

IBM

**Program Directory for
IBM Db2 Query Workload Tuner for z/OS**

06.01.00

Program Number 5698-QW6

FMIDs H2AQ610

for Use with
z/OS

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GI13-5551-00

Note

Before using this information and the product it supports, be sure to read the general information under 7.0, "Notices" on page 22.

Contents

1.0 Introduction	1
1.1 Db2 Query Workload Tuner Description	1
1.2 Db2 Query Workload Tuner FMIDs	2
2.0 Program Materials	3
2.1 Basic Machine-Readable Material	3
2.2 Program Publications	3
2.2.1 Optional Program Publications	4
2.3 Program Source Materials	4
2.4 Publications Useful During Installation	4
3.0 Program Support	5
3.1 Program Services	5
3.2 Preventive Service Planning	5
3.3 Statement of Support Procedures	6
4.0 Program and Service Level Information	7
4.1 Program Level Information	7
4.2 Service Level Information	7
5.0 Installation Requirements and Considerations	8
5.1 Driving System Requirements	8
5.1.1 Machine Requirements	8
5.1.2 Programming Requirements	8
5.2 Target System Requirements	9
5.2.1 Machine Requirements	9
5.2.2 Programming Requirements	9
5.2.2.1 Installation Requisites	9
5.2.2.2 Operational Requisites	10
5.2.2.3 Toleration/Coexistence Requisites	10
5.2.2.4 Incompatibility (Negative) Requisites	11
5.2.3 DASD Storage Requirements	11
5.3 FMIDs Deleted	13
5.4 Special Considerations	14
6.0 Installation Instructions	15
6.1 Installing Db2 Query Workload Tuner	15
6.1.1 SMP/E Considerations for Installing Db2 Query Workload Tuner	15
6.1.2 SMP/E Options Subentry Values	15
6.1.3 Sample Jobs	16
6.1.4 Perform SMP/E RECEIVE	17
6.1.5 Allocate SMP/E Target and Distribution Libraries	17
6.1.6 Allocate, create and mount ZFS Files (Optional)	17
6.1.7 Allocate File System Paths	18

6.1.8 Create DDDEF Entries	18
6.1.9 Perform SMP/E APPLY	19
6.1.10 Perform SMP/E ACCEPT	20
6.1.11 Run REPORT CROSSZONE	21
6.2 Activating Db2 Query Workload Tuner	21
6.3 Product Customization	21
7.0 Notices	22
7.1 Trademarks	22
Reader's Comments	23

Figures

1. Program File Content	3
2. Basic Material: Licensed Publications	4
3. Basic Material: Unlicensed Publications	4
4. Publications Useful During Installation	4
5. PSP Upgrade and Subset ID	5
6. Component IDs	6
7. Driving System Software Requirements	9
8. Target System Mandatory Operational Requisites	10
9. Total DASD Space Required by Db2 Query Workload Tuner	11
10. Storage Requirements for Db2 Query Workload Tuner Target Libraries	13
11. Db2 Query Workload Tuner File System Paths	13
12. Storage Requirements for Db2 Query Workload Tuner Distribution Libraries	13
13. SMP/E Options Subentry Values	15
14. Sample Installation Jobs	16

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 Query Workload Tuner for z/OS. This publication refers to IBM Db2 Query Workload Tuner for z/OS as Db2 Query Workload Tuner.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic program materials and documentation for Db2 Query Workload Tuner.
- 3.0, “Program Support” on page 5 describes the IBM support available for Db2 Query Workload Tuner.
- 4.0, “Program and Service Level Information” on page 7 lists the APARs (program level) and PTFs (service level) that have been incorporated into Db2 Query Workload Tuner.
- 5.0, “Installation Requirements and Considerations” on page 8 identifies the resources and considerations that are required for installing and using Db2 Query Workload Tuner.
- 6.0, “Installation Instructions” on page 15 provides detailed installation instructions for Db2 Query Workload Tuner. It also describes the procedures for activating the functions of Db2 Query Workload Tuner, or refers to appropriate publications.

Before installing Db2 Query Workload Tuner, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that are supplied with this program in softcopy format and this program directory; after which, keep the documents for your reference. Section 3.2, “Preventive Service Planning” on page 5 tells you how to find any updates to the information and procedures in this program directory.

Db2 Query Workload Tuner is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The program directory that is provided in softcopy format on the CBPDO is identical to the hardcopy format if ones were included with your order. All service and HOLDDATA for Db2 Query Workload Tuner are included on the CBPDO.

Do not use this or other program directory if you install Db2 Query Workload Tuner with a 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 and other program directories as needed.

1.1 Db2 Query Workload Tuner Description

IBM Db2 Query Workload Tuner for z/OS, 6.1 (5698-QW6) delivers tools and advisors that provide expert recommendations to DBAs to help improve performance for a single query or group of queries (workload). It also helps enable greater collaboration between developers and DBAs by enabling them to gain insights into SQL performance.

Db2 Query Workload Tuner for z/OS 6.1 offers more flexibility in query and workload tuning through the introduction of the Rest API-based version. Clients can continue to enjoy the convenience provided by a new and modernized, single pane of glass user interface through the integration with Db2 Administration

Foundation for z/OS 1.2 for Db2 for z/OS DBAs and with Db2 Developer Extension for VS Code 2.1 for Db2 for z/OS application developers.

The following tools are included in the Db2 Query Workload Tuner for z/OS 6.1 product package:

- **SQL Tuning Services 2.1** from the IBM Database Services Expansion Pack feature of Db2 Accessories Suite for z/OS 4.2.1, delivers enhanced performance-tuning capabilities for SQL statements (single and workload) executed on Db2 for z/OS to support Query Workload Tuner for z/OS 6.1. This updated SQL Tuning Services 2.1 also provides simplified installation and eases usability and maintainability.
- **IBM Db2 Administration Foundation for z/OS, 1.2** provides an intuitive, efficient, and streamlined way for DBAs and application administrators to search, navigate, and query Db2 subsystems with a browser-based user interface built on the Zowe Virtual Desktop.

1.2 Db2 Query Workload Tuner FMIDs

Db2 Query Workload Tuner consists of the following FMIDs:

1. H2AQ610 Query Workload Tuner for z/OS 6.1
2. H2AT210 SQL Tuning Services 2.1

Together, the above two FMIDs provide the complete set of SQL Tuning Services; H2AQ610 provides the license key that is required to enable the tuning services APIs, and H2AT210 provides the tuning services APIs.

See Program Directory (G113-5929), included in your order, for more information about installing SQL Tuning Services 2.1.

3. HAFX210 Db2 Administration Foundation 1.2

Db2 Administration Foundation contains functionality delivered in the previous Query Workload Tuner. If you want to use the Query Workload Tuner functionality, and if you have not already installed Db2 Administration Foundation 1.2 from another offering, you can optionally install HAFX120.

See program Directory (G113-5930), included in your order, for more information about installing Db2 Administration Foundation 1.2.

To use Query Workload Tuner features within a graphical user interface you may use either of the following:

- Db2 Administration Foundation 1.2
- Db2 Developer Extension (used primarily for developing database applications) which is available for download from this site:

<https://marketplace.visualstudio.com/items?itemName=IBM.db2forzosdeveloperextension>

For more information about the Query Workload Tuner for z/OS 6.1 roadmap, please visit this site:

<https://www.ibm.com/docs/dqwtfz/6.1>

To replace Data Studio, you can use Db2 Administration Foundation 1.2.

2.0 Program Materials

An IBM program is identified by a program number. The program number for Db2 Query Workload Tuner is 5698-QW6.

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 Db2 Query Workload Tuner. 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 15 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for Db2 Query Workload Tuner in the *CBPDO Memo To Users Extension*.

Refer to the respective Program Directories that are supplied with the Product Package:

- G113-5929: 5697-Q05, Db2 Accessories Suite for z/OS, 4.2.1, Database Services Expansion Pack feature (SQL Tuning Services FMID H2AT210)
- G113-5930: 5698-ADF, Db2 Admin Foundation for z/OS, 1.2 (Db2 Admin Foundation FMID HAFX120)

Figure 1. Program File Content

Name	ORG	FORM	LEN	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.H2AQ610.F1	PDS	FB	80	32720
IBM.H2AQ610.F2	PDS	FB	80	32720
IBM.H2AQ610.F3	PDS	VB	255	27998

2.2 Program Publications

The following sections identify the basic publications for Db2 Query Workload Tuner.

Figure 2 identifies the basic licensed program publications for Db2 Query Workload Tuner.

<i>Figure 2. Basic Material: Licensed Publications</i>		
Publication Title	Form Number	Media Format
<i>IBM Db2 Query Workload Tuner for z/OS License Details</i>	LC28-3274	CD

Figure 3 identifies the basic unlicensed publications for Db2 Query Workload Tuner. Those that are in softcopy format publications can be obtained from the IBM Publications Center website at <https://www.ibm.com/resources/publications>

<i>Figure 3. Basic Material: Unlicensed Publications</i>		
Publication Title	Form Number	Media Format
IBM Db2 Query Workload Tuner for z/OS License Information	G113-5548	http://www.ibm.com/software/sla/sladb.nsf

2.2.1 Optional Program Publications

No optional publications are provided for Db2 Query Workload Tuner.

2.3 Program Source Materials

No program source materials or viewable program listings are provided for Db2 Query Workload Tuner.

2.4 Publications Useful During Installation

You might want to use the publications listed in Figure 4 during the installation of Db2 Query Workload Tuner.

<i>Figure 4. Publications Useful During Installation</i>	
Publication Title	Form Number
<i>IBM SMP/E for z/OS User's Guide</i>	SA23-2277
<i>IBM SMP/E for z/OS Commands</i>	SA23-2275
<i>IBM SMP/E for z/OS Reference</i>	SA23-2276
<i>IBM SMP/E for z/OS Messages, Codes, and Diagnosis</i>	GA32-0883

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

3.0 Program Support

This section describes the IBM support available for Db2 Query Workload Tuner.

3.1 Program Services

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

3.2 Preventive Service Planning

Before you install Db2 Query Workload Tuner, 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 6.1.9, “Perform SMP/E APPLY” on page 19 for a sample APPLY command

If you obtained Db2 Query Workload Tuner as part of a CBPDO, HOLDDATA is included.

If the CBPDO for Db2 Query Workload Tuner is older than two weeks by the time you install the product materials, you can obtain the latest PSP Bucket information by going to the following website:

<https://esupport.ibm.com/customer-care/psearch/search?domain=psp>

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

For program support, access the Software Support Website at <https://www.ibm.com/mysupport/>.

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 Db2 Query Workload Tuner are included in Figure 5.

Figure 5. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
5655V81	H2AQ610	IBM Db2 Query Workload Tuner for z/OS

To view all Preventive Service Planning (PSP), refer to the respective Program Directories that are supplied with the Product Package.

- GI13-5929: 5697-Q05, Db2 Accessories Suite for z/OS, 4.2.1, Database Services Expansion Pack feature (SQL Tuning Services FMID H2AT210)

- G113-5930: 5698-ADF, Db2 Admin Foundation for z/OS, 1.2 (Db2 Admin Foundation FMID HAFX120)

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 identifies the component IDs (COMPID) for Db2 Query Workload Tuner.

<i>Figure 6. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
H2AQ610	5655V8100	IBM Db2 Query Workload Tuner for z/OS	610

To identify all Component IDs (COMPID), refer to the respective Program Directories that are supplied with the Product Package:

- G113-5929: 5697-Q05, Db2 Accessories Suite for z/OS, 4.2.1, Database Services Expansion Pack feature (SQL Tuning Services FMID H2AT210)
- G113-5930: 5698-ADF, Db2 Admin Foundation for z/OS, 1.2 (Db2 Admin Foundation FMID HAFX120)

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of Db2 Query Workload Tuner. 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 Db2 Query Workload Tuner.

To view a list of APARs against all products, refer to the respective Program Directories that are supplied with the Product Package:

- G113-5929: 5697-Q05, Db2 Accessories Suite for z/OS, 4.2.1, Database Services Expansion Pack feature (SQL Tuning Services FMID H2AT210)
- G113-5930: 5698-ADF, Db2 Admin Foundation for z/OS, 1.2 (Db2 Admin Foundation FMID HAFX120)

4.2 Service Level Information

No PTFs against this release of Db2 Query Workload Tuner have been incorporated into the product package.

Frequently check the Db2 Query Workload Tuner 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.

To view service level information for all products, refer to the respective Program Directories that are supplied with the Product Package:

- G113-5929: 5697-Q05, Db2 Accessories Suite for z/OS, 4.2.1, Database Services Expansion Pack feature (SQL Tuning Services FMID H2AT210)
- G113-5930: 5698-ADF, Db2 Admin Foundation for z/OS, 1.2 (Db2 Admin Foundation FMID HAFX120)

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating Db2 Query Workload Tuner. 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 Db2 Query Workload Tuner.

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	02.03.00 or higher	N/A	No

Note: SMP/E is a requirement for Installation and is an element of z/OS.

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

5.2 Target System Requirements

This section describes the environment of the target system required to install and use Db2 Query Workload Tuner.

Db2 Query Workload Tuner 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

To view the Installation Requirements for all products, refer to the respective Program Directories that are supplied with the Product Package:

- G113-5929: 5697-Q05, Db2 Accessories Suite for z/OS, 4.2.1, Database Services Expansion Pack feature (SQL Tuning Services FMID H2AT210)
- G113-5930: 5698-ADF, Db2 Admin Foundation for z/OS, 1.2 (Db2 Admin Foundation FMID HAFX120)

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.

Db2 Query Workload Tuner has no mandatory installation requisites.

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

Db2 Query Workload Tuner 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.

<i>Figure 8. Target System Mandatory Operational Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
5698-UM1	IBM Unified Management Server for z/OS, 1.2
Any one of the following:	
5650-DB2	Db2 for z/OS 12.01.00
5770-AF3	Db2 VUE for z/OS 12.01.00
5698-DB2	Db2 for z/OS 13.01.00
5698-DBV	Db2 VUE for z/OS 13.01.00

Note: Installation might require migration to new releases to obtain support. See <https://www.ibm.com/support/lifecycle/>

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.

Db2 Query Workload Tuner 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.

Db2 Query Workload Tuner 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.

Db2 Query Workload Tuner has no negative requisites.

5.2.3 DASD Storage Requirements

Db2 Query Workload Tuner 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	9 Tracks	
Distribution	9 Tracks	
File System(s)	2 Tracks	usr/lpp/IBM/qwtz/IBM

To review the individual DASD Storage Requirements for each of the products, refer to the respective Program Directories that are supplied with the Product Package:

- G113-5929: 5697-Q05, Db2 Accessories Suite for z/OS, 4.2.1, Database Services Expansion Pack feature (SQL Tuning Services FMID H2AT210)
- G113-5930: 5698-ADF, Db2 Admin Foundation for z/OS, 1.2 (Db2 Admin Foundation FMID HAFX120)

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 17.

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 data set should be placed in the LPA, see the Special Considerations section below.
- These data sets can be in the LNKST. If so, see the Special Considerations section below.
- These data sets are not required to be APF-authorized, with some exceptions. If the data set must be APF-authorized, see the Special Considerations section below.

The following figures describe the target and distribution libraries and file system paths required to install Db2 Query Workload Tuner. The storage requirements of Db2 Query Workload Tuner 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 10. Storage Requirements for Db2 Query Workload Tuner 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
SGWTBASE	SAMP	Any	U	PDS	FB	80	5	2
SGWTNOTC	DATA	Any	U	PDS	VB	137	2	1

Figure 11. Db2 Query Workload Tuner File System Paths

DDNAME	T Y P E	Path Name
SGWTZFS	N	usr/lpp/IBM/qwtz/IBM

Figure 12. Storage Requirements for Db2 Query Workload Tuner 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
AGWTBASE	U	PDS	FB	80	5	2
AGWTNOTC	U	PDS	VB	137	2	1
AGWTZFS	U	PDS	VB	255	2	5

5.3 FMIDs Deleted

Installing Db2 Query Workload Tuner 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 Db2 Query Workload Tuner 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

To continue with the installation and configuration of the functions included in the Query Workload Tuner for z/OS software package, see the IBM Documentation site and search for the Db2 Query Workload Tuner for z/OS *Installation roadmap* topic.

<https://www.ibm.com/docs/dqwtfz/6.1>

To view the individual Special Considerations for each of the products, refer to the respective Program Directories that are supplied with the Product Package:

- G113-5929: 5697-Q05, Db2 Accessories Suite for z/OS, 4.2.1, Database Services Expansion Pack feature (SQL Tuning Services FMID H2AT210)
- G113-5930: 5698-ADF, Db2 Admin Foundation for z/OS, 1.2 (Db2 Admin Foundation FMID HAFX120)

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of Db2 Query Workload Tuner.

Please note the following points:

- If you want to install Db2 Query Workload Tuner 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 Db2 Query Workload Tuner

6.1.1 SMP/E Considerations for Installing Db2 Query Workload Tuner

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of Db2 Query Workload Tuner.

To view the SMP/E installation instructions for each of the products, refer to the respective Program Directories that are supplied with the Product Package:

- GI13-5929: 5697-Q05, Db2 Accessories Suite for z/OS, 4.2.1, Database Services Expansion Pack feature (SQL Tuning Services FMID H2AT210)
- GI13-5930: 5698-ADF, Db2 Admin Foundation for z/OS, 1.2 (Db2 Admin Foundation FMID HAFX120)

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	(200,200,500)	3390 DASD 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 Db2 Query Workload Tuner:

<i>Figure 14. Sample Installation Jobs</i>			
Job Name	Job Type	Description	SMPTLIB Data Set
GWTALA	SMP/E	Sample job to allocate and initialize a new SMP/E CSI data set (Optional)	IBM.H2AQ610.F1
GWTALB	SMP/E	Sample job to allocate SMP/E data sets (Optional)	IBM.H2AQ610.F1
GWTRECEV	RECEIVE	Sample RECEIVE job	IBM.H2AQ610.F1
GWTALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.H2AQ610.F1
GWTZFS	ALLOMZFS	Sample job to allocate, create mountpoint, & mount zFS data sets (Optional)	IBM.H2AQ610.F1
GWTISMKD	MKDIR	Sample job to invoke the supplied GWTMKDIR EXEC to allocate file system paths	IBM.H2AQ610.F1
GWTDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.H2AQ610.F1
GWTAPPLY	APPLY	Sample APPLY job	IBM.H2AQ610.F1
GWTACCEP	ACCEPT	Sample ACCEPT job	IBM.H2AQ610.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 17) then copy the jobs from the SMPTLIB data sets to a work data set for editing and submission. See Figure 14 to find the appropriate data set.

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

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//IN DD DSN=IBM.H2AQ610.F1,UNIT=SYSALLDA,DISP=SHR,
// VOL=SER=filevol
//OUT DD DSNAME=jc1-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=xxxIN,OUTDD=OUT
SELECT MEMBER=(GWTACCEP,GWTALA,GWTALB,GWTALLOC,GWTAPPLY)
SELECT MEMBER=(GWTDDDEF,GWTRECEV)
/*
```

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

IN:

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

OUT:

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

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

6.1.4 Perform SMP/E RECEIVE

If you have obtained Db2 Query Workload Tuner as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the Db2 Query Workload Tuner 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 GWTRECEV to perform the SMP/E RECEIVE for Db2 Query Workload Tuner. 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 GWTALLOC to allocate the SMP/E target and distribution libraries for Db2 Query Workload Tuner. 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 Allocate, create and mount ZFS Files (Optional)

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

If you plan to install Db2 Query Workload Tuner into a new z/OS UNIX file system, you can edit and submit the optional GWTZFS job to perform the following tasks:

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

Consult the instructions in the sample job for more information.

The recommended z/OS UNIX file system type is *zFS*. The recommended mountpoint is *&mntpnt1..*

Before running the sample job to create the z/OS UNIX file system, you must ensure that OMVS is active on the driving system. zFS must be active on the driving system if you are installing Db2 Query Workload Tuner into a file system that is zFS.

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

```
MOUNT FILESYSTEM('#dsn')
MOUNTPOINT('&mntpnt1.')
MODE(RDWR) /* can be MODE(READ) */
TYPE(ZFS) PARM('AGGRGROW') /* zFS, with extents */
```

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

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

&mntpnt1. is the name of the mountpoint where the z/OS UNIX file system will be mounted.

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

6.1.7 Allocate File System Paths

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

Before running the sample job to create the paths in the file system, you must ensure that OMVS is active on the driving system and that the target system's zFS file system is mounted to the driving system. zFS must be active on the driving system.

If you plan to install Db2 Query Workload Tuner into a new zFS file system, you must create the mountpoint and mount the new file system to the driving system for Db2 Query Workload Tuner.

The recommended mountpoint is */usr/lpp/IBM/qwtz*.

Edit and submit sample job GWTISMKD to allocate the file system paths for Db2 Query Workload Tuner. Consult the instructions in the sample job for more information.

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

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

6.1.8 Create DDDEF Entries

Edit and submit sample job GWTDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for Db2 Query Workload Tuner. 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 Perform SMP/E APPLY

1. Ensure that you have the latest HOLDDATA; then edit and submit sample job GWTAPPLY to perform an SMP/E APPLY CHECK for Db2 Query Workload Tuner. Consult the instructions in the sample job for more information.

Perform an SMP/E APPLY CHECK for Db2 Query Workload Tuner.

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.

6.1.10 Perform SMP/E ACCEPT

Edit and submit sample job GWTACCEP to perform an SMP/E ACCEPT CHECK for Db2 Query Workload Tuner. Consult the instructions in the sample job for more information.

Perform an SMP/E ACCEPT CHECK for Db2 Query Workload Tuner.

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.

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

6.1.11 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 Db2 Query Workload Tuner, 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 Db2 Query Workload Tuner

6.3 Product Customization

For documentation that explains the setup process, see IBM Documentation.

7.0 Notices

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Reader's Comments

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