



**Program Directory for  
IBM Database 2 Universal Database Server for OS/390  
Volume 1 of 6**

Version 06

Program Number 5645-DB2

FMIDs HDB6610, HIR2101, H253610, H254610

for Use with  
OS/390

CBPDO Level SMC0014

Document Date: May 2000

GI10-8182-02

**Note!**

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DPropNR	TCP/IP
DRDA	VTAM
ES/9000	3090

The following terms are trademarks of other companies as follows:

ODBC	Microsoft Corporation
Open Database Connectivity	Microsoft Corporation
Java	Sun Microsystems
Java Database Connectivity	Sun Microsystems
Java Virtual Machine	Sun Microsystems
JDBC	Sun Microsystems

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Other company, product, and service names, which may be denoted by a double asterisk (\*\*), may be trademarks or service marks of others.

**Note:** COBOL is used to represent OS/VS COBOL, VS COBOL II, and COBOL/370 programming languages.

## 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 IBM DB2 Universal Database Server for OS/390. This publication refers to IBM DB2 Universal Database Server for OS/390 as DB2 UDB for OS/390. You should read all of this program directory before installing the program and then keep it for future reference.

With this delivery of DB2 UDB for OS/390, additional features and their product specific materials and Program Directories are included. Please refer to Figure 1 for a complete list of program directory volumes of the server elements available.

This Program Directory is volume 1 of 6, and contains installation and activation information for DB2, IRLM, ODBC, JDBC, IAV Extenders, Text Extender, GEM DB2 Instrumentation, Data Propagator Apply Try, Data Propagator Apply Buy, Data Propagator Capture Try and Data Propagator Capture Buy. To fully install all of the elements which comprise the DB2 UDB Server for OS/390 Version 6, please read each elements Program Directory carefully. At a future date, all base entitled elements of DB2 UDB Server for OS/390 Version 6, will be documented in one Program Directory.

The elements included with this delivery of DB2 UDB for OS/390 referenced as 'Try' and 'Buy', may be installed and used on a trial basis (also known as a **"Try and Buy"** basis) for 90 days from the date of installation of the element. The QMF for Windows CD-ROM may be installed and used on a trial basis for 60 days from the date of installation. There is no Program Directory for QMF for Windows, so refer to the QMF for Windows books for installation information.

These optional, priced elements are shipped with DB2 UDB for OS/390 so that you can install and test them to discover the value they bring to your DB2. A full-use license for each of the priced elements may be obtained by ordering the appropriate billing feature number and media feature number, labeled as "Buy", for the optional priced element, as indicated in the announcement letter for DB2 UDB for OS/390.

Also available as optional no-charge features are DB2 Management Tools Package and Net.Data.

<b>Program Directory Title</b>	<b>Volume in Set</b>
IBM Database 2 Universal Database Server for OS/390 Version 6	1 of 6
DB2 UDB for OS/390 DB2 Performance Monitor	2 of 6
DB2 UDB for OS/390 Query Management Facility	3 of 6
DB2 UDB for OS/390 Query Management Facility High Performance Option	4 of 6
DB2 UDB for OS/390 DB2 Administration Tool	5 of 6
DB2 UDB for OS/390 DB2 Buffer Pool Tool	6 of 6

This program directory contains the following sections:

- 2.0, “Program Materials” on page 7 identifies the basic and optional program materials and documentation for DB2 UDB for OS/390.
- 3.0, “Program Support” on page 17 describes the IBM support available for DB2 UDB for OS/390.
- 4.0, “Program and Service Level Information” on page 22 lists the APARs (program level) and PTFs (service level) incorporated into DB2 UDB for OS/390.
- 5.0, “Installation Requirements and Considerations” on page 24 identifies the resources and considerations for installing and using DB2 UDB for OS/390.
- 6.0, “Installation and Migration Instructions” on page 47 provides detailed installation instructions for DB2 UDB for OS/390 and its features. It also describes the procedures for activating functions of DB2 UDB for OS/390, or refers to appropriate publications.
- Appendix A, “DB2 UDB for OS/390 Install Logic” on page 124 provides the install logic for DB2 UDB for OS/390 and its features.
- Appendix B, “Included PTFs for DB2 UDB for OS/390” on page 125 provides a list of PTFs that have been integrated into the DB2 UDB for OS/390 service update.

Before installing DB2 UDB for OS/390, read 3.2, “Preventive Service Planning” on page 17 for additional HIPER maintenance information and 4.1, “Program Level Information” on page 22.

Do not use this program directory if you are installing DB2 UDB for OS/390 with an MVS Custom-Built Installation Process Offering (CBIPO), 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.

If you are installing DB2 UDB for OS/390 using the MVS Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), use the softcopy program directory provided on the CBPDO tape. Your CBPDO contains a softcopy preventive service planning (PSP) upgrade for this product. All service and HOLDDATA for DB2 UDB for OS/390 are included on the CBPDO tape.

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## 1.1 DB2 UDB for OS/390 Description

DB2 is a relational database management system for OS/390. In a relational database, data is perceived to exist in one or more tables, each containing a specific number of columns and a number of unordered rows. Each column in a row is related in some way to the other columns. Thinking of the data as a collection of tables gives you an easy way to visualize the stored data and enables you to explain your needs in easy-to-understand terms.

DB2 operates as a formal subsystem of OS/390. DB2 utilities run in the batch environment, and applications that access DB2 resources can run in the batch, TSO, IMS, or CICS environments. Utilities can also run via stored procedure. IBM provides attachment facilities to connect DB2 to each of these environments.



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## 1.2 IRLM Description

The internal resource lock manager (IRLM) is distributed with and required by DB2. The IRLM is responsible for managing all requests for locks and for controlling access to both DB2 and IMS databases.

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## 1.3 Math Functions Description

Also new to the release of IBM DB2 Universal Database Server for OS/390 is Math Functions, which provides scalar mathematical functions for DB2.

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## 1.4 ODBC/JDBC/SQLJ Description

DB2 Open Database Connectivity (ODBC) is IBM's callable SQL interface by the DB2 family of products. It is a 'C' and 'C ++ ' application programming interface for relational database access, and it uses function calls to pass dynamic SQL statements as function arguments. It is an alternative to embedded dynamic SQL, but unlike embedded SQL, it does not require a precompiler.

DB2 ODBC is based on the Microsoft(tm) Open Database Connectivity (ODBC) specification, and the X/Open Call Level Interface specification. These specifications were chosen as the basis for the DB2 ODBC in an effort to follow industry standards and to provide a shorter learning curve for those application programmers already familiar with either of these data source interfaces. In addition, some DB2 specific extensions were added to help the DB2 application programmer specifically exploit DB2 features.

The Java Database Connectivity (JDBC) feature of DB2 UDB for OS/390 provides Java for OS/390 applications access to local DB2 for OS/390 data or remote relational data stored at some DRDA Application Server. The DB2 UDB for OS/390 JDBC function is provided via a DB2 for OS/390 JDBC Driver, which has been validated using the publicly available JDBC test suite published by Sun Microsystems, Inc. The DB2 for OS/390 JDBC Driver is implemented as a type 2 driver, one of four types of JDBC drivers defined by JavaSoft. The type 2 driver translates JDBC calls into native DBMS programming requests.

Included in the JDBC feature is SQLJ, a new proposed industry standard for providing support for embedded static SQL within Java applications. SQLJ was initially developed to complement the dynamic SQL JDBC model with a static SQL model which would provide the vehicle for better performance. Applications using dynamic SQL will continue to use JDBC, while applications which want the functional and performance benefits of a static SQL model will use SQLJ.

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## 1.5 IAV Extenders Description

New to IBM DB2 Universal Database Server for OS/390 are Image, Audio and Video Extenders, which provide the capacity to handle and store new complex data types. The DB2 Extenders build on the object-relational infrastructure of DB2. Each extender defines UDT for its domain, and UDFs for requesting operations specific to its data type. Each extender package also provides stored procedures for implementing administrative requests, and triggers that ensure referential integrity between image, audio, and video objects and their stored attributes. For example, the Image Extender defines a UDT for image objects, and included UDFs for operations as varied as retrieving images from a table or querying attributes such as the number of colors in an image.

---

## 1.6 Text Extender Description

Also new to IBM DB2 Universal Database Server for OS/390 is the Text Extender, which adds the power of full-text retrieval to SQL queries. Using the Text Extender, you can search unstructured documents of up to 2 gigabytes in size in a DB2 database. The Text Extender provides a UDT needed for text indexing, and UDFs for requesting operations. Text Extender offers a lot of search power and flexibility. For example, you can search for documents that contain specific text, synonyms, or words in proximity, such as in the same sentence or in its ability to search through many thousands of large text documents at high speed, finding not only what you directly ask for, but also word variations and synonyms.

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## 1.7 Tivoli Global Enterprise Manager (GEM) DB2 for OS/390 Instrumentation Description

The Tivoli Global Enterprise Manager DB2 for OS/390 Instrumentation allows the DB2 environment to be monitored from the topology console. Status changes, tasks, and exceptions can be noted or executed from the topology console. The GEM DB2 Instrumentation provides graphical, integrated operation and monitoring of the DB2 S/390 product in the distributed environment.

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## 1.8 DB2 Data Propagator Apply Description

The Data Propagator Apply program is the replication tool that replicates copies of the source table data to the target table. It reads the changed data previously captured and stored in a change data table by the Capture program and applies the changes to target tables. The DB2 UDB for OS/390 program also reads data directly from source tables when copying the entire source table data for a full refresh of the target table.

The Data Propagator Apply program generally runs at the target server, but it can run at any server in your network as long as it can connect the source, control, and target servers. Several Apply program instances can run on the same or different servers.

For detailed information on the Apply program please refer to the IBM Replication Guide Version 6 (SC26-9642).

Data Propagator Apply 'TRY' is the fully functional product to be used for a 90 day trial basis. Data Propagator Apply 'BUY' enables the full-use license of Data Propagator Apply.

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## 1.9 DB2 Data Propagator Capture Description

The Data Propagator Capture program is the replication tool that captures the changed data and makes the changed data available for replication. It runs at the source server data base.

For more detailed product information refer to *IBM Replication Guide Version 6*.

Data Propagator Capture 'TRY' is the fully functional product to be used for a 90 day trial basis. Data Propagator Capture 'BUY' enables the full-use license of Data Propagator Capture.

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## 1.10 Data Difference Utility (DDU) Description

The Data Difference Utility is a simple, stand-alone utility for generating propagation deltas using current and previous levels of a specially formatted sequential input file. It implements propagation using a batch "old master/new master" technique where the current level of the input file is compared against a previous level. Relational inserts, updates, and deletes are then generated from the comparison. It is intended as a code base for providing change propagation function from data sources not supported by DProp Capture, to CCD staging tables in DB2.

A "standard" DB2 for MVS/ESA load format file is required as input. Output (and old-level comparison file) are in a similar format, except for the addition of time stamp and sequence number (that is, the special "snapper columns" used by DProp.) A DB2 table is required at run time to store control and state information and the definition of the target table.

The DDU is written in the C/370 programming language and packaged as a sample program in both source and object forms. This allows for customer modification of the source code which is usually required for integration into a more complete solution. For example, customers may choose to modify the DDU in order to provide direct access to a VSAM file, as well as provide logic for record selection, field mapping, and data type conversions.

**Note:** The only documentation required for the DDU is provided in the DDUIINST of the SEKYSAMP data set.

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## 1.11 DB2 UDB for OS/390 FMIDs

DB2 UDB for OS/390 consists of the following FMIDs:

HDB6610	H0AL211
HIY6610	H253610
HIZ6610	HQW9221
HIR2101	J25361A
HDB661A	J25361B
JDB6612	J25361C
JDB6613	J253611
JDB6614	H254610
JDB6617	J25461A
JDB6619	J25461B
JDB661B	J25461C
JDB661C	J254611
JDB6611	

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## 2.0 Program Materials

An IBM program is identified by a program number and a feature number. The program number for DB2 UDB for OS/390 is 5645-DB2, which includes Tivoli Global Enterprise Manager DB2 for OS/390 Instrumentation, program number 5697-GEM.

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 may be ordered under separate feature codes, and are not required for the product to function.

The program announcement material describes the features supported by DB2 UDB for OS/390. Ask your IBM representative for this information if you have not already received a copy.

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### 2.1 Basic Machine-Readable Material

The distribution medium for this program is 9-track magnetic tape (written at 6250 BPI), 3480 cartridge, or 4mm cartridge. The tape or cartridge contains all the programs and data needed for installation. It is installed using SMP/E, and is in SMP/E RELFILE format. See 6.0, "Installation and Migration Instructions" on page 47 for more information about how to install the program.

Figure 2, Figure 3 on page 9, Figure 4 on page 9, and Figure 5 on page 9 describes the tape or cartridge. Figure 6 on page 9, Figure 7 on page 10, Figure 8 on page 10, Figure 9 on page 11, Figure 10 on page 12, Figure 11 on page 12, Figure 12 on page 12, Figure 13 on page 13, Figure 14 on page 14, Figure 15 on page 14, and Figure 16 on page 14 describes the file content of the program tape or cartridge.

#### Notes:

1. The data set attributes in these tables should be used in the JCL of jobs accessing the tape, but since the data sets on the tape are in IEBCOPY unloaded format, their actual attributes may be different.
2. If you are installing DB2 UDB for OS/390 using the MVS Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), some of the information in these figures may not be valid. Consult the CBPDO documentation for actual values.
3. If any RELFILEs are identified as PDSEs, ensure that SMPTLIB data sets are allocated as PDSEs.

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 tape	5821	1	SMC0014 SUP - DB2	DB6610
		2	SMC0014 SUP - IRLM	IR2101
		3	SMC0014 SUP - ODBC	DB6617

Figure 2 (Page 2 of 2). Basic Material: Program Tapes and CDRoms

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
		4	SMC0002 SUP - IAV	DB661B
		5	SMC0010 SUP - TEXT	DB661C
		6	GEM DB2 INSTRUMENT	0AL211
		7	SMC0013 DPApply TRY	253610
		8	SMC0011 DPCaptr TRY	254610
		9	DB2 Extenders Clients	CDROM
		10	DB2 BPT Grph/Cplg Facility	CDROM
		11	DB2 FORMS TRY	CDROM
3480 cart.	5822	1	SMC0014 SUP - DB2	DB6610
		2	SMC0014 SUP - IRLM	IR2101
		3	SMC0014 SUP - ODBC	DB6617
		4	SMC0002 SUP - IAV	DB661B
		5	SMC0010 SUP - TEXT	DB661C
		6	GEM DB2 INSTRUMENT	0AL211
		7	SMC0013 DPApply TRY	253610
		8	SMC0011 DPCaptr TRY	254610
		9	DB2 Extenders Clients	CDROM
		10	DB2 BPT Grph/Cplg Facility	CDROM
		11	DB2 FORMS TRY	CDROM
4mm cart.	6270	1	SMC0014 SUP - DB2	DB6610
		2	SMC0014 SUP - IRLM	IR2101
		3	SMC0014 SUP - ODBC	DB6617
		4	SMC0002 SUP - IAV	DB661B
		5	SMC0010 SUP - TEXT	DB661C
		6	GEM DB2 INSTRUMENT	0AL211
		7	SMC0013 DPApply TRY	253610
		8	SMC0011 DPCaptr TRY	254610
		9	DB2 Extenders Clients	CDROM
		10	DB2 BPT Grph/Cplg Facility	CDROM
		11	DB2 FORMS TRY	CDROM

Figure 3. Basic Material: Program Tapes - Kanji

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 tape	5204	1 of 1	BASIC MTL - KANJI	DB6611
3480 cart.	5103	1 of 1	BASIC MTL - KANJI	DB6611
4mm cart.	5516	1 of 1	BASIC MTL - KANJI	DB6611

Figure 4. Basic Material: Program Tape - Data Propagator Apply Buy

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 tape	5801	1 of 1	SMC9919 DPApply Buy	253611
3480 cart.	5802	1 of 1	SMC9919 DPApply Buy	253611
4mm cart.	5701	1 of 1	SMC9919 DPApply Buy	253611

Figure 5. Basic Material: Program Tape - Data Propagator Capture Buy

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 tape	5891	1 of 1	SMC9919 DPCaptr Buy	254611
3480 cart.	5101	1 of 1	SMC9919 DPCaptr Buy	254611
4mm cart.	5520	1 of 1	SMC9919 DPCaptr Buy	254611

Figure 6 (Page 1 of 2). Program Tape: DB2 File Content

VOLSER	F i l e	Name	Dist Library	O R G	R E C F M	L R E C L	BLK SIZE
DB6610	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.HDB6610.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.HDB6610.F2	ADSNLOAD	PDS	U	0	6144
	4	IBM.HDB6610.F3	ADSNIVPD	PDS	VB	8188	8192
	5	IBM.HDB6610.F4	ADSNMACS	PDS	FB	80	8800
	6	IBM.HIY6610.F1	SMPJCLIN	PDS	FB	80	8800
	7	IBM.HIY6610.F2	ADSNMACS	PDS	FB	80	8800
	8	IBM.HIY6610.F3	ADSNLOAD	PDS	U	0	6144
	9	IBM.HIZ6610.F1	SMPJCLIN	PDS	FB	80	8800

Figure 6 (Page 2 of 2). Program Tape: DB2 File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
10	IBM.HIZ6610.F2	ADSNLOAD	PDS	U	0	6144	
11	IBM.HDB661A.F1	ADSNINST	PDS	FB	80	8800	
12	IBM.HDB661A.F2	ADSNBKS	PDS	FB	4096	28672	
13	IBM.HDB661A.F3	ADSNINDEX	PDS	FB	4096	28672	
14	IBM.HDB661A.F4	ADSNSHLF	PDS	FB	80	8800	
15	IBM.JDB6613.F1	SMPJCLIN	PDS	FB	80	8800	
16	IBM.JDB6613.F2	ADSNMACS	PDS	FB	80	8800	
17	IBM.JDB6613.F3	ADSNLOAD	PDS	U	0	6144	
18	IBM.JDB6614.F1	ADSNENU	PDS	FB	80	8800	
19	IBM.JDB6619.F1	SMPJCLIN	PDS	FB	80	8800	
20	IBM.JDB6619.F2	ADSNLOAD	PDS	U	0	6144	

Figure 7. Program Tape: IRLM File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
IR2101	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.HIR2101.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.HIR2101.F2	ADXRLOAD	PDS	U	0	6144
	4	IBM.HIR2101.F3	ADXRSAMP	PDS	FB	80	8800

Figure 8 (Page 1 of 2). Program Tape: DB2 ODBC/JDBC/SQLJ File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
DB6617	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JDB6617.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.JDB6617.F2	ADSNLOAD	PDS	U	0	6144



Figure 8 (Page 2 of 2). Program Tape: DB2 ODBC/JDBC/SQLJ File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
4	IBM.JDB6617.F3	ADSNMACS	PDS	FB	80	8800	
5	IBM.JDB6612.F1	SMPJCLIN	PDS	FB	80	8800	
6	IBM.JDB6612.F2	ADSNLOAD	PDS	U	0	6144	
7	IBM.JDB6612.F3	ADSNMACS	PDS	FB	80	8800	
8	IBM.JDB6612.F4	ADSNHFS	PDS	VB	255	2044	

Figure 9. Program Tape: IAV Extenders File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
DB661B	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JDB661B.F1	n/a	PDS	FB	80	8800
	3	IBM.JDB661B.F2	ADMBBASE	PDS	FB	80	8800
			ADMBDBRM	PDS	FB	80	8800
	4	IBM.JDB661B.F3	ADMBLOAD	PDS	U	0	6144
			ADMBLOA2	PDS	U	0	6144
	5	IBM.JDB661B.F4	ADMBEXP	PDS	FB	80	8800
			ADMBEXP2	PDS	FB	80	8800
	6	IBM.JDB661B.F5	ADMBSMP	PDS	VB	255	19069
			ADMBMACS	PDS	VB	255	19069
			ADMBMAC2	PDS	VB	255	19069
	7	IBM.JDB661B.F6	ADMBSMPH	PDS	VB	255	19069
			ADMBSMPC	PDS	VB	255	19069
	8	IBM.JDB661B.F7	ADMBSAMP	PDS	FB	80	880
	9	IBM.JDB661B.F8	ADMBSMPH	PDS	VB	255	19069

Figure 10. Program Tape: Text Extender File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
DB661C	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JDB661C.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.JDB661C.F2	ADESJCL1	PDS	FB	80	8800
	4	IBM.JDB661C.F3	ADESSCR1	PDS	VB	255	6220
	5	IBM.JDB661C.F4	ADESMOD1	PDS	U	0	6144
	6	IBM.JDB661C.F5	ADESMOD2	PDS	U	0	6144
	7	IBM.JDB661C.F6	ADESDB2I	PDS	FB	80	8800
	8	IBM.JDB661C.F7	ADESBIN1	PDS	VB	255	6220

Figure 11. Program Tape: GEM DB2 Instrumentation File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
0AL211	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.H0AL211.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.H0AL211.F2	AIHSCLSB	PDS	FB	80	8800
	4	IBM.H0AL211.F3	AIHSMODB	PDS	U	0	6144
	5	IBM.H0AL211.F4	AIHSSMPB	PDS	FB	80	6160

Figure 12 (Page 1 of 2). Program Tape: Data Propagator Apply Try File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
253610	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.H253610.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.H253610.F2	AASNABSE	PDS	FB	80	8800
	4	IBM.H253610.F3	AASNADBM	PDS	FB	80	8800
	5	IBM.H253610.F4	AASNAOBJ	PDS	FB	80	8800

Figure 12 (Page 2 of 2). Program Tape: Data Propagator Apply Try File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
6	IBM.H253610.F5	AASNAMOD	PDS		U	0	6144
7	IBM.H253610.F6	AASNAEMG AASNASMG AASNAUMG	PDS PDS PDS		FB	80	8800
8	IBM.J25361A.F1	AASNAEMG	PDS		FB	80	8800
9	IBM.J25361B.F1	AASNAUMG	PDS		FB	80	8800
10	IBM.J25361C.F1	AASNASMG	PDS		FB	80	8800
11	IBM.HQW9221.F1	SMPJCLIN	PDS		FB	80	8800
12	IBM.HQW9221.F2	AEKYIVPD	PDS		VB	4092	4096
13	IBM.HQW9221.F3	AEKYLOAD	PDS		U	0	6144
14	IBM.HQW9221.F4	AEKYSAMP	PDS		FB	80	8800
15	IBM.HQW9221.F5	AEKYDBRM	PDS		FB	80	8800

Figure 13 (Page 1 of 2). Program Tape: Data Propagator Capture Try File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
254610	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.H254610.F1	SMPJCLIN	PDS	FB	80	8800
	4	IBM.H254610.F3	AASNLDDBM	PDS	FB	80	8800
	5	IBM.H254610.F4	AASNLMOD	PDS	U	0	6144
	6	IBM.H254610.F5	AASNLEMG AASNLSMG AASNLU MG	PDS PDS PDS	FB	80	8800
	7	IBM.J25461A.F1	AASNLEMG	PDS	FB	80	8800
	8	IBM.J25461B.F1	AASNLU MG	PDS	FB	80	8800
	9	IBM.J25461C.F1	AASNLSMG	PDS	FB	80	8800
	10	IBM.HQW9221.F1	SMPJCLIN	PDS	FB	80	8800
	11	IBM.HQW9221.F2	AEKYIVPD	PDS	VB	4092	4096
	12	IBM.HQW9221.F3	AEKYLOAD	PDS	U	0	6144

Figure 13 (Page 2 of 2). Program Tape: Data Propagator Capture Try File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
13	IBM.HQW9221.F4	AEKYSAMP	PDS	FB	80	8800	
14	IBM.HQW9221.F5	AEKYDBRM	PDS	FB	80	8800	

Figure 14. Program Tape: DB2 Kanji Panels File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
DB6611	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JDB6611.F1	ADSNDKF	PDS	FB	80	8800

Figure 15. Program Tape: Data Propagator Apply Buy File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
253611	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.J253611.F1	SMPJCLIN	PDS	FB	80	6400
	3	IBM.J253611.F2	AASNABS2	PDS	FB	80	8800
	4	IBM.J253611.F3	AASNALK2	PDS	U	0	6144

Figure 16. Program Tape: Data Propagator Capture Buy File Content

<b>VOLSER</b>	<b>F i l e</b>	<b>Name</b>	<b>Dist Library</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>BLK SIZE</b>
254611	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.J254611.F1	SMPJCLIN	PDS	FB	80	6400
	3	IBM.J254611.F2	AASNLS2	PDS	FB	80	8800
	4	IBM.J254611.F3	AASNLLK2	PDS	U	0	6144

---

## 2.2 Optional Machine-Readable Material

The distribution medium for optional machine-readable material is CDROM for the DB2 Extenders (DB2 Extenders comes in tape format for the host, and CDROM for the workstation) in the Basic Material package.

---

## 2.3 Program Publications

The following sections identify the basic and optional publications for DB2 UDB for OS/390.

### 2.3.1 Basic Program Publications

Figure 17 identifies the basic unlicensed program publications for DB2 UDB for OS/390. One copy of each of these publications is included when you order the basic materials for DB2 UDB for OS/390. For additional copies, contact your IBM representative.

*Figure 17. Basic Material: Unlicensed Publications*

<b>Publication Title</b>	<b>Form Number</b>
DB2 UDB for OS/390 Administration Guide	SC26-9003
DB2 UDB for OS/390 Command Reference	SC26-9006
DB2 UDB for OS/390 Data Sharing: Planning and Administration	SC26-9007
DB2 UDB for OS/390 Installation Guide	GC26-9008
DB2 UDB for OS/390 Licensed Program Specifications	GC26-9009
DB2 UDB for OS/390 Messages and Codes	GC26-9011
DB2 UDB for OS/390 SQL Reference	SC26-9014
DB2 UDB for OS/390 Utility Guide and Reference	SC26-9015

Figure 18 identifies the basic licensed program publications for DB2 UDB for OS/390. The first copy is available at no charge to licensees of the basic material by ordering the 7xxx Feature Number. Order additional copies using the 8xxx Feature Number. A fee is charged for additional copies.

*Figure 18. Basic Material: Licensed Publications*

<b>Publication Title</b>	<b>Form Number</b>	<b>Feature Number</b>
DB2 UDB for OS/390 Diagnostic Quick Reference Card	LY36-3737	8203
DB2 UDB for OS/390 Diagnosis Guide and Reference	LY36-3736	8204
DB2 UDB for OS/390 Licensed Online Book and PDF CD-ROM	LK3T-3519	8205

**Note:** Control block descriptions that were previously found in the Diagnosis Guide and Reference can now be found in the DSN610.SDSNSAMP (DSNWCBD5).

## 2.3.2 Optional Program Publications

No optional publications are provided for DB2 UDB for OS/390. However, a README file is included with the JDBC/SQLJ optional feature which documents additional instructions regarding the use of JDBC/SQLJ. The README file is installed to HFS file `/usr/lpp/db2/db2610/README`, which is created during the SMP/E APPLY step.

---

## 2.4 Program Source Materials

Customers with access to View Program Listings (VPL), such as through S/390 SoftwareXcel, can use the VPL facility for online viewing of available program listings. Those customers without access to VPL can contact their IBM representative.

---

## 2.5 Publications Useful During Installation

The publications listed in Figure 19 may be useful during the installation of DB2 UDB for OS/390. To order copies, contact your IBM representative.

<i>Figure 19. Publications Useful During Installation</i>	
<b>Publication Title</b>	<b>Form Number</b>
System Modification Program/Extended (SMP/E) Reference	SC28-1107
System Modification Program/Extended (SMP/E) User's Guide	SC28-1302
System Modification Program/Extended (SMP/E) Messages and Codes	GC28-1108
OS/390 SMP/E User's Guide	SC28-1740
OS/390 SMP/E Reference	SC28-1806
OS/390 SMP/E Messages and Codes	SC28-1738

---

## 3.0 Program Support

This section describes the IBM support available for DB2 UDB for OS/390.

---

### 3.1 Program Services

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

**The product levels documented in both the Program Directory and the PSP bucket are the levels with which DB2 UDB for OS/390, Data Propagator Apply, and Data Propagator Capture was tested. Products at lower levels of maintenance may function, but we are unable to guarantee this. If you are using a downlevel release or version of a product and experience problems, it is likely IBM Service will require that maintenance be brought up to the recommended levels before problem resolution will continue.**

---

### 3.2 Preventive Service Planning

Before installing DB2 UDB for OS/390, you should review the current Preventive Service Planning (PSP) information. If you obtained DB2 UDB for OS/390 as part of a CBPDO, there is HOLDDATA and PSP information included on the CBPDO tape.

If you obtained DB2 UDB for OS/390 on a 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".

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 UDB for OS/390 are:

*Figure 20 (Page 1 of 2). PSP Upgrade and Subset ID*

UPGRADE	SUBSET	Description
DB2610	HDB6610/0014	BASE/TSO
	HIY6610/0014	IMS/VS ATTACH
	HIZ6610/0014	SUBSYSTEM INIT
	HIR2101/0014	IRLM
	HDB661A/0014	O/L HELP BOOKS/BOOKSHELVES
	JDB6611	DB2 KANJI PANELS
	JDB6612/0014	DB2 FOR OS/390 JAVA(TM) EDITION
	JDB6613/0014	BASE LE
	JDB6614/9918	ENGLISH PANELS

Figure 20 (Page 2 of 2). PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
	JDB6617/0014	DB2 FOR OS/390 ODBC
	JDB6619/0014	MATH FUNCTIONS
	JDB661B/0002	IAV EXTENDERS
	JDB661C/0010	TEXT EXTENDER
	H253610/0013	DATA PROPAGATOR APPLY BASE
	J25361A	DATA PROPAGATOR APPLY ENGLISH
	J25361B	DATA PROPAGATOR APPLY UPPER CASE ENGLISH
	J25361C	DATA PROPAGATOR APPLY SPANISH
	J253611/9919	DATA PROPAGATOR APPLY BUY
	H254610/0011	DATA PROPAGATOR CAPTURE BASE
	J25461A	DATA PROPAGATOR CAPTURE ENGLISH
	J25461B	DATA PROPAGATOR CAPTURE UPPER CASE ENGLISH
	J25461C	DATA PROPAGATOR CAPTURE SPANISH
	J254611/9919	DATA PROPAGATOR CAPTURE BUY
	HQW9221/9920	DATA DIFFERENCE UTILITY
TIVGEM221	H0AL211	TIVOLI GEM DB2 INSTRUMENTATION

**Note:** The PSP SUBSET name reflects the Function Module Identifier (FMID) that was updated and the corresponding CBPDO weekly service tape that was used to supply the integrated PTFs. (Example: FMID/YYWW, where YY is the year and WW is the week of the CBPDO weekly service tape).

The CBPDO weekly Service tape is the Service Level Indicator for any products updated by the Software Delivery Center (SDC) processes. If you wish to determine the latest level of ESO maintenance installed in this product, please refer to the 4.0, "Program and Service Level Information" on page 22 section of this program directory.

**Note:** In addition, these upgrades contain HIPER (High Impact PERvasive) APARs and should be reviewed on a monthly basis.

If you have received DB2 UDB for OS/390 individually from IBM Software Distribution, then before installing DB2 UDB for OS/390, you should also check with your IBM Support Center or use either Information/Access or the ServiceLink facility of IBMLink to see if there is additional PSP information that you should know.

A reminder when pulling PTFs from IBMLink, you need to include your service type/level:

```
Example: Service Level Type      ESO
          Service Level          9703
```



It is recommended that CBIPO/CBPDO should be used as the installation maintenance vehicle to ensure the most current level of maintenance.

After installing DB2 UDB for OS/390 and the elements of DB2 UDB for OS/390 you are interested in, the recommended maintenance strategy is to keep DB2 and its elements as current as possible by applying the maintenance from the recent ESO levels and HIPER PTFs. Please review Information APAR II11442 for additional details.

Authorized Program Analysis Report (APAR) fixes will be distributed as PTFs containing either object module or macro replacements with control statements used by the System Modification Program/Extended (SMP/E).

The normal process for applying maintenance to DB2 UDB for OS/390 includes the following steps:

1. Check for prerequisites and corequisites as well as additional steps that may be needed as noted in the following sections
2. Use SMP/E to receive and apply the fix.
3. Perform any needed special procedures.
4. Stop and start DB2 to make the fix active, as required.
5. Test the fix.
6. Accept the fix (after testing is complete).

Fixes to some parts of the subsystem or subsystem data may involve special procedures. For example, a BIND may be required for changes in some modules. CLISTs and jobs that are customized during the install process often require some additional work. When applicable, the install CLIST can be used for customizing. If the DSN6xxxx macros are changed the DSNZPxxx subsystem parameters load module must be reassembled and link edited. For information on assembling and link editing DSNZPxxx refer to the description of job DSNTIJUZ in the Installation Guide. An MVS IPL may be required following changes to a few of the DB2 load modules.

Notification of these required special procedures will be via the SMP/E EXCLUDE list, PTF prologues, and RETAIN information. The SMP/E control statement ++HOLD will be used when there is additional work necessary to incorporate the fix into the DB2 system.

---

### 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 21 identifies the component IDs (COMPID) for DB2 UDB for OS/390 and the elements DB2 UDB for OS/390 documented in this program directory.

Figure 21. Component IDs

F MID	COMPID	Component Name	RETAIN Release
HDB6610	5740XYR00	BASE/TSO	610
HIY6610	5740IY100	IMS ATTACH	610
HIZ6610	5740XYR01	SUBSYSTEM INIT	610
HIR2101	569516401	IRLM	101
HDB661A	5740XYR00	ONLINE HELP BOOKS AND BOOKSHELVES	61A
JDB6611	5740XYR00	DB2 KANJI PANELS	611
JDB6612	5740XYR02	DB2 FOR OS/390 JAVA(TM) EDITION	612
JDB6613	5740XYR00	BASE LE	613
JDB6614	5740XYR00	ENGLISH PANELS	614
JDB6617	5740XYR02	DB2 FOR OS/390 ODBC	617
JDB6619	5740XYR00	MATH FUNCTIONS	619
JDB661B	5740XYR04	IAV EXTENDERS	61B
JDB661C	5740XYR03	TEXT EXTENDER	61C
H0AL211	5697GEM01	TIVOLI GEM DB2 INSTRUMENTATION	211
H253610	5655A2201	DATA PROPAGATOR APPLY BASE TRY	610
J25361A	5655A2201	DATA PROPAGATOR APPLY ENGLISH	61A
J25361B	5655A2201	DATA PROPAGATOR APPLY UPPER CASE ENGLISH	61B
J25361C	5655A2201	DATA PROPAGATOR APPLY SPANISH	61C
J253611	5655A2201	DATA PROPAGATOR APPLY BUY	611
H254610	5655A2301	DATA PROPAGATOR CAPTURE BASE TRY	610
J25461A	5655A2301	DATA PROPAGATOR CAPTURE ENGLISH	61A
J25461B	5655A2301	DATA PROPAGATOR CAPTURE UPPER CASE ENGLISH	61B
J25461C	5655A2301	DATA PROPAGATOR CAPTURE SPANISH	61C
J254611	5655A2301	DATA PROPAGATOR CAPTURE BUY	611
HQW9221	569670500	DATA DIFFERENCE UTILITY	221

**Note:** Please see Figure 1 on page 1 for server Program Directories which provide this information about the additional server features.

**Note:** Due to the size of the DB2 SVC dumps in the cross memory environment, it is recommended that the SYS1.DUMPxx data set be transferred to a tape or a similar device. The PRDMP service aid program, or IPCS, can be used to transfer the SYS1.DUMPxx data set contents to another data set for archiving until the problem is resolved. Depending on the nature of the problem, the IBM Support Center

may ask you to send in the entire dump on tape. This allows the Support Center to extract any additional data needed for problem resolution (for example, CSA, SQA or the private storage area).

Refer to *MVS/ESA System Programming Library Service Aids* (GC28-1669) or *MVS/ESA Service Aids* (GC28-1844) for information on transferring the SYS1.DUMPxx data set.

---

## 4.0 Program and Service Level Information

This section identifies the program and any relevant service levels of DB2 UDB for OS/390. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated. Information about the cumulative service tape is also provided.

---

### 4.1 Program Level Information

Please refer to the PSP (Preventive Service Planning) Facility for APAR information for DB2 UDB for OS/390. Also, see Information APAR II11442 for additional details.

---

### 4.2 Service Level Information

**IRLM** (FMID HIR2101) service update is at service level SMC0014 which includes the maintenance APAR/PTFs listed in B.4, "Included PTFs for FMID HIR2101" on page 134.

If your system is at a **higher** IRLM level, **do not** install the IRLM tape that is included. Remove the IRLM FMID (HIR2101) from the SMP jobs, DSNTIJRC, DSNTIJAC, and DSNTIJAP. You must, however, make sure that the IRLM maintenance is brought up to a minimum of an ESO9901 level which is included in the IRLM cumulative service tape. If your system is at a **lower** IRLM level, install the the SMC0014 IRLM tape.

The following IRLM **coexistence APAR must be applied** to ALL LEVELS of IRLM prior to migrating to DB2 UDB for OS/390:

**APAR / PTF**

**PQ15290 / UQ19097**

If you are in a data sharing environment, the following IRLM APAR must be applied to any DB2 for OS/390 Version 5 system that will coexist with DB2 UDB for OS/390.

**APAR / PTF**

**PN90337 / UN98783**

**IAV Extenders (FMID JDB661B)** recommend referencing INFO APAR II11839 before using IAV Extenders in DB2 UDB for OS/390 Version 6.

**Data Propagator Apply (H253610) and Capture (H254610)** recommend installing the DPROP maintenance listed in INFO APAR II11835 before using Capture/MVS and Apply/MVS in Version 6.

**Data Difference Utility** (FMID HQW9221) service update is at service level SMC9920 (which includes integrated APAR PQ09461).

**Tivoli GEM DB2 Instrumentation (H0AL211)** recommend referencing INFO APAR II12144 for additional information.

---

## 4.3 Cumulative Service Tape

A cumulative service tape, containing PTFs not incorporated into this release, might be included with this program. Installation instructions for cumulative service tapes can be found in the SMP/E publications.

If you received this product as part of a CBPDO or a ProductPac, PTFs not incorporated into this release are provided on the tape, and a separate cumulative service tape will not be provided.

---

## 4.4 Usage License Charges (ULC) Measurement and Reporting

Support for Usage License Charges is installed by applying Authorized Program Analysis Reports (APARs) to MVS and to DB2. These APARs can be applied to allow the customer to collect the DB2 usage history required for ULC charges.

**Note:** If you do not need ULC usage history collection, you should turn OFF SMF record 89 to avoid the collection overhead.

**Note:** ULC applies to DB2 UDB for OS/390, as well as the DB2PM, Data Propagator Apply, Data Propagator Capture, and DB2 Administration Tool features of DB2 UDB for OS/390.

---

## 5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating DB2 UDB for OS/390. 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 UDB for OS/390.

#### 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 22. Driving System Software Requirements*

<b>Program Number</b>	<b>Product Name and Minimum VRM/Service Level</b>
5647-A01	OS/390 SMP/E Version 2 Release 4 or higher with PTF <b>UR51067</b>
5668-949	System Modification Program/Extended (SMP/E) Release 1.8.1 with PTF <b>UR51070</b>

---

## 5.2 Target System Requirements

This section describes the environment of the target system required to install and use DB2 UDB for OS/390.

### 5.2.1 Machine Requirements

DB2 UDB for OS/390 operates on any processor supported by OS/390 Version 1 Release 3 or later. The processor must have enough real storage to satisfy the combined requirements of DB2, of OS/390, of the appropriate Data Facility Product, appropriate access methods, telecommunications, batch requirements, and other customer required applications.

OS/390 will run on the hardware listed below.

- All models of the S/390 Parallel Enterprise Servers or S/390 Parallel Transaction Servers (IBM 9672)
- All models of the IBM ES/9000 (R) Processor Unit 9021, the 9121, or the 9221
- PC Server System/390 (R) or RS/6000 (TM) with S/390 Server-on-Board
- S/390 Multiprise (TM) 2000

The configuration must include sufficient I/O devices to support the requirements for system output, system residence, and system data sets. Sufficient direct access storage (DASD) must be available to satisfy the user's information storage requirements and can consist of any direct access facility supported by the system configuration and the programming system.

#### Auxiliary Storage

DB2 is independent of both DASD and tape device type. The customer can use any magnetic, or tape device supported by the data facilities component of DFSMS/MVS(TM)) for the DB2 data sets. The following DB2 data sets are supported by the following device types:

- Active recovery log data sets: DASD
- Archive recovery log data sets: DASD, tape
- Image copy data sets: DASD, tape
- Bootstrap data sets: DASD
- User data sets: DASD
- DB2 catalog data sets: DASD
- Work data sets (for utilities): DASD, tape.

If these data sets are on DASD that is shared with other MVS systems, the customer should use global resource serialization in order to prevent concurrent access by more than one MVS system.

The minimum DASD space requirements (based on installing DB2 using the panel default values) is approximately 600MB. Users need additional DASD space for their data.

If dual logging is used and tape is being used for the log archiving device, at least two tape drives are needed.

## Data Communications Devices

DB2 operations can be controlled from

- The system console
- Authorized IMS/ESA Transaction Manager terminals
- Authorized CICS terminals
- TSO terminals (by authorized users).

For the data communication devices supported by IMS/ESA Transaction Manager, CICS, and TSO, see the manuals for these products.

### 5.2.1.1 Function-Dependent Hardware Requirements

- Copy Index/Recover Objects

To use the COPY utility to take DFSMS concurrent copies of indexes, the 3390 model 3 or 3990 model 6 controller at the extended platform attached to the DASD is required.

- Greater than 1 Terabyte Table

3990 model 3 or 3990 model 6 controllers with extended support, or 9340 DASD array is required.

- Group Buffer Pool Duplexing

CFlevel=5 coupling facility architecture support. The following APAR is required for CFlevel=5.

#### APAR

0W28460

## 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 23. Mandatory Requisites*

Program Number	Product Name and Minimum VRM/Service Level
5645-001	OS/390 Version 1 Release 3 Base Services OS/390 Release 3 Application Enablement optional feature for DFSORT



Figure 24. Mandatory Requisites - DB2 Data Propagator Apply and Capture

Program Number	Product Name and Minimum VRM/Service Level
5645-001	OS/390 Version 1 Release 3
5645-001	OS/390 Version 1 Release 3 Language Environment
5645-001	OS/390 Version 1 Release 3 C/C++
5640-XXH 5695-039	RACF Version 1 Release 9 or RACF Version 2 Release 1
Any <b>one</b> of the following:	
5665-DB2	IBM Database 2 Version 3 Release 1
5695-DB2	IBM Database 2 for MVS/ESA Version 4 Release 1
5655-DB2	IBM Database 2 Server for OS/390 Version 5 Release 1
5645-DB2	IBM Database 2 Server for OS/390 Version 6 Release 1

**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.

Figure 25. Functional Requisites

Program Number	Product Name and Minimum VRM/Service Level	Function
5655-158	IMS/ESA Version 6	Transaction Management
5655-147	CICS for OS/390 Release 1 or higher	Transaction Server
5655-018	CICS/ESA Version 4 or higher	Transaction Management

The following FMIDs are part of the DB2 base product and **must** be installed:

- HDB6610 - BASE/TSO
- HIY6610 - IMS/VS ATTACH
- HIZ6610 - SUBSYSTEM INITIALIZATION
- HIR2101 - IRLM 2.1
- JDB6613 - BASE LE
- JDB6614 - ENGLISH PANELS
- JDB6619 - MATH FUNCTIONS (requires LE 1.8 or above)

The FMID for IMS Attach (HIY6610) must be installed even if you do not have IMS. The installation of all the FMIDs is to facilitate service across the multiple FMIDs.

The FMID for IRLM (HIR2101) must also be installed. DB2 will not run without it.

**Note:** It is assumed that DB2 UDB for OS/390 and IRLM V2R1 are installed into the same zones. If this is not the case, you will need to modify the install jobs DSNTIJAE and DSNTIJRC.

If you install DB2 UDB for OS/390 with IRLM Version 2 into the same SMP zone as any Version of IMS with IRLM Version 1.5, IRLM Version 1.5 will be deleted during the installation of IRLM Version 2.

The following FMIDs are part of the DB2 product and are **not** required to be installed. However, if installed, all of these (except HDB661A) must be installed in the same SMP CSI as HDB6610:

- HDB661A - ONLINE HELP PANELS
- JDB6612 - JDBC
- JDB6617 - ODBC
- JDB661B - IAV EXTENDERS (to execute IAV Extenders you will need ODBC service level APAR PQ24116)
- JDB661C - TEXT EXTENDER (to execute Text Extender you will need ODBC service level APAR PQ33709)
- H0AL211 - GEM DB2 INSTRUMENTATION

**Note:** You must apply the following three OS/390 APARs prior to installing DB2 UDB for OS/390 to ensure correct statistic and accounting data:

#### APARs

0W34623  
0W32616  
0W35835

**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.

There are no applicable requisites for DB2 UDB for OS/390. See Information APAR II11442 for additional details.

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

There are no applicable requisites for DB2 UDB for OS/390.

**5.2.2.5 Optional Program Products and Program Offerings:** Following are the optional program products for use with DB2 UDB for OS/390. Unless otherwise specified, the release shown for a product and any follow-on release is acceptable. In some cases, earlier versions of a program product may also work, but have not been tested with DB2 UDB for OS/390.

**5.2.2.5.1 Connectivity:** In addition to any DRDA compliant database management systems, DB2 UDB for OS/390 supports the following IBM relational database products:

- DB2 Universal Database Version 5 with DB2 Connect
- IBM Operating System/400(R) (OS/400)(R)) Version 4 Release 1 with DB2/400 (5769-SS1)
- IBM DB2 Server for VM and VSE Version 5 (5648-158)

Net.Data for OS/390, a feature of DB2 UDB for OS/390 for connectivity to DB2 from the web.

#### **5.2.2.5.2 Query Support**

- Query Management Facility (QMF), a feature of DB2 UDB for OS/390
- DB2 Extenders, a feature of DB2 UDB for OS/390

#### **5.2.2.5.3 Application Development**

- IBM VisualAge PL/I Version 2 (See Software announcement 297-372)
- IBM VisualAge Cobol Version 2 (See Software announcement 297-371)
- IBM VisualAge Generator Version 3 (See Software announcement 297-395)
- Application System (AS) Version 3 (5648-018)

#### **5.2.2.5.4 Operational Support**

- IBM DATABASE 2 Performance Monitor (DB2 PM) feature of DB2 UDB for OS/390 Version 6
- OS/390 Version 1 Release 3 System Services optional feature for DFSMS features
- OS/390 Version 1 Release 3 Security Server optional feature for RACF
- NetView Version 2 Release 4 (5685-111), or NetView Version 3 for MVS/ESA(TM) (5655-007)
- Performance Reporter for MVS Version 1 Release 2 (5695-101)
- Library Readers included on the CD-ROMs for Bookmanager books

#### **5.2.2.5.5 Replication Support**

- DataPropagator Relational Apply for MVS Version 5 Release 1 (5655-A22), or DataPropagator Relational Apply for MVS, an optional feature of DB2 UDB for OS/390
- DataPropagator Relational Capture for MVS Version 5 Release 1 (5655-A23), or DataPropagator Relational Capture for MVS, an optional feature of DB2 UDB for OS/390
- DataPropagator NonRelational MVS/ESA Version 2 (5696-705)
- IBM DataRefresher Version 1 (5696-703)

#### **5.2.2.5.6 Database Administration and Systems Management Support**

- DB2 Automated Utility Generator (DB2AUG) Version 1 Release 2 (5695-077)
- Database 2 Administration Tool for MVS/ESA Version 1, a feature of DB2 UDB for OS/390
- Buffer Pool Tool, a feature of DB2 UDB for OS/390

### 5.2.2.5.7 DB2 Text Extender

- Use of Text Extender requires the IBM Text Search Engine Version 2 Release 2 (FMID HIMN210) or higher. If you are running OS/390 Version 2 (Releases 4 through 7), download and install the IBM Text Search Engine in SMP/E format from the following Web site:

<http://www.ibm.com/software/iminer/fortext/>

- OS/390 Release 8 includes the IBM Text Search Engine as a base element of that operating system.

**5.2.2.5.8 Programming Languages** The following IBM Programming Languages in addition to Assembler have an interface to DB2:

<b>ADA</b>	IBM ADA/370 Version 1 Release 3 (5706-292) and IBM ADA Runtime Library 370 Version 1 Release 3 (5706-295) with SQL MP feature for DB2.
<b>APL2</b>	APL2(R) Version 2 Release 2 (5688-228); APL2 Application Environment Version 2 Release 2 (5688-229)
<b>BASIC</b>	IBM BASIC/MVS Version 1 Release 2 (5665-948)
<b>C</b>	IBM AD/Cycle C/370 Compiler Version 1 Release 2 (5688-216); IBM C/370 Library Version 2 Release 2 (5688-188)
<b>C++</b>	OS/390 Version 1 Release 3 Application Enablement optional feature for C/C++
<b>COBOL</b>	IBM COBOL for MVS and VM Version 1 Release 2 (5688-197) or IBM COBOL for OS/390 and VM Version 2 Release 1 (5648-A25) or VS COBOL II Compiler and Library Version 1 Release 4 (5668-958)
<b>FORTRAN</b>	VS FORTRAN Compiler, Library, and Interactive Debugger Version 2 Release 6 (5668-806).
<b>PL/I</b>	IBM PL/I for MVS and VM Version 1 Release 1.1 (5688-235); OS PL/I Compiler, Library, and Interactive Test Facility Version 2 Release 3 (5668-909)
<b>PROLOG</b>	IBM SAA AD/Cycle PROLOG/MVS Version 1 (5696-309)

**5.2.2.6 Function-Dependent Program Requirements:** DB2 has the following function specific dependencies:

**5.2.2.6.1 User Defined Functions:** You must include Language Environment mapping macros and macros that generate a Language Environment conforming prologue and epilogue. Language Environment is part of the OS/390 Version 1 Release 3 Application Enablement base element.

See *Language Environment for MVS & VM Programming Guide* for details. See the programming languages section above for specific levels of COBOL, C, C++, PL/I and Assembler.

**5.2.2.6.2 Java Database Connectivity:** Java for OS/390 (5655-A46)

**5.2.2.6.3 Predictive Governor:** For DB2 UDB clients using deferred prepare, use DB2 Connect Version 5, a feature of DB2 UDB for OS/390 Version 6

**5.2.2.6.4 Group Bufferpool Duplexing:** User managed duplexing SPE (APAR OW28460) is required for OS/390 Release 3, Release 4 or Release 5. Coupling Facility Control Code CFLEVEL=5 or above is also required.

**5.2.2.6.5 Built-In functions:** If you are using the Language Environment Built-In functions or the DB2 built-in functions Upper, Lower, Translate with locale, the following is required:

- OS/390 Version 2 Release 4 Application Enablement base element with APARs PQ13597 and PQ16377.

If you are using the DB2 UDB Server for OS/390 Math Functions feature your system must be running OS/390 Version 2 Release 4 or a subsequent release. The following specifies the Language Environment enabling APARs/PTFs for the given system.

Information APAR II11496 will also provide additional information regarding the dependencies with Language Environment.

**APAR / PTF**

**PQ13957 / UQ15752** (PTF for LE 1.8, requires OS/390 2.4 or 2.5)  
**PQ16377 / UQ18738** (PTF for LE 1.8, requires OS/390 2.4 or 2.5)  
**PQ16377 / UQ18739** (PTF for LE 1.9, requires OS/390 2.6)

**5.2.2.6.6 Greater than 1 Terabyte Table:** DB2 table spaces that are larger than 1 terabyte will require the use of VSAM Extended Addressability for Linear Data Sets in DFSMS/MVS.

OS/390 Release 7 (for DFSMS support)

**5.2.2.6.7 ODBC:** Execution of the ODBC component in the application address space

- OS/390 Version 1 Release 3 Application Enablement optional feature for C/C++

Customer applications are supported in the following compiler language levels, or higher:

- IBM C/C++ for MVS/ESA Version 3 Release 2 (5655-121)
- IBM SAA AD/Cycle C/370 Version 1 Release 2 (5688-194)

**5.2.2.6.8 DB2 Extenders - IAV:** DB2 Extenders - IAV requires the C/C++ compiler and Language Environment from OS/390 Version 2 Release 4.

**Note:** For specific software requirements for the above products, refer to the respective product announcements.

### 5.2.3 IRLM

A service update of IRLM Version 2 (HIR2101) is shipped with DB2 UDB for OS/390 and is required. This program is at level SMC0014.

**Note:** Please see 4.1, "Program Level Information" on page 22 for any IRLM APARs/PTFs that may need to be applied.

**If your system is at a higher IRLM level, do not install the IRLM tape that is included. Remove the IRLM FMID (HIR2101) from the SMP jobs, DSNTIJRC, DSNTIJAC, and DSNTIJAP.**

**Note:** If you install DB2 UDB for OS/390 with IRLM Version 2 into the same SMP zone as any Version of IMS with IRLM Version 1.5, IRLM Version 1.5 will be deleted during the installation of IRLM Version 2.

**Note:** IRLM, MVS CTRACE START/STOP routine, DXRRL183, must be in MVS SYS1.LINKLIB (called LINKLIST) in order to START/STOP the CTRACE facility. Please see the Install Guide page 2-191 under installation step 1: DSNTIJMV for more IRLM requirements.

### 5.2.4 Migrating to DB2 Version 6:

**Note: Migration to DB2 UDB for OS/390 is only permitted from DB2 Version 5. Before migrating to DB2 Version 6, reference Information APAR II11442 for additional details.**

The load modules in SDSNLINK are referred to as **ERLY** code, and are EXECUTED at IPL time by NIP (Nucleus Initialization Program). NIP executes a subsystem's **ERLY** code to build an entry in the MVS SubSystem Vector Table (SSVT). DB2 **ERLY** code is downward compatible. DB2 UDB for OS/390 DB2 UDB for OS/390 **ERLY** code can be used with DB2 for OS/390 Version 5.

SDSNLINK has to be placed in the linklist and catalogued in the Master Catalog. NIP can only locate data sets in the Master Catalog.

Any maintenance to the **ERLY** code, or installation of new **ERLY** code, requires that the system be IPL'd in order to EXECUTE the **ERLY** code. All **ERLY** code PTFs have a COMPID of 5740XYR01 and an FMID of HIZ6610. Any attempts to merely point to SDSNLINK, STEPLIB, LLA REFRESH, or stopping and restarting LLA will fail to update the SSVT. **ERLY** code, new or changed, must be executed to be in effect. **ERLY** code is executed by NIP at IPL time, and this is the only way the SSVT can be rebuilt and the new **ERLY** code utilized.

### 5.2.5 Fallback to Version 5

*Fallback* is the process of returning to DB2 Version 5 after attempting or completing a migration to DB2 Version 6. You can fall back if a severe error occurs either during migration or during operation of DB2 Version 6.

## 5.2.6 DASD Storage Requirements

DB2 UDB for OS/390 libraries can reside on 3380 and 3390 DASD. Text Extender libraries can reside on any DASD supported by OS/390 V1.3. GEM DB2 Instrumentation cannot be installed on 3350 DASD.

Figure 26 on page 33 lists the total space required for each type of library.

<i>Figure 26. Total DASD Space Required by DB2 and DB2 elements in this Program Directory</i>	
<b>Library Type</b>	<b>Total Space Required</b>
Target	250 cylinders (for DB2 base)
Distribution	150 cylinders (for DB2 base)
HFS	4 cylinders (for DB2 JDBC)
Target	20 MB (for Text Extender)
Distribution	20 MB (for Text Extender)
HFS	5 MB (for Text Extender)
Target	30 tracks of 3390 (for GEM DB2 Instrumentation)
Distribution	30 tracks of 3390 (for GEM DB2 Instrumentation)
Target	7295 Blocks (for Data Propagator Apply)
Distribution	1940 Blocks (for Data Propagator Apply)
Target	2240 Blocks (for Data Propagator Capture)
Distribution	1450 Blocks (for Data Propagator Capture)

### Notes:

1. The data set sizes specified contain 15% extra space. You may wish to revise these numbers based on your plans for adding additional function or service.
2. 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.

If you choose not to use system determined block sizes, use the block sizes and numbers of blocks specified to allocate the data sets. Data sets can be reblocked to a larger size. Please note that the maximum allowable block size will depend on the type of DASD on which the data set will reside; for example, the block size of data sets on a 3350 DASD cannot exceed 19,069.

3. Abbreviations used for the data set type are:

**U** Unique data set used by only the FMIDs listed. In order 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 used by more than the FMIDs listed. In order 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.

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.

Figure 27. Storage Requirements for SMP/E Work Data Sets

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
SMPWRK1	S	PDS	FB	80	150	250
SMPWRK2	S	PDS	FB	80	150	250
SMPWRK3	S	PDS	FB	80	150	250
SMPWRK4	S	PDS	FB	80	150	250
SMPWRK6	S	PDS	FB	80	150	250
SYSUT1	U	SEQ	--	--	75	--
SYSUT2	U	SEQ	--	--	75	--
SYSUT3	U	SEQ	--	--	75	--
SYSUT4	U	SEQ	--	--	75	--

The following table provides an estimate of the storage needed in the SMP/E data sets for DB2 UDB for OS/390. The estimates must be added to those of any other programs and service being installed to determine the total additional storage requirements.

If the table indicates that the SMPLTS data set must be a PDSE, but your existing SMPLTS is a PDS, you will need to allocate a new PDSE and copy your existing SMPLTS into it, and then change the SMPLTS DDDEF entry to indicate the new PDSE data set.

Figure 28 (Page 1 of 2). Storage Requirements for SMP/E Data Sets

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
SMPLTS	S	PDS	U	0	350	50



Figure 28 (Page 2 of 2). Storage Requirements for SMP/E Data Sets

<b>Library DDNAME</b>	<b>T Y P E</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>No. of 3390 Trks</b>	<b>No. of DIR Blks</b>
SMPMTS	S	PDS	FB	80	13	60
SMPPTS	S	PDS	FB	80	40	300
SMPSCDS	S	PDS	FB	80	580	300
SMPSTS	S	PDS	FB	80	40	150

Figure 29. Storage Requirements for DB2 UDB for OS/390 Target Libraries

<b>Library DDNAME</b>	<b>Member Type</b>	<b>Target Volume</b>	<b>T Y P E</b>	<b>O R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>No. of 3390 Trks</b>	<b>No. of DIR Blks</b>
SDSNCLST	Data	Any	S	PDS	FB	80	60	10
SDSNDBRM	Macro	Any	S	PDS	FB	80	15	10
SDSNDKF	Data	Any	S	PDS	FB	80	15	5
SDSNENU	Data	Any	S	PDS	FB	80	15	5
SDSNEXIT	Data	Any	S	PDS	U	0	15	10
SDSNIVPD	Data	Any	S	PDS	VB	8188	75	5
SDSNLINK	Data	Any	S	PDS	U	0	15	10
SDSNLOAD	Module	Any	S	PDS	U	0	1000	80
SDSNMACS	Macro	Any	S	PDS	FB	80	110	20
SDSNPFPE	Data	Any	S	PDS	FB	80	15	15
SDSNPFPK	Data	Any	S	PDS	FB	80	45	10
SDSNSAMP	Sample	Any	S	PDS	FB	80	545	37
SDSNSPFM	Data	Any	S	PDS	FB	80	15	10
SDSNSPFP	Data	Any	S	PDS	FB	80	30	40
SDSNSPFS	Data	Any	S	PDS	FB	80	15	10
SDSNSPFT	Data	Any	S	PDS	FB	80	15	10
SDXRSAMP	Sample	Any	S	PDS	FB	80	15	10
SDXRRESL	Module	Any	S	PDS	U	0	30	30
SDSNCHDR	Data	Any	S	PDS	FB	80	15	5

Figure 30. Storage Requirements for IAV Extenders 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
SDMBBASE	Sample	Any	U	PDS	FB	80	3	5
SDMBDBRM	Data	Any	U	PDS	FB	80	3	5
SDMBLOAD	Module	Any	U	PDS	U	0	345	40
SDMBEXP	Data	Any	U	PDS	FB	80	2	5
SDMBSAMP	Sample	Any	U	PDS	FB	80	3	5
SDMBMACS	Macro	Any	U	PDS	VB	255	10	5
SDMBSMPH	Sample	Any	U	PDS	VB	255	3	5
SDMBSMPC	Sample	Any	U	PDS	VB	255	10	10

Figure 31. Storage Requirements for Text Extender 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
SDESDB2I	Data	Any	U	PDS	FB	80	4	8
SDESJCL1	Data	Any	U	PDS	FB	80	2	2
SDESMOD1	Module	Any	U	PDS	U	0	288	16
SDESMOD2	Module	Any	U	PDS	U	0	23	4
SDESSCR1	Sample	Any	U	PDS	VB	255	3	4

Figure 32. Storage Requirements for GEM DB2 Instrumentation 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
SIHSCLSB	Data	Any	U	PDS	FB	80	15	5
SIHSMODB	Module	Any	U	PDS	U	0	15	5
SIHSSMPB	Sample	Any	U	PDS	FB	80	15	5

Figure 33. Storage Requirements for DProp Apply Target Libraries - Base

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
SASNABSE	Sample	Any	U	PDS	FB	80	3	5
SASNAJCL	Data	Any	U	PDS	FB	80	4	5
SASNADBM	Data	Any	U	PDS	FB	80	15	5
SASNAOBJ	Data	Any	U	PDS	FB	80	81	10
SASNALNK	Module	Any	U	PDS	U	0	751	5

Figure 34. Storage Requirements for DProp Apply Target Libraries - English

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
SASNAEMG	Message	Any	U	PDS	FB	80	4	5

Figure 35. Storage Requirements for DProp Apply Target Libraries - Uppercase English

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
SASNAUMG	Message	Any	U	PDS	FB	80	4	5

Figure 36. Storage Requirements for DProp Apply Target Libraries - Spanish and Japanese

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
SASNASMG	Message	Any	U	PDS	FB	80	5	5

Figure 37. Storage Requirements for DProp Apply Target Libraries - Buy

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
SASNABS2	Sample	Any	U	PDS	FB	80	2	5

Figure 38. Storage Requirements for DProp Capture Target Libraries - Base

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
SASNLBSE	Sample	Any	U	PDS	FB	80	12	5
SASNLJCL	Sample	Any	U	PDS	FB	80	4	9
SASNLDBM	Data	Any	U	PDS	FB	80	7	5
SASNLOBJ	Data	Any	U	PDS	FB	80	67	5
SASNLLNK	Module	Any	U	PDS	U	0	144	5

Figure 39. Storage Requirements for DProp Capture Target Libraries - English

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
SASNLEMG	Message	Any	U	PDS	FB	80	4	5

Figure 40. Storage Requirements for DProp Capture Target Libraries - Uppercase English

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
SASNLUMG	Message	Any	U	PDS	FB	80	2	5

Figure 41. Storage Requirements for DProp Capture Target Libraries - Spanish and Japanese

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
SASNLSMG	Message	Any	U	PDS	FB	80	3	5

Figure 42. Storage Requirements for Data Propagator Target Libraries - DDU

Library DDNAME	Member Type	Target Volume	T Y P E	O R G	R E C F	L R E C L	No. of 3390 Trks	No. of DIR Blks
SEKYIVPD	Data	Any	U	PDS	VB	4092	3	5
SEKYLOAD	Module	Any	U	PDS	U	0	7	5
SEKYSAMP	Sample	Any	U	PDS	FB	80	8	5
SEKYDBRM	Data	Any	U	PDS	FB	80	2	5

Figure 43. Storage Requirements for DProp Capture Target Libraries - Buy

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
SASNLSB2	Sample	Any	U	PDS	FB	80	2	5

Figure 44 (Page 1 of 2). Storage Requirements for DB2 UDB for OS/390 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
ADSNLOAD	S	PDS	U	0	1230	700
ADSNMACS	S	PDS	FB	80	1005	100
ADSNENU	S	PDS	FB	80	40	100
ADSNIVPD	S	PDS	VB	8188	210	10
ADXRSAMP	S	PDS	FB	80	15	10
ADXRLOAD	S	PDS	U	0	30	40

Figure 44 (Page 2 of 2). Storage Requirements for DB2 UDB for OS/390 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
ADSNHFS	U	PDS	VB	255	45	2
ADSNDKF	S	PDS	FB	80	45	100

Figure 45. Storage Requirements for IAV Extenders 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
ADMBBASE	U	PDS	FB	80	3	5
ADMBDBRM	U	PDS	FB	80	3	5
ADMBLOAD	U	PDS	U	0	328	30
ADMBLOA2	U	PDS	U	0	51	10
ADMBEXP	U	PDS	FB	80	2	5
ADMBEXP2	U	PDS	FB	80	2	5
ADMBSMP	U	PDS	VB	255	690	10
ADMBMACS	U	PDS	VB	255	10	5
ADMBMAC2	U	PDS	VB	255	10	5
ADMBSAMP	U	PDS	FB	80	3	5
ADMBSMPH	U	PDS	VB	255	3	5
ADMBSMPC	U	PDS	VB	255	10	10

Figure 46 (Page 1 of 2). Storage Requirements for Text Extender 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
ADESDB2I	U	PDS	FB	80	4	4
ADESJCL1	U	PDS	FB	80	2	2
ADESMOD1	U	PDS	U	0	226	16
ADESMOD2	U	PDS	U	0	63	16

Figure 46 (Page 2 of 2). Storage Requirements for Text Extender 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
ADESSCR1	U	PDS	VB	255	11	6
ADESBIN1	U	PDS	VB	255	2	2

Figure 47. Storage Requirements for GEM DB2 Instrumentation 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
AIHSCLSB	U	PDS	FB	80	15	5
AIHSMODB	U	PDS	U	0	15	5
AIHSSMPB	U	PDS	FB	80	15	5

Figure 48. Storage Requirements for DProp Apply Distribution Libraries - Base

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
AASNABSE	U		FB	80	6	5
AASNADBM	U	PDS	FB	80	15	5
AASNAOBJ	U	PDS	FB	80	64	10
AASNAMOD	U	PDS	U	0	113	5

Figure 49. Storage Requirements for DProp Apply Distribution Libraries - English

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
AASNAEMG	U	PDS	FB	80	4	5

Figure 50. Storage Requirements for DProp Apply Distribution Libraries - Uppercase English

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
AASNAUMG	U	PDS	FB	80	4	5

Figure 51. Storage Requirements for Data Propagator Apply Distribution Libraries - Spanish

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
AASNASMG	U	PDS	FB	80	5	5

Figure 52. Storage Requirements for DProp Apply Distribution Libraries - Buy

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
AASNABS2	U	PDS	FB	80	2	5
AASNALK2	U	PDS	U	0	2	5

Figure 53. Storage Requirements for Data Propagator Capture Distribution Libraries - Base

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
AASNLBSE	U	PDS	FB	80	13	5
AASNLDDBM	U	PDS	FB	80	7	5
AASNLOBJ	U	PDS	FB	80	64	5
AASNLMOD	U	PDS	U	0	51	5



Figure 54. Storage Requirements for Data Propagator Capture Distribution Libraries - English

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
AASNLEMG	U	PDS	FB	80	2	5

Figure 55. Storage Requirements for Data Propagator Capture Distribution Libraries - Uppercase English

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
AASNLUMG	U	PDS	FB	80	2	5

Figure 56. Storage Requirements for Data Propagator Capture Distribution Libraries - Spanish

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
AASNLSMG	U	PDS	FB	80	3	5

Figure 57. Storage Requirements for Data Propagator Distribution Libs - DDU

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
AEKYIVPD	U	PDS	VB	4092	3	5
AEKYLOAD	U	PDS	U	0	7	5
AEKYSAMP	U	PDS	FB	80	8	5
AEKYDBRM	U	PDS	FB	80	2	5

Figure 58. Storage Requirements for Data Propagator Capture Distribution Libraries - Buy

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
AASNLBS2	U	PDS	FB	80	2	5
AASNLLK2	U	PDS	U	0	2	5

Figure 59. Storage Requirements for JDBC/SQLJ HFS Directories

DDNAME	Path Name
SDSNJDBC	/usr/lpp/db2/db2610/IBM/
SDSNCLAS	/usr/lpp/db2/db2610/classes/IBM/
SDSNOLIB	/usr/lpp/db2/db2610/lib/IBM/
SDSNOBIN	/usr/lpp/db2/db2610/bin/IBM/
SDSNOSP1	/usr/lpp/db2/db2610/samples/sample01/IBM/
SDSNOSP2	/usr/lpp/db2/db2610/samples/sample02/IBM/

Figure 60. Storage Requirements for IAV Extenders HFS Directories

DDNAME	Path Name
SDMBLOA2	/usr/lpp/db2ext_06_01_00/bin/IBM
SDMBEXP2	/usr/lpp/db2ext_06_01_00/lib/IBM
SDMBMAC2	/usr/lpp/db2ext_06_01_00/include/IBM
SDMBSMP	/usr/lpp/db2ext_06_01_00/samples/IBM

Figure 61. Storage Requirements for Text Extender HFS Directories

DDNAME	Path Name
SDESSCR1	/usr/lpp/db2tx/IBM

**5.2.6.1 Storage Requirements for Online Help:** The DB2 online help facility uses BookManager Read for OS/390, which is shipped with the OS/390 product. You must install BookManager Read before you can use DB2 online help. For instructions on the BookManager Read installation process, see the OS/390 R3 Program Directory.

The equivalent of 50 cylinders of IBM 3380 Direct Access Storage is recommended to hold the target and distribution libraries (including the linguistic dictionaries) that comprise DB2 Online Help. If you are using 3350 DASD, or some other type of DASD that does not support a block size of 28672, make this change before you run jobs DSNALC and DSNUNL2:

- Change all occurrences of 28672 to 16384.

*Figure 62. Storage Requirements for Target Libraries and Installation Jobs*

<b>Library DDNAME</b>	<b>T Y P E</b>	<b>D S R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>No. of 3380/ 9345 Trks</b>	<b>No. of 3390 Trks</b>	<b>No. of DIR Blks</b>
SDSNBKS	U	PO	FB	4096	225	200	2
SDSNINDX	U	PO	FB	4096	120	110	1
SDSNINST	U	PO	FB	80	15	13	5
SDSNSHLF	U	PO	FB	80	15	13	1

*Figure 63. Storage Requirements for Distrib. Libraries for Books/Install Jobs*

<b>Library DDNAME</b>	<b>T Y P E</b>	<b>D S R G</b>	<b>R E C F M</b>	<b>L R E C L</b>	<b>No. of 3380/ 9345 Trks</b>	<b>No. of 3390 Trks</b>	<b>No. of DIR Blks</b>
ADSNBKS	U	PO	FB	4096	225	200	2
ADSNINDX	U	PO	FB	4096	120	110	1
ADSNINST	U	PO	FB	80	15	13	5
ADSNSHLF	U	PO	FB	80	15	13	1

The following figures list data sets that are not used by SMP/E, but are required for DB2 UDB for OS/390 to execute.

**5.2.6.2 Storage Requirements for DB2 UDB for OS/390 Non-SMP/E Data Sets:** The following types of datasets are created during the DB2 UDB for OS/390 installation process. The sizes are based upon user preferences:

- CATALOG
- DIRECTORY
- LOG

---

## 5.3 FMIDs Deleted

Installing DB2 UDB for OS/390 may result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++VER statement in the product's SMPMCS. See Appendix A, "DB2 UDB for OS/390 Install Logic" on page 124 for more information on how to do this.

If you do not wish to delete these FMIDs at this time, you must install DB2 UDB for OS/390 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 UDB for OS/390 has no special considerations for the target system.

---

## 6.0 Installation and Migration Instructions

This chapter describes the installation method and lists the procedures to install and to activate the functions of DB2 UDB for OS/390. The *Installation Guide, GC26-9008* contains the step-by-step procedures to install the functions of DB2 UDB for OS/390.

To use the DB2 Installer feature to install DB2 UDB for OS/390, see the instructions in the README.TXT file on the "DB2 UDB for OS/390 Version 6 Workstation Solutions: DB2 Installer" CD-ROM.

If you obtained DB2 UDB for OS/390 as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set 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.

Please note the following:

- If you want to install DB2 UDB for OS/390 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 job DSNTIJAE has been provided to help perform some or all of the installation tasks. DSNTIJAA and DSNTIJAE contain the DDDEFs to establish the appropriate zones.

**Note:** : If you choose to use DSNTIJAA, please note the DSSPACE values must be modified prior to submitting the job. See 6.1.2, "SMP/E Options Subentry Values" on page 48 for details.

- The SMP/E dialogs may be used instead of the sample jobs to accomplish the SMP/E installation steps.

**Note: Migration to DB2 UDB for OS/390 is only permitted from DB2 Version 5.**

**Note:** If your system is at a **higher** IRLM level, **do not install** the IRLM tape that is included. Remove the IRLM FMID (HIR2101) from the SMP jobs, DSNTIJRC, DSNTIJAC, and DSNTIJAP.

If you install DB2 UDB for OS/390 with IRLM Version 2 into the same SMP zone as any Version of IMS with IRLM Version 1.5, IRLM Version 1.5 will be **deleted** during the installation of IRLM Version 2.

**Note:** See Information APAR II11442 for additional details.

---

## 6.1 Loading DB2 UDB for OS/390 Libraries

### 6.1.1 SMP/E Considerations for Installing DB2 UDB for OS/390

This release of DB2 UDB for OS/390 is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands.

### 6.1.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 64. 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.

<i>Figure 64. SMP/E Options Subentry Values</i>		
<b>SUB-ENTRY</b>	<b>Value</b>	<b>Comment</b>
DSSPACE	400,400,1200	3390 DASD Tracks
PEMAX	9999	The SMP/E default is larger than what can be specified here
UTILITY	HEWLH096	Program Binder must be used for installation of <b>JDBC/SQLJ</b>

### 6.1.3 Unload the Sample JCL from the Product Tape

The following sample installation jobs are provided on the distribution tape to help you install DB2 UDB for OS/390: See *Installation Guide, GC26-9008* for details on these steps.

The job prologs in each of these jobs contain directions on how to tailor the job for your site. Follow these directions carefully to ensure that your DB2 UDB for OS/390 SMP/E process functions correctly.

**Note:** It is assumed that DB2 UDB for OS/390 and IRLM V2R1 are installed into the same zones. If this is not the case, you will need to modify the install job DSNTIJAE and the RECEIVE job DSNTIJRC.

<i>Figure 65 (Page 1 of 2). Sample Installation Jobs - DB2 UDB for OS/390</i>			
<b>Job Name</b>	<b>Job Type</b>	<b>Description</b>	<b>RELFILE</b>
DSNTIJAA	Optional	Sample job to create the CSI and allocate the SMP/E control data sets	IBM.HDB6610.F4
DSNTIJAE	Allocate	Sample job to allocate target and distribution libraries and define SMP/E DDDEFs	IBM.HDB6610.F4
DSNTIJRC	Receive	Sample RECEIVE job	IBM.HDB6610.F4
DSNTIJAP	Apply	Sample APPLY CHECK and APPLY job	IBM.HDB6610.F4

Figure 65 (Page 2 of 2). Sample Installation Jobs - DB2 UDB for OS/390

<b>Job Name</b>	<b>Job Type</b>	<b>Description</b>	<b>RELFILE</b>
DSNTIJAC	Accept	Sample ACCEPT CHECK and ACCEPT job	IBM.HDB6610.F4
DSNTIJUD	Optional	Clean up job	IBM.HDB6610.F4

In the sample SMP/E jobs provided, the name of the SMP/E CSI is `hlqual.SMPCSI.CSI`. The global zone name in the SMP/E CSI is `GLOBAL`. The distribution zone name is `DISTLIB`. The target zone name is `TARGLIB`. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

**Note:** Recompile your existing Validation Exit Routines to pick up the updated version of the macro `DSNDRVAL`. No logic change is required. Although it is optional to recompile your Validation Exit Routine, it is recommended.

**Note:** If you install DB2 UDB for OS/390 with IRLM Version 2 into the same SMP zone as any Version of IMS with IRLM Version 1.5, IRLM Version 1.5 will be deleted during the installation of IRLM Version 2.

### 6.1.4 Unload SMP/E Jobs for DB2 UDB for OS/390

Unload the SMP/E jobs from the tape or cartridge on which they are distributed. Change the FMIDs and job names as appropriate.

```

//* COMPID: DB2,5740XYR00
//* DOC:   LOAD SMP INSTALLATION JCL FROM TAPE FOR DB2
//LOAD    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//JCLTAPE DD DSN=IBM.HDB6610.F4,DISP=(OLD,PASS),
//          UNIT=TAPE,VOL=(PRIVATE,,SER=DB6610),
//          LABEL=(5,SL)
//*
//JCLDISK DD DSN=SYSADM.JCL.CNTL,VOL=SER=XXXXXX,UNIT=SYSDA,
//          DCB=(LRECL=80,BLKSIZE=6160,RECFM=FB),
//          DISP=(NEW,CATLG,DELETE),SPACE=(CYL,(1,2,20))
//SYSUT3  DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4  DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN   DD *
COPY I=JCLTAPE,0=JCLDISK
SELECT MEMBER=(DSNTIJAA,DSNTIJAE)
SELECT MEMBER=(DSNTIJAC,DSNTIJAP,DSNTIJRC,DSNTIJUD)
//*
//PRINT   EXEC PGM=IEBPTPCH
//SYSPRINT DD SYSOUT=*
//SYSUT1  DD DSN=SYSADM.JCL.CNTL,DISP=SHR
//SYSUT2  DD SYSOUT=*
//SYSIN   DD *
PRINT TYPORG=PO,MAXFLDS=5
RECORD FIELD=(80)
//*

```



## 6.1.5 <Optional> Allocate CSI and SMP/E Control data sets: DSNTIJAA

Sample job DSNTIJAA creates the CSI and the SMP/E control libraries that are referenced in all other SMP/E jobs for DB2 UDB for OS/390. If you're not going to be using an existing CSI, you will need to run job DSNTIJAA to create the desired CSI for DB2 UDB for OS/390. Consult the prolog of DSNTIJAA for instructions on how to customize the job for your system.

**Expected Return Codes and Messages:** This job should complete with a return code 0.

## 6.1.6 Allocate DDDEF Entries for Target and Distribution Libraries

Edit and submit sample job DSNTIJAE to allocate the SMP/E target and distribution libraries for DB2 UDB for OS/390. Consult the prolog of DSNTIJAE for instructions on how to customize the job for your system.

**Expected Return Codes and Messages:** This job should complete with a return code 0.

**Note:** This job also allocates target and distribution libraries for DB2 Online Help. If you choose not to use DB2 Online Help, see comments in job DSNTIJAE to locate and remove the JCL which allocates the DB2 Online Help target and distribution libraries.

## 6.1.7 Perform SMP/E RECEIVE

Edit and submit sample job DSNTIJRC to perform the SMP/E RECEIVE for DB2 UDB for OS/390. Consult the prolog of DSNTIJRC for instructions on how to customize the job for your system.

**Expected Return Codes and Messages:** This job should complete with a condition code of 4 or less.

**Note:** If you are running a lower level of OS/390 Version 2 Release 7, your RECEIVE job will end with a return code of 4. The following warning message will be issued: **GIM50050W**

## 6.1.8 <Optional> Cleanup job for migration: DSNTIJUD

Job DSNTIJUD should be run before the SMP/E APPLY (job DSNTIJAP). Running job DSNTIJUD is not necessary if you are installing DB2 UDB for OS/390 for the first time. If you accidentally run it, it will have no adverse effect.

**Expected Return Codes and Messages:** This job should complete with a return code 0.

## 6.1.9 Perform SMP/E APPLY CHECK

**Note:** The following module is used in JCLIN and does not use the GEM DB2 Instrumentation (FMID H0AL211) product's component code. This module is owned by DB2 UDB Server for OS/390 Version 6 of which GEM DB2 Instrumentation is a part.

- DSNALI

Edit and submit sample job DSNTIJAP to perform an SMP/E APPLY CHECK for DB2 UDB for OS/390. Consult the prolog of DSNTIJAP for instructions on how to customize the job for your system.

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).

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:** This job should complete with a return code 4 or less, and may issue any of the following messages which do not affect product installation:

- GIM20501I, GIM23903W, GIM43401W, GIM61903W and GIM69138W
- IEW2454W, IEW2480W, IEW2482W, IEW2609W, IEW2635I, IEW2646W, IEW2650I and IEW2651W

**Note:** All messages pertaining to members with prefix name 'DSNC' and 'DXRR' can be ignored.

### 6.1.10 Perform SMP/E APPLY

**Note:** The following module is used in JCLIN and does not use the GEM DB2 Instrumentation (FMID H0AL211) product's component code. This module is owned by DB2 UDB Server for OS/390 Version 6 of which GEM DB2 Instrumentation is a part.

- DSNALI

Edit and submit sample job DSNTIJAP to perform an SMP/E APPLY for DB2 UDB for OS/390. If you do not apply the FMIDs in a single APPLY statement as DSNTIJAP does, use the following order: HIY6610, HIZ6610 and HDB6610 together; then HIR2101. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with a return code 4 or less, and may issue any of the following messages which do not affect product installation:

- GIM20501I, GIM23903W, GIM43401W, GIM61903W and GIM69138W
- IEW2454W, IEW2480W, IEW2482W, IEW2609W, IEW2635I, IEW2646W, IEW2650I and IEW2651W

**Note:** All messages pertaining to members with prefix name 'DSNC' and 'DXRR' can be ignored. The SQLCA1 and SQLCA2 references are resolved when DSNHFT is included in a FORTRAN application. If this job fails or abends, correct the problem and rerun the job.

### 6.1.11 Perform SMP/E ACCEPT CHECK

Edit and submit sample job DSNTIJAC to perform an SMP/E ACCEPT CHECK for DB2 UDB for OS/390. 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).

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:** This job should complete with a return code 4 or less. You may also receive message GIM61903W.

## 6.1.12 Perform SMP/E ACCEPT

Edit and submit sample job DSNTIJAC to perform an SMP/E ACCEPT for DB2 UDB for OS/390. Consult the instructions in the sample job for more information.

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.

**Expected Return Codes and Messages:** This job should complete with a return code 4 or less. You may receive message GIM61903W.

## 6.1.13 Set Up Controls for English Panel Selection

Each of the display language control techniques described below is a way to set or change the current allocation of the ddnames.

**6.1.13.1 Logon Procedures:** To switch languages, you need only to change the data set allocation currently in effect under the standard ISPF panel library ddname. A user's logon procedure can allocate ddname ISPPLIB to select the current display language. Following is an example from a logon procedure:

```
//*                THIS VERSION DISPLAYS ENGLISH PANELS */
//ISPPLIB DD DSN=DSN610.SDSNSPFP,DISP=SHR      ENGLISH
//          DD DSN=DSN610.SDSNPFPE,DISP=SHR    ENGLISH
```

**6.1.13.2 Language-switching CLISTs:** An ordinary CLIST can be used (outside of ISPF) to free and reallocate ISPPLIB. Following is an example of a CLIST:

```

PROC 0 LANGUAGE(E)          /* Execute this CLIST outside of ISPF */
FREE DD(ISPPLIB)
WRITE Do you want English or Japanese panels: Enter E or J.
READ &LANGUAGE
IF &LANGUAGE = E +
    THEN ALLOC DD(ISPPLIB) DS('DSN610.SDSNSPFP' 'DSN610.SDSNPFPE') +
        SHR /* English */
    ELSE ALLOC DD(ISPPLIB) DS('DSN610.SDSNSPFP' 'DSN610.SDSNPFPK') +
        SHR /* Japanese */

```

Some users allocate the ISPF panel library from their DEFAULT CLIST. Allocation of ddname ISPPLIB controls the current language just as it does for the LOGON procedure.

### 6.1.14 SMP/E CALLLIBS Processing for Math Functions

When installing FMID JDB6619, use OS/390 Version 2 Release 4 and Language Environment Version 1 Release 8 for the CSSLIB and SCEELKED datasets.

### 6.1.15 Math Functions Details

If the job to allocate Math Functions target and distribution libraries is for OS/390 Version 1 Release 3, or the required PTFs are not installed, then set install panel DSNTIP7 field LEMAX to a value of 0.

### 6.1.16 Online Help Details

The bookshelf list, index, and books are shipped as partitioned data sets, but you must copy the contents to sequential data sets before they can be used. Submit the sample JCL DSNUNL1 (which resides in SDSNINST) which you unloaded previously, to copy the bookshelf list to a sequential data set. Submit the sample JCL DSNUNL2 (which resides in SDSNINST) which you unloaded previously, to copy the bookshelf, index and books to sequential data sets.

**Expected Return Codes and Messages:** These jobs (DSNUNL1 and DSNUNL2), should complete with a return code 0.

---

## 6.2 Loading DB2 UDB for OS/390 Kanji Panel Libraries

### 6.2.1 SMP/E Considerations for Installing Kanji

This release of DB2 UDB for OS/390, Kanji panels feature, is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands.

After installing DB2 UDB for OS/390, you may install the Kanji panels feature for DB2 UDB for OS/390. The following sample jobs are provided to assist you in installing the Kanji Panels feature.

### 6.2.2 Unload the Sample JCL from the Kanji Product Tape

The following sample installation jobs are provided on the distribution tape to help you install DB2 UDB for OS/390:

<i>Figure 66. Sample Kanji Installation Jobs</i>			
<b>Job Name</b>	<b>Job Type</b>	<b>Description</b>	<b>RELFILE</b>
DSNTNJAE	Allocate	Sample job to allocate target and distribution libraries and define SMP/E DDDEFS	IBM.JDB6611.F1
DSNTNJRC	Receive	Sample RECEIVE job	IBM.JDB6611.F1
DSNTNJAP	Apply	Sample APPLY CHECK and APPLY job	IBM.JDB6611.F1
DSNTNJAC	Accept	Sample ACCEPT CHECK and ACCEPT job	IBM.JDB6611.F1

In the sample SMP/E jobs provided, the name of the SMP/E CSI is `hlqual.SMPCSI.CSI`. The global zone name in the SMP/E CSI is `GLOBAL`. The distribution zone name is `DISTLIB`. The target zone name is `TARGLIB`. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

### 6.2.3 Unload SMP/E Jobs for the Kanji panels feature

If you plan to use Kanji panels you must unload the appropriate SMP/E jobs from the tape or cartridge on which they are distributed. Make sure you change all the appropriate FMIDs and job names.

```

//* COMPID: DB2,5740XYR00
//* DOC: LOAD KANJI SMP INSTALLATION JCL FROM TAPE FOR DB2
//LOAD EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//JCLTAPE DD DSN=IBM.JDB6611.F1,VOL=(PRIVATE,,SER=DB6611),
// UNIT=TAPE,LABEL=(2,SL),DISP=(OLD,PASS)
//*
//JCLDISK DD DSN=SYSADM.JCL.CNTL,VOL=SER=USER01,UNIT=SYSDA,
// DISP=OLD
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY I=JCLTAPE,0=JCLDISK
SELECT MEMBER=(DSNTNJAE)
SELECT MEMBER=(DSNTNJAC,DSNTNJAP,DSNTNJRC)
//*
```

## 6.2.4 SMP/E Detail Steps

Figure 67. SMP/E Detail Steps

STEP	DESCRIPTION	JOB
1	Unload SMP/E jobs for the Kanji panels	IEBCOPY
2	Allocate and establish DDDEF's for the Kanji Panels libraries	DSNTNJAE
3	Run the RECEIVE job for the Kanji panels	DSNTNJRC
4	Run the APPLY job for the Kanji panels	DSNTNJAP
5	Run the ACCEPT job for the DB2I panels	DSNTNJAC
6	Install Maintenance tape if applicable	DSNTIJRC and DSNTIJAP and DSNTIJAC

## 6.2.5 Allocate DDDEF Entries for Target and Distribution Libraries

Edit and submit sample job DSNTNJAE to allocate the SMP/E target and distribution libraries for the Kanji Panels optional feature of DB2 UDB for OS/390 Consult the prolog of DSNTNJAE for instructions on how to customize the job for your system.

**Expected Return Codes and Messages:** This job should complete with a return code 0.

## 6.2.6 Perform SMP/E RECEIVE for Kanji panels

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

**Expected Return Codes and Messages:** This job should complete with a condition code of 4 or less.

**Note:** If you are running a lower level of OS/390 Version 2 Release 7, your RECEIVE job will end with a return code of 4. The following warning message will be issued: **GIM50050W**

## 6.2.7 Perform SMP/E APPLY CHECK for Kanji panels

Edit and submit sample job DSNTNJAP to perform an SMP/E APPLY CHECK. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with a return code 0.

## 6.2.8 Perform SMP/E APPLY for Kanji panels

Edit and submit sample job DSNTNJAP to perform an SMP/E APPLY for Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with a return code 0.

## 6.2.9 Perform SMP/E ACCEPT CHECK for Kanji panels

Edit and submit sample job DSNTNJAC to perform an SMP/E ACCEPT CHECK. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with a return code 0.

## 6.2.10 Perform SMP/E ACCEPT for Kanji panels

Edit and submit sample job DSNTNJAC to perform an SMP/E ACCEPT for DB2 UDB for OS/390. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with a return code 0.

## 6.2.11 Set Up Controls for Language Selection

Each of the display language control techniques described below is a way to set or change the current allocation of the ddnames.

**6.2.11.1 Logon Procedures:** To switch languages, you need only to change the data set allocation currently in effect under the standard ISPF panel library ddname. A user's logon procedure can allocate ddname ISPPLIB to select the current display language. Following is an example from a logon procedure:

```
/**                THIS VERSION DISPLAYS KANJI PANELS */
//ISPPLIB DD DSN=DSN610.SDSNSPPF,DISP=SHR    ENGLISH
//                DD DSN=DSN610.SDSNPFPK,DISP=SHR    KANJI OVERRIDE
```

**6.2.11.2 Language-switching CLISTs:** An ordinary CLIST can be used (outside of ISPF) to free and reallocate ISPPLIB. Following is an example of a CLIST:

```
PROC 0 LANGUAGE(E)      /* Execute this CLIST outside of ISPF */
FREE DD(ISPPLIB)
WRITE Do you want English or Japanese panels: Enter E or J.
READ &LANGUAGE
IF &LANGUAGE = E +
    THEN ALLOC DD(ISPPLIB) DS('DSN610.SDSNSPPF' 'DSN610.SDSNPFPE') +
        SHR /* English */
    ELSE ALLOC DD(ISPPLIB) DS('DSN610.SDSNSPPF' 'DSN610.SDSNPFPK') +
        SHR /* Japanese */
```

Some users allocate the ISPF panel library from their DEFAULT CLIST. Allocation of ddname ISPPLIB controls the current language just as it does for the LOGON procedure.



---

## 6.3 Running the Installation CLIST

### 6.3.1 Overview for Installing, Migrating, or Updating DB2 System Parameters

There is an online help for DB2 UDB for OS/390 which enables you to select information in an on-line DB2 book. If you choose not to use online help, invoke the DSNTINST CLIST. To use online help, invoke the DSNTINS0 CLIST. In your SYSPROC concatenation, make sure that the data set that contains the correct version of the DSNTINST CLIST is concatenated ahead of any other versions of DSNTINST. See 'Setting Up and Using Online Help in the DB2 Installation Guide for more information.

The Installation CLIST displays a series of ISPF panels that prompt you to supply the parameter values or accept the defaults shown. The CLISTs verify that the values you enter are within the allowable ranges. The next section contains instructions for running the CLIST.

The values of parameters describe the operating characteristics of your DB2 system. You have to think of changing those values when INSTALLING DB2 or when MIGRATING from DB2 Version 5 to Version 6. In between, you can consider UPDATING them at any time to improve your operations. When installing or migrating, you must run the Installation CLIST to prepare data sets needed for later job steps.

### 6.3.2 Details

To use the ISPF panels, you must first make the DB2 ISPF library available to TSO, and then invoke the Installation CLIST in ISPF mode. You must be aware of the output that the panel session produces and take steps to save it for use later. Instructions for this procedure follow.

#### MAKING THE DB2 ISPF LIBRARIES AVAILABLE TO TSO

A new ISPF skeleton library (ISPSLIB) standardizes DB2 support for TSO and makes full use of skeletons, rather than CLISTs, to process EDITJCL. Concatenate the DB2 ISPF libraries to your normal allocations by issuing the following commands:

```
PROFILE WTP MSGID

ALLOCATE DDNAME(ISPMLIB) DSN('DSN610.SDSNSPFM'
    'ISP.V3R5M0.ISPMENU' 'ISR.V3R5M0.ISRMENU') SHR REUSE

ALLOCATE DDNAME(ISPPLIB) DSN('DSN610.SDSNSPFP'
    'ISP.V3R5M0.ISPPENU' 'ISR.V3R5M0.ISRPENU') SHR REUSE

ALLOCATE DDNAME(ISPSLIB) DSN('DSN610.SDSNSPFS'
    'ISP.V3R5M0.ISPSLIB' 'ISR.V3R5M0.ISRSENU') SHR REUSE

ALLOCATE DDNAME(ISPTLIB) DSN('DSN610.SDSNSPFT'
    'ISP.V3R5M0.ISPTENU' 'ISR.V3R5M0.ISRTLIB') SHR REUSE
```

The PROFILE command provides complete error messages.

The ALLOCATE command uses the default names of the libraries containing the ISPF panels. To concatenate or merge existing libraries with them, put the library names in the list of names in parentheses after DSN with the largest block size first.

#### INVOKING THE CLIST

1. Check your region size. Usually, 2 megabytes (M) is enough.
2. Invoke ISPF.
3. Select option 6 on the main ISPF panel.
4. Enter:

```
EXEC 'DSN610.SDSNCLST(DSNTINS0)'
```

or, to receive messages tracing the CLIST progress,

```
EXEC 'DSN610.SDSNCLST(DSNTINS0)' 'CONTROL(LIST)'
```

---

## 6.4 Installing DB2 UDB for OS/390

For information on Enabling, Disabling, and Installing DB2 Version 6 Data Sharing, refer to DB2 UDB for OS/390 Data Sharing: Planning and Administration Guide (SC26-9007).

### 6.4.1 Overview

The following lists the procedures you need to follow for INSTALLATION. Refer to 6.5, “Migrating to DB2 UDB for OS/390” on page 62 for MIGRATION instructions. Refer to the *Installation Guide, GC26-9008* for complete customization procedures.

After you have performed the SMP/E steps in Loading DB2 UDB for OS/390 Libraries, and followed the steps in 6.3, “Running the Installation CLIST” on page 59 to run the Installation CLIST, you can edit and run the jobs that install your DB2 Version 6 subsystem.

### 6.4.2 Details

Figure 68. Detail Steps for Installing DB2 UDB for OS/390

STEP	DESCRIPTION	JOB
1	Define DB2 Version 6 to MVS, and build cataloged procedures	DSNTIJMV
2	Optionally, define a new integrated catalog facility catalog and integrated catalog facility catalog alias	DSNTIJCA
3	Define DB2 data sets	DSNTIJIN
4	Initialize DB2 data sets	DSNTIJID
5	Define DB2 subsystem parameters	DSNTIJUZ
6	Optionally, prepare authorization exit routines	DSNTIJEX
7	Optionally, set up for SMF recording	—
8	Optionally, establish subsystem security	—
9	Establish the DB2/TSO environment	DSNTIJVC
10	Optionally, connect IMS to DB2	—
11	Optionally, connect CICS to DB2	—
12	IPL MVS	—
13	Start DB2 Version 6	—
14	Define temporary table spaces and buffer pool and hiperpool sizes	DSNTIJTM
15	Define and bind DB2 objects and user-maintained databases	DSNTIJSG
16	Optionally, populate the communications database (CDB)	—
17	Image copy DB2 catalog and DB2 directory	DSNTIJIC
18	Run the installation verification procedure (See note 1 and 2 after Figure 70).	DSNTEJxx

---

## 6.5 Migrating to DB2 UDB for OS/390

### 6.5.1 Overview

The following lists the procedures you need to follow for MIGRATION to DB2 UDB for OS/390. Refer to the *Installation Guide, GC26-9008* for complete customization procedures.

After you have performed the SMP/E steps in Loading DB2 UDB for OS/390 Libraries, and followed the steps in 6.3, "Running the Installation CLIST" on page 59 to run the Installation CLIST, you can edit and run the jobs that migrate your DB2 Version 6 subsystem.

**Note:** Migration to DB2 UDB for OS/390 is only permitted from DB2 Version 5.

### 6.5.2 Details

Figure 69 (Page 1 of 2). Detail Steps for Migrating to DB2 UDB for OS/390

STEP	DESCRIPTION	JOB
1	Premigration activities to determine unsupported objects, this job identifies all unmigratable objects. After running DSNTIJPM, make adjustments for release incompatibilities	DSNTIJPM
2	Optionally, (but highly recommended), run DSN1COPY with the CHECK option on the catalog table spaces, and invoke the link checker (DSN1CHKR) to check for broken links on your Version 5 subsystem.	—
3	Optionally, (but highly recommended), determine which plans and packages will be invalid after migration	—
4	Optionally, (but highly recommended), check for consistency between catalog tables	—
5	Image copy your Version 5 catalog	DSNTIJIC
6	Establish the DB2/TSO environment	DSNTIJVC
7	Optionally, connect IMS to DB2	—
8	Optionally, connect CICS to DB2	—
9	Stop DB2 V5	—
10	Back up V5 volumes	—
11	Define DB2 initialization parameters	DSNTIJUZ
12	Optionally, establish subsystem security	—
13	Define DB2 Version 6 to MVS, and build cataloged procedures	DSNTIJMV
14	Define system data sets	DSNTIJIN
15	Optionally, prepare authorization exit routines	DSNTIJEX
16	IPL MVS (Optional if no PARMLIB updates)	—
17	Start DB2 Version 6	—

Figure 69 (Page 2 of 2). Detail Steps for Migrating to DB2 UDB for OS/390

STEP	DESCRIPTION	JOB
18	Tailor the DB2 Version 6 catalog. DB2 should be stopped/started after the DSNTIJTC job completes successfully. (See NOTE 3)	DSNTIJTC
19	Optionally (but highly recommended), invoke the link checker (DSN1CHKR) to check for broken links on Version 6 (The DB2 catalog now uses SYSLGRNX instead of SYSLGRNG, even if you fall back.	DSNTIJCX
20	Prepare the dynamic SQL program and define buffer pool and hiperpool sizes	DSNTIJTM
21	Bind DB2 objects; user maintained database activity	DSNTIJSG
22	Image copy the Version 6 catalog	DSNTIJIC
23	Optionally, populate the CDB	—
24	Run V5 verification jobs. Run Version 6 verification jobs (See note 1 and 2)	DSNTEJxx

**Note:** 1. DSNTIJEX has an additional authorization exit - access control

**Note:** 2. Phase 2, job DSNTEJ2E

**Problem:** With C++ for MVS/ESA V3R2, DSNTEJ2E experiences compile-time errors (code 0012) in steps PH01ES02.CP and PH01ES03.CP. These problems do not occur with C++ for MVS/ESA V3R1, which is the minimum C++ language level requirement for DB2 UDB for OS/390.

**Users Affected:** All users who run DSNTEJ2E with C++ for MVS/ESA V3R2.

**Workaround:** After the install CLIST has been run successfully, edit DSNTEJ1E and change all occurrences of the string "SOURCE XREF,MARGINS" to "/CXX SOURCE XREF,MARGINS".

**Note:** 3. If you have Type 1 indexes or dataset passwords or shared read-only data, remove these from the catalog before running DSNTIJTC.

You cannot have views or valid procs on the SYSCOLDIST or SYSCOLDISTSTATS catalog tables (DB2PM does put a view on one of these tables). Drop any views and valid procs then recreate them after a successful migration.

### 6.5.3 <Optional> RECEIVE the Cumulative Service Tape

NOTE: This step is bypassed if receiving the product from a CBPDO.

**Expected Return Codes and Messages:** This should complete with a return code 4.

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.

---

## 6.6 Fallback Steps Summary

*Fallback* is the process of returning to DB2 Version 5 after attempting or completing a migration to DB2 Version 6. You can fall back if a severe error occurs either during migration or during operation of DB2 Version 6.

If using DDF and trying to fallback, the old user-defined CDB must not be deleted. If fallback is an option, old CDB tables should be maintained with the new CDB catalog tables. **This process applies only to those who are migrating to Version 6.**

**For information on Fallback for DB2 Version 6 Data Sharing, refer to DB2 UDB for OS/390 Data Sharing: Planning and Administration Guide (SC26-9007).**

See section 5.2.5, “Fallback to Version 5” on page 32 for any additional information.

To fall back to Version 5, perform the following steps:

### 6.6.1 Details

*Figure 70. Detail Steps for Fall Back to DB2 Version 5*

STEP	DESCRIPTION	JOB
1	Run Phase 0 of the Version 6 installation verification procedure (if possible)	DSNTEJ0
2	STOP DB2 Version 6	—
3	Rename the cataloged procedures	DSNTIJFV
4	Reconnect TSO, IMS, and CICS to Version 5	—
5	Start DB2 Version 5	—
6	Run the Version 5 installation verification jobs	DSNTEJxx

---

## 6.7 Remigration Steps Summary

Migration to Version 6 after falling back to Version 5 (remigration) is simpler than migration. To remigrate to Version 6, perform the following steps:

### 6.7.1 Details

Figure 71. Detail Steps for Remigration to DB2 UDB for OS/390

STEP	DESCRIPTION	JOB
1	Run DSN1COPY with the CHECK option on the catalog table spaces. Invoke the link checker (DSN1CHKR) to check for broken links on Version 5. Execute the queries in DSNTESQ to check for consistency between catalog tables.	DSN1CHKR
2	Image copy Version 5	DSNTIJIC
3	Stop Version 5	—
4	Reconnect TSO, IMS, and CICS to Version 6	—
5	Rename cataloged procedures	DSNTIJMV
6	Start DB2 Version 6	—
7	Optionally, image copy the Version 6 catalog	DSNTIJIC
8	Run Version 5 verification jobs Run Version 6 verification jobs	DSNTEJxx

---

## 6.8 Activating DB2 UDB for OS/390

The publication *Installation Guide, GC26-9008* contains the step-by-step procedures to activate the functions of DB2 UDB for OS/390.



---

## 6.9 Loading the DB2 UDB for OS/390 ODBC Libraries

### 6.9.1 SMP/E Considerations for Installing ODBC

This release of DB2 UDB for OS/390, ODBC, is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands.

After installing DB2 UDB for OS/390, you may install the ODBC feature of DB2 UDB for OS/390.

### 6.9.2 Unload the Sample JCL from the ODBC Product Tape

The following sample installation jobs are provided on the distribution tape to help you install ODBC:

<i>Figure 72. Sample ODBC Installation Jobs</i>			
<b>Job Name</b>	<b>Job Type</b>	<b>Description</b>	<b>RELFILE</b>
DSNTCJRC	Receive	Sample RECEIVE job	IBM.JDB6617.F3
DSNTCJAP	Apply	Sample APPLY CHECK and APPLY job	IBM.JDB6617.F3
DSNTCJAC	Accept	Sample ACCEPT CHECK and ACCEPT job	IBM.JDB6617.F3

In the sample SMP/E jobs provided, the name of the SMP/E CSI is `hlqual.SMPCSI.CSI`. The global zone name in the SMP/E CSI is `GLOBAL`. The distribution zone name is `DISTLIB`. The target zone name is `TARGLIB`. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

### 6.9.3 Unload SMP/E Jobs for the ODBC feature

Unload the SMP/E jobs from the tape or cartridge on which they are distributed. Change the FMIDs and job names as appropriate.

```
//* COMPID: DB2,5740XYR02
//* DOC: LOAD CLI SMP INSTALLATION JCL FROM TAPE FOR DB2
//LOAD EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//JCLTAPE DD DSN=IBM.JDB6617.F3,VOL=(PRIVATE,,SER=DB6617),
// UNIT=TAPE,LABEL=(4,SL),DISP=(OLD,PASS)
//*
//JCLDISK DD DSN=SYSADM.JCL.CNTL,VOL=SER=USER01,UNIT=SYSDA,
// DISP=OLD
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY I=JCLTAPE,O=JCLDISK
SELECT MEMBER=(DSNTCJAC,DSNTCJAP,DSNTCJRC)
//*
```

## 6.9.4 Overview

The following details the procedures you need to follow for loading the data sets for the ODBC feature. Optional job DSNTIJAA can be used to add the ODBC feature FMID to the CSI globalzone. All target and distribution libraries required to install the ODBC feature were defined when DB2 was installed.

For information on installing the ODBC feature of DB2 UDB for OS/390, refer to DB2 UDB for OS/390 ODBC Guide and Reference (SC26-9005).

### 6.9.4.1 SMP/E Details

Figure 73. SMP/E Detail Steps for ODBC Feature

STEP	DESCRIPTION	JOB
1	Copy and edit the SMP/E jobs	IEBCOPY
2	Run the RECEIVE job	DSNTCJRC
3	Run the APPLY job (with the CHECK option first)	DSNTCJAP
4	Run the ACCEPT job (with the CHECK option first)	DSNTCJAC

## 6.9.5 Perform SMP/E RECEIVE for ODBC

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

**Expected Return Codes and Messages:** This job should complete with a condition code of 4 or less.

**Note:** If you are running a lower level of OS/390 Version 2 Release 7, your RECEIVE job will end with a return code of 4. The following warning message will be issued: **GIM50050W**

## 6.9.6 Perform SMP/E APPLY CHECK for ODBC

Edit and submit sample job DSNTCJAP to perform an SMP/E APPLY CHECK for ODBC. 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).

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:** This job should complete with return code 0.

### 6.9.7 Perform SMP/E APPLY for ODBC

Edit and submit sample job DSNTCJAP to perform an SMP/E APPLY for ODBC. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 6.9.8 Perform SMP/E ACCEPT CHECK for ODBC

Edit and submit sample job DSNTCJAC to perform an SMP/E ACCEPT CHECK for ODBC. 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).

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:** This job should complete with return code 0.

### 6.9.9 Perform SMP/E ACCEPT for ODBC

Edit and submit sample job DSNTCJAC to perform an SMP/E ACCEPT for ODBC. Consult the instructions in the sample job for more information.

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.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 6.9.10 Activating DB2 UDB for OS/390 ODBC

ODBC is fully activated once the SMP/E installation is complete. No further customization is required to activate this function. See sample job DSNTIJCL or ODBC Guide and Reference manual (SC26-9005) for customization information to use this feature.

---

## 6.10 Installing DB2 UDB for OS/390 JDBC/SQLJ

### 6.10.1 SMP/E Considerations for Installing JDBC/SQLJ

This release of DB2 UDB for OS/390 JDBC/SQLJ, 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.

The steps in this chapter use the DB2 UDB for OS/390 default data set names and Open Edition install directories. The default HFS install directory is: **/usr/lpp/db2**. Optionally, the JDBC/SQLJ feature can be installed using a **'user-defined-prefix'** in the installation directory name, such as **'/SERVICE/usr/lpp/db2'**. The installation procedures and the JCL samples assume that the TSO user ID installing DB2 UDB for OS/390 has the **authority necessary** to create data sets and Open Edition HFS directories using the default names listed in each job.

The OMVS address space *must* be active in order to complete the installation process. Functions in these product levels are *required* to start the OMVS address space.

- OS/390 Release 3 or higher
- DFSMS/MVS 1.2 (5695-DF1) and PTF UW04232
- RACF 2.1 (5695-039) or an equivalent security product with the necessary support

### 6.10.2 Unload the Sample JCL from the JDBC/SQLJ Product Tape

The following sample installation jobs are provided on the distribution tape to help you install DB2 UDB for OS/390:

Figure 74. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
DSNTJJAЕ	Allocate	Sample job to allocate target and distribution libraries and to define SMP/E DDDEFs	IBM.JDB6612.F3
DSNISMKD	Invoke	Sample job to invoke the DSNMKDIR rexx exec	IBM.JDB6612.F3
DSNMKDIR	Create HFS	Sample rexx exec to create Hierarchical File System Structure	IBM.JDB6612.F3
DSNTJJRC	Receive	Sample RECEIVE job	IBM.JDB6612.F3
DSNTJJAP	Apply	Sample APPLY CHECK and APPLY job	IBM.JDB6612.F3
DSNTJJAC	Accept	Sample ACCEPT CHECK and ACCEPT job	IBM.JDB6612.F3

In the sample SMP/E jobs provided, the name of the SMP/E CSI is ?SMPPRE.?SMPMLQ. The global zone name in the SMP/E CSI is global. The distribution zone name is dsndlib. The target zone name is dsntarg. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

### 6.10.3 Unload the Sample JCL from the Product Tape

Sample installation jobs are provided on the distribution tape to help you install JDBC/SQLJ. The following sample JCL will copy the JDBC/SQLJ jobs from the tape. Add a job card and modify the parameters in boldface to uppercase values to meet your site's requirements before submitting.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN DD DSN=IBM.JDB6612.F3,UNIT=tunit,VOL=SER=DB6617,
// LABEL=(7,SL),DISP=(OLD,KEEP)
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=dunit,
// DCB=*.STEP1.IN,SPACE=(TRK,(1,1,2))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=IN,OUTDD=OUT
/*
```

where **tunit** is the unit value matching the product tape or cartridge, **jcl-library-name** is the name of the data set where the sample jobs will reside, **dasdvol** is the volume serial of the DASD device where the data set will reside, and **dunit** is the DASD unit type of the volume.

### 6.10.4 SMP/E CALLLIBS Processing for JDBC/SQLJ

JDBC/SQLJ uses the CALLLIBS function provided in SMP/E Release 8 to resolve external references during installation. When JDBC/SQLJ is installed, ensure the following:

- Verify that the SMP/E SMPLTS data set has been allocated. Refer to *SMP/E Reference* for information on allocating the SMPLTS data set.

**Note:** For JDBC/SQLJ, 10 cylinders of 3380/3390 DASD space is adequate for the SMPLTS.

- Provide DDDEFs for the following libraries:
  - CEE.SCEELKED (OS/390 Version 1 Release 3 datasets)
  - SYS1.CSSLIB (OS/390 Version 1 Release 3 datasets)

See 6.10.5, “Allocate SMP/E Target/Distribution Libraries and Create DDDEF Entries” on page 72 for a sample job to define these DDDEFs.

**Note:** The DDDEFs above are used only to resolve the link-edit for JDBC/SQLJ using CALLLIBS. These data sets are not updated during the installation of JDBC/SQLJ. The above sample DDDEFs specify the minimum required level of Language Environment/370 to install and execute JDBC/SQLJ. If you have a newer version of Language Environment/370, you should change the DDDEFs to specify the version or Language Environment/370 that you are using.

## 6.10.5 Allocate SMP/E Target/Distribution Libraries and Create DDDEF Entries

Edit and submit sample job DSNTJAE to allocate the SMP/E target and distribution libraries and create DDDEF entries for JDBC/SQLJ. If you decide to install the JDBC/SQLJ feature into an alternate install directory, you will need to modify job DSNTJAE to specify your *'user-defined-prefix'*. Consult the instructions in the sample job for more information.

**IMPORTANT:** Though all JCL must normally be in uppercase to run, HFS path names may be mixed case. Be careful when editing DSNTJAE to ensure that the mixed case in the job is preserved.

**Expected Return Codes and Messages:** This job should complete with a return code 4 or less. You may see SMP/E warning messages stating that a DDDEF entry was ADDED instead of REPLACED because it did not exist. These warning messages are expected when using REP instead of ADD for DDDEF entries and can be ignored.

## 6.10.6 <Optional> Allocate HFS Data Set

If you plan to install DB2 UDB for OS/390 into a separate HFS data set instead of installing into the root file system, you can use the following sample JCL to allocate an HFS data set. Add a job card and modify the parameters in boldface to uppercase values to meet your site's requirements before submitting.

```
//ALLOCHFS EXEC PGM=IEFBR14
//SYSPRINT DD SYSOUT=*
//*
//* NOTE: THIS HFS DATA SET MUST BE DFSMS MANAGED.
//*
//SDSNHFS DD DSN=db2h1q.SDSNHFS,
//          DISP=(NEW,CATLG,DELETE),
//          VOL=SER=dasdvol,UNIT=dunit,
//          SPACE=(CYL,(5,1,1)),
//          DSNTYPE=HFS,STORCLAS=storclas
//*
```

where **db2h1q** is the high level data set qualifier used for this DB2, **dasdvol** is the volume serial of the DASD device where the data set will reside, **dunit** is the DASD unit type of the volume, and **storclas** is an appropriate SMS storage class defined on the your system.

## 6.10.7 Create the Hierarchical File System Structure

Before SMP/E can install JDBC/SQLJ you have to create the directory skeleton in your HFS.

- Using the TSO MKDIR command, create the following directory:

**TSO MKDIR 'user-defined-prefix/usr/lpp/db2' MODE(7 5 5)**

**Note:** 1. THE SPACES IN MODE(7 5 5) ARE IMPORTANT!

**Note:** 2. If you are installing into the default installation directory, do not specify a value for *'user-defined-prefix'*.

### Optional

If you have decided to install JDBC/SQLJ into a separate HFS data set instead of installing into the root file system, mount the new HFS data set created in step 6.10.6, “<Optional> Allocate HFS Data Set” on page 72, on the JDBC/SQLJ HFS install mountpoint. (The following command must be on one line.)

```
TSO MOUNT FILESYSTEM('db2hlq.SDSNHFS') MOUNTPOINT('/user-defined-prefix/usr/lpp/db2')
TYPE(HFS)
```

where *db2hlq* is the high level data set qualifier used in step 6.10.6, “<Optional> Allocate HFS Data Set” on page 72.

where *'user-defined-prefix'* is the value you have chosen for your alternate installation directory. If you have chosen the default installation directory, do not specify a value for *'user-defined-prefix'*.

After mounting the new HFS dataset, it is necessary to re-apply the directory permission bits. This may be accomplished using the following TSO command:

```
TSO OSHELL chmod 755 /usr/lpp/db2
```

Edit and submit sample job DSNISMKD to create the JDBC/SQLJ installation HFS directory structure. If you decided to install the JDBC/SQLJ feature into an alternate install directory, you will need to modify job DSNISMKD to specify your *'user-defined-prefix'*. Consult the instructions in the sample job for more information.

DSNISMKD must be run by a USERID that is UID=0, or is the owner of the DB2 for OS/390 JDBC install directory, *'user-defined-prefix/usr/lpp/db2'*.

**Expected Return Codes and Messages:** DSNISMKD should complete with return code 0.

## 6.10.8 Perform SMP/E RECEIVE for JDBC/SQLJ

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

NOTE: if you obtained JDBC/SQLJ as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the JDBC/SQLJ 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.

**Expected Return Codes and Messages:** This job should complete with a condition code of 4 or less.

**Note:** If you are running a lower level of OS/390 Version 2 Release 7, your RECEIVE job will end with a return code of 4. The following warning message will be issued: **GIM50050W**

### 6.10.9 Perform SMP/E APPLY CHECK for JDBC/SQLJ

Edit and submit sample job DSNTJJAP to perform an SMP/E APPLY CHECK for JDBC. 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).

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:** This job should complete with return code 0.

### 6.10.10 Perform SMP/E APPLY for JDBC/SQLJ

Remove the CHECK operand from the sample job DSNTJJAP to perform an SMP/E APPLY for JDBC. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with return code 0.

Because JDBC/SQLJ uses CALLLIB support, unresolved external reference messages are expected during the first phase of linkedit processing during the APPLY. However, there should not be any unresolved external references at the conclusion of the second linkedit, which specifies the CALL parameter, during APPLY.

### 6.10.11 Perform SMP/E ACCEPT CHECK for JDBC/SQLJ

Edit and submit sample job DSNTJJAC to perform an SMP/E ACCEPT CHECK for JDBC. 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).

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:** This job should complete with return code 0.



## 6.10.12 Perform SMP/E ACCEPT for JDBC/SQLJ

Remove the CHECK operand from the sample job DSNTJJAC to perform an SMP/E ACCEPT for DB2 UDB for OS/390. Consult the instructions in the sample job for more information.

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.

**Expected Return Codes and Messages:** This job should complete with return code 0.

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.

## 6.10.13 Activating DB2 UDB for OS/390 JDBC/SQLJ

JDBC/SQLJ is fully operational once the SMP/E installation is complete. No further customization is required to activate this function.

Please refer to the JDBC/SQLJ README file, which can be found in file `/usr/lpp/db2/db2610/README`, for additional information about using JDBC/SQLJ.

---

## 6.11 Installing IAV Extenders

This section describes the installation method and the step-by-step procedures to install and to activate the functions of DB2 UDB for OS/390 Image, Audio and Video Extenders (DB2 Extenders - IAV).

Please note the following:

- If you want to install DB2 Extenders - IAV 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.

### 6.11.1 SMP/E Considerations for Installing IAV Extenders

This release of IAV Extenders 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.

The steps in this chapter use the IAV Extenders default data set names and Open Edition install directories. The default HFS install directory is: **/usr/lpp/db2**. Optionally, the IAV Extenders feature can be installed using a **'user-defined-prefix'** in the installation directory name, such as **'/SERVICE/usr/lpp/db2'**. The installation procedures and the JCL samples assume that the TSO user ID installing IAV Extenders has the **authority necessary** to create data sets and Open Edition HFS directories using the default names listed in each job.

### 6.11.2 Unload the Sample JCL from the IAV Extenders Product Tape

The following sample installation jobs are provided on the distribution tape to help you install DB2 UDB for OS/390:

<i>Figure 75. Sample Installation Jobs</i>			
<b>Job Name</b>	<b>Job Type</b>	<b>Description</b>	<b>RELFILE</b>
DMBALC	Allocate	Sample job to allocate the target and distribution libraries	IBM.JDB661B.F2
DMBDDEF	Define	Sample job to define SMP/E DDDEFs	IBM.JDB661B.F2
DMBISMKD	Invoke	Sample job to invoke the DMBMKDIR rexx procedure	IBM.JDB661B.F2
DMBREC	Receive	Sample RECEIVE job	IBM.JDB661B.F2
DMBAPPLY	Apply	Sample APPLY CHECK and APPLY job	IBM.JDB661B.F2
DMBACPT	Accept	Sample ACCEPT CHECK and ACCEPT job	IBM.JDB661B.F2

In the sample SMP/E jobs provided, the name of the SMP/E CSI is `h1qua1.SMPCSi.CSI`. The global zone name in the SMP/E CSI is `GLOBAL`. The distribution zone name is `DSNDLIB`. The target zone name is `DSNTARG`. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

### 6.11.3 Unload the Sample JCL from the IAV Product Tape

Sample installation jobs are provided on the distribution tape to help you install IAV Extenders. The following sample JCL will copy the IAV Extenders jobs from the tape. Add a job card and modify the parameters in boldface to uppercase values to meet your site's requirements before submitting.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN DD DSN=IBM.JDB661B.F2,UNIT=tunit,VOL=SER=DB661B,
// LABEL=(3,SL),DISP=(OLD,KEEP)
//OUT DD DSNAME=DSN610.INSTALL,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=dunit,
// DCB=*.STEP1.IN,SPACE=(8800,(15,5,5))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=IN,OUTDD=OUT
SELECT MEMBER=(DMBALC,DMBDEF,DMBREC)
SELECT MEMBER=(DMBISMKD,DMBMKDIR,DMBAPPLY,DMBACPT)
/*
```

Where **tunit** is the unit value matching the product tape or cartridge, **DSN610.INSTALL** is the name of the data set where the sample jobs will reside, **dasdvol** is the volume serial of the DASD device where the data set will reside, and **dunit** is the DASD unit type of the volume.

### 6.11.4 SMP/E CALLLIBS Processing for Extenders - IAV

IAV Extenders uses the CALLLIBS function provided in SMP/E Release 8 to resolve external references during installation. When IAV Extenders is installed, ensure the following:

- Verify that the SMP/E SMPLTS data set has been allocated. Refer to *SMP/E Reference* for information on allocating the SMPLTS data set.

**Note:** For IAV Extenders, 120 cylinders of 3380/3390 DASD space is adequate for the SMPLTS.

- Provide DDDEFs for the following library:
  - SCEELKED

**Note:** The DDDEF above are used only to resolve the link-edit for IAV Extenders using CALLLIBS. This data set is not updated during the installation of IAV Extenders.

## 6.11.5 Allocate Distribution and Target Libraries - Base

All the installation jobs on the tape refer to private libraries. If you chose system libraries as your target libraries, you must change the installation jobs to refer to the system libraries.

Modify and run job **DMBALC** to allocate the SMP/E target and distribution libraries for IAV Extenders

**Note:** Be sure to read the notes in the comment section of the installation job stream. Add a job card and submit the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 6.11.6 <Optional> Allocate HFS Data Set

If you plan to install your product into a separate HFS data set instead of installing into the root filesystem, use the following JCL to allocate an HFS data set. Add a job card and submit the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

```

//*****/
//* JOB NAME = DMBHFS */
//* */
//* DESCRIPTIVE NAME = ALLOCATE HFS DATA SET */
//* */
//* STATUS = VERSION 06 RELEASE 01 MODIFICATION LEVEL 00 */
//* */
//* FUNCTION = TARGET AND DISTRIBUTION DATA SET ALLOCATIONS */
//* */
//* LICENSED MATERIALS - PROPERTY OF IBM */
//* 5645-DB2 (C) COPYRIGHT IBM CORP 1998 */
//* ALL RIGHTS RESERVED. */
//* US GOVERNMENT USERS RESTRICTED RIGHTS - */
//* USE, DUPLICATION OR DISCLOSURE RESTRICTED */
//* BY GSA ADP SCHEDULE CONTRACT WITH IBM CORP. */
//* */
//* NOTES = */
//* */
//*****/
//DMBHFS PROC HFSPRE='DSN610',HFSVOL=OP1HFS,
// HFSUNIT=3390,HFSSTOR=ALL
//IEFBR14 EXEC PGM=IEFBR14
//*
//* NOTE: THIS HFS DATA SET MUST BE DFSMS MANAGED .
//*
//SDBHFS DD DSN=&HFSPRE..SDBHFS,DISP=(NEW,CATLG),
// VOL=SER=&HFSVOL,UNIT=&HFSUNIT,
// SPACE=(512,(39850,4000,1)),
// DSNTYPE=HFS,STORCLAS=&HFSSTOR
//*****/
//DMBHFS PEND
//ALLOCATE EXEC DMBHFS
//*

```

## 6.11.7 Allocate DDDEF Entries for Target and Distribution Libraries

Edit and run the sample job, **DMBDDEF** in the data set defined by the **DSN610.INSTALL** job, to help you define the IAV Extenders data sets to your SMP/E system.

**IMPORTANT:** Though all JCL must normally be in upper case to run, HFS path names may be mixed case.

**Note:** Be sure to read the notes in the comment section of the installation job stream. Add a job card and submit the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 6.11.8 Create the Hierarchical File System Structure

Before SMP/E can install IAV Extenders you have to have a directory skeleton in your HFS.

- Using the TSO MKDIR command, create the following directory:

```
TSO MKDIR 'user-defined-prefix/usr/lpp/ db2ext_06_01_00' MODE (7 5 5)
```

You need to run with root authority if you are installing on '*usr/lpp/db2ext\_06\_01\_00*'.

**Note:** THE SPACES IN MODE(7 5 5) ARE IMPORTANT!

**Note:** 2. If you are installing into the default installation directory, do not specify a value for '*user-defined-prefix*'.

### Optional

If you decided to install your product into a separate HFS data set instead of installing into the root filesystem, mount the new HFS created on the mountpoint. (The following command must be on one line.)

```
TSO MOUNT FILESYSTEM('dsn610.sdmhfs') MOUNTPOINT  
  ('user-defined-prefix  
  /usr/lpp/db2ext_06_01_00') TYPE(HFS)
```

Edit and submit sample job DMBISMKD found in **DSN610.INSTALL** to create the installation HFS directory structure.

**Note:** Prologue comment Number 3 in sample job DMBISMKD has incorrect job name of DMBDDDEF. It is supposed to be DMBDDEF. If you decided to install this feature into an alternate install directory, you will need to modify job DMBISMKD to specify your '*user-defined-prefix*'. You must also change all occurrences of DSNMKDIR to DMBMKDIR. Consult the instructions in the sample job for more information.

DMBISMKD must be run by a USERID that is UID=0, or is the owner of the IAV Extenders install directory, '*user-defined-prefix/usr/lpp/db2*'.

**Expected Return Codes and Messages:** DMBISMKD should complete with return code 0.

## 6.11.9 Perform SMP/E RECEIVE

Go to the data set **DSN610.INSTALL** and edit member **DMBREC**. Make the necessary changes and run the **DMBREC** member.

**Note:** Be sure to read the notes in the comment section of the installation job stream. Add a job card and submit the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 6.11.10 Update and Execute the SMP/E APPLY CHECK Job

When IAV Extenders is installed in the directory (/usr/lpp/db2ext\_06\_01\_00), the SMP/E DMBAPPLY job must be run by a userid with a UID value of 0 (zero).

**Note:** The following three modules are used in JCLIN and do not use the DB2 Extenders - IAV product's component code. These modules are owned by DB2 UDB for OS/390 of which DB2 Extenders - IAV is a feature. FMID HDB6610 of DB2 UDB for OS/390 must be in ACcept status before IAV can be installed.

- DSNALI
- DSNRLI
- DSNTIAR

**6.11.10.1 Perform SMP/E APPLY CHECK:** Edit and submit sample job DMBAPPLY to perform an SMP/E APPLY CHECK for IAV Extenders. Consult the instructions in the sample job for more information. For CHECK processing on APPLY, add the CHECK operand to the APPLY statement.

```
APPLY SELECT(JDB661B)
CHECK GROUPEXTEND.
```

**Note:** FMID HDB6610 of DB2 UDB for OS/390 must be in ACcept status before IAV can be installed.

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).

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:** This job should complete with return code 0.

**6.11.10.2 Perform SMP/E APPLY:** Remove the CHECK operand from the sample job DMBAPPLY and submit it to perform an SMP/E APPLY for IAV Extenders. Consult the instructions in the sample job for more information.

**Note:** FMID HDB6610 of DB2 UDB for OS/390 must be in ACCEpt status before IAV can be installed.

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 6.11.11 Update and Execute the SMP/E ACCEPT CHECK and ACCEPT Job

**6.11.11.1 Perform SMP/E ACCEPT CHECK:** Edit and submit sample job DMBACPT to perform an SMP/E ACCEPT CHECK for IAV Extenders. Consult the instructions in the sample job for more information. For CHECK processing on ACCEPT, add the CHECK operand to the ACCEPT statement.

```
ACCEPT SELECT(JDB661B)
CHECK GROUPEXTEND.
```

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).

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:** This job should complete with return code 0.

**6.11.11.2 Perform SMP/E ACCEPT:** Remove the CHECK operand from sample job DMBACPT to perform an SMP/E ACCEPT for IAV Extenders. Consult the instructions in the sample job for more information.

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.

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 6.11.12 Post-Installation Setup



**6.11.12.1 Choose Environments and Security Options:** This section should be reviewed by the database administrator, security analyst, and extenders application developer. Before you perform post-installation setup, you need to make decisions about WLM environments and about external security. See *DB2 UDB for OS/390 Image, Audio, and Video Extenders Administration and Programming* for details about these choices.

### 6.11.12.2 Planning Considerations for Files, Tables, Applications

- If data is being stored in files, the underlying file system must be mounted under the UNIX services paradigm and operate in a UNIX-like fashion. HFS is supported, but other file systems can be used. Note that data sets do not operate like UNIX files; they are not supported at this time.
- Plan directory structures to hold files separately for each application, as needed.
- Depending on the level of your system, HFS file systems can be mounted R/W on one node of a SYSPLEX but a client/server file system such as NFS can be used to logically mount it on other nodes.
- The OS/390 server does not have to be the fileserver. Unless applications retrieve files via a CONTENT UDF (or use play/browse APIs so that they retrieve data as a BLOB), the server only looks at files during import or update operations (and for some other operations such as get inaccessible files). A file system that can be mounted on clients and on the OS/390 server (or the nodes of a SYSPLEX) is acceptable.

**6.11.12.3 Edit the DB2 Sample WLM Application Environment Procedure:** The source procedure to be edited, DSNWLM, is embedded in the DSNTIJMV job in the DB2 sample data set.

Add the extender load module data set to the STEPLIB, check the C runtime, and add a DD card for your environment variable definitions. See *DB2 UDB for OS/390, Image, Audio, and Video Extenders Administration and Programming* for details on environment variables. The DDNAME for the environment variables is DMBENVAR and the data set should be a small variable blocked sequential data set (a blocksize slightly larger than the size of the data is efficient). If you are using two WLM environments you can use two procs or one, depending on how you parameterize the procedure and what parms you supply in your WLM environment definition. The member name of the procedure will determine the started task name; this is used later to associate a userid with the address spaces.

Typical edits

```
//DMBWLM1 PROC RGN=0K,APPLENV=DMBWLM1,DB2SSN=DSN,NUMTCB=8
//IEFPROC EXEC PGM=DSNX9WLM,REGION=&RGN,TIME=NOLIMIT,
//          PARM='&DB2SSN,&NUMTCB,&APPLENV'
//STEPLIB DD DISP=SHR,DSN=DMB.V6R1M0.SDMBLOAD
//*      DD DISP=SHR,DSN=CEE.SCEERUN      in linklist
//      DD DISP=SHR,DSN=DSN610.SDSNLOAD
//DMBENVAR DD DISP=SHR,DSN=joeadmin.DMB.ENVAR
```

Check *DB2 UDB for OS/390 V6 Installation Guide*, and *DB2 UDB for OS/390 V6 Administration Guide* for instructions on providing JCL for WLM Application Environments.

**6.11.12.4 Establishing WLM Application Environments:** An authorized system administrator should define the WLM Application environments. The **numtcb** value depends on your system. If you are using two environments, the WLM environment for the lightweight UDFs can have a relatively high number of TCBs. If you are using image conversion, the memory requirement for the UDFs might be more than three times the size of the image depending on the image formats involved. All extender UDFs are AMODE(31) and are REENT. Use of memory below the line is probably the limiting factor. Check the *DB2 UDB for OS/390 V6 Administration Guide*, "Chapter 5-13. Monitoring and Tuning Stored Procedures and User-defined Functions" for notes on memory requirements.

Use the WLM ISPF Panels to define your WLM Application environment. Note name changes and parameters that the specified procedure needs. Typical screen:

```

Application-Environment  Notes  Options
Help

-----
                          Modify an Application Environment
Command ==>> _____

Application Environment Name : DMBWL1
Description . . . . . Extenders UDF/STP applenv 1
Subsystem Type . . . . . DB2
Procedure Name . . . . . DMBWL1
Start Parameters . . . . . DB2SSN=DSN,
                          NUMTCB=10,APPLENV=DMBWL1

```

Limit on starting server address spaces for a subsystem instance:

- 1 1. No limit
2. Single address space per system
3. Single address space per sysplex

Check *DB2 UDB for OS/390 V6 Installation Guide*, and *DB2 UDB for OS/390 V6 Administration Guide* for instructions on defining WLM Application Environments for DB2 UDFs and stored procedures. It is useful to check the indexes of these books.

The system administrator should move the WLM application environment JCL procedures to the PROCLIB.

After defining new environments, the WLM Policy should be reread. The command V WLM,POLICY= ... can be used to do this.

### 6.11.12.5 RACF Administration

- The extenders use an SQLID of MMDBSYS. This id should be secured. Create the user MMDBSYS. If secondary authorization IDs are used by DB2, take any steps to secure MMDBSYS as a secondary authorization id. It might be useful to have this id available to login. If so, provide TSO, data set, and DB2 attach authorization.
- Create userid(s) for WLM environment address spaces with OE segment UID and GID assignment as planned. Home directory does not have to be specified.
- Set up the RACF STARTED class to associate the WLM environment address spaces with a userid, or the assembled module approach (legacy). Note that the started task name (member name of the procedure) is used for the association, not the WLM application environment name.
  - ready STARTED class if needed
  - (typical command) RDEFINE STARTED DMBWLM1.DMBWLM1 STDATA( USER( <wlm-userid> ) )
  - SETROPTS RACLIST(STARTED) REFRESH
- Permit WLM started task userid SERVER class authority if this is being used on your system. The SERVER class is used to protect against unauthorized userids establishing themselves as WLM application environment providers.
  - ready SERVER class if needed
  - (typical command) PERMIT SERVER(DB2.<db2-subsystem>.DMBWLM1)
  - (typical command) PERMIT DB2.<db2-subsystem>.DMBWLM1 CLASS(SERVER) ID( <wlm-userid> ) ACCESS(READ)
  - SETROPTS RACLIST(SERVER) REFRESH
- Grant read access to all data sets specified in the WLM application environment JCL procedures.
- Permit WLM started task userids DB2 RRSF attach authority
  - (typical command) PERMIT <db2-subsystem>.RRSAF CLASS(DSNR) ID( <wlm-userid> ) ACCESS(READ)
- WLM application environment “use” authority is granted to the future caller of enable server so that UDF and STPs can be created in that environment.

You might need to issue the following statements. MMDBSYS or the enable server caller may need the authority to create UDFs or stored procedures using the WLM environments. Because a DB2 SYSADM normally invokes enable server, this check should be bypassed.

- (typical command) RDEFINE DSNR (<db2-subsystem>.WLMENV.DMBWLM1)
- (typical command) PERMIT <db2-subsystem>.WLMENV.DMBWLM1 CLASS(DSNR) ID(MMDBSYS) ACCESS(READ)
- SETROPTS RACLIST(DSNR) REFRESH

**6.11.12.6 DB2 IAV Extenders Initialization:** The DB2 SYSADM should edit the DMBSETUP job SQL script in the extenders sample PDS (SDMBSAMP) and submit it. Note that the job DSNTDP2 is used to issue SQL statements. This job does the following.

- Database MMDBSYS is created to hold global metadata tables which keep track of the extenders enabled on the server and each table and column enabled for the extenders. You may want to specify default stogroup and bufferpool.
- User MMDBSYS is granted DBADM on database MMDBSYS with grant option.
- User MMDBSYS granted any needed rights to the catalog.
- User MMDBSYS is granted BINDADD and PACKADM to extenders collections:
  - MMDBSYS\_CLIENT
  - MMDBSYS\_RUN
  - MMDBSYS\_BIND
  - MMDBSYS\_INVOKE
- Extender Enable Server stored procedure definitions are set up. The WLM environment should be adjusted to match one of the WLM environments set up for the extenders.
- As a default, execute on package collections MMDBSYS\_CLIENT and or MMDBSYS\_RUN are granted to public.
- Sample tablespace, MMDBSYSG, suitable for enable server invocations is provided in comments.

If future bind work is to be done by another DB2 administrator, then authority to the MMDBSYS userid, or secondary should be given to the administrator. BINDAGENT FROM MMDBSYS might be more convenient.

**6.11.12.7 DB2 IAV Extenders Bind:** The following JCL is provided to bind the extenders packages. The extenders also bind ODBC into extenders collections.

- Job DMBBCLT binds the client interface into MMDBSYS\_CLIENT collection.
- Job DMBBCLI binds ODBC for extender stored procedures and UDFs. ODBC is bound into MMDBSYS\_RUN and MMDBSYS\_BIND.
- Job DMBBSRV binds extenders packages for stored procedures and UDFs.
- Job DMBCLIC provides a sample plan for using ODBC and extenders APIs.
- The extenders define plan DB2EXT for the db2ext command, DMBAPI for possible use by applications which use extender APIs but don't use ODBC or embedded SQL, and optionally, DMBACLI for applications which use ODBC and extenders APIs. Provide grants to these plans. Because these plans use dynamic SQL, granting these plans to public should be considered.

The administrator can adjust performance-related values for these packages including KEEP\_DYNAMIC. All extender packages are owned by MMDBSYS. OWNER and DYNAMICRULES options should not be altered. However the sample command DMBCLI can be modified to suit application needs. An administrator with the appropriate authority must bind these packages.

**6.11.12.8 DB2 Extender Notes:** After following the above instructions, the DB2 system should be ready for the extender enabling. Note that enable server operations must be performed by a DB2 SYSADM or userid MMDBSYS. These operations are provided by db2ext commands, and by APIs. Refer to *DB2 UDB for OS/390, Image, Audio, and Video Extenders Administration and Programming* for more information.

#### **6.11.12.8.1 Useful Administration Commands**

- Display wlm and vary wlm console commands with the applenv= specification.
- DB2 commands to start and stop function and procedures.
- DB2 display thread command.
- DB2 Extenders command line processor.

#### **6.11.12.9 DB2 Extender Requirements**

- UDFs/STPs in WLM Application Environments. WLM Goal mode is strongly recommended.
- Resource Recovery Services (RRS), with associated system logger setup, as needed by DB2 RRSAF Attach.
- Unix Services, including temp space in the unix file system. Each concurrent extenders import, update, conversion request could require as much as 2 times the size of the multimedia object to be available as temporary space in the unix file system. Extenders Environment variables specify the directory for temporary files.

## 6.12 Loading the DB2 UDB for OS/390 Text Extender Libraries

### 6.12.1 SMP/E Considerations for Installing Text Extender

This release of Text Extender 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.

The steps in this chapter use the Text Extender default data set names and Open Edition install directories. The default HFS install directory is: **/usr/lpp/db2tx**. Optionally, the Text Extender feature can be installed using a **'user-defined-prefix'** in the installation directory name, such as **'/SERVICE/usr/lpp/db2tx'**. The installation procedures and the JCL samples assume that the TSO user ID installing Text Extender has the **authority necessary** to create data sets and Open Edition HFS directories using the default names listed in each job.

### 6.12.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 76. 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.

<i>Figure 76. SMP/E Options Subentry Values</i>		
SUB-ENTRY	Value	Comment
DSSPACE	(300,800,200)	
PEMAX	9999	The SMP/E default is larger than what can be specified here

### 6.12.3 Unload the Sample JCL from the Text Extender Product Tape

The following sample installation jobs are provided on the distribution tape to help you install DB2 UDB for OS/390:

<i>Figure 77 (Page 1 of 2). Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
DESALLOC	Allocate	Sample job to allocate target and distribution libraries	IBM.JDB661C.F1
DESDDDEF	Define	Sample job to define SMP/E DDDEFs	IBM.JDB661C.F1
DESHFSMK	Invoke	Sample job to invoke the DESMKDIR rexx procedure	IBM.JDB661C.F1
DESMKDIR	MKDIR	Sample rexx procedure to create HFS directories	IBM.JDB661C.F1
DESRECEV	Receive	Sample RECEIVE job	IBM.JDB661C.F1
DESAPPCK	Apply	Sample APPLY CHECK job	IBM.JDB661C.F1

Figure 77 (Page 2 of 2). Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
DESAPPLY	Apply	Sample APPLY job	IBM.JDB661C.F1
DESACCCK	Accept	Sample ACCEPT CHECK job	IBM.JDB661C.F1
DESACCEP	Accept	Sample ACCEPT job	IBM.JDB661C.F1

In the sample SMP/E jobs provided, the name of the SMP/E CSI is #GLOBALCSI.. The global zone name in the SMP/E CSI is g1oba1. The distribution zone name is #DZONE. The target zone name is #TZONE. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

## 6.12.4 Unload the Sample JCL from the Text Extender Tape

Sample installation jobs are provided on the distribution tape to help you install Text Extender. The following sample JCL will copy the Text Extender jobs from the tape. Add a job card and modify the parameters in boldface to uppercase values to meet your site's requirements before submitting.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN DD DSN=IBM.JDB661C.F2,UNIT=tunit,VOL=SER=DB661C,
// LABEL=(3,SL),DISP=(OLD,KEEP)
//OUT DD DSNAME=jcl-library-name,,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=dunit,
// DCB=*.STEP1.IN,SPACE=(8800,(15,5,5))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=IN,OUTDD=OUT
/*
```

where

- **tunit** is the unit value matching the product tape or cartridge,
- **jcl-library-name** is the name of the data set where the sample jobs will reside,
- **dasdvol** is the volume serial number of the DASD where the data set will reside, and
- **dunit** is the DASD unit type of the volume.

If SMS is installed, the parameters VOL=SER and UNIT should be deleted.

You can also access the sample installation jobs by performing an SMP/E RECEIVE for FMID JDB661C, and then copying the jobs from data set **hlq.IBM.JDB661C.F2**. to a work data set for editing and submission.

**Note:** All installation jobs must be submitted by a user with OpenEdition MVS authorization uid=0 (super user).

## 6.12.5 SMP/E CALLLIBS Processing for Text Extender

Text Extender uses the CALLLIBS function provided in SMP/E Release 8 to resolve external references during installation. To install Text Extender, ensure the following:

- If FMID JDB661C is being installed, use OS/390 Version 2 Release 4 and Language Environment Version 1 Release 8 for the SCLBDLL and SCEELKED datasets.
- Verify that the SMP/E SMPLTS data set has been allocated. Refer to *SMP/E Reference* for information on allocating the SMPLTS data set.
- Provide DDDEFs for the following libraries:
  - SCEELKED
  - SCLBDLL
  - ADSNLOAD

**Note:** The DDDEFs above are used only to resolve the link-edit for Text Extender using CALLLIBS. These data sets are not updated during the installation of Text Extender.

## 6.12.6 Allocate SMP/E Target and Distribution Libraries for Text Extender

Edit and submit sample job DESALLOC to allocate the SMP/E target and distribution libraries for Text Extender. See the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 6.12.7 Create DDDEF Entries

Edit and submit sample job DESDDDEF to create DDDEF entries for the SMP/E target and distribution libraries for Text Extender. See the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with return code 0 if the entries did not previously exist, or a return code of 4 if the entries did previously exist.

## 6.12.8 Perform SMP/E RECEIVE

Edit and submit sample job DESRECEV to perform an SMP/E RECEIVE for Text Extender. See the instructions in the sample job for more information.

**Note:** If you obtained Text Extender as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the Text Extender FMID 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 in the CBPDO.

**Expected Return Codes and Messages:** This job should complete with return code 0.



## 6.12.9 Initialize HFS Libraries

**Note:** Ignore the following prologue comments in DESHFMSK:

```
/* IF YOU WANT TO RUN FROM THE SMP/E TARGET LIBRARY, INSTEAD OF
/* SMPTLIB, UNCOMMENT THE SECOND SYSEXEC STATEMENT,
/* AND COMMENT OUT THE FIRST.
/*
/* CHANGE DES TO THE APPROPRIATE HIGH-LEVEL QUALIFIER ("DES" IS
/* THE DEFAULT) ON THE SYSEXEC STEP IF YOU CHOSE NOT TO USE THE
/* DEFAULT IN THE DESALLOC SAMPLE.
/*
/* YOU MAY ONLY RUN FROM THE TARGET LIBRARY IF THE PRODUCT IS
/* ALREADY SMP/E APPLY'D. CHANGE TTTTTT TO THE APPROPRIATE VOLUME.

/*SYSEXEC DD UNIT=SYSALLDA,VOL=SER=TTTTTT,DISP=SHR,
/*      DSN=DES.SDESJCL1
/*
```

The sample job DESHFMSK performs the following tasks:

- Creating the directory `/usr/lpp/db2tx/bin` and others. The path `/usr/lpp` must exist. You need write authority for the directory to install the product. The directory is usually created by the Open Edition administrator to contain all Licensed Program Products (lpp).

Edit and submit sample job DESHFMSK to create the installation HFS directory structure. If you decided to install this feature into an alternate install directory, you will need to modify job DESHFMSK to specify your **'user-defined-prefix'**. Consult the instructions in the sample job for more information.

DESHFMSK must be run by a USERID that is UID=0, or is the owner of the Text Extender install directory, **'user-defined-prefix/usr/lpp/db2tx'**.

**Expected Return Codes and Messages:** DESHFMSK should complete with return code 0.

## 6.12.10 Perform SMP/E APPLY CHECK

Edit and submit sample job DESAPPCK to perform an SMP/E APPLY CHECK for DB2 UDB for OS/390. See 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).

**Expected Return Codes and Messages:** The following messages are expected and acceptable during Text Extender APPLY CHECK. Successful APPLY CHECK processing returns with a return code of 4.

- "GIM61903W LMOD DESxxx WAS NOT DELETED BY SYSMOD JDB661C BECAUSE DESxxx IS NOT IN THE tyyy ZONE.:" where DESxxx will be a Text Extender load module name and tyyy your Target Zone.

### 6.12.11 Perform SMP/E APPLY

Edit and submit sample job DESAPPLY to perform an SMP/E APPLY for DB2 UDB for OS/390. See the instructions in the sample job for more information.

**Expected Return Codes and Messages:** The following messages are expected and acceptable during Text Extender APPLY. Successful APPLY processing returns with a return code of 4.

- "GIM61903W LMOD DESxxx WAS NOT DELETED BY SYSMOD JDB661C BECAUSE DESxxx IS NOT IN THE tyyy ZONE.:" where DESxxx will be a Text Extender load module name and tyyy your Target Zone.
- "GIM43401W MODULE DESCTRL IN SYSMOD JDB661C WAS NOT INSTALLED IN ANY TARGET LIBRARY"
- You may also see warning messages IEW2454W and IEW2609W.

### 6.12.12 Perform SMP/E ACCEPT CHECK

Edit and submit sample job DESACCK to perform an SMP/E ACCEPT CHECK for DB2 UDB for OS/390. See 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).

**Expected Return Codes and Messages:** The following messages are expected and acceptable during Text Extender ACCEPT CHECK. Successful ACCEPT CHECK processing returns with a return code of 4.

- "GIM61903W LMOD DESxxx WAS NOT DELETED BY SYSMOD JDB661C BECAUSE DESxxx IS NOT IN THE dyyy ZONE" where DESxxx will be a Text Extender load module name and dyyy your Distribution Zone.

### 6.12.13 Perform SMP/E ACCEPT

Edit and submit sample job DESACCEP to perform an SMP/E ACCEPT for Text Extender. See the instructions in the sample job for more information.

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.

**Expected Return Codes and Messages:** The following messages are expected and acceptable during Text Extender ACCEPT. Successful ACCEPT processing returns with a return code of 4.

- "GIM61903W LMOD DESxxx WAS NOT DELETED BY SYSMOD JDB661C BECAUSE DESxxx IS NOT IN THE dyyy ZONE" where DESxxx will be a Text Extender load module name and dyyy your Distribution Zone.

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.

### 6.12.14 RECEIVE the Cumulative Service Tape

**Note:** This step is bypassed if receiving the product from a CBPDO.

**Expected Return Codes and Messages:** This job should complete with return code 0.

---

## 6.13 Customizing Text Extender - Post-Installation Setup

For Text Extender post-installation and customization you need to use *Text Extender Administration and Programming*(SC26-9651).

Additional information is included in the README file which is installed to HFS file `/usr/lpp/db2tx/install/readme` during SMP/E APPLY.

---

## 7.0 Installation Instructions for DProp Apply Try and Buy

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of Data Propagator Apply.

Please note the following:

- If you want to install Data Propagator Apply 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.

---

### 7.1 Installing Data Propagator Apply - H253610 - Try

#### 7.1.1 Customers Installing Data Difference Utility (DDU)

##### Warning to the Installer

If you have already installed Data Difference Utility **do not** attempt to install it again. Your installation will fail. Remove all references to the DDU in the sample jobs (where applicable), if Data Difference Utility is already installed.

#### 7.1.2 SMP/E Considerations for Installing DB2 UDB for OS/390 - Try

This release of Data Propagator Apply - Try - 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.

#### 7.1.3 Unload the Sample JCL from the Data Propagator Apply - Try Product Tape

The following sample installation jobs are provided on the distribution tape to help you install Data Propagator Apply - Try:

Figure 78 (Page 1 of 2). Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
ASNALA	Optional	Sample job to allocate the SMP/E CSI data set	IBM.H253610.F2

Figure 78 (Page 2 of 2). Sample Installation Jobs

<b>Job Name</b>	<b>Job Type</b>	<b>Description</b>	<b>RELFILE</b>
ASNALB	Optional	Sample job to allocate SMP/E data sets and initialize the CSI zone	IBM.H253610.F2
ASNALC	Allocate	Sample job to allocate target and distribution libraries (Base)	IBM.H253610.F2
ASNADDU	Allocate	Sample job to allocate target and distribution libraries (DDU)	IBM.H253610.F2
ASNALLE	Allocate	Sample job to allocate target and distribution libraries (English)	IBM.H253610.F2
ASNALLU	Allocate	Sample job to allocate target and distribution libraries (Uppercase English)	IBM.H253610.F2
ASNALLS	Allocate	Sample job to allocate target and distribution libraries (Spanish)	IBM.H253610.F2
ASNADEF	DDDEFS	Sample job to define SMP/E DDDEFS	IBM.H253610.F2
ASNARECV	Receive	Sample RECEIVE job	IBM.H253610.F2
ASNAPPLY	Apply	Sample APPLY job	IBM.H253610.F2
ASNACPT	Accept	Sample ACCEPT job	IBM.H253610.F2

In the sample SMP/E jobs provided, the name of the SMP/E CSI is `hlqual.SMPCSI.CSI`. The global zone name in the SMP/E CSI is `GLOBAL`. The distribution zone name is `DISTLIB`. The target zone name is `TARGLIB`. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

### 7.1.4 SMP/E Options Subentry Values - Try

The recommended values for some SMP/E CSI subentries are shown in Figure 76 on page 88. 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 79. SMP/E Options Subentry Values - Try

<b>SUB-ENTRY</b>	<b>Value</b>	<b>Comment</b>
DSSPACE	(200,200,500)	For a 3390 device.
PEMAX	9999	For a 3390 device.

### 7.1.5 Unload Sample JCL From Tape - Try

Sample installation jobs are provided on the distribution tape to help you install DB2 UDB for OS/390 - Try. The following sample JCL will copy the DB2 UDB for OS/390 - Try sample jobs from the tape. Add a job card and modify the parameters in boldface to values which conform to your site's requirements before submitting the job.

```

//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN DD DSN=IBM.H253610.F2,UNIT=tunit,VOL=SER=253610,
// LABEL=(3,SL),DISP=(OLD,KEEP)
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=dunit,
// DCB=*.STEP1.IN,SPACE=(8800,(15,10,10))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=IN,OUTDD=OUT
/*

```

where **tunit** is the unit value matching the product tape or cartridge, **jcl-library-name** is the name of the data set where the sample jobs will reside, **dasdvol** is the volume serial of the DASD device where the data set will reside, and **dunit** is the DASD unit type of the volume.

You can also access the sample installation jobs for DB2 UDB for OS/390 - Try - by performing an SMP/E RECEIVE for FMID H253610, and then copying the jobs from dataset **ASN.V6R1M0.H253610.F2** (ASN.V6R1M0 is the recommended high level qualifier) to a work dataset for editing and submission.

### 7.1.6 <Optional> Allocate a New SMP/E CSI

If you are allocating new SMP/E data sets for this install, please modify and run **ASNALA** to allocate and prime the SMP/E CSI data set.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 7.1.7 <Optional> Allocate SMP/E Data Sets and Initialize CSI Zones

Modify and run job **ASNALB** to allocate and catalog the SMP/E data sets and to initialize CSI Zones.

**NOTE:**

If you are using an existing SMP/E CSI, make the following changes to the **ASNALB** member:

1. Change all occurrences of '**NEW,CATLG**' to '**OLD**'.
2. Remove all of the SMP\_CNTL input statements and replace them with:

```

SET BDY(GLOBAL).
UCLIN .
ADD GLOBALZONE
FMID(H253610).
ENDUCL.

```

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 7.1.8 Allocate Distribution and Target Libraries - Try

The installation sample jobs shipped with Data Propagator Apply - Try refer to private libraries. If you choose system libraries as your target libraries, you must modify the installation jobs to reflect the names of the system libraries used at your site.

To allocate and catalog distribution and target libraries for Data Propagator Apply - Try, edit and submit **ASNALC**.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

## 7.1.9 Allocate Data Difference Utility Distribution and Target Libraries

The installation sample jobs shipped with Data Propagator Apply - Try refer to private libraries. If you choose system libraries as your target libraries, you must modify the installation jobs to reflect the names of the system libraries used at your site.

To allocate and catalog distribution and target libraries for Data Propagator Apply - Try, edit and submit **ASNADDU**.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

## 7.1.10 Allocate Data Propagator Apply NLVs Distribution and Target Libraries

Allocate all NLV distribution and target libraries. Edit and run all 3 NLV sample jobs **ASNALLE** (English), **ASNALLU** (Uppercase English) and **ASNALLS** (Spanish). If you chose system libraries as your target libraries, you must modify the installation jobs to reflect the names of the system libraries used at your site.

**Note:** Be sure to read the notes in the comment section of the installation job stream. Add a job card and submit the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 7.1.11 Create DDDEF Entries - Try

Edit and run the sample job, member name **ASNADEF** in the dataset defined by the **ASN.V6R1M0.INSTALL** job, to help you define the Data Propagator Apply, NLVs, and the Data Difference Utility data sets to your SMP/E system.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 7.1.12 Perform SMP/E RECEIVE - Try

Edit and submit sample job **ASNARECV** to perform the SMP/E RECEIVE for Data Propagator Apply - Try.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Note:** If you obtained Data Propagator Apply as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the Data Propagator Apply 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.

**Expected Return Codes and Messages:** This job should complete with a condition code of 4 or less.

**Note:** If you are running a lower level of OS/390 Version 2 Release 7, your RECEIVE job will end with a return code of 4. The following warning message will be issued: **GIM50050W**

### 7.1.13 Perform SMP/E APPLY CHECK - Try

**Note:** The following module is used in JCLIN and does not use the Data Propagator Apply product's component code. This module is owned by DB2 UDB Server for OS/390 Version 6 of which Data Propagator Apply is a feature.

- DSNALI

Edit and submit sample job **ASNAPPLY** to perform an SMP/E APPLY CHECK for Data Propagator Apply - Try.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

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).

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

For CHECK processing on APPLY, change the APPLY SELECT statement to the following:

```
APPLY SELECT(H253610)
CHECK GROUPEXTEND.
```

**Expected Return Codes and Messages:** This job should complete with return code 04 or less.

**Note:** You may receive warning messages GIM23903W, IEW2454W and IEW2646W during SMP/E APPLY. These messages can be ignored.

### 7.1.14 Perform SMP/E APPLY - Try

**Note:** The following module is used in JCLIN and does not use the Data Propagator Apply product's component code. This module is owned by DB2 UDB Server for OS/390 Version 6 of which Data Propagator Apply is a feature.

- DSNALI

Remove the CHECK operand from the sample job **ASNAPPLY** and submit it to perform an SMP/E APPLY for Data Propagator Apply, NLVs and/or DDU. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with a condition code of 04 or less.

**Expected Return Codes and Messages:** This job should complete with return code 04 or less.

**Note:** You may receive warning messages GIM23903W, IEW2454W and IEW2646W during SMP/E APPLY. These messages can be ignored.

### 7.1.15 Perform SMP/E ACCEPT CHECK - Try

**Note:** The following module is used in JCLIN and does not use the Data Propagator Capture product's component code. This module is owned by DB2 UDB Server for OS/390 Version 6 of which Data Propagator Capture is a feature.

- DSNALI

Edit and submit sample job **ASNACPT** to perform an SMP/E ACCEPT CHECK for Data Propagator Apply - Try.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

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).

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

For CHECK processing on ACCEPT change the ACCEPT SELECT statement to the following:

```
ACCEPT SELECT(H253610)
CHECK GROUPEXTEND.
```

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 7.1.16 Perform SMP/E ACCEPT - Try

Remove the CHECK operand from sample job **ASNACPT** to perform an SMP/E ACCEPT for Data Propagator Apply, NLVs, and/or Data Difference Utility. Consult the instructions in the sample job for more information.

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.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the 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.

---

## 7.2 Installing Data Propagator Apply - J253611 - Buy

### 7.2.1 SMP/E Considerations for Installing Data Propagator Apply - Buy

This release of Data Propagator Apply - Buy 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.

## 7.2.2 Unload the Sample JCL from the Data Propagator Apply - Buy Product Tape

The following sample installation jobs are provided on the distribution tape to help you install Data Propagator Apply - Buy:

<i>Figure 80. Sample Installation Jobs</i>			
<b>Job Name</b>	<b>Job Type</b>	<b>Description</b>	<b>RELFILE</b>
ASNALL2	Allocate	Sample job to allocate the target and distribution libraries	IBM.J253611.F2
ASNADEF2	DDDEFs	Sample job to define SMP/E DDDEFs	IBM.J253611.F2
ASNAREC2	Receive	Sample RECEIVE job	IBM.J253611.F2
ASNAPLY2	Apply	Sample APPLY job	IBM.J253611.F2
ASNACPT2	Accept	Sample ACCEPT job	IBM.J253611.F2

In the sample SMP/E jobs provided, the name of the SMP/E CSI is `hlqua1.SMPCSI.CSI`. The global zone name in the SMP/E CSI is `GLOBAL`. The distribution zone name is `DISTLIB`. The target zone name is `TARGLIB`. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

## 7.2.3 SMP/E Options Subentry Values - Buy

The recommended values for some SMP/E CSI subentries are shown in Figure 76 on page 88. 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.

<i>Figure 81. SMP/E Options Subentry Values - Buy</i>		
<b>SUB-ENTRY</b>	<b>Value</b>	<b>Comment</b>
DSSPACE	(200,200,500)	For a 3390 device.
PEMAX	9999	For a 3390 device.

## 7.2.4 Unload Sample JCL From Tape - Buy

Sample installation jobs are provided on the distribution tape to help you install Data Propagator Apply - Buy. The following sample JCL will copy the Data Propagator Apply - Buy sample jobs from the tape. Add a job card and modify the parameters in boldface to values which conform to your site's requirements before submitting the job.

```

//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN DD DSN=IBM.J253611.F2,UNIT=tunit,VOL=SER=253611,
// LABEL=(3,SL),DISP=(OLD,KEEP)
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=dunit,
// DCB=*.STEP1.IN,SPACE=(8800,(15,10,10))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
        COPY INDD=IN,OUTDD=OUT
/*

```

where **tunit** is the unit value matching the product tape or cartridge, **jcl-library-name** is the name of the data set where the sample jobs will reside, **dasdvol** is the volume serial of the DASD device where the data set will reside, and **dunit** is the DASD unit type of the volume.

You can also access the sample installation jobs for Data Propagator Apply - Buy by performing an SMP/E RECEIVE for FMID J253611, and then copying the jobs from dataset **ASN.V6R1M0.J253611.F2** (ASN.V6R1M0 is the recommended high level qualifier) to a work dataset for editing and submission.

## 7.2.5 Allocate Distribution and Target Libraries - Buy

The installation sample jobs shipped with Data Propagator Apply - Buy refer to private libraries. If you choose system libraries as your target libraries, you must modify the installation jobs to reflect the names of the system libraries used at your site.

To allocate and catalog distribution and target libraries for Data Propagator Apply - Buy, edit and submit **ASNALL2**.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

## 7.2.6 Create DDDEF Entries for Product Libraries - Buy

To create DDDEF entries for the SMP/E distribution and target libraries for the Data Propagator Apply Buy version, edit and submit **ASNADEF2**.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

## 7.2.7 Perform SMP/E RECEIVE - Buy

Edit and submit sample job **ASNAREC2** to perform the SMP/E RECEIVE for Data Propagator Apply - Buy.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Note:** If you obtained Data Propagator Apply as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the Data Propagator Apply 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.

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 7.2.8 Perform SMP/E APPLY CHECK - Buy

Edit and submit sample job **ASNAPLY2** to perform an SMP/E APPLY CHECK for Data Propagator Apply - Buy.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

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).

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

For CHECK processing on APPLY, change the APPLY SELECT statement to the following:

```
APPLY SELECT(J253611)
CHECK GROUPEXTEND.
```

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 7.2.9 Perform SMP/E APPLY - Buy

Remove the CHECK operand from the sample job **ASNAPLY2** and submit it to perform an SMP/E APPLY for Data Propagator Apply. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 7.2.10 Perform SMP/E ACCEPT CHECK - Buy

Edit and submit sample job **ASNACPT2** to perform an SMP/E ACCEPT CHECK for Data Propagator Apply - Buy.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

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).

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

For CHECK processing on ACCEPT change the ACCEPT SELECT statement to the following:

```
ACCEPT SELECT(J253611)
CHECK GROUPEXTEND.
```

**Expected Return Codes and Messages:** This job should complete with return code 0.

## 7.2.11 Perform SMP/E ACCEPT - Buy

Remove the CHECK operand from sample job **ASNACPT2** to perform an SMP/E ACCEPT for Data Propagator Apply. Consult the instructions in the sample job for more information.

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.

**Expected Return Codes and Messages:** This job should complete with return code 0.

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.

---

## 7.3 Perform APF Authorization and LINKList Update

Perform APF authorization for all the data sets concatenated in the STEPLIB of **SASNAJCL** members **ASNA2RN3**, **ASNA2RN4**, or **ASNA2RN5**. Refer to section 7.9, “Update and Execute the Invocation Job” on page 107. In some cases you may have to re-IPL the system after performing APF authorization.

---

## 7.4 SMP/E Link Edit of Data Propagator Apply Load Modules

All four Apply for OS/390 V6 load modules ASNAPV63, ASNAPV64, ASNAPV65, ASNAPV66 are link-edited by SMP/E using the DB2 DSN###.SDSNLOAD library specified for your DB2 release in the sample job ASNADEF that defines data sets to your SMP/E system. Please note that suffix 3, 4, 5, or 6 of each load module relates to the DB2 Release Version 3.1, Version 4.1, Version 5.1, or Version 6.1 respectively.

---

## 7.5 Reformat VSAM Message File

To unload the Data Propagator Apply program's messages file, edit and submit **ASNA2VSM** which runs the MVS/DFP IDCAMS utility to allocate and load the messages file **hlqual.MSGS**.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify necessary parameters to values that conform to your site's naming conventions before submitting this job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

---

## 7.6 <Optional> Compile and Link user exit ASNDONE

Customize and run SASNAJCL member

ASNADONE to create the ASNDONE user exit. The Apply program invokes user exit ASNDONE after set subscription processing completes, regardless of success or failure. You can modify ASNDONE to meet the requirements of your installation.

**Note:** Be sure to read the notes in the comment section of the sample job. Add a job card and modify the parameters to values that conform to your site's naming conventions before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

---

## 7.7 <Optional> Compile and Link user exit ASNLOAD

Customize and run SASNAJCL member ASNLOAD to create the ASNLOAD user exit. The Apply program invokes user exit ASNLOAD to perform a full refresh more effectively by invoking a utility program. However, there is no known utility program available at this time for use by ASNLOAD on DB2 for OS/390 so the sample ASNLOAD user exit does not do a full refresh.

**Note:** Be sure to read the notes in the comment section of the sample job. Add a job card and modify the parameters to values that conform to your site's naming conventions before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

---

## 7.8 Update and Execute the Bind Job

Edit the **ASNA2BD3**, **ASNA2BD4**, **ASNA2BD5** or **ASNA2BD6** member in the **SASNAJCL** data set. Make the necessary changes and run either the **ASNA2BD3**, **ASNA2BD4**, **ASNA2BD5** or **ASNA2BD6** member.

**Note:** Be sure to read the notes in the comment section of the installation job stream. Add a job card and modify necessary parameters to values that conform to your site's naming conventions before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.



### Important Notes

- Ensure that at least one table is defined as replication source and one copy definition/subscription is created before you attempt to bind and start Data Propagator Apply. Please refer to the IBM Replication Guide Version 6 (SC26-9642) for detailed information on how to define a source table as registration source and how to define a subscription (create a target table). If you need to create Data Propagator Apply control tables on MVS, upload the file DPCNTL.MVS from your workstation to your MVS system in order to do so. This file is part of IBM DB2 Connect Personal Edition/Control Center component and is SPUFI compatible and can be executed through SPUFI.
- Ensure that the userid used to bind and run Data Propagator Apply has the required database privileges granted **before** running the BIND and RUN jobs.
- Change DBnn in the sample JCL to the name of your DB2 subsystem and **delete** the comment before submitting the JCL for execution. If the comment in the JCL is not removed, it will cause JCL errors, since the IKJEFT01 program will attempt to process it as an input statement.

## 7.9 Update and Execute the Invocation Job

Prior to invoke Data Propagator Apply, make sure at least one table has been registered as replication source and one subscription has been defined.

Edit the **ASNA2RN3** (for DB2 for MVS V3R1), **ASNA2RN4** (for DB2 for MVS V4R1), **ASNA2RN5** (for DB2 for MVS V5R1), or **ASNA2RN6** (for DB2 for OS/390 V6R1) member in the **SASNAJCL** data set. Make the necessary changes to reflect your environment and submit **ASNA2RN3**, **ASNA2RN4**, **ASNA2RN5**, or **ASNA2RN6** in order to start Data Propagator Apply.

### Before you run ASNA2RN3, ASNA2RN4, ASNA2RN5, and ASNA2RN6

1. Make sure to allocate enough space to hold the answer set.
2. You may change the BLKSIZE to the number that is most efficient in space usage for the disk device and for the table being copied. If you were to use spanned records (which we do not recommend), it is more efficient to have the BLKSIZE large enough to hold one row instead of having one row span into several blocks.

The following DD statement describes the space allocation of the spill file.

```
//ASNASPL DD DSN=&&ASNASPL,DISP=(NEW,DELETE,DELETE),  
//          UNIT=SYSDA,SPACE=(CYL,(5,5)),  
//          DCB=(RECFM=VB,BLKSIZE=6404)
```

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify necessary parameters to values that conform to your site's naming conventions before submitting the job.

Refer to *IBM Replication Guide* (SC26-9642) chapter 'Capture and Apply - Operating Apply for MVS' for more detailed information.

---

## 7.10 Activating Data Difference Utility (DDU)

The Data Difference Utility (DDU) is a sample program that is shipped in both source and object forms. The only documentation required for the Data Difference Utility is provided in the **DDUINST** member in the **SEKYSAMP** data set.

---

## 8.0 Installation Verification Procedure (IVP) for Data Propagator Apply

To verify that the installation of Data Propagator Apply is complete and successful, submit the Data Propagator Apply invocation JCL. The Data Propagator Apply program issues the following message:

- ASN1041I: The apply program was started using the subsystem name: **ssys**.

The message indicates which DB2 subsystem the Data Propagator Apply program is running under (the DB2 subsystem name used in the invocation JCL appears in place of **ssys**).

---

## 9.0 Installation Instructions for Data Propagator Capture for Try and Buy

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of Data Propagator Capture and for the Data Difference Utility.

Please note the following:

- If you want to install Data Propagator Capture 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.

---

### 9.1 Installing Data Propagator Capture - H254610 - Try

#### 9.1.1 Customers Installing Data Difference Utility (DDU)

##### Warning to the Installer

If you have already installed Data Difference Utility **do not** attempt to install it again. Your installation will fail. Remove all references to the DDU in the sample jobs (where applicable), if Data Difference Utility is already installed.

#### 9.1.2 SMP/E Considerations for Installing Data Propagator Capture - Try

This release of Data Propagator Capture - Try - 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.

#### 9.1.3 SMP/E Environment - Try

#### 9.1.4 Unload the Sample JCL from the Data Propagator Capture - Try Product Tape

The following sample installation jobs are provided on the distribution tape to help you install Data Propagator Capture - Try:

<i>Figure 82. Sample Installation Jobs</i>			
<b>Job Name</b>	<b>Job Type</b>	<b>Description</b>	<b>RELFIL</b>
ASNLALLA	Optional	Sample job to allocate the SMP/E CSI data set	IBM.H254610.F2
ASNLALLB	Optional	Sample job to allocate SMP/E data sets and initialize the CSI zone	IBM.H254610.F2
ASNLALLC	Allocate	Sample job to allocate target and distribution libraries (Base)	IBM.H254610.F2
ASNLDDU	Allocate	Sample job to allocate target and distribution libraries (DDU)	IBM.H254610.F2
ASNLALE	Allocate	Sample job to allocate target and distribution libraries (English)	IBM.H254610.F2
ASNLALU	Allocate	Sample job to allocate target and distribution libraries (Uppercase English)	IBM.H254610.F2
ASNLALS	Allocate	Sample job to allocate target and distribution libraries (Spanish)	IBM.H254610.F2
ASNLDEF	DDDEFS	Sample job to define SMP/E DDDEFS	IBM.H254610.F2
ASNLRECV	Receive	Sample RECEIVE job	IBM.H254610.F2
ASNLAPL	Apply	Sample APPLY job	IBM.H254610.F2
ASNLACT	Accept	Sample ACCEPT job	IBM.H254610.F2

In the sample SMP/E jobs provided, the name of the SMP/E CSI is `hlqual.SMPCSI.CSI`. The global zone name in the SMP/E CSI is `GLOBAL`. The distribution zone name is `DISTLIB`. The target zone name is `TARGLIB`. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

### 9.1.5 SMP/E Options Subentry Values - Try

The recommended values for some SMP/E CSI subentries are shown in Figure 76 on page 88. 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.

<i>Figure 83. SMP/E Options Subentry Values - Try</i>		
<b>SUB-ENTRY</b>	<b>Value</b>	<b>Comment</b>
DSSPACE	(200,200,500)	For a 3390 device.
PEMAX	9999	For a 3390 device.

### 9.1.6 Unload Sample JCL From Tape - Try

Sample installation jobs are provided on the distribution tape to help you install Data Propagator Capture - Try. The following sample JCL will copy the Data Propagator Capture - Try sample jobs from the tape. Add a job card and modify the parameters in boldface to values which conform to your site's requirements before submitting the job.

```

//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN DD DSN=IBM.H254610.F2,UNIT=tunit,VOL=SER=254610,
// LABEL=(3,SL),DISP=(OLD,KEEP)
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=dunit,
// DCB=*.STEP1.IN,SPACE=(8800,(15,10,10))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
COPY INDD=IN,OUTDD=OUT
/*

```

where **tunit** is the unit value matching the product tape or cartridge, **jcl-library-name** is the name of the data set where the sample jobs will reside, **dasdvol** is the volume serial of the DASD device where the data set will reside, and **dunit** is the DASD unit type of the volume.

You can also access the sample installation jobs for Data Propagator Capture - Try - by performing an SMP/E RECEIVE for FMID H254610, and then copying the jobs from dataset **ASN.V6R1M0.H254610.F2** (ASN.V6R1M0 is the recommended high level qualifier) to a work dataset for editing and submission.

### 9.1.7 <Optional> Allocate a New SMP/E CSI

If you are allocating new SMP/E data sets for this install, please modify and run **ASNLALLA** to allocate and prime the SMP/E CSI data set.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 9.1.8 <Optional> Allocate SMP/E Data Sets and Initialize CSI Zones

Modify and run job **ASNLALLB** to allocate and catalog the SMP/E data sets and to initialize CSI Zones.

**NOTE:**

If you are using an existing SMP/E CSI, make the following changes to the **ASNLALLB** member:

1. Change all occurrences of '**NEW,CATLG**' to '**OLD**'.
2. Remove all of the SMP\_CNTL input statements and replace them with:

```

SET BDY(GLOBAL).
UCLIN .
    ADD GLOBALZONE
        FMID(H254610).
ENDUCL.

```

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 9.1.9 Allocate Distribution and Target Libraries - Try

The installation sample jobs shipped with Data Propagator Capture - Try refer to private libraries. If you choose system libraries as your target libraries, you must modify the installation jobs to reflect the names of the system libraries used at your site.

To allocate and catalog distribution and target libraries for Data Propagator Capture - Try, edit and submit **ASNLALLC**.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

### 9.1.10 Allocate Data Difference Utility Distribution and Target Library

The installation sample jobs shipped with Data Propagator Capture - Try refer to private libraries. If you choose system libraries as your target libraries, you must modify the installation jobs to reflect the names of the system libraries used at your site.

To allocate and catalog distribution and target libraries for Data Propagator Capture - Try, edit and submit **ASNLDDU**.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

### 9.1.11 Allocate Data Propagator Capture NLVs Distribution and Target Libraries

Allocate all NLV distribution and target libraries. Edit and run all 3 NLV sample jobs **ASNLALE** (English), **ASNLALU** (Uppercase English), and **ASNLALS** (Spanish). If you chose system libraries as your target libraries, you must modify the installation jobs to reflect the names of the system libraries used at your site.

**Note:** Be sure to read the notes in the comment section of the installation job stream. Add a job card and submit the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 9.1.12 Create DDDEF Entries - Try

Edit and run the sample job, member name **ASNLDEF** in the dataset defined by the **ASN.V6R1M0.INSTALL** job, to help you define the Data Propagator Capture, NLVs, and the Data Difference Utility data sets to your SMP/E system.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 9.1.13 Perform SMP/E RECEIVE - Try

Edit and submit sample job **ASNLRECV** to perform the SMP/E RECEIVE for Data Propagator Capture - Try.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Note:** If you obtained Data Propagator Capture as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the Data Propagator Capture 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.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

### 9.1.14 Perform SMP/E APPLY CHECK - Try

**Note:** The following module is used in JCLIN and does not use the Data Propagator Apply product's component code. This module is owned by DB2 UDB Server for OS/390 Version 6 of which Data Propagator Apply is a feature.

- DSNALI

Edit and submit sample job **ASNLAPL** to perform an SMP/E APPLY CHECK for Data Propagator Capture - Try.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

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).



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

For CHECK processing on APPLY, change the APPLY SELECT statement to the following:

```
APPLY SELECT(H254610)
CHECK GROUPEXTEND.
```

**Expected Return Codes and Messages:** This job should complete with a condition code of 04 or less.

**Note:** You will receive warning messages GIM23903W and IEW2454W during this execution. These messages may be ignored.

### 9.1.15 Perform SMP/E APPLY - Try

**Note:** The following module is used in JCLIN and does not use the Data Propagator Apply product's component code. This module is owned by DB2 UDB Server for OS/390 Version 6 of which Data Propagator Apply is a feature.

- DSNALI

Remove the CHECK operand from the sample job **ASNLAPL** and submit it to perform an SMP/E APPLY for Data Propagator Capture, NLVs and/or DDU. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** This job should complete with a condition code of 04 or less.

**Note:** You will receive warning messages GIM23903W and IEW2454W during this execution. These messages may be ignored.

### 9.1.16 Perform SMP/E ACCEPT CHECK - Try

Edit and submit sample job **ASNLACT** to perform an SMP/E ACCEPT CHECK for Data Propagator Capture - Try.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

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).

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

For CHECK processing on ACCEPT change the ACCEPT SELECT statement to the following:

```
ACCEPT SELECT(H254610)
CHECK GROUPEXTEND.
```

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

### 9.1.17 Perform SMP/E ACCEPT - Try

Remove the CHECK operand from sample job **ASNLACT** to perform an SMP/E ACCEPT for Data Propagator Capture, NLVs, and/or Data Difference Utility. Consult the instructions in the sample job for more information.

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.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the 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.

---

## 9.2 Installing Data Propagator Capture - J254611 - Buy

### 9.2.1 SMP/E Considerations for Installing Data Propagator Capture - Buy

This release of Data Propagator Capture - Buy 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.

### 9.2.2 SMP/E Environment - Buy

### 9.2.3 Unload the Sample JCL from the Data Propagator Capture - Buy Product Tape

The following sample installation jobs are provided on the distribution tape to help you install Data Propagator Capture - Buy:

Figure 84. Sample Installation Jobs

Job Name	Job Type	Description	RELFILE
ASNLALL2	Allocate	Sample job to allocate the target and distribution libraries	IBM.J254611.F2
ASNLDEF2	DDDEFs	Sample job to define SMP/E DDDEFs	IBM.J254611.F2
ASNLREC2	Receive	Sample RECEIVE job	IBM.J254611.F2
ASNLAPL2	Apply	Sample APPLY job	IBM.J254611.F2
ASNLACT2	Accept	Sample ACCEPT job	IBM.J254611.F2

In the sample SMP/E jobs provided, the name of the SMP/E CSI is `hlqual.SMPCSI.CSI`. The global zone name in the SMP/E CSI is `GLOBAL`. The distribution zone name is `DISTLIB`. The target zone name is `TARGLIB`. The sample jobs should be updated to reflect the CSI and zone names used at your installation.

## 9.2.4 SMP/E Options Subentry Values - Buy

The recommended values for some SMP/E CSI subentries are shown in Figure 76 on page 88. 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 85. SMP/E Options Subentry Values - Buy

SUB-ENTRY	Value	Comment
DSSPACE	(200,200,500)	For a 3390 device.
PEMAX	9999	For a 3390 device.

## 9.2.5 Unload Sample JCL From Tape - Buy

Sample installation jobs are provided on the distribution tape to help you install Data Propagator Capture - Buy. The following sample JCL will copy the Data Propagator Capture - Buy sample jobs from the tape. Add a job card and modify the parameters in boldface to values which conform to your site's requirements before submitting the job.

```
//STEP1 EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN DD DSN=IBM.J254611.F2,UNIT=tunit,VOL=SER=254611,
// LABEL=(3,SL),DISP=(OLD,KEEP)
//OUT DD DSNAME=jcl-library-name,
// DISP=(NEW,CATLG,DELETE),
// VOL=SER=dasdvol,UNIT=dunit,
// DCB=*.STEP1.IN,SPACE=(8800,(15,10,10))
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN DD *
```

```
COPY INDD=IN,OUTDD=OUT
/*
```

where **tunit** is the unit value matching the product tape or cartridge, **jcl-library-name** is the name of the data set where the sample jobs will reside, **dasdvol** is the volume serial of the DASD device where the data set will reside, and **dunit** is the DASD unit type of the volume.

You can also access the sample installation jobs for Data Propagator Capture - Buy by performing an SMP/E RECEIVE for FMID J254611, and then copying the jobs from dataset **ASN.V6R1M0.J254611.F2** (ASN.V6R1M0 is the recommended high level qualifier) to a work dataset for editing and submission.

## 9.2.6 Allocate Distribution and Target Libraries - Buy

The installation sample jobs shipped with Data Propagator Capture - Buy refer to private libraries. If you choose system libraries as your target libraries, you must modify the installation jobs to reflect the names of the system libraries used at your site.

To allocate and catalog distribution and target libraries for Data Propagator Capture - Buy, edit and submit **ASNLALL2**.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

## 9.2.7 Create DDDEF Entries for Product Libraries - Buy

To create DDDEF entries for the SMP/E distribution and target libraries for the Data Propagator Capture Buy version, edit and submit **ASNLDEF2**.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

## 9.2.8 Perform SMP/E RECEIVE - Buy

Edit and submit sample job **ASNLREC2** to perform the SMP/E RECEIVE for Data Propagator Capture - Buy.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

**Note:** If you obtained Data Propagator Capture as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the Data Propagator Capture 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.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

### 9.2.9 Perform SMP/E APPLY CHECK - Buy

Edit and submit sample job **ASNLAPL2** to perform an SMP/E APPLY CHECK for Data Propagator Capture - Buy.

**Note:** Consult the instructions in the sample job for information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

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).

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

For CHECK processing on APPLY, change the APPLY SELECT statement to the following:

```
APPLY SELECT(J254611)
CHECK GROUPEXTEND.
```

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

### 9.2.10 Perform SMP/E APPLY - Buy

Remove the CHECK operand from the sample job **ASNLAPL2** and submit it to perform an SMP/E APPLY for Data Propagator Capture. Consult the instructions in the sample job for more information.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

### 9.2.11 Perform SMP/E ACCEPT CHECK - Buy

Edit and submit sample job **ASNLACT2** to perform an SMP/E ACCEPT CHECK for Data Propagator Capture - Buy.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify the parameters in lowercase to uppercase values which conform to your site's requirements before submitting the job.

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).

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

For CHECK processing on ACCEPT change the ACCEPT SELECT statement to the following:

```
ACCEPT SELECT(J254611)
CHECK GROUPEXTEND.
```

**Expected Return Codes and Messages:** You will get a condition code of 0 if the job runs correctly.

## 9.2.12 Perform SMP/E ACCEPT - Buy

Remove the CHECK operand from sample job **ASNLACT2** to perform an SMP/E ACCEPT for Data Propagator Capture. Consult the instructions in the sample job for more information.

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.

**Expected Return Codes and Messages:** You will get a condition code of 0 if the 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.

---

## 9.3 Perform APF Authorization and LINKList Update

Perform APF authorization for all the data sets concatenated in the STEPLIB of **SASNLJCL** members **ASNL2RN3**, **ASNL2RN4**, **ASNL2RN5**, or **ASNL2RN6**. Refer to section 7.9, "Update and Execute the Invocation Job" on page 107. In some cases you may have to re-IPL the system after performing APF authorization.

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## 9.4 SMP/E Link Edit of Data Propagator Capture Load Modules

All four Capture for OS/390 V6 load modules ASNLRP63, ASNLRP64, ASNLRP65, ASNLRP66 are link-edited by SMP/E using the DB2 DSN###.SDSNLOAD library specified for your DB2 release in the sample job ASNLDEF that defines data sets to your SMP/E system. Please note that suffix 3, 4, 5, or 6 of each load module relates to the DB2 Release Version 3.1, Version 4.1, Version 5.1, or Version 6.1 respectively.

---

## 9.5 Reformat VSAM Message File

To unload the Data Propagator Capture program's messages file, edit and submit **ASNL2VSM** which runs the MVS/DFP IDCAMS utility to allocate and load the messages file **hlqual.MSGS**.

**Note:** Consult the instructions in the sample job for more information. Add a job card and modify necessary parameters to values that conform to your site's naming conventions before submitting this job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

---

## 9.6 Update and Execute the Bind Job

Edit the **ASNL2BD3**, **ASNL2BD4**, **ASNL2BD5**, or **ASNL2BD6** member in the **SASNLJCL** data set. Make the necessary changes and run either the **ASNL2BD3**, **ASNL2BD4**, **ASNL2BD5**, or **ASNL2BD6** member.

**Note:** Be sure to read the notes in the comment section of the installation job stream. Add a job card and modify necessary parameters to values that conform to your site's naming conventions before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### Important Notes

- Ensure that at least one table is defined as replication source and one copy definition/subscription is created before you attempt to bind and start Data Propagator Capture. Please refer to the IBM Replication Guide Version 6 (SC26-9642) for detailed information on how to define a source table as registration source and how to define a subscription (create a target table). If you need to create Data Propagator Capture control tables on MVS, upload the file DPCNTL.MVS from your workstation to your MVS system in order to do so. This file is part of IBM DB2 Connect Personal Edition/Control Center component and is SPUFI compatible and can be executed through SPUFI.
- Ensure that the userid used to bind and run Data Propagator Capture has the required database privileges granted **before** running the BIND and RUN jobs.
- Change DBnn in the sample JCL to the name of your DB2 subsystem and **delete** the comment before submitting the JCL for execution. If the comment in the JCL is not removed, it will cause JCL errors, since the IKJEFT01 program will attempt to process it as an input statement.

---

## 9.7 Update and Execute the Invocation Job

Before you invoke Data Propagator Capture ensure that at least one table has been registered as replication source and one subscription has been created.

Edit the **ASNL2RN3** (for DB2 for MVS V3R1), or **ASNL2RN4** (for DB2 for MVS V4R1), **ASNL2RN5** (for DB2 for MVS V5R1), or **ASNL2RN6** (for DB2 for OS/390 V6R1) member in the **SASNLJCL** data set. Make the necessary changes to reflect your environment and submit **ASNL2RN3**, or **ASNL2RN4**, **ASNL2RN5** or **ASNL2RN6** in order to start Data Propagator Capture.

**Note:** Be sure to read the notes in the comment section of the installation job stream. Add a job card and modify the necessary parameters to values that conform to your site's naming conventions before submitting the job.

**Expected Return Codes and Messages:** This job should complete with return code 0.

### 9.7.1 Alternate Way of Starting the Run Job As a System Started Task

You can start Data Propagator Capture as a system started task by using the following procedure:

- Create a procedure in your PROCLIB. This procedure contains the JCL (for example ASNL2RN3, ASNL2RN4, ASNL2RN5, or ASNL2RN6) required to run Data Propagator Capture.
- Update module ICHRIN03 (RACF), which associates the procname with the userid to be used to start Data Propagator Capture. Please make sure that the necessary DB2 authorization is granted to this userid before Data Propagator Capture is invoked.
- Build this module in SYS1.LPALIB. Please be aware that a re-IPL of the MVS system is required to activate these changes.
- Start Data Propagator Capture as a system started task by issuing the command **start procname** from the MVS system console.

---

## 9.8 Activating Data Difference Utility (DDU)

The Data Difference Utility is a sample program that is shipped in both source and object forms. The only documentation required for the Data Difference Utility is provided in the **DDUINST** member in the **SEKYSAMP** data set.



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## 10.0 Installation Verification Procedure (IVP) for Data Propagator Capture

Once the Data Propagator Capture is started, you should see an informational message 'ASN0100I Data Propagator Capture initialization is successful.' on your system console. It means the Data Propagator Capture has been able to connect to the DB2 sub-system and is running successfully. Once Data Propagator Capture is started it will continue to run unless stopped. At this time you may also look at the Data Propagator Capture trace table, ASN.IBMSNAP\_TRACE, to verify that the same message is logged into the table.

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## Appendix A. DB2 UDB for OS/390 Install Logic

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### A.1 SMP/E Modification Control Statements

The SMP/E Modification Control Statements (SMPMCS) for DB2 UDB for OS/390 are contained in the SMPMCS file on the installation tape. The SMPMCS for each FMID in the product will be loaded to the SMPPTS dataset, with a member name matching the FMID, when the FMID is SMP/E RECEIVED. You may browse or print these members using TSO/E, ISPF, or IEBGENER (or IEBPTPCH).

---

### A.2 SMP/E JCLIN

The JCLIN for DB2 UDB for OS/390 is contained in the RELFILES on the installation tape. These files will be loaded to disk by SMP/E when the product is SMP/E RECEIVED. You may browse or print these files using TSO/E, ISPF, or IEBGENER (or IEBPTPCH).

The files containing JCLIN are:

- FMID HDB6610: DSN610.HDB6610.F1(HDB6610)
- FMID HIY6610: DSN610.HIY6610.F1(HIY6610)
- FMID HIZ6610: DSN610.HIZ6610.F1(HIZ6610)
- FMID HIR2101: DSN610.HIR2101.F1(HIR2101)
- FMID JDB6612: DSN610.JDB6612.F1(JDB6612)
- FMID JDB6613: DSN610.JDB6613.F1(JDB6613)
- FMID JDB6617: DSN610.JDB6617.F1(JDB6617)
- FMID JDB6619: DSN610.JDB6619.F1(JDB6619)
- FMID JDB661B: DSN610.JDB661B.F1(JDB661B)
- FMID JDB661C: DSN610.JDB661C.F1(JDB661C)
- FMID JDB6611: DSN610.JDB6611.F1(JDB6611)
- FMID H0AL211: DSN610.H0AL211.F1(H0AL211)
- FMID H253610: DSN610.H0AL211.F1(H253610)
- FMID J25361A: DSN610.H0AL211.F1(J25361A)
- FMID J25361B: DSN610.H0AL211.F1(J25361B)
- FMID J25361C: DSN610.H0AL211.F1(J25361C)
- FMID H254610: DSN610.H0AL211.F1(H254610)
- FMID J25461A: DSN610.H0AL211.F1(J25461A)
- FMID J25461B: DSN610.H0AL211.F1(J25461B)
- FMID J25461C: DSN610.H0AL211.F1(J25461C)
- FMID HQW9221: DSN610.HQW9221.F1(HQW9221)
- FMID J253611: DSN610.J253611.F1(J253611)
- FMID J254611: DSN610.J254611.F1(J254611)

**Note:** The high-level qualifier is the qualifier specified as the DSPREFIX in the SMP/E OPTIONS.

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## Appendix B. Included PTFs for DB2 UDB for OS/390

The following PTFs containing APAR fixes against this release of IBM DB2 UDB SERVER FOR OS/390 and the elements documented in this program directory, have been integrated into this release.

NOTE: COR-CLOSED PTFs are available for 'Corrective Service' and will be placed on the next available ESO Tape (Expanded Service Option, formerly known as PUT Tapes). The following sub-categories for COR-CLOSED PTFs have been provided by the Software Manufacturing Center (SMC), Poughkeepsie:

**PUTyymm** COR-CLOSED PTFs that are available on an ESO Tape, where 'yynn' indicates the year and the month that the ESO tape became available.

**RSUyymm** RSU (Recommended Service Upgrade) is a preventive service philosophy for all S/390 products that are serviced by IBM for the OS/390 and MVS platforms. RSU reduces the volume of PTFs customers need to apply for preventive maintenance. RSU became available at OS/390 Release 2 GA (9/96), and is identified via an additional SOURCEID of RSUyymm, where 'yymm' indicates the year and the month the PTF was assigned this SOURCEID.

**SMCREC** COR-CLOSED PTFs that are not yet available on an ESO Tape, but have been researched and recommended for installation by the Software Manufacturing Center (SMC) in Poughkeepsie.

**SMCCOR** COR-CLOSED PTFs that are not yet available on an ESO Tape and have no special recommendation for installation.

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### B.1 Included PTFs for FMID HDB6610

UQ24623-PUT9901	UQ24714-RSU9901	UQ24769-RSU9901
UQ25007-RSU9901	UQ25011-PUT9901	UQ25020-RSU9901
UQ25035-PUT9901	UQ25111-PUT9901	UQ25114-RSU9901
UQ25127-PUT9901	UQ25129-RSU9901	UQ25179-PUT9901
UQ25181-PUT9901	UQ25212-RSU9901	UQ25214-RSU9901
UQ25225-PUT9901	UQ25231-RSU9901	UQ25239-RSU9901
UQ25243-RSU9901	UQ25275-PUT9901	UQ25278-RSU9901
UQ25279-PUT9901	UQ25305-RSU9901	UQ25307-RSU9901
UQ25309-RSU9901	UQ25433-PUT9901	UQ25438-RSU9901
UQ25443-RSU9901	UQ25445-RSU9901	UQ25479-RSU9902
UQ25482-PUT9902	UQ25488-PUT9901	UQ25491-RSU9901
UQ25504-PUT9902	UQ25540-RSU9901	UQ25545-RSU9902
UQ25585-PUT9901	UQ25588-RSU9902	UQ25674-RSU9902
UQ25683-PUT9902	UQ25690-PUT9902	UQ25695-PUT9902
UQ25764-RSU9902	UQ25775-RSU9902	UQ25779-RSU9902
UQ25785-RSU9902	UQ25787-RSU9902	UQ25790-RSU9902
UQ25805-PUT9902	UQ25818-RSU9902	UQ25824-PUT9902
UQ25830-PUT9902	UQ25834-RSU9902	UQ25893-PUT9902
UQ25929-PUT9902	UQ25931-PUT9902	UQ25933-PUT9902
UQ25940-PUT9902	UQ25942-PUT9902	UQ25977-PUT9902
UQ25994-RSU9902	UQ26004-RSU9902	UQ26048-RSU9902

UQ26052-RSU9902	UQ26074-RSU9902	UQ26083-PUT9902
UQ26084-PUT9902	UQ26093-PUT9902	UQ26094-PUT9902
UQ26116-PUT9902	UQ26137-PUT9902	UQ26204-RSU9902
UQ26209-RSU9902	UQ26215-PUT9902	UQ26217-PUT9902
UQ26218-PUT9902	UQ26261-RSU9902	UQ26262-PUT9902
UQ26354-RSU9902	UQ26377-PUT9902	UQ26378-PUT9902
UQ26380-PUT9902	UQ26381-PUT9902	UQ26402-RSU9902
UQ26403-PUT9902	UQ26408-PUT9902	UQ26412-RSU9902
UQ26413-PUT9902	UQ26467-RSU9902	UQ26484-PUT9902
UQ26493-PUT9902	UQ26513-PUT9902	UQ26517-PUT9902
UQ26548-RSU9902	UQ26571-PUT9902	UQ26576-RSU9902
UQ26584-RSU9902	UQ26632-PUT9903	UQ26636-PUT9902
UQ26638-PUT9903	UQ26639-PUT9903	UQ26642-RSU9902
UQ26645-RSU9902	UQ26647-RSU9902	UQ26651-RSU9902
UQ26652-PUT9902	UQ26665-RSU9902	UQ26687-PUT9902
UQ26706-PUT9902	UQ26719-RSU9903	UQ26728-RSU9903
UQ26752-PUT9903	UQ26754-PUT9903	UQ26759-PUT9902
UQ26779-RSU9903	UQ26782-RSU9903	UQ26785-RSU9903
UQ26833-PUT9903	UQ26835-PUT9903	UQ26847-PUT9903
UQ26855-PUT9903	UQ26873-RSU9903	UQ26877-PUT9903
UQ26878-PUT9903	UQ26892-PUT9903	UQ26896-PUT9903
UQ26897-PUT9903	UQ26904-PUT9903	UQ26935-RSU9903
UQ26975-PUT9903	UQ26983-RSU9903	UQ27051-RSU9903
UQ27111-PUT9903	UQ27118-PUT9903	UQ27119-PUT9903
UQ27125-RSU9903	UQ27129-PUT9903	UQ27136-PUT9903
UQ27148-RSU9903	UQ27184-PUT9903	UQ27185-RSU9903
UQ27189-PUT9903	UQ27190-PUT9903	UQ27194-RSU9903
UQ27199-RSU9903	UQ27204-PUT9903	UQ27225-PUT9903
UQ27264-RSU9903	UQ27266-RSU9903	UQ27286-RSU9903
UQ27289-RSU9903	UQ27291-RSU9903	UQ27293-RSU9903
UQ27294-PUT9903	UQ27298-RSU9903	UQ27299-PUT9903
UQ27312-PUT9903	UQ27316-PUT9903	UQ27318-PUT9903
UQ27344-RSU9904	UQ27357-PUT9903	UQ27359-PUT9903
UQ27373-PUT9903	UQ27376-RSU9903	UQ27388-PUT9903
UQ27394-RSU9903	UQ27396-PUT9903	UQ27409-RSU9903
UQ27436-PUT9903	UQ27438-RSU9904	UQ27444-PUT9903
UQ27462-PUT9903	UQ27467-RSU9903	UQ27469-RSU9904
UQ27480-RSU9903	UQ27501-RSU9903	UQ27521-PUT9903
UQ27525-RSU9903	UQ27537-PUT9904	UQ27550-PUT9904
UQ27551-RSU9903	UQ27552-PUT9903	UQ27558-RSU9903
UQ27561-RSU9903	UQ27580-RSU9903	UQ27581-RSU9903
UQ27582-PUT9903	UQ27588-RSU9904	UQ27589-PUT9904
UQ27594-RSU9903	UQ27628-RSU9903	UQ27651-PUT9903
UQ27655-PUT9903	UQ27658-PUT9903	UQ27660-PUT9903
UQ27670-RSU9903	UQ27673-PUT9903	UQ27706-RSU9903
UQ27728-PUT9903	UQ27730-PUT9903	UQ27748-RSU9903
UQ27749-PUT9904	UQ27750-PUT9903	UQ27793-PUT9904
UQ27794-PUT9903	UQ27797-PUT9903	UQ27808-PUT9903
UQ27877-PUT9904	UQ27878-PUT9904	UQ27883-RSU9904

UQ27891-PUT9904	UQ27892-PUT9904	UQ27893-PUT9904
UQ27895-RSU9904	UQ27898-RSU9904	UQ27899-PUT9904
UQ27953-PUT9904	UQ27966-RSU9904	UQ27967-PUT9904
UQ27968-PUT9904	UQ27969-PUT9904	UQ27970-PUT9904
UQ28007-PUT9904	UQ28008-PUT9904	UQ28010-RSU9904
UQ28013-PUT9904	UQ28058-PUT9904	UQ28097-PUT9904
UQ28103-RSU9904	UQ28106-PUT9903	UQ28115-PUT9904
UQ28121-RSU9904	UQ28122-PUT9904	UQ28125-PUT9904
UQ28128-PUT9904	UQ28131-RSU9904	UQ28161-PUT9904
UQ28164-PUT9904	UQ28171-RSU9904	UQ28187-RSU9904
UQ28191-PUT9904	UQ28192-RSU9904	UQ28193-PUT9904
UQ28194-PUT9904	UQ28195-PUT9904	UQ28196-RSU9904
UQ28227-RSU9904	UQ28229-PUT9904	UQ28234-RSU9904
UQ28252-PUT9904	UQ28259-PUT9904	UQ28264-RSU9904
UQ28281-PUT9904	UQ28284-RSU9904	UQ28285-PUT9904
UQ28330-RSU9904	UQ28387-PUT9904	UQ28411-RSU9904
UQ28449-RSU9904	UQ28472-RSU9904	UQ28476-PUT9904
UQ28478-RSU9904	UQ28480-RSU9904	UQ28485-RSU9904
UQ28486-RSU9904	UQ28489-RSU9904	UQ28512-PUT9904
UQ28514-RSU9904	UQ28517-PUT9904	UQ28518-PUT9904
UQ28526-RSU9904	UQ28532-RSU9904	UQ28535-RSU9904
UQ28536-PUT9904	UQ28539-PUT9904	UQ28589-RSU9904
UQ28597-PUT9904	UQ28604-PUT9904	UQ28605-PUT9904
UQ28606-PUT9904	UQ28614-PUT9904	UQ28617-RSU9904
UQ28648-PUT9904	UQ28685-PUT9904	UQ28687-RSU9904
UQ28692-RSU9904	UQ28698-PUT9904	UQ28730-RSU9904
UQ28748-PUT9904	UQ28763-RSU9904	UQ28791-PUT9904
UQ28802-RSU9904	UQ28807-PUT9904	UQ28816-PUT9904
UQ28819-PUT9904	UQ28823-PUT9904	UQ28824-PUT9904
UQ28825-PUT9904	UQ28826-RSU9904	UQ28828-PUT9904
UQ28831-RSU9904	UQ28832-PUT9904	UQ28833-PUT9904
UQ28834-PUT9904	UQ28837-PUT9904	UQ28842-PUT9904
UQ28843-PUT9904	UQ28869-PUT9904	UQ28871-RSU9904
UQ28876-PUT9904	UQ28878-PUT9904	UQ28879-PUT9904
UQ28880-PUT9904	UQ28883-RSU9904	UQ28884-PUT9904
UQ28888-PUT9904	UQ28890-RSU9904	UQ28891-PUT9904
UQ28892-PUT9904	UQ28904-RSU9904	UQ28907-RSU9904
UQ28909-PUT9904	UQ28915-PUT9904	UQ28918-PUT9904
UQ28921-PUT9904	UQ28923-PUT9904	UQ28925-PUT9904
UQ28927-PUT9904	UQ28929-RSU9904	UQ28931-RSU9904
UQ28932-PUT9904	UQ28945-PUT9904	UQ28956-PUT9904
UQ28981-PUT9904	UQ28990-PUT9904	UQ29004-PUT9904
UQ29006-PUT9905	UQ29012-PUT9904	UQ29052-RSU9904
UQ29060-PUT9904	UQ29072-PUT9905	UQ29101-RSU9904
UQ29108-PUT9904	UQ29110-PUT9904	UQ29156-PUT9905
UQ29199-RSU9904	UQ29201-RSU9904	UQ29220-RSU9904
UQ29222-RSU9905	UQ29224-RSU9905	UQ29227-PUT9905
UQ29233-RSU9904	UQ29237-RSU9905	UQ29263-PUT9905
UQ29302-PUT9905	UQ29304-PUT9905	UQ29314-RSU9904

UQ29361-PUT9904	UQ29370-RSU9905	UQ29371-PUT9904
UQ29374-RSU9905	UQ29407-RSU9905	UQ29414-RSU9905
UQ29416-RSU9905	UQ29423-PUT9905	UQ29435-PUT9905
UQ29511-RSU9905	UQ29513-RSU9905	UQ29514-PUT9905
UQ29518-PUT9904	UQ29551-PUT9905	UQ29552-PUT9905
UQ29559-PUT9905	UQ29566-PUT9905	UQ29591-PUT9905
UQ29621-RSU9905	UQ29644-RSU9905	UQ29653-PUT9905
UQ29655-PUT9905	UQ29657-RSU9905	UQ29661-RSU9905
UQ29662-RSU9905	UQ29664-RSU9905	UQ29667-RSU9905
UQ29725-PUT9905	UQ29728-RSU9905	UQ29730-RSU9905
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UQ29811-RSU9905	UQ29838-PUT9905	UQ29840-RSU9905
UQ29843-RSU9905	UQ29874-PUT9905	UQ29879-PUT9905
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UQ29925-RSU9905	UQ29928-PUT9905	UQ29943-RSU9905
UQ29945-RSU9905	UQ29949-PUT9905	UQ29953-PUT9905
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UQ29965-RSU9906	UQ30014-PUT9905	UQ30019-RSU9905
UQ30065-PUT9905	UQ30067-PUT9905	UQ30095-PUT9905
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UQ30144-RSU9905	UQ30181-RSU9906	UQ30185-RSU9906
UQ30186-RSU9905	UQ30258-RSU9906	UQ30259-PUT9906
UQ30269-RSU9906	UQ30273-RSU9906	UQ30285-PUT9906
UQ30287-RSU9906	UQ30290-PUT9906	UQ30293-PUT9906
UQ30328-RSU9906	UQ30358-RSU9906	UQ30362-RSU9906
UQ30364-PUT9906	UQ30426-RSU9906	UQ30504-RSU9906
UQ30506-PUT9906	UQ30509-PUT9906	UQ30512-RSU9906
UQ30515-RSU9906	UQ30528-RSU9906	UQ30529-PUT9906
UQ30551-RSU9906	UQ30553-PUT9906	UQ30562-PUT9906
UQ30569-PUT9906	UQ30608-RSU9906	UQ30618-RSU9906
UQ30664-PUT9906	UQ30666-RSU9906	UQ30668-RSU9906
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UQ30886-RSU9906	UQ30891-PUT9906	UQ30904-PUT9906
UQ30941-PUT9906	UQ30942-PUT9906	UQ30944-RSU9906
UQ30952-PUT9906	UQ30955-PUT9906	UQ30965-RSU9906
UQ30966-PUT9906	UQ30987-PUT9906	UQ30990-RSU9906
UQ31000-PUT9906	UQ31003-RSU9906	UQ31005-RSU9906
UQ31007-PUT9906	UQ31012-RSU9906	UQ31013-RSU9906
UQ31015-RSU9906	UQ31016-PUT9906	UQ31020-PUT9906
UQ31050-RSU9906	UQ31054-RSU9906	UQ31057-RSU9906
UQ31061-PUT9906	UQ31064-RSU9906	UQ31067-RSU9906
UQ31073-PUT9906	UQ31076-RSU9906	UQ31078-PUT9906
UQ31081-PUT9906	UQ31084-RSU9906	UQ31085-PUT9906

UQ31132-RSU9906	UQ31133-RSU9906	UQ31160-RSU9906
UQ31163-RSU9907	UQ31164-RSU9906	UQ31167-RSU9906
UQ31173-PUT9906	UQ31175-PUT9906	UQ31177-PUT9906
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UQ31217-RSU9906	UQ31218-PUT9906	UQ31234-RSU9906
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UQ31271-PUT9906	UQ31276-PUT9906	UQ31300-PUT9906
UQ31303-RSU9907	UQ31304-PUT9907	UQ31313-PUT9906
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UQ31581-RSU9907	UQ31601-RSU9907	UQ31616-RSU9907
UQ31619-PUT9906	UQ31646-RSU9907	UQ31649-PUT9907
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UQ32164-PUT9908	UQ32175-RSU9907	UQ32177-RSU9907
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UQ32378-RSU9907	UQ32381-RSU9907	UQ32382-RSU9907
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UQ32420-PUT9907	UQ32421-PUT9907	UQ32432-RSU9907
UQ32435-RSU9907	UQ32447-RSU9909	UQ32450-RSU9907
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UQ32616-RSU9907	UQ32624-RSU9907	UQ32646-RSU9908
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UQ35072-PUT9910	UQ35082-RSU9910	UQ35090-PUT9910



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UQ35387-RSU9910	UQ35409-RSU9910	UQ35421-RSU9910
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UQ35448-PUT9910	UQ35450-RSU9910	UQ35451-PUT9910
UQ35453-RSU9910	UQ35466-RSU9910	UQ35494-RSU9910
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UQ35596-PUT9910	UQ35619-PUT9910	UQ35622-PUT9910
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UQ35648-PUT9910	UQ35684-RSU9910	UQ35688-RSU9910
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UQ37262-RSU9912	UQ37273-PUT9911	UQ37323-PUT9912
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UQ37370-RSU0002	UQ37373-PUT9912	UQ37378-RSU9912
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UQ37426-RSU9912	UQ37442-RSU9912	UQ37506-RSU9912
UQ37508-RSU9912	UQ37521-RSU9912	UQ37523-RSU9912
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UQ37542-RSU9912	UQ37592-RSU9912	UQ37593-RSU9912
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UQ38552-PUT0001	UQ38554-PUT0001	UQ38555-PUT0001
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UQ38748-PUT0001	UQ38773-RSU0001	UQ38776-PUT0001
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UQ39024-RSU0001	UQ39027-PUT0001	UQ39029-PUT0001
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UQ39045-RSU0001	UQ39047-PUT0001	UQ39104-PUT0001
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UQ39209-PUT0001	UQ39235-PUT0001	UQ39240-RSU0001
UQ39243-PUT0001	UQ39246-RSU0001	UQ39248-PUT0001
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UQ39443-PUT0001	UQ39444-PUT0001	UQ39479-PUT0002
UQ39480-PUT0002	UQ39481-PUT0002	UQ39482-PUT0002
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UQ39643-PUT0002	UQ39644-RSU0002	UQ39645-RSU0002
UQ39675-RSU0002	UQ39679-PUT0002	UQ39684-PUT0002
UQ39686-RSU0002	UQ39688-RSU0002	UQ39689-PUT0002

UQ39711-RSU0002	UQ39712-RSU0002	UQ39715-RSU0002
UQ39720-RSU0002	UQ39724-RSU0002	UQ39727-PUT0002
UQ39730-PUT0002	UQ39733-RSU0002	UQ39737-RSU0002
UQ39738-PUT0002	UQ39740-RSU0002	UQ39743-RSU0002
UQ39745-RSU0002	UQ39746-RSU0002	UQ39751-RSU0002
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UQ40232-PUT0002	UQ40234-PUT0002	UQ40235-PUT0002
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UQ40244-SMCCOR	UQ40281-RSU0002	UQ40284-RSU0002
UQ40287-RSU0002	UQ40291-RSU0002	UQ40292-SMCCOR
UQ40296-SMCCOR	UQ40299-PUT0002	UQ40301-PUT0002
UQ40307-PUT0002	UQ40308-PUT0002	UQ40331-PUT0002
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UQ40428-SMCCOR	UQ40449-SMCCOR	UQ40470-SMCCOR
UQ40471-SMCCOR	UQ40474-SMCCOR	UQ40480-SMCCOR
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UQ40538-SMCCOR	UQ40566-SMCCOR	UQ40587-SMCCOR
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UQ40691-SMCCOR	UQ40715-SMCCOR	UQ40717-SMCCOR
UQ40745-SMCCOR	UQ40787-SMCCOR	UQ40790-SMCCOR
UQ40797-SMCCOR	UQ40804-SMCCOR	UQ40811-SMCCOR
UQ40812-SMCCOR	UQ40813-SMCCOR	UQ40829-SMCCOR
UQ40833-SMCCOR	UQ40836-SMCCOR	UQ40843-SMCCOR
UQ40856-SMCCOR	UQ40860-SMCCOR	UQ40894-SMCCOR
UQ40936-SMCCOR	UQ40943-SMCCOR	UQ40951-SMCCOR
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UQ40967-SMCCOR	UQ40986-SMCCOR	UQ40989-SMCCOR
UQ40990-SMCCOR	UQ40991-SMCCOR	UQ40994-SMCCOR
UQ41001-SMCCOR	UQ41007-SMCCOR	UQ41010-SMCCOR
UQ41013-SMCCOR	UQ41014-SMCCOR	UQ41046-SMCCOR
UQ41048-SMCREC	UQ41049-SMCCOR	UQ41052-SMCCOR

UQ41067-SMCCOR	UQ41074-SMCCOR	UQ41078-SMCCOR
UQ41086-SMCCOR	UQ41089-SMCCOR	UQ41092-SMCREC
UQ41093-SMCCOR	UQ41095-SMCCOR	UQ41099-SMCCOR
UQ41113-SMCCOR	UQ41118-SMCCOR	UQ41180-SMCCOR
UQ41205-SMCCOR	UQ41222-SMCCOR	UQ41223-SMCCOR
UQ41226-SMCCOR	UQ41228-SMCCOR	UQ41230-SMCCOR
UQ41234-SMCCOR	UQ41244-SMCCOR	UQ41275-SMCCOR
UQ41284-SMCCOR	UQ41287-SMCCOR	UQ41289-SMCCOR
UQ41292-SMCCOR	UQ41293-SMCCOR	UQ41324-SMCCOR
UQ41326-SMCCOR	UQ41327-SMCCOR	UQ41331-SMCCOR
UQ41337-SMCCOR	UQ41342-SMCCOR	UQ41349-SMCCOR
UQ41350-SMCCOR	UQ41352-SMCCOR	UQ41355-SMCCOR
UQ41356-SMCCOR	UQ41359-SMCCOR	UQ41363-SMCCOR
UQ41389-SMCCOR	UQ41390-SMCCOR	UQ41392-SMCCOR
UQ41393-SMCCOR	UQ41402-SMCCOR	UQ41410-SMCCOR
UQ41457-SMCCOR	UQ41460-SMCCOR	UQ41466-SMCCOR
UQ41499-SMCCOR	UQ41504-SMCCOR	UQ41507-SMCCOR
UQ41528-SMCCOR	UQ41530-SMCCOR	UQ41532-SMCCOR
UQ41535-SMCCOR	UQ41536-SMCCOR	UQ41538-SMCCOR
UQ41539-SMCCOR	UQ41546-SMCCOR	UQ41548-SMCCOR
UQ41549-SMCCOR	UQ41550-SMCCOR	UQ41575-SMCCOR
UQ41670-SMCCOR	UQ41731-SMCCOR	UQ41789-SMCCOR
UQ41798-SMCCOR	UQ41802-SMCCOR	

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## B.2 Included PTFs for FMID HIY6610

UQ34478-PUT9909	UQ40482-SMCCOR	UQ41177-SMCREC
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## B.3 Included PTFs for FMID HIZ6610

UQ27470-PUT9904	UQ32007-RSU9907	UQ37382-RSU9912
UQ37994-RSU9912	UQ40162-RSU0002	UQ40220-PUT0002
UQ41780-SMCCOR		

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## B.4 Included PTFs for FMID HIR2101

HIR2101

UN72299	UN72331	UN72332
UN72338	UN72339	UN72340
UN72341	UN72342	UN72352
UN72353	UN72354	UN73118
UN73223	UN73224	UN73225
UN73226	UN74334	UN74472
UN75185	UN75203	UN76008
UN76017	UN76027	UN77235
UN77236	UN77253	UN77254
UN77255	UN77807	UN77808
UN77811	UN77911	UN77918
UN77919	UN78475	UN78696
UN78949	UN78951	UN79209-PUT9508
UN80360-PUT9508	UN80361-PUT9508	UN80362-PUT9508
UN80363-PUT9508	UN80387-PUT9508	UN80453-PUT9508
UN80646-PUT9508	UN80722-PUT9508	UN80723-PUT9508
UN80724-PUT9508	UN80733-PUT9508	UN80758-PUT9508
UN80828-PUT9508	UN81166-PUT9509	UN81315-PUT9509
UN81788-PUT9509	UN81790-PUT9509	UN81791-PUT9509
UN82161-PUT9510	UN82182-PUT9510	UN82655-PUT9510
UN82795-PUT9510	UN82836-PUT9510	UN82862-PUT9510
UN82863-PUT9510	UN82954-PUT9510	UN82961-PUT9510
UN83018-PUT9510	UN83023-PUT9510	UN83277-PUT9510
UN83279-PUT9510	UN83280-PUT9510	UN83431-PUT9510
UN83509-PUT9511	UN84092-PUT9511	UN84336-PUT9511
UN84337-PUT9511	UN84811-PUT9512	UN84863-PUT9512
UN84864-PUT9512	UN84866-PUT9512	UN85345-PUT9512
UN85921-PUT9601	UN86121-PUT9601	UN86312-PUT9601
UN87055-PUT9602	UN87507-PUT9602	UN87893-PUT9603
UN88412-PUT9603	UN88413-PUT9603	UN88576-PUT9604
UN88701-PUT9604	UN88975-PUT9604	UN88976-PUT9604
UN89522-PUT9604	UN89822-PUT9606	UN89932-PUT9605
UN90437-PUT9605	UN90535-PUT9605	UN90536-PUT9605
UN90795-PUT9605	UN90951-PUT9606	UN91204-PUT9606
UN91338-PUT9606	UN91550-PUT9606	UN91612-PUT9606
UN92082-RSU9607	UN92129-PUT9607	UN92131-PUT9607
UN92132-RSU9607	UN92177-PUT9607	UN92180-RSU9607
UN92225-RSU9607	UN92245-RSU9607	UN92336-RSU9607
UN92337-RSU9607	UN92448-RSU9607	UN92449-RSU9607
UN92698-RSU9607	UN92699-RSU9607	UN93403-RSU9608
UN93487-PUT9608	UN93823-RSU9608	UN93824-PUT9609
UN93842-PUT9608	UN93916-RSU9608	UN94017-PUT9608
UN94038-RSU9608	UN94039-RSU9608	UN94291-RSU9608
UN94518-RSU9609	UN94678-RSU9609	UN94679-RSU9609
UN94683-RSU9611	UN94781-RSU9609	UN95925-RSU9610
UN96032-RSU9610	UN96141-RSU9610	UN96143-PUT9610
UN96672-RSU9610	UN97146-RSU9611	UN97525-RSU9611

UN97526-RSU9611	UN97709-RSU9611	UN97859-PUT9611
UN97861-RSU9611	UN98783-RSU9612	UN98811-RSU9612
UN99010-RSU9612	UN99277-RSU9612	UN99323-RSU9612
UN99348-RSU9612	UN99650-RSU9701	UN99651-RSU9701
UN99652-RSU9701	UN99653-PUT9701	UN99802-RSU9701
UN99810-PUT9701	UN99867-RSU9612	UQ01054-RSU9702
UQ01055-RSU9702	UQ01114-RSU9702	UQ01346-RSU9702
UQ01420-RSU9703	UQ02042-PUT9703	UQ02050-RSU9703
UQ02056-RSU9703	UQ02737-PUT9704	UQ03139-RSU9704
UQ03159-RSU9704	UQ03160-PUT9704	UQ03369-PUT9704
UQ03471-PUT9704	UQ03934-RSU9705	UQ03943-RSU9705
UQ04157-RSU9705	UQ04158-RSU9705	UQ04303-RSU9705
UQ04304-RSU9705	UQ04321-RSU9705	UQ04326-RSU9705
UQ04334-RSU9705	UQ04433-RSU9705	UQ04434-RSU9705
UQ04435-RSU9705	UQ04472-RSU9705	UQ04714-RSU9705
UQ04847-RSU9705	UQ04848-RSU9705	UQ04871-RSU9705
UQ04918-RSU9706	UQ05282-RSU9706	UQ05877-PUT9706
UQ05990-RSU9706	UQ05996-RSU9706	UQ06028-RSU9706
UQ06318-RSU9706	UQ06719-PUT9707	UQ07217-RSU9707
UQ07558-RSU9708	UQ07686-PUT9708	UQ07856-PUT9708
UQ07858-RSU9708	UQ07892-RSU9708	UQ07948-PUT9708
UQ08010-RSU9708	UQ08448-RSU9709	UQ08482-RSU9709
UQ08571-RSU9709	UQ08577-RSU9709	UQ09265-RSU9709
UQ09266-RSU9709	UQ09459-RSU9709	UQ09678-RSU9710
UQ10098-RSU9710	UQ10329-RSU9710	UQ10349-RSU9711
UQ10371-RSU9711	UQ10372-RSU9711	UQ10384-RSU9711
UQ10390-RSU9711	UQ10391-RSU9711	UQ11565-PUT9712
UQ11860-RSU9712	UQ11910-PUT9712	UQ11916-RSU9712
UQ11953-RSU9712	UQ12043-RSU9712	UQ12044-RSU9712
UQ12239-RSU9712	UQ12264-RSU9712	UQ12281-RSU9712
UQ12369-PUT9712	UQ12604-RSU9712	UQ13133-PUT9801
UQ14241-RSU9802	UQ14449-RSU9802	UQ14457-RSU9802
UQ14762-RSU9803	UQ14810-RSU9803	UQ14859-PUT9804
UQ15517-RSU9803	UQ15956-RSU9806	UQ16605-PUT9804
UQ16679-RSU9805	UQ17436-RSU9805	UQ17463-PUT9806
UQ17535-PUT9806	UQ17580-RSU9806	UQ17627-PUT9806
UQ17685-RSU9806	UQ17864-RSU9806	UQ18085-RSU9806
UQ18201-RSU9806	UQ18805-RSU9807	UQ19097-PUT9807
UQ19133-RSU9807	UQ19269-RSU9809	UQ19369-RSU9807
UQ19833-RSU9807	UQ19834-RSU9808	UQ20177-RSU9808
UQ21282-PUT9809	UQ21405-RSU9809	UQ21613-RSU9809
UQ22042-RSU9810	UQ22124-RSU9810	UQ22576-PUT9812
UQ22979-RSU9811	UQ22980-RSU9811	UQ23604-RSU9812
UQ23605-PUT9812	UQ23606-RSU9812	UQ23607-PUT9812
UQ23608-PUT9812	UQ23609-RSU9812	UQ23610-RSU9812
UQ23671-RSU9901	UQ24409-RSU9812	UQ24924-PUT9901
UQ24931-RSU9901	UQ25076-RSU9903	UQ25672-RSU9902
UQ25766-RSU9901	UQ25776-RSU9903	UQ26173-PUT9902
UQ26174-RSU9903	UQ26886-RSU9903	UQ27122-PUT9903

UQ27503-RSU9903	UQ27961-RSU9904	UQ28276-RSU9904
UQ28386-RSU9904	UQ28682-RSU9904	UQ30020-RSU9906
UQ31068-RSU9906	UQ31102-PUT9906	UQ31190-RSU9906
UQ32169-RSU9907	UQ32178-RSU9907	UQ32179-RSU9907
UQ32180-PUT9908	UQ32228-RSU9907	UQ32229-RSU9907
UQ34413-SMCREC	UQ34758-PUT9909	UQ35255-RSU9910
UQ35256-RSU9910	UQ35257-RSU9910	UQ36146-RSU9910
UQ36148-RSU9910	UQ36915-RSU9911	UQ37438-PUT9912
UQ37831-RSU9912	UQ38364-RSU9912	UQ38873-RSU0002
UQ40317-SMCREC	UQ40318-SMCREC	UQ41068-SMCREC
UQ41353-SMCCOR		

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## B.5 Included PTFs for FMID HDB661A

UQ28957-PUT9904    UQ32120-PUT9907

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## B.6 Included PTFs for FMID JDB6612

UQ28924-PUT9904    UQ41672-SMCCOR

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## B.7 Included PTFs for FMID JDB6613

UQ27590-PUT9904	UQ28282-PUT9904	UQ28885-PUT9904
UQ29726-PUT9905	UQ29745-PUT9905	UQ30665-PUT9906
UQ31466-PUT9907	UQ32433-RSU9907	UQ33444-PUT9908
UQ33976-PUT9909	UQ33984-PUT9909	UQ34841-RSU9910
UQ34924-RSU9909	UQ38510-PUT0001	UQ40332-PUT0002
UQ40810-SMCCOR	UQ40913-SMCCOR	

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## B.8 Included PTFs for FMID JDB6614

UQ28919-PUT9904

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## B.9 Included PTFs for FMID JDB6617

UQ28889-PUT9904	UQ28913-PUT9904	UQ30101-PUT9905
UQ31322-PUT9906	UQ33411-RSU9908	UQ35063-PUT9909
UQ35492-PUT9910	UQ36279-RSU9910	UQ37982-PUT9912
UQ40167-PUT0002	UQ41176-SMCCOR	UQ41616-SMCCOR

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## B.10 Included PTFs for FMID JDB6619

UQ27345-RSU9904    UQ28922-PUT9904    UQ34603-PUT9910  
UQ37509-RSU9912

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## **B.11 Included PTFs for FMID JDB661B**

UQ29061-PUT9904    UQ30075-PUT9905    UQ31683-RSU9906  
UQ33710-PUT9908    UQ33936-RSU9908    UQ34491-PUT9909  
UQ36895-SMCCOR    UQ38805-SMCCOR

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## **B.12 Included PTFs for FMID JDB661C**

UQ29889-PUT9905    UQ30679-PUT9906    UQ32049-RSU9907  
UQ32149-RSU9907    UQ33323-RSU9908    UQ33787-RSU9908  
UQ35712-RSU9910    UQ36577-RSU9911    UQ39521-RSU0001  
UQ40961-SMCCOR

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## **B.13 Included PTFs for FMID HQW9221**

UQ14468-PUT9802

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## **B.14 Included PTFs for FMID H254610**

UQ27137-PUT9903    UQ28822-RSU9904    UQ29622-PUT9904  
UQ30076-PUT9905    UQ32181-RSU9907    UQ32843-RSU9907  
UQ35640-RSU9911    UQ38370-RSU9912    UQ40039-PUT0002

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## **B.15 Included PTFs for FMID J254611**

UQ29623-PUT9904

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## **B.16 Included PTFs for FMID H253610**

UQ27138-PUT9903    UQ29624-PUT9904    UQ30077-PUT9905  
UQ32234-RSU9907    UQ34082-RSU9908    UQ34766-PUT9909  
UQ35305-RSU9909    UQ35705-RSU9910    UQ35816-RSU9910  
UQ35916-PUT9910    UQ35985-PUT9910    UQ38212-RSU9912  
UQ39918-RSU0002    UQ39920-PUT0002    UQ39934-PUT0002  
UQ41620-RSU0003

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## **B.17 Included PTFs for FMID J253611**

UQ29625-PUT9904



# Reader's Comments

## Program Directory for IBM DB2 Universal Database Server for OS/390 Version 06. 01. 00.

You may use this form to comment about this document, its organization, or subject matter with the understanding that IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you.

For each of the topics below please indicate your satisfaction level by circling your choice from the rating scale. If a statement does not apply, please circle N.

RATING SCALE						
very satisfied	<----->				very dissatisfied	not applicable
1	2	3	4	5	N	

	Satisfaction					
Ease of product installation	1	2	3	4	5	N
Contents of program directory	1	2	3	4	5	N
Installation Verification Programs	1	2	3	4	5	N
Time to install the product	1	2	3	4	5	N
Readability and organization of program directory tasks	1	2	3	4	5	N
Necessity of all installation tasks	1	2	3	4	5	N
Accuracy of the definition of the installation tasks	1	2	3	4	5	N
Technical level of the installation tasks	1	2	3	4	5	N
Ease of getting the system into production after installation	1	2	3	4	5	N

How did you order this product?

- CBPDO
- CustomPac
- ServerPac
- Independent
- Other

Is this the first time your organization has installed this product?

- Yes
- No

Were the people who did the installation experienced with the installation of MVS products?

- Yes

\_\_\_ No

If yes, how many years? \_\_\_

If you have any comments to make about your ratings above, or any other aspect of the product installation, please list them below:

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Organization

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Thank you for your participation.

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Program Number: 5821  
5822  
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Printed in U.S.A.

G110-8182-02

