



**Program Directory for
IBM Query Management Facility for z/OS
QMF Z Client**

V12.02.00

Program Number 5697-QM2

FMID HFQMC20

for Use with
z/OS

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G113-5004-00

Note

Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 23.

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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 Query Management Facility for z/OS. This publication refers to IBM Query Management Facility for z/OS as QMF Z Client.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 4 identifies the basic program materials and documentation for QMF Z Client.
- 3.0, “Program Support” on page 7 describes the IBM support available for QMF Z Client.
- 4.0, “Program and Service Level Information” on page 9 lists the APARs (program level) and PTFs (service level) that have been incorporated into QMF Z Client.
- 5.0, “Installation Requirements and Considerations” on page 10 identifies the resources and considerations that are required for installing and using QMF Z Client.
- 6.0, “Installation Instructions” on page 17 provides detailed installation instructions for QMF Z Client. It also describes the procedures for activating the functions of QMF Z Client, or refers to appropriate publications.

Before installing QMF Z Client, 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 7 tells you how to find any updates to the information and procedures in this program directory.

QMF Z Client 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 Z Client are included on the CBPDO tape.

Do not use this program directory if you install QMF Z Client 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 Z Client Description

The Query Management Facility for z/OS V12.2 product has been enhanced with the following new capabilities:

- **TSO client helps deliver CPU savings**

A new TSO client gives users the ability to deliver CPU savings as work submitted from this new TSO interface is zIIP eligible. This is of significant importance as the zIIP eligibility can be extended to

batch workloads, procedures, and ad hoc queries, which makes the new TSO interface an important way to minimize costs as workload increases.

The TSO client offers usability and productivity features designed to help QMF users edit and administer QMF objects such as intuitive list filtering and simultaneous multiple object editing. It also offers the ability to seamlessly share objects created in the new client across the other QMF clients (TSO, web, workstation, and Vision) without the need for client-specific configuration or tuning.

- **Common centralized server connects the entire QMF ecosystem**

QMF introduces a common centralized server to connect the entire QMF ecosystem, simplify installation and configuration, and help you leverage your data and queries. The QMF Server is written in Java and architected to exploit the advantages delivered by IBM Z for Java workloads.

The new TSO client is referred to as the QMF Z Client and delivers significant productivity improvements to QMF TSO users, including major improvements for working with QMF objects and integration with the wider QMF ecosystem. A new, customizable home panel provides instant access to your favorite and recently used QMF objects and recent commands. When listing objects, you can quickly and easily filter and sort the list, add an object to your favorites, and filter to objects modified within a number of days, months, and so on, all interactively and while supporting screen sizes up to 98 x 160.

You can now have multiple QMF objects open and easily switch between them, including between multiple edit windows using the improved, built-in Query and Procedure Editor. Mouse support, along with right-click context-sensitive menus and drop-down menus, helps both the experienced and novice user to complete tasks in less time. QMF Workstation and IBM WebSphere objects previously limited to distributed platform users can now be used by your TSO users, enabling QMF objects to be shared across all UIs and the ability to build QMF objects once and use them anywhere.

- **Common QMF Server - Key benefits**

- The QMF Server runs on zIIP engines, making MSU savings and improved performance possible.
- The server can be deployed on z/OS, Linux, UNIX, and Windows. This gives QMF users the ability to individually choose the best platform deployment option for the QMF Server, QMF clients, and QMF workloads.
- Users can choose to put the QMF Server close to the data to reduce the load on the network and improve performance.
- Multiple QMF Servers are supported to bring the execution closer to the data. For example, if you need to query data on Db2 on the Linux platform and data on IBM Db2 for z/OS, you could set up a QMF Server on the z/OS platform for the Db2 for z/OS queries and one on the Linux platform for Db2 queries. QMF will route the work to the QMF Server you chose, improving performance.
- Direct database support to relational data sources using JDBC on IBM Z or distributed platforms. This is in addition to existing data source access using the QMF Data Service, which can access relational and nonrelational data sources.
- One instance of the QMF Server can handle multiple user components: TSO, workstation, web, and Vision. This eliminates the need to set up servers for each of the specific QMF components.
- Mainframe users can create, access, and reuse the newer QMF objects, such as Visual Queries and JavaScript procedures.
- Simple and consistent setup for all users, both mainframe and distributed.

- JavaScript is now supported for QMF procedures.
- To experience the benefits of the new QMF Server, batch jobs need to be updated to run under the new QMF Server.
- **New QMF TSO user experience - Key benefits**
 - Productivity and usability improvements for TSO users -
 - New home panel provides instant access to your favorite and recently used QMF objects and commands.
 - Major improvements for listing and editing your QMF objects.
 - Easily switch between open QMF objects and actions.
 - Mouse support with right-click, context-sensitive menus and drop-down menus.
 - Seamless integration with QMF Workstation and WebSphere and the broader QMF ecosystem.
 - Share QMF objects across all UIs: build it once, use it anywhere.
 - Do QMF tasks in less time, including tasks previously not possible.
 - The self-service BI capabilities of the QMF Vision component are enhanced with new automatic dashboarding, JSON support, and multi-tenancy.

1.2 QMF Z Client FMIDs

QMF Z Client consists of the following FMID:

HFQMC20

This Program Directory describes installation of HFQMC20 only. If you are installing any of the other Query Management Facility for z/OS FMIDS, such as HSQCC10, HHPCC10, HQDCC10, JYQCC10 or JSQCC1E, you should refer to the QMF V12.2 Program Directories, G113-4645 (English) or G113-4646 (Multilanguage).

2.0 Program Materials

An IBM program is identified by a program number. The program number for QMF Z Client is 5697-QM2.

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 Z Client. 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 17 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 Z Client in the *CBPDO Memo To Users Extension*.

Figure 1 describes the program file content for QMF Z Client. 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. Program File Content for QMF Z Client

Name	ORG	RECFM	LEN	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HFQMC20.F1	PDS	FB	80	8800
IBM.HFQMC20.F2	PDS	FB	80	8800
IBM.HFQMC20.F3	PDS	VB	0	6144
IBM.HFQMC20.F4	PDSE	U	0	6144
IBM.HFQMC20.F5	PDS	FB	80	8800
IBM.HFQMC20.F6	PDS	FB	80	8800

2.2 Program Publications

The following sections identify the basic publications for the QMF V12.2 product.

Figure 2 on page 5 identifies the basic licensed program publications for the QMF V12.2 product.

<i>Figure 2. Basic Material: Licensed Publications</i>		
Publication Title	Form Number	Media Format
<i>Accessing QMF for z/OS components on Linux, Unix and Windows</i>	LCD4-8602	CD

Note: The LCD4-8602 CD contains a Memo to Users which provides the method in which to access IBM Web Membership (IWM) site to download the distributed components of the QMF V12.2 product.

Figure 3 identifies the basic unlicensed publications for QMF Z Client. These publications that are in softcopy format can be obtained from the IBM Knowledge Center website at:
http://www.ibm.com/support/knowledgecenter/SS9UMF_12.2.0/

<i>Figure 3 (Page 1 of 2). Basic Material: Unlicensed Publications</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 QMF Vision	GC27-8889	Internet
Getting Started with QMF Z Client	GC27-9133	Internet

Figure 3 (Page 2 of 2). Basic Material: Unlicensed Publications

Publication Title	Form Number	Media Format
Installing and Managing Db2 QMF Server	GC27-9134	Internet

2.3 Program Source Materials

No program source materials or viewable program listings are provided for QMF Z Client.

2.4 Publications Useful During Installation

You might want to use the publications listed in Figure 4 during the installation of QMF Z Client.

Figure 4. 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 Z Client.

3.1 Program Services

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

3.2 Preventive Service Planning

Before you install QMF Z Client, 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 6.1.7, “Perform SMP/E APPLY” on page 19 for a sample APPLY command

If you obtained QMF Z Client as part of a CBPDO, HOLDDATA is included.

If the CBPDO for QMF Z Client 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.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 QMF Z Client are included in Figure 5.

UPGRADE	SUBSET	Description
QMFC10	HFQMC20	QMF Z Client

3.3 Statement of Support Procedures

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

Figure 6 on page 8 identifies the component IDs (COMPID) for QMF Z Client.

<i>Figure 6. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HFQMC20	566872105	QMF Z Client	C20

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of QMF Z Client. 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

No APARs have been incorporated into QMF Z Client.

4.2 Service Level Information

No PTFs against this release of QMF Z Client have been incorporated into the product package.

Frequently check the QMF Z Client 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 Z Client. 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 Z Client.

5.1.1 Machine Requirements

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

5.1.2 Programming Requirements

Figure 7. Driving System Software Requirements

Program Number	Product Name	Minimum VRM	Minimum Service Level will satisfy these APARs	Included in the shipped product?
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 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 QMF Z Client.

QMF Z Client installs in the DBS (P115) SREL.

5.2.1 Machine Requirements

The target system requires the following hardware:

- IBM zEnterprise EC12 (zEC12) in z/Architecture mode, or later

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 8 (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 or higher	N/A	No

Figure 8 (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?
5650-ZOS	Z/OS (Graphical Data Display Manager (GDDM)) component	02.01.00 or higher		No

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.

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.

QMF Z Client 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.

QMF Z Client has no mandatory operational requisites.

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

QMF Z Client 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 Z Client 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 Z Client has no negative requisites.

5.2.3 DASD Storage Requirements

QMF Z Client libraries can reside on all supported DASD types.

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

Library Type	Total Space Required in 3390 Trks	Description
Target	588	
Distribution	588	

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.

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

If the table indicates that the SMPLTS data set must be a PDSE and your existing SMPLTS is a PDS, you must allocate a new PDSE and copy your SMPLTS into it; then change the SMPLTS DDDEF entry to indicate the new PDSE data set.

<i>Figure 10 (Page 1 of 2). Storage Requirements for SMP/E Data Sets</i>						
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
SMPLTS	E	PDSE	U	0	15	N/A
SMPMTS	E	PDS	FB	80	15	60

Figure 10 (Page 2 of 2). Storage Requirements for 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
SMPPTS	E	PDS	FB	80	15	300
SMPSCDS	E	PDS	FB	80	15	300
SMPSTS	E	PDS	FB	80	15	150

The following figures describe the target and distribution libraries required to install QMF Z Client. The storage requirements of QMF Z Client 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 QMF Z Client 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
SFQMBASE	SAMP	ANY	U	PDS	FB	80	2	5
SFQMEXEC	EXEC	ANY	U	PDS	FB	80	1	2
SFQMLANG	DATA	ANY	U	PDS	VB	256	13	2
SFQMLoad	PROGRAM	ANY	U	PDSE	U	0	570	N/A
SFQM Parm	PARM	ANY	U	PDS	FB	80	1	2
SFQMSKEL	SKEL	ANY	U	PDS	FB	80	1	2

Figure 12 (Page 1 of 2). Storage Requirements for QMF Z Client 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
AFQMBASE	U	PDS	FB	80	2	5
AFQMEXEC	U	PDS	FB	80	1	2
AFQMLANG	U	PDS	VB	256	13	2

Figure 12 (Page 2 of 2). Storage Requirements for QMF Z Client 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
AFQMLOAD	U	PDSE	U	0	570	N/A
AFQMPARM	U	PDS	FB	80	1	2
AFQMSKEL	U	PDS	FB	80	1	2

5.3 FMIDs Deleted

Installing QMF Z Client 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 Z Client 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

QMF Z Client 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 QMF Z Client.

Please note the following points:

- If you want to install QMF Z Client into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMP/CSI 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 Z Client

6.1.1 SMP/E Considerations for Installing QMF Z Client

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

6.1.2 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 13. 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.

Subentry	Value	Comment
DSSPACE	500,500,500	3390 tracks
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 QMF Z Client:

Figure 14. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
FQMRECV	RECEIVE	Sample RECEIVE job	IBM.HFQMC20.F1
FQMALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HFQMC20.F1
FQMDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HFQMC20.F1
FQMAPPLY	APPLY	Sample APPLY job	IBM.HFQMC20.F1
FQMACCPT	ACCEPT	Sample ACCEPT job	IBM.HFQMC20.F1

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.4, “Perform SMP/E RECEIVE” on page 19) then copy the jobs from the RELFILES to a work data set for editing and submission. See Figure 14 on page 17 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=*
//TAPEIN DD DSN=IBM.HFQMC20.F1,UNIT=tunit,
// VOL=SER=volser,LABEL=(x,SL),
// DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.HFQMC20.F1,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=xxxxIN,OUTDD=OUT
/*
```

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

TAPEIN:

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.fmid.Fy on the tape.

FILEIN:

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.

6.1.4 Perform SMP/E RECEIVE

If you have obtained QMF Z Client as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the QMF Z Client 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 FQMRECV to perform the SMP/E RECEIVE for QMF Z Client. 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.

6.1.5 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job FQMALLOC to allocate the SMP/E target and distribution libraries for QMF Z Client. 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 Create DDDEF Entries

Edit and submit sample job FQMDDEF to create DDDEF entries for the SMP/E target and distribution libraries for QMF Z Client. 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 APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job FQMAPPLY to perform an SMP/E APPLY CHECK for QMF Z Client. Consult the instructions in the sample job for more information.

Perform an SMP/E APPLY CHECK for QMF Z Client.

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.

6.1.8 Perform SMP/E ACCEPT

Edit and submit sample job FQMACCPT to perform an SMP/E ACCEPT CHECK for QMF Z Client. Consult the instructions in the sample job for more information.

Perform an SMP/E ACCEPT CHECK for QMF Z Client.

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.

6.1.9 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 Z Client, 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 Z Client

6.3 Product Customization

Following the SMP/E installation of QMF Z Client, see publication *Getting Started with QMF Z Client, V12.2* (GC27-9133) which contains the necessary information to customize and use QMF Z Client.

7.0 Notices

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