



**Program Directory for
DB2 for OS/390 and z/OS
DB2 Administration Server for z/OS**

Version 07 Release 01, Modification Level 00

Program Number 5675-DB2

FMID HDAS810

for Use with
OS/390
z/OS

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Note!

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

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APAR numbers are provided in this document to assist in locating PTFs that may be required. Ongoing problem reporting may result in additional APARs being created. Therefore, the APAR lists in this document may not be complete. To obtain current service recommendations and to identify current product service requirements, always contact the IBM Customer Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

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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 Administration Server for z/OS. This publication refers to DB2 Administration Server for z/OS as DAS.

The Program Directory contains the following sections:

- 2.0, "Program Materials" on page 3 identifies the basic and optional program materials and documentation for DAS.
- 3.0, "Program Support" on page 6 describes the IBM support available for DAS.
- 4.0, "Program and Service Level Information" on page 8 lists the APARs (program level) and PTFs (service level) incorporated into DAS.
- 5.0, "Installation Requirements and Considerations" on page 9 identifies the resources for installing and using DAS.
- 6.0, "Installation Instructions" on page 14 provides detailed installation instructions for DAS. It also describes the procedures for activating the functions of DAS, or refers to appropriate publications.
- Appendix A, "Problem Determination and DAS Administration" on page 28.
- Appendix B, "DB2 Administration Server JCL Skeletons" on page 30.

Before installing DAS, read the *CBPDO Memo To Users* and the *CBPDO Memo to Users Extension* that were supplied with this program softcopy 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.

DAS is supplied in a Custom-Built Product Delivery Offering (CBPDO, 5751-CS3). The Program Directory is provided softcopy on the CBPDO tape which is identical to the hard copy provided with your order. Your CBPDO contains a softcopy preventive service planning (PSP) upgrade for this product. All service and HOLDDATA for DAS are included on the CBPDO tape.

Do not use this Program Directory if you are installing DAS 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 DAS Description

DAS provides a general mechanism for running OS/390 and z/OS level functions to support the IBM Universal Database GUI Tools such as Control Center, Command Center and Replication Center. DAS provides the following functions:

- Building and creating JCL jobs (Control Center Version 8 supports creating and storing JCL jobs for most functions including executing DB2 utilities or cloning a subsystem)
- Reading and writing datasets (supports PS, PDS, PDSE data sets with RECFM=FB)
- Querying operating system catalog information
- Executing shell scripts in OS/390 and z/OS UNIX
- Issuing MVS system commands through an extended console

1.2 DAS FMID

DAS consists of the following FMID:

HDAS810

2.0 Program Materials

An IBM program is identified by a program number and a feature number. The program number for DAS is 5675-DB2 and its feature number is 6343.

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

The program announcement material describes the features supported by DAS. 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 14 for more information about how to install the program.

Information about the physical tape for the Basic Machine-Readable Materials for DAS 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 6.1.3, "Sample Jobs" on page 14 for details (media volser, file name, tape file number) and how to proceed.

Figure 1 describes the program file content for DAS. 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 these tables 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 ADMIN SRVR z/OS

Name	ORG	RECFM	RECL	BLK SIZE
SMPMCS	SEQ	FB	80	6400

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

Name	O R G	R E C F M	L R E C L	BLK SIZE
IBM.HDAS810.F1	PDS	FB	80	8800
IBM.HDAS810.F2	PDS	FB	80	8800
IBM.HDAS810.F3	PDS	FB	80	3120

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for DAS.

2.3 Program Publications

The following sections identify the basic and optional publications for DAS.

2.3.1 Basic Program Publications

No basic publications are provided for DAS.

2.3.2 Optional Program Publications

No optional publications are provided for DAS.

2.4 Publications Useful During Installation

The publications listed in Figure 2 may be useful during the installation of DAS. To order copies, contact your IBM representative or visit the IBM Publications Center on the world wide web at:
<http://www.elink.ibm.link.ibm.com/applications/public /applications/publications/cgibin/pbi.cgi>

Figure 2 (Page 1 of 2). Publications Useful During Installation

Publication Title	Form Number
IBM SMP/E for z/OS and OS/390 User's Guide	SA22-7773
IBM SMP/E for z/OS and OS/390 Commands	SA22-7771
IBM SMP/E for z/OS and OS/390 Reference	SA22-7772

Figure 2 (Page 2 of 2). Publications Useful During Installation

Publication Title	Form Number
<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 DAS.

3.1 Program Services

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

3.2 Preventive Service Planning

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

If you obtained DAS on product tape, or if the CBPDO is more than two weeks old when you install it, you should contact the IBM Support Center or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

For access to RETAIN, visit <http://www.ibm.link.ibm.com/> on the Internet.

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 DAS are:

Figure 3. PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
DB2710	HDAS810	DB2 ADMINISTRATION SERVER FOR z/OS

3.3 Statement of Support Procedures

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

Figure 4 identifies the component IDs (COMPID) for DAS.

<i>Figure 4. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HDAS810	5740DAS00	DB2 ADMIN SRVR z/OS	810

4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of DAS. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated.

4.1 Program Level Information

No APARs have been incorporated into DAS.

4.2 Service Level Information

No PTFs against this release of DAS have been incorporated into the product tape.

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating DAS. 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 DAS.

5.1.1 Machine Requirements

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

5.1.2 Programming Requirements

<i>Figure 5. Driving System Software Requirements</i>	
Program Number	Product Name and Minimum VRM/Service Level
Any one of the following:	
5647-A01	OS/390 Version 2 Release 8 or higher
5694-A01	z/OS Version 1 Release 1 or higher
5655-G44	IBM SMP/E for z/OS and OS/390 Version 3 Release 1 or higher

5.2 Target System Requirements

This section describes the environment of the target system required to install and use DAS.

DAS 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 Mandatory Requisites: A mandatory requisite is defined as a product that is required without exception; this product either **will not install** or **will not function** unless this requisite is met. This includes products that are specified as REQs or PREs.

Figure 6. Mandatory Requisites

Program Number	Product Name and Minimum VRM/Service Level
5675-DB2	DB2 for z/OS Version 7
5675-DB2	DB2 for z/OS Version 7 (DB2 Management Clients Package feature)
5647-A01	OS/390 V2R9 Base Services, or later
5647-A01	DFSORT, an optional priced feature of OS/390 V2R9

5.2.2.2 Functional Requisites: A functional requisite is defined as a product that is **not** required for the successful installation of this product or for the basic function of the product, but **is** needed at run time for a specific function of this product to work. This includes products that are specified as IF REQs.

DAS has no functional requisites.

5.2.2.3 Toleration/Coexistence Requisites: A toleration/coexistence requisite is defined as a product which must be present on a sharing system. These systems can be other systems in a multisystem environment (not necessarily sysplex), a shared DASD environment (such as test and production), or systems that reuse the same DASD at different time intervals.

DAS has no toleration/coexistence requisites.

5.2.2.4 Incompatibility (Negative) Requisites: A negative requisite identifies products which must *not* be installed on the same system as this product.

DAS has no negative requisites.

5.2.3 DASD Storage Requirements

DAS libraries can reside on all supported DASD types.

Figure 7 on page 11 lists the total space required for each type of library.

<i>Figure 7. Total DASD Space Required by DAS</i>	
Library Type	Total Space Required
Target	320 blocks
Distribution	320 blocks
HFS	28536 Sectors (512 bytes per sector)

Notes:

1. IBM recommends use of system determined block sizes for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a block size of 32760, which is the most efficient from a performance and DASD utilization perspective.
2. Abbreviations used for the data set type are:
 - U** Unique data set, allocated by this product and used only by this product. To determine the correct storage needed for this data set, this table provides all required information; no other tables (or Program Directories) need to be referenced for the data set size.
 - S** Shared data set, allocated by this product and used by this product and others. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other Program Directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.
 - E** Existing shared data set, used by this product and others. This data set is NOT allocated by this product. To determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). This existing data set must have enough free space to accommodate the storage size given in this table.

If you currently have a previous release of this product installed in these libraries, the installation of this release will delete the old one and reclaim the space used by the old release and any service that had been installed. You can determine whether or not these libraries have enough space by deleting the old release with a dummy function, compressing the libraries, and comparing the space requirements with the free space in the libraries.

For more information on the names and sizes of the required data sets, please refer to 6.1.5, "Allocate SMP/E Target and Distribution Libraries" on page 17.

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 LNKLST
 - 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 DAS. The storage requirements of DAS must be added to the storage required by other programs having data in the same library. or path.

Note: The data in these tables should be used when determining which libraries can be merged into common data sets. In addition, since some ALIAS names may not be unique, ensure that no naming conflicts will be introduced before merging libraries.

Figure 8. Storage Requirements for DAS Target Libraries

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C O M	L R E C L	No. of 3390 Trks	No. of DIR Blks
SDAHS LIB	Sample	any	N	PDS	FB	80	51	5
SDAHBASE	Sample	any	N	PDS	FB	80	4	5

Figure 9. DAS HFS Paths

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

Figure 10. Storage Requirements for DAS 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	N	PDS	FB	80	51	5
ADAHBASE	N	PDS	FB	80	4	5
ADAHHFS1	N	PDS	FB	80	302	50

5.3 FMID Deleted

Installing DAS 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 DAS 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

DAS 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 DAS.

Please note the following:

- If you want to install DAS 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 DAS

6.1.1 SMP/E Considerations for Installing DAS

This release of DAS 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 11. Use of values lower than these may result in failures in the installation process. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. Refer to the SMP/E manuals for instructions on updating the global zone.

Figure 11. SMP/E Options Subentry Values

SUB-ENTRY	Value	Comment
DSSPACE	200,200,500	3390 DASD Tracks
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

6.1.3 Sample Jobs

The following sample installation jobs are provided as part of the product to help you install DAS:

Figure 12. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
DAHRECEV	RECEIVE	Sample RECEIVE job	IBM.HDAS810.F2
DAHALLOC	ALLOCATE	Sample job to allocate target and distribution libraries	IBM.HDAS810.F2
DAHISMKD	MKDIR	Sample job to invoke the supplied DAHMKDIR EXEC to allocate HFS paths	IBM.HDAS810.F2
DAHDDDEF	DDDEF	Sample job to define SMP/E DDDEFs	IBM.HDAS810.F2
DAHAPPLY	APPLY	Sample APPLY job	IBM.HDAS810.F2
DAHACCEP	ACCEPT	Sample ACCEPT job	IBM.HDAS810.F2
DAHHSUN	Untar	Sample used during customization	IBM.HDAS810.F2

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, and comment out or delete the other statement. Add a job card and change the lowercase parameters to uppercase values to meet your site's requirements before submitting.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//*****
/* 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.HDAS810.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.HDAS810.F2,UNIT=tunit,
/* VOL=SER=DAS810,LABEL=(3,SL),
/* DISP=(OLD,KEEP)
//*****
/* Make the //FILEIN DD statement below active for *
/* downloaded DASD files. *
//*****
/**FILEIN DD DSN=IBM.HDAS810.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
        SELECT MEMBER=(DAHRECEV,DAHDDDEF,DAHALLOC,DAHAPPLY,DAHACCEP)
        SELECT MEMBER=(DAHISMKD,DAHHSUN)
/*

```

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

If using TAPEIN:

tunit is the unit value matching the product tape

volser is the volume serial matching the product tape

X is the tape file number where the data set name is on the tape

Refer to the documentation provided by CBPDO to see where IBM.HDAS810.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.

You can also access the sample installation jobs by performing an SMP/E RECEIVE and then copying the jobs from the SMPTLIBs to a work data set for editing and submission. See Figure 12 on page 14 to find the appropriate SMPTLIB data set.

6.1.4 Perform SMP/E RECEIVE

NOTE: If you obtained DAS as part of a CBPDO, use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the DAS FMIDs as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO.

Edit and submit sample job DAHRECEV to perform the SMP/E RECEIVE for DAS. Consult the instructions in the sample job for more information.

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

6.1.5 Allocate SMP/E Target and Distribution Libraries

Edit and submit sample job DAHALLOC to allocate the SMP/E target and distribution libraries for 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.

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

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

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

6.1.6 Create DDDEF Entries

Edit and submit sample job DAHDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for 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.

6.1.7 Perform SMP/E APPLY

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

Once you have taken any actions indicated by the APPLY CHECK, remove the CHECK operand and run the job again to perform the APPLY.

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

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

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

6.1.8 Perform SMP/E ACCEPT

Edit and submit sample job DAHACCEP to perform an SMP/E ACCEPT CHECK for DAS. 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.

Expected Return Codes and Messages from ACCEPT: 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.

6.1.9 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 which you can use to install those cross-zone requisites it identifies.

After you have installed DAS, it is recommended that you run REPORT CROSSZONE against the new or updated target and distribution zones. REPORT CROSSZONE requires a global zone with ZONEINDEX entries describing all the target and distribution libraries to be reported on.

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

6.2 Activating DAS

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

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

6.2.1 Untar the DAS Tar File

Edit and submit sample job DAHHFSUN to untar the file DAHTARZ under /usr/lpp/db2_08_01. Consult the instructions in the sample job for more information.

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

6.2.2 RACF Administration

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

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

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

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

6.2.2.2 Set up BPX.DAEMON facility class (Optional): You can define the BPX.DAEMON facility class if you want your system to have a z/OS UNIX level of security. With BPX.DAEMON defined, your system can exercise more control over users with daemon authority. Once the BPX.DAEMON facility class is defined, you need to give the DAS user ID READ access to this facility class. You also need to turn on program control for the DAS binaries and libraries specified in 6.2.3.4, "Turn on program control for DAS binaries and DLLs" on page 22.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```
SETROPTS CLASSACT(OPERCMDS)
```

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

```
SETROPTS GENERIC(OPERCMD5)
```

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

```
RDEFINE OPERCMD5 MVS.MCSOPER.* UACC(NONE)
```

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

```
PERMIT MVS.MCSOPER.* CLASS(OPERCMD5) ID(USER001) ACCESS(READ)
```

5. Issue the SETROPTS RACLIST command to refresh the OPERCMD5 reserve class:

```
SETROPTS RACLIST(OPERCMD5) REFRESH
```

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

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

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

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

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

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

6.2.3 Set Up the Environment

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

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

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

```
SETOMVS IPCSHMNSEGS=200
```

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

```

:
PORT

:
:
523 TCP OMVS           ; DB2 Administration Server
:

```

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

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

```

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

```

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

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

```

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

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

```

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

```

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

```

6.2.4 Create the DB2 Administration Server and Metadata files

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

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

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

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

The 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 (SDAHSLIB) library to specify /usr/lpp/db2_08_01/das/lib for the ENVAR parameter.

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

The syntax of the dasCRTMD script is:

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

where:

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

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

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

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

6.2.5 Configure environment variables

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

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

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

```
export _BPX_SHAREAS=NO
```

6.2.6 Starting and Stopping the DB2 Administration Server

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

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

6.2.6.1 Starting the DB2 Administration Server from the z/OS UNIX shell: To start the server, you must log on using the DAS user ID and start the server from the z/OS UNIX shell by entering:

```
db2admin start
```

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

6.2.6.2 Starting the DB2 Administration Server automatically: To start the server automatically during initialization, put the command in /etc/rc. You can add the following lines in /etc/rc:

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

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

```
D OMVS,A=ALL  
BPX0040I 05.34.29 DISPLAY OMVS 896  
OMVS 000E ACTIVE OMVS=(00)  
USER JOBNAME ASID PID PPID STATE START CT_SECS  
OMVSKERN BPX0INIT 001D 1 0 MR---- 06.18.57 2.45  
LATCHWAITPID= 0 CMD=BPXPINPR  
SERVER=Init Process AF=    1 MF=000000 TYPE=FILE  
:  
:  
USRT002 0000 33554449 83886096 1L---- 05.10.42 .00  
DASUSER  DAS 0035 67108882  1 HFI--- 05.10.49 .16  
LATCHWAITPID=          0 CMD=/u/dasuser/das/adm/db2dasrrm
```

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

6.2.6.3 Stopping the DB2 Administration Server from the z/OS UNIX shell: To stop the server, you must log on using the DAS user ID and stop the server from the z/OS UNIX shell environment by entering:

```
db2admin stop
```

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

6.3 Installation Verification Process

The steps described in this section allow you to perform simple tests that verify the successful installation of the DB2 Administration Server for z/OS. Some of the steps require the IBM Universal Database Version 8 GUI Tools such as Control Center and Command Center installed on the client and the 390 enablement stored procedures installed and activated on the DB2 server.

6.3.1 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
```

6.3.2 Test the DB2 Administration Server functions from client

6.3.2.1 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 390 Enablement. You can catalog a DB2 subsystem using the Configuration Assistant or by entering the following commands from the DB2 command window:

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

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

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

Database Connection Information

```
Database server      = DB2 OS/390 7.1.1
SQL authorization ID = <userid>
Local database alias = <db_alias>
```

6.3.2.2 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 390 Enablement stored procedures are not known to DB2. In this case, 390 Enablement is not installed or not activated.

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

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

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

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

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

6.3.2.3 Verify the Run Host command function from Command Center

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

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

6.3.2.4 Launch the Create Cloning Session Wizard

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

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

Appendix A. Problem Determination and DAS Administration

A.1 Gathering diagnostic information

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

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

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

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

A.2 Dropping the DB2 Administration Server

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

If you are dropping an existing DAS, you may want to backup the DAS metadata files. Refer to A.4, "Backing up the DB2 Administration Server Metadata Files" on page 29 for more information.

To drop the DAS, issue:

```
dasdrop <DAS_userid>
```

A.3 Updating the DB2 Administration Server

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

To update the DAS, issue:

```
dasupdt <DAS_userid>
```

A.4 Backing up the DB2 Administration Server Metadata Files

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

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

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

Appendix B. DB2 Administration Server JCL Skeletons

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

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

Figure 13 (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 13 (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 13 (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 13 (Page 4 of 5). JCL Skeletons

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

Figure 13 (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)

Reader's Comments

Program Directory for DB2 Administration Server for z/OS December 2002

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