IBM

Program Directory for

IBM DATABASE 2 SERVER for OS/390

JDBC Support

Service Level SMC9927

Version 5 Release 01, Modification Level 00

Program Number 5655-DB2

FMID JDB5512

for Use with
OS/390

Document Date: September 1999

Note!

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

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

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1.0 Introduction

This program directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of DB2 for OS/390 JAVA DATABASE CONNECTIVITY. This publication refers to DB2 for OS/390 JAVA DATABASE CONNECTIVITY as DB2 for OS/390 JDBC. You should read all of this program directory before installing the program and then keep it for future reference.

The program directory contains the following sections:

- 2.0, "Program Materials" on page 3 identifies the basic and optional program materials and documentation for DB2 for OS/390 JDBC.

- 3.0, "Program Support" on page 6 describes the IBM support available for DB2 for OS/390 JDBC.

- 4.0, "Program and Service Level Information" on page 7 lists the APARs (program level) and PTFs (service level) incorporated into DB2 for OS/390 JDBC.

- 5.0, "Installation Requirements and Considerations" on page 8 identifies the resources and considerations for installing and using DB2 for OS/390 JDBC.

- 6.0, "Installation Instructions" on page 14 provides detailed installation instructions for DB2 for OS/390 JDBC. It also describes the procedures for activating the functions of DB2 for OS/390 JDBC, or refers to appropriate publications.

- Appendix A, "DB2 for OS/390 JDBC Install Logic" on page 21 provides the install logic for DB2 for OS/390 JDBC.

- Appendix B, "Included PTFs for DB2 for OS/390 JDBC" on page 22 provides a list of PTFs that have been integrated into the DB2 for OS/390 JDBC service update

Before installing DB2 for OS/390 JDBC, read 3.2, "Preventive Service Planning" on page 6. This section tells you how to find any updates to the information and procedures in this program directory.

Do not use this program directory if you are installing DB2 for OS/390 JDBC with an MVS Custom-Built Installation Process Offering (CBIPO), SystemPac, or ServerPac. When using these offerings, use the jobs and documentation supplied with the offering. This documentation may point you to specific sections of the program directory as required.

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

1.1 DB2 for OS/390 JDBC Description

The Java Database Connectivity (JDBC) feature of IBM DATABASE 2 Server for OS/390 Version 5 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 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 JDBC-ODBC bridge and requires the DB2 for OS/390 CLI Driver support that was shipped as part of DB2 Version 5.

1.2 DB2 for OS/390 JDBC FMIDs

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

JDB5512

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 JDBC is 5655-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 are orderable 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 JDBC. 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, 3590 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 14 for more information about how to install the program.

Figure 1 describes the tape or cartridge. Figure 2 describes the file content of the program tape or cartridge.

Note: If you are installing DB2 for OS/390 JDBC using the MVS Custom-Built Product Delivery Offering (CBPDO) (5751-CS3), some of the information in these figures may not be valid. Consult the CBPDO documentation for actual values.

Figure 1. Basic Material: Program Tape				
Medium	**Feature Number**	**Physical Volume**	**External Label Identification**	**VOLSER**
6250 tape	5821	1	SMC9927 SUP - JDBC	DB5512
3480 cart	5822	1	SMC9927 SUP - JDBC	DB5512
4mm	6270	1	SMC9927 SUP - JDBC	DB5512

Figure 2 (Page 1 of 2). Program Tape: File Content						
VOLSER	**File**	**Name**	**Dist Library**	**RECFM**	**LRECL**	**BLK SIZE**
DB5512	1	SMPMCS	n/a	FB	80	8800
	2	IBM.JDB5512.F1	n/a	FB	80	8800

Figure 2 (Page 2 of 2). Program Tape: File Content						
VOLSER	File	Name	Dist Library	RECFM	LRECL	BLK SIZE
	3	IBM.JDB5512.F2	ADSNMACS	FB	80	8800
	4	IBM.JDB5512.F3	ADSNLOAD	U	0	6144
	5	IBM.JDB5512.F4	ADSNHFS	VB	255	2044

2.2 Optional Machine-Readable Material

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

2.3 Program Publications

A README file, which documents additional instructions regarding the uses of DB2 for OS/390 JDBC is included. The DB2 for OS/390 JDBC README is installed to HFS file **/usr/lpp/db2/db2510/README**, which is created during the SMP/E APPLY step.

Figure 3 identifies the basic licensed program publications for DB2 for OS/390 JDBC. The first copy is available 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 the first and additional copies.

Figure 3. Basic Material: Licensed Publications		
Publication Title	Form Number	Feature Number
Application Programming Guide and Reference for JAVA Version 5	SC26-9547-00	7099 or 8109

2.4 Program Source Materials

No program source materials or viewable program listings are provided for DB2 for OS/390 JDBC.

2.5 Publications Useful During Installation

Figure 4. Publications Useful During Installation	
Publication Title	**Form Number**
SMP/E Users' Guide	SC28-1740
SMP/E Reference	SC28-1806
SMP/E Messages and Codes	SC28-1738

3.0 Program Support

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

3.1 Program Services

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

3.2 Preventive Service Planning

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

If you obtained DB2 for OS/390 JDBC 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 JDBC are:

Figure 5. PSP Upgrade and Subset ID		
UPGRADE	**SUBSET**	**Description**
DB2510	JDB5512/9927	JDBC Feature for DB2 for OS/390 Version 5

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 6 identifies the component IDs (COMPID) for DB2 for OS/390 JDBC.

Figure 6. Component IDs			
FMID	**COMPID**	**Component Name**	**RETAIN Release**
JDB5512	5740XYR00	JAVA DATABASE CONNECTIVITY	512

4.0 Program and Service Level Information

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

4.1 Program Level Information

DB2 for OS/390 JDBC program level information is SMC9927.

4.2 Service Level Information

All included maintenance APAR/PTFs are listed in Appendix B, "Included PTFs for DB2 for OS/390 JDBC" on page 22.

4.3 Cumulative Service Tape

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

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

5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating DB2 for OS/390 JDBC. The following terminology is used:

- *Driving system*: the system used to install the program.

- *Target system*: the system on which the program is installed.

In many cases, the same system can be used as both a driving system and a target system. However, you may want to set up a clone of your system to use as a target system by making a separate IPL-able copy of the running system. The clone should include copies of all system libraries that SMP/E updates, copies of the SMP/E CSI data sets that describe the system libraries, and your PARMLIB and PROCLIB.

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

- When installing a new level of a product that is already installed, the new product will delete the old one. By installing onto a separate target system, you can test the new product while still keeping the old one in production.

- When installing a product that shares libraries or load modules with other products, the installation can disrupt the other products. Installing onto a test system or clone will allow you to assess these impacts without disrupting your production system.

5.1 Driving System Requirements

This section describes the environment of the driving system required to install DB2 for OS/390 JDBC. For more information on other prerequisite or corequisite products, please refer to a DB2 for OS/390 Version 5 Program Directory.

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 7 (Page 1 of 2). Driving System Software Requirements	
Program Numbers	**Product Name and Minimum VRM/Service Level**
5695-047 - 5695-048	MVS/ESA SP 4.3 with OpenEdition MVS System Services 1.1.0 or

Program Numbers	Product Name and Minimum VRM/Service Level
5655-068 - 5655-069	MVS ESA SP 5.1 or higher with OpenEdition MVS System Services 1.2.0 or
5655-068 - 5655-069	MVS ESA SP 5.2.2 with OpenEdition MVS System Services 1.3.0 or
5645-001	OS/390 Release 1 or higher
5668-949 or 5645-001	SMP/E Release 1.8.1 and PTF UR50599 - OS/390 System Modification Program/Extended (SMP/E) Release 1 or higher

Figure 7 (Page 2 of 2). Driving System Software Requirements

5.2 Target System Requirements

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

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

- OS/390 Release 1 or higher
- DFSMS/MVS 1.2 (5695-DF1) and PTF UW04232
- RACF 2.1 (5695-039) or an equivalent security product with the necessary support

5.2.1 Machine Requirements

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

5.2.2 Programming Requisites

5.2.2.1 Minimum Requisites: A minimum requisite is defined as one of the following:

1. *Installation Requisite:* A product that is required at installation time. i.e. this product **will not install** successfully unless this requisite is met. This includes products that are specified as REQs, PREs, or CALLLIBs.

2. *Run Time Requisite:* A product that is **not** required for the successful installation of this product, but **is** needed at run time in order for this product to work.

Figure 8. Minimum Requisites		
Program Number	**Product Name and Minimum VRM/Service Level**	**Install Req?**
5655-DB2	Call Level Interface* Version 5	Yes
5655-DB2	DATABASE 2 SERVER for OS/390 Version 5 with PTF UQ04389	Yes
5655-A46	Java Development Kit for OS/390 Version 1.1 or higher	No
5688-949 or 5645-001	System Modification Program/Extended (SMP/E) Release 1.8.1 or higher OS/390 System Modification Program/Extended (SMP/E) Release 1 or higher	Yes
5688-198	Language Environment*/370 Version 1.5 with PTFs UN88194, UN88461, UN87133 and UN88416 or higher	Yes
5645-001	OS/390 Release 1 or higher	Yes

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 base 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.

DB2 for OS/390 JDBC does not have any functional requisites.

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

DB2 for OS/390 JDBC does not have any toleration/coexistence requisites.

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

JDBC does not have any negative requisites.

5.2.3 DASD Storage Requirements

DB2 for OS/390 JDBC libraries can reside on 3350, 3380 or 3390 DASD.

Figure 9 lists the total space required for each type of library.

Figure 9 (Page 1 of 2). Total DASD Space Required by DB2 for OS/390 JDBC	
Library Type	**Total Space Required**
Target	23 tracks for 3380 DASD, 18 tracks for 3390 DASD
Distribution	115 tracks for 3380 DASD, 90 tracks for 3390 DASD

Figure 9 (Page 2 of 2). Total DASD Space Required by DB2 for OS/390 JDBC	
Library Type	**Total Space Required**
HFS	58 tracks for 3380 DASD, 49 tracks for 3390 DASD

Notes:

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

2. IBM recommends use of system determined 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.

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

3. Abbreviations used for the data set type are:

   U   Unique data set used by only the FMIDs listed. In order to determine the correct storage needed for this data set, this table provides all required information; no other tables (or program directories) need to be referenced for the data set size.

   S   Shared data set used by more than the FMIDs listed. In order to determine the correct storage needed for this data set, the storage size given in this table needs to be added to other tables (perhaps in other program directories). If the data set already exists, it must have enough free space to accommodate the storage size given in this table.

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

Figure 10 (Page 1 of 2). Storage Requirements for SMP/E Work Data Sets									
Library DDNAME	**TYPE**	**DSORG**	**RECFM**	**LRECL**	**No. of Blks**	**BLK SIZE**	**No. of 3380/ 9345 Trks**	**No. of 3390 Trks**	**No. of DIR Blks**
SMPWRK1	S	PO	FB	80	16800	3360	100	84	150
SMPWRK2	S	PO	FB	80	16800	3360	100	84	150
SMPWRK3	S	PO	FB	80	32760	3200	121	101	600
SMPWRK4	S	PO	FB	80	16800	3200	100	84	350

Library DDNAME	T Y P E	D S O R G	R E C F M	L R E C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
Figure 10 (Page 2 of 2). Storage Requirements for SMP/E Work Data Sets									
SMPWRK6	S	PO	FB	80	16800	3200	100	84	350
SYSUT1	U	PS	--	--	--	--	340	270	0
SYSUT2	U	PS	--	--	--	--	340	270	0
SYSUT3	U	PS	--	--	--	--	340	270	0
SYSUT4	U	PS	--	--	--	--	340	270	0

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

Library DDNAME	T Y P E	D S O R G	R E C F M	L R E C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
Figure 11. Storage Requirements for SMP/E Data Sets									
SMPLTS	S	PO	U	0	918	3120	77	62	2
SMPMTS	S	PO	FB	80	0	3120	0	0	0
SMPPTS	S	PO	FB	80	18	3120	2	2	2
SMPSCDS	S	PO	FB	80	126	3120	11	9	2
SMPSTS	S	PO	FB	80	0	3120	0	0	0

The following figures list the target and distribution libraries (data sets) and their attributes required to install DB2 for OS/390 JDBC. The storage requirements of DB2 for OS/390 JDBC must be added to the storage required by other programs having data in the same data set (library).

Library DDNAME	T Y P E	D S O R G	R E C F M	L R E C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
Figure 12. Storage Requirements for DB2 for OS/390 JDBC Target Libraries									
SDSNSAMP	S	PO	FB	80	144	6160	23	18	2

Library DDNAME	T Y P E	D S O R G	R E C F M	L R E C L	No. of Blks	BLK SIZE	No. of 3380/ 9345 Trks	No. of 3390 Trks	No. of DIR Blks
ADSNHFS	U	PO	VB	255	378	2044	23	18	2
ADSNMACS	S	PO	FB	80	144	6160	23	18	2
ADSNLOAD	S	PO	U	0	432	6144	69	54	2

Figure 13. Storage Requirements for DB2 for OS/390 JDBC Distribution Libraries

Figure 14. Storage Requirements for DB2 for OS/390 JDBC HFS Directories

Library DDNAME Path	Space Required
SDSNJDBC /usr/lpp/db2/db2510/IBM/	3881 bytes
SDSNCLAS /usr/lpp/db2/db2510/classes/IBM/	186,322 bytes
SDSNOLIB /usr/lpp/db2/db2510/lib/IBM/	2,555,904 bytes
SDSNOBIN /usr/lpp/db2/db2510/bin/IBM/	2300 bytes
SDSNOSP1 /usr/lpp/db2/db2510/samples/sample01/ IBM/	3584 bytes
SDSNOSP2 /usr/lpp/db2/db2510/samples/sample02/ IBM/	4500 bytes

5.3 FMIDs Deleted

Installing DB2 for OS/390 JDBC will not result in the deletion of any FMIDs.

5.4 Special Considerations

DB2 for OS/390 JDBC has no special considerations for the target system.

6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of DB2 for OS/390 JDBC.

Please note the following:

- If you want to install DB2 for OS/390 JDBC 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 JDBC

6.1.1 SMP/E Considerations for Installing DB2 for OS/390 JDBC

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

The steps in this chapter use the DB2 for OS/390 JDBC default data set names and OpenEdition install directories. The default HFS install directory is: **/usr/lpp/db2**. The installation procedures and the JCL samples assume that the TSO user ID installing DB2 for OS/390 JDBC has the authority necessary to create data sets and Open Editon HFS directories using the default names listed in each job.

6.1.2 SMP/E Environment

All SMP/E installation jobs provided assume that all necessary DD statements for the execution of SMP/E are defined using DDDEFs.

Sample jobs are provided to assist you in installing DB2 for OS/390 JDBC. You can copy the sample installation jobs from the product tape using the the sample JCL provided in 6.1.5, "Unload the Sample JCL from the Product Tape" on page 16. In addition, after the RECEIVE step has been completed, the sample jobs can be found in SMPTLIB: **IBM.JDB5512.F2**. Make a copy of these jobs in your own library and modify them to use during the installation of DB2 for OS/390 JDBC. The sample jobs are:

DSNTJJAE   Sample job to allocate target and distribution libraries and to define SMP/E DDDEFs

DSNTJJA2   Sample job to define additional SMP/E DDDEF entries introduced after GA

DSNISMKD   Sample rexx exec to create Hierarchical File System Structure

DSNISMK2   Sample rexx exec to create additional Hierarchical File System Structures introduced after GA

DSNTJJRC   Sample RECEIVE job

DSNTJJAP   Sample APPLY CHECK job

DSNTJJAC   Sample ACCEPT CHECK job

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

6.1.3 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 15. Use of values lower than these may result in failures in the installation process. DSSPACE is a subentry in the GLOBAL options entry. PEMAX is a subentry of the GENERAL entry in the GLOBAL options entry. Refer to the SMP/E manuals for instructions on updating the global zone.

SUB-ENTRY	Value	Comment
Figure 15. SMP/E Options Subentry Values		
DSSPACE	200,200,600	3390 DASD Tracks
PEMAX	9999	The SMP/E default is larger than what can be specified here
UTILITY	HEWLH096	Program Binder must be used for installation of DB2 for OS/390 JDBC

6.1.4 SMP/E CALLLIBS Processing

DB2 for OS/390 JDBC uses the CALLLIBS function provided in SMP/E Release 8 to resolve external references during installation. When DB2 for OS/390 JDBC is installed, ensure the following:

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

  Note: For DB2 for OS/390 JDBC, 6 cylinders of 3380/3390 DASD space is adequate for the SMPLTS.

- Provide DDDEFs for the following libraries:

  - CEE.V1R5M0.SCEELKED
  - CEE.V1R5M0.SCEECPP
  - SYS1.CSSLIB

  See 6.1.6, "Allocate SMP/E Target and Distribution Libraries and Create DDDEF Entries" on page 16 for a sample job to define these DDDEFs.

  Note: The DDDEFs above are used only to resolve the link-edit for DB2 for OS/390 JDBC using CALLLIBS. These data sets are not updated during the installation of DB2 for OS/390 JDBC. The

above sample DDDEFs specify the minimum required level of Language Environment/370 to install and execute DB2 for OS/390 JDBC. If you have a newer version of Language Environment/370, you should change the DDDEFs to specify the version or Language Environment/370 that you are using.

6.1.5 Unload the Sample JCL from the Product Tape

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

```
//STEP1    EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//IN       DD DSN=IBM.JDB5512.F2,UNIT=tunit,VOL=SER=DB5512,
//         LABEL=(3,SL),DISP=(OLD,KEEP)
//OUT      DD DSNAME=jcl-library-name,
//         DISP=(NEW,CATLG,DELETE),
//         VOL=SER=dasdvol,UNIT=dunit,
//         DCB=*.STEP1.IN,SPACE=(TRK,(1,1,2))
//SYSUT3   DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSIN    DD *
   COPY INDD=IN,OUTDD=OUT
/*
```

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

You can also access the sample installation jobs by performing an SMP/E RECEIVE for FMID JDB5512, and then copying the jobs from dataset **hlq.IBM.JDB5512.F2** to a work dataset for editing and submission.

6.1.6 Allocate SMP/E Target and Distribution Libraries and Create DDDEF Entries

Edit and submit sample jobs DSNTJJAE and DSNTJJA2 to allocate the SMP/E target and distribution libraries and create DDDEF entries for DB2 for OS/390 JDBC. Consult the instructions in the sample jobs 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 these jobs to ensure that the mixed case in the jobs is preserved.

Expected Return Codes and Messages: DSNTJJAE should complete with a return code 4 or less. You may see SMP/E warning messages stating that a DDDEF entry was ADDED instead of REPLACED because it did not exist. These warning messages are expected when using REP instead of ADD for DDDEF entries and can be ignored. DSNTJJA2 should complete with a return code 0.

6.1.7 Allocate HFS Data Set - Optional

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

```
//ALLOCHFS  EXEC PGM=IEFBR14
//SYSPRINT DD SYSOUT=*
//*
//* NOTE: THIS HFS DATA SET MUST BE DFSMS MANAGED.
//*
//SDSNHFS  DD DSN=db2hlq.SDSNHFS,
//          DISP=(NEW,CATLG,DELETE),
//          VOL=SER=dasdvol,UNIT=dunit,
//          SPACE=(CYL,(5,1,1)),
//          DSNTYPE=HFS,STORCLAS=storclas
//*
```

where **db2hlq** is the high level data set qualifier used for this DB2, **dasdvol** is the volume serial of the DASD device where the data set will reside, **dunit** is the DASD unit type of the volume, and **storclas** is an appropriate SMS storage class defined on the your system.

6.1.8 Create the Hierarchical File System Structure

Before SMP/E can install DB2 for OS/390 JDBC you have to create the directory skeleton in your HFS.

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

  TSO MKDIR '/usr/lpp/db2' MODE(7 5 5)

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

> **Optional**
>
> If your decided to install DB2 for OS/390 JDBC into a separate HFS data set instead of installing into the root file system, mount the new HFS data set created on the DB2 for OS/390 JDBC HFS install mountpoint. (The following command must be on one line.)
>
> **TSO MOUNT FILESYSTEM('db2hlq.SDSNHFS') MOUNTPOINT('/usr/lpp/db2') TYPE(HFS)**
>
> where **db2hlq** is the high level data set qualifier used in step 6.1.7, "Allocate HFS Data Set - Optional."
>
> After mounting the new HFS dataset, it is necessary to re-apply the directory permission bits. This may be accomplished using the following TSO Command:
>
> **TSO OSHELL chmod 755 /usr/lpp/db2**

The sample REXX execs, DSNISMKD and DSNISMK2, can now be run to create the Hierarchical file system structure. Both jobs must be run with root authority.

Expected Return Codes and Messages: DSNISMKD and DSNISMK2 should complete with return code 0 and issue the following messages:

```
The DSNISMKD EXEC has begun; it will run a couple of minutes.
The DSNISMKD EXEC has completed. RtnCode.. 0

The DSNISMK2 EXEC has begun; it will run a couple of minutes.
The DSNISMK2 EXEC has completed. RtnCode.. 0
```

6.1.9 Perform SMP/E RECEIVE

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

NOTE: if you obtained DB2 for OS/390 JDBC as part of a CBPDO, you can use the RCVPDO job found in the CBPDO RIMLIB data set to RECEIVE the DB2 for OS/390 JDBC FMIDs as well as any service, HOLDDATA, or preventive service planning (PSP) information included on the CBPDO tape. For more information, refer to the documentation included with the CBPDO.

Expected Return Codes and Messages: This job should complete with return code 4 or less. NOTE: If you are running a lower level of OS/390 Version 2 Release 7, your job will end with a return code of 4, issuing a GIM50050W warning message.

6.1.10 Perform SMP/E APPLY CHECK

Edit and submit sample job DSNTJJAP to perform an SMP/E APPLY CHECK for DB2 for OS/390 JDBC. Consult the instructions in the sample job for more information.

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

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

Expected Return Codes and Messages: This job should complete with return code 4 or less. NOTE: If you are running a lower level of OS/390 Version 2 Release 7, your job will end with a return code of 4, issuing a GIM50050W warning message.

6.1.11 Perform SMP/E APPLY

Remove the CHECK operand from the sample job DSNTJJAP to perform an SMP/E APPLY for DB2 for OS/390 JDBC. Consult the instructions in the sample job for more information.

Expected Return Codes and Messages: This job should complete with return code 4 or less. Warning messages IEW2454W, IEW2650I and IEW2664I are issued. NOTE: If you are running a lower level of OS/390 Version 2 Release 7, your job will end with a return code of 4, issuing a GIM50050W warning message.

6.1.12 Environment Customization for DB2 for OS/390 JDBC

In order to make DB2 for OS/390 JDBC available to users, several OpenEdition environmental variables need to be updated to include the DB2 for OS/390 JDBC files. If desired, these changes can be made to the /**etc**/**profile** file so that they are defined for all OpenEdition users. The following environment variables must modified to include the changes indicated in bold:

- STEPLIB - This must be modified to include the DB2 for OS/390 SDSNEXIT and SDSNLOAD data sets. For example:

    export STEPLIB=**DSN510.SDSNEXIT:DSN510.SDSNLOAD**

- LIBPATH - This must be modified to include the DB2 for OS/390 JDBC /**usr**/**lpp**/**db2**/**db2510**/**lib** directory. For example:

    export LIBPATH=/usr:/usr/lib:**/usr/lpp/db2/db2510/lib**

- LD_LIBRARY_PATH - This must be modified to include the DB2 for OS/390 JDBC /**usr**/**lpp**/**db2**/**db2510**/**lib** directory. For example:

    export LD_LIBRARY_PATH=**/usr/lpp/db2/db2510/lib**

- CLASSPATH - This must be modified to include the DB2 for OS/390 JDBC class file. For example:

    export CLASSPATH=**/usr/lpp/db2/db2510/classes/db2jdbcclasses.zip**

Please refer to the DB2 for OS/390 JDBC README file, which can be found in file /**usr**/**lpp**/**db2**/**db2510**/**README**, for additional information about using DB2 for OS/390 JDBC.

6.1.13 Perform SMP/E ACCEPT CHECK

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

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

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

Expected Return Codes and Messages: This job should complete with return code 4 or less. NOTE: If you are running a lower level of OS/390 Version 2 Release 7, your job will end with a return code of 4, issuing a GIM50050W warning message.

6.1.14 Perform SMP/E ACCEPT

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

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

Expected Return Codes and Messages: This job should complete with return code 4 or less. NOTE: If you are running a lower level of OS/390 Version 2 Release 7, your job will end with a return code of 4, issuing a GIM50050W warning message.

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.

6.2 Activating DB2 for OS/390 JDBC

DB2 for OS/390 JDBC is fully operational once the SMP/E installation is complete. No further customization is required to activate this function.

Appendix A. DB2 for OS/390 JDBC Install Logic

A.1   SMP/E Modification Control Statements

```
++FUNCTION(JDB5512 ) FESN(6515605 ) REWORK(1999182 )
                                  RFDSNPFX(IBM     )
                    DESC( DB2 JDBC Support )  FILES(4)
   /*
   LICENSED MATERIALS-PROPERTY OF IBM
   5655-DB2 (C) COPYRIGHT IBM CORP 1997
   ALL RIGHTS RESERVED.
   US GOVERNMENT USERS RESTRICTED RIGHTS -
   USE, DUPLICATION OR DISCLOSURE RESTRICTED
   BY GSA ADP SCHEDULE CONTRACT WITH IBM CORP.
  */
 .
++VER(P115    ) FMID(HDB5510 ) PRE(JDB5517 )
               SUP(AQ11702  AQ18939  AQ22153  AQ24854  BQ11702
                   BQ24854  UQ22579  UQ22819  UQ27259  UQ30530 ) .
++IF FMID(JDB5517 ) REQ(UQ18719 ) .
++JCLIN                 CALLLIBS  RELFILE(1)  .
```

The SMP/E Modification Control Statements (SMPMCS) for DB2 for OS/390 JDBC are contained in the
SMPMCS file on the installation tape. The SMPMCS for each FMID in the product will be loaded to the
SMPPTS dataset, with a member name matching the FMID, when the FMID is SMP/E RECEIVEd. You
may browse or print these members using TSO/E, ISPF, or IEBGENER (or IEBPTPCH).

A.2   SMP/E JCLIN

The JCLIN for DB2 for OS/390 JDBC is contained in the RELFILEs on the installation tape. These files
will be loaded to disk by SMP/E when the product is SMP/E RECEIVEd. You may browse or print these
files using TSO/E, ISPF, or IEBGENER (or IEBPTPCH).

The files containing JCLIN are:

   FMID JDB5512: 'high-level-qualifier.JDB5512.F1(JDB5512)

Note: The high-level qualifier is the qualifier specified as the DSPREFIX in the SMP/E OPTIONS.

Appendix B. Included PTFs for DB2 for OS/390 JDBC

The following PTFs containing APAR fixes against this release of DB2 FOR OS/390 V5 JDBC SUPPORT
have been integrated into this release.

NOTE: COR-CLOSED PTFs are available for 'Corrective Service' and will be placed on the next available
ESO Tape (Expanded Service Option, formerly known as PUT Tapes). The following sub-categories for
COR-CLOSED PTFs have been provided by the Software Manufacturing Center (SMC), Poughkeepsie:

PUTyymm COR-CLOSED PTFs that are available on an ESO Tape, where 'yynn' indicates the year and
the month that the ESO tape became available.

RSUyymm RSU (Recommended Service Upgrade) is a preventive service philosophy for all S/390
products that are serviced by IBM for the OS/390 and MVS platforms. RSU reduces the volume
of PTFs customers need to apply for preventive maintenance. RSU became available at OS/390
Release 2 GA (9/96), and is identified via an additional SOURCEID of RSUyymm, where 'yymm'
indicates the year and the month the PTF was assigned this SOURCEID.

SMCREC COR-CLOSED PTFs that are not yet available on an ESO Tape, but have been researched and
recommended for installation by the Software Manufacturing Center (SMC) in Poughkeepsie.

SMCCOR COR-CLOSED PTFs that are not yet available on an ESO Tape and have no special
recommendation for installation.

```
JDB5512

 UQ22579-RSU9810    UQ22819-PUT9810    UQ27259-PUT9903
 UQ30530-SMCCOR
```

Reader's Comments

Program Directory for DB2 for OS/390 JAVA DATABASE CONNECTIVITY Version 5 Release 01, Modification Level 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.

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```
┌─ RATING SCALE ──────────────────────────────────────────────────────────────
│   very                           very        not
│ satisfied  <====================>  dissatisfied  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?

___ CBIPO
___ CBPDO
___ CustomPac
___ ServerPac
___ Independent
___ Other

Is this the first time your organization has installed this product?

___ Yes
___ No

Were the people who did the installation experienced with the installation of MVS products?

___ Yes
___ No

If yes, how many years? __

If you have any comments to make about your ratings above, or any other aspect of the product installation, please list them below:

_____

_____

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Name and Job Title

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Organization

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Thank you for your participation.

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

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