

DB2 Administration Tool for OS/390



User's Guide

Version 2 Release 1

DB2 Administration Tool for OS/390



User's Guide

Version 2 Release 1

Note!

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 321.

Fourth Edition (March 2002)

This edition applies to version 2, release 1 of DB2 Administration Tool for OS/390, Program Number 5655-E70. It also applies to subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC27-0974-02. Make sure you are using the correct edition for the level of the product.

The technical changes for this edition are summarized under “Summary of Changes to this Book,” which precedes the Introduction. Specific changes are indicated by a vertical bar to the left of a change. A vertical bar to the left of a figure caption indicates that the figure has changed. Editorial changes that have no technical significance are not noted.

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Preface

DB2 Administration Tool for OS/390 is a DB2 catalog administration tool for:

- Database administrators
- System administrators
- Application developers

In the rest of this book, the product is referred to by its short name of DB2 Admin.

How to Use This Guide

You can use this guide selectively:

- If you want to **understand** what DB2 Admin is, read chapters 1 and 5. These chapters introduce the product and show a demo.
- If you want to **use** DB2 Admin, read chapter 4 as well as chapters 1 and 5. Chapter 4 explains how to use the product. Later, during use, you may need to look at the panel chapters to, for example, understand the meaning of specific fields on a panel. The panel chapters (chapters 6 through 15) are primarily for reference although you may want to become familiar with them before using the product.
- If you want to **complete installation** of DB2 Admin, read chapter 2.
- If you want to **customize** DB2 Admin, read chapter 3. The customization process assumes you have a basic understanding of DB2 Admin.
- If you want to **extend** existing DB2 Admin applications or **develop** new DB2 Admin applications, read chapter 16. The development process assumes you have a basic understanding of DB2 Admin.

Prerequisite Knowledge

Before using this book, you should understand basic DB2 concepts and facilities and the DB2 administration task.

Related Publications

Additional information can be found in the following publication:

- *DB2 Universal Database Administration Guide: Planning, Version 7*, (SC09-2946)

or

- *DB2 Universal Database for OS/390 Administration Guide, Version 6*, (SC26-9003)

Summary of Changes to this Book

Version 2.1, June 2001

This is a summary of Launchpad enhancement to the IBM DB2 Administration Tool for OS/390, Version 2.1.

You now have the ability to start, within the DB2 Administration Tool for OS/390, any installed IBM DB2 tool that has an ISPF interface. This new interface makes it easy and convenient to launch DB2 tools from a single location.

Version 2.1, March 2001

This is a summary of enhancements to IBM DB2 Administration Tool for OS/390, Version 2.1. These include the following:

- You now have the option of combining the generated jobs for Alter and Migrate into fewer, or even a single job. As before, you can have multiple jobs generated for Alter and Migrate. But now, you can choose to have only a single Alter job, containing all required job steps. For Migrate, you can now request that the generated jobs be consolidated into a minimum number of jobs.
- A new space manager function merges VSAM data set information with DB2 catalog information. This allows you to move page sets to other storage groups or VSAM catalogs. A resize function enables resizing of page sets that are in many extents or over-allocated.

The space manager function also provides a table space and index space estimator that calculates the space required for the object based on the number and length of rows.

- You now have the ability to save DB2 Admin parameters. These saved parameters, as well as CURRENT SQLID, can be restored the next time DB2 Admin is invoked.

Version 2.1, June 2000 and September 2000

This is a summary of the major changes to IBM DB2 Administration Tool for OS/390, Version 2.1. This major revision to the DB2 Admin Feature of DB2 Version 6 (program number 5645-DB2) replaces all previous versions of DB2 Admin. It includes support for numerous new and expanded features.

Enhancements to DB2 Admin include the following:

- The new Alter function lets you alter the definition of a DB2 table. Your modifications may include:
 - changing the owner and the name of the table
 - modifying the definitions of table columns
 - changing the sequence of the columns in the table
 - inserting and dropping columns

- The new Migrate function lets you copy DB2 data to other DB2 systems. Both databases and table spaces and their dependent objects can be migrated.
- A new primary command, SEARCH, allows you to do more sophisticated searches of ISPF tables.
- A new function permits installation defined line commands. These commands can be defined to meet your specific needs. An example might be a command that starts another ISPF based tool with parameters from the row currently displayed.
- Changes to the SORT command give you more ways to sort your results.
- Reverse engineering is now also available as a stored procedure for the Control Center for OS/390.

Version 6, June 1999

This is a summary of the major changes to IBM DB2 Administration Tool for OS/390, Version 6. This version of DB2 Admin includes support for DB2 Version 6, functional enhancements to DB2 Admin, and a new chapter on post-installation activities.

Support for DB2 Version 6 includes support for the following functions:

- New and changed DB2 catalog tables and columns.
- DB2 schemas, distinct types, user-defined functions, triggers, and the enhancements to stored procedures. You can create, alter, drop, display, reverse engineer, and work with authorizations on these new DB2 objects.
- Object extensions. DB2 Admin can create, alter, drop, and display the new DB2 objects introduced by this DB2 function. DB2 Admin can also display data in tables that contain BLOB, CLOB, DBCLOB, and ROWID columns. For BLOBs, DB2 Admin retrieves up to 128 bytes per column and displays the data in hex. For CLOBs, DB2 Admin retrieves up to 256 bytes per column. For DBCLOBs, DB2 Admin retrieves up to 128 bytes per column. ROWIDs are also displayed in hex.
- Predictive governor, which helps eliminate overly lengthy queries on the catalog (or any other) tables by setting error and warning limits.
- Image copy of indexes, which lets you generate JCL for the new copy, RECOVER, REPORT RECOVERY index utilities, and display SYSCOPY rows for indexes.
- Explain enhancements, which let you see the predicted costs for an explained SQL statement.

Enhancements to DB2 Admin include the following:

- Reverse engineering of DB2 objects, which generates the SQL statements necessary to re-create a DB2 object.
- Try and buy feature, which lets you order the DB2 Admin try feature, install it, and use it free for 90 days. You can then order the buy feature if you want to extend your use of DB2 Admin. The buy feature installs on top of the try feature, so you don't have to reinstall DB2 Admin.

Post-installation activities, previously in the program directory, are now included in the book. See chapter 2.

Chapter 1. What is DB2 Admin?

DB2 Admin is a DB2 catalog administration tool for:

- Database administrators
- System administrators
- Application developers

DB2 Admin is an ISPF application that uses dynamic SQL to access DB2 catalog tables.

Using DB2 Admin can greatly increase the productivity of the entire DB2 staff. DB2 Admin is interactive, intuitive, easy-to-use, and fast. Its function is comprehensive.

Highlights

A thumbnail sketch of what DB2 Admin can do follows. These functions and their uses are described in more detail in the following section.

- Displays the DB2 catalog quickly and logically
 - Displays any object in the catalog
 - Displays related DB2 objects using special line commands
 - Interprets catalog information
 - Displays the authorization for objects
 - Displays the static SQL statements from application plans and packages
 - Displays the DDL for existing views
- Executes dynamic SQL statements (in many cases, without requiring that you remember SQL syntax)
- Issues DB2 commands against databases and table spaces (without requiring that you remember DB2 command syntax)
- Runs most DB2 utilities
- Allows complex performance and space queries
- Does EXPLAIN functions
- Manages SQL IDs
- Performs various system administration functions, such as updating RLIMITs, displaying threads, and managing DDF
- Allows reverse engineering of DB2 objects
- Supports DB2 predictive governor
- Lets you extend existing DB2 Admin applications or rapidly develop new applications
- Lets you alter the definition of a DB2 table.
- Lets you copy (migrate) DB2 data, both databases and table spaces, to other DB2 systems
- Lets you perform space-related functions such as resizing page sets, lets you move page sets to and from STOGROUP- and VCAT-defined space, and helps you estimate space allocations for new table spaces and indexes
- Lets you launch installed IBM DB2 tools that have an ISPF interface

DB2 Admin Functions

DB2 Admin is rich in function. This section briefly describes its major functions; more detailed information about the functions can be found in the chapters describing the panels.

Displays the DB2 Catalog Tables

DB2 Admin provides extensive support for displaying the DB2 catalog. The scope of information that can be displayed is described below.

Displays Any Object in the DB2 Catalog: You can retrieve catalog data for any DB2 data object. You can customize the data that is retrieved (you could request, for example, that data be retrieved for all databases owned by THOMAS that have the prefix D402).

DB2 Admin retrieves catalog data using predefined SELECT statements for the more commonly used queries. The rows retrieved from the catalog are displayed using the ISPF table-display service. The display panel can be the DB2 Admin default panel, from which various DB2 Admin line commands can be issued, or a panel tailored by you for the result of a particular SQL SELECT. In the latter case, line commands can issue new SQL calls using information from the columns of rows that have been returned.

Displays Related DB2 Objects Using Line Commands: You can navigate the catalog using DB2 Admin line commands. If, for example, you are on a display panel showing databases, you can use a line command to show all table spaces in one of the databases. Then, from the table spaces panel, you could issue a line command to show authorizations for a table space or show the status of image copies for the table space.

Interprets Catalog Information: You can request detailed information about any object in the DB2 catalog. A request for details about an application plan, for example, returns information like the plan's owner, latest bind time, and number of bytes in the base section.

Shows the Authorization for DB2 Objects: You can retrieve information about the authorizations for all DB2 objects. From an authorization display panel, you can then grant and revoke privileges.

Displays the Static SQL from Application Plans and Packages: You can display the static SQL statements in a plan or a package. This can be useful if you don't have access to a program's source code.

Displays the DDL for Existing Views: You can display the SQL source that created a view. This can be useful if you don't have access to the CREATE VIEW SQL (DDL) statement.

Executes Dynamic SQL Statements

You can issue any dynamic SQL statement from your screen or from a data set. You can build and execute an SQL SELECT statement interactively using line commands.

In addition, you can execute the following SQL statements by filling in required parameters from a panel: GRANT, REVOKE, CREATE, DROP, LABEL ON, COMMENT ON. This lets you execute the statements without knowing the exact SQL syntax; DB2 Admin provides guidance for the required SQL parameters.

Issues DB2 Commands Against Databases/Table Spaces

You can issue any DB2 command against any database or table space that you have selected using DB2 Admin. You can, for example, issue DISPLAY, START, and STOP against a database (assuming you have the authority in DB2 to do so).

DB2 commands are passed to IFI, and the result is displayed in ISPF browse.

Runs DB2 Utilities

You can generate the JCL for DB2 utilities and then run them online. This function applies to the utilities for table spaces, tables, and indexes. You can, for example, generate JCL to run the COPY, REORG, and RUNSTATS utilities for a table space.

The generated JCL consists of a JOB statement, EXEC statement, and all required DD statements. When the JCL is generated, DB2 Admin invokes ISPF edit, which lets you change the JCL, submit it, or copy it to another data set.

Allows Complex Queries

You can run performance and space utilization queries against a database. The data that is returned should help you determine whether you need to:

- Run the RUNSTATS or STOSPACE utilities
- Reorganize or redesign parts of your database or indexes
- Change the locking rule for tables
- Drop an index
- Move tables to separate table spaces
- Extend the primary allocation for a table space or index
- Reduce the size of a table space

Does EXPLAIN Functions

The DB2 Admin EXPLAIN function supports the EXPLAIN statement and provides related support. (The EXPLAIN statement gathers information about the access path DB2 chose to process a query.) Using the EXPLAIN function you can:

- Create a plan table (PLAN_TABLE) in the desired database and table space.
- Issue an SQL EXPLAIN statement and see the resulting rows in the plan table.
- List a plan table to look at rows from previously-executed EXPLAIN statements, or rows from BIND and REBIND operations that were executed with EXPLAIN(YES) specified. With this function, predefined search criteria help you find rows in the plan table (predefined search criteria exist for application plans, DBRMs, collections, and packages). You can see the access path chosen by DB2 to process queries, and the tables and indexes being accessed by DB2.
- Upgrade a plan table to the current version of DB2.
- Look at the DB2 calculated cost.

- Create and display the DB2 explain tables.
- Insert and work with DB2 optimizer hints in the plan table.

Manages SQL IDs

You can change the current DB2 SQL ID by entering a new one or selecting one from a list of secondary SQL IDs. DB2 Admin displays a list of SQL IDs that you are allowed to use. The list is created by either simulating or invoking the authorization exit in your system.

Performs System Administration Functions

The system administration functions you can perform using DB2 Admin include:

- Displaying threads
- Displaying and terminating utilities
- Displaying and managing traces
- Displaying and updating RLIMITs, including the predictive governor limits in DB2
- Displaying and altering buffer pools
- Displaying and setting archive log parameters and archiving the log.
- For DDF (distributed data facility):
 - Displaying and updating the communications database (CDB)
 - Displaying and canceling distributed threads
 - Displaying active locations
 - Starting and stopping DDF

Allows Reverse Engineering of DB2 Objects

You can reverse engineer the DB2 objects in your database catalog. Reverse engineering generates the SQL statements necessary to re-create a DB2 object.

Typical uses for the DB2 Admin reverse engineering function include:

- Extracting the DDL for an object before changes are made, so that the changes are applied to the current definition and/or are available for fallback purposes.
- Moving DB2 objects to another DB2 subsystem. By using the reverse engineering function (together with the table unload and load functions), objects can be moved after a few manual modifications to the generated SQL and batch jobs.

The SQL statements can be generated using a batch or online job.

Supports DB2 Predictive Governor

You can use DB2 Admin to display, insert, update, or delete predictive governor rows in the resource limit tables. Furthermore, if DB2 Admin receives a predictive governor warning (SQLCODE +495) when running a dynamic SQL statement, DB2 Admin will ask the user (in a prompt) whether the SQL statement should be executed or cancelled. If the predictive governor estimates that execution of a dynamic SQL statement issued from DB2 Admin will exceed the error limit (SQLCODE -495), DB2 Admin displays an error message and the SQL statement is not run.

Predictive governor limits can be used to prevent users from running "wild" queries on catalog tables or any other tables being displayed using DB2 Admin. If, for

example, a user uses DB2 Admin option 1.T without entering a search argument for OWNER, the SQL statement generated by DB2 Admin will probably run for a long time and be expensive in terms of CPU consumption and the number of I/O operations required. By using predictive governor limits for the DB2 Admin package, this type of query can be inhibited by setting up either a predictive governor warning or an error limit in the resource limit table.

Lets You Alter the DB2 Table Definition

You can alter the definition of a DB2 table. Permissible changes include:

- changing the owner and the name of the table
- modifying the definitions of table columns
- changing the sequence of the columns in the table
- inserting and dropping columns

Lets You Migrate DB2 Data to Other DB2 Systems

You can copy DB2 data to another DB2 system. This is a useful function if you want to create a separate DB2 test system or if you want to move a test system into production. You can also use this function to consolidate two separate database systems into one.

Lets You Extend Existing DB2 Admin Applications or Develop New Applications

DB2 Admin can easily be extended to invoke other applications that you use for DB2 administration and application development. The application must be one that can be invoked in an ISPF environment.

Examples of applications you might want to invoke from DB2 Admin include:

- Security tools
- Vendor DB2 utilities
- Storage management tools

DB2 Admin also lets you quickly build new ISPF applications for displaying and maintaining DB2 data. Examples of types of data for which you might build such applications include:

- Application definition data
- DB2 performance data
- Extra security data

A sample application is included with the product to illustrate how you might use DB2 Admin to create new applications.

Lets You Launch Installed IBM DB2 Tools That Have an ISPF Interface

You can invoke installed IBM DB2 tools that have an ISPF interface - directly from the DB2 Admin tool. The DB2 Admin Launchpad provides a convenient way of creating a central table with the names of your tools. By subsequently selecting an entry in this table, you can easily start up one of the tools.

DB2 Admin Uses

DB2 Admin has many potential uses. This section describes a few of the ways in which DB2 Admin is typically used, and gives examples of specific applications customers have developed.

Explore Databases

DB2 Admin lets you quickly navigate the DB2 catalog and see tables, table columns, and indexes. If you are authorized by DB2, you can also see the content of tables either by doing a simple list of the table or by building SQL statements and executing them against a table.

These DB2 Admin functions make it possible for you to explore unknown databases rapidly or get a quick overview of a database. None of these functions requires that you remember the exact syntax of DB2 commands or SQL statements.

Do Problem Determination

DB2 Admin can be very useful in doing the database administration task of problem determination. With its ability to navigate the catalog and use DB2 commands on objects, DB2 Admin can help you discover, analyze, and fix database problems in a more user-friendly fashion than native DB2.

Develop Small Applications

Rapid development of small applications is possible using DB2 Admin. As you become familiar with the tool, you may find the time it takes to develop small DB2 Admin dialogs greatly reduced.

Examples of possible applications follow:

- If you have a tool at your installation that manipulates DB2 tables, you could develop your own line command to access it from the DB2 Admin panel that displays tables (implementing the line command as an SMP usermod). Then you could invoke the table tool as a natural follow-on to using DB2 Admin.
- Perhaps you'd like to generate more DECLARE statements for a PL/I table than is possible with the DB2 DCLGEN tool. You could write an application to invoke DCLGEN directly from the DB2 Admin panel that displays tables. You could also modify the output you receive from DCLGEN to, for example, meet your installation's standards and requirements.
- You might want to build prototypes of SQL SELECT statements. You can build the statements, test them and, when you are satisfied with them, copy the statements to a data set to include in your application program.
- DB2 Admin can help you maintain any DB2 tables you use for installation standards and special requirements. You could use DB2 Admin to develop a small application that describes all of the applications you have in the system. Or you could use it to display existing tables that, for example, contain information about DB2 plan performance or batch job execution statistics.

Copy Tables From One DB2 to Another

You can use the table utilities that DB2 Admin generates to copy tables from one DB2 system to another. You will need to make a few modifications to the generated JCL.

Start Up DB2 Tools

You can conveniently invoke installed IBM DB2 tools that have an ISPF interface - directly from the DB2 Admin tool. DB2 Admin first guides you through the process of creating a central table with the names of your DB2 utilities. Once this table is created, you can simply select an entry in it to start up one of the DB2 tools.

Security

Although its function is comprehensive, DB2 Admin does not expose the security of the DB2 system. The DB2 Admin user can only do what he or she is allowed to do based on the security requirements specified in the DB2 catalog.

Performance

DB2 Admin uses dynamic SQL to access the DB2 catalog. This ensures that DB2 always uses the most efficient access path to the catalog, provided RUNSTATS statistics are available for the DB2 optimizer.

Before DB2 Admin displays information, it does an SQL commit. This ensures that a DB2 Admin user cannot lock the catalog for long periods of time. If an SQL error occurs, DB2 Admin does a rollback before information is displayed.

DB2 Admin has a default limit of 1000 for fetching rows. This helps limit time-consuming queries. The default of 1000 can be changed for an execution of DB2 Admin if more rows are needed.

DB2 resource limit facilities (RLF) can be used to limit the amount of CPU time a dynamic SQL statement in DB2 Admin can use - either by using the reactive governor facilities of RLF or by using the predictive governor facilities in DB2 V6.

Finally, DB2 Admin can run on a copy of the DB2 catalog. Sample jobs are provided with the product to create the copy. The sample jobs include a definition of indexes that is designed for most predefined queries on the catalog. Besides improving performance, running on a copy of the catalog can reduce contention for the catalog.

Online Information

DB2 Admin contains extensive online information. This includes help panels for most tasks, as well as tutorial information.

Hardware Requirements

DB2 Administration Tool requires the same hardware configuration as that required for DB2 Version 3 Release 1 or later.

Software Requirements

DB2 Administration Tool requires the following software (or later versions and releases)

- DB2 Version 3 Release 1 (5685-DB2)
- ISPF/PDF Version 3 Release 3
- PL/I (one of the following):
 - OS PL/I Version 2 Release 3 Compiler, Library, and Interactive Test Facility (5668-909)
 - OS PL/I Version 2 Compiler and Library (5668-910)
 - OS PL/I Version 2 Library Only (5668-911)
 - LE/370 Version 1 Release 2 (5688-198)
- TSO/E Version 2 Release 1 through Release 4 (5685-025)
- MVS/ESA SP (TM)-JES2 Version 4 Release 2.2 (5695-047)
- SMP/E Release 8 (5668-949) (required for installation only)

NOTE: OS/390 (TM) Version 1 (5645-001) is a valid substitute for all programs included in the OS/390 Base.

OR...

DB2 Admin can run on the same software as is required for DB2 Universal Database Server for OS/390 Version 6 (5645-DB2).

Chapter 2. Post-Installation Tasks

This chapter describes the tasks you must do after a successful (SMP/E) installation of DB2 Admin (described in the program directory).

Post-installation tasks enable you to run DB2 Admin on a DB2 system, verify the installation, and make DB2 Admin available to users.

DB2 BIND

In order to run DB2 Admin, you need to BIND the packages and DB2 Admin application plans. A sample job for doing this is provided in member ADBBIND in the SADBSAMP library. Run this job on each DB2 system on which you want to run DB2 Admin.

DB2 Admin sample library jobs use the DB2 program DSNTIAD to execute GRANT and CREATE SQL statements. If DSNTAID is not available at your installation, execute the required SQL statements in SPUFI (in DB2I).

Before submitting the job, modify the job card and the following items to meet your installation's requirements:

ADB.V210	High-level qualifier for DB2 Admin data sets
SYS1.DSN	High-level qualifier for your DB2 libraries

DB2 Admin Installation Verification

To verify installation of DB2 Admin, do the following:

1. Make the DB2 Admin ISPF and TSO libraries available to your ISPF session.

You can do this in several ways:

- a. Copy the members to your standard ISPF and TSO libraries.
- b. Before you enter ISPF, concatenate the ISPF and TSO libraries to the standard allocations.
- c. Write a small CLIST that ISPF LIBDEFs the DB2 Admin ISPF libraries before you invoke DB2 Admin.

There is a sample CLIST in member ADBL in the SADBCLST library. After modifying the ADBL CLIST, it should be copied to your standard CLIST library.

For JES3 environments, modify the ADBL CLIST variable JES() to be JES(JES3).

2. Start DB2 Admin. Depending on the option chosen above, do the following:

- a & b: Start DB2 Admin with the following command: TSO %ADB
- c: Start DB2 Admin with the following command: TSO %ADBL

3. If more than one DB2 subsystem is active, you should now see a panel listing all DB2 subsystems. Select the subsystem you wish to use.

You should now see the DB2 Admin main menu panel.

4. If you get the SQL error panel, check whether the application plan (ADB) and the packages (ADBMAIN, ADB2GET, ADB2CON) are bound correctly on the DB2 system you are using. Check also that you have granted EXECUTE on the application plan ADB to the userids that are running DB2 Admin.

Restart from step 2.

5. On the DB2 Admin main menu panel, select option 1 (DB2 System Catalog). Select an option on the DB2 System Catalog panel and press enter. Verify that DB2 Admin is able to retrieve rows from the DB2 catalog.

Making DB2 Admin Available to Users

For best performance, it is recommended that you do one of the following:

- Copy the DB2 Admin ISPF and TSO libraries to your standard libraries. Your standard libraries have been allocated in your TSO LOGON procedure or allocated dynamically before you invoke ISPF.
- Allocate the DB2 Admin target libraries in the TSO LOGON procedure or dynamically before you invoke ISPF.

Doing one of these will eliminate the need for doing ISPF LIBDEFs each time DB2 Admin is invoked, and will significantly reduce DB2 Admin startup time.

If possible, you should also define the libraries you are using for DB2 Admin (and all the libraries allocated on the same DD cards before the ones that you are using for DB2 Admin) to LLA with the FREEZE option. This will significantly reduce the number of I/Os and the I/O time used when ISPF and TSO search for DB2 Admin members in the concatenation sequence.

Chapter 3. Customizing DB2 Admin

This chapter contains diagnosis, modification, or tuning information. Do not use this information as a programming interface.

This chapter describes how to customize DB2 Admin. Information on the related task of installation appears in the program directory.

The customization process tailors DB2 Admin to your installation's standards. Customization is recommended although not absolutely necessary. DB2 Admin runs as delivered using its defaults.

DB2 Admin provides SMP/E usermods, an ADB2CUST exec, and batch jobs to do customization.

Two **SMP/E usermods** are provided in the SADBSSAMP target library:

- ADBU001, which is used to customize the main DB2 Admin menu panel and a panel showing a selection of DB2 systems if more than one is active
- ADBU002, which is used to customize JCL skeletons for running DB2 utilities invoked from DB2 Admin

You can receive and apply these usermods using the JCL in data set SADBIIJCL member ADBUMOD. You need to modify this JCL to meet your installation's standards.

The **ADB2CUST exec** is an ISPF dialog for customizing DB2 subsystem parameters and DB2 Admin general parameters. ADB2CUST can be executed just after DB2 Admin installation or any time you want to change these parameters.

Batch jobs are provided in library SADBSSAMP so that you can:

- Create your own copy of DB2 system catalog tables
- Create views so you can update RUNSTATS information for your own objects in the catalog
- Grant SELECT access on catalog tables

Space manager customization consists of modifying the DB2 Admin Main Menu to create a link to the Space Manager menu.

SMP/E Usermods

DB2 Admin is delivered with two SMP/E usermods. Customization is done with usermods so that the changes you make are retained if PTFs are later applied to the product.

Two usermods are provided in library SADBSSAMP: ADBU001 and ADBU002. These usermods are used to customize DB2 Admin panels ADB2DB2X and ADB2 (in the SADBPLIB data set) and JCL skeletons (in the SADBSLIB data set). Member ADBUMOD in SADBIJCL provides the JCL necessary to run SMP/E steps RECEIVE and APPLY.

The items that can be customized using SMP/E usermods are:

- DB2 subsystems a user can access
- DB2 products (like QMF or DB2PM) that can be invoked from the DB2 Admin main menu
- JCL skeletons for running DB2 utilities

DB2 Subsystems a User Can Access

This part of customization doesn't apply to users with just one DB2 subsystem. In this case, DB2 Admin skips panel ADB2DB2X; the main DB2 Admin panel is the first panel the user sees after starting the DB2 Admin session.

Users with multiple DB2 systems can customize the source code for panel ADB2DB2X. Usermod ADBU001 in the SADBSSAMP library contains a sample job to modify panel ADB2DB2X. The source code for panel ADB2DB2X is shown in Figure 1 on page 13.

The following variables are available in panel ADB2DB2X. Except for DB2ADB2N, you can modify these variables to suit your installation's requirements:

- | | |
|-----------------|---|
| DB2ADB2N | Number of active DB2 systems. |
| DB2ADB2S | DB2 system names valid for the user. This variable is initialized to the DB2 systems that are active. It should be set to the DB2 systems that the user should see if more than one default system is active for the user. |
| DB2ADEFS | Default systems for the user. This variable should be set to the default DB2 system the user should enter. If only one of these systems is active, it will be selected. Otherwise, the DB2 systems in DB2ADB2S are shown to the user. |

This customization does not stop users from using the SYS(nnn) keyword on the ADB CLIST to access other DB2 subsystems. The panel is a productivity aid, not a security definition.

```

)attr
/* DATABASE 2 Administration Tool for OS/390. */
/* 5645-DB2 (C) Copyright IBM Corporation 1999. */
/* All rights reserved. Licensed materials - property of IBM. */
/* US Government Users Restricted Rights - Use, duplication or */
/* disclosure restricted by GSA ADP schedule contract with IBM Corp. */
type(text) color(&ichco) hilite(&ichhi) /*Headlines
? type(output) color(&ichco) hilite(&ichhi) /*Headlines
; type(text) color(&iccco) hilite(&icchi) /*Command text
~ type(text) color(&icfco) hilite(&icfhi) attn(on) /*Selection parameter
| type(input) color(&icico) hilite(&icihi) /*Function/command input
¢ type(output) color(&iceco) hilite(&icehi) caps(off) /*Error messages etc.
+ type(text) color(&icnco) hilite(&icnhi) /*Normal text
% type(text) color(&icsco) hilite(&icshi) /*Emphasized text
_ type(input) color(&icico) hilite(&icihi) caps(on) /*Normal input field
\ type(output) color(&icoco) hilite(&icohi) caps(off) /*Normal output field
)body cmd(zcmd) expand(!) smsg(emsg) lmsg(emsg)
&adb2name !=! &adb2name DB2 Subsystem Selection Exit Panel !=!
;Command ==>|zcmd ! !+
¢emsg
+
% This panel is only shown in DEBUG mode
+
+ DB2 systems: _db2adb2n
+ DB2 names : _db2adb2s
+ User : _user
)INIT
IF (&DEBUG=DEBUG)
.resp = ENTER
&user=&zuser
&DB2ADEFS = &DB2ADB2S
)PROC
if (&DB2AINST=DKIBM) /* For installation DKIBM */
&uu = Trunc(&user,2) /* uu=user prefix (2 char)*/
&sf = .trail
if (&uu=CC) /* CC user ? */
&DB2ADB2S = 'DB2T DB2X DB2P DB2M DB2D DB2W'
&DB2ADEFS = 'DB2T DB2X DB2P'
if (&uu=IS) /* IS user ? */
&DB2ADB2S = 'DB2T DB2X DB2P DB2M'
&DB2ADEFS = 'DB2T DB2X DB2P'
if (&user=ISTJE,ISTJE2,ISTJE3) /* ISTJE ? */
&DB2ADB2S = 'DB2T DB2X DB2P DB2M DB2D DB2W'
&DB2ADEFS = 'DB2T DB2X DB2P DB2M DB2D DB2W'
if (&uu=DK) /* DK user ? */
&u3=trunc(&sf,3)
if (&u3=BAL,NYK) /* DKBAL or DKNYK user ? */
&DB2ADB2S = 'DB2D'
else /* Normal DK user */
&DB2ADB2S = 'DB2T DB2X DB2P DB2M'
&DB2ADEFS = 'DB2T DB2X DB2P'
if (&uu=DP) /* DP user ? */
&u2=trunc(&sf,2)
if (&u2=EC) /* DPEC user ? */
&DB2ADB2S = 'DB2M'
else /* Normal DP user */
&DB2ADB2S = 'DB2M'
if (&uu=DC) /* DC user ? */
&DB2ADB2S = 'DB2M'
)END

```

Figure 1. Source Code for Panel ADB2DB2X

DB2 Products That Can Be Invoked From the Main Menu

The bottom part of the DB2 Administration Menu panel (see Figure 2) is intended for invocation of other DB2 products. You can add your installation's DB2 products (for example, QMF and DB2PM) either by modifying the main menu panel (as shown here) or by using the customization exec (see Figure 9 on page 23).

Usermod ADBU001 in the SADBSAMP library contains a sample job to modify panel ADB2. Part of the source code for panel ADB2 is shown in Figure 3 on page 15.

An example: To add a new DB2 product to the DB2 Administration Menu panel, modify the set of variables &B, &BOPT, &BDESCR, &BISPF, &BPAN, &BCMD, and &BNEWAT. An example of how this is done is shown in Figure 3 on page 15. The product DB2I has been added using the set of variables &A.

```
DB2 Admin ----- DB2 Administration Menu 2.1.0 ----- 19:03
Option ==>

      1 - DB2 system catalog                DB2 System: DB2X
      2 - Execute SQL statements            DB2 SQL ID: ISXSTL
      3 - DB2 performance queries          Userid   : ISXSTL
      4 - Change current SQL ID
      P - Change parameters for DB2 Admin   DB2 Re1   : 610
      DD - Distributed DB2 systems
      E - Explain
      Z - DB2 system administration

Interface to other DB2 products and offerings:

      I - DB2I   DB2 Interactive

      PM - DB2PM Online Performance Monitor
```

Figure 2. DB2 Administration Menu Panel (ADB2)

```

/* ----- */
/* START OF CUSTOMIZATION SECTION */
/* Can be used to add local options to the menu */
/* ----- */
/* FUNCTION CHOICE CHARACTERS AS DISPLAYED ON THE PANEL */
/* ----- */
&A = ' D'
&B = &Z
&C = &Z
&D = &Z
&E = &Z
&F = &Z
&G = &Z
&H = &Z
&I = &Z
&J = &Z
/* ----- */
/* FUNCTION CHOICE CHARACTERS BEING ENTERED (WITHOUT LEADING BLANKS) */
/* ----- */
&AOPT = D
&BOPT = &Z
&COPT = &Z
&DOPT = &Z
&EOPT = &Z
&FOPT = &Z
&GOPT = &Z
&HOPT = &Z
&IOPT = &Z
&JOPT = &Z
/* ----- */
/* FUNCTION CHOICE DESCRIPTIONS: */
/* ----- */
&ADESCR = ' - DB2I '
&BDESCR = &Z
&CDESCR = &Z
&DDESCR = &Z
&EDESCR = &Z
&FDESCR = &Z
&GDESCR = &Z
&HDESCR = &Z
&IDESC = &Z
&JDESCR = &Z
/* ----- */
/* FUNCTION CHOICE ACTIONS: ISPF STATEMENTS */
/* ----- */
&AISPF = 'SELECT PANEL(ADB2DB2I) NEWAPPL(DSNE) OPT(&DB2SYS) PASSLIB'
&BISPF = &Z
&CISPF = &Z
&DISPF = &Z
&EISPF = &Z
&FISPF = &Z
&GISPF = &Z
&HISPF = &Z
&IISPF = &Z
&JISPF = &Z
/* ----- */
/* FUNCTION CHOICE ACTIONS: PANELS */
/* ----- */
&APAN = &Z
&BPAN = &Z
&CPAN = &Z
&DPAN = &Z
&EPAN = &Z
&FPAN = &Z
&GPAN = &Z
&HPAN = &Z
&IPAN = &Z
&JPAN = &Z

```

Figure 3 (Part 1 of 2). Source Code for Panel ADB2

```

/* ----- */
/* FUNCTION CHOICE ACTIONS: DB2 ADMIN COMMANDS */
/* ----- */
&ACMD = &Z
&BCMD = &Z
&CCMD = &Z
&DCMD = &Z
&ECMD = &Z
&FCMD = &Z
&GCMD = &Z
&HCMD = &Z
&ICMD = &Z
&JCMD = &Z
/* ----- */
/* FUNCTION CHOICE ACTIONS: NEW DB2 ATTACH ? */
/* ----- */
&ANEWAT = YES
&BNEWAT = &Z
&CNEWAT = &Z
&DNEWAT = &Z
&ENEWAT = &Z
&FNEWAT = &Z
&GNEWAT = &Z
&HNEWAT = &Z
&INewAT = &Z
&JNEWAT = &Z
/* ----- */
/* END OF CUSTOMIZATION SECTION */
/* ----- */

```

Figure 3 (Part 2 of 2). Source Code for Panel ADB2

JCL Skeletons for Running DB2 Utilities

You can customize the JCL used by DB2 Admin to run DB2 utilities by modifying the skeletons in usermod ADBU002 in library SADBSAMP. When you subsequently execute ADBUMOD to receive and apply usermod ADBU002, the resulting JCL will be in the following twelve members of the SADBSLIB library:

ADB2USAG Define GDG for COPY data sets
ADB2USC1 COPY TABLESPACE
ADB2USE1 MERGECOPY TABLESPACE
ADB2USK CHECK utility
ADB2USO1 REORG TABLESPACE utility
ADB2USV RECOVER utility
ADB2USVG Find the last copy of GDG
ADB2UTL LOAD TABLES
ADB2UTU UNLOAD TABLES
ADB2UXK CHECK INDEX utility
ADB2UXO1 REORG INDEX utility
ADB2UXV RECOVER INDEXES utility

All lines that may need tailoring are preceded by)CM (comment) lines explaining what you may need to change.

DB2 Admin is using the DB2 sample unload program DSNTIAUL for table unload. The plan name for DSNTIAUL can also be customized using this usermod.

ADB2CUST Exec

You access the customization dialog by executing the ADB2CUST exec, which takes you through an ISPF dialog. The dialog stores the result of this customization step in two ISPF tables. DB2 Admin accesses these tables at run time. The values used at run time are assigned in the following order until a value is found:

1. Keyword parameters specified to the ADB CLIST at run time
2. DB2 subsystem-specific customization parameters
3. DB2 Admin general customization parameters
4. DB2 Admin default parameters

What You Can Customize

The items that can be customized using the dialog are shown in Figure 4. A description of each item follows the table.

The numbers in the Source of Specification column in the table refer to the list above.

Figure 4. Items You Can Customize From the Customization Dialog

Customizable Items	Source of Specification	Default
DB2 subsystem description text	2, 4	null
DB2 catalog copy qualifier	1, 2, 3, 4	null
DB2 security exit type	1, 2, 3, 4	STD
System identification method	1, 3, 4	null
Job parameter SYSAFF on batch DB2 utility jobs	1, 2, 4	null
Job class on batch DB2 utility jobs	2, 4	A
Unit name of TSO work data sets	1, 3, 4	ISPF V4 unit name (ZCUNIT) or VIO
Unit name of batch work data sets	1, 3, 4	ISPF V4 unit name (ZCUNIT) or SYSDA
Installation name	1, 2, 3, 4	null

DB2 Subsystem Description Text

There should be one text description for each DB2 subsystem. The text descriptions are displayed when a user by default (as determined from the specifications made on panel ADB2DB2X) has access to multiple active DB2 subsystems.

DB2 Catalog Copy Qualifier

DB2 Admin is able to run on a copy of the DB2 catalog. The DB2 catalog copy qualifier is the authorization ID of the owner of the copy of the DB2 catalog tables. A qualifier can be specified generally, or it can be specified for each DB2 subsystem. If a qualifier is specified, an input field appears on the menus in DB2 Admin where the user can specify whether to run on the active catalog or the copy of the catalog.

If a qualifier is specified, you should create a copy of the catalog (as described later in this chapter).

DB2 Security Exit Type

DB2 Admin option 4 (see Figure 45 on page 65) displays a list of alternate SQL IDs that a user can use. To create this list, DB2 Admin invokes or simulates the DB2 connection exit (DSN3@ATH). To do this, DB2 Admin needs to know what type of exit is installed. Possible values are:

STD	Standard DB2 security exit (this is the default)
SAMPLE	Sample DB2 security exit (logic being simulated)
AUTH	Your installation's DB2 security exit, which needs to run authorized
OWN	Your installation's DB2 security exit, which can run unauthorized
NOCALL	Do not call the security exit

This value can be specified generally, or it can be specified for each DB2 subsystem.

If you specify NOCALL, DB2 Admin cannot show the SQL IDs a user can use in option 4 on the DB2 Administration Menu panel.

If you specify AUTH, DB2 Admin calls your DB2 connection exit from an authorized program in supervisor state, key 7. In this case, you need to do the following:

1. Copy authorized program ADB2ATH from ADB.V210.SADBLINK to an APF authorized library in the linklist in your system.
2. Let the TSO service facility invoke ADB2ATH authorized. To do this, modify SYS1.PARMLIB(IKJTSOxx) and add program ADB2ATH as shown in Figure 5.

```

AUTHPGM NAMES(                /* AUTHORIZED PROGRAMS */      +
.....                        /* CALLS DSN3@ATH */          +
ADB2ATH                      /* */                          +
.....)                      /* */                          +
AUTHTSF NAMES( /* PROGRAMS TO BE AUTHORIZED */      +
/* WHEN CALLED THROUGH THE TSO */          +
/* SERVICE FACILITY. */                  +
.....                        /* */                          +
ADB2ATH                      /* CALLS DSN3@ATH */          +
.....)                      /* */                          +

```

Figure 5. Adding Program ADB2ATH

3. Activate the changes immediately or at the next IPL, using the following TSO/E command: PARMLIB UPDATE(xx)

System Identification Method

If job parameter SYSAFF is needed for batch utility jobs, you must tell DB2 Admin which method to use to determine the system ID (there is no programming interface to get the system ID in MVS). You can use one of the following keywords to specify which method DB2 Admin is to use:

JESID	Use the JES2 name (only valid on JES2 systems).
SMFID	Use the SMF ID (only valid if SMF is active).
SYSNAME	Use the first 4 bytes of the MVS system name in the CVT.
NONE	Do not find the system ID.
name	Use this name for the SYSAFF name on the job parameter.
null	This is the same as the JESID.

Job Parameter SYSAFF on Batch DB2 Utility Jobs

Job parameter SYSAFF may be necessary to ensure batch DB2 utility jobs are executed on the same MVS system as the DB2 subsystem. You can specify SYSAFF's requirements using one of the following values. SYSAFF can be specified generally, or it can be specified for each subsystem.

NONE	Do not generate a SYSAFF parameter on the JOB statement for utilities.
name	Use this name for the SYSAFF name on the job parameter.
null	Use the name found by using the system identification method above. This is the default.

The value NONE can be used if your location has a dedicated job class for batch DB2 utility jobs. The resulting value is stored in variable &DB2AJSYS, which may be blank.

Job Class On Batch DB2 Utility Jobs

The default is A. This value is stored in the &DB2AJCLS variable. This value can be specified generally, or it can be specified for each DB2 subsystem.

Unit Name of TSO Work Data Sets

The default is VIO. This value is stored in the &DB2AVIO variable. This value can only be specified generally.

Unit Name of Batch Work Data Sets

The default is SYSDA. This value is stored in the &DB2ADASD variable. This value can only be specified generally.

Installation Name

This parameter is fetched and stored for your installation's use in modified or new DB2 Admin panels. The default is null. The value is stored in the &DB2AINST variable. This value can be specified generally, or it can be specified for each DB2 subsystem.

Invoking the Dialog

You invoke the ADB2CUST exec in ISPF option 6 (TSO) with this command:

```
EXEC 'ADB.V210.SADBEXEC(ADB2CUST)'
```

Supplying Information On the Customization Panels

This section describes the panels where you supply the customization information described in the previous section.

DB2 Admin Customization Panel

This panel (Figure 6) appears when you invoke the ADB2CUST exec.

You need to tell DB2 Admin the name of the ISPF table library to use when DB2 Admin is started, so tables are stored in the correct library. Specify the SADBTLIB library on this panel, and use this panel to select additional customization steps.

```
DB2 Admin ----- DB2 Administration - Customization ----- 14:11
Option ==>

Options:
  1 - General parameters for DB2 Admin
  2 - DB2 subsystem parameters for DB2 Admin

Library to be used for DB2 Admin customization ISPF tables:
  ISPF table library ==> 'ADB.V210.SADBTLIB'
```

Figure 6. DB2 Admin Customization Panel (ADB2CUS0)

General Customization Parameters Panel

If you select option 1 on the DB2 Admin Customization panel, this panel (Figure 7) appears.

Use this panel to specify DB2 Admin general customization parameters. The information you can specify on this panel is described in “What You Can Customize” on page 17.

The general customization parameters are stored in ISPF table member ADB2PARM in the ISPF table library specified on the DB2 Admin Customization panel.

```
DB2 Admin ----- Customization - General Parameters ----- 14:12
Option ==>

General parameters for DB2 Admin:
  DB2 security exit type      ==> STD      (STD,SAMPLE,AUTH,NOCALL,OWN)
  Catalog copy qualifier     ==>          (owner name)
  System identification method ==>          (JESID,SMFID,SYSNAME or NONE)
  Unit name for TSO work data sets ==> VIO
  Unit name for batch data sets ==> SYSDA
  Installation name          ==>

Current SYSAFF information for this MVS system:
  JES ID:      MVSBB (found via JESID method)
  SMF ID:      MVSBB (found via SMFID method)
  MVS system name: MVSBB (found via SYSNAME method)

Press ENTER to save parameters, or END to leave without saving parameters.
```

Figure 7. General Customization Parameters Panel (ADB2CUS1)

DB2 Subsystem Customization Parameters Panel

If you select option 2 on the DB2 Admin Customization panel, this panel (Figure 8) appears.

Use this panel to specify DB2 subsystem parameters. The information you can specify on this panel is described in “What You Can Customize” on page 17.

```
DB2 Admin ----- Customization - DB2 Subsystem Parameters ----- 14:12
Option ==>

Options:
  1 - Merge list of active DB2 subsystem(s) into ISPF table
  2 - Edit ISPF table

Currently active DB2 subsystem(s) on this MVS system:
DB2 subsystem(s):   DB2M DB2T DB2X DB2W
Data sets to be used for DB2 Admin customization:
ISPF table library: 'ADB.V210.SADBTLIB'
```

Figure 8. DB2 Subsystem Customization Parameters Panel (ADB2CUS2)

Each DB2 subsystem can have one ISPF table row containing a text description and default values for that DB2 subsystem. This specification overrides the general customization parameters set for DB2 Admin.

Option 1 adds to the ISPF table one row with null values for each of the currently active DB2 subsystems. DB2 subsystems that have already been added are not replaced. This allows repeated use of option 1 without losing information about DB2 subsystems that have already been described.

Option 2 unloads the ISPF table to a sequential data set, and lets you edit the sequential data set using ISPF edit. If modified during editing, the sequential data set is reloaded into the ISPF table. The ISPF table is completely replaced with the edited data. This option can also be used to delete old data for inactive DB2 subsystems.

The following panel (Figure 9 on page 23) is an example of the panel that appears when you choose option 2.

```

EDIT ---- SYS95138.T141236.RA000.ISTJE.R0000050 ----- COLUMNS 001 072
COMMAND ==> SCROLL ==> HALF
0000002 *
0000003 * Tags recognized by ADB2CUST exec:
0000004 * -----
0000005 * :nick.      Name of DB2 subsystem being described.
0000006 * :desc.      Text to be displayed for this DB2 subsystem.
0000007 * :secexit.   DB2 security exit type (STD, SAMPLE, AUTH, OWN, NOCALL).
0000008 * :catown.   Catalog copy qualifier.
0000009 * :jclass.   Job class to be used for batch DB2 utility jobs.
0000010 * :jsysaff.  SYSAFF to be used for batch DB2 utility jobs.
0000011 * :instparm. Installation name.
0000012 * :utilpre.  Utility data set prefix.
0000013 *
0000014 * :bl2llib.  DB2 load library
0000015 * :bl2rlib.  DB2 run library
0000016 * :bl2mlib.  DB2 message library
0000017 * :bl2plib.  DB2 panel library
0000018 * :bl2slib.  DB2 skeleton library
0000019 * :bl2tlib.  DB2 table library
0000020 * :bl2elib.  DB2 rexx exec library
0000021 * :bl2clib.  DB2 clist library
0000022 *
0000023 * Main menu option tags (prefixed by letter a-j)
0000024 *
0000025 * :aopt.      Option
0000026 * :adescr.    Option description
0000027 * :aispf.     ISPF statement for option
0000028 * :apan.     Panel for option
0000029 * :asql.     SQL statement for option
0000030 * :acmd.     DB2 admin command for option
0000031 * :anewat.   New DB2 attachment (YES/NO)
0000032 *
0000033
0000034 :nick.DB2P      :desc.Production DB2 system
0000035              :jclass.P
0000036              :catown.SYSIBMC
0000037
0000038 :nick.DB2T      :desc.Test DB2 system
0000039              :jclass.T
0000040
0000041 :nick.DB2W      :desc.New release DB2 system
0000042              :colon.jclass.W
***** ***** BOTTOM OF DATA *****

```

Figure 9. Example of Using ISPF Edit to Specify DB2 Subsystem Parameters

The sequential data set uses free-form tags and values, which may be written on one or more lines for each DB2 subsystem. A tag is a column name with a value and is written as:

:name.value

A tag name begins with a colon and is followed by a period and a tag value. The tag value can have any length and any content, but it cannot contain a colon. Tag names recognized by DB2 Admin are:

:nick.	Name of the DB2 subsystem being described.
:desc.	Text to be displayed for this DB2 subsystem.
:secexit.	DB2 security exit type.
:catown.	Catalog copy qualifier.
:jclass.	Job class to be used for batch DB2 utility jobs.
:jsysaff.	SYSAFF job parameter to be used for batch DB2 utility jobs.
:instparm.	Installation name.

:utilpre. High Level Qualifier (HLQ) or prefix of the data sets used in DB2 utility jobs. The resulting value is stored in variable &DB2AUPRE. Special values are:

USERID	TSO userid. This is the default value.
OWNER	The owner of the object.
CREATEDBY	The creator of the object.
name	Any HLQ.

DB2 release-specific library tags are as follows:

:bl2llib. DB2 load library. An example follows:

```
:bl2llib.'SYS1.SDSNEXIT' 'SYS1.SDSNLOAD'
```

The default is no value. If nothing is specified, DB2 Admin uses the standard MVS search for DB2 modules. The value is stored in variable &DB2ALOAD.

When generating utility jobs that use the DB2-supplied JCL procedure DSNUPROC, DB2 Admin sets the symbolic parameter LIB to the second library specified in this tag.

:bl2rllib. Run library for DB2 sample program DSNTIAUL. An example follows:

```
:bl2rllib.'SYS1.DSN.RUNLIB.LOAD'
```

The default is no value. If nothing is specified, DB2 Admin uses the library specified in the ISPF skeleton (member ADB2UTU in SADBSLIB). The value is stored in variable &DB2ARLIB.

:bl2mlib. Message library.

:bl2plib. Panel library.

:bl2slib. Skeleton library.

:bl2tlib. Table library.

:bl2elib. Rexx exec library.

:bl2clib. Clist library.

The DB2 release-specific tags let you use DB2 Admin on different versions of DB2 using the same TSO logon procedure in the same LPAR. The tags are needed when a DB2 subsystem needs libraries different from the ones in the TSO logon procedure and link list.

The main menu option tags let you customize the main menu without having to modify the panel (ADB2). The tags are prefixed with a letter, from a to j, which indicates the position of the tag on the main menu (a is the first option on the menu). The tags are:

:aopt.	First option that will be displayed on the main menu.
:adescr.	Description of the option.
:aispf.	The ISPF statement that DB2 Admin should execute for this option.
:apan.	The panel that DB2 Admin should display for this option.
:asql.	The SQL statement that DB2 Admin should execute for this option.
:acmd.	The DB2 Admin command for this option.
:anewat.	Whether this option will start a new DB2 attachment (YES/NO).
:bopt.	Second option that will be displayed on the main menu.
:b...	The parameters for the second option on the main menu.

The DB2 subsystem parameters are stored in ISPF table member ADB2DB2D in the table library specified on the DB2 Customization panel (see Figure 6 on page 20).

Batch Jobs

Sample library SADBSAMP contains jobs for optional customization of the DB2 subsystems on which DB2 Admin is installed. These jobs do the following:

- Establish a copy of the catalog tables
- Define views to be used for updating RUNSTATS statistics
- Grant SELECT access on the catalog tables
- Create new indexes on the catalog tables (requires DB2 V4 or later).

Establishing A Copy of the Catalog Tables

If you want to run DB2 Admin on copies of the DB2 catalog tables, you need to do the following:

1. Create a copy of the catalog tables.

Member ADBCCD for DB2 V6 (ADBCCD51 for DB2 V5, ADBCCD41 for DB2 V4, and ADBCCD31 for DB2 V3) in SADBSAMP contains a sample job to create the tables. The only difference that is allowed between the catalog tables and the copy of them is that the owner of the tables can be different. The table names must be the same. The owner (qualifier) of the tables must match the catalog copy qualifier specified in the customization dialog.

This job also executes GRANTS to the copy of the catalog tables.

2. Unload the catalog.

Member ADBCCU for DB2 V6 (ADBCCU51 for DB2 V5, ADBCCDU1 for DB2 V4, and ADBCCU31 for DB2 V3) SADBSAMP contains a sample job that unloads the DB2 system catalog.

3. Load the unloaded rows into the copy of the catalog tables.

Member ADBCCCL for DB2 V6 (ADBCCCL51 for DB2 V5, ADBCCDL1 for DB2 V4, and ADBCCCL31 for DB2 V3) in SADBSAMP contains a sample job that loads the copy of the catalog tables.

4. Run the RUNSTATS utility on the catalog copy table space and indexes.

Member ADBCCST in SADBSAMP contains a sample job for running RUNSTATS.

You should run these jobs on a regular basis to refresh the content of the copy of the catalog tables.

Defining Views to Update RUNSTATS Statistics

Run job ADBRUNSV in SADBSAMP to create views that allow the creators to update the RUNSTATS information of their own objects in the catalog.

Granting Access to the DB2 Catalog

DB2 Admin uses dynamic SQL against the catalog. If you plan to make DB2 Admin available to a large number of users, you may want to grant SELECT on the catalog to PUBLIC AT ALL LOCATIONS, or specify which IDs are authorized to see the catalog.

A sample job for doing this is in SADBSAMP(ADBGC).

Defining Reverse Engineering as a Stored Procedure for the CC/390

In order to run Reverse Engineering (RE) from the Control Center for OS/390 (CC/390), you need to define the RE stored procedure (ADB2RE) and the required temporary tables and BIND the package for the stored procedure on every DB2 system where you want to use this facility. Member ADBREST (member ADBREST5 for DB2 V5) in SADBSAMP library contains a sample job that does this.

In addition, you need to copy load module members ADB2RE and ADB2LM from the SADBLLIB load library to one of the libraries defined as STEPLIB in the WLM managed stored procedure address space.

Note: The ADB2RE stored procedure dynamically allocates output data sets as specified by the CC/390 user. This is why the stored procedure needs to be defined with EXTERNAL SECURITY USER. Procedures with this security parameter can not run in the non-WLM managed stored procedure address space (ssidSPAS), but must run in a WLM-managed stored procedure address space.

Creating New Indexes on the Catalog Tables

If you are using DB2 Version 4 or later, you may want to create additional indexes on the DB2 catalog tables to improve performance when DB2 Admin accesses catalog tables that have no index. The DB2 catalog tables are as follows:

- SYSIBM.SYSDBRM
- SYSIBM.SYSSTMT
- SYSIBM.SYSFIELDS
- SYSIBM.SYSFOREIGNKEYS
- SYSIBM.SYSRELS

A sample job to create indexes on these tables is in SADBSAMP(ADBCX).

Installation Defined Line Commands

This function lets you define your own line commands for each displayed panel. You might want to define commands in order to:

- start another ISPF based tool with parameters from the current row
- display the contents of related tables
- change the contents of the displayed row using an SQL statement.

DB2 Admin, when encountering an unknown line command, attempts to open an ISPF DB2 Admin line commands table with the same name as the panel being displayed. If the table is found, DB2 Admin opens it and looks for the definition of the line command. If the line command is found, it is executed.

Contents of the Line Command Table

A DB2 Admin line command table contains the following columns:

CMD	The line command. The line command must be the key in the table.
DESCR	A description of the line command. This description is displayed if the user uses the '?' line command to get further information.
SQL	The SQL statement that is executed for this line command
PAN	The panel to be displayed as a result of this line command

ISPF	The ISPF statement that is executed for this line command
ACMD	The DB2 Admin command that is executed for this line command.

Creating a Line Command Table

The easiest way to create a line command table is by writing a small REXX exec that defines the ISPF table. A DB2 Admin supplied sample REXX exec is available to you; it is called ADB21D REXX and is in the SADBEXEC library. It provides a description of all the possible line commands for DB2 Admin option 1.D (panel ADB21D); it also defines four sample installation defined commands (USERI, USERS, USERC, and USERP). Refer to this sample REXX exec when writing your own exec.

Creating a Checkpoint Table for ADBTEP2

Purpose

The Restart program ADBTEP2 (PTF PQ44056) provides you with the ability to restart or resume the execution of an input stream of SQL statements at an intermediate point, in the event that any one of the statements in that stream should fail. This program is used by both the Alter and Migrate DB2 data functions.

Once DB2 Admin has been successfully installed, you must create the checkpoint table, ADBCHKPT, on each system on which ADBTEP2 will be run. Sample statements to create this table are provided in member ADBCHKPT in SADBBSAMP.

Next, bind ADBTEP2 to each system on which the program will be run. Sample JCL for this task can be found in member ADBTEP2B in SADBBSAMP. Modify this JCL to use your library name(s) and to provide a job card that conforms to the conventions established in your installation.

Space Manager Customization

The Space Manager is shipped as a PTF to be installed on DB2 Admin V2.

The "root" of the space manager function is panel ADB2M. Verify the installation by using the following command on any DB2 Admin panel:

```
Command ==> PANEL ADB2M
```

Panel ADB2M should be immediately displayed showing the DB2 Space Manager functions.

Once you have verified that the Space Manager is installed, you may make it invocable from the DB2 Admin main menu. This way it appears that the Space Manager is a fully integrated part of DB2 Admin, even though it is actually a separate function running under control of DB2 Admin. In other words, the DB2 Admin "driver" is used to display panels and invoke functions against the objects.

There are two different ways to modify the DB2 Admin Main Menu to create a link to the Space Manager menu. The first method described is the recommended method, because panel changes are avoided.

- Use the DB2 Admin customization exec and customize the subsystem(s). See "ADB2CUST Exec" on page 17 for more information. First select the option to

customize the DB2 subsystem parameters. Then select the "2 - Edit ISPF table" option. In the subsequent edit screen, an example of which is shown on 23, enter the following:

```
:bopt.SM  
:bdescr.- DB2 Space Manager  
:bpan.ADB2M  
:bnewat.NO
```

Please note that the customization parameters are stored in the ADB2DB2D of the table library specified on the DB2 Admin Customization panel. One way to create a personal set of customization parameters is to copy the currently used member to a personal table library, run the customization using the personal library, test the changes, and finally copy the personal member back to the library that is generally used.

- Customize the Main menu as described in the section "DB2 Products That Can Be Invoked From the Main Menu" (see 14).

Suggested changes are:

```
&B      = SM  
&BOPT   = SM  
&BDESCR = '- DB2 Space Manager'  
&BPAN   = ADB2M  
&BNEWATT = NO
```

Launchpad Customization

Launchpad customization consists of running the ADBL exec with DMT option, which creates the Launchpad table. For more information, refer to Chapter 20, "Launchpad for Running IBM DB2 Tools" on page 311.

Chapter 4. Before Using DB2 Admin

This chapter describes:

- Using the table display panels
- Using the BROWSE panels
- Using the SQL error display panels
- Finding the source code for panels
- Navigating DB2 Admin tutorial panels
- Using DB2 Admin primary and line commands
- Invoking DB2 Admin

Using Table Display Panels

DB2 Admin panels are self-explanatory for the most part. However, it is useful to look at the layout and uses of the table display panel. It is from this panel that much of the DB2 Admin function is initiated.

Figure 10 shows the areas on a typical table display panel.

```

DB2 Admin ----- DB2W Databases -----Row 1 to 5 of 5
A Command ==>                               Scroll ==> PAGE

B { Valid line commands are:
   T - Tables S - Table spaces X - Indexes G - Storage group ICS - IC status
   DIS - Display database STA - Start database STD - Stop database A - Auth
   ? - Show all line commands

C { Select Name      Owner      Storage  Buffer    Created  R Read Only Share
   *      *          Group      Pool      *      S Timestamp
   *      *          *          *          *      *

E { D          ISTJE2      G          BP0        293 ISTJE2      001-01-010-00.00.0
   ISTJE2DC ISTJE2      ISTJE2GC BP0        295 ISTJE2      001-01-010-00.00.0
   ISTJE2DE ISTJE2      ISTJE2GE BP0        269 ISTJE2      001-01-010-00.00.0
   ISTJE2DS ISTJE2      ISTJE2G  BP0        296 ISTJE2      001-01-010-00.00.0
   ISTJE2DV ISTJE2      ISTJE2G  BP0        294 ISTJE2      001-01-010-00.00.0
   *****END OF DB2 DATA*****
G

```

Figure 10. Layout of the Table Display Panel

A description of the areas follows.

A Command Line. On this line, you can enter any DB2 command, ISPF command, or DB2 Admin primary command. DB2 Admin primary commands are described in “Primary Commands” on page 35 later in this chapter.

B Line Command Description Area. These are the DB2 Admin line commands that can be issued from this table display panel. You issue a line command from the "Select" field (area E).

When there is not enough room on a panel to list all valid line commands, the most frequently used ones are listed. All other valid line commands are accessed by putting a question mark (?) in the "Select" field.

C Column Headers. These are the names of the columns that are returned by DB2.

D Search Arguments. The asterisk (*) under the column name marks the beginning of an area in which you can enter search criteria to limit the information DB2 Admin shows to you. You could, for example, enter D050 in the "Name" column; DB2 would display only those databases whose name begins with D050.

E Line Command Area. This is where you enter the DB2 Admin line commands shown in area B. The line commands are described in “Line Commands” on page 37 later in this chapter.

- F Rows Returned.** In this area, DB2 returns rows to you based on the options you selected, the commands you issued, or your search criteria. To get this panel, you request (on a system catalog menu panel) that all databases owned by ISTJE2 be displayed.
- G End of Data Marker.** This marker indicates the end of the data returned from DB2.

Using Browse Panels

You can issue the DB2 Admin BROWSE primary command from any table display panel.

Figure 11 shows a table display panel of tables owned by the DB2 catalog. The BROWSE command is issued.

```
DB2 Admin ----- DB2W Tables, Views, and Aliases ---- ROW 1 TO 13 OF 261
Command ==> BROWSE Scroll ==> PAGE

Valid line commands are:
C - Columns A - Auth L - List X - Indexes S - Table space D - Database
V - Views T - Tables P - Plans Y - Synonyms SEL - Select prototyping
? - Show all line commands
```

Se1	Name	Owner	T DB Name	TS Name	Cols	Rows	Checks
*	*	*	* *	*	* *	*	*
-----	-----	-----	-----	-----	-----	-----	-----
	ADDRESS	CBE	A DSND806	SYSDBAUT	0	-1	0
	ALIAS	CBE	A DSND806	SYSDBAUT	0	-1	0
	BUSINESS_PARTNER	CBE	A DSND806	SYSDBAUT	0	-1	0
	CATEGORY	CBE	A DSND806	SYSDBAUT	0	-1	0
	CAU	CBE	A DSND806	SYSDBAUT	0	-1	0
	CM_HOST_DEFINITION	CBE	A DSND806	SYSDBAUT	0	-1	0
	CM_LOGICAL_UNIT	CBE	A DSND806	SYSDBAUT	0	-1	0
	HARDWARE	CBE	A DSND806	SYSDBAUT	0	-1	0
	HARDWARE_TYPE	CBE	A DSND806	SYSDBAUT	0	-1	0
	ID	CBE	A DSND806	SYSDBAUT	0	-1	0
	LAN_ALIAS_ACCESS	CBE	A DSND806	SYSDBAUT	0	-1	0

Figure 11. Issuing the DB2 Admin BROWSE Primary Command

Figure 12 shows output from the BROWSE command. Output is in ISPF browse format. The first line is a header with the DB2 column names. You can see the rest of the columns by scrolling to the right.

DB2 Admin ----- DB2W Browse Result of SQL Select ----- Line 00000000 Col 001 080								
Command ==> Scroll ==> PAGE								
***** TOP OF DATA *****								
NAME	CREATOR	TYPE	DBNAME	TSNAME	DBID	OBID	COLCOUNT	EDPRO
ADDRESS	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
ALIAS	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
BUSINESS_PARTNER	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
CATEGORY	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
CAU	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
CM_HOST_DEFINITION	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
CM_LOGICAL_UNIT	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
HARDWARE	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
HARDWARE_TYPE	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
ID	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
LAN_ALIAS_ACCESS	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
LAN_USER_ACCESS	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
LAN_USER_STRUCTURE	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
LOCATION	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
ORG_PERSON_ROLE	CBE	A	DSNDB06	SYSDBAUT	0	0	0	
ORG_ROLE	CBE	A	DSNDB06	SYSDBAUT	0	0	0	

Figure 12. Output From the BROWSE Command

Note that DB2 Admin can also display data in tables that contain BLOB, CLOB, DBCLOB, and ROWID columns. For BLOBs, DB2 Admin retrieves up to 128 bytes per column and displays the data in hex. For CLOBs, DB2 Admin retrieves up to 256 bytes per column. For DBCLOBs, DB2 Admin retrieves up to 128 bytes per column. ROWIDs are also displayed in hex.

Using SQL Error Display Panels

If an error occurs during execution of an SQL statement, DB2 Admin displays the SQL code and error message on a separate panel. You can correct the SQL statement by pressing END, which brings you back to the panel where you originally issued the SQL statement. DB2 Admin puts the cursor at the position in the SQL statement where DB2 found the error.

Figure 13 shows the error panel DB2 Admin returns when the following SQL statement (containing a spelling error) is issued: SELECT * FROM Q.STAFF.

```
DB2 Admin ----- DB2 Error Display 1 ----- 14:14
Command ==>
Rollback done
      SQLCODE : -104                      DSNTIAR CODE :  0

DSNT408I SQLCODE = -104, ERROR:  ILLEGAL SYMBOL FRON VALID SYMBOLS ARE FROM
      INTO
DSNT418I SQLSTATE  = 37501 SQLSTATE RETURN CODE
DSNT415I SQLERRP   = DSNHPARS SQL PROCEDURE DETECTING ERROR
DSNT416I SQLERRD   = 0  0  0 -1  10  0 SQL DIAGNOSTIC INFORMATION
DSNT416I SQLERRD   = X'00000000' X'00000000' X'00000000' X'FFFFFFFF'
      X'0000000A' X'00000000' SQL DIAGNOSTIC INFORMATION
```

Figure 13. Error Display Panel (Part 1 of 2)

Press ENTER to see error panel two:

```
DB2 Admin ----- DB2 Error Display 2 ----- 14:14
Command ==>

      SQLCODE : -104                      DSNTIAR CODE :  0

PREPARE
SELECT * FROM Q.STAFF
```

Figure 14. Error Display Panel (Part 2 of 2)

Finding the Source Code for Panels

In the chapters describing the DB2 Admin panels, you'll notice that the name of the panel in the figure caption is followed by another name in parenthesis. In Figure 45 on page 65, for example, the figure caption is "DB2 Administration Menu Panel (ADB2)." The name in parenthesis (ADB2) is the source code panel name.

If you are developing DB2 Admin applications, you can use this name to quickly bridge to the source code for a specific panel.

You can request that ISPF display the name of the panel in the upper left corner of the panel using the ISPF command `PANELID ON`.

Navigating the Tutorial Panels

You can enter the following commands in either the command or option field of DB2 Admin tutorial panels:

- BACK or B** Display the previous panel.
- SKIP or S** Skip the current topic and go to the next topic.
- UP or U** Display a higher level list of topics.

You can use the following keyboard keys whenever you are in the tutorial:

- ENTER** Display the next panel.
- HELP** Display the help information for this panel.
- END** End the tutorial.
- UP** Display a higher level list of topics.
- DOWN** Skip the current topic and go to the next topic (instead of typing SKIP).
- RIGHT** Display the next panel (instead of pressing ENTER).
- LEFT** Display the previous panel (instead of typing BACK).

Using DB2 Admin Commands

There are two types of DB2 Admin commands:

- Primary commands
- Line commands

Primary Commands

Primary commands can be issued from the command line on any DB2 Admin panel. There are 14 primary commands, as shown in Figure 15

For information on the syntax of the primary commands, see the help panels.

Figure 15 (Page 1 of 2). DB2 Admin Primary Commands

BROWSE	Use this command to browse the current ISPF table.
DB2 db2 command	Use this command to issue a DB2 command (for example, DB2 -DIS THREAD (*)) DB2 may be omitted from the command.
ISPF ispf statement	Use this command to issue one or more ISPF statements (for example, ISPF SELECT CMD(MYCMD)). A semicolon (;) should separate ISPF statements.
PANEL panel name	Use this command to display the panel whose name is specified.
PARMS	Use this command to show or to update current DB2 Admin parameters.
PRINT TABLE ON FILE ddname	Use this command to print the current table to the specified file. If you don't specify a file name, the default file with the DD name PRINT is used. The file must be preallocated with a disposition of OLD.
REFRESH	Use this command to refresh the current ISPF table with data from DB2.
SAVE TABLE AS name IN LIB ddname	Use this command to save the current ISPF table with the specified name in the specified library. If you don't specify a library name, the default library ISPTABL is used. The DD name must be preallocated to a data set before you use this command.

Figure 15 (Page 2 of 2). DB2 Admin Primary Commands

SEARCH	<p>Use this command to do more sophisticated searches of the ISPF tables than the search arguments or the panel allows. When you use the SEARCH command, DB2 Admin displays a panel with all the columns of the ISPF table. On this panel you can specify searches on individual columns by entering a search operator and a search value for the columns.</p> <p>The search operator can have one of these values: EQ (equal to), GT (greater than), GE (greater than or equal to), LT (less than), LE (less than or equal to), or NE (not equal to). You may also use the corresponding arithmetic operators (=, >, >=, <, <=, !=).</p> <p>When you press END (PF3), a subset of the ISPF table with only the data meeting the search criteria is displayed.</p>
SHOW LIBRARY ddname ON PANEL name	<p>Use this command to show a member list of the specified library on the specified panel. If you don't specify a library name, the default library ISPTABL is used. If you don't specify a panel name, the default panel DB2ADL is used.</p> <p>The DD name must be preallocated to a data set before you use this command.</p>
SHOW TABLE name ON PANEL name	<p>Use this command to show the specified table. If you don't specify a panel name, the default panel ADB2DF is used.</p>
SORT column names	<p>Use this command to sort a column in the current ISPF table. You can place the cursor on the column you want sorted.</p> <p>If you do not specify a column name, and the cursor is not in a column, DB2 Admin displays a panel where you can specify your sort criteria.</p>
SQL sql statement	<p>Use this command to issue one or more SQL statements (for example, SQL SELECT * FROM MYTABLE). A semicolon (;) should separate SQL statements.</p> <p>If an SQL statement returns rows, the default table display panel shows the rows.</p> <p>A plus sign (+) can be used instead of SQL.</p>
SQLID id	<p>Use this command to show or change the current SQLID (for example, SQLID ISTJE).</p>
STATUS	<p>Use this command to show the current status of DB2 Admin.</p>

Line Commands

Line commands are issued from ISPF table display panels. Line commands specify an operation that is to be performed on the information that is displayed. Specify line commands in the line command area in front of each row (called the SELECT field).

There are two types of line commands:

- Special line commands
- General line commands

Special Line Commands

Special line commands appear in the line command description area (see Figure 10 on page 30)

Only the line commands included on a panel are valid for that panel. A question mark (?) line command appears on panels when there is not enough room to show all line commands. In this case, the panel shows the most frequently used line commands. If you enter '?', you get a list of all valid line commands for that panel.

Figure 16 shows the special line commands.

Figure 16 (Page 1 of 5). DB2 Admin Special Line Commands

A	Display information about authorizations for this object.
ADD	Add constraint. For the ADBDMT Launchpad panel, A means add a utility to the panel.
AL	Alter an object.
ALIAS	Show aliases.
B	Bind the object.
BC	Bind the copy of the object.
BR	Browse the object.
C	Show the columns for this object.
CAN	Cancel the thread.
CC	Show columns referenced in constraint
CDI	Show column distribution.
CH	Show information about the referential integrity defined for child tables.
CHK	Show information about table check constraints.
CHR	Show information about the referential integrity defined for child relations.
COM	Comment on the object.
CRE	Create an object.
CREAL	Create an alias for the object.
CRESYN	Create a synonym for the table.

Figure 16 (Page 2 of 5). DB2 Admin Special Line Commands

CRET	Create a table.
CREX	Create an index on the table
D	Show the database for the object. For the System Administration panels, D means delete the row.
DC	Describe the columns.
DEL	Delete the row in the ADBDMT Launchpad panel.
DEP	Show the dependencies on an object.
DI	Display distribution statistics.
DIS	Display information about the status of the object.
DISA	Display information about the allocated page sets.
DISL	Display information about locks for this object.
DISR	Display information about restrictions on use for this object.
DIST	Display information about threads for this object.
DISU	Display information about correlation or connection IDs for this object.
DK	Delete the rows for the package.
DP	Delete the rows for the plan.
DQ	Delete the rows for the query number.
DROP	Drop the object/constraint.
DROPSYN	Drop the synonym for the table.
E	Normally, E means show related data types. On some panels, E means edit the member (which is indicated on the panel).
EN, ENDI	Show the connections that are either enabled or disabled for the object.
F	Free the object (BIND and REBIND panels). On all other panels, show related functions.
FC	Show the From Column.
FK	Show information about the referential integrity defined for foreign keys.
FR	Show explain function table rows.
G	Show the storage groups for the object.
GR	Grant privileges for the object.
H	Show the homonyms for the object.
I	Show detailed information about the object. For the System Administration panels, I can also mean insert the row.

Figure 16 (Page 3 of 5). DB2 Admin Special Line Commands

ICS	Show the status of image copies for this object.
IH	Insert optimizer hint.
ILOC	Insert location.
ILUM	Insert LU modes.
IMODE	Insert mode.
IUSER	Insert authorization ID for a user.
J	Show triggers.
K	Show the packages for the object.
L	Show the collection for the object. For the tables panels, L means show the rows in the table. For the System Administration panels, L means list the catalog.
LAB	Label the object.
LOC	Show the location.
LP	List the PLAN_TABLE table for the object.
LU	Show the LU name.
LUM	Show the LU modes.
M	Show the DBRMs for the object.
MODE	Show the SYSMODESELECT rows for the location.
O	Show related stored procedures.
P	Show the plans for the object.
PA	Show information about the referential integrity defined for parent tables.
PAR	Show information about the referential integrity defined for parent relations.
PARM	Show the parameter list
PK	Show the primary key for this table.
PL	Show the package lists for the object.
PST	Show partition statistics.
R	Revoke the privilege for the object.
RB	Rebind the object.
REM	Comment on the object.

Figure 16 (Page 4 of 5). DB2 Admin Special Line Commands

S	<p>Show the table spaces for the object.</p> <p>For the SQL Statements panels, S means show the column in the result.</p> <p>For the System Administration panels, S means display or update the table you selected.</p> <p>For the ADB2DDF and ADB2ZD2 panels, S means select the location.</p> <p>For the ADBDMT Launchpad panel, S means start the tool on that line.</p>
SA	Show in ascending order.
SD	Show in descending order.
SEL	Build SQL SELECT statement for this object.
SP	Show the table space's parts.
SQ, SQL	Show the SQL statements.
SR	Show explain statement table rows.
STA	Start the object.
STAFO	Force a start of the object.
STARO	Start the object for a read operation.
STARW	Start the object for a read/write operation.
STAUT	Start the object so a DB2 utility can access it (no SQL statements can be issued against the object).
STO	Stop the object.
STOQ	Stop the stored procedure and queue requests.
STOR	Stop the stored procedure and reject requests.
T	Show the tables.
TC	Show the To Column.
TERM	Terminate the utility.
U	Update the row.
UPD	Update the row in the ADBDMT Launchpad panel.
UR	Update the information provided by the RUNSTATS utility.
USER	Show the user names.
UT, UTL, UTIL	Run a DB2 utility job against the object.
V	Show the views on the object.
VE	Show the versions.
VOL	Show the volumes.
VS	Show how the view was created.

Figure 16 (Page 5 of 5). DB2 Admin Special Line Commands

X	Show the indexes for the object.
XP	Show the parts of the index.
Y	Show the synonyms for the object.
any installation defined command	See "Installation Defined Line Commands" on page 26.

General Line Commands

There are two general line commands: equal ('=') and slash ('/').

Equal ('=') Line Command: Use the '=' line command to repeat the last line command that you issued.

Figure 17 shows use of the '=' line command. The DIS command has been entered requesting a display of the database. The asterisk appears in the SELECT field in place of the DIS line command when DB2 Admin returns from executing the line command. When you enter '=' in the SELECT field and press ENTER, the DIS line command is executed for database ISTJE2DE.

When the '=' line command is entered multiple times, as shown in Figure 18 on page 42, the next line command is executed when DB2 Admin returns from executing the current line command; the panel where the '=' line commands are entered is not shown between executions of the line commands.

```

DB2 Admin ----- DB2W Databases ----- ROW 1 TO 5 OF 5
Command ==>                               Scroll ==> PAGE

Valid line commands are:
T - Tables  S - Table spaces  X - Indexes  G - Storage group  ICS - IC status
DIS - Display database  STA - Start database  STO - Stop database  A - Auth
? - Show all line commands

Select Name      Owner      Storage  Buffer      Created  R Read Only Share
      *          *          Group    Pool        *      *      S Timestamp
-----
      D          ISTJE2    G        BP0          293 ISTJE2    0001-01-01-00.00.0
*IS  ISTJE2DC  ISTJE2    ISTJE2GC BP0          295 ISTJE2    0001-01-01-00.00.0
=    ISTJE2DE  ISTJE2    ISTJE2GE BP0          269 ISTJE2    0001-01-01-00.00.0
      ISTJE2DS ISTJE2    ISTJE2G  BP0          296 ISTJE2    0001-01-01-00.00.0
      ISTJE2DV ISTJE2    ISTJE2G  BP0          294 ISTJE2    0001-01-01-00.00.0
***** END OF DB2 DATA *****

```

Figure 17. Issuing the '=' Line Command

```

DB2 Admin ----- DB2W Databases ----- ROW 1 TO 5 OF 5
Command ==> Scroll ==> PAGE

Valid line commands are:
T - Tables S - Table spaces X - Indexes G - Storage group ICS - IC status
DIS - Display database STA - Start database STO - Stop database A - Auth
? - Show all line commands

Select Name      Owner      Storage  Buffer    Created  R Read Only Share
      *         *         Group    Pool      DBID By      S Timestamp
-----
          D      ISTJE2    G        BP0        293 ISTJE2    0001-01-01-00.00.0
*IS      ISTJE2DC ISTJE2    ISTJE2GC BP0        295 ISTJE2    0001-01-01-00.00.0
          ISTJE2DE ISTJE2    ISTJE2GE BP0        269 ISTJE2    0001-01-01-00.00.0
=        ISTJE2DS ISTJE2    ISTJE2G  BP0        296 ISTJE2    0001-01-01-00.00.0
=        ISTJE2DV ISTJE2    ISTJE2G  BP0        294 ISTJE2    0001-01-01-00.00.0
***** END OF DB2 DATA *****

```

Figure 18. Issuing the '=' Line Command Multiple Times

Slash (/) Line Command: Use the '/' line command to show all column names and their values for the item that you select.

More than one '/' line command may be entered at a time.

On panel ADBDMT, the Launchpad panel, '/' or 's' is used to invoke the ISPF interface for the tool on that row. In this situation, only one '/' may be specified at a time.

Figure 19 shows use of the '/' line command. A '/' is placed next to database ISTJE2DC. Figure 20 shows the result. All column names and their values from the catalog table (SYSIBM.SYSDATABASE in this case) are displayed.

```
DB2 Admin ----- DB2W Databases ----- ROW 1 TO 5 OF 5
Command ==> Scroll ==> PAGE

Valid line commands are:
T - Tables S - Table spaces X - Indexes G - Storage group ICS - IC status
DIS - Display database STA - Start database STO - Stop database A - Auth
? - Show all line commands

Select Name Owner Storage Buffer Created R Read Only Share
      *   *   *   *   *   *   *   *   *
-----
/      D      ISTJE2 G      BP0      293 ISTJE2 0001-01-01-00.00.0
      ISTJE2DC ISTJE2 ISTJE2GC BP0      295 ISTJE2 0001-01-01-00.00.0
      ISTJE2DE ISTJE2 ISTJE2GE BP0      269 ISTJE2 0001-01-01-00.00.0
      ISTJE2DS ISTJE2 ISTJE2G  BP0      296 ISTJE2 0001-01-01-00.00.0
      ISTJE2DV ISTJE2 ISTJE2G  BP0      294 ISTJE2 0001-01-01-00.00.0
***** END OF DB2 DATA *****
```

Figure 19. Issuing the '/' Line Command

```
DB2 Admin ----- DB2 Result of the SQL SELECT ----- ROW 1 TO 9 OF 9
Command ==> Scroll ==> PAGE

L COLUMN_NAME COLUMN_VALUE
*           *
-----
NAME          ISTJE2DC
CREATOR       ISTJE2
STGROUP       ISTJE2GC
BP00L         BP0
DBID          295
IBMREQD       N
CREATEDBY     ISTJE2
ROSHARE
TIMESTAMP     0001-01-01-00.00.00.000000
***** END OF DB2 DATA *****
```

Figure 20. Result of Issuing the '/' Line Command

Invoking DB2 Admin

Before invoking DB2 Admin, you may want to review the chapter on customization to understand the different run time parameters that can be set.

There are two CLISTs in the SADBCLST library for executing DB2 Admin:

- ADB
- ADBL

In addition, the SADBEXEC library contains the ADBDMT exec used to start the Launchpad.

Use the **ADB** CLIST when the DB2 Admin libraries are allocated by your TSO LOGON procedure. Use the **ADBL** CLIST when the DB2 Admin libraries need to be allocated before the product is executed.

Use the **ADBDMT** exec much as you would the **ADBL** CLIST, but when you want to go directly to the DB2 Tools Launchpad panel. From that multipurpose panel, you can continue with DB2 Admin functions, or you can invoke other DB2 tools. For more information, refer to Chapter 20, “Launchpad for Running IBM DB2 Tools” on page 311.

You can invoke the ADB, and ADBL CLISTs and ADBDMT exec from any ISPF panel or from the ISPF command processor panel (usually ISPF option 6). You might want to put the prefix % in front of the CLIST name to ensure that TSO/E only searches the CLIST libraries specified with the ALTLIB command or allocated to the SYSPROC file.

There are several CLIST parameters you might be interested in using. With the ADBL CLIST, the DB2 Tools Launchpad panel can be reached with the DMT parameter. From this panel, you have the choice of invoking a DB2 tool or of continuing with the DB2 Admin functions described in this book. If you do not use the DMT parameter, you go directly to the DB2 Admin functions, but you pass up the convenience of starting up DB2 tools from a centralized panel within DB2 Admin.

Also when using CLIST ADBL, you can use the PROD parameter to override the prefix for all DB2 Admin product libraries, or alternatively you could edit the ADBL CLIST and specify the prefix there. You might find it useful to use the SYSTEM(ssid) parameter to access a specific DB2 subsystem directly. You can use the SHOW parameter to start your DB2 Admin session with a panel showing all active DB2 subsystems available to you. The DEBUG and DUMP parameters can be used for debugging.

Other CLIST parameters can override customization parameters. If your installation uses variable-length CLIST and EXEC libraries, you will find the VB parameter useful for accessing the SADBCLST.VB and SADBEXEC.VB libraries created in step 8 of installation. (For a complete list and explanation of CLIST parameters, browse the ADB and ADBL CLISTs.)

Example 1: One way to invoke DB2 Admin for DB2 subsystem ABCD is to enter the following on the command line on the ISPF main menu:

```
TSO %ADBL SYSTEM(ABCD)
```

Example 2: To invoke DB2 Admin's Launchpad panel, which lets you continue with the DB2 Admin Tool or invoke another DB2 tool, enter on the command line of the ISPF command processor panel (usually option 6):

ADBL DMT

Example 3: One way to invoke DB2 Admin directly and have a panel shown first of all active DB2 subsystems from which you can choose, is to enter the following on the command line on the ISPF command processor panel (usually option 6):

ADBL SHOW

Chapter 5. DB2 Admin Demo

This chapter demonstrates a DB2 Admin dialog. The purpose of the demo is to show the interactive nature of the product.

Although the demo does show some of DB2 Admin's major functions, only a thin layer of the *available* function is actually shown. For an understanding of the function that is available, you need to see the panel chapters later in this book.

Figure 21 shows the menu panel you see when you bring up DB2 Admin. The top of the panel shows the DB2 Admin functions you can choose. The bottom of the panel shows other DB2 tools (in this case DB2I) that can be invoked from the menu panel; this is a customization option.

Choose option 1 on this panel (as shown) to go to the DB2 system catalog function. The demo shows only this function.

```
DB2 Admin ----- DB2 Administration Menu 2.1.0 ----- 19:03
Option ==>

      1 - DB2 system catalog                DB2 System: DB2X
      2 - Execute SQL statements            DB2 SQL ID: ISXSTL
      3 - DB2 performance queries          Userid   : ISXSTL
      4 - Change current SQL ID
      P - Change parameters for DB2 Admin   DB2 Rel   : 610
      DD - Distributed DB2 systems
      E - Explain
      Z - DB2 system administration

Interface to other DB2 products and offerings:

      I - DB2I   DB2 Interactive
```

Figure 21. DB2 Administration Menu (Demo Panel)

Figure 22 shows the menu for the system catalog function. Choose option D on this panel, which requests display of the databases in the DB2 system catalog. You can limit the search by specifying a search argument in the name field. Here DSN was specified as a search argument.

```

DB2 Admin ----- DB2W System Catalog ----- 21:42
Option ==>

Options:
V - Volumes
G - Storage groups
D - Databases
S - Table spaces
T - Tables, views, and aliases
X - Indexes
C - Columns
Y - Synonyms
P - Plans
K - Packages
L - Collections
M - DBRMs
DS - Database structures
H - Schemas
E - User defined data types
F - Functions
O - Stored procedures
J - Triggers

DB2 System: DB2W
DB2 SQL ID: ISTJE
GA - Authorizations to storage groups
DA - Authorizations to databases
SA - Authorizations to tables spaces
TA - Authorizations to tables and views
CA - Authorizations to columns
PA - Authorizations to plans
KA - Authorizations to packages
LA - Authorizations to collections
RA - Authorizations to resources
ZA - Authorizations to system privileges
HA - Authorizations to schemas
EA - Authorizations to data types
FA - Authorizations to functions
OA - Authorizations to stored procedures

Enter standard selection criteria (an SQL LIKE operator will be used):
Name      ==>
Owner      ==>
In D/L/H   ==>
And/or other selection criteria (option xC shows you columns for option x)
Column     ==>
Grantor    ==>
Grantee     ==>
CatCopy    ==> NO (Y/N to use catalog copy)
Operator   ==>
Value      ==>

```

Figure 22. System Catalog Menu (Demo Panel)

Figure 23 on page 49 shows the ISPF table display panel DB2 Admin returns. All databases that meet the search criteria (DSN) are displayed in the name field.

```

DB2 Admin ----- DB2W Databases ----- Row 1 of 28
Command ==>                                     Scroll ==> PAGE

Valid line commands are:
T - Tables  S - Table spaces  X - Indexes  G - Storage group  ICS - IC status
DIS - Display database  STA - Start database  STO - Stop database  A - Auth
? - Show all line commands

Select Name      Owner      Storage  Buffer    Created      Index
      *         *         Group    Pool      DBID By      T E Buffer Pool
-----
DSNDB04  SYSIBM  SYSDEFLT BP1          4 SYSIBM      BP2
DSNDB06  SYSIBM          6 SYSIBM      E BP0
DSNDB07  DSCGDB2  SYSDEFLT BP0          7 ISTJE      W BP0
DSNRLST  DSCGDB2  SYSDEFLT BP0        256 ISTJE      E BP0
DSNDDF   DSCGDB2  SYSDEFLT BP0        257 ISTJE      E BP0
DSNDPSM  DSCGDB2  SYSDEFLT BP1        258 ISTJE      E BP2
DSN8D61A DSCGDB2  DSN8G610 BP1        259 ISTJE      E BP2
DSN8D61P DSCGDB2  DSN8G610 BP1        260 ISTJE      E BP2
DSN8D61U DSCGDB2  DSN8G610 BP1        261 ISTJE      E BP2
DBGROTH1 DPGROTH  SGGROTH1 BP0        262 DPGROTH    E BP0
ISTJED   ISTJE    ISTJEG   BP0        263 ISTJE      E BP0
DSN8D61L DSCGDB2  DSN8G610 BP0        264 ISTJE      E BP2
DPCHRBD  DPCHR     DPCHRSTO BP0        265 DPCHR      E BP0
DBGROTH  DPGROTH  SGGROTH  BP1        268 DPGROTH    E BP2
DSCGDB2D DSCGDB2  DSCGDB2G BP0        269 ISTJE      E BP0
TFLDB    ISTFL   TFLSG    BP0        270 ISTFL      E BP0
TFL3DB   ISTFL3  TFL3SG   BP0        271 ISTFL3     E BP0
ISTJED2  ISTJE    ISTJEG2  BP0        273 ISTJE      E BP0
DBLH060  DPGROTH  JYSKE    BP1        274 DPGROTH    E BP2
ADBDC    ISTJE    ADBGC    BP1        266 ISTJE      E BP2
ADBDTFL  ISTFL    ADBGTFL  BP0        276 ISTFL      E BP0
***** END OF DB2 DATA *****

```

Figure 23. Databases Whose Name Is Qualified (Demo Panel)

You can change a display in several ways. You can sort alphabetically on one or more columns or include only columns with certain values. Figure 24 shows the information DB2 Admin returns when a SORT primary command is issued. You can also sort any column by putting the cursor in the column and entering the SORT command.

```

DB2 Admin ----- DB2X Databases ----- Row 1 of 9
Command ==>                               Scroll ==> PAGE
Sort performed
Valid line commands are:
T - Tables S - Table spaces X - Indexes G - Storage group ICS - IC status
DIS - Display database STA - Start database STO - Stop database A - Auth
? - Show all line commands

Select Name      Owner      Storage  Buffer      Created      Index
      *        *        Group    Pool        *        *        T E Buffer Pool
-----
          DSNDB07 DSCGDB2 SYSDEFLT BP1          7 ISTJE      W BP2
          DSNRGFDB DSCGDB2 SYSDEFLT BP1          257 ISTJE      E BP2
          DSNRLST DSCGDB2 SYSDEFLT BP1          256 ISTJE      E BP2
S        DSN8D61A DSCGDB2 DSN8G610 BP1          258 ISTJE      E BP2
          DSN8D61L DSCGDB2 DSN8G610 BP1          261 ISTJE      E BP2
          DSN8D61P DSCGDB2 DSN8G610 BP1          259 ISTJE      E BP2
          DSN8D61U DSCGDB2 DSN8G610 BP1          260 ISTJE      E BP2
          DSNDB04 SYSIBM  SYSDEFLT BP1           4 SYSIBM      BP2
          DSNDB06 SYSIBM  SYSDEFLT BP1           6 SYSIBM      E BP0
***** END OF DB2 DATA *****

```

Figure 24. Databases After SORT CREATOR Issued (Demo Panel)

Using DB2 Admin line commands, you can navigate the catalog. If in Figure 24 you put an S line command in the select field next to database DSN8D61D, DB2 Admin will display all table spaces in database DSN8D61D. This is shown in Figure 25.

```

DB2 Admin ----- DB2X Table Spaces ----- Row 1 of 5
Command ==>                               Scroll ==> PAGE
Valid line commands are:
T -Tables D - Database A - Auth G - Storage group ICS - Image copy status
DIS - Display database STA - Start database STO - Stop database
? - Show all line commands

Select Name      Owner      DB Name  BP  L E S I C Ntable  N Active Segsz T L
      *        *        *        *  * * * * * * * * * *
-----
utl    DSN8S61D DSCGDB2 DSN8D61A BP1 P N A N N      1      12      0 Y
       DSN8S61E DSCGDB2 DSN8D61A BP1 P N A N N      1     120      0 Y
       DSN8S61R DSCGDB2 DSN8D61A BP1 P N A N N      6       0      0 Y
       DSN8S61P DSCGDB2 DSN8D61A BP1 R N A N N      4      24      4 Y
       DSN8S61S DSCGDB2 DSN8D61A BP1 P N A N N      1       0      0 Y
***** END OF DB2 DATA *****

```

Figure 25. Table Spaces In a Database (Demo Panel)

From the Table Spaces panel, you can issue DB2 commands against DB2 objects. As shown in Figure 26, output from a DB2 command is shown in ISPF browse.

```
DB2 Admin ----- DB2X Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==> Scroll ==> PAGE

-DIS DB(DSN8D61A) SPACENAM(DSN8S61D) LIMIT(*)

***** Top of Data *****
DSNT360I DB2X *****
DSNT361I DB2X * DISPLAY DATABASE SUMMARY
              * GLOBAL
DSNT360I DB2X *****
DSNT362I DB2X DATABASE = DSN8D61A STATUS = RW
              DBD LENGTH = 16142
DSNT397I DB2X
NAME      TYPE PART STATUS          PHYERRLO PHYERRHI CATALOG  PIECE
-----
DSN8S61D TS          RW
***** DISPLAY OF DATABASE DSN8D61A ENDED *****
DSN9022I DB2X DSNTDDIS 'DISPLAY DATABASE' NORMAL COMPLETION
***** Bottom of Data *****
```

Figure 26. ISPF Browse Output After DB2 Command (Demo Panel)

Back to the Table Spaces panel (Figure 25 on page 50), you can run a utility by specifying line command UTL for table space DSN8S61D. DB2 Admin responds by displaying the utilities that can be run against a table space, as shown in Figure 27.

```
DB2 Admin ----- DB2X Table Space Utilities ----- 12:41
Option ==> C

C - Copy full          CI - Copy incremental          DB2 System: DB2X
CC - Copy concurrent   EN - Mergecopy newcopy        DB2 SQL ID: ISTJE
E - Mergecopy          KD - Check data
K - Check index
M - Modify
MA - Modify records before date ==> (YYMMDD)
MB - Modify records older than ==> (days)
N - Repair nocopypend  NA - Repair nocheckpend  NB - Repair norcvrpend
O - Reorg              OU - Reorg unload only
P - Report recovery
Q - Quiesce
R - Runstats           RT - Runstats table all  RR - Runstats report
V - Recover            VC - Recover tocopy    VG - Recover to last GDG
VI - Recover index     VR - Recover torba    VL - Recover logonly
DG - Define GDG for copy data sets
      on table space DSN8D61A.DSN8S61D
BP - Change batch job parameters
```

Figure 27. Table Space Utilities Menu (Demo Panel)

You can run the COPY utility against the table space by specifying option C, which requests a full image copy. Figure 28 shows the utility JCL DB2 Admin returns to you. The JCL is ready to be submitted.

```
DB2 Admin ----- Edit Generated JCL ----- Columns 001 072
Command ==> Scroll ==> HALF

000009 //* DB2 ADMIN GENERATED JOB TO RUN COPY ON SELECTED TABLESPACES
000010 //*
000011 //*****
000012 //*
000013 //*****
000014 //* STEP COPY: COPY TABLESPACE DSN8D61A.DSN8S61D
000015 //*****
000016 //COPY EXEC DSNUPROC,SYSTEM=DB2X,
000017 //          LIB='SYS1.DB2X.SDSNLOAD',
000018 //          UID='ISTJE2'
000019 //DSNUPROC.SYSCOPY DD DSN=ISTJE2.DB2X.IC.DSN8D61A.DSN8S61D(+1),
000020 //          DISP=(NEW,CATLG),
000021 //          SPACE=(8192,(7,5),RLSE),
000022 //          UNIT=SYSDA
000023 //DSNUPROC.SYSIN DD *
000024 COPY TABLESPACE DSN8D61A.DSN8S61D DSNUM ALL FULL YES
000025 /*
000026 //*****
000027 //* STEP MOD: MODIFY RECOVERY TABLESPACE DSN8D61A.DSN8S61D
000028 //*****
000029 //MOD EXEC DSNUPROC,SYSTEM=DB2X,
000030 //          LIB='SYS1.DB2X.SDSNLOAD',
000031 //          UID='ISTJE2'
000032 //DSNUPROC.SYSIN DD *
000033 MODIFY RECOVERY TABLESPACE DSN8D61A.DSN8S61D DSNUM ALL
000034 DELETE AGE(35)
000025 /*
```

Figure 28. JCL for a Utility (Demo Panel)

Back to the Table Spaces panel again (Figure 25 on page 50), you can determine what tables are in a table space by issuing line command T. Figure 29 shows the tables in table space DSN8S61D.

```
DB2 Admin ----- DB2X Tables, Views, and Aliases ----- - Row 1 of 1
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
C - Columns  A - Auth  L - List  X - Indexes  S - Table space  D - Database
V - Views    T - Tables P - Plans  Y - Synonyms  SEL - Select prototyping
? - Show all line commands

Sel  Name          Owner      T DB Name  TS Name    Cols      Rows Checks
-----
C    DEPT          DSN8610  T DSN8D61A DSN8S61D    5         14      0
***** END OF DB2 DATA *****
```

Figure 29. Tables in a Table Space (Demo Panel)

To see the columns in a table, use the C line command. The result is shown in Figure 30.

```
DB2 Admin ----- DB2X Columns in Table: DSN8610.DEPT ----- Row 1 of 5
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
T - Tables  X - Indexes  A - Auth  GR - Grant  H - Homonyms  I - Interpret
UR - Update runstats  LAB - Label  COM - Comment  DI - Distribution stats
PST - Partition stats  E - Source data type

Select Column Name      Col No Col Type Length Scale  Null Def FP      Col Card
-----
DEPTNO                  1 CHAR          3      0 N    N    N          14
DEPTNAME                2 VARCHAR       36      0 N    N    N          -1
MGRNO                   3 CHAR          6      0 Y    Y    N           9
ADMRDEPT                4 CHAR          3      0 N    N    N           3
LOCATION                  5 CHAR         16      0 Y    Y    N          -1
***** END OF DB2 DATA *****
```

Figure 30. Columns In a Table (Demo Panel)

And to see the indexes for a table, use the X line command. Figure 31 shows the information that is returned.

```

DB2 Admin ----- DB2X Indexes ----- Row 1 of 3
Command ==> Scroll ==> PAGE

Valid line commands are:
T - Tables D - Database G - Storage group P - Plans C - Columns
DIS - Display database STA - Start database STO - Stop database
? - Show all line commands

Select Index Name      Index      Table Name      Table      U   CoIs  C C C
      *              Owner      *              Owner      * *   * * *
-----
      XDEPT1          DSN8610  DEPT            DSN8610  P     1 N Y Y 2
      XDEPT2          DSN8610  DEPT            DSN8610  D     1 N Y N 2
      XDEPT3          DSN8610  DEPT            DSN8610  D     1 N Y N 2
***** END OF DB2 DATA *****

```

Figure 31. Indexes for a Table (Demo Panel)

You can find the authorizations for any DB2 object by issuing line command A. Figure 32 shows the output DB2 Admin returns when line command A is issued against table DEPT.

```

DB2 Admin ----- DB2 Table Authorizations ----- Row 1 of 2
Command ==> Scroll ==> PAGE

Valid line commands are:
R - Revoke GR - Grant T - Table I - Interpretation U D I S U R
CA - Column authorisations                        P A E I N E P R E
                                                D L L N S L D E F T
                                                C T E D E E A F C R
                                                O E T E R C T E O I
                                                L R E X T T E R L G

S Grantor  Grantee  G      H Date  G Grant  L R E X T T E R L G
      *      *      * *      * *      * *      * * * * * * * *
-----
GR DSN8610 DSN8610  DSN8610  DEPT      S 990115  G G G G G G G G
   DSCGDB2 PUBLIC*  DSN8610  DEPT      S 990115  Y Y Y Y
***** END OF DB2 DATA *****

```

Figure 32. Authorizations for a DB2 Object (Demo Panel)

The GR line command lets you grant privileges. Figure 33 shows the information returned when GR is issued against table DEPT.

```
DB2 Admin ----- DB2X Grant Table Privileges ----- 12:43
Command ==>

GRANT

Specify Y or G (for with grant option) or ' ' (for none)

ALL          INDEX          UPDATE
ALTER        INSERT        REFERENCES
DELETE       y SELECT

ON TABLE

Owner  ==> DSN8610
Table  ==> DEPT

TO

To      ==> userx
```

Figure 33. Grant Privileges for a Table (Demo Panel)

From the Tables panel (Figure 29 on page 53), you can request the SQL source that created a view. To do this, issue line command VS. As shown in Figure 34, you can request that DB2 Admin display the definition of the view using ISPF edit.

```
DB2 Admin ----- DB2X Create View Source Statements ----- 12:43
Command ==>

Valid primary commands are: BR - Browse E - Edit EX - Edit/Execute

----- Create View Source Statement -----
CREATE VIEW DSN8610.VDEPT
  AS SELECT ALL      DEPTNO ,
                    DEPTNAME,
                    MGRNO ,
                    ADMRDEPT
  FROM DSN8610.DEPT
```

Figure 34. SQL Source that Created a View (Demo Panel)

From the Tables panel (Figure 29 on page 53), you can access the application plans that use table DEPT. To do this, enter line command P. Figure 35 is returned.

```

DB2 Admin ----- DB2X Application Plans ----- Row 1 of 1
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
DEP - Depend A - Auth T - Tables V - Views X - Indexes S - Table spaces
Y - Synonyms M - DBRMs RB - Rebind F - Free B - Bind GR - Grant
PL - Package list LP - List PLAN_TABLE I - Interpret ENDI - Enab/disab con
K - Local packages SQ - SQL

Select Name      Owner      Bind      Bind      V I V O Bound      Quali-      Pack A R E D
      *          *          Date      Time      D S A P By      fier      Lists Q L X R
-----
M      DSN8BH61 DSCGDB2  990115  142711 R S Y Y ISTJE  DSCGDB2      0 U C N
***** END OF DB2 DATA *****

```

Figure 35. Application Plans That Use a Table (Demo Panel)

Use the M line command from the Application Plans panel to display the DBRMs for an application plan. Figure 36 shows the output DB2 Admin returns when line command M is issued against application plan DSN8BH61.

```

DB2 Admin ----- DB2X DBRMs ----- Row 1 of 1
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
P - Plans B - Browse DBRM S - SQL statements I - Interpretation

S Name      Owner      PL Name      Q C H P Date P Time      PDS Name
      *          *          *          * * * * *      *          *
-----
S DSN8BC3  DSCGDB2  DSN8BH61 N N 3 990115 14270156 DB2.DSN610.DBRMLIB.DATA
***** END OF DB2 DATA *****

```

Figure 36. DBRMs for an Application Plan (Demo Panel)

To request the actual SQL statements in the DBRM, issue line command S. The result is shown in Figure 37.

```
DB2 Admin ----- Extracted SQL ----- Columns 00001 00072
Command ==>                                     Scroll ==> HALF

***** ***** Top of Data *****
000001 -- SQL statements in DBRM: DSN8BH61.DSN8BC3
000002 -- SQL in stmt: 244
000003 DECLARE VPHONE TABLE (LASTNAME VARCHAR (15) NOT NULL, FIRSTNAME VARCHAR
000004 (12) NOT NULL, MIDDLEINITIAL CHAR (01) NOT NULL, PHONENUMBER CHAR (04),
000005 EMPLOYEENUMBER CHAR (06) NOT NULL, DEPTNUMBER CHAR (03) NOT NULL,
000006 DEPTNAME VARCHAR (36) NOT NULL)
000007 -- SQL in stmt: 277
000008 DECLARE VEMPLP TABLE (EMPLOYEENUMBER CHAR (06) NOT NULL, PHONENUMBER
000009 CHAR (04) )
000010 -- SQL in stmt: 287
000011 DECLARE TELE1 CURSOR FOR SELECT * FROM VPHONE
000012 -- SQL in stmt: 295
000013 DECLARE TELE2 CURSOR FOR SELECT * FROM VPHONE WHERE LASTNAME LIKE :H
000014 AND FIRSTNAME LIKE :H
000015 -- SQL in stmt: 305
000016 DECLARE TELE3 CURSOR FOR SELECT * FROM VPHONE WHERE LASTNAME = :H AND
000017 FIRSTNAME LIKE :H
000018 -- SQL in stmt: 335
000019 WHENEVER SQLERROR GOTO DBERROR
000020 -- SQL in stmt: 336
000021 WHENEVER SQLWARNING GOTO DBERROR
000022 -- SQL in stmt: 337
000023 WHENEVER NOT FOUND CONTINUE
000024 -- SQL in stmt: 432
000025 OPEN TELE1
```

Figure 37. SQL Statements in a DBRM (Demo Panel)

From the Application Plans panel (Figure 35 on page 56), you can issue a BIND, REBIND, or FREE of a plan. Figure 38 shows the result when you request a BIND of application plan DSN8BH61.

```

DB2 Admin ----- DB2X Bind Application Plan ----- 12:45
Command ==>

Verify BIND parameters:                                     More:      +

BIND PLAN(
Plan name      ==> DSN8BH61
) OWNER(
Plan owner     ==> DSCGDB2
) QUALIFIER(
Qualifier      ==> DSCGDB2 (qualifier to resolve unqualified SQL)
) MEMBER(      (use ? to get current values from the catalog)
DBRM members   ==> ?

) LIBRARY
DBRM data sets ==> ? (use ? to get current values from the catalog)

) PKLIST(
Package lists  ==> (use ? to get current values from the catalog)

) DEFER(PREPARE)
Defer prepare  ==> N (Yes or No, used for distributed dynamic SQL)
) VALIDATE(
Validation time ==> R (Run or Bind, Bind preferred)

```

Figure 38. BIND of an Application Plan (Demo Panel)

Using the catalog, DB2 Admin automatically finds the DBRM members and libraries for the BIND. These are displayed when you press ENTER, as shown in Figure 39.

```

DB2 Admin ----- DB2X Bind Application Plan ----- 12:52
Command ==>

Verify BIND parameters:                                     More:      +

BIND PLAN(
Plan name      ==> DSN8BH61
) OWNER(
Plan owner     ==> DSCGDB2
) QUALIFIER(
Qualifier      ==> DSCGDB2 (qualifier to resolve unqualified SQL)
) MEMBER(      (use ? to get current values from the catalog)
DBRM members   ==> DSN8BC3

) LIBRARY      (use ? to get current values from the catalog)
DBRM data sets ==> 'DB2.DSN610.DBRMLIB.DATA'

) PKLIST(      (use ? to get current values from the catalog)
Package lists  ==>

) DEFER(PREPARE)
Defer prepare  ==> N      (Yes or No, used for distributed dynamic SQL)
) VALIDATE(
Validation time ==> R      (Run or Bind, Bind preferred)

```

Figure 39. DBRM Members and Libraries for the BIND (Demo Panel)

If an SQL error occurs DB2 Admin displays the DSNTIAR message, as shown in Figure 40.

```
DB2 Admin ----- DB2 Error Display 1 ----- 12:54
Command ==>
Rollback done
      SQLCODE : -206                      DSNTIAR CODE :  0

DSNT408I SQLCODE = -206, ERROR:  T.TYP IS NOT A COLUMN OF AN INSERTED TABLE,
      UPDATED TABLE, OR ANY TABLE IDENTIFIED IN A FROM CLAUSE, OR IS NOT A
      COLUMN OF THE TRIGGERING TABLE OF A TRIGGER
DSNT418I SQLSTATE      = 42703 SQLSTATE RETURN CODE
DSNT415I SQLERRP      = DSNXORS0 SQL PROCEDURE DETECTING ERROR
DSNT416I SQLERRD      = -600  0  0  -1  0  0 SQL DIAGNOSTIC INFORMATION
DSNT416I SQLERRD      = X'FFFFFFDA8' X'00000000' X'00000000' X'FFFFFFF'
      X'00000000' X'00000000' SQL DIAGNOSTIC INFORMATION
```

Figure 40. DSNTIAR Error Messages (Demo Panel)

When you press ENTER you get another error display panel, which shows the actual SQL statement in error. See Figure 41.

```
DB2 Admin ----- DB2 Error Display 2 ----- 12:54
Command ==>

      SQLCODE : -206                      DSNTIAR CODE :  0

PREPARE

SELECT T.* FROM SYSIBM.SYSTABLES T  WHERE  T.CREATOR LIKE 'DSN%' and T.TYP = 'V'
FOR FETCH ONLY
```

Figure 41. SQL Statement in Error (Demo Panel)

If you want interpretive information about an object in the DB2 catalog, you can use line command I. Figure 42 shows the result when you issue line command I against application plan DSN8SP41.

```

DB2 Admin ----- DB2X Interpretation of an Object in SYSPLAN ----- 12:54
Option ==>

Details for application plan : DSN8BH61                                     More:      +

Authorization ID of owner          : DSCGDB2
Authorization ID of creator        : ISTJE
Qualifier for unqualified SQL     : DSCGDB2
Date for latest BIND of plan      : 990115   (yymmdd)
Time for latest BIND of plan      : 14271167 (hhmmssstth)
Time when the plan was bound      : 1999-01-15-14.27.11.679553
SQL rules specified at BIND       : D - DB2
Cache size for auth IDs in bytes  : 256
Operative status of plan          : Plan is valid and operative
Resource and authorization check  : At plan allocation time
Plan base section size (bytes)    : 3080     (in EDM pool during execution)
Average DML section size (bytes)  : 4802     (loaded when needed during exec)
Plan bound with EXPLAIN option    : NO
Plan bound with DEFER(PREPARE)    : No - DEFER(PREPARE) not specified
Number of PACKAGE list entries    : 0
Number of enabled/disabled sys    : 0
Current server                    :
Disconnect option used            : E - explicit. Release locations at commit
Data concurrency                  : C - required for ambiguous cursors
  Effect on blocking              : Inhibit blocking for ambiguous cursors
DEGREE of I/O parallelism         : 1 - parallel I/O inhibited
Group member that performed BIND :
Dynamic SQL rules                 : Not specified - use the rules for the plan
Re-optimize SQL at execution time: No - access path determined at BIND time
Keep prepared dynamic SQL stmts   : No - are destroyed at COMMIT
Protocol for 3 part names         : D

```

Figure 42. Interpretation of an Object (Demo Panel)

DB2 Admin lets you reverse engineer objects in your DB2 catalog (that is, extract the DDL required to re-create the DB2 objects). The starting point for reverse engineering can be databases, table spaces, tables, schemas, data types, functions, or stored procedures.

Figure 43 shows the panel that is displayed when reverse engineering of database DSN8D61A is requested.

```

DB2 Admin ----- DB2X Generate SQL from DB2 Catalog ----- 22:12
Option ==>

Generate SQL statements for database DSN8D61A                DB2 System: DB2X
                                                           DB2 SQL ID: ISTJE

SQL statement types to be generated from the DB2 catalog:
CREATE DATABASE. . . . . Y      GRANT access ON DATABASE. : Y
CREATE TABLESPACE. . . . . Y  GRANT access ON TABLESPACE: Y
CREATE TABLE . . . . . Y      GRANT access ON TABLE. . . : Y
CREATE VIEW . . . . . Y        GRANT access ON VIEW . . . : Y
CREATE INDEX . . . . . Y       ALTER TABLE ADD FOREIGN KEY: Y
CREATE SYNONYM . . . . . Y     LABEL ON . . . . . : Y
CREATE ALIAS . . . . . Y       COMMENT ON . . . . . : Y
CREATE TRIGGER . . . . . Y

New names/values for generated SQL: (leave blank to use current values)
Object owner . . . . . :
Alloc TS size as . . . . : DEFINED (DEFINED, USED, or ALLOC)
Database name. . . . . :
Storage group for TS . . :      Storage group for IX . . . :
Target DB2 version . . . :      (Current DB2 version: 610)

Output file and execution mode:
Data set name . . . . . : TEST.DB2(X)
Data set disposition . : OLD      (OLD, SHR, or MOD)
Execution mode . . . . . : BATCH  (BATCH or TSO)
Commit statements per . : A       (Db, tS, Tb, All, None)
DB2 defaults handling. . : K      (Keep, or Remove)

BP - Change batch job parameters

```

Figure 43. Generate SQL from DB2 Catalog Panel (Demo Panel)

Figure 44 on page 63 shows part of the result of running reverse engineering on this database.

```

-----
-- Database 2 Administration Tool (DB2 Admin), program 5655-D52 (C) --
--
-- ADB2GEN - Extract object definitions from the DB2 Catalog tables --
--
-- Input prepared on : DB2X (610)      Extract time : 1999-01-20 14:20 --
--
-- Catalog values overridden :          --
--
--           Database=ISTJE61A  Stogroup (Tablespace)=ISTJEG  --
--           Creator =ISTJE      Stogroup (Indexspace)=ISTJEG --
--
-- Generate : DB=Y TS=Y TB=Y VW=Y IX=Y SY=Y AL=Y LB=Y CM=Y FK=Y --
-- Grants   : DB=Y TS=Y TB=Y VW=Y --
--
-----
--
-- ADB2GEN: Generate DDL for Database ISTJE61A --
--
-----
--
-- Database=ISTJE61A  Stogroup=ISTJEG
--
-----
--
-- CREATE DATABASE ISTJE61A
--       BUFFERPOOL BP1
--       CCSID      EBCDIC
--       STOGROUP ISTJEG ;
--
-- GRANT DBADM
--       ON DATABASE ISTJE61A TO PUBLIC;
--
-- COMMIT;
--
-----
-- Database=ISTJE61A  Stogroup=ISTJEG
-- Tablespace=ISTJE61A.DSN8S61D
--
-----
--
-- CREATE TABLESPACE DSN8S61D
--       IN ISTJE61A
--       USING STOGROUP ISTJEG
--       PRIQTY 20 SECQTY 20
--       LOCKSIZE PAGE
--       CLOSE NO ;
--
-- GRANT USE OF TABLESPACE ISTJE61A.DSN8S61D TO PUBLIC;
--
-- COMMIT;
--

```

Figure 44 (Part 1 of 2). Reverse Engineering Output

```

-----
--      Table=ISTJE.DEPT                      In ISTJE61A.DSN8S61D
-----
--
CREATE TABLE ISTJE.DEPT
  (DEPTNO          CHAR(3) NOT NULL ,
   DEPTNAME        VARCHAR(36) NOT NULL ,
   MGRNO           CHAR(6) ,
   ADMRDEPT        CHAR(3) NOT NULL ,
   LOCATION        CHAR(16) ,
   PRIMARY KEY (DEPTNO) )
IN ISTJE61A.DSN8S61D ;
--
COMMIT;
--
-----
-- Database=ISTJE61A  Stogroup=ISTJEG
--      Index=ISTJE.XDEPT1                      On ISTJE.DEPT
-----
--
CREATE TYPE 2 UNIQUE INDEX ISTJE.XDEPT1
ON ISTJE.DEPT
  (DEPTNO          ASC )
USING STOGROUP ISTJEG
PRIQTY 12 SECQTY 12
CLOSE NO ;
--
.
.
.

```

Figure 44 (Part 2 of 2). Reverse Engineering Output

Chapter 6. DB2 Administration Menu Panel

Figure 45 shows the main menu panel for DB2 Admin.

Use this panel to select the function you want performed.

DB2 Admin includes a sample application as part of the product. (For more information about it, see Chapter 19, "Writing or Extending DB2 Admin Applications" on page 303.) You can access the sample application from this panel by specifying the "hidden" option S.

```
DB2 Admin ----- DB2 Administration Menu 2.1.0 ----- 19:03
Option ==>

      1 - DB2 system catalog
      2 - Execute SQL statements
      3 - DB2 performance queries
      4 - Change current SQL ID
      P - Change parameters for DB2 Admin
      DD - Distributed DB2 systems
      E - Explain
      Z - DB2 system administration

      DB2 System: DB2X
      DB2 SQL ID: ISXSTL
      Userid   : ISXSTL
      DB2 Rel   : 610

Interface to other DB2 products and offerings:

      I - DB2I   DB2 Interactive

      PM - DB2PM  Online Performance Monitor
```

Figure 45. DB2 Administration Menu Panel (ADB2)

DB2 SYSTEM CATALOG

Select this option to display information from the catalog about DB2 objects and/or authorizations for those objects.

Chapter 7, "System Catalog Panels" on page 67 describes these panels.

EXECUTE SQL STATEMENTS

Select this option to execute SQL statements.

Chapter 11, "SQL Statements Panels" on page 169 describes these panels.

DB2 PERFORMANCE QUERIES

Select this option to run performance and space utilization queries against a database.

Chapter 12, "DB2 Performance Queries Panels" on page 179 describes these panels.

CHANGE CURRENT SQL ID

Select this option to change your current SQL ID. This is the same as issuing the DB2 Admin primary command SQLID.

Chapter 13, "SQL ID Panels" on page 199 describes these panels.

CHANGE PARAMETERS FOR DB2 ADMIN

Select this option to change DB2 Admin parameters.

Chapter 14, “DB2 Admin Parameters Panels” on page 201 describes these panels.

DISTRIBUTED DB2 SYSTEMS

Select this option to see the system catalog panels for a remote DB2 system.

Chapter 15, “Distributed DB2 Systems Panels” on page 209 describes these panels.

EXPLAIN

Select this option to:

- Enter an SQL statement and see the resulting rows in a plan table (PLAN_TABLE).
- List rows from a plan table and see how DB2 will execute SQL statements in application plans, or packages that were bound with EXPLAIN(YES).
- Create and upgrade a plan table.

Chapter 16, “Explain Panels” on page 213 describes these panels.

DB2 SYSTEM ADMINISTRATION

Select this option to display a list of system administration functions.

Chapter 17, “System Administration Panels” on page 223 describes these panels.

Chapter 7. System Catalog Panels

This chapter describes the main system catalog panels. The System Catalog panels are the heart of the DB2 Admin product. Using these panels, you can:

- Display any object in the DB2 catalog
- Display related DB2 objects using DB2 Admin line commands
- Interpret catalog information
- Show the authorizations for DB2 objects
- Display the static SQL statements from application plans and packages
- Display the DDL for existing views
- Generate JCL for the DB2 utilities and then run them online
- Execute dynamic SQL statements
- Issue DB2 commands (for databases and table spaces)
- Display database structures
- Reverse engineer DB2 objects

System Catalog Panel

This panel (Figure 46) appears when you select option 1 on the DB2 Administration Menu panel.

Use this panel to display:

- Objects in the DB2 catalog
- Database structures
- Authorizations for objects in the catalog

Enter one of the object or authorization codes on the command line (for example, D for database). You can limit the information that is returned by entering one or more selection criteria at the bottom of the panel (for example, D402 would limit the search to databases whose name begins with D402). In response to your choices, DB2 Admin creates and executes an SQL statement that searches the DB2 catalog for the object or authorization you have requested.

For optimum performance, we recommend that you specify selection criteria for:

- Option T. Enter a value for "Owner" or "In D/L/H" (database, collection, or schema).
- All authorization options (xA). Enter a value for "Grantor" or "Grantee."

Option M can also be time-consuming, depending on how many plans and DBRMs you have.

```
DB2 Admin ----- DB2W System Catalog ----- 21:42
Option ==>

Options:
V - Volumes
G - Storage groups
D - Databases
S - Table spaces
T - Tables, views, and aliases
X - Indexes
C - Columns
Y - Synonyms
P - Plans
K - Packages
L - Collections
M - DBRMs
DS - Database structures
H - Schemas
E - User defined data types
F - Functions
O - Stored procedures
J - Triggers

DB2 System: DB2W
DB2 SQL ID: ISTJE
GA - Authorizations to storage groups
DA - Authorizations to databases
SA - Authorizations to tables spaces
TA - Authorizations to tables and views
CA - Authorizations to columns
PA - Authorizations to plans
KA - Authorizations to packages
LA - Authorizations to collections
RA - Authorizations to resources
ZA - Authorizations to system privileges
HA - Authorizations to schemas
EA - Authorizations to data types
FA - Authorizations to functions
OA - Authorizations to stored procedures

Enter standard selection criteria (an SQL LIKE operator will be used):
Name      ==> Grantor ==>
Owner     ==> Grantee ==>
In D/L/H  ==> CatCopy ==> NO (Y/N to use catalog copy)
And/or other selection criteria (option xC shows you columns for option x)
Column    ==> Operator ==> Value ==>
```

Figure 46. System Catalog Panel (ADB21)

Volumes Panel

This panel (Figure 47) appears when you select option V on the DB2 System Catalog panel.

Use this panel to display the volumes in the DB2 catalog.

```
DB2 Admin ----- DB2X Volumes ----- ROW 1 TO 4 OF 4
Command ==>                               Scroll ==> PAGE

Valid line commands are:
  G - Storage group  I - Interpretation

Select Volume   SG Name  SG Owner
      *         *       *
-----
      *         G       ISTJE2
      *       ISTJE2G   ISTJE2
      *     ISTJE2GE   ISTJE2
      *     ISTJE2GC   ISTJE2
***** END OF DB2 DATA *****
```

Figure 47. Volumes Panel (ADB21V)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

VOLUME

Serial number of the volume.

SG NAME

Name of the storage group.

SG OWNER

Authorization ID of the owner of the storage group.

Storage Groups Panel

This panel (Figure 48) appears when you select option G on the DB2 System Catalog panel.

Use this panel to display the storage groups in the DB2 catalog.

DB2 Admin ----- DB2X Storage Groups -----					ROW 1 TO 4 OF 4
Command ==>					Scroll ==> PAGE
Valid line commands are:					
D - Databases S - Table spaces X - Indexes VOL - Volumes I - Interpret					
GR - Grant DROP - Drop CRE - Create AL - Alter UT - Utility A - Auth					
Select	Name	Owner	VCAT	Space	SP Date
	*	*	*	*	*

	G	ISTJE2	DB2X	96	95040
	ISTJE2G	ISTJE2	DB2X	0	
	ISTJE2GC	ISTJE2	DB2X	0	
	ISTJE2GE	ISTJE2	DB2X	7720	91295
***** END OF DB2 DATA *****					

Figure 48. Storage Groups Panel (ADB21G)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

NAME

Name of the storage group.

OWNER

Authorization ID of the owner of the storage group.

VCAT

Name of the VSAM catalog.

SPACE

Kilobytes (KB) of storage allocated for the storage group as determined by the STOSPACE utility the last time it was run.

SP DATE

Date when the SPACE field (see above) was last updated, in the form YYDDD.

Databases Panel

This panel (Figure 49) appears when you select option D on the DB2 System Catalog panel.

Use this panel to display the databases in the DB2 catalog.

Note that from this panel you can reverse engineer DB2 objects, as described in Chapter 8, "Reverse Engineering Panels" on page 149.

DB2 Admin ----- DB2W Databases ----- Row 1 of 28									
Command ==> Scroll ==> PAGE									
Valid line commands are:									
T - Tables S - Table spaces X - Indexes G - Storage group ICS - IC status									
DIS - Display database STA - Start database STO - Stop database A - Auth									
? - Show all line commands									
Select	Name	Owner	Storage Group	Buffer Pool	DBID	Created By	Index	T E	Buffer Pool
*	*	*	*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	DSNDB04	SYSIBM	SYSDEFLT	BP1	4	SYSIBM	BP2		
	DSNDB06	SYSIBM			6	SYSIBM	E BP0		
	DSNDB07	DSCGDB2	SYSDEFLT	BP0	7	ISTJE	W BP0		
	DSNRLST	DSCGDB2	SYSDEFLT	BP0	256	ISTJE	E BP0		
	DSNDDF	DSCGDB2	SYSDEFLT	BP0	257	ISTJE	E BP0		
	DSNDPSM	DSCGDB2	SYSDEFLT	BP1	258	ISTJE	E BP2		
	DSN8D61A	DSCGDB2	DSN8G610	BP1	259	ISTJE	E BP2		
	DSN8D61P	DSCGDB2	DSN8G610	BP1	260	ISTJE	E BP2		
	DSN8D61U	DSCGDB2	DSN8G61U	BP1	261	ISTJE	E BP2		
	DBGROTH1	DPGROTH	SGGROTH1	BP0	262	DPGROTH	E BP0		
	ISTJED	ISTJE	ISTJEG	BP0	263	ISTJE	E BP0		
	DSN8D61L	DSCGDB2	DSN8G610	BP0	264	ISTJE	E BP2		
	DPCHRDBD	DPCHR	DPCHRSTO	BP0	265	DPCHR	E BP0		
	DBGROTH	DPGROTH	SGGROTH	BP1	268	DPGROTH	E BP2		
	DSCGDB2D	DSCGDB2	DSCGDB2G	BP0	269	ISTJE	E BP0		
	TFLDB	ISTFL	TFLSG	BP0	270	ISTFL	E BP0		
	TFL3DB	ISTFL3	TFL3SG	BP0	271	ISTFL3	E BP0		
	ISTJED2	ISTJE	ISTJEG2	BP0	273	ISTJE	E BP0		
	DBLH060	DPGROTH	JYSKE	BP1	274	DPGROTH	E BP2		
	ADBDC	ISTJE	ADBGC	BP1	266	ISTJE	E BP2		
	ADBDTFL	ISTFL	ADBGTF	BP0	276	ISTFL	E BP0		

Figure 49. Databases Panel (ADB21D)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

NAME

Name of the database.

OWNER

Authorization ID of the owner of the database.

STORAGE GROUP

Name of the storage group for the database. For system databases, this field is blank.

BUFFER POOL

Name of the default buffer pool for the database. For system databases, this field is blank.

DBID

Internal ID for the database.

CREATED BY

Primary authorization ID of the user who created the database.

T

Type of database, which will be W for work file.

E

Type of encoding, which is one of the following:

E	EBCDIC
A	ASCII

INDEX BUFFER POOL

Name of the default buffer pool for indexes.

Table Spaces Panel

This panel (Figure 50) appears when you select option S on the DB2 System Catalog panel.

Use this panel to display the table spaces in the DB2 catalog.

From the Table Spaces panel, you can issue the UTL line command or primary command to generate JCL for the utilities that can be run against a table space. This function is shown at the end of this subsection.

You can also reverse engineer DB2 objects from this panel, as described in Chapter 8, "Reverse Engineering Panels" on page 149.

```
DB2 Admin ----- DB2W Table Spaces ----- Row 1 of 5
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
T -Tables D - Database A - Auth G - Storage group ICS - Image copy status
DIS - Display database STA - Start database STO - Stop database
? - Show all line commands
```

Select	Name	Owner	DB Name	BP	L	E	S	I	C	Ntable	N Active	Segsz	T	L
*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-	-	-	-	-	-----	-----	-----	-	-
	DSN8S61R	DSCGDB2	DSN8D61A	BP1	P	N	A	N	N	6	0	0	Y	
	DSN8S61P	DSCGDB2	DSN8D61A	BP1	R	N	A	N	N	4	24	4	Y	
	DSN8S61S	DSCGDB2	DSN8D61A	BP1	P	N	A	N	N	1	0	0	Y	
	DSN8S61D	DSCGDB2	DSN8D61A	BP1	P	N	A	N	N	1	12	0	Y	
	DSN8S61E	DSCGDB2	DSN8D61A	BP1	P	N	A	N	N	1	120	0	Y	
***** END OF DB2 DATA *****														

Figure 50. Table Spaces Panel (ADB21S)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

NAME

Name of the table space.

OWNER

Authorization ID of the owner of the table space.

DB NAME

Name of the database.

BP

Name of the buffer pool used for the table space.

L

Locking size, which is one of the following:

A	Any
P	Page
S	Table space
T	Table
R	Row

E

Erase rule, which is one of the following:

Y	Erase
N	No erase

S

Status of the table space, which is one of the following:

A	Available
N	Not available

I

Implicit (whether the table space was created implicitly), which is one of the following:

Y	Yes
N	No

C

Close rule, which is one of the following:

Y	Yes
N	No

NTABLE

Number of tables defined in the table space.

N ACTIVE

Number of active pages in the table space. This field is 0 if the RUNSTATS utility has not been run.

SEGSZ

Number of pages in each segment of a segmented table space. The value is 0 if the table space is not segmented.

T

Type of table space, which is one of the following:

Blank	Normal
I	Defined with MEMBER CLUSTER and is not greater than 64 GB
K	Defined with MEMBER CLUSTER and can be greater than 64 GB
L	Defined as LARGE and can be greater than 64 GB
O	Defined as an LOB (large object) table space

L

Log changes, which are one of the following:

Y	Yes
N	No

Table Space Utilities Panel

This panel (Figure 51) appears when you issue line command or primary command UTL (utilities) on the Table Spaces panel.

Use this panel to generate JCL for the utilities that can be run against table spaces. When the JCL is generated, DB2 Admin invokes ISPF edit, which lets you change the JCL, submit it, and copy it to another data set.

Option BP lets you change the default JOB statements.

```
DB2 Admin ----- DB2X Table Space Utilities ----- 19:18
Option ==>

  C - Copy full           CI - Copy incremental           DB2 System: DB2X
CC - Copy concurrent                                DB2 SQL ID: ISXSTL
  E - Mergecopy          EN - Mergecopy newcopy
  K - Check index        KD - Check data
  M - Modify
MA - Modify records before date ==>          (YYMMDD)
MB - Modify records older than ==>          (days)
  N - Repair nocopypend  NA - Repair nocheckpend  NB - Repair norcvrpend
  O - Reorg              OU - Reorg unload only
  P - Report recovery
  Q - Quiesce
  R - Runstats           RT - Runstats table all  RR - Runstats report
  V - Recover            VC - Recover tocopy      VG - Recover to last GDG
VI - Recover index       VR - Recover torba      VL - Recover logonly
DG - Define GDG for copy data sets
    on table space DSNDB04.OBJECTRD

BP - Change batch job parameters
```

Figure 51. Table Space Utilities Panel (ADB2US)

Edit Generated JCL Panel

Figure 52 shows the type of output DB2 Admin returns when you generate JCL from the Table Space Utilities panel. In this case, option C on the Table Space Utilities panel was chosen (the COPY utility with the FULL parameter specified).

Use the Edit Generated JCL panel to edit the JCL you have generated.

```
DB2 Admin ----- Edit Generated JCL ----- Columns 001 072
Command ==> Scroll ==> HALF

0000007 //*****
0000008 //*
0000009 //* DB2 ADMIN GENERATED JOB TO RUN COPY ON SELECTED TABLESPACES
0000010 //*
0000011 //*****
0000012 //*
0000013 //*****
0000014 //* STEP COPY: COPY TABLESPACE CBED0001.CBES0001
0000015 //*****
0000016 //COPY EXEC DSNUPROC,SYSTEM=DB2X,UID=ISTJE
0000017 //DSNUPROC.SYSCOPY DD DSN=ISTJE.DB2X.IC.CBED0001.CBES0001(+1),
0000018 //          DISP=(NEW,CATLG),
0000019 //          SPACE=(TRK,(30,30),RLSE),
0000020 //          UNIT=SYSDA
0000021 //DSNUPROC.SYSIN DD *
0000022 COPY TABLESPACE CBED0001.CBES0001 DSNUM ALL FULL YES
0000023 /*
0000024 //*****
0000025 //* STEP MOD: MODIFY RECOVERY TABLESPACE CBED0001.CBES0001
0000026 //*****
0000027 //MOD EXEC DSNUPROC,SYSTEM=DB2X,UID=ISXSTL
0000028 //DSNUPROC.SYSIN DD *
0000029 MODIFY RECOVERY TABLESPACE CBED0001.CBES0001 DSNUM ALL
0000030 DELETE AGE(35)
0000031 /*
***** ***** BOTTOM OF DATA *****
```

Figure 52. Edit Generated JCL Panel (COPY Utility) (ADB2UE)

Batch Job Utility Parameters Panel

Figure 53 shows the type of output DB2 Admin returns when you choose option BP on the Table Space Utilities panel.

On this panel, you can change the job statement and other default parameters.

The last line of the job statement must end with a comma. This is because DB2 Admin adds an additional line to the job statement for the installation-specified CLASS that is to be used for the utility. DB2 Admin also adds the JOBPARM that is to be used, if any.

DB2 Admin uses the following defaults when generating utility JCL:

- Default unit name when allocating new data sets
- Default space parameters for allocating copy data sets and unload data sets if the RUNSTATS or STOSPACE utilities have not been run

```
DB2 Admin ----- DB2X Batch Job Utility Parameters ----- 19:10
Command ==>

Job cards:
====> //ISXSTLD JOB (ACCOUNTING INFO),'DB2 UTILITY',
====> //          REGION=XXXXK,NOTIFY=ISXSTL,
====> //          MSGCLASS=X,
          Do not specify CLASS and JOBPARM. DB2 Admin will generate them.

Default unit name to be used:
Unit name      ==> SYSDA

Default space allocation for copy and unload data sets, if RUNSTATS/STOSPACE
has not been run:
Space unit     ==> TRK      (BLK, TRK, CYL or 4096-32760)
Primary alloc  ==> 30      (in above units)
Secondary alloc ==> 30      (in above units)
```

Figure 53. Batch Job Utility Parameters Panel (ADB2UPA)

Tables, Views, and Aliases Panel

This panel (Figure 54) appears when you select option T on the DB2 System Catalog panel.

Use this panel to display the tables, views, and aliases in the DB2 catalog.

From the Tables, Views, and Aliases panel, you can issue the UTL line command to generate JCL for the utilities that can be run against a table. You can also issue the VS line command to show how a view was created. These functions are shown at the end of this subsection.

In addition, you can reverse engineer DB2 objects from this panel, as described in Chapter 8, "Reverse Engineering Panels" on page 149.

DB2 Admin ----- DB2X Tables, Views, and Aliases ---- ROW 1 TO 13 OF 260

Command ==> Scroll ==> PAGE

Valid line commands are:

C - Columns A - Auth L - List X - Indexes S - Table space D - Database

V - Views T - Tables P - Plans Y - Synonyms SEL - Select prototyping

? - Show all line commands

Sel	Name	Owner	T	DB Name	TS Name	Cols	Rows	Checks
*	*	*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-----	-----	-----	-----
	VASTRDE1	DSN8610	V	DSNDB06	SYSVIEWS	13	-1	0
	DEPT	DSN8610	T	DSN8D61A	DSN8S61D	5	14	0
	VDEPT	DSN8610	V	DSN8D61A	DSN8S61D	4	-1	0
	VHDEPT	DSN8610	V	DSN8D61A	DSN8S61D	5	-1	0
	EMP	DSN8610	T	DSN8D61A	DSN8S61E	14	32	2
	TCONA	DSN8610	T	DSN8D61P	DSN8S61C	5	0	0
	VCONA	DSN8610	V	DSN8D61P	DSN8S61C	5	-1	0
	TOPTVAL	DSN8610	T	DSN8D61P	DSN8S61C	11	160	0
	MAP_TBL	DSN8610	T	DSN8D61P	DSN8S61Q	4	-1	0
	EDEPT	DSN8610	T	DSN8D61A	DSN8S61R	7	-1	0
	EEMP	DSN8610	T	DSN8D61A	DSN8S61R	16	-1	0
	PROJ	DSN8610	T	DSN8D61A	DSN8S61P	8	20	0
	VPROJ	DSN8610	V	DSN8D61A	DSN8S61P	8	-1	0
	PARTS	DSN8610	T	DSN8D61A	DSN8S61S	4	-1	0
	VDEPMG1	DSN8610	V	DSN8D61A	DSN8S61D	7	-1	0
	VEMP	DSN8610	V	DSN8D61A	DSN8S61E	5	-1	0
	VEMPDPT1	DSN8610	V	DSN8D61A	DSN8S61E	7	-1	0
	VASTRDE2	DSN8610	V	DSN8D61A	DSN8S61E	13	-1	0
	ACT	DSN8610	T	DSN8D61A	DSN8S61P	3	18	0

Figure 54. Tables, Views, and Aliases Panel (ADB21T)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

NAME

Name of the table, view, or alias.

OWNER

Authorization ID of the owner of the table, view, or alias.

T

Type of object, which is one of the following:

T Table

V	View
A	Alias

DB NAME

For a table or a view of tables, the name of the database that contains the table space named in TS NAME (see below). For a view of a view or for an alias, this field contains DSNDB06.

TS NAME

For a table or a view of one table, the name of the table space that contains one of the tables. For a view of a view, this field contains SYSVIEWS. For an alias, this field contains SYSDBAUT.

COLS

Number of columns in the table or view.

ROWS

Total number of rows in the table. This field is -1 if the RUNSTATS utility has not been run or if the rows describe a view or an alias.

CHECKS

Number of check constraints defined on the table.

Table Utilities Panel

This panel (Figure 55) appears when you issue line command or primary command UTL (utilities) on the Tables, Views, and Aliases panel.

Use this panel to generate JCL for the utilities that can be run against tables. When the JCL is generated, DB2 Admin invokes ISPF edit, which lets you change the JCL, submit it, and copy it to another data set.

Option BP lets you change the default JOB statements (as shown in Figure 53 on page 77).

```
DB2 Admin ----- DB2X Table Utilities ----- 19:20
Option ==>

      U - Unload
      UX - Unload using REORG UNLOAD EXTERNAL
      L - Load (with input created from unload)
           table Q.SALES

      BP - Change batch job parameters

      DB2 System: DB2X
      DB2 SQL ID: ISXSTL
```

Figure 55. Table Utilities Panel (ADB2UT)

Edit Generated JCL Panel

Figure 56 shows the type of output DB2 Admin returns when you generate JCL from the Table Utilities panel. In this case, option U on the Table Utilities panel was chosen (the UNLOAD utility).

Use the Edit Generated JCL panel to edit the JCL you have generated.

```
DB2 Admin ----- Edit Generated JCL ----- Columns 001 072
Command ==>                                     Scroll ==> HALF

0000022 //*****
0000023 //* STEP UNLOAD: UNLOAD TABLES
0000024 //*****
0000025 //UNLOAD EXEC PGM=IKJEFT01,DYNAMNBR=100
0000026 //STEPLIB DD DSN=SYS1.DB2X.RUNLIB.LOAD,DISP=SHR
0000027 //SYSTSPRT DD SYSOUT=*
0000028 //SYSPRINT DD SYSOUT=*
0000029 //SYSUDUMP DD SYSOUT=*
0000030 //SYSTSIN DD *
0000031 DSN SYSTEM(DB2X)
0000032 RUN PROGRAM(DSNTIAUL) PLAN(DSNTIAUL)
0000033 END
0000034 //SYSPUNCH DD DSN=DSCGDB2.DB2X.UNLOAD.CONTROL,
0000035 //          SPACE=(TRK,(5,5),RLSE),UNIT=SYSDA,DISP=(,CATLG,DELETE)
0000036 //SYSREC00 DD DSN=DSCGDB2.DB2X.UNLOAD.SALES,
0000037 //          DCB=(BLKSIZE=8192),
0000038 //          SPACE=(TRK,(30,30),RLSE),
0000039 //          UNIT=SYSDA,DISP=(,CATLG,DELETE)
0000040 //SYSIN DD *
0000041 "Q"."SALES"
```

Figure 56. Edit Generated JCL Panel (UNLOAD Utility) (ADB2UE)

Create View Source Statements Panel

This panel (Figure 57) appears when you issue line command VS (show view) against a table on the Tables, Views, and Aliases panel.

Use this panel to see how a view was created.

```
DB2 Admin ----- Create View Source Statements ----- -- 16:46
Command ==>

Valid primary commands are: BR - Browse  E - Edit  EX - Edit/Execute

CREATE VIEW DSN8510.VDEPT
  AS SELECT ALL      DEPTNO ,
                     DEPTNAME,
                     MGRNO ,
                     ADMRDEPT
  FROM DSN8510.DEPT
```

Figure 57. Create View Source Statements Panel (ADB21VS)

Indexes Panel

This panel (Figure 58) appears when you select option X on the DB2 System Catalog panel.

Use this panel to display the indexes in the DB2 catalog.

Note that from the Indexes panel, you can issue the UTL line command or primary command to generate JCL for the utilities that can be run against an index. This function is shown at the end of this subsection.

```
DB2 Admin ----- DB2X Indexes ----- Row 1 of 131
Command ==>                                     Scroll ==> PAGE

Valid line commands are:
T - Tables  D - Database  G - Storage group  P - Plans  C - Columns
DIS - Display database  STA - Start database  STO - Stop database
? - Show all line commands

Select Index Name      Index      Table      Table      U      C C C
      *              Owner      Name      Owner      * *   G D L T
      *              *          *          *          * *   * * * *
-----
      XEMP1          DSN8610  EMP          DSN8610  P          1 Y Y N 2
      XEMP2          DSN8610  EMP          DSN8610  D          1 N N N 2
***** END OF DB2 DATA *****
```

Figure 58. Indexes Panel (ADB21X)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

INDEX NAME

Name of the index.

INDEX OWNER

Authorization ID of the owner of the index.

TABLE NAME

Name of the table on which the index is defined.

TABLE OWNER

Authorization ID of the owner of the table.

U

Unique rule, which is one of the following:

- U** Yes
- D** No
- P** Primary index

COLS

Number of columns in the key.

CG

Whether CLUSTER was specified when the index was created. This field contains one of the following:

Y	Yes
N	No

CD

Whether the table is clustered by the index. This field contains one of the following:

N	No, which means that 95 percent of the rows, or fewer, are in clustering order.
Y	Yes, which means that more than 95 percent of the rows are in clustering order.

The entry in this field can be changed by the RUNSTATS utility.

CL

Whether the data sets are closed when the index is not in use. This field contains one of the following:

Y	Yes
N	No

T

Type of index. This field contains one of the following:

Y	Yes
N	No

Index Utilities Panel

This panel (Figure 59) appears when you issue line command or primary command UTL (utilities) on the Indexes panel.

Use this panel to generate JCL for the utilities that can be run against indexes. When the JCL is generated, DB2 Admin invokes ISPF edit, which lets you change the JCL, submit it, and copy it to another data set.

Option BP lets you change the default JOB statements (as shown in Figure 53 on page 77).

```
DB2 Admin ----- DB2W Index Utilities ----- 21:49
Option ==>

      C - Copy full                      DB2 System: DB2W
      K - Check                          DB2 SQL ID: ISTJE
      N - Repair
      O - Reorg
      R - Runstats                      RR - Runstats report
      V - Recover                      RB - Rebuild
      P - Report recovery
      DG - Define GDG for copy data sets
           on all the selected indexes

      BP - Change batch job parameters
```

Figure 59. Index Utilities Panel (ADB2UX)

Edit Generated JCL Panel

Figure 60 shows the type of output DB2 Admin returns when you generate JCL from the Index Utilities panel. In this case, option R on the Index Utilities panel was chosen (the RUNSTATS utility).

Use the Edit Generated JCL panel to edit the JCL you have generated.

```
DB2 Admin ----- Edit Generated JCL ----- Columns 001 072
Command ==> Scroll ==> HALF

***** ***** TOP OF DATA *****
0000001 //ISTJED JOB (ADB,IS6),'DB2 UTILITY',
0000002 //          REGION=6M,NOTIFY=ISTJE,
0000003 //          MSGCLASS=H,
0000004 //          CLASS=9
0000005 //*
0000006 //*****
0000007 //*
0000008 //* DB2 ADMIN GENERATED JOB TO RUN RUNSTATS ON INDEXES
0000009 //*
0000010 //*****
0000011 //*
0000012 //*****
0000013 //* STEP RUNSTATS: RUNSTATS ON INDEXES
0000014 //*****
0000015 //RUNSTATS EXEC DSNUPROC,SYSTEM=DB2X,UID=ISTJE
0000016 //DSNUPROC.SYSIN DD *
0000017 RUNSTATS INDEX("DSN8610"."XEMP1")
***** ***** BOTTOM OF DATA *****
```

Figure 60. Edit Generated JCL Panel (RUNSTATS Utility) (ADB2UE)

Columns Panel

This panel (Figure 61) appears when you select option C on the DB2 System Catalog panel.

Use this panel to display the columns in all tables in the DB2 catalog.

DB2 Admin ----- DB2X Columns ----- ROW 1 TO 13 OF 1,000									
Command ==> Scroll ==> PAGE									
Max no of rows reached									
Valid line commands are:									
T - Tables X - Indexes A - Auth GR - Grant H - Homonyms I - Interpret									
UR - Update runstats LAB - Label COM - Comment DI - Distribution stats									
PST - Partition stats									
S	Owner	Name	Column Name	Col No	Col Type	Length	N	D	F
*	*	*	*	*	*	*	*	*	*
---	---	---	---	---	---	---	---	---	---
DSN8610	ACT	ACTNO	1	SMALLINT	2	N	N	N	
DSN8610	ACT	ACTKWD	2	CHAR	6	N	N	N	
DSN8610	ACT	ACTDESC	3	VARCHAR	20	N	N	N	
DSN8610	AUX_BMP_PHOTO	AUXID	1	VARCHAR	17	N	B	N	
DSN8610	AUX_BMP_PHOTO	AUXVER	2	SMALLINT	2	N	B	N	
DSN8610	AUX_BMP_PHOTO	AUXVALUE	3	BLOB	4	Y	Y	N	
DSN8610	AUX_EMP_RESUME	AUXID	1	VARCHAR	17	N	B	N	
DSN8610	AUX_EMP_RESUME	AUXVER	2	SMALLINT	2	N	B	N	
DSN8610	AUX_EMP_RESUME	AUXVALUE	3	CLOB	4	Y	Y	N	
DSN8610	AUX_PSEG_PHOTO	AUXID	1	VARCHAR	17	N	B	N	
DSN8610	AUX_PSEG_PHOTO	AUXVER	2	SMALLINT	2	N	B	N	
DSN8610	AUX_PSEG_PHOTO	AUXVALUE	3	BLOB	4	Y	Y	N	
DSN8610	DEPT	DEPTNO	1	CHAR	3	N	N	N	
DSN8610	DEPT	DEPTNAME	2	VARCHAR	36	N	N	N	
DSN8610	DEPT	MGRNO	3	CHAR	6	Y	Y	N	
DSN8610	DEPT	ADMRDEPT	4	CHAR	3	N	N	N	
DSN8610	DEPT	LOCATION	5	CHAR	16	Y	Y	N	
DSN8610	EACT	ACTNO	1	SMALLINT	2	N	N	N	
DSN8610	EACT	ACTKWD	2	CHAR	6	N	N	N	
DSN8610	EACT	ACTDESC	3	VARCHAR	20	N	N	N	

Figure 61. Columns Panel (ADB21C)

The fields on this panel are:

S

Input field where you enter one of the line commands listed on the panel.

OWNER

Authorization ID of the owner of the table or view that contains the column.

NAME

Name of the table or view that contains the column.

COLUMN NAME

Name of the column.

COL NO

Numerical position of the column in the table or view.

COL TYPE

Type of column, which is one of the following:

INTEGER	Large integer
SMALLINT	Small integer
FLOAT	Floating-point

CHAR	Fixed-length character string
VARCHAR	Varying-length character string
LONGVAR	Varying-length character string
DECIMAL	Decimal
GRAPHIC	Fixed-length graphic string
VARG	Varying-length graphic string
LONGVARG	Varying-length graphic string
DATE	Date
TIME	Time
TIMESTAMP	Timestamp

LENGTH

Length attribute of the column or, in the case of a decimal column, its precision. The number does not include internal prefixes to record actual length and null state (where these are applicable).

N

Whether the column can contain null values. This field contains one of the following:

Y	Yes
N	No

D

Default value for the column This field contains one of the following:

N	None
Y	Yes
B	Yes
1-4	User-defined defaults
S	SQLID
U	USER

F

Whether the column has a field procedure. This field contains one of the following:

Y	Yes
N	No

Synonyms Panel

This panel (Figure 62) appears when you select option Y on the DB2 System Catalog panel.

Use this panel to display the synonyms in the DB2 catalog.

DB2 Admin ----- DB2X Synonyms ----- ROW 8 TO 29 OF 36
Command ==> Scroll ==> PAGE

Valid line commands are:
T - Table CRE - Create synonym DROP - Drop synonym I - Interpretation
CREAL - Create alias

Select	Synonym	Owner	Table/View Name	Owner	Created By
	*	*	*	*	*
-----	-----	-----	-----	-----	-----
	VASTRDE1	DSCGDB2	VASTRDE1	DSN8610	ISTJE
	EMP	DSCGDB2	EMP	DSN8610	ISTJE
	VPHONE	DSCGDB2	VPHONE	DSN8610	ISTJE
	TCONA	DSCGDB2	TCONA	DSN8610	ISTJE
	DEPT	DSCGDB2	DEPT	DSN8610	ISTJE
	VDEPT	DSCGDB2	VDEPT	DSN8610	ISTJE
	VHDEPT	DSCGDB2	VHDEPT	DSN8610	ISTJE
	VDEPMG1	DSCGDB2	VDEPMG1	DSN8610	ISTJE
	TDSPTXT	DSCGDB2	TDSPTXT	DSN8610	ISTJE
	TOPTVAL	DSCGDB2	TOPTVAL	DSN8610	ISTJE
	VCONA	DSCGDB2	VCONA	DSN8610	ISTJE
	VDSPTXT	DSCGDB2	VDSPTXT	DSN8610	ISTJE
	VOPTVAL	DSCGDB2	VOPTVAL	DSN8610	ISTJE
	VPSTRDE1	DSCGDB2	VPSTRDE1	DSN8610	ISTJE
	VPSTRDE2	DSCGDB2	VPSTRDE2	DSN8610	ISTJE
	VEMPPROJACT	DSCGDB2	VEMPPROJACT	DSN8610	ISTJE
	VPROJRE1	DSCGDB2	VPROJRE1	DSN8610	ISTJE
	PROJ	DSCGDB2	PROJ	DSN8610	ISTJE
	VPROJ	DSCGDB2	VPROJ	DSN8610	ISTJE
	VFORPLA	DSCGDB2	VFORPLA	DSN8610	ISTJE
	VSTAFAC1	DSCGDB2	VSTAFAC1	DSN8610	ISTJE

Figure 62. Synonyms Panel (ADB21Y)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

SYNONYM

Synonym for the table or view.

OWNER

Authorization ID of the owner of the synonym.

TABLE/VIEW NAME

Name of the table or view.

OWNER

Authorization ID of the owner of the table or view.

CREATED BY

Primary authorization ID of the user who created the synonym.

Application Plans Panel

This panel (Figure 63) appears when you select option P on the DB2 System Catalog panel.

Use this panel to display the application plans in the DB2 catalog.

Note that from the Application Plans panel, you can issue line commands to bind, rebind, and free an application plan. These functions are shown at the end of this subsection. You can also issue the SQ line command to show the SQL statements. The result of this operation is the same as that shown in Figure 75 on page 106.

DB2 Admin ----- DB2X Application Plans ----- ROW 1 TO 12 OF 34									
Command ==> Scroll ==> PAGE									
Valid line commands are:									
DEP - Depend A - Auth T - Tables V - Views X - Indexes S - Table spaces									
Y - Synonyms M - DBRMs RB - Rebind F - Free B - Bind GR - Grant									
PL - Package list LP - List PLAN_TABLE I - Interpret ENDI - Enab/disab con									
K - Local packages SQ - SQL									
Select	Name	Owner	Bind Date	Bind Time	V D	I S	V A	O P	Bound By
*	*	*	*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-	-	-	-	-----
	DSNTIA61	DSCGDB2	990115	112136	R	S	Y	Y	ISTJE
	DSNTIAD	DSCGDB2	990115	112136	R	S	Y	Y	ISTJE
	DSNESPSCS	DSCGDB2	990115	113024	R	S	Y	Y	ISTJE
	DSNESPRL	DSCGDB2	990115	113025	R	R	Y	Y	ISTJE
	DSNEDCL	DSCGDB2	990115	113026	R	S	Y	Y	ISTJE
	DSNHYCRD	DSCGDB2	990115	113032	R	S	Y	Y	ISTJE
	DSNWZP	DSCGDB2	990115	113033	R	S	Y	Y	ISTJE
	DSNTEP61	DSCGDB2	990115	134750	R	S	Y	Y	ISTJE
	DSNTEP2	DSCGDB2	990115	134750	R	S	Y	Y	ISTJE
	ADB2RE	DSCGDB2	990126	164907	B	S	Y	Y	ISTFL
	ADB	DSCGDB2	990115	140319	B	S	Y	Y	ISTJE
	DSNTIB61	DSCGDB2	990115	141322	R	S	Y	Y	ISTJE
	DSNTIAUL	DSCGDB2	990115	141322	R	S	Y	Y	ISTJE
	DSN8BH61	DSCGDB2	990115	142711	R	S	Y	Y	ISTJE
	DSN8EP1	DSCGDB2	990115	144050	R	S	Y	Y	ISTJE
	DSN8LL61	DSCGDB2	990115	150935	R	S	Y	Y	ISTJE
	DSN8LC61	DSCGDB2	990115	150936	R	S	Y	Y	ISTJE
	DSN8LR61	DSCGDB2	990115	151242	R	S	Y	Y	ISTJE
	DSNESPSCS	DSCGDB2	951218	165717	R	S	Y	Y	ISTJE
	DSNESPSCS	DSCGDB2	951218	165717	R	S	Y	Y	ISTJE

Figure 63. Application Plans Panel (ADB21P)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

NAME

Name of the application plan.

OWNER

Authorization ID of the owner of the application plan.

BIND DATE

Date of the most recent bind on the application plan. The date is in the form YYMMDD.

BIND TIME

Time of the most recent bind on the application plan. The time is in the form HHMMSSSTH.

VD

Whether validity checking can be deferred until run time. This field contains one of the following:

- | | |
|----------|---|
| B | All validity checking must be done during the bind. |
| R | Validity checking is done at run time for tables, views, and privileges that do not exist at bind time. |

IS

Isolation level, which is one of the following:

- | | |
|----------|------------------|
| R | Repeatable read |
| S | Cursor stability |
| U | Uncommitted read |

VA

Whether the application plan is valid, that is, whether it can be run without being rebound. This field contains one of the following:

- | | |
|----------|-----|
| Y | Yes |
| N | No |

OP

Whether the application plan can be allocated. This field contains one of the following:

- | | |
|----------|---|
| Y | Yes |
| N | No. Explicit BIND or REBIND is required before the plan can be allocated. |

BOUND BY

Primary authorization ID of the binder of the plan.

QUALIFIER

Qualifier that was specified at bind time to resolve names.

PACK LISTS

Number of packages in the package list at bind time.

AQ

When resources for the application plan are acquired. This field contains one of the following:

- | | |
|----------|--------------------|
| A | At allocation time |
| U | At first use |

RL

When resources for the application plan are released. This field contains one of the following:

- | | |
|----------|----------------------|
| C | At commit time |
| U | At deallocation time |

EX

Whether the application plan was bound using EXPLAIN. This field contains one of the following:

Y	Yes
N	No

DR

Dynamic SQL rules. This field contains one of the following:

B	Use binder's authid and authorizations.
Blank	Use executor's authid and authorizations.

Bind Application Plan Panel

This panel (Figure 64) appears when you issue line command B (bind package) on the Application Plans panel.

Use this panel to build an application plan.

Enter your selection criteria on the panel. See DB2 documentation for an explanation of the BIND PLAN command and its parameters.

DB2 Admin ----- DB2X Bind Application Plan ----- 14:29
Command ==>

More: +

Verify BIND parameters:

BIND PLAN(
Plan name ==> DSNTIA61
) OWNER(
Plan owner ==> ISTJE2
) QUALIFIER(
Qualifier ==> ISTJE2 (qualifier to resolve unqualified SQL)
) MEMBER((use ? to get current values from the catalog)
DBRM members ==> ?

) LIBRARY (use ? to get current values from the catalog)
DBRM data sets ==> ?

) PKLIST((use ? to get current values from the catalog)

Figure 64. Bind Application Plan Panel (ADB21PB)

Rebind Application Plan Panel

This panel (Figure 65) appears when you issue line command R (rebind package) on the Application Plans panel.

Use this panel to rebind an application plan when changes have been made that affect the plan, but the SQL statements in the program have not changed.

Enter your selection criteria on the panel. See DB2 documentation for an explanation of the REBIND PLAN command and its parameters.

```
DB2 Admin ----- DB2X Rebind Application Plan ----- 14:29
Command ==>

Verify REBIND parameters:                                     More:      +

REBIND PLAN(
Plan name      ==> DSNTIA61
) OWNER(
Plan owner     ==> DSCGDB2
) QUALIFIER(
Qualifier      ==> DSCGDB2 (qualifier to resolve unqualified SQL)
) PKLIST(      (use ? to get current values from the catalog)
Package lists  ==>

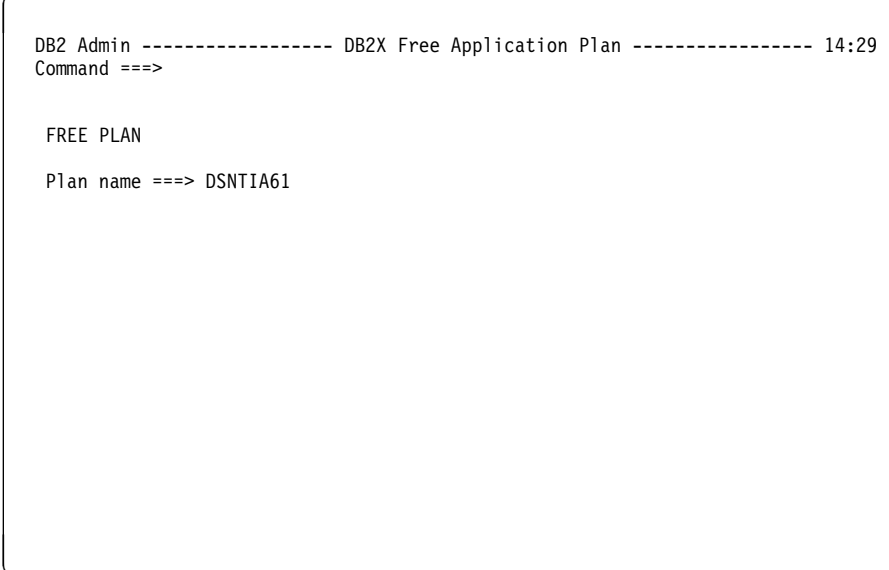
) NOPKLIST
No package list ==> (Yes or No to remove current package list)
DEFER(PREPARE)
Defer prepare  ==> N (Yes or No, used for distributed dynamic SQL)
) VALIDATE(
Validation time ==> B (Run or Bind, Bind preferred)
```

Figure 65. Rebind Application Plan Panel (ADB21PR)

Free Application Plan Panel

This panel (Figure 66) appears when you issue line command F (free package) on the Application Plans panel.

Use this panel to delete application plans from DB2.



```
DB2 Admin ----- DB2X Free Application Plan ----- 14:29
Command ==>

FREE PLAN

Plan name ==> DSNTIA61
```

Figure 66. Free Application Plan Panel (ADB21PF)

Packages Panel

This panel (Figure 67) appears when you select option K on the DB2 System Catalog panel.

Use this panel to display the packages in the DB2 catalog.

Note that from the Packages panel, you can issue line commands to bind, rebind, and free a package. You can also issue the SQ line command to show the SQL statements. These functions are shown at the end of this subsection.

DB2 Admin ----- DB2X Packages -----				ROW 1 TO 12 OF 97								
Command ==>				Scroll ==> PAGE								
Valid line commands are:												
DEP - Depend A - Auth T - Tables V - Views X - Indexes S - Table spaces												
Y - Synonyms RB - Rebind F - Free B - Bind BC - Bind Copy GR - Grant												
EN -Enab/disab con PL - Package lists P - Local plans LP - List PLAN_TABLE												
I - Interpretation SQ - SQL in package VE - Versions												
Se1	Collection	Name	Owner	Bind Timestamp	V	I	V	O	Quali-	R	E	D
*	*	*	*	*	D	S	A	P	fier	L	X	R
*	*	*	*	*	*	*	*	*	*	*	*	*

	DSNEDCL	DSNECP68	DSCGDB2	1999-01-15-11.30	R	S	Y	Y	DSCGDB2			N
	DSNESPSCS	DSNESM68	DSCGDB2	1999-01-15-11.30	R	S	Y	Y	DSCGDB2			N
	DSNESP RR	DSNESM68	DSCGDB2	1999-01-15-11.30	R	R	Y	Y	DSCGDB2			N
	DSNH YCRD	DSNH YCRD	DSCGDB2	1999-01-15-11.30	R	S	Y	Y	DSCGDB2			N
	DSNTEP2	DSN@EP2L	DSCGDB2	1999-01-15-13.45	R	S	Y	Y	DSCGDB2			N
	DSNTEP2	DSNTEP2	DSCGDB2	1999-01-15-13.47	R	S	Y	Y	DSCGDB2			N
	DSNUTILS	DSNUTILS	DSCGDB2	1999-01-15-11.30	B	S	Y	Y	DSCGDB2			N
	DSNWZP	DSNWZP	DSCGDB2	1999-01-15-11.30	B	S	Y	Y	DSCGDB2			N
	DSN8EP61	DSN8EP1	DSCGDB2	1999-01-15-14.40	R	S	Y	Y	DSCGDB2			N
	DSN8LC61	DSN8DLTC	DSCGDB2	1999-01-15-15.09	R	S	Y	Y	DSN8610			N
	DSN8LL61	DSN8DLPL	DSCGDB2	1999-01-15-15.09	R	S	Y	Y	DSN8610			N
	DSN8LP61	DSN8DLPV	DSCGDB2	1999-01-15-15.15	R	S	Y	Y	DSN8610			N
	DSN8LR61	DSN8DLRV	DSCGDB2	1999-01-15-15.12	R	S	Y	Y	DSN8610			N
	DSNEDCL	DSNECP68	DSCGDB2	1999-01-15-11.30	R	S	Y	Y	DSCGDB2			N

Figure 67. Packages Panel (ADB21K)

The fields on this panel are:

S

Input field where you enter one of the line commands listed on the panel.

COLLECTION

Name of the package collection.

NAME

Name of the package.

OWNER

Authorization ID of the package owner.

BIND TIMESTAMP

Timestamp indicating when the package was last bound.

VD

Whether validity checking can be deferred until run time. This field contains one of the following:

- B** All validity checking must be done during the bind.
- R** Validity checking is done at run time for tables, views, and privileges that do not exist at bind time.

IS

Isolation level, which is one of the following:

- R** Repeatable read
- S** Cursor stability

VA

Whether the package is valid, that is, whether it can be run without being rebound. This field contains one of the following:

- Y** Yes
- N** No

OP

Whether the package can be allocated. This field contains one of the following:

- Y** Yes.
- N** No. Explicit BIND or REBIND is required before the package can be allocated.

QUALIFIER

Qualifier that was specified at bind time to resolve names.

RL

When resources for the package are released. This field contains one of the following:

- C** At commit time
- U** At deallocation time
- Blank** The value specified for the plan is used.

EX

Whether the package was bound using EXPLAIN.

DR

Dynamic SQL rules. This field contains one of the following:

- B** Use binder's authid and authorizations.
- R** Use executor's authid and authorizations.
- Blank** Not specified. Use the dynamic rules of the plan.

Bind Package Panel

This panel (Figure 68) appears when you issue line command B (bind package) on the Packages panel.

Use this panel to build an application package.

Enter your selection criteria on the panel. See DB2 documentation for an explanation of the BIND PACKAGE command and its parameters.

DB2 Admin ----- DB2X Bind Package ----- 14:32
Command ==>

Verify bind parameters: More: +

BIND PACKAGE(
Location ==>
Collection ==> ISTJE_COLC2
) OWNER(
Package owner ==> ISTJE
) QUALIFIER(
Qualifier ==> DSCGDB2
) LIBRARY(
DBRM library ==> 'ISTJE.DB2ADM.DBRM'

) MEMBER(
Name ==> DB2ASTM

) SQLERROR(
SQL error action==> C (Continue or Nopackage)
) VALIDATE(
Validation time ==> B (Run or Bind, Bind preferred)

Figure 68. Bind Package Panel (ADB21KB)

Rebind Package Panel

This panel (Figure 69) appears when you issue line command R (rebind package) on the Packages panel.

Use this panel to rebind an application package when changes have been made that affect the package, but the SQL statements in the program have not changed.

Enter your selection criteria on the panel. See DB2 documentation for an explanation of the REBIND PACKAGE command and its parameters.

DB2 Admin ----- DB2X Rebind Package ----- 01:41
Command ==>

More: +

Verify REBIND parameters:

REBIND PACKAGE(
Location ==>
Collection ==> NULLID
Package ==> SQLAB4D0
(
Version ==>

)) OWNER(
Package Owner ==> ISTJE
) QUALIFIER(
Qualifier ==> ISTJE
) VALIDATE(
Validation time ==> R (Run or Bind, Bind preferred)
) ISOLATION(
Isolation level ==> C (Cs, Rr, or Ur)
) RELEASE(

Figure 69. Rebind Package Panel (ADB21KR)

Free Package Panel

This panel (Figure 70) appears when you issue line command F (free package) on the Packages panel.

Use this panel to delete a specific version of a package, all versions of a package, or whole collections of packages.

Enter your selection criteria on the panel. See DB2 documentation for an explanation of the FREE PACKAGE command and its parameters.

```
DB2 Admin ----- DB2X Free Package ----- 14:32
Command ==>

FREE PACKAGE (
  Location   ==>          (Blank for local)
  Collection ==> ISTJE_COLC2
  Name       ==> DB2ASTM
  (
    Version  ==>
  )
)
```

Figure 70. Free Package Panel (ADB21KF)

Extracted SQL Panel

This panel (Figure 71) appears when you issue line command SQ (show SQL) on the Packages panel.

Use this panel to see the SQL statements in a package.

```
DB2 Admin ----- Extracted SQL ----- Columns 001 072
Command ==>                               Scroll ==> HALF

***** ***** TOP OF DATA *****
0000001 -- SQL statements in PACKAGE : ISTJE_COLC2.DB2ASTM.()
0000002 -- SQL in stmt: 56
0000003 DECLARE SYSIBM.SYSSTMT TABLE (NAME CHAR (8) NOT NULL, PLNAME CHAR (8)
0000004 NOT NULL, PLCREATOR CHAR (8) NOT NULL, SEQNO SMALLINT NOT NULL, STMTNO
0000005 SMALLINT NOT NULL, SECTNO SMALLINT NOT NULL, IBMREQD CHAR (1) NOT NULL,
0000006 TEXT VARCHAR (254) NOT NULL)
0000007 -- SQL in stmt: 88
0000008 DECLARE C STMT CURSOR FOR SELECT SEQNO, STMTNO, TEXT FROM
0000009 SYSIBM.SYSSTMT WHERE PLNAME = :SYSSTM.PLNAME AND NAME = :SYSSTM.NAME
0000010 ORDER BY STMTNO, SEQNO
0000011 -- SQL in stmt: 94
0000012 OPEN C_STMT
0000013 -- SQL in stmt: 97
0000014 FETCH C_STMT INTO :SYSSTM.SEQNO, :SYSSTM.STMTNO, :SYSSTM.TEXT
0000015 -- SQL in stmt: 104
0000016 FETCH C_STMT INTO :SYSSTM.SEQNO, :SYSSTM.STMTNO, :SYSSTM.TEXT
0000017 -- SQL in stmt: 124
0000018 FETCH C_STMT INTO :SYSSTM.SEQNO, :SYSSTM.STMTNO, :SYSSTM.TEXT
0000019 -- SQL in stmt: 144
```

Figure 71. Extracted SQL Panel (ADB21KSE)

Collections Panel

This panel (Figure 72) appears when you select option L on the DB2 System Catalog panel.

Use this panel to display the collections in the DB2 catalog.

Note that from the Collections panel, you can issue the S line command to show the SQL statements. This function is shown at the end of this subsection.

DB2 Admin ----- DB2X Collections -----		ROW 1 TO 21 OF 55
Command ==>		Scroll ==> PAGE
Valid line commands are:		
K - Packages in collection PL - Package lists P - Local plans		
A - Authorizations GR - Grant SQ - SQL in packages in collection		
S	Collection	Number of
	*	Packages

	ADBL	25
	ADB2L	1
	DB2ADM	3
	DB2PME3	100
	DDQS	3
	DISTTEST	5
	DLEEDM	1
	DPGROTH	1
	DSNESPSCS	1
	DSNESP RR	1
	DSNQCATV	40

Figure 72. Collections Panel (ADB21L)

The fields on this panel are:

S

Input field where you enter one of the line commands listed on the panel.

COLLECTION

Name of the package collection.

NUMBER OF PACKAGES

Number of packages in the collection.

Extracted SQL Panel

This panel (Figure 73) appears when you issue line command SQ (show SQL) on the Collections panel.

Use this panel to see the SQL statements in a package shown on the Collections panel.

```
DB2 Admin ----- Extracted SQL ----- Columns 001 072
Command ==>                                     Scroll ==> HALF

***** ***** TOP OF DATA *****
000001 -- SQL statements in PACKAGE :
000002 --   ADBL.ADBMAIN.(1999-02-25-17.44.52.998160)
000003 -- SQL in stmt: 610
000004 COMMIT WORK
000005 -- SQL in stmt: 2458
000006 DECLARE S1 STATEMENT
000007 -- SQL in stmt: 2500
000008 PREPARE S1 FROM :H
000009 -- SQL in stmt: 2605
000010 DESCRIBE S1 INTO :H
000011 -- SQL in stmt: 2618
000012 EXECUTE S1
000013 -- SQL in stmt: 2744
000014 DECLARE C1 CURSOR FOR S1
000015 -- SQL in stmt: 2750
000016 OPEN C1
000017 -- SQL in stmt: 2762
000018 FETCH C1 USING DESCRIPTOR :H
000019 -- SQL in stmt: 2835
000020 CLOSE C1
000021 -- SQL in stmt: 5314
000022 COMMIT WORK
000023 -- SQL in stmt: 5342
000024 ROLLBACK WORK
000025 -- SQL in stmt: 5347
000026 COMMIT WORK
```

Figure 73. Extracted SQL Panel (ADB21KSE)

DBRMs Panel

This panel (Figure 74) appears when you select option M on the DB2 System Catalog panel.

Use this panel to display the DBRMs in the DB2 catalog.

Note that from the DBRMs panel, you can issue the S line command to show the SQL statements. This function is shown at the end of this subsection.

```
DB2 Admin ----- DB2X DBRMs ----- ROW 1 TO 2 OF 2
Command ==>                               Scroll ==> PAGE

Valid line commands are:
P - Plans  B - Browse DBRM  S - SQL statements  I - Interpretation

S Name      Owner      PL Name      Q C H P Date P Time      PDS Name
*           *           *           * * * * *
-----
DSNTIAD     DSCGDB2     DSNTIA61     N N B 990115 11095146 DB2.DSN610.DBRMLIB.DATA
DSNTIAD     DSCGDB2     DSNTIAD      N N B 990115 11095146 DB2.DSN610.DBRMLIB.DATA
DSNHSPMN     DSGDB2     DSNHSP61     N N B 980722 21264239 DB2.DSN610.SDSNDBRM
DSNTIAUL     DSCGDB2     DSNTIB61     N N B 990115 14131450 DB2.DSN610.DBRMLIB.DATA
DSNTIAUL     DSCGDB2     DSNTIAUL     N N B 990115 14131450 DB2.DSN610.DBRMLIB.DATA
DSN8BC3      DSCGDB2     DSN8BH61     N N 3 990115 14270156 DB2.DSN610.DBRMLIB.DATA
***** END OF DB2 DATA *****
```

Figure 74. DBRMs Panel (ADB21M)

The fields on this panel are:

S

Input field where you enter one of the line commands listed on the panel.

NAME

Name of the database request module (DBRM).

OWNER

Authorization ID of the owner of the application plan.

PL NAME

Name of the application plan of which the DBRM is a part.

Q

SQL escape character, which is one of the following:

- N Apostrophe (')
- Y Quotation mark (?)

C

Decimal point, which is one of the following:

- N Period (.)
- Y Comma (,)

H

Host language used, which is one of the following:

- | | |
|----------|---------------------------|
| F | FORTTRAN |
| B | Assembler |
| C | OS/VS COBOL |
| P | PL/I |
| D | C |
| 2 | All other COBOL languages |

P DATE

Date of precompilation of DBRM, in the form YYMMDD.

P TIME

Time of precompilation of DBRM, in the form HHMMSSSTH.

PDS NAME

Name of the partitioned data set of which the DBRM is a member.

Extracted SQL Panel

This panel (Figure 75) appears when you issue line command S (show SQL) on the DBRMs panel.

Use this panel to see the SQL statements in a DBRM.

```
DB2 Admin ----- Extracted SQL ----- Columns 001 072
Command ==> Scroll ==> HALF

***** ***** TOP OF DATA *****
000001 -- SQL statements in DBRM: DSNTIA61.DSNTIAD
000002 -- SQL in stmt: 982
000003 WHENEVER SQLERROR GO TO EXECERR
000004 -- SQL in stmt: 983
000005 WHENEVER SQLWARNING GO TO EXECWRN
000006 -- SQL in stmt: 984
000007 WHENEVER NOT FOUND GO TO EXECWRN
000008 -- SQL in stmt: 1226
000009 CONNECT
000010 -- SQL in stmt: 1278
000011 CONNECT RESET
000012 -- SQL in stmt: 1405
000013 CONNECT TO :H
000014 -- SQL in stmt: 1528
000015 SET CONNECTION :H
000016 -- SQL in stmt: 1649
000017 RELEASE CURRENT
000018 -- SQL in stmt: 1700
000019 RELEASE ALL
000020 -- SQL in stmt: 1780
000021 RELEASE ALL PRIVATE
000022 -- SQL in stmt: 1829
000023 RELEASE ALL SQL
000024 -- SQL in stmt: 1938
000025 RELEASE :H
```

Figure 75. Extracted SQL Panel (ADB21KSE)

Database Structures Panel

This panel (Figure 76) appears when you select option DS on the Administration Menu panel.

Use this panel to see a structured list of objects in the database you have selected.

```
DB2 Admin ----- DB2W Database Structures ----- Row 1 of 182
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
S - Show object
```

Select	Type	Object Name	Owner	DBID	PSID	OBID/ ISOBID
*	*		*	*	*	*

D---		DSNDB06 -----	SYSIBM	6	0	0
S		SYSCOPY	SYSIBM	6	16	0
T		SYSCOPY	SYSIBM	6	0	46
I		DSNUCX01	SYSIBM	6	0	118
I		DSNUCH01	SYSIBM	6	0	114
S		SYSDBASE	SYSIBM	6	9	0
T		SYSCOLAUTH	SYSIBM	6	0	32
T		SYSCOLUMNS	SYSIBM	6	0	20
I		SYSCOLUMNS_INDEX_9	DPGROTH	6	0	415
I		DSNDCX02	SYSIBM	6	0	350
I		DSNDCX01	SYSIBM	6	0	116
T		SYSFIELDS	SYSIBM	6	0	21
I		FIELDSX	SYSIBM	6	0	409
I		XUSRFLDS	DPGROTH	6	0	405
T		SYSFOREIGNKEYS	SYSIBM	6	0	25
I		FORKEYSX	SYSIBM	6	0	411
T		SYSINDEXES	SYSIBM	6	0	23
I		DSNDXX01	SYSIBM	6	0	95
I		DSNDXX03	SYSIBM	6	0	195
I		DSNDXX02	SYSIBM	6	0	96
T		SYSINDEXPART	SYSIBM	6	0	26
I		DSNDRX02	SYSIBM	6	0	353
I		DSNDRX01	SYSIBM	6	0	197

Figure 76. Database Structures Panel (ADB21DS)

The meaning of the fields on this panel is as follows:

SELECT

Input field where you enter line command S.

TYPE

Type of object, which is one of the following:

D	Database
S	Table Space
T	Table
X	Index

OBJECT NAME

Name of the object

OWNER

Authorization ID of the owner of the object.

Schemas Panel

This panel (Figure 77) appears when you select option H on the System Catalog panel.

Use this panel to display information about the schemas you have selected.

Note that from this panel you can reverse engineer DB2 objects, as described in Chapter 8, "Reverse Engineering Panels" on page 149.

```
DB2 Admin ----- DB2X Schemas ----- Row 1 of 4
Command ==> Scroll ==> PAGE

Valid line commands are:
E - Data type  F - Function  J - Trigger  O - Stored procedure  A - Auth

S      Schema      Number of      Number of      Number of      Number of
      *      Data Types      Functions      Procedures      Triggers
-----
      ISTJE      17      44      3      3
      SYSPROC      0      0      1      0
      DSN8      0      0      1      0
      ADB      0      0      1      0
***** END OF DB2 DATA *****
```

Figure 77. Schemas Panel (ADB21H)

The meaning of the fields on this panel is as follows:

S

Input field where you enter one of the line commands listed on the panel.

SCHEMA

Schema of the data type.

NUMBER OF DATA TYPES

Number of distinct data types defined in this schema.

NUMBER OF FUNCTIONS

The number of user-defined functions and implicitly-defined functions in this schema.

NUMBER OF PROCEDURES

Number of stored procedures defined in this schema.

NUMBER OF TRIGGERS

Number of table triggers defined in this schema.

Data Types Panel

This panel (Figure 78) appears when you select option E on the System Catalog panel.

Use this panel to display information about the data types you have selected.

Note that from this panel you can reverse engineer DB2 objects, as described in Chapter 8, "Reverse Engineering Panels" on page 149.

```
DB2 Admin ----- DB2X Data Types ----- Row 1 of 17
Command ==> Scroll ==> PAGE

Valid line commands are:
T - Tables A - Auth AH - Schema auth GR - Grant DROP - Drop COM - Comment
I - Interpret
```

S	Schema	Data Type Name	Source Schema	Source Date Type	Length	Scale
*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-----	-----
	ISTJE	KR	SYSIBM	DECIMAL	15	2
	ISTJE	T-INT2	SYSIBM	INTEGER	4	0
	ISTJE	T-SMI	SYSIBM	SMALLINT	2	0
	ISTJE	T-INT	SYSIBM	INTEGER	4	0
	ISTJE	T-REAL	SYSIBM	REAL	4	0
	ISTJE	T-DOUBLE	SYSIBM	DOUBLE	8	0
	ISTJE	T-FLOAT7	SYSIBM	DOUBLE	8	0
	ISTJE	T-CHAR	SYSIBM	CHAR	100	0
	ISTJE	T-VARCHAR	SYSIBM	VARCHAR	100	0
	ISTJE	T-CLOB	SYSIBM	CLOB	1024	0
	ISTJE	T-BLOB	SYSIBM	BLOB	1024	0

Figure 78. Data Types Panel (ADB21E)

The meaning of the fields on this panel is as follows:

S

Input field where you enter one of the line commands listed on the panel.

SCHEMA

Schema of the data type.

DATA TYPE NAME

Name of the data type.

SOURCE SCHEMA

Schema of the source data type.

SOURCE DATA TYPE

Name of the source data type for this distinct data type.

LENGTH

Maximum length for the data type, or precision for distinct types.

SCALE

Scale for distinct data types, based on the built in decimal type.

Functions Panel

This panel (Figure 79) appears when you select option F on the System Catalog panel.

Use this panel to display information about the functions you have selected.

Note that from this panel you can reverse engineer DB2 objects, as described in Chapter 8, "Reverse Engineering Panels" on page 149.

DB2 Admin ----- DB2X Functions ----- Row 1 of 44									
Command ==> Scroll ==> PAGE									
Valid line commands are:									
AH - Schema Auth A - Auth DROP - Drop AL - Alter K - Package									
PA - Parm RT - Return type DIS - Display STO - Stop STA - Start									
COM - Comment I - Interpretation									
S	Schema	Name	Specific Name	F	O	T	D	S	External
*	*	*	*	*	*	*	E	S	
							E	P	
							T	F	
							A	S	
							F	L	
							R	T	
							S	P	
							E	S	
---	---	---	---	---	---	---	---	---	---
	ISTJE	+	SQL990208100338896	U	S	2	N		
	ISTJE	-	KR_MINUS	U	S	2	N		
	ISTJE	BLOB	SQL99020816075424#	S	S	1	Y		
	ISTJE	CHAR	SQL990208160600039	S	S	1	Y		
	ISTJE	CLOB	SQL99020816074873#	S	S	1	Y		
	ISTJE	D	SQL99020817171170M	S	S	1	Y		
	ISTJE	DATE	SQL99020816083184#	S	S	1	Y		
	ISTJE	DECIMAL	SQL99011815223541B	S	S	1	Y		
	ISTJE	DECIMAL	SQL99020817171173M	S	S	1	Y		
	ISTJE	DECIMAL	SQL99021816281595J	S	S	1	Y		

Figure 79. Functions Panel (ADB21F)

The meaning of the fields on this panel is as follows:

S

Input field where you enter one of the line commands listed on the panel.

SCHEMA

Schema of the function.

NAME

Name of the function.

SPECIFIC NAME

Specific name of the function.

O

Origin of the function, which is one of the following:

- E** External
- U** Sourced
- S** System generated

FT

Function type, which is one of the following:

C	Column
S	Scaler
T	Table

PARMS

Number of parameters for the function.

DET

Whether the external function is deterministic (that is, returns the same result when called using the same parameters). This field contains one of the following:

Y	Yes
N	No

EA

Whether the external function changes the state of an object that DB2 does not manage. This field contains one of the following:

Y	Yes
N	No

CF

Cast function, which is one of the following:

Y	Yes
N	No

PS

Parameter style, which is one of the following:

D	DB2SQL
G	General
N	General with nulls

F

Fenced (applies if it is run separately from DB2).

SQL

Whether SQL statements are allowed, which is one of the following:

N	Contains no SQL statements
C	Contains SQL statements
R	Reads SQL data
M	Modifies SQL data

SR

Whether the program should remain resident when it ends.

PT

Program type, which is one of the following:

M	Main
S	Subroutine

ES

External security, which is one of the following:

- D** DB2 address space user
- U** User
- C** Definer

EXTERNAL NAME

Load module name for the stored procedure.

Stored Procedures Panel

This panel (Figure 80) appears when you select option O on the System Catalog panel.

Use this panel to display information about the stored procedures you have selected.

Note that from this panel you can reverse engineer DB2 objects, as described in Chapter 8, “Reverse Engineering Panels” on page 149.

```

DB2 Admin ----- DB2X Stored Procedures ----- Row 1 of 6
Command ==> Scroll ==> PAGE

Valid line commands are:
AH - Schema Auth A - Auth DROP - Drop AL - Alter K - Package
PA - Params RT - Return type DIS - Display STO - Stop STA - Start
GR - Grant COM - Comment I - Interpretation

S
P Q S P E C Result External
S F L R T S R Sets Name
* * * * * * * *
-----
ADB ADB2RE 6 PLI D Y M N M D N 2 ADB2RE
SYSPROC DSNWZP 1 ASSEMBLE G Y C N M D N 0 DSNWZP
DSN8 DSN8EP2 5 PLI N Y N M M D N 0 DSN8EP2
ISTJE DUMMY 1 D Y N N M D N 0 DUMMY
ISTJE T1 1 PLI D Y C N M D N 0 T1
ISTJE T2 2 PLI G Y M Y M D Y 1 T3
***** END OF DB2 DATA *****

```

Figure 80. Stored Procedures Panel (ADB210)

The meaning of the fields on this panel is as follows:

S Input field where you enter one of the line commands listed on the panel.

SCHEMA
Schema of the stored procedure.

NAME	Name of the stored procedure.
-------------	-------------------------------

PARMS
Number of parameters for the stored procedure.

LANGUAGE
Implementation language.

PS
Parameter style, which is one of the following:

D	DB2SQL
G	General
N	General with nulls

F

Fenced (applies if it is run separately from DB2).

SQL

Whether SQL statements are allowed, which is one of the following:

N	Contains no SQL statements
C	Contains SQL statements
R	Reads SQL data
M	Modifies SQL data

SR

Whether the program should remain resident when it ends.

PT

Program type, which is one of the following:

M	Main
S	Subroutine

ES

External security, which is one of the following:

D	DB2 address space user
U	User
C	Definer

CR

Commit on return.

RESULT SETS

Maximum number of result sets that can be returned.

EXTERNAL NAME

Load module name for the stored procedure.

Triggers Panel

This panel (Figure 81) appears when you select option J on the System Catalog panel.

Use this panel to display information about the triggers you have selected.

```
DB2 Admin ----- DB2X Triggers ----- Row 1 of 3
Command ==> Scroll ==> PAGE

Valid line commands are:
T - Table A - Schema Auth I - Interpretation DROP - Drop K - Package
SQ - SQL COM - Comment

S      Schema      Name      Owner      Table      Table      Created
      *          *          *          *          *          *          *
-----
      ISTJE      TESTTRIG ISTJE      ISTJE      TEST_KR      A U R ISTJE
      ISTJE      TESTTRI2 ISTJE      ISTJE      TEST_KR      A U R ISTJE
      ISTJE      T1         ISTJE      ISTJE      TEST_KR      B I R ISTJE

***** END OF DB2 DATA *****
```

Figure 81. Triggers Panel (ADB21J)

The meaning of the fields on this panel is as follows:

S

Input field where you enter one of the line commands listed on the panel.

SCHEMA

Name of the schema.

NAME

Name of the trigger.

OWNER

Authorization ID of the owner of the trigger.

TABLE OWNER

Authorization ID of the owner of the table to which the trigger belongs.

TABLE NAME

Name of the table to which the trigger belongs.

T

Trigger time, which is one of the following:

- A** After
- B** Before

E

Trigger event, which is one of the following:

I	Insert
U	Update
D	Delete

G

Granularity of the trigger, which is one of the following:

R	For each row
S	For each statement

CREATED BY

Primary authorization ID of the user who created the trigger.

Storage Group Authorizations Panel

This panel (Figure 82) appears when you select option GA on the DB2 System Catalog panel.

Use this panel to display the authorizations for storage groups in the DB2 catalog.

```
DB2 Admin ----- DB2 Storage Group Authorizations ----- Row 1 of 11
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
R - Revoke  GR - Grant  G - Storage group  I - Interpretation

Select Grantor  Grantee  G Storage  H Grant  Use
      *        *      T Group   G Timestamp  Auth
-----
DSCGDB2 DSCGDB2 DSN8G61U S 1999-01-15-14.13.26.989997 G
DSCGDB2 DSCGDB2 DSN8G610 S 1999-01-15-12.15.03.483359 G
DSCGDB2 PUBLIC DSN8G610 S 1999-01-15-12.17.15.325852 Y
***** END OF DB2 DATA *****
```

Figure 82. Storage Group Authorizations Panel (ADB2AG)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

GT

Type of grantee, which is one of the following:

Blank Authorization ID
P Plan

STORAGE GROUP

Name of the storage group.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C	DBCTL
D	DBADM
L	SYSCTRL
M	DBMAINT
P	PACKADM (on a specific collection)
A	PACKADM (on collection *)
S	SYSADM

GRANT TIMESTAMP

Time when the GRANT statement was executed.

USE AUTH

Whether the privilege is held with the GRANT option.

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

Database Authorizations Panel

This panel (Figure 83) appears when you select option DA on the DB2 System Catalog panel.

Use this panel to display the authorizations for databases in the DB2 catalog.

DB2 Admin ----- DB2X Database Authorizations -----					Row 1 of 29									
Command ==>					Scroll ==> PAGE									
Valid line commands are:					C C D D D D D I L R R R S S S									
R - Revoke GR - Grant D - Database					R R B B B I R M O E E E T T T									
I - Interpretation					E E A C M S O A A O C P A A O									
					T T D T A P P G D R O A R T P									
					H A S M R I D D E D G V I T S									
					G B L N B B B R									
					* * * * *									
SEL	Grantor	Grantee	Database	Grant										
*	*	*	Name	Timestamp										
---	---	---	---	---	---									
	DSCGDB2	DSCGDB2	DSNDB07	1999-01-15-11.21	S	G	G	G	G	G	G	G	G	G
	DSCGDB2	DSCGDB2	DSNRLST	1999-01-15-11.30	S	G	G	G	G	G	G	G	G	G
	DSCGDB2	DSCGDB2	DSNRGFDB	1999-01-15-11.32	S	G	G	G	G	G	G	G	G	G
	DSCGDB2	PUBLIC	DSNDB04	1999-01-15-11.32	S	Y	Y							
	DSCGDB2	DSCGDB2	DSN8D61A	1999-01-15-12.15	S	G	G	G	G	G	G	G	G	G
	DSCGDB2	DSCGDB2	DSN8D61P	1999-01-15-12.15	S	G	G	G	G	G	G	G	G	G
	DSCGDB2	PUBLIC	DSN8D61A	1999-01-15-12.17	S	Y	Y	Y	Y	Y	Y	Y	Y	Y
	DSCGDB2	PUBLIC	DSN8D61P	1999-01-15-12.17	S	Y	Y	Y	Y	Y	Y	Y	Y	Y
	DSCGDB2	DSCGDB2	DSN8D61U	1999-01-15-14.13	S	G	G	G	G	G	G	G	G	G
	DSCGDB2	DSCGDB2	DSN8D61L	1999-01-15-15.06	S	G	G	G	G	G	G	G	G	G
	ISTJE	ISTJE	ISTJED	1999-01-19-10.31	G	G	G	G	G	G	G	G	G	G

Figure 83. Database Authorizations Panel (ADB2AD)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege.

DATABASE NAME

Name of the database.

GRANT TIMESTAMP

Time when the GRANT statement was executed.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C	DBCTL
D	DBADM
L	SYSCTRL
M	DBMAIN
S	SYSADM

CRETAB

Whether the grantee can create tables within the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

CRETS

Whether the grantee can create table spaces within the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

DBADM

Whether the grantee has DBADM authority over the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

DBCTRL

Whether the grantee has DBCTRL authority over the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

DBMAIN

Whether the grantee has DBMAINT authority over the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

DISPDB

Whether the grantee can issue the DISPLAY command against the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

DROPDB

Whether the grantee can issue the ALTER and DROP database statements:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

IMAGE

Whether the grantee can use the COPY, MERGECOPY, MODIFY, and QUIESCE utilities on the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

LOADDB

Whether the grantee can use the LOAD utility to load tables in the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

REORG

Whether the grantee can use the REORG utility to reorganize table spaces and indexes in the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

RECOV

Whether the grantee can use the RECOVER and REPORT utilities on table spaces in the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

REPAIR

Whether the grantee can use the DIAGNOSE and REPAIR utilities on table spaces and indexes in the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

START

Whether the grantee can issue the START command against the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

STATS

Whether the grantee can issue the CHECK and RUNSTATS utilities against the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

STOP

Whether the grantee can issue the STOP command against the database:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

Table Space Authorizations Panel

This panel (Figure 84) appears when you select option SA on the DB2 System Catalog panel.

Use this panel to display the authorizations for table spaces in the DB2 catalog.

```

DB2 Admin ----- DB2 Table Space Authorizations ----- Row 1 of 11
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
R - Revoke  GR - Grant  S - Table space  D - Database  I - Interpretation

Select Grantor  Grantee  G      Table  H      Use
      *        *      T Database Space  G Grant timestamp  Auth
-----
DSCGDB2 PUBLIC  DSND804  SYSDEFLT S 1999-01-15-11.32.48.483145 Y
DSCGDB2 PUBLIC  DSN8D61A DSN8S61D S 1999-01-15-12.17.15.401564 Y
DSCGDB2 PUBLIC  DSN8D61A DSN8S61E S 1999-01-15-12.17.15.423903 Y
DSCGDB2 PUBLIC  DSN8D61A DSN8S61P S 1999-01-15-12.17.15.447728 Y
DSCGDB2 PUBLIC  DSN8D61A DSN8S61S S 1999-01-15-12.17.15.469678 Y
DSCGDB2 PUBLIC  DSN8D61L DSN8S61B S 1999-01-15-15.06.44.427978 Y
DSCGDB2 PUBLIC  DSN8D61L DSN8S61L S 1999-01-15-15.06.44.485593 Y
DSCGDB2 PUBLIC  DSN8D61L DSN8S61M S 1999-01-15-15.06.44.511877 Y
DSCGDB2 PUBLIC  DSN8D61L DSN8S61N S 1999-01-15-15.06.44.535951 Y
DSCGDB2 PUBLIC  DSN8D61P DSN8S61C S 1999-01-15-12.17.15.498423 Y
DSCGDB2 PUBLIC  DSN8D61P DSN8S61Q S 1999-01-15-12.17.15.520304 Y
***** END OF DB2 DATA *****

```

Figure 84. Table Space Authorizations Panel (ADB2AS)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

GT

Type of grantee, which is one of the following:

Blank Authorization ID
P Plan

DATABASE

Name of the database.

TABLE SPACE

Name of the table space.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C	DBCTL
D	DBADM
L	SYSCTRL
M	DBMAINT
S	SYSADM

GRANT TIMESTAMP

Time when the GRANT statement was executed.

USE AUTH

Whether the privilege is held with the GRANT option.

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

Table Authorizations Panel

This panel (Figure 85) appears when you select option TA on the DB2 System Catalog panel.

Use this panel to display the authorizations for tables in the DB2 catalog.

DB2 Admin ----- DB2 Table Authorizations ----- Row 121 of 1000															
Command ==>						Scroll ==> PAGE									
Valid line commands are:															
R - Revoke GR - Grant T - Table I - Interpretation						U	D	I	S	U	R				
CA - Column authorisations						P	A	E	I	N	E	P	R	E	
						D	L	L	N	S	L	D	E	F	T
						C	T	E	D	E	E	A	F	C	R
						O	E	T	E	R	C	T	E	O	I
						L	R	E	X	T	T	E	R	L	G
						*	*	*	*	*	*	*	*	*	*
S	Grantor	Grantee	G	Name	H	Date									
	*	*	T	*	G	Grant									

	PUBLIC*	DSN8ES1	P	DSN8610 EMP		000404								Y	
	DSCGDB2	PUBLIC*		DSN8610 VPROJRE1	S	000404			Y		Y	Y	Y		
	DSCGDB2	PUBLIC*		DSN8610 VEMPPROJACT	S	000404			Y		Y	Y	Y		
	DSN8610	DSN8610		DSN8610 NEWDEPT	S	000404			G	G	G	G	G	G	G
	DSN8610	DSN8610		DSN8610 NEWPHONE	S	000404			G	G	G	G	G	G	G
	DSN8610	DSN8610		DSN8610 EMP_PHOTO_RESUME	S	000404			G	G	G	G	G	G	G
	DSCGDB2	PUBLIC*		DSN8610 EMP_PHOTO_RESUME	S	000404			Y		Y	Y	Y		
	PUBLIC*	DSN8DLPL	P	DSN8610 EMP_PHOTO_RESUME		000404							Y	Y	
	PUBLIC*	DSN8DLTC	P	DSN8610 EMP_PHOTO_RESUME		000404							Y		
	PUBLIC*	DSN8DLRV	P	DSN8610 EMP_PHOTO_RESUME		000404							Y		
	PUBLIC*	DSN8DLPV	P	DSN8610 EMP_PHOTO_RESUME		000404							Y		
	DSN8610	DSN8610		DSN8610 AUX_PSEG_PHOTO	S	000404			G	G	G	G	G	G	G
	DSN8610	DSN8610		DSN8610 AUX_BMP_PHOTO	S	000404			G	G	G	G	G	G	G
	DSN8610	DSN8610		DSN8610 AUX_EMP_RESUME	S	000404			G	G	G	G	G	G	G
	ISTJE	ADB2GEN	P	SYSIBM SYSAUXRELS	S	000420								Y	
	ISTJE	ADB2GEN	P	SYSIBM SYSAUXRELS	S	000429								Y	
	ISTJE	ADB2RE	P	SYSIBM SYSAUXRELS	S	000518								Y	
	DSCGDB2	ADB2RE	P	SYSIBM SYSAUXRELS	S	000415								Y	
	ISTJE	ADB2GEN	P	SYSIBM SYSAUXRELS	S	000518								Y	
	DSCGDB2	ADB2GEN	P	SYSIBM SYSAUXRELS	S	000415								Y	

NAME

Name of the table or view.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C	DBCTL
D	DBADM
L	SYSCTRL
M	DBMAINT
S	SYSADM

DATE GRANT

Date the privilege was granted, in the form YYMMDD.

UPDCOL

Whether the grantee can update some of the columns in the table. This field contains one of the following:

Asterisk (*)	Grantee can update some of the columns.
Blank	Grantee cannot update some of the columns.

ALTER

Whether the grantee can alter the table:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

DELETE

Whether the grantee can delete rows from the table or view:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

INDEX

Whether the grantee can create indexes on the table:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

INSERT

Whether the grantee can insert rows into the table or view:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

SELECT

Whether the grantee can select rows from the table or view:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

UPDATE

Whether the grantee can update rows in the table or view:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

REFER

Whether the grantee can create or drop referential constraints in which the table is a parent.

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

REFCOL

If the value of REFER applies to some columns but not to others, the value of this column is blank.

If the value of REFER applies uniformly to all columns of the table, the value of this column is an asterisk (*). In this case, rows will exist in SYSIBM.SYSCOLAUTH with the privilege of R and matching timestamps that list the columns on which the R privilege has been granted.

TRIG

Whether the GRANTEE can create triggers in which the table is named as the triggering table:

- Y** The privilege is held without the GRANT option.
- G** The privilege is held with the GRANT option.

Column Update Authorizations Panel

This panel (Figure 86) appears when you select option CA on the DB2 System Catalog panel.

Use this panel to display the authorizations for column updates in the DB2 catalog.

```
DB2 Admin ----- DB2 Column Update Authorizations ----- Row 1 of 3
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
GR - Grant C - Column I -Interpretation
      G
S Grantor  Grantee  T Owner   Name      Column Name      Date      Time
  *         *      * *      *      *          *         *   *
-----
ISTJE     XXX      ISTJE   TEST_KR   SALDO           990208 1216
ISTJE     XX       ISTJE   TEST_KR   SALDO           990215 1202
ISTJE     XX       ISTJE   TEST_KR   SALDO           990215 1202 R
***** END OF DB2 DATA *****
```

Figure 86. Columns Update Authorizations Panel (ADB2AC)

The fields on this panel are:

S

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

GT

Type of grantee, which is one of the following:

Blank Authorization ID
P Plan or a package

OWNER

Authorization ID of the owner of the table or view on which the update privilege is held.

NAME

Name of the table or view.

COLUMN NAME

Name of the column to which the update privilege applies.

DATE GRANT

Date the privilege was granted, in the form YYYYMMDD.

TIME GR

Time the privilege was granted, in the form HHMM.

P

Type of privilege, which is one of the following:

Blank	UPDATE
R	REFERENCES

Application Plan Authorizations Panel

This panel (Figure 87) appears when you select option PA on the DB2 System Catalog panel.

Use this panel to display the authorizations for application plans in the DB2 catalog.

```
DB2 Admin ----- DB2 Application Plan Authorizations ----- Row 1 of 46
Command ==> Scroll ==> PAGE

Valid line commands are:
R - Revoke GR - Grant P - Plan I - Interpretation
```

Select	Grantor	Grantee	G Plan T Name	Grant Timestamp	H B E G D X
*	*	*	*	*	* * *
-----	-----	-----	-----	-----	-----
	DSCGDB2	DSCGDB2	DSNTIA61	1999-01-15-11.19.29.700488	G G
	DSCGDB2	PUBLIC	DSNTIA61	1999-01-15-11.32.48.613258	S Y
	DSCGDB2	DSCGDB2	DSNTIAD	1999-01-15-11.21.36.587758	G G
	DSCGDB2	PUBLIC	DSNTIAD	1999-01-15-11.32.48.634030	S Y
	DSCGDB2	DSCGDB2	DSNESPSCS	1999-01-15-11.30.24.384647	G G
	DSCGDB2	PUBLIC	DSNESPSCS	1999-01-15-11.32.48.503374	S Y
	DSCGDB2	DSCGDB2	DSNESP RR	1999-01-15-11.30.25.033025	G G
	DSCGDB2	PUBLIC	DSNESP RR	1999-01-15-11.32.48.523812	S Y
	DSCGDB2	DSCGDB2	DSNEDCL	1999-01-15-11.30.26.068502	G G
	DSCGDB2	PUBLIC	DSNEDCL	1999-01-15-11.32.48.545083	S Y
	DSCGDB2	DSCGDB2	DSNH YCRD	1999-01-15-11.30.32.721889	G G
	DSCGDB2	PUBLIC	DSNH YCRD	1999-01-15-11.32.48.565012	S Y

Figure 87. Application Plan Authorization Panel (ADB2AP)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

GT

Type of grantee, which is one of the following:

Blank Authorization ID
P Plan

PLAN NAME

Name of the application plan on which the privileges are held.

GRANT TIMESTAMP

Time when the GRANT statement was executed.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C	DBCTL
D	DBADM
L	SYSCTRL
M	DBMAINT
S	SYSADM

BD

Bind authorization, that is, whether the grantee can use BIND, REBIND, or FREE commands against the plan:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

EX

Execute authorization, that is, whether the grantee can run programs that use the application plan:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

Package Authorizations Panel

This panel (Figure 88) appears when you select option KA on the DB2 System Catalog panel.

Use this panel to display the authorizations for packages in the DB2 catalog.

DB2 Admin ----- DB2 Package Authorizations ----- Row 1 of 31									
Command ==>						Scroll ==> PAGE			
Valid line commands are:									
R - Revoke GR - Grant K - Package I - Interpretation									
SEL	Grantor	Grantee	G T	Collection	Package Name	Grant Timestamp	H G	B D	E X
*	*	*	*	*	*	*	*	*	*

	DSCGDB2	DSCGDB2		DSNEM68	DSNEM68	1999-01-15-11.30.17		G	G
	DSCGDB2	DSCGDB2		DSNEM68	DSNEM68	1999-01-15-11.30.24		G	G
	DSCGDB2	DSCGDB2		DSNEDCL	DSNECP68	1999-01-15-11.30.25		G	G
	DSCGDB2	DSCGDB2		DSNHYCRD	DSNHYCRD	1999-01-15-11.30.26		G	G
	DSCGDB2	DSCGDB2		DSNWZP	DSNWZP	1999-01-15-11.30.32		G	G
	DSCGDB2	DSCGDB2		DSNUTILS	DSNUTILS	1999-01-15-11.30.55		G	G
	DSCGDB2	PUBLIC		DSNUTILS	DSNUTILS	1999-01-15-11.32.48	S	Y	
	DSCGDB2	DSNTEP61	P	DSNTEP2	*	1999-01-15-13.47.50	S	Y	
	DSCGDB2	DSNTEP2	P	DSNTEP2	*	1999-01-15-13.47.50	S	Y	
	DSCGDB2	DSCGDB2		DSNTEP2	DSN@EP2L	1999-01-15-13.45.31		G	G
	DSCGDB2	DSCGDB2		DSNTEP2	DSNTEP2	1999-01-15-13.47.50		G	G
	DSCGDB2	DSCGDB2		ADBL	ADBLMAIN	1999-01-15-14.03.57		G	G

Figure 88. Package Authorizations Panel (ADB2AK)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

GT

Type of grantee, which is one of the following:

Blank Authorization ID
P Plan

COLLECTION

Collection name for the packages.

PACKAGE NAME

Name of the package on which the privileges are held.

GRANT TIMESTAMP

Timestamp indicating when the privilege was granted.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C	DBCTL
D	DBADM
L	SYSCTRL
M	DBMAINT
S	SYSADM

BD

Bind authorization, that is, whether the grantee can use BIND or REBIND commands against the package:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

EX

Execute authorization, that is, whether the grantee can execute the package:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

CO

Copy authorization, that is, whether the grantee can copy the package:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

Collection Authorizations Panel

This panel (Figure 89) appears when you select option LA on the DB2 System Catalog panel.

Use this panel to display the authorizations for collections in the DB2 catalog.

DB2 Admin ----- DB2 Collection Authorizations -----					Row 1 of 6
Command ==>					Scroll ==> PAGE
Valid line commands are:					
R - Revoke GR - Grant L - Collection					
SEL	GRANTOR	GRANTEE	GT	COLLECTION	H G Grant Timestamp
*	*	*	*	*	C Pack R Adm * *
-----	-----	-----	-----	-----	-----
	DSCGDB2	ISTFL		ADBL	S 1999-01-19-13.09.48.5968 Y PACKADM
	DSCGDB2	ISTFL2		ADBL	S 1999-01-19-13.09.48.5968 Y PACKADM
	DSCGDB2	ISTJE		*	S 1999-02-23-11.20.29.1155 Y
	DSCGDB2	ISTJE		*	S 1999-02-23-11.20.00.7435 Y PACKADM
	DSCGDB2	ISTJE		ADBL	S 1999-01-19-13.09.48.5968 Y PACKADM
	DSCGDB2	ISTJE2		ADBL	S 1999-01-19-13.09.48.5968 Y PACKADM
***** END OF DB2 DATA *****					

Figure 89. Collection Authorization Panel (ADB2AL)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

GT

Type of grantee, which is one of the following:

Blank Authorization ID
P Plan

COLLECTION

Collection name.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C DBCTL
D DBADM
L SYSCTRL
M DBMAINT

S	SYSADM
P	PACKADM (on a specific collection)
A	PACKADM (on collection *)

GRANT TIMESTAMP

Timestamp indicating when the privilege was granted.

CR

If the PACKADM field that follows is blank, this field has the following meanings:

Y	The grantee has the CREATE IN privilege without the GRANT option.
G	The grantee has the CREATE IN privilege with the GRANT option.

If the PACKADM field contains PACKADM, this field has the following meanings:

Y	The grantee has PACKADM authority without the GRANT option.
G	The grantee has PACKADM authority with the GRANT option.

PACK ADM

The privilege level of the grantee. This field contains one of the following:

Blank	The grantee has the CREATE IN privilege for the collection.
PACKADM	Explained above.

Resource Authorizations Panel

This panel (Figure 90) appears when you select option RA on the DB2 System Catalog panel.

Use this panel to display the authorizations for resources in the DB2 catalog.

DB2 Admin -----			DB2 Resource Authorizations -----			Row 1 of 31		
Command ==>						Scroll ==> PAGE		
Valid line commands are:								
R - Revoke GR - Grant G - Storage group S - Table space E - Data type								
I - Interpretation								
Sel	Grantor	Grantee	G Quali-		Name	H O		U
*	*	*	T fier		*	G B Grant timestamp		A
			*	*	*	*	*	*

	DSCGDB2	DSCGDB2			SYSDEFLT	S S 1999-01-15-11.30.35.2		G
	DSCGDB2	PUBLIC			BP1	S B 1999-01-15-11.32.48.4		Y
	DSCGDB2	PUBLIC			BP2	S B 1999-01-15-11.32.48.4		Y
	DSCGDB2	PUBLIC			SYSDEFLT	S S 1999-01-15-11.32.48.4		Y
	DSCGDB2	PUBLIC	DSNDB04		SYSDEFLT	S R 1999-01-15-11.32.48.4		Y
	DSCGDB2	DSCGDB2			DSN8G610	S S 1999-01-15-12.15.03.4		G
	DSCGDB2	PUBLIC			DSN8G610	S S 1999-01-15-12.17.15.3		Y
	DSCGDB2	PUBLIC	DSN8D61A		DSN8S61D	S R 1999-01-15-12.17.15.4		Y
	DSCGDB2	PUBLIC	DSN8D61A		DSN8S61E	S R 1999-01-15-12.17.15.4		Y
	DSCGDB2	PUBLIC	DSN8D61A		DSN8S61P	S R 1999-01-15-12.17.15.4		Y
	DSCGDB2	PUBLIC	DSN8D61A		DSN8S61S	S R 1999-01-15-12.17.15.4		Y

Figure 90. Resource Authorizations Panel (ADB2AR)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

GT

Type of grantee, which is one of the following:

Blank Authorization ID
P Plan

QUALIFIER

Blank if the resource is a buffer pool or storage group. Database name if the resource is a table space.

NAME

Name of the storage group, table space, or buffer pool.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C	DBCTL
D	DBADM
L	SYSCTRL
M	DBMAINT
S	SYSADM
P	PACKADM (on a specific collection)
A	PACKADM (on collection *)

OB

Type of object, which is one of the following:

B	Buffer pool
S	Storage group
R	Table space
C	Collection

GRANT TIMESTAMP

Timestamp indicating when the privilege was granted.

UA

Whether the privilege is held with the GRANT option.

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

System Privileges Authorization Panel

This panel (Figure 91) appears when you select option ZA on the DB2 System Catalog panel.

Use this panel to display the authorizations for system privileges in the DB2 catalog.

```

DB2 Admin ----- DB2 System Privileges Authorizations ----- Row 1 of 2
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
R - Revoke GR - Grant
I - Interpretation

Sel Grantor  Grantee  G  T Grant timestamp  H D B B S A A E L A M R R G  V
*          *      *  * * * * * * * * * * * * * * * * * * * * * * * *
-----
SYSIBM  SYSOPR  1985-04-01-00.00  G G G  G  G
DSCGDB2 PUBLIC  1999-01-15-11.32 S Y  Y  Y Y Y  Y  Y Y
***** END OF DB2 DATA *****

```

Figure 91. System Privileges Authorizations Panel (ADB2AZ)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

GT

Type of grantee, which is one of the following:

- Blank** Authorization ID
- P** Plan

GRANT TIMESTAMP

Timestamp indicating when the privilege was granted.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C	DBCTL
D	DBADM
L	SYSCTRL
M	DBMAINT
S	SYSADM

BINDADD

Whether the grantee can issue the BIND command with the ADD option:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

BSDS

Whether the grantee can issue the RECOVER BSDS command:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

CREATE DBA

Whether the grantee can create databases and automatically receive DBADM authority over the new database:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

CREATE DBC

Whether the grantee can create databases and automatically receive DBCTRL authority over the new database:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

CREATE SG

Whether the grantee can execute the CREATE STOGROUP statement to create new storage groups:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

CREATE ALIAS

Whether the grantee can issue the CREATE ALIAS statement:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

DISPLAY

Whether the grantee can issue the DISPLAY commands:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

RECOVER

Whether the grantee can issue the RECOVER INDOUBT command:

Y	The privilege is held without the GRANT option.
G	The privilege is held with the GRANT option.

STOPALL

Whether the grantee can issue the STOP command:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

STOSPAC

Whether the grantee can use the STOSPACE utility:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

SYSADM

Whether the grantee has system administration authority:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

SYSCTRL

Whether the grantee has SYSCTRL authority:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

SYSOPR

Whether the grantee has system operator authority:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

BINDAGT

Whether the grantee has the BINDAGENT privilege:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

TRACE

Whether the grantee can issue the START TRACE and STOP trace commands:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

MON1

Whether the grantee can obtain IFC (Instrumentation Facility Component) serviceability data:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

MON2

Whether the grantee can obtain IFC data:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

ARCHIVE

Whether the grantee can issue the ARCHIVE LOG command:

- | | |
|----------|---|
| Y | The privilege is held without the GRANT option. |
| G | The privilege is held with the GRANT option. |

Schema Authorizations Panel

This panel (Figure 92) appears when you select option HA on the DB2 System Catalog panel.

Use this panel to display information about authorizations to the schema you have selected.

DB2 Admin ----- DB2X Schema Authorizations -----				Row 1 of 3
Command ==>				Scroll ==> PAGE
Valid line commands are:				C A D
R - Revoke GR - Grant H - Schema				R L R
I - Interpretation				E T O
				H A E P
SEL	Grantor	Grantee	Schema	Grant timestamp
	*	*	*	*
---	---	---	---	---
	ISTJE	ISTJE2	ISTJE	1999-01-19-00.11.25.61746 Y
	DSCGDB2	ISTJE	XXX	1999-01-19-16.45.24.47184 S Y
	DSCGDB2	XXX	*	1999-02-04-16.05.12.08715 S Y
***** END OF DB2 DATA *****				

Figure 92. Schema Authorizations Panel (ADB2AH)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege.

SCHEMA

Name of the schema or * for all schemas.

GRANT TIMESTAMP

Timestamp indicating when the privilege was granted.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

- | | |
|---|---|
| 1 | Grantor had privilege on all schemas at time of grant |
| L | SYSCTRL |
| S | SYSADM |

CREATE

Whether the grantee can create UDFs, UDTs, triggers, or stored procedures in the schema.

ALTER

Whether the grantee can alter objects in the schema.

DROP

Whether the grantee can drop objects in the schema.

Data Type Authorizations Panel

This panel (Figure 93) appears when you select option EA on the DB2 System Catalog panel.

Note that the panel being used to display is the Resource Authorization Panel.

Use this panel to display information about authorizations to the data types you have selected.

```
DB2 Admin ----- DB2 Resource Authorizations ----- Row 1 of 1
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
R - Revoke GR - Grant G - Storage group S - Table space E - Data type
I - Interpretation

Sel Grantor  Grantee  G Quali-  Name  H O  U
      *      *      *   fier   *      G B Grant timestamp  A
-----
ISTJE  XXXX    ISTJE  KR      D 1999-02-18-16.39.20.8 G
***** END OF DB2 DATA *****
```

Figure 93. Data Type Authorizations Panel (ADB2AR)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

GT

Type of grantee, which is one of the following:

' ' Authorization ID
P Plan

QUALIFIER

Blank if the resource is a buffer pool or storage group. Database name if the resource is a table space.

NAME

Name of the storage group, table space, or buffer pool.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

C	DBCTL
D	DBADM
L	SYSCTRL
M	DBMAINT
S	SYSADM
P	PACKADM (on a specific collection)
A	PACKADM (on collection *)

OB

Type of object, which is one of the following:

B	Buffer pool
S	Storage group
R	Table space
C	Collection
D	Distinct type (user-defined data type)

GRANT TIMESTAMP

Timestamp indicating when the privilege was granted.

UA

Authorization to use the resource, which is one of the following:

Y	Without the GRANT option
G	With the GRANT option

Function Authorizations Panel

This panel (Figure 94) appears when you select option FA on the DB2 System Catalog panel.

Use this panel to display the authorizations for the routines you have selected.

DB2 Admin ----- DB2X Function Authorizations -----							Row 1 of 44
Command ==>							Scroll ==> PAGE
Valid line commands are:							
R - Revoke	GR - Grant	H - Schema	F - Function				E
I - Interpretation							X
				G			H E
SEL	Grantor	Grantee	Schema	Specific Name	T T	Grant timestamp	G C
*	*	*	*	*	* * *	*	* *
-----	-----	-----	-----	-----	-----	-----	-----
ISTJE	ISTJE	ISTJE	KR_MINUS	F		1999-02-12-17.21.53	G
ISTJE	ISTJE	ISTJE	SQL99011815222457A	F		1999-01-18-15.22.28	G
ISTJE	ISTJE	ISTJE	SQL99011815223541B	F		1999-01-18-15.22.35	G
ISTJE	ISTJE	ISTJE	SQL990208100338896	F		1999-02-08-10.03.41	G
ISTJE	ISTJE	ISTJE	SQL990208160407659	F		1999-02-08-16.04.07	G
ISTJE	ISTJE	ISTJE	SQL990208160407679	F		1999-02-08-16.04.07	G
ISTJE	ISTJE	ISTJE	SQL990208160407699	F		1999-02-08-16.04.07	G
ISTJE	ISTJE	ISTJE	SQL990208160413819	F		1999-02-08-16.04.13	G
ISTJE	ISTJE	ISTJE	SQL990208160413829	F		1999-02-08-16.04.13	G
ISTJE	ISTJE	ISTJE	SQL990208160424619	F		1999-02-08-16.04.24	G
ISTJE	ISTJE	ISTJE	SQL990208160424639	F		1999-02-08-16.04.24	G
ISTJE	ISTJE	ISTJE	SQL990208160424649	F		1999-02-08-16.04.25	G

Figure 94. Function Authorizations Panel (ADB2AO)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

SCHEMA

Schema of the routine.

SPECIFIC NAME

Specific name of the routine or * for all routines in the schema.

T

Type of routine, which is one of the following:

- F** Function
- P** Stored procedure

GT

Type of grantee, which is one of the following:

- I** Authorization ID
- P** Plan or package

GRANT TIMESTAMP

Timestamp indicating when the privilege was granted.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

- 1** Grantor had privilege on schema
- L** SYSCTRL
- S** SYSADM

EXEC

Execute authorization, that is, whether the grantee can execute the routine.

Stored Procedure Authorizations Panel

This panel (Figure 95) appears when you select option OA on the DB2 System Catalog panel.

Use this panel to display the authorizations for the routines you have selected.

DB2 Admin ----- DB2X Stored Procedure Authorizations ----- Row 1 of 12									
Command ==>					Scroll ==> PAGE				
Valid line commands are:									
R - Revoke GR - Grant H - Schema O - Stored Procedure									E
I - Interpretation									X
									G
									H E
SEL	Grantor	Grantee	Schema	Specific Name	T	T	Grant timestamp	G	C
*	*	*	*	*	*	*	*	*	*

	ADB	ADB	ADB	ADB2RE	P		1999-01-26-12.26.05	G	
	DSCGDB2	DSCGDB2	DSN8	DSN8EP2	P		1999-01-15-14.34.55	G	
	DSCGDB2	DSCGDB2	SYSPROC	DSNWZP	P		1999-01-15-11.31.07	G	
	DSCGDB2	DSN8EP1	DSN8	DSN8EP2	P	P	1999-01-15-14.40.50	Y	
	DSCGDB2	ISTJE	DSCGDB2	*	P		1999-01-25-13.58.30	S	Y
	ISTJE	ISTJE	ISTJE	DUMMY	P		1999-02-04-17.37.06	G	
	ISTJE	ISTJE	ISTJE	T1	P		1999-02-10-17.04.38	G	
	ISTJE	ISTJE	ISTJE	T2	P		1999-02-09-09.43.40	G	
	DSCGDB2	TADB2RE	ADB	ADB2RE	P	P	1999-01-26-16.22.28	S	Y
	DSCGDB2	TADB2RE	ADB	ADB2RE	P	P	1999-01-27-09.52.08	S	Y
	DSCGDB2	TADB2RE	ADB	ADB2RE	P	P	1999-01-27-16.25.14	S	Y
	DSCGDB2	TADB2RE	ADB	ADB2RE	P	P	1999-01-27-16.26.47	S	Y

Figure 95. Stored Procedure Authorizations Panel (ADB2AO)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

GRANTOR

Authorization ID of the user who granted the privilege.

GRANTEE

Authorization ID of the user who holds the privilege, or the name of the plan or package that uses the privilege.

SCHEMA

Schema of the routine.

SPECIFIC NAME

Specific name of the routine or * for all routines in the schema.

T

Type of routine, which is one of the following:

- F** Function
- P** Stored procedure

GT

Type of grantee, which is one of the following:

- ' '** Authorization ID
- P** Plan or package

GRANT TIMESTAMP

Timestamp indicating when the privilege was granted.

HG

Authorization level of the user from whom the privileges were received. This field contains one of the following:

- 1** Grantor had privilege on schema
- L** SYSCTRL
- S** SYSADM

EXEC

Execute authorization, that is, whether the grantee can execute the routine.

Chapter 8. Reverse Engineering Panels

The DB2 Admin reverse engineering function lets you reverse engineer the DB2 objects in your database catalog.

Reverse engineering generates the SQL statements necessary to re-create a DB2 object.

Typical uses for the DB2 Admin reverse engineering function include:

- Extracting the DDL for an object before changes are made, so that the changes are applied to the current definition and/or are available for fallback purposes.
- Moving DB2 objects to another DB2 subsystem. By using the reverse engineering function (together with the table unload and load functions), objects can be moved after a few manual modifications to the generated SQL and batch jobs.

When extracting database, table space, and table objects, all dependent objects can also be generated; this includes table spaces, tables, indexes, views, synonyms, aliases, referential constraints, table checks, and table triggers. When extracting objects in schemas, reverse engineering can extract the dependent distinct types, functions, and stored procedures. All authorizations to these objects can also be generated.

You can generate the SQL statements using a batch or online job. Batch jobs are recommended if DB2 Admin will be extracting many objects from a large catalog (see “Performance Tips” on page 151).

Using Reverse Engineering

The DB2 Admin reverse engineering function can be invoked from the:

- Databases panel (option 1.D, panel ADB21D)
- Table Spaces panel (option 1.S, panel ADB21S)
- Tables, Views, and Aliases panel (option 1.T, panel ADB21T)
- Schemas panel (option 1.H, panel ADB21H)
- Data (or Distinct) Types panel (option 1.E, panel ADB21E)
- Functions panel (option 1.F, panel ADB21F)
- Stored Procedures panel (option 1.O, panel ADB21O)

On these panels, use the *line* command GEN to reverse engineer one object (shown in Figure 96 on page 150), or use the *primary* command GEN to reverse engineer all the listed objects.

When you use the primary or line command GEN, DB2 Admin returns the Generate SQL from DB2 Catalog panel (Figure 97 on page 151). On this panel, you can:

- Specify which dependent objects you want DB2 Admin to generate.
- As an option, specify new values for the:
 - Storage group (possibly using a different storage group for table spaces and index spaces).
 - Database (except when initiated using a primary command from a list of databases).

- Specify a new object owner. If specified, the new owner is used whenever an object is created.
- Specify a new schema name (where applicable). If specified the new schema is used whenever an object is created.
- Specify the data set in which DB2 Admin should place the generated SQL.
- Specify whether the SQL generation should run as a batch or online job.
- Specify how often reverse engineering should add an SQL COMMIT statement to the generated SQL.
- Specify whether DB2 default parameters should be removed or kept in the generated SQL.

If you specify an execution mode of BATCH, DB2 Admin generates a batch job and displays the job in an ISPF edit session, ready for any modifications you need to make before submitting the job for execution. If you specify TSO, DB2 Admin generates the SQL statements online and displays the results.

```

DB2 Admin ----- DB2X Databases ----- Row 1 of 4
Command ==>                                     Scroll ==> PAGE

Valid line commands are:
T - Tables S - Table spaces X - Indexes G - Storage group ICS - IC status
DIS - Display database STA - Start database STO - Stop database A - Auth
? - Show all line commands

Select Name      Owner      Storage  Buffer      Created      Index
      *         *         Group    Pool        *         *         T E Buffer Pool
-----
GEN    DSN8D61A DSCGDB2  DSN8G610 BP1          258 ISTJE     E BP2
      DSN8D61L DSCGDB2  DSN8G610 BP1          261 ISTJE     E BP2
      DSN8D61P DSCGDB2  DSN8G610 BP1          259 ISTJE     E BP2
      DSN8D61U DSCGDB2  DSN8G610 BP1          260 ISTJE     E BP2
***** END OF DB2 DATA *****

```

Figure 96. Databases Panel (ADB21D) - Reverse Engineering Example

```

DB2 Admin ----- DB2X Generate SQL from DB2 Catalog ----- 22:12
Option ==>

Generate SQL statements for database DSN8D61A                DB2 System: DB2X
                                                           DB2 SQL ID: ISTJE

SQL statement types to be generated from the DB2 catalog:
CREATE DATABASE. . . . . : Y          GRANT access ON DATABASE. : Y
CREATE TABLESPACE. . . . : Y        GRANT access ON TABLESPACE: Y
CREATE TABLE . . . . . : Y          GRANT access ON TABLE. . . : Y
CREATE VIEW . . . . . : Y            GRANT access ON VIEW . . . : Y
CREATE INDEX . . . . . : Y           ALTER TABLE ADD FOREIGN KEY: Y
CREATE SYNONYM . . . . . : Y         LABEL ON . . . . . : Y
CREATE ALIAS . . . . . : Y           COMMENT ON . . . . . : Y
CREATE TRIGGER . . . . . : Y

New names/values for generated SQL: (leave blank to use current values)
Object owner . . . . . :
Alloc TS size as . . . . : DEFINED (DEFINED, USED, or ALLOC)
Database name. . . . . :
Storage group for TS . . :           Storage group for IX . . . :
Target DB2 version . . . :           (Current DB2 version: 610)

Output file and execution mode:
Data set name . . . . . : TEST.DB2(X)
Data set disposition . : OLD (OLD, SHR, or MOD)
Execution mode . . . . . : BATCH (BATCH or TSO)
Commit statements per . : A (Db, tS, Tb, All, None)
DB2 defaults handling. . : K (Keep, or Remove)

BP - Change batch job parameters

```

Figure 97. Generate SQL from DB2 Catalog Panel (ADB2GEN)

Performance Tips

To improve performance of the ADB2GEN extract program, consider adding the following indexes to the DB2 catalog:

On SYSDBAUTH	(database(,grantor,grantee))
On SYSCHECKS	(tbowner,tbname)
On SYSRELS	(creator,tbname,relname)
On SYSRESAUTH	(qualifier,name(,grantor,grantee,obtype))
On SYSTABAUTH	(tcreator,tname(,grantor,grantee,granteetype))
On SYSCOLAUTH	(creator,tname(,dategranted,timegranted))

The recommended mode of operation is batch, even if only a few objects are requested. This is because the design for the extract process is based on the standard DB2 catalog indexes, which means that some parts of the process scan the catalog tables instead of doing a direct reference.

Considerations

The following considerations apply to reverse engineering:

- DB2 Admin does not extract IDCAMS DEFINE CLUSTER statements for VCAT-defined table spaces and indexes.
- The generated SQL for table spaces and indexes defined with a DSETPASS (password) will contain a SPUFI comment line like this:

```
--      DSETPASS XXXXXXXX
```

DB2 Admin does not reveal the data set password in the catalog; DB2 Admin generates the comment line and issues a warning message.

- The ability to generate actually allocated or actually used space allocations depends on information in the DB2 catalog. The actual data set sizes for table/index spaces are not retrieved. This means you should only use these options if you have recently run STOSPACE and RUNSTATS for the selected objects.

Sample Output

Figure 98 shows sample output from execution of the reverse engineering function.

```
-----
-- Database 2 Administration Tool (DB2 Admin), program 5655-D52 (C) --
--
-- ADB2GEN - Extract object definitions from the DB2 Catalog tables --
--
-- Input prepared on : DB2X (610)      Extract time : 2000-01-20 14:20 --
--
-- Catalog values overridden :          --
--
--           Database=ISTJE61A  Stogroup (Table space)=ISTJEG --
--           Creator =ISTJE      Stogroup (Index space)=ISTJEG --
--
-- Generate : DB=Y TS=Y TB=Y VW=Y IX=Y SY=Y AL=Y LB=Y CM=Y FK=Y --
-- Grants   : DB=Y TS=Y TB=Y VW=Y --
--
-----
--
-- ADB2GEN: Generate DDL for Database ISTJE61A --
--
-----
--
-- Database=ISTJE61A  Stogroup=ISTJEG
-----
--
--
CREATE DATABASE ISTJE61A
  BUFFERPOOL BP1
  CCSID      EBCDIC
  STOGROUP ISTJEG ;
--
GRANT DBADM
  ON DATABASE ISTJE61A TO PUBLIC;
--
COMMIT;
--
-----
-- Database=ISTJE61A  Stogroup=ISTJEG
-- Tablespace=ISTJE61A.DSN8S61D
-----
--
CREATE TABLESPACE DSN8S61D
  IN ISTJE61A
  USING STOGROUP ISTJEG
  PRIQTY 20 SECQTY 20
  LOCKSIZE PAGE
  CLOSE NO ;
--
GRANT USE OF TABLESPACE ISTJE61A.DSN8S61D TO PUBLIC;
--
COMMIT;
--
```

Figure 98 (Part 1 of 2). Reverse Engineering Output

```

-----
--      Table=ISTJE.DEPT                      In ISTJE61A.DSN8S61D
-----
--
-- CREATE TABLE ISTJE.DEPT
--      (DEPTNO          CHAR(3) NOT NULL ,
--       DEPTNAME        VARCHAR(36) NOT NULL ,
--       MGRNO           CHAR(6) ,
--       ADMRDEPT        CHAR(3) NOT NULL ,
--       LOCATION        CHAR(16) ,
--       PRIMARY KEY (DEPTNO) )
--      IN ISTJE61A.DSN8S61D ;
--
-- COMMIT;
--
-----
-- Database=ISTJE61A  Stogroup=ISTJEG
--      Index=ISTJE.XDEPT1                      On ISTJE.DEPT
-----
--
-- CREATE TYPE 2 UNIQUE INDEX ISTJE.XDEPT1
--      ON ISTJE.DEPT
--      (DEPTNO          ASC )
--      USING STOGROUP ISTJEG
--      PRIQTY 12 SECQTY 12
--      CLOSE NO ;
--
.
.
.

```

Figure 98 (Part 2 of 2). Reverse Engineering Output

Chapter 9. DB2 Admin Alter Function

The DB2 Admin alter function lets you alter the definition of a DB2 table. The following modifications are supported:

- changing the owner and the name of the table
- modifying the definitions of table columns (with some restrictions)
- changing the sequence of the columns in the table
- dropping columns
- inserting new columns

DB2 Admin alter attempts to preserve as many of the dependent definitions as possible, such as indexes, views, table checks, synonyms, aliases and authorization to these objects.

DB2 Admin alter runs in two parts: an online dialog where you specify your modifications and a set of generated batch jobs that implement the modifications by extracting the existing table definition, unloading the table data, converting the table definition to the new format and reloading the data.

You now may use the Batch Restart program, ADBTEP2, to restart or resume the execution of an Alter job at an intermediate point, in the event that one of the SQL statements in the input stream fails. In addition, you now have the ability to combine the generated Alter batch jobs into a single job. For more information, see Appendix A, "Batch Restart Program" on page 317.

Using DB2 Admin Alter

This section describes how to use the DB2 Admin alter function. An actual example is shown in section "Sample Alter Scenario" on page 157.

The DB2 Admin alter function is invoked from the tables panel (option 1.T, panel ADB21T) using the *line* command ALC on the table you wish to alter. For an example of this panel, refer to Figure 99 on page 157.

When you enter the ALC *line* command, DB2 Admin shows the current column definitions from the table. Please refer to Figure 100 on page 157.

By using line commands you can change the definition of a column, drop a column, move a column to a new position, and insert new columns. At the top of the panel you can specify a new owner and name for the table.

You can also overwrite the space information available for the table. The space information is used to calculate the size of the unload and the work data sets. The values shown are: number of rows (from RUNSTATS) and used KB (the high used RBA obtained from the VSAM catalog). If both are valid, that is, greater than zero, DB2 Admin alter uses the KB number when allocating the unload and work data sets.

Refer to the sample Alter scenario for examples of redefining some of the table attributes.

When you have finished making your changes, use the *primary* command ALTER to begin generating the batch jobs that perform the actual alter operation. There is one more panel (ADB27A) before DB2 Admin generates the required batch jobs. On this panel you specify:

- the PDS where you want the generated jobs placed
- the prefix to be used for generated data sets
- the unit type for work and unload data sets
- the member name of a single job, if you wish to combine the generated jobs.

When you press ENTER on this panel, DB2 Admin alter generates the jobs and then places you in PDF EDIT on the specified job PDS that contains the jobs. The generated jobs are:

- ST1RE - Reverse engineering
- ST2UNL - Unload data
- ST3CO - Convert
- ST4DC - Drop and re-create
- ST5RL - Reload data
- ST6IC - Image copy
- ST7RS - Runstats (optional)

Review the jobs and submit the jobs in sequence to activate the changes.

Work Data Sets

The DB2 Admin alter batch jobs create and use the following data sets:

prefix.worklist.DDL	DDL extracted from the catalog
prefix.worklist.DDL.CONV	DDL for the modified table
prefix.worklist.IFF	Interface file to batch jobs
prefix.worklist.UNLOAD.tname	Unload data set
prefix.worklist.UNLOADC.tname	Converted unload records
prefix.worklist.UNLOADD.tname	Discard data set for DB2 LOAD(optional)
prefix.worklist.UNLOAD.CONTROL	Load utility statement
prefix.worklist.UNLOADC.CONTROL	Converted load utility statement

Recovery

If a table modification fails and the original table has been dropped, you need to do the following to restore the table to its original state (if desired):

1. DROP the new table if it has been created
2. Re-create the original table using the extracted DDL
3. LOAD the table using the unload data set
Note: remember to change the LOAD utility statement to RESUME YES if there are other tables in the table space.
4. Create a new image copy of the table space
5. Run RUNSTATS on the table

Sample Alter Scenario

This section shows you some of the panels you may see when running the DB2 Admin alter function. The scenario assumes you are modifying certain fields; this illustrates the wide range of options that the alter function offers.

You invoke the alter function on the Tables, Views, and Aliases Panel using line command ALC. This is shown in the next figure.

```
DB2 Admin ----- DB2W Tables, Views, and Aliases ----- - Row 1 of 2
Command ==> Scroll ==> PAGE

Valid line commands are:
C - Columns A - Auth L - List X - Indexes S - Table space D - Database
V - Views T - Tables P - Plans Y - Synonyms SEL - Select prototyping
? - Show all line commands

Sel  Name          Owner      T DB Name TS Name      Cols      Rows Checks
-----
ALC  NEWDEPT         DSN8510  T DSN8D51U NEWDEPT      5         -1      0
      NEWPHONE      DSN8510  T DSN8D51U NEWPHONE      7         -1      0
***** END OF DB2 DATA *****
```

Figure 99. Tables, Views and Aliases Panel (ADB21T) - Invoking Alter Function

In the next panel Alter shows the size of the underlying table space and the current columns of the table. An example of this panel is shown here. If you want additional information, invoke the associated help panel.

```
DB2 Admin ----- DB2W ALTER Table : DSN8510.NEWDEPT ----- Row 1 of 5
Command ==> Scroll ==> PAGE

New owner ==> DSN8510          In Data Base : DSN8D51U
New name ==> NEWDEPT          Table Space: NEWDEPT
Tb rows ==> -1                 Alloc (KB) : 48
Used (KB) ==> 48

Use command ALTER to generate jobs. Valid line commands are:
I - Insert M - Move U - Update D - Delete A - After B - Before
RES - Reset update LAB - Label COM - Comment

Select Column Name      Col No Col Type Length Scale Null D Col No Type      Old Operation
-----
      DEPTNO              1 CHAR          3      0 N      N      1
      DEPTNAME            2 VARCHAR        36      0 N      N      2
      MGRNO                3 CHAR          6      0 Y      Y      3
      ADMRDEPT             4 CHAR          3      0 N      N      4
      LOCATION            5 CHAR          16      0 Y      Y      5
***** END OF DB2 DATA *****
```

Figure 100. ALTER Table Panel (ADB27C) - Insert Column

Use line commands to alter the definition of the table, for instance, to change attributes of existing columns, add new columns, change the sequence of columns, and delete columns.

The line commands are:

- I - Insert a column after the column
- U - Update the definition of the column
- D - Delete (drop) the column
- M - Move the column to a new position
- A - The new position is after
- B - The new position is before
- RES - Reset the update of a column definition
- LAB - Update the column label
- COM - Update the column comment

Assume you specify the line command "I" to insert a new column. You next see the Insert Column Panel on which you define the attributes of the new column.

DB2 Admin ----- DB2W ALTER: Insert Column Number 6 ----- 00:58

Command ==>

DB2 Admin ALTER

Column name ==> COMMENT (column number 6)

Data type ==> CHAR (for builtin data type)

Data length ==> 30 (for builtin data type)

Precision ==> (optional, valid for FLOAT and DECIMAL only)

Scale ==> (optional, valid for DECIMAL only)

NOT NULL ==> Y (Yes or No)

FOR ? DATA ==> (type: B - BIT, S - SBCS, M - Mixed, blank - none)

W. DEFAULT ==> Y (Yes, No or enter value below)

Def. value ==>

Figure 101. Insert Column Panel (ADB26CTU)

In this case you insert a column called COMMENT with the attributes CHAR(30) NOT NULL WITH DEFAULT.

When you press enter you get back to the previous Table Display panel (ADB27C) where you can initiate other updates to the table.

```

DB2 Admin ----- DB2W ALTER Table : DSN8510.NEWDEPT ----- Row 1 of 6
Command ==> Scroll ==> PAGE

New owner ==> DSN8510          In Data Base : DSN8D51U
New name  ==> NEWDEPT         Table Space: NEWDEPT
Tb rows   ==> -1              Alloc (KB) : 48
Used (KB) ==> 48

Use command ALTER to generate jobs. Valid line commands are:
I - Insert M - Move U - Update D - Delete A - After B - Before
RES - Reset update LAB - Label COM - Comment

Select Column Name      Col No Col Type Length Scale Null D Col No Type      Old Operation
* * * * * * * * * * *
-----
DEPTNO                   1 CHAR          3      0 N    N      1
DEPTNAME                 2 VARCHAR        36      0 N    N      2
MGRNO                   3 CHAR          6      0 Y    Y      3
ADMRDEPT                4 CHAR          3      0 N    N      4
U  LOCATION              5 CHAR         16      0 Y    Y      5
COMMENT                  6 CHAR         30      0 N    Y      0 INSERT
***** END OF DB2 DATA *****

```

Figure 102. ALTER Table Panel (ADB27C) - Update Column

Assume you enter the line command U. You next see the Update Column panel.

The current attributes for the column are shown and you can update them.

```

DB2 Admin ----- DB2W ALTER: Update Column Number 5 ----- 00:59
Command ==>

DB2 Admin ALTER

Column name ==> LOCATION          (column number 5)

Data type   ==> CHAR              (for builtin data type)

Data length ==> 30                (for builtin data type)
Precision   ==>                  (optional, valid for FLOAT and DECIMAL only)
Scale       ==>                  (optional, valid for DECIMAL only)

NOT NULL    ==> N (Yes or No)
FOR ? DATA ==>          (type: B - BIT, S - SBCS, M - Mixed, blank - none)
W. DEFAULT  ==> Y (Yes, No or enter value below)
Def. value  ==>

```

Figure 103. Update Column Panel (ADB26CTU)

Assume you change the length from 20 to 30 and press ENTER. This takes you back to the previous menu.

Since this is the last change you want to make, you use the primary command ALTER to start generating the jobs required to implement the changes. This is shown in the next panel.

```

DB2 Admin ----- DB2W ALTER Table : DSN8510.NEWDEPT ----- Row 1 of 6
Command ==> ALTER                                           Scroll ==> PAGE

New owner ==> DSN8510           In Data Base : DSN8D51U
New name ==> NEWDEPT           Table Space: NEWDEPT
Tb rows ==> -1                 Alloc (KB) : 48
Used (KB) ==> 48

Use command ALTER to generate jobs. Valid line commands are:
I - Insert M - Move U - Update D - Delete A - After B - Before
RES - Reset update LAB - Label COM - Comment

Select Column Name      Col No Col Type Length Scale Null D Col No Type
      *                *   *   *      *      *   *   *   *
-----
      DEPTNO            1 CHAR          3      0 N    N      1
      DEPTNAME          2 VARCHAR        36      0 N    N      2
      MGRNO             3 CHAR          6      0 Y    Y      3
      ADMRDEPT          4 CHAR          3      0 N    N      4
*      LOCATION         5 CHAR         20      0 Y    Y      5 UPDATE
      COMMENT           6 CHAR         30      0 N    Y      0 INSERT
***** END OF DB2 DATA *****

```

Figure 104. ALTER Table Panel (ADB27C) - Using Primary Command ALTER

This brings you to the Alter Parameters Panel, where you need to specify data set information and which options to be used.

```

DB2 Admin ----- DB2W DB2 Admin ALTER ----- 00:59
Option ==>

Please specify the following for DB2 Admin ALTER:      DB2 System: DB2W
                                                    DB2 SQL ID: ISTJE

Worklist information:
  Worklist name . . . . . : MYALTER (also used as middle qualifier in DSNs)

Data set information:
  PDS for batch jobs . . . : MYALTER.JCL
  Prefix for datasets . . . : ISTJE
  Unit type permanent ds . : SYSDA
  Unit type unload ds . . . : SYSDA      Serial (tape) device : N (Y/N)

Options:
  Output single job      : Y
  Member name of single job : MYLATER      (default ADBALTER)
  Use REORG UNLOAD EXTERNAL : Y
  Run RUNSTATS after reload : Y

BP - Change batch job parameters

```

Figure 105. ALTER Parameters Panel (ADB27A)

A help panel is available if additional information is needed.

When you press ENTER, Alter generates the jobs and invokes ISPF Edit so you can edit and submit the generated jobs.

Menu Functions Utilities Help						

EDIT ISTJE.ALTERPH.JCL			Row 00001 of 00007			
Command ==>			Scroll ==> PAGE			
Name	Prompt	Size	Created	Changed	ID	
. ST1RE		60	2000/03/25	2000/03/25 00:59:00	ISTJE	
. ST2UNL		41	2000/03/25	2000/03/25 00:59:00	ISTJE	
. ST3CO		42	2000/03/25	2000/03/25 00:59:00	ISTJE	
. ST4DC		45	2000/03/25	2000/03/25 00:59:00	ISTJE	
. ST5RL		50	2000/03/25	2000/03/25 00:59:00	ISTJE	
. ST6IC		35	2000/03/25	2000/03/25 00:59:00	ISTJE	
. ST7RS		21	2000/03/25	2000/03/25 00:59:00	ISTJE	
End						

Figure 106. Edit ALTER Jobs Panel

This concludes the interactive portion of the alter function. At this point, review and submit the jobs to alter the tables.

Restrictions

The following limitations apply to DB2 Admin alter.

1. Views containing dropped columns will not be modified. All other modifications are retrofitted into the views.
2. Columns involved in partitioning should not be modified since DB2 Admin alter does not drop the underlying table space with its definition of partitioning values. With DB2 V6 it is possible to change partitioning values.
3. Alter displays a warning if you attempt to modify columns in the primary key. With line command UP (update primary key) you can circumvent the warning. However Alter does not modify dependent tables.
4. Alter does not modify the primary key of parent tables if you modify columns that are in a foreign key.

Chapter 10. Migrate DB2 Data Function

The DB2 Admin migrate function lets you copy (migrate) DB2 data to other DB2 systems. Both databases and table spaces and their dependent objects can be migrated.

Typical uses for the DB2 Admin migrate function include:

- to create a separate DB2 test system
- to move the test system into a production system
- to consolidate two separate database systems into one

The DB2 Admin reverse engineering function is used to extract the current definitions and authorizations. As part of reverse engineering, you can modify the following:

- the owner of the objects
- the target database name
- the target storage group name for table spaces and indexes.

DB2 Admin migrate attempts to preserve as many of the dependent definitions as possible, such as indexes, views, table checks, synonyms, aliases, and authorization to these objects.

DB2 Admin migrate runs in four steps:

1. an online dialog where you specify what you want to migrate
2. batch extract and unload jobs
3. a transfer to the target system, which is performed independently of DB2 Admin
4. batch define, reload and other optional jobs.

You now may use the Batch Restart program, ADBTEP2, to restart or resume the execution of a Migrate job at an intermediate point, in the event that one of the SQL statements in the input stream fails. In addition, you now have the ability to combine the generated Migrate batch jobs into a single job. For more information, see Appendix A, "Batch Restart Program" on page 317.

Using Migrate

As just mentioned, there are four steps to running the migrate function.

Step 1 - Specifying What Is To Be Migrated

The DB2 Admin migrate function can be invoked from the:

- Databases panel (option 1.D, panel ADB21D)
- Table Spaces panel (option 1.S, panel ADB21S)

On these panels, use the *line* command MIG on the objects to be migrated. An example of this is shown in Figure 107 on page 164.

```

DB2 Admin ----- DB2W Databases ----- Row 1 of 36
Command ==> Scroll ==> PAGE

Valid line commands are:
T - Tables S - Table spaces X - Indexes G - Storage group ICS - IC status
DIS - Display database STA - Start database STO - Stop database A - Auth
? - Show all line commands

Select Name Owner Storage Buffer Created
      *  *      *      *      *      *      *      *
-----
      DSNDB04 SYSIBM SYSDEFLT BP0 4 SYSIBM
      DSNDB06 SYSIBM 6 SYSIBM E
      DSNDB07 DSCGDB2 SYSDEFLT BP0 7 ISTJE W
MIG DSN8D51U DSCGDB2 DSN8G51U BP0 275 ISTJE E
      DSNRLST DSCGDB2 SYSDEFLT BP0 256 ISTJE E
      DSNDDF DSCGDB2 SYSDEFLT BP0 257 ISTJE E
      DSN8D51P DSCGDB2 DSN8G510 BP0 274 ISTJE E
      DSN8D41A DSCGDB2 DSN8G410 BP0 259 ISTJE E
      DSN8D41P DSCGDB2 DSN8G410 BP0 260 ISTJE E
      DSN8D41U DSCGDB2 DSN8G41U BP0 261 ISTJE E
      DBGROTH1 DPGROTH SGGROTH1 BP0 262 DPGROTH E
      ISTJED ISTJE ISTJEG BP0 263 ISTJE E

```

Figure 107. Databases Panel (ADB21D) - Migrate Example

When you use the line command MIG, DB2 Admin displays the Table Spaces panel where you can see the size of the table spaces and how many referential constraints there are.

This panel is illustrated in Figure 108.

```

DB2 Admin ----- DB2W Migrate Table Spaces ----- Row 1 of 2
Command ==> Scroll ==> PAGE

Primary commands: MIG - generate jobs ADD - add objects.
Valid line commands are:
D - Delete T - Show tables ADDRI - Add RI objects RIT - RI related tables

Select Data Table VSAM VSAM No of Table RI
      Base Space Part KB Alloc KB Used Tables Relations Add
      *      *      *      *      *      *      *      *
-----
      DSN8D51U NEWDEPT 0 48 48 1 0 NO
      DSN8D51U NEWPHONE 0 48 48 1 0 NO
***** END OF DB2 DATA *****

```

Figure 108. Table Spaces Panel (ADB28S) - Migrate Example

Using the primary command ADD, you can add more objects to be migrated. Use the line command, D, to delete objects from the list.

If you have questions, invoke the help panel; it explains the fields on the Table Spaces panel.

When you have finished adding objects to the list of table spaces you want to migrate, use the *primary* command MIG to start generating jobs for the migration. This takes you to the Migrate Parameters panel (ADB28M) which is the final panel before DB2 Admin generates the required batch jobs. On this panel you specify:

- The PDS where the generated jobs are to be stored

- Data set information
- Target system parameters
- Optional jobs to be run after the reload
- Output job options (combining jobs, member name of job)

An example of the Migrate Parameters panel is shown here:

```

DB2 Admin ----- DB2W Migrate Parameters ----- 20:44
Option ==>

Please specify the following for DB2 Admin Migrate:      DB2 System: DB2W
                                                        DB2 SQL ID: ISTJE

Worklist information:
Worklist name . . . . . : MYMIG      (used as middle qualifier in DSNs)

Data set information:
PDS for batch jobs . . . : MYMIG.JCL
Prefix for datasets . . . : ISTJE
Unit type permanent ds . : SYSDA
Unit type unload ds . . . : SYSDA      Serial (tape) device : N (Y/N)

Target system parameters:
DB2 subsystem id (SSID) . : DB2X      DB2 release . . . . . : 710
DB2 load library . . . . : SYS1.DSNDB2X.SDSNLOAD
DB2 sample pgm load lib . : DB2.DSN701.RUNLIB.LOAD
New TS storage group . . . :           New IX storage group . . :
New data base . . . . . :           New owner of objects . . . :

Output job options:
Combine job steps . . . . . : Y
Member name prefix for jobs
with combined job steps      : MYMIG      (default ADBMIG)

Optional jobs after reload:
Run CHECK DATA . . . . . : Y
Run RUNSTATS . . . . . : Y
Take an image copy . . . . . : Y

BP - Change batch job parameters

```

Figure 109. Migrate Parameters Panel (ADB28M)

When you press ENTER, migrate generates the jobs and invokes ISPF Edit so you can edit and submit the generated jobs.

An example of this edit screen is shown here:

Menu Functions Utilities Help					

EDIT	ISTJE.MIGDSN85.JCL				Row 00001 of 00011
Command ==>					Scroll ==> PAGE
Name	Prompt	Size	Created	Changed	ID
. SST1RE		60	2000/03/25	2000/03/25 00:55:00	ISTJE
. SST2UL		64	2000/03/25	2000/03/25 00:55:00	ISTJE
. SST3CH		34	2000/03/25	2000/03/25 00:55:00	ISTJE
. SST4XF		19	2000/03/25	2000/03/25 00:55:00	ISTJE
. SST5DE		29	2000/03/25	2000/03/25 00:55:00	ISTJE
. TST1CR		23	2000/03/25	2000/03/25 00:55:00	ISTJE
. TST2RL		96	2000/03/25	2000/03/25 00:55:00	ISTJE
. TST3CK		35	2000/03/25	2000/03/25 00:55:00	ISTJE
. TST4RS		23	2000/03/25	2000/03/25 00:55:00	ISTJE
. TST5IC		58	2000/03/25	2000/03/25 00:55:00	ISTJE
. TST6DE		29	2000/03/25	2000/03/25 00:55:00	ISTJE
End					

Figure 110. Sample Migrate Edit Panel

Note that jobs that need to run on the source system have the prefix S, while jobs that run on the target system have the prefix T.

Step 2 - Running the Batch Extract and Load Jobs

At this point, review and submit the five source system jobs in sequence.

The function of the generated jobs for the source system are:

- SST1RE - Reverse engineering
- SST2UL - Unload data
- SST3CH - Change unload control data sets
- SST4XF - Information about the data sets that needs to be transfered
- SST5DE - Delete data sets on source system

The work data sets used in this process are described in “Work Data Sets” on page 167.

Step 3 - Transferring the Jobs and Data to the Target System

Implementation of this step is left to the user.

If the source and target database systems are on separate machines, it may be necessary to transfer the information electronically or by using a portable medium, such as a tape.

Step 4 - Running the Batch Define, Reload and Optional Jobs

Next review the target system jobs and submit them in sequence. The function of these jobs are:

- TST1CR - Create objects on target system
- TST2RL - Reload data
- TST3CK - CHECK DATA (optional)
- TST4RS - Runstats (optional)
- TST5IC - Image copy (optional)
- TST6IC - Delete data sets on target system

For an explanation of the work data sets, see the next section.

Work Data Sets

DB2 Admin migrate creates and uses the following data sets:

- prefix.worklist.DDL DDL extracted from the catalog
- prefix.worklist.UNLOAD.dbname.tsname Unload data set(s)
- prefix.worklist.CONTROL.dbname.tsname Load utility statement
- prefix.worklist.CONTROLC.dbname.tsname Changed load utility statement

DB2 Admin migrate deletes these data sets when done with them.

Chapter 11. SQL Statements Panels

This chapter describes the SQL Statements panels. Using these panels you can:

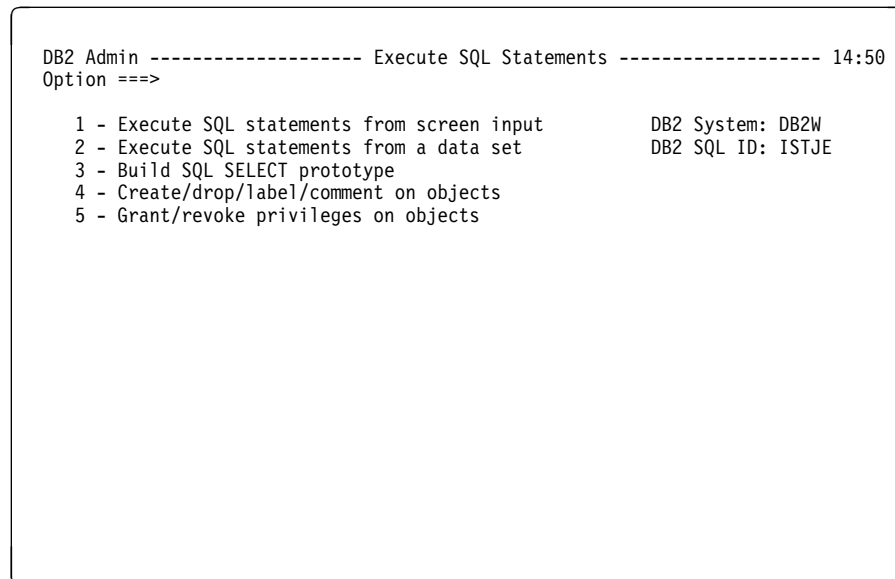
- Issue any dynamic SQL statement from your screen or from a data set
- Build and execute an SQL SELECT statement interactively using line commands
- Execute the following SQL statements by filling in required parameters from a panel: GRANT, REVOKE, CREATE, DROP, LABEL ON, COMMENT ON.

The two panels for this function are also used from the system catalog panels, where they are shown when a line command is issued against an object. When invoked in this way, the object names are filled with the object name from the catalog.

Execute SQL Statements Panel

This panel (Figure 111) appears when you select option 2 on the Administration Menu panel.

Use this panel to choose how you want to execute SQL statements.



The screenshot shows a terminal window titled "DB2 Admin ----- Execute SQL Statements ----- 14:50". Below the title bar, it says "Option ==>". There is a list of five options: 1 - Execute SQL statements from screen input, 2 - Execute SQL statements from a data set, 3 - Build SQL SELECT prototype, 4 - Create/drop/label/comment on objects, and 5 - Grant/revoke privileges on objects. To the right of the list, it says "DB2 System: DB2W" and "DB2 SQL ID: ISTJE".

Figure 111. Execute SQL Statements Panel (ADB22)

EXECUTE SQL STATEMENTS FROM SCREEN INPUT

Select this option to execute SQL statements from your screen.

EXECUTE SQL STATEMENTS FROM A DATA SET

Select this option to execute SQL statements from a data set. You can edit the SQL statements using the ISPF editor, save the edited statements, and later execute them.

BUILD SQL SELECT PROTOTYPE

Select this option to build and execute an SQL SELECT statement. The SELECT statement is built interactively using line commands.

CREATE/DROP/LABEL/COMMENT ON OBJECTS

Select this option to execute one of the following SQL statements: CREATE, DROP, LABEL ON, or COMMENT ON.

GRANT/REVOKE PRIVILEGES ON OBJECTS

Select this option to execute GRANT and REVOKE SQL statements.

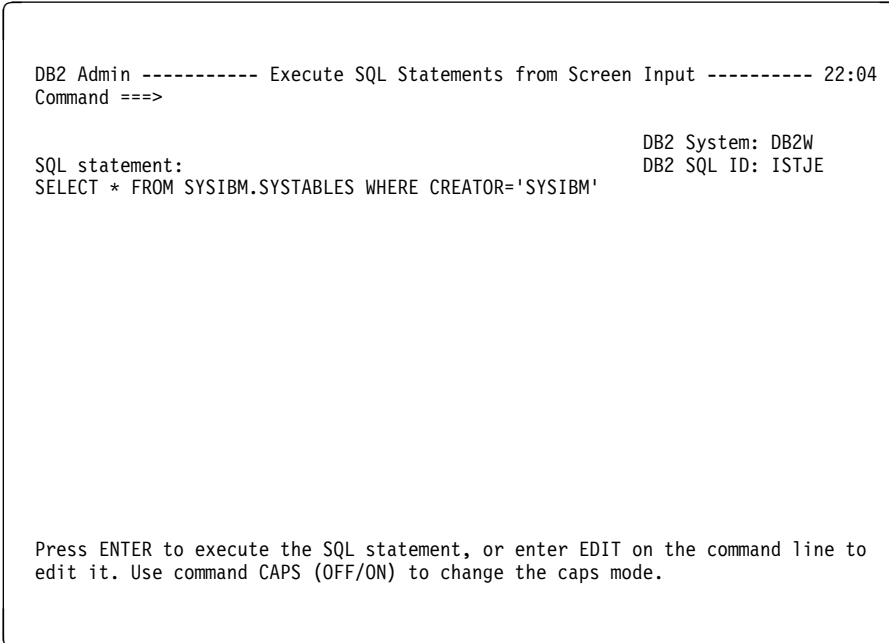
Execute SQL Statements from Screen Input Panel

This panel (Figure 112) appears when you select option 1 on the Execute SQL Statements panel.

Use this panel to enter SQL statements. Enter SQL statements free form. Separate each SQL statement with a semicolon (;). Execute an SQL statement by pressing ENTER. DB2 Admin executes SQL statements one at a time. Press ENTER to issue each SQL statement.

If an SQL SELECT statement returns rows, the result is shown on the default table display panel.

Note that you can edit an SQL statement by entering EDIT on the command line.



```
DB2 Admin ----- Execute SQL Statements from Screen Input ----- 22:04
Command ==>

SQL statement:
SELECT * FROM SYSIBM.SYSTABLES WHERE CREATOR='SYSIBM'

DB2 System: DB2W
DB2 SQL ID: ISTJE

Press ENTER to execute the SQL statement, or enter EDIT on the command line to
edit it. Use command CAPS (OFF/ON) to change the caps mode.
```

Figure 112. Execute SQL Statements from Screen Input Panel (ADB221)

You may observe that the entered SQL statement is translated to uppercase. If you want to avoid this, use the CAPS OFF primary command.

Execute SQL Statements from a Data Set Panel

This panel (Figure 113) appears when you select option 2 on the Execute SQL Statements panel.

Use this panel to execute SQL statements from a data set.

If you specify YES for edit, the SQL statements are put in ISPF edit mode on the specified data set before they are executed. You can then edit the statements. Press END in the edit session to execute the SQL statements.

The input data set can be specified as:

- An ISPF library
- A partitioned or sequential data set
- A preallocated DD name

```
DB2 Admin ----- Execute SQL Statements from a Data Set ----- 14:50
Command ==>

EDIT first ==> YES (Yes or No)                                DB2 System: DB2W
                                                                DB2 SQL ID: ISTJE

ISPF library:
Project ==> ISTJE
Group   ==> TEST      ==>      ==>      ==>
Type    ==> DB2
Member  ==> CTAB      (blank for member selection list)

Other partitioned or sequential data set:
Data Set Name ==>
Volume Serial ==>      (if not cataloged)

Alternative pre-allocated DD name:
DD name ==>      (use ddname(member) for members)
```

Figure 113. Execute SQL Statements from a Data Set Panel (ADB222)

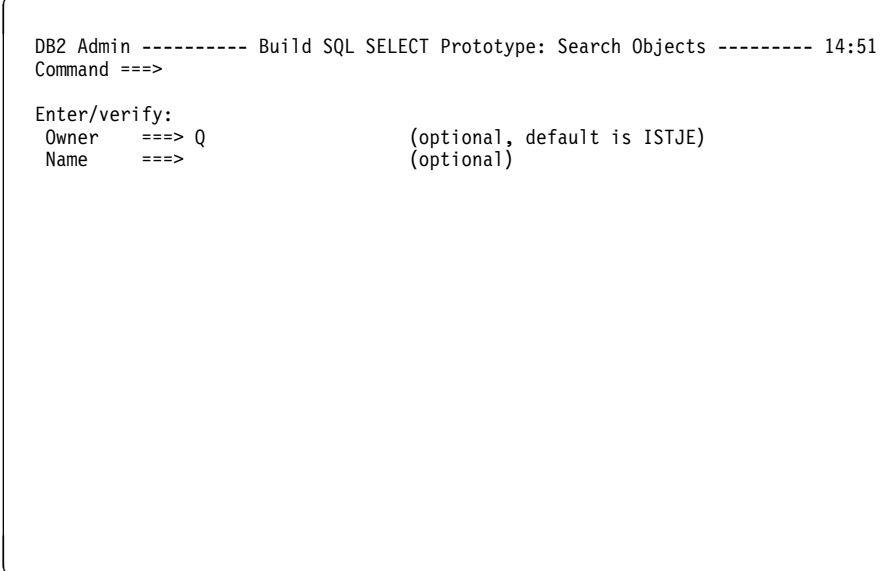
Build SQL SELECT Prototype Panel

This panel (Figure 114) appears when you select option 3 on the Execute SQL Statements panel.

Use this panel to search for the object (table, view, or alias) for which you want to build and execute an SQL SELECT statement.

You begin building a SELECT statement by entering the CREATOR or NAME of the object. DB2 Admin displays a list of objects that match the search criteria. You then select the object for which you want to build a SELECT statement. Based on the line commands you specify for the object, DB2 Admin builds the SELECT statement. When you are satisfied with the statement, press ENTER to execute it.

You can use the EDIT command to capture the SELECT statement and store it elsewhere.



```
DB2 Admin ----- Build SQL SELECT Prototype: Search Objects ----- 14:51
Command ==>

Enter/verify:
Owner      ==> Q                (optional, default is ISTJE)
Name       ==>                (optional)
```

Figure 114. Build SQL SELECT Prototype Panel (ADB223)

Example of SQL SELECT Prototyping: An example of how you might build an SQL SELECT statement follows. In the example, you want to get the name and department number of all employees with a salary greater than \$20,000. Begin by displaying a list of all the tables created by Q (see Figure 115). Then select the STAFF table using the SEL line command.

```
DB2 Admin ----- DB2W Tables, Views, and Aliases ----- ROW 1 TO 23 OF 24
Command ==> Scroll ==> PAGE

Valid line commands are:
SEL - Select for SQL SELECT prototype T - Table

Select Name          Creator T
-----
OBJECT_DIRECTORY    Q      T
OBJECT_REMARKS      Q      T
OBJECT_DATA          Q      T
RESOURCE_VIEW        Q      V
RESOURCE_TABLE       Q      T
ERROR_LOG            Q      T
COMMAND_SYNONYMS     Q      T
PROFILES             Q      T
VPROFILE             Q      V
SALES                Q      T
PRODUCTS             Q      T
APPLICANT            Q      T
SEL   STAFF          Q      T
```

Figure 115. Example of Building an SQL SELECT Statement (Part 1 of 5) (ADB223T)

Figure 116 shows the information DB2 Admin now returns. The partially built SQL statement is at the top of the panel.

```
DB2 Admin ----- DB2W Build SQL SELECT Prototype ----- ROW 1 TO 7 OF 7
Command ==> Scroll ==> PAGE

SELECT ?
FROM Q.STAFF T
WHERE ?
ORDER BY ?
Valid line commands are:
S - Show SA - Show ASC SD - Show DESC <operator><value> - WHERE cond.

Select          Column Name      Col Type
-----
ID              SMALLINT
NAME            VARCHAR
DEPT            SMALLINT
JOB             CHAR
YEARS           SMALLINT
SALARY          DECIMAL
COMM            DECIMAL
***** END OF DB2 DATA *****
```

Figure 116. Example of Building an SQL SELECT Statement (Part 2 of 5) (ADB21TSE)

Using line commands, build the rest of the SELECT statement. As shown in Figure 117, you select name, department number, and salary greater than \$20,000.

```
DB2 Admin ----- DB2W Build SQL SELECT Prototype ----- ROW 1 TO 7 OF 7
Command ==> Scroll ==> PAGE

SELECT ?
  FROM Q.STAFF T
 WHERE ?
 ORDER BY ?
Valid line commands are:
  S - Show SA - Show ASC SD - Show DESC <operator><value> - WHERE cond.

Select          Column Name      Col Type
-----
                *                *
                ID                SMALLINT
S                NAME                VARCHAR
S                DEPT                SMALLINT
                JOB                CHAR
                YEARS                SMALLINT
>20000           SALARY                DECIMAL
                COMM                DECIMAL
***** END OF DB2 DATA *****
```

Figure 117. Example of Building an SQL SELECT Statement (Part 3 of 5) (ADB21TSE)

The line commands shown in Figure 117 are now executed and, as a result, the SELECT statement is updated. An SD line command is also issued, which adds the ORDER clause to the SELECT statement. The result is shown in Figure 118.

```
DB2 Admin ----- DB2W Build SQL SELECT Prototype ----- ROW 1 TO 7 OF 7
Command ==> Scroll ==> PAGE

SELECT NAME,DEPT,SALARY
  FROM Q.STAFF T
 WHERE SALARY>20000
 ORDER BY SALARY DESC
Valid line commands are:
  S - Show SA - Show ASC SD - Show DESC <operator><value> - WHERE cond.

Select          Column Name      Col Type
-----
                *                *
                ID                SMALLINT
*S                NAME                VARCHAR
*S                DEPT                SMALLINT
                JOB                CHAR
                YEARS                SMALLINT
*SD              SALARY                DECIMAL
                COMM                DECIMAL
***** END OF DB2 DATA *****
```

Figure 118. Example of Building an SQL SELECT Statement (Part 4 of 5) (ADB21TSE)

The SQL statement is now ready to be executed. Do not specify any line commands when executing the statement. Figure 119 shows the result when you press ENTER.

DB2 Admin ----- DB2 Result of the SQL SELECT -----			ROW 1 TO 6 OF 6
Command ==>			Scroll ==> PAGE
L	NAME	DEPT	SALARY
*	*	*	

-	MOLINARE	10	22959.20
	JONES	10	21234.00
	FRAYE	51	21150.00
	GRAHAM	66	21000.00
	HANES	15	20659.80
	LU	10	20010.00
***** END OF DB2 DATA *****			

Figure 119. Example of Building an SQL SELECT Statement (Part 5 of 5) (ADB2DF)

Create/Drop/Label/Comment On Objects Panel

This panel (Figure 120) appears when you select option 4 on the Execute SQL Statements panel.

Use this panel as a quick way to issue the following SQL statements: CREATE, DROP, LABEL ON, and COMMENT ON.

DB2 Admin ----- DB2W Create/Drop/Label/Comment On Objects ----- 22:05
Option ==>

CREATE	DB2 System: DB2W
CG - Storage group	DB2 SQL ID: ISTJE
CD - Database	DG - Storage group
CS - Table space	DD - Database
CT - Table	DS - Table space
CV - View	DT - Table
CL - Alias	DV - View
CX - Index	DL - Alias
CY - Synonym	DX - Index
CA - Auxiliary table	DY - Synonym
CE - Distinct type	DE - Distinct type
CJ - Trigger	DJ - Trigger
CF - Function	DF - Function
CO - Stored procedure	DO - Stored procedure
LABEL	COMMENT (remark)
LT - Table/view	RT - Table
LL - Alias	RL - Alias
LC - Column	RC - Column
	RE - Distinct type
	RF - Function
	RO - Stored procedure
	RJ - Trigger

Figure 120. Create/Drop/Label/Comment On Objects Panel (ADB26)

Grant or Revoke Privileges On Objects Panel

This panel (Figure 121) appears when you select option 5 on the Execute SQL Statements panel.

Use this panel as a quick way to issue the GRANT and REVOKE SQL statements.

DB2 Admin ----- DB2W Grant/Revoke Privileges On Objects ----- 14:59
Option ==>

GRANT	REVOKE	DB2 System: DB2W DB2 SQL ID: ISTJE
GG - Storage group	RG - Storage group	
GD - Database	RD - Database	
GS - Table space	RS - Table space	
GT - Table	RT - Table	
GC - Column		
GP - Plan	RP - Plan	
GL - Collection	RL - Collection	
GK - Package	RK - Package	
GZ - System privilege	RZ - System privilege	
GR - Buffer pool	RR - Buffer pool	
GH - Schema	RH - Schema	
GE - Distinct type	RE - Distinct type	
GF - Function	RF - Function	
G0 - Stored procedure	R0 - Stored procedure	

Figure 121. Grant or Revoke Privileges On Objects Panel (ADB2G)

Chapter 12. DB2 Performance Queries Panels

This chapter describes the performance queries panels.

Figure 122 appears when you select option 3 on the Administration Menu panel. Use this panel to select the DB2 performance and space utilization query you want to run. Select an option, and enter (part of) the name of the database for which the query should be run. See the descriptions that appear on each panel in this chapter for more information about each option shown in Figure 122.

The select field on the performance queries panels lets you select an object, which is then shown on the corresponding system catalog panel. This lets you further investigate problems or choose to run utilities such as REORG and RUNSTATS.

```
DB2 Admin ----- DB2 Performance Queries ----- 15:06
Option ==>

      1 - Table spaces without RUNSTATS information          DB2 System: DB2T
      1X - Indexes without RUNSTATS information             DB2 SQL ID: ISTJE
RUNSTATS information is required for options 2 through 9.
      2 - Table spaces with more than 10 percent relocated rows
      3 - Indexes with clustering level problems
      4 - Table spaces with more than 5 percent dropped space
      5 - Table spaces with locking rule = 'S' (table space locking)
      6 - Index levels
      7 - Indexes with a large leaf page distance
      8 - Indexes on tables with fewer than 6 pages
      9 - Indexes not used by any plans or packages
     10 - Table spaces containing more than one table
     11 - Table spaces without STOSPACE information
     11X - Indexes without STOSPACE information
STOSPACE information is required for options 12 through 13.
     12 - Table spaces exceeding allocated primary quantity
     12X - Indexes exceeding allocated primary quantity
     13 - Allocated and used space for table spaces

WHERE Database LIKE ==>
```

Figure 122. DB2 Performance Queries Panel (ADB23)

Table Spaces Without RUNSTATS Information Panel

This panel (Figure 123) appears when you select option 1 on the DB2 Performance Queries panel.

```
DB2 Admin ---- DB2 Table Spaces Without RUNSTATS In ROW 981 TO 1,000 OF 1,000
Command ==> Scroll ==> PAGE

The following table spaces do not have RUNSTATS information. Consider running
the RUNSTATS utility on them.

Valid line commands are:
S - Select
```

Select	Name	Owner	DB Name	BP	L	E	S	I	C	Ntable	N Active	Space
*	*	*	*	*	*	*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	RGESI24S	RGET	RGED001	BP0	P	N	A	N	N	1	0	0
	RGESI26S	RGET	RGED001	BP0	P	N	A	N	N	1	0	0
	RGESMDAS	RGET	RGED001	BP0	P	N	A	N	N	1	0	0
	RGESM01S	RGET	RGED001	BP0	P	N	A	N	N	1	0	0
	RGESM02S	RGET	RGED001	BP0	P	N	A	N	N	1	0	0
	RGES0EGS	RGET	RGED001	BP0	P	N	A	N	N	1	0	0
	RGES0EIS	RGET	RGED001	BP0	P	N	A	N	N	1	0	0
	RGES0E0S	RGET	RGED001	BP0	P	N	A	N	N	1	0	0
	RGES0R1S	RGET	RGED001	BP0	P	N	A	N	N	1	0	0
	RGES0S1S	RGET	RGED001	BP0	P	N	A	N	N	1	0	0

Figure 123. Table Spaces Without RUNSTATS Information Panel (ADB231)

The fields on this panel are:

SELECT

Input field where you enter "S" to select an item.

NAME

Name of the table space.

OWNER

Authorization ID of the owner of the table space.

DB NAME

Name of the database.

BP

Name of the buffer pool used for the table space.

L Locking size, which is one of the following:

A Any
P Page
S Table space

E Erase rule, which is one of the following:

Y Erase
N No erase

S Status of the table space, which is one of the following:

A Available
N Not available

I Implicit (whether the table space was created implicitly), which is one of the following:

Y	Yes
N	No

C Close rule, which is one of the following:

Y	Yes
N	No

NTABLE

Number of tables defined in the table space.

N ACTIVE

Number of active pages in the table space. This field is 0 if the RUNSTATS utility has not been run.

SPACE

Kilobytes (KB) of storage allocated to the table space. This field is 0 if the STOSPACE utility has not been run.

Indexes Without RUNSTATS Information Panel

This panel (Figure 124) appears when you select option 1X on the DB2 Performance Queries panel.

```
DB2 Admin ----- DB2 Indexes Without RUNSTATS Info ----- ROW 1 TO 19 OF 176
Command ==> Scroll ==> PAGE
```

The following indexes do not have RUNSTATS information. Consider running the RUNSTATS utility on the indexes or on the table spaces using INDEX(ALL).

Valid line commands are:

S - Select

S Index Name	Index Owner	Table Name	Table Owner
*	*	*	*
-----	-----	-----	-----
D54TCIDX	RGET	D54TCID	RGET
RGE0I20S	RGET	RGETI20S	RGET
RGE1CACs	RGET	RGETCACs	RGET
RGE1CADs	RGET	RGETCADs	RGET
RGE1CAES	RGET	RGETCAES	RGET
RGE1CAFS	RGET	RGETCAFS	RGET
RGE1CAGs	RGET	RGETCAGs	RGET
RGE1CAHS	RGET	RGETCAHS	RGET
RGE1CIAS	RGET	RGETCIAS	RGET

Figure 124. Indexes Without RUNSTATS Information Panel (ADB231X)

The fields on this panel are:

S Input field where you enter "S" to select an item.

INDEX NAME

Name of the index.

INDEX OWNER

Authorization ID of the owner of the index.

TABLE NAME

Name of the table on which the index is defined.

TABLE OWNER

Authorization ID of the owner of the table.

Table Spaces With More Than Ten Percent Relocated Rows Panel

This panel (Figure 125) appears when you select option 2 on the DB2 Performance Queries panel.

```
DB2 Admin ---- DB2 Table Spaces with Relocated Rows > 10 Pct   ROW 1 TO 1 OF 1
Command ==>                                                    Scroll ==> PAGE

The following table spaces have more than 10 percent relocated rows, that is,
rows that are not located in their original page. Consider reorganizing the
table spaces or redesigning the programs that update the rows.

Valid line commands are:
S - Select
```

DB S Name *	TS Name *	Part *	Near Org Page *	Far Org Page *	Percent Relocated *	Card
ISTJE2D	ISTJE2S	0	196	0	80	245

```
***** END OF DB2 DATA *****
```

Figure 125. Table Spaces With More Than Ten Percent Relocated Rows Panel (ADB232)

The fields on this panel are:

S Input field where you enter "S" to select an item.

DB NAME

Name of the database.

TS NAME

Name of the table space.

PART

Partition number.

NEAR ORG PAGE

Number of rows that have been relocated near their original page.

FAR ORG PAGE

Number of rows that have been relocated far from their original page.

PERCENT RELOCATED

Percent of rows that have been relocated.

CARD

Number of rows in the table space or partition.

Indexes With Clustering Level Problems Panel

This panel (Figure 126) appears when you select option 3 on the DB2 Performance Queries panel.

DB2 Admin ----- Indexes with Clustering Level Problems - ROW 1 TO 6 OF 6
Command ==> Scroll ==> PAGE

The following indexes have clustering level problems. 'F.O.P TOO BIG' indicates that the number of rows in a far offset position is greater than 10 percent. 'CLUSTERED xx' indicates that the index was defined as clustering but RUNSTATS found the clustering ratio to be less than 95 percent. Consider reorganizing the table spaces or redesigning your indexes, tables, and/or programs. Things to consider are insert/update/delete patterns and frequencies, freespace/reorg frequencies, and clustering sequences.

Valid line commands are:
S - Select

S	Index Name	Index Owner	Pct in Far Offset Pos	Clustering	Clustered	Comment
*	*	*	*	*	*	*
-	VUP0XCSD	D031TEST	19 Y	N	N	F.O.P TOO BIG
	VUP5XCSD	D031TEST	23 Y	N	N	F.O.P TOO BIG
	VUPEXCSD	D031TEST	0 Y	N	N	CLUSTERED 95%
	VUPFXCSD	D031TEST	0 Y	N	N	CLUSTERED 84%

Figure 126. Indexes With Clustering Level Problems Panel (ADB233)

The fields on this panel are:

S Input field where you enter "S" to select an item.

INDEX NAME

Name of the index.

INDEX OWNER

Authorization ID of the owner of the index.

PCT IN FAR OFFSET POS

Percent of rows in a far offset position because of an insert into a full page.

CLUSTERING

Whether CLUSTER was specified when the index was created.

CLUSTERED

Whether the table is actually clustered by the index.

COMMENT

Reason why the index appears in the list.

Table Spaces With Dropped Space Greater Than Five Percent Panel

This panel (Figure 127) appears when you select option 4 on the DB2 Performance Queries panel.

```
DB2 Admin --- DB2 Table Spaces with More Than 5 Pct Dropped S ROW 1 TO 9 OF 9
Command ==> Scroll ==> PAGE
```

The following table spaces have more than 5 percent dropped space. When a table is dropped from a table space, the space it occupied cannot be reused. If the percent of dropped space is significant, you should consider reorganizing the table spaces and/or using segmented table spaces for the tables.

Valid line commands are:
S - Select

S	DB Name	TS Name	Part	Percent Dropped	Card	Primary Quantity	Secondary Quantity
*	*	*	*	*	*	*	*

	DSQ1STBB	DSQ1STBT	0	10	135	100	5
	D208D001	D208SPRF	0	17	437	3	3
	D475D001	D475S088	0	94	8552	88	13
	D154D400	D154STPS	0	24	170	3	2
	D154D500	D154STEA	0	12	7	125	3
	D922D01	D922SINC	0	10	72	3	3
	JFDDB01	JFDS04	0	39	1201	984	120
	JFDDB01	JFDS05	0	20	2621	2280	240

Figure 127. Table Spaces With Dropped Space Greater Than Five Percent Panel (ADB234)

The fields on this panel are:

S Input field where you enter "S" to select an item.

DB NAME

Name of the database.

TS NAME

Name of the table space.

PART

Partition number. This field contains zero if the table space is not partitioned.

PERCENT DROPPED

Percent of space occupied by dropped tables.

CARD

Number of rows in the table space or partition.

PRIMARY QUANTITY

Primary space allocation in 4K blocks of storage.

SECONDARY QUANTITY

Secondary space allocation in 4K blocks of storage.

DB2 Table Spaces With Locking Rule = 'S' Panel

This panel (Figure 128) appears when you select option 5 on the DB2 Performance Queries panel.

```
DB2 Admin ----- DB2 Table Spaces with Locking Rule    ROW 102 TO 117 OF 149
Command ==>                                           Scroll ==> PAGE

The following table spaces have locking rule = 'S'. DB2 will use table space
locking when accessing a table in the table space. You probably only want
locking rule = 'S' for read-only tables or tables that are accessed by only one
user (or batch job) at a time. Consider changing the locking rule to 'A' (any
locking), for example, by altering the locksize with an ALTER SQL statement.

Valid line commands are:
S - Select

S DB Name      TS Name      Lock Number of
*              *           Rule      Tables
- - - - -
D402D10    D402SCIF      S           1
D402D10    D402STIF      S           1
D455D005   KBBSCOM       S           1
D455D005   KBBSCTAB      S           1
D455D005   KBBSIMS1       S           1
D455D005   KBBSPRO        S           1
D455D005   KBBSAPP         S           1
```

Figure 128. DB2 Table Spaces With Locking Rule = 'S' Panel (ADB235)

The fields on this panel are:

S Input field where you enter "S" to select an item.

DB NAME

Name of the database.

TS NAME

Name of the table space.

LOCK RULE

Lock size of the table space.

NUMBER OF TABLES

Number of tables defined in the table space.

Index Levels Panel

This panel (Figure 129) appears when you select option 6 on the DB2 Performance Queries panel.

```
DB2 Admin ----- Index Levels ----- ROW 62 TO 76 OF 279
Command ==> Scroll ==> PAGE
```

This panel shows the number of index levels. If the number exceeds 2 or 3, it might have a negative impact on the performance of your application programs. You might consider reorganizing the indexes more often or redesigning the indexes and tables. Things to consider are key lengths, free space, and insert/delete/update patterns and frequencies.

Valid line commands are:
S - Select

S	Index Name	Index Owner	Table Name	Table Owner	Index Levels
*	*	*	*	*	*
-----	-----	-----	-----	-----	-----
	KAFX2002	KAFT	KAFT20	KAFT	2
	KAFX2003	KAFT	KAFT20	KAFT	2
	KAFX2102	KAFT	KAFT21	KAFT	2
	KAFX2101	KAFT	KAFT21	KAFT	2
	KAFX2202	KAFT	KAFT22	KAFT	3
	KAFX2201	KAFT	KAFT22	KAFT	3

Figure 129. Index Levels Panel (ADB236)

The fields on this panel are:

S Input field where you enter "S" to select an item.

INDEX NAME

Name of the index.

INDEX OWNER

Authorization ID of the owner of the index.

TABLE NAME

Name of the table on which the index is defined.

TABLE OWNER

Authorization ID of the owner of the table.

INDEX LEVELS

Number of levels in the index tree.

Indexes With a Large Leaf Page Distance Panel

This panel (Figure 130) appears when you select option 7 on the DB2 Performance Queries panel.

```
DB2 Admin ----- Indexes with a Large Leaf Page Distance ROW 1 TO 15 OF 76
Command ==> Scroll ==> PAGE
```

The following indexes have a large leaf page distance (>150). The leaf distance is defined as: 100 times the average number of pages between successive leaf pages of the index. If this value exceeds 200, consider reorganizing the index. You might also consider redesigning the indexes. Things to consider are freespace/reorg frequencies and insert/update/delete patterns and frequencies.

Valid line commands are:
S - Select

S Index Name	Index Owner	Part	Table Name	Table Owner	Leaf Distance
*	*	*	*	*	*
-----	-----	-----	-----	-----	-----
KBDXNA	D455MAST	0	KBDTNA	D455MAST	1109
KBDXES	D463MAST	0	KBDTES	D463MAST	3777
KBDXEV	D463MAST	0	KBDTEV	D463MAST	25132
KBDXITI	D463MAST	0	KBDTITI	D463MAST	1355
KBDXITR	D463MAST	0	KBDTITR	D463MAST	11802
KBDXOTC	D463MAST	0	KBDTOTC	D463MAST	1342

Figure 130. Indexes With a Large Leaf Page Distance Panel (ADB237)

The fields on this panel are:

S Input field where you enter "S" to select an item.

INDEX NAME

Name of the index.

INDEX OWNER

Authorization ID of the owner of the index.

PART

Partition number; 0 if index is not partitioned.

TABLE NAME

Name of the table on which the index is defined.

TABLE OWNER

Authorization ID of the owner of the table.

LEAF DISTANCE

One hundred times the average number of leaf pages between successive active leaf pages of the index.

Indexes On Tables With Fewer Than Six Pages Panel

This panel (Figure 131) appears when you select option 8 on the DB2 Performance Queries panel.

DB2 Admin ----- Indexes on Tables with Fewer Than 6 Pages ROW 1 TO 18 OF 35				
Command ==> Scroll ==> PAGE				
The following nonunique indexes are defined on tables that have less than 6 pages. Such indexes do not improve performance and should probably be dropped.				
Valid line commands are:				
S - Select				
S	Index Name	Index Owner	Table Name	Table Owner
*	*	*	*	*

	KAFX0902	KAFT	KAFT09	KAFT
	KAFX1002	KAFT	KAFT10	KAFT
	KAFX1202	KAFT	KAFT12	KAFT
	KAFX1302	KAFT	KAFT13	KAFT
	KAFX1503	KAFT	KAFT15	KAFT
	KAFX1502	KAFT	KAFT15	KAFT
	KAFX3202	KAFT	KAFT32	KAFT
	KAFX3404	KAFT	KAFT34	KAFT
	KAFX3402	KAFT	KAFT34	KAFT
				Pages

				1
				1
				1
				1
				2
				2
				2
				1
				1

Figure 131. Indexes On Tables With Fewer Than Six Pages Panel (ADB238)

The fields on this panel are:

S Input field where you enter "S" to select an item.

INDEX NAME

Name of the index.

INDEX OWNER

Authorization ID of the owner of the index.

TABLE NAME

Name of the table on which the index is defined.

TABLE OWNER

Authorization ID of the owner of the table.

TABLE PAGES

Total number of pages on which rows of the table appear.

Indexes Not Used By Any Plans or Packages Panel

This panel (Figure 132) appears when you select option 9 on the DB2 Performance Queries panel.

DB2 Admin --- Indexes Not Used by Any Plan or Package -- ROW 49 TO 65 OF 1,000
Command ==> Scroll ==> PAGE

The following indexes are not used by any plan or package with static SQL.
Consider dropping the index if it is not used in QMF or any other dynamic SQL statement.

Valid line commands are:
S - Select

S	Index Name	Index Owner	Table Name	Table Owner
*	*	*	*	*
-	-----		-----	
	D250XACT	D250TEST	D250TACT	D250TEST
	D250XBAS	D250TEST	D250TBAS	D250TEST
	D253IADR	D253TEST	D253TADR	D253TEST
	D253ICPR	D253TEST	D253TCPR	D253TEST
	D253XCAM	D253TEST	D253TCAM	D253TEST
	D253XCON	D253TEST	D253TCON	D253TEST
	D253XCPE1	D253TEST	D253TCPE	D253TEST
	D253XCPE2	D253TEST	D253TCPE	D253TEST

Figure 132. Indexes Not Used By Any Plans or Packages Panel (ADB239)

The fields on this panel are:

S Input field where you enter "S" to select an item.

INDEX NAME

Name of the index.

INDEX OWNER

Authorization ID of the owner of the index.

TABLE NAME

Name of the table on which the index is defined.

TABLE OWNER

Authorization ID of the owner of the table.

Table Spaces Containing More Than One Table Panel

This panel (Figure 133) appears when you select option 10 on the DB2 Performance Queries panel.

DB2 Admin ----- Table Spaces Containing More Than One Table ROW 1 TO 8 OF 30
Command ==> Scroll ==> PAGE

The following nonsegmented table spaces contain more than one table. In most cases, nonsegmented table spaces should only contain one table. Unless you have good reasons for having more than one table per table space (for example, you want to cluster small read-only tables in one table space), consider moving the tables to separate table spaces.

Valid line commands are:
S - Select

S	DB Name	TS Name	Number of Tables
*	*	*	*
-	-----	-----	-----
	CQEDDCTL	CQETSYYN	2
	CQEDSTBL	CQESSTBL	9
	D512DTBE	D512IS2	2
	DSNDB04	TRACETS	2
	LBSD003	LBSSPAY	2
	DQX1STBB	DQXTSTBT	3
	DQX1STBB	DQXTSTLL	4

Figure 133. Table Spaces Containing More Than One Table Panel (ADB2310)

The fields on this panel are:

S Input field where you enter "S" to select an item.

DB NAME

Name of the database.

TS NAME

Name of the table space.

NUMBER OF TABLES

Number of tables defined in the table space.

Table Spaces Without STOSPACE Information Panel

This panel (Figure 134) appears when you select option 11 on the DB2 Performance Queries panel.

```
DB2 Admin ----- Table Spaces Without STOSPACE Information    ROW 1 TO 10 OF 58
Command ==>                                                    Scroll ==> PAGE

The following table spaces do not have STOSPACE information, that is, the
STOSPACE utility, which collects ICF catalog statistics for a STOGROUP and
stores this information in the DB2 catalog, has not been run. Consider running
the STOSPACE utility on the storage group(s) on a periodic basis.

Valid line commands are:
S - Select

S DB Name      TS Name      Part      Storage  VSAM
  *            *            *            Group   Catalog
-----
BKDD001      BKDSTCW      0 BKDGS01  ISDB2T
BKDD001      BKDSTGW      0 BKDGS01  ISDB2T
BKDD001      BKDSETW      0 BKDGS01  ISDB2T
BKDD001      BKDSEVW      0 BKDGS01  ISDB2T
BKDD001      BKDSRQW      0 BKDGS01  ISDB2T
BKDD001      BKDSENV      0 BKDGS01  ISDB2T
GRED001      GRESCACS     0 GREG001  ISDB2T
D455D004     D455SUNA     0 D455G004  ISDB2T
```

Figure 134. Table Spaces Without STOSPACE Information Panel (ADB2311)

The fields on this panel are:

S Input field where you enter "S" to select an item.

DB NAME

Name of the database on which the table space resides.

TS NAME

Name of the table space.

PART

Partition number (zero if not partitioned).

STORAGE GROUP

Name of the storage group for the table space.

VSAM CATALOG

Name of the catalog used for space allocation.

Indexes Without STOSPACE Information Panel

This panel (Figure 135) appears when you select option 11X on the DB2 Performance Queries panel.

DB2 Admin ----- Indexes Without STOSPACE Information					ROW 1 TO 10 OF 78
Command ==>					Scroll ==> PAGE
The following indexes do not have STOSPACE information, that is, the STOSPACE utility, which collects ICF catalog statistics for a STOGROUP and stores this information in the DB2 catalog, has not been run. Consider running the STOSPACE utility on the storage group(s) on a periodic basis.					
Valid line commands are:					
S - Select					
S	Index Name	Index Owner	Storage Part Group	VSAM Catalog	
*	*	*	*	*	*

	BKDXTCW	D463MAST	0 BKDGX01	ISDB2T	
	BKDXTC2W	D463MAST	0 BKDGX01	ISDB2T	
	BKDXTGW	D463MAST	0 BKDGX01	ISDB2T	
	BKDXTG2W	D463MAST	0 BKDGX01	ISDB2T	
	BKDXETW	D463MAST	0 BKDGX01	ISDB2T	
	BKDXEVW	D463MAST	0 BKDGX01	ISDB2T	
	BKDXRQW	D463MAST	0 BKDGX01	ISDB2T	
	BKDXRQ2W	D463MAST	0 BKDGX01	ISDB2T	

Figure 135. Indexes Without STOSPACE Information Panel (ADB2311X)

The fields on this panel are:

S Input field where you enter "S" to select an index.

INDEX NAME

Name of the index.

INDEX OWNER

Authorization ID of the owner of the index.

PART

Partition number (zero for nonpartitioned indexes).

STORAGE GROUP

Name of the storage group for the table space.

VSAM CATALOG

Name of the catalog used for space allocation.

Table Spaces Exceeding Allocated Primary Quantity Panel

This panel (Figure 136) appears when you select option 12 on the DB2 Performance Queries panel.

DB2 Admin ---- Table Spaces Exceeding Alloc Primary Quantity ROW 1 TO 9 OF 243
Command ==> Scroll ==> PAGE

The following table spaces exceed the allocated primary quantity. Consider extending the primary allocation.

Note: If the primary or secondary quantity of 4K pages is less than the track capacity for 4K blocks, then the number of extents shown is too high.

Valid line commands are:
S - Select

S	DB Name	TS Name	Part	Primary Qty (4K pages)	Sec Qty	Allocated (4K pages)	Pct Alloc of Prim Qty	Ext
*	*	*	*	*	*	*	*	*
-	-----	-----	-----	-----	-----	-----	-----	-----
	EANDUSR	EANSU07	0	1500	150	1560	104	2
	EANDUSR	EANSU08	0	1500	150	1560	104	2
	EANDUSR	EANSU09	0	1500	150	1560	104	2
	EANDW01	EANSWOR	0	1500	500	1620	108	2
	EANDW01	EANSWRE	0	1500	500	1620	108	2
	EANDW01	EANSWRL	0	2500	750	2520	100	2
	EAND101	EANS1AD	0	3000	300	3060	102	2

Figure 136. Table Spaces Exceeding Allocated Primary Quantity Panel (ADB2312)

The fields on this panel are:

S Input field where you enter "S" to select a table space.

DB NAME

Name of the database.

TS NAME

Name of the table space.

PART

Partition number (zero if not partitioned).

PRIMARY QTY (4K PAGES)

Primary space allocation in 4K blocks of storage.

SEC QTY

Secondary space allocation in 4K blocks of storage.

ALLOCATED (4K PAGES)

Space allocated in 4K blocks of storage.

PCT ALLOC OF PRIM QTY

Percent of the primary quantity of space that is allocated.

EXT

Estimated number of extents of the table space.

Indexes Exceeding Allocated Primary Quantity Panel

This panel (Figure 137) appears when you select option 12X on the DB2 Performance Queries panel.

```
DB2 Admin ----- Indexes Exceeding Alloc Primary Quantity    ROW 1 TO 9 OF 251
Command ==>                                                    Scroll ==> PAGE
```

The following indexes exceed the allocated primary quantity. Consider extending the primary allocation.

Note: If the primary or secondary quantity of 4K pages is less than the track capacity for 4K blocks, then the number of extents shown is too high.

Valid line commands are:
S - Select

Index S Name	Index Owner	Part	Prim Qty (4K pgs)	Sec Q (4K)	Allocated (4K pages)	Pct Alloc of Prim Q	Ext
*	*	*	*	*	*	*	*

BKAXINC0	BKAT	1	250	25	288	115	3
BKAXINC0	BKAT	2	225	23	240	106	2
BKAXINC3	BKAT	0	1225	123	1320	107	2
BKAXINC4	BKAT	0	3325	333	3420	102	2
BKAXINC5	BKAT	0	1300	130	1452	111	3
BKAXINC7	BKAT	0	250	25	252	100	2
BKAXCUS0	BKAT	1	125	13	144	115	3

Figure 137. Indexes Exceeding Allocated Primary Quantity Panel (ADB2312X)

The fields on this panel are:

S Input field where you enter "S" to select an index.

INDEX NAME

Name of the index.

INDEX OWNER

Authorization ID of the owner of the index.

PART

Partition number (zero for nonpartitioned indexes).

PRIM QTY (4K PGS)

Primary space allocation in 4K blocks of storage.

SEC Q (4K)

Secondary space allocation in 4K blocks of storage.

ALLOCATED (4K PAGES)

Space allocated in 4K blocks of storage.

PCT ALLOC OF PRIM Q

Percent of the primary quantity of space that is allocated.

EXT

Estimated number of extents of the index.

Allocated and Used Space for Table Spaces Panel

This panel (Figure 138) appears when you select option 13 on the DB2 Performance Queries panel.

DB2 Admin ----- DB2X Allocated and Used Space for Table Spaces Row 14 of 48
Command ==> Scroll ==> PAGE

This panel shows the allocated and used space for the table spaces in the databases you have selected. If the allocated space is much less than the used space, consider reducing the size of the table spaces.

Note: If the primary or secondary quantity of 4K pages is less than the track capacity for 4K blocks, then the number of extents shown is too high.

Valid line commands are:

S - Select

S	DB Name	TS Name	Part	Prim Qty (in 4K)	Sec Qty	Allocated (4K Pages)	Pct Active	Pct Dropped	Ext
*	*	*	*	*	*	*	*	*	*
-	DSNDB04	IBMS13#P	0	3	3	12	0	0	1
	DSNDB04	RAVN	0	3	3	36	34	0	3
	DSNDB06	SYSCOPY	0	540	540	540	0	0	1
	DSNDB06	SYSDBASE	0	3600	3600	3600	24	0	1
	DSNDB06	SYSDBAUT	0	132	132	132	4	0	1
	DSNDB06	SYSDDF	0	144	144	144	0	0	1
	DSNDB06	SYSGPAUT	0	144	144	144	2	0	1
	DSNDB06	SYSGROUP	0	48	48	48	0	0	1
	DSNDB06	SYSGRNTS	0	144	144	144	0	0	1
	DSNDB06	SYSHIST	0	144	144	144	38	0	1
	DSNDB06	SYSJAVA	0	144	144	144	0	0	1
	DSNDB06	SYSOBJ	0	1260	1260	1260	1	0	1
	DSNDB06	SYSPKAGE	0	1080	1080	1080	92	0	1
	DSNDB06	SYSPLAN	0	1260	1260	1260	8	0	1
	DSNDB06	SYSSEQ	0	144	144	144	0	0	1
	DSNDB06	SYSSEQ2	0	144	144	144	0	0	1
	DSNDB06	SYSSTATS	0	1620	1620	1620	1	0	1
	DSNDB06	SYSSTR	0	72	72	144	59	0	2
	DSNDB06	SYSUSER	0	108	108	108	4	0	1
	DSNDB06	SYSVIEWS	0	1800	1800	1800	6	0	1
	DSN8D71A	DSN8S71D	0	8	5	12	1	0	1
	DSN8D71A	DSN8S71E	1	3	3	36	1	0	3
	DSN8D71A	DSN8S71E	2	5	5	36	0	0	3
	DSN8D71A	DSN8S71E	3	3	3	12	1	0	1
	DSN8D71A	DSN8S71E	4	5	5	36	0	0	3

Figure 138. Allocated and Used Space for Table Spaces Panel (ADB2313)

The fields on this panel are:

S Input field where you enter "S" to select an item.

DB NAME

Name of the database.

TS NAME

Name of the table space.

PART

Partition number (zero if not partitioned).

PRIM QTY (IN 4K)

Primary space allocation in 4K blocks of storage.

SEC QTY (4K PAGES)

Secondary space allocation in 4K blocks of storage.

ALLOCATED (4K PAGES)

Space allocated in 4K blocks of storage.

USED SPACE (4K PAGES)

Space used in 4K blocks of storage.

PCT USED OF ALLOC

Percent of the allocated space that is used.

EXT

Estimated number of extents of the table space.

Chapter 13. SQL ID Panels

This panel (Figure 139) appears when you select option 4 on the Administration Menu panel.

Use this panel to change your current SQL ID. You can either enter a new SQL ID or select one from the list of secondary SQL IDs that is displayed. Note that you can only change the current SQL ID to one that isn't in the list of secondary SQL IDs if you have the SYSADM privilege.

DB2 uses the current SQL ID for the CREATE, GRANT, and REVOKE SQL statements. In all other cases, DB2 uses the composite privileges, that is, the combined privileges of your current, primary, and secondary SQL IDs.

The list of secondary SQL IDs is created by simulating or invoking the authorization exit in your system. The SET CURRENT SQLID='sqlidname' command is issued to change the current SQL ID.

```
DB2 Admin ----- DB2 Change Current SQL ID -- ROW 115 TO 131 OF 131
Command ==>                                     Scroll ==> PAGE

Enter:                                           Current:
New DB2 SQL ID ==>                             DB2 SQL ID: ISTJE

Or select one from the following list of secondary SQL IDs:

  Secondary
S SQL ID
*
- -----
  RAVUTS
  RAVVB0
  RAVW
  RGEP
  RGET
  RGEULA
  RGEULR
  RGEUPA
  RGEUPR
  RGEUPS
```

Figure 139. Change Current SQL ID Panel (ADB24)

Chapter 14. DB2 Admin Parameters Panels

This chapter describes the DB2 Admin Parameters panels. Using these panels, you can:

- Change the way your panels look
- Change the DB2 Admin default parameters

Change DB2 Admin Parameters Panel

This panel (Figure 140) appears when you select option P on the Administration Menu panel.

Use this panel to select the DB2 Admin parameters you want to change.

```
DB2 Admin ----- DB2 Change DB2 Admin Parameters ----- 00:04
Option ==>

    0 - Change ISPF parameters                DB2 System: DB2W
    1 - Change colors and highlight           DB2 SQL ID: ISXSTL
    2 - Change DB2 Admin defaults
    P - Change/allocate print data set
```

Figure 140. Change DB2 Admin Parameters Panel (ADB2P)

Change ISPF Parameters Panel

An ISPF panel appears when you select option 0 on the Change DB2 Admin Parameters panel.

Use this panel to change ISPF parameters such as PF keys and default colors.

Change Colors and Highlight Panel

This panel (Figure 141) appears when you select option 1 on the Change DB2 Admin Parameters panel.

Use this panel to change the colors or highlighting technique on DB2 Admin panels.

Panels are split into different logical sections. You can change the color and the highlighting technique in these sections. The different sections of the panel and (in parenthesis) their default colors are described below.

If you leave an input field on the panel blank, the default value is used. Specify RESET on the command line to choose default values for all sections of the panel.

```
DB2 Admin ----- Change Colors and Highlight ----- 15:46
Command ===>

Below enter colors and highlight for DB2 Admin panels.

The panels consist of standard sections, as indicated below.
You can select which colors and highlight these sections should have on your
panels.

Valid Colors      : yellow red blue green white pink and turq
Valid Highlights  : blink reverse uscore or blank (default)

      Color          Highlight
Headings:          YELLOW
Text:              BLUE
Highlighted txt:    TURQ
Messages:          RED
Function:           WHITE
Input Areas:       GREEN
Output Areas:      TURQ

Press ENTER to activate changes or PF3 to cancel changes
```

Figure 141. Change Colors and Highlight Panel (ADB2P1)

HEADING

First line of the panel (default is yellow).

TEXT

Instructions or descriptions on the panel (default is blue).

HIGHLIGHTED TEXT

Emphasized text (default is turquoise).

MESSAGES

Message area, third line on the panel when a message is returned (default is red).

FUNCTION

Command line and/or option chosen (default is white).

INPUT AREAS

Area in which you enter your input (default is green).

OUTPUT AREAS

Area in which output is returned to you (default is turquoise).

Change DB2 Admin Defaults Panel

This panel (Figure 142) appears when you select option 2 on the Change DB2 Admin Parameters panel.

Use this panel to change various parameters affecting the execution of DB2 Admin:

```
DB2 Admin ----- Change DB2 Admin Defaults ----- 20:37
Option ==>

                                         DB2 System: DB2W

Max No of Rows to Fetch ==> 1000          (0-99999999, 0=unlimited, def. 1000)
Max Chars in an SQL Stmt ==> 2000        (500-32765, default is 2000)

Pgm Action when SQL error:
  First do a           ==> ROLLBACK      (Commit or Rollback)
  Display error panel  ==> YES           (Yes or No)
  Continue executing SQL ==> NO          (Yes or No)

Auto Refresh After Update ==> YES        (Yes or No, default is YES)
Browse DB2 Command Output ==> YES        (Yes or No)
Max Chars in an ISPF Stmt ==> 2000       (500-32765, default is 2000)
Max Chars in an Admin Cmd ==> 2000       (500-32765, default is 2000)
Reset to Def. at Startup ==> YES         (Yes or No)
```

Figure 142. Change DB2 Admin Defaults Panel (ADB2P2)

MAX NO OF ROWS TO FETCH

Maximum number of rows to fetch for each SQL SELECT statement.

MAX CHARS IN AN SQL STATEMENT

The length of the buffer for SQL and ISPF statements.

PGM ACTION WHEN SQL ERROR

What DB2 Admin is to do when an SQL error occurs. The choices are:

- COMMIT or ROLLBACK the changes
- Display the SQL error panel with the SQL error message and SQLCA (YES or NO)
- Continue processing by executing the next SQL statement (YES or NO)

AUTO REFRESH AFTER UPDATE

Whether table display panels are to be refreshed after SQL updates (YES or NO). If YES, DB2 Admin refreshes the panels when they are redisplayed. For performance reasons, the refresh is limited to panels where the elapsed time to fetch the rows to be displayed is less than 10 seconds.

BROWSE DB2 COMMAND OUTPUT

Whether DB2 Admin should invoke ISPF browse (YES) or let the output default to TSO line mode (NO).

MAX CHARS IN AN ISPF STMT

The length of the buffer for ISPF statements.

MAX CHARS IN AN ADMIN CMD

The length of the buffer for DB2 Admin commands.

RESET TO DEF. AT STARTUP

Whether DB2 Admin should restore the values of the following parameters to default values at the next startup.

- MAX NO OF ROWS TO FETCH
- MAX CHARS IN AN SQL STATEMENT
- AUTO REFRESH AFTER UPDATE
- MAX CHARS IN AN ISPF STMT
- MAX CHARS IN AN ADMIN CMD

When set to NO, DB2 Admin attempts to restore the CURRENT SQLID.

Change/Allocate Print Data Set Panel

This panel (Figure 143) appears when you select option P on the Change DB2 Admin Parameters panel.

Use this panel to allocate a print data set for the DB2 Admin print function.

```
DB2 Admin ----- DB2W Change/Allocate Print Data Set ----- 00:27
Option ==>

Enter data set name and disposition:
Data set name ==>
Disposition ==> (NEW,OLD,MOD,FREE)

For a NEW data set enter:
Lrecl ==> 132 (8-32760)
Block size ==> 6204 (0-32760)
Format ==> (Fixed or Variable)
Space units ==> (Tracks, Cylinders or Blocks)
Primary space ==> (Default 1)
Sec. space ==> (Default 1)
Unit type ==> (Default SYSDA)
```

Figure 143. Change/Allocate Print Data Set Panel (ADB2PP)

ENTER DATA SET NAME AND DISPOSITION

Enter the name and allocation mode of the print data set, as described below.

DATA SET NAME

The name of the data set that DB2 Admin should use for printing.

DISPOSITION

The allocation mode of the data set, which must be one of the following:

NEW

Allocate a new data set.

OLD

Use an existing data set.

MOD

Append output to an existing data set.

FREE

Deallocate print data set.

FOR A NEW DATA SET ENTER

For a new data set, the following parameters are required:

LRECL

Logical record length.

BLOCK SIZE

Block size.

FORMAT

The data set format, which can be either F (for fixed) or V (for variable) length records.

SPACE UNITS

Units in which space is to be allocated (tracks, cylinders, or blocks).

PRIMARY SPACE

Primary space allocation, specified in preceding units.

SEC. SPACE

Secondary space allocation, specified in preceding units.

UNIT TYPE

Type of UNIT for allocation.

Chapter 15. Distributed DB2 Systems Panels

This chapter describes the distributed DB2 systems panels.

This panel (Figure 144) appears when you select option DD on the Administration Menu panel. It shows the remote DB2 systems available from the DB2 system you are currently on.

Use this panel to choose the DB2 system for which you want the system catalog displayed. Line command DIS shows the active threads for the location or system you select. Press END to get back to the panel from which you came.

```
DB2 Admin ----- Distributed DB2 Systems ----- ROW 1 TO 19 OF 19
Command ==>                                     Scroll ==> PAGE

Select the location you wish to use:                DB2 System: DB2X
                                                    DB2 SQL ID: ISTJE

Select Location
*
-----
DENMARK_DB2M
DENMARK_DB2X
DENMARK_DB2D
DENMARK_DB2T
DENMARK_DB2W
DENMARK_DB2P
STOCKHLM_DB2B
BELGHOLL_DB2
OSLOMVA_DB2T
STOCKHLM_DB2C
GER2_DSNS
FINLAND_DB2
LUBDB2
NORDIC_DB2T
```

Figure 144. Distributed DB2 Systems Panel (ADB2DDF)

The fields on this panel are:

SELECT

Input field where you enter "S" to choose the system for which you want the catalog displayed.

LOCATION

Names of the remote DB2 systems available to you.

Example of Use of Distributed DB2 Systems Panel: Enter "S" in front of the DB2 location you want to access, as shown in Figure 145.

```
DB2 Admin ----- Distributed DB2 Systems ----- ROW 1 TO 19 OF 19
Command ==>                                     Scroll ==> PAGE

Select the location you wish to use:                DB2 System: DB2X
                                                    DB2 SQL ID: ISTJE

Select Location
*
-----
S      DENMARK_DB2M
      DENMARK_DB2X
      DENMARK_DB2D
      DENMARK_DB2T
      DENMARK_DB2W
      DENMARK_DB2P
      STOCKHLM_DB2B
      BELGHOLL_DB2
      OSLOMVA_DB2T
      STOCKHLM_DB2C
      GER2_DSNS
      FINLAND_DB2
      LUBDB2
      NORDIC_DB2T
```

Figure 145. Example of Using Distributed DB2 Systems Function (Part 1 of 2)

DB2 Admin shows you the System Catalog panel (see Figure 146 on page 211) and indicates at the top of the panel which location you are accessing.

When using the distributed DB2 systems function to access a remote DB2 system catalog, some functions in the DB2 Admin system catalog dialog are disabled. (For example, you cannot do a DB2 DISPLAY, BIND, REBIND, or FREE, nor can you generate utilities.)


```

DB2 Admin ----- DB2X System Catalog ----- 15:47
Option ==>

At location: DENMARK_DB2T                                DB2 System: DB2X
V - Volumes                                              DB2 SQL ID: ISTJE
G - Storage groups                                     GA - Authorizations to storage groups
D - Databases                                           DA - Authorizations to databases
S - Table spaces                                         SA - Authorizations to table spaces
T - Tables, views, and aliases                         TA - Authorizations to tables and views
X - Indexes
C - Columns                                             CA - Authorizations to columns
Y - Synonyms
P - Plans                                               PA - Authorizations to plans
K - Packages                                            KA - Authorizations to packages
L - Collections                                         LA - Authorizations to collections
M - DBRMs                                               RA - Authorizations to resources
DS - Data base structures                              ZA - Authorizations to system privileges
H - Schemas                                            HA - Authorizations to schemas
E - User defined data types                            EA - Authorizations to data types
F - Functions                                           FA - Authorizations to functions
O - Stored procedures                                  OA - Authorizations to stored procedures
J - Triggers

Enter standard selection criteria (an SQL LIKE operator will be used):
Name      ==>                                           Grantor ==>
Owner     ==>                                           Grantee ==>
In DB/col ==>
And/or other selection criteria (option xC shows you columns for option x)
Column    ==>                                           Oper ==>      Value ==>

```

Figure 146. Example of Using Distributed DB2 Systems Function (Part 2 of 2)

Chapter 16. Explain Panels

This chapter describes the Explain panels, which support the SQL EXPLAIN statement and provide related functions. The EXPLAIN statement gathers information about the access path DB2 chose to process a query.

Explain Panel

This panel (Figure 147) appears when you select option E on the Administration Menu panel.

Use this panel to do the following:

- Enter an SQL statement and see the resulting rows in a plan table (PLAN_TABLE).
- List rows from a plan table and see how DB2 will execute SQL statements in application plans, or packages that were bound with EXPLAIN(YES).
- Upgrade a plan table to the current version of DB2.
- Create a plan table. A plan table is needed before you can execute EXPLAIN statements.
- Create an index on the plan table. An index is recommended if optimizer hints are being used.
- Create a statement, so EXPLAIN can store the estimated cost for a statement.
- Create a function table, so EXPLAIN can store information on how DB2 resolved a function reference.

```
DB2 Admin ----- Explain ----- 22:10
Option ==>

E - Explain an SQL statement
L - List PLAN_TABLE
    PLAN_TABLE owner ==> (default is ISTJE)
    Plan name ==> (optional)
    DBRM/package name ==> (optional)
    Collection ID ==> (optional)
U - Upgrade the PLAN_TABLE to current DB2 version
C - Create a PLAN_TABLE for explain
CX - Create an index on PLAN_TABLE for the optimizer
CS - Create a DSN_STATEMENT_TABLE
CF - Create a DSN_FUNCTION_TABLE
```

Figure 147. Explain Panel (ADB2E)

Explain an SQL Statement Panel

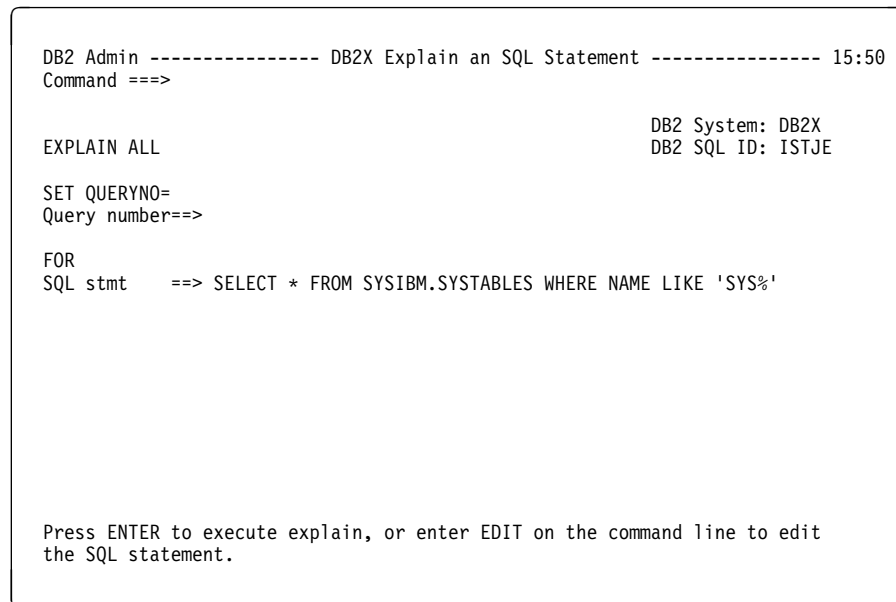
This panel (Figure 148) appears when you select option E on the Explain panel.

Use this panel to enter an SQL statement, get it explained by DB2, and see the resulting rows from the explain in a plan table.

Enter a query number and an SQL statement. If you leave the query number blank, DB2 Admin generates a query number for you in the form YYMMDDSSS, where SSS is a sequence number.

Press ENTER to have DB2 execute the EXPLAIN statement. The resulting row in the plan table is shown on the next panel. Use line command I to see the EXPLAIN results.

You can use the EDIT primary command to edit your SQL statement. Once you are in ISPF edit, use the ISPF edit copy commands to copy SQL statements to or from other data sets.



```
DB2 Admin ----- DB2X Explain an SQL Statement ----- 15:50
Command ==>

EXPLAIN ALL                                     DB2 System: DB2X
                                                DB2 SQL ID: ISTJE

SET QUERYNO=
Query number==>

FOR
SQL stmt    ==> SELECT * FROM SYSIBM.SYSTABLES WHERE NAME LIKE 'SYS%'

Press ENTER to execute explain, or enter EDIT on the command line to edit
the SQL statement.
```

Figure 148. Explain an SQL Statement Panel (ADB2EE)

List Plan Table Panel

This panel (Figure 149) appears when you select option L on the Explain panel.

This panel shows you all rows from the plan table. The rows can be qualified by plan name, DBRM/package name, and collection ID.

Use this panel to see how DB2 will execute SQL statements from previously-executed EXPLAIN statements and from DB2 BIND commands specifying EXPLAIN(YES).

Note that the format of this panel changes dynamically. There are 3 formats:

1. Plan mode, which shows Applname (PLAN) and Prognose (DBRM)
2. Packages mode, which shows Collection (COLLID) and Prognose (PACKG)
3. Hint mode, which shows Hint ID and Hint Used

Use the following primary commands to switch the format:

- PLAN (switches to plan mode)
- COL (switches to packages mode)
- HINT (switches to hint mode)

DB2 Admin ----- Rows from ISTJE.PLAN_TABLE ----- Row 1 of 8
Command ==> Scroll ==> PAGE

Valid line commands are:
I - Interpretation T - Table X - Index P - Plan M - DBRM K - Package
DP - Delete rows for plan DK - Delete for package DQ - Delete for query no
SR - Stmt table rows FR - Function table rows IH - Insert optimizer hint

S	Query Q Number	Q Bl	Collect. (COLLID)	Prognose (Packg)	Pl No	M T	Ac Ty	M Co	I O	T No	Table Owner	Table Name
	*	*	*	*	*	*	*	*	*	*	*	*
---	---	---	---	---	---	---	---	---	---	---	---	---
	960125003	1	ADBL	ADBMAIN	1	0	I	0	N	1	SYSIBM	SYSTABLES
	999999999	1	EEEPACK	E41MAIN	1	0	I	1	N	1	SYSIBM	SYSTABLES
	970923001	1	ADBL	ADBMAIN	1	0	I	1	N	1	SYSIBM	SYSTABLES
	981118002	1	ADBL	ADBMAIN	1	0	I	0	N	1	SYSIBM	SYSTABLES
	981118003	1	ADBL	ADBMAIN	1	0	I	0	N	1	SYSIBM	SYSTABLES
	990421001	1	ADBL	ADBMAIN	1	0	I	0	N	1	SYSIBM	SYSTABLES
	990421002	1	ADBL	ADBMAIN	1	0	I	2	N	1	SYSIBM	SYSTABLES
	990421003	1	ADBL	ADBMAIN	1	0	I	2	N	1	SYSIBM	SYSTABLES
***** END OF DB2 DATA *****												

Figure 149. List Plan Table Panel (ADB2EL)

You can issue two unique primary commands from this panel: COL and PLAN. They are used to toggle between displays of plan information and collection information.

The fields on this panel are:

S Input field where you enter one of the line commands listed on the panel.

QUERY NUMBER

A number that identifies the SQL statement.

Q BL

Query block number. Indicates the position of the query in the statement being explained.

APPLNAME (PLAN) or COLLECT. (COLLID)

Name of the application plan for the row. Or collection ID for the package. Or blank for a dynamic EXPLAIN statement.

PROGNAME (DBRM)

DBRM or package name.

PL NO

Plan number. Indicates the order in which the EXPLAIN statement will be executed.

MT

Method. Indicates the join method to be used.

ACTY

Access type. Indicates the method by which the table will be accessed. This field contains one of the following:

I	Index
I1	One-fetch index scan
N	Index scan when the matching predicate contains the IN keyword
R	Table space scan
M	Multiple index scan
MX	Index scan
MI	Intersection of multiple indexes
MU	Union of multiple indexes
Blank	Not applicable to current row

MCO

Matching columns. Indicates the number of index keys used in an index scan.

IO Index only. Whether only the index is accessed in this step or whether data must also be accessed. This field contains one of the following:

N	No
Y	Yes

T NO

Table number. Indicates the position of the table in the statement.

TABLE OWNER

Owner of the table being accessed.

TABLE NAME

Name of the table being accessed.

Upgrade a Plan Table Function

Use this function (option U on the Explain Panel) to upgrade a plan table to the current version of DB2. DB2 Admin issues a series of ALTER TABLE PLAN_TABLE ADD statements to upgrade the plan table so it contains the maximum number of columns the current DB2 version supports.

When you choose this function, no panel is displayed. DB2 Admin responds with a message about the successful execution.

Create a Plan Table Panel

This panel (Figure 150) appears when you select option C on the Explain panel.

Use this panel to create a plan table. A plan table is needed for the DB2 explain function.

Enter the database and table space names you want to use for the plan table. Both names are optional. Then press ENTER to create the plan table.

```
DB2 Admin ----- DB2X Create a PLAN_TABLE ----- 16:00
Command ==>

CREATE PLAN_TABLE

IN
Database   ==> ISTJEDT (optional, default is DSNCB04)
Table space ==> ISTJEST (optional, if blank DB2 implicitly creates a TS)
```

Figure 150. Create a Plan Table Panel (ADB2EC)

Create an Index on Plan Table Panel

This panel (Figure 151) appears when you select option CX on the Explain panel.

Use this panel to create an index on the plan table for the DB2 optimizer.

This option brings you to the Create Index panel (the same as option 2.4.CX), with recommended index columns filled in.

```
DB2 Admin ----- DB2X Create Index ----- 16:04
Command ==>

CREATE

UNIQUE      ==> N          (Yes, No, or UNN for UNIQUE WHERE NOT NULL)

INDEX
Owner       ==>           (optional, default is ISTJE)
Name        ==> PLAN_TABLE_INDEX

ON
Table owner==>           (optional, default is ISTJE)
Table name ==> PLAN_TABLE      Is this an auxiliary table ==>      (y/n)

( column list )
Column list==> QUERYNO,APPLNAME,PROGNAME,VERSION,COLLID,OPTHINT

Partitions ==>           (optional, 0 for non-partitioned INDEX)

CLUSTER     ==>           (Yes or No, default is No)

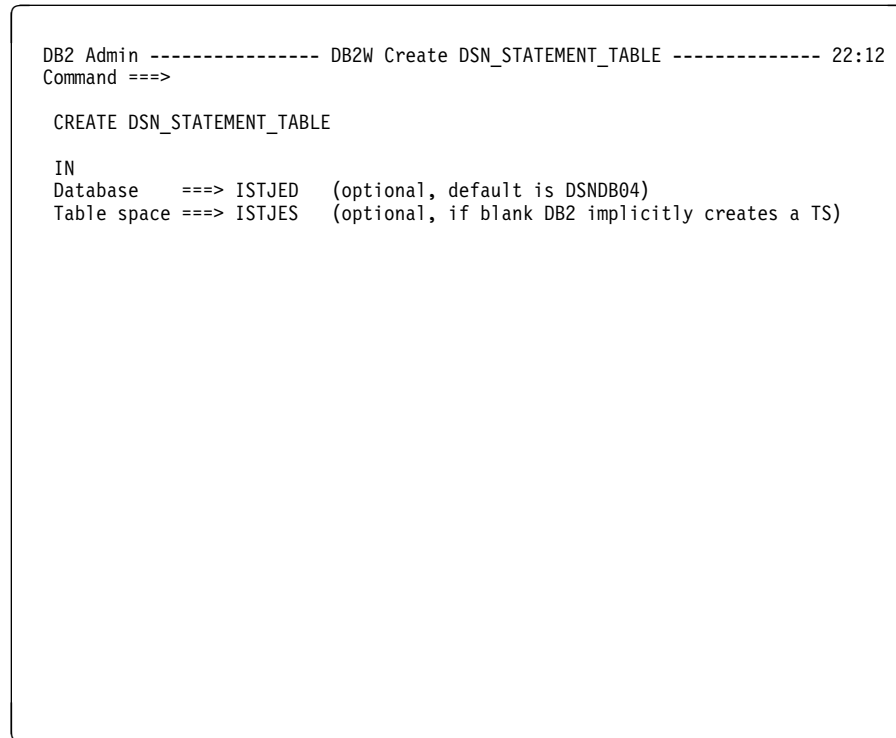
                                           (continued...)
```

Figure 151. Create an Index on Plan Table Panel (ADB26CX)

Create a Statement Table Panel

This panel (Figure 152) appears when you select option CS on the Explain panel.

Use this panel to create a statement table where the DB2 EXPLAIN can store the estimated cost for an SQL statement.



```
DB2 Admin ----- DB2W Create DSN_STATEMENT_TABLE ----- 22:12
Command ==>

CREATE DSN_STATEMENT_TABLE

IN
Database ==> ISTJED (optional, default is DSNCB04)
Table space ==> ISTJES (optional, if blank DB2 implicitly creates a TS)
```

Figure 152. Create a Statement Table Panel (ADB2EC)

Create a Function Table Panel

This panel (Figure 153) appears when you select option CF on the Explain panel.

Use this panel to create a function table where DB2 EXPLAIN can store information about how function references were resolved.

```
DB2 Admin ----- DB2X Create a DSN_FUNCTION_TABLE ----- 16:00
Command ==>

CREATE DSN_FUNCTION_TABLE

IN
Database    ==> ISTJEDT  (optional, default is DSNCB04)
Table space ==> ISTJEST  (optional, if blank DB2 implicitly creates a TS)
```

Figure 153. Create a Function Table Panel (ADB2EC)

Chapter 17. System Administration Panels

This chapter describes the system administration panels.

Using these panels, you can do the functions summarized in Figure 154. Two of these functions apply only to DB2 Version 3, as shown in the figure.

System Administration Panel

This panel (Figure 154) appears when you select option Z on the Administration Menu panel.

Use this panel to choose the system administration function you want to perform.

```
DB2 Admin ----- DB2W System Administration ----- 20:39
Option ==>

DB2 activity related functions:
2D - Display threads
2T - Display/manage traces
2S - Stop DB2
2B - Display/manage batch checkpoint table
Buffer pool functions:
BD - Display buffer pools
BH - Display buffer pool hit ratios
DB2 log functions:
LD - Display archive log parameters
LA - Archive current log
LZ - Set log checkpoint frequency
DDF functions:
DU - Display/update CDB
DC - Display/cancel distributed thds
DT - Start DDF
Stored procedures and functions options:
PM - Manage stored procedures

DB2 System: DB2W
DB2 SQL ID: ISTJE
2U - Display/terminate utilities
2R - Display/update resource limits
2G - Display group
BA - Alter buffer pools
LS - Set archive log parameters
LI - Display log information
DL - Display active locations
DS - Stop DDF
FM - Manage functions
```

Figure 154. System Administration Panel (ADB2Z)

DISPLAY THREADS

Select this option to display the current status of DB2 threads.

DISPLAY/TERMINATE UTILITIES

Select this option to display the status of utility jobs or terminate utilities.

DISPLAY/MANAGE TRACES

Select this option to display, start, or stop traces.

DISPLAY/UPDATE RESOURCE LIMITS (RLIMIT)

Select this option to display or stop the resource limit (RLIMIT) facility or to update the RLIMIT tables that are created in the system.

STOP DB2

Select this option to stop the DB2 subsystem.

DISPLAY GROUP

Select this option to display information about the data sharing group to which the DB2 subsystem belongs.

DISPLAY/MANAGE BATCH CHECKPOINT TABLE

Select this option to display and manage the checkpoint table (ADBCHKPT) associated with batch jobs that are running ADBTEP2. ADBTEP2 lets you restart or resume execution of an input stream of SQL statements at an intermediate point, in case one of the statements fails.

DISPLAY BUFFER POOLS

Select this option to display the current status of one or more active or inactive buffer pools.

ALTER BUFFER POOLS

Select this option to alter the attributes of active or inactive buffer pools.

DISPLAY BUFFER POOL HIT RATIOS

Select this option to display the hit ratios for the buffer pools.

DISPLAY ARCHIVE LOG PARAMETERS

Select this option to display information about the input archive log.

SET ARCHIVE LOG PARAMETERS

Select this option to set the upper limit for the number of and the deallocation time of tape units for the archive log.

ARCHIVE CURRENT LOG

Select this option to archive the current DB2 log.

DISPLAY LOG INFORMATION

Select this option to display information about the DB2 log.

SET LOG CHECKPOINT FREQUENCY

Select this option to set the DB2 system checkpoint frequency.

DISPLAY/UPDATE CDB

Select this option to display or update a table in the communications database (CDB).

DISPLAY/CANCEL DISTRIBUTED THDS

Select this option to display or cancel processing for threads that originate locally and access remote data, or originate remotely and access local data.

DISPLAY ACTIVE LOCATIONS

Select this option to display statistics about threads with a distributed relationship, or display conversation information about DB2 system threads that interact with VTAM*.

STOP DDF

Select this option to stop the distributed data facility (DDF) if it has already been started.

START DDF

Select this option to start DDF if it has not already been started.

MANAGE STORED PROCEDURES

Select this option to manage DB2 stored procedures.

MANAGE FUNCTIONS

Select this option to manage DB2 user-defined functions.

Display Threads Panel

This panel (Figure 155) appears when you select option 2D on the System Administration panel.

Use this panel to display the current status of DB2 threads.

DB2 Admin does this function by issuing the DB2 -DISPLAY THREAD command. Enter the appropriate keywords and parameters on the panel. The information DB2 Admin returns to you from the command is in ISPF browse format or in a table display panel, depending on what you specified in "Output to." See DB2 documentation for an explanation of the -DISPLAY THREAD command and its output.

```
DB2 Admin ----- DB2W Display Threads ----- 00:13
Command ==>

  -DISPLAY THREAD(
    Connection name  ==>                (name or *, default is BATCH)
  ) TYPE(
    Thread type      ==>                (Active, Indoubt or *)
  ) LOCATION(
    Locations        ==>                (name, name* or *)
  ) LUWID(
    Logical UOW ID   ==>
  ) DETAIL
    Include details  ==>                (Yes or No)

    Max KB DB2 output ==> 32            (1-1000)

    Output to        ==> B              (T - table, B - browse)
```

Figure 155. Display Threads Panel (ADB2Z2D)

Display or Terminate Utilities Panel

This panel (Figure 156) appears when you select option 2U on the System Administration panel.

Use this panel to display the status of utility jobs or terminate utilities.

DB2 Admin does this function by issuing one of the following DB2 commands: -DISPLAY UTILITY or -TERMINATE UTILITY. The information DB2 Admin returns to you from the commands is in ISPF browse format. See DB2 documentation for an explanation of these commands and their output.

```
DB2 Admin ----- DB2T Display/Terminate Utilities ----- ROW 1 TO 1 OF 1
Command ==> Scroll ==> PAGE

Valid line commands are:
  TERM - Terminate utility  DIS - Display utility

Select Userid      Utility ID      Utility      Stmt      Phase      Count      Status
   *              *                *            *        *          *          *
-----
      ISTJE      ISTJE      RUNSTATS  1      RUNSTATS 0      ACTIVE
***** END OF DB2 DATA *****
```

Figure 156. Display or Terminate Utility Panel (ADB2Z2U2)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

USERID

Userid of the person who is running the utility.

UTILITY ID

Utility identifier.

UTILITY

Name of the utility being run.

STMT

Number of the utility statement being processed.

PHASE

Current phase of the utility, such as RELOAD.

COUNT

Depending on the utility being run, the number of rows, pages, or page sets processed.

STATUS

Status of the utility, such as ACTIVE.

Figure 157 on page 227 shows the type of information DB2 Admin returns when you issue the DIS line command from the Utilities panel.

```
DB2 Admin ----- DB2T Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-DIS UTIL(ISTJE)

***** TOP OF DATA *****
DSNU105I < DSNUGDIS - USERID = ISTJE
          UTILID = ISTJE
          PROCESSING UTILITY STATEMENT 1
          UTILITY = RUNSTATS
          PHASE = RUNSTATS   COUNT = 0
          STATUS = ACTIVE
DSN9022I < DSNUGCCC '-DIS UTIL' NORMAL COMPLETION
***** BOTTOM OF DATA *****
```

Figure 157. Display Utilities Panel (ADB2DB2O)

Display or Manage Traces Panel

This panel (Figure 158) appears when you select option 2T on the System Administration panel.

Use this panel to display, start, or stop traces.

DB2 Admin does these functions by issuing one of the following DB2 commands: -DISPLAY TRACE, -START TRACE, or -STOP TRACE. The information DB2 Admin returns to you from the commands is in ISPF browse format. See DB2 documentation for an explanation of these commands and their output.

```
DB2 Admin ----- DB2W Display/Manage Traces -----
Command ==> Scroll ==> PAGE

Valid line commands are:
STA - Start trace  STO - Stop trace  DIS - Display trace details

  T Trace
Sel No Type      Trace Classes      Dest      Qual
  *  *  *        *                  *
-----
01 STAT  01,03,04      SMF        NO
02 ACCTG 01           SMF        NO
03 MON   01,03        OP1        NO
***** END OF DB2 DATA *****
```

Figure 158. Display or Manage Traces Panel (ADB2Z2T2)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

T NO

Trace number.

TRACE TYPE

Trace type.

TRACE CLASSES

Trace classes active for this trace.

DEST

Destination for the trace.

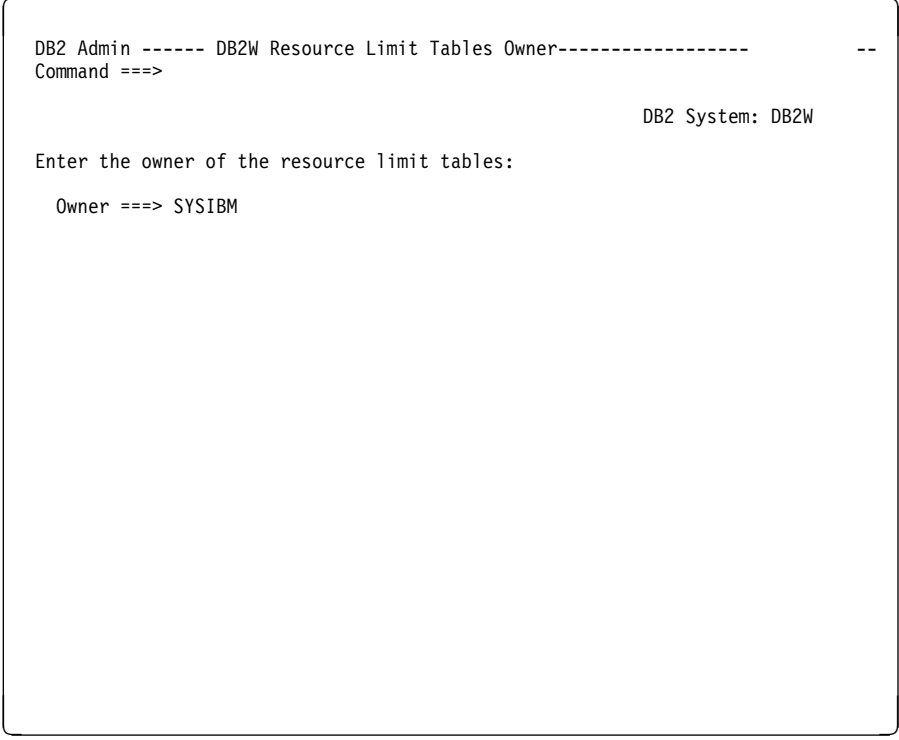
QUAL

Whether the trace was further qualified.

Display or Update Resource Limit (RLIMIT) Tables Panel

This panel (Figure 159) appears when you select option 2R on the System Administration panel.

Since the owner of the resource limit tables can be changed using the DB2 system parameters (DSNZPARM), you need to specify the owner you are using.



```
DB2 Admin ----- DB2W Resource Limit Tables Owner----- --
Command ==>

DB2 System: DB2W

Enter the owner of the resource limit tables:

Owner ==> SYSIBM
```

Figure 159. Resource Limit Table Owner Panel (ADB2Z2R)

Enter the owner of the resource limit tables and press ENTER to display the resource limit tables owned by this owner.

The next panel (Figure 160 on page 230) appears after you enter a valid owner on the Resource Limit Table Owner panel (Figure 159)

Use this panel to select the resource limit (RLIMIT) table to display or update, or to start, stop, and display the status of RLF.

DB2 Admin does several of these functions by issuing one of the following DB2 commands: -DISPLAY RLIMIT, -STOP RLIMIT, and -START RLIMIT. The information DB2 Admin returns to you from the commands is in ISPF browse format. See DB2 documentation for an explanation of these commands and their output.

```
DB2 Admin ----- DB2W Display/Update Resource Limit Tables ----- Row 1 of 1
Command ==> Scroll ==> PAGE

Valid primary commands are:
DIS - Display RLIMIT STO - Stop RLIMIT

Valid line commands are:
S - Display/update STA - Start RLIMIT with ID I - Insert row

Select ID Owner      Name                Columns
-----
01 SYSIBM DSNRLST01                11
***** END OF DB2 DATA *****
```

Figure 160. Display or Update Resource Limit (RLIMIT) Tables Panel (ADB2Z2RD)

This panel has two unique primary commands that you can issue:

- DIS**
Display the current status of the resource limit.
- STO**
Stop the resource limit.

The fields on this panel are:

- SELECT**
Input field where you enter one of the line commands listed on the panel.
- ID**
RLIMIT identifier.
- OWNER**
Authorization ID of the owner of the RLIMIT table.
- NAME**
Name of the RLIMIT table.
- COLUMNS**
Number of columns in the RLIMIT table.

Figure 161 shows the RLIMIT status information DB2 Admin returns when you issue the DIS primary command.

```
DB2 Admin ----- DB2W Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-DIS RLIMIT

***** TOP OF DATA *****
DSNT700I  ¢ SYSIBM.DSNRLST01 IS THE ACTIVE RESOURCE LIMIT
SPECIFICATION TABLE
DSN9022I  ¢ DSNTCDIS 'DISPLAY RLIMIT' NORMAL COMPLETION
***** BOTTOM OF DATA *****
```

Figure 161. Display RLIMIT Panel (ADB2DB2O)

Figure 162 shows the information DB2 Admin returns when you issue the STO primary command to stop the resource limit facility.

```
DB2 Admin ----- DB2W Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-STO RLIMIT

***** TOP OF DATA *****
DSNT702I  ¢ RESOURCE LIMIT FACILITY HAS BEEN STOPPED. WAS USING
SYSIBM.DSNRLST01
DSN9022I  ¢ DSNTCSTP 'STOP RLIMIT' NORMAL COMPLETION
***** BOTTOM OF DATA *****
```

Figure 162. Stop RLIMIT Panel (ADB2DB2O)

Figure 163 shows the information DB2 Admin returns when you issue the STA line command to start the resource limit facility with a particular ID.

```
DB2 Admin ----- DB2W Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-STA RLIMIT ID=01

***** TOP OF DATA *****
DSNT704I  ¢ SYSIBM.DSNRLST01 HAS BEEN STARTED FOR THE RESOURCE
LIMIT FACILITY
DSN9022I  ¢ DSNTCSTR 'START RLIMIT' NORMAL COMPLETION
***** BOTTOM OF DATA *****
```

Figure 163. Start RLIMIT Panel (ADB2DB2O)

Figure 164 on page 233 shows the panel returned when you:

- Issued the S line command to show the content of the RLIMIT table and
- Used the primary command PRE ON to show the predictive governor columns as well

See the description of resource limits in DB2 documentation for an explanation of the fields shown on this panel.

```
DB2 Admin ---- DB2W Display/Update Resource Limits ID=01 ----- Row 1 of 1
Command ==> Scroll ==> PAGE

Valid line commands are:
D - Delete I - Insert U - Update

DB2 System: DB2W

Select Auth ID Plan Collection Package LU Name F u Reactive B
          *   *   *           *      *      c   Governor i
          *   *   *           *      *      *   Service n
          *   *   *           *      *      *   Units d
-----
      XXX                               99999
***** END OF DB2 DATA *****
```

Figure 164. Display RLIMIT Panel (ADB2Z2RS)

Figure 165 shows the output when you enter the I line command in front of a row from the RLIMIT table in Figure 164 on page 233. On the Insert RLIMIT panel, you can enter values for a new row in the RLIMIT table.

```

DB2 Admin ----- DB2W Insert RLIMIT ----- 00:06
Command ==>

Enter/verify:
Auth id      ==> XXX          (blank: all)
Plan name    ==>             (blank: all)
Collection   ==>             (blank: all)
Package      ==>             (blank: all)
LU name      ==>             (blank: local, PUBLIC: all remote)
Function     ==>             (' ' - react gov of dyn SQL by plan
                               1 - BIND operations
                               2 - react gov of dyn SQL by package
                               3 - disable query I/O parallelism
                               4 - disable query CP parallelism
                               5 - disables sysplex parallelism
                               6 - predict. gov. of dyn SQL by plan
                               7 - predict. gov. of dyn SQL by pkg)

Service units ==> 99999      (react. gov. limit: 0-2147483647)
Bind allowed  ==>             (for function 1 N: No)
PG warn limit ==>             (predic. gov. warning limit serv. units)
PG err limit  ==>             (predic. gov. error limit service units)
PG cat B act  ==>             (Y/blank: execute N: reject W: warn)

Press ENTER to Insert RLIMIT, or press PF3 to cancel Insert.

```

Figure 165. Insert RLIMIT Panel (ADB2Z2RU)

Stop DB2 Panel

This panel (Figure 166) appears when you select option 2S on the System Administration panel.

Use this panel to stop the DB2 subsystem.

DB2 Admin does this function by issuing the DB2 -STOP DB2 command. Enter the appropriate parameter on the panel. The information DB2 Admin returns to you from the command is in ISPF browse format. See DB2 documentation for an explanation of the -STOP DB2 command and its output.

```
DB2 Admin ----- DB2W Stop DB2 ----- 16:07
Command ==>

-STOP DB2

MODE(
  Stop mode      ==>      (Quiesce or Force, default is quiesce)
)
Note: After using FORCE mode, exit from DB2 Admin without issuing any further
SQL statements.
```

Figure 166. Stop DB2 Panel (ADB2Z2S)

Display Group Panel

This panel (Figure 167) appears when you select option 2G on the System Administration panel.

Use this panel to display information about the data sharing group to which this DB2 subsystem belongs.

DB2 Admin does this function by issuing the DB2 -DISPLAY GROUP command. See DB2 documentation for an explanation of this command and its output.

```
DB2 Admin ----- DB2X Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                         Scroll ==> PAGE

-DIS GROUP

***** Top of Data *****
DSN7100I -DB61 DSN7GCMD
*** BEGIN DISPLAY OF GROUP(DSNDB26 ) GROUP LEVEL(610)
                                GROUP ATTACH NAME(DB26)
-----
DB2      ID  SUBSYS  CMDPREF  STATUS  DB2 SYSTEM  IRLM
MEMBER   ID  SUBSYS  CMDPREF  STATUS  LVL NAME    SUBSYS  IRLMPROC
-----
DB61     1  DB61    -DB61    ACTIVE  610 MVSG    IR61    DB61IRLM
DB62     2  DB62    -DB62    FAILED  610 MVSL    IR62    DB62IRLM
-----
SCA  STRUCTURE SIZE:    4096 KB, STATUS= AC,   SCA IN USE:    2 %
LOCK1 STRUCTURE SIZE:    4096 KB,             LOCK1 IN USE: <  1 %
NUMBER LOCK ENTRIES:    1048576
NUMBER LIST ENTRIES:      13878, LIST ENTRIES IN USE:    22
*** END DISPLAY OF GROUP(DSNDB26 )
DSN9022I -DB61 DSN7GCMD 'DISPLAY GROUP ' NORMAL COMPLETION
***** Bottom of Data *****
```

Figure 167. Display Group Panel (ADB2DB2O)

Display or Manage Batch Checkpoint Table Panel

This panel (Figure 168) appears when you select option 2B on the System Administration panel. This panel allows you to display and manage the checkpoint table for batch jobs running ADBTEP2. There is a row in the checkpoint table for each active and abnormally terminated job running ADBTEP2.

Option 1, Display Checkpoint Records, gives you the ability to display all checkpoint records. Using option 1 you can terminate an active ADBTEP2 job, or delete, update a record of an abnormal terminated job. You can also insert a new checkpoint record.

Option 2, Display Checkpoint Table Status , displays information about the checkpoint table. Using this option you can issue any request against the checkpoint table that is supported by DB2 Admin, such as GRANT and REVOKE.

```
DB2 Admin ----- DB2W Manage Batch Job Checkpoint Table ----- 20:39
Option ==>

Batch Job Checkpoint Table :  ADB.ADBCHKPT                DB2 System: DB2W
                               DB2 SQL ID: ISTJE

  1 - Display Checkpoint Records
  2 - Display Checkpoint Table Status

Enter Checkpoint Table Owner:

Table Owner ==> ADB

Enter display selection criteria for option 1:

Userid      ==>                (default is '')
Worklist    ==>                (default is '')
```

Figure 168. Manage Batch Job Checkpoint Table (ADB2Z2B)

Figure 169 shows the rows in the table you have selected.

```
DB2 Admin ----- DB2W Display Batch Job Checkpoint Table ----- Row 1 of 1
Command ==>                                           Scroll ==> PAGE

                                           DB2 System: DB2W
                                           DB2 SQL ID: ISTJE

Checkpoint Table: ADB.ADBCHKPT

Valid line commands are:
  D - Delete/Terminate  I - Insert  U - Update

Select Userid   Worklist Jobname  SQLID      Commit
         *       *         *      *         Number  Timestamp
-----
      ISTJE    MYMIGR   MIGJOB   ISTJE          2 2001-01-17-20.42.33.5097
***** END OF DB2 DATA *****
```

Figure 169. Display Batch Job Checkpoint Table (ADB2Z2B1)

You can use line commands to change the content of the table. Use:

- D** to DELETE the row of an abnormally terminated job or to terminate an active job.
- I** to INSERT a new row. Row values can be entered on the next panel displayed.
- U** to UPDATE the row of an abnormally terminated job. If the job is executing, the request is rejected. Row values can be changed on the next panel.

Display Buffer Pools Panel

This panel (Figure 170) appears when you select option BD on the System Administration panel.

Use this panel to display the current status of one or more active or inactive buffer pools.

DB2 Admin does this function by issuing the DB2 -DISPLAY BUFFERPOOL command. Enter the appropriate keywords and parameters on the panel. The information DB2 Admin returns to you from the command is in ISPF browse format. See DB2 documentation for an explanation of this command and its output.

```
DB2 Admin ----- DB2W Display Buffer Pools ----- 16:07
Command ==>

  -DISPLAY BUFFERPOOL(
    Buffer pool name ==>          (Active, BP0-BP49, BP32K-BP32K9, or *)
  ) DETAIL(
    Include details   ==>        (Interval or *)
  ) LIST(
    Include page sets ==>        (Active or *)
  ) LSTATS
    Page set statistics ==>      (Yes or No)
    Max KB DB2 output ==> 32    (1-1000)
```

Figure 170. Display Buffer Pools Panel (ADB2ZBD)

Alter Buffer Pools Panel

This panel (Figure 171) appears when you select option BA on the System Administration panel.

Use this panel to alter the attributes of active or inactive buffer pools.

DB2 Admin does this function by issuing one of the following DB2 commands: -DISPLAY BUFFERPOOL or -ALTER BUFFERPOOL. The information DB2 Admin returns to you from the commands is in ISPF browse format. See DB2 documentation for an explanation of these commands and their output.

DB2 Admin ----- DB2X Alter Buffer Pools ----- Row 1 of 80										
Command ==>										
Valid line commands are:										
AL - Alter buffer pool DIS - Display buffer pool										
Select	BP Name	VP Size	HP Size	Cast Out	VP SEQT	VP PSEQT	HP SEQT	DWQT	VDWQT	VP X PSEQT
*	*	*	*	*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	BP0	1000	2000	YES	80	50	80	50	10	0
	BP1	1000	2000	YES	80	50	80	50	10	0
	BP2	1000	2000	YES	80	50	80	50	10	0
	BP3	0	0	YES	80	50	80	50	10	0
	BP4	0	0	YES	80	50	80	50	10	0
	BP5	0	0	YES	80	50	80	50	10	0
	BP6	0	0	YES	80	50	80	50	10	0
	BP7	0	0	YES	80	50	80	50	10	0
	BP8	0	0	YES	80	50	80	50	10	0
	BP9	0	0	YES	80	50	80	50	10	0
	BP10	0	0	YES	80	50	80	50	10	0
	BP11	0	0	YES	80	50	80	50	10	0

Figure 171. Alter Buffer Pools Panel (ADB2ZBA2)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

BP NAME

Buffer pool name.

VP SIZE

Virtual buffer pool size.

HP SIZE

Hiperpool size.

CAST OUT

Hiperspace* CASTOUT value.

VP SEQT

Virtual sequential steal threshold.

VP PSEQT

Virtual parallel sequential threshold.

HP SEQT

Hiperpool sequential steal threshold.

DWQT

Deferred write threshold.

VDWQT

Vertical deferred write threshold.

VP X PSEQT

Assisting virtual parallel sequential threshold.

Display Buffer Pool Hit Ratios Panel

This panel (Figure 172) appears when you select option BH on the System Administration panel.

Use this panel to name the buffer pools for which buffer pool hit ratios should be displayed. The hit ratio is calculated as the number of hits in the buffer pool divided by the number of GETPAGES. Specify the interval for which information should be displayed; the interval can be either since the buffer pool was created (*) or since the last display (interval).

DB2 Admin does this function by issuing a DB2 DISPLAY BUFFERPOOL command, using the parameters you enter on the panel. See DB2 documentation for an explanation of the -DISPLAY BUFFERPOOL command and its output.

DB2 Admin examines the output from the command and calculates the buffer pool hit ratios as explained in the description of panel ADBH2BH2 below.

DB2 Admin ----- DB2W Display Buffer Pool Hit Ratios ----- 23:45

Command ==>

-DISPLAY BUFFERPOOL(
Buffer pool name ==> (Active, BP0-BP49, BP32K-BP32K9, or *)
) DETAIL(
Include details ==> (Interval or *)
)

Figure 172. Display Buffer Pool Hit Ratios Panel (ADB2ZBH)


```

DB2 Admin ----- DB2W Buffer Pool Hit Ratios -----
Command ==> Scroll ==> PAGE

Valid line commands are:
DIS - Display buffer pool

      BP
Select Name  VP Size  HP Size  Get  Pages      Random      Hit
                                I/Os      Ratio
-----
      BP0      2000      0      65778      601  99.09
***** END OF DB2 DATA *****

```

Figure 173. Buffer Pool Hit Ratios Panel (ADB2ZBH2)

SELECT

Input field where you list one of the line commands listed on the panel.

BP NAME

Name of the buffer pool.

VP SIZE

Size of the virtual buffer pool.

HP SIZE

Size of the hiperpool.

RANDOM GET PAGES

Number of random GETPAGES (RGP).

RANDOM I/Os

Number of random I/Os (RIO).

HIT RATIO

Buffer pool hit ratio, which is calculated as follows:

$$100 * (RGP - RIO) / RGP$$

Display Archive Log Parameters Panel

This panel (Figure 174) appears when you select option LD on the System Administration panel.

This panel displays information about the input archive log.

DB2 Admin does this function by issuing the -DISPLAY ARCHIVE command. See DB2 documentation for an explanation of the -DISPLAY ARCHIVE command and its output.

```
DB2 Admin ----- DB2W Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-DIS ARCHIVE

***** TOP OF DATA *****
DSNJ322I 4 DISPLAY ARCHIVE REPORT FOLLOWS-
      COUNT      TIME
      (TAPE UNITS) (MIN,SEC)
DSNZPARM      2      0,00
CURRENT      2      0,00
=====
ADDR STATUS CORR-ID  VOLSER DATASET_NAME
NO TAPE ARCHIVE READING ACTIVITY.
END OF DISPLAY ARCHIVE REPORT.
DSN9022I 4 DSNJC001 '-DIS ARCHIVE' NORMAL COMPLETION
***** BOTTOM OF DATA *****
```

Figure 174. Display Archive Log Parameters Panel (ADB2DB2O)

Set Archive Log Parameters Panel

This panel (Figure 175) appears when you select option LS on the System Administration panel.

Use this panel to set the upper limit for the number of and the deallocation time of tape units for the archive log.

DB2 Admin does this function by issuing the DB2 -SET ARCHIVE command. Enter the appropriate keywords and parameters on the panel. The information DB2 Admin returns to you from the command is in ISPF browse format. See DB2 documentation for an explanation of the -SET ARCHIVE command and its output.

```
DB2 Admin ----- DB2W Set Archive Log Parameters ----- 16:08
Command ==>

-SET ARCHIVE

COUNT(
  Max tape units      ==> 2          (1-99, DSNZPARM default is 2)
) TIME(
  Tape retain minutes ==> 0          (0-1440, DSNZPARM default is 0)
  Tape retain seconds ==> 00         (0-59)
)
```

Figure 175. Set Archive Log Parameters Panel (ADB2ZLSS)

Archive Current Log Panel

This panel (Figure 176) appears when you select option LA on the System Administration panel.

Use this panel to archive the current DB2 log.

DB2 Admin does this function by issuing the DB2 -ARCHIVE LOG command. Enter the appropriate keywords and parameters on the panel. The information DB2 Admin returns to you from the command is in ISPF browse format. See DB2 documentation for an explanation of the -ARCHIVE LOG command and its output.

```
DB2 Admin ----- DB2W Archive Current Log ----- 16:08
Command ==>

-ARCHIVE LOG

MODE(QUIESCE)
Create system POC    ==>          (Yes or No)
TIME(
Max POC quiesce secs ==>          (1-999)
) WAIT(
Wait for POC        ==>          (Yes or No)
)
```

Figure 176. Archive Current Log Panel (ADB2ZLA)

Display Log Information Panel

This panel (Figure 177) appears when you select option LI on the System Administration panel.

Use this panel to display information about the DB2 log.

DB2 Admin does this function by issuing the DB2 -DISPLAY LOG command. The information DB2 Admin returns to you from the command is in ISPF browse format. See DB2 documentation for an explanation of the -DISPLAY LOG command and its output.

```
DB2 Admin ----- DB2X Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-DIS LOG

***** Top of Data *****
DSNJ370I DB2X DSNJC00A LOG DISPLAY
CURRENT COPY1 LOG = DB2X.LOGCOPY1.DS02 IS 75% FULL
CURRENT COPY2 LOG = DB2X.LOGCOPY2.DS02 IS 75% FULL
H/W RBA = 000003AF8836, LOGLOAD = 50000
FULL LOGS TO OFFLOAD = 0 OF 6, OFFLOAD TASK IS (AVAILABLE)
DSNJ371I DB2X DB2 RESTARTED 19:45:59 MAR 28, 1999
RESTART RBA 000003AC7000
DSN9022I DB2X DSNJC001 '-DIS LOG' NORMAL COMPLETION
***** Bottom of Data *****
```

Figure 177. Display Log Information Panel (ADB2DB2O)

Change DB2 System Checkpoint Frequency Panel

This panel (Figure 178) appears when you select option LZ on the System Administration panel.

Use this panel to change how frequently DB2 should perform a system checkpoint (in terms of number of number of DB2 log records).

DB2 Admin does this function by issuing the DB2 -SET LOG command. Enter the appropriate keywords and parameters on the panel. The information DB2 Admin returns to you from the command is in ISPF browse format. See DB2 documentation for an explanation of the -SET LOG command and its output.

```
DB2 Admin ----- DB2W Change DB2 System Checkpoint Frequency ----- 00:08
Command ==>

-SET LOG

LOGLOAD
Checkpoint frequency ==>                (200-16000000)
)
```

Figure 178. Change DB2 System Checkpoint Frequency Panel (ADB2ZLZ)

Display or Update CDB Panel

This panel (Figure 179) appears when you select option DU on the System Administration panel.

Use this panel to select the table in the communications database (CDB) you want to display or update. Figure 181 on page 251 through Figure 186 on page 256 show the CDB table panels.

If you want to insert rows into an empty table, you can do this by choosing option xI, where x represents the table (for example, 3I tells DB2 Admin to insert rows into the LUMODES table).

```
DB2 Admin ----- DB2X Display/Update CDB ----- 17:34
Option ==>

L - Display/update LOCATIONS
1 - Display/update LUNAMES
2 - Display/update IPNAMES
3 - Display/update LUMODES
4 - Display/update MODESELECT
5 - Display/update USERNAMES
6 - Display/update LULIST
Note: Option xI can be used to insert rows into empty tables (x= option number)

DB2 System: DB2X
DB2 SQL ID: ISXSTL
```

Figure 179. Display or Update CDB Panel (ADB2Z5)

Display or Update LOCATIONS Panel

This panel (Figure 180) appears when you select option L on the Display/Update Communications DB panel.

This panel displays the rows in the LOCATIONS table in the CDB. You can update the LOCATIONS table using the following line commands:

- D** Deletes the row
- I** Inserts a new row. Row values can be entered on the next panel.
- U** Updates the row. Row values can be changed on the next panel.

```
DB2 Admin ----- DB2X Display/Update LOCATIONS ----- Row 1 of 1
Command ==>                                           Scroll ==> PAGE

                                           DB2 System: DB2X

Valid line commands are:
D - Delete I - Insert U - Update DIS - Display location S - Select
ALIAS - Aliases for location LU - LU name IP - IP name
ILU - Insert LU IIP - Insert IP name

Select Location          Link          Port          TP Name
      *                *          *                *
-----
      DENMARK_DB2W      DKLUDB2W
***** END OF DB2 DATA *****
```

Figure 180. Display or Update LOCATIONS Panel (ADB2Z5L)

For a description of the fields on this panel, see the description of the SYSIBM.LOCATIONS table in DB2 documentation.

Display or Update LUNAMES Panel

This panel (Figure 181) appears when you select option 1 on the Display/Update Communications DB panel.

This panel displays the rows in the LUNAMES table in the CDB. You can update the LUNAMES table using the following line commands:

- D** Deletes the row
- I** Inserts a new row. Row values can be entered on the next panel.
- U** Updates the row. Row values can be changed on the next panel.

```
DB2 Admin ----- DB2X Display/Update LUNAMES ----- Row 1 of 2
Command ==>                                           Scroll ==> PAGE

                                           DB2 System: DB2X

Valid line commands are:
D - Delete I - Insert U - Update LOC - Locations LUM - Lu modes
USER - User names MODE - Mode select ILOC - Insert location
ILUM - Insert LU modes IMODE - Insert mode IUSER - Insert user

Select LU Name      System      Security: Encrypt  Mode  User
      *          *          *   *      *      *      *
-----
              V   P      Y      N      O      N
            DKLUDB2W      V   A      N      N      O      N
***** END OF DB2 DATA *****
```

Figure 181. Display or Update LUNAMES Panel (ADB2Z51)

For a description of the fields on this panel, see the description of the SYSIBM.LUNAMES table in DB2 documentation.

Display or Update IPNAMES Panel

This panel (Figure 182) appears when you select option 2 on the Display/Update Communications DB panel.

```
DB2 Admin ----- DB2W Display/Update IPNAMES ----- Row 1 of 1
Command ==>                                           Scroll ==> PAGE

                                           DB2 System: DB2W

Valid line commands are:
D - Delete I - Insert U - Update LOC - Locations USER - User names
ILOC - Insert location IUSER - Insert user

      Link      Security User
Select Name      Out      Names IP address
      *          *          *      *
-----
      DKIP91     P          0      132.131.61.91
***** END OF DB2 DATA *****
```

Figure 182. Display or Update IPNAMES Panel (ADB2Z52)

For a description of the fields on this panel, see the description of the SYSIBM.IPNAMES table in DB2 documentation.

Display or Update LUMODES Panel

This panel (Figure 183) appears when you select option 3 on the Display/Update Communications DB panel.

This panel displays the rows in the LUMODES table in the CDB. You can update the LUMODES table using the following line commands:

- D** Deletes the row
- I** Inserts a new row. Row values can be entered on the next panel.
- U** Updates the row. Row values can be changed on the next panel.

```
DB2 Admin ----- DB2W Display/Update LUMODES ----- Row 1 of 1
Command ==>                                           Scroll ==> PAGE

                                           DB2 System: DB2W

Valid line commands are:
  D - Delete  I - Insert  U - Update  LU - LU name
                               Conv
Select LU Name  Mode Name  Limit
      *         *         *
-----
*      DKLUDB2X  IBMRDB      5
***** END OF DB2 DATA *****
```

Figure 183. Display or Update LUMODES Panel (ADB2Z53)

For a description of the fields on this panel, see the description of the SYSIBM.LUMODES table in DB2 documentation.

Display or Update MODESELECT Panel

This panel (Figure 184) appears when you select option 4 on the Display/Update Communications DB panel.

This panel displays the rows in the MODESELECT table in the CDB. You can update the MODESELECT table using the following line commands:

- D** Deletes the row
- I** Inserts a new row. Row values can be entered on the next panel.
- U** Updates the row. Row values can be changed on the next panel.

```
DB2 Admin ----- DB2T Display/Update MODESELECT ----- ROW 1 TO 21 OF 22
Command ==>                                           Scroll ==> PAGE

                                           DB2 System: DB2T

Valid line commands are:
D - Delete I - Insert U - Update LU - LU name LUM - LU modes

Select Auth ID Plan Name LU Name Mode Name
      *      *      *      *
-----
              QMF      DKLADB2X IBMRDRS
***** END OF DB2 DATA *****
```

Figure 184. Display or Update MODESELECT Panel (ADB2Z54)

For a description of the fields on this panel, see the description of the SYSIBM.MODESELECT table in DB2 documentation.

Display or Update USERNAMES Panel

This panel (Figure 185) appears when you select option 5 on the Display/Update Communications DB panel.

This panel displays the rows in the USERNAMES table in the CDB. You can update the USERNAMES table using the following line commands:

- D** Deletes the row
- I** Inserts a new row. Row values can be entered on the next panel.
- U** Updates the row. Row values can be changed on the next panel.

```
DB2 Admin ----- DB2X Display/Update USERNAMES ----- Row 1 of 2
Command ==>                                           Scroll ==> PAGE

                                           DB2 System: DB2X

Valid line commands are:
D - Delete I - Insert U - Update LU - LU name IP - IP name

Select T Auth ID Link New ID Password
      * *      *      *      *
-----
0
0 SYSADM DKLADB2W NORMUSR
***** END OF DB2 DATA *****
```

Figure 185. Display or Update USERNAMES Panel (ADB2Z55)

For a description of the fields on this panel, see the description of the SYSIBM.USERNAMES table in DB2 documentation.

Display or Update LULIST Panel

This panel (Figure 186) appears when you select option 6 on the Display/Update Communications DB panel.

This panel displays the rows in the LULIST table in the CDB. You can update the LULIST table using the following line commands:

- D** Deletes the row
- I** Inserts a new row. Row values can be entered on the next panel.
- U** Updates the row. Row values can be changed on the next panel.

```
DB2 Admin ----- DB2W Display/Update LULIST -----
Command ==>                                           Scroll ==> PAGE

Valid line commands are:                               DB2 System: DB2W
D - Delete I - Insert U - Update LU - LU name

      Link      Generic
Select Name      LU Name
      *          *
-----
      DKLUDB21 DKLUDB2
      DKLUDB22 DKLUDB2
***** END OF DB2 DATA *****
```

Figure 186. Display or Update LULIST Panel (ADB2Z56)

For a description of the fields on this panel, see the description of the SYSIBM.LULIST table in DB2 documentation.

Display or Cancel Distributed Threads Panel

This panel (Figure 187) appears when you select option DC on the System Administration panel.

Use this panel to cancel processing for distributed data facility (DDF) threads that originate locally and access remote data, or originate remotely and access local data.

DB2 Admin does this function by issuing one of the following DB2 commands: -DISPLAY THREAD or -CANCEL DDF THREAD. The information DB2 Admin returns to you from the commands is in ISPF browse format. See DB2 documentation for an explanation of these commands and their output.

```
DB2 Admin ----- DB2T Display/Cancel Distributed Threads --- ROW 1 TO 2 OF 2
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
CAN - Cancel thread  DIS - Display thread details

Sel Name      St A      Req ID      Auth ID  Plan      ASID  Luwid
*             * * *      *           *        *        *    *
-----
TSO           TR *      255 ISTJE      ISTJE     ADB     008D 2440
DKIBM000.DKLUDB2T.AB16480C5ADD=2440 ACCESSING DATA AT
DENMARK_DB2X
BATCH        TR          3 DB2TDS      IS512C1   DSNTDP2  008C 2441
DKIBM000.DKLUDB2T.AB164981904B=2441 ACCESSING DATA AT
NORDIC_DB2W
***** END OF DB2 DATA *****
```

Figure 187. Display or Cancel Distributed Threads Panel (ADB2ZDC2)

The fields on this panel are:

SEL

Input field where you enter one of the line commands listed on the panel.

NAME

Connection name.

ST

Connection status.

A

Active indicator.

REQ

Number of DB2 requests.

ID

Correlation ID.

AUTH ID

Authorization ID.

PLAN

Plan name.

ASID

Address space ID.

LUWID

Logical unit-of-work ID.

Figure 188 shows the type of information DB2 Admin returns when you issue the DIS line command to display information about a thread.

```
DB2 Admin ----- DB2T Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-DIS THD(*) LUWID(2440) DETAIL

***** TOP OF DATA *****
DSNV401I < DISPLAY THREAD REPORT FOLLOWS -
DSNV402I < ACTIVE THREADS -
NAME      ST A  REQ ID          AUTHID  PLAN      ASID
TSO       TR *   256 ISTJE          ISTJE   ADB       008D
-DKIBM000.DKLUB2T.AB16480C5ADD=2440 ACCESSING DATA AT
-DENMARK_DB2X
--LOCATION          SESSID          A ST TIME
--DENMARK_DB2X    F0839112CD27CFBC  S1 9513816160825
DISPLAY ACTIVE REPORT COMPLETE
DSN9022I < DSNVDT '-DIS THD' NORMAL COMPLETION
***** BOTTOM OF DATA *****
```

Figure 188. Display Distributed Threads Panel (ADB2DB2O)

Display Active Locations Panel

This panel (Figure 189) appears when you select option DL on the System Administration panel.

Use this panel to display statistics about threads with a distributed relationship, or display conversation information about DB2 system threads that interact with VTAM.

DB2 Admin does this function by issuing one of the following DB2 commands: -DISPLAY LOCATION or DISPLAY THREAD. The information DB2 Admin returns to you from the commands is in ISPF browse format. See DB2 documentation for an explanation of these commands and their output.

DB2 Admin ----- DB2X Display Active Locations -----						Row 1 of 1
Command ==>						Scroll ==> PAGE
Valid line commands are:						
DIS - Display location details DIST - Display threads						
Select	Location	PRDID	Linkname	Requesters	Servers	Convs
*	*	*	*	*	*	*

	DENMARK_DB2P	DSN04010	DKLUB2P	0	1	3
	DENMARK_DB2W	DSN05010	DKLUB2W	0	0	2
	NORDIC_DB2P	DSN05010	NOLUB2P	0	0	2
	NORDIC_DB2R	DSN05010	NOLUB2R	0	0	2
	NORDIC_DB2T	DSN05010	NOLUB2T	0	0	2
	NORDIC_DB2W	DSN05010	NOLUB2W	0	0	2
***** END OF DB2 DATA *****						

Figure 189. Display Active Locations Panel (ADB2ZDL2)

The fields on this panel are:

SELECT

Input field where you enter one of the line commands listed on the panel.

LOCATION

Location name.

PRDID

Database product.

LINKNAME

LU name

REQUESTERS

Number of requestors.

SERVERS

Number of servers.

CONVS

Number of conversations.

Stop DDF Panel

This panel (Figure 190) appears when you select option DS on the System Administration panel.

Use this panel to stop the distributed data facility (DDF) if it has already been started.

DB2 Admin does this function by issuing the DB2 -STOP DDF command. Enter the appropriate parameter on the panel. The information DB2 Admin returns to you from the command is in ISPF browse format. See DB2 documentation for an explanation of the -STOP DDF command and its output.

```
DB2 Admin ----- DB2T Stop DDF ----- 16:16
Command ==>

-STOP DDF

MODE(
  Stop mode      ==>      (Quiesce or Force, default is quiesce)
)
```

Figure 190. Stop DDF Panel (ADB2ZDS)

Start DDF Panel

This panel (Figure 191) appears when you select option DT on the System Administration panel.

This panel indicates that the distributed data facility (DDF) has been started.

DB2 Admin does this function by issuing the DB2 -STA DDF command. See DB2 documentation for an explanation of the -STA DDF command and its output.

```
DB2 Admin ----- DB2W Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-STA DDF

***** TOP OF DATA *****
DSNL021I  START DDF COMMAND ACCEPTED
***** BOTTOM OF DATA *****
```

Figure 191. Start DDF Panel (ADB2DB2O)

Manage Stored Procedures Panel

This panel (Figure 192) appears when you select option PM on the System Administration panel. The layout of this panel depends on the DB2 version you are using. The panel shown here is the one you get if you are using DB2 V6.

Use this panel to choose the operation you want to perform.

```
DB2 Admin ----- DB2W Manage Stored Procedures ----- 00:09
Option ==>

1 - Display/alter stored procedures
2 - Create stored procedure
3 - Display stored procedure statistics
4 - Start all stored procedures
5 - Stop all stored procedures
6 - Create view on SYSIBM.SYSROUTINES
7 - Display views on SYSIBM.SYSROUTINES

DB2 System: DB2W
DB2 SQL ID: ISTJE

Stored procedure catalog table/view for option 1:
Owner ==> (default is SYSIBM)
Name ==> (default is SYSROUTINES)

Stored procedures are also available from option 1.J
```

Figure 192. Manage Stored Procedures Panel (ADB2ZP)

Display/Alter Stored Procedures Panel

This panel (Figure 193) appears when you select option 1 on the Manage Stored Procedures panel.

This panel shows the stored procedures you have defined in your system.

```
DB2 Admin ----- DB2X Stored Procedures ----- Row 1 of 6
Command ==> Scroll ==> PAGE

Valid line commands are:
AH - Schema Auth A - Auth DROP - Drop AL - Alter K - Package
PA - Parms RT - Return type DIS - Display STO - Stop STA - Start
GR - Grant COM - Comment I - Interpretation

S
P Q S P E C Result External
S F L R T S R Sets Name
* * * * * * *
-----
ADB ADB2RE 6 PLI D Y M N M D N 2 ADB2RE
DSN8 DSN8EP2 5 PLI N Y N N M D N 0 DSN8EP2
ISTJE DUMMY 1 D Y N N M D N 0 DUMMY
ISTJE T1 1 PLI D Y C N M D N 0 T1
ISTJE T2 2 PLI G Y M Y M D Y 1 T3
SYSPROC DSNWZP 1 ASSEMBLE G Y C N M D N 0 DSNWZP
***** END OF DB2 DATA *****
```

SQL

Whether SQL statements are allowed, which is one of the following:

- | | |
|----------|----------------------------|
| N | Contains no SQL statements |
| C | Contains SQL statements |
| R | Reads SQL data |
| M | Modifies SQL data |

SR

Whether the program should remain resident when it ends.

PT

Program type, which is one of the following:

- | | |
|----------|------------|
| M | Main |
| S | Subroutine |

ES

External security, which is one of the following:

- | | |
|----------|------------------------|
| D | DB2 address space user |
| U | User |
| C | Definer |

CR

Commit on return.

RESULT SETS

Maximum number of result sets that can be returned.

EXTERNAL NAME

Load module name for the stored procedure.

Create Stored Procedure Panel

This panel (Figure 194) appears when you select option 2 on the Manage Stored Procedures panel.

Enter the required parameters and press ENTER to continue with the create operation, or press END to avoid creating a procedure.

DB2 Admin does this function by issuing an SQL CREATE PROCEDURE statement with the parameters you specify. See DB2 documentation for an explanation of the CREATE PROCEDURE statement and its parameters.

```
DB2 Admin ----- DB2X Create Procedure ----- 11:00
Command ==>

CREATE PROCEDURE

Schema      ==>                (optional, default is ISTJE)
Name        ==>

(
Number of parameters ==>
)

                                         (continued...)
```

Figure 194. Create Stored Procedure Panel (ADB26CO)

Display Stored Procedure Statistics Panel

This panel (Figure 195) appears when you select option 3 on the Manage Stored Procedures panel.

This panel shows statistics for stored procedures accessed by DB2 applications.

```
DB2 Admin ----- DB2W Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-DIS PROC(SYSPROC.DSNWZP)

***** Top of Data *****
DSNX940I ? DSNX9DIS DISPLAY PROCEDURE REPORT FOLLOWS -

----- SCHEMA=SYSPROC
DSNX9DIS PROCEDURE DSNWZP HAS NOT BEEN ACCESSED OR IS NOT DEFINED
DSNX9DIS DISPLAY PROCEDURE REPORT COMPLETE
DSNX9022I ? DSNX9COM '-DISPLAY PROC' NORMAL COMPLETION
***** Bottom of Data *****
```

Figure 195. Display Stored Procedure Statistics Panel (ADB2DB2O)

Start All Stored Procedures Panel

This panel (Figure 196) appears when you select option 4 on the Manage Stored Procedures panel.

This panel shows the output from a DB2 START PROCEDURE(*.*) command.

```
DB2 Admin ----- DB2W Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-STA PROC(*.*)

***** Top of Data *****
DSNX946I ? DSNX9ST2 START PROCEDURE SUCCESSFUL FOR *.*
DSN9022I ? DSNX9COM '-START PROC' NORMAL COMPLETION
***** Bottom of Data *****
```

Figure 196. Start All Stored Procedures Panel (ADB2DB2O)

Stop All Stored Procedures Panel

This panel (Figure 197) appears when you select option 5 on the Manage Stored Procedures panel.

This panel shows the output from a DB2 STOP PROCEDURE(*.*) command.

```
DB2 Admin ----- DB2W Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-STO PROC(*.*)

***** Top of Data *****
DSNX947I ? DSNX9SP2 STOP PROCEDURE SUCCESSFUL FOR *.*
DSN9022I ? DSNX9COM '-STOP PROC' NORMAL COMPLETION
***** Bottom of Data *****
```

Figure 197. Stop All Stored Procedures Panel (ADB2DB2O)

Create View on SYSIBM.SYSROUTINES Panel

This panel (Figure 198) appears when you select option 6 on the Manage Stored Procedures panel.

Use this panel to create a view of stored procedures on SYSIBM.SYSROUTINES. This is useful if you want to let people administer their own stored procedures. This panel lets you define a view for all procedures with the (LIKE) pattern you define.

For example, you can define view ABC.PROCEDURES as a view on SYSIBM.SYSROUTINES WHERE SCHEMA LIKE 'ABC%'. View ABC.PROCEDURES will contain all stored procedures with the schema starting with ABC.

At the same time as you create the view, you can GRANT SELECT, INSERT, UPDATE, and DELETE on the view to a list of authorization ids (grantees).

```
DB2 Admin ----- DB2W Create View on SYSIBM.SYSROUTINES ----- 00:12
Command ==>
CREATE stmt executed
CREATE VIEW

Owner      ==> ISTJE
Name       ==> ADB_ROUTINES

AS SELECT *
  FROM SYSIBM.SYSROUTINES
  WHERE SCHEMA LIKE '
Pattern    ==> ADB%      '

WITH CHECK OPTION ;

GRANT SELECT,INSERT,UPDATE,DELETE ON (above table) TO
Grantees ==>
```

Figure 198. Create View on SYSIBM.SYSROUTINES Panel (ADB2ZP6)

Display Views on SYSIBM.SYSROUTINES Panel

This panel (Figure 199) appears when you select option 7 on the Manage Stored Procedures panel.

This panel shows the views that exist on SYSIBM.SYSROUTINES; for example, it would show the views created using option 6 on the Manage Stored Procedures panel.

For an explanation of the fields on this panel, see page 78.

```
DB2 Admin ----- DB2W Tables, Views, and Aliases ----- ROW 1 TO 3 OF 3
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
C - Columns A - Auth L - List X - Indexes S - Table space D - Database
V - Views T - Tables P - Plans Y - Synonyms SEL - Select prototyping
? - Show all line commands
```

Se1	Name	Owner	T DB Name	TS Name	Cols	Rows	Checks
*	*	*	* *	*	*	*	*
-----	-----	-----	-----	-----	-----	-----	-----
	PROCEDURES	ISTJE	V DSNDB06	SYSOBJ	79	-1	0
	FUNCTIONS	ISTJE	V DSNDB06	SYSOBJ	79	-1	0
***** END OF DB2 DATA *****							

Figure 199. Display Views on SYSIBM.SYSROUTINES Panel (ADB21T)

Manage Functions Panel

This panel (Figure 200) appears when you select option FM on the System Administration panel.

Use this panel to choose the function you want to perform.

```
DB2 Admin ----- DB2X Manage Functions ----- 18:35
Option ==>

1 - Display/alter functions
2 - Create functions
3 - Display function statistics
4 - Start all functions
5 - Stop all functions
6 - Create view on SYSIBM.SYSROUTINES
7 - Display views on SYSIBM.SYSROUTINES

DB2 System: DB2X
DB2 SQL ID: ISXSTL

Catalog table/view for options 1-2:
Owner ==> SYSIBM      (default is SYSIBM)
Name  ==> SYSROUTINES (default is SYSROUTINES)

Stored procedures are also available from option 1.J
```

Figure 200. Manage Functions Panel (ADB2ZF)

Display or Alter Functions Panel

This panel (Figure 201) appears when you select option 1 on the Manage Functions panel.

This panel displays information about all the user-defined functions in your DB2 subsystem.

DB2 Admin ----- DB2X Functions ----- Row 1 of 44

Command ==> Scroll ==> PAGE

Valid line commands are:

AH - Schema Auth A - Auth DROP - Drop AL - Alter K - Package

PA - Parms RT - Return type DIS - Display STO - Stop STA - Start

COM - Comment I - Interpretation

S	Schema	Name	Specific Name	F		D				S				External
				O	T	E	E	C	P	Q	S	P	E	
	*	*	*	*	*	*	*	*	*	*	*	*	*	*

	ISTJE	+	SQL990208100338896	U	S			2						N
	ISTJE	-	KR_MINUS	U	S			2						N
	ISTJE	BLOB	SQL99020816075424#	S	S			1						Y
	ISTJE	CHAR	SQL990208160600039	S	S			1						Y
	ISTJE	CLOB	SQL99020816074873#	S	S			1						Y
	ISTJE	D	SQL99020817171170M	S	S			1						Y
	ISTJE	DATE	SQL99020816083184#	S	S			1						Y
	ISTJE	DECIMAL	SQL99011815223541B	S	S			1						Y
	ISTJE	DECIMAL	SQL99021816281595J	S	S			1						Y
	ISTJE	DECIMAL	SQL99020817171173M	S	S			1						Y

Figure 201. Manage Functions Panel (ADB21F)

The meaning of the fields on this panel is as follows:

S

Input field where you enter one of the line commands listed on the panel.

SCHEMA

Schema of the function.

NAME

Name of the function.

SPECIFIC NAME

Specific name of the function.

O

Origin of the function, which is one of the following:

E External
U Sourced
S System generated

FT

Function type, which is one of the following:

C Column
S Scaler
T Table

PARMS

Number of parameters for the function.

DET

Whether the function returns the same result when called with the same parameters.

EA

External action, that is, whether the function has external impact.

CF

Cast function, which is one of the following:

Y	Yes
N	No

PS

Parameter style, which is one of the following:

D	DB2SQL
G	General
N	General with nulls

F

Fenced (applies if it is run separately from DB2).

SQL

Whether SQL statements are allowed, which is one of the following:

N	Contains no SQL statements
C	Contains SQL statements
R	Reads SQL data
M	Modifies SQL data

SR

Whether the program should remain resident when it ends.

PT

Program type, which is one of the following:

M	Main
S	Subroutine

ES

External security, which is one of the following:

D	DB2 address space user
U	User
C	Definer

EXTERNAL NAME

Load module name for the stored procedure.

Create Function Panel

This panel (Figure 202) appears when you select option 2 on the Manage Functions panel.

Use this panel to create a new user-defined function.

DB2 Admin does this function by issuing an SQL CREATE FUNCTION statement with the parameters you specify. See DB2 documentation for an explanation of the CREATE FUNCTION statement and its parameters.

```
DB2 Admin ----- DB2X Create Function ----- 18:38
Command ==>

CREATE FUNCTION

Schema      ==>                (optional, default is ISXSTL)
Name        ==>

(
Number of parameters ==>
)

                                         (continued...)
```

Figure 202. Create Function Panel (ADB26CF)

Display Function Statistics Panel

This panel (Figure 203) appears when you select option 3 on the Manage Functions panel.

This panel displays statistics about external user-defined functions accessed by DB2 applications.

DB2 Admin does this function by issuing the `-DIS FUNCTION SPEC(*.*)` command. See DB2 documentation for an explanation of the `-DIS FUNCTION SPEC(*.*)` command and its output.

```
DB2 Admin ----- DB2X Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-DIS FUNCTION SPEC(*.*)

***** Top of Data *****
DSNX975I DB2X DSNX9DIS DISPLAY FUNCTION SPECIFIC REPORT FOLLOWS -
FUNCTION          STATUS ACTIVE QUEUED MAXQUE TIMEOUT   WLM_ENV
APPL1             STARTED    1      0      0      0  PAYROLL
APPL2             STARTED    1      0      0      0  PAYROLL
APPL3             STARTED    0      1      2      0  PAYROLL
APPL5             STOPREJ    0      0      0      0  SANDBOX
APPL6             STOPABN    0      0      0      0  PAYROLL
FUNC1             STOPQUE    0      0      0      0  SANDBOX
DSNX9DIS DISPLAY FUNCTION SPECIFIC REPORT COMPLETE
DSNX975I - DSNX9DIS DISPLAY FUNCTION SPECIFIC REPORT FOLLOWS -
***** Bottom of Data *****
```

Figure 203. Display Function Statistics Panel (ADB2DB2O)

Start All Functions Panel

This panel (Figure 204) appears when you select option 4 on the Manage Functions panel.

Use this function to activate all external functions that are stopped.

DB2 Admin does this function by issuing the -STA FUNCTION SPEC(*.*) command. See DB2 documentation for an explanation of the -STA FUNCTION SPEC(*.*) command and its output.

```
DB2 Admin ----- DB2X Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-STA FUNCTION SPEC(*.*)

***** Top of Data *****
DSNX973I DB2X DSNX9ST2 START FUNCTION SPECIFIC SUCCESSFUL FOR *.*
DSN9022I DB2X DSNX9COM '-START FUNC' NORMAL COMPLETION
***** Bottom of Data *****
```

Figure 204. Start All Functions Panel (ADB2DB2O)

Stop All Functions Panel

This panel (Figure 205) appears when you select option 5 on the Manage Functions panel.

Use this function to stop all external user-defined functions.

DB2 Admin does this function by issuing the -STO FUNCTION SPEC(*.*) command. See DB2 documentation for an explanation of the -STO FUNCTION SPEC(*.*) command and its output.

```
DB2 Admin ----- DB2X Browse DB2 Command Output --- Line 00000000 Col 001 080
Command ==>                                           Scroll ==> PAGE

-STO FUNCTION SPEC(*.*)

***** Top of Data *****
DSNX974I DB2X DSNX9SP2 STOP FUNCTION SPECIFIC SUCCESSFUL FOR *.*
DSN9022I DB2X DSNX9COM '-STOP FUNC' NORMAL COMPLETION
***** Bottom of Data *****
```

Figure 205. Stop All Functions Panel (ADB2DB2O)

Create View on SYSIBM.SYSROUTINES Panel

This panel (Figure 206) appears when you select option 6 on the Manage Functions panel.

Use this panel to create a view of the user-defined functions in SYSIBM.SYSROUTINES. This is useful if you want to let people administer their own functions. This panel lets you define a view for all procedures with the (LIKE) pattern you define.

For example, you can define view ABC.FUNCTIONS as a view on SYSIBM.SYSROUTINES WHERE SCHEMA LIKE 'ABC%'. View ABC.FUNCTIONS will contain all user-defined functions in schemas starting with ABC.

At the same time as you create the view, you can GRANT SELECT, INSERT, UPDATE, and DELETE on the view to a list of authorization ids (grantees).

```
DB2 Admin ----- DB2X Create View on SYSIBM.SYSROUTINES ----- 18:39
Command ==>

CREATE VIEW

Owner   ==>
Name    ==>

AS SELECT *
   FROM SYSIBM.SYSROUTINES
   WHERE SCHEMA LIKE '
Pattern ==>          '

WITH CHECK OPTION ;

GRANT SELECT,INSERT,UPDATE,DELETE ON (above table) TO
Grantees ==>
```

Figure 206. Create View on SYSIBM.SYSROUTINES Panel (ADB2ZF6)

Display Views on SYSIBM.SYSROUTINES Panel

This panel (Figure 207) appears when you select option 7 on the Manage Functions panel.

This panel displays the views that are created on SYSIBM.SYSROUTINES.

```
DB2 Admin ----- DB2X Tables, Views, and Aliases ----- - Row 1 of 2
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
C - Columns  A - Auth  L - List  X - Indexes  S - Table space  D - Database
V - Views    T - Tables P - Plans  Y - Synonyms SEL - Select prototyping
? - Show all line commands

Sel  Name          Owner    T DB Name  TS Name    Cols      Rows Checks
   *          *      * *      *      *      *      *
-----
PROCEDURES      ISTJE    V DSND06   SYSOBJ     79        -1        0
FUNCTIONS       ISTJE    V DSND06   SYSOBJ     79        -1        0
***** END OF DB2 DATA *****
```

Figure 207. Display Views on SYSIBM.SYSROUTINES Panel (ADB21T)

The panel being displayed is the same panel you get if you use option 1.T and option Z.PM.7.

Chapter 18. Space Manager

This chapter describes the space manager panels. Space manager panels let you display DB2 and VSAM statistics for DB2 page sets and invoke functions against objects. The statistical data is gathered from the DB2 catalog and merged with data from the VSAM catalogs.

Using these panels you can:

- Display DB2 and VSAM information about DB2 page sets
- Let the user do space-related functions using line commands
- Alter page set properties
- Resize page sets to eliminate extents and free unused space
- Change to/from STOGROUP- and VCAT-defined space using the MOVE line command
- Help the user estimate primary and secondary space allocation for (new) table spaces or indexes

Customization

Please see “Space Manager Customization” on page 27 for customization tasks that need to be performed before running the Space Manager function.

Restrictions

The following limitations apply to the DB2 Admin Space Manager :

1. The resize function will generate separate jobs for each page set that exceeds the limits specified (primary command RESZ). This means that an index will be reorganised twice, first by reorganising the tablespace and secondly by reorganising the index if the criteria for resizing are met by both spaces. Only the specific job for the index will update the allocations for the index.
2. Resize calculations are based on the High Used RBA for the VSAM dataset that contains the tablespace or index. This means that if activity on tables has left freespace in the pages, resize may overallocate space. This may be verified by repeating the resize. Space Manager will display a message "No changes" if all selected spaces conform to the limitations given (no of extents, % used).

Space Manager Menu Panel (ADB2M)

Figure 208 on page 282 shows the menu panel for the space manager.

```
DB2 Admin ----- DB2 Space Manager ----- 20:47
Option ==>

1 - Display pageset space by data base          DB2 System: DB2W
2 - Table space estimator                      DB2 SQL ID: ISTJE
3 - Index space estimator

CatCopy ==> NO (Y/N to use catalog copy)
```

Figure 208. Space Manager Menu Panel (ADB2M)

On this panel, you can specify whether you want to see a display of page set space information or obtain an estimate of primary and secondary space allocation for new table spaces or indexes.

DISPLAY PAGESET SPACE BY DATABASE

Enter a '1' in the OPTIONS field to display the page set space by database.

TABLE SPACE ESTIMATOR

Enter a '2' in the OPTIONS field to invoke the table space estimator.

INDEX SPACE ESTIMATOR

Enter a '3' in the OPTIONS field to invoke the index space estimator.

CATCOPY

This option lets you work with a copy of the catalog. If you specify N or NO, the active catalog is used.

Space Management by Database Panel (ADB2M1)

When you select Option 1, "Display page set space by database", on the previous menu, you are next prompted to specify the database name and related information.


```
DB2 Admin ----- DB2W DB2 Space Management by Data Base ----- 20:48
Option ==>

Enter the partial name of the data base you want to display space statistics
for:

Partial data base name . . . : DSN8D      (required)
Partial space name      . . . : %         (optional)

Include spaces . . . . . : A             (All,indexes, or tablespaces)
```

Figure 209. Space Management by Database Panel (ADB2M1)

PARTIAL DATABASE NAME

Enter the partial database name in this field. This is a required input field. To improve performance, specify as much of the database name as possible.

PARTIAL SPACE NAME

Enter the partial space name in this field. This is an optional input field. To improve performance, specify as much of the space name as possible.

INCLUDE SPACES

Specify the type of spaces to be displayed.

- A** Both index and tablespace data are displayed.
- X** Only data for indexes is displayed.
- S** Only data for tablespaces is displayed.

Page Set Statistics Panel (ADB2M1S)

The Page Set Statistics Panel displays statistics related to the page set. The panel has four variations: VSTAT, VDEF, DSTAT and DDEF. The VSTAT Page Set Statistics panel is the first to be displayed. You can reach the others by entering the appropriate primary command.

Primary Commands to Navigate the Page Set Statistics Panels

The primary commands supported on this panel are:

VSTAT

Display VSAM statistics (this is the default display). See Figure 210 on page 285 for an example.

VDEF

Display VSAM definitions. See Figure 211 on page 286 for an example.

DSTAT

Display DB2 statistics. See Figure 212 on page 287 for an example.

DDEF

Display DB2 definitions. See Figure 213 on page 288 for an example.

RESZ

Generate jobs to resize page sets.

If you specify the RESZ primary command, you are prompted for additional input. The input panel is shown in Figure 217 on page 292.

Specifying VSTAT, VDEF, DSTAT and DDEF all result in the display of the Page Set Statistics Panel (ADB2M1S). The columns displayed vary depending on which primary command you entered. All four variations of the Page Set Statistics Panel are shown in this chapter.

Common Fields for all Page Set Statistics Panels

The following fields are the same for all variations of the Page Set Statistics panel.

SELECT

Input field where you enter one of the line commands listed near the top of the panel.

DATABASE

The database to which this page set belongs.

PAGE SET

Name of the page set.

NUM

Page set number.

T

Type of page set, which can be one of the following:

S Simple/segmented table space.

X Index.

SP Table space partition.

XP Index partition.

Page Set Statistics Panel (ADB2M1S) for VSAM Statistics

```

DB2 Admin ----- DB2W Page Set Statistics ----- Row 1 of 40
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
I - Info  S - Space  SP - Space Part  G - Storage Group  DIS - Display
STA - Start  STO - Stop  LISTC - Listcat  AL - Alter  MOVE - Move
VDEF - VSAM define statement  RESZ - Resize page set  HR - HSM recall
HL - HSM list


```

Select	Data Base	Page Set	Num	T	VSAM KB Alloc	VSAM KB Used	Pct Used	VSAM Exts	Volsers(s)...
*	*	*	*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	DSN8D61A	DSN8S61D	1	S	48	48	100	1	RE9M01
	DSN8D61A	DSN8S61E	1	SP	144	144	100	3	RE9M05
	DSN8D61A	DSN8S61E	2	SP	144	144	100	3	RE9M03
	DSN8D61A	DSN8S61E	3	SP	48	48	100	1	RE9M08
	DSN8D61A	DSN8S61E	4	SP	144	144	100	3	RE9M05
	DSN8D61A	DSN8S61P	1	S	192	96	50	1	RE9M10
	DSN8D61A	DSN8S61R	1	S	48	48	100	1	RE9M10
	DSN8D61A	DSN8S61S	1	S	48	48	100	1	RE9M05
	DSN8D61A	XACT1	1	X	48	48	100	1	RE9M08

Figure 210. Page Set Statistics Panel (ADB2M1S) for VSAM Statistics

See “Common Fields for all Page Set Statistics Panels” on page 284 for additional information.

VSAM KB ALLOC

Number of KB allocated by VSAM for the page set.

VSAM KB USED

Number of KB of the page set used by VSAM.

PCT USED

Percent used of allocated space.

VSAM EXTS

Number of VSAM extents.

VOLSER(S)

Volume serial numbers of the VSAM data sets.

Page Set Statistics Panel (ADB2M1S) for VSAM Definitions

```

DB2 Admin ----- DB2W Page Set Statistics ----- Row 1 of 40
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
I - Info S - Space SP - Space Part G - Storage Group DIS - Display
STA - Start STO - Stop LISTC - Listcat AL - Alter MOVE - Move
VDEF - VSAM define statement RESZ - Resize page set HR - HSM recall
HL - HSM list

```

Select	Data Base	Page Set	Num	T	VSAM Prim Alloc	VSAM Secd Alloc	VSAM Allocat. Type	VSAM First Exts	VSAM First Unit
*	*	*	*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	DSN8D61A	DSN8S61D	1	S	1		1 TRACK	1	3390
	DSN8D61A	DSN8S61E	1	SP	1		1 TRACK	3	3390
	DSN8D61A	DSN8S61E	2	SP	1		1 TRACK	3	3390
	DSN8D61A	DSN8S61E	3	SP	1		1 TRACK	1	3390
	DSN8D61A	DSN8S61E	4	SP	1		1 TRACK	3	3390
	DSN8D61A	DSN8S61P	1	S	4		2 TRACK	1	3390
	DSN8D61A	DSN8S61R	1	S	1		1 TRACK	1	3390
	DSN8D61A	DSN8S61S	1	S	1		1 TRACK	1	3390
	DSN8D61A	XACT1	1	X	1		1 TRACK	1	3390

Figure 211. Page Set Statistics Panel (ADB2M1S) for VSAM Definitions

See "Common Fields for all Page Set Statistics Panels" on page 284 for additional information.

VSAM PRIM ALLOC

Number of primary allocation units.

VSAM SECD ALLOC

Number of secondary allocation units.

ALLOCAT. TYPE

VSAM allocation type.

VSAM EXT

Number of VSAM extents.

FIRST UNIT

Unit type of the first VSAM extent.

Page Set Statistics Panel (ADB2M1S) for DB2 Statistics

This version of the panel shows data for DB2 Statistics.

DB2 Admin ----- DB2W Page Set Statistics ----- Row 1 of 40									
Command ==>									
Scroll ==> PAGE									
Valid line commands are:									
I - Info S - Space SP - Space Part G - Storage Group DIS - Display									
STA - Start STO - Stop LISTC - Listcat AL - Alter MOVE - Move									
VDEF - VSAM define statement RESZ - Resize page set HR - HSM recall									
HL - HSM list									
Select	Data Base	Page Set	Num	T	No of Rows	Allocated	KB	Clust	Ratio
*	*	*	*	*	*	*	*	*	*

	DSN8D61A	DSN8S61D	1	S	14	48	0		
	DSN8D61A	DSN8S61E	1	SP	32	144	0		
	DSN8D61A	DSN8S61E	2	SP	0	144	0		
	DSN8D61A	DSN8S61E	3	SP	10	48	0		
	DSN8D61A	DSN8S61E	4	SP	0	144	0		
	DSN8D61A	DSN8S61P	1	S	189	192	0		
	DSN8D61A	DSN8S61R	1	S	-1	0	0		
	DSN8D61A	DSN8S61S	1	S	-1	0	0		
	DSN8D61A	XACT1	1	X	0	48	100		

Figure 212. Page Set Statistics Panel (ADB2M1S) with DB2 Statistics

See “Common Fields for all Page Set Statistics Panels” on page 284 for additional information.

NO. OF ROWS

Number of rows in the page set. If RUNSTAT has not been run, '-1' is displayed.

KB ALLOCATED

Number of KB allocated. If STOSPACE has not been run, '0' is displayed.

CLUST RATIO

Cluster ratio (zero for non indexes).

Page Set Statistics Panel (ADB2M1S) for DB2 Definitions

This version of the panel shows data for DB2 Definitions.

```
DB2 Admin ----- DB2W Page Set Statistics ----- Row 1 of 40
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
I - Info S - Space SP - Space Part G - Storage Group DIS - Display
STA - Start STO - Stop LISTC - Listcat AL - Alter MOVE - Move
VDEF - VSAM define statement RESZ - Resize page set HR - HSM recall
HL - HSM list
```

Select	Data Base	Page Set	Num	T	DB2 Prim Qty	DB2 Secd Qty	C	T	S Storage Group	VCAT
*	*	*	*	*	*	*	*	*	*	*
-----	DSN8D61A	DSN8S61D	1	S	20	20	I		DSN8G610	C1DB2
	DSN8D61A	DSN8S61E	1	SP	32	12	I		DSN8G610	C1DB2
	DSN8D61A	DSN8S61E	2	SP	20	20	I		DSN8G610	C1DB2
	DSN8D61A	DSN8S61E	3	SP	12	12	I		DSN8G610	C1DB2
	DSN8D61A	DSN8S61E	4	SP	20	20	I		DSN8G610	C1DB2
	DSN8D61A	DSN8S61P	1	S	160	80	I		DSN8G610	C1DB2
	DSN8D61A	DSN8S61R	1	S	20	20	I		DSN8G610	C1DB2
	DSN8D61A	DSN8S61S	1	S	20	20	I		DSN8G610	C1DB2
	DSN8D61A	XACT1	1	X	12	12	N	I	DSN8G610	C1DB2

Figure 213. Page Set Statistics Panel (ADB2M1S) with DB2 Definitions

See “Common Fields for all Page Set Statistics Panels” on page 284 for additional information.

DB2 Prim Qty

Number of DB2 primary allocation units in KB.

DB2 Secd Qty

Number of DB2 secondary allocation units in KB.

C

Clustering specified:

Y Yes

N No

S T

Storage type:

I Implicit (storage group used).

E Explicit (storage group not used).

Storage Group

DB2 storage group used.

VCAT

Name of ICF catalog used for space allocation.

Using Line Commands for Space-Related Functions

Line commands can be used to perform space-related functions, such as altering page set properties (STOGROUP, VCAT, VOLUMES, and allocation) or resizing page sets to eliminate extents and free unused space. You can also use line commands to change to/from STOGROUP- and VCAT-defined space.

The page set statistics panel is the starting point. Supported line commands are listed on the top third of the panel. These line commands let you work with individual page sets listed on the bottom half of the panel. Examples of the RESZ and MOVE line commands are shown in the next few pages.

Resize Line Command Example

The following shows an example of the RESZ line command specified for a database/page set. The intent is to eliminate extents and free unused space associated with the page set. Because the page set could not be resized, the same panel is shown again, with an informational message.

```

DB2 Admin ----- DB2W Page Set Statistics ----- Row 1 of 40
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
I - Info  S - Space  SP - Space Part  G - Storage Group  DIS - Display
STA - Start  STO - Stop  LISTC - Listcat  AL - Alter  MOVE - Move
VDEF - VSAM define statement  RESZ - Resize page set  HR - HSM recall
HL - HSM list


```

Select	Data Base	Page Set	Num T	No of Rows	Allocated	KB Clust Ratio
	*	*	* *	*	*	*
-----	-----	-----	-----	-----	-----	-----
RESZ	DSN8D61A	DSN8S61D	1 S	14	48	0
	DSN8D61A	DSN8S61E	1 SP	32	144	0
	DSN8D61A	DSN8S61E	2 SP	0	144	0
	DSN8D61A	DSN8S61E	3 SP	10	48	0
	DSN8D61A	DSN8S61E	4 SP	0	144	0
	DSN8D61A	DSN8S61P	1 S	189	192	0
	DSN8D61A	DSN8S61R	1 S	-1	0	0
	DSN8D61A	DSN8S61S	1 S	-1	0	0
	DSN8D61A	XACT1	1 X	0	48	100

Figure 214. Page Set Statistics Panel (ADB2M1S) with RESZ Line Command

Here is the panel, with an informational message: 'Nothing to resize (not overallocated or in extents)'.

```

DB2 Admin ----- DB2W Page Set Statistics ----- Row 1 of 40
Command ==>                                           Scroll ==> PAGE
Nothing to resize (not overallocated or in extents)
Valid line commands are:
I - Info  S - Space  SP - Space Part  G - Storage Group  DIS - Display
STA - Start  STO - Stop  LISTC - Listcat  AL - Alter  MOVE - Move
VDEF - VSAM define statement  RESZ - Resize page set  HR - HSM recall
HL - HSM list

```

Select	Data Base *	Page Set *	Num *	T *	No of Rows *	Allocated KB *	Clust Ratio *
*ESZ	DSN8D61A	DSN8S61D	1	S	14	48	0
	DSN8D61A	DSN8S61E	1	SP	32	144	0
	DSN8D61A	DSN8S61E	2	SP	0	144	0
	DSN8D61A	DSN8S61E	3	SP	10	48	0
	DSN8D61A	DSN8S61E	4	SP	0	144	0
	DSN8D61A	DSN8S61P	1	S	189	192	0
	DSN8D61A	DSN8S61R	1	S	-1	0	0
	DSN8D61A	DSN8S61S	1	S	-1	0	0
	DSN8D61A	XACT1	1	X	0	48	100

Figure 215. Page Set Statistics Panel (ADB2M1S) with Informational Message

Resize Primary Command Example

The primary RESZ command is very similar to the RESZ line command, but its target is all listed page sets rather than just a single page set.

The next figure shows an example of the RESZ primary command. The command is entered on the ADB2M1S Page Set Statistics panel; this is followed by Panel ADB2M1R, on which you enter additional input.

```

DB2 Admin ----- DB2W Page Set Statistics ----- Row 1 of 40
Command ==> RESZ                                     Scroll ==> PAGE

Valid line commands are:
I - Info  S - Space  SP - Space Part  G - Storage Group  DIS - Display
STA - Start  STO - Stop  LISTC - Listcat  AL - Alter  MOVE - Move
VDEF - VSAM define statement  RESZ - Resize page set  HR - HSM recall
HL - HSM list


```

Select	Data Base	Page Set	Num	T	No of Rows	Allocated	KB	Clust Ratio
*	*	*	*	*	*	*	*	*
-----	-----	-----	---	---	-----	-----	---	---
	DSN8D61A	DSN8S61D	1	S	14	48	0	
	DSN8D61A	DSN8S61E	1	SP	32	144	0	
	DSN8D61A	DSN8S61E	2	SP	0	144	0	
	DSN8D61A	DSN8S61E	3	SP	10	48	0	
	DSN8D61A	DSN8S61E	4	SP	0	144	0	
	DSN8D61A	DSN8S61P	1	S	189	192	0	
	DSN8D61A	DSN8S61R	1	S	-1	0	0	
	DSN8D61A	DSN8S61S	1	S	-1	0	0	
	DSN8D61A	XACT1	1	X	0	48	100	

Figure 216. Page Set Statistics Panel (ADB2M1S) with RESZ Primary Command

Resize Page Sets Input Panel (ADB2M1R)

Use this panel to provide additional input for the Resize batch job. Only those page sets matching the criteria you specify will be resized. The input panel can follow either a primary RESZ or a line RESZ command.

```
DB2 Admin ----- DB2W Resize Page Sets ----- 20:50
Option ==>

Resize pagesets having:
  No of extents greater than ==> 30  (1-100)
  Pct. used less than       ==> 90  (5-90)

BP - Change batch job parameters
```

Figure 217. Resize Page Sets Input Panel (ADB2M1R)

NO. OF EXTENTS GREATER THAN

Specify the minimum number of extents a page set must have in order to be resized.

PCT. USED LESS THAN

Only those page sets will be resized where the percentage of the space used is less than the number specified here.

Once you have entered the input, a batch job is created to resize the page sets.

MOVE Line Command Example

The MOVE line command lets you change to/from STOGROUP- and VCAT-defined space. For example, if you have a page set that is in a STOGROUP-defined space, you can move it to a VCAT-defined space on another volume.

If you enter the MOVE line command, you are prompted for additional input. The input asked for depends on whether you wish to move a STOGROUP-defined or a VCAT-defined page set.

But first, here is the Page Set Statistics panel (ADB2M1S) with the MOVE line command.

```

DB2 Admin ----- DB2W Page Set Statistics ----- Row 1 of 40
Command ==>                                           Scroll ==> PAGE

Valid line commands are:
I - Info  S - Space  SP - Space Part  G - Storage Group  DIS - Display
STA - Start  STO - Stop  LISTC - Listcat  AL - Alter  MOVE - Move
VDEF - VSAM define statement  RESZ - Resize page set  HR - HSM recall
HL - HSM list


```

Select	Data Base	Page Set	Num	T	No of Rows	KB Allocated	Clust Ratio
*	*	*	*	*	*	*	*
-----	-----	-----	-----	-----	-----	-----	-----
MOVE	DSN8D61A	DSN8S61D	1	S	14	48	0
	DSN8D61A	DSN8S61E	1	SP	32	144	0
	DSN8D61A	DSN8S61E	2	SP	0	144	0
	DSN8D61A	DSN8S61E	3	SP	10	48	0
	DSN8D61A	DSN8S61E	4	SP	0	144	0
	DSN8D61A	DSN8S61P	1	S	189	192	0
	DSN8D61A	DSN8S61R	1	S	-1	0	0
	DSN8D61A	DSN8S61S	1	S	-1	0	0
	DSN8D61A	XACT1	1	X	0	48	100

Figure 218. Page Set Statistics Panel (ADB2M1S) with MOVE Line Command

Input Panel (ADB2M1M) to Move STOGROUP-defined Page Set

If you are moving a STOGROUP-defined page set, the Move Page Sets Input Panel (ADB2M1M) is displayed with Options 1 and 4.

```
DB2 Admin ----- DB2 Space Manager Move Page Set ----- 20:50
Option ==>

  1 - Move page set to another STOGROUP (with new VCAT)
  4 - Move page set from STOGROUP to VCAT

New STOGROUP ==>          (current STOGROUP: DSN8G610 with VCAT: C1DB2)
New Vcat      ==>          (for option 4)
New volumes   ==>
```

Figure 219. Move Page Sets Input Panel (ADB2M1M): STOGROUP-Defined Page Sets

Option 1

If you select **Option 1**, Move page set to another STOGROUP (with new VCAT), you must enter the names of the new storage group, and optionally that of a new catalog.

NEW STOGROUP

Specify the name of the new storage group. The name of the current storage group and VSAM catalog are displayed for your information.

NEW VCAT

Specify the name of a VSAM catalog.

Option 4

If you select **Option 4**, Move page set from STOGROUP to VCAT, you must enter the name of a new VSAM catalog, and optionally, the new volumes for the page set. Use commas to separate volume names.

NEW VCAT

Specify the name of a VSAM catalog.

NEW VOLUMES

Specify the name of a new volume. This is an optional input field. For multiple volumes, separate the volume names with a comma.

Input Panel (ADB2M1M) to Move VCAT-defined Page Set

If you are moving a VCAT-defined page set, the Move Page Sets Input Panel (ADB2M1M) is displayed with Options 2, 3 and 5.

```
DB2 Admin ----- DB2 Space Manager Move Page Set ----- 20:50
Option ==>

  2 - Move page set to another VCAT
  3 - Move page set to other volume(s)
  5 - Move page set from VCAT to STOGROUP

New STOGROUP ==>          (for option 5)
New VCAT      ==>          (current VCAT: C1DB2)
New volumes   ==>
```

Figure 220. Move Page Sets Input Panel (ADB2M1M): VCAT-Defined Page Sets

Option 2

If you select **Option 2**, Move page set to another VCAT, you must enter the name of the new VCAT, and optionally, the new volumes for the page set.

NEW VCAT

Specify the name of a VSAM catalog. The name of the current VCAT is displayed for your information.

NEW VOLUMES

Specify the name of a new volume. For multiple volumes, separate the volume names with a comma.

Option 3

If you select **Option 3**, Move page set to other volume(s), enter the name(s) of one or more volumes.

NEW VOLUMES

Specify the name of a new volume. For multiple volumes, separate the volume names with a comma.

Option 5

If you select **Option 5**, Move page set from VCAT to STOGROUP, enter the name of a new STOGROUP.

NEW STOGROUP

Specify the name of the new storage group.

Table Space Estimator Panel (ADB2MES)

If you select option 2, Table Space Estimator, on the Space Manager Menu (ADB2M), the following input panel is displayed. You can use it to obtain a quick estimate of the space requirements for a table. The panel is initially shown as an input panel, with no numbers specified. Figure 222 on page 298 shows the same panel, with filled-in input fields and the output fields generated by the space estimator.

```
DB2 Admin ----- DB2 Table Space Estimator ----- 20:50
Option ==>

Input values:
No. of rows   ==> ?           (required)
Avg. row size ==> ?           (required, 1-32714)
Page size     ==>             (4,8,16, or 32, optional, default smallest)
Max rows/page ==>             (1-255, optional, default 255)
Compression   ==>             (0-99, optional, default 0)
Pctfree       ==>             (0-99, optional, default 5)
Freepage      ==>             (0-255, optional, default 0)
Segment size  ==>             (0 or 4,8,...,64, optional, default 0)
Unit type     ==>             (3380 or 3390, default 3390)

Estimates:
Usable page size :
Rows per page    :
Pages used       :
Total pages      :
Number of KB     :

Suggested:
Primary quantity :
Secondary qty     :
DASD estimates:
Number of trks   :
Number of cyls   :
```

Figure 221. Table Space Estimator Panel (ADB2MES)

The input fields are:

NO. OF ROWS

The number of rows to be loaded into the table space. This is a required input field.

AVG. ROW SIZE

Enter the average row size, including 1 byte for each field that allows null and 2 bytes for each varying-length field. This is a required input field.

The remaining input fields are optional.

PAGE SIZE

The size of the page in KB. The default is 4.

MAX ROWS/PAGE

The maximum number of rows per page. The default is 255.

COMPRESSION

The average size of the row after compression in percent. Zero means no compression.

PCTFREE

The percentage of each page to leave as free space when the table is loaded or reorganized.

FREEPAGE

Specifies how often DB2 will leave a page of free space when the table is loaded or reorganized.

SEGMENT SIZE

Number of pages to be assigned to each segment. Zero means non-segmented.

UNIT TYPE

Unit type to be used when calculating the estimated number of tracks and cylinders.

The remainder of the screen shows the results determined by the space estimator. The space calculation formulas used here are an implementation of the formulas described in the *DB2 Administration Guide*.

The output fields are:

USABLE PAGE SIZE

The number of bytes per page that can be used for rows.

ROWS PER PAGE

The number of rows per page.

PAGES USED

The number of pages used for rows.

TOTAL PAGES

The total number of pages in the table space. Includes header pages, space map pages, and free pages.

NUMBER OF KB

The estimated number of KB required for this table space.

PRIMARY QUANTITY

The suggested primary quantity for this table space in KB.

SECONDARY QTY

The suggested secondary quantity for this table space.

NUMBER OF TRKS

The estimated number of tracks required.

NUMBER OF CYLS

The estimated number of cylinders required.

Table Space Estimator Panel (ADB2MES) - Example

This page shows a second view of the table space estimator panel. It is assumed that the user entered a set of input values, and then the space estimator generated the output estimates shown on the lower half of the panel. Both input and output values are displayed on the panel.

For an explanation of the fields, see the previous pages.

```
DB2 Admin ----- DB2 Table Space Estimator ----- 20:51
Option ==>

Input values:
No. of rows ==> 100000      (required)
Avg. row size ==> 100      (required, 1-32714)
Page size ==> 4            (4,8,16, or 32, optional, default smallest)
Max rows/page ==> 255      (1-255, optional, default 255)
Compression ==> 0          (0-99, optional, default 0)
Pctfree ==> 5              (0-99, optional, default 5)
Freepage ==> 0             (0-255, optional, default 0)
Segment size ==> 0         (0 or 4,8,...,64, optional, default 0)
Unit type ==> 3390         (3380 or 3390, default 3390)

Estimates:
Usable page size : 3870
Rows per page : 35
Pages used : 2858
Total pages : 2860
Number of KB : 11440

Suggested:
Primary quantity : 11520      (16 cylinders)
Secondary qty : 1440          (2 cylinders)
DASD estimates:
Number of trks : 239
Number of cyls : 16
```

Figure 222. Table Space Estimator Panel Example (ADB2MES)

Index Space Estimator Panel (ADB2MEX)

If you select option 3, Index Space Estimator, on the Space Manager Menu (ADB2M), the following input panel is displayed. You can use it to obtain a quick estimate of the space requirements for an index.

The panel is initially shown as an input panel, with no numbers specified. Figure 224 on page 301 shows the same panel, with filled-in input fields and the output fields generated by the index space estimator.


```
DB2 Admin ----- DB2 Index Space Estimator ----- 20:51
Option ==>

Input values:
No. of rows   ==> ?           (required)
Key length    ==> ?           (required, 1-255)
Unique        ==> ?           (required, Yes or No)
  Distinct     ==>           (for non-unique: no of distinct keys)
  OR rows/key  ==>           (for non-unique: avg. rows per key)
Pctfree       ==>           (0-99, optional, default 5)
Freepage      ==>           (0-255, optional, default 0)
Large TS      ==>           (Yes or No, Default No)
Unit type     ==>           (3380 or 3390, default 3390)

Estimates:
Usable page size :
Keys per page    :
Leaf pages       :
Index levels     :
Total pages      :
Number of KB     :

Suggested:
Primary quantity :
Secondary qty     :

DASD estimates:
Number of trks   :
Number of cyls   :
```

Figure 223. Index Space Estimator Panel (ADB2MEX)

Here is an explanation of the panel's fields. The first three fields are required.

NO. OF ROWS

The number of rows to be loaded into the table space.

KEY LENGTH

The sum of the length of all the columns of the key, plus the number of the columns that allow nulls.

UNIQUE

Specify whether the key is unique. 'NO' means non-unique.

DISTINCT

For a non-unique index: number of distinct keys. If specified it will be used to calculate the average number of rows per key. Can not be specified if "Rows/key" is specified.

ROWS/KEY

For a non-unique index: average number of rows per distinct key. May not be specified if "Distinct" is specified.

The remainder of the fields are optional.

PCTFREE

The percentage of each page to leave as free space when the table is loaded or reorganized. The default is 5 percent.

FREEPAGE

Specifies how often DB2 will leave a page of free space when the table is loaded or reorganized.

LARGE TS

Specifies whether the table space used by this index is defined as LARGE.

UNIT TYPE

Unit type to be used when calculating the estimated number of tracks and cylinders.

The remainder of the panel consists of estimates and recommendations generated by the index space estimator. The space calculation formulas used here are an implementation of the formulas described in the *DB2 Administration Guide*.

The output fields are:

USABLE PAGE SIZE

The number of bytes per page that can be used for rows.

KEYS PER PAGE

The number of keys per leaf page.

LEAF PAGES

The number of leaf pages.

INDEX LEVELS

The number of index levels.

TOTAL PAGES

The total number of pages in the index. Includes header pages, space map pages, and free pages.

NUMBER OF KB

The estimated number of KB required for this index.

PRIMARY QUANTITY

The suggested primary quantity for this index in KB.

SECONDARY QTY

The suggested secondary quantity for this index.

NUMBER OF TRKS

The estimated number of tracks required.

NUMBER OF CYLS

The estimated number of cylinders required.

Table Space Estimator Panel (ADB2MEX) - Example

This page shows a second view of the table space estimator panel. It is assumed that the user entered a set of input values, and that the space estimator then generated the output estimates on the lower half of the panel. Both input and output values are displayed on the panel.

For an explanation of the fields, see the previous pages.

```
DB2 Admin ----- DB2 Index Space Estimator ----- 20:51
Option ==>

Input values:
No. of rows ==> 100000      (required)
Key length  ==> 10         (required, 1-255)
Unique      ==> Y         (required, Yes or No)
  Distinct  ==>           (for non-unique: no of distinct keys)
    OR rows/key ==>       (for non-unique: avg. rows per key)
Pctfree     ==> 5         (0-99, optional, default 5)
Freepage    ==> 0         (0-255, optional, default 0)
Large TS    ==> N         (Yes or No, Default No)
Unit type   ==> 3390      (3380 or 3390, default 3390)

Estimates:
Usable page size : 3836
Keys per page    : 225
Leaf pages       : 445
Index levels     : 3
Total pages      : 450
Number of KB     : 1808

Suggested:
Primary quantity : 2160      (3 cylinders)
Secondary qty    : 720      (1 cylinders)

DASD estimates:
Number of trks   : 38
Number of cyls   : 3
```

Figure 224. Index Space Estimator Panel Example (ADB2MEX)

Chapter 19. Writing or Extending DB2 Admin Applications

You can create your own applications and tools using DB2 Admin, or you can extend existing applications. Examples of the types of applications you might create or extend are described in the introduction.

This chapter contains the information you need to know to do these tasks. (The information is the same for both creating and extending applications.)

Application Development Process

The flexibility of DB2 Admin lets you easily extend its functions. You can, for example, add new line commands to existing panels, or you can develop new applications using DB2 Admin as the dialog driver and interface to DB2.

If you want to **extend** DB2 Admin functions, you can add new function to a **copy** of one or more of the panels supplied with the product. We recommend that you use the existing code in the panel you are modifying as a template, and make the necessary changes for the new function. When you complete your modifications, change the DB2 Admin source by creating an SMP/E usermod; this is so changes are not lost if PTFs are applied to the product.

You can also add new line commands to an existing panel by using installation defined line commands. Refer to "Installation Defined Line Commands" on page 26 for information on how to do this.

If you want to develop a **new**, independent application, use the sample application panels described in the next section as templates.

Sample Application

DB2 Admin includes a sample application as part of the product. The sample shows how you can use DB2 Admin to create your own applications.

The sample application consists of three ISPF panel source members located in library SADBPLIB. Their names are ADB2S, ADB2S1, and ADB2SU. You may want to look at these ISPF panel source members as an aid to understanding the rest of this chapter.

The sample application shows how to maintain a small DB2 table called USER. The columns in the USER table are:

USERID	CHAR(08) NOT NULL
EMPNAME	CHAR(30) NOT NULL
EMPLNO	CHAR(05) NOT NULL
COMMENTS	CHAR(30) NOT NULL

You can access the sample application from the DB2 Administration Menu panel (see Figure 45 on page 65) by specifying "hidden" option S (it does not appear in the list of options). Figure 225 on page 304 appears.

```

DB2 Admin ----- DB2 Admin Sample Update Application ----- 01:14
Option ==>

1 - Display/update the USER table                DB2 System: DB2X
C - Create a USER table                          DB2 SQL ID: ISXSTL
I - Insert dummy entry into USER table
D - Drop USER table

```

Figure 225. DB2 Admin Sample Update Application Panel (ADB2S)

Option C on the Sample Update Application panel creates the table `sqlid.USER` (in default database `DSNDB04`).

Option I inserts a dummy row into the table, so it is possible to display or update the table using option 1.

Option 1 displays the USER table. From this display, you can use line commands I, U, and D to insert, update, and delete rows.

Option D drops the table.

Types of Panels

Regardless of whether you are creating or extending DB2 Admin applications, the process involves creating ISPF panels that specify how DB2 Admin should do SQL processing and dialog control.

The panels you create are usually one of the following types:

- **Menu Panels.** These panels are typically at the top of a hierarchy of other panels. Menu panels specify the options that are available to the user.
- **Table Display Panels.** These are ISPF table display panels on which data from DB2 or ISPF tables is displayed.
- **Data Entry Panels.** On these panels, a user enters data that is input to a DB2 SQL statement, DB2 command, or DB2 Admin CLIST.
- **Help Panels.** These are standard ISPF help panels to guide the user in doing a task.

For a new application, you will typically need to develop a menu panel and a number of data entry and table display panels.

Setting Variables On Your Panels

You control DB2 Admin processing by setting variables on the panels. During processing, DB2 Admin looks at the variables and then does its processing. If no variables are set, DB2 Admin just redisplay the panel.

You can set the following variables on the panels:

PANEL	The name of the next panel DB2 Admin should display. If this variable is used with an SQL SELECT statement, the next panel should be an ISPF table display panel that shows the rows returned by DB2. On a menu panel, set the PANEL variable to the panel name DB2 Admin should display for a particular choice.
SQLSTMT	Any SQL statement DB2 can execute. If the statement is an SQL SELECT, DB2 Admin creates an intermediate ISPF table, fetches the rows, adds the rows to the ISPF table, and shows the result on the specified PANEL. If no panel is specified, the default table display panel is shown. Multiple SQL statements can be specified; they must be separated by a semicolon (;).
ISPFSTMT	Any ISPF statement that can be executed by the ISPEXEC ISPF API. This variable is useful for invoking your own CLISTs, EXECs, or other TSO/ISPF applications. Multiple statements can be specified; they must be separated by a semicolon (;).
DB2ACMD	Any DB2 Admin primary command (which includes DB2 commands, ISPF statements, and SQL statements). DB2 Admin primary commands are described in “Primary Commands” on page 35. Multiple statements can be specified; they must be separated by a semicolon (;).

DB2 Admin Processing

After a panel is displayed, DB2 Admin examines the variables and does the following processing:

1. If the user presses END, returns to the previous panel.
2. If variable ISPFSTMT is set, processes all ISPF statements first.
3. If variable SQLSTMT is set, processes the SQL statements one by one. If DB2 returns rows, displays the result on the panel named in the variable PANEL. If the variable PANEL is not set, uses the default panel.
4. If the variable PANEL is set, displays the panel.
5. If the variable DB2ACMD is set, processes the DB2 Admin commands.

The process that DB2 Admin follows is shown in Figure 226 on page 306.

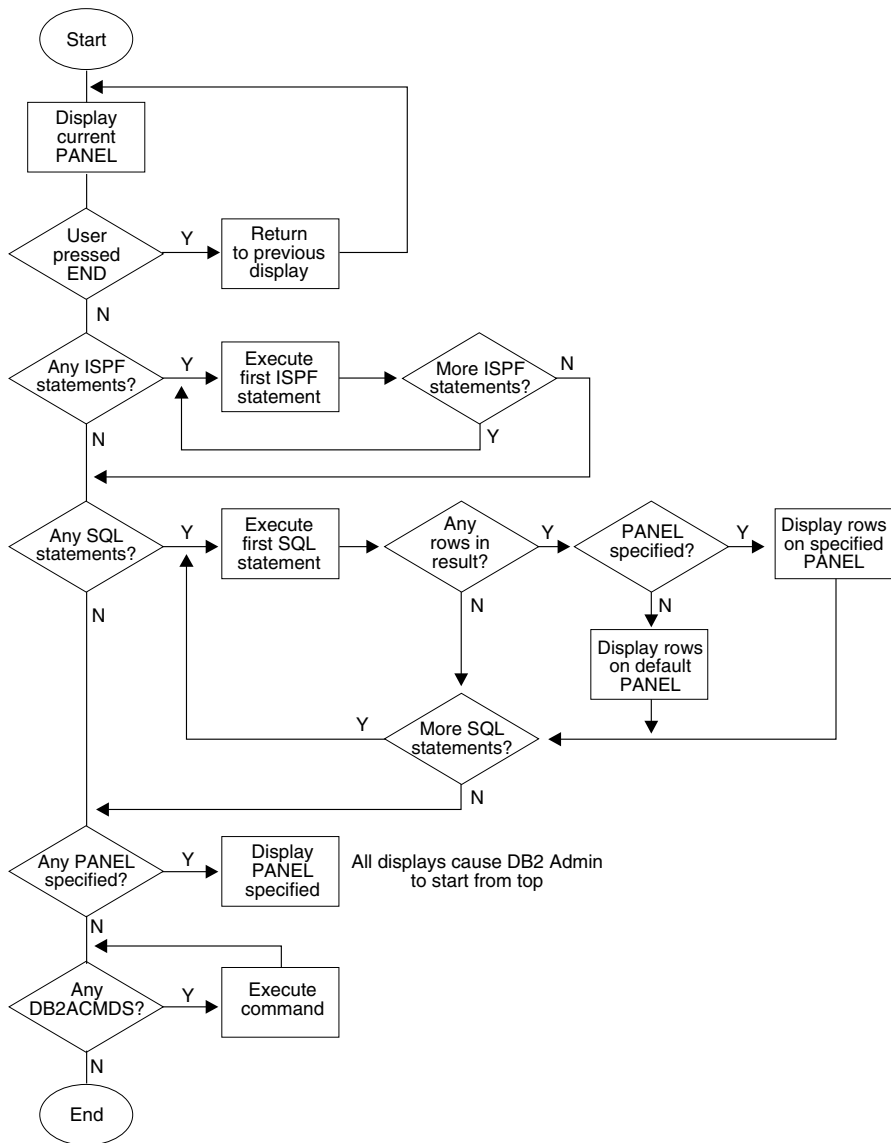


Figure 226. DB2 Admin Logic

Naming Your Panels

You can use DB2 Admin panels as a model to create your own panels. However, use a different prefix in your panel names.

DB2 Admin panels have the prefix ADB2. The suffix normally identifies the option you selected to get to the panel. For example, ADB21T is the panel for option 1 on the DB2 Administration Menu and option T on the following panel.

The corresponding HELP panels have the same name but use the prefix ADBH.

Using the DB2 Admin CLIST

If you have created a new independent application, you can use the DB2 Admin CLIST (ADB) to invoke it. Invoke the CLIST using the following parameters:

PANEL(panel) Name of the first panel to be shown.

SYSTEM(name) DB2 subsystem that is to be used.

For example, to start DB2 Admin with your own customized panel, invoke the CLIST as follows: %ADB PANEL(yourpanel)

Updating Rows Using SQL

If your DB2 Admin application will update rows using SQL, do the updates on a separate panel. Otherwise you end up with a copy of the data on the table display panel, but updated data in DB2. When you use a separate panel for updates, DB2 Admin automatically refreshes the data in the table display panel when DB2 data changes.

Also, DB2 Admin does an SQL COMMIT before each display, so if you have concurrent users of your application, you should probably have a timestamp for the latest updates to rows.

If you are updating rows using SQL, consider using the structure shown in Figure 227 for your DB2 Admin application.

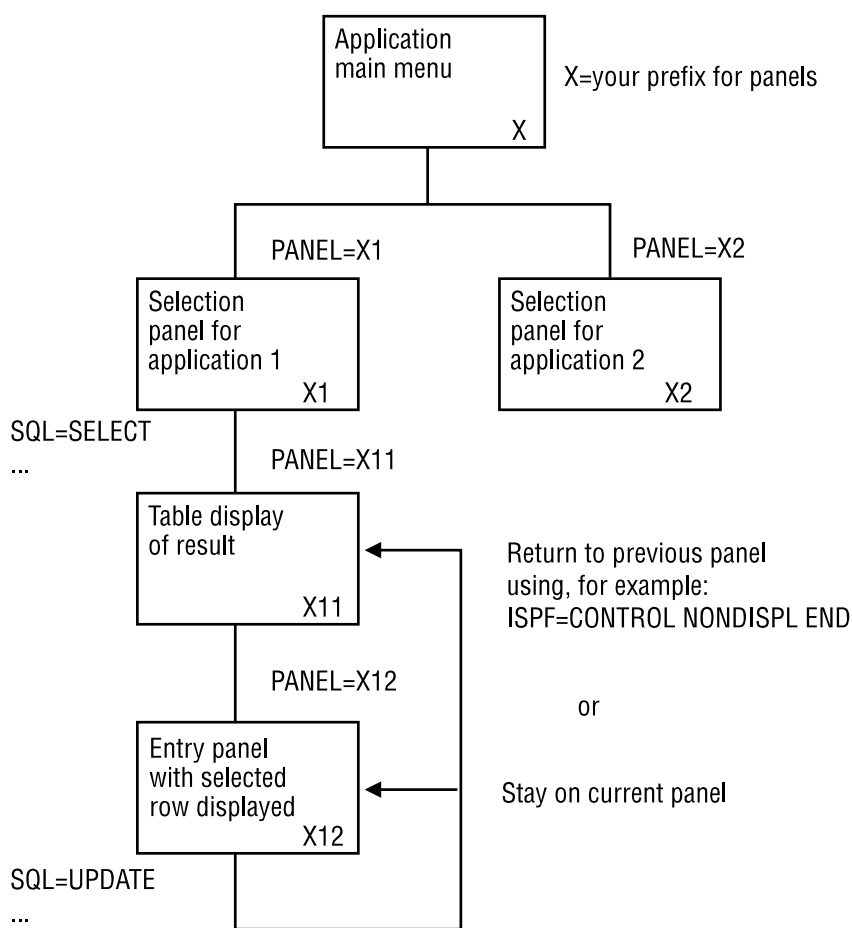


Figure 227. Sample Application Structure

Using Variables in Your Application

There are two types of variables available for you to use in your DB2 Admin application:

- General DB2 Admin variables
- Variables containing column values, set as a result of an SQL SELECT and a line command that selected the row.

All variables are located in the ISPF function pool.

General DB2 Admin Variables

The general DB2 Admin variables are as follows:

DB2SYS	DB2 system ID. Set by the DB2 Admin CLIST.
DB2AUTH	Current DB2 authorization ID.
MAXROWS	Maximum number of rows to fetch. The default is 1000.
DLEVEL	Display level. Increased by one for each nested display.

Variables Containing Column Values

After an SQL SELECT statement is executed, DB2 Admin defines a variable for each column of the result. (This is done using the ISPF VDEFINE service.) These variables are, therefore, available to your application. When you select a row, the content of the column variables have the values for that row.

The names of column variables are the same as DB2 column names except:

- ISPF variable names have a maximum of eight characters. If the DB2 column name is longer than that, it is truncated to eight characters. For example, the DB2 column name CLUSTERTYPE has the ISPF name CLUSTERT.
- Special characters, such as underscores in DB2 column names, are replaced by @. For example, DB2 column name EMPL_NAME has the ISPF name EMPL@NAM.
- If there are any duplicate column names in the result, all but the first duplicate column name are given ISPF name DUP0001, DUP0002, and so on. For example, SELECT CREATEDBAAUTH,CREATEDBCAUTH FROM SYSIBM.SYSUSERAUTH is given ISPF names CREATEDB and DUP0001.
- All DB2 SELECT expressions are given ISPF names COL0001, COL0002, and so on. For example, SELECT CURRENT DATE is given ISPF name COL0001.
- Table search argument variables are named in the same way as ISPF names, but they are truncated to seven characters and given the prefix @. Duplicates are named @DUP0001, @DUP0002, and so on.

Chapter 20. Launchpad for Running IBM DB2 Tools

The Launchpad function lets you launch installed IBM DB2 tools that have an ISPF interface directly from a centralized panel within the DB2 Admin tool. This is a very convenient way of running DB2 tools. When you select a tool to be run, you are presented with the tool's first panel.

Please note the requirement that the tool must have an ISPF interface!

The Launchpad consists of several steps. These are summarized here, and then described more fully, so that you have all the information need to perform the tasks.

- You need to create a table that will contain an entry for each tool you wish to launch.
- Next you need to modify the table, adding, deleting, or even updating tool entries.
- And to launch tools, you need to display the table and select the desired tool.

Creating the Launchpad Table

The Launchpad table, named ADBDMT contains an entry for each tool you want to launch. The table is created the first time you run the ADBL exec with the DMT option.

Modifying the Launchpad Table

Modifying can include adding, deleting or updating entries in the table. There are two ways to modify the Launchpad table:

- using the **dialog method**

You display the table using the ADBDMT exec or the ADBL clist with the DMT parameter, and enter the appropriate command in the SEL column

or

- using the **ADBDMTI** exec

You invoke the ADBDMTI exec with the ACTION parameter, with its values ADD, UPDATE and DELETE. Additional values correspond to the fields on the Launchpad Entry Panel (see Figure 229 on page 314); this panel appears when you run the ADBDMTI exec. In general, it is easier to enter these values directly on the panel.

PID

This is the **program number** of the tool.

REL

This is the **release number** of the tool. When using several releases of the same tool, use utmost caution, so as not to get confused. Also, it is recommended that you assign them unique codes.

NAME

The name of the of tool.

CDE

An arbitrary **code** used to identify or invoke the tool.

GRP

The **group** number used for grouping the tools on the panel. This is more fully described under the Figure 229 on page 314.

STAT

This field indicates the **installed** status of the tool, and may have a value of Y or N.

CMD

Use this field to enter an ISPF string used to launch the DB2 tool. It is probably easier to specify the ISPF string directly in the **Command** field of the Launchpad Entry panel.

These values are discussed further on in this chapter - or on the Help panels associated the Launchpad Entry panel; at this point, a brief example showing that the tool with product id 5655-D38 is to be deleted, should give you an idea of the ADBDMTI interface to the Launchpad.

```
ADBDMTI ACTION(DELETE) PID(5655-D38)
```

To update or delete a table entry, you must provide a PID number (with or without a REL identifier), a code or a name.

Before continuing, let's take a quick look at what the table looks like.

Displaying the Launchpad Table

Run the ADBDMT exec - or run the ADBL clist with the DMT parameter, and the Launchpad table is displayed. Figure 228 shows the table immediately after it has been created.

```
ADBDMT ----- DB2 Tools Launchpad ----- Row 1 from 8
Command ==>                                     Scroll ==> PAGE

Select the DB2 tool you wish to launch or enter its code in the command line.

Sel Code  Tool Name                                     Rel  Prog No.

---  -----  ADMINISTRATION TOOLS -----  ---  -----
ADM  DB2 Administration Tool                           210  5655-E70
---  -----  APPLICATION MANAGEMENT TOOLS -----  ---  -----
      No table entries in this category
---  -----  PERFORMANCE MANAGEMENT TOOLS -----  ---  -----
      No table entries in this category
---  -----  RECOVERY AND REPLICATION MANAGEMENT TOOLS --  ---  -----
      No table entries in this category
***** Bottom of data *****
```

Figure 228. Launchpad Table Panel

It is quickly apparent that there are four heading rows, with an entry for the DB2 Administration Tool under the heading ADMINISTRATION TOOLS. These headings identify the four groupings used to categorize the DB tools - this makes it

much easier to locate a tool on the panel. Tools are grouped according to the GRP number, which is a field on the ADD Entry panel.

Looking more closely at the table, you can see there are five columns. The first column is an input field, and the remaining columns identify the DB2 tool.

The first column, SEL, is shown blank. This column is used to specify the action you wish to perform:

- ADD to add a new entry
- DEL to delete the entry on that row
- UPD to update the entry on that row
- S or / to start the tool

The next column refers to the tool code; one way to launch the tool is to enter this code on the command line at the top of the panel.

The third column shows you the tool name.

The fourth column contains the release/version number of the tool.

The final column contains the IBM program number of the tool.

Adding Tools to the Launchpad Table

As mentioned earlier, there are two ways to enter data into the Launchpad table. This section describes how to add a tool to the table using these two different methods.

Using the **dialog method**, you display the table using the ADBDMT exec or the ADBL clist with the parameter DMT. Then enter an **ADD** in the SEL column of any row.

Using the **ADBDMTI exec** you call up the exec specifying the ACTION(A) or ACTION(ADD) parameter. Since ADD is the default, this parameter may be omitted. Two examples of invoking the Launchpad are shown here:

```
ADBDMTI ACTION(A)
```

```
adbdmti action(add) CDE(sup) pid(1234-567) name(SUPER TOOL) rel(101)  
stat(Y) grp(100) cmd(ex 'dsn.support.clist')
```

Both the dialog method and the ADBDMTI exec method bring you to the Launchpad Entry screen shown below. Any values that you specified on the ADBDMTI statement are used to fill in the screen.

```

ADBDMTI ----- DB2 Tools Table - ADD An Entry -----
Command ==>                                                                    Scroll ==>

Prog No. :                               Release :

Tool Name:

Code   :                               Group   :                               Installed:

Command :

```

Figure 229. Launchpad Entry Panel

Enter any remaining data needed to identify the tool; remember, Help panels provide information on the input fields if you have questions. Here is additional information on some of the fields.

When entering a value into the **Code** field on the Launchpad Entry panel, make sure that it is unique. Since the code is used to invoke a DB2 tool, results are unpredictable when multiple tools have the same code.

Earlier we discussed that the tools are grouped within the table in order to make them easier to spot on the display panel. The input field **Group** is used to accomplish this. The permissible values are:

- 100 - Administration Tools
- 200 - Application Management Tools
- 300 - Performance Management Tools
- 400 - Recovery and Replication Management Tools

The **Installed** field lets you enter **Y** or **N**, indicating whether the tool is installed or not. If the status of the tool is not installed, a table entry can be made for it; but this table entry is not displayed on the panel. If you later install the tool and want to have it appear on the Launchpad display panel, use the ADBDMTI exec to change the **N** to **Y**.

If you want to enter an ISPF string used to launch the DB2 tool, use the **Command** field on the Launchpad Entry panel.

Updating Tools in the Launchpad Table

Using the **dialog method** (ADBDMT exec or ADBL DMT clist), display the Launchpad table and enter **UPD** in the SEL column of the appropriate row.

Using the **ADBDMTI** exec, enter U, UPD or UPDATE as the action, and identify the tool by specifying its name, code or PID number.


```
ADBDMTI ACTION(UPDATE) CDE(OBC)
```

Both methods bring up the Launchpad entry panel shown in Figure 229 on page 314; notice that this time the panel heading is **DB2 Tools Table - UPDATE An Entry**. Simply overwrite the information to be modified press ENTER, and you have updated the entry in the Launchpad table.

Deleting Tools from the Launchpad Table

Using the **dialog method** (ADBDMT exec or ADBL DMT clist), display the Launchpad table and enter **DEL** in the SEL column of the appropriate row.

Using the **ADBDMTI** exec, enter D, DEL or DELETE as the action.

```
adbdmti action(DELETE) CDE(OBC)
```

Either method brings up a panel similar to the Launchpad entry panel shown in Figure 229 on page 314; if you look closely, you will notice that this time the panel heading is **DB2 Tools Table - DELETE An Entry**. The panel now contains a prompt, asking you if you truly want to delete that tool from the table. If you decide you don't want to proceed with the delete operation, press END or enter **N** to the prompt; to go ahead with the delete, enter **Y** to the prompt.

Launching Tools

To launch DB2 tools, first display the Launchpad table using the ADBDMT exec or the ADBL DMT clist. From this centralized list of tools, you can select (**S** or **I**) in the SEL column to start the tool. Or, on the command line at the top of the screen, enter the code associated with the tool you want to run. Either way invokes the DB2 tool.

However, when entering a code, make sure that the code is unique; if multiple tools have the same code, the results are unpredictable.

Appendix A. Batch Restart Program

This chapter describes the Batch Restart program, ADBTEP2. This function is used by both the Alter and Migrate DB2 data functions. It can also be used for purposes other than Alter and Migrate.

Overview

ADBTEP2 provides you with the ability to restart or resume the execution of an input stream of SQL statements at an intermediate point, in the event that any one of the statements in that stream should fail. The technique used is that of creating or updating a record in a checkpoint table each time that a COMMIT statement is encountered in the input stream. Using this table, execution can be resumed with the first statement following the last successful commit point before the failure, bypassing all prior successfully executed statements. Of course, before restarting a failed execution, you must first correct the condition causing the failure.

Customization

Please see “Creating a Checkpoint Table for ADBTEP2” on page 27 for customization tasks that need to be performed before running the Batch Restart program.

Parameters passed to ADBTEP2

When you use the Alter and Migrate functions, parameters for ADBTEP2 are automatically generated. The following parameters are passed:

RESTART

RESTART(NO)

Indicates that the job is not restartable and all SQL statements in the input stream are to be executed.

RESTART(YES)

Indicates that the job is restartable from the last recorded commit point. This is the default. If specified or defaulted, you must also provide the WORKLIST parameter (see below). When execution begins, a search begins for the last recorded commit point for the specified identifier. If found, all SQL statements in the input stream before the indicated commit point are skipped and execution resumes with the first SQL statement following that commit. If not found, all SQL statements in the input stream are executed.

WORKLIST(name)

'name' is a unique identifier by which a particular execution can be restarted in case of an error in one of the SQL statements in the input stream.

Other parameters, that are independent of the Restart function, may be passed to the ADBTEP2 program:

ALIGN

ALIGN(MID)

Aligns output from the program to the center of the page. This is the default.

ALIGN(LHS)

Aligns output from the program to the left hand side of the page.

MIXED**MIXED**

Indicates that the input stream may contain data in a combination of SBCS and DBCS formats.

NOMIXED

Indicates that the input stream will contain data only in SBCS format. This is the default.

SQLTERM(c)

'c' defines the character which terminates an SQL statement. The default termination character is the semicolon (;).

Using ADBTEP2

SADBSAMP(ADBTEP2) contains a sample job, which you can use to run ADBTEP2, the Batch Restart program. The job must be modified to conform to the conventions established in your installation and to provide the input data stream for execution.

The input data stream may be specified inline, as a sequential data set, or as a member of a partitioned data set. It should consist of all the SQL statements that you want to process in a single execution. Within this series of SQL statements, you should separate logical tasks or units of work with a COMMIT statement. These denote the points at which a failed execution may be restarted.

If you want the job to be restartable, make sure that WORKLIST has been specified and that the WORKLIST parameter provides a unique name. RESTART(YES) should be specified or defaulted. If the job does not need to be restartable, specify RESTART(NO). When you have specified the parameters, submit the JCL for execution.

If the execution completes successfully, nothing more needs to be done.

If the execution is unsuccessful, examine the output to determine the reason for the failure. Correct the error and resubmit the job.

If the job is restartable, execution will resume with the first SQL statement following the last successful commit point before the error.

If not restartable, execution begins with the first SQL statement in the input stream. Depending on the statements in the input stream, this could cause new problems if, for example, an object is to be created but already exists from a previous failed execution.

In any event, it is important that you understand the potential impact on the restartability of a particular execution which may result from the order of SQL statements and the placement of COMMIT statements in the input stream.

Dialog Support for Batch Job Checkpoint Table

A new option, '2B - Display/Manage Batch Checkpoint Table' has been added to the DB2 system administration panel (ADB2Z). Please see Figure 154 on page 223. This option allows you to display and manage the checkpoint table, ADBCHKPT, associated with batch jobs running ADBTEP2.

For each active batch job running ADBTEP2 and for jobs running ADBTEP2 that have terminated because of an error in the input stream, a record of that execution is present in the checkpoint table. Selecting Option 1, Display Checkpoint Records, from the Manage Batch Job Checkpoint Table panel (ADB2Z2B) gives you the ability to see those records, terminate an active ADBTEP2 job, update or delete the record of an abnormally terminated job, or insert a new checkpoint record.

By selecting Option 2, Display Checkpoint Table Status, you may obtain information about the checkpoint table itself, and issue any requests against the table, such as GRANT or REVOKE, that are supported by DB2 Admin.

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Programming Interface Information

This book is intended to help you use DB2 Administration Tool for OS/390 Version 2.1.

This book also documents Diagnosis, Modification or Tuning Information, which is provided to help you customize DB2 (R) Admin (hereafter called DB2 Admin).

Warning: Do not use this Diagnosis, Modification or Tuning Information as a programming interface.

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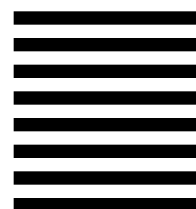
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