



**Program Directory for
IBM DB2 Value Unit Edition for z/OS
DB2 Management Clients Package feature**

V09.01.00

Program Number 5697-P12

FMIDs HDAS910, JDB991D

for Use with
z/OS with zNALC

Document Date: February 2008

GI10-8780-00

Note!

Before using this information and the product it supports, be sure to read the general information under Appendix C, "Notices" on page 53.

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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 V9 for z/OS Management Clients Package. This publication refers to DB2 V9 for z/OS Management Clients Package as DB2 Management Clients Package.

The Program Directory contains the following sections:

- 2.0, “Program Materials” on page 3 identifies the basic and optional program materials and documentation for DB2 Management Clients Package.
- 3.0, “Program Support” on page 6 describes the IBM support available for DB2 Management Clients Package.
- 4.0, “Program and Service Level Information” on page 8 lists the APARs (program level) and PTFs (service level) incorporated into DB2 Management Clients Package.
- 5.0, “Installation Requirements and Considerations” on page 9 identifies the resources and considerations required for installing and using DB2 Management Clients Package.
- 6.0, “Installation Instructions” on page 15 provides detailed installation instructions for DB2 Management Clients Package. It also describes the procedures for 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 6 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. 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 for z/OS (DAS)

DAS provides a general mechanism for running z/OS level functions to support the IBM DB2 GUI Tools such as Control Center, Command Editor, Replication Center and Task Center. DAS provides the following functions:

- Building and creating JCL jobs (Control Center Version 8 and higher 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 for DB2 Control Center

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, user-defined functions, and batch programs must be installed at each DB2 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, user-defined functions, and batch programs in the form of an SMP/E installable package.

1.1.3 DB2 Connect Personal Edition Kit

DB2 Connect Personal Edition provides access from a single workstation to DB2 databases residing on servers such as OS/390, z/OS, iSeries, VM and VSE, as well as to DB2 servers on Linux, UNIX and Windows operating systems.

This product is currently available for Linux and Windows operating systems, and is used to connect a single Windows operating system, or Linux workstation, to a host or iSeries database.

DB2 Connect Personal Edition is best suited for environments where native TCP/IP support is provided by the DB2 servers, and the application being deployed is a traditional 2-tier client-server application.

1.2 DB2 Management Clients Package FMIDs

DB2 Management Clients Package consists of the following FMIDs:

- HDAS910 - DB2 Administration Server for z/OS
- JDB991D - z/OS Enablement for DB2 Control Center

2.0 Program Materials

An IBM program is identified by a program number. The program number for DB2 Management Clients Package is 5697-P12.

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 15 for more information about how to install the program.

The DB2 Connect Personal Edition kit distribution medium is CD-ROM.

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*.

Non-CBPDO Customers

If you receive the product tape and program directory outside the CBPDO process, refer to 6.1.4, "Sample Jobs" on page 16 for details (media volser, file name, tape file number) and how to proceed.

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 should be used in the JCL of jobs reading the data sets, but since the data sets are in IEBCOPY unloaded format, their actual attributes may be different.
2. If any RELFILEs are identified as PDSEs, ensure that SMPTLIB data sets are allocated as PDSEs.

Figure 1 (Page 1 of 2). Program File Content for DB2 Administration Server for z/OS

Name	ORG	RECFM	RECL	BLK SIZE
SMPMCS	SEQ	FB	80	6400

Figure 1 (Page 2 of 2). Program File Content for DB2 Administration Server for z/OS

Name	OR G	RE C M	LE C L	BLK SIZE
IBM.HDAS910.F1	PDS	FB	80	27920
IBM.HDAS910.F2	PDS	FB	80	27920

Figure 2. Program File Content for z/OS Enablement for DB2 Control Center

Name	OR G	RE C M	LE C L	BLK SIZE
SMPMCS	SEQ	FB	80	6400
IBM.JDB991D.F1	PDS	FB	80	8800
IBM.JDB991D.F2	PDS	FB	80	8800
IBM.JDB991D.F3	PDS _e	U	0	6144
IBM.JDB991D.F4	PDS	FB	80	8800

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

DB2 V9.1 for z/OS publications can be found at either of the following Web addresses:

<http://publib.boulder.ibm.com/infocenter/imzic>

or

<http://www.ibm.com/software/db2zos/v9books.html>

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>

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, it is VERY IMPORTANT that you review the current Service Planning (PSP) information. The PSP buckets maintain current lists (which have been identified since the package was created) of any recommended or required service for this package's installation. This includes software PSP information that contains HIPER, special attention and/or required PTFs against the base release.

If you obtained DB2 Management Clients Package as part of a CBPDO, there is HOLDDATA 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, use S/390 SoftwareXcel to obtain the current "PSP Bucket" or obtain the current PSP from the Web at <https://techsupport.services.ibm.com/server/390.psp390>

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:

Figure 4. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
DB2910	HDAS910	DB2 Administration Server for z/OS
DB2910	JDB991D	z/OS Enablement for DB2 Control Center

For additional Service related information, visit
<http://www.ibm.com/software/data/db2imstools/support.html>

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
HDAS910	5740DAS00	DB2 Administration Server for z/OS	910
JDB991D	5740XYR05	z/OS Enablement for DB2 Control Center	91D

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

PTFs containing APAR fixes against this release of DB2 Management Clients Package have been incorporated into this product tape. For a list of included PTFs, examine the ++VER statement in the product's SMPMCS.

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
5694-A01	z/OS V01.07.00
5655-G44	IBM SMP/E for z/OS and OS/390 V03.03.00 or later

DAS is installed into a file system, either HFS or zFS. Before installing DAS you must ensure that the target system HFS or zFS data sets are available for processing on the driving system. OMVS must be

active on the driving system and the target system HFS or zFS data sets must be mounted on the driving system.

If you plan to install DAS in a zFS file system, this requires that zFS be active on the driving system. Information on activating and using zFS can be found in z/OS Distributed File Service zSeries File System Administration, SC24-5989.

5.2 Target System Requirements

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

DB2 Management Clients Package installs in the DBS (P115) SREL.

5.2.1 Machine Requirements

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

5.2.2 Programming Requirements

5.2.2.1 Installation Requisites: 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
Any one of the following:	
5697-P12	DB2 9 for z/OS Value Unit Edition
5635-DB2	DB2 9 for z/OS

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 which 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 that 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. The values below are for 3390 DASD.

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 in 3390 Trks
Target	51 tracks - DAS
	8382 tracks - z/OS Enablement
Distribution	453 tracks - DAS
	7928 tracks - z/OS Enablement
HFS	33464 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 6.1.8, "Allocate SMP/E Target and Distribution Libraries" on page 18.

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.

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	Macro	any	U	PDS	FB	80	51	5
SDSNBASE	Sample	any	E	PDS	FB	80	41	25
SDSNCLST	CLIST	any	E	PDS	FB	80	159	20
SDSNLOAD	LMOD	any	E	PDS _e	U	0	5688	n/a
SDSNMACS	Macro	any	E	PDS	FB	80	714	100
SDSNDBRM	Macro	any	E	PDS	FB	80	92	12
SDSNSAMP	Sample	any	E	PDS	FB	80	1688	45

Figure 10. DB2 Management Clients Package HFS Paths

DDNAME	T Y P E	Path Name
SDAHHFS1	N	/usr/lpp/db2910_das/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
ADAHHFS1	U	PDS	FB	80	402	50

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
ADAHSLIB	U	PDS	FB	80	51	5
ADSNBASE	E	PDS	FB	80	41	30
ADSNLOAD	E	PDS _e	U	0	5001	n/a
ADSNMACS	E	PDS	FB	80	2886	100

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.

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:

- CSSLIB
- SCEELKED
- SCLBCPP

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:

Figure 13. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
DAHALA	SMP/E	Sample job to allocate and initialize a new SMP/E CSI data set (Optional)	IBM.JDB991D.F2
DAHALB	SMP/E	Sample job to allocate SMP/E data sets (Optional)	IBM.JDB991D.F2
DAHREC1	RECEIVE	Sample RECEIVE job	IBM.JDB991D.F2
DAHREC2	RECEIVE	Sample RECEIVE job	IBM.JDB991D.F2
DAHALOCS	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.JDB991D.F2
DAHISMKD	MKDIR	Sample job to invoke the supplied DAHMKDIR EXEC to allocate HFS paths	IBM.JDB991D.F2
DAHDFEFS	DDDEF	Sample job to define SMP/E DDDEFs	IBM.JDB991D.F2
DAHAPPLS	APPLY	Sample APPLY job	IBM.JDB991D.F2
DAHACCES	ACCEPT	Sample ACCEPT job	IBM.JDB991D.F2
DAHHSUN	Untar	Sample job used during customization	IBM.JDB991D.F2

You may 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 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, by uncommenting the

appropriate DD statement below. 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=*
//*****
/* If you wish to create a new global zone do not run the *
/* RCVPDO job supplied with CBPDO. RCVPDO assumes that *
/* you will be installing into an existing global zone. *
/* Make the //TAPEIN DD statement below active if you install*
/* from a CBPDO tape by uncommenting the DD statement below. *
//*****
/*TAPEIN DD DSN=IBM.JDB991D.F2,UNIT=tunit,
/* VOL=SER=volser,LABEL=(x,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //TAPEIN DD statement below active if you install*
/* from a product tape received outside the CBPDO process *
/* (using the optional SMP/E RECEIVE job) by uncommenting *
/* the DD statement below. *
//*****
/*TAPEIN DD DSN=IBM.JDB991D.F2,UNIT=tunit,
/* VOL=SER=DB991D,LABEL=(3,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //FILEIN DD statement below active for *
/* downloaded DASD files. *
//*****
/*FILEIN DD DSN=IBM.JDB991D.F2,UNIT=SYSALLDA,DISP=SHR,
/* VOL=SER=filevol
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=SYSALLDA,
// SPACE=(TRK,(20,10,5))
//SYSUT3 DD UNIT=SYSALLDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=xxxxIN,OUTDD=OUT
/*
```

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

If using TAPEIN:

tunit is the unit address where the product tape is mounted

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.JDB991D.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 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 DAHALA to allocate the SMP/E data set for DB2 Management Clients Package.

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 DAHALB to initialize SMP/E zones 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 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, included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO.

You can also choose to edit and submit sample jobs DAHREC1 and DAHREC2 to perform the SMP/E RECEIVE for DAS (HDAS910) and for z/OS Enablement (JDB991D). Consult the instructions in the sample job for more information.

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

6.1.8 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.

6.1.9 Allocate HFS or zFS Paths

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

Before running the sample job to create the paths in the file system, you must ensure that OMVS is active on the driving system, and that the target system's HFS or zFS file system is mounted to the driving system. zFS must be active on the driving system if you are installing DAS into a file system that is zFS.

If you plan to install DAS into a new HFS or zFS file system you must create the mountpoint and mount the new file system to the driving system.

Edit and submit sample job DAHISMKD to allocate the HFS or zFS paths for DAS. Consult the instructions in the sample job for more information.

If you plan to create a new HFS or zFS for this product, you should consider updating the BPXPRMxx PARMLIB member to mount the new HFS or zFS 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.

6.1.10 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.

6.1.11 Perform SMP/E APPLY

Ensure you have the latest Enhanced HOLDDATA, then 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 JDB991D 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 HDAS910 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 Editor, Task Center and Replication Center.

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).

Enhanced HOLDDATA introduced ERROR HOLDS against FMIDs for HIPER APARs. Prior to installing, you should ensure you have the latest Enhanced HOLDDATA (available at url <http://service.software.ibm.com/holdata/390holddata.html>). The FMID(s) should be installed regardless of the status of unresolved HIPERs, however, the software should not be deployed until the unresolved HIPERs have been analyzed to determine applicability.

There are two methods to complete an FMID installation where ++HOLDS for HIPERs exist for the FMID(s) being installed:

1. To ensure that all critical service is installed with the FMID(s), add the SOURCEIDs of PRP, and HIPER to the APPLY command. There may be PE or HIPER APARs that do not have resolving PTFs available yet. You need to analyze the symptom flags to determine if you want to BYPASS the specific ERROR HOLDS and continue the FMID installation.

```
APPLY S(fmid,fmid,...)
FORFMID(fmid,fmid,...)
SOURCEID(PRP,HIPER,...)
GROUPEXTEND .
```

This method requires more initial research, but will provide resolution for all HIPERs that have fixes available and are not in a PE chain. There may still be unresolved PEs or HIPERs which will require the use of BYPASS.

2. To install the FMID(s) as it would have been installed prior to Enhanced HOLDDATA, you can add a BYPASS(HOLDCLASS(HIPER)) operand to the APPLY command. This will allow the FMID to be installed even though there are HIPER ERROR HOLDS against it. Note that not all ERROR HOLDS were bypassed, only the HIPER ERROR HOLDS. After the FMID(s) are installed, the SMP/E REPORT ERRSYSMODS command should be run to identify any missing HIPER maintenance.

```
APPLY S(fmid,fmid,...)
BYPASS(HOLDCLASS(HIPER)).
```

This method is the quicker of the two, but requires subsequent review of the REPORT ERRSYSMODS to investigate any HIPERs.

If you bypass any HOLDS during the installation of the FMID(s) because fixing PTFs were not yet available you can use the APAR Status Tracking (AST) function of ServiceLink or the APAR Tracking function of ResourceLink to be notified when the fixing PTF is available.

After 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 of 4 or less, and may issue the following message that does not affect product installation: GIM23913W.

6.1.12 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 if no PTFs are being installed: You will receive a return code of 0 if this job runs correctly.

6.1.13 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 SMP/PUNCH data set that 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.

6.1.14 Cleaning Up Obsolete Data Sets, Paths, and DDDEFs

The following data sets, allocated and used by previous releases of this product, are no longer used in this release. You may choose to delete these obsolete data sets after you delete the previous release from your system.

- <hlq>.ADAHBASE
- <hlq>.SDAHBASE
- <hlq>.ADSNBAS1
- <hlq>.SDSNBAS1

The following HFS or zFS paths, created and used by previous releases of this product, are no longer used in this release. You may choose to delete these obsolete HFS or zFS paths after you delete the previous release from your system.

- /usr/lpp/db2_08_01

The following DDDEF entries, created and used by previous releases of this product, are no longer used in this release. You may choose to delete these obsolete DDDEF entries after you delete the previous release from your system.

- ADAHBASE
- SDAHBASE
- ADSNBAS1
- SDSNBAS1

6.2 Activating DAS

DAS runs as a daemon and must be installed once per MVS system or LPAR to support all DB2 V6 subsystems or higher that are running on that MVS system 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/db2910_das), you must edit the dasCRT and dasupdt scripts and change the value of the DASDIR variable 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/db2910_das. 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 defines a GID for the DAS Administration Group and a UID and other OMVS segment information for the 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 the Command Editor, building and creating JCLs from Control Center, or running shell scripts from Replication Center or Task 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 'DAS910.SDAHSLIB' OWNER(DASUSER) UACC(READ)
```

The example assume that a user ID or group ID for the high level qualifier DAS910 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 Editor (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(OPERCMD)
```

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

```
SETROPTS GENERIC(OPERCMD)
```

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 Editor 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 V9.1 for 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 /usr/lpp/db2910_das/das/bin/db2dasstma  
extattr +a /usr/lpp/db2910_das/das/lib/*  
extattr +a /usr/lpp/db2910_das/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 marked program controlled and the BPX.DAEMON profile in the FACILITY class is defined, 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, do the following:

Step 1: Log on using a user ID with superuser privileges.

Step 2: Issue the following from the z/OS UNIX shell:

```
extattr +p /usr/lpp/db2910_das/das/bin/*
extattr +p /usr/lpp/db2910_das/das/lib/*
extattr +p /usr/lpp/db2910_das/das/function/*
```

Step 3: Run the dasCRT script described in 6.2.4.1, “Run dasCRT to create the DAS.”

Step 4: Issue the following from the z/OS UNIX shell:

```
extattr +p <DAS_user_home>/das/adm/*
```

6.2.4 Create the DB2 Administration Server and Metadata files

6.2.4.1 Run dasCRT to create the DAS: If you have an existing DAS created from a previous installation, you need to drop the DAS as described in A.2, “Dropping the DB2 Administration Server” on page 46. To create the DAS, log on to the z/OS UNIX shell using a user ID with superuser privileges and run the dasCRT script from /usr/lpp/db2910_das/das/install:

```
dasCRT <DAS_userid>
```

The dasCRT 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 (SDAHS LIB) library to specify /usr/lpp/db2910_das/das/lib for the ENVAR parameter.

6.2.4.2 Run dasCRTMD to create the DAS metadata files: To create the DAS metadata files, log on to the z/OS UNIX shell using the DAS user ID and run the dasCRTMD script from /usr/lpp/db2910_das/das/install. Run the dasCRTMD script with the das option once to create the system specific metadata files and then run the dasCRTMD script with the db2 option for each DB2 subsystem installed on your system. To delete all DAS metadata files, specify the clean option.

Note: When you switch to the DAS user ID from another ID, make sure that the HOME environment variable is set to the DAS user home directory before you run the dasCRTMD script.

```
echo $HOME
/u/dasuser
```

The syntax of the dasCRTMD script is:

```

dasrctmd das <DAS_skeleton_library>
dasrctmd db2 <DB2_subsystem_name> <DB2_command_prefix>
    <DSNTIAD_load_library> <DSNTIAD_plan_name>
    <DAS_skeleton_library>
dasrctmd 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: If you used special characters for the DB2_command_prefix like =, (, etc. you have to enclose the command prefix in quotes, like ". Also, the DB2_subsystem_name is case sensitive, and must always be specified in upper case.

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

```

cd /usr/lpp/db2910_das/das/install
dasrctmd das DAH910.SDAHSLIB
dasrctmd db2 DSN1 -DSN1 DSN1910.RUNLIB.LOAD
    DSNTIA91 DAH910.SDAHSLIB
dasrctmd db2 DSN2 -DSN2 DSN2810.RUNLIB.LOAD
    DSNTIA81 DAH910.SDAHSLIB
dasrctmd db2 V71A "(" V71A710.RUNLIB.LOAD
    DSNTIA71 DAH910.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 to the z/OS UNIX shell using the DAS user ID and start the server from the shell by entering:

```
db2admin start
```

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

6.2.6.2 Stopping the DB2 Administration Server from the z/OS UNIX shell: To stop the server, you must log on to the z/OS UNIX shell using the DAS user ID and stop the server from the shell 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 or zFS 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/db2910_das`) is shared by SYSA and SYSB then you only need to install DAS once.

However, to activate DAS on both systems, you need to run 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 z/OS Enablement Version 8 to z/OS Enablement Version 9

If you were using z/OS Enablement Version 8 before you installed z/OS Enablement Version 9, follow the steps outlined in this section to migrate to z/OS Enablement Version 9. Most objects created under earlier releases of z/OS Enablement can also be used under z/OS Enablement Version 9.

If you were **not** using z/OS Enablement Version 8 before you installed z/OS Enablement Version 9, 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 9, IBM provides three sample jobs that you can use, as follows:

- **DSNTIJSG** (part of the base feature of DB2 V9.1 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 element): Use this sample job to migrate, define, and bind the z/OS Enablement DB2 stored procedures, user-defined functions, and batch programs.
- **DSNTIJHM** (part of the z/OS Enablement element): Use this sample job to define the DB2 health monitor alert summary VSAM data set and add the cataloged procedures that will start the DB2 health monitor to a procedure library.

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

To migrate z/OS Enablement Version 8 to z/OS Enablement Version 9, follow these steps:

Step 1: Modify and run the DSNTIJSG sample job

Edit and run job DSNTIJSG to bind DB2 stored procedures DSNUTILS and DSNWZP.

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.

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.

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.

WLMENV3

Replace WLMENV3 with the name of the application environment you have set up for the z/OS Enablement DB2 stored procedure DSNACCTS. DSNACCTS is a REXX stored procedure that has to run in a WLM managed address space with NUMTCB=1.

WLMENV2

Replace WLMENV2 with the name of the application environment you have set up for the z/OS Enablement DB2 stored procedures DSNACCJF, DSNACCJP, DSNACCJQ, DSNACCJS, and DSNACCUC. These stored procedures must be defined to RACF program control and run in a separate WLM managed address space.

WLMENV1

Replace WLMENV1 with the name of the application environment you have set up for the remaining z/OS Enablement DB2 stored procedures and user-defined functions that are not associated with WLMENV3 and WLMENV2.

BP1

Replace buffer pool BP1 with an activated 4KB page buffer pool.

BP2

Replace buffer pool BP2 with an activated 4KB page buffer pool.

BP16K0

Replace buffer pool BP16K0 with an activated 16KB page buffer pool.

3. Depending on the service level of your z/OS Enablement Version 8 (details are provided in the Notes section of DSNTIJCM), edit DSNTIJCM further to execute only the steps required to migrate z/OS Enablement from Version 8 to Version 9.

Step 3: Run sample job DSNTIJCM

Run sample procedure DSNTIJCM to migrate z/OS Enablement Version 8 DB2 objects to z/OS Enablement Version 9, to register the new z/OS Enablement stored procedures and user-defined functions to your DB2 subsystem, and to bind the packages and plans required by the stored procedures, user-defined functions, 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 functions.

Step 4: Modify the cataloged procedures that start the DB2 health monitor

If you have applied APAR PK20053 in z/OS Enablement Version 8, update the cataloged procedures that will start the DB2 health monitor (DSNHMONP and DSNHMONA) with the correct DB2 V9 SDSNLOAD library in the STEPLIB.

Step 5: Modify the DSNTIJHM sample job

If you have not applied APAR PK20053 in z/OS Enablement Version 8, modify the DSNTIJHM sample job as follows:

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.

NAME(!HLQ!)

Replace !HLQ! with the high level qualifier of the health monitor alert summary VSAM data set.

NAME(!HLQ!.HMONC.HMONSTAT)

Replace !HLQ! with the high level qualifier of the health monitor alert summary VSAM cluster name.

NAME(!HLQ!.HMOND.HMONSTAT.DATA)

Replace !HLQ! with the high level qualifier of the data component name of the health monitor alert summary VSAM data set.

NAME(!HLQ!.HMONI.HMONSTAT.INDEX)

Replace !HLQ! with the high level qualifier of the index component name of the health monitor alert summary VSAM data set.

DSN=!HLQ!.HMONPARM

Replace !HLQ! with the high level qualifier of the partitioned data set (PDS) where the member DSNAHMON will be created.

DSN=!HLQ!.HMONPARM(DSNAHMON)

Replace !HLQ! with the high level qualifier of the partitioned data set (PDS) where the member DSNAHMON will be created.

DSN=!HLQ!.HMONC.HMONSTAT

Replace !HLQ! with the high level qualifier of the health monitor alert summary VSAM cluster name.

!HLQ2!.USER.CATALOG

Replace !HLQ2! with the high level qualifier of your user catalog.

CATALOG(!MCAT!)

Replace !MCAT! with the master catalog name.

VOL=SER=<volser> (in step HMONCAT)

Replace <volser> with the volume on which the user catalog for the health monitor alert summary VSAM data set is to have space.

VOL(<volser>)

Replace <volser> with the volume on which the user catalog for the health monitor alert summary VSAM data set is to have space.

VOLUMES(<volser>)

Replace <volser> with the volume on which the health monitor alert summary VSAM data set is to have space.

VOL=SER=<volser> (in step HMONALOC)

Replace <volser> with the volume on which the partitioned data set (PDS) where the member DSNAHMON will be created is to have space.

Step 6: Run sample job DSNTIJHM

If you have not applied APAR PK20053 in z/OS Enablement Version 8, run sample procedure DSNTIJHM to define the ICF catalog for the health monitor alert summary VSAM data set, to define the health monitor alert summary VSAM data set, to allocate a library for the member DSNAHMON, to add the cataloged procedures that start the DB2 health monitor to the procedure library, and to add a sample DSNAHMON member.

Refer to Figure 14 for an overview of the steps to follow to migrate to z/OS Enablement Version 9.

Step	Description	Job/ Command
1	Edit and run job DSNTIJSG to bind DB2 stored procedures DSNUTILS and DSNWZP. Note: DSNUTILS runs in a WLM managed address space with NUMTCB=1.	DSNTIJSG
2	Edit and run job DSNTIJCM: 1. Migrate z/OS Enablement Version 8 tables to z/OS Enablement Version 9. 2. Define new DB2 table space and tables. 3. Define new DB2 stored procedures and user-defined functions. 4. Define new DB2 views on object maintenance tables. 5. Bind stored procedures, user-defined functions and batch programs. 6. Grant execute privileges on all packages and plans. 7. Grant all privileges on all global temporary tables. Note: The z/OS Enablement DB2 stored procedures and the user-defined functions run in WLM managed address spaces. DSNACCJF, DSNACCJP, DSNACCJQ, DSNACCJS, and DSNACCUC are stored procedures that must be defined to RACF program control and run in a separate WLM managed address space. DSNACCTS is a REXX stored procedure and it has to run in a WLM managed address space with NUMTCB=1. For information about configuring and using WLM to run DB2 stored procedures, consult "DB2 V9.1 for z/OS Administration Guide".	DSNTIJCM
3	If you have applied APAR PK20053 in z/OS Enablement Version 8, edit the cataloged procedures DSNHMONP and DSNHMONA that start the DB2 health monitor with the correct DB2 V9 SDSNLOAD library in the STEPLIB.	

Figure 14 (Page 2 of 2). Basic Material: Detail of z/OS Enablement migration steps

Step	Description	Job/ Command
4	<p>Edit and run job DSNTIJHM:</p> <p>If you have not applied APAR PK20053 in z/OS Enablement Version 8, edit and run job DSNTIJHM:</p> <ol style="list-style-type: none"> 1. Define the ICF catalog for the health monitor alert summary VSAM data set. 2. Define the health monitor alert summary VSAM data set. 3. Allocate a library for the member DSNAHMON and add a sample DSNAHMON member. 4. Add the cataloged procedures that start the DB2 health monitor to the procedure library. 	DSNTIJHM
5	<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 functions:</p> <p>DSNACCAV, DSNACCDD, DSNACCDE, DSNACCDF, DSNACC DL, DSNACCDR, DSNACCDS, DSNACCGH, DSNACCHN, DSNACCHP, DSNACCHR, DSNACCHS, DSNACCJF, DSNACCJP, DSNACCJQ, DSNACCJS, DSNACCMD, DSNACCMG, DSNACCMN, DSNACCMO, DSNACCQC, DSNACCSI, DSNACCSS, DSNACCST, DSNACCTS, DSNACCUC, DSNACCHO, DSNAICUG.</p>	MVS Console Command
6	<p>Stop the WLM-established stored procedure address spaces associated with the z/OS Enablement DB2 stored procedures and user-defined functions (listed in row 5 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
7	<p>Start the WLM-established stored procedure address spaces associated with the z/OS Enablement DB2 stored procedures and user-defined functions (listed in row 5 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 three sample jobs for you to use to define and bind the stored procedures, user-defined functions, and batch programs, and to create cataloged procedures and VSAM data set that are needed by the workstation Control Center and other tools: DSNTIJSJ, DSNTIJCC and DSNTIJHM. DSNTIJSJ is part of the base feature of DB2 V9.1 for z/OS. DSNTIJCC and DSNTIJHM are part of the z/OS Enablement element. These 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.

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

WLMENV3

Replace WLMENV3 with the name of the application environment you have set up for the z/OS Enablement DB2 stored procedure DSNACCTS. DSNACCTS is a REXX stored procedure that has to run in a WLM managed address space with NUMTCB=1.

WLMENV2

Replace WLMENV2 with the name of the application environment you have set up for the z/OS Enablement DB2 stored procedures DSNACCJF, DSNACCJP, DSNACCJQ, DSNACCJS, and DSNACCUC. These stored procedures must be defined to RACF program control and run in a separate WLM managed address space.

WLMENV1

Replace WLMENV1 with the name of the application environment you have set up for the remaining z/OS Enablement DB2 stored procedures and user-defined functions that are not associated with WLMENV3 and WLMENV2.

BP1

Replace buffer pool BP1 with an activated 4KB page buffer pool.

BP2

Replace buffer pool BP2 with an activated 4KB page buffer pool.

BP16K0

Replace buffer pool BP16K0 with an activated 16KB page buffer pool.

Run sample procedure DSNTIJCC to register the z/OS Enablement DB2 stored procedures and user-defined functions to your DB2 subsystem and to bind the packages and plans required by the stored procedures, user-defined functions, and batch programs to DB2. DSNTIJCC also creates databases CC390 and DSNHMDB which are used by the Control Center.

Modify sample procedure DSNTIJHM 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.

NAME(!HLQ!)

Replace !HLQ! with the high level qualifier of the health monitor alert summary VSAM data set.

NAME(!HLQ!.HMONC.HMONSTAT)

Replace !HLQ! with the high level qualifier of the health monitor alert summary VSAM cluster name.

NAME(!HLQ!.HMOND.HMONSTAT.DATA)

Replace !HLQ! with the high level qualifier of the data component name of the health monitor alert summary VSAM data set.

NAME(!HLQ!.HMONI.HMONSTAT.INDEX)

Replace !HLQ! with the high level qualifier of the index component name of the health monitor alert summary VSAM data set.

DSN=!HLQ!.HMONPARM

Replace !HLQ! with the high level qualifier of the partitioned data set (PDS) where the member DSNAHMON will be created.

DSN=!HLQ!.HMONPARM(DSNAHMON)

Replace !HLQ! with the high level qualifier of the partitioned data set (PDS) where the member DSNAHMON will be created.

DSN=!HLQ!.HMONC.HMONSTAT

Replace !HLQ! with the high level qualifier of the health monitor alert summary VSAM cluster name.

!HLQ2!.USER.CATALOG

Replace !HLQ2! with the high level qualifier of your user catalog.

CATALOG(!MCAT!)

Replace !MCAT! with the master catalog name.

VOL=SER=<volser> (in step HMONCAT)

Replace <volser> with the volume on which the user catalog for the health monitor alert summary VSAM data set is to have space.

VOL(<volser>)

Replace <volser> with the volume on which the user catalog for the health monitor alert summary VSAM data set is to have space.

VOLUMES(<volser>)

Replace <volser> with the volume on which the health monitor alert summary VSAM data set is to have space.

VOL=SER=<volser> (in step HMONALOC)

Replace <volser> with the volume on which the partitioned data set (PDS) where the member DSNAHMON will be created is to have space.

Finally, run sample procedure DSNTIJHM to define the ICF catalog for the health monitor alert summary VSAM data set, to define the health monitor alert summary VSAM data set, to allocate a library for the member DSNAHMON, to add the cataloged procedures that start the DB2 health monitor to the procedure library, and to add a sample DSNAHMON member.

Consult the DB2 V9.1 for z/OS Installation Guide, for more information about the jobs that were run when DB2 was installed.

To run the z/OS Enablement installation jobs, 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 functions.

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

Figure 15 (Page 1 of 2). Basic Material: Detail of z/OS Enablement activation steps

Step	Description	Job/Command
1	Edit and run job DSNTIJSG 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 V9.1 for z/OS Administration Guide".	DSNTIJSG
2	Edit and run job DSNTIJCC to define the z/OS Enablement DB2 stored procedures DSNACCAV, DSNACCDD, DSNACCDE, DSNACCDF, DSNACC DL, DSNACC DR, DSNACC DS, DSNACC GH, DSNACC HN, DSNACC HP, DSNACC HR, DSNACC HS, DSNACC JF, DSNACC JP, DSNACC JQ, DSNACC JS, DSNACC MD, DSNACC MG, DSNACC MN, DSNACC MO, DSNACC QC, DSNACC SI, DSNACC SS, DSNACC ST, DSNACC TS, DSNACC UC and the user-defined functions DSNACC HO and DSNAC IUG, create the CC390 and DSNHM DB databases, bind the stored procedures, user-defined functions and batch programs, and define views on object maintenance tables. The z/OS Enablement DB2 stored procedures and the user-defined functions run in a WLM managed address space. DSNACC JF, DSNACC JP, DSNACC JQ, DSNACC JS, and DSNACC UC are stored procedures that must be defined to RACF program control. These stored procedures have to run in a separate WLM managed address space. DSNACC TS is a REXX stored procedure and it has to run in a WLM managed address space with NUMTCB=1.	DSNTIJCC

Figure 15 (Page 2 of 2). Basic Material: Detail of z/OS Enablement activation steps

Step	Description	Job/ Command
3	Edit and run job DSNTIJHM to define the ICF catalog for the health monitor alert summary VSAM data set, to define the health monitor alert summary VSAM data set, to allocate a library for the member DSNAHMON, to add the cataloged procedures that start the DB2 health monitor to the procedure library, and to add a sample DSNAHMON member.	DSNTIJHM
4	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
5	Stop the WLM-established stored procedure address spaces: 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
6	Start the WLM-established stored procedure address spaces: 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 z/OS 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 admin tcpip node <admin_node> remote <host_name>
      system <system_name> ostype mvs
db2 catalog tcpip node <node_name> remote <host_name> server
      <tcp_port> system <system_name> 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 you received the DBA7908E message during connect, verify that you have installed the DB2 stored procedures DSNUTILS and DSNWZP, as well as all the z/OS Enablement DB2 stored procedures.
- 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. You should get back a list of storage groups for which STOSPACE is recommended.
- 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 DB2 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.
- Select the Packages folder. Choose any package in the details view and use the right mouse button to select the 'Rebind...' action. From the Rebind Package window, select OK. You should get back a valid Rebind command output.
- 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 Fallback to z/OS Enablement Version 8

To help you to fallback to z/OS Enablement Version 8 after you have migrated to z/OS Enablement Version 9, IBM provides the sample jobs DSNTIJCF and DSNTIJHM to recreate your z/OS Enablement objects with Version 8 definitions. New z/OS Enablement objects created during migration are deleted. These sample jobs are added to the DB2 target data set SDSNSAMP.

To fallback to z/OS Enablement Version 8 follow these steps:

Step 1: Modify and run the DSNTIJSG sample job

Edit and run job DSNTIJSG to bind DB2 stored procedures DSNUTILS and DSNWZP in Version 8.

Step 2: Modify the DSNTIJCF 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.

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.

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.

WLMENV2

Replace WLMENV2 with the name of the application environment you have set up for the z/OS Enablement DB2 stored procedures DSNACCJP and DSNACCJQ. These stored procedures must be defined to RACF program control and run in a separate WLM managed address space.

WLMENV1

Replace WLMENV1 with the name of the application environment you have set up for the z/OS Enablement DB2 stored procedure DSNACCMO.

BP2

Replace buffer pool BP2 with an activated 4KB page buffer pool.

3. Depending on the service level of your z/OS Enablement Version 8 before you migrated to Version 9 (details are provided in the Notes section of DSNTIJCF), edit DSNTIJCF further to execute only the steps required to fallback to z/OS Enablement Version 8.

Step 3: Run sample job DSNTIJCF

Run sample procedure DSNTIJCF to recreate the z/OS Enablement objects that have been migrated to Version 9 using their Version 8 definitions, to drop new objects (such as database, table space, tables, stored procedures, user-defined functions, views, packages, and plans) that have been created in Version 9 but were not in your Version 8 subsystem prior to migration, and to bind the packages and plans required by the Version 8 stored procedures, user-defined function, and batch programs.

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 DSNTIJCF, you must restart all WLM-established address spaces associated with the z/OS Enablement DB2 stored procedures and user-defined functions.

Step 4: Modify the cataloged procedures that start the DB2 health monitor

If you have applied APAR PK20053 in z/OS Enablement Version 8, update the cataloged procedures that will start the DB2 health monitor (DSNHMONP and DSNHMONA) with the correct DB2 V8 SDSNLOAD library in the STEPLIB.

Step 5: Modify the DSNTIJHM sample job

If you have not applied APAR PK20053 in z/OS Enablement Version 8, modify the DSNTIJHM sample job as follows:

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

!HLQ!.HMONC.HMONSTAT

Replace !HLQ! with the high level qualifier of the health monitor alert summary VSAM cluster name.

3. Comment out steps HMONCAT, HMONDEFN, HMONALOC, HMONPROC, and HMONPARM.
4. Uncomment step HMONDROP.

Step 6: Run sample job DSNTIJHM

If you have not applied APAR PK20053 in z/OS Enablement Version 8, run sample procedure DSNTIJHM to delete the health monitor alert summary VSAM data set.

Step 7: Delete library and cataloged procedures

If you have not applied APAR PK20053 in z/OS Enablement Version 8, perform the following deletions:

1. Delete the DSNHMONA and DSNHMONP cataloged procedures from the procedure library.
2. Delete the library !HLQ!.HMONPARM, where !HLQ! is the high level qualifier you have assigned to the partitioned data set (PDS) where the member DSNAHMON is saved.

6.7 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 UDB DB2 Version 8 or higher GUI Tools such as Control Center and Command Editor installed on the client and the z/OS Enablement DB2 stored procedures installed and activated on the DB2 server.

6.7.1 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
```

6.7.2 Test the DB2 Administration Server functions from client

6.7.2.1 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 admin tcpip node <admin_node>
    remote <host_name> system <system_name> ostype mvs
db2 catalog tcpip node <node_name>
    remote <host_name> server <tcp_port>
    system <system_name> 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>
```

6.7.2.2 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 DB2 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 z/OS UNIX.

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

6.7.2.3 Verify the Run Host command function from Command Editor

Step 1. From the Control Center, right click on an MVS System object and select 'Run Host Command...'. When prompted, enter a valid user ID and password. If DAS is not installed, not created, or not started, the Command Editor is not launched.

Step 2. Type the MVS command 'D A,L' on the command field and select the play button to execute the command. 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.

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

4. The list of files in the DAS installation and DAS working directory showing their extended attributes. To list the files, issue:

```
ls -lER /usr/lpp/db2910_das/das
ls -lER $HOME/das
```

5. The contents of the global registry file. To display the contents, issue:

```
db2greg -dump
```

6. Any dump files that have been created under the \$HOME/das/dump directory.
7. The console output from the system if available (z/OS UNIX 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/db2910_das/das/install to remove the existing DAS. You have to log on using a user ID with superuser privileges to be able to run the dasdrop script.

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 47 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 run the `dasupdt` script from `/usr/lpp/db2910_das/das/install` to ensure that the latest changes are in effect.

To update the DAS, log on using a user ID with superuser privileges and issue:

```
dasupdt <DAS_userid>
```

You also need to manually set the extended attributes as described in section 6.2.3.3 and section 6.2.3.4 of the Program Directory.

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.

Figure 16 (Page 1 of 5). JCL Skeletons

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 DATA SETS)
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 DATA SETS)
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)
DAHCL120 (with alias TLCHGLG1)	JCL SKELETON FOR CLONING (CHANGES LOG INVENTORY)
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)
DAHCL230 (with alias WTVRFALT)	JCL SKELETON FOR CLONING (VERIFIES THE ALTERING PROCESS)

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Printed in U.S.A.

G110-8780-00

