



**Program Directory for
IBM DB2 Performance Solution Pack for z/OS**

V01.05.00

Program Number 5655-E74

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 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 DB2 Performance Solution Pack for z/OS. This publication refers to IBM DB2 Performance Solution Pack for z/OS as DB2 Performance Solution Pack.

Additionally, this publication refers to:

- IBM DB2 SQL Performance Analyzer for z/OS as DB2 SQL Performance Analyzer
- IBM DB2 Query Monitor for z/OS as DB2 Query Monitor
- IBM DB2 Query Workload Tuner for z/OS as DB2 Query Workload Tuner
- IBM OMEGAMON XE for DB2 PE for z/OS as OMEGAMON XE for DB2 PE

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 4 identifies the basic program materials and documentation for DB2 Performance Solution Pack.
- 3.0, “Program Support” on page 7 describes the IBM support available for DB2 Performance Solution Pack.
- 4.0, “Program and Service Level Information” on page 9 lists the APARs (program level) and PTFs (service level) that have been incorporated into DB2 Performance Solution Pack.
- 5.0, “Installation Requirements and Considerations” on page 10 identifies the resources and considerations that are required for installing and using DB2 Performance Solution Pack.
- 6.0, “Installation Instructions” on page 16 provides detailed installation instructions for DB2 Performance Solution Pack. It also describes the procedures for activating the functions of DB2 Performance Solution Pack, or refers to appropriate publications.

Before installing DB2 Performance Solution Pack, 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 7 tells you how to find any updates to the information and procedures in this program directory.

DB2 Performance Solution Pack 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 DB2 Performance Solution Pack are included on the CBPDO tape.

Do not use this program directory if you install DB2 Performance Solution Pack 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 DB2 Performance Solution Pack Description

IBM DB2 Performance Solution Pack for z/OS, V1.5 (5655-E74) delivers integrated performance management for DB2 for z/OS by combining function from the IBM products listed below.

These products are included in DB2 Performance Solution Pack for z/OS, V1.5:

- IBM DB2 SQL Performance Analyzer for z/OS, V5.1 (5697-W51)
- IBM DB2 Query Monitor for z/OS, V3.3 (5655-V42)
- IBM DB2 Query Workload Tuner for z/OS, V5.2 (5655-AB4)
- IBM Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS, V5.4 (5655-W37)

DB2 Query Monitor provides detailed information about the SQL queries being executed in the DB2 for z/OS environment, enabling you to focus your efforts on improvement.

When poorly performing queries are identified by DB2 Query Monitor, this context can be passed on to either of the other two products in this solution to expedite resolution. DB2 Query Workload Tuner for z/OS, V5.2 offers a set of advisors that analyze the information passed by DB2 Query Monitor and provide expert recommendations to DBAs to help improve performance. DB2 Query Workload Tuner is based on the Data Server Manager (DSM) web-based tooling platform.

If the user prefers working with a 3270-based user interface, DB2 SQL Performance Analyzer for z/OS, V5.1 helps analyze and tune SQL queries with features including:

- Producing and interpreting cost reports
- Extensively analyzing SQL queries without running them
- Diagnosing SQL query problems to facilitate prompt recovery
- Iterative WHAT-IF analysis so that modifications can be done until the user is satisfied with the results
- Reports with CSV delimiters that enables users to generate reports in specific formats or displays to act as input to another step in the data management process

Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS, V5.4 enables users to assess the efficiency of DB2 and optimize its performance, combining sophisticated response time tracking, reporting, monitoring, stored procedure, and buffer pool analysis features, as well as expert database analysis functions.

The buffer pool analysis feature has been enhanced to include the ability to feed object analysis results directly into the simulation capability.

Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS, also updates its DB2 Analytics Accelerator monitoring capabilities with support for accelerator-only tables (AOT) along with displaying key metrics from accelerated SQL statements used to accurately understand accelerated statement performance.

Additionally, Tivoli OMEGAMON XE for DB2 Performance Expert on z/OS integrates with IBM Data Server Manager (DSM), providing key performance indicators about DB2 for z/OS subsystems known to DSM.

1.2 DB2 Performance Solution Pack FMIDs

DB2 Performance Solution Pack consists of the following FMIDs:

- DB2 Performance Solution Pack - Base:
HBPF150
- DB2 SQL Performance Analyzer:
H1D0510
- DB2 Query Monitor:
H238330
H238KN0
H25F132
- DB2 Query Workload Tuner:
H2AQ510
- OMEGAMON XE for DB2 PE:
HKDB54X
HKDB540
HKOB730
HPMZ540

2.0 Program Materials

An IBM program is identified by a program number. The program number for DB2 Performance Solution Pack is 5655-E74.

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 Performance Solution Pack. Ask your IBM representative for this information if you have not already received a copy.

2.1 Basic Machine-Readable Material

The distribution medium for this program is physical media or downloadable files. This program is in SMP/E RELFILE format and is installed by using SMP/E. See 6.0, "Installation Instructions" on page 16 for more information about how to install the program.

You can find information about the physical media for the basic machine-readable materials for DB2 Performance Solution Pack in the *CBPDO Memo To Users Extension*.

Figure 1 describes the program file content for DB2 Performance Solution Pack(HBPF150). 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 - DB2 Performance Solution Pack - HBPF150

Name	O R G	R E C F M	L R E C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HBPF150.F1	PDS	FB	80	8800
IBM.HBPF150.F2	PDS	FB	80	8800

To view the Program File Content of the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer

- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for DB2 Performance Solution Pack.

2.3 Program Publications

The following sections identify the basic publications for DB2 Performance Solution Pack.

Figure 2 identifies the basic unlicensed publications for DB2 Performance Solution Pack. Those that are in softcopy format publications can be obtained from the IBM Publications Center website at: <http://www.ibm.com/shop/publications/order/>

<i>Figure 2. Basic Material: Unlicensed</i>		
Publication Title	Form Number	Media Format
IBM DB2 Performance Solution Pack for z/OS License Information.	GC19-3988	http://www.ibm.com/software/sla/sladb.nsf
IBM DB2 SQL Performance Analyzer for z/OS Program Directory	GI13-4609	http://www.ibm.com/shop/publications/order/
IBM DB2 Query Monitor for z/OS Program Directory	GI10-8976	http://www.ibm.com/shop/publications/order/
IBM DB2 Query Workload Tuner for z/OS Program Directory	GI13-4611	http://www.ibm.com/shop/publications/order/
IBM OMEGAMON XE for DB2 PE for z/OS Program Directory	GI19-5019	http://www.ibm.com/shop/publications/order/

To view the unlicensed publications of the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

2.3.1 Optional Program Publications

No optional publications are provided for DB2 Performance Solution Pack.

2.4 Program Source Materials

No program source materials or viewable program listings are provided for DB2 Performance Solution Pack.

2.5 Publications Useful During Installation

You might want to use the publications listed in Figure 3 during the installation of DB2 Performance Solution Pack.

<i>Figure 3. Publications Useful During Installation</i>		
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 DB2 Performance Solution Pack.

3.1 Program Services

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

3.2 Preventive Service Planning

The Preventive Service Planning (PSP) information for DB2 Performance Solution Pack (HBPF150) is listed below.

To review the Preventive Service Planning (PSP) information for the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

Before you install DB2 Performance Solution Pack, 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 19 for a sample APPLY command.

If you obtained DB2 Performance Solution Pack as part of a CBPDO, HOLDDATA is included.

If the CBPDO for DB2 Performance Solution Pack 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 DB2 Performance Solution Pack are included in Figure 4 on page 8.

<i>Figure 4. PSP Upgrade and Subset ID</i>		
UPGRADE	SUBSET	Description
5655E74	HBPF150	DB2 Performance Solution Pack

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.

To identify the component IDs (COMPID) for the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

Figure 5 identifies the component IDs (COMPID) for DB2 Performance Solution Pack (HBPF150).

<i>Figure 5. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HBPF150	5655E7400	DB2 Performance Solution Pack	150

4.0 Program and Service Level Information

This section identifies the program and relevant service levels of DB2 Performance Solution Pack. 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 Performance Solution Pack (HBPF150).

To view the list of APAR fixes against the previous releases of the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

4.2 Service Level Information

To view the list of PTFs against the previous releases of the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

No PTFs against this release of DB2 Performance Solution Pack (HBPF150) have been incorporated into the product package.

Frequently check the DB2 Performance Solution Pack 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 DB2 Performance Solution Pack. 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 Performance Solution Pack.

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 6. 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 DB2 Performance Solution Pack.

DB2 Performance Solution Pack (HBPF150) installs in the DBS (P115) SREL.

To view what SREL to install the products that constitute DB2 Performance Solution Pack to, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

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.

DB2 Performance Solution Pack (HBPF150) 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.

DB2 Performance Solution Pack (HBPF150) has no conditional installation requisites.

To review the Installation Requisites of the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

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

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

Figure 7. Target System Mandatory Operational Requisites for HBPF150

Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5605-DB2	DB2 for z/OS V10.01.00
5697-P31	DB2 for z/OS value Unit Edition V10.01.00
5615-DB2	DB2 for z/OS V11.01.00
5697-P43	DB2 for z/OS value Unit Edition V11.01.00
5650-DB2	DB2 for z/OS V12.01.00
5770-AF3	DB2 for z/OS Value Unit Edition V12.01.00

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.

DB2 Performance Solution Pack (HBPF150) has no conditional operational requisites.

To review the Installation Requisites of the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

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 Performance Solution Pack 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 Performance Solution Pack has no negative requisites.

5.2.3 DASD Storage Requirements

DB2 Performance Solution Pack libraries can reside on all supported DASD types.

To review the individual DASD Storage Requirements of each of the products that constitute DB2 Performance Solution Pack, refer to the Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

Figure 8 lists the total space that is required for each type of library, for DB2 Performance Solution Pack (HBPF150).

<i>Figure 8. Total DASD Space Required by DB2 Performance Solution Pack (HBPF150)</i>	
Library Type	Total Space Required in 3390 Trks
Target	30
Distribution	30

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 19.

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 DB2 Performance Solution Pack (HBPF150). The storage requirements of DB2 Performance Solution Pack 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 9. Storage Requirements for DB2 Performance Solution Pack (HBPF150) Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C O R D M	L R E C O R D L	No. of 3390 Trks	No. of DIR Blks
SBPFBASE	SAMP	Any	U	PDS	FB	80	15	2
SBPFDENU	DATA	Any	U	PDS	FB	80	15	2

Figure 10. Storage Requirements for DB2 Performance Solution Pack (HBPF150) Distribution Libraries

Library DDNAME	T Y P E	O R G	R E C O R D M	L R E C O R D L	No. of 3390 Trks	No. of DIR Blks
ABPFBASE	U	PDS	FB	80	15	2
ABPFDENU	U	PDS	FB	80	15	2

5.3 FMIDs Deleted

Installing DB2 Performance Solution Pack 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 Performance Solution Pack 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 Performance Solution Pack (HBPF150) has no special considerations for the target system.

To view the individual Special Considerations of the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

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 Performance Solution Pack.

Please note the following points:

- 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 Performance Solution Pack

6.1.1 SMP/E Considerations for Installing DB2 Performance Solution Pack

Use the SMP/E RECEIVE, APPLY, and ACCEPT commands to install this release of DB2 Performance Solution Pack.

To review the individual SMP/E installation instructions of each of the products that constitute DB2 Performance Solution Pack, refer to their Program Directories, which are supplied with the product, and follow the instructions in the corresponding section(s).

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

6.1.2 SMP/E Environment

The following sections pertain to the SMP/E installation of DB2 Performance Solution Pack (HBPF150) only.

6.1.3 SMP/E Options Subentry Values

The recommended values for certain SMP/E CSI subentries are shown in Figure 11. Using values lower than the recommended values can result in failures in the installation. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. See the SMP/E manuals for instructions on updating the global zone.

<i>Figure 11. SMP/E Options Subentry Values</i>		
Subentry	Value	Comment
DSSPACE	(900,900,900)	3390 DASD tracks
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install the DB2 Performance Solution Pack:

<i>Figure 12. Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
BPFALA	SMP/E	Sample job to allocate and initialize a new SMP/E CSI data set (Optional)	IBM.HBPF150.F1
BPFALB	SMP/E	Sample job to allocate SMP/E data sets (Optional)	IBM.HBPF150.F1
BPFRECEV	RECEIVE	Sample RECEIVE job	IBM.HBPF150.F1
BPFALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HBPF150.F1
BPFDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HBPF150.F1
BPFAPPLY	APPLY	Sample APPLY job	IBM.HBPF150.F1
BPFACCEP	ACCEPT	Sample ACCEPT job	IBM.HBPF150.F1

You can access the sample installation jobs by performing an SMP/E RECEIVE (refer to 6.1.7, “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 12 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.HBPF150.F1,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.HBPF150.F1,UNIT=tunit,
/* VOL=SER=BPF150,LABEL=(2,SL),
/* DISP=(OLD,KEEP)
/******
/* Make the //FILEIN DD statement below active for *
/* downloaded DASD files. *
/******
/*FILEIN DD DSN=IBM.HBPF150.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,(20,10,5))
//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.HBPF150.F1 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.

6.1.5 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 BPFALA to allocate the SMP/E data set for DB2 Performance Solution Pack (HBPF150). 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)

Edit and submit sample job BPFALB to initialize SMP/E zones for DB2 Performance Solution Pack (HBPF150). 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 DB2 Performance Solution Pack as part of a CBPDO, use the RCVPDO job in the CBPDO RIMLIB data set to receive the DB2 Performance Solution Pack 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 BPFRECEV to perform the SMP/E RECEIVE for DB2 Performance Solution Pack (HBPF150). 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 BPFALLOC to allocate the SMP/E target and distribution libraries for DB2 Performance Solution Pack (HBPF150). 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 BPFDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for DB2 Performance Solution Pack (HBPF150). 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 BPFAPPLY to perform an SMP/E APPLY CHECK for DB2 Performance Solution Pack (HBPF150). 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)) .
..any other parameters documented in the program directory
```

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

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

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

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

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

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

6.1.11 Perform SMP/E ACCEPT

Edit and submit sample job BPFACCEP to perform an SMP/E ACCEPT CHECK for DB2 Performance Solution Pack (HBPF150). 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 only *errors* but not *warnings* (SMP/E treats bypassed PRE, ID, REQ, and IFREQ conditions as warnings rather than errors).

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

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

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

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

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

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

6.1.12 Run REPORT CROSSZONE

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

After you install DB2 Performance Solution Pack, 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 Performance Solution Pack

6.2.1 Product Customization

DB2 Performance Solution Pack (HBPF150) is fully operational after the SMP/E installation is completed. You do not have to do further customization to activate this function.

To view the Product Customization instructions for the products that constitute DB2 Performance Solution Pack, refer to the following Program Directories that are supplied with the product.

- Publication number GI13-4609 for DB2 SQL Performance Analyzer
- Publication number GI10-8976 for DB2 Query Monitor
- Publication number GI13-4611 for DB2 Query Workload Tuner
- Publication number GI19-5019 for OMEGAMON XE for DB2 PE

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