDSAMP	DATA	Any	U	PDS	FB	80	30	15
SCQDSLIB	SKL	Any	U	PDS	FB	80	5	5
SCQDSMAP	DATA	Any	U	PDS	FB	2048	1050	30
SCQDTENU	TBL	Any	U	PDS	FB	80	5	5
SCQDXATH	DATA	Any	U	PDS	FB	80	15	10
SCQDXCMD	DATA	Any	U	PDS	FB	80	10	5
SCQDXEXC	DATA	Any	U	PDS	FB	80	12	5
SCQDXSQL	DATA	Any	U	PDS	FB	80	15	5
SCQDXTOD	DATA	Any	U	PDS	FB	80	5	5
SCQDXVTB	DATA	Any	U	PDS	FB	80	5	5

Figure 18 (Page 1 of 2). Storage Requirements for QMF for TSO/CICS 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
ADSQBASE	U	PDS	FB	80	9	5
ADSQCHRT	U	PDS	FB	400	2	5
ADSQCLTE	U	PDS	FB	80	34	5
ADSQDBRM	U	PDS	FB	80	10	5
ADSQEXCE	U	PDS	FB	80	14	5
ADSQLOAD	U	PDS	U	0	7	5
ADSQMAPE	U	PDS	FB	400	5	5
ADSQMLBE	U	PDS	FB	80	6	5
ADSQOBJ	U	PDS	U	0	1005	200
ADSQPLBE	U	PDS	FB	80	19	10
ADSQPVRE	U	PDS	V	32622	150	5
ADSQSAPE	U	PDS	FB	80	51	15

Figure 18 (Page 2 of 2). Storage Requirements for QMF for TSO/CICS 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
ADSQSLBE	U	PDS	FB	80	6	5
ADSQTLBE	U	PDS	FB	80	17	5
ADSQUSRE	U	PDS	FB	80	26	5

Figure 19. Storage Requirements for QMF HPO 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
ARAACLST	U	PDS	FB	80	20	5
ARAADBRM	U	PDS	FB	80	40	5
ARAAEXEC	U	PDS	FB	80	5	5
ARAAISPM	U	PDS	FB	80	25	20
ARAAISPP	U	PDS	FB	80	160	30
ARAALOAD	U	PDS	U	0	250	15
ARAASAMP	U	PDS	FB	80	20	10
ARAASKEL	U	PDS	FB	80	120	5

Figure 20. Storage Requirements for QMF applications 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
ADYQCFG	U	PDS	FB	80	5	5

Figure 21. Storage Requirements for QMF Data Service 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
ACQDBASE	U	PDS	FB	80	15	5
ACQDCNTL	U	PDS	FB	80	30	10
ACQDDBRM	U	PDS	FB	80	50	5
ACQDEXEC	U	PDS	FB	80	60	5
ACQDLOAD	U	PDSE	U	0	3000	N/A
ACQDMAP	U	PDS	FB	2048	20	10
ACQDMENU	U	PDS	FB	80	10	5
ACQDOBJX	U	PDS	FB	80	35	5
ACQDPENU	U	PDS	FB	80	50	25
ACQDRPC	U	PDSE	U	0	60	N/A
ACQDSAMP	U	PDS	FB	80	30	15
ACQDSLIB	U	PDS	FB	80	5	5
ACQDSMAP	U	PDS	FB	2048	1050	30
ACQDTENU	U	PDS	FB	80	5	5
ACQDXATH	U	PDS	FB	80	15	10
ACQDXCMD	U	PDS	FB	80	10	5
ACQDXEXC	U	PDS	FB	80	12	5
ACQDXSQL	U	PDS	FB	80	15	5
ACQDXTOD	U	PDS	FB	80	5	5
ACQDXVTB	U	PDS	FB	80	5	5

Figure 22. Storage Requirements for QMF Enterprise Edition Non-SMP/E 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
DSQPNLE	U	VSAM	VS	32756	135	n/a

5.3 FMIDs Deleted

Installing QMF Enterprise Edition 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 QMF Enterprise Edition 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

- DB2 QMF TSO and CICS Clients' Special Requirements:
 - Operates on any z Systems hardware configuration that supports the required software.
 - Runs on any processor that is supported by the operating system. Some operations, however, will not work with columns that contain decimal floating point data if the processor on which QMF is running does not support decimal floating point instructions.
 - Accesses all of the DASD devices that are supported by z/OS and DB2 for z/OS, as well as all display devices supported by Graphical Data Display Manager (GDDM).
 - To implement a national language feature that uses a double-byte character set (DBCS), you need a workstation that supports DBCS. Ensure that this device is supported by GDDM.
 - When you plan your region size, consider the storage required to load modules during initialization and the virtual storage requirements for report operations.
 - Restriction: For TSO only, consider the amount of space required to run applications other than DB2 QMF.
- DB2 QMF Data Service Special Requirements:
 - Operates on any z Systems hardware configuration that supports the required software
 - Runs on any processor that is supported by the operating system

5.4.1 PDSE Considerations

QMF Enterprise Edition uses the "partitioned data set extended" or PDSE format for the SCQDLOAD, SCQDCLOD, and SCQDRPC target libraries. There are some operational differences between PDS and PDSE data sets. The PDS format may be shared by more than one z/OS system and no special precautions are necessary. However the PDSE format may only be shared by z/OS systems which are part of a sysplex or which are connected using Global Resource Serialization (are in a GRS complex). If z/OS systems share use of a PDSE data set outside of a sysplex or GRS environment, you may experience severe problems when the data set is updated. This is due to the fact that PDSE directory information is cached in storage, and when the data set is updated from one system the other system(s) have no knowledge of the update, and their cached directory information will be incorrect.

You must take care not to share the SCQDLOAD, SCQDCLOD, and SCQDRPC data sets between z/OS systems unless they are in a sysplex or are connected in a GRS complex. If you need to share the content of the SCQDLOAD, SCQDCLOD, and SCQDRPC data sets, a separate copy must be created for each z/OS 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 QMF Enterprise Edition.

Please note the following points:

- If you want to install QMF Enterprise Edition 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 QMF Enterprise Edition

6.1.1 SMP/E Considerations for Installing QMF Enterprise Edition

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of QMF Enterprise Edition.

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 23. 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 23. SMP/E Options Subentry Values

Subentry	Value	Comment
DSSPACE	(500,500,500)	3390 DASD tracks
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 SMP/E CALLLIBS and SIDE DECK PROCESSING

QMF Enterprise Edition uses the CALLLIBS function provided in SMP/E to resolve external references during installation. When QMF Enterprise Edition is installed, ensure that DDDEFs exist for the following libraries:

- CSSLIB
- SADMMOD
- SCCNOBJ
- SCEELKED
- SCEESPC
- SCSQLOAD
- SDFHLOAD
- SISPLOAD

QMF Enterprise Edition also uses Side Deck processing during link-edits. When QMF Enterprise Edition is installed, ensure that the DDDEFs exist for the following libraries:

- SDSNLOAD

6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install QMF Enterprise Edition:

<i>Figure 24 (Page 1 of 2). Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
DSQALA	SMP/E	Sample job to allocate and initialize a new SMP/E CSI data set (Optional)	IBM.HSQCC10.F2
DSQALB	SMP/E	Sample job to allocate SMP/E data sets (Optional)	IBM.HSQCC10.F2
DSQRECV1	RECEIVE	Sample RECEIVE job for QMF TSO/CICS Base	IBM.HSQCC10.F2
DSQRECV2	RECEIVE	Sample RECEIVE job for QMF HPO	IBM.HSQCC10.F2
DSQRECV3	RECEIVE	Sample RECEIVE job for QMF applications	IBM.HSQCC10.F2
CQDRECV4	RECEIVE	Sample RECEIVE job for QMF Data Service	IBM.HQDCC10.F2
DSQRECVE	RECEIVE	Sample RECEIVE job for QMF Enterprise Edition Identifier	IBM.HSQCC10.F2
DSQALLOC	ALLOCATE	Sample job to allocate target and distribution libraries for QMF (TSO/CICS, OTC, HPO and QMF applications)	IBM.HSQCC10.F2

Figure 24 (Page 2 of 2). Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
CQDALOC4	ALLOCATE	Sample job to allocate target and distribution libraries for QMF Data Service	IBM.HQDCC10.F2
DSQDDEF	DDDEF	Sample job to define SMP/E DDDEFs for QMF (TSO/CICS, OTC, HPO and QMF applications)	IBM.HSQCC10.F2
CQDDDEF4	DDDEF	Sample job to define SMP/E DDDEFs for QMF Data Service	IBM.HQDCC10.F2
DSQAPPLY	APPLY	Sample APPLY job for QMF (TSO/CICS, HPO and QMF applications)	IBM.HSQCC10.F2
CQDAPLY4	APPLY	Sample APPLY job for QMF Data Service	IBM.HQDCC10.F2
DSQAPLYE	APPLY	Sample APPLY job for QMF Enterprise Edition Identifier	IBM.HSQCC10.F2
DSQACCEP	ACCEPT	Sample ACCEPT job for QMF (TSO/CICS, HPO and QMF applications)	IBM.HSQCC10.F2
CQDACCE4	ACCEPT	Sample ACCEPT job for QMF Data Service	IBM.HQDCC10.F2
DSQACCEE	ACCEPT	Sample ACCEPT job for QMF Enterprise Edition Identifier	IBM.HSQCC10.F2

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.7, “Perform SMP/E RECEIVE” on page 32) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 24 on page 29 to find the appropriate relfile data set.

You can also copy the sample installation jobs from the tape or product files by submitting the following job. Depending on your distribution medium, use either the //TAPEIN or the //FILEIN DD statement and comment out or delete the other statement. 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=*
//*****
/* Make the //TAPEIN DD statement below active if you install*
/* from a CBPDO tape by uncommenting the DD statement below. *
//*****
//*TAPEIN DD DSN=IBM.HSQCC10.F2,UNIT=tunit,
/* VOL=SER=volser,LABEL=(x,SL),
/* DISP=(OLD,KEEP)
//*TAPEIN2 DD DSN=IBM.HQDCC10.F2,UNIT=tunit,
/* VOL=SER=volser,LABEL=(x,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //TAPEIN DD statement below active if you install*
/* from a product tape received outside the CBPDO process *
```

```

/** (using the optional SMP/E RECEIVE job) by uncommenting *
/** the DD statement below. *
/*******
/**TAPEIN DD DSN=IBM.HSQCC10.F2,UNIT=tunit,
/** VOL=SER=SQCC10,LABEL=(3,SL),
/** DISP=(OLD,KEEP)
/**TAPEIN2 DD DSN=IBM.HQDCC10.F2.,UNIT=tunit,
/** VOL=SER=QDCC10,LABEL=(3,SL),
/** DISP=(OLD,KEEP)
/*******
/** Make the //FILEIN DD statement below active for *
/** downloaded DASD files. *
/*******
/**FILEIN DD DSN=IBM.HSQCC10.F2,UNIT=SYSALLDA,DISP=SHR,
/** VOL=SER=filevol
/**FILEIN2 DD DSN=IBM.HQDCC10.F2.,UNIT=SYSALLDA,DISP=SHR,
/** VOL=SER=filevol
/**OUT DD DSNAME=jcl-library-name,
/** DISP=(NEW,CATLG,DELETE),
/** VOL=SER=dasdvol,UNIT=SYSALLDA,
/** SPACE=(TRK,(20,10,5))
/**SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
/**SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
COPY INDD=yyyyIN,OUTDD=OUT
/**

```

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

TAPEIN/TAPEIN2:

- tunit** is the unit value that matches the product package.
- volser** is the volume serial that matches the product package.
- x** is the tape file number that indicates the location of the data set name on the tape.
- See the documentation that is provided by CBPDO for the location of IBM.HSQCC10.F2 and IBM.HQDCC10.F2 on the tape.

FILEIN/FILEIN2:

- 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.

SYSIN:

- xxxxIN** is either TAPEIN or FILEIN depending on your input DD statement.
- yyyyIN** is either TAPEIN2 or FILEIN2 depending on your input DD statement.

6.1.5 Allocate SMP/E CSI (Optional)

If you are using an existing CSI, do not execute this job.

If you are allocating a new SMP/E data set for this install, edit and submit sample job DSQALA to allocate the SMP/E data set for QMF Enterprise Edition. Consult the instructions in the sample job for more information.

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

6.1.6 Initialize CSI zones (Optional)

If you are using an existing CSI, do not execute this job.

Edit and submit sample job DSQALB to initialize SMP/E zones for QMF Enterprise Edition. Consult the instructions in the sample job for more information.

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

6.1.7 Perform SMP/E RECEIVE

If you have obtained QMF Enterprise Edition as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the QMF Enterprise Edition 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 DSQRECV1 to perform the SMP/E RECEIVE for QMF TSO/CICS Base. Consult the instructions in the sample job for more information.

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

- You can also choose to edit and submit sample job DSQRECV2 to perform the SMP/E RECEIVE for QMF HPO. Consult the instructions in the sample job for more information.

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

- You can also choose to edit and submit sample job DSQRECV3 to perform the SMP/E RECEIVE for QMF applications. Consult the instructions in the sample job for more information.

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

- You can also choose to edit and submit sample job CQDRECV4 to perform the SMP/E RECEIVE for QMF Data Service. Consult the instructions in the sample job for more information.

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

- You can also choose to edit and submit sample job DSQRECVE to perform the SMP/E RECEIVE for QMF Enterprise Edition Identifier. Consult the instructions in the sample job for more information.

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

6.1.8 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job DSQALLOC to allocate the SMP/E target and distribution libraries for QMF Enterprise Edition. Consult the instructions in the sample job for more information.

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

Edit and submit sample job CQDALOC4 to allocate the SMP/E target and distribution libraries for QMF Data Service. Consult the instructions in the sample job for more information.

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

6.1.9 Create DDDEF Entries

Edit and submit sample job DSQDDEF to create DDDEF entries for the SMP/E target and distribution libraries for QMF Enterprise Edition. Consult the instructions in the sample job for more information.

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

Edit and submit sample job CQDDDEF4 to create DDDEF entries for the SMP/E target and distribution libraries for QMF Data Service. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: 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 DSQAPPLY to perform an SMP/E APPLY CHECK for QMF TSO/CICS Base, HPO and QMF applications. 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/holddata/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),HOLDFIXCAT) .
..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.

Expected Return Codes and Messages from APPLY CHECK: You will receive a return code of 0 or 4 if this job runs correctly.

You may receive any of the following messages which do not affect product installation:
GIM23903I, GIM23903W, GIM23913W, IEW2454W.

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: You will receive a return code of 0 or 4 if this job runs correctly.

You may receive any of the following messages which do not affect product installation: GIM23903I, GIM23903W, GIM23913W, IEW2454W.

3. You can also choose to edit and submit sample job CQDAPLY4 to perform the SMP/E APPLY CHECK for QMF Data Service. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 or 4 if this job runs correctly. You may also receive the following message for DFHE11 in the CQDHLL module which does not affect product installation: IEW2456E. This means CICS is not setup for this installation.

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

Expected Return Codes and Messages: You will receive a return code of 0 or 4 if this job runs correctly. You may also receive the following message for DFHE11 in the CQDHLL module which does not affect product installation: IEW2456E. This means CICS is not setup for this installation.

4. You can also choose to edit and submit sample job DSQAPLYE to perform the SMP/E APPLY CHECK for QMF Enterprise Edition Identifier. Consult the instructions in the sample job for more information.

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

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

Expected Return Codes and Messages: 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 DSQACCEP to perform an SMP/E ACCEPT CHECK for QMF TSO/CICS Base, HPO and QMF applications. 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 or 4 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 or 4 if this job runs correctly.

You can also choose to edit and submit sample job CQDACCE4 to perform the SMP/E ACCEPT CHECK for QMF Data Service. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code of 0 or 4 if this job runs correctly. You may receive the following message for DFHEI1 in the CQDHLI module which does not affect product installation: IEW2456E. This means CICS is not setup for this installation.

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

Expected Return Codes and Messages: You will receive a return code of 0 or 4 if this job runs correctly. You may receive the following message for DFHEI1 in the CQDHLI module which does not affect product installation: IEW2456E. This means CICS is not setup for this installation.

You can also choose to edit and submit sample job DSQACCEE to perform the SMP/E ACCEPT CHECK for QMF Enterprise Edition Identifier. Consult the instructions in the sample job for more information.

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

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

Expected Return Codes and Messages: 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 QMF Enterprise Edition, 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 QMF Enterprise Edition

Once the SMP/E installation is completed for QMF Enterprise Edition, the QMF VSAM panel library, DSQPNLE, must be populated. The VSAM data set DSQPNLE was created when QMF SMP/E job, DSQALLOC (allocate QMF target and distribution libraries), was run in section 6.1.8 "Allocate SMP/E Target and Distribution Libraries" of this Program Directory.

Edit the job SDSQSAPE(DSQ1EPNL). Modify the job card and the variable QMFTPRE to the QMF target library prefix. Submit the job and verify that it runs successfully. This job will copy member DSQPNLE from the SDSQPVRE target library to the VSAM panel data set.

6.2.1 Product Customization

The publication *Installing and Managing DB2 QMF for TSO and CICS*, GC27-8877, contains the step-by-step procedures to customize and use QMF for TSO/CICS and QMF applications.

The publication *DB2 High Performance Option User's Guide for TSO and CICS*, SC27-8882, contains the necessary information to customize and use QMF HPO.

The publication *IBM DB2 QMF Data Service Customization Guide*, GC27-8888, contains the necessary information to customize and use QMF Data Service.

7.0 Notices

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Program Directory for IBM DB2 QMF Enterprise Edition for z/OS, October 2016

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