



**Program Directory for**  
**IBM DB2 UDB Server for OS/390 and z/OS**  
**DB2 Management Clients Package**

Version 07 Release 01, Modification Level 00

Program Number 5675-DB2

FMID JDB771D

for Use with  
OS/390 and z/OS

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**Note!**

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 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 or use S/390 SoftwareXcel to obtain the current "PSP Bucket".

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## 1.0 Introduction

This program directory is intended for the system programmer responsible for program installation and maintenance. It contains information concerning the material and procedures associated with the installation of DB2 Management Clients Package. This publication refers to DB2 Management Clients Package as 390 Enablement. 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 5 identifies the basic and optional program materials and documentation for 390 Enablement.
- 3.0, "Program Support" on page 9 describes the IBM support available for 390 Enablement.
- 4.0, "Program and Service Level Information" on page 10 lists the APARs (program level) and PTFs (service level) incorporated into 390 Enablement.
- 5.0, "Installation Requirements and Considerations" on page 11 identifies the resources and considerations for installing and using 390 Enablement.
- 6.0, "Installation Instructions" on page 16 provides detailed installation instructions for 390 Enablement. It also describes the procedures for activating the functions of 390 Enablement, or refers to appropriate publications.

Before installing 390 Enablement, read 3.2, "Preventive Service Planning" on page 9. 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 390 Enablement 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 390 Enablement 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 390 Enablement are included on the CBPDO tape.

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### 1.1 Workstation Clients CD-ROM

The DB2 Management Clients Package Workstation Clients CD-ROM includes:

- DB2 Installer
- Visual Explain
- DB2 Estimator

### 1.1.1 DB2 Installer

The latest version of DB2 Installer is available on the website [www.ibm.com/software/data/db2/os390/db2inst](http://www.ibm.com/software/data/db2/os390/db2inst).

DB2 Installer lets you install DB2 UDB for OS/390 Version 7 from a workstation. Whether you are installing DB2 UDB for OS/390 for the first time or are an experienced installer, you can use DB2 Installer to increase your productivity.

DB2 Installer is a “command center” from which you can install, migrate, or update 390 Enablement. With the graphical interface, you can follow an easy-to-read map through the entire installation process. In addition, you keep a graphical record of how each subsystem was defined.

You can customize your DB2 subsystem as much or as little as you need to by using DB2 Installer. You can quickly install a basic subsystem or you can customize every installation option. DB2 Installer layers installation options so that options you must specify appear on the main windows and other options are available on advanced windows.

You can use DB2 Installer in the way that best meets the needs of your site. For example, if your site uses CBPDO, you can skip the SMP/E tasks. You can also run some jobs directly on the host and some from DB2 Installer.

DB2 Installer requires one of the following:

- Windows NT Version 4.0
- OS/2 Warp Version 4.0

Note: Additional software is required to use all functions of DB2 Installer:

- TCP/IP is required if you want to run jobs or use the “Copy jobs to host” function from the workstation. You can use DB2 Installer to customize your installation jobs if you do not have TCP/IP, but you will need to use a method outside of DB2 Installer to move jobs from the workstation to MVS for execution.
- A database communications product like DB2 Connect is required if you want to use the “Get current values” function to gather current parameter settings from a subsystem you are migrating to DB2 UDB for OS/390 Version 7.

### 1.1.2 Visual Explain

The latest version of Visual Explain is available on the website <http://www.ibm.com/software/db2os390/db2ve/>.

Visual Explain is a workstation based feature of DB2 for OS/390 that displays:

- an easy-to-understand graph of the access paths of SQL statements
- catalog statistics for referenced objects from the access path graph



- a list of explainable statements from plans and packages, optionally filtered by cost or access path criteria

The graphical representation of the access path allows you to instantly distinguish operations such as a sort, parallel access or the use of one or more indexes. You can view suggestions from the graph that describe how you might improve the performance of your SQL statement.

Visual Explain allows you filter capabilities by access path of explainable SQL statements. For example, you can choose to only display statements that contain a sort or have an estimated cost greater than 500 milliseconds.

The report feature of Visual Explain allows you to view, save into a file or print the access path descriptions, statistics, SQL text and cost of any number of explainable SQL statements.

You can also EXPLAIN SQL statements dynamically and immediately, and graph their access path. You can enter the statement, have Visual Explain read it from a file, or extract it from a bound plan or package.

Also available through Visual Explain is the capability for you to browse the real time settings of DSNZPARMs (subsystem parameters) and DSNHDECP.

DB2 Visual Explain requires one of the following:

- Windows NT Version 4.0, DB2 Connect Version 5 or higher, and one of the following communications software: TCP/IP or Communications Server 5.0, or SNA Version 3 integrated SNA support in DB2 Universal Database, or
- Windows NT Version 4 .0, Distributed Database Connection Services (DDCS) Version 2 Release 4, and DB2 Client Application Enabler (CAE), or
- OS/2 Warp Version 3, DDCS for OS/2 Version 2 Release 3, DB2 for OS/2 and Communications Manager 1.11

DB2 Visual Explain subsystem parameter browser requires an activated stored procedures address space.

### 1.1.3 DB2 Estimator

DB2 Estimator is a tool that aids in the planning and analysis of Version 5, Version 6 or Version 7 DB2 for OS/390 SQL applications. With it you can generate accurate estimates of SQL, transaction and application performance, and evaluate DASD, CPU and database design alternatives. It can be used to analyze and evaluate SQL performance. It has an easy-to-use graphical user interface that can be used with or without a connection to a DB2 subsystem. Table, index, view, and SQL definition can be easily downloaded from an OS/390 DB2 system, or they can be created entirely via Estimator without the need of a DB2 connection.

DB2 Estimator is useful for making better proposals for new systems, for analyzing existing systems, and for evaluating the effects of change (extensions, data and transaction volume, modifications to index and data structures, etc.) to existing systems.

The latest version of DB2 Estimator is available on the website  
<http://www.ibm.com/software/data/db2/os390/estimate>.

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## 1.2 DB2 Connect Personal Edition Kit

DB2 Connect provides connectivity to the mainframe and midrange databases from Windows, OS/2, and Unix-based platforms. You can connect to DB2 database on AS/400, VSE, VM, MVS, and OS/390. You can also connect to non-IBM databases that comply with the Distributed Relational Database Architecture (DRDA).

DB2 Connect Personal Edition provides a direct connection from one Windows, OS/2, or Linux operating system to mainframe and midrange database. It is designed for a two-tier environment, where each client connects directly to the host. DB2 Connect Personal Edition does not accept inbound client requests for data.

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## 1.3 390 Enablement

IBM DB2 Control Center provides support to help you manage DB2 databases on an array of operating systems in your workplace. For Control Center to work with DB2 Universal Database for OS/390, a set of stored procedures must be installed at each DB2 UDB for OS/390 subsystem that you want to work with using DB2 Control Center. 390 Enablement provides these stored procedures in the form of an SMP/E installable package.

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## 1.4 390 Enablement FMID

390 Enablement consists of the following FMID:

JDB771D

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## 2.0 Program Materials

An IBM program is identified by a program number and a feature number. The program number for 390 Enablement 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 are orderable under separate feature codes, and are not required for the product to function.

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

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### 2.1 Basic Machine-Readable Material

The distribution medium for this program is 9-track magnetic tape (written at 6250 BPI), 3480 cartridge, or 4mm cartridge. The tape or cartridge contains all the programs and data needed for installation. It is installed using SMP/E, and is in SMP/E RELFILE format. See 6.0, "Installation Instructions" on page 16 for more information about how to install the program.

Figure 1 describes the tape or cartridge.

<i>Figure 1. Basic Material: Program Tape - English</i>				
Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 Tape	5881	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM
3480 Cart	5882	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM
4mm Cart	6008	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM

<i>Figure 2 (Page 1 of 2). Basic Material: Program Tape - Spanish</i>				
Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 Tape	6167	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM

Figure 2 (Page 2 of 2). Basic Material: Program Tape - Spanish

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
3480 Cart	6165	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM
4mm Cart	6166	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM

Figure 3. Basic Material: Program Tape - French

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 Tape	6164	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM
3480 Cart	6162	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM
4mm Cart	6163	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM

Figure 4. Basic Material: Program Tape - Japanese

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 Tape	6170	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM
3480 Cart	6168	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM
4mm Cart	6169	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM

Figure 5. Basic Material: Program Tape - Korean

Medium	Feature Number	Physical Volume	External Label Identification	VOLSER
6250 Tape	6173	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM
3480 Cart	6171	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM
4mm Cart	6172	1	390 Enablement	DB771D
		1	DB2 Management Clients Package Workstation Clients	CDROM
		1	DB2 Connect Personal Edition Kit	CDROM

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## 2.2 Optional Machine-Readable Material

No optional machine-readable materials are provided for 390 Enablement.

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## 2.3 Program Publications

The following sections identify the basic and optional publications for 390 Enablement.

### 2.3.1 Basic Program Publications

No basic publications are provided for 390 Enablement.

### 2.3.2 Optional Program Publications

No optional publications are provided for 390 Enablement.

---

## 2.4 Program Source Materials

No program source materials or viewable program listings are provided for 390 Enablement.

---

## 2.5 Publications Useful During Installation

The publications listed in Figure 6 may be useful during the installation of 390 Enablement. To order copies, contact your IBM representative.

*Figure 6. Publications Useful During Installation*

<b>Publication Title</b>	<b>Form Number</b>
OS/390 SMP/E User's Guide	SC28-1740
OS/390 SMP/E Commands	SC28-1805
OS/390 SMP/E Reference	SC28-1806
OS/390 SMP/E Messages and Codes	SC28-1738

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## 3.0 Program Support

This section describes the IBM support available for 390 Enablement.

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### 3.1 Program Services

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

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### 3.2 Preventive Service Planning

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

If you obtained 390 Enablement 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 390 Enablement are:

<i>Figure 7. PSP Upgrade and Subset ID</i>		
UPGRADE	SUBSET	Description
DB2710	JDB771D	DB2 Management Clients Package

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### 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 8 identifies the component IDs (COMPID) for 390 Enablement.

<i>Figure 8. Component IDs</i>			
FMID	COMPID	Component Name	RETAIN Release
JDB771D	5740XYR05	DB2 Management Clients Package	710

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## **4.0 Program and Service Level Information**

This section identifies the program and any relevant service levels of 390 Enablement. The program level refers to the APAR fixes incorporated into the program. The service level refers to the PTFs integrated.

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### **4.1 Program Level Information**

No APARs have been incorporated into 390 Enablement.

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### **4.2 Service Level Information**

No PTFs against this release of 390 Enablement have been incorporated into the product tape.



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## 5.0 Installation Requirements and Considerations

The following sections identify the system requirements for installing and activating 390 Enablement. 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.

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### 5.1 Driving System Requirements

This section describes the environment of the driving system required to install 390 Enablement.

#### 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 9. Driving System Software Requirements*

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

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## 5.2 Target System Requirements

This section describes the environment of the target system required to install and use 390 Enablement.

390 Enablement installs in the DBS (P115) SREL.

### 5.2.1 Machine Requirements

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

### 5.2.2 Programming Requirements

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

*Figure 10. Mandatory Requisites*

Program Number	Product Name and Minimum VRM/Service Level
5675-DB2	IBM Database 2 Universal Database Server for OS/390 and z/OS

**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.

To enable all 390 functionality of Control Center, several DB2 stored procedures must be installed and configured as described in *DB2 for OS/390 Version 7 Installation Guide, GC26-9936*. These stored procedures must run in a WLM environment. See *DB2 for OS/390 Version 7 Administration Guide* for information about setting up WLM and Resource Services (RRS) to run DB2 stored procedures. The *DB2 for OS/390 Version 7 Administration Guide* is contained in the *DB2 UDB V7 Library Collection Kit, LK3T-6999*.

Control Center provides the Generate DDL action to generate SQL statements that you can use to recreate certain database objects (databases, distinct types, schemas, stored procedures, table spaces, tables, and user defined functions). For the Generate DDL function to be available in Control Center, the ADB2RE stored procedure of DB2 Administration tool for OS/390 Version 2 must be installed on your system.

See IBM Redbook *Getting Started with DB2 Stored Procedures, SG24-4693* for useful information to configure WLM and RSS to support DB2 stored procedures.

**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.

390 Enablement has no toleration/coexistence requisites.

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

390 Enablement has no negative requisites.

## 5.2.3 DASD Storage Requirements

390 Enablement libraries can reside on 3380 or 3390 DASD.

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

<i>Figure 11. Total DASD Space Required by 390 Enablement</i>	
<b>Library Type</b>	<b>Total Space Required</b>
Target	10 blocks
Distribution	10 blocks

### Notes:

1. IBM recommends use of system determined block sizes for efficient DASD utilization for all non-RECFM U data sets. For RECFM U data sets, IBM recommends a block size of 32760, which is the most efficient from a performance and DASD utilization perspective.
2. Abbreviations used for the data set type are:
  - U** Unique data set, allocated by this product and used only by this product. 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, allocated by this product and used by this product and others. 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.

3. 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

4. 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 LNKST
- 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 required to install 390 Enablement. The storage requirements of 390 Enablement must be added to the storage required by other programs having data in the same library or path.

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

*Figure 12. Storage Requirements for 390 Enablement 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
SDSNBASE	Sample	any	E	PDS	FB	80	3	5
SDSNMACS	Macro	any	E	PDS	FB	80	4	5
SDSNLOAD	Module	any	E	PDS	U	0	8	5
SDSNDBRM	Macro	any	E	PDS	FB	80	3	5

Figure 13. Storage Requirements for 390 Enablement 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	E	PDS	FB	80	3	5
ADSNMACS	E	PDS	FB	80	4	5
ADSNLOAD	E	PDS	U	0	8	5

---

## 5.3 FMIDs Deleted

Installing 390 Enablement 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 390 Enablement 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.

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## 5.4 Special Considerations

390 Enablement has no special considerations for the target system.

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## 6.0 Installation Instructions

This chapter describes the installation method and the step-by-step procedures to install and to activate the functions of 390 Enablement.

Please note the following:

- If you want to install 390 Enablement into its own SMP/E environment, consult the SMP/E manuals for instructions on creating and initializing the SMP/CSI 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 390 Enablement

#### 6.1.1 SMP/E Considerations for Installing 390 Enablement

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

#### 6.1.2 SMP/E Options Subentry Values

The recommended values for some SMP/E CSI subentries are shown in Figure 14. 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 14. SMP/E Options Subentry Values</i>		
<b>SUB-ENTRY</b>	<b>Value</b>	<b>Comment</b>
DSSPACE	200,200,500	3390 DASD Tracks
PEMAX	SMP/E Default	IBM recommends using the SMP/E default for PEMAX.

### 6.1.3 SMP/E CALLLIBS Processing

390 Enablement uses the CALLLIBS function provided in SMP/E to resolve external references during installation. When 390 Enablement is installed, ensure that DDDEFs exist for the following libraries:

- SCEELKED
- CSSLIB

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

### 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 390 Enablement:

<i>Figure 15. Sample Installation Jobs</i>			
Job Name	Job Type	Description	RELFILE
DSNCRECV	RECEIVE	Sample RECEIVE job	IBM.JDB771D.F2
DSNCAPLY	APPLY	Sample APPLY job	IBM.JDB771D.F2
DSNCACEP	ACCEPT	Sample ACCEPT job	IBM.JDB771D.F2

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.JDB771D.F2,UNIT=tunit,VOL=SER=DB771D,
//          LABEL=(3,SL),DISP=(OLD,KEEP)
//OUT      DD DSN=jcl-library-name,
//          DISP=(NEW,CATLG,DELETE),
//          VOL=SER=dasdvol,UNIT=SYSALLDA,
//          DCB=*.STEP1.IN,SPACE=(TRK,(15,5,5))
//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.

You can also access the sample installation jobs by performing an SMP/E RECEIVE for FMID JDB771D, and then copying the jobs from data set **hlq.IBM.JDB771D.F2** to a work data set for editing and submission. Note: "hlq" is the high-level qualifier specified as the DSPPREFIX value in the SMPTLIB DDDEF or the OPTIONS entry of the global zone.

## 6.1.5 Perform SMP/E RECEIVE

Edit and submit sample job DSNCRECV to perform the SMP/E RECEIVE for 390 Enablement. Consult the instructions in the sample job for more information.

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

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

## 6.1.6 Perform SMP/E APPLY

Edit and submit sample job DSNCAPLY to perform an SMP/E APPLY CHECK for 390 Enablement. Consult the instructions in the sample job for more information.

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

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

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

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

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

## 6.1.7 Perform SMP/E ACCEPT

Edit and submit sample job DSNCACEP to perform an SMP/E ACCEPT CHECK for 390 Enablement. Consult the instructions in the sample job for more information.

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

Before using SMP/E to load new distribution libraries, it is recommended that you set the ACCJCLIN indicator in the distribution zone. This will cause entries produced from JCLIN to be saved in the



distribution zone whenever a SYSMOD containing inline JCLIN is ACCEPTed. For more information on the ACCJCLIN indicator, see the description of inline JCLIN in the SMP/E manuals.

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

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

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

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

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

---

## 6.2 Activating 390 Enablement

Before you can activate 390 Enablement, the functional requisites identified in 5.2.2.2, “Functional Requisites” on page 12, must first be installed on your system.

IBM DB2 Workstation Control Center provides support to help you manage DB2 databases on an array of operating systems in your workplace. A set of stored procedures must be installed at each DB2 UDB for OS/390 subsystem that you want to work with using Control Center. 390 Enablement provides these stored procedures in the form of an SMP/E installable package.

IBM provides two sample jobs for you to use to define the stored procedures that are needed by the workstation Control Center: DSNTIJCC and DSNTIJSG. When SMP/E applies the 390 Enablement installation package, DSNTIJCC is added to the DB2 target data set SDSNSAMP. Sample job DSNTIJSG is not shipped with 390 Enablement. It is part of the base feature of DB2 for OS/390 and is also a member of data set SDSNSAMP.

Run sample job DSNTIJSG to register and bind DB2 stored procedures DSNUTILS and DSNWZP to the DB2 system. These sample procedures are required by Control Center.

After you have run job DSNTIJSG, modify sample procedure DSNTIJCC to add a job card for your OS/390 system. Also, tailor it for your environment by updating the following strings with values that are correct for your installation:

### **SYSTEM(DSN)**

Replace DSN with the DB2 subsystem identifier.

**PLAN(DSNTIA!!)**

Replace DSNTIA!! with the DSNTIAD plan name that was bound during installation by job SDSNSAMP(DSNTIJTM).

**LIBRARY(DSN!!0.RUNLIB.LOAD)**

Replace DSN!!0 with the user-defined prefix that was used during installation by DSNTINST CLIST.

**LIBRARY(DSN!!0.SDSNDBRM)**

Replace DSN!!0 with the user-defined prefix that was used during installation by DSNTINST CLIST.

Finally, run sample procedure DSNTIJCC to register the 390 Enablement stored procedures to your DB2 subsystem and to bind the packages required by these stored procedures to DB2. 390 Enablement provides the following stored procedures:

<b>DSNACCAV</b>	Partition information.
<b>DSNACCDD</b>	Delete data set.
<b>DSNACCDE</b>	Data set existence check.
<b>DSNACCDL</b>	List data set.
<b>DSNACCDR</b>	Rename data set.
<b>DSNACCDS</b>	Create, append, replace PS data set or PDSE member.
<b>DSNACCMD</b>	DB2 command result set server.
<b>DSNACCMG</b>	SQLCA message formatter.
<b>DSNACCQC</b>	Query catalog result set server.

Consult the *DB2 for UDB OS/390 Installation Guide*, GC26-9936, for more information about the jobs that were run when DB2 was installed.

To run the 390 Enablement installation job, you must have a user ID with authorization to bind the application packages and to update the SYSIBM.SYSROUTINES catalog table. A user ID with SYSADM authorization satisfies this requirement.

See step GRNTS390 in sample job DSNTIJCC for an example of how to set minimum privileges to run Control Center using secondary authorizations tied to group CCUSER. This example step is provided as a comment in DSNTIJCC. The privileges assigned in this example will allow the Control Center dialogs to be displayed. Additional privileges may be required to start actions from the dialogs.

Refer to Figure 16 on page 21 for an overview of the steps to follow to activate 390 Enablement.

## 6.2.1 Activate 390 Enablement Detail Steps

Figure 16. Detail of 390 Enablement activation steps.

STEP	DESCRIPTION	JOB or COMMAND
1	Edit and run job to define DB2 stored procedures DSNUTILS and DSNWZP. Procedure DSNUTILS runs in a WLM managed address space. For information about WLM consult "MVS/ESA: Workload Management". For information about configuring and using WLM to run DB2 stored procedures, consult "DB2 UDB for OS/390 V6 Administration Guide".	DSNTIJSG
2	Edit and run job to define the 390 Enablement DB2 stored procedures. The 390 Enablement stored procedures run in a WLM managed address space.	DSNTIJCC
3	Stop the WLM-established stored procedure address space: VARY WLM,APPLENV=<name>,QUIESCE where <name> is the name of the WLM application environment.	MVS Console Command
4	Start the WLM-established stored procedure address space: VARY WLM,APPLENV=<name>,RESUME where <name> is the name of the WLM application environment.	MVS Console Command
5	Stop the DB2-established stored procedure address space: -STOP PROCEDURE(*.*)	DB2 Command
6	Start the DB2-established stored procedure address space: -START PROCEDURE(*.*)	DB2 Command

Perform the following Control Center tasks to verify setup of the 390 stored procedure environment for Control Center:

- Select an MVS subsystem and double-click on the buffer pool object. A list of buffer pools for the subsystem should appear in the list pane. If a buffer pool object is not present under the MVS subsystem object, Control Center has determined that the 390 Enablement stored procedures are not known to DB2. In this case, 390 Enablement is not installed and activated.
- Select an MVS subsystem and click once on the right mouse button. Choose the 'Locate' choice. From the Locate window, specify object type 'Indexes' and object state filter of 'Runstats recommended.' Select OK. You should get back a list of indexes for which Runstats is recommended. Select Help for more information.

- Select an MVS subsystem. Use the right mouse button to select 'Display Subsystem Parameters.' You should get back a list of install panels and corresponding parameters and values.
- Select Catalog Tables object. Use right mouse button to select Query. Use the dropdown to select 'Without Stospace Information.' Select OK.
- Expand Databases object. Expand database DSNDDB06. Select Table Spaces object. Choose any table space and use the right mouse button to select 'Report...'. A valid report summary should be returned.
- Start a terminal emulator on your workstation and log on to a TSO/E session. Create and catalog a DUMMY sequential data set or member of a partitioned data set. You will use this data set to test the data set functions of the 390 Enablement stored procedures using Control Center. You can copy and rename an existing data set to create the DUMMY data set.
- From Control Center, select the Data Sets folder. When prompted, enter a filter that will cause the DUMMY data set or the PDS that contains the DUMMY member to be displayed.
- Select the DUMMY data set or member in the details view, and use the right mouse button to select the 'Rename' action. Rename the DUMMY data set to DUMMY2. Refresh the details view and verify that DUMMY2 now appears in the list.
- Expand the Utility Objects folder, and then select the Data Set Templates folder. Select a template in the details view, and use the right mouse button to choose the 'Show Statements' action. From the Show Utility Statements dialog select the 'Export' button. In the Export to Data Set dialog, enter Name and Member values to point to the DUMMY2 data set. Select the OK button. You should be presented with a dialog that asks whether you wish to append to or replace the data set. Select APPEND or REPLACE to continue.
- Select the Data Set folder once again, and enter filter criteria to display the DUMMY2 data set. Use the right mouse button to select the delete action for the DUMMY2 data set. Refresh the details view to confirm that the data set has been deleted.

## Reader's Comments

### Program Directory for DB2 Management Clients Package

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