



**Program Directory for
IBM DB2 UDB for z/OS
DB2 Management Clients Package**

V8.01.00

Program Number 5625-DB2
FMIDs HDAS810, JDB881D

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 "Notices" on page 46.

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1.0 Introduction

This Program Directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of DB2 Management Clients Package for z/OS. This publication refers to DB2 Management Clients Package for z/OS as DB2 Management Clients Package.

The Program Directory contains the following sections:

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

Before installing DB2 Management Clients Package, read the *CBPDO Memo To Users* and the *CBPDO Memo To Users Extension* that were supplied with this program in softcopy form as well as this Program Directory and 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 Management Clients Package is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The Program Directory is provided in softcopy form on the CBPDO tape which is identical to the hardcopy form provided with your order. Your CBPDO contains a softcopy preventive service planning (PSP) upgrade for this product. All service and HOLDDATA for DB2 Management Clients Package are included on the CBPDO tape.

Do not use this Program Directory if you are installing DB2 Management Clients Package with a SystemPac or ServerPac. When using these offerings, use the jobs and documentation supplied with the offering. This documentation may point you to specific sections of the Program Directory as required.

1.1 DB2 Management Clients Package Description

1.1.1 DB2 Administration Server (DAS)

DAS provides a general mechanism for running z/OS level functions to support the IBM Universal Database GUI Tools such as Control Center, Command Center and Replication Center. DAS provides the following functions:

- Building and creating JCL jobs (Control Center Version 8 supports creating and storing JCL jobs for most functions including executing DB2 utilities or cloning a subsystem)
- Reading and writing datasets (supports PS, PDS, PDSE data sets with RECFM=FB)
- Querying operating system catalog information
- Executing shell scripts in z/OS UNIX
- Issuing MVS system commands through an extended console

DAS provides these functions in the form of an SMP/E installable package.

1.1.2 z/OS Enablement

IBM DB2 Control Center provides support to help you manage DB2 databases on an array of operating systems in your work place. A set of stored procedures, a user-defined function and a set of batch programs must be installed at each DB2 UDB for z/OS subsystem that you want to work with using Control Center and other tools including Replication Center and Information Catalog Center.

z/OS Enablement provides these stored procedures, the user-defined function and batch programs in the form of an SMP/E installable package.

1.1.3 Visual Explain

The latest version of Visual Explain is available on the website

<https://www6.software.ibm.com/d1/v8vebeta/v8vebeta-p>

Visual Explain is a workstation based feature of DB2 for z/OS that displays:

- an easy-to-understand graph of the access paths of SQL statements
- catalog statistics for referenced objects from the access path graph
- a list of explainable statements from plans and packages, optionally filtered by costs or access path criteria

The graphical representation of the access path allows you to instantly distinguish operations such as a sort, parallel access or the use of one or more indexes. You can view suggestions from the graph that describe how you might improve the performance of your SQL statement.

Visual Explain allows you filter capabilities by access path of explainable SQL statements. For example, you can choose to only display statements that contain a sort or have an estimated cost greater than 500 milliseconds.

The report feature of Visual Explain allows you to generate an html report regarding the access path descriptions, statistics, SQL text and cost of current explained SQL statement.

You can also EXPLAIN SQL statements dynamically and immediately, and graph their access path. You can enter that statement, have Visual Explain read it from a file, or extract it from a bound plan or package.

Also available through Visual Explain is the capability for you to browse the real time settings of DSNZPARMs.

DB2 Visual Explain requires one of the following:

- Windows NT Version 4.0/2000/XP, DB2 Connect Version 7 or higher, and one of the following communications software: TCP/IP or Communications Server 5.0, or SNA Version 3 integrated SNA support in DB2 Universal Database, or
- Windows NT Version 4.0/2000/XP, Distributed Database Connection Services (DDCS) Version 2 Release 4, and DB2 Client Application Enabler (CAE), or
- OS/2 Warp Version 3, DDCS for OS/2 Version 2 Release 3, DB2 for OS/2 and Communications Manager 1.11

DB2 Visual Explain subsystem parameter browser requires an activated WLM address space.

1.1.4 DB2 Connect Personal Edition Kit

DB2 Connect provides connectivity to the mainframe and midrange databases from Windows, UNIX, and Linux. You can connect to DB2 database on AS/400, VSE, VM, z/OS, and OS/390. You can also connect to non-IBM databases that comply with the Distributed Relational Database Architecture (DRDA).

DB2 Connect Personal Edition provides a direct connect from one Windows, UNIX, or Linux operating system to mainframe and midrange database. It is designed for a two-tier environment, where each client connects directly to the host. DB2 Connect Personal Edition does not accept inbound client requests for data.

1.2 DB2 Management Clients Package FMIDs

DB2 Management Clients Package consists of the following FMIDs:

- HDAS810 - DAS
- JDB881D - z/OS Enablement

2.0 Program Materials

An IBM program is identified by a program number. The program number for DB2 Management Clients Package is 5625-DB2.

Basic Machine-Readable Materials are materials that are supplied under the base license and feature numbers, and are required for the use of the product. Optional Machine-Readable Materials are orderable under separate feature numbers, and are not required for the product to function.

The program announcement material describes the features supported by DB2 Management Clients Package. 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 magnetic tape or downloadable files. It is installed using SMP/E, and is in SMP/E RELFILE format. See 6.0, "Installation Instructions" on page 16 for more information about how to install the program.

Information about the physical tape for the Basic Machine-Readable Materials for DB2 Management Clients Package can be found in the *CBPDO Memo To Users Extension*.

Figure 1. Program File Content for DAS

Name	ORG	RECFM	LEN	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.HDAS810.F1	PDS	FB	80	8800
IBM.HDAS810.F2	PDS	FB	80	8800
IBM.HDAS810.F3	PDS	FB	80	3120

Figure 2 (Page 1 of 2). Program File Content for z/OS Enablement

Name	ORG	RECFM	LEN	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.JDB881D.F1	PDS	FB	80	8800

Figure 2 (Page 2 of 2). Program File Content for z/OS Enablement

Name	O R G	R E C F M	L R E C L	BLK SIZE
IBM.JDB881D.F2	PDS	FB	80	8800
IBM.JDB881D.F3	PDS	FB	80	8800
IBM.JDB881D.F4	PDS	U	0	6144

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for DB2 Management Clients Package.

2.3 Program Publications

The following sections identify the basic and optional publications for DB2 Management Clients Package.

2.3.1 Basic Program Publications

2.3.2 Optional Program Publications

No optional publications are provided for DB2 Management Clients Package.

2.4 Program Source Materials

No program source materials or viewable program listings are provided for DB2 Management Clients Package.

2.5 Publications Useful During Installation

The publications listed in Figure 3 may be useful during the installation of DB2 Management Clients Package. To order copies, contact your IBM representative or visit the IBM Publications Center on the World Wide Web at:

<http://www.ibm.com/shop/publications/order>

Figure 3. Publications Useful During Installation

Publication Title	Form Number
<i>IBM SMP/E for z/OS and OS/390 User's Guide</i>	SA22-7773
<i>IBM SMP/E for z/OS and OS/390 Commands</i>	SA22-7771
<i>IBM SMP/E for z/OS and OS/390 Reference</i>	SA22-7772
<i>IBM SMP/E for z/OS and OS/390 Messages, Codes, and Diagnosis</i>	GA22-7770

3.0 Program Support

This section describes the IBM support available for DB2 Management Clients Package.

3.1 Program Services

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

3.2 Preventive Service Planning

Before installing DB2 Management Clients Package, you should review the current Preventive Service Planning (PSP) information. If you obtained DB2 Management Clients Package as part of a CBPDO, there is HOLDDATA and PSP information included on the CBPDO.

If the CBPDO for DB2 Management Clients Package is more than two weeks old when you install it, you should contact the IBM Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

For program support, access the Software Support web site at <http://www-3.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 Management Clients Package are:

UPGRADE	SUBSET	Description
DB2810	HDAS810	DB2 ADMIN SRVR Z/OS
DB2810	JDB881D	DB2 CTRL CTR Z/OS

3.3 Statement of Support Procedures

Report any difficulties you have using this program to your IBM Support Center. If an APAR is required, the Support Center will provide the address to which any needed documentation can be sent.

Figure 5 identifies the component IDs (COMPID) for DB2 Management Clients Package.

<i>Figure 5. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HDAS810	5740DAS00	DB2 ADMIN SRVR Z/OS	810
JDB881D	5740XYR05	DB2 CTRL CTR Z/OS	81D

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of DB2 Management Clients Package. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs incorporated into the program.

4.1 Program Level Information

No APARs have been incorporated into DB2 Management Clients Package.

4.2 Service Level Information

No PTFs against this release of DB2 Management Clients Package have been incorporated into the product tape.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating DB2 Management Clients Package. The following terminology is used:

- *Driving system*: the system used to install the program.
- *Target system*: the system on which the program is installed.

In many cases, the same system can be used as both a driving system and a target system. However, you may want to set up a clone of your system to use as a target system by making a separate IPL-able copy of the running system. The clone should 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.

Some cases where two systems should be used include the following:

- When installing a new level of a product that is already installed, the new product will delete the old one. By installing onto a separate target system, you can test the new product while still keeping the old one in production.
- When installing a product that shares libraries or load modules with other products, the installation can disrupt the other products. Installing onto a test system or clone will allow you to 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 Management Clients Package.

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 and Minimum VRM/Service Level
Any one of the following:	
5694-A01	z/OS V1.01.00 or higher
5655-G44	IBM SMP/E for z/OS and OS/390 V3.02.00 or higher

5.2 Target System Requirements

This section describes the environment of the target system required to install and use DB2 Management Clients Package.

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

An installation requisite is defined as a product that is required and **must** be present or one that is not required but **should** be present on the system for the successful installation of this product.

A mandatory installation requisite identifies products that are required, without exception, or this product **will not install** on your system. This includes products specified as PREs or REQs.

<i>Figure 7. Mandatory Installation Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
5625-DB2	DB2 for z/OS V8.01.00
5625-DB2	DB2 for z/OS V8.01.00 (DB2 Management Clients Package (JDB881D PTF UQ76356))

A conditional installation requisite identifies products that are **not** required for successful install but may resolve such things as certain warning messages at installation time. They include products that are specified as IF REQs.

DB2 Management Clients Package has no conditional installation requisites.

5.2.2.2 Operational Requisites

An operational requisite is defined as a product that is required and **must** be present or a product that is not required but **should** be present on the system in order for this product to operate all or some of its functions.

A mandatory operational requisite identifies products that are required, without exception, or this product **will not operate** its basic function unless the requisite is met. This includes products specified as PREs or REQs.

DB2 Management Clients Package has no mandatory operational requisites.

A conditional operational requisite identifies products that are **not required** for the basic function but are needed at run time for this product to utilize specific functions. They may include products specified as IF REQs.

DB2 Management Clients Package has no conditional operational requisites.

5.2.2.3 Toleration/Coexistence Requisites

A toleration/coexistence requisite is defined as a product which must be present on a sharing system. 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 at different time intervals.

DB2 Management Clients Package has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites

A negative requisite identifies products which must *not* be installed on the same system as this product.

DB2 Management Clients Package has no negative requisites.

5.2.3 DASD Storage Requirements

DB2 Management Clients Package libraries can reside on all supported DASD types.

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

<i>Figure 8. Total DASD Space Required by DB2 Management Clients Package</i>	
Library Type	Total Space Required
Target	320 blocks - DAS 525 blocks - z/OS Enablement
Distribution	320 blocks - DAS 525 blocks - z/OS Enablement
HFS	28536 Sectors (512 bytes per sector)

Notes:

1. IBM recommends use of system determined block sizes for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a block size of 32760, which is the most efficient from a performance and DASD utilization perspective.
2. Abbreviations used for the data set type are:

- U** Unique data set, allocated by this product and used only by this product. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or Program Directories) need to be referenced for the data set size.
- S** Shared data set, allocated by this product and used by this product and others. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to 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 others. This data set is NOT allocated by this product. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). This existing data set 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 one and reclaim the space used by the old release and any service that had been installed. You can determine whether or not 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 on the names and sizes of the required data sets, please refer to 6.1.6, "Allocate SMP/E Target and Distribution Libraries" on page 19.

3. Abbreviations used for the HFS Path type are:

- N** New path, created by this product.
- X** Path created by this product, but may 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 may be changed.
- The default block size of the data set may be changed.
- The data set may be merged with another data set that has equivalent characteristics.
- The data set may be either a PDS or a PDSE.

5. All target libraries listed have the following attributes:

- The data set may be SMS-managed.
- It is not required for the data set to be SMS-managed.
- It is not required for the data set to reside on the IPL volume.
- The values in the "Member Type" column are not necessarily the actual SMP/E element types identified in the SMPMCS.

6. All target libraries listed which contain load modules have the following attributes:

- The data set may be in the LPA.
- It is not required for the data set to be in the LPA.
- The data set may be in the LNKLIST.
- It is not required for the data set to be APF-authorized.

The following figures describe the target and distribution libraries and HFS paths required to install DB2 Management Clients Package. The storage requirements of DB2 Management Clients Package must be added to the storage required by other programs having data in the same library or path.

Note: The data in these tables should be used when determining 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 Management Clients Package 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
SDAHSLIB	Sample	any	U	PDS	FB	80	51	5
SDAHBASE	Sample	any	U	PDS	FB	80	4	5
SDSNBAS1	Data	any	U	PDS	FB	80	5	5
SDSNLOAD	Module	any	E	PDS _e	U	0	500	10
SDSNMACS	Macro	any	E	PDS	FB	80	3	10
SDSNDBRM	Macro	any	E	PDS	FB	80	20	10
SDSNSAMP	Macro	any	E	PDS	FB	80	20	10

Figure 10. DB2 Management Clients Package HFS Paths

DDNAME	T Y P E	Path Name
SDAHHFS1	N	/usr/lpp/db2_08_01/IBM/

Figure 11 (Page 1 of 2). Storage Requirements for DB2 Management Clients Package 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
ADAHSLIB	U	PDS	FB	80	51	5
ADAHBASE	U	PDS	FB	80	4	5
ADAHHFS1	U	PDS	FB	80	302	50
ADSNBAS1	U	PDS	FB	80	5	5
ADSNLOAD	E	PDS _e	FB	80	500	10

Figure 11 (Page 2 of 2). Storage Requirements for DB2 Management Clients Package 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
ADSNMACS	E	PDS	FB	80	3	10

5.3 FMIDs Deleted

Installing DB2 Management Clients Package may result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++VER statement in the product's SMPMCS.

If you do not wish to delete these FMIDs at this time, you must install DB2 Management Clients Package into separate SMP/E target and distribution zones.

Note: These FMIDs will not automatically be deleted from the Global Zone. Consult the SMP/E manuals for instructions on how to do this.

5.4 Special Considerations

DB2 Management Clients Package 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 DB2 Management Clients Package.

Please note the following:

- If you want to install DB2 Management Clients Package 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.
- Sample jobs have been provided to help perform some or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries required for SMP/E execution have been defined in the appropriate zones.
- The SMP/E dialogs may be used instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing DB2 Management Clients Package

6.1.1 SMP/E Considerations for Installing DB2 Management Clients Package

This release of DB2 Management Clients Package is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs may be used to accomplish the SMP/E installation steps.

6.1.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 12. Use of values lower than these may result in failures in the installation process. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. Refer to the SMP/E manuals for instructions on updating the global zone.

Figure 12. SMP/E Options Subentry Values

SUB-ENTRY	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 SMP/E CALLLIBS Processing

DB2 Management Clients Package uses the CALLLIBS function provided in SMP/E to resolve external references during installation. When DB2 Management Clients Package is installed, ensure that DDDEFs exist for the following libraries:

- SCLBCPP
- SCEELKED
- CSSLIB

Note: The DDDEFs above are used only to resolve the link-edit for DB2 Management Clients Package using CALLLIBS. These data sets are not updated during the installation of DB2 Management Clients Package.

6.1.4 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install DB2 Management Clients Package:

<i>Figure 13. Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
DAHREC1	RECEIVE	Sample RECEIVE job	IBM.JDB881D.F2
DSNREC2	RECEIVE	Sample RECEIVE job	IBM.JDB881D.F2
DAHALOCs	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.JDB881D.F2
DAHISMKD	MKDIR	Sample job to invoke the supplied DAHMKDIR EXEC to allocate HFS paths	IBM.JDB881D.F2
DAHDDDFS	DDDEF	Sample job to define SMP/E DDDEFs	IBM.JDB881D.F2
DAHAPPLS	APPLY	Sample APPLY job	IBM.JDB881D.F2
DAHACCES	ACCEPT	Sample ACCEPT job	IBM.JDB881D.F2
DAHHSUN	Untar	Sample used during customization	IBM.JDB881D.F2

You can access the sample installation jobs by performing an SMP/E RECEIVE and then copying the jobs from the relfiles to a work data set for editing and submission. See Figure 13 to find the appropriate relfile data set.

You may also choose to copy the jobs from the tape or product files by submitting the job below. Use either the //TAPEIN or the //FILEIN DD statement, depending on your distribution medium, and comment out or delete the other statement. Add a job card and change the lowercase parameters to uppercase values to meet your site's requirements before submitting.

```

//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//TAPEIN DD DSN=IBM.JDB881D.F2,UNIT=tunit,
// VOL=SER=volser,LABEL=(x,SL),
// DISP=(OLD,KEEP)
//FILEIN DD DSN=IBM.JDB881D.F2,UNIT=SYSALLDA,DISP=SHR,
// VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=SYSALLDA,
// SPACE=(TRK,(10,10,5))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
SELECT MEMBER=(DAHREC1,DSNREC2,DAHALOCS,DAHAPPLS,DAHACCES)
SELECT MEMBER=(DAHDEFS,DAHISMKD,DAHHSUN)
/*

```

In the sample above, update the statements as noted below:

If using TAPEIN:

tunit is the unit value matching the product tape.

volser is the volume serial matching the product tape.

x is the tape file number where the data set name is on the tape.

Refer to the documentation provided by CBPDO to see where IBM.JDB881D.F2 is on the tape.

If using 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 will be stored.

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

SYSIN

xxxxIN is either TAPEIN or FILEIN depending on your input DD statement.

6.1.5 Perform SMP/E RECEIVE

Having obtained DB2 Management Clients Package as part of a CBPDO, use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the DB2 Management Clients Package FMIDs as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO.

- Edit and submit sample job DAHREC1 to perform the SMP/E RECEIVE for DAS. Consult the instructions in the sample job for more information.
- Edit and submit sample job DSNREC2 to perform the SMP/E RECEIVE for z/OS Enablement. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: You will receive a return code 0 if the jobs run correctly.

6.1.6 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job DAHALOCS to allocate the SMP/E target and distribution libraries for DB2 Management Clients Package. 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 Allocate HFS Paths

Edit and submit sample job DAHISMKD to allocate the HFS paths for DB2 Management Clients Package. Consult the instructions in the sample job for more information.

If you plan to create a new HFS for this product, you should consider updating the BPXPRMxx PARMLIB member to mount the new HFS at IPL time. This may be helpful if an IPL occurs before the installation is complete.

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 DAHDDEFS to create DDDEF entries for the SMP/E target and distribution libraries for DB2 Management Clients Package. 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

Edit and submit sample job DAHAPPLS to perform an SMP/E APPLY CHECK for DB2 Management Clients Package. Consult the instructions in the sample job for more information.

Notes

1. FMID JDB881D needs to be installed on every DB2 subsystem that you want to work with using Control Center and other tools including Replication Center and Information Catalog Center. FMID HDAS810 needs to be installed only once per image of the operating system or LPAR where you have DB2 subsystems that you want to work with using Control Center and other tools including Command Center and Replication Center.
2. PTF UQ76356 must be applied at the same time as JDB881D.

To receive the full benefit of the SMP/E Causer SYSMOD Summary Report, do *not* bypass the following on the APPLY CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

Once you have taken any actions 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 apply 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: This job should complete with a return code 4 or less, and may issue any of the following messages which do not affect product installation: GIM23903I, GIM23913W, IEW2454W and IEW2626W.

6.1.10 Perform SMP/E ACCEPT

Edit and submit sample job DAHACCES to perform an SMP/E ACCEPT CHECK for DB2 Management Clients Package. 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 following on the ACCEPT CHECK: PRE, ID, REQ, and IFREQ. This is because the SMP/E root cause analysis identifies the cause only of **ERRORS** and not of **WARNINGS** (SYSMODs that are bypassed are treated as warnings, not errors, by SMP/E).

Before using SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. This will cause entries produced from JCLIN to be saved in the distribution zone whenever a SYSMOD containing inline JCLIN is ACCEPTed. For more information on the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E manuals.

Once you have taken any actions 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 accept 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 containing replacement modules are being ACCEPTed, SMP/E ACCEPT processing will linkedit/bind the modules into the distribution libraries. During this processing, the Linkage Editor or Binder may issue messages documenting unresolved external references, resulting in a return code of 4 from the ACCEPT step. These messages can be ignored, because the distribution libraries are not executable and the unresolved external references will 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.

6.1.11 Run REPORT CROSSZONE

The SMP/E REPORT CROSSZONE command will identify requisites defined for products that have been installed in separate zones. This command will also create APPLY and ACCEPT commands in the SMPPUNCH data set which you can use to install those cross-zone requisites it identifies.

After you have installed DB2 Management Clients Package, 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 describing all the target and distribution libraries to be reported on.

For more information on REPORT CROSSZONE, see the SMP/E manuals.

6.2 Activating DAS

DAS runs as a UNIX System Services Daemon and must be installed once per image of the operating system or LPAR to support all DB2 V6 subsystems or higher that are running on that operating system image or LPAR. The following steps are required to activate DAS.

Note: If you specified an install path other than the default install path (/usr/lpp/db2_08_01), you must edit the dasrct and dasupdt scripts and change the value for the DASDIR to the install path you specified during installation. The following steps assume that DAS was installed using the default install path.

6.2.1 Untar the DAS Tar File

Edit and submit sample job DAHHFSUN to untar the file DAHTARZ under /usr/lpp/db2_08_01. 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.

6.2.2 RACF Administration

6.2.2.1 Define a DAS ID

You will need a z/OS UNIX group ID (GID) for the DAS Administration Group and a z/OS UNIX user ID (UID) in that group as the DAS user ID to start, stop and administer the DAS. When assigning a UID to the DAS user ID, make sure you specify a non-zero UID.

The following example shows how to define the DAS Administration Group and DAS user ID using RACF commands. If you are using another security product, refer to that product's documentation for instructions.

```
ADDGROUP DASADMG OMVS(GID(1200))
ADDUSER DASUSER DFLTGRP(DASADMG)
OMVS(UID(1201) HOME('/u/dasuser') PROGRAM('/bin/sh'))
```

For more information on how to set up a group and user ID using RACF, refer to z/OS Secure Way Security Server RACF Command Language Reference.

6.2.2.2 Set up BPX.DAEMON facility class (Optional)

You can define the BPX.DAEMON facility class if you want your system to have a z/OS UNIX level of security. With BPX.DAEMON defined, your system can exercise more control over users with daemon authority. Once the BPX.DAEMON facility class is defined, you need to give the DAS user ID READ access to this facility class. You also need to turn on program control for the DAS binaries and libraries specified in 6.2.3.4, “Turn on program control for DAS binaries and DLLs” on page 26.

For example, to define the BPX .DAEMON facility class and to give the DAS user ID READ access to this facility class, enter:

```
RDEFINE FACILITY BPX.DAEMON UACC(NONE)
PERMIT BPX.DAEMON CLASS(FACILITY) ID(DASUSER) ACCESS(READ)
```

For more information on setting up security for daemons, refer to z/OS UNIX System Services Planning.

6.2.2.3 Set up OMVS segment for DAS users

Users who are using the DAS functions like issuing MVS system commands from Command Center, building and creating JCLs from Control Center, or running shell scripts from Replication Center and DB2 system administrators who use the subsystem cloning functions need to have an OMVS segment defined on their user ID otherwise the DAS will not be able to process the request.

For more information on how to define z/OS UNIX users to RACF, refer to z/OS UNIX System Services Planning.

6.2.2.4 Grant READ access to the DAS skeleton library

Users who build and create JCL through the Control Center should have READ access to the DAS skeleton library (SDAHSLIB). It is recommended that a discrete profile with UACC(READ) is created for the DAS skeleton library.

For example, to define a discrete profile with UACC(READ) for the DAS skeleton library, enter:

```
ADDSD 'DAS810.SDAHSLIB' OWNER(DASUSER) UACC(READ)
```

The example assume that a user ID or group ID for the high level qualifier DAS810 was already defined to RACF.

6.2.2.5 Set up security for extended MCS console

One of the functions provided by DAS is the ability to issue an MVS system command to the console through the Command Center (MVS system commands) and Control Center (Start / Stop DB2 and Set subsystem parameter). This is done using the extended MCS console. Since DAS uses the TSO/E user ID as the console name, one should consider ways to control what an authorized TSO/E user can do during a console session. The security administrator can define a RACF user profile to control the console attributes of the extended MCS console user. For example:

```
ADDUSER USER001 OPERPARM(AUTH(SYS))
```

This example defines the user ID USER001 as an extended MCS console with console attributes defined by the OPERPARM keyword. Note that the example includes only the information about console attributes for USER001. For complete information on the RACF ADDUSER command, refer to z/OS Security Server RACF Command Language Reference.

Ensure that the user of the extended MCS console has READ access to a profile in the RACF OPERCMDS class named:

```
MVS.MCSOPER.console-name
```

The following steps can be taken by the RACF security administrator to give users access to the RACF OPERCMDS class:

1. Issue the SETROPTS command to activate the OPERCMDS class:

```
SETROPTS CLASSACT(OPERCMDS)
```

2. Issue the SETROPTS command to activate generic profiles for the class:

```
SETROPTS GENERIC(OPERCMDS)
```

3. Issue RDEFINE to establish a profile for MVS.MCSOPER.* :

```
RDEFINE OPERCMDS MVS.MCSOPER.* UACC(NONE)
```

4. Give the TSO/E user ID access to the class:

```
PERMIT MVS.MCSOPER.* CLASS(OPERCMDS) ID(USER001) ACCESS(READ)
```

5. Issue the SETROPTS RACLIST command to refresh the OPERCMDS reserve class:

```
SETROPTS RACLIST(OPERCMDS) REFRESH
```

For more information on RACF commands, refer to z/OS SecureWay Security Server RACF Command Language Reference. For more information on the extended MCS console refer to z/OS MVS Planning: Operations.

6.2.2.6 Receiving unsolicited messages for the extended MCS console

The default setting for the extended MCS console program is to receive all routing codes. If you want to specify only certain routing codes for the extended MCS console, use the ROUTCODE option in the OPERPARM segment of the TSO/E user ID that you are using to issue MVS system commands from the Command Center and Start/Stop and Set subsystem parameter DB2 commands from the Control Center.

For DB2, the routing codes are listed in the DSNZPxxx module when installing DB2. For more information on unsolicited DB2 messages refer to the "Receiving unsolicited DB2 messages" section of DB2 UDB for OS/390 and z/OS Administration Guide.

For example, to specify routing codes to the extended MCS console, enter:

```
ALTUSER USER001 OPERPARM(ROUTCODE(1))
```

When the console USER001 is active, USER001 receives messages with routing code 1. For more information on the ROUTCODE option, refer to z/OS SecureWay Security Server RACF Command Language Reference.

6.2.3 Set Up the Environment

6.2.3.1 Update the BPXPRMXX PARMLIB member

Set the IPCSHMNSEGS parameter in the BPXPRMXX PARMLIB member to increase the number of attached shared memory segments for each address space. DAS uses this value to determine the number of concurrent requests that it can handle. The default value is 10 which is small and can only handle 5 concurrent requests. To calculate the appropriate value for your installation, you can use the following formula:

$$\text{number of simultaneous request} = \text{<IPCSHMNSEGS value>} / 2$$

For example, if you want to set DAS to handle up to 100 concurrent requests you can set the value dynamically by issuing the following command from the console:

```
SETOMVS IPCSHMNSEGS=200
```

6.2.3.2 Update the TCP/IP profile

In your TCP/IP profile, reserve the port 523 which DAS uses to access z/OS UNIX with the port statement. You can include the following statement if you want to use the name of the started JCL procedure for the z/OS UNIX Kernel Address Space to allow almost any caller of the bind() socket API. This name is typically OMVS unless a different name is explicitly specified in the STARTUP_PROC parameter in the BPXPRMXX PARMLIB member:

```
      :  
      PORT  
  
      :  
      :  
      523 TCP OMVS           ; DB2 Administration Server  
      :
```

6.2.3.3 Define the DAS binaries and DLLs as APF-authorized

Turn on the APF-authorized extended attribute for the DAS binaries and DLLs by issuing the extattr command with the +a option. Note that the BPX.FILEATTR.APF facility class profile controls who can set the APF-authorized extended attribute. You need to have the correct permission before you can set this.

To define the DAS binaries and DLLs as APF-authorized, issue the following from the z/OS UNIX shell:

```
extattr +a db2dasstma      in /usr/lpp/db2_08_01/das/bin  
extattr +a lib*           in /usr/lpp/db2_08_01/das/lib  
extattr +a db2*          in /usr/lpp/db2_08_01/das/function
```

6.2.3.4 Turn on program control for DAS binaries and DLLs

Turn on the program control extended attribute for the DAS binaries and DLLs by issuing the `extattr` command with the `+p` option. Note that the `BPX.FILEATTR.PROGCTL` facility class profile controls who can set the program control extended attribute. You need to have the correct permission before you can set this.

If you load a DLL that is not program controlled, you may receive the following messages on the console:

```
BPXP015I HFS PROGRAM /u/dasuser/das/adm/db2dassec
IS NOT MARKED PROGRAM CONTROLLED.
```

```
BPXP014I ENVIRONMENT MUST BE CONTROLLED FOR DAEMON
(BPX.DAEMON) PROCESSING.
```

To set program control for the DAS binaries and DLLs, issue the following from the z/OS UNIX shell:

```
extattr +p *          in /usr/lpp/db2_08_01/das/bin
extattr +p *          in /usr/lpp/db2_08_01/das/lib
extattr +p *          in /usr/lpp/db2_08_01/das/function
```

6.2.4 Create the DB2 Administration Server and Metadata files

6.2.4.1 Run `dasrcrt` to create the DAS

Run the `dasrcrt` script from `/usr/lpp/db2_08_01/das/install` to create the DAS. The `dasrcrt` script has to be issued from a user ID with superuser privileges. To create the DAS, issue:

```
cd /usr/lpp/db2_08_01/das/install
dasrcrt dasuser
```

After running the `dasrcrt` script, turn on the program control for the DAS binaries that were copied to the `/u/dasuser/das/adm` directory. To set program control for the DAS binaries under the `/u/dasuser/das/adm`, issue the following from a user ID with superuser privileges:

```
extattr +p /u/dasuser/das/adm/*
```

The `dasrcrt` script creates symbolic links in `/usr/lib`. If the `/usr/lib` directory is mounted as read only, then the symbolic links will not be created. In this case, you have to update the members `DAHCL030` and `DAHCL100` in the DAS skeleton (`SDAHSLIB`) library to specify `/usr/lpp/db2_08_01/das/lib` for the `ENVAR` parameter.

6.2.4.2 Run `dasrcrtd` to create the DAS metadata files

Run the `dasrcrtd` script from `/usr/lpp/db2_08_01/das/install` using the DAS user ID to create the metadata files that will be used by the DAS. You have to run the `dasrcrtd` with the `das` option once to create the system specific metadata files and the `dasrcrtd` with the `db2` option for each DB2 subsystem installed on your system. To remove the DAS metadata files, you need to specify the `clean` option.

The syntax of the dascrtd script is:

```
dascrtd das <DAS_skeleton_library>
dascrtd db2 <DB2_subsystem_name> <DB2_command_prefix>
    <DSNTIAD_load_library> <DSNTIAD_plan_name>
    <DAS_skeleton_library>
dascrtd clean
```

where:

DAS_skeleton_library	the fully qualified name of the DAS skeleton library (SDAHS LIB)
DB2_subsystem_name	the MVS subsystem name for DB2 (1-4 characters, example DSN1)
DB2_command_prefix	the DB2 subsystem command prefix (1-8 characters, for example -DSN1)
DSNTIAD_load_library	the fully qualified name of the data set containing the program DSNTIAD (for example, DSN1710.RUNLIB.LOAD)
DSNTIAD_plan_name	the name of the application plan for the program DSNTIAD (refer to the Utility Guide and Reference for information on DSNTIAD)

Note that if you used special characters for the DB2 command prefix like (,=, etc. you have to enclose the command prefix in quotes, like "(".

For example, to create the DAS metadata files, issue the following from the DAS user ID:

```
cd /usr/lpp/db2_08_01/das/install
dascrtd das DAH810.SDAHSLIB
dascrtd db2 DSN1 -DSN1 DSN1710.RUNLIB.LOAD
    DSNTIA71 DAH810.SDAHSLIB
dascrtd db2 DSN2 -DSN2 DSN2710.RUNLIB.LOAD
    DSNTIA71 DAH810.SDAHSLIB
dascrtd db2 V71A "(" V71A710.RUNLIB.LOAD
    DSNTIA71 DAH810.SDAHSLIB
```

6.2.5 Configure environment variables

6.2.5.1 Update the PATH and LIBPATH environment variable

Update the PATH and LIBPATH environment variables to specify the search path for the DAS binaries and for loading the DAS DLLs before starting the DAS. Include these statements in the DAS userid \$HOME/.profile so that the DAS environment is established during login. If you already have /usr/lib on your LIBPATH then there is no need to add that.

```
export PATH=$PATH:$HOME/das/adm:$HOME/das/bin
export LIBPATH=$LIBPATH:/usr/lib:$HOME/das/lib:$HOME/das/function
```

6.2.5.2 Update the `_BPX_SHAREAS` environment variable

Verify that the environment variable `_BPX_SHAREAS` is set to NO. If `_BPX_SHAREAS=YES`, the processes cannot change identity information. Include the following in the DAS user id `$HOME/.profile` to set the `_BPX_SHAREAS` environment variable.

```
export _BPX_SHAREAS=NO
```

6.2.6 Starting and Stopping the DB2 Administration Server

It is recommended that you log on using the DAS user ID for starting and stopping DAS and for taking traces if instructed by IBM Service. The reason is that DAS paths and libpaths are added to this user's `.profile` file. If you log on as any arbitrary user, the `db2admin` command may not be found or the libpath may not be set properly.

Also, make sure that you are not running as a superuser and that the user belongs to the DAS administration group. If the user does not belong to the DAS administration group, you will receive the SQL1092N message when you start DAS.

6.2.6.1 Starting the DB2 Administration Server from the z/OS UNIX shell

To start the server, you must log on using the DAS user ID and start the server from the z/OS UNIX shell by entering:

```
db2admin start
```

If the DAS started successfully, the SQL4406W message is returned.

6.2.6.2 Starting the DB2 Administration Server automatically

To start the server automatically during initialization, put the command in `/etc/rc`. You can add the following lines in `/etc/rc`:

```
:  
  
# Start the DB2 Administration Server  
export PATH=$PATH:/u/dasuser/das/adm:/u/dasuser/das/bin  
export LIBPATH=$LIBPATH:  
                /u/dasuser/das/lib:/u/dasuser/das/function  
_BPX_JOBNAME='DAS' /u/dasuser/das/adm/db2admin start &  
  
:
```

To verify that the DAS was started, issue 'D OMVS,A=ALL' from the console:

```

D OMVS,A=ALL
BPX0040I 05.34.29 DISPLAY OMVS 896
OMVS 000E ACTIVE OMVS=(00)
USER JOBNAME ASID PID PPID STATE START CT_SECS
OMVSKERN BPX0INIT 001D 1 0 MR---- 06.18.57 2.45
LATCHWAITPID= 0 CMD=BPXPINPR
SERVER=Init Process AF=    1 MF=00000 TYPE=FILE
:
:
USRT002 0000 33554449 83886096 1L---- 05.10.42 .00
DASUSER  DAS 0035 67108882  1 HFI--- 05.10.49 .16
LATCHWAITPID=          0 CMD=/u/dasuser/das/adm/db2dasrrm

```

For more information on starting the daemon from the shell, refer to z/OS UNIX System Services Planning.

6.2.6.3 Stopping the DB2 Administration Server from the z/OS UNIX shell

To stop the server, you must log on using the DAS user ID and stop the server from the z/OS UNIX shell environment by entering:

```
db2admin stop
```

If the DAS terminated successfully, the SQL4407W message is returned.

6.2.7 Running DAS in a Sysplex environment

You can only have one DB2 Administration Server (DAS) active per MVS system or LPAR. In a sysplex environment, you can have one DAS active per system in the sysplex.

To run DAS on different systems in a sysplex, you need to make sure that the DAS working directory (\$HOME/das) and global registry file (/var/db2/global.reg) are not shared across the systems in the sysplex. DAS requires read and write access to the DAS working directory. If the DAS working directory is in a shared HFS in a sysplex, then you need to have a different user ID per system.

For example, you want to run DAS on 2 systems, SYSA and SYSB, in a sysplex. If the DAS install directory (/usr/lpp/db2_08_01) is shared by SYSA and SYSB then you only need to install DAS once. However, to activate DAS on both systems, you need to issue the dasCRT script on SYSA and SYSB to create the DAS on both systems.

The dasCRT script does the following:

- Creates the DAS working directory (\$HOME/das) and subdirectories
- Copies the DAS binaries to \$HOME/das/adm
- Creates links under \$HOME/das/bin, \$HOME/das/function, \$HOME/das/lib, \$HOME/das/msg
- Creates the DAS config file under \$HOME/das/cfg
- Creates the global registry file under /var/db2

6.3 Migrating 390 Enablement to z/OS Enablement

If you were using a previous release of 390 Enablement before you installed z/OS Enablement Version 8, follow the steps outlined in this section to migrate to z/OS Enablement Version 8. Most objects created under earlier releases of 390 Enablement can also be used under z/OS Enablement Version 8.

If you were **not** using a previous release of 390 Enablement before you installed z/OS Enablement Version 8, follow the steps outlined in the next section, entitled: **6.4 Activating z/OS Enablement** to enable all z/OS functionality of the Control Center.

To help you to migrate to z/OS Enablement Version 8, IBM provides two sample jobs that you can use, as follows:

- **DSNTIJSG** (part of the base feature of DB2 UDB for z/OS): Run this sample job to register and bind the DB2 stored procedures, DSNUTILS and DSNWZP, to the DB2 subsystem. These stored procedures are required by the workstation Control Center and other tools.
- **DSNTIJCM** (part of the z/OS Enablement): Use this sample job to migrate, define, and bind the z/OS Enablement stored procedures, user-defined function, and batch programs that are required by the workstation Control Center and other tools.

Both sample jobs are added to the DB2 target data set SDSNSAMP.

6.3.1 To migrate 390 Enablement Version 7 to z/OS Enablement Version 8,

follow these steps:

Step 1: Create the WLM environment for DSNACCMO

If you have already installed PTF UQ71134, which requires you to create a WLM application environment for the parallel utility execution stored procedure DSNACCMO, you can bypass this step. Otherwise, you need to create the WLM application environment for DSNACCMO with the start parameter NUMTCB set to 100.

Step 2: Modify the DSNTIJCM sample job:

1. Add a job card for your z/OS system.
2. Update the following strings with values that are correct for your installation:

DSN=DSN!!0.SDSNLOAD

Replace DSN!!0 with the user-defined prefix.

DSN=&HLQ.

Replace &HLQ. with the high level qualifier of your installation.

SYSTEM=DSN

Replace DSN with the DB2 subsystem identifier.

UID="

Specify the unique identifier for your utility job, if you do not want to use the default empty string.

SYSTEM(DSN)

Replace DSN with the DB2 subsystem identifier.

PLAN(DSNTIA!!)

Replace DSNTIA!! with the DSNTIAD plan name that was bound during installation by job SDSNSAMP(DSNTIJTM).

LIBRARY(DSN!!0.RUNLIB.LOAD)

Replace DSN!!0 with the user-defined prefix that was used during installation by DSNTINST CLIST.

LIBRARY(DSN!!0.SDSNDBRM)

Replace DSN!!0 with the user-defined prefix.

WLMENV100

Replace WLMENV100 with the name of the application environment you have created for DSNAACMO. No other stored procedures should be run in that application environment.

WLMENV1

Replace WLMENV1 with the name of the application environment you have set up for the z/OS Enablement stored procedures.

3. Depending on the service level of your 390 Enablement Version 7 (details are provided in the Notes section of DSNTIJCM), edit DSNTIJCM further to execute only the steps required to migrate 390 Enablement to z/OS Enablement Version 8.

Step 3: Run sample job DSNTIJCM:

Run sample procedure DSNTIJCM to migrate 390 Enablement DB2 objects to z/OS Enablement Version 8, to register the new z/OS Enablement stored procedures and user-defined function to your DB2 subsystem, and to bind the packages required by the stored procedures and batch programs to DB2.

To run this job, you must have a user ID with authorization to bind the application package and to update the SYSIBM.SYSROUTINES catalog table. A user with SYSADM authorization satisfies this requirement.

After you run sample job DSNTIJCM, you must restart all WLM-established address spaces associated with the z/OS Enablement DB2 stored procedures and user-defined function.

Refer to Figure 14 for an overview of the steps to follow to migrate to z/OS Enablement Version 8.

Figure 14. Basic Material: Detail of 390 Enablement migration steps

Step	Description	Job/ Command
1	<p>Edit and run job DSNTIJCM:</p> <ol style="list-style-type: none"> 1. Migrate the 390 Enablement tables DSNACC.UTRESTART and DSNACC.UTRESTART2. 2. Update the tables DSNACC.UTTEMPLATE and DSNACC.UTTMPLDFLT. 3. Define the DB2 stored procedures DSNACCSS, DSNACCSI, DSNACCST, DSNACCMO and the user-defined function DSNAICUG. 4. Bind the stored procedures and batch programs. <p>Note: The z/OS Enablement DB2 stored procedures and the user-defined function run in a WLM managed address space. DSNACCMO has to run in a WLM managed address space with NUMTCB=100. For information about configuring and using WLM to run DB2 stored procedures, consult "DB2 UDB for z/OS V8 Administration Guide".</p>	DSNTIJCM
2	<p>Edit and run job DSNTIJSG to define DB2 stored procedures DSNUTILS and DSNWZP.</p> <p>Note: DSNUTILS runs in a WLM managed address space with NUMTCB=1.</p>	DSNTIJSG
3	<p>Refresh Language Environment</p> <p>If WLM is operating in goal mode: VARY WLM,APPLENV=applname,REFRESH where applname is the name of the WLM application environments associated with the following z/OS Enablement DB2 stored procedures and user-defined function:</p> <p>DSNACCMD, DSNACCMG, DSNACCAV, DSNACCQC, DSNACCDL, DSNACCDD, DSNACCDD, DSNACCDE, DSNACCDS, DSNACCSS, DSNACCSI, DSNACCST, DSNACCMO, DSNAICUG.</p>	MVS Console Command
4	<p>Stop the WLM-established stored procedure address spaces associated with the z/OS Enablement DB2 stored procedures and user-defined function (listed in row 3 above):</p> <p>If WLM is operating in goal mode: VARY WLM,APPLENV=wlmenv, QUIESCE where wlmenv is the name of the WLM application environment.</p> <p>If WLM is operating in compatibility mode: CANCEL wlmenv where wlmenv is the name of the WLM-established address space.</p>	MVS Console Command
5	<p>Start the WLM-established stored procedure address spaces associated with the z/OS Enablement DB2 stored procedures and user-defined function (listed in row 3 above):</p> <p>If WLM is operating in goal mode: VARY WLM,APPLENV=wlmenv,RESUME where wlmenv is the name of the WLM application environment.</p> <p>If WLM is operating in compatibility mode: START wlmenv where wlmenv is the name of the WLM-established address space.</p>	MVS Console Command

6.4 Activating z/OS Enablement

IBM provides two sample jobs for you to use to define and bind the stored procedures, user-defined function and batch program that are needed by the workstation Control Center and other tools: DSNTIJSJ and DSNTIJCC. DSNTIJSJ is part of the base feature of DB2 UDB for z/OS. DSNTIJCC is part of the z/OS Enablement. Both sample jobs are added to the DB2 target data set SDSNSAMP.

Run sample job DSNTIJSJ to register and bind DB2 stored procedures DSNUTILS and DSNWZP to the DB2 subsystem. These sample procedures are required by Control Center and other tools.

Then create a WLM application environment with the start parameter NUMTCB set to 100 for the parallel utility execution stored procedure DSNACCMO.

Modify sample procedure DSNTIJCC to add a job card for your z/OS system. Also, tailor it for your environment by updating the following strings with values that are correct for your installation:

DSN=DSN!!0.SDSNLOAD

Replace DSN!!0 with the user-defined prefix.

SYSTEM(DSN)

Replace DSN with the DB2 subsystem identifier.

PLAN(DSNTIA!!)

Replace DSNTIA!! with the DSNTIAD plan name that was bound during installation by job SDSNSAMP(DSNTIJTM).

LIBRARY(DSN!!0.RUNLIB.LOAD)

Replace DSN!!0 with the user-defined prefix that was used during installation by DSNTINST CLIST.

LIBRARY(DSN!!0.SDSNDBRM)

Replace DSN!!0 with the user-defined prefix

WLMENV100

Replace WLMENV100 with the name of the application environment you have created for DSNACCMO. No other stored procedures should be run in that application environment.

WLMENV1

Replace WLMENV1 with the name of the application environment you have set up for the z/OS Enablement stored procedures.

Finally, run sample procedure DSNTIJCC to register the z/OS Enablement stored procedures and user-defined function to your DB2 subsystem and to bind the packages required by the stored procedures and batch programs to DB2. DSNTIJCC also creates a database CC390 which is used by the Control Center.

Consult the DB2 UDB for z/OS V8 Installation Guide, for more information about the jobs that were run when DB2 was installed.

To run the z/OS Enablement installation job, you must have user ID with authorization to bind the application package and to update the SYSIBM.SYSROUTINES catalog table. A user ID with SYSADM authorization satisfies this requirement. After you run sample job DSNTIJCC, you must restart all WLM-established address spaces associated with the z/OS Enablement DB2 stored procedures and user-defined function.

Refer to Figure 15 for an overview of the steps to follow to activate.

<i>Figure 15. Basic Material: Detail of z/OS Enablement activation steps</i>		
Step	Description	Job/ Command
1	Edit and run job to define DB2 stored procedures DSNUTILS and DSNWZP. DSNUTILS runs in a WLM managed address space with NUMTCB=1. For information about configuring and using WLM to run DB2 stored procedures, consult "DB2 UDB for z/OS V8 Administration Guide".	DSNTIJSG
2	Edit and run job to define the z/OS Enablement DB2 stored procedures DSNACCMD, DSNACCMG, DSNACCAV, DSNACCQC, DSNACCDL, DSNACCDD, DSNACCDR, DSNACCDE, DSNACCDS, DSNACCSS, DSNACCSI, DSNACCST, DSNACCMO and the user-defined function DSNAICUG, create the CC390 database and bind the stored procedures and batch programs. The z/OS Enablement DB2 stored procedures and the user-defined function run in a WLM managed address space. DSNACCMO has to run in a WLM managed address space with NUMTCB=100.	DSNTIJCC
3	Refresh Language Environment: If WLM is operating in goal mode: VARY WLM,APPLENV=applname,REFRESH where applname is the name of the WLM application environments.	MVS Console Command
4	Stop the WLM-established stored procedure address space: If WLM is operating in goal mode: VARY WLM,APPLENV=wlmenv,QUIESCE where wlmenv is the name of the WLM application environment. If WLM is operating in compatibility mode: CANCEL wlmenv where wlmenv is the name of the WLM-established address space.	MVS Console Command
5	Start the WLM-established stored procedure address space: If WLM is operating in goal mode: VARY WLM,APPLENV=wlmenv,RESUME where wlmenv is the name of the WLM application environment. If WLM is operating in compatibility mode: START wlmenv where wlmenv is the name of the WLM-established address space.	MVS Console Command

6.5 z/OS Enablement Installation Verification Process

Perform the following Control Center tasks to verify the setup of the 390 stored procedure environment for Control Center:

- Catalog a DB2 subsystem where you installed and activated the z/OS Enablement using the Configuration Assistant or by entering the following three commands from a DB2 command window:

```
db2 catalog tcpip node <node_name> remote <host_name>
server <tcp_port> ostype mvs
db2 catalog dcs database <db_name> as <location_name>
db2 catalog database <db_name> as <db_alias> at node
<node_name> authentication DCS
```

You can find out the location, IP address and TCP port number by issuing the DB2 command -DISPLAY DDF command from an MVS console.

Verify that your DB2 subsystem is cataloged correctly by connecting to it:

```
db2 connect to <db_alias> user <userid> using <password>
```

- Select a DB2 subsystem and when prompted, enter a valid user ID and password to connect. The node expands and shows a number of folders under the subsystem icon including Databases, Table Spaces, Tables and Indexes. If the node does not expand, Control Center has determined that the z/OS Enablement stored procedures are not known to DB2. In this case, z/OS Enablement is not installed and activated.
- Select the Buffer Pools folder. A list of defined buffer pools is displayed.
- Select the DB2 subsystem and click once on the right mouse button. Choose the 'Locate' choice. From the Locate window, specify object type 'Indexes' and object state filter of 'Runstats recommended.' Select OK. You should get back a list of indexes for which Runstats is recommended.
- Select the DB2 subsystem. Use the right mouse button to select 'Display Subsystem Parameters'. You should get back a list of install panels and corresponding parameters and values.
- Select the Catalog Tables folder. Use right mouse button to select Query. Use the dropdown on the Query Catalog dialog to select 'Without STOSPACE Information'. Select OK.
- Select the Table Spaces folder. Choose any table space and use the right mouse button to select 'Report...'. A valid report summary should be returned.
- Start a terminal emulator on your workstation and log on to a TSO/E session. Create and catalog a DUMMY sequential data set or member of a partitioned data set. You will use this data set to test the data set functions of the z/OS Enablement stored procedures using Control Center. You can copy and rename an existing data set to create the DUMMY data set.
- From Control Center, select the Data Sets folder. When prompted, enter a filter that will cause the DUMMY data set or the PDS that contains the DUMMY member to be displayed.
- Select the DUMMY data set or member in the details view, and use the right mouse button to select the 'Rename' action. Rename the DUMMY data set to DUMMY2. Refresh the details view and verify that DUMMY2 now appears in the list.
- Expand the Utility Objects folder, and then select the Data Set Templates folder. Select a template in the details view, and use the right mouse button to choose the 'Show Statements' action. From the Show Utility Statements dialog select the 'Export' button. In the Export to Data Set dialog, enter Name

and Member values to point to the DUMMY2 data set. Select the OK button. You should be presented with a dialog that asks whether you wish to append to or replace the data set. Select APPEND or REPLACE to continue.

- Select the Data Set folder once again, and enter filter criteria to display the DUMMY2 data set. Use the right mouse button to select the delete action for the DUMMY2 data set. Refresh the details view to confirm that the data set has been deleted.
- Start a DB2 Command Window and enter the following commands:
db2 connect to <db_alias> user <userid> using <password>
db2 SELECT USERS FROM TABLE (ICM.USER_GROUPS(1,")) AS T(USERS)

You should retrieve a number of user IDs like this:

```
USERS
BPXROOT
WEBADM
BPXROOT
WEBADM
WEBSRV
```

You will only see users that have an OMVS segment defined.

6.6 DAS Installation Verification Process

The steps described in this section allow you to perform simple tests that verify the successful installation of the DB2 Administration Server for z/OS. Some of the steps require the IBM Universal Database Version 8 GUI Tools such as Control Center and Command Center installed on the client and the z/OS Enablement stored procedures installed and activated on the DB2 server.

6.6.1 Display the DB2 Administration Server port

To verify if the DAS listens on port 523 (which is a well-known port and cannot be changed), issue 'onetstat -P 523' from the z/OS UNIX shell:

```
$ onetstat -P 523
MVS TCP/IP onetstat CS V2R8  TCPIP Name: TCPIP 05:50:18
User Id  Conn  Local Socket  Foreign Socket  State
-----  ----  -
DASUSER 00000532 0.0.0.0..523 0.0.0.0..0      Listen
```

6.6.2 Test the DB2 Administration Server functions from client

6.6.2.1 Set up the client

To set up the client, install DB2 Connect Personal Edition that comes with the DB2 Management Clients package. Once completed, you need to catalog a DB2 subsystem where you installed and activated the z/OS Enablement. You can catalog a DB2 subsystem using the Configuration Assistant or by entering the following commands from the DB2 command window:

```
db2 catalog tcpip node <node_name>
    remote <host_name> server <tcp_port> ostype mvs
db2 catalog dcs database <db_name> as <location_name>
db2 catalog database <db_name> as
    <db_alias> at node <node_name> authentication DCS
```

Verify that your DB2 subsystem is cataloged correctly by connecting to it:

```
db2 connect to <db_alias> user <userid> using <password>
```

6.6.2.2 Verify the Build JCL function from Control Center

Step 1. Start the Control Center and select a DB2 subsystem. When prompted, enter a valid user ID and password to connect. The node expands and shows a number of folders under the subsystem icon including Databases, Table Spaces, Tables and Indexes. If the node does not expand, Control Center has determined that the z/OS Enablement stored procedures are not known to DB2. In this case, z/OS Enablement is not installed or not activated.

Step 2. Select the Table Spaces folder. Choose any table space and use the right mouse button to select 'Run Statistics...'

Step 3. Select the 'Build JCL' button. If the DAS is not installed, not created, or not started, you will get an error message.

Step 4. Type a valid data set library on the 'Save Options' page of the Build JCL dialog and Click 'OK'. If the metadata files were not created during the install, the JCL skeleton library name, the Main skeleton member, and the JOB skeleton member fields in the 'JCL Options' page will be empty.

Step 5. If the JCL was generated successfully, the Edit Data Set dialog is displayed. Select the 'Save' button. If successful, the 'Save' button becomes disabled. Note that the JCL is written in the default EBCDIC code page defined in USS.

Step 6. Select the 'Close' button to close the Edit Data Set dialog.

6.6.2.3 Verify the Run Host command function from Command Center

Step 1. From the Control Center, right click on an MVS System object and select 'Run Host Command...'. If DAS is not installed, not created, or not started, the Command Center is not launched.

Step 2. Type the MVS command 'D A,L' on the command field and select the gear button to execute the command. When prompted, enter a valid user ID and password. If successful, the results of the 'D A,L' command are returned. If you are not authorized to issue an MVS command then you will receive an error message.

6.6.2.4 Launch the Create Cloning Session Wizard

Step 1. From the Control Center, right click on a Subsystem object and select 'Clone -> Create Session...'. If the DAS is not installed, not created, or not started, the Create Cloning Session Wizard is not launched.

Step 2. Select the 'Cancel' button to close the wizard.

Appendix A. Problem Determination and DAS Administration

A.1 Gathering diagnostic information

Provide the following diagnostic information when reporting a problem on the DB2 Administration Server for z/OS:

1. The DAS log file called db2dasdiag.log under the dump directory on the DAS working directory (example: /home/dasusr1/das/dump/db2dasdiag.log). When recreating the problem, it is recommended to clear the DAS log file first to minimize unwanted log messages.
2. The DAS level, which can be viewed by running the db2daslevel command.
3. The DAS trace (flw and fmt file) which can be taken using the db2trc program. Login as the DAS user and use the commands below to capture the trace:

```
db2trc das on
<recreate the steps that are causing the problem>
db2trc das dmp <dmp file>
db2trc das off
db2trc das flw <dmp file> <flw file>
db2trc das fmt <dmp file> <fmt file>
```

4. A list of files captured using ls -aE * and issued in /usr/lpp/db2_08_01/das and \$HOME/das
5. The console output from the system if available (BPX and RACF messages).

A.2 Dropping the DB2 Administration Server

If the DAS was not successfully created or if you plan to create a new DAS and remove the old one, you can use the dasdrop script from /usr/lpp/db2_08_01/das/install to remove the existing DAS. It has to be issued from a user ID with superuser privileges.

If you are dropping an existing DAS, you may want to backup the DAS metadata files. Refer to A.4, "Backing up the DB2 Administration Server Metadata Files" on page 40 for more information.

To drop the DAS, issue:

```
dasdrop <DAS_userid>
```

A.3 Updating the DB2 Administration Server

When applying maintenance to the DAS, you need to issue the `dasupdt` script from `/usr/lpp/db2_08_01/das/install` to ensure that the latest changes are in effect. It has to be issued from a user ID with superuser privileges.

To update the DAS, issue:

```
dasupdt <DAS_userid>
```

A.4 Backing up the DB2 Administration Server Metadata Files

The DAS metadata files are stored in the DAS user's home directory under `$HOME/das/metadata`. Some metadata files are created during installation and others are created during normal operation of the product like performing the cloning task from the Control Center:

<code>db2cloninghistory</code>	Cloning history information
<code>db2cloningmapping</code>	Cloning mapping information
<code>db2cloningsubsyssetting</code>	Cloning subsystem setting information
<code>db2jclskel</code>	JCL skeleton information
<code>db2locationmap</code>	Location name information
<code>db2subsystemsetting</code>	DB2 subsystem setting information
<code>db2utilnamemap</code>	DB2 utilities information

It is recommended to back up your metadata files once they have been created so you can restore the files when you create a new DB2 Administration Server and drop the old one.

Appendix B. DB2 Administration Server JCL Skeletons

The following JCL skeletons are shipped with the DB2 Administration Server package. These JCL skeletons are needed for the DAS JCL Generator to generate new JCL jobs through the Build JCL and Create JCL notebook and the Cloning subsystem wizard of the Control Center.

A database administrator can also create customized JCL skeletons which contain one or more distinct utility execution steps and predefined utility statements. These customized JCL skeletons are needed for the DAS JCL Generator to generate new JCL jobs through the Create JCL notebook of the Control Center. A sample of a customized JCL skeleton, DAH#SAMP, is included with the DB2 Administration Server package.

<i>Figure 16 (Page 1 of 5). JCL Skeletons</i>	
MEMBER	Description
DAH#JLIB	JCL SKELETON FOR JOBLIB DD STATEMENTS
DAH#JOB	JCL SKELETON FOR JOB STATEMENTS FOR DAHBJCOM AND DAHBJSQ
DAH#JOB	JCL SKELETON FOR JOB STATEMENTS FOR DAHBJUTI
DAH#SAMP	SAMPLE CUSTOMIZED JCL SKELETON
DAH#SLIB	JCL SKELETON FOR STEPLIB DD STATEMENTS
DAHBJCOM	JCL SKELETON FOR DB2 COMMANDS
DAHBJSQ	JCL SKELETON FOR DB2 SQL STATEMENTS
DAHBJUTI	JCL SKELETON FOR DB2 UTILITIES
DAHIXCCD	JCL SKELETON FOR COPY (CONCURRENT) ON INDEX USING DD STATEMENT
DAHIXCCT	JCL SKELETON FOR COPY (CONCURRENT) ON INDEX USING TEMPLATE
DAHIXCID	JCL SKELETON FOR CHECK INDEX ON INDEX USING DD STATEMENT
DAHIXCIT	JCL SKELETON FOR CHECK INDEX ON INDEX USING TEMPLATE
DAHIXCOD	JCL SKELETON FOR COPY ON INDEX USING DD STATEMENT
DAHIXCOT	JCL SKELETON FOR COPY ON INDEX USING TEMPLATE
DAHIXCTD	JCL SKELETON FOR COPYTOCOPY ON INDEX USING DD STATEMENT
DAHIXCTT	JCL SKELETON FOR COPYTOCOPY ON INDEX USING TEMPLATE
DAHIXMS	JCL SKELETON FOR MODIFY STATISTICS ON INDEX
DAHIXRE	JCL SKELETON FOR RECOVER ON INDEX
DAHIXRID	JCL SKELETON FOR REBUILD INDEX ON INDEX USING DD STATEMENT

Figure 16 (Page 2 of 5). JCL Skeletons

MEMBER	Description
DAHIXRIT	JCL SKELETON FOR REBUILD INDEX ON INDEX USING TEMPLATE
DAHIXROD	JCL SKELETON FOR REORG INDEX USING DD STATEMENT
DAHIXROT	JCL SKELETON FOR REORG INDEX USING TEMPLATE
DAHIXRR	JCL SKELETON FOR REPORT RECOVERY ON INDEX
DAHIXRU	JCL SKELETON FOR RUNSTATS ON INDEX
DAHOBCC	JCL SKELETON FOR COPY (CONCURRENT) ON TABLESPACES AND INDEXSPACES LIST
DAHOBCCO	JCL SKELETON FOR COPY ON TABLESPACES AND INDEXSPACES LIST
DAHOBCT	JCL SKELETON FOR COPYTOCOPY ON TABLESPACES AND INDEXSPACES LIST
DAHOBMS	JCL SKELETON FOR MODIFY STATISTICS ON TABLESPACES AND INDEXSPACES LIST
DAHOBRE	JCL SKELETON FOR RECOVER ON TABLESPACES AND INDEXSPACES LIST
DAHOICC	JCL SKELETON FOR COPY (CONCURRENT) ON INDEXSPACES LIST
DAHOICI	JCL SKELETON FOR CHECK INDEX ON INDEXSPACES LIST
DAHOICO	JCL SKELETON FOR COPY ON INDEXSPACES LIST
DAHOICT	JCL SKELETON FOR COPYTOCOPY ON INDEXSPACES LIST
DAHOIMS	JCL SKELETON FOR MODIFY STATISTICS ON INDEXSPACES LIST
DAHOIRE	JCL SKELETON FOR RECOVER ON INDEXSPACES LIST
DAHOIRI	JCL SKELETON FOR REBUILD INDEX ON INDEXSPACES LIST
DAHOIRO	JCL SKELETON FOR REORG INDEX ON INDEXSPACES LIST
DAHOIRR	JCL SKELETON FOR REPORT RECOVERY ON INDEXSPACES LIST
DAHOIRU	JCL SKELETON FOR RUNSTATS INDEX ON INDEXSPACES LIST
DAHOTCC	JCL SKELETON FOR COPY (CONCURRENT) ON TABLESPACES LIST
DAHOTCO	JCL SKELETON FOR COPY ON TABLESPACES LIST
DAHOTCT	JCL SKELETON FOR COPYTOCOPY ON TABLESPACES LIST
DAHOTMC	JCL SKELETON FOR MERGECOPY ON TABLESPACES LIST
DAHOTMR	JCL SKELETON FOR MODIFY RECOVERY ON TABLESPACES LIST
DAHOTMS	JCL SKELETON FOR MODIFY STATISTICS ON TABLESPACES LIST
DAHOTQU	JCL SKELETON FOR QUIESCE ON TABLESPACES LIST
DAHOTRE	JCL SKELETON FOR RECOVER ON TABLESPACES LIST
DAHOTRI	JCL SKELETON FOR REBUILD INDEX ON TABLESPACES LIST

Figure 16 (Page 3 of 5). JCL Skeletons

MEMBER	Description
DAHOTRO	JCL SKELETON FOR REORG TABLESPACE ON TABLESPACES LIST
DAHOTRR	JCL SKELETON FOR REPORT RECOVERY ON TABLESPACES LIST
DAHOTRU	JCL SKELETON FOR RUNSTATS TABLESPACE ON TABLESPACES LIST
DAHOTUN	JCL SKELETON FOR UNLOAD ON TABLESPACES LIST
DAHSGSS	JCL SKELETON FOR STOSPACE
DAHTBLOD	JCL SKELETON FOR LOAD ON TABLE USING DD STATEMENT
DAHTBLOT	JCL SKELETON FOR LOAD ON TABLE USING TEMPLATE
DAHTBUND	JCL SKELETON FOR UNLOAD ON TABLE USING DD STATEMENT
DAHTBUNT	JCL SKELETON FOR UNLOAD ON TABLE USING TEMPLATE
DAHTSCCD	JCL SKELETON FOR COPY (CONCURRENT) ON TABLESPACE USING DD STATEMENT
DAHTSCCT	JCL SKELETON FOR COPY (CONCURRENT) ON TABLESPACE USING TEMPLATE
DAHTSCDD	JCL SKELETON FOR CHECK DATA ON TABLESPACE USING DD STATEMENT
DAHTSCDT	JCL SKELETON FOR CHECK DATA ON TABLESPACE USING TEMPLATE
DAHTSCID	JCL SKELETON FOR CHECK INDEX ON TABLESPACE USING DD STATEMENT
DAHTSCIT	JCL SKELETON FOR CHECK INDEX ON TABLESPACE USING TEMPLATE
DAHTSCLD	JCL SKELETON FOR CHECK LOB ON TABLESPACE USING DD STATEMENT
DAHTSCLT	JCL SKELETON FOR CHECK LOB ON TABLESPACE USING TEMPLATE
DAHTSCOD	JCL SKELETON FOR COPY ON TABLESPACE USING DD STATEMENT
DAHTSCOT	JCL SKELETON FOR COPY ON TABLESPACE USING TEMPLATE
DAHTSCTD	JCL SKELETON FOR COPYTOCOPY ON TABLESPACE USING DD STATEMENT
DAHTSCTT	JCL SKELETON FOR COPYTOCOPY ON TABLESPACE USING TEMPLATE
DAHTSMCD	JCL SKELETON FOR MERGECOPY ON TABLESPACE USING DD STATEMENT
DAHTSMCT	JCL SKELETON FOR MERGECOPY ON TABLESPACE USING TEMPLATE

Figure 16 (Page 4 of 5). JCL Skeletons

MEMBER	Description
DAHTSMR	JCL SKELETON FOR MODIFY RECOVERY ON TABLESPACE
DAHTSMS	JCL SKELETON FOR MODIFY STATISTICS ON TABLESPACE
DAHTSQT	JCL SKELETON FOR QUIESCE ON TABLESPACESET
DAHTSQU	JCL SKELETON FOR QUIESCE ON TABLESPACE
DAHTSRE	JCL SKELETON FOR RECOVER ON TABLESPACE
DAHTSRID	JCL SKELETON FOR REBUILD INDEX ON TABLESPACE USING DD STATEMENT
DAHTSRIT	JCL SKELETON FOR REBUILD INDEX ON TABLESPACE USING TEMPLATE
DAHTSROD	JCL SKELETON FOR REORG TABLESPACE USING DD STATEMENT
DAHTSROT	JCL SKELETON FOR REORG TABLESPACE USING TEMPLATE
DAHTSRR	JCL SKELETON FOR REPORT RECOVERY ON TABLESPACE
DAHTSRT	JCL SKELETON FOR REPORT ON TABLESPACESET
DAHTSRU	JCL SKELETON FOR RUNSTATS ON TABLESPACE
DAHTSRX	JCL SKELETON FOR RUNSTATS INDEX ON TABLESPACE
DAHTSUND	JCL SKELETON FOR UNLOAD ON TABLESPACE USING DD STATEMENT
DAHTSUNT	JCL SKELETON FOR UNLOAD ON TABLESPACE USING TEMPLATE
DAHCL010 (with alias PADELET1)	JCL SKELETON FOR CLONING (DELETES JCL LIBRARY MEMBERS)
DAHCL020 (with alias PADELET2)	JCL SKELETON FOR CLONING (DELETES TEMPORARY CLONING WORK DATASETS)
DAHCL030 (with alias PBBLDJNN)	JCL SKELETON FOR CLONING (BUILDS DELETE JOBS AND FILTER DD CARDS)
DAHCL040 (with alias PFLSTCAT)	JCL SKELETON FOR CLONING (LISTS TARGET SUBSYSTEM DATASETS)
DAHCL050 (with alias SAADSPLY)	JCL SKELETON FOR CLONING (DISPLAYS ACTIVITY ON SOURCE SUBSYSTEM)
DAHCL060 (with alias SAALTIDX)	JCL SKELETON FOR CLONING (BUILDS ALTER STATEMENTS FOR USER DEFINED CATALOG INDEXES)
DAHCL070 (with alias SAALTQRY)	JCL SKELETON FOR CLONING (BUILDS ALTER SQL FOR DB2 MANAGED OBJECTS AND CLEANUP SQL)
DAHCL080 (with alias SAALTUSR)	JCL SKELETON FOR CLONING (BUILDS ALTER STATEMENTS FOR USER MANAGED OBJECTS)
DAHCL090 (with alias SDPRTLOG)	JCL SKELETON FOR CLONING (PRINTS LOG MAP AND SUMMARY)

Figure 16 (Page 5 of 5). JCL Skeletons

MEMBER	Description
DAHCL100 (with alias SFBLDJNN)	JCL SKELETON FOR CLONING (BUILDS DUMP AND COPY JOBS)
DAHCL110 (with alias TBSYSLIB)	JCL SKELETON FOR CLONING (COPIES AND RENAMES SOURCE SUBSYSTEM LIBRARIES)
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DAHCL130 (with alias TLCHGLG2)	JCL SKELETON FOR CLONING (CHANGES LOG INVENTORY)
DAHCL140 (with alias WBALTSGP)	JCL SKELETON FOR CLONING (ALTERS BUFFERPOOLS AND CREATES TEMPORARY STORAGE GROUP)
DAHCL150 (with alias WCALTUIX)	JCL SKELETON FOR CLONING (ALTERS USER INDEXES TO TEMPORARY STORAGE GROUP)
DAHCL160 (with alias WEWORKFL)	JCL SKELETON FOR CLONING (DROPS AND CREATES WORK FILE DATABASE)
DAHCL170 (with alias WGALTDDB2)	JCL SKELETON FOR CLONING (ALTERS DB2 MANAGED OBJECTS TO TEMPORARY STORAGE GROUP)
DAHCL180 (with alias WIALTDB2)	JCL SKELETON FOR CLONING (DROPS AND CREATES STORAGE GROUPS)
DAHCL190 (with alias WKALTDDB2)	JCL SKELETON FOR CLONING (ALTERS DB2 MANAGED OBJECTS ON TARGET SUBSYSTEM)
DAHCL200 (with alias WLALTUSR)	JCL SKELETON FOR CLONING (ALTERS USER MANAGED OBJECTS ON THE TARGET SUBSYSTEM)
DAHCL210 (with alias WNALTWLM)	JCL SKELETON FOR CLONING (ALTERS SP AND UDF WLM ENVIRONMENTS ON TARGET SUBSYSTEM)
DAHCL220 (with alias WSCLNUPT)	JCL SKELETON FOR CLONING (DROPS EXCLUDED OBJECTS ON TARGET SUBSYSTEM)
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Reader's Comments

Program Directory for DB2 Management Clients Package for z/OS, March 2004

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Readability and organization of Program Directory tasks	1	2	3	4	5	N
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