



**Program Directory for
IBM Database 2 Universal Database Server
for OS/390 and z/OS
with National Language Versions**

Version 7

Program Number 5675-DB2

FMID HDB7710, HIY7710, HIZ7710, HIR2101

for Use with
OS/390 and z/OS

CBPDO Level SMC0106

Document Date: March 2001

Note!

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

A form for reader's comments appears at the back of this publication. When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© **Copyright International Business Machines Corporation 1982, 2000. All rights reserved.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Notices	vi
Trademarks	vii
1.0 Introduction	1
1.1 DB2 for OS/390 and z/OS Description	2
1.1.1 IRLM	2
1.1.2 ODBC	2
1.1.3 JDBC/SQLJ	2
1.1.4 DB2 IAV Extenders	3
1.1.5 DB2 Text Extender	3
1.1.6 DB2 XML Extender	3
1.2 DB2 for OS/390 and z/OS FMIDs	4
2.0 Program Materials	5
2.1 Basic Machine-Readable Material	5
2.2 Optional Machine-Readable Material	6
2.3 Program Publications	6
2.3.1 Basic Program Publications	6
2.3.2 Optional Program Publications	7
2.4 Program Source Materials	7
2.5 Publications Useful During Installation	7
3.0 Program Support	9
3.1 Program Services	9
3.2 Preventive Service Planning	9
3.3 Statement of Support Procedures	11
4.0 Program and Service Level Information	12
4.1 Program Level Information	12
4.2 Service Level Information	12
4.3 Usage License Charges (ULC) Measurement and Reporting	13
5.0 Installation Requirements and Considerations	14
5.1 Driving System Requirements	14
5.1.1 Machine Requirements	14
5.1.2 Programming Requirements	14
5.2 Target System Requirements	15
5.2.1 Machine Requirements	15
5.2.1.1 Function-Dependent Hardware Requirements	17
5.2.2 Programming Requirements	17
5.2.2.1 Mandatory Requisites	17
5.2.2.2 Functional Requisites	17

5.2.2.3 Toleration/Coexistence Requisites	19
5.2.2.4 Incompatibility (Negative) Requisites	19
5.2.2.5 Optional Program Requirements	19
5.2.2.5.1 IRLM	22
5.2.3 DASD Storage Requirements	22
5.3 FMIDs Deleted	29
5.4 Special Considerations	29
5.5 Migration, Fallback, and Remigration	30
6.0 Installation Instructions	31
6.1 Installing DB2 for OS/390 and z/OS	31
6.1.1 SMP/E Considerations for Installing DB2 for OS/390 and z/OS	31
6.1.1.1 SMP/E Considerations for Installing the Additional Functions	31
6.1.2 SMP/E Options Subentry Values	32
6.1.3 SMP/E CALLLIBS Processing for DB2 for OS/390 and z/OS	32
6.1.4 Unload the Sample JCL from the Product Tape	32
6.1.5 <Optional> Allocate CSI and SMP/E Control data sets: DSNTIJAA	35
6.1.6 Perform SMP/E RECEIVE (DB2 Base)	35
6.1.6.1 Perform SMP/E RECEIVE (IRLM)	35
6.1.6.2 Perform SMP/E RECEIVE (ODBC/JDBC/SQLJ)	35
6.1.6.3 Perform SMP/E RECEIVE (DB2 Kanji Panels)	35
6.1.6.4 Perform SMP/E RECEIVE (IAV Extenders)	36
6.1.6.5 Perform SMP/E RECEIVE (Text Extender)	36
6.1.6.6 Perform SMP/E RECEIVE (XML Extender)	36
6.1.7 Allocate SMP/E Target and Distribution Libraries and Paths	36
6.1.8 Create DDDEF Entries	37
6.1.9 <Optional> Cleanup job for migration: DSNTIJUD	37
6.1.10 Perform SMP/E APPLY for the Required FMIDs	37
6.1.11 Perform SMP/E ACCEPT	38
6.1.12 Perform SMP/E APPLY for the Additional FMIDs	38
6.1.13 Perform SMP/E ACCEPT for the Additional FMIDs	39
6.1.14 Set Up Controls for English Panel Selection	40
6.1.14.1 Logon Procedures	40
6.1.14.2 Language-switching CLISTs	40
6.2 Activating DB2 for OS/390 and z/OS	40
6.2.1 Activating IAV Extenders	40
6.2.1.1 Choose Environments and Security Options	41
6.2.1.2 Planning Considerations for Files, Tables, Applications	41
6.2.1.3 Edit the DB2 Sample WLM Application Environment Procedure	41
6.2.1.4 Establishing WLM Application Environments	42
6.2.1.5 RACF Administration	43
6.2.1.6 DB2 IAV Extenders Initialization	44
6.2.1.7 DB2 IAV Extenders Bind	44
6.2.1.8 DB2 Extender Notes	45
6.2.1.8.1 Useful Administration Commands	45
6.2.1.9 DB2 Extender Requirements	45

Appendix A. File Content of DB2 for OS/390 and z/OS Program Tapes	46
Appendix B. Included PTFs for DB2 for OS/390 and z/OS	50
B.1 Included PTFs for FMID HDB7710	50
B.2 Included PTFs for FMID HIZ7710	51
B.3 Included PTFs for FMID HIR2101	51
Reader's Comments	54

Figures

1. Basic Material: Program Tapes	5
2. Basic Material: Program Tape - Kanji	6
3. Basic Material: Unlicensed Publications	6
4. Basic Material: Licensed Publications	7
5. Publications Useful During Installation	7
6. PSP Upgrade and Subset ID	9
7. Component IDs	11
8. Driving System Software Requirements	14
9. Mandatory Requisites	17
10. Functional Requisites for DB2 for OS/390 and z/OS "Required FMIDs"	17
11. Functional Requisites for DB2 for OS/390 and z/OS "Additional FMIDs"	18
12. Total DASD Space Required by DB2 for OS/390 and z/OS "Required FMIDs"	22
13. Total DASD Space Required by DB2 for OS/390 and z/OS "Additional FMIDs"	23
14. Storage Requirements for SMP/E Work Data Sets	24
15. Storage Requirements for SMP/E Data Sets	25
16. Storage Requirements for DB2 for OS/390 and z/OS Target Libraries	25
17. Storage Requirements for HFS Directories	27
18. Storage Requirements for DB2 for OS/390 and z/OS Distribution Libraries	28
19. SMP/E Options Subentry Values	32
20. Sample Installation Jobs - DB2 for OS/390 and z/OS	33
21. Program Tape: DB2 File Content	46
22. Program Tape: IRLM File Content	46
23. Program Tape: DB2 ODBC/JDBC/SQLJ File Content	47
24. Program Tape: IAV Extenders File Content	47
25. Program Tape: Text Extender File Content	48
26. Program Tape: XML Extender File Content	48
27. Program Tape: DB2 Kanji File Content	49

Notices

References in this document to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe on any of IBM's intellectual property rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, is the user's responsibility.

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

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, New York 10504-1785
USA

For online versions of this book, we authorize you to:

- Copy, modify, and print the documentation contained on the media, for use within your enterprise, provided you reproduce the copyright notice, all warning statements, and other required statements on each copy or partial copy.
- Transfer the original unaltered copy of the documentation when you transfer the related IBM product (which may be either machines you own, or programs, if the program's license terms permit a transfer). You must, at the same time, destroy all other copies of the documentation.

You are responsible for payment of any taxes, including personal property taxes, resulting from this authorization.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Some jurisdictions do not allow the exclusion of implied warranties, so the above exclusion may not apply to you.

Your failure to comply with the terms above terminates this authorization. Upon termination, you must destroy your machine readable documentation.

Trademarks

The following terms are trademarks of the IBM Corporation in the United States or other countries or both:

AD/Cycle	Language Environment
AIX	MVS
APL2	MVS/DFP
IBM®	MVS/ESA
CICS	MVS/SP
CICS/ESA	MVS/XA
CICS/MVS	OpenEdition
C/370	QMF
COBOL/370	ProductPac
DATABASE 2	RACF
DB2	RETAIN
Distributed Relational Database Architecture	SAA
DFSMS/VM	SMP/E
DFSMSdfp	Systempac
DFSORT	Systems Application Architecture
DFSMSdss	System/390
DFSMSHsm	SQL/DS
DFSMS/MVS	TCP/IP
DRDA	VTAM
ES/9000	3090
IMS/ESA	

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

Microsoft, Windows, and the Windows 95 logo are trademarks or registered trademarks of Microsoft Corporation.

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 for OS/390 and z/OS. You should read all of this program directory before installing the program and then keep it for future reference.

This Program Directory contains installation and activation information for DB2 for OS/390 Version 7, which includes IRLM, ODBC, JDBC/SQLJ, IAV Extenders, Text Extender and XML Extender.

This program directory contains the following sections:

- 2.0, “Program Materials” on page 5 identifies the basic and optional program materials and documentation for DB2 for OS/390 and z/OS.
- 3.0, “Program Support” on page 9 describes the IBM support available for DB2 for OS/390 and z/OS.
- 4.0, “Program and Service Level Information” on page 12 lists the APARs (program level) and PTFs (service level) incorporated into DB2 for OS/390 and z/OS.
- 5.0, “Installation Requirements and Considerations” on page 14 identifies the resources and considerations for installing and using DB2 for OS/390 and z/OS.
- 6.0, “Installation Instructions” on page 31 provides detailed installation instructions for DB2 for OS/390 and z/OS. It also describes the procedures for activating functions of DB2 for OS/390 and z/OS, or refers to appropriate publications.
- Appendix A, “File Content of DB2 for OS/390 and z/OS Program Tapes” on page 46 provides the file content of each tape provided in the DB2 for OS/390 and z/OS feature.
- Appendix B, “Included PTFs for DB2 for OS/390 and z/OS” on page 50 provides a list of PTFs that have been integrated into the DB2 for OS/390 and z/OS service update.

Before installing DB2 for OS/390 and z/OS, read 3.2, “Preventive Service Planning” on page 9 for additional HIPER maintenance information and 4.1, “Program Level Information” on page 12.

Do not use this program directory if you are installing DB2 for OS/390 and z/OS with a SystemPac or ServerPac. When using these offerings, use the jobs and documentation supplied with the offering. This documentation may point you to specific sections of the program directory as required.

If you are installing DB2 for OS/390 and z/OS using the MVS Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), a softcopy program directory is provided on the CBPDO tape which is identical to the printed copy shipped with your order. Your CBPDO contains a softcopy preventive service planning (PSP) upgrade for this product. All service and HOLDDATA for DB2 for OS/390 and z/OS are included on the CBPDO tape.

1.1 DB2 for OS/390 and z/OS 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.

1.1.1 IRLM

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.

1.1.2 ODBC

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.

1.1.3 JDBC/SQLJ

The Java Database Connectivity (JDBC) feature of DB2 for OS/390 and z/OS 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 for OS/390 and z/OS 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 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.

1.1.4 DB2 IAV Extenders

Image, Audio and Video Extenders 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.

1.1.5 DB2 Text Extender

Text Extender 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.

1.1.6 DB2 XML Extender

New in Version 7 is DB2 XML Extender with support for data using the XML data type. This extender allows you to store an XML object either:

- In an XML column for the entire document
- In several columns containing the fields from the document structure

1.2 DB2 for OS/390 and z/OS FMIDs

DB2 for OS/390 and z/OS consists of the following FMIDs:

1. Required FMIDs:

HDB7710 (DB2 Base/TSO)

HIY7710 (IMS Attach - must be installed even if you do not have IMS)

HIZ7710 (Subsystem Initialization)

HIR2101 (IRLM)

JDB7714 (DB2 English Panels)

2. Additional FMIDs:

HDB771A (Online Help Books and Bookshelves)

JDB7711 (DB2 Kanji Panels)

JDB7712 (DB2 JDBC/SQLJ)

JDB7717 (DB2 ODBC)

JDB771B (DB2 IAV Extenders)

JDB771C (DB2 Text Extender)

JDB771X (DB2 XML Extender)

2.0 Program Materials

An IBM program is identified by a program number and a feature number. The program number for DB2 for OS/390 and z/OS is 5675-DB2.

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 for OS/390 and z/OS. Ask your IBM representative for this information if you have not already received a copy.

2.1 Basic Machine-Readable Material

The distribution medium for this program is 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 Instructions" on page 31 for more information about how to install the program.

Figure 1 describes the tapes and/or cartridges.

<i>Figure 1 (Page 1 of 2). Basic Material: Program Tapes</i>				
Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 tape	5851	1	SMC0106 SUP - DB2	DB7710
		2	SMC0036 SUP - IRLM	IR2101
		3	ODBC/JDBC/SQLJ	DB7717
		4	DB2 IAV Extenders	DB771B
		5	DB2 Text Extender	DB771C
		6	DB2 XML Extender	DB771X
3480 cart.	5852	1	SMC0106 SUP - DB2	DB7710
		2	SMC0036 SUP - IRLM	IR2101
		3	ODBC/JDBC/SQLJ	DB7717
		4	DB2 IAV Extenders	DB771B
		5	DB2 Text Extender	DB771C
		6	DB2 XML Extender	DB771X
4mm cart.	6005	1	SMC0106 SUP - DB2	DB7710
		2	SMC0036 SUP - IRLM	IR2101

Figure 1 (Page 2 of 2). Basic Material: Program Tapes

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
		3	ODBC/JDBC/SQLJ	DB7717
		4	DB2 IAV Extenders	DB771B
		5	DB2 Text Extender	DB771C
		6	DB2 XML Extender	DB771X

Figure 2. Basic Material: Program Tape - Kanji

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 tape	6155	1	DB2 Kanji Panels	DB7711
3480 cart.	6153	1	DB2 Kanji Panels	DB7711
4mm cart.	6154	1	DB2 Kanji Panels	DB7711

2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for DB2 for OS/390 and z/OS.

2.3 Program Publications

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

2.3.1 Basic Program Publications

Figure 3 identifies the basic unlicensed program publications for DB2 for OS/390 and z/OS. One copy of each of these publications is included when you order the basic materials for DB2 for OS/390 and z/OS. For additional copies, contact your IBM representative.

Figure 3. Basic Material: Unlicensed Publications

Publication Title	Form Number
DB2 for OS/390 and z/OS Command Reference	SC26-9934
DB2 for OS/390 and z/OS Installation Guide	GC26-9936
DB2 for OS/390 and z/OS Licensed Program Specifications	GC26-9938
DB2 for OS/390 and z/OS Messages and Codes	GC26-9940
DB2 for OS/390 and z/OS Utilities Guide and Reference	SC26-9945

Figure 4 on page 7 identifies the basic licensed program publications for DB2 for OS/390 and z/OS. 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.

<i>Figure 4. Basic Material: Licensed Publications</i>		
Publication Title	Form Number	Feature Number
DB2 for OS/390 and z/OS Diagnosis Guide and Reference	LY36-3740	8000
DB2 for OS/390 and z/OS Diagnostic Quick Reference Card	LY36-3741	8001
DB2 for OS/390 and z/OS Licensed Online Book and PDF CD-ROM	LK3T-6999	8002

Note: Control block descriptions that were previously found in the Diagnosis Guide and Reference can now be found in the DSN710.SDSNSAMP (DSNWCBDS).

2.3.2 Optional Program Publications

No optional publications are provided for DB2 for OS/390 and z/OS, however,

- A README file is included with the additional function 'JDBC/SQLJ' which documents additional instructions regarding the use of JDBC/SQLJ. The README file is installed to HFS file **/usr/lpp/db2/db2710/README**, which is created during the SMP/E APPLY step.
- A README file is included with the additional function 'Text Extender' which documents additional instructions regarding the use of Text Extender. The README file is installed to the HFS file **/usr/lpp/db2tx/install/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 5 may be useful during the installation of DB2 for OS/390 and z/OS. To order copies, contact your IBM representative.

<i>Figure 5 (Page 1 of 2). Publications Useful During Installation</i>	
Publication Title	Form Number
OS/390 SMP/E User's Guide	SC28-1740

Figure 5 (Page 2 of 2). Publications Useful During Installation

Publication Title	Form Number
OS/390 SMP/E Commands	SC28-1805
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 for OS/390 and z/OS.

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

If you obtained DB2 for OS/390 and z/OS 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 for OS/390 and z/OS are:

<i>Figure 6 (Page 1 of 2). PSP Upgrade and Subset ID</i>		
UPGRADE	SUBSET	Description
DB2710	HDB7710/0106	DB2 BASE/TSO
	HIY7710	IMS ATTACH
	HIZ7710/0106	DB2 SUBSYSTEM INIT
	HIR2101/0036	IRLM
	HDB771A	DB2 ONLINE HELP BOOKS AND BOOKSHELVES
	JDB7711	DB2 KANJI PANELS
	JDB7712	DB2 JDBC/SQLJ
	JDB7714	DB2 ENGLISH PANELS
	JDB7717	DB2 ODBC

Figure 6 (Page 2 of 2). PSP Upgrade and Subset ID

UPGRADE	SUBSET	Description
	JDB771B	DB2 IAV EXTENDERS
	JDB771C	DB2 TEXT EXTENDER
	JDB771X	DB2 XML EXTENDERS

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 12 section of this program directory.

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

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

Example: Service Level Type	ES0
Service Level	9912

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 for OS/390 and z/OS 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 7 identifies the component IDs (COMPIDs) for DB2 for OS/390 and z/OS.

<i>Figure 7. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
HDB7710	5740XYR00	BASE/TSO	710
HIY7710	5740IY100	IMS ATTACH	710
HIZ7710	5740XYR01	SUBSYSTEM INIT	710
HIR2101	569516401	IRLM	101
HDB771A	5740XYR00	ONLINE HELP BOOKS AND BOOKSHELVES	71A
JDB7711	5740XYR00	DB2 KANJI PANELS	711
JDB7712	5740XYR02	DB2 JDBC/SQLJ	712
JDB7714	5740XYR00	DB2 ENGLISH PANELS	714
JDB7717	5740XYR02	DB2 ODBC	717
JDB771B	5740XYR04	DB2 IAV EXTENDERS	71B
JDB771C	5740XYR03	DB2 TEXT EXTENDER	71C
JDB771X	5740XYR06	DB2 XML EXTENDER	71X

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 for OS/390 and z/OS. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated.

This program is at CBPDO Level SMC0106.

4.1 Program Level Information

Please refer to the PSP (Preventive Service Planning) Facility for APAR information for DB2 for OS/390 and z/OS.

4.2 Service Level Information

PTFs containing APAR fixes against this release of DB2 for OS/390 and z/OS have been incorporated into this product tape. For a list of included PTFs, examine the ++VER statement in the product's SMPMCS.

The **IRLM** tape is at service update level SMC0036, which includes the maintenance APAR/PTFs listed in B.3, "Included PTFs for FMID HIR2101" on page 51.

If your system is at a **higher** IRLM level, **do not** install the IRLM tape that is included. You must, however, ensure your IRLM maintenance is brought up to a minimum of SMC0036 level and you have the following IRLM PTFs applied: UQ46321, UQ46430, UQ47753, UQ47445, UQ49125, UQ49746, UQ51605, UQ51639, UQ51643, and any HIPER PTFs. If your system is at a **lower** IRLM level, install the the IRLM SMC0036 tape that is included and apply IRLM PTFs UQ46321, UQ46430, UQ47753, UQ47445, UQ49125, UQ49746, UQ51605, UQ51639, UQ51643, and any HIPER PTFs.

If you install DB2 for OS/390 and z/OS with IRLM into the same SMP zone as any Version of IMS with IRLM Release 5, IRLM Release 5 will be deleted during the installation of IRLM.

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

APAR / PTF

PQ15290 / UQ19097

4.3 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 for OS/390 and z/OS 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.

5.0 Installation Requirements and Considerations

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

Note: The DB2 for OS/390 and z/OS SMPLTS will need to be allocated as a PDSE if you plan to install the JDBC/SQLJ function.

5.1 Driving System Requirements

This section describes the environment of the driving system required to install DB2 for OS/390 and z/OS.

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 8. Driving System Software Requirements

Program Number	Product Name and Minimum VRM/Service Level
5647-A01	OS/390 SMP/E Version 2 Release 7 or higher

5.2 Target System Requirements

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

DB2 for OS/390 and z/OS installs in the DBS (P115) SREL.

5.2.1 Machine Requirements

DB2 for OS/390 and z/OS operates on any processor supported by OS/390 Version 2 Release 7 and supports the architectural level set. In this version, DB2 for OS/390 and z/OS intends to use ESA/390 architectural enhancements that were implemented on selected IBM S/390 servers.

DB2 for OS/390 and z/OS can run only on servers that implement the architectural enhancements, and cannot run on any servers that have not implemented them. The following IBM servers implement the architectural enhancements:

- Models of the S/390 Parallel Enterprise Servers except for Release 1 models
- All models of the S/390 Multiprise 2000 and 3000
- All models of the S/390 Application StarterPak Type 3000
- All PC Server S/390 servers and RS/6000 with S/390 Server-on-Board models
- All S/390 Integrated Servers

DB2 for OS/390 and z/OS cannot run on the following IBM servers, because they do not implement the architectural enhancements:

- ES/9000 Processor Unit 9021, 9121, or 9221
- ES/3090 Models
- ES/4381 Models
- S/390 Parallel Transaction Server 9672 E or P models
- S/390 Parallel Enterprise Server 9672 Release 1 models

Architectural enhancements provide a variety of performance and reliability improvements.

The processor must have enough real storage to satisfy the combined requirements of:

- DB2
- OS/390
- Appropriate Data Facility Product
- Appropriate access methods
- Telecommunications

Batch requirements

Other customer required applications

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 DASD and tape device type. The customer can use any magnetic or tape device supported by the data facilities component of OS/390 or z/OS for the DB2 data sets. The following DB2 data sets are supported by the following device types:

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

If these data sets are on a disk shared with other OS/390 systems, you should use global resource serialization to prevent concurrent access by more than one OS/390 system.

The minimum DASD space requirement, based on installing DB2 using the Installation Panels default values, is approximately 600 MB. You will need additional space for your data.

If you use dual logging and tape for the log archiving device, you need at least two tape drives.

Data Communications Devices

DB2 operations can be controlled from

- 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.

Virtual Storage

The amount of space needed for the common service area (CSA) below the 16 MB line is less than 40 KB for each DB2 subsystem and 24 KB for each IRLM. High concurrent activity, parallelism, or high contention can require more CSA.

Most of the DB2 common data resides in the extended common service area (ECSA). Most modules, control blocks, and buffers reside in the extended private area. A DB2 subsystem with 200 concurrent users and 2000 open data sets should need less than 2 MB of virtual storage below the 16 MB line.

5.2.1.1 Function-Dependent Hardware Requirements

UNLOAD Utility

Use of the FLOAT IEEE option requires the basic floating-point extensions facility (G5 processor or above).

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.

<i>Figure 9. Mandatory Requisites</i>	
Program Number	Product Name and Minimum VRM/Service Level
5647-A01	OS/390 Version 2 Release 7 or higher (System Services element)
5647-A01	OS/390 Version 2 Release 7 or higher, DFSORT (in Application Enablement Services optional feature)

Please see DFSMS Information APAR II12221 for details to support unmanaged HFS and PDSE datasets.

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.

<i>Figure 10 (Page 1 of 2). Functional Requisites for DB2 for OS/390 and z/OS "Required FMIDs"</i>		
Program Number	Product Name and Minimum VRM/Service Level	Function
5655-158	IMS/ESA Version 6 or higher	Transaction Management
5655-147	CICS for OS/390 Release 1 or higher	Transaction Server
5655-018	CICS/ESA Version 4 or higher	Transaction Management
5655-DB2	DB2 for OS/390 Version 5 or higher (APAR PQ34467)	Migration/Fallback/Coexistence with DB2 for OS/390 and z/OS Version 7
5647-A01	OS/390 Version 2 Release 7 or higher (Resource Recovery Services)	DB2 Initialization

Figure 10 (Page 2 of 2). Functional Requisites for DB2 for OS/390 and z/OS "Required FMIDs"

Program Number	Product Name and Minimum VRM/Service Level	Function
5647-A01	OS/390 Version 2 Release 8 or higher (APAR OW44581) plus the OS/390 R8/R9/R10 Support for Unicode	Unicode data storage and manipulation capabilities

Note: : For additional Unicode information, go to:

<http://www.ibm.com/downloads>

<http://www.s390.ibm.com/os390/bkserv/v2r10books.html>

For OS/390 Version 2 Release 9 or higher, this capability is further complemented by the Language Environment support in the Application Enablement Services element of OS/390.

Figure 11 (Page 1 of 2). Functional Requisites for DB2 for OS/390 and z/OS "Additional FMIDs"

Program Number	Product Name and Minimum VRM/Service Level	Function
5647-A01	OS/390 Version 2 Release 7 APARs OW32616, OW34623, OW35835	Statistic and Accounting data
5647-A01	OS/390 Version 2 Release 7 or higher (BookManager Read function)	Online Help
5648-A25	IBM COBOL for OS/390 & VM Version 2 Release 2	DB2 Coprocessor support for COBOL application development
5647-A01	OS/390 Version 2 Release 7 or higher (Language Environment in the Application Enablement Services element)	IAV Extenders, Text Extender and XML Extender
5647-A01	OS/390 Version 2 Release 7 or higher (Text Search element) See Note 1 below	Text Extender
5647-A01	OS/390 Version 2 Release 9 or higher (e-business Services element) and the associated Text Search Engine	Text Extender: XML Support, Support for CCSIDs 13488, Unicode UCS2 and 1208 and Unicode UTF8 except for NGRAM indexes
11K7622 OR 41L2987	DB2 Connect Personal Edition Version 7 OR DB2 Connect Enterprise Edition Version 7	Text Extender Optional Administration Client
5655-D44	IBM XML Toolkit for OS/390 See Note 2 below	XML Extender
5647-A01	OS/390 Version 2 Release 10 (SecureWay Security Server feature)	Windows Kerberos Security (Server support)
5647-A01	OS/390 Version 2 Release 7 or higher (Communication Server element)	DRDA Connectivity
5647-A01	OS/390 Version 2 Release 7 or higher, APAR PQ34286 and PQ45111	DRDA Connectivity via TCP/IP

Figure 11 (Page 2 of 2). Functional Requisites for DB2 for OS/390 and z/OS "Additional FMIDs"

Program Number	Product Name and Minimum VRM/Service Level	Function
5647-A01	OS/390 Version 2 Release 7 or higher (Application Enablement Services)	High Level Programming Language Application Execution
5647-A01	OS/390 Version 2 Release 8 or higher, APARs OW45125, OW45127, OW44170, OW45162, OW45163, OW47045	JDBC/SQLJ
5655-F31	WebSphere Application Server V4.0 for z/OS and OS/390	Java Distributed Transactions for WebSphere for OS/390

Note: 1. The OS/390 Text Search element is included only in OS/390 V2R8 or higher. If you are running OS/390 Version 2 Release 7, you need to download the Text Search element, FMID HIMN210, in SMP/E relfile format from the following IBM Web site:

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

APAR/PTF PQ37429/UQ43190 is required in addition to the downloaded relfiles.

Note: 2. Use of either the XMLFile type or the "Getting Started" material requires the Unix System Services element of OS/390 Version 2 Release 7 or higher to be available.

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.

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 Requirements: You can use the following optional licensed programs with DB2 for OS/390 and z/OS. In some cases, earlier versions or releases of IBM licensed programs may also work with DB2 for OS/390 and z/OS, but IBM may not have tested with them at the time of this announcement. If you have questions, check with your IBM representative.

DRDA Connectivity: DB2 for OS/390 and z/OS supports the following IBM relational database products:

- IBM DB2 Connect for Linux for S/390 and zSeries
- IBM DB2 Connect for Linux, UNIX, Windows, OS/2 Version 6 or 7
- IBM DB2 Universal Database for AS/400, Version 4 Release 2
- Operating System/400(R) (OS/400(R)) Version 4 Release 1 with DB2 for AS/400 (5769-SS1)
- IBM DB2 Server for VSE & VM Version 7, (5697-F42)

- IBM DB2 Server for VSE & VM Version 6, (5648-158)
- IBM DB2 DataJoiner Version 2 Release 1.1 (5231-200)
- Any other DRDA-compliant relational DBMS

Web Connectivity: The following products provide connectivity to DB2 for OS/390 and z/OS from the Web:

- WebSphere Application Server Version 3 Release 2 (5655-A98) or higher
- Net.Data for OS/390 Version 7, a feature of DB2 for OS/390 and z/OS
- Net Search Extender, a feature of DB2 for OS/390 and z/OS

DL/I Connectivity: DL/I access to IMS DB from DB2 Stored procedures requires:

- IMS Version 7 (5655-B01)
- IMS/ESA Version 6 (5655-158)

JDBC access to IMS DB in Stored procedures requires IMS Version 7 (5655-B01) **Capacity Planning:** IBM DB2 Estimator for Windows, an element of the DB2 Management Clients Package feature of DB2 for OS/390 and z/OS, works with DB2 data to estimate application feasibility, to model application cost and performance, and to estimate required CPU and I/O capacity.

Transaction Management: The following transaction management products work with DB2:

- Information Management System (IMS)
 - IMS Version 7 (5655-B01)
 - IMS/ESA Version 6 (5655-158)
 - IMS/ESA Version 5 (5698-176)
- Customer Information Control System (CICS)
 - CICS Transaction Server for OS/390 Release 1 (5655-147)
 - CICS/ESA Version 4 (5655-018)

Query Support: The following programs work with DB2:

- DB2 Extenders for Text, Audio, Video, Image and XML, which are elements of DB2 for OS/390 and z/OS.
- The Query Management Facility (QMF) family, which is an element of the DB2 Warehouse Manager feature of DB2 for OS/390 and z/OS, and includes:
 - QMF for OS/390
 - QMF for Windows
 - QMF High Performance Option

Application Development Tools and Programming Languages: The DB2 Stored Procedure Builder, which is part of the Software Developer's Kit (SDK) on Windows, AIX and Solaris is delivered with all editions of DB2 Universal Database and DB2 Connect products. A restricted-use copy of DB2 Connect for Windows is provided in the DB2 Management Clients Package feature of DB2 for OS/390 and z/OS to satisfy this functional dependency.

The following application development tools and programming languages work with DB2:

Assembler High Level Assembler Release 3 (5696-234), part of the OS/390 System Services element

C/C++ One of the following products is required:

- C/C++ (with or without Debug Tool), part of the OS/390 Application Enablement Services optional feature of OS/390
- IBM C/C++ for MVS/ESA Version 3 Release 2 (5655-121)
- IBM AD/Cycle C/370 Release 2 (5688-216)

COBOL Any one of the following:

- IBM COBOL for OS/390 & VM Version 2 (5648-A25)
optionally, with IBM VisualAge COBOL Enterprise Version 2.2 (04L6579)
- IBM COBOL for MVS & VM Release 2 (5688-197)
- VS COBOL II Release 4 (5668-958, 5688-023, or 5688-022)

Use of the DB2 Precompiler Services requires the DB2 Coprocessor provided with IBM COBOL for OS/390 & VM (5648-A25), Version 2 Release 2.

Fortran VS Fortran Version 2 (5668-806, 5688-087, or 5668-805)

Java Applications or stored procedures written in Java, such as those using the JDBC or SQLJ interfaces to DB2, require Java for OS/390 (5655-A46) at run time, and are only supported on OS/390 Version 2 Release 8 or higher. For more information, see:

<http://www.ibm.com/s390/java/>

PL/I Any one of the following:

- IBM VisualAge PL/I for OS/390 Version 2 Release 2 (5655-B22)
- IBM PL/I for MVS & VM Release 1.1 (5688-235)
- OS PL/I Version 2 Release 3 (5668-909, 5668-910, or 5668-911)

REXX Any one of the following:

- REXX Version 1 Release 3 (5695-013 or 5694-014)
- IBM TSO Extensions for MVS REXX, which is part of OS/390

SQL Procedure Language A C language compiler is required on OS/390 to develop stored procedures using the SQL procedure language

Operational Support: The following programs provide operational support for DB2:

- DFSMS features, part of the Systems Management optional feature of OS/390; specifically,
 - DFSMSHsm for archiving
 - DFSMSdss for concurrent copy in Utilities
- RACF functions provided by the Security Server optional feature of OS/390
- IBM Softcopy Reader or Library Readers, which are included on the CD-ROMs for BookManager books
- The IBM Tools for Database Recovery and Replication Management, including the following tools
 - IBM DB2 DataPropagator for OS/390 Version 7 (5655-E60)
 - IBM IMS DataPropagator Version 2 (5696-705)
 - IBM DB2 Recovery Manager for OS/390 (5697-F56)
 - IBM DB2 Row Archive Manager for OS/390 (5655-E65)
- The IBM Tools for Database Application Environments, including the following tools
 - IBM DB2 Bind Manager (5655-D38)
 - IBM DB2 Web Query Tool (5655-E71)

Database Administration and Systems Management Support: The following tools support data administration and systems management for DB2:

- The DB2 Management Clients Package, which is a feature of DB2 for OS/390 and z/OS that includes:
 - DB2 Control Center
 - DB2 Stored Procedure Builder
 - DB2 Installer
 - DB2 for OS/390 Visual Explain
 - DB2 Estimator

The Control Center and Stored Procedure Builder are delivered with all editions of DB2 Universal Database and DB2 Connect products. A restricted-use copy of DB2 Connect Personal Edition (11K7622) for Windows is provided in the DB2 Management Clients Package feature of DB2 for OS/390 and z/OS, to satisfy this functional dependency.

- The IBM Tools for Database Administration, including the following tools
 - IBM DB2 Administration Tool Version 2 (5655-E70)
 - IBM DB2 Forms Version 3 (5697-G52)
 - IBM DB2 High Performance Unload (5655-E69)
 - IBM DB2 Automation Tool (5655-E72)
 - IBM DB2 Log Analysis Tool (5655-E66)
- The IBM Tools for Database Performance Management, including the following tools
 - IBM DB2 Performance Monitor for OS/390 Version 7 (5655-E61)
 - IBM DB2 SQL Performance Analyzer for OS/390 (5697-F57)
 - IBM DB2 Query Monitor for OS/390 (5655-E67)

5.2.2.5.1 IRLM: A service update of IRLM Version 2 (HIR2101) is shipped with DB2 for OS/390 and z/OS and is required. This program is at level SMC0036. Please see 4.1, "Program Level Information" on page 12 for any IRLM APARs/PTFs that may need to be applied. Please ensure you also apply IRLM PTFs UQ46321, UQ46430, UQ47753, UQ47445, UQ49125, UQ49746, UQ51605, UQ51639, UQ51643, and any HIPER PTFs.

Note: If you install DB2 for OS/390 and z/OS 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. IRLM, MVS CTRACE START/STOP routine, DXRRL183, must be in MVS SYS1.LINKLIB (called LINKLIST) in order to START/STOP the CTRACE facility. See *Installation Guide, GC26-9936* under installation Step 1: DSNTIJMV for more IRLM requirements.

5.2.3 DASD Storage Requirements

DB2 for OS/390 and z/OS libraries can reside on 3380 and 3390 DASD.

Figure 12 lists the total space required for each type of library for DB2 for OS/390 and z/OS "Required FMIDs".

Figure 12 (Page 1 of 2). Total DASD Space Required by DB2 for OS/390 and z/OS "Required FMIDs"	
Library Type	Total Space Required
Target	87555 blocks

<i>Figure 12 (Page 2 of 2). Total DASD Space Required by DB2 for OS/390 and z/OS "Required FMIDs"</i>	
Library Type	Total Space Required
Distribution	72165 blocks

Figure 13 lists the total space required for each type of library for the DB2 for OS/390 and z/OS "Additional FMIDs".

<i>Figure 13. Total DASD Space Required by DB2 for OS/390 and z/OS "Additional FMIDs"</i>	
Library Type	Total Space Required
Target	10 MB (for Text Extender)
Distribution	10 MB (for Text Extender)
HFS	5 MB (for Text Extender) 4 cylinders (for JDBC/SQLJ)

Notes:

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

- U** Unique data set 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.
- E** Existing shared data set, used by this product and others. This data set is NOT allocated by this product. 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). This existing data set must have enough free space to accommodate the storage size given in this table.

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

For more information on the names and sizes of the required data sets, please refer to 6.1.7, "Allocate SMP/E Target and Distribution Libraries and Paths" on page 36.

3. Abbreviations used for the HFS Path type are:

- N** New path, created by this product.
- P** Previously existing path, created by another product.

4. All target and distribution libraries listed have the following attributes:

- The default name of the data set may be changed
- The default block size of the data set may be changed
- The data set may be merged with another data set that has equivalent characteristics
- The data set may be either a PDS or a PDSE

5. All target libraries listed have the following attributes:

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

The following figures describe the target and distribution libraries and HFS paths required to install DB2 for OS/390 and z/OS. The storage requirements of DB2 for OS/390 and z/OS must be added to the storage required by other programs having data in the same library or path.

Figure 14. 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 for OS/390 and z/OS. 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.

<i>Figure 15. Storage Requirements for SMP/E Data Sets</i>						
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	E	PDSE	U	0	350	N/A
SMPMTS	E	PDS	FB	80	13	60
SMPPTS	E	PDS	FB	80	40	300
SMPSCDS	E	PDS	FB	80	580	300
SMPSTS	E	PDS	FB	80	40	150

The following types of datasets are created during the DB2 for OS/390 and z/OS installation process. The sizes are based upon user preferences:

- CATALOG
- DIRECTORY
- LOG

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

<i>Figure 16 (Page 1 of 3). Storage Requirements for DB2 for OS/390 and z/OS Target Libraries</i>								
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
SDSNBASE	Sample	Any	S	PDS	FB	80	31	30
SDSNBKS	Book	Any	S	PDS	FB	4096	279	2
SDSNCHDR	Data	Any	S	PDS	FB	80	21	3
SDSNCLST	CLIST	Any	S	PDS	FB	80	120	20
SDSNDBRM	Macro	Any	S	PDS	FB	80	31	10

Figure 16 (Page 2 of 3). Storage Requirements for DB2 for OS/390 and z/OS 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
SDSNEXIT	Data	Any	S	PDS	U	0	23	10
SDSNINDX	Book	Any	S	PDS	FB	4096	70	1
SDSNINST	Sample	Any	S	PDS	FB	80	4	5
SDSNIVPD	Data	Any	S	PDS	VB	8188	130	25
SDSNLINK	LMOD	Any	S	PDS	U	0	13	10
SDSNLOAD	LMOD	Any	S	PDS	U	0	4692	160
SDSNLOD2	LMOD	Any	S	PDSE	U	0	304	25
SDSNMACS	Macro	Any	S	PDS	FB	80	1091	300
SDSNPFPE	Panel	Any	S	PDS	FB	80	78	100
SDSNPFPK	Panel	Any	S	PDS	FB	80	120	80
SDSNSAMP	Sample	Any	S	PDS	FB	80	1490	35
SDSNSHLF	Macro	Any	S	PDS	FB	80	2	1
SDSNSPFM	Message	Any	S	PDS	FB	80	16	10
SDSNSPFP	Panel	Any	S	PDS	FB	80	61	40
SDSNSPFS	Skeleton	Any	S	PDS	FB	80	16	10
SDSNSPFT	Table	Any	S	PDS	FB	80	16	10
SDXRRESL	LMOD	Any	S	PDS	U	0	33	10
SDXRSAMP	Sample	Any	S	PDS	FB	80	17	10
SDMBBASE	Sample	Any	U	PDS	FB	80	3	5
SDMBDBRM	Data	Any	U	PDS	FB	80	3	5
SDMBEXP	Data	Any	U	PDS	FB	80	3	5
SDMBLOAD	LMOD	Any	U	PDS	U	0	345	50
SDMBMACS	Macro	Any	U	PDS	VB	255	10	10
SDMBSAMP	Sample	Any	U	PDS	FB	80	3	5
SDMBSMPC	Sample	Any	U	PDS	VB	255	10	10
SDMBSMPH	Sample	Any	U	PDS	VB	255	3	5
SDESDB2I	Data	Any	U	PDS	FB	80	4	6
SDESMOD1	LMOD	Any	U	PDS	U	0	288	16
SDXXADM	Data	Any	U	PDS	VB	255	26	5

Figure 16 (Page 3 of 3). Storage Requirements for DB2 for OS/390 and z/OS 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
SDXXC	Data	Any	U	PDS	FB	80	16	5
SDXXCLI	Data	Any	U	PDS	VB	255	4	5
SDXXCLP	Data	Any	U	PDS	VB	255	2	5
SDXXCMD	Data	Any	U	PDS	VB	255	4	5
SDXXDAD	Data	Any	U	PDS	VB	255	2	5
SDXXDBRM	Macro	Any	U	PDS	FB	80	6	5
SDXXDTD	Data	Any	U	PDS	VB	255	2	5
SDXXH	Data	Any	U	PDS	FB	80	3	5
SDXXJCL	Sample	Any	U	PDS	FB	80	8	5
SDXXJDBC	Sample	Any	U	PDS	VB	255	4	5
SDXXLOAD	LMOD	Any	U	PDS	U	0	3001	16
SDXXXML	Sample	Any	U	PDS	VB	255	2	5

Note: If you are installing Online Help into a DASD type that does not support a block size of 28672, change all occurrences of 28672 to 16384 before you run jobs DSNALC and DSNUNL2.

Figure 17. Storage Requirements for HFS Directories

DDNAME	T Y P E	Path Name
SDSNJDBC	N	/usr/lpp/db2/db2710/IBM/
SDSNCLAS	N	/usr/lpp/db2/db2710/classes/IBM/
SDSNOLIB	N	/usr/lpp/db2/db2710/lib/IBM/
SDSNOBIN	N	/usr/lpp/db2/db2710/bin/IBM/
SDSNOSP1	N	/usr/lpp/db2/db2710/samples/IBM/
SDMBLOA2	N	/usr/lpp/db2ext_07_01_00/bin/IBM
SDMBEXP2	N	/usr/lpp/db2ext_07_01_00/lib/IBM
SDMBMAC2	N	/usr/lpp/db2ext_07_01_00/include/IBM
SDMBSMP	N	/usr/lpp/db2ext_07_01_00/samples/IBM
SDESHFS1	N	/usr/lpp/db2tx/IBM

Figure 18 (Page 1 of 2). Storage Requirements for DB2 for OS/390 and z/OS 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
ADSNBASE	U	PDS	FB	80	13	30
ADSNBKS	U	PDS	FB	4096	279	2
ADSNDKF	S	PDS	FB	80	50	30
ADSNENU	S	PDS	FB	80	40	100
ADSNHFS	U	PDS	VB	255	154	5
ADSNINDX	U	PDS	FB	4096	70	1
ADSNINST	U	PDS	FB	80	4	5
ADSNIVPD	S	PDS	VB	8188	173	25
ADSNLOAD	S	PDS	U	0	2522	950
ADSNLOD2	S	PDSE	U	0	287	25
ADSNMACS	S	PDS	FB	80	1758	300
ADSNSHLF	U	PDS	FB	80	2	1
ADXRLOAD	S	PDS	U	0	58	46
ADXRSAMP	S	PDS	FB	80	17	10
ADMBBASE	U	PDS	FB	80	3	5
ADMBDBRM	U	PDS	FB	80	3	5
ADMBEXP	U	PDS	FB	80	3	5
ADMBEXP2	U	PDS	FB	80	2	5
ADMBLOAD	U	PDS	U	0	377	50
ADMBLOA2	U	PDS	U	0	51	40
ADMBMACS	U	PDS	VB	255	10	5
ADMBMAC2	U	PDS	VB	255	10	5
ADMBXSAMP	U	PDS	FB	80	3	5
ADMBXSMP	U	PDS	VB	255	690	10
ADMBXSMP2	U	PDS	VB	255	10	10
ADMBXSMPH	U	PDS	VB	255	3	5
ADESDB2I	U	PDS	FB	80	3	4
ADESHFS1	U	PDS	VB	255	48	4
ADESMOD1	U	PDS	U	0	451	16

Figure 18 (Page 2 of 2). Storage Requirements for DB2 for OS/390 and z/OS 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
ADXXADM	U	PDS	VB	255	26	5
ADXXC	U	PDS	FB	80	16	5
ADXXCLI	U	PDS	VB	255	4	5
ADXXCLP	U	PDS	VB	255	2	5
ADXXCMD	U	PDS	VB	255	4	5
ADXXDAD	U	PDS	VB	255	2	5
ADXXDBRM	U	PDS	FB	80	6	5
ADXXDTD	U	PDS	VB	255	2	5
ADXXH	U	PDS	FB	80	3	5
ADXXJCL	U	PDS	FB	80	8	5
ADXXJDBC	U	PDS	VB	255	4	5
ADXXLOAD	U	PDS	U	0	3001	16
ADXXXML	U	PDS	VB	255	2	5

5.3 FMIDs Deleted

Installing DB2 for OS/390 and z/OS may result in the deletion of other FMIDs. To see what FMIDs will be deleted, examine the ++VER statement in the product's SMPMCS.

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

5.5 Migration, Fallback, and Remigration

Note: Migration to DB2 for OS/390 and z/OS is now permitted from either DB2 for OS/390 Version 5 or DB2 UDB Server for OS/390 Version 6.

To prepare for migration to DB2 for OS/390 and z/OS, the following APAR must be applied:

APAR

PQ34467

Due to the possibility of prerequisite APARs, it may be necessary to acquire additional APARs not related to fallback. See *Installation Guide, GC26-9936* for details on Migration, Fallback, and Remigration steps.

6.0 Installation Instructions

This chapter describes the installation method and lists the procedures to install and to activate the functions of DB2 for OS/390 and z/OS.

Please note the following:

- If you want to install DB2 for OS/390 and z/OS into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMPCSI and the SMP/E control data sets.
- Sample jobs have been provided to help perform some or all of the installation tasks. The SMP/E jobs assume that all DDDEF entries required for SMP/E execution have been defined in the appropriate zones.
- The SMP/E dialogs may be used instead of the sample jobs to accomplish the SMP/E installation steps.

6.1 Installing DB2 for OS/390 and z/OS

6.1.1 SMP/E Considerations for Installing DB2 for OS/390 and z/OS

This release of DB2 for OS/390 and z/OS is installed using the SMP/E RECEIVE, APPLY, and ACCEPT commands. The SMP/E dialogs may be used to accomplish the SMP/E installation steps.

6.1.1.1 SMP/E Considerations for Installing the Additional Functions: The steps to install JDBC/SQLJ use 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 for OS/390 and z/OS has the **authority necessary** to create data sets and Open Edition HFS directories using the default names listed in each job.

The steps to install IAV Extenders use default data set names and Open Edition install directories. The default HFS install directory is: `/usr/lpp/db2ext_07_01_00`. Optionally, the IAV Extenders feature can be installed using a **'user-defined-prefix'** in the installation directory name, such as `'/SERVICE/usr/lpp/db2ext_07_01_00'`. 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.

These steps 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.

6.1.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 19. 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 19. SMP/E Options Subentry Values</i>		
SUB-ENTRY	Value	Comment
DSSPACE	400,400,1200	3390 DASD Tracks
PEMAX	9999	The SMP/E default is larger than what can be specified here
UTILITY	IEWBLINK	Program Binder must be used for installation of JDBC/SQLJ, IAV Extenders and Text Extender

6.1.3 SMP/E CALLLIBS Processing for DB2 for OS/390 and z/OS

These functions use the CALLLIBS function provided in SMP/E to resolve external references during installation. When these functions are installed, ensure that DDDEFs exist for the following libraries:

Note: The DDDEFs are used only to resolve the link-edit for the Additional Functions using CALLLIBS and are not updated during installation.

- For DB2 Base, ODBC, IAV Extenders, Text Extender and XML Extender
SCEELKED (OS/390 Version 2 Release 7, or higher)
- For JDBC/SQLJ:
SCEELKED (OS/390 Version 2 Release 8, or higher)
CSSLIB (OS/390 Version 2 Release 8, or higher)

6.1.4 Unload the Sample JCL from the Product Tape

The following sample installation jobs are provided on the distribution tape to help you install DB2 for OS/390 and z/OS: See *Installation Guide, GC26-9936* for details on these steps.

The job prologues 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 for OS/390 and z/OS SMP/E process functions correctly.

Figure 20. Sample Installation Jobs - DB2 for OS/390 and z/OS

Job Name	Job Type	Description	RELFILE
DSNTIJAA	Optional	Sample job to create the CSI and allocate the SMP/E control data sets	IBM.HDB7710.F5
DSNRECV1	Receive	Sample RECEIVE job for DB2 Base ("Required FMID")	IBM.HDB7710.F5
DSNRECV2	Receive	Sample RECEIVE job for IRLM ("Required FMID")	IBM.HDB7710.F5
DSNRECV3	Receive	Sample RECEIVE job for ODBC/JDBC/SQLJ ("Additional FMID")	IBM.HDB7710.F5
DSNRECV4	Receive	Sample RECEIVE job for DB2 Kanji Panels ("Additional FMID")	IBM.HDB7710.F5
DMBRECEV	Receive	Sample RECEIVE job for IAV Extenders ("Additional FMID")	IBM.HDB7710.F5
DESRECEV	Receive	Sample RECEIVE job for Text Extender ("Additional FMID")	IBM.HDB7710.F5
DXXRECEV	Receive	Sample RECEIVE job for XML Extender ("Additional FMID")	IBM.HDB7710.F5
DSNALLOC	Allocate	Sample job to allocate target and distribution libraries and define SMP/E DDDEFs	IBM.HDB7710.F5
DSNISMKD	MKDIR	Sample job to invoke the supplied DSNMKDIR EXEC to allocate HFS paths for JDBC/SQLJ	IBM.HDB7710.F5
DMBISMKD	MKDIR	Sample job to invoke the supplied DMBMKDIR EXEC to allocate HFS paths for IAV Extenders	IBM.HDB7710.F5
DESISMKD	MKDIR	Sample job to invoke the supplied DESMKDIR EXEC to allocate HFS paths for Text Extender	IBM.HDB7710.F5
DSNDDEF1	DDDEF	Sample job to define SMP/E DDDEFs for "Required FMIDs"	IBM.HDB7710.F5
DSNDDEF2	DDDEF	Sample job to define SMP/E DDDEFs for "Additional FMIDs"	IBM.HDB7710.F5
DSNTIJUD	Optional	Clean up job	IBM.HDB7710.F5
DSNAPPL1	Apply	Sample APPLY CHECK and APPLY job for "Required FMIDs"	IBM.HDB7710.F5
DSNACEP1	Accept	Sample ACCEPT CHECK and ACCEPT job for "Required FMIDs"	IBM.HDB7710.F5
DSNAPPL2	Apply	Sample APPLY CHECK and APPLY job for "Additional FMIDs"	IBM.HDB7710.F5
DSNACEP2	Accept	Sample ACCEPT CHECK and ACCEPT job for "Additional FMIDs"	IBM.HDB7710.F5

You may copy the jobs from the tape by submitting the job below. Add a job card and change the lowercase parameters to uppercase values to meet your site's requirements before submitting.

```
//STEP1    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=*
//IN       DD DSN=IBM.HDB7710.F5,UNIT=tunit,VOL=SER=DB7710,
//         LABEL=(6,SL),DISP=(OLD,KEEP)
//OUT      DD DSNAME=jcl-library-name,
//         DISP=(NEW,CATLG,DELETE),
//         VOL=SER=dasdvol,UNIT=SYSALLDA,
//         DCB=*.STEP1.IN,SPACE=(TRK,(20,10,10))
//SYSUT3   DD UNIT=SYSALLDA,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, and **dasdvol** is the volume serial of the DASD device where the data set will reside, and

You can also access the sample installation jobs by performing an SMP/E RECEIVE for FMID HDB7710, and then copying the jobs from data set **hlq.HDB7710.F5** to a work data set for editing and submission. Note: "hlq" is the high-level qualifier specified as the DSPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.

Special Considerations:

It is assumed that DB2 for OS/390 and z/OS and IRLM are installed into the same zones. If this is not the case, you will need to modify jobs DSNALLOC, DSNDDDEF1 and DSNAPPL1.

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.

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

Edit and submit sample job DSNTIJAA to create the desired CSI for DB2 for OS/390 and z/OS. Please note this job allocates the appropriate datasets in **PDSE** format. 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.

6.1.6 Perform SMP/E RECEIVE (DB2 Base)

Edit and submit sample job DSNRECV1 to perform the SMP/E RECEIVE for DB2 for OS/390 and z/OS. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should complete with a condition code of 0 if the job runs correctly.

6.1.6.1 Perform SMP/E RECEIVE (IRLM): Edit and submit sample job DSNRECV2 to perform the SMP/E RECEIVE for IRLM. Consult the instructions in the sample job for more information.

Note: IRLM (FMID HIR2101) service update tape included is at SMC0036 which includes the maintenance APAR/PTFs listed in B.3, “Included PTFs for FMID HIR2101” on page 51. If your system is at a **higher** IRLM level, **do not** install the IRLM tape. If your system is at a **lower** IRLM level, proceed with the installation of the IRLM tape included. In either case, ensure you also apply the following IRLM PTFs: UQ46321, UQ46430, UQ47753, UQ47445, UQ49125, UQ49746, UQ51605, UQ51639, UQ51643, and any HIPER PTFs.

Expected Return Codes and Messages: This job should complete with a condition code of 0 if the job runs correctly.

6.1.6.2 Perform SMP/E RECEIVE (ODBC/JDBC/SQLJ): Edit and submit sample job DSNRECV3 to perform the SMP/E RECEIVE for ODBC/JDBC/SQLJ. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should complete with a condition code of 0 if the job runs correctly.

6.1.6.3 Perform SMP/E RECEIVE (DB2 Kanji Panels): Edit and submit sample job DSNRECV4 to perform the SMP/E RECEIVE for DB2 Kanji Panels. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should complete with a condition code of 0 if the job runs correctly.

6.1.6.4 Perform SMP/E RECEIVE (IAV Extenders): Edit and submit sample job DMBRECEV to perform the SMP/E RECEIVE for IAV Extenders. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should complete with a condition code of 0 if the job runs correctly.

6.1.6.5 Perform SMP/E RECEIVE (Text Extender): Edit and submit sample job DESRECEV to perform the SMP/E RECEIVE for Text Extender. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should complete with a condition code of 0 if the job runs correctly.

6.1.6.6 Perform SMP/E RECEIVE (XML Extender): Edit and submit sample job DXXRECEV to perform the SMP/E RECEIVE for XML Extender. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should complete with a condition code of 0 if the job runs correctly.

6.1.7 Allocate SMP/E Target and Distribution Libraries and Paths

- Edit and submit sample job DSNALLOC to allocate the SMP/E target and distribution libraries for DB2 for OS/390 and z/OS. 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.

- Edit and submit sample job DSNISMKD to allocate the HFS paths for DB2 for OS/390 and z/OS JDBC/SQLJ. 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.

- Edit and submit sample job DMBISMKD to allocate the HFS paths for DB2 for OS/390 and z/OS IAV Extenders. 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.

- Edit and submit sample job DESISMKD to allocate the HFS paths for DB2 for OS/390 and z/OS Text Extender. 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.

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

6.1.8 Create DDDEF Entries

Edit and submit sample job DSNDDDEF1 to create DDDEF entries for the SMP/E target and distribution libraries for DB2 for OS/390 and z/OS "Required FMIDs". Consult the instructions in the sample job and 6.1.3, "SMP/E CALLLIBS Processing for DB2 for OS/390 and z/OS" on page 32 for more information.

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

Edit and submit sample job DSNDDDEF2 to create DDDEF entries for the SMP/E target and distribution libraries for DB2 for OS/390 and z/OS "Additional FMIDs". Consult the instructions in the sample job and 6.1.3, "SMP/E CALLLIBS Processing for DB2 for OS/390 and z/OS" on page 32 for more information.

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

Note: If you decide to install the JDBC/SQLJ, IAV Extenders and/or the Text Extender feature into an alternate install directory, you will need to modify job DSNDDDEF2 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 DSNDDDEF2 to ensure that the mixed case in the job is preserved.

6.1.9 <Optional> Cleanup job for migration: DSNTIJUD

Job DSNTIJUD should be run before the SMP/E APPLY (job DSNAPPL1 or DSNAPPL2). Running job DSNTIJUD is not necessary if you are installing DB2 for OS/390 and z/OS 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.

6.1.10 Perform SMP/E APPLY for the Required FMIDs

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).

Edit and submit sample job DSNAPPL1 to perform an SMP/E APPLY CHECK for DB2 for OS/390 and z/OS "Required FMIDs". Consult the instructions in the sample job for more information.

Ensure FMIDs are listed in the following order: HDB7710, HIY7710, and HIZ7710 together; then HIR2101.

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

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

Expected Return Codes and Messages from APPLY CHECK: 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:

- GIM23913W, GIM61903W, IEW2454W, IEW2609W, IEW2646W

Note: All messages pertaining to members with prefix name 'DSN' can be ignored. If this job fails or abends, correct the problem and rerun the job.

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

- GIM23913W, GIM61903W, IEW2454W, IEW2609W, IEW2646W

Note: All messages pertaining to members with prefix name 'DSN' can be ignored. If this job fails or abends, correct the problem and rerun the job.

6.1.11 Perform SMP/E ACCEPT

Edit and submit sample job DSNACEP1 to perform an SMP/E ACCEPT CHECK for DB2 for OS/390 and z/OS "Required FMIDs". Consult the instructions in the sample job for more information.

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

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

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

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

6.1.12 Perform SMP/E APPLY for the Additional FMIDs

Note: "Required FMIDs" should be in SMP/E ACcept status prior to submitting job DSNAPPL2.

Edit and submit sample job DSNAPPL2 to perform an SMP/E APPLY CHECK for DB2 for OS/390 and z/OS "Additional FMIDs". Consult the instructions in the sample job for more information.

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

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

Expected Return Codes and Messages from APPLY CHECK: This job should complete with a return code 0 if the job runs correctly.

Expected Return Codes and Messages from APPLY This job should complete with a return code 0 if the job runs correctly.

6.1.13 Perform SMP/E ACCEPT for the Additional FMIDs

Edit and submit sample job DSNACEP2 to perform an SMP/E ACCEPT CHECK for DB2 for OS/390 and z/OS "Additional FMIDs". Consult the instructions in the sample job for more information.

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

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

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

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

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

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

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

6.1.14 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.

6.1.14.1 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=DSN710.SDSNSPPF,DISP=SHR      ENGLISH
//          DD DSN=DSN710.SDSNPFPE,DISP=SHR      ENGLISH
```

6.1.14.2 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('DSN710.SDSNSPPF' 'DSN710.SDSNPFPE') +
        SHR /* English */
    ELSE ALLOC DD(ISPPLIB) DS('DSN710.SDSNSPPF' 'DSN710.SDSNPFPE') +
        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.

6.2 Activating DB2 for OS/390 and z/OS

The publication *Installation Guide, GC26-9936* contains the step-by-step procedures to activate the functions of DB2 for OS/390 and z/OS, as well as the step-by-step procedures to use Online Help, migrate, fallback and remigrate to DB2 for OS/390 and z/OS.

Please refer to the JDBC/SQLJ README file, which can be found in file **/usr/lpp/db2/db2710/README**, for additional information about using JDBC/SQLJ.

For Text Extender activation 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.

6.2.1 Activating IAV Extenders

6.2.1.1 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.

6.2.1.2 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.

6.2.1.3 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.V7R1M0.SDMBLOAD
//*      DD DISP=SHR,DSN=CEE.SCEERUN      in linklist
//      DD DISP=SHR,DSN=DSN710.SDSNLOAD
//DMBENVAR DD DISP=SHR,DSN=joeadmin.DMB.ENVAR
```

Check *DB2 UDB for OS/390 V7 Installation Guide*, and *DB2 UDB for OS/390 V7 Administration Guide* for instructions on providing JCL for WLM Application Environments.

6.2.1.4 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 V7 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 V7 Installation Guide*, and *DB2 UDB for OS/390 V7 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.

6.2.1.5 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

6.2.1.6 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 DSNTEP2 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.

6.2.1.7 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.

6.2.1.8 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.

6.2.1.8.1 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.

6.2.1.9 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.

Appendix A. File Content of DB2 for OS/390 and z/OS Program Tapes

Figure 21. 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
DB7710	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.HDB7710.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.HDB7710.F2	ADSNLOAD	PDS	U	0	6144
	4	IBM.HDB7710.F3	ADSNIVPD	PDS	VB	8188	8192
	5	IBM.HDB7710.F4	ADSNMACS	PDS	FB	80	8800
	6	IBM.HDB7710.F5	ADSNBASE	PDS	FB	80	8800
	7	IBM.HIY7710.F1	SMPJCLIN	PDS	FB	80	8800
	8	IBM.HIY7710.F2	ADSNMACS	PDS	FB	80	8800
	9	IBM.HIY7710.F3	ADSNLOAD	PDS	U	0	6144
	10	IBM.HIZ7710.F1	SMPJCLIN	PDS	FB	80	8800
	11	IBM.HIZ7710.F2	ADSNLOAD	PDS	U	0	6144
	12	IBM.HDB771A.F1	ADSNINST	PDS	FB	80	8800
	13	IBM.HDB771A.F2	ADSNBKS	PDS	FB	4096	28672
	14	IBM.HDB771A.F3	ADSNINDX	PDS	FB	4096	28672
	15	IBM.HDB771A.F4	ADSNSHLF	PDS	FB	80	8800
	16	IBM.JDB7714.F1	ADSNENU	PDS	FB	80	8800

Figure 22. Program Tape: IRLM 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
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 23. Program Tape: DB2 ODBC/JDBC/SQLJ 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
DB7717	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JDB7717.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.JDB7717.F2	ADSNLOAD	PDS	U	0	6144
	4	IBM.JDB7717.F3	ADSNMACS	PDS	FB	80	8800
	5	IBM.JDB7712.F1	SMPJCLIN	PDS	FB	80	8800
	6	IBM.JDB7712.F2	ADSNLOD2	PDSE	U	0	6144
	7	IBM.JDB7712.F3	ADSNHFS	PDS	VB	255	27998
	8	IBM.JDB7712.F4	ADSNLOAD	PDS	U	0	6144
	9	IBM.JDB7712.F5	ADSNMACS	PDS	FB	80	8800

Figure 24. Program Tape: IAV Extenders 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
DB771B	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JDB771B.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.JDB771B.F2	ADMBBASE	PDS	FB	80	8800
			ADMBDBRM	PDS	FB	80	8800
	4	IBM.JDB771B.F3	ADMBLOAD	PDS	U	0	6144
			ADMBLOA2	PDS	U	0	6144
	5	IBM.JDB771B.F4	ADMBEXP	PDS	FB	80	8800
			ADMBEXP2	PDS	FB	80	8800
	6	IBM.JDB771B.F5	ADMBSMP	PDS	VB	255	19069
			ADMBMACS	PDS	VB	255	19069
			ADMBMAC2	PDS	VB	255	19069
	7	IBM.JDB771B.F6	ADMBSMPH	PDS	VB	255	19069
			ADMBSMPC	PDS	VB	255	19069
	8	IBM.JDB771B.F7	ADMBSAMP	PDS	FB	80	880
	9	IBM.JDB771B.F8	ADMBSMPH	PDS	VB	255	19069

Figure 25. Program Tape: Text Extender 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
DB771C	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JDB771C.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.JDB771C.F2	ADESHFS1	PDS	VB	255	6220
	4	IBM.JDB771C.F3	ADESMOD1	PDS	U	0	6144
	5	IBM.JDB771C.F4	ADESDBI	PDS	FB	80	8800

Figure 26. Program Tape: XML Extender 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
DB771X	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JDB771X.F1	SMPJCLIN	PDS	FB	80	8800
	3	IBM.JDB771X.F2	ADXXCLI	PDS	VB	255	23476
	4	IBM.JDB771X.F3	ADXXCMD	PDS	VB	255	23476
	5	IBM.JDB771X.F4	ADXXDAD	PDS	VB	255	27998
	6	IBM.JDB771X.F5	ADXXDBRM	PDS	FB	80	8800
	7	IBM.JDB771X.F6	ADXXH	PDS	FB	80	8800
	8	IBM.JDB771X.F7	ADXXJCL	PDS	FB	80	8800
	9	IBM.JDB771X.F8	ADXXJDBC	PDS	VB	255	23476
	10	IBM.JDB771X.F9	ADXXLOAD	PDS	U	0	6144
	11	IBM.JDB771X.F10	ADXXXML	PDS	VB	255	23476
	12	IBM.JDB771X.F11	ADXXCLP	PDS	VB	255	23476
	13	IBM.JDB771X.F12	ADXXADM	PDS	VB	255	23476
	14	IBM.JDB771X.F13	ADXXC	PDS	FB	80	8800
	15	IBM.JDB771X.F14	ADXXDTD	PDS	VB	255	27998

Figure 27. Program Tape: DB2 Kanji 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
DB7711	1	SMPMCS	n/a	SEQ	FB	80	6400
	2	IBM.JDB7711.F1	ADSNDKF	PDS	FB	80	8800

Appendix B. Included PTFs for DB2 for OS/390 and z/OS

B.1 Included PTFs for FMID HDB7710

UQ50308-SMCCOR	UQ50386-SMCCOR	UQ50408-SMCCOR
UQ50440-RSU0101	UQ50458-SMCCOR	UQ50525-SMCCOR
UQ50554-SMCCOR	UQ50573-SMCCOR	UQ50575-SMCREC
UQ50592-SMCCOR	UQ50627-SMCCOR	UQ50643-SMCCOR
UQ50660-SMCCOR	UQ50705-SMCCOR	UQ50715-SMCCOR
UQ50717-SMCCOR	UQ50722-SMCCOR	UQ50752-SMCREC
UQ50755-SMCCOR	UQ50757-SMCCOR	UQ50763-SMCREC
UQ50770-SMCCOR	UQ50774-SMCCOR	UQ50777-SMCCOR
UQ50780-SMCCOR	UQ50788-SMCCOR	UQ50791-SMCCOR
UQ50801-SMCCOR	UQ50804-SMCCOR	UQ50805-SMCCOR
UQ50806-SMCCOR	UQ50809-SMCCOR	UQ50811-SMCCOR
UQ50813-SMCCOR	UQ50816-SMCCOR	UQ50820-SMCCOR
UQ50831-SMCCOR	UQ50836-SMCCOR	UQ50837-SMCCOR
UQ50838-SMCCOR	UQ50840-SMCCOR	UQ50841-SMCCOR
UQ50842-SMCCOR	UQ50844-SMCCOR	UQ50861-SMCCOR
UQ50863-SMCCOR	UQ50898-SMCCOR	UQ50900-SMCCOR
UQ50914-SMCREC	UQ50916-SMCCOR	UQ50918-SMCCOR
UQ50927-SMCCOR	UQ50928-SMCCOR	UQ50936-SMCCOR
UQ50939-SMCCOR	UQ50942-SMCCOR	UQ50945-SMCCOR
UQ50947-SMCCOR	UQ50953-SMCCOR	UQ50957-SMCCOR
UQ50958-SMCCOR	UQ50959-SMCCOR	UQ50960-SMCCOR
UQ50971-SMCREC	UQ50973-SMCCOR	UQ50980-SMCCOR
UQ50985-SMCCOR	UQ50986-SMCCOR	UQ50989-SMCCOR
UQ50993-SMCCOR	UQ50996-SMCREC	UQ51006-SMCCOR
UQ51034-SMCCOR	UQ51035-SMCCOR	UQ51037-SMCCOR
UQ51038-SMCREC	UQ51068-SMCCOR	UQ51078-SMCCOR
UQ51082-SMCCOR	UQ51101-SMCCOR	UQ51103-SMCREC
UQ51110-SMCCOR	UQ51114-SMCCOR	UQ51117-SMCCOR
UQ51118-SMCCOR	UQ51129-SMCCOR	UQ51135-SMCCOR
UQ51139-SMCCOR	UQ51140-SMCCOR	UQ51142-SMCCOR
UQ51144-SMCCOR	UQ51145-SMCCOR	UQ51150-SMCCOR
UQ51152-SMCCOR	UQ51165-SMCCOR	UQ51167-SMCCOR
UQ51171-SMCCOR	UQ51174-SMCCOR	UQ51177-SMCCOR
UQ51178-SMCCOR	UQ51182-SMCREC	UQ51186-SMCCOR
UQ51187-SMCCOR	UQ51188-SMCCOR	UQ51189-SMCCOR
UQ51202-SMCCOR	UQ51215-SMCCOR	UQ51239-SMCCOR
UQ51240-SMCCOR	UQ51243-SMCCOR	UQ51245-SMCCOR
UQ51250-SMCCOR	UQ51252-SMCCOR	UQ51254-SMCCOR
UQ51255-SMCCOR	UQ51257-SMCCOR	UQ51274-SMCCOR
UQ52122-SMCCOR		

B.2 Included PTFs for FMID HIZ7710

UQ51073-SMCCOR

UQ51241-SMCCOR

B.3 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-RSU0003	UQ40318-RSU0003	UQ41068-RSU0003
UQ41353-PUT0002	UQ41909-RSU0005	UQ41910-RSU0005
UQ42028-RSU0005	UQ42403-PUT0005	UQ42404-PUT0005
UQ42747-PUT0005	UQ42748-RSU0005	UQ43575-RSU0006
UQ44465-RSU0007	UQ44985-PUT0007	UQ44986-PUT0007
UQ44987-PUT0007		

Reader's Comments

Program Directory for IBM DB2 Universal Database Server for OS/390 Version 7. 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:

Please provide the following contact information:

Name and Job Title

Organization

Address

Telephone

Thank you for your participation.

Please send the completed form to (or give to your IBM representative who will forward it to the IBM DB2 Universal Database Server for OS/390 Development group):

IBM Corporation
PO Box 49023
San Jose, CA 95161
Attn: DB2 Test and Systems Services, W68/B373

FAX Number: (408) 463-2614

E-Mail: jfigone@us.ibm.com



Program Number: 5675-DB2 5852
6005
5851

Printed in U.S.A.

GI10-8216-01

