SERENA

SERENA®
StarTool™ FDM 7.7.1

DB2 Option

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Welcome to the StarTool FDM DB2 Option

About This Book

This document describes StarTool® FDM (File and Data Manager) Version7.7.1, a product of Serena® Software, Inc. It discusses the features, functions, installation, customization, and use of the StarTool FDM DB2 Option, a separately licensed feature of StarTool FDM.

StarTool FDM StarTool FDM is a multi-purpose file and data management utility for IBM® mainframe systems. It provides an ISPF-based, menu-driven, integrated interface to a variety of editors and data management tools for PDS, PDSE, VSAM, direct-access, IMS, and DB2 files. A TSO command-line interface is also supported, as well as bulk file processing in batch mode. Customizable option tables and exits make StarTool FDM highly flexible and adaptable to user needs.

DB2 Option The DB2 Option extends the file and data management functionality of StarTool FDM to tables, columns, and rows in IBM DB2 relational databases.

Audience This document is intended for use by IBM mainframe systems programmers, application programmers, and DB2 database administrators already familiar with both the StarTool FDM base product and the functions and uses of IBM's DB2 database management system.

Before You Begin

New Information Change bars in the left margin (shown at left) identify substantive changes to this publication since StarTool FDM Version 7.6.3.

Corrections and Technical Support The Readme file on the product media contains updates and corrections to this manual issued after the publication date. It also provides contact information for Serena Customer Support.

Conventions

Terminology Throughout this document:

- z/OS refers to the z/OS™ and OS/390® IBM®operating systems.

■ StarTool FDM may also be referenced as StarTool or FDM.

Typographic Conventions

The following textual conventions are used throughout this document to highlight special information:

Convention	Meaning
Bold	Panel title or field name.
Italics	Introduces new terms, sets off important information, or marks document titles.
UPPERCASE	Indicates keys or key combinations; for example, the ENTER key.
Bright blue	Clickable cross-reference or active hyperlink.
`Monospaced`	JCL, source code, or message text. Also used for member names, file names, and commands if these are not clear from context.
`MONOSPACED UPPERCASE`	Required value or literal in code or JCL parameter.

`monospaced lowercase`	Pattern for a field value or parameter you specify. Number of characters is significant. Upper-case characters are literals. Lower-case characters are placeholders that indicate data type, where:
	  y = year
	  m = month
	  d = day
	  a = alphanumeric
	  n = numeric
	  x = other or mixed
	  ? = one-character wild card
	  * = *n*-character wild card
	Punctuation other than wild cards must be reproduced in the position shown.

Examples: ■ `yyyy/mm/dd` ■ `C'aa'` ■ `B'nn'` ■ `D'nn'` ■ `X'nn'`	*Examples:* ■ International calendar date with four-character year, two-character month, and two-character day separated by required slashes, such as `2010/01/01`. ■ Alphanumeric character string in user-readable form, two characters long, such as `C'K9'` ■ Binary number, two digits long, where n = 0 to 1, such as `B'10'` ■ Decimal number, two digits long, where n = 0 to 9, such as `D'10'` ■ Hexadecimal number, two digits long, where n = 0 to F, such as `X'C1'`
`monospaced italics`	Descriptive placeholder for value or parameter you specify, but not a pattern; for example, *filename*.
Square braces `[ ]`	Optional parameter or choice of values. May be nested.
Vertical bar `|`	Inside braces, a vertical bar separates mutually exclusive parameter choices or values.
Ellipsis `. . .`	Optional repetitions of a pattern in a list.

Convention	Meaning
Greater-than symbol >	Separates items in a chain of menu or command selections on a GUI client. For example, **Start > All Programs > Serena > *product_name*.**

Documentation

A complete set of electronic product documentation for StarTool FDM is available on the product distribution media. You can also download the complete documentation suite from the Serena Customer Support Web site at http://www.serena.com/support/.

Printed installation guides and *Quick Reference* documents are shipped with the physical product media.

Related Publications

Available StarTool FDM publications include:

Title	Description
Serena StarTool FDM Installation Guide	System requirements, installation instructions, and configuration information for StarTool FDM.
Serena SER10TY User's Guide	Installation information for SER10TY licensing software and instructions on how to apply license key SERtificates.
Serena StarTool FDM Quick Reference	Overview of StarTool FDM commands, with syntax details for frequently used functions. Includes PEDIT and StarBat subcommands.
Serena StarTool FDM User's Guide	StarTool FDM concepts and facilities, with instructions for using the ISPF-based menu-driven interface.
Serena StarTool FDM Command Reference	TSO command-line syntax and parameter reference, organized alphabetically. Interactive subcommands included for major functions.
Serena StarTool FDM System Services	Advanced reference to operating system calls used by StarTool FDM.
Serena StarTool FDM StarTool FDM StarBat Option	Batch-mode interface for bulk changes to data sets. StarTool FDM functions invoked by JCL procedures.
Serena StarTool FDM DB2 Option	StarTool FDM data management functions for DB2 relational database tables, columns, and rows, with SQL processing support.
Serena StarTool FDM IMS Option	StarTool FDM data management functions for IMS hierarchical database files and structures.
Serena StarTool FDM Extended Compare Option	Integrated file comparison utility based on Serena Comparex. Data file versus text file comparison logic.
Serena StarTool FDM Messages	Consolidated message reference for base product and all licensed product options, with error recovery recommendations.

Accessing the Electronic Documentation

Electronic documentation is stored two different locations on the product distribution media. The Readme file, the Master License and Services Agreement (MLSA), and the *StarTool FDM Installation Guide* are located in the Documentation folder in the root directory. They can be accessed without installing the product.

The PC client installer unloads the full document set from the binary product files to the location you designate on your client PC during installation. The Readme file is an HTML document that displays in your Web browser. All other documentation is provided in Adobe's Portable Document Format (PDF).

Using the PDF Documentation

To view PDF files, use Adobe® Reader®, which is freely available from Adobe on the World Wide Web at *http://www.adobe.com*. Reader Version 7.0.5 or higher is recommended.

TIP Be sure to download the *full version* of Reader. The more basic version does not include the cross-document search feature.

This section highlights some of the main Reader features. For more detailed information, see the Adobe Reader online help system.

The PDF manuals include the following features:

- **Bookmarks.** All of the online manuals contain predefined bookmarks that make it easy for you to quickly jump to a specific topic. By default, the bookmarks appear to the left of each online manual.

- **Links.** Cross-reference links within an online manual enable you to jump to other sections within the manual and to other manuals with a single mouse click. These links appear in blue.

- **Printing.** While viewing a manual, you can print the current page, a range of pages, or the entire manual.

- **Advanced search.** Starting with Version 6, Adobe Reader includes an advanced search feature that enables you to search across multiple PDF files in a specified directory. (This is in addition to using any search index created by Adobe Catalog—see step 3 below.)

To search across multiple PDF documents at once, perform the following steps (requires Adobe Reader Version 6 or higher):

1   In Adobe Reader, select Edit > Search (or press CTRL+F).

2   In the text box, enter the word or phrase for which you want to search.

3   Select the **All PDF Documents in** option, and browse to select the folder in which you want to search. (If you have a document open that has an Adobe Catalog index attached, you can leave the **In the index named...** option selected to search across all the manuals in the index.)

4   Optionally, select one or more of the additional search options, such as **Whole words only** and **Case-Sensitive**.

5 Click the **Search** button.

> **NOTE** Optionally, you can click the **Use Advanced Search Options** link near the lower right corner of the application window to enable additional, more powerful search options. (If this link says **Use Basic Search Options** instead, the advanced options are already enabled.) For details, see Adobe Reader's online help.

Chapter 1

DB2 Option Overview

The DB2 Option extends the file and data management functionality of StarTool FDM to tables, columns, and rows in IBM DB2 relational databases. This facility lets application programmers and DB2 database administrators:

■ Browse and edit DB2 tables

■ Develop a list of DB2 tables from user criteria

■ Create, alter, or drop DB2 tables

■ Grant or revoke authority for a particular DB2 function

■ Load and unload DB2 tables

■ Copy between DB2 tables

Each major function in the DB2 Option supports multiple levels of database granularity. Users can work with such DB2 entities as databases, plans, collections, and packages, as well as tables, views, columns, and rows.

Starting the DB2 Option

To access the DB2 Option from the StarTool FDM **Primary Options** menu, enter **DB** at the **Option ==>** prompt:

```
------------------ StarTool FDM Version 7.6.1 Primary Options ---------------
     --
 OPTION  ===> DB

 Current data set ==> 'STR01.FDM.LOAD'
                                                            More:     +
 Basic Applications:
   0  Parameters  - Specify StarTool parameters           USERID   - USER01
   1  Browse      - Display source data or output listings PREFIX   - USER01
   2  Edit        - Create or change source data           TIME     - 14:47
   3  Utilities   - Perform utility functions              DATE     - 2006/07/08
   4  Pedit       - SuperEdit Option to edit in parallel   JUL DATE - 2006.189
   5  Batchjcl    - Create a background StarTool job        TERMINAL - 3278
   A  Advanced    - Menu of advanced applications           LOG PROC - ISPFPROC
   S  Status      - Function status and selection menu       MVSID    - PZOS
  DB  DB2         - Menu of DB2 services                     APPLID   - ISR
  IM  IMS         - Menu of IMS services                  SuperEdit - Enabled
  I#  ISPF        - Stack an ISPF session (like I3.4)       LEVEL    - PDSE761
  IN  Index       - Display StarTool tutorial index
   N  New         - Summarize changes for this release
   X  Exit        - Terminate StarTool
```

The **DB** option takes you to the **Menu of DB2 Services**, which provides high-level access to all capabilities of the StarTool FDM DB2 Option.

NOTE If the DB2 Option has not been installed, the **DB** option will not appear on the StarTool FDM **Primary Options** menu. See the *StarTool FDM Installation Guide* for information on installing the DB2 Option.

Navigating the DB2 Option

Like StarTool FDM generally, the DB2 Option employs a menu-driven ISPF interface with menu bypass shortcuts. With the exception of PF6, which is used to confirm requests, the interface complies with Common User Access (CUA) standards for panels and function keys.

The primary facilities of the DB2 Option appear in the **Menu of DB2 Services**:

```
----------------------- StarTool Menu of DB2 Services -----------------------
   -
OPTION  ===>


                                          Current Subsys-id  ===> DB2A

   1  -  DB2List        - Create a list of DB2 tables            Inactive
   2  -  DB2Table       - Modifying DB2 table for EDIT, VIEW, etc   Inactive
   3  -  SQL            - Adhoc DB2 query (non-SELECT) statement
   4  -  Grant/Revoke   - Grant or Revoke privileges
   5  -  Table Services - Create, Alter, Drop, etc. tables
   6  -  DB2SYST        - View system tables
   7  -  EDIT/VIEW      - Return to EDIT/VIEW if it is active       Inactive


  Note:  When selecting options 1 or 2 (DB2List or DB2Table) if the
         table status is "Current" or "Inactive" you are prompted
         for a new list. If the table status is "Active" or "Pending"
         you are returned to that function.
```

The available facilities are:

- *DB2List* — Create or work with a list of DB2 tables

- *DB2Table* — Select a single DB2 table for processing

- *SQL* — Execute an ad hoc SQL statement (SELECT statements excluded)

- *Grant/Revoke* — Grant or revoke access privileges for DB2 entities

- *Table Services* — Create a new table or perform table, column, or row operations on an existing table

- *DB2SYST* — Retrieve DB2 system information about a table (indexes, plans, packages)

- *EDIT/VIEW* — Resume an active PEDIT/PVIEW session

Differences Between DB2List and DB2Table

The DB2List and DB2Table functions differ primarily in the way they present tables for selection and processing.

- ■ **DB2List —** Creates a user-defined and sortable list of DB2 tables. From this list, you can work with one or more DB2 tables by entering line commands in the **CMD** column next to each table name. Line commands can request tasks specific to table lists — such a displaying a consolidated view of list panels or repeating a previous line command — or they may request nearly any table processing function supported by the DB2 Option. The most commonly used line command is S (Select), which selects the table for column processing and displays the **DB2 Column List** panel.

- ■ **DB2Table** — Presents a prompt screen that lets you select one DB2 table by name for processing. Certain commands such as Edit, View, and Print can be entered as a field command in the **Service** field of the DB2Table prompt screen. Leave the **Service** field blank to select the table for column processing and display the **DB2 Column List** panel.

Both functions support DB2 long table names (128 bytes).

Many line commands available through DB2List can also be invoked from DB2Table or directly from a menu. In this way, the DB2 Option gives you three ways to work:

- ■ Start with a list of tables, then request a named function for a table chosen from the list.

- ■ Start with a menu of listed functions, then supply a table name for the function selected.

- ■ Start with a single, named table, then either supply a named function or default to column processing.

See "Table, Column, and Row Commands" in this chapter for a complete list of commands supported by the DB2 Option.

Task Switching

You can temporarily suspend your work with a table list or table edit/view session, perform some other task in the DB2 Option, then resume the suspended work where you left off.

The **Menu of DB2 Services** reports the current activity status of the DB2List facility, the DB2Table facility, and the PEDIT Edit/View facility for the currently selected DB2 subsystem. The DB2 subsystem is identified in the top right corner of the menu. If you select an option from this menu for a task that is currently active, that task automatically resumes at the panel where you left off. Intervening panels are bypassed.

If you do not wish to continue working where you left off, press PF3 to "pop up" to the main panel for the function. You can then select a new table, create a new table list, or start a new edit/view session.

Table List Task Switching

Table lists remain active in DB2List by default when you exit the facility with PF3. You don't need to issue any special commands to suspend or resume work in an active table list. The fastest way to switch between tasks is to use PF3 to suspend a task and the **Menu of DB2 Services** to resume it.

Edit/View Task Switching

By default, PEDIT terminates an edit or viewing session when you press PF3. To suspend an edit/view session in PEDIT, enter the Log command at the **Command ===>** prompt in any PEDIT panel before using PF3 to exit. Use the **Menu of DB2 Services** to resume it.

Multiple Printing Options

The DB2 Option provides three different printing options, each with its own commands.

- Print a hard copy of the current screen using the ISPF `Print` command.

- Print the contents of a table list or column list using the MEMLIST `Prin` command.

- Selectively print the contents of a DB2 table using the `Tprt` (Table Print) command.

Confirming DB2 Requests

All DB2 Option commands that alter data present a confirmation panel before executing the requested function. This ensures that you do not inadvertently perform an operation you did not intend. Press PF6 to confirm the request. Press PF3 to cancel the request and return to the previous panel.

```
------------------------- DB2: Copy Confirmation  --------------------------
 COMMAND ===>

  Press PF6 to confirm that you want to update table ORDER1
  Enter END (PF3) to abandon this copy request

   You are requesting StarTool FDM to copy table ORDER
   into table ORDER1.

   You may alter the following SQL statement before FDM sends it to DB2:

   INSERT INTO DB2A.ORDER1 SELECT * FROM DB2A.ORDER WHERE ORDER_NUMBER IS > 120
```

Some confirmation panels allow you to modify your request before sending it to DB2 for processing. For example, suppose you use the Copy command to copy rows from the ORDER table into table ORDER1. When you enter your request, the **Copy Confirmation** panel displays, asking that you verify the action you requested. The SQL statement generated by your request appears at the bottom of this panel. Edit it in the confirmation panel before you press PF6 to confirm the request.

Errors in DB2 Requests

When you confirm a transaction request with PF6, the DB2 Option submits a generated SQL statement — and any edits you make to it — to DB2 for validation. If an error is detected, the DB2 error message is passed through to your display in a pop-up window.

For example:

```
-------------------------- DB2 Select Statement Validation ----------------
     --
 COMMAND ===>
 When ready press PF6 to continue with VIEW
 Audit option ===> NO  (Yes/No) to audit to a file (ignored for EXT or PRT)
 SELECT  PART_NUMBER  ,PART_NAME  ,SUPPLIER_NUMBER  ,NUM_IN_STOCK
     ,ORDER_NUMBER


 FROM USER120.PARTS            Limit ===> 10000      (max rows to retrieve)
 WHERE
 PART_NAME LIKT 'M%'


 ORDER BY ===>

    DSNT408I SQLCODE = -104, ERROR:  ILLEGAL SYMBOL LIKT VALID SYMBOLS ARE
            YEARS, DAYS, MINUTES, SECONDS, ETC.
    DSNT418I SQLSTATE   = 37501 SQLSTATE RETURN CODE
    DSNT415I SQLERRP    = DSNHSM2A SQL PROCEDURE DETECTING ERROR
    DSNT416I SQLERRD    = 0  0  0  -1  123  0 SQL DIAGNOSTIC INFORMATION
    DSNT416I SQLERRD    = X'00000000'  X'00000000'  X'00000000'  X'FFFFFFFF'
```

The full text of the error message is written to the system log.

To clear the error message, press PF3.

Correct the SQL statement in the confirmation panel and press PF6 to retry your request.
Press PF3 a second time to cancel your request and return to the previous screen.

Getting Help

Help is available for most panels in the DB2 Option by pressing PF1 at the **Command
===>** or **Option ===>** prompt. Press PF1 in any data entry field for context-sensitive
help about that field.

At panels that support line commands, you can request help for line command options by
typing the M (Menu), O (Options), or (?) (Help) line commands in the **CMD** or **OPT**
column.

Table, Column, and Row Commands

Because the DB2 Option provides an ISPF interface to all functionality, you can issue
standard ISPF commands at any ISPF screen.

In addition, the DB2 Option supports most common DB2 table, column, and row
operations as line commands in the DB2List utility, as entries in the **Service** field of the
DB2Table prompt screen, as an option in the **Menu of DB2 Services**, or as commands at
the **Command ==>** or **Option ==>** prompt of a column list or within a utility like PVIEW
or PEDIT. Many commands are accessible multiple ways.

The following table summarizes the commands provided the DB2 Option.

Command	Description	DB2List Line Cmd	Menu Option or DB2Table Service	Command Prompt
Alias	Create an alias for a table.	`alia`	5 - Table Services	—
Alter	Add a column, index, or primary or foreign keys to a table; add or drop validation procedures, audit attributes, data capture options, constraints, or "restrict on drop".	—	5 - Table Services	—
Comment	Add a comment to a table.	`comm`	5 - Table Services	—
Copy	Copy rows from one table to another using SQL.	`copy`	5 - Table Services	—
Count	Count of the number of rows in a table.	`coun`	—	—
Create Index	Create a new index over a table.	—	5 - Table Services	—
Create Table	Create a new table.	—	5 - Table Services	—
Create View	Create a new view over a table.	—	5 - Table Services	—
Delete Rows	Delete selected rows from a table using SQL.	—	5 - Table Services	—
Display	Display all data about one table on a consolidated screen.	`dis`	—	—
Drop	Drop a table or view from a database.	`drop`	5 - Table Services	—
Edit	Edit a table in PEDIT.	`edit`	2 - DB2Table, `Edit` in **Service**	`edit`
Extract	Extract data from a table to a sequential file for LOAD.	`extr`	2 - DB2Table, `Extract` in **Service** field	`extract`
Grant	Grant privileges for a table.	`gran`	4 - Grant/Revoke	—
Info	Display all data about one table on a consolidated screen.	`info`	—	—
Label	Add a label to a table.	`labl`	5 - Table Services	—

Command	Description	DB2List Line Cmd	Menu Option or DB2Table Service	Command Prompt
Load	Load a table from a prevously extracted file using the DSNUTILB utility.	`load`	5 - Table Services	`load`
Model	Create a new table using this one as a model.	`modl`	5 - Table Services	`modl`
Print MEMLIST	Print the current table list.	`prin`	1 - DB2List or 2 - DB2Table	—
Print Screen	Print a hard copy of the screen.	—	**Command ==>** prompt of any ISPF panel.	`print`
Print Table	Selectively print table columns.	`tprt, pr`	2 - DB2Table, PRINT in **Service** field	`tprt, pr`
Remark	Add a remark to a table.	`rem`	5 - Table Services	—
Rename	Rename a table.	`ren`	5 - Table Services	—
Revoke	Revoke privileges for a table.	`revo`	4 - Grant/Revoke	—
Select	Select a table for processing.	`s`	2 - DB2Table, blank in **Service**	—
Selective Copy	Selectively copy columns from one table to another using SQL.	`selc`	2 - DB2Table, SELC in **Service**	`selc`
SQL	Process SQL statements.	—	3 - SQL	—
System Tables	View system tables (indexes, keys, packages, plans, relations, table spaces) associated with a DB2 table.	`sys`	6 - DB2SYST	—
Utility	Display menu of utility commands available for table.	`ut`	—	`ut`
View	View a table in PVIEW.	`view`	2 - DB2Table, VIEW in **Service**	`view`

Exiting the DB2 Option

Use PF3 to exit from any function within the DB2 Option. You will "pop up" to the previous menu. Successive PF3 commands will return you to the **Menu of DB2 Services**.

Alternatively, enter the `Exit` command at any **Command ==>** or **Option ==>** prompt to return to the **Menu of DB2 Services**. This command skips any intervening panels on

the way to the top-level menu. Enter X (the Option Exit command) at the **Menu of DB2 Services** to completely exit the DB2 Option and terminate DB2 processing. You will return to the StarTool FDM **Primary Options** menu.

> **NOTE** Active table lists or column lists are not saved automatically on exit. To save a table list or column list to an ISPF file for later reuse, use the Save command before exiting the DB2 Option.

Chapter 2
Table List Processing with DB2List

The DB2List facility allows you to work with a list of DB2 tables as a group in a MEMLIST. You can create a table list, save it, recall it for reuse, sort it, print it, and perform other MEMLIST operations on it. User-defined selection criteria determine the contents of the list.

From a table list, you can issue line commands to request DB2 table, column, or row operations on one or more DB2 tables. You can also initiate editing sessions in PEDIT, print table contents, and obtain various table statistics.

This chapter discusses the following topics for DB2List:

- Starting DB2List

- Operations on Table Lists

- Operations on Table List Entries

- Operations on DB2 Tables

- Menu-Driven DB2List Operations

Starting DB2List

To start the DB2List facility, go to the **Menu of DB2 Services** and select option **1 - DB2List**. One of the following two screens displays.

- If you are starting a DB2List session and the status of DB2List is **Inactive** or **Current** (as shown on the **Menu of DB2 Services**), the panel **Create a List of DB2 Tables** displays. Use this panel to:
  - Create a new table list
  - Add tables to an existing table list
  - Recall a saved table list

- If you are resuming a DB2List session in **Active** or **Pending** status (as shown on the **Menu of DB2 Services**), the list creation panel is skipped and the active or pending table list displays in the **DB2 Table List** panel. Use this panel to:
  - Save a table list to an ISPF file
  - Sort a table list
  - Print a table list
  - Issue line commands in a table list
  - Select one or more tables for processing

If the DB2 Table List panel displays but you do not wish to continue working where you left off, press PF3 to "pop up" to the panel Create a List of DB2 Tables.

Operations on Table Lists

From DB2List, you can work either with the table list itself or with individual DB2 tables selected from the list. The follow table list operations can be performed on entire table lists:

- Create a new table list

- Add tables to an existing table list

- Save a table list to an ISPF file

- Recall a saved table list

- Sort a table list

- Print a table list

- Issue line commands in a table list

- Select one or more tables for processing

Creating a New Table List

Create a new table list in DB2List using the the panel **Create a List of DB2 Tables**.

```
---------------------- DB2: Create a List of DB2 Tables ---------------------

  Source for display    ===> D(type-in, "D":"DB2" or "T":"TABLE")

  Subsystem name        ===> DB2A(Current Subsystem, or may change!)
  Creator name or mask  ===> USER01(type-in, creator name or masked..)
  Table name or mask    ===> %(type-in, table name or masked....)
  New list              ===> YES(Yes or No for creating new list  )

  (View/Edit/Print/Extract) (Select with all or limited rows. )
  Read all Rows/Columns ===> NO(type-in, YES or NO, for all/limit)
  Limit - Max # of Rows ===> 10000(type-in, limit number of Row/Cols)

Saved ISPF Table
  Request save name     ===> (1 to 6 character name)
  Source library        ===> (Profile, Group, Sample or others)
  Other DSNAME          ===>

Notes:
  Masks can contain underscores or a percent sign.
  Enter the data set name in standard TSO syntax.
```

Data Source

The following field values are required in the panel **Create a List of DB2 Tables** when creating a new table list:

- **Source for display** ==> D

- **Subsystem name** ==> somSubs

- **New list**   ==> YES

The value D in Source for display indicates that the data source for the new table list should be DB2 rather than a previously saved table list in ISPF.

Substitute the desired DB2 subsystem name for the variable somSubs in Subsystem name. You can only select tables from one subsystem at a time.

A value of YES in the New list field instructs DB2List to discard any previously active table list and create a new table list from scratch. Saved table lists are not deleted, but an unsaved active table list will be lost when you choose this option.

All Saved ISPF Table fields should be blank if Source for display is D.

Table List Selection Criteria

Tables are selected for inclusion in the list on the basis of creator name and table name. The Creator name and Table name fields in the panel Create a List of DB2 Tables both support masks using any mix of literal characters and DB2 wildcards:

- Underscore (_) is the wildcard for any one character.

- Percent sign (%) is the wildcard for zero to any number of characters.

A value is required in both the Creator name and Table name fields, but the percent sign (%) wildcard may be used to request all creators or all tables.

Column and Row Filtering

You can optionally select the columns and rows available for table viewing, editing, printing, or extraction operations that are initiated from the table list. To enable column and row selection, use the following fields:

- **Read all rows/columns** ==> NO (causes a column selection panel to display when you select a table from the table list)
  YES (all columns are retrieved when you select a table from the table list)

- **Limit - Max # of rows** ==> 10000 (enter a maximum number of rows to read; default is 10,000)

Displaying the Table List

When you are satisfied with your selection criteria, press Enter at panel **Create a List of DB2 Tables**. The newly created table list displays in the DB2 Table List panel series.

```
------------------------------ DB2 Table List -------------- Row 1 to 5 of 5
 COMMAND ===>                                            SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME      DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER                      T     6    1        -1
      DB2A USER01   PARTS                      T     5    1        -1
      DB2A USER01   SPECTABLE                  T     4    1        -1
      DB2A USER01   SUPPLIER                   T     4    1        -1
      DB2A USER01   VERY_LONG_TABLENA+         T     4    1        -1
 **************************** Bottom of data ****************************
-------------------
| TOTAL=       5 |
| ADDS =       0 |
| VERSION:810    |
-------------------
```

The main DB2 Table List panel displays the following information:

CMD	Data entry field for table line commands. Length up to 4 characters.
SUBS	ID of DB2 subsystem where the table resides.
CREATOR	TSO user ID of table creator.
TABLE NAME	Name of table, view, or alias in database. If name exceeds 18 bytes, it is truncated to 17 bytes with a plus (+) sign appended. Long table names (128 bytes) are supported and can be viewed by scrolling right with PF10. You can also view the full table name by positioning the cursor in the **TABLE NAME** field, then typing ZEXPAND at the **Command ==>** line.
DATA/MSG	Displays status messages for the named table or view. Also displays the results of certain table *line commands* such as Count.
TYPE	Table type, where: **A** = Alias **T** = Table **V** = View
COLS	Number of columns in table or view.
KEYS	Number of primary keys in table.
PAGES	Size of table in pages, if available from the DB2 RUNSTATS command. Otherwise, value of -1 is shown.

Below the list of tables, a status information box displays the following information:

TOTAL	Count of all tables in the table list, whether or not displayed in panel.
ADDS	Count of tables added to the table list in a previous operation.
VERSION	DB2 version number, as supplied to the StarTool FDM DB2 Option by DB2.

Left-to-Right Scrolling Through a Table List

The **DB2 Table List** panel is one of four left-to-right scrolling panels that contain table list information. Press PF10 to scroll right through the following panels. Press PF11 to scroll left through these panels and return to the main DB2 Table List panel.

If any of the tables in the table list have long names (18 to 128 bytes), the full table names can be viewed by scrolling right with PF10.

Panel **DB2 Table List #2** displays the DATABASE names and table space (TBL SPAC) names associated with each table in the table list.

```
------------------------------ DB2 Table List #2 ------------- Row 1 to 4 of 4
 COMMAND ===>                                              SCROLL ===> PAGE
Enter an ISPF command, a StarTool subcommand or a special control code:

 CMD   SUBS CREATOR  TABLE NAME          DATA/MSG DATABASE TBL SPAC  - Pages -
      DB2A USER01   ORDER                        USER01DB ORDE1PSN        -1
      DB2A USER01   PARTS                        USER01DB PART1R11        -1
      DB2A USER01   SPECTABLE                    USER01DB SPECTABL        -1
      DB2A USER01   SUPPLIER                     USER01DB SUPP189U        -1
       DB2A USER01   VERY_LONG_TABLENA+           USER01DB LONGNAME         -1
 ****************************** Bottom of data ******************************
```

Panel **DB2 Table List #3** displays the DB2 Label associated with each table.

```
------------------------------ DB2 Table List #3 ------------- Row 1 to 4 of 4
 COMMAND ===>                                              SCROLL ===> PAGE
Enter an ISPF command, a StarTool subcommand or a special control code:

 CMD   SUBS CREATOR  TABLE NAME          DATA/MSG -- Label ----------------------
      DB2A USER01   ORDER
      DB2A USER01   PARTS
      DB2A USER01   SPECTABLE
      DB2A USER01   SUPPLIER
      DB2A USER01   VERY_LONG_TABLENA+           VERY_LONG_TABLE_NAME
 ****************************** Bottom of data ******************************
```

Panel **DB2 Table List #4** displays the DB2 **Remark** associated with each table.

```
------------------------------ DB2 Table List #4 ------------- Row 1 to 4 of 4
 COMMAND ===>                                              SCROLL ===> PAGE
Enter an ISPF command, a StarTool subcommand or a special control code:

 CMD   TABLE NAME         Remark
      ORDER
      PARTS
      SPECTABLE
      SUPPLIER
      VERY_LONG_TABLENA+ Table name exceeds 18 bytes.
 ****************************** Bottom of data ******************************
```

Adding Tables to an Existing Table List

If a table list is already active (as shown on the **Menu of DB2 Services**), you can add more tables to it using new selection criteria. Do so from the panel **Create a List of DB2 Tables**.

```
---------------------- DB2: Create a List of DB2 Tables ----------------------

  Source for display    ===> D(type-in, "D":"DB2" or "T":"TABLE")

  Subsystem name        ===> DB2A(Current Subsystem, or may change!)
  Creator name or mask  ===> USER99(type-in, creator name or masked..)
  Table name or mask    ===> % (type-in, table name or masked....)
  New list              ===> NO(Yes or No for creating new list  )

  (View/Edit/Print/Extract)      (Select with all or limited rows. )
  Read all Rows/Columns ===> NO (type-in, YES or NO, for all/limit)
  Limit - Max # of Rows ===> 10000(type-in, limit number of Row/Cols)

Saved ISPF Table
  Request save name     ===>(1 to 6 character name)
  Source library        ===>(Profile, Group, Sample or others)
  Other DSNAME          ===>

Notes:
  Masks can contain underscores or a percent sign.
  Enter the data set name in standard TSO syntax.
```

The following field values are required:

- **Source for display** ==>   D

- **Subsystem name** ==>   *somSubs*

- **New list** ==>   NO

The value D in Source for display indicates that the data source for the added tables should be DB2 rather than a previously saved table list in ISPF.

Substitute the desired DB2 subsystem name for the variable somSubs in Subsystem name. This must match the subsystem name for tables previously included in the list.

> **NOTE** All tables in a table list must reside on the same DB2 subsystem. If you enter a value for **Subsystem name** that differs from that used when the table list was created, an error displays.

A value of NO in the **New list** field instructs DB2List not to discard the active table list. Tables matching your new selection criteria will be added to the preexisting list.

All **Saved ISPF Table** fields should be blank, since **Source for display** is D.

Enter your new selection criteria in the **Creator name** and **Table name** fields. DB2 wildcards are supported. Press ENTER to view the augmented table list. (See "Displaying the Table List" for a description of the **DB2 Table List** panels that display.)

Saving a Table List as an ISPF File

An active table list can be saved as an ISPF file for later reuse. You can save as many table lists as you like. View the saved table lists in your ISPF Profile library using the PROFMAN utility. Table lists are saved as PROFMAN entry type DL.

To save a table list as an ISPF file:

1   From any **DB2 Table List** panel that shows the table list to be saved, enter the SAVE command at the **COMMAND ===>** prompt. For example:

```
------------------------------- DB2 Table List ------------ Row 1 to 11 of 11
 COMMAND ===> SAVE                                        SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME      DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER99    ORDER                     T    4    1        -1
      DB2A USER99    PARTS                     T    5    1        -1
      DB2A USER99    SUPPLIER                  T    4    1        -1
      DB2A USER99    T_APPOINTMENT             T    7    3        -1
      DB2A USER99    T_DOCTOR                  T    7    1        -1
      DB2A USER99    T_PATIENT                 T    8    1        -1
      DB2A USER99    T_SURGERY                 T    5    1        -1
      DB2A USER01    ORDER                     T    6    1        -1
      DB2A USER01    PARTS                     T    5    1        -1
      DB2A USER01    SPECTABLE                 T    4    1        -1
      DB2A USER01    SUPPLIER                  T    4    1        -1
***************************** Bottom of data *****************************
```

2   Press ENTER. The **DB2List Save** panel displays.

```
------------------------------- DB2LIST Save -------------------------------
 COMMAND ===>

  Specify the name for a saved version of this DB2 list table
     DB2LIST save name     ===> MYLIST(1 to 6 character name)
     Replace existing entry ===> NO(Yes or No)
     Description           ===> My New Table List
     Save to library       ===> PROFILE(Profile, Group, or Other)
 Other partitioned data set:
     DATA SET NAME  ===>

  Notes:  If this is saved in the profile, you can rename, delete or
          activate these saved DB2 tables with the PROFMAN dialog.
          DB2 list tables use entry type DL in the PROFMAN dialog.

     Profile DDname    :ISPPROF
     Group   DDname    :ISPTLIB
```

At this panel, enter values for the following required fields:

- **DB2LIST save name**   ==> *somname* (name of saved file, 1 to 6 characters)

- **Replace existing entry** ==> NO   (do not overwrite any existing file `somnam`)
                             YES   (overwrite any existing file somNam)

- **Save to library**   ==> PROFILE (use ISPF Profile DDNAME)
                             GROUP   (use ISPF Group DDNAME)
                             OTHER   (supply DSN in DATA SET NAME field)

The DDNAMEs currently associated with the PROFILE and GROUP keywords are shown at the bottom of the panel.

TIP You can change the default PROFILE and GROUP DDNAMEs at the StarTool FDM **Primary Options** menu by selecting option **0 - Parameters** and choosing the SETALL command. At the **Set Combined Defaults** panel, scroll down to the section labeled **Set Saved Table Options** to make your changes.

3 Press Enter at the **DB2List Save** panel to save the table list.

Recalling a Saved Table List

You can recall a saved table list for reuse without recreating it. The recalled table list can replace any current table list, or it may be added to an already active table list. Use the PROFMAN function to determine which DB2 table lists are saved in your Profile library.

Recall a saved table list using the panel **Create a List of DB2 Tables**. You must enter T in the **Source for display** field, to indicate that the source for the new table list is a saved table list file rather than a DB2 subsystem. You must also supply the values for the saved file in the **Saved ISPF Table** section of the panel.

For example:

```
--------------------- DB2: Create a List of DB2 Tables --------------------
COMMAND ===>

  Source for display      ===> T (type-in, "D":"DB2" or "T":"TABLE")

  Subsystem name          ===> DB2A(Current Subsystem, or may change!)
  Creator name or mask    ===> %(type-in, creator name or masked..)
  Table name or mask      ===> %   (type-in, table name or masked....)
  New list                ===> YES(YES or NO for creating new list)

  (View/Edit/Print/Extract)    (Select with all or limited rows.)
  Read all Rows/Columns   ===> NO (type-in, YES or NO. for all/limit)
  Limit - Max # of Rows   ===> 10000(type-in, limit number of Row/Cols)
                                                           More:     +
Saved ISPF Table
  Request save name       ===> MYLIST(1 to 6 character name)
  Source library          ===> PROFILE(Profile, Group, Sample, or Other)
  Other DSNAME            ===>

Notes:
  Masks can contain underscores or a percent sign.
  Enter the data set name in standard TSO syntax.
```

The following field values are required:

- **Source for display** ==> T (T=populate list from saved Table List file)

- **Request save name** ==> *somnam* (name of saved file, 1 to 6 characters)

- **Source library** ==> PROFILE (use default Profile DDNAME)
  GROUP (use default Group DDNAME)
  SAMPLE (use default Sample DDNAME; usually points to your ISPTLIB concatenation)
  OTHER (supply DSN in **Other DSNAME** field)

NOTE StarTool FDM always appends #4 or #6 as a prefix to the 1-to-6 character member name you specify when saving a table list. This prefix sometimes appears when you use PROFMAN. Do not type the prefix in *somnam* when recalling a saved table list.

Replacing an Active Table List with a Saved Table List

If you want to replace the currently active table list with the contents of the recalled table list file, enter the following additional information in the **Create A List of DB2 Tables** panel:

- **Subsystem name** **==>** *somSubs*
- **New list** **==>** YES

For the variable *somSubs* in **Subsystem name**, substitute the name of the DB2 subsystem where the tables in the saved list reside. This need not match the subsystem name of the currently active table.

A value of YES in the **New list** field instructs DB2List to discard any previously active table list and create a new table list from scratch. This new table list is populated with the contents of the saved ISPF file.

Adding a Saved Table List to an Active Table List

If you want to add the contents of the recalled table list file to the currently active table list, enter the following additional information in the **Create A List of DB2 Tables** panel:

- **Subsystem name** **==>** *somSubs*
- **New list** **==>** NO

For the variable *somSubs* in **Subsystem name**, substitute the name of the DB2 subsystem where the tables in the saved ISPF file reside. This must match the subsystem name of the currently active table.

NOTE All tables in a table list must reside on the same DB2 subsystem. If you attempt to add tables from a different subsystem to an active table list, an error displays.

A value of NO in the **New list** field instructs DB2List not to discard the active table list. The saved table list will be added to the currently active table list.

Filtering the Contents of a Saved Table List

When populating an active table list from a saved table list data source, you can filter the contents of the saved table list file. Tables are selected from the saved file for inclusion in the active table list on the basis of creator name and table name. The **Creator name** and **Table name** fields in the panel **Create a List of DB2 Tables** both support masks using any mix of literal characters and DB2 wildcards:

- Underscore (_) is the wildcard for any one character.
- Percent sign (%) is the wildcard for zero to any number of characters.

A value is required in both the **Creator name** and **Table name** fields, but the percent sign (%) wildcard may be used to request all creators or all tables in the saved file. Note that long table names (128 bytes) are supported, with two lines provided on the panel for wrapping long names.

You can optionally select the columns and rows available for table viewing, editing, printing, or extraction operations that are initiated from the active table list, regardless of the options originally chosen when the table list was saved. To enable column and row selection, use the following fields:

- **Read all rows/columns ==>**   NO   (causes a column selection panel to display when you select a table from the table list
                                     YES   (all columns are retrieved when you select a table from the table list)

- **Limit - Max # of rows ==>**   10000 (enter a maximum value; default is 10,000)

Memory demands are reduced and overall system performance improves when you restrict the number of columns and rows retrieved for a table.

Displaying the Recalled Table List

When the panel **Create a List of DB2 Tables** is complete, press ENTER to view the recalled table list. (See "Displaying the Table List" for a description of the **DB2 Table List** panels.)

Sorting Table Lists

You can sort the active table list by creator name, table name, table space name, or database name.

To sort the table list, enter the SORT command at the **COMMAND ==>** prompt of any **DB2 Table List** panel. For example:

```
------------------------------- DB2 Table List -------------- Row 1 to 4 of 4
 COMMAND ===> SORT TABLE ASC                                  SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : 0 or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME       DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER                      T    6    1        -1
      DB2A USER01   PARTS                      T    5    1        -1
      DB2A USER01   SPECTABLE                  T    4    1        -1
      DB2A USER01   SUPPLIER                   T    4    1        -1
 **************************** Bottom of data ****************************
```

The SORT command has the following syntax when used with a table list:

SORT CREATOR|TABLE|SPACE|DATABASE [ASC|DESC]

The first parameter designates the panel field by which table list entries should be sorted. It takes one of the following keyword values:

- CREATOR = Creator name

- TABLE = Table name

- SPACE = Table space name

- DATABASE = Database name

A value for the first parameter is required.

The second parameter selects ascending or descending sort order. It takes the following keyword values:

- ASC = Ascending order (default)

- DESC = Descending order

The second parameter is optional. If you omit it, it defaults to ascending sort order (ASC).

Printing a Table List

The table list can be printed in two ways, each with slightly different contents. The ISPF PRINT command prints a hard copy of the current table list screen. The StarTool FDM MEMLIST PRIN command prints the contents of the table list MEMLIST.

> 📝 **NOTE** The DB2 Option provides three kinds of printing support: (1) ISPF panel printing using the PRINT command; (2) MEMLIST printing using the PRIN or PRI commands; and (3) selective printing of table contents using the TPRT or PR commands.

- ***To print the contents of a table list screen*** using standard ISPF printing support, type PRINT at the **Command ==>** prompt of the **DB2 Table List** panel and press ENTER.

  All panel contents are printed, including row counts in the **DATA/MSG** column and table counts in the status information box. Only the tables shown in the panel are printed, however. These may not include all tables in the table list. For example:

```
------------------------------- DB2 Table list ------------ Row 1 to 10 of 10
 COMMAND ===> PRINT                                        SCROLL ===> PAGE

Enter an ISPF or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME       DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER              *  87654 T     6    1         -1
      DB2A USER01   PARTS              *   1234 T     5    1         -1
      DB2A USER01   SPECTABLE          *   2468 T     4    1         -1
      DB2A USER01   SUPPLIER           *     99 T     4    1         -1
***************************** Bottom of data *****************************
------------------
| TOTAL=       4 |
| ADDS =       0 |
| VERSION:810    |
------------------
```

- ***To print the contents of the table list MEMLIST***, type an alias of the MEMLIST print command, such as PRI or PRIN, at the Command ===> prompt of the DB2 Table List panel and press Enter.

```
------------------------------- DB2 Table list ------------ Row 1 to 10 of 10
 COMMAND ===> PRI                                          SCROLL ===> PAGE

Enter an ISPF or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME       DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER                       T     6    1         -1
      DB2A USER01   PARTS                       T     5    1         -1
      DB2A USER01   SPECTABLE                   T     4    1         -1
      DB2A USER01   SUPPLIER                    T     4    1         -1
***************************** Bottom of data *****************************
```

The **Print Members** prompt screen displays.

```
--------------------------- PRINT: Print Members --------------------------
OPTION  ===>

Enter the member group name and any operands below for PRINT:
===> *

Operands:  memgroup      (e.g., *; start:end; start:; first*pat; range*; part/
    )
           BIND/LMARGIN(columns) ????  BMARGIN(lines)
           BURST/NOBURST              CCHAR/SINGLE/DOUBLE/TRIPLE
           CHARS(charname, ...)       CLASS(output class)/SYSOUT(c)
           COLUMNS(s1:e1,s2:e2, ..)   COPIES(nnn,(group value, ...))
           DCF/NODCF                  DEST(destination/dest.userid)
           FCB(fcb name)             FLASH(overlay,count)
           FOLD(width)/TRUNCATE(w)    FORMS(forms name)
           HOLD/NOHOLD                LINES(line-num1:line-num2)
           MEMBERS/DIRECTORY/ALL      MODIFY(module name,trc)
           OUTDES(out-dest-name, ...) NUM(loc,len)/SNUM(loc,len)/NONUM
           PAGELEN(lines)             TITLE/NOTITLE
           TMARGIN(lines)             TODATASET(dsname)/TSODSN(dsname)
           TRC/NOTRC                  UCS(ucs name)
           WRITER(external writer)
Defaults: memgroup, BIND(0), BMARGIN(0), TMARGIN(0), PAGELEN(60), NONUM,
                NOTRC, TITLE, CLASS(A), DCF, NOBURST, NOHOLD
```

Type an asterisk (*) and any desired operands at the **Member group name** prompt, then press ENTER. The DB2 Option invokes regular StarTool FDM MEMLIST processing to print the contents of the table list (which is the current MEMLIST).

With the table MEMLIST print command, all tables in the table list are printed, even if they do not appear on the particular **DB2 Table List** panel where the command was issued. However, any status information shown on that panel is omitted.

Press PF3 to exit the **Print Members** screen and return to the DB2 Option.

Issuing Line Commands in a Table List

At any DB2 Table List panel, you can enter one or more line commands in the CMD column to work with tables in the list. For example, enter `COUN` (Count) in the PARTS row to get a count of the rows in the PARTS table.

```
-------------------------------- DB2 Table List -------------- Row 1 to 4 of 4
 COMMAND ===>                                              SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME      DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01    ORDER                       T     6    1        -1
 COUN DB2A USER01    PARTS                       T     5    1        -1
      DB2A USER01    SPECTABLE                   T     4    1        -1
      DB2A USER01    SUPPLIER                    T     4    1        -1
 **************************** Bottom of data ****************************
```

Line commands may be 1 to 4 characters long.

Types of Line Commands

DB2List provides two kinds of line commands:

- ■ ***List operations*** act on individual entries in the table list (rather than the table list as a whole). However, they don't affect the corresponding DB2 tables. An example list operation would be the Dis (Display) command, which displays all table list information about a table on one panel.

- ■ ***Table operations*** initiate work with a specific DB2 table using SQL commands. Block commands are generally not supported, but you can issue multiple line commands to stack requests for consecutive, interactive processing one table at a time. An example table operation would be the Coun (Count) command, which issues a SQL SELECT statement to count the rows in a table or view.

Note that not all list operations or table operations are line commands. However, all line commands in DB2List are either list operations or table operations.

Multiple Line Commands

Multiple line commands can be entered concurrently. For example, you might want to select two tables for back-to-back column processing, as shown below:

```
------------------------------ DB2 Table list ------------ Row 1 to 10 of 10
 COMMAND ===>                                              SCROLL ===> PAGE

Enter an ISPF or a StarTool subcommand : 0 or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME      DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER              *PRINT*  T     6    1        -1
 S    DB2A USER01   PARTS                       T     5    1        -1
      DB2A USER01   SPECTABLE                   T     4    1        -1
 S    DB2A USER01   SUPPLIER                    T     4    1        -1
****************************** Bottom of data ******************************
```

Only one line command is processed at a time. However, successive line commands are stacked for consecutive, interactive processing without forcing you to return to the **DB2 Table List** panel between operations.

- ■ ***The first line command processing panel*** to appear targets the first table in the list that you selected for processing. Type any needed information in the panel and press ENTER to execute the line command against the selected table.

- ■ ***To cycle through successive line command panels*** for each table in the stack, press PF3. After all tables are processed, PF3 returns you to the original **DB2 Table List** panel.

Refreshing Table List Contents

After executing line commands that effect the table list, it is sometimes necessary to refresh the contents of the list in order to see the results. For example, if you create a new table alias, the alias will not be added to the table list panel until you refresh the table list.

To refresh the table list, exit the table list with PF3. You will return to the main DB2List panel **Create a List of DB2 Tables**. Your previous table selection criteria are presented and should not be changed. Type YES in the **New list** field and press ENTER. The table list is refreshed to show updated labels, comments/remarks, table aliases, or dropped tables.

Selecting Tables from a Table List for Processing

The S (Select) command in the table list selects one or more tables for successive column and table processing operations. Select multiple tables using multiple S commands. Block SS commands are supported. Multiple selected tables are stacked for successive, interactive processing without returning to the **DB2 Table List** screen between operations.

Displaying the Column List

After table selection is complete, press Enter at the **DB2 Table List** panel. The Select command takes you to the standard **DB2 Column List** panel for the first selected table in the list. This panel lists all columns defined for the table and provides DB2 information about each column.

The **DB2 Column List** panel is one of four left-to-right scrolling panels that contain information about columns in the selected table. Press PF10 to scroll right through these panels. Press PF11 to scroll left through these panels and return to the main **DB2 Column List** panel.

If column filtering is turned on, you must explicitly select the columns to include in subsequent table operations like Edit. If column filtering is turned off, all columns are preselected in the **DB2 Column List** panels, but you can optionally deselect columns if desired.

- To select a column, type the S (Select) line command in the **OPT** column.

- To deselect a column, type the D (Deselect) line command in the **OPT** column.

After column processing is complete, you can exit from the column view with PF3, or you can issue a table processing command such as Edit at the **Command ===>** prompt.

See Chapter 4, "Operations on Rows, Column Lists, and Columns", for more information on column processing tasks.

Multiple Table Selections in a Table List

If you enter multiple S (Select) commands in the table list, these tables are stacked for successive column and table processing operations without returning to the **DB2 Table List** panel between steps. To navigate the stack of selected tables, note the following:

- The first table selected in the table list is the first table displayed in the **DB2 Column List**.

- When you complete column and table processing for the first table, press PF3 to exit the task, as usual. A new **DB2 Column List** displays for the next selected table in the table list. The selected table is identified in the title row of the panel.

- Perform column and table processing for the table displayed, then press PF3 again to advance to the next table you selected. When you have processed all selected tables, PF3 returns you to the original table list.

Table List Status Messages and the Select Command

When you return to the **DB2 Table List** panel after column and table processing with S (Select), your activities are reported simply as *SELECT* in the **DATA/MSG** column. If you wish to report the particular table operations performed, enter table processing line

commands instead of the S (Select) command. Table processing line commands go through the same column processing steps as S (Select).

Operations on Table List Entries

Table list entry operations act on entries in the table list rather than the table list as a whole. And unlike table operations they don't affect the corresponding DB2 tables. Consequently, SQL permissions are not required to use these commands.

Table list entry commands may be entered against multiple tables concurrently. Block commands may be applied to a range of tables at once.

All list entry operations may be requested using line commands. Some list operations may also be request at the **Command ===>** or **Option ===>** prompt of a screen displayed subsequent to invoking a table command.

Table list entry operations are summarized below.

Command	Line Cmd	Block Cmd	Command Line Alias	Description
Display	dis	—	dis	Consolidates information from all four **DB2 Table List** panels on one screen for the designated table. Same as Info command. (See "Display and Info Commands".)
Exclude Line	x	xx, xnnn	x	Exclude this line from the table list. Use xx to delimit a block of lines to exclude. Use xnnn to exclude nnn lines.
Info	in	—	info	Consolidates information from all four **DB2 Table List** panels on one screen for the designated table. Same as Display command. (See "Display and Info Commands".)
Kill	k	—	k	Kills and clears all table line commands from the row where entered down to the end of the table list.
Repeat	=	==, =nnn	=	Repeats the previous line command. Use == to delimit a block of lines to receive the repetition. Use =nnn to duplicate the line command to a block containing nnn lines, starting with the one where this block command is entered.

Most of the foregoing operations are self-explanatory. However, the Display and Info Commands deserve some comment.

Display and Info Commands

The `Dis` (Display) and `In` (Info) commands are synonymous. Both consolidate the information from all four **DB2 Table List** panels onto one screen for a single table. This information appears in the **DB2 Table Information Display** panel. For example, type `INFO` at the `PARTS` table in the table list to see a panel like this:

```
----------------------- DB2 Table Information Display  ---------------------
COMMAND ===>

Subsystem name:     DB2A
Creator name:       USER01
Table name:         PARTS
 Type:              Table
 Number columns:    5
 Number keys:       1
 Number pages:      -1
 Database name:     USER01DB
 Table Space name:  PART1R11
 Label:
 Remark:
```

If you enter multiple Dis or Info commands in the table list, these tables are stacked for display successive processing without returning to the **DB2 Table List** panel between steps. To navigate the stack of selected tables, note the following:

- The first table selected in the table list is the first table displayed in the **DB2 Table Information Display**.

- Press PF3 to exit the task, as usual. A new **DB2 Table Information Display** panel displays for the next selected table in the table list.

- Press PF3 again to advance to the next table. When you have viewed information for all tables, PF3 returns you to the original table list.

Operations on DB2 Tables

Table operations work with one or more selected DB2 tables in the table list. Not all table operations change DB2 table data, but all perform SQL operations against these tables.

> **NOTE** For most table operations, you must be authorized to use the SQL SELECT operator against the selected table. Otherwise, an error will display when you request a table operation.

In DB2List, table operations are invoked either by entering line commands in the table list, or by entering the `S` (Select) command and issuing a table processing command at a later column list panel. In either case, the **DB2 Column List** panel displays if row and column filtering is turned on, allowing you to filter rows and columns before initiating the actual table operation you requested in DB2List. You then continue the table operation by retyping the appropriate table processing command at the **Command ===>** prompt of

the column list panel. (See Chapter 4, "Operations on Rows, Column Lists, and Columns", for more information about the **DB2 Column List** panel and related table operations.)

> **NOTE** The same row and column filtering options, as well as subsequent table operations, are enabled for both DB2List and DB2Table at the DB2 Column List panel.

For all table operations requested through DB2List:

- **To confirm a table operation that changes data**, press PF6 at the confirmation screen.

- **To exit a table operation**, press PF3. Repeated use of PF3 navigates through any successively stacked table operations and returns you to the **DB2 Table List**.

At the completion of table operations (but not list operations), the **DB2 Table List** reports the table operation requested at the line command with a status message in the **DATA/ MSG** column. This information serves as a memory aid and may be printed using the PRINT command. For example:

```
------------------------------- DB2 Table list ------------ Row 1 to 10 of 10
 COMMAND ===>                                            SCROLL ===> PAGE

Enter an ISPF or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME       DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER           *PRINT*   T     6   1         -1
      DB2A USER01   PARTS           *SELECT*  T     5   1         -1
      DB2A USER01   SPECTABLE                 T     4   1         -1
      DB2A USER01   SUPPLIER        *EDIT*    T     4   1         -1
****************************** Bottom of data ******************************
```

DB2LIST lets you to perform operations on multiple DB2 tables concurrently and see the results in a common display. For example, you can:

- Add or edit table metadata using multiple Label, Comment, or Remark line commands.

- Rename multiple tables using multiple Alias or Rename line commands.

- Drop multiple tables from the database at once using multiple Drop line commands.

See "Multiple Line Commands" and "Multiple Table Selections in a Table List" in this chapter for information about issuing and working with multiple line commands in DB2List.

Table Processing Line Commands in DB2List

The DB2List line commands that invoke table operations are summarized below.

Command	Line Cmd	Command Line Alias	Description
Alias	alia	alias	Creates an alias for a table. (See "Creating an Alias for a Table" in Chapter 8.)
Comment	comm	comm	Adds a comment/remark to a table or view. (See "Adding Comments or Remarks to Tables or Views" in Chapter 8.

Command	Line Cmd	Command Line Alias	Description
Copy	`copy`	`copy`	Copies rows from one table to another. (See "Copying Rows from One Table to Another" in Chapter 4.)
Count	`coun`	—	Counts the number of rows in a table or view. (See "Count Command" in this chapter.)
Drop	`drop`	`drop`	Drops a table or view from the database. (See "Dropping a Table or View" in Chapter 8.)
Edit	`edit`	`edit`	Opens a table or view for editing in PEDIT. (See Chapter 5, "Viewing and Editing Tables with PEDIT".)
Extract	`ex`	`ex,` `extr`	Extracts the contents of a DB2 table to a sequential file and generates JCL for loading extracted data to another DB2 table. (See "Extracting Columns from a Table to a Sequential File" in Chapter 4.)
Grant	`gran`	`grant`	Grants privileges for a table or view. (See Chapter 7, "Grant or Revoke Privileges".)
Label	`labl`	`label`	Adds a label to a table. (See "Adding Labels to Tables or Views" in Chapter 8.)
Load	`load`	—	Loads a table from a prevously extracted file using the DSNUTILB utility. (See "Loading Data from a Sequential File to a DB2 Table" in Chapter 4.)
Model	`modl`	`model`	Creates a new table using the current one as a model. (See "Creating a Table like Another Table" in Chapter 8.)
Print Table	`tprt`	`tprt`	Selectively prints table contents. (See "Printing Selected Columns in a Table" in Chapter 4.)
Remark	`rem`	`rem`	Adds a remark/comment to a table. (See "Adding Comments or Remarks to Tables or Views" in Chapter 8.)
Rename	`ren`	`ren`	Renames a table. (See "Renaming a Table or View" in Chapter 8.)
Revoke	`revo`	`revoke`	Revokes privileges for a table or view. (See Chapter 7, "Grant or Revoke Privileges".)
Select	`s,` `ss`	—	Selects a table for column processing. `SS` = block command. (See "Selecting Tables from a Table List for Processing" in this chapter.)
Selective Copy	`selc`	`selc`	Selectively copies columns from one table to another table. (See "Copying Columns from One Table to Another" in Chapter 4.)
System Tables	`sys`	`sys`	Displays system tables for indexes, keys, relations, table spaces, plans, and packages associated with a table. (See Chapter 9, "Displaying System Tables with DB2SYST".)

Command	Line Cmd	Command Line Alias	Description
View	view	view	Opens a table or view in PVIEW for viewing. (See Chapter 5, "Viewing and Editing Tables with PEDIT".)

For the majority of table processing operations, multiple access paths are provided through DB2List, DB2Table, and/or the Table Services menu. All shared table operations are documented in one place for ease of reference. See the following chapters:

- Chapter 4, "Operations on Rows, Column Lists, and Columns"

- Chapter 5, "Viewing and Editing Tables with PEDIT"

- Chapter 8, "Table Services"

Certain table processing commands are unique to DB2List. These commands are documented in this chapter and include the following:

- Count Command

Count Command

The `Coun` (Count) line command issues a SQL request to count the rows in the table(s) or view(s) indicated by the command. To invoke the Count command:

1 In the **DB2 Table List** panel, issue the `Coun` line command alias at each table for which you want a count of rows. For example:

```
------------------------------ DB2 Table list ------------ Row 1 to 10 of 10
 COMMAND ===>                                             SCROLL ===> PAGE

Enter an ISPF or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME      DATA/MSG TYPE COLS KEYS - PAGES -
 coun DB2A USER01   ORDER                     T      6    1        -1
 coun DB2A USER01   PARTS                     T      5    1        -1
      DB2A USER01   SPECTABLE                 T      4    1        -1
      DB2A USER01   SUPPLIER                  T      4    1        -1
****************************** Bottom of data ******************************
```

2 When you press ENTER, the counts are returned for all selected tables or views in the **DATA/MSG** column of the **DB2 Table List** panel.

```
------------------------------ DB2 Table list ------------ Row 1 to 10 of 10
 COMMAND ===>                                             SCROLL ===> PAGE

Enter an ISPF or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME      DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER          * 67890K  T      6    1        -1
      DB2A USER01   PARTS          *  12345  T      5    1        -1
      DB2A USER01   SPECTABLE                T      4    1        -1
      DB2A USER01    SUPPLIER               T      4    1        -1
****************************** Bottom of data ******************************
```

The **DATA/MSG** field is limited to displayed values of 9,999,999 or less. If the result of the Count command exceeds this value, the result is expressed as follows:

- ■ ***The quantity is truncated to thousands***, with the letter 'K' appended on the right, for values from 10,000,000 to 999,999,999.

- ■ ***The quantity is truncated to millions***, with the letter 'M' added on the right, for values from 1,000,000,000 to 4,294,967,295.

- ■ ***Values in excess*** of 4,294,967,295 cannot be displayed.

Menu-Driven DB2List Operations

DB2List provides a menu of line commands and a utility menu of table operations that can be extended with custom SQL commands. These features are listed in the table below.

Command	Line Cmd	Block Cmd	Command Line Alias	Description
Menu	m	—	—	Displays a menu of line commands. Same as `Option` command. (See "Menu and Options Commands".)
Options	o	oo	—	Displays a menu of line commands. Same as `Menu` command. (See "Menu and Options Commands".)
Utility	ut	—	—	Displays a menu of table processing commands for DB2List. Menu can be extended with custom commands written in SQL. (See "Utility Command".)

Menu and Options Commands

The M (Menu) and O (Options) commands are synonymous. Enter either in the **CMD** field of the **DB2 Table List** panel to display the **DB2List Menu Line Command** panel.

```
------------------------ DB2LIST Menu Line Command ------------------------
 OPTION  ===> alia

 Choose one of the following line commands for USER01.PARTS
                                                             More:    -
    alia - Create an alias for this table
    comm - Add a REMARK/COMMENT to this table
    copy - Copy all rows and columns of this table to another table
    coun - Count of the number of rows in this table
    dis  - Display all data about this table on one screen
    drop - DROP this table from the database
    edit - Edit a table
    extr - Extract data from a table to a sequential file for LOAD
    gran - Grant Table/View privileges
    revo - Revoke Table/View privileges
    info - Display all data about this table on one screen
    k    - Kill and clear all following line commands.
    labl - Add a LABEL to this table
    load - Load this table using DSNUTILB from a prevous extract file
    modl - Create new table using this one as a model
    prin - Print a table
    ren  - Rename a table (version 4 of DB2 and above)
    rem  - Add a REMARK/COMMENT to this table
    s    - SELECT for table processing
    selc - Selective copy columns from this table to another table
    sys  - Display system table menu for this table
    ut   - Use the extended installation utility command panel.
    view - View a table
    x    - Drop this line from the table display.
    =    - Repeat previous line command (line command only).

  Note: With the exception of the following, these line commands can also be
        entered from this panel: coun, extr, selc, sys
        The following block line commands can also be entered from the panel.
        OO, SS, XX, Xnnn, ==, =nnn
```

You can enter DB2List line commands at the **OPTION ===>** prompt of the **DB2LIST Menu Line Command** panel. The option chosen from the **DB2LIST Menu Line Command** panel targets the table named in the first line of text on the panel (USER01.PARTS in the example above). Most list and table operations are allowed.

NOTE The Count (COUN), Extract (EXTR), Selective Copy (SELC), and System Table (SYS) commands may not be entered from the **DB2List Menu Line Command** panel.

If multiple M or O commands were issued in the table list, these tables are stacked for successive processing without returning to the **DB2 Table List** panel between steps. To navigate the stack of selected tables, note the following:

■   The first table selected in the table list is the first table targeted by the commands in the **DB2LIST Menu Line Command** panel. When you enter a command at the **Option ===>** prompt and press ENTER, table processing executes against the DB2 table.

- When table processing completes for the first table, press PF3 to exit the task, as usual. A new **DB2 Table Information Display** panel displays for the next table with an M or O command in the table list.

- Enter a menu option for the next table. A different menu option can be chosen for each table in the processing stack.

- Press PF3 again to advance to the next table. When you have processed all selected tables, PF3 returns you to the original table list.

Utility Command

When entered in the **CMD** field of the **DB2 Table List** panel, the Ut (Utility) command brings up the panel **UT for DB2LIST User Line Commands**. This panel displays the extended utility menu of table processing commands for DB2List.

```
--------------------- ut for DB2LIST user line commands --------------------
 OPTION  ===>

 Choose one of the following for Table DB2A USER01.PARTS

     ALIA - Create Alias for this table
     MODL - Model this table
     COPY - Copy all of this table
     REM  - Add a REMARK/COMMENT to this table
     COMM - Add a REMARK/COMMENT to this table
     LABL - Add a LABEL to this table
     DIS  - Display all data about a table on one screen
     INFO - Display all data about a table on one screen
     GRAN - Grant Table/View privileges
     REVO - Revoke Table/View privileges
     LOAD - Load using DSNUTILB from a StarTool extract file

 Dynamic SQL for subsystem DB2A      -note: / = USER01.PARTS
                         < = USER01DB
 ____ -
 ____ -
 ____ -
 ____ -
```

From this menu, you can:

- *Enter a utility menu command* at the **OPTION ===>** prompt. The command will execute using table list information for the named panel and parameter prompt screens.

- *Add reusable, custom menu commands* in SQL. Commands may apply to the currently selected table or any table known to the currently active DB2 subsystem.

Utility Menu Commands

To enter a utility menu command, type a listed command at the **OPTION ===>** prompt of the **UT for DB2LIST User Line Commands** panel. This command targets the table selected from the table list by the UT (Utility) command that invoked the panel. The table name is listed in the panel's first line.

If multiple UT commands were issued in the table list, these tables are stacked for successive processing without returning to the **DB2 Table List** panel between steps. To navigate the stack of selected tables, note the following:

- The first table selected in the table list is the first table targeted by the commands in the **UT for DB2LIST User Line Commands** menu. When you enter a command at the **Option ===>** prompt and press ENTER, table processing executes against that table.

- When table processing completes for the first table, press PF3 to exit the task, as usual. A new **UT for DB2LIST User Line Commands** menu displays for the next table with an UT command in the table list.

- Enter a menu option for the next table. A different menu option can be chosen for each table in the processing stack.

- Press PF3 again to advance to the next table. When you have processed all selected tables, PF3 returns you to the original table list.

Adding Custom Utility Menu Commands with SQL

The bottom portion of the panel **UT for DB2LIST User Line Commands** is subtitled **Dynamic SQL for subsystem *somsys***, where *somsys* is the name of the current DB2 subsystem. This portion of the utility menu lets you define reusable SQL statements and add them to the utility menu as custom commands.

> **NOTE** SQL statements saved in the utility menu may target any table known to the currently active DB2 subsystem, whether or not it is included in the table list or was selected from the table list by the UT command.

SQL statements saved in the utility menu have the following requirements:

- Statement length may not exceed 72 bytes.

- Multi-line SQL statements are not supported.

- The SELECT statement is not permitted in custom utility commands.

- Statements must be given a 4-byte name to be saved for reuse in the utility menu.

Two predefined, special-character "variables" are provided so that custom commands may refer to any table or database currently selected by the UT command. These "variables" override standard SQL syntax wherever a table or database name is expected, as follows:

- **The slash (/) character** is interpreted as the table name for which the latest UT (Utility) command was issued. Its current value is shown in the **Dynamic SQL** panel subtitle.

- **The less-than (<) symbol** is interpreted as the name of the database where the current table resides. Its current value is shown in the second line of the **Dynamic SQL** subtitle.

To add one or more custom commands to the utility menu, perform the following steps:

1   In the **Dynamic SQL** list at the bottom of the utility menu panel, type a 4-byte menu option name in the underscored field to the left of the dash. To the right of the dash, type the corresponding SQL statement that the menu option will execute. Each name/statement pair defines one custom menu command.

2 Type additional name/statement pairs as desired. Up to ten custom commands can be added to the utility menu. For example:

```
---------------------- ut for DB2LIST user line commands --------------------
OPTION  ===>

Choose one of the following for Table DB2A USER01.PARTS

    ALIA - Create Alias for this table
    MODL - Model this table
    COPY - Copy all of this table
    REM  - Add a REMARK/COMMENT to this table
    COMM - Add a REMARK/COMMENT to this table
    LABL - Add a LABEL to this table
    DIS  - Display all data about a table on one screen
    INFO - Display all data about a table on one screen
    GRAN - Grant Table/View privileges
    REVO - Revoke Table/View privileges
    LOAD - Load using DSNUTILB from a StarTool extract file

Dynamic SQL for subsystem DB2A       -note: / = USER01.PARTS
                          < = USER01DB
LBL1 - LABEL ON TABLE / IS 'BACKUP1'
OOPS - UPDATE / SET ORDER_NUMBER = 'OOPS' WHERE SUPPLIER_NUMBER > 70000
DOIT - COMMIT
____ -
____ -
```

3 Press Enter to save the custom commands as a permanent part of the utility menu.

TIP You can type an old menu option at the **Option ===>** prompt, create new custom menu options in the **Dynamic SQL** section of the same panel, then press ENTER. The DB2 Option executes the old command and saves the new ones at the same time.

4 The next time you enter the UT command in DB2List, your custom commands appear at the bottom of the menu. Enter a custom option at the **Option ===>** prompt to execute it.

```
---------------------- ut for DB2LIST user line commands --------------------
OPTION  ===> oops

Choose one of the following for Table DB2A USER01.PARTS

    ALIA - Create Alias for this table
    MODL - Model this table
    COPY - Copy all of this table
    REM  - Add a REMARK/COMMENT to this table
    COMM - Add a REMARK/COMMENT to this table
    LABL - Add a LABEL to this table
    DIS  - Display all data about a table on one screen
    INFO - Display all data about a table on one screen
    GRAN - Grant Table/View privileges
    REVO - Revoke Table/View privileges
    LOAD - Load using DSNUTILB from a StarTool extract file

Dynamic SQL for subsystem DB2A       -note: / = USER01.PARTS
                          < = USER01DB
LBL1 - LABEL ON TABLE / IS 'BACKUP1'
OOPS - UPDATE / SET ORDER_NUMBER = 'OOPS' WHERE SUPPLIER_NUMBER > 70000
DOIT - COMMIT
```

Chapter 3

Single Table Processing with DB2Table

The DB2Table facility allows you to work with a list of columns for a DB2 table as a group or MEMLIST. You can create a column list, save it, recall it for reuse, sort it, print it, and perform other MEMLIST operations on it. Whenever you select a table for column processing, you have the option to save your column selections for later reuse in DB2Table.

From the main DB2Table panel or the column list, you can issue StarTool FDM commands to initiate browsing or editing sessions in PEDIT, print table contents, extract DB2 table contents to a sequential file, or load the contents of a sequential file to a DB2 table. These commands work with the DB2 table as filtered by your column selections.

This chapter discusses the following topics for DB2Table:

- Starting DB2Table

- Operations on Column Lists

- Operations on DB2 Tables

Starting DB2Table

Before you start, you must know the table name, creator name, and DB2 subsystem ID of the table you wish to process using DB2Table. Wildcards are not accepted.

To start the DB2Table facility, select option **2 - DB2Table** from the *Menu of DB2 Services*. Use the same menu option to start a new task in DB2Table or resume a pending task.

- If you are starting a new task in DB2Table, the status of the DB2Table facility is shown as **Inactive** or **Current** in the **Menu of DB2 Services**. When you select option **2 - DB2Table**, the panel **Process a Single DB2 Table** displays. Use this panel to:

  - Select a table for column processing

  - Save a column list to an ISPF file

  - Recall a saved column list for reuse

  - Edit a saved column list

  - Issue table processing commands

- If you a resuming a pending task in DB2Table, the status of the DB2Table facility is shown as **Active** or **Pending** in the **Menu of DB2 Services**. When you select option **2 - DB2Table**, the DB2Table facility returns you to the screen where you left off.

  If you do not wish to continue working where you left off, press PF3 to end the pending task and "pop up" to the panel **Process a Single DB2 Table**.

Operations on Column Lists

Table processing operations in both DB2Table and DB2List generally begin with an optional column selection step. This is followed by the invocation of a table operation such as Table Print, View, or Edit at the column list panel. Shortcuts are also provided to bypass column selection and go directly to the desired table operation.

DB2Table provides full StarTool FDM MEMLIST support for column list processing.

Selecting a Table for Column Processing

To select a table for column processing, navigate to the panel **Process a Single DB2 Table**.

```
---------------------- DB2: Process a Single DB2 Table --------------------
 COMMAND ===>

   Source for display ===> D(type-in, "D":"DB2" or "T":"TABLE")

   Subsystem name     ===> DB2A(Current Subsystem, or may change!)
   Creator name       ===> USER01(type-in, creator name or masked..)
   Table name         ===> PARTS(type-in, table name or masked....)

   Service            ===> (blank, EDIT, VIEW, PRINT, EXTRACT
                              SELC                           )
   Read all rows?     ===> NO(type-in, YES or NO. for all/limit)
                              (if NO, please provide # of limit.)
   Limit - Max# of..  ===> 10000(type-in, limit number of Row/Cols)

 Saved ISPF table of Columns of a single DB2 table.
   Request save name  ===> (1 to 6 character name)
   Source library     ===>(Profile, Group, Sample, or Other)
   Other DSNAME       ===>

 Notes:
   When Service is blank the service can be selected later.
   Enter the data set name in standard TSO syntax.
```

Data Source

The following field values for the data source are required in the panel **Process a Single DB2 Table** when selecting a table for column processing:

- **Source for display ==>** D

- **Subsystem name ==>** *somSubs*

- **Creator name==>** *userid*

- **Table name==>** *somName*

The value D in **Source for display** indicates that the data source for DB2Table should be a DB2 subsystem rather than an ISPF file containing a previously saved column list for a table.

Substitute the desired DB2 subsystem name for the variable *somSubs* in **Subsystem name**. The DB2 subsystem name for an active table in DB2Table may differ from that for an active table list in DB2List, even if you are switching between the two concurrently.

A value is required in both the **Creator name** and **Table name** fields. Wildcards are not accepted for these values in DB2Table.

All **Saved ISPF Table** fields should be blank. (These fields are used only when recalling a saved column list.)

Service Request

Leave the **Service** field blank to select the named table for column processing. A specific processing task can be requested later, after column selection.

Column and Row Filtering

You can optionally select the columns and rows available for table viewing, editing, printing, or extraction operations that are initiated from DB2Table. When column filtering is turned on, the **DB2 Column List** panel displays before the main service panel.

NOTE When the **Service** field is blank, column filtering is automatically turned on.

To enable column and row filtering, use the following fields:

- **Read all rows?===>** NO(Causes the column selection panel to display and
   limits the number of rows to the stated value. Default.
   A value of NO is required when **Service** field is blank.)
   YES(All columns and rows are retrieved. This value is
   ignored when the **Service** field is blank.)

- **Limit - Max # ===>**10000 (Enter a maximum value. Default is 10,000 rows.)

Displaying the Column List

When you press Enter for the above values at the panel **Process a Single DB2 Table**, the table is selected and the standard **DB2 Column List** panel displays. This panel lists all columns defined for the table and provides DB2 information about each column.

The **DB2 Column List** panel is one of four left-to-right scrolling panels that contain information about columns in the selected table. Press PF10 to scroll right through these panels. Press PF11 to scroll left through these panels and return to the main **DB2 Column List** panel.

To select a column for table processing, type the S (Select) line command in the **OPT** column. To deselect a previously selected column, type the D (Deselect) line command in the **OPT** column. Perform any desired column selections, then issue a table processing command at the **Command ===>** prompt.

See Chapter 4, "Operations on Rows, Column Lists, and Columns", for more information on column operations.

Saving a Column List to an ISPF File

The DB2 Option lets you save a list of selected and filtered columns to an ISPF file for later reuse with DB2Table. Saving a column list is discussed in detail in Chapter 4, "Operations on Rows, Column Lists, and Columns". The steps are summarized here for quick reference:

1 Select a table for column processing. (See "Selecting a Table for Column Processing" above. You can also select a table from a table list in DB2List.)

2 When the **DB2 Column List** panel displays, you can select, deselect, or filter columns as desired. (See "Column Operations on Tables and Table Operations from the Column List" in Chapter 4, "Operations on Rows, Column Lists, and Columns".)

3 Enter the ISPF `Save` command at the **Command ===>** prompt of the **DB2 Column List** panel, then provide a data set name and library for the saved ISPF file when prompted. (See "Saving a Column List as an ISPF File" in Chapter 4, "Operations on Rows, Column Lists, and Columns".)

Recalling a Saved Column List for Reuse

You can recall a saved column list for reuse in a table operation without recreating it. The recalled column list is used to generate a SQL SELECT command automatically when you work with a named table. You can use the column list immediately in a table processing operation, bypassing column selection, or you can filter its contents further.

To recall a saved column list for immediate use:

1 Navigate to the panel **Process a Single DB2 Table** and type the DB2 subsystem name, creator name, and table name for the DB2 table you want to process using the recalled column list. Also enter a table processing command in the **Service** field. For example:

```
--------------------- DB2: Process a Single DB2 Table ---------------------
 COMMAND ===>

   Source for display ===> D(type-in, "D":"DB2" or "T":"TABLE")

   Subsystem name      ===> DB2A(Current Subsystem, or may change!)
   Creator name        ===> USER01(type-in, creator name or masked..)
   Table name          ===> PARTS(type-in, table name or masked....)

   Service             ===> EDIT(blank, EDIT, VIEW, PRINT, EXTRACT
                                              SELC                      )
   Read all rows?      ===> YES(type-in, YES or NO. for all/limit)
                            (if NO, please provide # of limit.)
   Limit - Max# of..   ===> 10000(type-in, limit number of Row/Cols)

 Saved ISPF table of Columns of a single DB2 table.
   Request save name  ===> MyPart(1 to 6 character name)
   Source library     ===> PROFILE(Profile, Group, Sample, or Other)
   Other DSNAME       ===>

 Notes:
   When Service is blank the service can be selected later.
   Enter the data set name in standard TSO syntax.
```

The following field values are also required:

■ **Source for display ===>**D(D=DB2 table)

■ **Service===>***somCmd*(Table processing command name, such as EDIT.)

- **Read all rows?===>**YES(Indicates all columns in the recalled column list should be used. The **DB2 Column List** panel will be skipped.)

- **Request save name ===>** `somNam`(Name of saved ISPF column list file, 1 to 6 characters)

- **Source library ===>**`PROFILE`(Use Profile DDNAME for column list.) `GROUP`(Use Group DDNAME for column list.) `SAMPLE`(Use Sample DDNAME for column list; points to your ISPTLIB concatenation) `OTHER`(Supply full DSN for column list in **Other DSNAME** field)

> **TIP** Use the PROFMAN function to determine which DB2 column lists are saved in your Profile data set. The StarTool FDM DB2 Option always appends #4 or #6 as a prefix to the 1-to-6 character member name you specified when saving the list.

2 Press Enter. The DB2 Option immediately applies the column selection in the recalled ISPF file to the named DB2 table and takes you to the table processing service requested (for example, the PEDIT editor). Only the preselected columns in the recalled column list are available for table processing.

To recall a saved column list and filter it before use:

1 Navigate to the panel **Process a Single DB2 Table** and type the requested information as described above. The following field values are required:

- **Source for display ===>**`D`(D=DB2 table)

- **Read all rows?===>**`NO`(Turns on row and column filtering. The **DB2 Column List** panel will display.)

- **Request save name ===>** `somNam`(Name of saved ISPF column list file, 1 to 6 characters)

- **Source library ===>**`PROFILE`(Use default Profile DDNAME) `GROUP`(Use default Group DDNAME) `SAMPLE`(Use default Sample DDNAME; usually points to your ISPTLIB concatenation) `OTHER`(Supply DSN in **Other DSNAME** field)

> **TIP** Use the PROFMAN function to determine which DB2 column lists are saved in your Profile data set. The StarTool FDM DB2 Option always appends #4 or #6 as a prefix to the 1-to-6 character member name you specified when saving the list.

2 Press Enter. The standard **DB2 Column List** panel displays the saved column list with all columns preselected.

3 Deselect any undesired columns from the saved column list by typing `D` (Deselect) in the **OPT** column of the **DB2 Column List** panel.

4 Issue a table processing command at the **Command ===>** prompt of the **DB2 Column List** panel and press Enter. The requested table operation executes using your filtered column selection.

Editing a Saved Column List

To edit a previously saved column list with DB2Table:

1   Navigate to the panel **Process a Single DB2 Table** and type the requested information as described above. The following field values are required:

■   **Source for display ===>**T(T=Table of selected columns)

■   **Read all rows?===>**NO(Turns on row and column filtering. The **DB2 Column List** panel will display.)

■   **Request save name ===>** *somNam*(Name of saved ISPF column list file to edit, 1 to 6 characters)

■   **Source library ===>**PROFILE(Use default Profile DDNAME)
     GROUP(Use default Group DDNAME)
     SAMPLE(Use default Sample DDNAME; usually points to your ISPTLIB concatenation)
     OTHER(Supply DSN in **Other DSNAME** field)

> **TIP** Use the PROFMAN function to determine which DB2 column lists are saved in your Profile data set. The StarTool FDM DB2 Optionalways appends #4 or #6 as a prefix to the 1-to-6 character member name you specified when saving the list.

2   Press Enter. The standard **DB2 Column List** panel displays the saved column list with all columns preselected.

3   Deselect any undesired columns from the saved column list by typing D (Deselect) in the **OPT** column of the **DB2 Column List** panel.

4   Enter the ISPF Save command at the **Command ===>** prompt of the **DB2 Column List** panel, then provide a data set name and library for the saved ISPF file when prompted.

Operations on DB2 Tables

Table operations are invoked in DB2Table either by entering a **Service** field command in the panel **Process a Single DB2 Table**, or by leaving the **Service** field blank and issuing a table processing command at a later column processing panel.

For all table operations requested through DB2Table:

■   Press PF6 at the confirmation screen or **DB2 Select Statement Validation** screen to confirm a table processing request that changes DB2 data.

■   Press PF3 to exit a table operation.

To perform a DB2 table operation against a named table in DB2Table:

1   Navigate to the panel **Process a Single DB2 Table**.

```
---------------------- DB2: Process a Single DB2 Table ---------------------
 COMMAND ===>

   Source for display ===> D(type-in, "D":"DB2" or "T":"TABLE")

   Subsystem name      ===> DB2A(Current Subsystem, or may change!)
   Creator name        ===> USER01(type-in, creator name or masked..)
   Table name          ===> PARTS(type-in, table name or masked....)

   Service             ===> EDIT(blank, EDIT, VIEW, PRINT, EXTRACT
                                               SELC                    )
   Read all rows?      ===> NO(type-in, YES or NO. for all/limit)
                             (if NO, please provide # of limit.)
   Limit - Max# of..   ===> 10000(type-in, limit number of Row/Cols)

 Saved ISPF table of Columns of a single DB2 table.
   Request save name   ===> (1 to 6 character name)
   Source library      ===> (Profile, Group, Sample, or Other)
   Other DSNAME        ===>

 Notes:
   When Service is blank the service can be selected later.
   Enter the data set name in standard TSO syntax.
```

2   Choose a data source and type the name and creator of the DB2 table to be processed. You can optionally recall a saved column list to preselect columns in this table.

3   Enter a table processing command in the **Service** field and press Enter.

4   The standard **DB2 Column List** panel displays. (The is the same panel that displays during table processing operations in DB2List. More information about this panel is available in Chapter 4, "Operations on Rows, Column Lists, and Columns".)

■   **If row and column filtering is turned on**, select the columns you want to process with the table processing operation using the S (Select) line command in the **OPT** column.

■   **If row and column filtering is turned off, or if you recalled a saved column list** to use with the table but column filtering is not turned off, columns are preselected in the **DB2 Column List** panel. Deselect any columns you do not want to include in the table processing operation using the D (Deselect) line command in the **OPT** column.

5   Type the desired table processing command at the **Command ===>** prompt of the **DB2 Column List** panel and press Enter.

Table Processing Commands

The following table processing commands are supported in the **Service** field of the panel **Process a Single DB2 Table**.

Command	Alias	Description
Edit	`edit`	Edits a table in PEDIT. If column filtering is turned on, you will be prompted to select the columns to view. (See the *StarTool FDM User's Guide* for more information on PEDIT.)
Extract	`ex,` `extr`	Extracts the contents of a DB2 table to a sequential file and generates JCL for loading data to another DB2 table. (See "Extracting Columns from a Table to a Sequential File" in Chapter 4, "Operations on Rows, Column Lists, and Columns".)
Selective Copy	`selc`	Selectively copies columns from one table to another table. (See "Copying Columns from One Table to Another" in Chapter 4, "Operations on Rows, Column Lists, and Columns".)

Table Print	`pr,`
	`prin,`
	`tprt`
		Prints table contents. If column filtering is turned on, you will be prompted to select the columns to print.

View	`view`	Displays a table for viewing in PEDIT. If column filtering is turned on, you will be prompted to select the columns to view. (See the *StarTool FDM User's Guide* for more information on PVIEW.)

In addition, the following table operations may be requested for DB2Table at the **Command ===>** prompt of the **DB2 Column List** panel.

Command	Alias	Description
Load	`load`	Load a table from a prevously extracted file using the DSNUTILB utility. (See "Loading Data from a Sequential File to a DB2 Table" in Chapter 4, "Operations on Rows, Column Lists, and Columns".)
Utility	`ut`	Applies a function from the utility menu to a table. The only table operation supported for DB2Table by the Utility menu is LOAD. The utility menu also lets you submit an enhancement request or trouble report to Serena directly from the software.

Chapter 4

Operations on Rows, Column Lists, and Columns

The StarTool FDM DB2 Option supports operations on table rows, column lists, and actual columns in tables. Multiple access paths are provided to this shared functionality for ease of use. These functions are documented here, in one place, for ease of reference.

- *Row operations* are accessed from option **1 - DB2List** or option **5 - Table Services** on the **Menu of DB2 Services**. (See Chapter 2, "Table List Processing with DB2List", and Chapter 8, "Table Services", for interface information about these options.)

- *Column list operations* are accessed from option **1 - DB2List** or option **2 - DB2Table** on the **Menu of DB2 Services**. (See Chapter 2, "Table List Processing with DB2List", and Chapter 3, "Single Table Processing with DB2Table", for interface information about these options.)

- *Column operations on tables* are accessed from option **1 - DB2List** or option **2 - DB2Table** on the **Menu of DB2 Services**. (See Chapter 2, "Table List Processing with DB2List", and Chapter 3, "Single Table Processing with DB2Table", for interface information about these options.)

Row Operations on Tables

Row operations on tables and views are accessed from option **1 - DB2List** or option **5 - Table Services** on the **Menu of DB2 Services**. Use these facilities to perform the following tasks:

- Copy rows from one table to another

- Delete rows from a table or view

Copying Rows from One Table to Another

The `Copy` command generates a SQL INSERT statement that copies all or selected rows from one table to another table. For selective copies, you must provide a SQL WHERE clause when prompted; otherwise, all rows in the source table are copied to the target. All columns in the source table are copied for each row.

The copy operation has the following requirements:

- Columns and datatypes in the source table must match those in the target table.

- The selection order of columns in the source table rows must match the physical column order in the target table.

- Required values for the target table must be supplied by the copied rows.

The Copy command can be accessed from option **1 - DB2List** or option **5 - Table Services** on the **Menu of DB2 Services**.

To invoke the Copy command from DB2List:

1   Select option **1 - DB2List** from the **Menu of DB2 Services**.

2   Create, recall, or resume working with the appropriate **DB2 Table List**.

(See the topics on "Creating a New Table List" or "Recalling a Saved Table List" in Chapter 2, "Table List Processing with DB2List", or the topic on "Task Switching" in Chapter 1, "DB2 Option Overview", for details concerning this step.)

3   In the **DB2 Table List** panel, issue the Copy line command alias at each table containing rows you want to copy.

4   Press Enter. The panel **Copy Rows from a Table** displays for the first table selected in the table list.

```
----------------------- DB2 Copy Row(s) From a Table ----------------------
COMMAND ===>

  Copy from table in subsystem DB2A5  using USER01.PARTS
  in Data Base DB2ADB04   in Table Space PARTS

  Enter To Creator     ===> USER01
  Enter To table name  ===> PARTS2

WHERE       (enter optional "WHERE" clause on the next 2 lines):
===> PART_NUMBER LIKE 'VND%'
```

5   For the "To" table, enter the requested information.

If you want to copy rows selectively, also type your selection criteria for the SQL WHERE clause in the panel. The DB2 Option will include your WHERE clause in the generated SQL statement it submits to DB2.

> **NOTE** Do not type the WHERE keyword. This keyword is generated automatically.

6   The "From" table is specified automatically by the Count line command.

7   Press Enter to display the **Copy Confirmation** panel. If desired, edit the generated SQL statement on the confirmation panel.

8   Press PF6 to confirm your changes and commit the copy operation.

9   Press PF3 to repeat these steps for each selected table. After all tables have been processed, PF3 returns you to the original **DB2 Table List** panel.

To invoke the Copy command from Table Services:

1   Select option **5 - Table Services** from the **Menu of DB2 Services**.

2   Select option **3**, **Copy all or selected rows**, from the **DB2 Table Services** menu.

3   Press Enter. The panel **Copy All or Selected Rows** displays.

```
---------------------- DB2: Copy All or Selected Rows  ----------------------
 COMMAND ===>

   Subsystem name  ===> DB2A

   To Creator      ===> USER01
   To table name   ===> PARTS2

   From Creator     ===> USER01
   From table name ===> PARTS

   Enter an optional WHERE clause on the next 2 lines
   ===> PART_NUMBER LIKE 'VND%'
```

4   For both the "To" and "From" tables, enter the requested information.

If you want to copy rows selectively, also type your selection criteria for the SQL WHERE clause in the panel. The DB2 Option will include your WHERE clause in the generated SQL statement it submits to DB2.

NOTE Do not type the WHERE keyword. This keyword is generated automatically.

5   Press Enter to display the **Copy Confirmation** panel. If desired, edit the generated SQL statement on the confirmation panel.

6   Press PF6 to confirm your changes and commit the copy operation.

Deleting Rows from a Table or View

The Delete command issues a SQL request to delete all or selected rows from a table or view. For selective row deletions, you must provide a SQL WHERE clause when prompted; otherwise, all rows in the table or view are deleted.

To invoke the Delete command:

1   Select option **5 - Table Services** from the **Menu of DB2 Services**.

2   From the **DB2 Table Services** menu, select option **8**, **Delete rows from a table or view**.

3   **The panel Delete Row(s) from a Table or View displays.**

```
------------------ DB2: Delete Row(s) from a Table or View ------------------
 OPTION  ===>

   Subsystem name       ===> DB2A
   Creator name         ===> USER01
   Table or view name   ===> PARTS

   Where (search condition to be met for delete) ===> PART_NUMBER LIKE 'VND%'

   Correlation name     ===>
   With                 ===>      1 RR  2 RS  3 CS
```

Type the requested table information. If you want to delete rows selectively, also type your selection criteria for the SQL WHERE clause in the panel. The DB2 Option will include your WHERE clause in the generated SQL statement it submits to DB2.

NOTE Do not type the WHERE keyword. This keyword is generated automatically.

The **Correlation name** and **With** fields are optional.

NOTE Refer to IBM's *SQL Reference* for your release of DB2 for the definition and parameters for each of these options.

4   Press Enter to display the confirmation panel. If desired, edit the generated SQL statement on the confirmation panel.

5   Press PF6 to confirm your changes and commit the delete operation.

Column List Operations

Column list operations and table processing operations on columns are both invoked from the standard **DB2 Column List** panels. These panels display the active column list for a table that was previously selected with option **1 - DB2List** or option **2 - DB2Table** on the **Menu of DB2 Services**.

The column list is displayed and all column list processing operations are enabled only if the following conditions are met:

■   The table selection utility — DB2List or DB2Table — is in **Inactive** status when it is chosen from the **Menu of DB2 Services**.

■   Column-and-row filtering is turned on in DB2List or DB2Table. To turn on column and row filtering, enter NO in the **Read all rows/columns?** or **Read all rows?** field in the main panel for the table selection utility before pressing Enter.

Column list operations apply only to the column list, which is a MEMLIST, and not to the actual DB2 table containing the columns. However, column lists are also used to predefine a combination of column selections, row filtering options, and column sort settings in reusable form. The DB2 Option uses the column list as input when it generates the SQL statements that create a view for actual table processing operations.

The DB2 Option supports the following column list operations and column list settings for table processing:

■   Browse columns in a column list

■   Display consolidated column information

■   Print column information from the screen

■   Select columns for table processing

■   Change column selection order

■   Deselect columns for table processing

■   Bypass column selection

- Filter rows by column data during table processing

- Sort column data during table processing

- Sort columns in a column list

- Save a column list as an ISPF file

- Recall a saved column list for reuse

Browsing Columns in a Column List

The **DB2 Column List** panel series displays information about the columns associated with a single DB2 table, view, or alias. The DB2 subsystem ID and table name both appear in the panel title. For example:

```
------------- DB2 Column List DB2A  USER01.PARTS            Row 1 to 5 of 5
 COMMAND ===>                                              SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name       Sel Col Dis A/D --- Predicate -----------------------
      PART_NUMBER        ...   1  K
      PART_NAME          ...   2
      SUPPLIER_NUMBER    ...   3  R
      NUM_IN_STOCK       ...   4
      ORDER_NUMBER       ...   5
 ***************************** Bottom  of  data ***************************
```

The main **DB2 Column List** panel displays or allows entry of the following information:

OPT	Data entry field for column processing options. Length 4 characters.
Column Name	Name of column to use in SQL statements.
Sel	Selection order of the column for viewing, editing, or output. Need not match the column number in the source table.
Col	Column number in the source table prior to selection or reordering.
Dis	Display status of the column. Values: **H** = Hidden column. Used for selection but not displayed in output. **K** = Key. **R** = Required value for new or modified rows in PEDIT. **S** = Shown as column in the output table.
A/D	Sort order for column data in the output table. Values: **A** = Ascending **D** = Descending
Predicate	Selection criteria for a generated SQL WHERE clause that will filter the contents of the output table.

NOTE Do not type the WHERE keyword in the **Predicate** field. This keyword is generated automatically.

Left-to-Right Scrolling in the Column List

The **DB2 Column List** panel is one of four left-to-right scrolling panels that contain column list information. Press PF10 to scroll right through the following panels. Press PF11 to scroll left through these panels and return to the main **DB2 Column List** panel.

Panel **DB2 Column List #2** displays data type and value information for each column.

```
---------- DB2 Column List #2 DB2A  USER01.PARTS              Row 1 to 5 of 5
                                                            SCROLL ===> PAGE
COMMAND ===>

Enter an ISPF command or a StarTool subcommand: O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, TRINT, EXTRAC
 OPT  Column Name        Sel ---- Type ------ Nul Def A/D --- Predicate --
      PART_NUMBER        ... INTEGER           N   N
      PART_NAME          ... VARCHAR (16)      Y   Y
      SUPPLIER_NUMBER    ... SMALLINT          N   N
      NUM_IN_STOCK       ... SMALLINT          Y   Y
      ORDER_NUMBER       ... SMALLINT          Y   Y
 ****************************** Bottom of data ******************************
```

The following data type information is specified:

Type	DB2 data type, with maximum length in parenthesis if not default.
Nul	Null value allowed in column data. Values: **Y** = Yes, null value permitted in column. **N** = No, null value prohibited in column.
Def	Default value defined for column data. Values: **Y** = Yes, default defined. **N** = No default defined. Value must be entered in required column.

Panel **DB2 Column List #3** displays the DB2 **Label** associated with each column.

```
---------- DB2 Column List #3 DB2A  USER01.PARTS              Row 1 to 5 of 5
                                                            SCROLL ===> PAGE
COMMAND ===>

Enter an ISPF command or a StarTool subcommand: O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, TPRINT,
      EXTRAC
 OPT  Column Name        Col Key Nul Dis Label
      PART_NUMBER          1   1  N      K
      PART_NAME            2   0  Y
      SUPPLIER_NUMBER      3   0  N      R
      NUM_IN_STOCK         4   0  Y
      ORDER_NUMBER         5   0  Y
 ****************************** Bottom of data ******************************
```

Panel **DB2 Column List #4** displays the DB2 **Remark** associated with each column.

```
------------ DB2 Column List #4 DB2A  USER01.PARTS            Row 1 to 5 of 5
                                                         SCROLL ===> PAGE
 COMMAND ===>

Enter an ISPF command or a StarTool subcommand: O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, TPRINT,
     EXTRAC
 OPT  Column Name       Remark
      PART_NUMBER
      PART_NAME
      SUPPLIER_NUMBER
      NUM_IN_STOCK
      ORDER_NUMBER
 ****************************** Bottom of data ******************************
```

Columns for Special Data Types

Protected columns such as the DB2 row ID are listed in the **DB2 Column List** panels and may be selected for viewing in PEDIT. However, they cannot be edited.

DB2 Large Object data types cannot be processed by the StarTool FDM DB2 Option. These data types include:

- Binary Large Objects (BLOBs)

- Character Large Object Columns (CLOBs)

- Double-Byte Character Large Object Columns (DBCLOBs)

Columns for these data types are not listed in the **DB2 Column List** panels.

Displaying Consolidated Column Information

To display all column information in one consolidated panel, type the `Dis` (Display) or `Info` (Information) command in the **OPT** column next to the name of the column you wish to view.

```
------------ DB2 Column List #4 DB2A  USER01.PARTS            Row 1 to 5 of 5
                                                         SCROLL ===> PAGE
 COMMAND ===>

Enter an ISPF command or a StarTool subcommand: O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, TPRINT,
     EXTRAC
 OPT  Column Name       Remark
 dis  PART_NUMBER
      PART_NAME
      SUPPLIER_NUMBER
      NUM_IN_STOCK
      ORDER_NUMBER
 ****************************** Bottom of data ******************************
```

Press Enter. The **DB2 Column Information Display** panel displays all column information.

```
---------------------- DB2 Column Information Display  ----------------------
 COMMAND ===>

 Subsystem name:   DB2A
 Creator name:     USER01
 Table name:       PARTS
  Column name:     PART_NUMBER
  Column number:   1
  Data type:       INTEGER
  Nullable:        NO
  Default:         NO
  Select order:    ...
  Display status:  K          (K=key, S=show, H=hide, R=required by EDIT)
  Sort order:
  Predicate:
  Label:
  Remark:
```

Press PF3 to exit and return to the prior panel.

Sorting a Column List

The `Sort` subcommand sorts columns in the active column list by column name, column number, or selection order. To sort the column list, enter the `Sort` command at the **COMMAND ===>** prompt of any **DB2 Column List** panel. For example:

```
 ------------- DB2 Column List DB2A   USER01.PARTS                Row 1 to 5 of 5
 COMMAND ===> SORT NUMBER DESCEND                          SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate ------------------------
      PART_NUMBER            ...   1  K
      PART_NAME             ...   2
      SUPPLIER_NUMBER      ...   3  R
      NUM_IN_STOCK         ...   4
      ORDER_NUMBER         ...   5
 **************************** Bottom  of  data ****************************
```

The example command in the panel above would sort the shown column list as follows:

```
 ------------- DB2 Column List DB2A   USER01.PARTS                Row 1 to 5 of 5
 COMMAND ===>                                              SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate ------------------------
      ORDER_NUMBER         ...   5
      NUM_IN_STOCK         ...   4
      SUPPLIER_NUMBER      ...   3  R
      PART_NAME             ...   2
      PART_NUMBER           ...   1  K
**************************** Bottom  of  data ****************************
```

The `Sort` command has the following syntax when used with a column list:

```
SORT NAME|NUMBER|COLUMN|SELECT|ORDER [ASCEND|DESCEND]
```

The first parameter designates the panel field by which table list entries should be sorted. It is a required parameter and takes one of the following keyword values:

- NAME = Column name

- NUMBER = Column number (same as COLUMN)

- COLUMN = Column number (same as NUMBER)

- SELECT = Selection order (same as ORDER)

- ORDER = Selection order (same as SELECT)

The second parameter selects ascending or descending sort order. It is an optional parameter and takes the following keyword values:

- ASCEND = Ascending order (default)

- DESCEND = Descending order

If the second parameter is omitted, its value defaults to ASCEND.

Printing a Column List

The ISPF Print command prints a hard copy of any column list panel. This is particularly useful with consolidated column information panels or with specially sorted column lists.

To print a column list panel, type Print at the **Command ===>** prompt and press Enter. For example:

```
------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
 COMMAND ===> PRINT                                         SCROLL ===> PAGE


Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name       Sel Col Dis A/D --- Predicate ------------------------
      PART_NUMBER         ...  1  K
      PART_NAME           ...  2
      SUPPLIER_NUMBER     ...  3  R
      NUM_IN_STOCK        ...  4
      ORDER_NUMBER        ...  5
 ***************************** Bottom  of  data ***************************
```

All panel contents are printed. However, only the columns shown in the panel are printed. These may not include all columns in the column list.

NOTE The MEMLIST print command aliases Pri and Prin are not enabled for printing the entire contents of a multi-panel column list.

Selecting Columns for Table Processing

Column selection settings in the column list determine which columns are selected for processing in the actual DB2 table. Column selection settings are saved in the column list so you can edit them before initiating a table processing operation such as Edit or SELC.

The DB2 Option gives you several ways to select columns for table processing:

- Select all columns at once

- Select one or more columns individually

After you select the desired columns and perform any edits on the column list, enter a table processing command at the **COMMAND ===>** prompt of the **DB2 Column List** panel. Only the selected columns will be included in the requested table processing operation.

Selecting All Columns

To select all columns in a column list for table processing, perform the following steps:

1 Type Select at the **COMMAND ===>** prompt of the **DB2 Column List** panel. For example:

```
-------------- DB2 Column List DB2A  USER01.PARTS             Row 1 to 5 of 5
 COMMAND ===> SELECT                                         SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate ------------------------
      PART_NUMBER        ...   1  K
      PART_NAME          ...   2
      SUPPLIER_NUMBER    ...   3  R
      NUM_IN_STOCK       ...   4
      ORDER_NUMBER       ...   5
 ***************************** Bottom  of  data ***************************
```

2 Press **Enter**.Columns selected for table processing show an S in the **Dis** column of the **DB2 Column List** panel. The **Sel** column shows the selection order in which the columns will be displayed during table processing. The column list is resorted by selection number.

```
-------------- DB2 Column List DB2A  USER01.PARTS             Row 1 to 5 of 5
 COMMAND ===>                                                SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following:
    VIEW,EDIT,PRINT,TPRINT,EXTRACT,SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate -----------------------
      PART_NUMBER          1   1  S
      PART_NAME            2   2  S
      SUPPLIER_NUMBER      3   3  S
      NUM_IN_STOCK         4   4  S
      ORDER_NUMBER         5   5  S
 ***************************** Bottom of data *****************************
```

3 Enter a table processing command at the **COMMAND ===>** prompt of the **DB2 Column List** panel. All columns will be included for table processing in the default selection order.

Selecting One or More Columns Individually

To select columns individually for table processing, perform the following steps:

1 Type an S in the **OPT** column beside each column that you want to include in the table processing view.

For example:

```
------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
 COMMAND ===>                                              SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate ------------------------
 S     PART_NUMBER         ...  1  K
 S     PART_NAME           ...  2
       SUPPLIER_NUMBER     ...  3  R
 S     NUM_IN_STOCK        ...  4
       ORDER_NUMBER        ...  5
 ****************************** Bottom  of  data ***************************
```

2   Press Enter. Columns selected for table processing show an S in the **Dis** column of the
DB2 Column List panel. The **Sel** column shows the selection order in which the
columns will be displayed during table processing.

```
------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
COMMAND ===>                                               SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following:
     VIEW,EDIT,PRINT,TPRINT,EXTRACT,SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate ------------------------
       PART_NUMBER          1   1  S
       PART_NAME            2   2  S
       NUM_IN_STOCK         3   4  S
       SUPPLIER_NUMBER     ...  3
       ORDER_NUMBER        ...  5
 ****************************** Bottom of data *****************************
```

Notice that the column list is resorted so that all selected columns appear before
unselected columns. Within selected columns, however, the relative selection order of
columns is unchanged from the default.

3   Enter a table processing command at the **COMMAND ===>** prompt of the **DB2
Column List** panel. The selected columns will be included for table processing in their
default selection order. Unselected columns will be omitted from table processing.

Changing Column Selection Order

You can change the selection order of columns in the **DB2 Column List**. Selection order is
the order in which columns are displayed, printed, copied, or extracted in operations on
DB2 tables. To change column selection order, perform the following steps:

1   Type S*n* in the **OPT** field beside the column name of each column you want to select,
where *n* is an integer that represents the desired order for the selected column.

For example, let's say you want to view the PART_NAME, SUPPLIER_NUMBER, and
ORDER_NUMBER columns from the PARTS file using PEDIT. Moreover, you want to
display those columns so that SUPPLIER_NUMBER appears first, ORDER_NUMBER
appears second, and PART_NAME appears third when viewed from left to right in the

editor screen. To enter these settings in the column list, you would type `S1` at SUPPLIER_NUMBER, `S2` at ORDER_NUMBER, and `S3` at PART_NAME, as follows:

```
-------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
 COMMAND ===>                                            SCROLL ===> PAGE


Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate ------------------------
      PART_NUMBER        ...   1  K
 S3   PART_NAME          ...   2
 S1   SUPPLIER_NUMBER    ...   3  R
      NUM_IN_STOCK       ...   4
 S2   ORDER_NUMBER       ...   5
 ***************************** Bottom  of  data ***************************
```

2   Press Enter. Columns selected for table processing show an S in the **Dis** column of the **DB2 Column List** panel. The **Sel** column shows the new selection order that will apply to the columns during table processing, overriding the defaults. The column list is resorted in the new column selection order.

```
-------------- DB2 Column List DB2A  USER01.PARTS            Row 1 to 5 of 5
COMMAND ===>                                            SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following:
     VIEW,EDIT,PRINT,TPRINT,EXTRACT,SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate ------------------------
      SUPPLIER_NUMBER     1   3  S
      ORDER_NUMBER        2   5  S
      PART_NAME           3   2  S
      PART_NUMBER        ...   1  K
      NUM_IN_STOCK       ...   4
 ***************************** Bottom of data ***************************
```

3   Enter a table processing command at the **COMMAND ===>** prompt of the **DB2 Column List** panel. The selected columns will be included for table processing in their new selection order. Unselected columns will be omitted from table processing.

Deselecting Columns for Table Processing

Current column selection settings are shown in the column list so you can edit or deselect them before initiating a table processing operation such as `Edit` or `SELC`. The DB2 Option gives you two ways to deselect columns:

- Deselect all columns at once

- Deselect one or more columns individually

Deselecting All Columns

To deselect all columns, type `Deselect` at the **COMMAND ===>** prompt of the **DB2 Column List** panel and press Enter.

Deselecting Specific Columns

To deselect one or more previously selected columns, type a `D` in the **OPT** field beside each column you want to deselect in the **DB2 Column List** panel and press Enter.

Bypassing Column Selection

You can bypass the column selection panels when you reuse a column list as-is for table processing in DB2Table, or when you instruct the table selection utility — either DB2List or DB2Table — to turn off row and column filtering.

To reuse a column list as-is with DB2Table, see:

- "Recalling a Saved Column List for Reuse" in this chapter

- "Recalling a Saved Column List for Reuse" in Chapter 3, "Single Table Processing with DB2Table"

To turn off row and column filtering in DB2List or DB2Table, see:

- "Column and Row Filtering" in Chapter 2, "Table List Processing with DB2List"

- "Column and Row Filtering" in Chapter 3, "Single Table Processing with DB2Table"

Filtering Rows by Column Data During Table Processing

The main **DB2 Column List** panel lets you specify row filtering criteria based on column data. These criteria are used during subsequent table processing; only those rows whose column values match your filtering criteria will be included in table processing operations. For example, you could specify that only those rows in the PARTS table that have a SUPPLIER_NUMBER of 11111 should be included in an Extract operation on a table.

Filtering criteria may be viewed or edited in the column list prior to initiating an actual table processing operation such as Edit or Extract. Multiple columns may be filtered.

To specify row filtering criteria on one or more columns in a table, perform the following steps:

1 Select the desired table in DB2List or DB2Table with row-and-column filtering turned on.

2 When the main **DB2 Column List** panel displays, select the columns you wish to filter by typing S in the **OPT** field and pressing Enter. (Skip this step if the desired columns are already selected.)

3 In the **Predicate** field for each column whose data you wish to filter, type your filtering criteria using the SQL conditional expression syntax for a WHERE clause. Only the condition is required in the predicate; the WHERE keyword and the column name are generated automatically by the DB2 Option. For example:

```
------------- DB2 Column List DB2A  USER01.PARTS            Row 1 to 5 of 5
COMMAND ===>                                            SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following:
     VIEW,EDIT,PRINT,TPRINT,EXTRACT,SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate ------------------------
      PART_NUMBER           ...   1  K
      PART_NAME              3    2  S
      SUPPLIER_NUMBER        1    3  S            =11111
      NUM_IN_STOCK          ...   4
      ORDER_NUMBER           2    5  S
 ***************************** Bottom of data *****************************
```

If multiple columns have filtering specifications in the **Predicate** fields, predicates are combined using logical AND by default. You must edit the generated SQL WHERE clause in the **DB2 Select Statement Validation** panel to change the logical relation among predicates to OR.

> **NOTE** See IBM's *SQL Reference* manual for your version of DB2 for more information about DB2 SQL conditional expression syntax.

4   Press Enter. The DB2 Option saves your filtering criteria in the column list for later use when generating the SQL statements that build the table processing view.

5   Enter a table processing command at the **COMMAND ===>** prompt of the **DB2 Column List** panel. Rows will be included for table processing based on your filtering criteria.

Sorting Column Data During Table Processing

Use the main **DB2 Column List** panel to specify whether columns should be sorted during table processing. Sorting specifications are entered in the **A/D** field for each column you want to sort. You can view and edit your sorting specifications in the column list before you initiate a table processing operation such as Edit or TPRINT.

One or more columns may be specified for sorting during table processing. See:

- Sorting a Single Column
- Sorting Columns Within Columns

Sorting a Single Column

To sort an individual column during table processing, perform the following steps:

1   Type an A (for Ascending order) or D (for Descending order) in the **A/D** field of the column you want the DB2 Option to sort during a table processing operation. For example:

```
------------- DB2 Column List DB2A  USER01.PARTS               Row 1 to 5 of 5
                                                              SCROLL ===> PAGE
COMMAND ===>
Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, TPRINT,
     EXTRAC
 OPT  Column Name         Sel Col Dis A/D --- Predicate ---------------------
     ---
      PART_NUMBER           1   1  S
      PART_NAME             2   2  S
      SUPPLIER_NUMBER       3   3  S   A
      NUM_IN_STOCK          4   4  S
      ORDER_NUMBER          5   5  S
 ***************************** Bottom of data *****************************
```

2   Press Enter. The DB2 Option saves your sort specification in the column list. You can edit your sort specifications or combine them with other filtering and selection options before initiating table processing.

3   Enter a table processing command at the **COMMAND ===>** prompt of the **DB2 Column List** panel. Rows will be sorted during table processing according to your specifications.

Sorting Columns Within Columns

When you select multiple columns for sorting, the DB2 Option uses column selection order to determine sorting precedence. Column selection order is shown in the **Sel** field of the **DB2 Column List** panel. The first of the sortable columns in the selection order is the major or outermost column in the sort. The second sortable column in the selection order is sorted within the first sortable column, the third within the second, and so on. You may need to edit the column list to modify the selection order when you specify multiple columns for sorting during table processing.

To specify the sort order for multiple columns, perform the following steps:

1   In the **A/D** field of the **DB2 Column List** panel, type an A (for Ascending order) or D (for Descending order) beside each column you want the DB2 Option to sort.

For example, to sort the PARTS table in ascending order by PART_NUMBER and SUPPLIER_NUMBER, type the following:

```
------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
                                                         SCROLL ===> PAGE
COMMAND ===>
Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, TPRINT,
    EXTRAC
 OPT  Column Name         Sel Col Dis A/D --- Predicate ---------------------
      ---
      PART_NUMBER          1   1  S    A
      PART_NAME            2   2  S
      SUPPLIER_NUMBER      3   3  S    A
      NUM_IN_STOCK         4   4  S
      ORDER_NUMBER         5   5  S
 ***************************** Bottom of data *****************************
```

2   Specify the column selection order for sorting precedence. To do this, type Sn in the **OPT** field beside the column name, where n is an integer that represents the desired selection order for the column.

For example, to sort the PARTS table by PART_NUMBER within SUPPLIER_NUMBER, type S1 beside SUPPLIER_NUMBER and S2 beside PART_NUMBER, as follows:

```
------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
                                                         SCROLL ===> PAGE
COMMAND ===>
Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, TPRINT,
    EXTRAC
 OPT  Column Name         Sel Col Dis A/D --- Predicate ---------------------
      ---
 S2   PART_NUMBER          1   1  S    A
      PART_NAME            2   2  S
 S1   SUPPLIER_NUMBER      3   3  S    A
      NUM_IN_STOCK         4   4  S
      ORDER_NUMBER         5   5  S
 ***************************** Bottom of data *****************************
```

3 Press Enter. The DB2 Option saves your sort specification in the column list and reorders the column list according to your column selection order.

```
------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
                                                             SCROLL ===> PAGE
COMMAND ===>
Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, TPRINT,
    EXTRAC
 OPT  Column Name        Sel Col Dis A/D --- Predicate ----------------------
                             ---
      SUPPLIER_NUMBER      1   3  S    A
      PART_NUMBER          2   1  S    A
      PART_NAME            3   2  S
      NUM_IN_STOCK         4   4  S
      ORDER_NUMBER         5   5  S
 ***************************** Bottom of data *****************************
```

4 Edit your sort specifications in the column list or combine them with other filtering and selection options as desired before initiating table processing.

5 Enter a table processing command at the **COMMAND ===>** prompt of the **DB2 Column List** panel. Rows will be sorted during table processing according to your specifications.

Saving a Column List as an ISPF File

An active column list can be saved as an ISPF file for later reuse with DB2Table. Any column selections, content filtering predicates, and column presentation order options are saved with the column list. You can save as many column lists as you like.

View the saved columns lists in your ISPF Profile library using the PROFMAN utility. Column lists are saved as PROFMAN entry type DT.

To save a column list as an ISPF file:

1 Use either DB2List or DB2Table to select the table whose column information you'd like to save. Be sure row and column filtering is turned on when you select the table — that is, enter NO in the **Read all rows?** or **Read all rows/columns?** field.

2 Edit the column list as desired.

3 From the **DB2 Column List** panel that shows the column list to be saved, enter the Save command at the **COMMAND ===>** prompt. For example:

```
 ------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
 COMMAND ===> SAVE                                            SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name        Sel Col Dis A/D --- Predicate -----------------------
      SUPPLIER_NUMBER      1   3  R
      ORDER_NUMBER         2   5  S
      PART_NAME            3   2  S
      PART_NUMBER          4   1  K
      NUM_IN_STOCK         5   4  S
 ***************************** Bottom  of  data ***************************
```

4   Press **Enter**. The **DB2 Save** panel displays.

```
-------------------------------- DB2 Save --------------------------------
 COMMAND ===>

 Specify the name for a saved version of this DB2 column table
    DB2 saved name        ===> MYCOLS  (1 to 6 character name)
    Replace existing entry ===> NO      (Yes or NO)
    Description           ===> My New Column List
    Save to library       ===> PROFILE (PROFILE, GROUP, OR OTHER)
Other partitioned data set:
    DATA SET NAME  ===>

 Notes:  If this is saved in the profile, you can rename, delete or
         activate these saved DB2 tables with the PROFMAN dialog.
         DB2 columns tables use entry type DT in the PROFMAN dialog.
         If a statement is also being saved then entry type DS will
         also be created.

    Profile DDname      :ISPPROF
    Group   DDname      :ISPTLIB
```

At this panel, enter values for the following required fields:

- **DB2 saved name ===>** *somNam* (name of saved file, 1 to 6 characters)

- **Replace existing entry ===>** NO (do not overwrite any existing file *somNam*)
  YES (overwrite any existing file *somNam*)

- **Save to library ===>** PROFILE (use ISPF Profile DDNAME)
  GROUP (use ISPF Group DDNAME)
  OTHER (supply DSN in **DATA SET NAME** field)

  The DDNAMEs currently associated with the PROFILE and GROUP keywords are shown at the bottom of the panel.

> **TIP** You can change the default PROFILE and GROUP DDNAMEs at the **StarTool FDM Primary Options** menu by selecting option **0 - Parameters** and choosing the **SETALL** command. At the **Set Combined Defaults** panel, scroll down to the section labeled **Set Saved Table Options** to make your changes.

5   Press Enter at the **DB2 Save** panel to save the column list.

Recalling a Saved Column List for Reuse

Column lists can be recalled for reuse with option **2 - DB2Table** on the **Menu of DB2 Services**. Recalled column lists can be reused immediately, without displaying the **DB2 Column List** panels. They can also be edited and saved again.

To recall a previously saved column list with DB2Table:

1   In DB2Table, enter the table name and other table-identifying information at the panel **Process a Single DB2 Table**. (See Chapter 3, "Single Table Processing with DB2Table", for panel details.)

2   Enter the following field values:

- **Source for display ===>** D (To reuse an existing column list as-is)
  T (To edit a column list before reuse)

- **Read all rows?===>**NO(Turns on row and column filtering. The
   DB2 Column List panel will display.)

   YES(Turns off row and column filtering. The
   command in the **Service** field executes
   using the saved column list. The **DB2
   Column List** panel will not display.

- **Request save name ===>***somNam*(Name of saved ISPF column list file
   to edit, 1 to 6 characters)

- **Source library ===>**PROFILE(Use default Profile DDNAME)
   GROUP(Use default Group DDNAME)
   SAMPLE(Use default Sample DDNAME; usually
   points to your ISPTLIB concatenation)
   OTHER(Supply DSN in **Other DSNAME** field)

> **TIP** Use the PROFMAN function to determine which DB2 column lists are saved in your Profile data set. The StarTool FDM DB2 Option always appends #4 or #6 as a prefix to the 1-to-6 character member name you specified when saving the list.

3 Press Enter.

Column Operations on Tables and Table Operations from the Column List

Column operations on tables, as well as whole-table operations requested from the column list, are the same whether accessed from option **1 - DB2List** or option **2 - DB2Table** on the **Menu of DB2 Services**. Supported operations include the following tasks:

- Print selected columns in a table

- Copy selected columns from one table to another

- Extract data from a DB2 table to a sequential file

- Load data from a sequential file to a DB2 table

Printing Selected Columns in a Table

The TPRT (Table Print) command selectively prints the contents of one or more columns in a table. To print the contents of a table, perform the following steps:

1 Choose a table selection facility with option **1 - DB2List** or option **2 - DB2Table** from the **Menu of DB2 Services**.

2 In the main panel of the table selection facility:

- Turn on row-and-column filtering if you want to print only selected columns or a subset of rows in the table. In the **Read all rows?** or **Read all rows/columns?** field, type NO.

- To print all columns and rows, turn off row-and-column filtering. In the **Read all rows?** or **Read all rows/columns?** field, type Yes.

3   Select the table to print with the TPRT command.

■   In DB2List, enter your table selection criteria in the main panel and press Enter to view the resulting **DB2 Table List**. In the table list, type TPRT in the **CMD** field beside each table you want to print, then press Enter. For example:

```
------------------------------ DB2 Table list ------------ Row 1 to 10 of 10
 COMMAND ===>                                              SCROLL ===> PAGE

Enter an ISPF or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME         DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01    ORDER                        T    6    1        -1
 tprt DB2A USER01    PARTS                        T    5    1        -1
 tprt DB2A USER01    SPECTABLE                    T    4    1        -1
      DB2A USER01    SUPPLIER                     T    4    1        -1
****************************** Bottom of data ******************************
```

■   In DB2Table, enter the desired table name and identifying information in the main panel. Type the TPRT command in the **Service ===>** field of the panel, then press Enter.

4   When the **DB2 Column List** displays, perform any row-and-column filtering needed.

   •   If row-and-column filtering is turned on, you can select the columns and filter the rows you want to print at the **DB2 Column List** panel.

   •   If row-and-column filtering is turned off, all columns are preselected for printing.

5   At the **Command ===>** prompt of the **DB2 Column List**, type the TPRT command again and press Enter. The **DB2 Select Statement Validation** panel displays.

```
--------------------------- DB2 Select Statement Validation -----------------
 COMMAND ===>

 When ready press PF6 to continue with PRINT
 Audit option ===> NO  (Yes/No) to audit to a file (ignored for EXT or PRT)
 SELECT PART_NUMBER,PART_NAME,SUPPLIER_NUMBER,NUM_IN_STOCK,ORDER_NUMBER


 FROM USER01.PARTS          Limit ===> 10000      (max rows to retrieve)
 WHERE
 ===>


 ORDER BY ===>
 SUPPLIER_NUMBER ASC
```

Edit the generated SQL WHERE and ORDER BY clauses as desired. You can also change the maximum number of rows to print. The default is 10,000 rows.

6   Press PF6 confirm your request.

7 When the **Print DB2** panel displays, enter the output file information. You can direct the print output to a dataset or to a JES print file.

```
        -------------------------- PRINT DB2 -----------------------------
COMMAND ===>

Specify output destination:
    Output data set   ===> PDSLOG.DATA
    Data set DISP     ===> O         (O is Old; N is New; M is MOD; S is SHR)
    Userid for stats  ===>           (blank for no stats)
    Wide output       ===> YES       (yes or no) for more than 80 characters
    SYSOUT Class      ===> A
    SYSOUT Form       ===>
    SYSOUT Dest       ===>
    SYSOUT Copies     ===> 1
    SYSOUT Chars      ===>
    SYSOUT FCB        ===>
    SYSOUT Flash      ===>
    SYSOUT WTR        ===>
    SYSOUT Pagedef    ===>           (for MVS/ESA systems only)
    SYSOUT Formdef    ===>           (for MVS/ESA systems only)
    SYSOUT Prmode     ===>           (for MVS/ESA systems only)

Note: a SYSOUT class will take precedence over an output data set name.
```

Enter the following field values:

- **Output data set===>**   *dataset.mbr* (For printing to dataset. If used, **SYSOUT class** must be blank and DISP value is required.)

- **Data set DISP===>**   O = Old
  N = New
  M = Mod   (Sequential files only)
  S = Shr

- **Userid for stats===>**   *userid*   (If ISPF statistics desired)

- **Wide output===>**   NO   (80-character line width)
  YES   (133-character line width for JES, or full width of output file)

- **SYSOUT class===>**   *blank*   (Direct output to dataset in **Output data set** field. Other SYSOUT fields are ignored.)
  nonblank   (Direct output to JES. Other SYSOUT fields are used.)

Press ENTER. A message displays with the print job completes.

Copying Columns from One Table to Another

The SELC (Selective Copy) command generates SQL SELECT and INSERT statements to copy the data in one or more columns from one table to another. The SELC command is typically used to populate an empty test table with data from a production table.

The SELC command has the following requirements:

- Selected columns and datatypes in the source table must match those in the target table.

- The column selection order in the source table must match the physical column order in the target table.

- Every physical column in the target table must receive copied data from a selected column in the source table.

> **NOTE** You cannot add a new column to the target table using the `SELC` command. Use option **5 - Table Services** in the **Menu of DB2 Services** to add a column to a table.

To selectively copy columns from a source table to an empty target table:

1 Create an empty target table with the required columns and indices. (See Chapter 8, "Table Services", to use the DB2 Option to perform these tasks.)

2 Choose a table selection utility using option **1 - DB2List** or option **2 - DB2Table** in the **Menu of DB2 Services**. Be sure row-and-column filtering is turned on. (To turn on row-and-column filtering, type `NO` in the field **Read all rows/columns?** or **Read all rows?**)

3 Enter the `SELC` command for the desired source table.

- **In DB2LIST**, type the `SELC` line command in the **CMD** columns of the **DB2 Table List** panel beside the name of the source table that you want to copy columns *from*.

```
------------------------------ DB2 Table List -------------- Row 1 to 4 of 4
 COMMAND ===>                                               SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : 0 or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME      DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER                       T     6   1        -1
 selc DB2A USER01   PARTS                       T     5   1        -1
      DB2A USER01   SPECTABLE                   T     4   1        -1
      DB2A USER01   SUPPLIER                    T     4   1        -1
 ****************************** Bottom of data ******************************
```

Press Enter. The **DB2 Column List** panel displays.

- **In DB2TABLE**, type the name and identifying information for the source table you want to copy columns *from* in the panel **Process a Single DB2 Panel**. In the **Service** field of this panel, type SELC.

```
---------------------- DB2: Process a Single DB2 Table ----------------------
 COMMAND ===>

   Source for display ===> D(type-in, "D":"DB2" or "T":"TABLE")
   Subsystem name     ===> DB2A(Current Subsystem, or may change!)
   Creator name       ===> USER01(type-in, creator name or masked..)
   Table name         ===> PARTS(type-in, table name or masked....)

   Service            ===> SELC(blank, EDIT, VIEW, PRINT, EXTRACT
                             SELC                           )
   Read all rows?     ===> NO(type-in, YES or NO. for all/limit)
                             (if NO, please provide # of limit.)
   Limit - Max# of..  ===> 10000(type-in, limit number of Row/Cols)

 Saved ISPF table of Columns of a single DB2 table.
   Request save name  ===> (1 to 6 character name)
   Source library     ===>(Profile, Group, Sample, or Other)
   Other DSNAME       ===>
 Notes:
   When Service is blank the service can be selected later.
   Enter the data set name in standard TSO syntax.
```

Press Enter. The **DB2 Column List** panel displays.

4 In the **DB2 Column List** panel, select all the columns you wish to copy from the source table by typing S in the **OPT** field beside each desired column. Press Enter.

The **DB2 Column List** panel displays the results of your selection for editing. Selected columns show an S in the **Dis** field.

5 In the **DB2 Column List** panel, change the column selection order in the source table as needed to match the physical column order of the target table.

To change column selection order, type S*n* in the **OPT** field beside each column you want to reorder, where *n* is the desired selection number for the column. For example:

```
------------- DB2 Column List DB2A  USER01.PARTS            Row 1 to 5 of 5
 COMMAND ===>                                               SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : 0 or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name       Sel Col Dis A/D --- Predicate ------------------------
 S1   PART_NUMBER           ...   1  S
      PART_NAME             ...   2
 S3   SUPPLIER_NUMBER       ...   3  S
      NUM_IN_STOCK          ...   4
 S2   ORDER_NUMBER          ...   5  S
****************************** Bottom  of  data ******************************
```

Press Enter. The column list is resorted in column selection order. Unselected columns appear after selected columns, sorted by default column order. For example:

```
------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
 COMMAND ===>                                                SCROLL ===> PAGE


Enter an ISPF command or a StarTool subcommand : 0 or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name       Sel Col Dis A/D --- Predicate ------------------------
      PART_NUMBER         1   1  S
      ORDER_NUMBER        2   5  S
      SUPPLIER_NUMBER     3   3  S
      PART_NAME           4   2
      NUM_IN_STOCK        5   4
 ***************************** Bottom  of  data **************************
```

TIP Steps 4 and 5 may be combined by using the S *n* command for all column selections.

6 Press PF6 to resume the SELC action. The **Select Statement Validation** panel displays.

```
---------------------- DB2: Select Statement Validation -------------------
 COMMAND ===>

 When ready, press PF6 to continue with Selective Copy
 SELECT  PART_NUMBER  ,ORDER_NUMBER   ,SUPPLIER_NUMBER



 FROM DB2A.PARTS              Limit ===> 10000   (max rows to retrieve)
 WHERE ===>
```

This panel displays the selected column names in the order they will appear in the generated SQL SELECT statement for the source table and the SQL INSERT statement for the target table. Any filtering criteria are displayed in the generated WHERE clause.

7 Edit the SELECT statement and its WHERE clause as needed in the **Select Statement Validation** panel. These edits modify the selection of columns from the source table.

8 Press PF6 to continue to the next SELC command prompt. The **Selective Copy - Destination Specification** panel displays.

```
--------------- DB2: Selective Copy - Destination Specification ------------
 COMMAND ===>

    Define the destination table :
      Enter "To" Creator     ===> USER01
      Enter "To" table name  ===> PART_VENDOR_XREF_TEST

    The selected column(s) will be copied from the following :
      Input table name       ====> USER01.PARTS
      Input DB2 subsystem     ====> DB2A

    Press PF6 to continue or PF3 to abort.
```

Enter the following field values:

- **Enter "To" creator===>***userid*(Creator of table to copy ***to***)

- **Enter "To" table name===>***somname*(Name of empty table to copy ***to***)

- **Input table name ===>***user2.somname2*(Table name to copy ***from***)

- **Input DB2 subsystem===>***somsys*(DB2 subsystem to copy ***from***)

9 Press PF6 to resume the `SELC` action. The **Selective Copy - Confirmation** panel displays.

```
-------------------- DB2: Selective Copy - Confirmation ------------------
 COMMAND ===>

 You have requested that StarTool FDM copy selected column(s) ...
    from table USER01.PARTS
    into table USER01.PART_VENDOR_XREF_TEST

 Press PF6 to confirm this copy request, or END (PF3) to abandon.

 You may alter the following SQL statement before FDM sends it to DB2:
 INSERT INTO USER01.PART_VENDOR_XREF_TEST SELECT PART_NUMBER,ORDER_NUMBER
 ,SUPPLIER_NUMBER FROM USER01.PARTS
```

This panel displays the source and target table names for the selective column copy operation. It also displays the final, generated SQL INSERT statement for the target table.

10 Edit the SQL INSERT and SELECT statements as needed in the **Selective Copy - Confirmation** panel.

11 Press PF6 to send the SQL request to DB2.

Extracting Columns from a Table to a Sequential File

The `Extr` (Extract) command extracts the contents of one or more columns in a DB2 table to a sequential file for subsequent loading (using the `Load` command) into another DB2 table. Job cards needed by the `Load` command are also created by the `Extract` command.

NOTE See "Loading Data from a Sequential File to a DB2 Table" in this chapter for information about using the `Load` command to populate DB2 tables.

To extract data from a DB2 table to a sequential file, perform the following steps:

1 Choose a table selection utility using option **1 - DB2List** or option **2 - DB2Table** in the **Menu of DB2 Services**. If you want to extract a subset of columns from the source table, be sure row-and-column filtering is turned on. (To turn on row-and-column filtering, type `NO` in the field **Read all rows/columns?** or **Read all rows?**)

2 Enter the `Extract` command or `Extr` command alias for the desired source table.

■ **In DB2LIST**, type the `Extr` line command in the **CMD** columns of the **DB2 Table List** panel beside the name of the source table that you want to extract columns *from*.

```
------------------------------ DB2 Table List -------------- Row 1 to 4 of 4
 COMMAND ===>                                              SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME      DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER                       T     6    1        -1
 extr DB2A USER01   PARTS                       T     5    1        -1
      DB2A USER01   SPECTABLE                   T     4    1        -1
      DB2A USER01   SUPPLIER                    T     4    1        -1
 ***************************** Bottom of data *****************************
```

Press Enter. The **DB2 Column List** panel displays.

■ **In DB2TABLE**, type the name and identifying information for the source table you want to extract columns *from* in the panel **Process a Single DB2 Panel**. In the **Service** field of this panel, type EXTRACT.

```
---------------------- DB2: Process a Single DB2 Table --------------------
 COMMAND ===>

   Source for display ===> D(type-in, "D":"DB2" or "T":"TABLE")
   Subsystem name     ===> DB2A(Current Subsystem, or may change!)
   Creator name       ===> USER01(type-in, creator name or masked..)
   Table name         ===> PARTS(type-in, table name or masked....)

   Service            ===> EXTRACT(blank, EDIT, VIEW, PRINT, EXTRACT
                            SELC                            )
   Read all rows?     ===> NO(type-in, YES or NO. for all/limit)
                            (if NO, please provide # of limit.)
   Limit - Max# of..  ===> 10000(type-in, limit number of Row/Cols)

 Saved ISPF table of Columns of a single DB2 table.
   Request save name  ===> (1 to 6 character name)
   Source library     ===>(Profile, Group, Sample, or Other)
   Other DSNAME       ===>

 Notes:
   When Service is blank the service can be selected later.
   Enter the data set name in standard TSO syntax.
```

Press Enter. The **DB2 Column List** panel displays.

3 In the **DB2 Column List** panel, select the columns you want to extract.

■ To select all columns, type SELECT at the **COMMAND ===>** prompt and press Enter.

■ To select one or a few columns, type an S in the **OPT** column next to each column in the DB2 table that you want to include in the extracted sequential file and press Enter.

The **DB2 Column List** panel displays the results of your selection for editing. Selected columns show an S in the **Dis** field.

4 In the **DB2 Column List** panel, change the column selection order in the source table as needed. If you are extracting table data to a sequential file that already exists, the selection order of the columns in the source table must match the physical column order of the target sequential file.

To change column selection order, type S*n* in the **OPT** field beside each column you want to reorder, where *n* is the desired selection number for the column. For example:

```
 ------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
 COMMAND ===>                                                 SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name       Sel Col Dis A/D --- Predicate ------------------------
 S1   PART_NUMBER         ...   1  S
      PART_NAME           ...   2
 S3   SUPPLIER_NUMBER     ...   3  S
      NUM_IN_STOCK        ...   4
 S2   ORDER_NUMBER        ...   5  S
 ***************************** Bottom  of  data ****************************
```

Press Enter. The column list is resorted in column selection order. Unselected columns appear after selected columns, sorted by default column order. For example:

```
 ------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
 COMMAND ===>                                                 SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name       Sel Col Dis A/D --- Predicate ------------------------
      PART_NUMBER         1    1  S
      ORDER_NUMBER        2    5  S
      SUPPLIER_NUMBER     3    3  S
      PART_NAME           4    2
      NUM_IN_STOCK        5    4
 ***************************** Bottom  of  data ***************************
```

TIP Steps 3 and 4 may be combined by using the S*n* command for all column selections.

5   Type the E x t r or E x command alias at the **COMMAND ===>** prompt in the **DB2 Columns List** panel. For example:

```
 ------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
 COMMAND ===> Extr                                            SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : O or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name       Sel Col Dis A/D --- Predicate ------------------------
      PART_NUMBER         1    1  S
      ORDER_NUMBER        2    5  S
      SUPPLIER_NUMBER     3    3  S
      PART_NAME           4    2
      NUM_IN_STOCK        5    4
 ***************************** Bottom  of  data ****************************
```

Press Enter. The **DB2 Select Statement Validation** panel displays.

```
--------------------------- DB2 Select Statement Validation ----------------
 COMMAND ===>

 When ready press PF6 to continue with EXTRACT
 Audit Option ===> NO   (Yes/No) to audit to a file (ignored for EXT or PRT)
 SELECT  PART_NUMBER  ,ORDER_NUMBER  ,SUPPLIER_NUMBER

 FROM USER01.PARTS            Limit ===> 10000        (max rows to retrieve)
 WHERE


 ORDER BY ===>
```

6 Edit the SELECT statement and its WHERE and ORDER BY clauses as needed in the **Select Statement Validation** panel. These edits modify the selection of columns from the source table.

7 Press **PF6**. The **Extract Data Set** panel prompts you for the dataset name and allocation information for the target sequential file that data will be extracted *to*..

```
--------------------------- Extract Data Set prompt ---------------------
 COMMAND ===>

 Specify the extract data set
  Data set         ===> XTR.PARTXREF
  Allocation type   ===> NEW    (New, Old, or Mod)

 Specify Primary and secondary space in tracks for NEW data set
  Primary          ===> 4       value in tracks
  Secondary        ===> 2       value in tracks

 Note:  The extract file must be have a record format of FB
        and a minumum logical record length of 59.
        A NEW file will be allocated with the minumum LRECL.
```

Press **Enter**. Table data is extracted to the named sequential file.

8 When the table data extraction step completes, the **Output DB2 Load Control Card** panel prompts you for a dataset name for the output file to contain the control cards used to specify columns (or field) information to a later `Load` operation. The DSNUTILB utility will use these control cards to load the data from the extracted sequential file to a DB2 database.

An example **Output DB2 Load Control Card** panel appears below:

```
------------------------ Output DB2 load control card ------ Extract complete
OPTION ===>

Specify Library data set below

To other data set:
  Data Set Name         ===> SDS.CNTL
  Member Name           ===> XRFIELDS
  Replace               ===> YES      (Yes/No)

  The data set must be a sequential or partitioned data set
  with a fixed format and a record length of 80.

  The cards will only contain Field specifications for DSNUTILB.
  A copy of the cards has already been placed in the LOG along
  with a sample LOAD command.  EDITLOG can be used to view these
  and from there they can be CUT or copied to any data set.
```

Type the requested information and press Enter. The job cards for a batch `Load` operation are generated.

Loading Data from a Sequential File to a DB2 Table

The `Load` command populates a DB2 table with data from a previously extracted sequential file in batch mode. Job cards for the `Load` command are generated by the same `Extract` operation that creates the sequential data file.The physical column layout of the source sequential file and the target DB2 table must match for the `Load` operation to be successful.

NOTE See "Extracting Columns from a Table to a Sequential File" in this chapter for information about using the `Extract` command.

To populate a DB2 table with data from a sequential file, perform the following steps:

1 Choose a table selection utility using option **1 - DB2List** or option **2 - DB2Table** in the **Menu of DB2 Services**.

2 Enter the `Load` command for the desired source table.

▪ **In DB2LIST**, type the `Load` line command in the **CMD** columns of the **DB2 Table List** panel beside the name of the target table that you want to load data *to*.

```
--------------------------------- DB2 Table List -------------- Row 1 to 4 of 4
 COMMAND ===>                                          SCROLL ===> PAGE
Enter an ISPF command or a StarTool subcommand : O or ? for help on CMD line:

 CMD  SUBS CREATOR    TABLE NAME       DATA/MSG TYPE COLS KEYS - PAGES -
      DB2A USER01   ORDER                       T      6   1        -1
load  DB2A USER01   PARTS                       T      5   1        -1
      DB2A USER01   SPECTABLE                   T      4   1        -1
      DB2A USER01   SUPPLIER                    T      4   1        -1
 ***************************** Bottom of data *****************************
```

Press Enter. The **DB2 Load Data Set Prompt** panel displays.

- **In DB2TABLE**, type the name and identifying information for the source table you want to load data *to* in the panel **Process a Single DB2 Panel**. To enable access to the Load command:

    - The **Service** field of this panel must be blank.

    - Type NO in the field **Read all rows?** to turn on row-and-column filtering.

```
--------------------- DB2: Process a Single DB2 Table --------------------
COMMAND ===>

  Source for display ===> D(type-in, "D":"DB2" or "T":"TABLE")
  Subsystem name     ===> DB2A(Current Subsystem, or may change!)
  Creator name       ===> USER01(type-in, creator name or masked..)
  Table name         ===> PARTS(type-in, table name or masked....)

  Service            ===> (blank, EDIT, VIEW, PRINT, EXTRACT
                           SELC                           )
  Read all rows?     ===> NO(type-in, YES or NO. for all/limit)
                           (if NO, please provide # of limit.)
  Limit - Max# of..  ===> 10000(type-in, limit number of Row/Cols)

Saved ISPF table of Columns of a single DB2 table.
  Request save name  ===> (1 to 6 character name)
  Source library     ===>(Profile, Group, Sample, or Other)
  Other DSNAME       ===>

Notes:
  When Service is blank the service can be selected later.
  Enter the data set name in standard TSO syntax.
```

Press Enter. When the **DB2 Column List** panel displays, do the following:

- Type Select at the **COMMAND ===>** prompt to select all rows of the target table. Press Enter.

- Type Load at the **COMMAND ===>** prompt when the **DB2 Column List** panel returns with all columns selected in the **Dis** column. For example:

```
------------- DB2 Column List DB2A  USER01.PARTS              Row 1 to 5 of 5
 COMMAND ===> Load                                           SCROLL ===> PAGE

Enter an ISPF command or a StarTool subcommand : 0 or ? for help on OPT line:
When ready you can enter one of the following: VIEW, EDIT, PRINT, EXTRACT, SELC
 OPT  Column Name       Sel Col Dis A/D --- Predicate ------------------------
      PART_NUMBER        1   1  S
      PART_NAME          2   2  S
      SUPPLIER_NUMBER    3   3  S
      NUM_IN_STOCK       4   4  S
      ORDER_NUMBER       5   5  S
***************************** Bottom  of  data ****************************
```

Press Enter. The **DB2 Load Data Set Prompt** panel displays.

3   When you press Enter, the **DB2 Load Data Set Prompt** panel displays:

```
-------------------------- DB2 Load Data Set Prompt ------------------
COMMAND ===>

 DB2 subsystem name   ==> DB2A
 Output Table Creator ==> USER01    (Table Creator/Owner/Prefix)
 Output Table Name    ==> PARTS
 Input data set       ==> XTR.PARTXREF
 Field spec data set  ==> SDS.CNTL
 Field spec member    ==> XRFIELDS (Field specification member)
 Table Replace option ==> NO        (Yes/No to replace existing table)
 Enforce Constraints  ==> NO        (Yes/No)

 JOB and JOBLIB statements for the batch job:
 ===> //USER01  JOB (1111),' ',CLASS=A,MSGCLASS=X,NOTIFY=USER01
 ===>
 ===>
```

The panel displays the DB2 subsystem name and target DB2 table information passed to it from DB2List or DB2Table. Enter the following information about the input files:

- **Input data set**   **==>** *dsn*   (DSN of source sequential file)

- **Field spec data set**   **==>** *libtype* (Dataset of source control cards)

- **Field spec member**   **==>** *member*   (Member of source control cards)

- **Table Replace option ==>** NO   (Don't replace existing table)

                                                      YES   (Replace existing table)

- **Enforce Constraints ==>** NO   (Don't enforce table constraints)

                                                      YES   (Enforce table constraints)

Type the job control statements needed to execute the batch Load job. Press Enter.

4   ISPF displays the generated JCL that will be submitted to invoke the DSNUTILB utility and populate the selected DB2 table. Edit the JCL as needed. For example:

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
 ------------------------------------------------------------------------------
 EDIT      USER01.SPFTEMP1.CNTL                         Columns 00001 00072
 Command ===>                                           Scroll ===> CSR
 ****** ***************************** Top of Data *****************************
 000001 //USER01  JOB (1111),' ',CLASS=A,MSGCLASS=X,NOTIFY=USER01
 000002 //* USING SKELETON PDS$DB2J
 000003 //LOAD EXEC PGM=DSNUTILB,REGION=5000K,PARM='DB2A'
 000004 //SORTOUT  DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000005 //SORTWK01 DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000006 //SYSDISC  DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000007 //SYSERR   DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000008 //SYSMAP   DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000009 //SYSUT1   DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000010 //SYSREC   DD DISP=OLD,DSN=USER01.DB2.PARTXREF
 000011 //SYSPRINT DD SYSOUT=*
 000012 //UTPRINT  DD SYSOUT=*
 000013 //SYSIN    DD DDNAME=SYSLOAD
 000014 //         DD DISP=SHR,DSN=USER01.SDS.CNTL(XRFIELDS)
 000015 //SYSLOAD  DD *
 000016  LOAD DATA INDDN(SYSREC) ENFORCE NO
 000017    INTO TABLE USER01.PARTS
 000018 /*
```

5 Type the Submit command at the **Command ==> prompt** to submit the Load job.

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
 -------------------------------------------------------------------------------
 EDIT       USER01.SPFTEMP1.CNTL                        Columns 00001 00072
 Command ===> Submit                                    Scroll ===> CSR
 ****** ************************** Top of Data **************************
 000001 //USER01  JOB (1111),' ',CLASS=A,MSGCLASS=X,NOTIFY=USER01
 000002 //* USING SKELETON PDS$DB2J
 000003 //LOAD EXEC PGM=DSNUTILB,REGION=5000K,PARM='DB2A'
 000004 //SORTOUT  DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000005 //SORTWK01 DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000006 //SYSDISC  DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000007 //SYSERR   DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000008 //SYSMAP   DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000009 //SYSUT1   DD UNIT=SYSDA,SPACE=(4000,(20,20),,,ROUND)
 000010 //SYSREC   DD DISP=OLD,DSN=USER01.DB2.PARTXREF
 000011 //SYSPRINT DD SYSOUT=*
 000012 //UTPRINT  DD SYSOUT=*
 000013 //SYSIN    DD DDNAME=SYSLOAD
 000014 //         DD DISP=SHR,DSN=USER01.SDS.CNTL(XRFIELDS)
 000015 //SYSLOAD  DD *
 000016  LOAD DATA INDDN(SYSREC) ENFORCE NO
 000017    INTO TABLE USER01.PARTS
 000018 /*
```

Press Enter.

6 The following panel shows example SDSF output for a Load job.

```
 -------------------------------------------------------------------------------
 SDSF OUTPUT DISPLAY USER01D  JOB04164  DSID   102 LINE 1      COLUMNS 02- 81
 COMMAND INPUT ===>                                    SCROLL ===> CSR
DSNU000I   DSNUGUTC - OUTPUT START FOR UTILITY, UTILID = USER01.USER01D
DSNU050I   DSNUGUTC - LOAD DATA INDDN(SYSREC) ENFORCE NO
DSNU650I -DSN1 DSNURWI -   INTO TABLE USER01.PARTS
DSNU650I -DSN1 DSNURWI -    (PART_NUMBER POSITION(1:4) INTEGER,
DSNU650I -DSN1 DSNURWI -     PART_NAME POSITION(5:22) VARCHAR
     NULLIF(23:24)=X'FF
DSNU650I -DSN1 DSNURWI -     SUPPLIER_NUMBER POSITION(25:26) SMALLINT,
DSNU650I -DSN1 DSNURWI -     NUM_IN_STOCK POSITION(27:28) SMALLINT
     NULLIF(29:30)
DSNU650I -DSN1 DSNURWI -     ORDER_NUMBER POSITION(31:32) SMALLINT
     NULLIF(33:34)
DSNU350I -DSN1 DSNURRST - EXISTING RECORDS DELETED FROM TABLESPACE
DSNU304I -DSN1 DSNURWT - (RE)LOAD PHASE STATISTICS - NUMBER OF RECORDS=9 FOR
     TAB
DSNU302I   DSNURILD - (RE)LOAD PHASE STATISTICS - NUMBER OF INPUT RECORDS
     PROCES
DSNU300I   DSNURILD - (RE)LOAD PHASE COMPLETE, ELAPSED TIME=00:00:03
DSNU010I   DSNUGBAC - UTILITY EXECUTION COMPLETE, HIGHEST RETURN CODE=0
```

Chapter 5

Viewing and Editing Tables with PEDIT

The DB2 Option calls the StarTool FDM PEDIT utility to view or edit the contents of DB2 tables and views interactively. The *StarTool FDM User's Guide* contains general information about using PVIEW and PEDIT.

Considerations specific to PVIEW and PEDIT in the DB2 Option environment include:

- Starting PVIEW or PEDIT
- Changing Sorting and Filtering Options
- Editing DB2 Tables with PEDIT
- Using the Find and Change Commands
- Tracking Commit Status

Starting PVIEW or PEDIT

To invoke PVIEW or PEDIT from the DB2 Option:

1   Choose a table selection facility with option **1 - DB2List** or option **2 - DB2Table** from the **Menu of DB2 Services**.

> **NOTE** See Chapter 2, "Table List Processing with DB2List", or Chapter 3, "Single Table Processing with DB2Table", for interface information about these facilities.

2   In the main panel of the table selection facility — that is, in the panel to **Create a List of DB2Tables** or the panel to **Process a Single DB2 Table** — do the following:

- Turn on row-and-column filtering if you want to view or edit only selected columns or a subset of rows in the table. In the **Read all rows?** or **Read all rows/columns?** field, type `NO`.

- To view or edit all columns and rows, turn off row-and-column filtering. In the **Read all rows?** or **Read all rows/columns?** field, type `Yes`.

3   Select the table to view or edit with the `View` or `Edit` command.

- In DB2List, enter your table selection criteria in the main panel and press Enter to view the resulting **DB2 Table List**. In the table list, type the `View` or `Edit` command in the **CMD** field beside each table you want to view or edit, then press Enter.

- In DB2Table, enter the desired table name and identifying information in the main panel. Type the `View` or `Edit` command in the **Service ===>** field of the panel, then press Enter.

4   When the **DB2 Column List** displays, perform any row-and-column filtering needed.

> **NOTE** See Chapter 4, "Operations on Rows, Column Lists, and Columns" for how-to information about row-and-column filtering.

5 At the **Command ===>** prompt of the **DB2 Column List**, type the `View` or `Edit` command again and press Enter. The **DB2 Select Statement Validation** panel displays.

```
------------------------ DB2 Select Statement Validation --------------------
COMMAND ===>

 When ready press PF6 to continue with VIEW
 Audit option ===> NO  (Yes/No) to audit to a file (ignored for EXT or PRT)
 SELECT  PART_NUMBER  ,PART_NAME  ,SUPPLIER_NUMBER  ,NUM_IN_STOCK
     ,ORDER_NUMBER


 FROM USER01.PARTS           Limit ===> 10000        (max rows to retrieve)
 WHERE


 ORDER BY ===>
 SUPPLIER_NUMBER ASC
```

Edit the generated SQL WHERE and ORDER BY clauses as desired. You can also change the maximum number of rows retrieved by PVIEW or PEDIT for the viewing or editing session. The default value is 10,000 rows. Press PF6 confirm your request.

6 The **PEDIT-VIEW** panel (for the `View` command) or the **PEDIT** panel (for the `Edit` command) displays your selected table with the selected columns, filtered rows, and column sort order you specified. For example:

```
PEDIT       DB2A USER01.PARTS --------------------- COLUMNS 000001 000032
                                                    SCROLL ===> PAGE
COMMAND ===>

 NAME   |PART_NUMBER|PART_NAME
     |SUPPLIER_NUMBER|NUM_IN_STOCK|ORDER_NUMBER
 PIC    |INTEGER     |VARCHAR (16)     |SMALLINT      |SMALLINT     |SMALLINT
 NUMBER|2           |3               |4             |5            |6
 ****** ******************** TOP OF DATA ********************************
 000001      2001 HARD DRIVE      1001            3           100
 000002      2081 CPU             1010            1           170
 000003      2011 MONITOR         1010           10           110
 000004      2051 HARD DRIVE      1010            5           180
 000005      2021 MOTHERBOARD     1020            5           120
 000006      2031 CPU             1030            1           130
 000007      2061 SOUND CARD      1040            2           140
 000008      2041 HARD DRIVE      1050            1           150
 000009     *NULL* CPU            1060            8           160
 ****** ****************** BOTTOM OF DATA ********************************
```

> **NOTE** Null values are marked `*NULL*` in the appropriate PEDIT column. DB2 ROWID columns do not display.

Changing Sorting and Filtering Options

You can change the sort order of columns or the filtering options on rows shown in PVIEW or PEDIT. To do this:

1 Press PF3 to exit from PVIEW or PEDIT. You will return to the **DB2 Select Statement Validation** panel for the current editor session. Current SQL sorting and filtering specifications are displayed.

> ⚠ **CAUTION!** Pressing PF3 causes DB2 to commit any edits in progress in the current PEDIT session. To cancel these changes, type `Cancel` at the **Command ===>** prompt and press Enter. Then press PF3 to exit from PEDIT.

2 Edit the SQL WHERE clause to modify row filtering options. Edit the SQL ORDER BY clause to modify the displayed sort order.

3 Press **PF6** to resume PVIEW or PEDIT with the new sorting and filtering options.

Editing DB2 Tables with PEDIT

Most PEDIT features work the same way in the DB2 Option as they do with other file types. You can change, delete, insert, copy, or repeat rows in a table using standard ISPF editor commands. The FIND and CHANGE commands are supported.

The processing flow in PEDIT interacts in special ways with DB2's table constraints and the commit process. In general:

- **PEDIT allows you to change, delete, or insert** one or more rows in a working view of the table before you commit those changes to DB2. Pressing Enter in PEDIT does *not* commit a change to the database.

- **New rows to be inserted** in the table can be entered, viewed, and changed in PEDIT before you commit the insertion. Pending, uncommitted insertions are flagged with **==PEN>** in the ISPF line number field. For example:

```
PEDIT        DB2A USER01.PARTS ---------------------- COLUMNS 000001 000032
                                                       SCROLL ===> PAGE
COMMAND ===>

 NAME  |PART_NUMBER|PART_NAME      |SUPPLIER_NUMBER|NUM_IN_STOCK|ORDER_NUMBER
 PIC   |INTEGER    |VARCHAR (16)   |SMALLINT       |SMALLINT    |SMALLINT
 NUMBER|2          |3              |4              |5           |6
****** ****************** TOP OF DATA ********************************
 000001        2001 HARD DRIVE      1001               3          100
 000002        2012 MONITOR         1010              10          110
 ==PEN>        2015 MONITOR         1010               0          115
 000004        2021 MOTHERBOARD     1020               5          120
 000005        2031 CPU             1030               1          130
 000006        2041 HARD DRIVE      1050               1          150
 000007        2061 SOUND CARD      1040               2          140
 000008        2071 CPU             1060               8          160
 000009        2081 CPU             1010               1          170
****** ****************** BOTTOM OF DATA *****************************
```

- **Deleted rows** in PEDIT are not deleted in the DB2 table until you commit the deletion. Pending, uncommitted deletions are flagged with **==PEN>** in the ISPF line number field.

- **Changes to existing rows** appear in the working view in PEDIT, but those rows are not changed in the DB2 table until you commit the change. Changes can be edited, canceled, or cleared prior to commit.

- **Commit your pending changes, insertions, and deletions** to the database by pressing PF3 at the PEDIT panel. A message reports the success or failure of the commit operation in the **DB2 Select Statement Validation** panel.

```
-------------------- DB2 Select Statement Validation      COMMIT SUCCESSFUL

 COMMAND ===>


 When ready press PF6 to continue with EDIT
 SELECT   PART_NUMBER  ,PART_NAME  ,SUPPLIER_NUMBER  ,NUM_IN_STOCK
     ,ORDER_NUMBER

 FROM USER01.PARTS          Limit ===> 10000        (max rows to retrieve)
 WHERE
 ===>


 ORDER BY ===>
```

Clearing DB2 Constraint Errors

If you type an entry that violates a contraint on a table, the row with the error is flagged with **==ERR>** in the ISPF line number. The DB2 error message associated with the constraint violation displays in a pop-up error box at the bottom of the panel. For example:

```
PEDIT      DB2A USER01.ORDER ----------------------- COLUMNS 000001 000023
                                                         SCROLL ===> CSR
COMMAND ===>

 NAME  |ORDER_NUMBER|COST         |SUPPLIER_NUMBER|LAST_ORDER_DATE
 PIC   |SMALLINT    |DECIMAL (9,2)|SMALLINT       |DATE
 NUMBER|2           |3            |4              |5
****** ******************** TOP OF DATA ********************************
 000001   100         199.95      1001         2005-02-12
 ==ERR>   100          99.95      1010         2006-08-01
 000003   120          78.00      1020         2006-06-15
 000004   130         550.99      1030         2006-09-30
 000005   140         129.99      1040         2006-06-30
 000006   150         189.99      1050         2006-01-10
 000007   160         399.99      1060         2005-10-10
 000008   170         449.99      1010         2006-03-15
 000009   180         169.99      1010         2006-02-15

. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .   *
. DSNT408I SQLCODE = -803, ERROR:  AN INSERTED OR UPDATED VALUE IS INVALID  .
.         BECAUSE INDEX IN INDEX SPACE ORDI1XBX CONSTRAINS COLUMNS OF THE   .
.         TABLE SO NO TWO ROWS CAN CONTAIN DUPLICATE VALUES IN THOSE        .
.         COLUMNS. RID OF EXISTING ROW IS X'0000000201                     .
. DSNT418I SQLSTATE   = 23505 SQLSTATE RETURN CODE                         .
. DSNT415I SQLERRP    = DSNXRUID SQL PROCEDURE DETECTING ERROR             .
. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
```

To clear the error condition, type `Clear` at the **Command ===>** prompt and press Enter. The row is restored to its original values. Retype your entry with the correct value.

> **NOTE** The `Clear` command does not affect other pending insertions or deletions.

Canceling DB2 Transactions

You can cancel DB2 transactions either before or after they are committed.

- **To cancel pending changes, insertions, or deletions changes** to a table *before* they are committed, type `Cancel` at the PEDIT **Command ===>** prompt and press Enter.

```
PEDIT        DB2A USER147.PARTS ---------------------- COLUMNS 000001 000032
                                                         SCROLL ===> PAGE
COMMAND ===> CANCEL

NAME  |PART_NUMBER|PART_NAME      |SUPPLIER_NUMBER|NUM_IN_STOCK|ORDER_NUMBER
PIC   |INTEGER    |VARCHAR (16)   |SMALLINT       |SMALLINT    |SMALLINT
NUMBER|2          |3              |4              |5           |6
****** ******************** TOP OF DATA *********************************
000001       2001 HARD DRIVE        1001              3           100
000002       2012 MONITOR           1010             10           110
000003       2021 MOTHERBOARD       1020              5           120
000004       2031 CPU               1030              1           130
000005       2041 HARD DRIVE        1050              1           150
000006       2051 HARD DRIVE        1010              5           180
000007       2061 SOUND CARD        1040              2           140
000008       2071 CPU               1060              8           160
000009       2081 CPU               1010              1           170
****** ******************** BOTTOM OF DATA ******************************
```

- **To back out changes, insertions, or deletions** *after* they have been committed, type `Cancel` at the **Command ===>** prompt of the **DB2 Select Statement Validation** panel reporting the success of the commit operation.

```
-------------------- DB2 Select Statement Validation      COMMIT SUCCESSFUL

 COMMAND ===> CANCEL

 When ready press PF6 to continue with EDIT
 SELECT  PART_NUMBER  ,PART_NAME  ,SUPPLIER_NUMBER  ,NUM_IN_STOCK
    ,ORDER_NUMBER

 FROM USER01.PARTS           Limit ===> 10000        (max rows to retrieve)
 WHERE
 ===>

 ORDER BY ===>
```

The success or failure of the backout operation is reported in the upper right corner of the panel.

To resume editing, press PF6. To exit PEDIT, press PF3.

Using the Find and Change Commands

The `F` (Find) and `C` (Change) commands in PVIEW and/or PEDIT let you search for specific column content in individual DB2 tables.

Find Command

The syntax for the `Find` command is:

```
F[IND]   char-string IN(n |somcol) [nn mm]
         [ASIS] [ALL] [FIRST/LAST/PREV] [PREFIX/SUFFIX/WORD]
```

where:

- *char-string* is the character string to find. It is converted automatically to the data type of the column specified in the `IN` parameter.

- `IN(`*n* | *somcol*`)` specifies that column number *n* or the column named *somcol* should be searched.

- *nn* and *mm* refer to the starting and ending positions within a column to search. (Column must be a character datatype.)

- `[PREFIX/SUFFIX/WORD]` keywords apply only to character datatypes.

- Other keywords have the same meanings they do in PEDIT and PVIEW elsewhere in StarTool FDM.

Special considerations apply to the *char-string* parameter for the `Find` command in the DB2 Option.

- To specify the *NULL* string, use P'_'.

- Enclose *char-string* in single quotes when the string contains special characters such as blanks. For example: 'a=b'. If *char-string* contains single quotes, enclose it in double quotes. For example: "don't"**.**

- If *char-string* is a number, enclose it in single quotes unless it includes or is followed by a decimal point.

- Floating-point numbers are not supported.

- Date, time, and timestamp data types are character strings unless only a partial date, time, or timestamp is given. For example: 2002-02-12 is a character string, but 2002 entered by itself is an integer and must be entered in quotes to find as a character string.

For example:

Value to Find	Example Command Syntax
The value of 1020 (a small integer) in column 4	F 1020. IN(4) F '1020' IN(4)
The decimal value 199.95 in column 3, which is named COST	F 199.95 IN(COST)
The characters 1999 anywhere between positions 2 and 6 of column 5	F '1999' 2 6 IN(5)

Value to Find	Example Command Syntax
Find the characters LOS ANGELES in column 2	`F 'LOS ANGELES' IN(2)`
Find a NULL in column 1, which is named TYPE	`F P'_' IN(TYPE)`
Find the characters VALE at the end of a word in the column named CITY	`F VALE IN(CITY) SUFFIX`

Change Command

The syntax for the `Change` command is:

```
C[hange] find-string rep-string [nn  mm] IN(n |somcol)
         [ASIS] [ALL] [FIRST/LAST/PREV] [PREFIX/SUFFIX/WORD]
```

where:

- *find-string* is the character string to find. It is converted automatically to the data type of the column specified in the `IN` parameter.

- *rep-string* is the replacement character string. It is converted automatically to the data type of the column specified in the `IN` parameter. Must be the same length as *find-string* for non-numeric data types; padding with blanks on the right is accepted.

- `IN(`*n* | *somcol*`)` specifies that column number *n* or the column named *somcol* should be searched.

- *nn* and *mm* refer to the starting and ending positions within a column to search. (Column must be a character datatype.)

- `[PREFIX/SUFFIX/WORD]` keywords apply only to character datatypes.

- Other keywords have the same meanings they do in PEDIT and PVIEW elsewhere in StarTool FDM.

- The special considerations that apply to *char-string* in the `Find` command also apply to *find-string* and *rep-string* in the `Change` command.

For example:

Change Requested	Example Command Syntax
The small integer 1020 to 1021 in column 4	`C '1020' '1021' IN(4)` `C 1020. 1021. IN(4)`
The decimal value 199.95 in column 3 to 200.00	`C 199.95 200.00 IN(3)`
The character string LOS ANGELES in column 1 to NULL	`C 'LOS ANGELES' P'_' IN(1)`

Tracking Commit Status

Edit sessions with pending, uncommitted DB2 transactions are flagged with a **Pending** status message in the **Menu of DB2 Services**.

```
---------------------- StarTool Menu of DB2 Services ----------------------
OPTION  ===>


                                         Current Subsys-id  ===> DB2A

   1  -  DB2List         - Create a list of DB2 tables              Inactive
   2  -  DB2Table        - Modifying DB2 table for EDIT, VIEW, etc   Inactive
   3  -  SQL             - Adhoc DB2 query (non-SELECT) statement
   4  -  Grant/Revoke    - Grant or Revoke privileges
   5  -  Table Services  - Create, Alter, Drop, etc. tables
   6  -  DB2SYST         - View system tables
   7  -  EDIT/VIEW       - Return to EDIT/VIEW if it is active        Pending


  Note:  When selecting options 1 or 2 (DB2List or DB2Table) if the
         table status is "Current" or "Inactive" you are prompted
         for a new list. If the table status is "Active" or "Pending"
         you are returned to that function.
```

Select option **7 - Edit/View** to resume the PEDIT session with pending transactions. You can commit these changes or cancel them.

Chapter 6
SQL Processing

The DB2 Option supports ad hoc SQL operations against the currently active DB2 subsystem.

To issue an ad hoc SQL statement, perform the following steps.

1   Go to the ***Menu of DB2 Services*** and select option **3 - SQL**. The panel **Process an Ad Hoc DB2 Non-SELECT Statement** displays.

```
--------------- DB2: Process an Ad Hoc DB2 Non-SELECT Statement  -------------

 COMMAND ===>

  Subsystem name     ===> DB2A    Enter an SQL statement below
  Set Current SQLID  ===>          (Optional User ID) for this statement only
==>



 <== End of statement
```

2   Type the desired SQL statement between the **==>** and **<==** delimiters. For example:

```
--------------- DB2: Process an Ad Hoc DB2 Non-SELECT Statement  --------------

 COMMAND ===>

  Subsystem name     ===> DB2A    Enter an SQL statement below
  Set Current SQLID  ===>          (Optional User ID) for this statement only
 ==> CREATE FUNCTION TEST1 (SMALLINT) RETURNS SMALLINT EXTERNAL NAME
'TEST1!FUNC1' LANGUAGE C PARAMETER STYLE DB2SQL DETERMINISTIC
NOT FENCED NULL CALL NO SQL NO EXTERNAL ACTION


 <== End of statement
```

The SQL processing facility has the following requirements for SQL statements:

■   Only one SQL statement may be entered per panel.

■   Do not terminate the SQL statement with a semicolon (;).

■   The SELECT statement is not supported.

See IBM's *SQL Reference* for your version of DB2 for a description of valid SQL syntax.

3 Press Enter. The confirmation panel **Confirm Process of DB2 Ad Hoc Non-Select Statement** displays.

```
----------- DB2: Confirm Process of DB2 Ad Hoc Non-Select Statement  ----------
 COMMAND ===>

   Press PF6 DB2: Execute the DB2 SQL Statement
   Enter END (F3) to abandon this request

   You are requesting StarTool FDM execute the following SQL statement.
   You may alter the following SQL statement before FDM sends it to DB2:
CREATE FUNCTION TEST1 (SMALLINT) RETURNS SMALLINT EXTERNAL NAME
'TEST1!FUNC1' LANGUAGE C PARAMETER STYLE DB2SQL DETERMINISTIC
NOT FENCED NULL CALL NO SQL NO EXTERNAL ACTION
```

4 Edit the SQL statement as required.

5 Press PF6 to execute the request. Press PF3 to cancel it.

Chapter 7
Grant or Revoke Privileges

If you have system administrator privileges on the active DB2 subsystem, you can use the DB2 Option to grant or revoke privileges for any DB2 collection, database, package, plan, system, table, or view that resides on that subsystem. You can also use the `Gran` (Grant) and `Revo` (Revoke) line commands in DB2List to grant or revoke privileges.

Starting the DB2 Authorization Facility

To start the privileges authorization facility, go to the *Menu of DB2 Services* and select option **4 - Grant/Revoke**. The **Grant or Revoke Privileges** panel displays.

```
---------------------- DB2: Grant or Revoke Privileges --------------------
  Enter option number
 OPTION  ===>

Set Current SQLID ===>        (optional User ID) only for Grants and Privileges

    1      Grant Collection Privileges
    2      Grant Database Privileges
    3      Grant Package Privileges
    4      Grant Plan Privileges
    5      Grant System Privileges
    6      Grant Table or View Privileges
    7      Grant Use Privileges

    11     Revoke Collection Privileges
    12     Revoke Database Privileges
    13     Revoke Package Privileges
    14     Revoke Plan Privileges
    15     Revoke System Privileges
    16     Revoke Table or View Privileges
    17     Revoke Use Privileges
```

Set the current **SQLID** to the user ID you want to use to grant and revoke privileges. This ID will be recorded as the grantor of any privileges you assign. The **SQLID** field defaults to your TSO user ID, but need not be same as your TSO user ID. The value of **SQLID** is retained until you change it or until you exit the DB2 Option.

Type the option number for the desired grant or revoke action at the **Option ===>** prompt.

Each option brings up an ISPF panel that presents the appropriate SQL keywords and prompts you for required values. Entries are required in all fields except for those below the **Optional** heading at the bottom of the panel. User or group IDs for privilege grantees are entered at the bottom of each panel. Leave this field blank to grant PUBLIC authority.

The only difference in content between panels that grant privileges and panels that revoke privileges is that the word "Grant" is replaced by "Revoke."

IBM's *SQL Reference* for your release of DB2 provides specific information about parameter definitions and required syntax.

Be aware that privileges are inherited from grantor to grantee. This means:

- You cannot grant authorization for privileges you do not possess.

- Revoked authorizations are passed down the grantor/grantee chain. For example, if User 2 is granted a privilege by User 1, and you revoke User 1's privileges, User 2's privileges are also revoked.

> **NOTE** You must have SYSADM or SYSCTRL authority to grant or revoke DB2 privileges.

Privilege Authorization Panels

The following panels prompt you for the values needed to grant or revoke DB2 privileges.

Grant Collection Privileges

```
---------------------------- DB2: Grant Collection Privileges ---------------
 COMMAND ===>

 Subsystem Name   ===> DB2A
 Collection-Id(s) ===>

 Select privileges to Grant:
  Choose one of the following:
     __ Create
     __ Packadm
  Choose one of the following:
     __ On
     __ In

 Optional:
     __ With Grant Option

 Enter a list of user names, separated by commas, or blank for PUBLIC
 ===>
```

Grant Database Privileges

```
--------------------------- DB2: Grant Database Privileges ----------------
COMMAND ===>

 Subsystem name   ===> DB2A
 Database name(s) ===>

 Select privileges to Grant:
  Choose one of the following:
     __ DBADM       __ Load
     __ DBCTRL      __ Reorg
     __ CreateTab   __ Repair
     __ CreateTS    __ StartDB
     __ Display DB  __ Stats
     __ Drop        __ Stop DB
     __ ImagCopy

Optional:
     __ with Grant Option
Enter a list of user names, separated by commas, or blank for PUBLIC
 ===>
```

Grant Package Privileges

In this panel, grant up to three specific package privileges or **ALL** privileges.

```
--------------------------- DB2: Grant Package Privileges ------------------
COMMAND ===>

 Subsystem name   ===> DB2A
 At least one pair of Collection-id and Package-id is required.
Collection-id ===>         Package-id ===>
Collection-id ===>         Package-id ===>
Collection-id ===>         Package-id ===>

 Selection privileges to Grant:
  __ All (Don't select Bind, Copy, or Execute/Run)
  __ Bind    __ Copy    __Execute/Run

  Choose one of the following:
  __ Package   __ Program

Optional:
 __ With Grant Option
Enter a list of users names, separated by commas, or blank for PUBLIC, or ALL
 for PUBLIC AT ALL LOCATIONS
 ===>
```

Grant Plan Privileges

```
------------------------ DB2: Grant Plan Privileges ----------------------
 COMMAND ===>

   Subsystem name  ===> DB2A
   Plan name       ===>

   Select privileges to Grant:
           __ Bind
           __ Execute

   Optional:
           __ With Grant Option
   Enter a list of user names, separated by commas, or blank for PUBLIC
   ===>
```

Grant System Privileges

```
------------------------ DB2: Grant System Privileges ---------------------
 COMMAND ===>

   Subsystem name   ===> DB2A

   Select privileges to Grant:
           __ Archive       __ Monitor1
           __ Bindadd       __ Monitor2
           __ BindAgent     __ Recover
           __ BSDS          __ Stopall
           __ CreateAlias   __ Stospace
           __ CreateDBA     __ Sysadm
           __ CreateDBC     __ Sysctrl
           __ CreateSG      __ SYSOPR
           __ CreateTMTAB   __ Trace
           __ Display

   Optional:
           __ With Grant Option
   Enter a list of user names, separated by commas, or blank for PUBLIC
   ===>
```

Grant Table or View Privileges

```
-------------------- DB2: Grant Table or View Privileges --------------------
 COMMAND ===>

   Subsystem name  ===> DB2A
   Creator name    ===>
   Table/View name ===>

   Select privileges to Grant:
           __ All   - Don't select Alter, Index, Select, Reference or Update
           __ Alter
           __ Index
           __ Select
           __ References
              Enter column names separated by commas:

           __ Update
              Enter column names separated by commas:

 Optional: __ With Grant Option
 Enter list of user names, separated by commas; or blank for PUBLIC; or ALL
  for PUBLIC AT ALL LOCATIONS
  ===>
```

Grant Use Privileges

```
------------------------ DB2: Grant Use Privileges ----------------------
 COMMAND ===>

   Subsystem name   ===> DB2A

   Choose one of the following:
           __ Bufferpool
             Enter a buffer pool name or a list of names, separated by commas
             BufferPool name  ===>
           __ All Bufferpools
           __ Stogroup
             Enter a storage group name or a list of names, separated by commas
             Storage group name  ===>
           __ Table-space
             Table-space name  ===>
             Database name     ===>                       (Optional)
 Optional:
           __ With Grant Option
 Enter a list of user names, separated by commas, or blank for PUBLIC
   ===>
```

Revoke Collection Privileges

This panel is provided as an example of a revoke screen.In general, the only difference in content between panels that grant privileges and panels that revoke privileges is that the word "Grant" is replaced by "Revoke."

```
--------------------------- DB2: Revoke Collection Privileges ---------------
 COMMAND ===>

 Subsystem Name   ===> DB2A
 Collection-Id(s) ===>

 Select privileges to Revoke:
  Choose one of the following:
     __ Create
     __ Packadm
  Choose one of the following:
     __ On
     __ In

 Enter a list of user names, separated by commas, or blank for PUBLIC
 ===>

 Enter a list of grantors, separated by commas, or ALL, who have granted
 the privileges indicated above. This revokes grantee's privileges.
```

Other privilege revocation panels are similar to this panel, with the following exceptions:

■	**Revoke Database Privileges**	You can specify multiple database privileges.
■	**Revoke Package Privileges**	Specify up to 3 package privileges if ALL is not specified.
■	**Revoke System Privileges**	You can specify multiple system privileges.
■	**Revoke Table or View Privileges**	Specify up to 3 table or view privileges if ALL is not specified.

Chapter 8
Table Services

The Table Services facility allows you to perform whole-table operations such as create, rename, label, alter, or drop. It also allows you to copy and insert or delete rows from a table.

Starting the Table Services Facility

To start the Table Services facility, go to the ***Menu of DB2 Services*** and select option **5 - Table Services**. The **Tables Services** menu displays.

```
----------------------------- DB2: Table Services ---------------------------
 OPTION  ===> 1

   1     Alter a table
   2     Add a comment/remark to a table or view
   3     Copy all or selected rows from one table to another
   4     Create a table
   5     Create a table like another table
   6     Create a view
   7     Create an index on a table
   8     Delete row(s) from a table or view
   9     Drop a table or view
  10     Add a label to a table or view
  11     Rename a table
  12     Create an alias for a table
```

Enter the option number for the desired table service at the **Option ===>** prompt.

Each option in the Table Services menu brings up one or more ISPF panels that present the appropriate SQL keywords and prompt you for required values. The options on these panels may differ depending on your release of DB2. IBM's *SQL Reference* for your release of DB2 provides specific information about parameter definitions and required syntax.

Table Services Panels

The following panels support DB2 table services in the DB2 Option. Many can be accessed from DB2List line commands, the DB2List Utility menu, or the **DB2 Column List** panel in addition to the **Table Services** menu.

> **NOTE** IBM's *SQL Reference* for your version of DB2 provides parameter definitions and value requirements for the fields in these panels.

Creating Tables

Use the to create a new table from scratch or to "clone" a new table with the column structure of an existing model.

Creating a New Table from Scratch

Select Option 4 from the **Table Services** menu to create a new DB2 table from scratch. The **Create a Table** panel displays.

```
--------------------------- DB2: Create a Table ---------------------------

  Subsystem name   ===> DB2A

  Creator name     ===> USER01

  Table name       ===> NEWTABLE

  Database name    ===>         (leave blank for default)

  Table-space name ===>         (leave blank for default)

  Enter the number of columns for this table  ===> 10     (limit is 99)

  Enter the number of referential constraints ===> 1     (limit is 99)

  Note: The number of columns and the number of referential constraints is
       limited to 99.  If more are required, use ALTER TABLE to add more.
```

A maximum of 99 columns and 99 referential constraints can be created initially. If more are required, use **Option 1 - Alter a Table** on the **Table Services** menu to add them.

The DB2 Option prompts you for column information in a panel like the following:

```
--------------------------- DB2: Create a Table  ---------------------------
 OPTION  ===>

  Column name  ===> NEWCOL                       Column Number: 1 of 3

  Enter a number for the data type  ===> 10
 1  Small Integer  4  Float Real    7  Date  9   Char    Length    ===>
 2  Integer        5  Float Double  8  Time  10  VarChar MaxLength ===> 15
 3  Long Varchar   6  TimeStamp               11  Decimal Precision ===>
                                                           Scale     ===>
 The following are optional:
  Not Null ===>

  With ===>
  1 Default  2 User  3 Current SQLID  4 Constant ===>

  Reference Table name  ===>
  Column name(s) (one or a list) ===>

  ON DELETE ===>          1 Restrict  2 Cascade  3 Set Null  4 No Action

  Check Constraint: Name  ===>
                   Check ===>
 FieldProc ===>            Constant ===>
```

If you specified the creation of referential constraints (foreign keys) on the first panel, the following panel displays after all columns have been defined.

```
------------------------- DB2: Create a Table - #2 ------------------------
 OPTION  ===>

   Constraint name  ===> PARTCHK  Constraint Number:1 of 1
   Column name(s) (one or a list) ===> FKCOL

  Enter Reference Table name        ===> PARTS
   Column names(s) (one or a list)  ===> PART_NUMBER

  ON DELETE ===> 4          1 Restrict  2 Cascade  3 Set Null  4 No Action
```

Finally, the DB2 Option prompts you for primary key information.

```
------------------------- DB2: Create a Table - #3  ------------------------
 OPTION  ===>

  To add a Primary or Unique key, select one of the following ===> 1
   1  Primary   2  Unique
   Enter column name(s) (one or a list) ===> KEYCOL


  Enter optional:
   Editproc ===>

   Validproc program ===>

   Audit option  ===>          1 None  2 Changes  3 All

   OBID number ===>

   Data Capture requirement ===>        1 None  2 Changes

   With "Restrict On Drop" ===>     (Y/N)

   Press: END (PF3) to cancel and return to the first screen, or
          ENTER to process CREATE statement
```

Press PF6 to submit the SQL CREATE statement to DB2 for validation. At the confirmation screen, press PF6 again to execute it.

Creating a Table like Another Table

You can create a new table that duplicates the column numbers, names, and data types of an existing model. Only the column structure is duplicated. Primary keys, foreign keys, constraints, and similar features are not duplicated in the new table.

NOTE To add a primary key, referential constraints, check constraints, or other table specifications, use **Option 1 - Alter a Table** on the **Table Services** menu after table creation is complete.

Select Option 5 from the **Table Services** menu, or use the `Modl` (Model) command in DB2List, to create a new table from an existing model. The panel **Create a Table Like Another Table** displays.

```
------------------- DB2: Create a Table Like Another Table -----------------
 OPTION  ===>

   Subsystem name    ===> DB2A

   Creator name      ===> USER01

   Table name        ===> NEWTABLE

   Database name     ===> INVENTORY

   Table-space name ===>                         (optional)

   Like table        ===> PARTS
```

The table on which you want to model column structure is identified in the **Like Table** field.

Creating a View Over a Table

Select Option 6 from the **Table Services** menu to create a new view over a single, existing table.

```
------------------- DB2: Create a View Over a Single Table -----------------
 OPTION  ===>

   Subsystem name    ===> DB2A
   Name of view      ===>
   Column names, separated by commas  ===>

   The following are used to describe the table for the sub-select:

   Creator name      ===>
   Table name        ===>
   Database name     ===>
   Enter the columns to be selected (enter an '*' to select the whole table)
   ===>
     WHERE ===>

   With local check option ===>     (Y/N)
```

Note that this series of panels, like most functions in DB2 Option Table Services, allows the eventual generated SQL to be edited in its entirety. If you discover that an invalid name has been used in a data entry field, the actual command can be edited during SQL validation to correct the error.

This option supports views over a single table only. To create a view over multiple tables, use the ad hoc *SQL processing facility*.

Creating an Index Over a Table

Select Option 7 from the **Table Services** menu to create an index over an existing table.

```
-------------------- DB2: Create an Index on a Table ----------------------
 OPTION  ===>

   Subsystem name   ===> DB2A

   Index owner(Creator) ===>          (if different from current)
   Index name           ===>

   On table with:
   Creator name     ===>              (if different from current)
   Table name       ===>

   Enter optional Type  ===>    1 or 2

    _ Unique
    _ Where Not Null

   Number of Partitions (blank for 0, maximum is 5)  ===>
```

Altering Tables

When you select **Option 1 - Alter a Table** from the **Table Services** menu, the **Alter a Table** submenu displays. From this menu, you can add a new column to a table, add or drop keys, or alter constraints and other attributes

```
-------------------------- DB2:  Alter a Table  --------------------------
 OPTION  ===>

   Subsystem name     ===> DB2A
   Creator name       ===> USER01
   Table or view name ===> PARTS

  Enter option number  ===>

   1     Add a column
   2     Add or Remove a validation procedure
   3     Alter the Audit attributes
   4     Add a Primary Key
   5     Add a Referential Constraint
   6     Alter the Data Capture options
   7     Drop a Primary or Foreign Key
   8     Drop a Constraint or Check Contraint
   9     Add or Drop "Restrict on Drop"
   10    Add a Check Constraint
```

Type the subsystem name, creator name, and table name for the table whose attributes you want to alter. Then choose an option number for the action desired and press Enter.

One of the following panels prompts you for further parameters. Enter the requested information, then press PF6 to issue your request to DB2. A confirmation screen will display. Press PF6 again to accept the generated SQL statement.

Adding a Column

The **Add a Column** panel requests the addition of a new column to an existing table. Supported data types include fixed-length and variable-length character data, integers, floating-point numbers (single-precision and double-precision), dates, times, and timestamps. DB2 Large Objects (LOBs) are not supported.

```
 ---------------------------- DB2:  Add a Column  --------------------------
OPTION  ===>

   Column name   ===> NEWCOL

   Enter a number for the data type ===> 10
   1 Small Integer     4 Float Real    7 Date    9  Char      Length    ===>
   2 Integer           5 Float Double  8 Time    10 VarChar   MaxLength ===>
   3 Long VarChar      6 TimeStamp               11 Decimal Precision   ===>
                                                             Scale      ===>
   Not Null ===> N
   With ===>
   1 Default  2 User  3 Current SQLID  4 Null  5 Constant ==>

   Reference Table name ===>
    Column name(s) (one or a list) ===>

    ON DELETE ===> 2          1 Restrict  2 No Action  3 Cascade  4 Set Null

   Check Constraint:Name  ===>
                   Check ===>

FieldProc ===>              Constant ===>
```

Adding or Removing a Validation Procedure

The panel to **Add or Remove a Validation Procedure** expects either the name of a validation procedure or the keyword NULL, which removes an existing validation procedure.

```
------------------ DB2: Add or Remove a Validation Procedure  ----------------
 OPTION  ===>

   Enter the name of the program or NULL to remove the Validation Procedure
     ===> VALPGM1
```

Altering the Audit Attribute

```
--------------------- DB2: Alter the Audit Attributes  -------------------

  Enter a number indicating the Audit option ===> 2
  1 None   2 Change   3 All
```

Adding a Primary Key

To designate one or more existing columns in a table as primary keys, enter a comma-delimited list of column names at the **Add a Primary Key** panel.

```
------------------------- DB2: Add a Primary Key  -------------------------
 OPTION  ===>

  Enter a column name or a list of names, separated by commas, to add as
 Primary Keys ===> PART_NUMBER
```

Adding a Referential Constraint

To designate one or more existing columns as foreign keys — that is, to add a referential constraint — select the **Add a Referential Constraint** option from the **Alter a Table** menu.

```
--------------------- DB2: Add a Referential Constraint  -------------------
 OPTION  ===>

  Constraint name  ===>

  Enter a column name or a list of columns, separated by commas ===> SUPPLIER
  Enter the Reference Table name       ===> SUPPLIERS
  Column name(s) (one or a list)       ===>

  ON DELETE ===> 4        1 Restrict  2 No Action  3 Cascade  4 Set Null
```

■	Constraint name	Name for the new referential constraint. DB2 will generate a name if not provided.
■	Enter a column name or a list	Column(s) in target table to become foreign keys with referential constraint(s). Comma-delimited list accepted.
■	Reference table name	Name of reference table against which referential integrity must be checked. Long table names (128 bytes) are supported, wrapped over two lines on the panel.
■	Column name(s)	Columns in reference table against which referential integrity must be checked. May be omitted if reference columns have same names as target columns.

Altering Data Capture Options

```
-------------------- DB2: Alter the Data Capture Options --------------------
  OPTION  ===>

  Enter a number indicating the new Data Capture option ===> 1
  1 None   2 Change
```

Dropping a Primary or Foreign Key

Type the name of a foreign key constraint at the **Drop a Primary or Foreign Key** panel to drop a foreign key. Leave the panel blank to drop a primary key. Press PF6 to generate the ALTER statement and see a confirmation screen.

```
-------------------- DB2: Drop a Primary or Foreign Key  --------------------
 OPTION  ===>

   Enter the Foreign Key constraint name or blank for a Primary Key:
   ===> SUPPLIER
```

Dropping a Constraint or Check Constraint

```
----------------------- DB2: Drop Constraint or Check ----------------------
 OPTION  ===>

  Choose one of the following:
      _ Constraint to drop the named constraint
      _ Check to drop the named Check condition

   Enter the name associated with the above ===>
```

Adding or Dropping "Restrict on Drop"

```
-------------------- DB2: Add or Drop "Restrict On Drop"  ------------------
 OPTION  ===>

  Enter the number indicating whether to Add or Drop "Restrict on Drop":
   ===>            1 Add    2 Drop
```

Adding a Check Constraint

```
----------------------- DB2: Add a Check Constraint  -----------------------
 OPTION  ===>

  Constraint name  ===>

  Enter a check-condition ===>
```

Adding Comments and Labels to Tables or Views

Both the Table Services facility and DB2List provide methods for adding comments and labels to tables and views.

Adding Comments or Remarks to Tables or Views

Select Option 2 from the **Table Services** menu or use the `Comm` (Comment) and
`Rem` (Remark) line commands in DB2List to add a comment or remark to a table or view.

```
----------------- DB2:  Add Comment/Remark to a Table or View  -------------
   OPTION  ===>

   Subsystem name     ===> DB2A
   Creator name       ===> USER01
   Table or view name ===> PARTS

   Enter Comment/Remark This is a 254-byte comment.
```

The name of the DB2 subsystem and the name of the table or view are required entries.
These fields are prepopulated with the selected table or view name and the active DB2
subsystem when you invoke the function from DB2List.

Type up to 254 characters in the **Comment/Remark** field and press Enter.

Adding Labels to Tables or Views

Select Option 10 from the **Table Services** menu or use the `Labl` (Label) line command in
DB2List to add a comment or remark to a table or view.

```
-------------------- DB2: Add a Label to a Table or View  -------------------
 OPTION  ===>

   Subsystem name      ===> DB2A
   Creator name        ===> USER01
   Table or view name  ===> PARTS

   Enter the label     ===>
```

The name of the DB2 subsystem and the name of the table or view are required entries.
These fields are prepopulated with the selected table or view name and the active DB2
subsystem when you invoke the function from DB2List.

Type up to 30 characters in the **Label** field and press Enter. Leave the **Label** field blank to
erase an existing label.

Renaming a Table or View

Select Option 11 from the **Table Services** menu or use the `Ren` (Rename) line command
in DB2List to name a table. The following panel displays.

```
--------------------------- DB2: Rename a Table  --------------------------
 OPTION  ===>

   Subsystem name      ===> DB2A
   Creator name        ===> USER01
   Table or view name  ===> OLDNAME

   Enter the new name  ===> NEWNAME
```

Subsystem name, creator name, and table or view name are prepopulated in this panel
when you use DB2List.

Creating an Alias for a Table

Select Option 12 from the **Table Services** menu or use the `Alia` (Alias) line command in DB2List to create an alias for an existing table.

```
-------------------- DB2: Create an Alias for a Table  --------------------
 OPTION  ===>

  Subsystem name      ===> DB2A
  Creator name        ===> USER01
  Table or view name  ===> OLDNAME

  Enter alias         ===> NEWNAME
```

Subsystem name, creator name, and table or view name are prepopulated in this panel when you use DB2List.

Dropping a Table or View

Select Option 9 from the **Table Services** menu or use the Drop line command in DB2List to drop an existing table or view from the current database.

```
------------------------ DB2: Drop a Table or View ------------------------
 OPTION  ===>

  Subsystem name            ===> DB2A

  Creator name              ===> USER01

  Object being dropped    ===> 1     1 Table  2 View
  Table or view name      ===> TEMPTABLE
```

Chapter 9
Displaying System Tables with DB2SYST

The DB2SYST facility of the DB2 Option lets you view DB2 system tables for indexes, keys, relations, table spaces, plans, and packages associated with a DB2 table. You can also use the `Sys` (System Table) command of DB2List to view system tables.

Starting DB2SYST

Start the DB2SYST facility in one of two ways:

- Go to the *Menu of DB2 Services* and select option **6 - DB2SYST**.

- Enter the `SYS` (System Table) line command for the desired table in a DB2List table list.

The first part of the **Display System Tables** panel displays.

```
------------------------- DB2: Display System Tables ----------------------
 COMMAND ===>

   Subsystem name      ===> DB2A
   Name 1 mask         ===> USER01           (userid, owner, creator, etc)
   Name 2 mask         ===> PARTS            (table name or long name )

   System table code   ===>       (see list below)
                                                                More:    +
 Code Description                       System Table   Name 1    Name 2
 --- ---------------------------------- -------------- --------- -----------
     -
 IX  indexes of a given table           SYSINDEXES    Creator   Table
 IP  index partitions                   SYSINDEXPART  Creator   Index name
 IS  index partition stats              SYSINDEXSTATS Owner     Name
 IK  key columns an index table         SYSKEYS       Creator   Index name
 RL  column relations between tables     SYSRELS       Creator   Ref table
 FK  foreign keys of a given table      SYSFOREIGNKEYS Creator   Table name
 TS  table spaces                       SYSTABLESPACE Creator   Name

 TA  table authorizations               SYSTABAUTH    Creator   Table name
 TG  table grantor                      SYSTABAUTH    Grantor   Table name
 TE  table grantees                     SYSTABAUTH    Grantee   Table name

 PNN plan names                         SYSPLAN       Creator   Plan  name
 PNQ plan names                         SYSPLAN       Qualifier Plan  name
 PNA plan authorizations                 SYSPLANAUTH   n/a       Plan  name
 PNG plan grantor                       SYSPLANAUTH   Grantor   Plan  name
 PNE plan grantee                       SYSPLANAUTH   Grantee   Plan  name

 PKN package name and collection ID      SYSPACKAGE     Name      Col ID
 PKO package owner and collection ID     SYSPACKAGE     Owner     Col ID
 PKQ package qualifier & collection ID   SYSPACKAGE     Qualifier Col ID
```

Use the PF8 key to scroll down through the remainder of the **Display System Tables** panel.

```
------------------------ DB2: Display System Tables ----------------------
COMMAND ===>

  Subsystem name       ===> DB2A
  Name 1 mask          ===> USER01           (userid, owner, creator, etc)
  Name 2 mask          ===> PARTS            (table name or long name )

  System table code    ===>         (see list below)
                                                            More:   -
PLN pack list name & collection ID      SYSPACKLIST    Name      Col ID
PLP pack list plan name and ID          SYSPACKLIST    Plan name Col ID
PLL pack list name and location         SYSPACKLIST    Name      Location
DBR DBRM by name and plan name          SYSDBRM        Name      Plan name
PRO Procedures                          SYSPROCEDURES  Author    Procedure

PKA package authority                   SYSPACKAUTH    Name      Col ID
PKG package authority Grantor           SYSPACKAUTH    Grantor   Col ID
PKE package authority Grantee           SYSPACKAUTH    Grantee   Col ID

DBA Database name                       SYSDATABASE    Creator   Name
DBS Database storage group              SYSDATABASE    Groupname Name
STG Storage group                       SYSSTOGROUP    Groupname Creator
VOL Volumes                             SYSSVOLUMES    Groupname Volume name

SSA System user authority               SYSSUSERAUTH   Grantor   Grantee
RSA Resource authority                  SYSSRESAUTH    Qualifier Name
RSG Resource authority Grantors         SYSSRESAUTH    Grantor   Name
RSE Resource authority Grantees         SYSSRESAUTH    Grantee   Name
```

Viewing a System Table

To view a system table, enter the following information in the **Display System Tables** panel:

■ **Subsystem name ==>**	Name of currently selected DB2 subsystem.
■ **Name 1 mask==>**	User ID or group name of table owner, creator, grantor, or author associated with the desired system table. See **Name 1** column for value required by system table type. Default value is current TSO user ID.
■ **Name 2 mask==>**	Table name, index name, column name, procedure name, plan name, volume name, location, or similar value associated with the desired system table. See **Name 2** column for value required system table type. Default value is name of most recently opened table. Long table names (128 bytes) are supported.
■ **System table code==>**	Code for type of system table desired. Must match a value in the **Code** column of the panel.

Press **Enter** to retrieve the results from the corresponding DB2 system table.

For example, you might want to view the primary index for the PARTS table, entering code IX in the **System table code** field. The contents of the index display in PVIEW. System pointers and other DB2-internal columns do not display. For example:

```
 PEDIT-VIEW  DB2A SYSIBM.SYSINDEXES ----------------- COLUMNS 000001 000072
 COMMAND ===>                                            SCROLL ===> CSR

 NAME   |PART_NUMBER
 PIC    |INTEGER
 NUMBER|2                                                                   #
 ****** ******************** TOP OF DATA *********************************
 000001       2001
 000002       2011
 000003       2021
 000004       2031
 000005       2041
 000006       2051
 000007       2061
 000008       2081
 ****** ******************** BOTTOM OF DATA ******************************
```

Press PF3 to exit the system table viewing session.

Appendix A

Installing and Configuring the DB2 Option

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Installing and Licensing the DB2 Option

The underlying code for the DB2 Option is installed automatically with the base product for StarTool FDM. However, activating this feature requires an additional license. Contact your sales representative or Serena Customer Support to obtain a license key.

Optional license keys may be applied to an existing installation without reinstalling code. This is done using Serena's licensing software, SER10TY. For instructions, refer to the *Serena SER10TY User's Guide*, which is included on the distribution media with StarTool FDM.

Authorizing Access to the DB2 Option

Your DB2 environment requires configuration to enable StarTool FDM access. Perform the following steps:

1   For each DB2 system that uses the StarTool FDM DB2 Option, execute a customized version of the BINDJCL procedure. BINDJCL resides in the StarTool FDM installation library *somnode*.PDSE*vrm*.CNTL. It looks something like the following:

```
//JOBNAME  JOB  ...
//**************************************************
//*  MEMBER: somnode.PDSEvrm.CNTL(BINDJCL)
//*  BIND THE APPLICATION PLANS
//*  THIS USES DBRM MEMBER PDSSQL IN THIS LIBRARY
//**************************************************
//BIND     EXEC PGM=IKJEFT01,REGION=1000K
//DBRMLIB    DD  DSN=SOMENODE.PDSEvrm.CNTL,DISP=SHR
//SYSTSPRT DD  SYSOUT=*
//SYSPRINT DD  SYSOUT=*
//SYSTSIN  DD  *
PROFILE MSGID
DSN SYSTEM(DB2A)
   BIND PLAN(PDSPLAN1)                                       +
   MEMBER(PDSSQL)                                            +
```

```
            ACTION(ADD) ISOLATION(CS)
      BIND PLAN(PDSPLAN2)                                    +
      MEMBER(PDSSQL)                                         +
            ACTION(ADD) ISOLATION(RR)
END
/*
```

> **NOTE** Do not change the name of the `PDSSQL` member. This member name must match the internal ID, and it must match the CSECT name using this plan.

2 Next, issue an SQL statement similar to the following on each DB2 system using PUBLIC privilege:

`GRANT EXECUTE ON PLAN PDSPLAN1, PDSPLAN2 TO PUBLIC`

The use of PUBLIC permits anyone to use the plan for the StarTool FDM DB2 Option. However, you can limit access by specifying a list of other authorization names instead of PUBLIC if you require different plan controls.

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Symbols