

Installation and Customization Guide

!DB®/Tools Install

Version 500

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Threaded Environment for AS/400, Patent No. 5,504,898; Data Server with Data Probes Employing Predicate Tests in Rule Statements (Event Driven Sampling), Patent No. 5,615,359; MVS/ESA Message Transport System Using the XCF Coupling Facility, Patent No. 5,754,856; Intelligent Remote Agent for Computer Performance Monitoring, Patent No. 5,781,703; Data Server with Event Driven Sampling, Patent No. 5,809,238; Threaded Environment for Computer Systems Without Native Threading Support, Patent No. 5,835,763; Object Procedure Messaging Facility, Patent No. 5,848,234; Communications on a Network, Patent Pending; End-to-End Response Time Measurement for Computer Programs, Patent No. 5,999,705; Improved Message Queuing Based Network Computing Architecture, Patent Pending; User Interface for System Management Applications, Patent Pending.

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Preface

About this document

Candle has improved the installation procedure for all of the !DB®/Tools for DB2 products. This document tells you what you need to know to install !DB/Tools.

Audience

This document is written for the database administrator or the systems programmer who installs the products. It is not intended for the casual user of the system because it describes authorization and security aspects of the products.

Contents

Getting Started

Chapter 1. Before You Begin

This chapter lists the features of !DB/Tools Install. It also lists the requirements for installation.

Chapter 2. How the Install Works

This chapter provides checklists that tell you how to do a new install, a refresh, and install for an additional DB2 subsystem.

Installation with !DB/Tools Install

Chapter 3. Collecting Information for !DB/Tools Install

This chapter gives you guidelines for collecting information about your site that you need for !DB/Tools Install. It also provides a worksheet so you can keep that information in one place.

Chapter 4. Unloading the INSTALL Data Set

This chapter describes how to use IEBCOPY to unload the INSTALL data set from the distribution tape.

Chapter 5. Beginning the Online Procedure

This chapter tells you how to initiate !DB/Tools Install and how to specify an install, a refresh, or an install for an additional subsystem.

Chapter 6. Tailoring the Variables

This chapter describes how to tailor the variables in !DB/Tools Install to your site.

Chapter 7. Allocating Space for the Remaining Data Sets

This chapter tells you how to use !DB/Tools Install to allocate space for the data sets left on the product tape.

Chapter 8. Unloading the Rest of the Tape for a New Install

This chapter tells you how to use !DB/Tools Install to unload the rest of the product distribution tape and any supplementary tapes you received for a new install.

Chapter 9. Unloading the Rest of the Tape for a Refresh

This chapter tells you how to use !DB/Tools Install to unload cumulative maintenance and PSP tapes for a refresh.

Chapter 10. Building the Tailored Members

This chapter tells you how to use !DB/Tools Install to build the JCL for the tailored members.

Chapter 11. Defining Your DB2 Database

This chapter tells you how to define VSAM clusters, create DB2 objects, run the BINDs, and issue GRANTs.

This chapter also tells you how to convert and copy !DB@/SMU for DB2 profiles and reports.

Chapter 12. Updating a DB2 Subsystem

This chapter tells you when and how to update a DB2 subsystem for a refresh.

Chapter 13. Running the Batch Extract

This chapter tells you when and how to run the batch extract for !DB@/EXPLAIN for DB2, for !DB@/WORKBENCH for DB2, for !DB@/DASD for DB2, and for !DB/SMU.

Chapter 14. Installing for Additional DB2 Subsystems

This chapter tells you how to use !DB/Tools Install to install for additional DB2 subsystems.

Chapter 15. Manual Tailoring

This chapter explains the manual tailoring you must do during the installation procedure.

Customizing !DB/Tools Install

Chapter 16. Customization Overview

This chapter gives you an overview of customization, including a summary of how you can customize !DB/Tools, a list of definitions of extract terms, and an explanation of the differences between !DB/Tools extracts.

Note: !DB/QUICKCOMPARE™ for DB2, !DB/QUICKCHANGE® for DB2, and !DB/DASD do not require customization.

Chapter 17. Customizing !DB/EXPLAIN

This chapter tells you how to customize !DB/EXPLAIN.

Chapter 18. Customizing !DB/WORKBENCH

This chapter tells you how to customize !DB/WORKBENCH.

Chapter 19. Customizing !DB/SMU

This chapter tells you how to customize !DB/SMU.

Accessing !DB/Tools

Chapter 20. Accessing and Exiting !DB/Tools

This chapter tells you how to access and exit the individual products after they have been installed.

Security

Chapter 21. !DB/Tools Install Security

This chapter describes the data and product security requirements for !DB/Tools Install.

Appendixes

The *Installation and Customization Guide* contains the following appendixes:

Appendix A. Estimating DASD

This appendix gives you guidelines for estimating DASD for !DB/Tools.

Appendix B. Data Set Information

This appendix provides you with the names and descriptions of the data sets used when installing and customizing !DB/Tools.

Appendix C. Requirements for Access to !DB/Tools from OMEGAMON II for DB2

This appendix outlines the requirements for accessing !DB/Tools from OMEGAMON II for DB2.

Appendix D. !DB/Tools Access Control Statements

This appendix provides a listing and description of the access control statements that determine authorizations for product functions.

Appendix E. !DB/Tools Administration

This appendix describes the PROFILE data set and tells you how to configure, update, and switch PROFILE data sets.

Appendix F. Cleaning Up Old Data Sets

This appendix provides a checklist for cleaning up old data sets after you have installed a new version of any of the !DB/Tools.

Appendix G. !DB/Tools Install Generated JCL Descriptions

This appendix lists and describes the JCL that !DB/Tools Install generates.

Appendix H. JCL and Messages for Lazarus Copies

This appendix gives sample JCL for the Lazarus utility and copies of the messages it returns. This utility saves copies of DB2 catalog data.

Appendix I. Candle Customer Support

This appendix explains the various ways you can contact Candle for answers to any questions you may have about our products.

Documentation Conventions

Overview

This unit describes the conventions used in the Installation and Customization Guide.

Panels and figures

The panels and figures in this document are representations. Actual product panels may differ.

Revision bars

Revision bars (l) appear in the left margin to identify new or updated material.

Conventions list

This manual uses the following conventions.

[] Square brackets denote optional arguments. Arguments enclosed in square brackets are not required. In the following example, use of XLV is optional:

[XLV]

{ } This document uses braces to denote required arguments. In the following example, the *workload* keyword is required:

```
COMPARE {workload} -  
        [time] -  
        [SUMMARY]
```

Conventions list (continued)

hilev

This document uses lower-case italics in data set names to denote variable qualifiers. Qualifier prefixes in a data set name make the data set unique. The qualifiers used in this document are defined below.

hilev A high-level qualifier. The high-level qualifier is the first prefix or set of prefixes in the data set name.

db2id The DB2 ID of a DB2 subsystem. It is used as a default mid-level qualifier for some !DB/Tools data sets. The mid-level qualifier is the prefix or set of prefixes between the high-level qualifier and the last part of the data set name.

extrctid An extract ID, that is an identifier for the catalog data extracted from the DB2 catalog. It is used as a default mid-level qualifier for some !DB/Tools data sets. The mid-level qualifier is the prefix or set of prefixes between the high-level qualifier and the last part of the data set name.

productid A product ID, that is an identifier for the !DB/Tools product or products you are installing. It is used as a default mid-level qualifier for some !DB/Tools data sets. The mid-level qualifier is the prefix or set of prefixes between the high-level qualifier and the last part of the data set name.

'tddoc3.booklib.prod'

This document uses single quotes to distinguish specific data set names from variable qualifiers. The data set name is shown in lower case and in the same font as the rest of the text.

!DB/WORKBENCH extract

!DB/QUICKCHANGE shares the !DB/WORKBENCH extract. When this document refers to the !DB/WORKBENCH extract, it is also referring to the !DB/QUICKCHANGE extract.

Adobe Portable Document Format

Introduction

Candle supplies documentation in the Adobe Portable Document Format (PDF). The Adobe Acrobat Reader prints PDF documents with the fonts, formatting, and graphics in the original document. To print a Candle document, do the following:

1. Specify the print options for your system. From the Acrobat Reader Menu bar, select **File > Print Setup...** and make your selections. A setting of 300 dpi is highly recommended as is duplex printing if your printer supports it.
2. To start printing, select **File > Print** on the Acrobat Reader Menu bar.
3. On the Print popup, select one of the **Print Range** options for
 - a single page
 - a range of pages
 - all of the document
4. (Optional) To fit oversize pages to the paper size currently loaded on your printer, select the **Shrink to Fit** option.

Printing problems?

Your printer ultimately determines the print quality of your output. Sometimes printing problems can occur. If you experience printing problems, potential areas to check are:

- settings for your printer and printer driver. (The dpi settings for both your driver and printer should be the same. A setting of 300 dpi is recommended.)
- the printer driver you are using. (You may need a different printer driver or the Universal Printer driver from Adobe. This free printer driver is available at www.adobe.com.)
- the halftone/graphics color adjustment for printing color on black and white printers. (Check the printer properties under **Start > Settings > Printer**. For more information, see the online help for the Acrobat Reader.)
- the amount of available memory in your printer. (Insufficient memory can cause a document or graphics to fail to print.)

For additional information on printing problems, refer to the documentation for your printer or contact your printer manufacturer.

Documentation Set

Introduction

Candle provides a complete set of documentation for !DB/Tools Install. Each manual in this documentation set contains a specific type of information to help you use the product.

Candle welcomes your comments and suggestions for changes or additions to the documentation set. A user comment form, located at the back of each manual, provides simple instructions for communicating with Candle's Information Development department. You can also send email to **UserDoc@candle.com**. Please include the product name, version, and book title in the subject line. To order additional manuals, contact Candle Customer Support.

The documentation listed in the following table is available for !DB/Tools Install.

Document Number	Document Name	Description
TI51-5840	Installation and Customization Guide	This guide tells how to install the !DB/Tools products, which are <ul style="list-style-type: none">● !DB/DASD● !DB/EXPLAIN● !DB/QUICKCHANGE● !DB/QUICKCOMPARE● !DB/SMU● !DB/WORKBENCH

Version 500 Changes

Overview

Use !DB/Tools Install to install all the !DB/Tools.

This unit describes what is different between !DB/Tools Install and previous versions of !DB/Tools Install.

Differences in this release

| Primarily, the Version 500 release of the !DB/Tools provides full compat-
| ibility for DB2 Version 6. However, some Db2 enhancements are not
| exploited by the !DB/Tools Version 500.

DB2 Version 6 contains enhancements for

- defining and manipulating data objects
- conducting e-business
- improving performance and availability of database applications
- managing the database environment
- increasing database and query capacity

This release of !DB/Tools Install continues to support earlier releases of DB2 and is also fully Y2K compliant.

Getting Started

Introduction

This chapter contains information about the features of !DB/Tools Install, the effects of !DB/Tools Install on existing !DB/Tools, requirements for installing !DB/Tools, and required levels of authority.

Chapter contents

About !DB/Tools Install	28
Requirements for Installing and Executing !DB/Tools	32
Required Levels of Authority	38

About !DB/Tools Install

Overview

This unit gives you the following high-level information about !DB/Tools Install.

- A summary
- Features of !DB/Tools Install
- Installing from a maintenance tape
- Effects of !DB/Tools Install on existing !DB/Tools
- Moving installed !DB/Tools
- Performing remote installations

!DB/Tools Install summary

Candle has improved the installation of the !DB/Tools products. You can use the same set of steps to install all of the !DB/Tools products, which are listed below.

- !DB/DASD
- !DB/EXPLAIN
- !DB/QUICKCHANGE
- !DB/QUICKCOMPARE
- !DB/SMU
- !DB/WORKBENCH

!DB/Tools Install uses an easy to use panel-driven interface and keeps the configuration information accessible throughout the installation.

Features of !DB/Tools Install

!DB/Tools Install has the following features:

- A panel-driven installation setup
- Installation or refresh of individual products, in any order, separately or all at the same time

Note: The following chart illustrates the only exception to this feature.

IF you are installing or refreshing ...	THEN first you must also install or refresh ...
!DB/QUICKCHANGE V300	!DB/WORKBENCH V300
!DB/QUICKCHANGE V500	!DB/WORKBENCH V500

- Install configuration information
- Easy refresh of existing systems
- Easy installation into multiple DB2 subsystems
- Installation or refresh for remote sites

Effects of !DB/Tools Install on existing !DB/Tools

!DB/Tools products installed using !DB/Tools Install are not compatible with !DB/Tools products installed using prior installation programs V110 or V120.

Effects of !DB/Tools Install on historical data

| When you use !DB/Tools Install, the extract history from a !DB/Tools
 | product that was installed with an install program other than !DB/Tools
 | Install, **is not** carried forward.

| If you have a very early version of a !DB/Tools product, for example, a
 | release of !DB/SMU that predates Version 230, and you want to retain the
 | information in the old user and log data sets, then use copy-without-replace
 | from the old to the new data sets. The following chart tells you where you
 | can find additional information about migrating from a previously installed
 | system to a new version of the !DB/Tools.

IF you are installing a new version of ...	THEN see ...
!DB/WORKBENCH or !DB/QUICKCHANGE	the following ... <ul style="list-style-type: none"> ● “Migrating Profile Variables” on page 269 ● “Converting !DB/WORKBENCH Utility Profiles” on page 272
!DB/SMU	“Converting Pre-version 230 !DB/SMU Profiles and Reports” on page 278.

Moving installed data sets

There are three ways to install !DB/Tools on other MVS systems.

- Option 1** Use !DB/Tools Install. (If you have a tape drive on the other MVS system, this is the option Candle recommends.)
- Option 2** Follow the instructions in “Installing for a Remote MVS System” on page 49. (If you do not have a tape drive on the other MVS system, this is the option Candle recommends.)
- Option 3** Instead of using !DB/Tools Install, copy or move data sets to other locations on your system and make the following manual changes:
- Customize the profile data set for local variations.
 - Customize KTCIJBLD to point to the profile data set.
 - Customize any members that were built in BUILD job KTCIJBLD.

Note: Candle does not provide support for Option 3.

Requirements for Installing and Executing !DB/Tools

Overview

This unit describes the requirements for software, memory, multiple MVS systems, and the skills you need to install !DB/Tools.

Software required for executing !DB/Tools

The Candle !DB/Tools require the following software.

Type of Software	Version and Release Required
Operating System	TSO/E Version 2 or later or MVS/ESA
REXX	Version 1 Release 0 or later
DFP*	Version 3 Release 3 or later
SMS**	Version 1 Release 1 with APAR OW11470 and PTF UW16827 or Version 1 Release B with APAR OW11470 and PTF UW16828
ISPF	Version 3 Release 3 or later
DB2	IBM supported releases

*!DB/DASD requires DFP Version 3 Release 3 to process dynamic UCBs.

**!DB/DASD requires SMS to correctly process orphans.

Important

The Candle !DB/Tools do not support long data set names introduced by MVS 5.1 and OS/390.

Memory requirements for running !DB/Tools

The chart shows recommendations for the memory required for !DB/Tools. These values for megabytes are estimates; actual requirements vary according to the functions you use and the housekeeping settings in the products.

Product	Small Extract		Medium Extract		Large Extract		Extra Large Extract	
	Below Line	Above Line	Below Line	Above Line	Below Line	Above Line	Below Line	Above Line
!DB/DASD	4	6	4	12	4	16	4	24
!DB/EXPLAIN	4	8	4	16	4	24	4	32
!DB/QUICKCHANGE	6	18	6	32	6	48	6	64
!DB/QUICKCOMPARE*	4	6	4	6	4	8	4	12
!DB/SMU	4	8	4	16	6	24	6	32
!DB/WORKBENCH	4	16	4	28	4	40	4	52

* Because !DB/QUICKCOMPARE does not use an extract, the numbers for !DB/QUICKCOMPARE are based on the amount of DDL in all sets in the COMPARE.

Multiple MVS systems with shared DASD

If you are installing !DB/Tools on multiple MVS systems and expect them to share DASD, install the !DB/Tools only once. Then use the ADDSYS option to install for an additional DB2 subsystem.

Multiple MVS systems without shared DASD

If you are installing !DB/Tools on multiple MVS systems and are not using shared DASD, perform a separate install for !DB/Tools for each MVS system.

Remote MVS systems

Use the following procedure to install !DB/Tools on a remote MVS system

Step	Action
1	Use the install on the local MVS system to create product backup files(allocate and copy).
2	Transmit the backup files and the install data set to the remote MVS system.
3	Allocate an empty profile data set on the remote MVS. It must be empty in order to create the profile members.
4	Execute the install on the remote MVS system.
5	<p>Start the tailoring and select yes for installing into an existing data set.</p> <p>Pay attention to the tailoring panels with the dataset names. If you change dataset names, you you have to manually change them, even if you type in the highlevel changes.</p>
6	Run the allocate step on the remote MVS to create system and user logs.
7	Start tailoring again, and specify NO for installing into an existing data set, not on the front panel, but within tailoring.
8	Skip the copy step and proceed with the installation. The build job will populate the profile data sets, the system PDS, and the user PDS.

DB2 LOADLIB issues

The !DB/Tools assume that the DB2 LOADLIB (DSNLOAD) is in your system LINKLIST. If the DB2 LOADLIB is not in your system LINKLIST, add a STEPLIB that points to the DB2 LOADLIB. Apply the guidelines in the chart to your installation.

IF this is for ...	THEN ...
online usage	One of the following conditions must exist: <ul style="list-style-type: none"> ● The DB2 LOADLIB must be in the LINKLIST. -or- ● The DB2 LOADLIB must be in the STEPLIB of your LOGON PROC. -or- ● A steplib utility must be invoked to dynamically add the DB2 LOADLIB to your steplib concatenation.
batch usage	One of the following conditions must exist: <ul style="list-style-type: none"> ● The DB2 LOAD LIB must be in the LINKLIST. -or- ● There must be a STEPLIB DD in the batch JCL to allocate your DB2 LOADLIB.

Important

If your DSNZPARM or DSNHDECP members reside in a library other than your DB2 LOADLIB (for example, DSNEXIT), this library also needs to be in the LINKLIST or STEPLIB.

The skills you need

The person or persons installing !DB/Tools should have:

- At least one year of experience with DB2 as a database administrator, including knowing how to
 - Execute BINDs
 - CREATE objects
 - GRANT privileges
- The JCL experience typically attained after two years of programming or DBA experience
- Basic experience with the IEBCOPY utility

Installing !DB/WORKBENCH and !DB/QUICKCHANGE

You must install or refresh !DB/WORKBENCH and !DB/QUICKCHANGE in a specified order as shown in this chart.

IF you are installing or refreshing ...	THEN first you must also install or refresh ...
!DB/QUICKCHANGE V300	!DB/WORKBENCH V300
!DB/QUICKCHANGE V500	!DB/WORKBENCH V500

Installing !DB/QUICKCOMPARE

If you are going to use !DB/QUICKCOMPARE to change objects on a DB2 subsystem, !DB/QUICKCOMPARE must be installed on the subsystem where the objects you want to change reside.

License requirements for !DB/Tools

You must have a license for each !DB/Tools product on every central processing unit (CPU) where you run that product.

For !DB/EXPLAIN, you must have a !DB/EXPLAIN license on every CPU where you will run EXPLAINS.

Compatibility with third party vendor software

Candle !DB/Tools are not compatible with all third party vendor software.

If your site uses software from third party vendors, you may need to make modifications to your site's configuration or to the !DB/Tools products before, during, or after installation. Refer to the chart for software compatibility.

	Supported with customization	Not supported
FDR(Fast Dump and Restore)/ABR		√
PANVALET as a PDS source		√
PDSE		√
PDSMan		√
ROSCOE (without ISPF support)		√
Vendor utilities	√	

Required Levels of Authority

Overview

The people that install and use !DB/Tools need certain levels of DB2 authority and data set authority. The authorities needed are described below.

DB2 privileges for installers

As an installer, you need 3 levels of DB2 privileges to install and use the tools:

- Privileges to install the tools

All 3 of the following DB2 privileges are required to install !DB/Tools:

- BINDADD
- CREATESG
- CREATEDB

- Privileges to update the catalog tables with a subset of RUNSTATS information

The !DB/Tools provide you with the ability to update certain user modifiable columns in the catalog tables. To BIND the plans that perform this function, you must have privileges from one of the following:

- SYSADM
- BINDAGENT
- Explicit catalog update authority

- Authority to issue GRANT authorizations

In addition, before the product is released for general use, you must grant execute privileges on each of the following !DB/Tools plans:

- Extract plan
- Product runtime plan
- Dynamic SQL plan

In !DB/Tools Install, you grant privileges using the procedure in the unit “Issuing GRANTS” on page 152. Users (USERIDs) that need to perform the extracts require

- Authorization by GRANTS to the !DB/Tools plans
 - SELECT authority on the DB2 catalog
-

DB2 authority for all users

All !DB/Tools users who need to interact with DB2 need EXECUTE authority on the product plans.

DB2 authority for !DB/EXPLAIN users

!DB/EXPLAIN users need SELECT authority on catalog tables, as follows:

IF the !DB/EXPLAIN user is executing ...	THEN ...
Static SQL	the EXECUTE authority on the product plan automatically GRANTS access to the catalog
Dynamic SQL	the primary or secondary AUTHID in use needs SELECT On Catalog authority

DB2 authority for !DB/SMU users

In addition to EXECUTE authority on product plans, !DB/SMU users need SELECT authority on the following catalog tables:

- SYSCOPY
- SYSPLANDEP
- SYSPACKDEP

Data set authority for installers

The !DB/Tools installer (or installation group) needs full access (READ, WRITE, CREATE, and EXECUTE) to the PRODUCT, DATA, and PROFILE data sets, as shown in the table below.

See “How the Install Works” on page 41 for an explanation of PRODUCT, DATA, and PROFILE data sets.

For detailed information about data set authority, see the unit “Data Set Security” on page 294.

Type of Data Set	READ Access	WRITE Access	CREATE Access	EXECUTE Access
DATA	X	X	X	X
PRODUCT	X	X	X	X
PROFILE	X	X	X	X

Data set authority for users

After installation, other users need access to the PRODUCT, DATA, and PROFILE data sets. See “Data Set Types” on page 314 for an explanation of PRODUCT, DATA, and PROFILE data sets.

For detailed information about data set authority, see the unit “Data Set Security” on page 294.

Access control statements for authorization

Access control statements define authorization for certain product functions. After the install is complete, everyone has access to the installed products. To control access, you must modify the access control statements.

Access control statements do not override authorizations in DB2.

For more information about access control statements, see “!DB/Tools Access Control Statements” on page 327.

About migrating authorizations for existing products

You can migrate the authorization exits for existing products to another installation. See “Copying Authorization Exits from One Installation to Another” on page 362 for this procedure.

Introduction

This chapter is an overview of the installation process. It describes the install and refresh procedures. It also describes the procedure for installing for additional subsystems.

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Refreshing an Existing System	47
Installing for an Additional Subsystem	48
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The Installation Process

Overview

This unit describes the types of installations you can do with !DB/Tools Install. It also provides the criteria for making the decision to do a new installation or a refresh.

Type of tapes

Candle Corporation distributes the following types of tapes.

Type of Tape	Contents	Availability
Base	Contains a complete product or new version of a product	Distributed when you purchase a product or a new version of a product
CUM	Contains cumulative maintenance	Distributed on a <i>regularly scheduled</i> basis, for those !DB/Tools products that warrant such maintenance
PSP	Contains the most recent fixes, enhancements, or a combination of these	Distributed on an <i>as-needed</i> basis, for those !DB/Tools products that warrant such maintenance

Note: The CUM and PSP tapes are both maintenance tapes.

Types of data sets

!DB/Tools Install prepares essential PRODUCT, DATA, and PROFILE data sets for the !DB/Tools products you install. See “Data Set Information” on page 311 for information on these data sets.

Types of installations

!DB/Tools Install gives you the capability of either installing a new system or refreshing an existing system. You can also continue installing or refreshing for additional subsystems.

- INSTALL** Builds a new system. !DB/Tools Install sets up all PRODUCT, DATA, and PROFILE data sets.
- Use this option when installing a new version of any or all !DB/Tools.
- Note:** If a CUM tape or PSP tape accompanies the product tape, apply the maintenance tapes *before* you complete any CREATE actions. The CREATE actions include the menu options for building tailored members, creating DB2 objects, and running the batch extract.
- REFRESH** Refreshes an existing system. !DB/Tools Install replaces PRODUCT, DATA, and PROFILE data set members that have changed.
- Use this option when upgrading with new maintenance. Candle Corporation supplies new maintenance by issuing CUM tapes and PSP tapes.
- ADDSYS** Installs the !DB/Tools you specify for an additional subsystem.
- Note:** !DB/Tools Install does not let you install for an additional subsystem unless you have already done a primary install of the !DB/Tools product.
- The ADDSYS option performs these actions:
- allocates and copies the DATA data sets
 - CREATES DB2 objects
 - BINDs the plans for the new subsystem
 - issues GRANTs
 - builds a new extract ID for the first extract job you run in any DB2 subsystem
 - builds new extract and utility members

Deciding whether to do an install or a refresh

Use the chart below to decide whether to do an install or a refresh.

IF the product you are installing or refreshing is ...	AND this is ...	THEN ...
Any of the following: <ul style="list-style-type: none"> ● !DB/EXPLAIN V300 or V500 ● !DB/WORKBENCH V300 or V500 ● !DB/QUICKCHANGE V300 or V500 ● !DB/SMU V300 or V500 ● !DB/DASD V300 or V500 ● !DB/QUICKCOMPARE V300 or V500 	the first tape for the product you received,	use INSTALL
	a subsequent tape for the same version (not a current maintenance tape),	use REFRESH
	a subsequent tape that is a new version, or a GA version of an FCS version that you previously installed,	use INSTALL
	a subsequent CUM or PSP tape that is current maintenance,	use REFRESH

The rest of this chapter gives you a high-level overview of how you perform each type of installation.

Installing a New System

Overview

This unit gives an overview of how to install a new system.

Checklist for installing a new system

The following chart is a checklist that gives you a high-level view of the procedure for installing a new system.

√	Action	Resource
	Determine where to get the !DB/Tools Install.	Use the !DB/Tools Install on the current maintenance tape with the most recent date (no matter which products you are installing).
	Determine if you are doing an install or a refresh.	See the unit “Deciding whether to do an install or a refresh” on page 44.
	Collect information for the install.	See “Collecting Information for !DB/Tools Install” on page 57.
	Unload the INSTALL data set using IEBCOPY.	See “Unloading the INSTALL Data Set” on page 99.
	Initiate the !DB/Tools Install panels. Select the INSTALL option.	See “Beginning the Online Procedure” on page 105.
	Tailor variables to site requirements.	See “Tailoring the Variables” on page 109.
	Allocate data sets.	See the unit “Allocating Space for Data Sets” on page 115.
	Unload the rest of the product tape.	See “Unloading the Rest of the Tape for a New Install” on page 121.
	Apply a CUM tape for product maintenance. (Optional)	See “Applying a Cumulative Maintenance Tape for a New Install” on page 125.

Checklist for installing a new system (continued)

√	Action	Resource
	Apply a PSP tape for product maintenance. (Optional)	See “Applying a PSP Tape for a New Install” on page 126.
	Build tailored members.	See “Building the Tailored Members” on page 139.
	Create DB2 objects: <ul style="list-style-type: none"> ● Define VSAM clusters ● CREATE DB2 objects and perform BINDs ● Issue GRANTS ● !DB/SMU only: Copy and convert pre-version 230 !DB/SMU profiles and reports 	See “Defining Your DB2 Database” on page 145.
	Run the extract. Note: !DB/QUICKCOMPARE does not have an extract. Skip this step for !DB/QUICKCOMPARE.	See “Running the Batch Extract” on page 165.
	Add the CLIST data set to the SYSPROC concatenation.	See the unit “Manual Tailoring” on page 183.

Refreshing an Existing System

Overview

This unit gives an overview of how to refresh an existing system.

Checklist for refreshing an existing system

The following chart is a checklist that gives you a high-level view of the procedure for refreshing an existing system

√	Action	Resource
	Determine where to get the !DB/Tools Install.	Use the !DB/Tools Install on the current maintenance tape with the most recent date (no matter which products you are installing).
	Unload the INSTALL data set using IEBCOPY.	See “Unloading the INSTALL Data Set” on page 99.
	Initiate the !DB/Tools Install panels. Select the REFRESH option.	See “Beginning the Online Procedure” on page 105.
	Tailor the variables to select the products you are refreshing and, optionally, change your variables for site requirements.	See “Tailoring the Variables for a Refresh” on page 112.
	Apply any CUM tapes.	See “Applying a Cumulative Maintenance Tape for a Refresh” on page 134.
	Apply any PSP tapes.	See “Applying a PSP Maintenance Tape for a Refresh” on page 135.
	Build tailored members.	See “Building Tailored Members for a Refresh” on page 143.
	Update the DB2 subsystems	See the unit “Updating a DB2 Subsystem for a Refresh” on page 157.
	Verify that the CLISTs, REXX execs, and panels are set up correctly.	See “Manual Tailoring” on page 183.

Installing for an Additional Subsystem

Overview

This unit gives an overview of how to install for an additional DB2 subsystem.

Checklist for installing for an additional subsystem

The following chart is a checklist that gives you a high-level view of the procedure for installing for an additional DB2 subsystem.

√	Action	Resource
	Collect information for the additional subsystem.	See “Collecting Information for !DB/Tools Install” on page 57.
	Initiate the !DB/Tools Install panels. Select the ADDSYS option.	See “Beginning the Online Procedure” on page 105.
	Select a DB2 subsystem.	See “Selecting an additional DB2 subsystem” on page 174.
	Tailor the appropriate variables for the additional DB2 subsystem.	See “Tailoring the Variables for Additional DB2 Subsystems” on page 113.
	Execute the JCL to install for the additional DB2 subsystem.	See “Submitting a job to install for an additional subsystem” on page 179.
	Verify that the CLISTs, REXX execs, and panels are set up correctly.	See “Manual Tailoring” on page 183.

Installing for a Remote MVS System

Overview

This unit gives an overview of how to install for a remote MVS system.

Steps for installing on a remote MVS system

The following chart provides the steps for installing on a remote MVS system.

Step	Action
1	Select option 1 from the Candle DB/Tools Installation Main Menu. Result: The system displays the Installation Primary Option Menu.
2	Select option 3 from the Installation Primary Option Menu. Result: The system displays the Installation Tape Unload Menu.
3	On the local system, allocate a set of secondary, or backup, data sets using option 4 from the Installation Tape Unload Menu.
4	Copy your existing product data sets from current libraries to the target secondary (backup) data sets using option 5 from the Installation Tape Unload Menu.
5	File transfer a copy of your secondary (backup) data sets and the Install data set to the remote MVS system. After you transfer the secondary data sets to the remote system, make sure the secondary data sets are properly renamed for the remote system's install data set. Note: Keep the secondary (backup) data sets on the local system. You will need them when you apply maintenance on the remote system.
6	On the remote site, start the install process from the beginning.

Steps for installing on a remote MVS system (continued)

Step	Action
7	On the Global Variable Tailoring - 1 of 8 panel, specify Yes in the Installing Into Existing data sets field.
8	Perform the following installation steps for the remote system: <ul style="list-style-type: none">● TAILOR the variables. See “Tailoring the Variables for a New Install” on page 111.● BUILD the members See “Building Tailored Members for a New Install” on page 142.● CREATE the DB2 objects See “CREATING DB2 Objects and Running BINDs for a New Install” on page 149.● Run the EXTRACT See “Running the Batch Extract” on page 165.
9	If you want to install for additional DB2 subsystems on the remote MVS system, use option 3 from the Candle !DB/Tools Installation Main Menu.

Refreshing for a Remote MVS System

Overview

This unit gives an overview of how to refresh for a remote MVS system.

Steps for refreshing on a remote MVS system

The following chart provides the steps for installing on a remote MVS system.

Step	Action
1	On the local system, use option 1 from the Installation Refresh Primary Menu.
2	Specify the secondary (backup) data set names for the product data sets on the Global Variable Tailoring - 4 of 5 panel.
3	Select option 2 from the Installation Refresh Primary Menu.
4	Select option 1 from the Installation Tape Unload Menu to unload the CUM tape.
5	Select option 2 from the Installation Tape Unload Menu to unload the PSP tape.
6	Select option 4 from the Installation Tape Unload Menu to copy the disk data sets to secondary (backup) data sets. Specify the secondary (backup) data set names you used in step 2 as the source data sets and the product data set names of the !DB/Tools installation on the local MVS system as the target data sets. This refreshes the installation for the local MVS system.
7	File transfer a copy (with replace) of your secondary (backup) data sets and the Install data set to the remote MVS system. Note: Keep the secondary (backup) data sets on the local system. You will need them when you apply maintenance on the remote system.
8	Perform the following refresh steps for the remote system: <ul style="list-style-type: none"> ● BUILD the members. See “Building Tailored Members for a Refresh” on page 143. ● Update the DB2 subsystem. See “Updating a DB2 Subsystem for a Refresh” on page 157. ● Verify that the CLISTS, REXX execs, and panels are set up correctly. See “Manual Tailoring” on page 183.

Installing for Another MVS System

Overview

This unit gives an overview of how to install for another MVS system. Use this procedure if the second MVS system does not share DASD with the present system on which you have installed the !DB/Tools.

Prerequisites

Collect information for the install on the second system. See “Collecting Information for !DB/Tools Install” on page 57.

Steps for installing on another MVS system

The following chart provides the steps for installing on another MVS system.

Step	Action
1	Use the !DB/Tools install on the current MVS system to create backup files. See the procedures for allocating and copying on “Allocating Space for Backup Data Sets for a New Install” on page 119.
2	Transmit the backup files and the install data set to the new MVS system.
3	Allocate an empty profile data set on the new MVS system. It must be empty to create the profile members.
4	Initiate the !DB/Tools install on the new MVS system.
5	Begin with tailoring and pick Yes yes Option Menu, type 4 for installing into an existing data set.
6	Watch the tailoring panels with the data set names. If you change the data set names, you have to change them manually even if you type in the high-level changes.
7	Run the allocate step on the new MVS. Result: This creates the system, user, and log data sets.
8	Go back to tailoring and change installing into an existing system to No within the tailoring section, not on the front panel.

Steps for installing on another MVS system (continued)

Step	Action
9	Skip the copy step and proceed from there. The build job will populate the profile data set and the system and user profile data sets.

Installation with !DB/Tools Install

Chapter 3. Collecting Information for !DB/Tools Install

Introduction

This chapter gives you the procedure for collecting information before you begin installing !DB/Tools. It supplies a worksheet that you use to record and keep the information in one place. The last unit of the chapter describes each of the fields on the worksheet.

Chapter contents

Procedure for Collecting Data	58
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Worksheet Description	68

Procedure for Collecting Data

Overview

This unit tells you how to collect data before you perform an install or refresh.

You need to have quick access to information describing your site when installing !DB/Tools. Collecting the information in advance ensures that each item of information is available when you need it.

Steps for collecting data

The following chart describes how to collect data before you install or refresh !DB/Tools.

Step	Action
1	Read the section “Getting Started” on page 25 and the section “Customizing !DB/Tools” on page 189.
2	Copy the worksheet pages in the unit “Worksheet” on page 59. You need one blank copy for each subsystem you want to configure.
3	Use the information in the unit “Worksheet Description” on page 68 to complete the worksheet.
4	<p>Complete every field on the form so that you know you have not missed anything.</p> <ul style="list-style-type: none"> ● If you cannot locate the information requested on this worksheet, ask your DB2 database administrator or your system programmer. ● If you are not going to use a field, write None. ● If you are going to use the default, write Default.

Worksheet

Overview

This unit contains the worksheet for you to use to collect the information you need to perform an install, a refresh, or when you install for an additional subsystem.

Preparing to use the worksheet

Make copies of the worksheet. You need a blank copy for each subsystem you want to configure. You can install any or all of !DB/Tools on an individual subsystem.

Note: The only exception pertains to !DB/WORKBENCH and !DB/QUICKCHANGE, which must be installed or refreshed in a specified order as shown in the following chart.

IF you are installing or refreshing ...	THEN first you must also install or refresh ...
!DB/QUICKCHANGE V300	!DB/WORKBENCH V300
!DB/QUICKCHANGE V500	!DB/WORKBENCH V500

Installation Worksheet—Page 1 of 8
 Copy this worksheet for each subsystem on which you are installing any or all of !DB/Tools. Date: _____

The following information corresponds with *Global Variable Tailoring—Panel 1 of 8*:

1) !DB/Tools products being installed:

!DB/DASD	V _____	Base Volser _____	CUM Volser _____	PSP Volser _____
!DB/EXPLAIN	V _____	Base Volser _____	CUM Volser _____	PSP Volser _____
!DB/SMU	V _____	Base Volser _____	CUM Volser _____	PSP Volser _____
!DB/QUICKCOMPARE	V _____	Base Volser _____	CUM Volser _____	PSP Volser _____
!DB/WORKBENCH	V _____			
!DB/QUICKCHANGE	V _____			
WKB/(MIG)/QKC common tape		Base Volser _____	CUM Volser _____	PSP Volser _____

2) Tape UNIT name: _____

3) CA-1 expiration date: _____

4) Unload BookManager Files? (Y or N) _____

5) Installing into existing !DB/Tools data sets? (Y or N) _____

The following information corresponds with *Global Variable Tailoring—Panel 2 of 8*:

6) ISPF and ISPF/PDF data set names:

ISPF/PDF ISPLLIB: _____

2nd LIB or NONE: _____

ISPF/PDF ISPLLIB: _____

2nd LIB or NONE: _____

ISPF/PDF ISPMLIB: _____

2nd LIB or NONE: _____

ISPF/PDF ISPTLIB: _____

2nd LIB or NONE: _____

ISPF/PDF ISPSLIB: _____

2nd LIB or NONE: _____

ISPF/PDF CLIST: _____

Model DCB for DBRM: _____

Figure 1. Installation Worksheet—Page 1 of 8

Installation Worksheet—Page 2 of 8

Date: _____

The following information corresponds with *Global Variable Tailoring—Panel 3 of 8*:

7) Batch job cards: // _____ JOB (_____), 'DB/TOOLS', _____
 // _____
 // _____
 // _____

8) High-level prefix: PRODUCT: _____
 DATA: _____
 PROFILE: _____

9) User Profile Information User Prefix: _____
 User Suffix: _____
 Display Profile Information Panel: _____
 Use 'Fast Path' Product Initialization: _____

The following information corresponds with *Global Variable Tailoring—Panel 4 of 8*:

10) Data set names: CLIST (VB): _____
 CLIST (FB): _____
 CNTL: _____
 LOAD: _____
 MESSAGES: _____
 PANELS: _____
 SKELETONS: _____
 DBRM: _____
 UTILITY: _____
 PROFILE: _____

Figure 2. Installation Worksheet—Page 2 of 8

Installation Worksheet—Page 3 of 8

Date: _____

The following information corresponds with *Global Variable Tailoring—Panel 5 of 8*:

Product Data Sets: 11) Disk volume serial #: _____

12) Disk UNIT: _____

13) VSAM volume serial #: _____

14) 80 character block size: _____

15) SMS Managed STORCLAS: _____

16) SMS Managed MGMTCLAS: _____

Work Data Sets: 17) Disk volume serial #: _____

18) Disk UNIT: _____

19) VIO UNIT: _____

20) Product SYSOUT hold class: _____

The following information corresponds with *Global Variable Tailoring—Panel 6 of 8*:

21) MVS ID: _____ 22) DB2 Subsystem ID: _____

23) DB2 Extract ID Description: _____

24) DB2 Release: _____

25) DB2 data sets: LOAD: _____

 RUNTIME: _____

 DSNEXIT: _____

The following information corresponds with *Global Variable Tailoring—Panel 7 of 8*:

26) DSNZPARM load data set: _____ 27) DSNZPARM member name: _____

28) DSNICOPY load data set: _____ 29) DSNHDECP load data set: _____

30) DSNTIAUL load data set: _____ 31) DSNTIAUL plan name: _____

32) DSNTIAD load data set: _____ 33) DSNTIAD plan name: _____

Figure 3. Installation Worksheet—Page 3 of 8

Installation Worksheet—Page 4 of 8

Date: _____

Note: This section is DB2 subsystem specific.

- 34) DB2 SQL CALLS qualifier: _____ 35) DB2 Catalog creator: _____
- 36) DB2 SYSLLOCATIONS defined (Y or N): _____ 37) DB/ Tool Collection prefix: _____
- 38) DB/Tools Plan/package owner: _____ 39) DB/Tools Plan qualifier: _____
- 40) DB/Tools Set Current SQLID _____
- 41) Drop DB/Tools storage group? (Y or N) _____ 42) Drop DB/Tools databases ? (Y or N) _____
- 43) Drop DB/Tools tablespace? (Y or N) _____ 44) Drop DB/Tools tables? (Y or N) _____
- 45) Create DB/Tools STOGROUP? (Y or N) _____ 46) Create DB/Tools database? (Y or N) _____
- 47) Create DB/Tools tablespace? (Y or N) _____ 48) Create DB/Tools tables? (Y or N) _____
- 49) DB/Tools Database name: _____ 50) DB/Tools Storage group name: _____
- 51) STOGROUP VOLSER(S): _____ 52) DB2 objects VCAT name: _____
- 53) DB2 buffer pool: _____
- 54) System size (small, medium, large, or extra large): _____

Note: The following question is not on the panels. You need to have this information when you do manual tailoring. See "Manual Tailoring" on page 183 in the *Installation and Customization Guide*.

- 55) Is OMEGAMON II for DB2 in use? Y or N
 If yes, name of the CLIST data set for OMEGAMON II for DB2: _____

Note: : The following question appears on the *Product Variable Tailoring Panel* only if you are unloading BookManager data sets.

- 56) Data Set Names for BookManager:
 - !DB/Tools Install: _____
 - !DB/DASD: _____
 - !DB/EXPLAIN: _____
 - !DB/QUICKCOMPARE: _____
 - !DB/SMU: _____
 - !DB/WORKBENCH: _____
 - !DB/QUICKCHANGE: _____

Figure 4. Installation Worksheet—Page 4 of 8

Installation Worksheet—Page 5 of 8

Date: _____

The following information corresponds with *Product Variable Tailoring* panel for !DB/EXPLAIN.

57) DATA Data Set Names for !DB/EXPLAIN

System: _____

User: _____

Log: _____

PLANTBL: _____

SYSCAT: _____

SYSSMT: _____

TTEVSAM: _____

58) Plan names for !DB/EXPLAIN

Extract: _____

Runtime: _____

SQL: _____

The following information corresponds with the *Product Variable Tailoring* panel for !DB/WORKBENCH and !DB/QUICKCHANGE.

59) DATA Data Set Names for !DB/WORKBENCH / !DB/QUICKCHANGE

System: _____

User: _____

Log: _____

60) Plan names for !DB/WORKBENCH / !DB/QUICKCHANGE

Extract: _____

WKB Runtime: _____

WKB/QKC Runtime: _____

61) Create Statistics tables? (Y or N) _____

62) Number of days retained: _____

63) Esoteric Device Name: _____

Figure 5. Installation Worksheet—Page 5 of 8

Installation Worksheet—Page 6 of 8

Date: _____

The following information corresponds with *Product Variable Tailoring* panel for !DB/SMU.

64) Use CDB for Table Owner? (Y or N) _____

65) DATA Data Set Names for !DB/SMU

System: _____

User: _____

Log: _____

66) Plan names for !DB/SMU

Extract: _____

Runtime: _____

67) Utility profile conversion information

Source System PDS: _____

The following information corresponds with the *Product Variable Tailoring* panel for !DB/DASD.

68) Use CDB for Table Owner? (Y or N) _____

69) DATA Data Set Names for !DB/DASD

System: _____

User: _____

Log: _____

70) Plan names for !DB/DASD

Extract: _____

Runtime: _____

Figure 6. Installation Worksheet—Page 6 of 8

Installation Worksheet—Page 7 of 8

Date: _____

The following information corresponds with the *Product Variable Tailoring* panel for !DB/QUICKCOMPARE V100.

71) DATA Data Set Names for !DB/QUICKCOMPARE

 Override: _____

 Toolkit: _____

 System: _____

 Log: _____

 LRS: _____

72) Plan names for !DB/QUICKCOMPARE V100 (*V100 only*)

 Validator: _____

 Collector: _____

The following information corresponds with the *Change Engine Variable Tailoring* panel for !DB/QUICKCHANGE V500 and !DB/QUICKCOMPARE V500.

73) DATA Data Set Names for the Change Engine

 Reports: _____

 Change Engine Language: _____

 JCL: _____

74) Change Engine plan name: _____

Figure 7. Installation Worksheet—Page 7 of 8

Installation Worksheet—Page 8 of 8

Date: _____

The following information corresponds with the *Allocate Backup Data Sets Variable Tailoring* panel and the *Copy Backup Data Sets Variable Tailoring* panel.

75) Data set names for backup data sets (optional)

CLIST (VB): _____

CLIST (FB): _____

CNTL: _____

LOAD: _____

MESSAGES: _____

PANELS: _____

SKELETONS: _____

DBRM: _____

UTILITY: _____

PRODUCT PROFILE: _____

Figure 8. Installation Worksheet—Page 8 of 8

Worksheet Description

Overview

This unit describes how to complete each field on the worksheet described in the unit “Worksheet” on page 59.

The numbers in each of the following headings in this unit correspond to the numbers on the worksheet.

Special considerations

You may want to install a new release and still run a previous release as well. If you do, make sure that you use different names for the plans and objects when you complete the worksheet for the new release.

1) What !DB/Tools are you installing?

Follow this procedure to specify the !DB/Tools you are installing.

Step	Action
1	Get the names, version (V), and volume serial numbers (VOLSER) from the exterior tape label on the Candle base, CUM, and PSP tapes.
2	<p>On the worksheet, next to the name of the product you are installing, write the version number in the V field.</p> <p>If you are installing or refreshing !DB/QUICKCHANGE , you must also specify the version number for !DB/WORKBENCH only</p> <p>Note: This field on the Global Variables panel holds up to 4 characters. Type V and the version number in this field. For example, V500.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">Warning</p> <p>If you are doing a refresh, write NONE next to the products you are <i>not</i> refreshing.</p> </div> <p>Default: NONE</p>

1) What !DB/Tools are you installing? (continued)

Step	Action
3	<p>On the worksheet (for !DB/DASD, !DB/EXPLAIN, !DB/SMU, and !DB/QUICKCOMPARE), write the volume serial number in the VOLSER field next to the products you are installing.</p> <p>Note: For !DB/Tools CUM9645 or later, you only need to enter the CUM Volser or PSP Volser for one product, and this number will be propagated to all of the selected !DB/Tools products.</p> <p>!DB/WORKBENCH and !DB/QUICKCHANGE share the same VOLSER. If you are installing any of these products, write the VOLSER in the WKB/MIG/QKC common VOLSER field.</p> <p>Candle records the serial number in two places:</p> <ul style="list-style-type: none">● On the exterior paper label with the identifier, VOLSER=VVVVVV, where VVVVVV is the value of the serial number● On the header of the tape using IBM Standard labels (the magnetic label) <p>The VOLSERS for CUM and PSP tapes default to NONE.</p>
4	Give the tapes to operations so that the operator can mount them when you run the unload JCL.

2) What is the tape unit name?

Specify the name of the esoteric tape unit you are going to use to unload the distribution tape.

!DB/Tools Install uses this value when you unload the rest of the tape. See “Unloading the Rest of the Tape for a New Install” on page 121.

Default: TAPE

3) What is the CA-1 expiration date?

What you write in this field depends on whether your site uses the CA-1 Tape Management System (CA-1), also known as TMS and UCC1.

IF your site ...	THEN, on the worksheet, write ...
uses CA-1 to log external tapes	the CA1 expiration date.
does not use CA-1	None. Omit the CA-1 parameter (CA1=) before you submit the unload JCL.

Default: EXPDT=98000

4) Do you want to unload BookManager files?

Choose an option for BookManager online documentation.

IF you ...	THEN, on the worksheet write ...
want to unload files for BookManager versions of the printed documentation for any product	Y.
do not want to unload files for online versions of the printed documentation	N.

Default: Y

See “Data Set Types” on page 314 for information on these data sets.

5) Are you installing into existing !DB/Tools data sets?

The following chart describes the valid values for this question.

IF you have ...	THEN the system displays
never used !DB/Tools Install to install any of the !DB/Tools	N.
used !DB/Tools Install to install any of the !DB/Tools	Y. <i>Notes:</i> <ul style="list-style-type: none"> ● This only applies to products installed with !DB/Tools Install. ● If you specify NO, you will lose all references to current files.

6) What are the ISPF/PDF data set names?

The data set names you provide here are your IBM data sets. Do not use your private data set names.

If you have two data sets for ISPF/PDF, write the first data set name on the first line and the second data set name on the line beginning with **2nd LIB**.

If you have combined your ISPF/PDF data sets into one data set, list that data set as the first one on the worksheet. Write NONE on the second line.

Follow this procedure to get the information you need.

Step	Action
1	From ISPF option 6 (Command), type LISTA ST on the command line.
2	Press Enter. Result: The system displays a list of system data sets and their status.
3	Find and record the name of the ISPF data set that contains the base ISPF or ISPF/PDF members in the concatenation for the ISPLLIB, ISPPLIB, ISPMLIB, ISPTLIB, ISPSLIB, and CLIST DDs. You may have one or two data sets for each library depending on how your ISPF and PDF members were installed. (ISPF data set members start with ISP, and PDF data set members start with ISR.) If you need help identifying these data sets, contact your systems programmer.
4	Find and record the data set name of the production DBRM data set. Note: !DB/Tools Install specifies this name in the job that unloads the !DB/Tools data sets from tape (KTCIJCPY).

6) What are the ISPF/PDF data set names? (continued)
Defaults:

ISPLLIB	ISPF/PDF	ISR.V3R4M0.ISRLOAD
	2nd Lib	ISP.V3R4M0.ISPLOAD
ISPPLIB	ISPF/PDF	ISR.V3R4M0.ISRPENU
	2nd Lib	ISP.V3R4M0.ISPPENU
ISPMLIB	ISPF/PDF	ISR.V3R4M0.ISRMENU
	2nd Lib	ISP.V3R4M0.ISPMENU
ISPTLIB	ISPF/PDF	ISR.V3R4M0.ISRTENU
	2nd Lib	ISP.V3R4M0.ISPTENU
ISPSLIB	ISPF/PDF	ISR.V3R4M0.ISRSENU
	2nd Lib	ISP.V3R4M0.ISPSENU
CLIST		ISR.V3R4M0.ISRCLIB
DBRM		DB2.DBRMLIB

7) What batch job cards do you want inserted on batch JCL?

There are four lines for one batch job card available to you to specify job information for the installation. !DB/Tools Install automatically places this card in front of JCL you submit during the installation or refresh process. This information is used only during the build for the Install facility. It is not applied to job card information for individual products.

Default:

```
//useridI JOB (** ACCT INFO **), 'DB/TOOLS',
//          CLASS=A,MSGCLASS=A,NOTIFY=userid
//*
//* CANDLE CORPORATION -- DB/TOOLS INSTALL
```

8) What high-level qualifier do you want to use for !DB/Tools?

Specify the high-level qualifier names for the PRODUCT data sets, the DATA data sets, and the PROFILE data sets. Be sure the high-level qualifier meets the data set naming conventions at your site.

!DB/Tools Install uses the high-level qualifier to build the complete data set names that are displayed as the defaults on panels throughout the install. You can modify these data set names so that they meet your site's needs.

Defaults:

PRODUCT **DBTOOLS.PRODUCT**

DATA **DBTOOLS.DATA**

PROFILE **DBTOOLS.PROFILE**

9) What information do you want to use for user profile data sets?

Specify the information that you want to use for user profile data sets. The fields in the chart are in the the order they appear on the worksheet and the panel.

Field Name	Value for the Field	Default Value
User Prefix	<p>SYSUID Prefix is the user ID of the user for the TSO session.</p> <p>SYSPREF Prefix is the prefix specified for user in the user profile for the TSO session.</p>	SYSUID
User Suffix	A suffix you specify with a maximum of 35 characters	Blank (If blank, the product ignores the value you specified for the user prefix and does not allocate a user profile data set for each user.)
Display Profile Information Panel?	<p>Y Display !DB/Tools Profile Information panel when products are accessed.</p> <p>N Do not display the !DB/Tools Profile Information panel when products are accessed.</p>	Blank
Use 'Fast Path' Product Initialization?	<p>Y Store product data set names in ISPF profile variables and recall the data set names from the ISPF profile variables when products are accessed.</p> <p>N Recall the product data set names from the !DB/Tools profile data set when products are accessed.</p>	N

10) What data set names do you want to use?

!DB/Tools Install uses the high-level qualifier to build the complete data set names that are displayed as the defaults on panels throughout the install. You can modify these data set names so that they meet your site's needs. If you want to use a different data set name than the one !DB/Tools Install provides, write it here.

Note: !DB/Tools automatically detects whether your CLIST file is fixed blocked or variable blocked.

When you install a new system, !DB/Tools Install converts the CLIST to fixed block after unloading the tape. The following chart shows how this is done.

IF your CLIST file is ...	THEN ...
fixed blocked	<p>!DB/Tools Install does the following:</p> <ul style="list-style-type: none"> • Allocates a variable blocked data set and a fixed blocked data set • Copies the tape into the variable blocked data set <p style="text-align: center;"><i>hilev.clist.V</i></p> <ul style="list-style-type: none"> • Copies <i>hilev.clist.V</i> to the fixed blocked data set <p style="text-align: center;"><i>hilev.clist</i></p> <p>Notes:</p> <p>Do not delete either of the data sets. !DB/Tools Install repeats this process when you do a refresh.</p> <p>If you have used a previous version of !DB/Tools Install, review and verify the data set names. If you want to reuse the data sets used by the previous version, make sure you write these data set names on the worksheet so you can enter those names on the panel. <i>hilev.V.clist</i>.</p>
variable blocked	!DB/Tools Install unloads the data sets without any additional manipulation.

10) What data set names do you want to use? (continued)**Defaults:**

Data Set	Default Name
CNTL	<i>hilev.CNTL</i>
LOAD	<i>hilev.LOAD</i>
CLIST	<i>hilev.CLIST</i>
MESSAGES	<i>hilev.MSGS</i>
PANELS	<i>hilev.PANELS</i>
SKELETONS	<i>hilev.SKELS</i>
DBRM	<i>hilev.DBRM</i>
UTILITY	<i>hilev.UTIL</i>
PRODUCT PROFILE	<i>hilev.PROFILE</i>

11) What is the VOLSER for the product data sets?

Write the volume serial number (VOLSER) on which you want to place the product data sets. Keep the default setting if you prefer to have the system determine the location.

Default: None

12) What is the disk unit for the product data sets?

Write the name of the disk unit where you want !DB/Tools Install to install the !DB/Tools data sets.

Default: SYSDA

13) What is the VSAM VOLSER?

This value is used when defining VSAM data sets for !DB/EXPLAIN.

Default: VSMVOL

14) What is the 80-character blocking factor?

!DB/Tools Install uses the block size you specify for the system, user, and log data sets.

For all !DB/Tools except !DB/EXPLAIN, the DATA data sets require:

- Partitioned data set organization, DSORG=PO
- Fixed blocked record format, RECFM=FB
- 80-byte logical record length, LRECL=80

The specific block size is an installation option requiring only that it be an even multiple of 80. Consider your installation standards and the model of DASD you plan to use for !DB/Tools when you choose the block size.

Default: 8880

15) What is the SMS managed STORCLAS?

If you want the product data sets to be SMS managed, write the SMS managed STORCLAS here.

Default: NONE

16) What is the SMS managed MGMTCLAS?

If you want the product data sets to be SMS managed, write the SMS managed MGMTCLAS here.

Default: NONE

17) What is the VOLSER for temporary work data sets?

Write the volume serial number (VOLSER) that you want to use for the temporary work data sets. Keep the default setting if you prefer to have the system determine the location.

Default: NONE

18) What is the work data set unit?

Write the name of the disk unit for the temporary work data sets. The system uses the volume you specify for temporary work space during the installation.

Default: SYSDA

19) What is your VIO unit name?

Ask your systems programmer for the symbolic name of the VIO unit used at your site.

Default: VIO

20) What is the SYSOUT hold class for the product?

Write the type of hold class you want to apply to SYSOUT.

Default: X

21) What is the MVS system ID?

This is the SID parameter in the active SMF parm member (SMFPRM $_{nn}$).

For example, if the active SMF parm member, SMFPRM00, is in the data set SYS1.PARMLIB, look in **SYS1.PARMLIB(SMFPRM00)** at the SID parameter to get the MVS system ID.

Default: MVSID

22) What is the DB2 subsystem ID?

This is the DB2 ID of this DB2 subsystem. This is a singular installation. In other words, there is a one to one relationship between the extract and the DB2 subsystem. If you are implementing DB2 group data sharing with DB2 Version 4 or higher, you can enter the DB2 data sharing group ID for the subsystem ID. For more information, see “How Many Extract IDs Should You Define?” on page 211.

Default: DSN

23) What is the Extract ID description?

Write a description of this extract ID. This field is required and will help you keep track of why and how you set up the extract.

24) What is the DB2 version and release?

Write the version and release of DB2 *for the DB2 subsystem supported by this installation* (the DB2 ID from above). This value can be 310, 410, 510, or 610.

Default: 310

25) What are the DB2 data set names for...

- The **DSNLOAD** data set?

Default: DB2.DSNLOAD

- The **RUNTIME** data set?

This is the data set that contains the dynamic processing program DSNTIAD.

Default: DB2.RUNLIB.LOAD

- The **DSNEXIT** data set?

DSNEXIT is the data set where the DSNZPARM and DSNHDECP members are located.

Default: DB2.DSNEXIT

Warning

The !DB/Tools LOADLIB cannot be APF-authorized. Concatenating the !DB/Tools LOADLIB to an APF-authorized data set causes the APF-authorized data set to lose its authorization.

Note: The DSNEXIT and DSNLOAD libraries must be on a shared DASD if you install on multiple subsystems that are on different CPUs.

26) What is the name of the DSNZPARM load data set?

Write the name of the data set where the DSNZPARM member is located.

Default: The DSNEEXIT data set you specified for question 18.

27) What is the actual member name for DSNZPARM?

Write the actual name (either DSNZPARM or an alternate) for the DSNZPARM member. (The name of this DSNZPARM must point to the libraries for the version of DB2 you are using.)

Default: DSNZPARM

28) What is the name of the DSN1COPY load data set?

Write the name of the data set where the DSN1COPY load member is located.

Default: The name of the DSNLOAD data set you specified for question 18.

29) What is the name of the DSNHDECP load data set?

Write the name of the data set where the DSNHDECP load member is located.

Default: The name of the DSNEEXIT data set you specified for question 18.

30) What is the name of the DSNTIAUL load data set?

Write the name of the data set where the DSNTIAUL load member is located.

Default: The name of the RUNTIME data set you specified for question 18.

31) What is the name of the DSNTIAUL plan?

Write the name of the DSNTIAUL plan

Default: DSNTIB31

32) What is the name of the DSNTIAD load data set?

Write the name of the data set where the DSNTIAD load member is located.

Default: The name of the RUNTIME data set you specified for question 18.

33) What is the name of the DSNTIAD plan?

Write the name of the DSNTIAD plan

Default: DSNTIA31

34) What is the DB2 CATALOG SQL CALLS qualifier?

This is the qualifier for the the DB2 system tables that the !DB/Tools will use. Accept the default or write in another value.

Default: SYSIBM

35) What is the catalog creator ID?

Accept the default or write in another value.

Default: SYSIBM

36) Is SYSLOCATIONS defined?

For !DB/EXPLAIN only:

IF you ...	THEN specify ...
have DDF installed on your system	Y.
do not have DDF installed on your system	N.

Default: N

37) What is the collection prefix?

For !DB/EXPLAIN only: The collection prefix is the character string that is prepended to the catalog owner to make up the collection ID that contains all Candle packages.

Default: CANDLE_TE_

38) Who is the plan/package owner?

This is the authorization ID, either userid or secondary authid, of the person who BINDs the plans and packages.

Default: *userid*

39) What is the !DB/Tools PLANs qualifier?

This is a qualifier for the names of the PLANs and table creator. Choose an appropriate authorization ID. Write the authid you choose here. If you are installing or refreshing !DB/DASD or !DB/SMU, this qualifier must be **CDB**.

Default: *userid*

40) What is the SQL authorization ID (Set Current SQLID) for !DB/Tools objects?

This is the SQL authorization ID for the !DB/Tools objects being created. If you want to set the SQL authorization ID, write it here. If you do not want to set the SQL authorization ID, write NONE.

Default: NONE

41) Do you want to issue DROPs of the current storage group?

IF you specify ...	AND ...	THEN ...
Y		the system issues DB2 DROP statements for the specified storage group that the !DB/Tools Install creates. Note: Specify Y if you want to recreate a storage group.
N	no storage group exists and you specify the option to create a storage group	the system creates the storage group.
	a storage group exists	CREATEs for the existing storage group fail.

Default: N

42) Do you want to issue DROPs of the current !DB/Tools database?

IF you specify ...	AND ...	THEN ...
Y		the system issues DB2 DROP statements for the specified database. Note: Specify Y if you want to recreate a database.
N	no database exists	the system takes no action for the database.
	a database exists	CREATEs for the existing database fail.

Default: N

43) Do you want to issue DROPs of the current !DB/Tools table space?

IF you specify ...	AND ...	THEN ...
Y		the system issues DB2 DROP statements for the specified table space. Note: Specify Y if you want to recreate a table space.
N	no table space exists	the system takes no action for the table space.
	a table space exists	CREATEs for the existing table space fail.

Default: N

44) Do you want to issue DROPs of current !DB/Tools tables?

IF you specify ...	AND ...	THEN ...
Y		the system issues DB2 DROP statements for the specified tables. Note: Specify Y if you want to recreate tables.
N	no tables exist	the system takes no action for tables.
	tables exist	CREATEs for existing tables fail.

Default: N

45) Do you want to create a STOGROUP?

IF you ...	THEN specify ...
want to create a STOGROUP	Y.
do not want to create a STOGROUP	N.

Default: Y

46) Do you want to create a database?

This option applies to all the !DB/Tools products except !DB/QUICKCOMPARE.

IF you ...	THEN specify ...
want to create a database	Y.
do not want to create a database	N.

Default: Y

47) Do you want to create a table space?

This option applies to all the !DB/Tools products except !DB/QUICKCOMPARE.

IF you ...	THEN specify ...
want to create a table space	Y.
do not want to create a table space	N.

Default: Y

48) Do you want to create tables?

This option applies to all the !DB/Tools products except !DB/QUICKCOMPARE.

IF you ...	THEN specify ...
want to create tables	Y.
do not want to create tables	N.

Default: Y

49) What is the database name to be used by !DB/Tools?

This is the name of the database for all DB2 objects used in the !DB/Tools.

Default: KTCDBD

50) What is the storage group name?

Warning

If you specify an existing storage group name and you specify **(Y)** to issue DROPs for a STOGROUP, !DB/Tools Install issues a DROP for the storage group name you specified.

If you specify an existing storage group name and you specify **N** to issue DROPs, the step that CREATEs the storage group will fail.

Default: NONE

51) What is the STOGROUP VOLSER(s)?

IF you ...	THEN specify ...
specify a storage group name	the volume or volumes you want assigned to this STOGROUP in DB2.
do not specify a storage group name	the VOLSER used for the IDCAMS VSAM defines for DB2 data sets.

52) What is the DB2 catalog VCAT name?

This value becomes the high-level qualifier for the table spaces and index spaces that are created during the installation.

Default: SYSVCAT

53) What is the DB2 buffer pool?

This value is used in the creation of the DDL for the DB2 objects.

Default: BP0

54) Is your installation small, medium, large, or extra large?

Specify whether your DB2 installation is small, medium, large, or extra large.

See “Estimating DASD” on page 303 for guidelines.

Default: MEDIUM

55) Does your site use OMEGAMON II for DB2?

If your site use OMEGAMON II for DB2 and you want to use the OMEGAMON II for DB2 bridge, add the OMEGAMON II for DB2 CLIST data set to the SYSPROC concatenation. See the unit “Adding the CLIST Data Set to the SYSPROC Concatenation” on page 185 for more information.

Note: There is not a field for this question on the panels. You need to have this information when you do manual tailoring. See “Manual Tailoring” on page 183 for more information.

56) What are the DATA data set names for BookManager?

If you answered yes to question 4, write the names of the data sets !DB/Tools Install builds for the BookManager data sets.

57) What are the DATA data set names for !DB/EXPLAIN?

Write the names of the DATA data sets for !DB/EXPLAIN. !DB/Tools Install builds the default names from the high-level qualifiers you provided in question 7, a generated mid-level qualifier, and the default low level suffix.

!DB/Tools Install displays the complete data set names and allows you to change any or all of the data set names, including the mid-level qualifiers.

Defaults:

Data Set	Default Name
System	<i>hilev</i> .EXP.SYSTEM
User	<i>hilev</i> .EXP.USER
Log	<i>hilev</i> .EXP.LOG
PLANTBL	<i>hilev</i> .PLANTBL
SYSCAT	<i>hilev</i> .SYSCAT
SYSSTMT	<i>hilev</i> .SYSSTMT
TTEVSAM	<i>hilev</i> .TTEVSAM

58) What are the plan names for !DB/EXPLAIN?

- At extract time?
Default: KTEPLNX
- At runtime?
Default: KTEPLNR
- At SQL execution?
Default: KTEPLNQ

!DB/Tools Install automatically puts these names in the BIND JCL.

59) What are the DATA data set names for !DB/WORKBENCH and !DB/QUICKCHANGE?

Write the names of the DATA data sets for !DB/WORKBENCH. (These data sets are also used by !DB/QUICKCHANGE) !DB/Tools Install builds the default names from the high-level qualifiers you provided in question 7, a generated mid-level qualifier, and the default low level suffix.

!DB/Tools Install displays the complete data set names and allows you to change any or all of the data set names, including the mid-level qualifiers.

Defaults:

Data Set	Default Name
System	<i>hilev.db2id.WKB.SYSTEM</i>
User	<i>hilev.db2id.WKB.USER</i>
Log	<i>hilev.db2id.WKB.LOG</i>

60) What are the plan names for !DB/WORKBENCH and !DB/QUICKCHANGE ?

- At extract time?
Default: KTWPLNX
- At runtime for !DB/WORKBENCH .?
Default: KTWPLNR
- At runtime for !DB/WORKBENCH , and &QKC?
Default: KTQPLNQ

!DB/Tools Install automatically puts these names in the BIND JCL.

61) Do you want to create statistics tables for !DB/WORKBENCH?

!DB/WORKBENCH statistics are kept in statistics tables. To be able to collect statistics for !DB/WORKBENCH, create the statistics tables. If you do not want to be able to collect statistics, do not create the statistics tables.

IF you ...	THEN, on the worksheet write ...
want to create statistics tables for !DB/WORKBENCH	Y.
do not want to create statistics tables for !DB/WORKBENCH	N.

Note: If you specify that you do not create statistics tables for !DB/WORKBENCH, the !DB/WORKBENCH extract will issue the informational return code 4.

62) What is the number of days to retain statistics?

If you specified that you want to collect statistics, write the number of days to keep statistics in the STATS table. The JCL to delete the statistics is included in the !DB/WORKBENCH extract JCL.

Default: 60

63) What is the esoteric device name?

Write the esoteric device name you want to use for the work data sets.

Default: SYSDA

64) Use CDB table owner for !DB/SMU?

IF you ...	THEN, on the worksheet write ...
want to use CDB as the table owner for !DB/SMU tables (CDB.MONFILE and CDB.SPCSTATS).	Y.
want to use the !DB/Tools Tables/Plans Qualifier that you set in question 39 as the table owner for !DB/SMU tables <i>qualifier</i> . MONFILE and <i>qualifier</i> . SPCSTATS).	N.

Note: This option is only available with !DB/SMU Version 300 or higher. If you have an older version of !DB/SMU, this option will be ignored, and the CDB default will be used.

65) What are the DATA data set names for !DB/SMU?

Write the names of the DATA data sets for !DB/SMU. !DB/Tools Install builds the default names from the high-level qualifiers you provided in question 8, a generated mid-level qualifier, and the default low level suffix.

!DB/Tools Install displays the complete data set names and allows you to change any or all of the data set names, including the mid-level qualifiers.

Defaults:

Data Set	Default Name
System	<i>hilev.db2id</i> .SMU.SYSTEM
User	<i>hilev.db2id</i> .SMU.USER
Log	<i>hilev.db2id</i> .SMU.LOG

66) What are the plan names for !DB/SMU?

- At extract time?
Default: KTSPLNX
- At runtime?
Default: KTSPLNR

!DB/Tools Install automatically puts these names in the BIND JCL.

67) What is the source system PDS for converting !DB/SMU utilities or reports?

If you had a version of !DB/SMU that was earlier than V230, you need to convert the SYSTEM PDS from the earlier version before you run the !DB/SMU extract. Write the name of the source (pre-V230) system PDS.

Note: The tailoring panels for global variables provide a place to specify this PDS name. You can also change the name when you actually do the conversion.

68) Use CDB table owner for !DB/DASD?

IF you ...	THEN, on the worksheet write ...
want to use CDB as the table owner for !DB/DASD tables (CDB.DSPHIST and CDB.DSPSTATS).	Y.
want to use the !DB/Tools Tables/Plans Qualifier that you set in question 39 as the table owner for !DB/DASD tables qualifier.DSPHIST and qualifier.DSPSTATS).	N.

Note: This option is only available with !DB/DASD Version 300 or higher. If you have an older version of !DB/DASD, this option will be ignored, and the CDB default will be used.

69) What are the DATA data set names for !DB/DASD?

Write the names of the DATA data sets for !DB/DASD. !DB/Tools Install builds the default names from the high-level qualifiers you provided in question 7, a generated mid-level qualifier, and the default low level suffix.

!DB/Tools Install displays the complete data set names and allows you to change any or all of the data set names, including the mid-level qualifiers.

Defaults:

Data Set	Default Name
System	<i>hilev.db2id.DASD.SYSTEM</i>
User	<i>hilev.db2id.DASD.USER</i>
Log	<i>hilev.db2id.DASD.LOG</i>

70) What are the plan names for !DB/DASD?

- At extract time?
Default: KTDPLNX
- At runtime?
Default: KTDPLNR

!DB/Tools Install automatically puts these names in the BIND JCL.

71) What are the DATA data set names for !DB/QUICKCOMPARE?

Write the names of the DATA data sets for !DB/QUICKCOMPARE. !DB/Tools Install builds the default names from the high-level qualifiers you provided in question 7, a generated mid-level qualifier, and the default low level suffix.

!DB/Tools Install displays the complete data set names and allows you to change any or all of the data set names, including the mid-level qualifiers.

Defaults:

Data Set	Default Name
Override	<i>hilev.KTA.OVERRIDE</i>
Toolkit	<i>hilev.KTA.TOOLKIT</i>
System	<i>hilev.KTA.SYSTEM</i>
Log	<i>hilev.KTA.LOG</i>
LRS	<i>hilev.KTA.LRS</i>

72) What are the plan names for !DB/QUICKCOMPARE V100?

These values apply to !DB/QUICKCOMPARE V100 *only*.

- For the validator step of the jobstream for changes?

Default: KTAPLAN1

- For the collector step of the jobstream for changes?

Default: KTAPLAN2

!DB/Tools Install automatically puts these names in the BIND JCL.

73) What are the DATA data set names for the Change Engine?

Write the names of the DATA data sets for the Change Engine used by !DB/QUICKCHANGE V500 and !DB/QUICKCOMPARE V500. !DB/Tools Install builds the default names from the high-level qualifiers you provided in question 7, a generated mid-level qualifier, and the default low level suffix.

!DB/Tools Install displays the complete data set names and allows you to change any or all of the data set names, including the mid-level qualifiers.

Defaults:

Data Set	Default Name
Reports	<i>hilev.REPORTS</i>
Change Engine Language	<i>hilev.CEL</i>
JCL	<i>hilev.JCL</i>

74) What is the plan name for the Change Engine?

!DB/Tools Install automatically puts this name in the BIND JCL.

Default: KTNPLAN1

75) What are the data set names for the backup data sets?

Specify the names for the backup copies of the product data sets. Be sure the high level qualifier meets the data set naming conventions at your site.

Defaults:

Data Set	Default Name for Backup
CNTL	<i>hilev.CNTL.BKUP</i>
LOAD	<i>hilev.LOAD.BKUP</i>
CLIST	<i>hilev.CLIST.BKUP</i>
MESSAGES	<i>hilev.MSGS.BKUP</i>
PANELS	<i>hilev.PANELS.BKUP</i>
SKELETONS	<i>hilev.SKELS.BKUP</i>
DBRM	<i>hilev.DBRM.BKUP</i>
UTILITY	<i>hilev.UTIL.BKUP</i>
LOG	<i>hilev.LOG.BKUP</i>
SYSTEM	<i>hilev.SYSTEM.BKUP</i>
USER	<i>hilev.USER.BKUP</i>
PRODUCT PROFILE	<i>hilev.PROFILE.BKUP</i>

Chapter 4. Unloading the INSTALL Data Set

Introduction

This chapter gives you the procedure for unloading the INSTALL data set from the maintenance tape.

Before you begin, make sure that you have completed the Installation Worksheet shown in “Collecting Information for !DB/Tools Install” on page 57.

Chapter contents

General Information about Unloading the INSTALL Data Set	100
Unloading the INSTALL Data Set the First Time	101
Refreshing the INSTALL Data Set	103

General Information about Unloading the INSTALL Data Set

Overview

This unit tells you where to find !DB/Tools Install and which JCL to use to unload the INSTALL data set.

Locating !DB/Tools Install

The most recent version of !DB/Tools Install is always on the tape with the most recent date. If you have more than one maintenance tape, **unload the INSTALL data set from the tape with the most recent date**, even if that tape is for a product other than the one you are installing or refreshing.

Deciding which JCL to use

The following chart tells you which JCL to use based on whether you are unloading !DB/Tools Install for the first time or refreshing an existing INSTALL data set.

IF you are ...	THEN use the JCL in ...
unloading the INSTALL data set for the first time	“Unloading the INSTALL Data Set the First Time” on page 101
refreshing an existing INSTALL data set	“Refreshing the INSTALL Data Set” on page 103

Unloading the INSTALL Data Set the First Time

Overview

This unit gives you sample JCL and the instructions for modifying the JCL for the first time you unload the INSTALL data set from the maintenance tape.

Sample JCL

Use the instructions in “Steps for modifying the JCL” on page 102 to modify and use this JCL for your environment when you want to unload the INSTALL data set the first time.

```

**** JOBCARD
/*
/*
/*
//LOADPRC PROC TAPEUNT=,TAPEVOL=,CA1=,CNTLDCB=,
//          HILEV=,DASDUNT=,INSTALL=
//*****
/*          PROC USED TO UNLOAD INSTALL DATA SET          *
//*****
//LOADSTP EXEC PGM=IEBCOPY,REGION=2048K
//SYSPRINT DD SYSOUT=*
//SYSUT3 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4 DD UNIT=SYSDA,SPACE=(CYL,(1,1))
//*****
/*          TAPE DATA SET DEFINITION          *
//*****
//CNTLTP DD DSN=CANDLE.TC.INSTALL,UNIT=&TAPEUNT,
//          DISP=SHR,
//          VOL=SER=&TAPEVOL,LABEL=(1,SL&CA1)
//*****
/*          DISK DATA SET DEFINITION          *
//*****
//CNTLDA DD DSN=&HILEV..&INSTALL,DISP=(NEW,CATLG),DCB=&CNTLDCB,
//          UNIT=&DASDUNT,SPACE=(CYL,(8,1,65))
//*****
/*          END OF PROC          *
//*****
//          PEND
/*
//LOADM EXEC LOADPRC,TAPEUNT=CART,TAPEVOL=VVVVVV,
//          DASDUNT=3380,CA1=',EXPDT=98000',
//          HILEV='DBTOOLS.CANDLE',INSTALL='INSTLIB',
//          CNTLDCB='(RECFM=FB,LRECL=80,BLKSIZE=1600)'
/*
//SYSIN DD *
COPY INDD=CNLTLP,OUTDD=CNLTDA
//

```

Figure 9. Sample JCL for Unloading the INSTALL Data Set the First Time

Note: Depending on your MVS environment, you may need to include a VOL=SER parameter on the CNLTDA DD statement.

Caution

Candle does not provide support for copy utilities other than IEBCOPY.

Steps for modifying the JCL

The following chart describes the steps to modify the above JCL to unload the INSTALL data set for the first time. Refer to the worksheet you completed in “Collecting Information for !DB/Tools Install” on page 57.

Step	Action
1	Replace the JOB statement with one that is valid at your site.
2	Specify the tape unit. Substitute the tape unit name in place of CART.
3	Specify the tape volume. Substitute the tape volume name in place of VVVVVV.
4	Specify the DASD unit name. Substitute the DASD unit name in place of 3380.
5	If your site does not use the CA1 Tape Management System (also known as TMS and UCC1), remove the CA1= parameter from the job stream.
6	Change the high-level qualifier of the DASD data sets from HILEV='DBTOOLS.CANDLE' to one that meets the data set naming conventions at your site.
7	Change the INSTALL data set name suffix specified by the LOADM EXEC statement and referred to by ddname CNTLDA. Replace the suffix for INSTALL='INSTLIB' with one that meets the needs for your site.
8	Submit the job.
9	Verify its successful execution by checking for a condition code of 0.

Refreshing the INSTALL Data Set

Overview

This unit gives you sample JCL and the instructions for modifying the JCL to refresh the INSTALL data set with the new !DB/Tools Install on the maintenance tape (use the CUM or PSP tape that has the most recent date).

Sample JCL

Use the instructions in “Steps for modifying the JCL” on page 104 to modify and use this JCL for your environment when you want to refresh the INSTALL data set.

```

**** JOBCARD
/*
/*
/*
/*
//LOADPRC PROC TAPEUNT=,TAPEVOL=,CA1=,HILEV=,INSTALL=
//*****
//*          PROC USED TO UNLOAD INSTALL DATA SET          *
//*****
//LOADSTP EXEC PGM=IEBCOPY,REGION=2048K
//SYSPRINT DD  SYSOUT=*
//SYSUT3 DD   UNIT=SYSDA,SPACE=(CYL,(1,1))
//SYSUT4 DD   UNIT=SYSDA,SPACE=(CYL,(1,1))
//*****
//*          TAPE DATA SET DEFINITION          *
//*****
//CNTLTP DD   DSN=CANDLE.TC.INSTALL,UNIT=&TAPEUNT,
//           DISP=SHR,
//           VOL=SER=&TAPEVOL,LABEL=(1,SL&CA1)
//*****
//*          DISK DATA SET DEFINITION          *
//*****
//CNTLDA DD   DSN=&HILEV..&INSTALL,DISP=SHR
//*
//*****
//*          END OF PROC          *
//*****
//           PEND
//*
//LOADM EXEC LOADPRC,TAPEUNT=CART,TAPEVOL=VVVVV,
//           CA1=',EXPDT=98000',
//           HILEV='DBTOOLS.CANDLE',INSTALL='INSTLIB'
//*
//SYSIN DD *
//COPY INDD=((CNTLTP,R)),OUTDD=CNLDA
//

```

Figure 10. Sample JCL for Unloading the INSTALL Data Set

Important

If you do not unload the new !DB/Tools Install data set into your existing INSTALL data set, you will lose your existing tailoring variables.

Steps for modifying the JCL

The following chart describes the steps to modify the above JCL to refresh the INSTALL data set. Refer to the worksheet you completed in “Collecting Information for !DB/Tools Install” on page 57.

Step	Action
1	Replace the JOB statement with one that is valid at your site.
2	Specify the tape unit. Substitute the tape unit name in place of CART.
3	Specify the tape volume. Substitute the tape volume name in place of VVVVVV.
4	If your site does not use the CA1 Tape Management System (also known as TMS and UCC1), remove the CA1= parameter from the job stream.
5	Change the high-level qualifier of the DASD data sets from HILEV='DBTOOLS.CANDLE' to one that meets the naming conventions for data sets at your site.
6	Change the INSTALL data set name specified by the LOADM EXEC statement and referred to by ddname CNTLDA. Replace the suffix for INSTALL='INSTLIB' with one that meets the needs for your site.
7	Submit the job.
8	Verify its successful execution by checking for a condition code of 0.

Chapter 5. Beginning the Online Procedure

Introduction

This chapter tells you how to initiate !DB/Tools Install and how to indicate whether you are installing, refreshing, or installing for an additional subsystem.

Chapter contents

Initiating !DB/Tools Install	106
Indicating Install, Refresh, or Additional Subsystem	107

Initiating !DB/Tools Install

Overview

!DB/Tools Install is a panel driven product. This unit tells you how to initiate !DB/Tools Install.

Steps for initiating !DB/Tools Install

Use this procedure to initiate !DB/Tools Install.

Step	Action
1	On the ISPF/PDF Primary Option Menu, type 6 at the option prompt.
2	Press Enter. Result: The system displays the TSO Command Processor panel.
3	On the TSO command line, type the following: ex 'hilev.instlib' where <i>hilev</i> is the high-level qualifier and <i>instlib</i> is the suffix you specified in the JCL when you unloaded the INSTALL data set. See “Unloading the INSTALL Data Set the First Time” on page 101.
4	Press Enter. Result: The system displays a welcome screen.
5	Press Enter. Result: The system displays the Candle !DB/Tools Installation Main Menu.

Indicating Install, Refresh, or Additional Subsystem

Overview

This unit explains how to tell !DB/Tools Install that you want to do a new install, a refresh, or install for an additional subsystem.

Choosing an installation, refresh, or additional subsystem

After you initiate !DB/Tools Install, indicate if this is a new installation, a refresh, or an install for an additional subsystem, as shown here.

If you are unsure about which selection is appropriate, see “The Installation Process” on page 42.

On the Candle !DB/Tools Installation Main Menu IF you are...	THEN ...
installing a new !DB/Tools product	type 1 on the command line. Press Enter. Result: !DB/Tools Install displays the Installation Primary Option Menu.
refreshing an existing !DB/Tools product with a CUM tape or PSP tape	type 2 on the command line. Press Enter. Result: !DB/Tools Install displays the Installation Refresh Primary Menu.
installing for an additional DB2 subsystem	type 3 on the command line. Press Enter. Result: !DB/Tools Install displays the Install for Another Subsystem panel.

Indicating Install, Refresh, or Additional Subsystem

Introduction

This chapter guides you through the process of tailoring !DB/Tools Install variables to your site.

Note: Before you begin, make sure that you have completed the Installation Worksheet shown in “Worksheet” on page 59.

Chapter contents

When This Step Is Required	110
Tailoring the Variables for a New Install	111
Tailoring the Variables for a Refresh	112
Tailoring the Variables for Additional DB2 Subsystems	113

When This Step Is Required

Overview

This unit tells you when to tailor the variables.

Making the decision

The following chart tells you whether or not this step is required.

IF this is ...	THEN this step is ...
a new install	required
a refresh	required for specifying the product or products you are refreshing and tape volumes you are using to refresh. Tailoring remaining variables is optional.

Tailoring the Variables for a New Install

Overview

This unit tells you how to tailor the variables for a new install. If you are refreshing an existing system, see “Tailoring the Variables for a Refresh” on page 112.

Steps for tailoring the variables for a new install

Follow this procedure to tailor the variables for a new install.

Step	Action
1	On the Installation Primary Option Menu, type 1 on the command line.
2	Press Enter. Result: The system displays the Global Variable Tailoring - 1 of 8 panels.
3	Use the Installation Worksheet you completed in “Collecting Information for !DB/Tools Install” on page 57 to complete each panel. <ul style="list-style-type: none"> ● Use the Tab key to move between fields. ● Use the Enter key to advance to the next variable panel. When you complete all the variables panels, the system redisplay the primary menu.

Tailoring the Variables for a Refresh

Overview

This unit tells you how to tailor the variables for a refresh. If this is a new install, see “Tailoring the Variables for a New Install” on page 111.

Steps for tailoring the variables for a refresh

Follow this procedure to tailor the variables for a refresh.

Step	Action
1	On the Installation Refresh Menu, type 1 on the command line.
2	Press Enter. Result: The system displays the Global Variable Tailoring - 1 of 5 panels.
3	Use the Installation Worksheet you completed in “Collecting Information for !DB/Tools Install” to complete each panel. <ul style="list-style-type: none">● Use the Tab key to move between fields.● Use the Enter key to advance to the next variable panel. When you complete all the variables panels, the system redisplay the primary menu.

Tailoring the Variables for Additional DB2 Subsystems

Overview

This unit tells you how to tailor the variables for additional DB2 subsystems.

Requirement to build the tailored members for more than one additional subsystem

If you want to install !DB/Tools on more than one additional DB2 subsystem you must tailor the variables for the first additional subsystem and then build the tailored members for the first additional subsystem and submit the jobs. You cannot tailor the variables for another DB2 subsystem until the jobs for the first additional subsystem have completed.

Note: The ADDSYS option is not necessary unless you are adding a new subsystem.

Steps for tailoring the variables for additional DB2 subsystems

Follow this procedure to tailor the variables for additional DB2 subsystems.

Step	Action
1	On the !DB/Tools Installation Main Menu, type 3 on the command line and press Enter. Result: The system displays the ADDSYS Primary Option Menu.
2	On the ADDSYS Primary Option Menu, type 1 on the command line and press Enter. Result: The system displays the !DB/Tools DB2 ID Selection Menu.
3	On the !DB/Tools DB2 ID Selection Menu, type a DB2 ID in the entry field and press Enter. Result: The system displays the Global Variables Tailoring - 1 of 8 panel.
4	Use the Installation Worksheet you completed in “Collecting Information for !DB/Tools Install” on page 57 to complete each panel. <ul style="list-style-type: none"> ● Use the Tab key to move between fields. ● Use the Enter key to advance to the next variable panel. When you complete all the variable panels, the system redisplay the ADDSYS Primary Option Menu.

Steps for tailoring the variables for additional DB2 subsystems (continued)

Step	Action
5	If you want to build the tailored members, continue with “Building Tailored Members for Additional DB2 Subsystems” on page 144. Note: You must build and submit the tailored members for this subsystem before you attempt to tailor the variables for another DB2 subsystem.

Introduction

This chapter shows you how to use !DB/Tools Install to allocate space for the data sets remaining on the product tape and to allocate space for backup data sets for your installation.

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Allocating Space for Backup Data Sets for a New Install	119
Allocating Space for Backup Data Sets for a Refresh	120

Notes about Allocating the Remaining Data Sets

Overview

This unit includes information you need before you allocate the remaining data sets on the product tape.

When this is required

The following chart tells you whether or not this step is required.

IF this is ...	THEN this step is ...
a new install	required
a refresh	not available

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Allocating Space for Remaining Data Sets

Overview

This unit tells you how to allocate space for the PRODUCT data sets, the DATA data sets, and the PROFILE data set.

Steps for allocating space for the remaining data sets

The following chart tells you how to use !DB/Tools Install to allocate space for the remaining data sets on the product tape.

Step	Action
1	On the Installation Primary Option Menu, type 2 on the command line.
2	Press Enter. Result: The system displays the JCL to allocate space. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.
3	Type SUB on the command line.
4	Press Enter. Result: The system submits the job.
5	Verify the successful execution of the job by checking to see whether the data sets were created and cataloged. Verify that the job ended with a zero (0) condition code in all steps.

Notes about Allocating the Backup Data Sets

Overview

This unit includes information you need before you allocate the backup data sets for your installation.

When this is required

The following chart tells you whether or not this step is required.

IF this is ...	THEN this step is ...
a new install	optional
a refresh	optional

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Allocating Space for Backup Data Sets for a New Install

Overview

This unit tells you how to allocate space for data sets to backup your installation when you are performing a new install.

Steps for allocating space for backup data sets for a new install

The following chart tells you how to use !DB/Tools Install to allocate space for backup data sets for a new install.

Step	Action
1	On the Installation Primary Option Menu, type 3 on the command line.
2	Press Enter. Result: The system displays the Installation Tape Unload Menu.
3	On the Installation Tape Unload Menu, type 4 on the command line.
4	Press Enter. Result: The system displays the JCL to allocate backup data sets. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Verify the successful execution of the job by checking to see whether the data sets were created and cataloged. Verify that the job ended with a zero (0) condition code in all steps.

Allocating Space for Backup Data Sets for a Refresh

Overview

This unit tells you how to allocate space for data sets to backup your installation.

Steps for allocating space for backup data sets for a refresh

The following chart tells you how to use !DB/Tools Install to allocate space for backup data sets for a refresh.

Step	Action
1	On the Installation Refresh Primary Menu, type 2 on the command line.
2	Press Enter. Result: The system displays the Installation Tape Unload Menu.
3	On the Installation Tape Unload Menu, type 3 on the command line.
4	Press Enter. Result: The system displays the JCL to allocate backup data sets. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Verify the successful execution of the job by checking to see whether the data sets were created and cataloged. Verify that the job ended with a zero (0) condition code in all steps.

Chapter 8. Unloading the Rest of the Tape for a New Install

Introduction

This chapter shows you how to use !DB/Tools Install to load the data sets remaining on the product tape or tapes onto your system. Use these instructions if you are performing a new install. If you are doing a refresh, see “Unloading the Rest of the Tape for a Refresh” on page 131.

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Applying a PSP Tape for a New Install	126
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Copying to the Backup Data Sets for a New Install	128

Notes about Unloading the Remaining Data Sets

Overview

This unit includes guidelines and notes you need to be aware of before you unload the remaining data sets from the product tape.

When these steps are required

The following chart tells you whether or not these steps are required.

IF you received a ...	THEN the ...
product distribution tape for a new install	COPY step is required. (See “Copying the Remaining Data Sets from the Product Distribution Tape” on page 124.)
cumulative maintenance tape for a new install	CUM step is required. (See “Applying a Cumulative Maintenance Tape for a New Install” on page 125.)
PSP tape for a new install	PSP step is required. (See “Applying a PSP Tape for a New Install” on page 126.)

Compressing data sets

The JCL that unloads the tape contains a compression step to compress the product data sets. If you do not want to run a compression step, you can edit the appropriate JCL to remove it.

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Customized JCL

If you have customized any of the JCL in the existing data sets, it is possible that this JCL will be overlaid when you unload the tape.

VOLSER information

The comments in the JCL that unloads the product tape refer to two types of VOLSERs. These VOLSER types are described here.

DASD TAPE VOLSERs These are the tape VOLSERs you entered on the Global Variables panels when you specified the products you are installing. See “Collecting Information for !DB/Tools Install” on page 57 for more information.

COMMON TAPE VOLSER Each product tape contains the common data sets. !DB/Tools Install automatically unloads the common data sets from each tape.

Controlling the disposition of product data sets

The JCL that unloads the product tape contain symbolic variables for the disposition parameter of the product data sets. The default disposition is SHR. If you want to change the disposition, change the symbolic variable.

Copying the Remaining Data Sets from the Product Distribution Tape

Overview

This unit tells you how to copy the remaining data sets from the product distribution tape.

Steps for copying the remaining product data sets

The following chart gives you the procedure for unloading the rest of the product distribution tape. This is the COPY option for a new installation.

Step	Action
1	If you are installing a new system, type 3 on the command line of the Installation Primary Option Menu.
2	Press Enter. Result: The system displays the Installation Tape Unload Menu.
3	Type 1 on the command line of the Installation Tape Unload Menu.
4	Press Enter. Result: The system displays the JCL to unload the rest of the tape.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully.

Note: If you use a copy utility other than IEBCOPY, **NOT REBLOCKED** warning messages can appear when you unload the rest of the distribution tape. You can ignore these messages.

Applying a Cumulative Maintenance Tape for a New Install

Overview

This unit tells you how to apply a cumulative maintenance tape for a new installation.

Steps for copying the cumulative maintenance data sets

The following chart gives you the procedure for unloading the data sets from a cumulative maintenance tape for a new install. This is the Apply CUM option for a new installation.

Step	Action
1	If you are installing a new system, type 3 on the command line of the Installation Primary Option Menu.
2	Press Enter. Result: The system displays the Installation Tape Unload Menu.
3	Type 2 on the command line of the Installation Tape Unload Menu.
4	Press Enter. Result: The system displays the JCL to unload the cumulative maintenance tape.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully.

Note: If you use a copy utility other than IEBCOPY, **NOT REBLOCKED** warning messages can appear when you unload the rest of the distribution tape. You can ignore these messages.

Applying a PSP Tape for a New Install

Overview

This unit tells you how to apply a PSP tape for a new installation.

Steps for copying the PSP data sets

The following chart gives you the procedure for unloading the data sets from a PSP tape for a new install. This is the Apply PSP option for a new installation.

Step	Action
1	If you are installing a new system, type 3 on the command line of the Installation Primary Option Menu.
2	Press Enter. Result: The system displays the Installation Tape Unload Menu.
3	Type 3 on the command line of the Installation Tape Unload Menu.
4	Press Enter. Result: The system displays the JCL to unload the PSP maintenance tape.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully.

Note: If you use a copy utility other than IEBCOPY, **NOT REBLOCKED** warning messages can appear when you unload the rest of the distribution tape. You can ignore these messages.

Notes about Copying to the Backup Data Sets

Overview

This unit includes information you need before you copy to the backup data sets for your installation.

When this is required

The following chart tells you whether or not this step is required.

IF this is ...	THEN this step is ...
a new install	optional
a refresh	not available. For backing up data sets for a refresh, see “Copying to the Backup Data Sets for a Refresh” on page 137.

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Copying to the Backup Data Sets for a New Install

Overview

This unit tells you how to copy to the backup data sets to backup your installation when you are performing a new install.

Source for backup data sets for a new install

You can specify the data sets to use as the source of the backup. You can backup an existing (old) installation or you can backup the new installation, according to your site's needs.

Steps for copying to the backup data sets for a new install

The following chart tells you how to use !DB/Tools Install to copy to the backup data sets for a new install.

Step	Action
1	On the Installation Primary Option Menu, type 3 on the command line.
2	Press Enter. Result: The system displays the Installation Tape Unload Menu.
3	On the Installation Tape Unload Menu, type 5 on the command line.
4	Press Enter. Result: The system displays the Copy Backup Data Sets Variable Tailoring - 1 of 2 panel.
5	On the Copy Backup Data Sets Variable Tailoring - 1 of 2 panel, type the names of the data sets you want to use as the source for the backup.
6	Press Enter. Result: The system displays the Copy Backup Data Sets Variable Tailoring - 2 of 2 panel.
7	On the Copy Backup Data Sets Variable Tailoring - 2 of 2 panel, type the names of the data sets you want to use as the destination for the backup.

Steps for copying to the backup data sets for a new install (contin ued)

Step	Action
8	Press Enter. Result: The system displays the JCL to copy to the backup data sets. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.
9	Type SUB on the command line.
10	Press Enter. Result: The system submits the job.
11	Verify the successful execution of the job by checking to see whether the data sets were updated. Verify that the job ended with a zero (0) condition code in all steps.

Copying to the Backup Data Sets for a New Install

Chapter 9. Unloading the Rest of the Tape for a Refresh

Introduction

This chapter shows you how to use !DB/Tools Install to load the data sets remaining on the product tape or tapes onto your system. Use these instructions if you are performing a refresh. If you are doing a new install, see “Unloading the Rest of the Tape for a New Install” on page 121.

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Notes about Unloading the Remaining Data Sets

Overview

This unit includes guidelines and notes you need to be aware of before you unload the remaining data sets from the product tape.

When these steps are required

The following chart tells you whether or not these steps are required.

IF you received a ...	THEN the ...
cumulative maintenance tape for a refresh	CUM step is required. (See “Applying a Cumulative Maintenance Tape for a Refresh” on page 134.)
PSP tape for a refresh	PSP step is required. (See “Applying a PSP Maintenance Tape for a Refresh” on page 135.)

Compressing data sets

If you are installing or refreshing into existing data sets, Candle recommends that you compress the data sets before you continue with this procedure.

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Customized JCL

If you have customized any of the JCL in the existing data sets, it is possible that this JCL will be overlaid when you unload the tape.

VOLSER information

The comments in the JCL that unloads the product tape refer to two types of VOLSERS. These VOLSER types are described here.

DASD TAPE VOLSERS These are the tape VOLSERS you entered on the Global Variables panels when you specified the products you are installing. See “Collecting Information for !DB/Tools Install” on page 57 for more information.

COMMON TAPE VOLSER Each product tape contains the common data sets. !DB/Tools Install automatically unloads the common data sets from each tape.

Applying a Cumulative Maintenance Tape for a Refresh

Overview

This unit tells you how to apply a cumulative maintenance tape for a refresh.

Steps for copying the cumulative maintenance data sets

The following chart gives you the procedure for unloading the data sets from a cumulative maintenance tape for a refresh. This is the Apply CUM option for a refresh.

Step	Action
1	If you are doing a refresh, type 2 on the command line of the Installation Refresh Primary Menu.
2	Press Enter. Result: The system displays the Installation Tape Unload Menu.
3	Type 1 on the command line of the Installation Tape Unload Menu.
4	Press Enter. Result: The system displays the JCL to unload the cumulative maintenance tape.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully.

Note: If you use a copy utility other than IEBCOPY, **NOT REBLOCKED** warning messages can appear when you unload the rest of the distribution tape. You can ignore these messages.

Applying a PSP Maintenance Tape for a Refresh

Overview

This unit tells you how to apply a PSP tape for a refresh.

Steps for copying the PSP data sets

The following chart gives you the procedure for unloading the data sets from a PSP tape for a refresh. This is the Apply PSP option for a refresh.

Step	Action
1	If you are doing a refresh, type 3 on the command line of the Installation Refresh Primary Menu.
2	Press Enter. Result: The system displays the Installation Tape Unload Menu.
3	Type 2 on the command line of the Installation Tape Unload Menu.
4	Press Enter. Result: The system displays the JCL to unload the PSP maintenance tape.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully.

Note: If you use a copy utility other than IEBCOPY, **NOT REBLOCKED** warning messages can appear when you unload the rest of the distribution tape. You can ignore these messages.

Notes about Copying to the Backup Data Sets for a Refresh

Overview

This unit includes information you need before you copy to the backup data sets for your installation for a refresh.

When this is required

The following chart tells you whether or not this step is required.

IF this is ...	THEN this step is ...
a new install	not available. See “Copying to the Backup Data Sets for a New Install” on page 128.
a refresh	optional

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Copying to the Backup Data Sets for a Refresh

Overview

This unit tells you how to copy to the backup data sets to backup your installation when you are performing a refresh.

Source for backup data sets for a refresh

You can specify the data sets to use as the source of the backup. You can backup the data sets before or after you apply maintenance, according to your site's needs.

Steps for copying to the backup data sets for a refresh

The following chart tells you how to use !DB/Tools Install to copy to the backup data sets for a new install.

Step	Action
1	On the Installation Refresh Primary Menu, type 2 on the command line.
2	Press Enter. Result: The system displays the Installation Tape Unload Menu.
3	On the Installation Tape Unload Menu, type 4 on the command line.
4	Press Enter. Result: The system displays the Copy Backup Data Sets Variable Tailoring - 1 of 2 panel.
5	On the Copy Backup Data Sets Variable Tailoring - 1 of 2 panel, type the names of the data sets you want to use as the source for the backup.
6	Press Enter. Result: The system displays the Copy Backup Data Sets Variable Tailoring - 2 of 2 panel.
7	On the Copy Backup Data Sets Variable Tailoring - 2 of 2 panel, type the names of the data sets you want to use as the destination for the backup.

Steps for copying to the backup data sets for a refresh (continued)

Step	Action
8	Press Enter. Result: The system displays the JCL to copy to the backup data sets. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.
9	Type SUB on the command line.
10	Press Enter. Result: The system submits the job.
11	Verify the successful execution of the job by checking to see whether the data sets were updated. Verify that the job ended with a zero (0) condition code in all steps.

Chapter 10. Building the Tailored Members

Introduction

This chapter guides you through the process of building the tailored members for your site.

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Building Tailored Members for a Refresh	143
Building Tailored Members for Additional DB2 Subsystems	144

Notes about Building Tailored Members

Overview

This unit includes guidelines and notes you need to be aware of before you build the tailored members.

When these steps are required

The following chart tells you whether or not this step is required.

IF this is ...	THEN this step is ...
a new install,	required
a refresh,	required
an install for an additional DB2 sub-system,	required

Prerequisites

Complete the following steps before building the tailored members.

IF this is ...	THEN ...
a new install,	On the Installation Primary Option Menu, complete options 1–8 as needed.
a refresh,	On the Refresh Primary Menu, complete options 1–5 as needed.
an install for an additional DB2 sub-system,	On the ADDSYS Primary Option Menu, complete options 1–2 as needed.

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Hexadecimal characters in system generated JCL

The JCL contains the message

```
-CAUTION- DATA CONTAINS INVALID (NON-DISPLAY)
CHARACTERS.
USE COMMAND ==> FIND P'.' TO POSITION CURSOR TO
THESE CHARACTERS.
```

Ignore this message. The JCL contains both printable and non-printable hexadecimal characters. *Do not change them.*

Customized JCL

If you have customized any of the JCL in the existing data sets, it is possible that this JCL will be overlaid when you unload the tape.

Fixed block SYSPROC

If you defined the SYSPROC data set as being fixed block (FB), the system displays a CAUTION panel when you begin this procedure. This gives you the option to execute the variable block conversion process (VB-to-FB) for the CLIST (KTCVB2FB).

- On the command line, type **1**.
- Press Enter.

Result: The system displays a message that it is converting the VB data sets to FB. See “6) What are the ISPF/PDF data set names?” on page 73 for more information.

Note: If you select option 2, the system bypasses the conversion step.

Building Tailored Members for a New Install

Overview

This unit tells you how to build the tailored members for a new install. If this is a refresh, see “Building Tailored Members for a Refresh” on page 143.

Steps for building tailored members for a new install

Follow this procedure to build the tailored members for a new install.

Step	Action
1	On the Installation Primary Option Menu, type 4 on the command line.
2	Press Enter. Result: The system displays the JCL to build the tailored members.
3	Type SUB on the command line.
4	Press Enter. Result: The system submits the job.
5	Check the return codes to verify the job ran successfully.

Building Tailored Members for a Refresh

Overview

This unit tells you how to build tailored members for a refresh. If this is a new install see “Building Tailored Members for a New Install” on page 142.

Steps for building tailored members for a refresh

Follow this procedure to build tailored members for a refresh.

Step	Action
1	On the Installation Refresh Primary Menu, type 3 on the command line.
2	Press Enter. Result: The system displays the JCL to build the tailored members.
3	Type SUB on the command line.
4	Press Enter. Result: The system submits the job.
5	Check the return codes to verify the job ran successfully.

Building Tailored Members for Additional DB2 Subsystems

Overview

This unit tells you how to build tailored members for additional DB2 subsystems.

Steps for building tailored members for additional DB2 subsystems

Follow this procedure to build tailored members for additional DB2 subsystems.

Step	Action
1	On the ADDSYS Primary Option Menu, type 2 on the command line.
2	Press Enter. Result: The system displays one of the following: <ul style="list-style-type: none"> ● If you have previously built tailored members for the DB2 subsystem, the system displays a Caution panel that gives you the following options: <ul style="list-style-type: none"> – rebuild the JCL – edit the JCL you used the last time – end the process without changing the JCL you used the last time ● If you have <i>not</i> previously built tailored members for the DB2 subsystem, the system displays the JCL to install for the DB2 subsystem.
3	From within the JCL to install for the DB2 subsystem, type SUB on the command line.
4	Press Enter. Result: The system submits the job.
5	Check the return codes to verify the job ran successfully.

Introduction

This chapter tells you how to use !DB/Tools Install to

- define VSAM clusters
- cREATE DB2 objects
- run BINDs
- issue GRANTS
- convert pre-version 230 !DB/SMU profiles and reports
- convert pre-version 500 !DB/WORKBENCH Lazarus data

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CREATing DB2 Objects and Running BINDs for a New Install	149
Issuing GRANTS	152

Procedure Overview

Overview

This unit tells you what portions of this chapter you need to use based on whether you are doing a new install or a refresh.

For a new install

When you select option 5 on the Installation Primary Option Menu, the system displays the DB2 Database Definitions Options Panel. From this panel, you can define non-DB2 managed VSAM clusters, CREATE DB2 objects, run the BINDs, issue GRANTs, and if you are installing !DB/SMU, convert pre-version 230 profiles and reports.

Step	Action
1	Optionally define VSAM clusters. If you specified a storage group name when you tailored the variables, this option is not available.
2	CREATE DB2 objects and run the BINDs.
3	Issue GRANTs.
4	(optional) If you are installing !DB/SMU, convert your pre-version 230 profiles and reports.
5	(optional) If you are refreshing !DB/WORKBENCH, convert your pre-version 500 Lazarus extract data.

For a refresh

The step to Update DB2 Subsystems performs the BINDs for a refresh. When you select option 4 on the Installation Refresh Primary Menu, the system displays the JCL to run the BINDs, perform disk-to-disk copies, and so forth.

For converting Lazarus extract data

Do not use option 5 for the Lazarus conversion program until after you have run a !DB/WORKBENCH extract using the CUM 9808-0 version of !DB/WORKBENCH. See “Converting Extracts for Pre-Version 300 CUM 9808-0 Releases” on page 265 for information on using this option.

Defining VSAM Clusters

When this is required

The following chart indicates that this step is optional on a new install and is not available on a refresh.

IF this is ...	THEN this is ...
a new install,	optional.
a refresh,	not available.

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Steps for defining VSAM clusters

The following chart shows you how to use !DB/Tools Install to define VSAM clusters for non-DB2 managed data sets.

Step	Action
1	On the Installation Primary Option Menu, type 5 on the command line.
2	Press Enter. Result: The system displays the DB2 Database Definition Options panel.
3	On the DB2 Database Definition Options panel, type 1 on the command line.
4	Press Enter. Result: The system displays the JCL to define VSAM clusters. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully.

CREATING DB2 Objects and Running BINDs for a New Install

Overview

This unit tells you how to CREATE DB2 objects and run BINDs for a new installation.

When this is required

This step is required for a new install.

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Steps for CREATing objects and running BINDs for a new install

The following chart shows you how to CREATE DB2 objects when you are installing a new system.

Step	Action
1	On the Installation Primary Option Menu, type 5 on the command line.
2	Press Enter. Result: The system displays the DB2 Database Definition Options panel.
3	On the DB2 Database Definition Options panel, type 2 on the command line.
4	Press Enter. Result: The system displays the JCL. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully.

Considerations when installing !DB/EXPLAIN

When you install !DB/EXPLAIN, !DB/Tools Install creates a tablespace named *xxx*.PLANTBLS, where *xxx* is the database you specified when you tailored the variables.

When you execute a !DB/EXPLAIN command, if the plan table does not exist and the command needs it, !DB/EXPLAIN attempts to create the plan table in *xxx*.PLANTBLS. If the create fails, !DB/EXPLAIN attempts to create the plan table in the database DSNDB04. If this fails, !DB/EXPLAIN prompts you for where you want the plan table created. If a significant number of users' plan tables are created in *xxx*.PLANTBLS, the result is resource contention (for example: SQLCODEs -904) and performance degradation.

To avoid contention, Candle recommends that you create a private PLAN_TABLE for each user, each having its own table space.

Note: The creation of *xxx*.PLANTBLS for !DB/EXPLAIN is not required.

Controlling the availability of statistics tables for !DB/WORKBENCH

When you create objects, you create the STATDBAS table space which contains the STATS, SYSTABLESPACE, SYSTABLES, SYSINDEXES, and SYSCOLUMNS tables. These tables are required to run queries on the statistical data in the tables in the STATDBAS table space.

If you do not want to use the statistics that the system can make available, do the following.

Step	Action
1	Do one of the following: <ul style="list-style-type: none"> ● Drop the statistics tables. ● Indicate N for the !DB/WORKBENCH Create Statistics Tables field.
2	Delete the contents of the SYSTABLESPACE, SYSTABLES, SYSINDEXES, and SYSCOLUMNS tables within the STATDBAS table space.
3	Alter to a PRIQTY value of 1 and a SECQTY value of 0 for the tables. This downsizes the tables so that they do not take up as much space.

Issuing GRANTS

When this is required

The following chart shows you that this step is required for a new installation and not available on a refresh.

IF this is ...	THEN this step is ...
a new install,	required.
a refresh,	not available.

Generating JCL after the first time

If this is not the first time you generated the JCL for this part of the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Steps for issuing GRANTS

This following chart gives you the procedure for issuing the GRANTS.

Step	Action
1	On the Installation Primary Option Menu, type 5 on the command line.
2	Press Enter. Result: The system displays the DB2 Database Definition Options panel.
3	On the DB2 Database Definition Options panel, type 3 on the command line.
4	Press Enter. Result: The system displays the JCL to issue the GRANTS. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.
5	Review internal comments in JCL. Make changes as directed in the comments.
6	Type SUB on the command line.
7	Press Enter. Result: The system submits the job. When you exit the member, the system also displays a message to remind you to run the extracts. <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">Caution</p> <p>If you are going to run the !DB/SMU conversion, do not run the extracts until the !DB/SMU conversion is complete. See “Converting Pre-version 230 !DB/SMU Profiles and Reports” on page 278 for more information.</p> </div>
8	Check the return codes to verify the job ran successfully. If you receive condition code 562, the job ran successfully. However, one or more of the GRANTS was previously issued.

Issuing GRANTS

Chapter 12. Updating DB2 Subsystems for a Refresh

Introduction

This chapter guides you through the process of updating the DB2 subsystem to complete the online steps for a refresh.

Chapter contents

Notes about Updating a DB2 Subsystem	156
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Notes about Updating a DB2 Subsystem

Overview

This unit includes guidelines and notes you need to be aware of before you update a DB2 subsystem for a refresh.

When these steps are required

The following chart tells you whether or not this step is required.

IF this is ...	THEN this step is ...
a new install,	unavailable.
a refresh,	required.

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Hexadecimal characters in system generated JCL

The JCL contains the message

```
-CAUTION- DATA CONTAINS INVALID (NON-DISPLAY)
CHARACTERS.
USE COMMAND ==> FIND P'.' TO POSITION CURSOR TO
THESE CHARACTERS.
```

Ignore this message. The JCL contains both printable and non-printable hexadecimal characters. *Do not change them.*

Customized JCL

If you have customized any of the JCL in the existing data sets, it is possible that this JCL will be overlaid when you run this step.

Updating a DB2 Subsystem for a Refresh

Overview

This unit describes the procedures that you perform to update a DB2 subsystem for a refresh.

When this is required

The following chart shows you that this step is required for a refresh and not available on a new install.

IF this is ...	THEN this step is ...
a new install,	not available.
a refresh,	required.

Checklist for converting the !DB/Tools for a new version of DB2

The following chart gives you a checklist for the process of updating the DB2 subsystem for a refresh. It also tells you where you can find detailed descriptions of each procedure.

√	Action	Resource
	Tailor the variables to update the appropriate DB2 subsystem.	See “Tailoring the variables” on page 158.
	Bind the plans.	See “Binding the plans” on page 158.
	Run the batch extract.	See “Running the batch extract” on page 159.

Tailoring the variables

The following chart gives you the procedure for tailoring the variables to update the DB2 subsystem for a refresh.

Step	Action
1	On the Installation Refresh Primary Menu, type 4 on the command line. Result: The system displays the Update Primary Option Menu.
2	On the Update Primary Option Menu, type 1 on the command line. Result: The system displays the !DB/Tools DB2 ID Selection Menu.
3	On the !DB/Tools DB2 ID Selection Menu, type the DB2 ID in the Refresh for DB2 Subsystem field. Result: The system displays the Global Variable Tailoring - 1 of 8 panel.
4	Use the Installation Worksheet you completed in “Collecting Information for !DB/Tools Install” on page 57 to complete each panel. <ul style="list-style-type: none"> ● Use the Tab key to move between fields. ● Use the Enter key to advance to the next variable panel. When you complete all the variables panels, the system redisplay the Update Primary Option Menu.

Binding the plans

The following chart gives you the procedure for binding the plans to update the DB2 subsystem for a refresh.

Step	Action
1	On the Update Primary Option Menu, type 2 on the command line. Result: The system displays the JCL to update the DB2 subsystem and generate the BINDs for a refresh.
2	Type SUB on the command line. Result: The system submits the job and redisplay the Update Primary Option Menu.

Running the batch extract

The following chart gives you the procedure for running the batch extract to update the DB2 subsystem for a refresh.

Step	Action
1	On the Update Primary Option Menu, type 3 on the command line. Result: The system displays the Edit/Submit Extract Jobs menu.
2	On the Edit/Submit Extract Jobs menu type the number that corresponds to the extract you want to run on the command line. Result: The system displays the JCL to run the extract.
3	Type SUB on the command line. Result: The system submits the job and redisplay the Edit/Submit Extract Jobs menu.

Converting to a New Version of DB2

Overview

Converting to a new version of DB2 requires that you adapt your current installation of any !DB/Tools products. This unit describes the procedures that you perform to migrate your current installation of the !DB/Tools for a new version of DB2.

Determining whether to use new DATA data sets

The steps for converting the !DB/Tools for a new version of DB2 differ depending on whether you want to use the existing DATA data sets or you want to use new DATA data sets. Review the chart for the appropriate steps to perform.

IF you want to ...	THEN ...
use new DATA data sets for the new version of DB2	perform the install for an additional subsystem. See the chapter “Installing for Additional DB2 Subsystems” on page 173
use the existing DATA data sets for the new version of DB2	perform the steps for converting the !DB/Tools for a new version of DB2. See the unit “Checklist for converting the !DB/Tools for a new version of DB2” on page 161

Checklist for converting the !DB/Tools for a new version of DB2

The following chart gives you a checklist for the process of converting your current installation of !DB/Tools for a new version of DB2. It also tells you where you can find detailed descriptions of each procedure.

√	Action	Resource
	Use the housekeeping options in each product to change specific information about the DB2 subsystem.	See “Changing information about the DB2 subsystem” on page 161.
	Initiate the !DB/Tools Install	See “Initiating !DB/Tools Install” on page 106.
	Access the Refresh Primary Menu.	See “Accessing the Refresh Primary Menu” on page 162.
	Tailor the variables for the appropriate DB2 subsystem.	See “Tailoring the variables to convert for a new version of DB2” on page 162.
	Bind the plans for a new version of DB2.	See “Binding the plans for a new version of DB2” on page 163.
	Run the batch extract for the additional DB2 subsystem.	See “Running the batch extract” on page 163.
	Issue GRANTs for new tables.	See “Issuing GRANTs for new tables” on page 163.

Changing information about the DB2 subsystem

Step	Action
1	Use the housekeeping options in each product to change specific information about the DB2 subsystem that refers to the <ul style="list-style-type: none"> ● DB2 version ● DB2 library names

Accessing the Refresh Primary Menu

Step	Action
1	<p>On the Candle !DB/Tools Installation Main Menu, type 2 on the command line.</p> <p>Result: The system displays the Installation Refresh Primary Menu.</p>

Tailoring the variables to convert for a new version of DB2

The following chart gives you the procedure for tailoring the variables to convert for a new version of DB2.

Step	Action
1	<p>On the Installation Refresh Primary Menu, type 4 on the command line.</p> <p>Result: The system displays the Update Primary Option Menu.</p>
2	<p>On the Update Primary Option Menu, type 1 on the command line.</p> <p>Result: The system displays the !DB/Tools DB2 ID Selection Menu.</p>
3	<p>On the !DB/Tools DB2 ID Selection Menu, type the DB2 ID in the Refresh for DB2 Subsystem field.</p> <p>Result: The system displays the Global Variable Tailoring - 1 of 8 panel.</p>
4	<p>Use the Installation Worksheet you completed in “Collecting Information for !DB/Tools Install” on page 57 to complete each panel.</p> <ul style="list-style-type: none"> ● Use the Tab key to move between fields. ● Use the Enter key to advance to the next variable panel. <p>When you complete all the variables panels, the system redisplay the Update Primary Option Menu.</p>

Binding the plans for a new version of DB2

The following chart gives you the procedure for binding the plans for a new version of DB2.

Step	Action
1	On the Update Primary Option Menu, type 2 on the command line. Result: The system displays the JCL to update the DB2 sub-system and generate the BINDs for a refresh.
2	Type SUB on the command line. Result: The system submits the job and redisplay the Update Primary Option Menu.

Running the batch extract

The following chart gives you the procedure for running the batch extract for a new version of DB2.

Step	Action
1	On the Update Primary Option Menu, type 3 on the command line. Result: The system displays the Edit/Submit Extract Jobs menu.
2	On the Edit/Submit Extract Jobs menu type the number that corresponds to the extract you want to run on the command line. Result: The system displays the JCL to run the extract.
3	Type SUB on the command line. Result: The system submits the job and redisplay the Edit/Submit Extract Jobs menu.

Issuing GRANTs for new tables

Step	Action
1	Issue GRANTs for any new tables. See “Issuing GRANTs” on page 152.

Introduction

At this point you are ready to populate your DATA data sets. This section gives you an overview of how to run the batch extracts. It also gives you product specific information about extracts.

Before you run the batch extracts, review “Customizing !DB/Tools” on page 189.

Note: !DB/QUICKCHANGE also uses the !DB/WORKBENCH extract. When this guide refers to the !DB/WORKBENCH extract, it is referring to the extract used by !DB/WORKBENCH and !DB/QUICKCHANGE.

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General Information

Overview

This unit gives you general information about running the batch extract.

Why run a batch extract

When you reach this point, you can start your !DB/Tools products, but you do not have any data with which to work. The batch extract populates your extract data sets with data.

Note: !DB/QUICKCOMPARE does not have an extract. You can skip this step for !DB/QUICKCOMPARE.

Compression routines, the system PDS, and extracts

Avoid running any compression routines against the system PDS unless you plan to run a new extract. If you compress the system data set, you must run a new extract.

Running the !DB/EXPLAIN Extract

Overview

This unit tells you when and how to run the !DB/EXPLAIN batch extract.

For information on how to use the extract ID, extract type, and extract mask features, see “Customizing !DB/EXPLAIN” on page 197.

How often to run the !DB/EXPLAIN extract

Run the !DB/EXPLAIN extract job after significant BIND activity. The efficient and flexible extract for !DB/EXPLAIN allows you to tailor the extract to your site and do incremental extracts. The extract ID and extract mask features allow you to conserve system resources while keeping the extract up-to-date with the DB2 catalog. You can run extracts nightly.

Using existing production JCL

If you currently run batch extracts against DB2 V3 using your existing production JCL, you may need to modify the DCB LRECL attributes for the DBRM and PACK DD statements. Refer to the extract control member (KTCIJXTE) for acceptable values.

Caution

Failure to modify the DCB LRECL attributes could compromise your existing !DB/EXPLAIN system.

Steps for running the default !DB/EXPLAIN extract

The following chart gives you step-by-step instructions for running a default !DB/EXPLAIN extract. !DB/Tools Install prepares the extract job with defaults for the first DB2 subsystem you installed. If you want to override the defaults provided (for example if you want to run the extract for subsequent DB2 subsystems, use extract masking, or follow one of the recommendations for a specific type of site) see the unit “Extract Masking” on page 214.

Step	Action
1	On the Installation Primary Option Menu, type 6 on the command line.
2	Press Enter. Result: The system displays the Edit/Submit Extract Job panel.
3	On the Edit/Submit Extract Job panel, type 1 on the command line.
4	Press Enter. Result: The system displays the JCL to run the !DB/EXPLAIN extract.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully. Verify that the extract contains data by starting !DB/EXPLAIN and selecting plans, packages, or DBRMs.

Restarting the batch extract

When you run a batch extract, the JCL !DB/Tools Install generates uses temporary data sets. If you think there is a chance you will have to restart the extract, follow the procedure outlined in “Specifying permanent storage and work data sets (optional)” on page 262.

Running the !DB/WORKBENCH Extract

When to run the extract

Run the !DB/WORKBENCH extract on a daily basis. If !DB/QUICKCHANGE is installed, it uses the !DB/WORKBENCH system (extract) data set.

Note: !DB/QUICKCHANGE also uses the !DB/WORKBENCH extract. When this guide refers to the !DB/WORKBENCH extract, it is referring to the extract used by !DB/WORKBENCH and !DB/QUICKCHANGE.

Steps for running the default !DB/WORKBENCH extract

The following chart gives you step-by-step instructions for running a default !DB/WORKBENCH extract. !DB/Tools Install prepares the extract job with defaults for the first DB2 subsystem you installed.

If you want to override the defaults provided (for example if you want to run the extract for subsequent DB2 subsystems) see “Procedure for Overriding the Default !DB/WORKBENCH Extract” on page 264.

Step	Action
1	On the Installation Primary Option Menu, type 6 on the command line.
2	Press Enter. Result: The system displays the Edit/Submit Extract Job panel.
3	On the Edit/Submit Extract Job panel, type 2 on the command line.
4	Press Enter. Result: The system displays the JCL to run the !DB/WORKBENCH extract.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully. Note: If during the install process you specify that you do not want to collect statistics during an extract, !DB/WORKBENCH returns an informational code of 4 from the extract process. Verify that the extract contains data by starting !DB/WORKBENCH and selecting plans, packages, or databases.

Running the !DB/DASD Extract

Overview

This unit tells you when and how to run the !DB/DASD extract.

When to run the extract

Run the !DB/DASD extract job weekly or after new DB2 data sets are created, deleted, modified (reallocated, relocated, or resized), or after DB2 storage group changes.

Steps for running the default !DB/DASD extract

The following chart gives you step-by-step instructions for running a !DB/DASD extract.

Note: !DB/Tools Install has already prepared your extract JCL for you.

Step	Action
1	On the Installation Primary Option Menu, type 6 on the command line.
2	Press Enter. Result: The system displays the Edit/Submit Extract Job panel.
3	On the Edit/Submit Extract Job panel, type 3 on the command line.
4	Press Enter. Result: The system displays the JCL to run the !DB/DASD extract.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully. Verify that the extract contains data by starting !DB/DASD and selecting table spaces, databases, or storage groups.

Running the !DB/SMU Extract

Overview

This unit tells you when and how to run the !DB/SMU extract.

Warning

If you want to retain your pre-version 230 customization, *do not* run the !DB/SMU extract until you have converted your pre-version 230 utility profiles and copied your pre-version 230 reports. See “Converting Pre-version 230 !DB/SMU Profiles and Reports” on page 278 for further information.

When to run the extract

Run the !DB/SMU extract job on a daily basis.

Note: !DB/SMU and !DB/WORKBENCH cannot share the same extract.

Steps for running the default !DB/SMU extract

The following chart gives you step-by-step instructions for running a !DB/SMU extract.

Note: !DB/Tools Install has already prepared your extract JCL for you.

Step	Action
1	On the Installation Primary Option Menu, type 6 on the command line.
2	Press Enter. Result: The system displays the Edit/Submit Extract Job panel.
3	On the Edit/Submit Extract Job panel, type 4 on the command line.
4	Press Enter. Result: The system displays the JCL to run the !DB/SMU extract.
5	Type SUB on the command line.
6	Press Enter. Result: The system submits the job.
7	Check the return codes to verify the job ran successfully. Verify that the extract contains data by starting !DB/SMU and selecting index spaces and table spaces.

Chapter 14. Installing for Additional DB2 Subsystems

Introduction

This chapter tells you how to install !DB/Tools for additional DB2 subsystems and how to migrate your current installations to a new version of DB2.

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Procedure for Installing for Additional DB2 Subsystems

Overview

This unit tells you how to install for an additional DB2 subsystem.

Caution

The product or products you are installing for an additional DB2 subsystem must have already been installed on your primary system.

Selecting an additional DB2 subsystem

Perform the following steps to select an additional DB2 subsystem. Repeat the procedure for each system.

Warning

You must complete the entire procedure for an additional DB2 subsystem before you begin the procedure to install for the next DB2 subsystem. The procedure includes selecting the DB2 system, tailoring the variables, submitting the job to install for an additional subsystem, and checking the return codes.

Step	Action
1	Complete the Worksheet as described in “Collecting Information for !DB/Tools Install” on page 57 for each additional DB2 subsystem.
2	On the Candle !DB/Tools Installation Main Menu, type 3 on the command line.
3	Press Enter. Result: The system displays the ADDSYS Primary Option Menu.
4	On the ADDSYS Primary Option Menu, type 1 on the command line.
5	Press Enter. Result: The system displays the !DB/Tools DB2 ID Selection Menu.

Selecting an additional DB2 subsystem (continued)

Step	Action
6	Type the new subsystem ID and press Enter. Result: The system displays the ADDSYS Variable Tailoring Panel 1 of 8.
7	Tailor the variables. (See the next sections for these instructions.)

Tailoring the variables for an additional subsystem

Perform the following steps to tailor the variables for an additional DB2 subsystem.

Step	Action
1	<p>Display the ADDSYS Variable Tailoring Panel 1 of 8 by performing one of the following:</p> <ul style="list-style-type: none"> ● Follow the instructions in the section “Selecting an additional DB2 subsystem” on page 174. ● On the ADDSYS Primary Option Menu, type 1 on the command line and press Enter. <p>Result: The system preselects the products you are installing based on the previous install. The version numbers appear next to these products on the panel.</p>
2	<p>Do the following:</p> <ul style="list-style-type: none"> ● If you do not want to install a product that the system preselects, type NONE next to the name of the product you do not want to install for an additional subsystem. ● If you want to install a product marked NONE, type the version number next to the product name.
3	<p>Use the Installation Worksheet you completed in “Collecting Information for !DB/Tools Install” to complete panels 1–8.</p> <ul style="list-style-type: none"> ● Use the Tab key to move between fields. ● Use the Enter key to advance to the next variable panel.

Tailoring the variables for an additional subsystem (continued)

Step	Action
4	<p>Complete the Product Variable Tailoring panels for the products you are installing on the additional subsystem.</p> <p>If you are installing !DB/EXPLAIN, you have the option to allocate additional DATA data sets. In the Additional Data Data Sets for EXPLAIN field, type one of the following:</p> <p>Y This allocates separate USER, LOG, and SYSTEM data sets and new VSAM data sets, all of which contain the <i>db2id</i> as a mid-level qualifier.</p> <p>N This tells !DB/Tools Install not to allocate separate data sets for an additional subsystem for !DB/EXPLAIN.</p>
5	<p>Build and submit the jobs for the additional subsystem.</p> <p>(See the next sections for these instructions.)</p>

Building the JCL for an additional subsystem

Perform the following steps to build the JCL for an additional subsystem.

Caution

Before you attempt to build the JCL for an additional subsystem, you must select the DB2 subsystem and tailor the variables (if necessary) by selecting option 1 on the !DB/Tools ADDSYS Primary Option Menu.

Step	Action
1	On the ADDSYS Primary Option Menu, type 2 on the command line.
2	Press Enter. Result: The system displays the JCL to install for the additional subsystem.
3	Review the messages you receive upon creating the JCL. If this is not the first time you generated the JCL for this part of the install, the system displays a Caution panel that gives you the following options: <ul style="list-style-type: none"> ● to rebuild the JCL from the variables ● to edit the JCL you used the last time ● to end the process

Members with JCL for additional subsystems

The name that the system assigns to each JCL member is *db2idJMIN* where the *db2id* is the variable for an additional subsystem.

Submitting a job to install for an additional subsystem

Perform the following steps to submit a job to install for an additional DB2 subsystem.

Step	Action
1	Complete the tailoring of the variables for an additional subsystem and display the JCL to install the additional subsystem as explained in the previous section.
2	On the command line, type SUB See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.
3	Press Enter. Result: The system submits the job. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that the !DB/Tools Install generates.
4	!DB/Tools Install uses the variables you specified earlier. Review the message you received upon creating the JCL.

Warning

DO NOT repeat this procedure until the job runs to completion.

If you begin installing for an additional subsystem before this job finishes, you could receive unexpected results. When you tailor the variables for the additional subsystem before the current job is finished, the potential exists for !DB/Tools Install to *not* pick up the newly tailored variables.

Background about running the batch extract for an additional subsystem

Before running the batch extract for an additional subsystem, confirm that DB2 subsystem values are correct for your environment. You can find these values in Housekeeping as shown in the following chart.

IF the product is ...	THEN confirm the DB2 subsystem values are correct by looking in this option ...
!DB/WORKBENCH !DB/QUICKCHANGE	DB2 Subsystem Specific Information under Profile Data Administration in Housekeeping
!DB/SMU	DB2 Subsystem Specific Information under Profile Data Administration in Housekeeping
!DB/DASD	DB2 Subsystem Specific Information under Profile Data Administration in Housekeeping
!DB/EXPLAIN	DB2 Subsystem Specific Information under Profile Data Administration in Housekeeping

Note: !DB/QUICKCOMPARE does not have a batch extract.

Running the batch extract for an additional subsystem

Perform the following steps to run the batch extract for an additional subsystem.

Step	Action
1	Complete the tailoring of the variables for an additional subsystem and build and submit the JCL to install the additional subsystem as explained in the previous sections.
2	On the ADDSYS Primary Option Menu, type 3 on the command line.
3	Press Enter. Result: The system displays the Edit/Submit Extract Jobs panel.
4	On the Edit/Submit Extract Jobs panel, type the number for the product on the command line.
5	Press Enter. Result: The system displays the JCL to run the extract for the product you selected on the DB2 subsystem.
6	Type SUB on the command line.
7	Press Enter. Result: The system submits the job.
8	Check the return codes to verify the job ran successfully.
9	(Optional) Repeat steps 4–8 for each additional product whose extract you want to run.

Procedure for Installing for Additional DB2 Subsystems

Introduction

This chapter explains the manual tailoring you must do for your environment.

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When to Perform Manual Tailoring

Overview

This unit tells you when to do manual tailoring during an installation, a refresh, or when installing for an additional subsystem.

Making the decision

The following chart tells you when it is appropriate to manually tailor your installation.

IF you are ...	THEN ...
performing a new install,	add the CLIST data set to the SYSPROC concatenation.
performing a refresh,	if you have done any customization, verify that the CLISTS, REXX execs, and panels are set up correctly.
adding an additional subsystem,	do nothing.
providing access to OMEGAMON II for DB2 from !DB/EXPLAIN,	allocate the OMEGAMON II for DB2 library in the SYSPROC concatenation.

|
|
|

Adding the CLIST Data Set to the SYSPROC Concatenation

Overview

This unit tells you how to add the CLIST data set to the SYSPROC concatenation.

Steps for adding the CLIST data set to the SYSPROC concatenation

To execute the !DB/Tools using ISPF, concatenate the CLIST data set with the SYSPROC DD. The steps in the chart below describe this procedure.

Step	Action
1	Prepare the CLIST data set for concatenation. See “Prepare the CLIST data set” and “Syntax for SYSPROC” in this unit for more information.
2	Execute the PROC or CLIST to add the !DB/Tools CLIST data set to the SYSPROC concatenation. See “Syntax for SYSPROC” in this unit for more information.
3	Test the new SYSPROC concatenation by invoking !DB/Tools. See “Accessing and Exiting !DB/Tools” on page 283.

Prepare the CLIST data set

Use any of the following alternatives to make the concatenation:

- Add the CLIST data set to the TSO LOGON procedure to be used by !DB/Tools users.
- Create a new CLIST which concatenates the CLIST data set when invoked. See Figure 11 for a sample CLIST.
- (For ESA only) Use the TSO/E ALTLIB command, for example:

```

/*      REXX      */

"ALTLIB ACTIVATE APPLICATION(CLIST) DA('DBTOOLS.D531.PRODUCT.CLIST')"
```

KTC

```

"ALTLIB DEACTIVATE APPLICATION(CLIST)"
```

Syntax for SYSPROC

The following is an example of a CLIST for SYSPROC concatenation.

```

/*****/
/*      SAMPLE CLIST FOR SYSPROC CONCATENATION      **/
/*****/
PROC 0
FREE DD(SYSPROC)
ALLOC DD(SYSPROC)          +
      DSN('hl'ev.CLIST'    +
          'YOUR.SYSTEM.USER.CLIST' +
          'YOUR.SYS1.ISPF.CLIST')  +
SHR REUSE
```

Figure 11. Sample CLIST for Concatenating the CLIST Data Set

Caution

Execute the PROC or CLIST to add the !DB/Tools CLIST data set to the SYSPROC concatenation before continuing.

Note: To use the OMEGAMON II for DB2 bridge, include the OMEGAMON II for DB2 CLIST data set in the SYSPROC concatenation.

Allocating the OMEGAMON II for DB2 Library for !DB/EXPLAIN

Introduction

This section provides information about the requirements and methods for accessing the OMEGAMON II for DB2 interface from !DB/EXPLAIN. It explains the steps you must complete for the method you choose to use.

Requirements for the ISPF interface

Users who access OMEGAMON II for DB2 require sufficient space and directory blocks in their ISPF data sets to access the OMEGAMON II for DB2 ISPF dialogs. The ISPPROF data set must have sufficient space to include the members that are added by the Candle Installation and Configuration Tool (CICAT) and ISPF dialogs for OMEGAMON II for DB2.

Requirements for accessing OMEGAMON II for DB2 from !DB/EXPLAIN

To enable access to OMEGAMON II for DB2 from !DB/EXPLAIN, be sure that the OMEGAMON II CLIST library is allocated in the SYSPROC concatenation. For more information about OMEGAMON II for DB2, see *Installing Candle Products on MVS* and the *OMEGAMON II for DB2 Configuration and Customization Guide* for details.

Methods for accessing the OMEGAMON II interface

The following table lists the two methods you can use to access the OMEGAMON II interface and the steps to follow.

Method	Steps
A	<ol style="list-style-type: none"> 1. Copy the <i>&rhliev.RKD2SAM(KO2PARAM)</i> CLIST to the OMEGAMON II TKANCLI data set. 2. Add the TKANCLI data set to the SYSPROC concatenation through your logon procedure.
B	<ol style="list-style-type: none"> 1. Add the <i>&rhilev.RKD2SAM</i> data set to the SYSPROC concatenation through your logon procedure. 2. Add the TKANCLI data set to the SYSPROC through your logon procedure.

The *&rhilev*.TKANCLI data set is distributed as a fixed-block data set. If your installation uses variable-blocked CLIST data sets, follow these steps:

1. Rename the *&rhilev*.TKANCLI data set to *&rhilev*.TKANCLI.FB.
2. Allocate a new *&rhilev*.TKANCLI data set.
3. Copy the contents from *&rhilev*.TKANCLI.FB to *&rhilev*.TKANCLI.

Background about the KO2PARAM CLIST

The configuration process uses the KO2PARAM CLIST to pass some variables from CICAT to the !DB/EXPLAIN interface CLIST(KO2SETUP). Passing the variables this way, allows any user to use the Accounting Reports and Application Trace (ATF) facility for OMEGAMON II for DB2 without having to know the OMEGAMON II for DB2 data set names.

The KO2PARAM CLIST passes the following variables from CICAT to KO2SETUP:

- the version of OMEGAMON II for DB2
- the high-level qualifier of the target data sets
- the high-level qualifier of the runtime libraries

The KO2PARAM CLIST is created and populated into the *&rhilev*.RKD2SAM library every time you use the **Create runtime members** option on the Configure OMEGAMON II for DB2 menu. If you use method A in the table to concatenate and then you use the **Create runtime members** option, you must move the refreshed copy of KO2PARAM to the TKANCLI library again.

Customizing !DB/Tools

Introduction

This chapter provides a summary of the customization process for each product. It also gives you an overview of the differences among the !DB/Tools extracts and the procedure for initializing recovery for ISPF edit sessions of the !DB/Tools DATA data sets.

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Customization Summary

Overview

This chapter summarizes what is involved in customizing !DB/Tools.

Summary

The following table summarizes what is involved in customizing each of the !DB/Tools products.

Product	Customization Summary
!DB/EXPLAIN	Customizing !DB/EXPLAIN consists of migrating your profile variables and preparing the !DB/EXPLAIN extracts. See “Customizing !DB/EXPLAIN” on page 197 for more information.
!DB/WORKBENCH	Customizing !DB/WORKBENCH consists of migrating your profile variables, running individual !DB/WORKBENCH extracts for subsequent DB2 subsystems, and converting !DB/WORKBENCH utility profiles. For more information, see “Customizing !DB/WORKBENCH” on page 263.
!DB/QUICKCHANGE	No customization required. Note: You cannot install and run !DB/QUICKCHANGE V500 without !DB/WORKBENCH V500.
!DB/SMU	No customization required.
!DB/DASD	No customization required.
!DB/QUICKCOMPARE	No customization required.

Definition of Extract Terms

Overview

This unit defines extract terminology.

Definitions

!DB/Tools use extract technology. The following terms describe extract terminology.

DB2 Subsystem ID

1–4 character ID that specifies the DB2 subsystem.

Extract

Batch jobs that extract the data from the DB2 catalog.

Extract Data

Data that the extract selects from the DB2 catalog or a plan table and stored in VSAM data sets or partitioned data sets.

Extract Function

(For !DB/EXPLAIN only) Determines whether the data extracted from the DB2 catalog for an extract ID replaces existing extract data for that extract ID or is merged with it.

Extract ID

1–8 character ID that specifies the extract data, or the catalog data, in a particular DB2 subsystem that the !DB/Tools is to extract. For example, in !DB/EXPLAIN, you could divide the PLANS and PACKAGES in a particular DB2 subsystem into two or three groups, each with their own extract ID.

Extract Process

(For !DB/EXPLAIN only) Identifies from where to extract data (DB2 catalog or PLAN_TABLE).

Extract Run

(For !DB/EXPLAIN only) Determines whether the extract is normal, restarted, or forced (override of a restart).

MVS ID

3–8 character ID that specifies the MVS system.

Differences among the !DB/Tools Extracts

Overview

This unit describes the differences among the !DB/Tools extract IDs.

Extract differences

Below is a description, by product, of each extract ID.

!DB/WORKBENCH The !DB/WORKBENCH extract ID contains all the relevant data from a DB2 catalog.

Note: !DB/QUICKCHANGE also uses the !DB/WORKBENCH extract. When this guide refers to the !DB/WORKBENCH extract, it is referring to the extract used by !DB/WORKBENCH and !DB/QUICKCHANGE.

!DB/EXPLAIN The !DB/EXPLAIN extract ID contains either all of the relevant data from a DB2 catalog or part of the relevant data from a DB2 catalog, depending on the extract mask you use.

The !DB/EXPLAIN is the only !DB/Tools product that allows extract masking.

!DB/DASD The !DB/DASD extract ID contains select information from every table space, index space, and storage group.

!DB/SMU The !DB/SMU extract ID contains select information from the DB2 catalog tables.

Initializing ISPF Edit Recovery for DATA Data Sets for Version 500

Overview

This unit tells you how to initialize recovery for ISPF edit sessions of !DB/Tools V500 DATA data set members.

Background

If your site wants the ability to turn ISPF recovery on for edit sessions of the !DB/Tools V500 DATA data sets, you must set the Enable Edit Recovery? housekeeping parameter to initialize recovery.

Setting the housekeeping parameter to initialize recovery

Follow these steps to set the Enable Edit Recovery? housekeeping parameter to initialize recovery.

Step	Action
1	Begin a !DB/Tools session.
2	Access Housekeeping within the !DB/Tools product. Result: The Housekeeping menu is displayed.
3	Select the Profile Data Administration option from the Housekeeping menu. Result: The Profile Data Administration menu is displayed.
4	Select the Global - Configuration Information option from the Profile Data Administration menu. Result: The Global - Configuration Information panel is displayed.
5	Set the Enable Edit Recovery? parameter to Y . Result: The next time a !DB/Tools product is accessed, users will be able to turn recovery on when editing !DB/Tools V500 DATA data set members.

Introduction

This chapter tells you how to migrate the profile variables you have customized in your current system when you install a new version of !DB/EXPLAIN. It also tells you how to create an extract, create extract IDs, specify the data to be extracted from DB2, and determine the physical storage required to store your extracted data.

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Migrating Profile Variables

Overview

If you are installing a new release of !DB/EXPLAIN to run in parallel with a prior release, you may want to migrate the values for profile variables from your current system. Using the current variables ensures similar runtime characteristics and !DB/EXPLAIN results.

This unit tells you how to migrate your profile variables.

Caution

Do not use this procedure if you are

- doing a refresh
- configuring from the ground up
- doing a new install

When to migrate profile variables

Migrate your profile variables after you install the new system, but before you run the extract.

Steps for migrating profile variables

The following chart tells you how to migrate your product profile variables from one system to the next. The asterisks (*) represent values that apply to your system.

Step	Action
1	Browse the GLOBAL member in the PROFILE data set of your current system.
2	Identify the DB** system you want to use. The DB** values in the GLOBAL member begin with DB00= and use the format, DB**= <i>extract_id DB2_id MVS_id</i> . For example, if the GLOBAL member contains the line, DB02=DX2 DB2 SYSA , then DB02 is the DB** value, DX2 is the extract ID, DB2 is the DB2 ID, and SYSA is the MVS ID.
3	In the PROFILE data set of your current system, identify the EG** or the ES** member where ** corresponds with the number associated with the DB** value that you identified in step 2. For example, if the DB** value is DB02 , then the corresponding ES** member is ES02 , or the corresponding EG** member is EG02 .
4	Browse the PROFILE data set of the new system.
5	Use the search procedure explained in the previous steps to identify the appropriate ES** or EG** member in the new system. Note: If the ES ** or EG** member does not exist in the new system, create it.
6	Copy the contents of the ES ** or EG** member in your current system to the ES or EG** member in the new system.
7	Run the extract for the new system.

Example

ES01 contains the customization for your current system, and the ES** member in the new system is **ES13**.

To migrate the customized variables from your current system to the new system, copy the contents of **ES01** to **ES13**.

Definition and Features of an Extract

Overview

This unit defines !DB/EXPLAIN's batch extract and describes its major features.

Definition of an extract

The batch jobs that extract data about plans and packages from the DB2 Catalog or from a DB2 PLAN_TABLE and place the data in VSAM KSDSs collectively are called *the extract*.

Extract data is that data stored in one or more extract VSAM data sets as a result of running an extract.

Features of the !DB/EXPLAIN extract

The list below describes the major features of !DB/EXPLAIN's extract.

- !DB/EXPLAIN's extract derives its data from DB2's catalog tables. Once an extract is performed, you can access the extracted data an infinite number of times without impacting the active DB2 system. The advantages of using extract technology rather than direct catalog access are
 - You can access extract data even when DB2 is not active.
 - You avoid contention on the DB2 catalog.
- !DB/EXPLAIN's extract technology provides an advantage over the use of DB2 shadow catalog tables in that once the extract is performed, the data is available without regard to the availability of your DB2 subsystem.
- You can extract historical EXPLAIN data from a user-specified `PLAN_TABLE`.
- You can retain histories of plan, package, and DBRM catalog information, and their EXPLAINS. You can then compare a historical plan, package, or DBRM to its current version to assist in diagnosing performance changes after a `BIND/REBIND`.
- You can limit the extracted data.
 - Execution parameters allow you to extract only that catalog data relating to plans or packages bound since the last extract.
 - Masking allows you to limit the plans or packages selected.
- !DB/EXPLAIN stores extracted DBRMs, plans, and statements independently by type. This permits application-based extracts to be performed; that is, extracts can be based on business function, area of responsibility, development vs. production, or another subset of your choosing.
- You can extract and combine data from multiple `PLAN_TABLES` to meet your information requirements.
- !DB/EXPLAIN sorts extract data external to DB2. This process is less expensive in terms of system resources than performing an `SQL ORDER BY` against a DB2 table.
- !DB/EXPLAIN stores the extracted data into one or more VSAM key-sequenced data sets (KSDS).

The Extract ID

Overview

This unit introduces you to the extract ID. You will learn how !DB/EXPLAIN creates an extract ID and how the extract ID controls extract processing.

Definition of an extract ID

The extract ID is a unique 1–8-character identifier that identifies the extract. It is the basic configuration unit for !DB/EXPLAIN and identifies an extract or set of extracts performed on a DB2 subsystem. Several extracts can be stored in the same data set. You can define the extract ID to identify all data extracted from a DB2 subsystem, or you can associate the extract ID with a particular range or set of data extracted from that subsystem. These concepts are explored further in “How Many Extract IDs Should You Define?” on page 211.

Relationship of the !DB/EXPLAIN extract ID to the DB2 subsystem ID

Candle suggests that the first characters of the extract ID be the DB2 subsystem ID to make for easier tracking of extracts. The DB2 subsystem ID is a 1–4-character ID identifying the DB2 subsystem.

A given extract ID is associated with a specific DB2 subsystem. It determines the DB2 subsystem from which data is obtained and where the data is placed—a specific extract ID in a specific VSAM cluster. It also controls subsequent access from online !DB/EXPLAIN.

Relationship of the !DB/EXPLAIN extract ID to the MVS ID

The MVS ID is a 3–8-character ID that specifies the MVS system. One or more DB2 subsystems can be associated with a given MVS subsystem. Similarly, by being associated with a specific DB2 subsystem ID, an extract ID is associated with that DB2 subsystem's MVS system ID for documentation purposes.

The same DB2 subsystem ID can exist on multiple MVS systems at the same site. Thus, the association of extract ID to MVS ID maintains the uniqueness of the extract data.

If DASD is shared between MVS systems, multiple extract IDs can share the same VSAM clusters and run from the same system profile data set. The advantage to this is that less customization and administration are required to manage your extracts.

Viewing or Selecting Extract IDs

Overview

This unit explains how to view or select a specific extract ID for !DB/EXPLAIN.

Background about viewing or selecting extract IDs

To view the extract IDs for which your !DB/Tools are configured, or to select a specific extract ID to work on, your actions will vary depending on the panel from which you access !DB/EXPLAIN.

Viewing or selecting from the !DB/Tools Product Selection Menu

To view or select from the extract IDs available to you when you access !DB/EXPLAIN from the !DB/Tools Product Selection Menu:

- First select **!DB/EXPLAIN**.
- Next, enter a question mark (?) in the extract ID field, or enter an extract ID, even an invalid one.

Viewing or selecting by leaving the extract ID field blank

To view or select from the extract IDs available to you when you access !DB/EXPLAIN from the !DB/Tools Product Selection Menu, perform the following steps.

Step	Action
1	On the !DB/Tools Product Selection Menu, leave the extract ID field blank.
2	Press Enter. Result: The system displays the !DB/EXPLAIN Primary Menu with NONE in the extract ID field.
3	Type ? in the extract ID field.
4	Press Enter. Result: !DB/EXPLAIN displays the !DB/Tools Global Information—DB2 Subsystem Name Table panel. On this panel, extract IDs you can access are mapped to DB2 subsystem IDs and MVS IDs.
5	Select a specific extract ID to work on by typing any character in the selection column.
6	Press Enter. Result: !DB/EXPLAIN returns you to the !DB/EXPLAIN Primary Menu, placing the extract ID you selected into the extract ID field on that panel.
7	Press Enter again to continue with your !DB/EXPLAIN session.

Viewing or selecting by entering any extract ID (even an invalid one)

To view or select from the extract IDs available to you when you access !DB/EXPLAIN from the !DB/Tools Product Selection Menu, perform the following steps.

Step	Action
1	On the !DB/Tools Product Selection Menu, enter any extract ID in the extract ID field, even an invalid one.
2	<p>Press Enter.</p> <p>Result: You receive the !DB/EXPLAIN Primary Menu with the value you entered in the extract ID field of the !DB/Tools Product Menu extract ID field now displayed in the extract ID field of the !DB/EXPLAIN Primary Menu.</p> <ul style="list-style-type: none"> ● If this is a valid extract ID and is the one you want to work on, press Enter again to continue with your !DB/EXPLAIN session. ● If this is a valid extract ID, but you want to view additional available extract IDs, continue to Step 3. ● If this is an invalid extract ID, !DB/EXPLAIN displays the message NOT CONFIGURED in the upper right corner of the . Primary Menu panel. Continue to Step 3.
3	Type ? in the extract ID field.
4	<p>Press Enter.</p> <p>Result: !DB/EXPLAIN displays the !DB/Tools Global Information—DB2 Subsystem Name Table panel. On this panel, extract IDs you can access are mapped to DB2 subsystem IDs and MVS IDs.</p>
5	To select a specific extract ID to work on, type any character in the selection column.
6	<p>Press Enter.</p> <p>Result: !DB/EXPLAIN returns you to the !DB/EXPLAIN Primary Menu, placing the extract ID you selected into the extract ID field on that panel.</p>
7	Press Enter again to continue with your !DB/EXPLAIN session.

Viewing or selecting from the !DB/EXPLAIN Primary Menu

To view or select from the extract IDs available to you when you access !DB/EXPLAIN from the !DB/EXPLAIN Primary Menu:

- First select **!DB/EXPLAIN**.
- Then, follow the steps in the table below.

Step	Action
1	Enter an extract ID in the Extract ID field. It is mandatory that you enter a value in this field even if you know the value is invalid.
2	Press Enter. <ul style="list-style-type: none"> ● If this is a valid extract ID and is the one you want to work on, press Enter again to continue with your !DB/EXPLAIN session. ● If this is a valid extract ID, but you want to view additional available extract IDs, go to Step 3. ● If this is an invalid extract ID, !DB/EXPLAIN displays the message NOT CONFIGURED in the upper right corner of the screen. Go to Step 3.
3	Type ? in the extract ID field.
4	Press Enter. Result: !DB/EXPLAIN displays the !DB/Tools Global Information—DB2 Subsystem Name Table panel. On this panel, extract IDs you can access are mapped to DB2 subsystem IDs and MVS IDs.
5	To select a specific extract ID to work on, type any character in the selection column.
6	Press Enter. Result: !DB/EXPLAIN returns you to the !DB/EXPLAIN Primary Menu, placing the extract ID you selected into the extract ID field on that panel.
7	Press Enter again to continue with your !DB/EXPLAIN session.

Defining the Extract ID

Overview

This unit discusses how an initial extract ID is defined and how additional extract IDs can be added to !DB/EXPLAIN.

Initial extract job

When you install !DB/EXPLAIN for the first time, the installation process creates an initial extract job called *db2idJXTE* and places it in the CNTL PDS.

Defining the initial extract ID

When you execute JCL member *db2idJXTE*, you specify the extract ID to be assigned to the current extract as part of the SYSIN input job stream.

Procedure for adding an extract ID

After you have installed !DB/EXPLAIN on a given DB2 subsystem, follow this procedure to set up additional extract IDs on that subsystem. To propagate !DB/EXPLAIN to additional subsystems, see “Propagating !DB/EXPLAIN to additional subsystems” later in this unit.

Step	Action
1	Start !DB/EXPLAIN by typing the following on the command line: <code>KTE <i>extrctid</i> SYSPROF(<i>hilev.PROFILE</i>) USERPROF(<i>userid.PROFILE</i>) AUXPROF(<i>auxid.PROFILE</i>)</code>
2	Press Enter. Result: !DB/EXPLAIN displays the Primary Menu together with a message telling you that the extract ID is not configured.
3	Type HOUS on the command line.
4	Press Enter. Result: !DB/EXPLAIN displays the Housekeeping Menu.
5	Select option 0 for Global Data Set Information.
6	Press Enter. Result: !DB/EXPLAIN displays the !DB/Tools Global Data Set Information panel.

Procedure for adding an extract ID (continued)

Step	Action
7	Verify the values on the !DB/Tools Global Data Set Information panel.
8	Press Enter. Result: !DB/EXPLAIN displays the Housekeeping Menu.
9	Select DB2 Subsystem Information on the Housekeeping Menu.
10	Press Enter. Result: !DB/EXPLAIN displays the !DB/Tools DB2 Configuration Information panel.
11	Verify the values on the !DB/Tools DB2 Configuration Information panel.
12	Press Enter. Result: !DB/EXPLAIN displays the Housekeeping Menu.
13	Select !DB/EXPLAIN Configuration on the Housekeeping Menu.
14	Press Enter. Result: !DB/EXPLAIN displays the !DB/EXPLAIN Configuration Information panel.
15	Verify the values on the !DB/EXPLAIN Configuration Information panel.
16	Press Enter. Result: !DB/EXPLAIN displays the Housekeeping Menu. The extract ID is now configured.
17	Submit the job to run the new extract.

Note: You cannot set up additional extract IDs on a DB2 subsystem on which you have not installed !DB/EXPLAIN.

Propagating !DB/EXPLAIN to additional subsystems

If you want to propagate your !DB/EXPLAIN to additional subsystems, use the !DB/Tools ADDSYS option. !DB/EXPLAIN creates unique DB2 extract jobs for those subsystems by concatenating the DB2 subsystem ID with the letters *JXTE*.

Extract ID for online sessions

CLISTs, EXECs, and edit macros (for example, KTEXPL, KTEXPLA, KTEQMF, KTEXPLD, and KTEXPLB) that do not use extract data but are invoked during an online !DB/EXPLAIN session determine which extract ID to use as follows:

- If you have not specified the extract ID to be used, !DB/EXPLAIN retrieves the extract ID from the !DB/Tools Product Profile.
- If an extract ID is not found in the !DB/Tools Product Profile, !DB/EXPLAIN displays an error message and prompts you to select an extract ID.

How Many Extract IDs Should You Define?

Overview

The number of extract IDs you define per DB2 subsystem is flexible. Based on the needs of your installation, you can define only one extract ID per DB2 subsystem or you may want to define many. This unit discusses the advantages and disadvantages associated with both approaches.

One extract ID

When you have specified only one extract ID per DB2 subsystem, that extract ID contains all relevant data from the DB2 catalog.

The advantages of defining only one extract ID are

- Your !DB/EXPLAIN system requires less customization.
- Your administration of extract IDs is potentially less complex.

The disadvantages of defining only one extract are

- Your extract runs are longer.
 - You can experience more access conflicts.
 - You are potentially less flexible in the tasks you can accomplish using the extract data.
-

Many extract IDs

In the multiple extract ID approach, you can use extract masking to set up multiple data groupings, each having its own unique extract ID. The advantage to defining many extract IDs is that you can set up and run extracts by one or more categories that fit your installation, such as: organization, product line, area of responsibility, or production versus development.

The advantages of defining multiple extract IDs per DB2 subsystem are

- Your extract runs are shorter.
- You experience fewer access conflicts.

The disadvantages of defining many extract IDs are

- More customization of your !DB/EXPLAIN system is required.
 - More complex operational activities may be required.
 - Multiple extracts cannot be combined to permit you to view data as if from one extract.
-

Customizing Extract IDs in Your System Profile Data Set

Overview

This unit discusses how the !DB/EXPLAIN system profile data set stores the values associated with a given extract ID.

What is a profile data set?

You use profile data sets to tailor your !DB/EXPLAIN system and user defaults to those that make the most sense for your installation. Profile data sets contain configuration information and product defaults. Profile data sets are initially set up during !DB/EXPLAIN installation and can be modified either temporarily or permanently by means of the !DB/EXPLAIN house-keeping options.

If DASD is not shared between MVS systems, each MVS system has its own system profile data set. MVS systems that share DASD can run from the same system profile data set. Each extract ID has its own set of members stored in the system profile data set. The extract ID members contain the defaults for that extract ID.

Authorization

In this and the following sections of this chapter, you are told that “!DB/EXPLAIN writes the new values to the profile data set...”. This is only true if you have authorization to write to the profile data set. You *cannot* make changes permanent without appropriate authorization.

Procedure

The table below provides instructions for customizing (sometimes called configuring or reconfiguring) your extract IDs:

Step	Action
1	Start !DB/EXPLAIN by typing the following on the command line of an ISPF panel: TSO %KTE <i>extract_id</i> SYSPROF(<i>hilev.PROFILE</i>) USERPROF(<i>userid.PROFILE</i>) AUXPROF(<i>auxid.PROFILE</i>)
2	Press Enter. Result !DB/EXPLAIN displays the Primary Menu together with a message telling you that the extract ID is not configured.
3	On the Primary Menu, type HOUS on the command line.
4	Press Enter. Result: !DB/EXPLAIN displays the Housekeeping Menu.
5	On the Housekeeping Menu, select Global Data Set Information.
6	Press Enter. Result !DB/EXPLAIN displays the !DB/Tools Global Data Set Information panel. Review this panel to verify the values it contains. Type any values you want to change over the displayed values.
7	Press Enter Result !DB/EXPLAIN displays the Housekeeping Menu.
8	On the Housekeeping Menu, select DB2 Subsystem Information.
9	Press Enter. Result !DB/EXPLAIN displays the !DB/Tools DB2 Configuration Information panel. Verify the values on this panel. Type any values you want to change over the displayed values.
10	Press Enter. Result !DB/EXPLAIN redisplay the Housekeeping Menu.
11	On the Housekeeping Menu, select !DB/EXPLAIN Configuration.
12	Press Enter. Result !DB/EXPLAIN displays the !DB/EXPLAIN Configuration Information panel. Verify the values on this panel. Type any values you want to change over the displayed values.
13	Press Enter. Result !DB/EXPLAIN redisplay the Housekeeping Menu. The extract ID is now configured.
14	Submit the job to run the new extract.

Extract Masking

Overview

This unit discusses how you can limit extracted data by using masks.

Limiting extracted data

You can limit the amount of data that is extracted from the DB2 catalog or PLAN_TABLE by using the !DB/EXPLAIN batch extract masking and by specifying extract function options on an extract run. Extract function options are discussed in the unit “Specifying function options” on page 227.

Batch extract masking

When using masking for the !DB/EXPLAIN batch extract, you specify timestamp, plan, and/or package masks to selectively extract DB2 catalog data. You specify plan and/or package masks to selectively extract PLAN_TABLE data. These masking criteria define the range of plans and packages you want. The masks are specified using the plan specification, package specification, and, if applicable, timestamp specification parameters on SYSIN input statements in your extract batch job. See “Input Syntax” on page 237 for the syntax of your SYSIN input.

If you do not specify masking, then the extract job defaults to extracting all plans and/or all packages.

Remember that in the batch extract, masking *must be specified separately* for plans and for packages.

Online masking

During an online execution, you can determine whether or not masking is in effect by examining the Masking in Effect? field on the !DB/EXPLAIN Primary Menu. The field can contain either Y (YES) or N (NO). You can change the current selection by overtyping the value in the field. The masks you are selecting or deselecting are those you specified on the Selection Masking housekeeping panel. If you specified these masks to be permanent, they are stored in your profile data set. Online masks provide an additional layer of masking on top of the batch extracted data.

Syntax for PLAN, PACKAGE, and TIMESTAMP masks

The following chart shows you the syntax for the PLAN, PACKAGE, and TIMESTAMP masks:

Keyword	Operator	Operand
PLAN/PACKAGE	>	planname/packageName
PLAN/PACKAGE	<	planname/packageName
PLAN/PACKAGE	>=	planname/packageName
PLAN/PACKAGE	<=	planname/packageName
PLAN/PACKAGE	<> (not equal)	planname/packageName
PLAN/PACKAGE	LIKE	planmask/packagemask Allows wildcards % and _
PLAN/PACKAGE	BETWEEN	planname1/packageName1 and planname2/packageName2
TIMESTAMP		YYYY-MM-DD-HH.MM.SS

Recommendations for trial sites

Candle Corporation recommends that customers at trial sites use extract masking to limit the number of plans and packages extracted for the trial. Due to the amount of information extracted from the DB2 catalog during initial extract, you may want to extract only a portion of the DB2 catalog so that you can be up and running quickly. However, !DB/EXPLAIN allows incremental extracts, which provide significant resource savings.

Use the following table to decide which extract function to use.

IF this is an ...	THEN use ...
initial extract	REPLACE with plan and package masking OR MERGE SINCE TIMESTAMP with a TIMESTAMP of a few days ago
incremental extract	MERGE SINCE with <i>no</i> TIMESTAMP

Example of an initial extract using REPLACE:

```
REPLACE EXTRACT_ID D23PROD PLAN <= 'M' PACKAGE <= 'M'
```

Example of an initial extract using MERGE SINCE TIMESTAMP:

```
EXTRACT CATALOG EXTRACT_ID DB2V3 COWNER SYSIBM MERGE SINCE TIMESTAMP  
1999-03-02-10.0.00.0
```

Example of an incremental extract:

```
EXTRACT CATALOG EXTRACT_ID DB2V3 COWNER SYSIBM MERGE SINCE
```

Recommendations for DB2 production environments

Candle Corporation recommends that customers in production environments have one single extract per DB2 subsystem and then use extract masking to limit the number of plans and packages extracted for any additional extract IDs.

Recommendations for DB2 development environments

Candle Corporation recommends that customers at development environments use extract masking to limit the number of plans and packages extracted to those bound in the last 60 days (or another time period appropriate for the site).

Recommendations for very large sites (>20,000 DBRMs)

Candle Corporation recommends that customers at very large sites run three consecutive initial extracts. The following is an example of what to use for the SYSIN DD card when you run each of the three !DB/EXPLAIN extracts.

Extract Run	SYSIN DD Card
1	REPLACE EXTRACT_ID D23PROD PLAN <= 'M' PACKAGE <= 'M' Record the JES2 start time of the extract job (for this example, assume it is 1999-04-30-10.00.00).
2	MERGE EXTRACT_ID D23PROD PLAN > 'M' PACKAGE > 'M'
3	MERGE SINCE EXTRACT_ID D23PROD TIMESTAMP 1999-04-30-10.00.00

The result of these extracts is that the physical and internal logical groupings are the same. Furthermore, the individual jobs use significantly less resources than a single REPLACE on the entire DB2 catalog. After running these three extracts, you can keep the extract ID current by running subsequent MERGE SINCE extracts.

Displaying Extract History

Overview

This unit tells you how to view or print historical extracts. You can specify the number of generations of extract history !DB/EXPLAIN displays or prints in the Generations of Catalog History field on the Housekeeping panel Extract Processing Defaults.

Note: If you want to save historical extracts, do not use the function option REPLACE. This function option deletes any previous extract histories making them unavailable for viewing or printing.

Viewing extract history

To view extract history online, follow the steps in the table below:

Step	Action
1	From the !DB/EXPLAIN Primary Menu, select Extract History.
2	Press Enter. Result: !DB/EXPLAIN displays the Extract History panel. This panel lists historical information for the three extract data sets: DB2 catalog, PLAN_TABLE, and statements.

Printing extract history

To print extract history as a !DB/EXPLAIN batch job, include the following commands in your SYSIN input as part of the !DB/EXPLAIN batch utility KTEBUTIL:

```

HI      (object class = extract history)
PRNT   (send output to printer)
END
    
```

Planning for Extract Runs

Overview

This unit poses some questions you should ask yourself when planning to perform an extract and some actions to take prior to performing the extract.

Questions to answer

When planning for your extracts, you need to make the following decisions:

- How often will periodic extracts be run?
- Will you permit the running of ad-hoc extracts?
- What is the purpose of a given run (EXTRACT, PURGE)? See “Purpose of Your Extract Run” on page 226.
- What required function option (REPLACE, MERGE, MERGE SINCE) will be used when running an extract? The effect of using one of these function options is discussed in “Specifying function options” on page 227.
- How often will you purge your VSAM clusters of extracted data?
- What type of data retention will be used? How many iterations of historical data will be retained?
- Will you permit the running of ad-hoc purges?
- What is your backup strategy? Remember that to backup an extract run, the work data sets used for that run must have been specified as permanent. What other backup considerations are specific to your installation?

The answers to these and other questions are installation-specific and will depend on your objectives for running !DB/EXPLAIN.

Actions to take

As an adjunct to planning for your extract runs, you should consider the following actions:

- Customize the extract job (*db2idJXTE*) in the CNTL PDS as necessary and use it to execute extracts and purges.
Note: During a refresh, the extract JCL is overlaid. If you want to save your customization, you should take appropriate actions to save the extract job in another PDS member.
- Build and schedule jobstreams for the recurring events—periodic extracts and purges and VSAM cluster backups.
- Schedule jobs to prevent conflicts with online access.
- Execute ad hoc extracts and purges as required.
- Coordinate online access for ad hoc extracts and purges.

Executing the Extract

Overview

Job *db2idJXTE* that performs the extract is delivered as part of the !DB/EXPLAIN installation job stream. It is placed in the !DB/EXPLAIN CNTL library as part of the installation process. During the installation process, you used the installation input panels to tailor some parameters. This tailoring is saved in the JCL. At run time, you can further customize the job by filling in any fields with values specific to your installation, and by providing the SYSIN control statements required to execute the extract. This unit tells you how to prepare to execute the extract by reviewing and modifying procedure *db2idJXTE*.

Preparing for execution

To prepare a !DB/EXPLAIN extract, follow these steps:

While you are using !DB/EXPLAIN, you can generate extract JCL by executing the JCL command, selecting option 6, and modifying the JCL with any values specific to your installation. During JCL generation, you can also specify whether to modify or add any SYSIN control statements required to execute the extract.

Step	Action
1	On the command line of any !DB/EXPLAIN panel, type JCL .
2	Press Enter. Result: !DB/EXPLAIN displays the JCL Generation panel.
3	On the JCL Generation panel, type 6 in the Options field.
4	Press Enter. Result: !DB/EXPLAIN displays the Extract JCL Generation panel.
5	Enter the appropriate value in the Option field of the Extract JCL Generation panel: <ul style="list-style-type: none"> ● To create the JCL for a DB2 catalog extract, type 1 in the Option field. ● To create the JCL for KTEREBLD, type 2 in the Option Field.
6	Press Enter. Result: !DB/EXPLAIN displays secondary panels on which you provide required and optional values. It then creates the JCL to run the job.

Caution about db2idJXTE JCL

Refer to member *db2idJXTE* in your CNTL library to review the *db2idJXTE* JCL for your installation.

Caution

If you run batch extracts using !DB/EXPLAIN Version 235 or later and are using existing production JCL from a version prior to Version 235, you must modify the DCB LRECL attributes for the DBRM and PACK DD statements. Refer to the *db2idJXTE* job for acceptable values. Failure to modify these values will result in an error message and your job will abend.

Guidelines for db2idJXTE syntax

- Enclose strings in quotes (“ ”) or in apostrophes (‘ ’).
- If an apostrophe or a quote appears in the character string, that nested delimiter must be repeated. For example, to display the contraction can't, the correct syntax is ‘can’’t’.
- Text can be either upper or lower case. All text that is not contained between quotes or apostrophes is rendered upper case.
- Any line having an asterisk (*) in column 1 is treated as a comment except for a continuation line used to continue a string.
- Text must lie between columns 1–71 inclusive. There must be at least one blank between words; more than one blank is tolerated. To continue a string to the next line, place any non-blank character in column 72. The contents of column 72 are not used. Placing a non-blank character in column 72 permits you to split a word or a quoted or apostrophed string across several lines. The continued string starts in column 1 of the next line.
- Fields, except for masks, that do not contain data to their specified length are padded on the right with blanks. Masks are not padded with blanks.
- To include significant blanks in a PACKAGEMASK and/or a PLANMASK, contain the string in either quotes or apostrophes. Note that PLAN LIKE %X% is not the same as PLAN LIKE ‘%X%bbb’. A target matches the first example when X appears anywhere in the target. A target matches the second example when X appears anywhere in the first positions of the target and three blanks appear at the end of the target.

Guidelines for db2idJXTE syntax (continued)

- Quotes or apostrophes are necessary to accommodate any of the following characters inside a string:

"	quote
'	apostrophe
(blank)	blank
<	less than
>	greater than
=	equal
¬	not sign
(left parenthesis
)	right parenthesis

They are also required in order to suppress translation (folding) to upper case where the target column data is in lower case.

- Comparison operators such as less than (<) or equal to (=) can abut the values they reference, or there may be interposed spaces. Thus the following phrases are identical:

```

PLAN > B
PLAN> B
PLAN >B
PLAN>B

```

Customizing member db2idJXTE

You should review the *db2idJXTE* JCL to customize it as follows:

- For restartability, change your non-VSAM data sets to permanent files (See “Specifying permanent storage and work data sets (optional)” on page 262.)
- Review the allocation for SYSOUT and SORTWK to ensure adequate space has been allocated. The space allocated to the sort work files depends upon the volume of data being sorted. Sort messages in SYSOUT can indicate a space shortage. Review these messages and increase workfile space as the volume of data being extracted increases.
- Review the allocation for SYSPRINT, SYSTEM, STDERR, and SYSUDUMP. You should monitor the output regularly for important error and informational messages.

Overriding dynamic data set allocation

You can override dynamic data set allocation that occurs as part of the installation process by including appropriate DD statements in the extract JCL *db2idJXTE*. DD statements should be of the form **//ddname DD DSN=appropriate.dsn,DISP=SHR**.

The extract program dynamically allocates:	Override dynamic allocation by:
<p>SYSCATLG, SYSSTMT, and SYSPLAN with disposition SHR to the cluster data set names retrieved from the extract ID profile entry.</p> <p>Note: Even though these data sets are allocated with DISP=SHR, concurrent online and batch access is avoided by setting the Enqueue on Extract Datasets field on the Tuning Parameters panel to Y (the default). See “Reorganization requires exclusive access” on page 253.</p>	<p>Including the ddnames SYSCATLG, SYSSTMT, and SYSPLAN in the <i>db2idJXTE</i> job stream.</p>
<p>!DB/EXPLAIN load library to the ddname CANDLLIB for dynamic module loads after the data set name for the !DB/EXPLAIN load library is extracted from the appropriate profile entry.</p>	<p>Including the ddname CANDLLIB in the <i>db2idJXTE</i> job stream.</p>
<p>!DB/EXPLAIN message library to the ddname KTEMSG after the data set name for the !DB/EXPLAIN messages is extracted from the appropriate profile entry.</p>	<p>Including the ddname KTEMSG in the <i>db2idJXTE</i> job stream.</p>
<p>The ddname DSNLIB to the DB2 DSNLOAD that matches the DB2 version specified in the profile for the executing extract ID. (The extract requires dynamic loading of interface modules.)</p>	<p>Including the ddname DSNLIB <i>ddname</i> in the <i>db2idJXTE</i> job stream.</p>

Purpose of Your Extract Run

Overview

You can run an extract to extract data from the DB2 catalog or plan table, to purge data from VSAM files, to handle error conditions, and to determine extract storage requirements. The run purpose and whether or not the run is a debug run are specified on the EXTRACT dd statement of the *db2idJXTE* job.

You must specify extract function options for normal runs whose purpose is either extract or purge. Your extract input specifies the extract function options you want by providing the SYSIN control statements in the *db2idJXTE* JCL. This unit describes the various purposes an extract run can have and refers you to appropriate units of this book for details on specifying extract function options.

Specifying the run purpose

The extract run purpose is controlled by the first positional parameter of the extract program KTEXTRAC in the *db2idJXTE* job. The table below shows the purposes for running an extract.

Extract Purpose	Extract Action
Normal Run (Extract)	Extracts catalog data or PLAN_TABLE data and places the data into VSAM files (see “Function Options for Normal Extract Runs” on page 228).
Normal Run (Purge)	Purges data from VSAM files (see “Function Options for Normal Purge Runs” on page 233).
Restart Run	Recovers from a failed extract that was using internal checkpointing (see “Restart runs” on page 242).
Force Run	Overrides a restart (see “Force runs” on page 242).
Dummy Run	Performs a space calculation but does not perform any input/output processing (see “Dummy runs” on page 243).
Convert Run	Causes an extract conversion utility to be run (see “Convert runs” on page 243).

Specifying function options

To specify function options, provide the SYSIN control statements containing your extract input for the KTEXTRAC program in the *db2idJXTE* JCL. See the following units for detailed information:

Information You Want	Information Source
Description of function options for normal extract and purge runs	“Function Options for Normal Extract Runs” on page 228 “Function Options for Normal Purge Runs” on page 233
Extract and purge summary table showing required and optional input	“Summary table” on page 234
Syntax diagrams of the SYSIN control statements in procedure <i>db2idJXTE</i>	“Input Syntax” on page 237
Examples of the SYSIN control statements to execute various function options of the extract and purge runs	“Extract Input Examples” on page 239

Function Options for Normal Extract Runs

Overview

This unit describes the extract function options for a normal extract run.

Required function option keywords

A normal extract run extracts data from the DB2 catalog or plan table. You are not required to specify a value for positional parameter 1 of the extract program but you must specify one of the following required extract function options in the SYSIN input:

Extract Function Option	Function Option Action
REPLACE	Deletes all records in the extract ID before extracting new data from the DB2 catalog. REPLACE is like DISP=OLD. If you plan to save and view historical extracts, <i>do not</i> use REPLACE. Using REPLACE causes the current extract to wipe out any historical extract data you might have saved.
MERGE	Accumulates data into the extract ID, allowing for the collection of history.

Required function option keywords (continued)

Extract Function Option	Function Option Action
MERGE SINCE	<p>Valid for catalog extracts only, MERGE SINCE is a form of MERGE that extracts data bound since the last MERGE or MERGE SINCE extract. MERGE SINCE is an incremental extract that requires a previous REPLACE or MERGE extract to have been run using the identical extract ID and plan or package specification masking.</p> <p>MERGE SINCE has two optional parameters:</p> <ul style="list-style-type: none"> ● MERGE SINCE TIMESTAMP <p>Extracts data that was bound since a time specified by you in the TIMESTAMP parameter you enter. This incremental extract differs from MERGE SINCE as follows:</p> <ul style="list-style-type: none"> – You can use this function for an extract ID that has no existing data (that is, you can run MERGE SINCE TIMESTAMP instead of REPLACE). – It is not necessary to have run a previous extract that used identical masking (see “Extract Masking” on page 214). ● DROP <ul style="list-style-type: none"> – Flags all dropped objects since the last MERGE SINCE <p>Thus, all plans and packages that were freed, bound, or rebound are flagged as historical in the extract data set.</p> – Defaults to OFF <p>Note: For MERGE SINCE runs, we recommend you define your work files to be permanent data sets to preclude the potential loss of data in the event of a failure. You can delete these data sets upon successful completion of the job.</p>

Optional function option keywords

On a normal extract run, in addition to the required function options specified in the previous section, you can include these optional function options in your SYSIN input:

Extract Function Option	Function Option Action
THRESHOLD	A value that specifies the number of VSAM records that can be inserted by an extract before !DB/EXPLAIN triggers an automatic reorganization of your VSAM clusters. To activate automatic reorganization, your VSAM clusters must be allocated with REUSE. THRESHOLD applies to the SYSCATLG and SYSSTMTS VSAM clusters only.

Optional function option keywords (continued)

Extract Function Option	Function Option Action
ALIAS	<p>Determines which of three methods will be used to research DB2 aliases:</p> <ul style="list-style-type: none"> ● None Specifying NO suppresses alias research. Specifying NO has the least impact on extract resource utilization. Useful if your installation does not have a significant number of aliases. ● DB2 inquiry Specifying ASK_DB2 executes a DB2 inquiry to determine whether the qualified name is an alias each time a table is used. This method maximizes processing but minimizes the use of virtual memory. If your installation uses a large number of aliases, if virtual storage or working set sizes are critical, and if alias research must be performed, you may find this method to be the preferred one. ● Virtual Storage table lookup (default) Specifying IN_MEMORY causes the extract to read aliases into a virtual memory table one time and check the table using the qualified name each time a table is used. This method minimizes processing in exchange for virtual storage utilization. If an installation does not use an extremely large number of aliases and has no virtual storage or working set size problems, this is by far the most efficient processing method. <p>Note: If you specify NO here, an online execution of !DB/EXPLAIN displays the table's alias on the Tables panel. Specifying ASK_DB2 or IN_MEMORY causes !DB/EXPLAIN to display the actual name of the table on the Tables panel during an online execution.</p>

Optional function option keywords (continued)

Extract Function Option	Function Option Action
SYNONYM	<p>Determines which of two methods will be used to research synonyms:</p> <ul style="list-style-type: none"> <li> <p>● DB2 inquiry</p> <p>Specifying ASK_DB2 executes a DB2 inquiry to determine whether the qualified name is a synonym each time a table is used. This method maximizes processing but minimizes the use of virtual memory.</p> <p>If your installation uses a large number of synonyms, if virtual storage or working set sizes are critical, and if synonym research must be performed, you may find this method to be the preferred one.</p> <li> <p>● Virtual Storage table lookup (default)</p> <p>Specifying IN_MEMORY causes the extract to read synonyms into a virtual memory table one time and check the table using the qualified name each time a table is used.</p> <p>This method minimizes processing in exchange for virtual storage utilization. If an installation does not use an extremely large number of synonyms and has no virtual storage or working set size problems, this is by far the most efficient processing method.</p>

Function Options for Normal Purge Runs

Overview

This unit describes the extract function options for a normal purge run.

Required function option keywords

A purge run erases data from the VSAM clusters. You are not required to specify a value for the positional parameter 1 of the extract program, but you must specify one of the following required extract function options in the SYSIN input:

Purge Function Option	Function Option Action
SYNC	Ensures that each record in the PLAN_TABLE file has parents in the catalog VSAM file. If a record has no such parents, SYNC processing deletes that record from the PLAN_TABLE to ensure that the catalog and PLAN_TABLE are synchronized.
GENERATION	Specifies how many historical generations of data to keep and purges any remaining.
TIMESTAMP	Causes data with a bind date/time prior to the value specified to be purged. Purge processing requires that the format of TIMESTAMP be, at a minimum, YYYY-MM-DD (year, month, day). You can also optionally include time of day in the format HH:MM:SS (hours, minutes, seconds).

Normal Extract and Purge Summary

Overview

This extract summary table identifies the run purpose, description of the run, required and optional input, and extract function options for normal extract and purge runs.

Summary table

Table 1 summarizes the required input for normal extract and purge runs.

Table 1 (Page 1 of 3). Extract Run Purpose—Extract or Purge				
Purpose	Description	Required Input	Optional Input	Extract Function Options
Extract PLAN_TABLE	Select data from a PLAN_TABLE.	Extract ID, plan_table owner, catalog owner, and one extract function option	Plan or package specification masking	<p>Replace Replace the data within the specified PLAN_TABLE VSAM cluster extract ID with data selected for this run.</p> <p>Merge Merge the data selected for this run with data already in the specified PLAN_TABLE VSAM cluster extract ID.</p>

Table 1 (Page 2 of 3). Extract Run Purpose—Extract or Purge				
Purpose	Description	Required Input	Optional Input	Extract Function Options
Extract Catalog	Select catalog data and statements pertaining to plans/packages.	Extract ID, catalog owner, and one extract function option	Plan or package specification masking, threshold value, drop, timestamp, and alias	<p>Replace Replace the data within specified catalog and statement VSAM cluster extract ID with data selected for this run. <i>Do not</i> use REPLACE if you plan to save and view historical extracts because REPLACE wipes out any historical extract data.</p> <p>Merge Merge the data selected for this run with data already in specified catalog and statement VSAM cluster extract ID.</p> <p>Merge Since Merge historically by bind date/time the data selected for this run with data already in specified catalog and statement VSAM cluster extract ID.</p> <p>Note: Since the purpose of this function is to select those plans or packages bound since the last extract, a previous REPLACE or MERGE extract <i>must</i> have been executed using the identical extract ID and plan/package specification masking as used with this function.</p> <p>Merge Since Timestamp Merge historically all data with a bind date/time after the timestamp value entered as a parameter. The data selected for this run is merged with data already in specified catalog and statement VSAM cluster extract ID.</p> <p>Note: It is not necessary to have run a previous extract that used identical masking. It is also possible to use this extract function option for an extract ID that has no existing data in it.</p>

Table 1 (Page 3 of 3). Extract Run Purpose—Extract or Purge				
Purpose	Description	Required Input	Optional Input	Extract Function Options
Purge Catalog/ Purge PLAN_ TABLE/ Purge Both	Purge data from VSAM clusters.	Extract ID and VSAM file type where file type is PLAN_TABLE, catalog (including the VSAM statement cluster), or both, and one extract function option.	Plan or package masking specification	Sync Purges any records in the PLAN_TABLE without parents in the catalog. Generation Specifies how many historical generations of data to keep and purges any remaining. Timestamp Causes data with a bind date/time prior to the value specified in this parameter to be purged.

Input Syntax

Overview

This unit provides the input syntax for normal extracts and purges of the DB2 catalog or plan table.

Syntax diagram: extract from catalog

To cause a normal extract from the DB2 catalog, **EXTRACT EXEC PGM=KTEXTRAC, PARM=XXXXXXXX** where **XXXXXXXX** can be any value except **RESTART**, **FORCE**, **DUMMY**, or **CONVERT** and the SYSIN input has the following syntax:

```

>> ---EXTRACT --CATALOG --EXTRACT_ID extractid ----->
> ----COWNER  catalog owner ----->
> ---REPLACE ----->
> |---MERGE -----|
> |---SINCE-----|
> |---DROP---| |---TIMESTAMP timestamp --|
> ----->
> |---THRESHOLD threshold-value -----|
> ----->
> |---ALIAS ---IN_MEMORY -----| |SYNONYM ---IN_MEMORY--|
> |---NO ---| |---ASK_DB2-|
> |---ASK_DB2 -----|
> -----<<
> |---plan specification --| |---package-specification --|

```

Syntax diagram: extract from plan table

To cause a normal extract from the plan table, **EXTRACT EXEC PGM=KTEXTRAC, PARM=XXXXXXXX** where **XXXXXXXX** can be any value except **RESTART, FORCE, DUMMY, or CONVERT** and the SYSIN input has the following syntax:

```

>>---- EXTRACT -- PLANTABLE -- EXTRACT_ID  extractid ----->
>---- POWNER  plan_table owner -- COWNER  catalog owner -->
>--- REPLACE ----->
|--- MERGE -----|
>-----<<
|--- plan-specification --| |--- package-specification--|

```

Syntax diagram: purge

To purge data from the catalog, plan table, or both, **EXTRACT EXEC PGM=KTEXTRAC, PARM=XXXXXXXX** where **XXXXXXXX** can be any value except **RESTART, FORCE, DUMMY, or CONVERT** and the SYSIN input has the following syntax:

```

>>---- PURGE ----- CATALOG ----- EXTRACT_ID  extractid---->
|--- PLANTABLE --|
|--- BOTH      --|
>--- GENERATION  generation --|----->
|--- TIMESTAMP  timestamp  --| |--- SYNC --|
>-----<<
|--- plan-specification --| |--- package-specification--|

```

Extract Input Examples

Overview

The examples in this unit show you how to code the extract function options that provide the SYSIN control statements in job *db2idJXTE* (See “Caution about db2idJXTE JCL” on page 222.)

Examples

To provide the SYSIN control statements, follow the examples in the table below:

To execute...	Provide SYSIN Control Statements...
Extract—Replace	<pre>EXTRACT CATALOG EXTRACT_ID eeeeeeee COWNER cccccccc REPLACE</pre> <p>Where:</p> <ul style="list-style-type: none"> ● <i>eeeeeeee</i> is the extract ID ● <i>cccccccc</i> is the catalog owner
Extract—Merge	<pre>EXTRACT CATALOG EXTRACT_ID eeeeeeee COWNER cccccccc MERGE</pre> <p>Where:</p> <ul style="list-style-type: none"> ● <i>eeeeeeee</i> is the extract ID ● <i>cccccccc</i> is the catalog owner
Extract—Merge Since	<pre>EXTRACT CATALOG EXTRACT_ID eeeeeeee COWNER cccccccc MERGE SINCE PLAN < x</pre> <p>Where:</p> <ul style="list-style-type: none"> ● <i>eeeeeeee</i> is the extract ID ● <i>cccccccc</i> is the catalog owner ● <i>x</i> is the plan mask. <p>The Merge Since extract <i>must</i> match an original (REPLACE) extract.</p>

Examples (continued)

To execute...	Provide SYSIN Control Statements...
Extract—Merge Since Timestamp	<p>EXTRACT CATALOG EXTRACT_ID <i>eeeeeeee</i> COWNER <i>ccccccc</i> MERGE SINCE TIMESTAMP <i>timestamp</i></p> <p>Where:</p> <ul style="list-style-type: none"> ● <i>eeeeeeee</i> is the extract ID ● <i>ccccccc</i> is the catalog owner ● <i>timestamp</i> is the timestamp. All plans and packages bound after this timestamp are extracted. Those bound before this timestamp are not extracted. <p>The Merge Since Timestamp extract <i>does not</i> have to match an original (REPLACE) extract.</p>
Extract (from a user-defined plan table)	<p>EXTRACT PLANTABLE EXTRACT_ID <i>eeeeeeee</i> POWNER <i>pppppppp</i> COWNER <i>ccccccc</i> REPLACE</p> <p>Where:</p> <ul style="list-style-type: none"> ● <i>eeeeeeee</i> is the extract ID ● <i>pppppppp</i> is the PLAN_TABLE owner ● <i>ccccccc</i> is the catalog owner

Notes:

1. Any extract types can have any plan or package mask used with the operators =, >, <, >=, <=, or **BETWEEN**. For example:
 - PACKAGE = *packagename*
 - PLAN > *planname*
 - PACKAGE BETWEEN *packagename* AND *packagename*.
2. If you are migrating from !DB/EXPLAIN Version 220 or earlier to !DB/EXPLAIN Version 230 or later, you cannot carry your historical plan table data forward. However, in Version 230 or later, you *can* retrieve this history by identifying the PLAN_TABLE from the earlier release as a user-defined plan table to bring it forward.
3. To run an extract from a PLAN_TABLE, you must have previously performed a catalog extract on a DB2 subsystem having the same plans.
4. You can merge PLAN_TABLE data from different users into the same extract ID by using the optional MERGE keyword. To do so, run the EXTRACT PLANTABLE job one time for each PLAN_TABLE owner, specifying the same extract ID for each job, and specifying the MERGE function option.

Purge Input Examples

Overview

The examples in this unit show you how to code your purge function options that provide the SYSIN control statements in job *db2idJXTE*. (See “Caution about db2idJXTE JCL” on page 222.)

Examples

To provide the SYSIN control statements, follow the examples in the table below:

To execute...	Provide SYSIN Control Statements...
Purge (historical data)	<p>PURGE CATALOG EXTRACT_ID <i>eeeeeeee</i> GENERATION <i>generation</i></p> <p>Where:</p> <ul style="list-style-type: none"> ● <i>eeeeeeee</i> is the extract ID ● <i>generation</i> is the number of generations to save. All generations previous to those specified here (higher, numerically) are purged.
Purge (from a given bind date)	<p>PURGE CATALOG EXTRACT_ID <i>eeeeeeee</i> TIMESTAMP <i>timestamp</i></p> <p>Where:</p> <ul style="list-style-type: none"> ● <i>eeeeeeee</i> is the extract ID ● <i>timestamp</i> is the bind date timestamp value you specify. All records extracted prior to that date are purged.

Other Types of Extract Runs

Overview

In addition to the normal extract and purge runs, you can specify other types of runs by using positional parameter 1 of the extract program KTEXTRAC.

Restart runs

To cause a restart run, positional parameter 1 of the extract program KTEXTRAC must be set to RESTART.

- A restart run must follow an extract run that has failed to complete successfully. Use the same extract input as the failed run, and set positional parameter 1 to RESTART.
- A restart run automatically picks up the last checkpoint location and recovers and or synchronizes VSAM clusters without requiring a restore (if the VSAM clusters were not damaged).
- A restart run requires the files to be in the state they were in when the previous run failed. Damaged files prevent the restart from executing.

Note: In order to execute a restart, the extract work files used in the original run must have been defined as permanent data sets. Data sets can be deleted at the end of the job if the return code = 0. (See “Specifying permanent storage and work data sets (optional)” on page 262 for information on the data sets that must be made permanent.)

Force runs

To cause a force run, positional parameter 1 of the extract program KTEXTRAC must be set to FORCE. A force run overrides the restart.

A force run is a normal run with any variation of extract input and the force parameter set to FORCE. If an extract run has failed to complete successfully, specifying FORCE allows a normal extract run to execute without first running a restart. However, a force run will not correct any logical file errors.

FORCE should only be executed as part of a catalog REPLACE run. If used with MERGE or MERGE SINCE, your data can be corrupted. Because FORCE should only be used with catalog REPLACE, use of the FORCE parameter causes your extract history to be overwritten and therefore lost.

To ensure data integrity, you either must run the extract using RESTART, or restart the extract from system backup files.

Dummy runs

To cause a dummy run, positional parameter 1 of the extract program KTEXTRAC must be set to DUMMY. No VSAM input/output processing is performed, but a space calculation is performed.

Convert runs

Convert runs are performed to upgrade from a previous version or maintenance level of !DB/EXPLAIN to the current version or maintenance level. To cause a convert run, positional parameter 1 of the extract program KTEXTRAC must be set to CONVERT. A convert run causes an extract conversion utility to be run to provide statement consistency, to reorganize the SYSSTMT VSAM cluster, and to enhance performance.

To run a CONVERT, use a copy of your current production JCL and perform the following steps:

Step	Action
1	Change the STEPLIB to point to the new load library containing the new KTEXTRAC load module.
2	Change the <i>first</i> parameter on the EXEC statement to CONVERT .
3	Use any valid SYSIN DD statement that contains the extract ID for the SYSSTMT VSAM cluster. You can use an EXTRACT or PURGE SYSIN DD statement; the conversion ignores these values and the result is the same. Note: You <i>must</i> run a CONVERT for each SYSSTMT VSAM cluster you have defined.

Caution: If you run batch extracts using !DB/EXPLAIN Version 235 or later and your existing production JCL is from a version prior to Version 235, you must modify the DCB LRECL attributes for the DBRM and PACK DD statements. Refer to the *db2idJXTE* job for acceptable values. Failure to modify these values will result in an error message and your job will abend.

Debugging Your Extract

Overview

This unit tells you the types of debugging available to you and how to activate each type.

Types of debugging runs

Use positional parameters 2–4 of the KTEXTRAC program to specify whether or not a particular extract run is for debugging purposes, and if so, what type of debugging you want. Four types of debugging are possible:

Structure Dumps internal structures

I/O Traces I/O activity

Flow trace Traces program flow


Parser trace Traces parser activity

Note: Because debugging is very resource intensive, it should be performed only when requested by Candle Support Services or Research and Development. Debugging is available on all extract types. Debug messages are printed to SYSPRINT.

Parameters for specifying debugging

The KTEXTRAC EXEC statement is of the form:

```
EXTRACT EXEC PGM=KTEXTRAC, PARM='XXXXXXXX X X X X'.
```



Parameters 2 through 5

The table below supplies the values to be placed in positional parameters 2–5 of KTEXTRAC to perform debugging.

Positional Parameter Number	Value
2—structure debug switch	D Activate structure debugging any other value or blank Inactivate structure debugging
3—I/O debug switch	D Activate I/O debugging any other value or blank Inactivate I/O debugging
4—flow trace debug switch	D Activate flow tracing any other value or blank Inactivate flow tracing
5—parser trace switch	D Activate parser tracing any other value or blank Inactivate parser tracing

Estimating Disk Storage Required by an Extract

Overview

This unit provides information on estimating the disk storage required by an extract. The disk storage can contain both VSAM and non-VSAM files. You will also learn other factors you should consider when estimating storage.

Preparatory steps

Before running the extract, you should perform the following steps to determine the amount of disk storage you require to run a !DB/EXPLAIN extract.

Step	Action
1	Use the information in this unit to estimate the disk space required for VSAM and non-VSAM files.
2	Calculate the amount of DB2 data to be extracted. To do so, you may need to select your data—plans, packages, and statements—using the DUMMY parameter on an extract run.
3	Total the data to be extracted for all extract IDs.
4	Use the calculated data total together with the values and suggestions in this unit to revise and improve your disk space estimates.

Estimating space for the VSAM clusters

The table below provides values in bytes that you can use to estimate space for your VSAM clusters. Once you have made an initial calculation, modify it by assessing the impact of the factors contained in the unit “Other factors you can use to refine estimates” on page 248.

Cluster Name and contents	Estimated Space in Bytes
SYSPLAN: PLAN_TABLE Cluster	<ul style="list-style-type: none"> ● 250 bytes per extracted PLAN_TABLE entry ● 1800 bytes per statement EXPLAINED during an !DB/EXPLAIN run
SYSCATLG: Catalog Cluster	<ul style="list-style-type: none"> ● 1750 bytes per plan or package as an initial estimate <p>Note: The number of plans and packages depends upon how the extract ID is configured, the type of masking used for each extract ID, and how many historical records are extracted if the MERGE SINCE option is used.</p>
SYSSTMT: Statements Cluster	<ul style="list-style-type: none"> ● 279 bytes per plan statement ● 289 bytes per package statement

Note: Space estimates are in byte values and can be converted to the appropriate unit for the device in question (CYL, TRK, MEGABYTE, KILOBYTE).

Other factors you can use to refine estimates

Apply the factors below to your calculated estimate for VSAM clusters to refine the estimate:

- To obtain an automatic calculation of the VSAM data bytes that would be created by a given extract, run the extract with PARM=DUMMY.
- Use approximate space values initially. You can resize the file later if necessary by running an IDCAMS REPRO job.
- It is preferable to estimate large secondary file extents or overestimate the primary file extents instead of abending.
- The size of a given plan, package, or DBRM varies widely from any other plan, package, or DBRM. Try to determine the average size for your installation to use as a tuning factor. You can query the DB2 catalog to obtain approximate sizes.
- The number of plan or package statements in an extract varies widely from extract ID to extract ID. Again, try to determine an average to be used for your installation.
- The number of and use of a group of extract IDs per VSAM cluster varies widely from installation to installation.
- The number of plan table records directly relates to the amount of !DB/EXPLAIN activity that is performed. You can approximate the size of the PLAN_TABLE using the following formula:

$$\begin{array}{r}
 \text{\# of EXPLAINable statements contained in the extract file} \\
 \times \\
 \text{1800 bytes per statement} \\
 \times \\
 \text{\# of generations of history retained} \\
 + \\
 \text{an appropriate blocking factor}
 \end{array}$$

- Some types of !DB/EXPLAIN records are not carried forward from release to release. Other record types change in size. When moving to a new !DB/EXPLAIN release, you should review your estimates to determine whether release-dependent changes must be made.

Obtaining more information on VSAM utilities

If you want to learn more about the utilities that support the creation and maintenance of VSAM clusters, refer to the following IBM publications:

- IBM MVS/Data Facility Product: Using Data Sets, SC26-4749
- IBM MVS/Data Facility Product: Access Method Services Reference for ICF Catalogs, SC26-4500

Estimating space for the non-VSAM files

The tables that follow provide the information necessary to estimate the DASD space required for each object, preprocess, and REORG file. These non-VSAM files are needed until an extract run is complete; therefore, you must plan for the space to hold one complete run (either a successful run or an aborted run with a restart).

When estimating space, the number of bytes required for each file is determined by multiplying the logical record length of the file by the number of records expected to be extracted.

To preclude abending, you should estimate large secondary file extents or overestimate the primary file extents. If you have insufficient DASD and you expect a large number of extract records, you can use multi-volume tape files.

!DB/EXPLAIN object files

Object Type	File Size and Format
DBRM —DBRM file	<ul style="list-style-type: none"> ● LRECL=250 ● BLKSIZE=6000 ● RECFM=FB
STMT —Plan statement file	<ul style="list-style-type: none"> ● LRECL=557 ● BLKSIZE=6127 ● RECFM=FB
PACK —Package statement file	<ul style="list-style-type: none"> ● LRECL=273 ● BLKSIZE=6279 ● RECFM=FB

Preprocess file

Preprocess files contain new records produced by the extract that must be merged into the VSAM clusters. When estimating space for preprocess files, use the following guidelines:

Preprocess Record Type	File Size and Format
OUTSTMT —New statement cluster records	<ul style="list-style-type: none"> ● Space estimate in bytes is a sum of the PACK and STMT file space estimates ● LRECL=581 ● BLKSIZE=23476 ● RECFM=VB
OUTCATLG —New catalog cluster records	<ul style="list-style-type: none"> ● Space estimate is 2500 bytes per plan or package extracted in the extract run ● LRECL=352 ● BLKSIZE=23476 ● RECFM=VB

REORG files

If automatic REORG is invoked as the result of a specified threshold value (see “VSAM Fragmentation and REORG Considerations” on page 253), then REORG files contain existing records from the VSAM clusters. When estimating space for REORG files, use the following guidelines:

REORG Record Type	File Size and Format
REOSTMT —Statements	<ul style="list-style-type: none"> ● Space estimate in bytes can be determined by executing an IDCAMS LISTCAT on the statement VSAM cluster. ● LRECL=581 ● BLKSIZE=23476 ● RECFM=VB
REOCATLG —Catalog records	<ul style="list-style-type: none"> ● Space estimate in bytes can be determined by executing an IDCAMS LISTCAT on the catalog VSAM cluster. ● LRECL=352 ● BLKSIZE=23476 ● RECFM=VB

Planning for VSAM Clusters

Overview

This unit addresses factors you must consider when setting up your VSAM clusters to hold extract data.

Decisions you must make

The table that follows identifies some of the key planning decisions you must make when setting up your VSAM clusters. Where additional information is needed, you are referred to a unit containing additional details.

Step	Action
1	Determine the disk space required to hold your VSAM clusters. See “Estimating space for the VSAM clusters” on page 247 for directions on performing the space estimate.
2	Determine the number of data sets required to hold your extract data.
3	Establish naming conventions for your data sets.
4	<p>If multiple data sets are required to hold your extract data, determine how data will be assigned to those data sets. You should consider:</p> <ul style="list-style-type: none"> ● The processing needs of your installation ● Whether your installation uses one or many extract IDs and the implications of this decision on the distribution of data across clusters ● Your business organization and the information access needs of each organizational unit
5	Determine how you will separate data on physical volumes of disk storage. See “Placement of data on physical storage” on page 252 for factors affecting your decision.
6	Establish plans for recovery of your extract data in the event of a system failure. See “Recovering Your VSAM Clusters” on page 260 for additional information related to data recovery.

Placement of data on physical storage

When determining how best to physically organize your extract data on VSAM physical storage, you can choose to:

- Implement multiple sets of VSAM clusters to spread data across multiple DASD volumes
- Use key ranges to place data across multiple DASD volumes

Note: If you implement key ranges, you cannot use the VSAM REUSE option. This precludes your using the automatic reorganization facility of the !DB/EXPLAIN extract.

Organization of extract data in VSAM physical storage

Within a VSAM key-sequenced data set (KSDS), your extract data is grouped:

- Within a VSAM cluster by extract ID
- Within the extract ID by record type: plan, package, plan statement, package statement, PLAN_TABLE entry, table data, table space data, and so forth
- Within record type by major field such as plan name, package name, collection ID, and so forth
- Within a major field by time, such as BIND date or time, for historical purposes

VSAM Fragmentation and REORG Considerations

Overview

When your VSAM control intervals and control areas become fragmented, you should consider reorganization. This unit provides some guidelines for reorganization and refers you to sources of additional information.

Determine percent of fragmentation

The nature of data collection and purging lends itself to fragmentation of VSAM control intervals (CI) and control areas (CA). A large number of CI and CA splits increases access time. To determine whether your VSAM storage suffers from excess fragmentation:

Step	Action
1	Regularly run VSAM LISTCATs to monitor VSAM cluster statistics.
2	Determine the percentage of CI and CA splits.
3	If the percentage of either CI or CA splits exceeds a value you select (Candle suggests 10% to 15%), reorganize the cluster.

Reorganization requires exclusive access

Whether you plan to do manual or automatic reorganization, the programs that perform the reorganization need exclusive access to the VSAM files. This means that a reorganization cannot be performed when !DB/EXPLAIN users are accessing the VSAM files online. To ensure that your online access to !DB/EXPLAIN and your performance of an extract with potential reorganization of your VSAM KSDSs are serial rather than concurrent, follow the steps in the table below:

Step	Action
1	Select the Tuning Parameters option on the !DB/EXPLAIN Housekeeping Menu panel. Result: The Tuning Parameters panel containing VSAM tuning parameters is displayed.
2	On the Tuning Parameters panel, ensure that the Enqueue on extract datasets field is set to Y (the default).

Sources of additional information

See the following units for detailed information:

Information You Want	Information Source
Manual reorganization: Guidelines and steps to perform	“Manual Reorganization” on page 255
Automatic reorganization: Guidelines and steps to perform	“Automatic Reorganization” on page 259

Manual Reorganization

Overview

This unit describes when to do a manual reorganization and the procedure for doing so.

What files must be manually reorganized

While the VSAM catalog and statements (SYSCATLOG and SYSSTMTS) files can be manually reorganized, the preferred method is to reorganize them automatically according to the value you specify on the THRESHOLD parameter of an extract run (see “Automatic Reorganization” on page 259).

The PLAN_TABLE file cannot be reorganized automatically. Use the procedures in this unit to reorganize the PLAN_TABLE file.

PLAN_TABLE organization affects BUILD performance

It is important to put procedures in place to manually reorganize the PLAN_TABLE file according to criteria specific to your installation. The performance of the BUILD function is directly related to the degree of organization of the PLAN_TABLE file. A poorly organized PLAN_TABLE results in long BUILDS.

When do you use manual reorganization

Use manual reorganization:

- When you use key ranges to place your data across multiple DASD volumes. Use of key ranges precludes use of the VSAM REUSE option and, therefore, the !DB/EXPLAIN automatic REORG function.
- Your file size does not permit automatic REORG (such as when your extract is very large, or your total required space for the extract exceeds the space available).
- Your extract run elapse time exceeds that permissible for performing automatic REORG.
- Your site standards do not permit automatic REORG.

In those circumstances, you should plan to perform regular manual reorganizations.

Performing a manual reorganization for !DB/EXPLAIN V230 or V235

There are two procedures available to you to perform a manual reorganization:

1. Using the IDCAMS REPRO command
2. Using the KTECLEAN batch utility

Either method can be used.

Using IDCAMS REPRO: To perform the manual reorganization using IDCAMS REPRO:

Step	Action
1	Use the IDCAMS REPRO command to unload the VSAM files.
2	Redefine the files.
3	Reload the files using IDCAMS REPRO.

Using KTECLEAN: The KTECLEAN job is delivered as part of the !DB/EXPLAIN installation job stream, and you should customize it as part of the installation process. The values you provide are defined in the prologue for the job. Use KTECLEAN to allocate a new set of !DB/EXPLAIN extract data sets or rebuild an existing set of extract files.

Increasing the size of extract data sets for !DB/EXPLAIN V230 or V235

Use KTEREBLD to resize or reorganize your extract files while saving the contents of the files. KTEREBLD is delivered as part of the !DB/EXPLAIN installation job stream. When using KTEREBLD, you can change volume and space definitions, but should not change record size attributes.

Allocating a new set of !DB/EXPLAIN extract data sets (V300 or V500)

If you want to allocate a new set of !DB/EXPLAIN extract data sets, use the KTECLEAN batch utility. KTECLEAN performs a simple delete/define process. KTECLEAN is delivered as part of the !DB/EXPLAIN installation job stream and customized as part of the installation process, or you can generate appropriate KTECLEAN JCL using the JCL command. Do not use KTECLEAN to perform a manual reorganization unless you want to discard your existing data. Instead, use KTEREBLD. (See “Building the JCL to run KTECLEAN or KTEREBLD (V300 or V5 00)” on page 258 for details.)

Rebuilding VSAM files for the !DB/EXPLAIN extract (V300 or V500)

If you need to rebuild the VSAM files for the !DB/EXPLAIN extract data sets, use the KTECLEAN batch utility discussed above. Follow the instructions in “Building the JCL to run KTECLEAN or KTEREBLD (V300 or V5 00)” on page 258 and choose option 5 in step 5 to select the KTECLEAN batch utility.

Performing a manual reorganization or resizing your extract files (V300 or V500)

Use KTEREBLD to resize or reorganize your extract files while saving the contents of the files. KTEREBLD is delivered as part of the !DB/EXPLAIN installation job stream or you can generate appropriate KTEREBLD JCL using the JCL command. When using KTEREBLD, you can change volume and space definitions, but should not change record size attributes.

Building the JCL to run KTECLEAN or KTEREBLD (V300 or V5 00)

The easiest and fastest way to build the job to run KTECLEAN or KTEREBLD is to use the JCL command. Follow these steps.

Step	Action
1	On the command line of any !DB/EXPLAIN panel, type JCL?
2	Press Enter. Result: !DB/EXPLAIN displays the JCL Generation panel.
3	On the JCL Generation panel, type 6 in the Options field.
4	Press Enter. Result: !DB/EXPLAIN displays the Extract JCL Generation panel.
5	Enter the appropriate value in the Option field of the Extract JCL Generation panel: <ul style="list-style-type: none"> ● To create the JCL for KTECLEAN, type 5 in the Option field. ● To create the JCL for KTEREBLD, type 6 in the Option Field.
6	Press Enter. Result: !DB/EXPLAIN displays a secondary panel on which you provide required and optional values. It then creates the JCL to run the job.

Automatic Reorganization

Overview

This unit describes the way in which an automatic reorganization is triggered and how you can control the trigger point.

How automatic reorganization is triggered

The extract uses the value you assign to THRESHOLD in the SYSIN input to determine when to perform an automatic reorganization. The value for THRESHOLD ranges from 0–99999999 with the default being 99999999. If the value for THRESHOLD is exceeded during an extract run, that is, the extract has inserted a number of VSAM records exceeding the value specified by THRESHOLD, the catalog and statements clusters are automatically reorganized after the extract run has completed.

Assigning a threshold value

The list below provides some factors to consider when you have decided to use the extract's automatic REORG facility and want to assign an appropriate THRESHOLD value:

- To determine the optimum value for THRESHOLD, review the VSAM file statistics in the extract output. Set THRESHOLD to 80% of the number of adds provided in the SYSCATLG statistics.

SYSCATLG statistics are displayed in message KTE00R8 of the extract output. An example follows:

```
KTE00R8 VSAM file statistics:  
File: SYSCATLG; READS:938; ADDS:120; DELETES: 120; UPDATES: 4
```

For this example, the number of added records is 120. Set the THRESHOLD value to 96.

- To force an automatic REORG, set the THRESHOLD value to 0 for any catalog extract.

Note: Data must be extracted to cause the REORG. If you set the THRESHOLD value to 0 and mask plans and packages so that no data is extracted, *no REORG is performed*.

Automatic REORG resource utilization is minimal and performance is favorable compared to IDCAMS.

Recovering Your VSAM Clusters

Overview

This unit tells how to plan for recovery of your VSAM clusters.

Planning for recovery

You should have procedures in place to backup your VSAM clusters at appropriate intervals. When planning for recovery, you will need to consider the following questions:

- Are system VSAM backups available?
- Is external VSAM activity logging available for recovery?
- Was REUSE specified in VSAM definitions?
- Are selected rows, preprocess, and REORG files available?
- Will you use system recovery rather than extract restart?
- Do your recovery plans consider factors related to file size and elapsed time to recover?

Restarting after a Failure

Overview

This unit identifies the parameters you must specify to ensure that you can restart your extract run after a failure.

Actions to take

- Use external sorts to create logical restart points. These restart points (or checkpoints) consist of history records written to the !DB/EXPLAIN extract data sets by the !DB/EXPLAIN extract.

In the event of the failure of an extract run, you can:

- Rerun the extract using `RESTART` or `FORCE` unless the VSAM clusters were externally restored. (`FORCE` should be used cautiously. See “Force runs” on page 242 for some considerations regarding the use of a `FORCE` run.) Using `RESTART` or `FORCE` ensures that the catalog extract file and the statement extract file are brought back into synchronization.

On a `RESTART`, *do not* alter any definitions that were in effect during the failed run.

In order to perform a `RESTART`, you must have specified that the extract work files used in the original run be permanent data sets. These data sets can be deleted at the end of the job if the return code = 0. (See “Specifying permanent storage and work data sets (optional)” below.)

- Externally restore the VSAM clusters and rerun the extract as a normal extract run. Since the internal extract `RESTART` facility is not being used to recover the failed extract, you can use temporary or catalog data sets for the extract work files.
- To ensure that all non-VSAM files are available for a restart, specify them as `DISP=SHR`. They are then reused (overwritten) by the next extract unless the current extract failed to complete successfully.

Specifying permanent storage and work data sets (optional)

(Specify permanent storage and work data sets if you plan to use the RESTART parameter to restart in case of failure.)

The !DB/EXPLAIN extract JCL uses storage and work data sets to store extracted data before transferring it to the !DB/EXPLAIN extract data sets. These data sets are initially shipped as temporary data sets (**DSN=&&datasetname,DISP=(NEW,PASS)**). If you want to be able to restart the extract if it fails, you must specify permanent storage data sets; for example, (**DSN=MY.DATASET,DISP=(NEW,CATLG,CATLG)**).

Caution: When your job completes successfully, you must delete the work data sets you have cataloged before rerunning the job; otherwise you will receive a “duplicate data set” message.

Step	Action
1	Specify the extract work data sets (DBRM, STMT, PACK).
2	Specify the storage data sets (OUTSTMT, OUTCATLG) for newly extracted data.
3	Specify the storage data sets (REOSTMT, REOCATLG) for previously extracted data.

Introduction

This chapter tells you how to customize !DB/WORKBENCH and use the Lazarus conversion routine. It also tells you how to migrate the profile variables you have customized in your current system when you install a new version of !DB/WORKBENCH.

Note: !DB/QUICKCHANGE also uses the !DB/WORKBENCH extract. When this guide refers to the !DB/WORKBENCH extract, it is referring to the extract used by !DB/WORKBENCH and !DB/QUICKCHANGE.

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Procedure for Overriding the Default !DB/WORKBENCH Extract

Overview

This unit tells you how to run a !DB/WORKBENCH extract for subsequent DB2 subsystems.

Steps for overriding the default !DB/WORKBENCH extract

!DB/Tools Install prepares the extract job (KTCIJXTW) with defaults for the first DB2 subsystem you installed. When you install !DB/WORKBENCH for an additional DB2 subsystem, !DB/Tools Install generates the extract job with the name *db2idJXTW*. Use the following procedure to run a !DB/WORKBENCH extract for subsequent DB2 subsystems.

Step	Action
1	Begin an ISPF edit session for member <i>db2idJXTW</i> in the CNTL data set.
2	Submit the job.
3	Verify successful execution of the job by checking the return codes. Verify that the extract contains data by starting !DB/WORKBENCH and selecting databases, tablespaces, or tables.

Converting Extracts for Pre-Version 300 CUM 9808-0 Releases

Overview

This unit discusses the conversion of Lazarus extract data for !DB/WORKBENCH. Beginning with the Version 300 CUM 9808-0 release of !DB/WORKBENCH, extract data was saved in a different format. If you want to use a Lazarus copy that pre-dates this release, you must first convert it to the new format. This conversion allows you to use this extract data with !DB/WORKBENCH Version 300 and higher.

Warning

Before you run the conversion program for pre-Version 300 Lazarus data, be sure to run a !DB/WORKBENCH extract using the CUM 9808-0 version of !DB/WORKBENCH or later.

When this is required

The following chart shows you when to perform this conversion.

IF this is ...	AND ...	THEN this step is ...
a new install of !DB/WORKBENCH V500,	you have a version of !DB/WORKBENCH prior to V300 (CUM 9808-0)	optional.
	you do not have a pre-V300 version of !DB/WORKBENCH installed on your system,	not necessary.
a refresh,		optional.

Background about versions of !DB/WORKBENCH and Lazarus data

!DB/WORKBENCH and the format for the !DB/WORKBENCH extract have been changed to support larger DB2 subsystems. This change became effective with the Version 300 CUM 9808-0 tape. Any prior Lazarus data in the !DB/WORKBENCH System PDS needs to be converted to the new extract format.

Procedure for converting Lazarus extract data to the new format

Use the following procedure to convert Lazarus extract data that was saved prior to the pre-Version 300 CUM 9808-0 release.

Step	Action
1	Select Option 1 (INSTALL) from the DB/Tools Installation Main Menu.
2	Select Option 5 (CREATE) from the Installation Primary Option Menu.
3	Select Option 5 (WKBCNV) from the Database Definition Options Menu. Result: The system displays the DB/Workbench Lazarus Conversion Menu.
4	Select option 1 LIST or CONVERT . See “Options on the DB/Workbench Lazarus Conversion panel” on page 267 for information on the menu options.
5	Complete the fields on the DB/Workbench Lazarus Conversion Panel. See “Completing the DB/Workbench Lazarus Conversion panel” on page 268 for information on completing this panel.
6	Press Enter to automatically create the JCL for the conversion or press End to cancel the procedure. Result: The system displays the JCL in ISPF edit mode.
7	Enter the SUBMIT command to submit the JCL for the conversion job.

Options on the DB/Workbench Lazarus Conversion panel

The DB/Workbench Lazarus Conversion panel offers the following options.

Option	Description
1 - LIST List Lazarus data	<p>This option creates a list of the copies of the Lazarus data in the !DB/WORKBENCH System PDS. The list contains the following information:</p> <ul style="list-style-type: none"> ● ID number assigned to the copy ● Creation year ● Julian date ● Creation time (hour and minute) ● Extract version
2 - CONVERT Convert Lazarus data	<p>This option converts one or more copies of the Lazarus data into the new format. This new format was implemented in the pre-Version 300 CUM 9808-0 release.</p>

Completing the DB/Workbench Lazarus Conversion panel

The following table describes the fields on the DB/Workbench Lazarus Conversion panel.

Field	Description
Source System PDS	<p>The name of the !DB/WORKBENCH System PDS that contains the Lazarus data to be listed or converted.</p> <p>If this name is the same as the current !DB/WORKBENCH System PDS, then a backup of the current System PDS is made. This backup data set is used as the Source System PDS.</p>
Target System PDS	<p>The name of the current !DB/WORKBENCH System PDS. This data set will be updated with the converted Lazarus data.</p>
ALL?	<p>Type Y to list or convert all the Lazarus copies in the Source System PDS. Type N to use the option for specifying a range of dates for the copies.</p>
FROM date	<p>A beginning date to use for listing or converting the Lazarus copies of extract data. Use the format <i>yyyy.ddd</i>.</p> <p>If you omit the date, the system defaults to the earliest date.</p>
TO date	<p>An ending date for listing or converting the Lazarus copies of extract data. Use the format <i>yyyy.ddd</i>.</p> <p>If you omit the date, the system defaults to the current date.</p>

Migrating Profile Variables

Overview

If you are running in parallel with a later version of !DB/WORKBENCH to test against a previous version, you need to migrate your profile variables from your current system to the parallel system in order to get an accurate test.

This unit tells you how to migrate your profile variables.

Caution

Do not use this procedure if you are

- doing a refresh
- configuring from the ground up
- doing a new install

When to migrate profile variables

Migrate your profile variables after you install the new system, but before you run the extract.

Steps for migrating profile variables

The following chart tells you how to migrate your profile variables from one system to the next.

Step	Action
1	Browse the GLOBAL member in the PROFILE data set of your current system.
2	<p>Identify the DB** system you want to use.</p> <p>The DB** values in the GLOBAL member begin with DB00= and use the format, DB**=<i>extract_id DB2_id MVS_id</i>.</p> <p>For example, if the GLOBAL member contains the line, DB02=DX2 DB2 SYSA, then DB02 is the DB** value, DX2 is the extract ID, DB2 is the DB2 ID, and SYSA is the MVS ID.</p>
3	<p>In the PROFILE data set of your current system, identify the WG** member where ** corresponds with the number associated with the DB** value that you identified in step 2.</p> <p>For example, if the DB** value is DB02, then the corresponding WG** member is WG02.</p> <p>Note: The WG** member contains all the variables you customized in your current system.</p>
4	Browse the PROFILE data set of the new system.
5	<p>Identify the WG** member in the new system. Use the search procedure explained in the previous steps to identify the appropriate WG** member in the new system.</p> <p>Note: If the WG** member does not exist in the new system, create it.</p>
6	<p>Copy the contents of the WG** member in your current system to the WG** member in the new system.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">Caution</p> <p>When migrating profile variables from one system to another, be sure to make a backup copy of the WG** member in the new system before you make any changes. Additionally, instead of overwriting the entire WG** member in the new system, you may consider manually editing the WG** member in the new system, changing information such as the the !DB/WORKBENCH housekeeping variables. Do not change the data set or plan names for the new system.</p> </div>
7	Run the extract for the new system.

Example

WG01 contains your current system's customization and the **WG**** member in the new system is **WG13**.

To migrate the customized variables from your current system to the new system, copy **WG01** to **WG13**.

Converting !DB/WORKBENCH Utility Profiles

Overview

This unit discusses the conversion of !DB/WORKBENCH utility profiles.

Background about versions of !DB/WORKBENCH and conversion of utility profiles

Use the following chart to determine how to convert your utility profiles.

IF you are converting utility profiles from !DB/WORKBENCH version ...	AND you want to convert them to version ...	THEN ...
260	500	No action is necessary.
250	500	No action is necessary.
250	260	No action is necessary.
240	500	No action is necessary.
240	260	No action is necessary.
240	250	Follow the procedure in this unit. (“Converting !DB/WORKBENCH V240 utility profiles to V250” on page 273)
230	500	Redefine the utility profiles, no conversion procedure is available.
230	260	Redefine the utility profiles, no conversion procedure is available.
230	250	Redefine the utility profiles, no conversion procedure is available.

Note: Utility profiles are stored in the system PDS. Candle recommends that you regularly backup the system PDS to ensure that you do not lose the utility profiles.

Converting !DB/WORKBENCH V240 utility profiles to V250

Member KTCUTCON in the CNTL data set contains JCL to convert !DB/WORKBENCH V240 utility profiles to V250 utility profiles. The conversion routine does not write over utility profiles that have already been converted.

Note: If you want to replace .U members that already exist in the !DB/WORKBENCH V250 system data set, you must manually delete the members before submitting KTCUTCON.

Use the following procedure to convert !DB/WORKBENCH V240 utility profiles to V250.

Step	Action
1	Begin an ISPF edit session for ' <i>hilev</i> .CNTL(KTCUTCON)'.
2	Type the name of the !DB/WORKBENCH V240 system data set in the SYSPDSIN card.
3	Type the name of the !DB/WORKBENCH V250 system data set in the SYSPDSOT card.
4	Submit the job. Verify successful execution by checking the return codes.

Converting !DB/WORKBENCH V240 and V250 utility profiles to V260

!DB/WORKBENCH V260 automatically converts V240 and V250 utility profiles so that you can use them in V260.

You must run a new extract to use V260.

If you want to continue to use V250 profiles, make a copy of your V250 profiles to use with !DB/WORKBENCH V250. You cannot use your V260 profile with !DB/WORKBENCH V250.

Caution

Do not run KTCUTCON to convert !DB/WORKBENCH V240 or V250 utility profiles for use by V260.

Migrating Existing Macros

Overview

This unit tells you how to migrate existing macros for !DB/WORKBENCH.

Background

!DB/WORKBENCH stores user-created macros in the user PDS. You can migrate the user PDS to avoid recreating these entries.

Procedure for migrating user-created macros

Use this procedure to make a copy of existing the existing user-created macros for another installation.

Step	Action
1	Enter 3.3 on the ISPF command line. Result: This initiates the ISPF Move/Copy Utility facility.
2	Use the Copy option to copy the appropriate members in the USER PDS to the other installation.

Initializing ISPF Edit Recovery for DATA Data Sets for Version 260

Overview

This unit tells you how to initialize recovery for ISPF edit sessions of !DB/WORKBENCH V260 DATA data set members.

Note: See the unit “Initializing ISPF Edit Recovery for DATA Data Sets for Version 500” on page 195 to initialize recovery for ISPF edit sessions of !DB/Tools Version 500 DATA data sets.

Background

If your site wants the ability to turn ISPF recovery on for edit sessions of the !DB/WORKBENCH DATA data set members, you must edit KTWSTART to initialize recovery.

Editing KTWSTART to initialize recovery

Follow these steps to edit KTWSTART to initialize recovery and allow the ability to turn ISPF recovery on.

Step	Action
1	Begin an ISPF edit session for ' <i>hilev</i> .CLIST(KTWSTART)'.
2	Remove the comment markers (<i>/* */</i>) from the appropriate section according to the instructions at the top of the member.
3	Save member ' <i>hilev</i> .CLIST(KTWSTART)'. Result: The next time !DB/WORKBENCH is accessed, all users will be able turn recovery on when editing !DB/WORKBENCH DATA data set members.

Reusing DATA Data Sets from !DB/QUICKCHANGE for !DB/WORKBENCH

Overview

This unit tells you how to avoid error messages if you have installed !DB/WORKBENCH V500 *only* and have reused the DATA data sets from a previous installation of !DB/WORKBENCH or !DB/WORKBENCH and !DB/QUICKCHANGE.

Background

If your site wants to install !DB/WORKBENCH V500 only and you want to reuse the system PDS from a previous installation of !DB/WORKBENCH or !DB/WORKBENCH and !DB/QUICKCHANGE, you must delete members .OPTALT and .OPTMGZ from the system PDS.

Deleting members .OPTALT and .OPTMGZ from the system PDS

Follow these steps to delete members .OPTALT and .OPTMGZ from the system PDS.

Step	Action
1	Enter 3.1 on the ISPF command line. Result: This initiates the ISPF Library Utility facility.
2	Use the Delete option to delete the appropriate members from the system PDS. <ul style="list-style-type: none">• If the previous installation was !DB/WORKBENCH , delete member .OPTMGZ• If the previous installation was !DB/WORKBENCH and !DB/QUICKCHANGE, delete members .OPTMGZ and .OPTALT

Introduction

This chapter tells you how to customize !DB/SMU.

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Converting Pre-version 230 !DB/SMU Profiles and Reports

Overview

This unit tells you how to convert pre-version 230 !DB/SMU profiles and copy pre-version 230 !DB/SMU reports to !DB/SMU V500. This allows you to retain your !DB/SMU customization.

Warning

If you want to retain the customization in your pre-version 230 reports, you must convert your reports prior to running any !DB/SMU extracts.

Notes:

1. If you have not installed !DB/SMU V500, this option is not available.
2. This option is not necessary if you are migrating from !DB/SMU V230 to !DB/SMU V500.

When this is required

The following chart shows you when to perform this step.

IF this is ...	AND ...	THEN this step is ...
a new install of !DB/SMU V500,	you have a version of !DB/SMU prior to V230,	optional.
	you do not have a pre-V230 version of !DB/SMU installed on your system,	not necessary.
a refresh,		not available.

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

Steps for pre-version 230 !DB/SMU conversion

This following chart gives you the procedure for converting pre-version 230 !DB/SMU profiles and copying !DB/SMU reports.

Step	Action
1	On the Installation Primary Option Menu, type 7 on the command line.
2	Press Enter. Result: The system displays the DB2 Database Definition Options panel.
3	On the DB2 Database Definition Options panel, type 4 on the command line.
4	Press Enter. Result: The system displays the SMU Profile Conversion and Report Copier panel.
5	If you want to convert your pre-version 230 profiles to !DB/SMU V230 format, type Y in the Copy/Convert Profiles field. If you do not want to convert your pre-version 230 profiles, type N in the Copy/Convert Profiles field.
6	If you want to copy pre-version 230 reports to !DB/SMU V230 format, type Y in the Copy Reports field. This step makes available the runstats reports for a space map, space map reports, and scan summaries. Note: The conversion can take a long time if you have a large number of reports. If you do not want to copy pre-version 230 reports, type N in the Copy Reports field.

Steps for pre-version 230 !DB/SMU conversion (continued)

Step	Action
7	<p>If you want, you can change the name of the source system PDS that you specified when you tailored the variables.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">Warning</p> <p>When you specify the source and target PDS names as one and the same, this step alters the PDS. Be sure to run a backup of the PDS before you run this step under this condition.</p> </div> <p>The panel also displays the name of the target system PDS. This field is for informational purposes only.</p>
8	<p>Press Enter.</p> <p>Result: The system displays the JCL to convert the pre-version 230 !DB/SMU profiles and/or copy the reports, as you specified. See “!DB/Tools Install Generated JCL Descriptions” on page 383 for a list of jobs that !DB/Tools Install generates.</p>
9	<p>Review internal comments in JCL. Make changes as directed in the comments.</p>
10	<p>Type SUB on the command line.</p>
11	<p>Press Enter.</p> <p>Result: The system submits the job.</p>
12	<p>Check the return codes to verify the job ran successfully.</p>

Using Existing !DB/SMU Profiles

Overview

You may want to retain profiles that you have previously created for !DB/SMU. Doing so saves the effort of having to recreate them. This unit tells you how to retain the use of your existing profiles for !DB/SMU V500.

Identifying the !DB/SMU profiles

!DB/SMU stores its monitor, scan, and space map profiles in the system PDS. These profiles observe the following naming conventions where *xxxxxx* is a variable:

ZM*xxxxxx* indicates members for monitor profiles
ZS*xxxxxx* indicates members for scan profiles
ZX*xxxxxx* indicates members for space map profiles

When to save the existing profiles

The following chart shows you when to perform this step.

IF this is ...	AND ...	THEN ...
a refresh of !DB/SMU V500,	you are installing in a different library,	copy the existing profiles to the new system PDS after refreshing your installation.
	you are installing in the same library,	copy the existing profiles to another location before refreshing. Then, copy the existing members to the new PDS.
a new install,		this step does not apply.

Chapter 20. Accessing and Exiting !DB/Tools

Introduction

This chapter contains information on prerequisites and procedures for accessing !DB/Tools. It includes instructions for accessing !DB/Tools from OMEGAMON II for DB2 under ISPF and from OMEGAMON II for DB2. It also contains instructions for exiting !DB/Tools.

For more detailed information, see the *User's Guide* for the product you want to access or exit.

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Prerequisites and Guidelines for Accessing !DB/Tools

Overview

This unit includes prerequisites and guidelines for success in accessing !DB/Tools. It is necessary if you are accessing !DB/Tools directly or from OMEGAMON II for DB2.

Prerequisites

Before you can use the instructions in this chapter, be sure that the !DB/Tools CLIST library is allocated in the SYSPROC concatenation. If you plan to access !DB/Tools from OMEGAMON II for DB2, be sure the CLISTs for OMEGAMON II for DB2 are also allocated in the SYSPROC concatenation. For more information about installation of !DB/Tools, see “Manual Tailoring” on page 183.

Information needed to perform the procedures for accessing !DB/Tools

If you are accessing !DB/Tools, you need to know the extract ID for the DB2 subsystem. (The extract ID is the logical DB2 subsystem ID. You create the extract ID either at installation or by using the Housekeeping option.) For information about extract procedures, see “Running the Batch Extract” on page 165.

Note: An extract ID is not relevant for !DB/QUICKCOMPARE.

General guidelines for successful access

For improved performance when accessing a CLIST, use a “%” in front of a CLIST name.

Background about methods for access from OMEGAMON II

You can access !DB/Tools from OMEGAMON II for DB2 in two ways:

- from the CUA interface of OMEGAMON II
- from the primary option menu for OMEGAMON II for DB2 under ISPF

Accessing !DB/Tools

Overview

Use this unit if you want to access !DB/Tools. Be sure you have also reviewed the unit “Prerequisites and Guidelines for Accessing !DB/Tools” on page 284.

Accessing !DB/Tools

Follow these steps to access !DB/Tools.

Step	Action
1	Type the appropriate value on the command line: <ul style="list-style-type: none"> ● If you are on the TSO Command Processor panel (option 6 from the standard ISPF/PDF primary option menu), type %KTC ● If you are on any other ISPF panel, type TSO %KTC
2	Press Enter. Result: The system displays the Candle !DB/Tools Product Selection Menu.
3	Type the appropriate number for the product you want to access in the Select Product ID field.
4	If you want to use a different extract than the one named in the field, type the extract ID in the Extract ID field.
5	Press Enter. Result: The system displays the Primary Menu for the product you selected.

Accessing !DB/Tools from OMEGAMON II under ISPF

Overview

Use this unit if you want to access !DB/Tools and you are currently using OMEGAMON II for DB2 under ISPF. Be sure you have also reviewed the unit “Prerequisites and Guidelines for Accessing !DB/Tools” on page 284.

Requirements for accessing !DB/Tools from OMEGAMON II for DB2 under ISPF

To access !DB/Tools using the instructions in this unit, you must access OMEGAMON II under ISPF by using the CLIST KO2SPF. For more information on using the CLIST, see *How to Use OMEGAMON to Tune DB2*.

Accessing !DB/Tools from OMEGAMON II for DB2 under ISPF

Follow these steps to access !DB/Tools if you are currently using OMEGAMON II for DB2 under ISPF.

Step	Action
1	On the primary options menu for OMEGAMON II for DB2, type 3 in the OPTION field.
2	Press Enter. Result: The system displays the !DB/Tools Product Selection Menu.
3	Type the appropriate number for the product you want to access in the Select Product ID field.
4	If you want to use a different extract than the one named in the field, type the extract ID in the Extract ID field.
5	Press Enter. Result: The system displays Primary Menu for the product you selected.

If a problem occurs when accessing from the primary option menu

If you access !DB/Tools from the primary option menu and if the system displays a help panel instead of the !DB/Tools Product Selection Menu, see “Requirements for Access to !DB/Tools from OMEGAMON II for DB2” on page 323.

Accessing !DB/Tools from the OMEGAMON II CUA Interface

Overview

Use this unit if you want to access !DB/Tools and you are currently using the CUA interface for OMEGAMON II for DB2. Be sure you have also reviewed the unit “Prerequisites and Guidelines for Accessing !DB/Tools” on page 284.

Requirements for accessing !DB/Tools from the CUA interface

If you are using the default function key for the CUA or TSO option available from the CUA interface of OMEGAMON II for DB2, you can use the default function key to display a pop-up to log in to TSO and then access ISPF.

For general information about the CUA interface of OMEGAMON II for DB2, see the *OMEGAMON II for DB2 User's Guide*.

Accessing !DB/Tools from the CUA interface for OMEGAMON II for DB2

After you have logged into TSO and accessed ISPF, follow these steps to access !DB/Tools.

Step	Action
1	Type the appropriate value on the command line: <ul style="list-style-type: none"> ● If you are on the TSO Command Processor panel (option 6 from the standard ISPF/PDF primary option menu), type %KTC ● If you are on any other ISPF panel, type TSO %KTC
2	Press Enter. Result: The system displays the Candle !DB/Tools Product Selection Menu.
3	Type the appropriate number for the product you want to access in the Select Product ID field.
4	If you want to use a different extract than the one named in the field, type the extract ID in the Extract ID field.
5	Press Enter. Result: The system displays Primary Menu for the product you selected.

Toggling between !DB/Tools and OMEGAMON II for DB2

If you access !DB/Tools using this method, you can use the default function key while in !DB/Tools to toggle back and forth between the OMEGAMON II and !DB/Tools sessions.

Exiting !DB/Tools

Background about exiting !DB/Tools

You can use the !DB/Tools configuration options (available in Housekeeping) to control the operation of the RETURN command and define it in the profile established for the user. You can define the RETURN command to have it function in two ways:

- display the !DB/Tools Primary Menu
- exit !DB/Tools

Exiting the product

The operation of RETURN as described in the procedure assumes that your user configuration has RETURN defined to exit !DB/Tools.

Follow these steps to end a session and exit !DB/Tools.

Step	Action
1	Return to the Primary Menu for the product you are using.
2	Press End. Result: The result varies based on your previous action. <ul style="list-style-type: none"> ● If you accessed !DB/Tools from OMEGAMON II for DB2, the system ends all other sessions and returns to your original panel or menu in OMEGAMON II (either the CUA panel or the primary options menu for OMEGAMON II). ● If you accessed !DB/Tools directly, the system exits !DB/Tools.

Security

Introduction

This chapter explains how !DB/Tools Install provides DATA, PRODUCT, and PROFILE data set security.

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Data Set Security

Overview

!DB/Tools products that use !DB/Tools Install have three categories of data sets:

- PRODUCT
- DATA
- PROFILE

This chapter lists the data sets in each category and shows the authorities needed by the installer, administrator, and users.

Caution

At this time, Candle does not support PDS/E data sets.

MVS security software

!DB/Tools work with several security software packages in MVS. These include RACF, ACF2, Top Secret, and TSO UADS.

References to the individual elements and the related software commonly reference “MVS Security” rather than discuss each alternative in detail. The following chart shows the usage of the individual element among the !DB/Tools and the various security software alternatives.

Data Elements	RACF	ACF2	Top Secret	TSO UADS
USERID	X	X	X	X
GROUPID	X	X	X	
Data Set Protection	X	X	X	

PRODUCT data sets

The following chart shows the authorities for PRODUCT data sets.

Note: See “Naming Conventions” on page 312 for an explanation of variable names shown in italics.

Data Set Name	Authorities		
	Installer	Administrator	User
<i>hilev.clist</i>	Read/Write/Create	Read/Write	Read only
<i>hilev.cntl</i>	Read/Write/Create	Read/Write	Read only*
<i>hilev.load</i>	Read/Write/Create	Read only	Execute only
<i>hilev.dbrm</i>	Read/Write/Create	Read only	Read only
<i>hilev.panels</i>	Read/Write/Create	Read/Write	Read only
<i>hilev.msgs</i>	Read/Write/Create	Read only	Read only
<i>hilev.skels</i>	Read/Write/Create	Read/Write	Read only*
<i>hilev.util</i>	Read/Write/Create	Read/Write	Read only*

*Users need Write authority if the policies at your site permit them to customize batch jobs for the DB2 utilities and run extracts.

DATA data sets

The following chart lists the authorities for partitioned data sets. You specify the names of these data sets when you tailor the variables. !DB/Tools Install automatically puts the data sets names in the appropriate JCL. See “Collecting Information for !DB/Tools Install” on page 57 and “Tailoring the Variables” on page 109 for further information.

Note: See “Naming Conventions” on page 312 for an explanation of variable names shown in italics.

Data Set Name	Authorities		
	Installer	Administrator	User
<i>hilev.db2id.prodctid.system</i>	Read/Write/Create	Read/Write	Read*
<i>hilev.db2id.prodctid.log</i>	Read/Write/Create	Read/Write	Read/Write
<i>hilev.db2id.prodctid.user</i>	Read/Write/Create	Read/Write	Read/Write
<p>Note: !DB/EXPLAIN does not use the <i>db2id</i> qualifier on the first DB2 subsystem you install. You have the option to allocate separate USER, LOG, and SYSTEM data sets and separate VSAM data sets when you install for an additional subsystem. If you take this option, !DB/Tools Install uses the <i>db2id</i> as a mid-level qualifier to identify data sets for the additional subsystem. See “Installing for Additional DB2 Subsystems” on page 173 for more information.</p> <p>!DB/QUICKCOMPARE does not use the <i>db2id</i> qualifier or the USER data set.</p> <p>*Users need Write authority if the policies at your site permit them to run extracts or create DB2 profiles.</p> <p>For more information about setting the system data set to READ only access, see “Keyword: SPX(0)” on page 354.</p>			

!DB/QUICKCHANGE uses the following additional data sets for V260 and lower.

Data Set Name	Authorities		
	Installer	Administrator	User
<i>hilev.db2id.QKC.ASM</i>	Read/Write/Create	Read/Write	Read/Write
<i>hilev.db2id.QKC.LOAD</i>	Read/Write/Create	Read/Write	Read/Write
<i>hilev.db2id.QKC.dbrm</i>	Read/Write/Create	Read/Write	Read/Write

!DB/QUICKCOMPARE uses the following additional data sets.

Data Set Name	Authorities		
	Installer	Administrator	User
<i>hilev</i> .TOOLKIT	Read/Write/Create	Read/Write	Read
<i>hilev</i> .LRS	Read/Write/Create	Read/Write	Read
<i>hilev</i> .OVERRIDE	Read/Write/Create	Read/Write	Read/Write

Extract !DB/EXPLAIN VSAM DATA data sets

The following chart lists the authorities for extract VSAM data sets.

Data Set Name	Authorities		
	Installer	Administrator	User
<i>hilev</i> .SYSCAT	Read/Write/Create	Read/Write	Read
<i>hilev</i> .SYSSTMT	Read/Write/Create	Read/Write	Read
<i>hilev</i> .PLANTBL	Read/Write/Create	Read/Write	Read/Write

Note: !DB/EXPLAIN does not use the *db2id* qualifier on the first DB2 subsystem you install. You have the option to allocate separate USER, LOG, and SYSTEM data sets and separate VSAM data sets when you install for an addition subsystem. If you take this option, !DB/Tools Install uses the *db2id* as a mid-level qualifier to identify data sets for the additional subsystem. See “Installing for Additional DB2 Subsystems” on page 173 for more information.

Change Engine DATA data sets

The following chart lists the authorities for the Change Engine DATA data sets. The Change Engine DATA data sets are used by !DB/QUICKCHANGE V500 and !DB/QUICKCOMPARE V500.

Data Set Name	Authorities		
	Installer	Administrator	User
<i>hilev</i> .CEL	Read/Write/Create	Read/Write	Read/Write
<i>hilev</i> .JCL	Read/Write/Create	Read/Write	Read/Write
<i>hilev</i> .REPORTS	Read/Write/Create	Read/Write	Read/Write

PROFILE data sets

The following chart lists the authorities for PROFILE data sets.

Data Set Name	Authorities		
	Installer	Administrator	User
<i>hilev.profile</i>	Read/Write/Create	Read/Write	Read
<i>userid.profile</i>	Read/Write/Create	Read/Write/Create	Read/Write/Create
<i>auxid.profile</i>	Read/Write/Create	Read/Write	Read

Product Security

Overview

This unit explains product security within !DB/Tools.

Description

!DB/Tools Install uses a set of control statements to restrict access to !DB/Tools data and functions.

When you install !DB/Tools the first time, each product's system data set gives maximum authority to all users. Any existing MVS and DB2 security remains in effect.

You can modify the access control statements after installation. See “!DB/Tools Access Control Statements” on page 327 for details.

Appendixes

Introduction

This appendix tells you how to determine if your extract is small, medium, or large. It also includes the formula for estimating DASD.

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Estimating DASD for !DB/EXPLAIN

Overview

When you complete the Installation Worksheet in “Collecting Information for !DB/Tools Install” on page 57 and when you fill in the variables panels, you must estimate the size of your !DB/EXPLAIN extract.

This unit defines what constitutes a small, medium, and large !DB/EXPLAIN extract.

Guidelines for estimating DASD for !DB/EXPLAIN DATA data sets

For information about estimating for !DB/EXPLAIN DATA data sets, see “Estimating Disk Storage Required by an Extract” on page 246 and “Planning for VSAM Clusters” on page 251.

Guidelines for completing the worksheet

Use the following chart to make your estimate.

See the *!DB®/EXPLAIN for DB2 User's Guide* for detail.

IF your site is ...	THEN, when you tailor the variables, specify ...
Small, with no more than <ul style="list-style-type: none"> ● 250 plans ● 300 unique DBRMs ● 250 packages (plus two generations of history) ● 60,000 statements 	Small
Up to four times larger than a small installation. <ul style="list-style-type: none"> ● 1000 plans ● 1200 unique DBRMs ● 1000 packages (plus two generations of history) ● 240,000 statements 	Medium
Up to 10 times larger than a small installation. <ul style="list-style-type: none"> ● 2500 plans ● 3000 unique DBRMs ● 2500 packages (plus two generations of history) ● 600,000 statements 	Large
Over 20 times larger than a small installation. <ul style="list-style-type: none"> ● 5000 plans ● 6000 unique DBRMs ● 5000 packages (plus two generations of history) ● 1,200,000 statements 	Extra Large

Estimating DASD for !DB/WORKBENCH

Overview

This unit gives you the DASD requirements for the product data sets for !DB/WORKBENCH, !DB/QUICKCHANGE and for the !DB/WORKBENCH extract.

Note: !DB/QUICKCHANGE also uses the !DB/WORKBENCH extract. When this guide refers to the !DB/WORKBENCH extract, it is referring to the extract used by !DB/WORKBENCH and !DB/QUICKCHANGE.

Guidelines for completing the worksheet

Use the following chart to make your estimate when you complete the worksheet in “Collecting Information for !DB/Tools Install” on page 57.

IF, in your DB2 catalog for this subsystem, your site has ...	THEN, when you tailor the variables, specify ...
no more than 1,000 tables	Small
from 1,000–5,000 tables	Medium
more than 5,000 tables	Large
more than 15,000 tables	Extra Large

Guidelines for estimating DASD for DATA data sets

The size of the SYSTEM, USER, and LOG partitioned data sets depends on your site. Many factors can impact the amount of space you need, including, but not limited to, the following:

- number of objects
- number of LAZARUS members kept
- object names (compression impact)
- number of authorizations
- customization of the extract control cards
- number of entries !DB/QUICKCHANGE writes to the LOG data set

Guidelines for estimating space for PRODUCT data sets

The following chart tells you how much space you need for !DB/WORKBENCH and !DB/QUICKCHANGE .

Data Set	WKB	WKB QKC
CLIST/EXEC	10	18
CNTL	24	24
DBRM	10	21
LOAD	125	290
MSGs	7	23
PANELS	200	300
PROFILE*	8	8
SKELS	22	28
UTIL	15	15
Total Tracks	469	700
<p>Note: The PROFILE PDS is typically site dependent. The above allocation is for only !DB/WORKBENCH and !DB/QUICKCHANGE and represents 4 DB2 subsystems.</p>		

Estimating DASD for !DB/SMU

Overview

When you complete the Installation Worksheet in “Collecting Information for !DB/Tools Install” on page 57 and when you fill in the variables panels, you must estimate the size of your !DB/SMU extract.

How !DB/Tools Install allocates space for !DB/SMU

The following chart to shows how !DB/Tools Install allocates space for the system, user, and log data sets based on the value you specify when you tailor the variables.

IF you specify ...	THEN !DB/Tools Install allocates the following blocks for System and User data sets ...	AND the following for the Log data set ...
small	20 cylinders and 64 directory entries	12 cylinders and 64 directory entries
medium	40 cylinders and 192 directory entries	40 cylinders and 128 directory entries
large	75 cylinders and 256 directory entries	60 cylinders and 256 directory entries
extra large	100 cylinders and 512 directory entries	80 cylinders and 512 directory entries

Guidelines for estimating DASD for the !DB/SMU extract

The !DB/SMU extract uses 900 bytes per record. See the *!DB®/SMU for DB2 User's Guide* for detail.

Estimating DASD for !DB/DASD

Overview

When you complete the Installation Worksheet in “Collecting Information for !DB/Tools Install” on page 57 and when you fill in the variables panels, you must estimate the size of your !DB/DASD extract.

How !DB/Tools Install allocates space for !DB/DASD

The following chart to shows how !DB/Tools Install allocates space for the system, user, and log data sets based on the value you specify when you tailor the variables.

IF you specify ...	THEN !DB/Tools Install allocates the following for System and User data sets ...	AND the following for the Log data set ...
small	2 cylinders and 32 directory entries	10 cylinders and 64 directory entries
medium	10 cylinders and 128 directory entries	30 cylinders and 128 directory entries
large	30 cylinders and 256 directory entries	50 cylinders and 256 directory entries
extra large	45 cylinders and 512 directory entries	75 cylinders and 512 directory entries

Guidelines for estimating DASD for the !DB/DASD extract

The !DB/DASD extract uses 300 bytes per record. See the *!DB@/DASD for DB2 User's Guide* for detail.

Guidelines for estimating space for DSPHIST and DSPSTAT

!DB/DASD uses the DSPHIST and DSPSTAT tables for QMF reporting.

Note: !DB/DASD is the only product that uses these tables.

Estimate the size of each of these tables by calculating 1 row per data set per extract.

To delete records from these tables, use SPUFI to delete rows. If you delete an entire table, the extract returns a completion code of 4.

Introduction

This appendix describes PRODUCT data sets by installation and DATA data sets by product.

Caution

At this time, Candle does not support PDS/E data sets.

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Naming Conventions

Overview

This unit describes Candle Corporation's recommendations for naming data sets.

Recommendations

Candle Corporation recommends using a data set naming convention that includes a high-level qualifier.

Qualifiers are prefixes in a data set name that make the data set name unique.

The *high-level qualifier* is the first prefix or set of prefixes in the data set name.

Use qualifiers that make it easy to relate data sets to a product and installation date. For example, specify the following for HILEV= for use in the load JCL:

HILEV=DBTOOLS.CANDLE

Conventions used in this document

This document uses lower-case italics in data set names to denote variable qualifiers, as described below.

hilev A high-level qualifier. The high-level qualifier is the first prefix or set of prefixes in the data set name.

db2id The DB2 ID of a DB2 subsystem. It is used as a default mid-level qualifier for some !DB/Tools data sets. The mid-level qualifier is the prefix or set of prefixes between the high-level qualifier and the last part of the data set name.

extrctid An extract ID, that is an identifier for the catalog data extracted from the DB2 catalog. It is used as a default mid-level qualifier for some !DB/Tools data sets. The mid-level qualifier is the prefix or set of prefixes between the high-level qualifier and the last part of the data set name.

prodictid A product ID, that is an identifier for the !DB/Tools product or products you are installing. It is used as a default mid-level qualifier for some !DB/Tools data sets. The mid-level qualifier is the prefix or set of prefixes between the high-level qualifier and the last part of the data set name.

Data Set Types

Overview

This unit lists and describes the data sets !DB/Tools Install uses and installs.

PRODUCT data sets

When you complete !DB/Tools Install, you have the following PRODUCT data sets.

Note: See “Naming Conventions” on page 312 for an explanation of variable names shown in italics.

Data Set	Description
<i>hilev.clis</i>	Contains the product CLISTs.
<i>hilev.cntl</i>	Contains !DB/Tools Install and the job control language (JCL) required by the !DB/Tools products.
<i>hilev.load</i>	Contains the !DB/Tools product load modules.
<i>hilev.dbrm</i>	Contains the DBRMs required to bind the product plans.
<i>hilev.panels</i>	Contains the product ISPF panels.
<i>hilev.msgs</i>	Contains the product ISPF messages.
<i>hilev.skels</i>	Contains the product ISPF skeletons.
<i>hilev.util</i>	Contains the product utility members.
<i>hilev.TCIG.BOOK</i>	Contains the <i>Installation and Customization Guide</i> in BookManager format.
<i>hilev.TxUG.BOOK</i>	Contains the !DB/Tools User's guide in BookManager format; <i>x</i> refers to the product, as follows: A !DB/QUICKCOMPARE D !DB/DASD E !DB/EXPLAIN Q !DB/QUICKCHANGE S !DB/SMU W !DB/WORKBENCH

DATA data sets

You specify the names of the DATA data sets when you tailor the variables. See “Tailoring the Variables” on page 109.

!DB/Tools Install automatically inserts the names you specify into the allocation job. See “Allocating Space for Data Sets” on page 115 for more information about the data set allocation step.

!DB/Tools Install creates partitioned data sets which contain the following members.

Note: See “Naming Conventions” on page 312 for an explanation of variable names shown in italics.

Data Set	Description
<i>hilev.db2id.prodctid.system</i>	Contains authorization information. For all !DB/Tools except !DB/EXPLAIN, this data set also contains extract information.
<i>hilev.db2id.prodctid.user</i>	Contains generated JCL and statements created by the !DB/Tools products.
<i>hilev.db2id.prodctid.log</i>	Contains information about catalog modifications and ABEND information.
<p>Note: !DB/EXPLAIN does not use the <i>db2id</i> qualifier as part of the default on the initial installation. However, when you install !DB/EXPLAIN for an additional DB2 subsystem, you have the option to allocate separate USER, LOG, and SYSTEM data sets and separate VSAM data sets. If you take this option, !DB/Tools Install uses the <i>db2id</i> as a default mid-level qualifier to identify data sets for the additional subsystem. See “Installing for Additional DB2 Subsystems” on page 173 for more information.</p> <p>!DB/QUICKCOMPARE does not use the <i>db2id</i> or the USER data set.</p>	

DATA data sets (continued)

!DB/QUICKCOMPARE uses the following data sets.

Data Set	Description
<i>hilev.TOOLKIT</i>	Contains a start PROFILE data set for !DB/QUICKCOMPARE.
<i>hilev.LRS</i>	Contains reference members for !DB/QUICKCOMPARE.
<i>hilev.OVERRIDE</i>	Used for overriding default settings for !DB/QUICKCOMPARE.

Change Engine DATA data sets

!DB/QUICKCHANGE V500 and !DB/QUICKCOMPARE V500 use the following data sets.

Data Set	Description
<i>hilev.CEL</i>	Contains the change engine language for the changes generated by !DB/QUICKCHANGE V500 and !DB/QUICKCOMPARE V500.
<i>hilev.JCL</i>	Contains the JCL for the changes generated by !DB/QUICKCHANGE V500 and !DB/QUICKCOMPARE V500.
<i>hilev.REPORTS</i>	Contains the reports for the changes generated by !DB/QUICKCHANGE V500 and !DB/QUICKCOMPARE V500.

PROFILE data sets

When you complete !DB/Tools Install, you have the following PROFILE data set:

Note: See “Documentation Conventions” on page 18 for an explanation of variable names shown in italics.

Data Set	Description
<i>hilev.profile</i>	Contains startup PROFILE information for the !DB/Tools products.

PRODUCT/PROFILE Data Sets by Installation

Overview

This unit chart gives you information about the PRODUCT data sets as they relate to an initial installation or a refresh.

Installation information about PRODUCT data sets

This chart gives you information about each PRODUCT data set and shows how an installation compares to a refresh.

Note: See “Naming Conventions” on page 312 for an explanation of variable names shown in italics.

!DB/Tools Install		
PRODUCT Data Set Type	Initial Installation (Primary and Subsequent DB2 Subsystems)	Refresh (Primary and Subsequent DB2 Subsystems)
CNTL	<i>hilev.cntl</i> Loaded from distribution tape. Cannot be shared if you have !DB/SMU and !DB/DASD installed on multiple subsystems.	<i>hilev.cntl</i> Loaded from distribution tape. Updates existing <i>cntl</i> data set.
LOAD	<i>hilev.load</i> Loaded from distribution tape. Can be shared by all DB2 subsystems running !DB/Tools products.	<i>hilev.load</i> Loaded from distribution tape. Updates existing <i>load</i> data set. Can be shared by all DB2 subsystems running !DB/Tools products.
PANELS	<i>hilev.panels</i> Loaded from distribution tape. Can be shared by all DB2 subsystems running !DB/Tools products.	<i>hilev.panels</i> Loaded from distribution tape. Updates existing <i>panels</i> data set. Can be shared by all DB2 subsystems running !DB/Tools products.
DBRM	<i>hilev.dbrm</i> Loaded from distribution tape. Can be shared by all DB2 subsystems running !DB/Tools products.	<i>hilev.dbrm</i> Loaded from distribution tape. Updates existing <i>dbrm</i> data set. Can be shared by all DB2 subsystems running !DB/Tools products.
SKELS	<i>hilev.skels</i> Loaded from distribution tape. Can be shared by all DB2 subsystems running !DB/Tools products.	<i>hilev.skels</i> Loaded from distribution tape. Can be shared by all DB2 subsystems running !DB/Tools products.
CLIST	<i>hilev.clist</i> Loaded from distribution tape. If you change the data set format to FB from VB, make sure your profile is set to NUM OFF before you attempt to edit a member or the member may be corrupted.	<i>hilev.clist</i> Loaded from distribution tape. Replaces existing <i>clist</i> data set. If you change the data set format to FB from VB, make sure your profile is set to NUM OFF before you attempt to edit a member or the member may be corrupted.

!DB/Tools Install		
PRODUCT Data Set Type	Initial Installation (Primary and Subsequent DB2 Subsystems)	Refresh (Primary and Subsequent DB2 Subsystems)
UTIL	<p><i>hilev.util</i></p> <p>!DB/Tools utility data set. Loaded from distribution tape. Can be shared by all DB2 subsystems running !DB/Tools products.</p>	<p><i>hilev.util</i></p> <p>!DB/Tools utility data set. Loaded from distribution tape. Can be shared by all DB2 subsystems running !DB/Tools products.</p>
MSGS	<p><i>hilev.msgs</i></p> <p>ISPF messages data set. Loaded from distribution tape. Can be shared by all DB2 subsystems running !DB/Tools products.</p>	<p><i>hilev.msgs</i></p> <p>ISPF messages data set. Replaces the existing messages data set if one was used. Can be shared by all DB2 subsystems running !DB/Tools products.</p>
PROFILE	<p><i>hilev.profile</i></p> <p>PROFILE data set. Initialized by !DB/Tools Install. Tailored during the installation process.</p>	<p><i>hilev.profile</i></p>
TOOLKIT	<p><i>hilev.KTA.TOOLKIT</i></p> <p>Loaded from distribution tape. Used only by !DB/QUICKCOMPARE. Initialized by !DB/Tools Install.</p>	<p><i>hilev.KTA.TOOLKIT</i></p> <p>Contains a startup PROFILE information for !DB/QUICKCOMPARE.</p>

DATA Data Sets by Product

Overview

This unit gives you information about DATA data sets for the various !DB/Tools.

Compression routines and the system PDS

Avoid running any compression routine against the system PDS unless you plan to run a new extract. If you compress the system data set, you must run a new extract.

Product information about DATA data sets

The chart on the following pages shows which DATA data sets each product uses and gives information specific to the data set/product relationship.

Note: See “Documentation Conventions” on page 18 for an explanation of variable names shown in italics.

Data Set Type	!DB/WORKBENCH	!DB/SMU	!DB/DASD	!DB/EXPLAIN	!DB/QUICKCHANGE	!DB/MIGRATOR	!DB/QUICKCOMPARE
SYSTEM	<i>hilev.db2id.WKB.system</i> Stores extract data, restore facility (Lazarus) data, utility profile, exit, and authorization information.	<i>hilev.db2id.SMU.system</i> Stores extract and authorization information. Cannot be shared with any other product.	<i>hilev.db2id.DSD.system</i> Stores information about DB2 DASD space utilization and authorization. Cannot be shared with any other product.	<i>hilev.EXP.system</i> <i>hilev.db2id.EXP.system</i> (The second format is optional for installations for additional DB2 subsystems only.) Stores authorizations and recommendations information. Cannot be shared with any other product.	<i>Must use the !DB/WORKBENCH system data set.</i>	Not applicable.	<i>hilev.KTA.system</i> Stores authorization information.
USER	<i>hilev.db2id.WKB.user</i> Saves the JCL and statements that !DB/Tools creates. !DB/WORKBENCH, !DB/MIGRATOR, and !DB/QUICKCHANGE in a single DB2 subsystem share the same !DB/WORKBENCH User data set.	<i>hilev.db2id.SMU.user</i> Saves the JCL and statements that !DB/Tools creates.	<i>hilev.db2id.DSD.user</i> Stores generated JCL for image copies and data set moves.	<i>hilev.EXP.user</i> <i>hilev.db2id.EXP.user</i> (The second format is optional for installations for additional DB2 subsystems only.) Contains user-created macros and user-generated SQL.	<i>Must use the !DB/WORKBENCH user data set.</i>	Not applicable.	Not applicable.
LOG	<i>hilev.db2id.WKB.Jog</i> Records any update activity against the DB2 catalog. Stores any SNAP dumps the product creates when ABENDs occur. !DB/WORKBENCH, !DB/MIGRATOR, and !DB/QUICKCHANGE in a single DB2 subsystem share the same !DB/WORKBENCH Log data set.	<i>hilev.db2id.SMU.Jog</i> Records any update activity against the DB2 catalog. Stores any SNAP dumps the product creates when ABENDs occur.	<i>hilev.db2id.DSD.Jog</i> Stores information about data set movement, catalog modifications, and any ABENDs.	<i>hilev.EXP.Jog</i> <i>hilev.db2id.EXP.Jog</i> (The second format is optional for installations for additional DB2 subsystems only.) Stores ABEND information.	<i>Must use the !DB/WORKBENCH log data set.</i>	Not applicable.	<i>hilev.KTA.Jog</i> Stores information about activity and errors.
EXTRACT	Stored in the SYSTEM data set	Stored in the SYSTEM data set	Stored in the SYSTEM data set	<i>hilev.SYSCAT</i> <i>hilev.SYSTMT</i> <i>hilev.PLANTBL</i> <i>hilev.db2id.SYSCAT</i> <i>hilev.db2id.SYSTMT</i> <i>hilev.db2id.PLANTBL</i> Stores extract information in VSAM files. Extract IDs can share this data set, but may suffer performance decreases during merge extracts.	Uses the !DB/WORKBENCH extract.	Not applicable.	Not applicable.
TTEVSAM	Not applicable.	Not applicable.	Not applicable.	<i>hilev.TTEVSAM</i> Initializes the !DB/EXPLAIN extract data sets.	Not applicable.	Not applicable.	Not applicable.
ASM	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.
LOAD	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<i>hilev.db2id.QKC.LOAD</i> Stores load modules for performing data unloads. Can be shared across multiple DB2 subsystems.	Not applicable.	Not applicable.
DBRM	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<i>hilev.db2id.QKC.dbrm</i> Stores DBRM members for performing data unloads. Cannot be shared across multiple DB2 subsystems.	Not applicable.	Not applicable.
TOOLKIT	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<i>hilev.TOOLKIT</i> Contains startup PROFILE information for !DB/QUICKCOMPARE.
LRS	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<i>hilev.LRS</i> Contains reference members for !DB/QUICKCOMPARE.
OVERRIDE	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	Not applicable.	<i>hilev.OVERRIDE</i> Used for overriding default settings for !DB/QUICKCOMPARE.

Data Set Type	!DB/WORKBENCH	!DB/SMU	!DB/DASD	!DB/EXPLAIN	!DB/QUICKCHANGE	!DB/MIGRATOR	!DB/QUICKCOMPARE
DOCUMENT	hilev.TWUG.BOOK Contains the !DB/WORKBENCH User's Guide in BookManager format.	hilev.TSUG.BOOK Contains the !DB/SMU User's Guide in BookManager format.	hilev.TDUG.BOOK Contains the !DB/DASD User's Guide in BookManager format.	hilev.TEUG.BOOK Contains the !DB/EXPLAIN User's Guide in BookManager format.	hilev.TQUG.BOOK Contains the !DB/QUICKCHANGE User's Guide in BookManager format.	Not applicable.	hilev.TAUG.BOOK Contains the !DB/QUICKCOMPARE User's Guide in BookManager format.

Appendix C. Requirements for Access to !DB/Tools from OMEGAMON II for DB2

Introduction

This appendix gives you the requirements for accessing !DB/Tools from OMEGAMON II for DB2.

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Overview

Overview

This unit tells you when to use this appendix.

When to use this appendix

If you want to be able to access any of the !DB/Tools from OMEGAMON II for DB2 by using option 3 on the primary option menu, review the requirements contained in this unit. (If you do plan to access !DB/WORKBENCH from the CUA interface for OMEGAMON II for DB2, you do not need to meet the requirements covered in this unit.)

Requirements for Access

Overview

This unit describes specific requirements for accessing !DB/Tools from OMEGAMON II.

Requirements

To access any of the !DB/Tools from the primary option menu for OMEGAMON II for DB2, you must be sure that the KTC CLIST is available from the SYSPROC concatenation. The KTC CLIST is in the *hilev*.CLIST data set.

Note: You must be using OMEGAMON II for DB2 version 260 and above.

The chart below shows what can happen when you use option 3 on the primary menu for OMEGAMON II for DB2.

IF the KTC CLIST ...	THEN the system displays ...
is available,	the !DB/Tools Product Selection Menu.
is not available,	a panel with information about the !DB/Tools.

Requirements for Access

Appendix D. !DB/Tools Access Control Statements

Introduction

This appendix describes access control statements, how they work, and how to edit them. It also tells you how to write replaceable program modules (user written exits) and copy the authorization exits from one installation to another.

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Overview of the Appendix

Organization of information in the appendix

This appendix contains introductory information about control statements. The information is presented in this order:

- a description of what a control statement is and how it works
- information about how to edit control statements

Additional information in the appendix

The appendix also contains reference information about these topics:

- control statement keywords
- user-written exits

What Is a Control Statement?

Control statement description

A set of control statements restricts access to !DB/Tools data and functions. The statements provide two kinds of information: *whom* and *what*.

Whom Specified by USERID and GROUPLD. These include:

Control Statement Keyword	Description
UID	USERIDs
GRP	GROUPLDs

What Given by a set of specifications describing the !DB/Tools objects and authorities.

For more detail, see the unit “Required keywords and their descriptions” on page 335.

How Control Statements Work

Overview

This unit tells you how control statements work.

Description of how control statements work

When you install !DB/Tools the first time, the control statement member in the system PDS of each product gives maximum authority to all users.

The system selects the control statement to use by

1. sequentially reading each statement, first to last
2. comparing the UID() or GRP() keywords of each statement for a match with the USERID or GROUPLD of the TSO user or job submitter

When the first match occurs, the system selects the statement without searching further. The system uses all authorities and exclusions on the MATCHED control statement. This includes all keywords and each name that matches the model in the list for the keyword.

Note: The system uses only the first match statement to determine USERID authorities.

If the system does not find a match for any control statement (in other words, it reaches the end of the file without a match), the user has no authorities.

Editing Control Statements

Overview

This unit tells you how to edit control statements, including a description of syntax rules and the use of wild cards.

Procedure

Use ISPF EDIT to prepare control statements. The following chart walks you through the process.

Step	Action
1	<p>Access Authorizations, as follows:</p> <p>!DB/EXPLAIN Select Authorizations on the !DB/EXPLAIN Primary Menu.</p> <p>!DB/WORKBENCH Select Housekeeping on the !DB/WORKBENCH Primary Menu. Select Authorizations on the Housekeeping Menu.</p> <p>!DB/SMU Select Housekeeping on the !DB/SMU Primary Menu. Select Exits on the Administrative Functions panel.</p> <p>!DB/DASD Select Housekeeping on the !DB/DASD Primary Menu. Select Exits on the Admin Menu.</p> <p>All ISPF EDIT facilities are available.</p> <p>Each product set requires a separate set of control statements, as follows:</p> <ul style="list-style-type: none"> ● One set for !DB/DASD ● One set for !DB/EXPLAIN ● One set for !DB/QUICKCHANGE ● One set for !DB/SMU ● One set for !DB/WORKBENCH <p>Note: You must have read/write authority on the product system data set to update control statements. Candle recommends this authority be given only to administrators. Users should have read only authority on the system data set.</p>
2	<p>When you have finished editing, use the END command.</p> <p>Result: The system checks the control statements for syntax.</p> <ul style="list-style-type: none"> ● If no syntax errors exist, the system encrypts the control statements, saves them in the extract data set, and terminates the edit session. ● If syntax errors do exist, the system displays the error diagnostics and gives you the choice of continuing the edit or terminating it without a save.

Syntax rules

- A comment statement is indicated by an * in column 1.
- A statement can be continued by a + or - at the end of a record. No data that occurs on the same line to the right of the + or - is scanned and can be treated as a comment phrase.
- Control statements are 80-byte fixed-length records with bytes 73–80 ignored. If you want, you can use bytes 73–80 as a sequence number field.
- UID or GRP must be the first keyword within a statement.

Wild card use

You can choose characters for participation in a name-to-name model comparison using the following rules:

- When the name model has an asterisk in a non-ending position, any character can occupy that position in the actual name.
- When the name model has an asterisk in the end position, any character can occur in that and all subsequent positions of the actual name.

A match exists when all participating characters in the actual name are equal, both in value and position, to those in the name model.

Control Statement Keywords

Model lists

Control statement keywords use lists of name models to specify name selections. There are six name model types. They include models specific to: USERIDs, GROUPIDs, database names, plan names, package names, volume serial numbers, and storage group names.

A list of model names is a set of individual model names separated by blanks or commas.

!DB/Tools Install sets up the following control statement model name list automatically.

```
UID(*) DBD(*) OPTS CTLG AUTH ZPRM IDFA
```

You can add more model lists through the Authorizations option from the !DB/Tools product if you have OPTS authority. For example,

```
UID(TSDB*) DBD(DSNDB*) OPTS CTLG AUTH ZPRM IDFA
UID(TSL2*) DBD(*) OPTS CTLG AUTH ZPRM IDFA
UID(XDD1*) NBD(*) OPTS AUTH ZPRM IDF
UID(*) DBD(*) OPTS CTLG AUTH ZPRM IDFA
```

See the following pages for a detailed explanation of each of the control statement key words.

Required keywords and their descriptions

The following chart summarizes the use of control statement keywords by product.

Keyword	Description	!DB/WORKBENCH !DB/QUICKCHANGE	!DB/SMU	!DB/DASD	!DB/EXPLAIN
AUTH	Display of global authorizations	O			
CTLG	Online extract command authority	O	O		
DBD() or NDB()	Database authority	R	R	R	
ECP	Catalog purge authority				O
ECX	Catalog extract authority				O
ENBI	Disallows BIND functions				O
ENDL	Disallows deletion of libraries from the Libraries panel				O
ENFR	Disallows FREE functions				O
ENRE	Disallows REBIND functions				O
EXBI	Disallows BIND authority				O
EPP	PLAN_TABLE purge authority				O
EPX	PLAN_TABLE extract authority				O
EUP	Permanent catalog update authority				O
EWB	Temporary catalog update authority				O
HEXD	Hex dump of database	O			
IDF	Direct catalog display	O			
IDFA	Direct catalog display requiring SCAN	O			
MOVE	MOVE JCL authority			O	
OPTS	Options usage	O	O	O	O
PKG() or NPK()	Package authority				R
PLN() or NPL()	Plan authority				R
QKCOPTS	Authority to change library options in !DB/QUICKCHANGE	R (for !DB/QUICKCHANGE)			
SGP() or NSG()	Storage group authority			O	
SPX(0)	Extract data set update authority	O	O	O	
UID() or GRP()	User/group authority	R	R	R	R
VOL() or NVL()	Volume serial authority			O	
ZPRM	Display DSNZPARM member	O			

Legend: R—Required; O—Optional; Blank—Ignored

Keyword: AUTH

FUNCTION: Allows display of global DB2 authorization displays using the Z select on the !DB/WORKBENCH Primary display.

AUTH is not required for a use of the Z select on an object. (That is, to see the DB2 authorizations for a selected object.)

PRODUCTS: AUTH can be used with !DB/WORKBENCH.

DEFAULTS: The absence of AUTH disallows the displays.

EXAMPLE:

UID(ET*, TY*) DBD(DPAY*) AUTH

Keyword: CTLG

- FUNCTION:** Allows online extract execution.
- PRODUCTS:** CTLG can be used with !DB/WORKBENCH and !DB/SMU.
- EXCLUSIONS:** When CTLG is specified, SPX(0) must be omitted because it would disallow writing to the extract data set.
- DEFAULTS:** If CTLG is omitted, online extract is not allowed.
- MVS SECURITY:** The MVS security system must allow writing to the extract data set, if not, S913 ABENDs occur.
- MESSAGES:** S913 ABEND
- EXAMPLES:**

```
GRP(HPE,WS*) SGP(SGACCT) CTLG
UID(*) NSG(PAYROLL SWISSACT) CTLG
```

Keywords DBD or NDB

DBD(db_model_list) or NDB(db_model_list)

- FUNCTION:** Identifies a set of databases whose descriptions can be accessed (DBD() usage) or cannot be accessed (NDB() usage).
This control allows or prevents the movement of database descriptions from the extract data set into memory, with their resulting availability to the user. The effect is that of a permanent filter.
- PRODUCTS:** Either DBD() or NDB() are required with !DB/WORKBENCH and !DB/QUICKCHANGE, !DB/SMU, and !DB/DASD.
- EXCLUSIONS:** DBD() and NDB() cannot appear in the same statement.
- DEFAULTS:** An absence of DBD() and NDB() denies access to any database description and results in a 1003 error.
- MESSAGES:** 1003 NO DBDS AUTHORIZED FOR THIS USERID - NO DISPLAYS
- EXAMPLES:**

```
UID(ORSEN @HAL) DBD(DAP* DAR* DGL*)
UID(ERT*, TYU81*, TYU85*) NDB(DPAY*)
```

Keyword: ECP

- FUNCTION:** Allows purging of PLAN_TABLE.
- PRODUCTS:** ECP can be used with !DB/EXPLAIN.
- DEFAULTS:** If ECP is omitted, purging of the catalog extract is not permitted.

EXAMPLES:

```
UID(TAH*, YPT*) OPTS EPX ECX EPP ECP EWH EUP
```

Keyword: ECX

- FUNCTION:** Allows update of catalog extract.
- PRODUCTS:** ECX can be used with !DB/EXPLAIN.
- DEFAULTS:** If ECX is omitted, update of the catalog extract is not permitted.

EXAMPLES:

```
UID(TAH*, YPT*) OPTS EPX ECX EPP ECP EWH EUP
```

Keyword: ENBI

- FUNCTION:** Disallows BIND functions.
- PRODUCTS:** ENBI can be used with !DB/EXPLAIN.
- DEFAULTS:** If ENBI is omitted, BIND functions are permitted.
- EXAMPLES:**

UID(TAH*, YPT*) OPTS ENBI ENDL ENFR ENRE

Keyword: ENDL

- FUNCTION:** Disallows deletion of libraries from the Libraries panel.
- PRODUCTS:** ENDL can be used with !DB/EXPLAIN.
- DEFAULTS:** If ENDL is omitted, deletion of libraries from the Libraries panel is permitted.
- EXAMPLES:**

UID(TAH*, YPT*) OPTS ENBI ENDL ENFR ENRE

Keyword: ENFR

- FUNCTION:** Disallows FREE functions.
- PRODUCTS:** ENFR can be used with !DB/EXPLAIN.
- DEFAULTS:** If ENFR is omitted, deletion of libraries from the Libraries panel is permitted.

EXAMPLES:

```
UID(TAH*, YPT*) OPTS ENBI ENDL ENFR ENRE
```

Keyword: ENRE

- FUNCTION:** Disallows REBIND functions.
- PRODUCTS:** ENRE can be used with !DB/EXPLAIN.
- DEFAULTS:** If ENRE is omitted, REBIND functions are permitted.

EXAMPLES:

```
UID(TAH*, YPT*) OPTS ENBI ENDL ENFR ENRE
```

Keyword: EXBI

- FUNCTION:** Disallows REBIND authority.
- PRODUCTS:** EXBI can be used with !DB/EXPLAIN.
- DEFAULTS:** If EXBI is omitted, generation of JCL to BIND !DB/EXPLAIN Packages and Plans is not permitted.

EXAMPLES:

```
UID(DBA*) PLN(*) PKG(*) EWH EUP EPP EPX ECP
ECX OPTS EXBI UID(*) PLN(*) PKG(*) EWH
EUP EPP EPX ECP ECX
```

Keyword: EPP

- FUNCTION:** Allows deletion of EXPLAIN history from PLAN_TABLE extract.
- PRODUCTS:** EPP can be used with !DB/EXPLAIN.
- DEFAULTS:** If EPP is omitted, deletion of !DB/EXPLAIN history from the PLAN_TABLE extract is not permitted.
- EXAMPLES:**

UID(TAH*, YPT*) OPTS EPX ECX EPP ECP EWH EUP

Keyword: EPX

- FUNCTION:** Allows update of PLAN_TABLE extract.
- PRODUCTS:** EPX can be used with !DB/EXPLAIN.
- DEFAULTS:** If EPX is omitted, update of the PLAN_TABLE extract is not permitted.
- EXAMPLES:**

UID(TAH*, YPT*) OPTS EPX ECX EPP ECP EWH EUP

Keyword: EUP

FUNCTION: Allows permanent update of DB2 catalog (WHATIF with update).

PRODUCTS: EUP can be used with !DB/EXPLAIN.

EXCLUSIONS: EWH must be used with EUP or permanent update is not permitted.

DEFAULTS: If EUP is omitted, permanent update of the DB2 catalog is not permitted.

DB2 SECURITY: If dynamic SQL is specified in Housekeeping, update authority on the DB2 catalog is needed *in addition to EUP*.

EXAMPLES:

UID(TAH*, YPT*) OPTS EPX ECX EPP ECP EWH EUP

Keyword: EWH

- FUNCTION:** Allows temporary update of DB2 catalog (WHATIF without update).
- PRODUCTS:** EWH can be used with !DB/EXPLAIN.
- DEFAULTS:** If EWH is omitted, temporary update of the DB2 catalog is not permitted.
- DB2 SECURITY:** If dynamic SQL is specified in Housekeeping, update authority on the DB2 catalog is needed *in addition to EWH*.

EXAMPLES:

UID(TAH*, YPT*) OPTS EPX ECX EPP ECP EWH EUP

Keyword: GRP

See UID

Keyword: HEXD

FUNCTION: Allows the use of the hexdump function on a table space or index. (The H select option from !DB/WORKBENCH.)

PRODUCTS: HEXD can be used with !DB/WORKBENCH.

DEFAULTS: If HEXD is omitted, the hexdump function is not permitted.

DB2 SECURITY: Hexdump does not go through DB2 to access a data set, thus DB2 control mechanisms do not function to restrict access by hexdump. For this reason, access control over hexdump depends on HEXD and the MVS security system.

EXAMPLES:

UID(TAH*, YPT*) DBD(EQP*) HEXD

Keyword: IDF

FUNCTION: Allows direct access to the DB2 catalog using interactive displays through the !DB/WORKBENCH Q select for the IDF displays which do not require a table space scan of the DB2 catalog.

PRODUCTS: IDF can be used with !DB/WORKBENCH.

DEFAULTS: If both IDF and IDFA are not specified, no direct catalog displays are allowed. If IDF is not specified but IDFA is, all direct catalog displays are allowed.

DB2 SECURITY: Select authority on DB2 catalog tables is required.

EXAMPLES:

UID(UMS*, WW1*) DBD(AIF*) IDF

Keyword: IDFA

FUNCTION: Allows direct access to the DB2 catalog using interactive displays through the !DB/WORKBENCH Q select for the IDF displays.

(With or without a requirement of a table space scan of the DB2 catalog)

PRODUCTS: IDFA can be used with !DB/WORKBENCH.

DEFAULTS: If both IDF and IDFA are not specified, direct catalog displays are not allowed. If IDFA is not specified but IDF is, only direct catalog displays without a table space scan are allowed.

DB2 SECURITY: Select authority on DB2 catalog tables is required.

EXAMPLES:

UID(V6U9MS*, WIDW1*) DBD(SAKIF*) IDFA

Keyword: MOVE

- FUNCTION:** Allows the MOVE JCL facility of !DB/DASD to be used.
- PRODUCTS:** MOVE can be used with !DB/DASD. If MOVE is specified on the control statements of !DB/WORKBENCH, it functions as a CTLG keyword.
- DEFAULTS:** If MOVE is omitted, MOVE JCL is not permitted.
- EXAMPLES:**

```
UID(HPE* @JCN*) DBD(DA*) MOVE  
UID(ERT*, TYU81*, TYU85*) NDB(DPAY*) MOVE
```

Keyword: NDB

See DBD.

Keyword: NPL

See PLN.

Keyword: NSG

See SGP.

Keyword: NVL

See VOL.

Keyword: OPTS

- FUNCTION:** This keyword allows you to
- Update system options
 - Update, rename, and delete control statements in the system data set

Make these updates through Housekeeping in all the !DB/Tools except !DB/EXPLAIN. In !DB/EXPLAIN, make these updates through Authorizations.

PRODUCTS: OPTS can be used with all !DB/Tools products.

EXCLUSIONS OPTS cannot be specified with SPX(0). (See “Keyword: SPX(0)” on page 354.)

DEFAULTS: When OPTS is omitted, update of system options and control statements is not permitted.

MESSAGES: NOT AUTHORIZED TO UPDATE

EXAMPLES:

```
UID(ORSEN @HAL) DBD(DAP* DAR* DGL*) OPTS
UID(ERT*, TYU81*, TYU85*) NDB(DPAY*) OPTS
```

Keywords PKG or NPK**PKG(pkg_model_list) or NPK(pkg_model_list)**

FUNCTION: Identifies a set of packages whose descriptions can be accessed (PKG() usage) or cannot be accessed (NPK() usage). This control allows or prevents the movement of package descriptions from the extract data set into memory, with their resulting availability to the user. The effect is that of a permanent filter.

PRODUCTS Either PKG() or NPK() are required with !DB/EXPLAIN.

EXCLUSIONS: PKG() and NPK() cannot appear in the same statement.

DEFAULTS: An absence of both PKG and NPK denies access to all package descriptions.

EXAMPLES:

```
UID(G* #KQN*) PLN(PAP* PAR* PGLH*) PKG(PAP* PAR* PGLH*)
UID(ERT*, TYU*) NPL(PPAY*) NPK(PPAY*)
GRP(HPE WS*) NPL(PPAY*) NPK(PPAY*)
UID(*) PLN(P*) PKG(P*)
```

Keywords PLN or NPL**PLN(pln_model_list) or NPL(pln_model_list)**

- FUNCTION:** Identifies a set of plans whose descriptions can be accessed (PLN() usage) or cannot be accessed (NPL() usage). This control allows or prevents the movement of plan descriptions from the extract data set into memory, with their resulting availability to the user. The effect is that of a permanent filter.
- PRODUCTS** Either PLN() or NPL() are required with !DB/EXPLAIN. If PLN() or NPL() are specified on the control statements for !DB/WORKBENCH, !DB/SMU, or !DB/DASD they function as DBD() and NDB() respectively.
- EXCLUSIONS:** PLN() and NPL() cannot appear in the same statement.
- DEFAULTS:** An absence of both PLN and NPL denies access to all plan descriptions.
- EXAMPLES:**

```
UID(G* #KQN*) PLN(PAP* PAR* PGLH*)
UID(ERT*, TYU*) NPL(PPAY*)
GRP(HPE WS*) NPL(PPAY*)
UID(*) PLN(P*)
```

Keyword: QKCOPTS

FUNCTION: Gives you authority to set up or change library options in !DB/QUICKCHANGE.

PRODUCTS QKCOPTS is required with !DB/QUICKCHANGE.

DEFAULTS: Everyone has authority to set up or change library options in !DB/QUICKCHANGE.

EXAMPLE:

UID(TAH*) QKCOPTS

Keywords SGP or NSG

SGP(stogroup_model_list) or NSG(stogroup_model_list)

FUNCTION: Identifies a set of storage groups whose descriptions can be accessed (SGP() usage) or cannot be accessed (NSG() usage). This control allows or prevents the movement of storage group descriptions from the extract data set into memory with their resulting availability to the user. The effect is that of a permanent filter.

PRODUCTS: Either SGP() or NSG() can be used with !DB/DASD.

EXCLUSIONS: SGP() and NSG() cannot appear in the same statement.

DEFAULTS: An absence of both SGP() and NSG() denies access to all storage group descriptions.

EXAMPLES:

**GRP(HPE,WS*) SGP(SGACCT)
UID(*) NSG(PAYROLL SWISSACT)**

Keyword: SPX(0)

- FUNCTION:** Prevents writing and updating access to the extract data set. Program OPEN of the extract data set is done without an OUTPUT option.
- PRODUCTS:** SPX(0) can be used with !DB/WORKBENCH, !DB/QUICKCHANGE, !DB/DASD, and !DB/SMU.
- EXCLUSIONS:** SPX(0) cannot be specified with OPTS or CTLG; both require that the system data set be updated (that is, OPENed with an OUTPUT option). SPX(0) is also inconsistent with an MVS security specification that allows write/update.
- Caution for !DB/WORKBENCH:** You can use Houskeeping option 4, Update Authorizations Info, and SPX(0) to restrict access to the authorizations member. *However*, you must also prevent access by omitting OPTS from option 3, !DB/WORKBENCH Configuration Info. (See “Keyword: OPTS” on page 350.)
- ARGUMENTS:** A value of “0” is required.
- DEFAULTS:** When SPX(0) is omitted, the writing and updating of the system data set is allowed by the program. (OPEN is done with an OUTPUT option.)
- MVS SECURITY:** Read Only (input) or Read/Write (input/output) specifications using SPX(0) should have analogous specifications made to the MVS security system in use. System ABENDs (S913) can occur if this issue is ignored.
- EXAMPLES:**

```
UID(ORSEN @HAL) DBD(DAP* DAR* DGL*) SPX(0)
UID(ERT*, TYU81*, TYU85*) NDB(DPAY*) SPX(0)
```

Keywords UID or GRP**UID(uid_model_list) or GRP(grp_model_list)**

FUNCTION: Identifies the user, set of users, user group, or set of user groups who are to have the authorities given on the control statement.

PRODUCTS: UID() or GRP() are required with all !DB/Tools products.

EXCLUSIONS: UID() and GRP() cannot appear on the same control statement.

MVS SECURITY: The value to be matched is taken from MVS security.

EXAMPLES:

```
UID(ORSEN @HAL)
UID(ERT*, TYU81*, TYU85*)
UID(*)
GRP(HPE, WS*)
GRP(TY* TW11*)
```

Keywords VOL or NVL

VOL(vol_model_list) or NVL(vol_model_list)

FUNCTION: Identifies a set of volumes whose descriptions can be accessed (VOL() usage) or cannot be accessed (NVL() usage). This control allows or prevents the movement of volume descriptions from the extract data set into memory, with their resulting availability to the user. The effect is that of a permanent filter.

PRODUCTS: Either VOL() or NVL() can be used with !DB/DASD.

EXCLUSIONS: VOL() and NVL() cannot appear in the same statement.

DEFAULTS: An absence of both VOL() and NVL() denies access to all volume descriptions.

EXAMPLES:

```
GRP(HPE,WS*) VOL(VGA* VAP* VAR*)  
UID(*) NSG(PAYROLL SWISSACT)
```

Keyword: ZPRM

FUNCTION: Allows display of DB2 DSNZPARM values using the ZP select on !DB/WORKBENCH primary menu.

PRODUCTS: ZPRM can be used with !DB/WORKBENCH.

DEFAULTS: If ZPRM is omitted, the display is not permitted.

EXAMPLE:

UID(ETA*, TYP*) DBD(DP*) ZPRM

User-Written Exits

Overview

This unit describes how to install a user authorization exit for customized access control.

Note: User-written exits are available only in !DB/WORKBENCH and !DB/QUICKCHANGE.

Installing a User Exit for customized access control

!DB/WORKBENCH and !DB/QUICKCHANGE provide security through the Authorization Exit routine. However, if you have site-specific security requirements, you can replace the Candle standard authorization exit with your own user-written exit.

Important

The standard exit provides authorization checking and access control for the DB/Tools object management suite of products, !DB/WORKBENCH and !DB/QUICKCHANGE.

A user-written exit replaces the standard exit and provides only the security and control you define.

If you need to maintain the same level of control provided by the standard authorization exit, you must provide this security when writing your exit.

Before you begin

The customization procedure requires you to modify and re-assemble a sample user exit, modify a CLIST, and activate the exit by performing related menu tasks. Before beginning, familiarize yourself with the procedure and the sample user exit, KTCUSRAX. KTCUSRAX is located in the CNTL library.

Procedure

To install the user-written exit, follow these steps.

Step	Action
1	Create your user exit using routine KTCUSRAX as a model. You can name your exit anything that is not already used by Candle.
2	Assemble and link your exit using standard MVS linkage conventions. See “Sample JCL” on page 361 for sample JCL.
3	Add the following user exit library allocation statement to your DB/Tools startup KTC CLIST before the call to ISPF. ALLOC FI(USERXLIB) DA(your.loadlib) SHR REUSE where <i>your.loadlib</i> is the load library name containing your exit.
4	Copy member .OPTLSD into a private dataset using ISPF/PDF Option 3.3, the MOVE/COPY utility. Member .OPTLSD is located in the !DB/WORKBENCH System PDS.
5	Access Housekeeping within the product.
6	Select Update Authorizations Info from the Housekeeping menu.
7	Type the name of your user exit in the Access Exit field by typing over the default value, STD. Note: If you are reactivating the standard authorization exit, type STD over the name of the user exit.
8	Exit the product. The product automatically invokes your user exit the next time you enter the product.

If the user exit does not work

If the user exit does not work, restore the .OPTLSD member with the copy of the original routine. This returns you to the configuration used prior to your changes. You can then correct any problems in your user exit and repeat steps 5–8 above until you are satisfied with the function of your exit.

KTCUSRAX registers

KTCUSRAX uses the following registers:

Register	Description
Register 1	<p>Register 1 points to a 3-word address list:</p> <p>Word 1 The address of a full word function code. This code is always zero for the authorization exit.</p> <p>Word 2 The address of the 8-character TSO user ID.</p> <p>Word 3 Can have two values:</p> <ul style="list-style-type: none"> ● A full word of zeros for the initialization call, or ● The address of the DBD name of a specific DB2 data base.
Register 15	<p>Gives the return code at exit.</p> <p>Possible values are</p> <ul style="list-style-type: none"> ● 0 = grant access ● 4 = deny access

Sample JCL

Here is an example of JCL for setting up and linking your user exit. Modify it for your own environment.

```

//JOB NAME   JOB    your job card
//ASM       EXEC   PGM=IEV90,REGION=4M,PARM=' LOCAK,NODECK,
//           XREF (SHORT),RENT '
//SYSIN     DD     DSN=your.source.asm(KTCUSRAX),DISP=SHR
//SYSLIB    DD     DSN=your.maclibs,DISP=SHR
//           DD     DSN=SYS1.AMODGEN,DISP=SHR
//           DD     DSN=SYS1.MACLIB,DISP=SHR
//SYSLIN    DD     DSN=your.obj(KTCUSRAX),DISP=SHR
//SYSPRINT  DD     SYSOUT=*
//SYSTEM    DD     SYSOUT=*
//SYSUT1    DD     UNIT=VIO,SPACE=(CYL,(5,5))
//LKED      EXEC   PGM=IEWL,
//           PARM=(LET,LIST,MAP,XREF,RENT)
//SYSPRINT  DD     SYSOUT=*
//SYSLIB    DD     DSN=your.work.obj,DISP=SHR
//OBJ       DD     DSN=your.obj,DISP=SHR
//SYSUT1    DD     DSN=&&SYSUT1,UNIT=VIO,SPACE=(1024,(75,20))
//SYSLMOD   DD     DSN=your.loadlib,DISP=SHR
//SYSLIN    DD     *
           INCLUDE OBJ(KTCUSRAX)
           ENTRY  KTCUSRAX
           NAME   KTCUSRAX(R)

```

Note: KTCUSRAX is reentrant and 31-bit mode (AMODE 31 RMODE ANY).

Copying Authorization Exits from One Installation to Another

Overview

When you install on another subsystem, you can either redefine the authorizations for products or copy the existing authorization exits. This unit tells you how to make a copy of existing authorization exits for another installation.

Procedure for copying authorizations for another installation

Use this procedure to make a copy of existing authorization exits for another installation.

Step	Action												
1	Enter 3.3 on the ISPF command line. Result: This initiates the ISPF Move/Copy Utility facility.												
2	Use the Copy and Replace options to copy the appropriate member from your current SYSTEM PDS to the SYSTEM PDS for the other installation. The following members contain the authorization exits. <table> <thead> <tr> <th>Product</th> <th>SYSTEM PDS Member Name</th> </tr> </thead> <tbody> <tr> <td>!DB/DASD</td> <td>.EXDSDC1</td> </tr> <tr> <td>!DB/EXPLAIN</td> <td>.KTEAUTHR</td> </tr> <tr> <td>!DB/QUICKCHANGE</td> <td>.EXV2CTA</td> </tr> <tr> <td>!DB/SMU</td> <td>.EXSFSC1</td> </tr> <tr> <td>!DB/WORKBENCH</td> <td>.EXV2CTL</td> </tr> </tbody> </table>	Product	SYSTEM PDS Member Name	!DB/DASD	.EXDSDC1	!DB/EXPLAIN	.KTEAUTHR	!DB/QUICKCHANGE	.EXV2CTA	!DB/SMU	.EXSFSC1	!DB/WORKBENCH	.EXV2CTL
Product	SYSTEM PDS Member Name												
!DB/DASD	.EXDSDC1												
!DB/EXPLAIN	.KTEAUTHR												
!DB/QUICKCHANGE	.EXV2CTA												
!DB/SMU	.EXSFSC1												
!DB/WORKBENCH	.EXV2CTL												

Migrating Access Control Statements

Overview

This unit tells you how to migrate existing access control statements for the !DB/Tools.

Background

The !DB/Tools store access control statements in the system PDS. You can migrate the appropriate member in the system PDS to avoid recreating these entries.

Migrating Access Control Statements

Follow these steps to migrate access control statements across releases of !DB/Tools.

Step	Action												
1	Enter 3.3 on the ISPF command line. Result: This initiates the ISPF Move/Copy Utility facility.												
2	Use the Copy and Replace options to copy the appropriate member from your old SYSTEM PDS to the SYSTEM PDS for the new installation. The following members contain the authorization exits. <table> <thead> <tr> <th>Product</th> <th>SYSTEM PDS Member Name</th> </tr> </thead> <tbody> <tr> <td>!DB/DASD</td> <td>.EXDSDC1</td> </tr> <tr> <td>!DB/EXPLAIN</td> <td>.KTEAUTHR</td> </tr> <tr> <td>!DB/QUICKCHANGE</td> <td>.EXV2CTA</td> </tr> <tr> <td>!DB/SMU</td> <td>.EXSFSC1</td> </tr> <tr> <td>!DB/WORKBENCH</td> <td>.EXV2CTL</td> </tr> </tbody> </table>	Product	SYSTEM PDS Member Name	!DB/DASD	.EXDSDC1	!DB/EXPLAIN	.KTEAUTHR	!DB/QUICKCHANGE	.EXV2CTA	!DB/SMU	.EXSFSC1	!DB/WORKBENCH	.EXV2CTL
Product	SYSTEM PDS Member Name												
!DB/DASD	.EXDSDC1												
!DB/EXPLAIN	.KTEAUTHR												
!DB/QUICKCHANGE	.EXV2CTA												
!DB/SMU	.EXSFSC1												
!DB/WORKBENCH	.EXV2CTL												

Introduction

This appendix tells you what the !DB/Tools PROFILE data sets are and provides instruction for configuring and updating them for Version 500 and earlier versions.

Appendix contents

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Configuring PROFILE Data Sets for Earlier Versions	372
Updating Profile Data for Earlier Versions	373
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What Is a PROFILE Data Set?

What a PROFILE data set contains

The PROFILE data sets contain

- global !DB/Tools configuration information
- DB2-subsystem-specific configuration information
- product-specific configuration and default data items

Types of PROFILE data sets

There are three types of PROFILE data sets:

- System
- User
- Group (Auxiliary)

The data sets are similar; they differ only in the way that you use them.

The !DB/Tools require only a system PROFILE data set. Group (auxiliary) and user PROFILE data sets are optional and can be added later by an administrator.

Type of PROFILE Data Set	Contents	When Data Set Should be Created or Updated
System	<ul style="list-style-type: none"> ● MVS system information ● System-wide extract ID definitions ● System-wide product defaults 	<ul style="list-style-type: none"> ● At installation ● When system-wide changes need to be made
User	<ul style="list-style-type: none"> ● User-specific defaults 	<ul style="list-style-type: none"> ● During normal product use
Group (Auxiliary)	<ul style="list-style-type: none"> ● Defaults specific to a subset of users ● Extract IDs specific to a subset of users 	<ul style="list-style-type: none"> ● When configuring defaults specific to a subset of users ● When adding extract IDs specific to a subset of users

System PROFILE data set

The system PROFILE data set contains configuration information and defaults for the MVS system and the extract IDs available to all users. You must have only one system PROFILE data set per MVS-shared DASD cluster.

Note: You must define all extract IDs that you want all users to access in one system PROFILE data set.

User PROFILE data set

The user PROFILE data set contains defaults for the user with which it is associated. Using the housekeeping options for the !DB/Tools products, each user can write to his or her user profile to change those defaults. After you complete the basic installation, you may want to refer to “Configuring PROFILE Data Sets for Earlier Versions” on page 372 for information about configuring user profile data sets.

Group (Auxiliary) PROFILE data sets

Group (auxiliary) profiles provide an optional layer of security. These profiles contain information that you do not want to put in either the system or user data set.

You can use group (auxiliary) PROFILE data sets to set defaults for a subset of users and to configure extract IDs that are accessible only by a certain subset of users.

Use MVS security to ensure that values in the group (auxiliary) PROFILE data sets only can be changed by an administrator with the proper authority. After you complete the basic installation, refer to “Configuring PROFILE Data Sets for Earlier Versions” on page 372 for information about configuring group (auxiliary) PROFILE data sets.

Precedence of PROFILE data sets for Version 500

The precedence of the PROFILE data sets for !DB/Tools V500 is set using the !DB/Tools Profile Information panel, see “Elements of the !DB/Tools Profile Information Panel” on page 369.

For precedence of the PROFILE data sets for earlier versions see “Precedence of PROFILE data sets for earlier versions” on page 370.

Group (auxiliary) and user PROFILE data sets can be concatenated so that the !DB/Tools products retrieve exactly the set of parameters you want.

The product uses the PROFILE data sets in the order they are displayed on the panel. If the member the product needs is not in the first data set displayed on the panel, the product checks for the member in the next profile data set displayed on the panel.

Any changes made to the !DB/Tools profile information will not take effect until the next invocation of a !DB/Tools product.

Displaying and specifying information about PROFILE data sets

You can display or specify information about the PROFILE data sets using commands on the command line of any !DB/Tools product. Review the chart to determine the command to use for the task you want to perform.

Task You Want to Perform	Command to Use
Display information about the PROFILE data sets for your session	DISPROF
Specify information about the PROFILE data sets for your session using the !DB/Tools Profile Information panel	SETPROF

Elements of the !DB/Tools Profile Information Panel

The illustration shows the elements of the !DB/Tools Profile Information panel. It shows the fields that you can use to specify values for the PROFILE data sets and the fields that display information about the PROFILE data sets.

```

----- DB/Tools -----
Cmd ==>

                                DB/Tools Profile Information

1 Save Values?                    ==> Y ( Y Permanent N Temporary )
2 Display this panel on product entry? ==> Y ( Y Yes N No )
3 Use?   4 Type                    Profile Data Set Name           5 Status
-----
N User : 6 _____
N Group: _____
N _____
N _____
N _____
N _____
N _____
N _____
7 Y System: TDDD1.TDDB1.PROFILE      OK

Press ENTER to continue. Press END to exit.

```

- 1** Field that you can use to specify whether the values entered are saved in your ISPF profile
- 2** Field that you can use to specify whether the product displays the panel when you access the product
- 3** Field that you can use to specify whether the product uses the PROFILE data set specified in the field
- 4** Display field that indicates the type of PROFILE data set either User, Group, or System
- 5** Display field that indicates the status of the profile data set specified in the field (For a description of the possible statuses of the PROFILE data sets see “Statuses of PROFILE Data Sets” on page 370.)
- 6** Fields for entry of the names of the PROFILE data sets
- 7** Display field that indicates the name of the system PROFILE data set (The system PROFILE data set was specified when the product was installed.)

Statuses of PROFILE Data Sets

The following table describes the possible statuses of the PROFILE data sets.

Status	Description
OK	PROFILE data set exists and has the correct data set attributes.
MIGRATED	PROFILE data set is migrated.
INVALID DSORG	PROFILE data set exists but has an invalid data set organization (not a partitioned data set).
INVALID RECFM	PROFILE data set exists but has an invalid record format (not a fixed blocked data set).
DATASET NOT FOUND	PROFILE data set does not exist.

Precedence of PROFILE data sets for earlier versions

For precedence of the PROFILE data sets for Version 500 see “Precedence of PROFILE data sets for Version 500” on page 368.

The precedence of the PROFILE data sets is set in the KTCSETUP CLIST. Group (auxiliary) and user PROFILE data sets can be concatenated so that the !DB/Tools products retrieve exactly the set of parameters you want.

When you input the names of the PROFILE data sets to be passed as parameters to the KTCSETUP EXEC, all of the data sets are designated as input, but only the second data set is designated as output. KTCSETUP treats the first data set as the system profile and the second data set as the user profile. Any data sets that follow are considered to be group (auxiliary) profiles.

Upon return from KTCSETUP, the data sets are concatenated in the user/group (auxiliary)/system order. The user profile takes precedence over the group (auxiliary) profile, which takes precedence over the system profile.

Adding Logic to KTCSETUP for Earlier Versions

Overview

This unit provides information about adding logic to KTCSETUP for versions prior to Version 500.

About adding logic to KTCSETUP

You have the option of adding logic to KTCSETUP to determine the user and group (auxiliary) PROFILE data sets for each USERID. Figure 12 on page 371 is an example of adding logic to KTCSETUP. The logic you add depends on your the naming conventions and configuration at your site. Individual users can override the logic by using the KTCPRFST EXEC. See the unit “Switching PROFILE Data Sets for Earlier Versions” on page 377.

```

.
.
.
/*****
/* Enter the following PROFILE data set names. The standard */
/* system PROFILE data set name has been entered for you. */
/* You must substitute your high-level qualifier for hilev. */
/* If you intend to specify PROFILE data set names via */
/* KTCPRFST, you must still enter at least the system */
/* profile dsn. */
/*****
\
SYSTEM_PROFDS = "DBTOOLS.PROFILE";GROUP_PROFDS="";
GROUP_PROFDS = "";
USER_PROFDS = "";
AUXILY_1 = "BILL CHRIS LOIS ERIC";
AUXILY_DEVLPMT = "MIKE KIRK DIANNA RICK";
THIS_USER = userid();

select;
  when THIS_USER = "ROB" | THIS_USER = "TS0036"
  then AUXILY_PROFDS = "DBTOOLS.ADMIN.PROFILE";
  when wordpos(THIS_USER, AUXILY_1) <> 0
  then AUXILY_PROFDS = "DBTOOLS.TECHD.PROFILE";
  when wordpos(THIS_USER, AUXILY_DVLPMT) <> 0
  then AUXILY_PROFDS = "DBTOOLS.DVLPMENT.PROFILE";
  otherwise
  AUXILY_PROFDS = "";
end;
/*****\
* End of user-modified section *
\*****/
.
.
.

```

Figure 12. Example of Adding Logic to KTCSETUP

Configuring PROFILE Data Sets for Earlier Versions

Overview

This unit explains how to configure group (auxiliary) or user profile data set for !DB/Tools for versions prior to Version 500.

Note: This is only available for !DB/EXPLAIN.

Steps for configuring group (auxiliary) or user PROFILE data sets

To configure group (auxiliary) or user PROFILE data sets for !DB/Tools.

Note: See “Naming Conventions” on page 312 for an explanation of variable names shown in italics.

Step	Action
1	Allocate the group (auxiliary) or user partitioned data set.
2	Use ISPF to copy the system PROFILE data set to the allocated data set. Candle Corporation recommends you <ul style="list-style-type: none"> ● Use a logical naming convention to make administration easier. ● Delete all members in the group (auxiliary) or user profile that do not begin with <i>ES</i> or <i>WG</i>.
3	Type: KTx <i>extrctid</i> SYSPROF(<i>hilev</i>.PROFILE) USERPROF(<i>userid</i>.PROFILE) AUXPROF(<i>auxid</i>.PROFILE) on the ISPF command line, where x The corresponding letter for the product: E !DB/EXPLAIN <i>extrctid</i> An extract ID on the MVS system. <i>hilev</i> .PROFILE The system PROFILE data set. See “What Is a PROFILE Data Set?” on page 366 for an explanation of profile data sets. <i>userid</i> .PROFILE The user PROFILE data set or the group (auxiliary) PROFILE data set being configured. <i>auxid</i> .PROFILE The group (auxiliary) PROFILE data set.
4	Select the Housekeeping option from the !DB/EXPLAIN primary menu.
5	Select the appropriate housekeeping panel or panels and make updates. Refer to the <i>!DB/EXPLAIN User's Guide</i> for detailed information about the housekeeping panels.
6	Use the End command to exit !DB/EXPLAIN.

Updating Profile Data for Earlier Versions

Overview

This unit tells you how to update profile data for versions prior to Version 500.

How to update profile data

The !DB/Tools housekeeping feature allows you to customize your installation to suit your users. Use the housekeeping panels to update global !DB/Tools information, DB2-specific information, and product defaults.

The PROFILE data set that you update is the output data set allocated by KTCSETUP for the particular USERID. For instance, if you defined a system administrator USERID having the system PROFILE data set as its output PROFILE data set, then all updates made by this USERID are reflected system-wide. Likewise, if you are a typical user whose output PROFILE data set is your user PROFILE data set, you can update anything—even the Global Information—but you are the only one who ever sees those updates because they are written to your own user PROFILE data set.

To update profile data, access and update the appropriate housekeeping panel. The updates you make are saved to the output PROFILE data set that corresponds with your current USERID.

Updating system profile data

The following chart tells you how to update system profile data.

Note: See “Naming Conventions” on page 312 for an explanation of variable names shown in italics.

Step	Action
1	Start the product using the system PROFILE data set only. For !DB/Tools, type KTx <i>extrctid</i> SYSPROF(<i>hilev</i>.PROFILE) on the ISPF command line, where x The corresponding letter for the product: E !DB/EXPLAIN <i>extrctid</i> An extract ID on the MVS system. <i>hilev</i> .PROFILE The system PROFILE data set.
2	Select the Housekeeping option from the product primary menu.
3	Select the appropriate housekeeping panels and make updates. Refer to the user's guide for the products you have installed for detailed information about the housekeeping panels.
4	Use the End command to exit the product.

The updates are made to the system PROFILE data set and are reflected system-wide.

Note: If you have extract IDs defined at the group (auxiliary) profile level and you add a new extract ID to the system profile data set, you must recreate all of the group (auxiliary) profiles that contain an extract ID specific to that group (auxiliary) profile. You must do this so that users with the group (auxiliary) PROFILE data set in their concatenation can access the new extract ID you defined in the system PROFILE data set. See “What Is a PROFILE Data Set?” on page 366.

Updating group (auxiliary) profile data

The following chart tells you how to update group (auxiliary) profile data.

Note: See “Naming Conventions” on page 312 for an explanation of variable names shown in italics.

Step	Action
1	<p>Start the product using the system and group (auxiliary) profile data sets.</p> <p>For !DB/Tools, type</p> <pre style="text-align: center;">KTx <i>extrctid</i> SYSPROF(<i>hilev</i>.PROFILE) AUXPROF(<i>auxid</i>.PROFILE)</pre> <p>on the ISPF command line, where</p> <p>x The corresponding letter for the product:</p> <p style="padding-left: 100px;">E !DB/EXPLAIN</p> <p><i>extrctid</i> An extract ID on the MVS system.</p> <p><i>hilev</i>.PROFILE The system PROFILE data set.</p> <p><i>auxid</i>.PROFILE The group (auxiliary) PROFILE data set.</p>
2	Select the Housekeeping option from the product primary menu.
3	<p>Select the appropriate housekeeping panel or panels and make updates.</p> <p>Refer to the user's guide for the products you have installed for detailed information about the housekeeping panels.</p>
4	Use the End command to exit the product.

The updates are made to the group (auxiliary) PROFILE data set and are reflected to all users with the group (auxiliary) profile in their concatenation.

Updating user profile data

The following chart tells you how to update user profile data.

Note: See “Naming Conventions” on page 312 for an explanation of variable names shown in italics.

Step	Action
1	Start !DB/Tools by typing KTx <i>extrctid</i> on the ISPF command line, where x The corresponding letter for the product: E !DB/EXPLAIN <i>extrctid</i> An extract ID on the MVS system.
2	Select the Housekeeping option from the product primary menu.
3	Select the appropriate housekeeping panels and make updates. Refer to the user's guide for the products you have installed for detailed information about the housekeeping panels.
4	Continue working in the products or exit using the End command.

The updates are reflected in your user PROFILE data set.

Switching PROFILE Data Sets for Earlier Versions

Overview

The member KTCPRFST in the CLIST library allows you to switch the group (auxiliary) and user PROFILE data sets for !DB/Tools for versions prior to Version 500.

The changes to the data set concatenation are reflected *the next time you access a !DB/Tools product*.

Note:

- KTCPRFST requires that the user and group (auxiliary) profile data sets have already been created.
- KTCPRFST overrides any logic that has been added to KTCSETUP to determine your group (auxiliary) and/or user PROFILE data set. See the unit “Adding Logic to KTCSETUP for Earlier Versions” on page 371.

Procedure

To switch your group (auxiliary) and/or user PROFILE data set.

Step	Action
1	Type TSO %KTCPRFST on the ISPF command line. The !DB/Tools PROFILE data set List panel appears.
2	Specify whether you want to use a user and group (auxiliary) PROFILE data set.
3	Specify the user and group (auxiliary) PROFILE data sets you want to use for !DB/Tools. Data set names must be fully qualified. You can enter the data set names with or without quotes. Press Enter to save the changes and exit the panel. Use the End command to exit the panel without saving the changes.

Appendix F. Cleaning Up Old Data Sets

Introduction

This appendix tells you how to clean up your system after an installation of !DB/Tools

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Cleaning Up Old Data Sets

Overview

This unit tells provides a check list for cleaning up old data sets after a new install.

Checklist for cleaning up old data sets

The following chart is a checklist you can follow when cleaning up old data sets after a new install.

√	Action
	Copy any appropriate profiles from the SYSTEM PDS to new data sets prior to deleting any data sets. See “Additional references about migrating from an old version” below for additional references.
	For every DB2 subsystem: <ul style="list-style-type: none">● Delete the DATA data sets.● Delete the PRODUCT data sets.
	Remove the CLIST referenced by the old installation from the SYSPROC concatenation and your TSO LOGON proc, depending on your configuration.

Additional references about migrating from an old version

The following chart tells you where you can find additional information about migrating from a previously installed system to a new version of the !DB/Tools.

IF you are installing a new version of ...	THEN see ...
!DB/WORKBENCH or !DB/QUICKCHANGE	the following ... <ul style="list-style-type: none"> ● “Migrating Profile Variables” on page 269 ● “Converting !DB/WORKBENCH Utility Profiles” on page 272
!DB/SMU	“Converting Pre-version 230 !DB/SMU Profiles and Reports” on page 278.

Appendix G. !DB/Tools Install Generated JCL Descriptions

Introduction

This appendix lists all the jobs that !DB/Tools Install generates.

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Overview

Overview

This unit describes when and how !DB/Tools Install generates JCL.

Description

!DB/Tools Install generates JCL that you use when installing or refreshing !DB/Tools. This chapter describes each of these jobs and includes a reference to the step where each is created.

When you generate the JCL the first time, the system displays it.

Generating JCL after the first time

If you have previously generated JCL for the install, the system displays a Caution panel that gives you the following options:

- to rebuild the JCL
- to edit the JCL you used the last time
- to end the process

Note: !DB/Tools Install uses the variables you specified earlier. There is no need to edit the JCL further unless your site requires a customized configuration.

JCL Names and Descriptions

Overview

This unit describes the JCL naming convention for !DB/Tools Install and lists the jobs that !DB/Tools Install generates.

General JCL naming conventions

!DB/Tools Install uses the following naming convention when generating new JCL:

KTCLJxxx where

KT	is the Candle standard prefix
C	indicates common code
I	indicates an install
J	indicates that the member is a job
xxx	is a unique 3-character identifier

KTCFJxxx where

KT	is the Candle standard prefix
C	indicates common code
F	indicates a CUM tape
J	indicates that the member is a job
xxx	is a unique 3-character identifier

KTCPJxxx where

KT	is the Candle standard prefix
C	indicates common code
P	indicates a PSP tape
J	indicates that the member is a job
xxx	is a unique 3-character identifier

JCL naming convention for extracts

The naming convention for extracts is *db2idJXTx*

where *x* is the product identifier, as follows:

E	!DB/EXPLAIN
W	!DB/WORKBENCH and !DB/QUICKCHANGE
D	!DB/DASD
S	!DB/SMU

Note: !DB/QUICKCOMPARE does not use an extract.

List of jobs !DB/Tools Install generates

The following is a list of the jobs in the order that !DB/Tools Install creates them.

Job Name	Description	Resource
KTCIJALC	Allocates space for the product and data data sets remaining on the tape.	See “Allocating Space for Data Sets” on page 115.
KTCIJBAL	Allocates space for the product data sets for secondary (backup) data sets.	See “Allocating Space for Backup Data Sets for a New Install” on page 119.
KTCIJBCP	Copies from source product data sets to target data sets (secondary, or backup data sets).	See “Copying to the Backup Data Sets for a New Install” on page 128.
KTCIJBLD	Creates tailored JCL members that are non-DB2 specific.	See “Tailoring the Variables for a New Install” on page 111.
KTCFJCPY	Unloads the rest of the CUM tape using IEBCOPY.	See “Applying a Cumulative Maintenance Tape for a Refresh” on page 134.
KTCIJCPY	Unloads the rest of the base tape using IEBCOPY.	See “Unloading the Rest of the Tape for a New Install” on page 121.
KTCIJCRA	Defines VSAM clusters.	See “Defining VSAM Clusters” on page 147.
KTCIJCRB	Creates DB2 objects and run the BINDs.	See “CREATing DB2 Objects and Running BINDs for a New Install” on page 149.
KTCIJCRG	Performs the GRANTs.	See “Issuing GRANTs” on page 152.
KTCPJCPY	Unloads the rest of the PSP tape using IEBCOPY.	See “Applying a PSP Maintenance Tape for a Refresh” on page 135.

List of jobs !DB/Tools Install generates (continued)

Job Name	Description	Resource
<i>db2idJXTE</i>	Runs the !DB/EXPLAIN extract for the corresponding DB2 subsystem.	See “Running the !DB/EXPLAIN Extract” on page 167 and “Installing for Additional DB2 Subsystems” on page 173.
<i>db2idJXTW</i>	Runs the !DB/WORKBENCH extract for the corresponding DB2 subsystem.	See “Running the !DB/WORKBENCH Extract” on page 169 and “Installing for Additional DB2 Subsystems” on page 173.
<i>db2idJXTS</i>	Runs the !DB/SMU extract for the corresponding DB2 subsystem.	See “Running the !DB/SMU Extract” on page 171 and “Installing for Additional DB2 Subsystems” on page 173.
<i>db2idJXTD</i>	Runs the !DB/DASD extract for the corresponding DB2 subsystem.	See “Running the !DB/DASD Extract” on page 170 and “Installing for Additional DB2 Subsystems” on page 173.
<i>db2idJMIN</i>	Installs !DB/Tools you specify for an additional subsystem.	See “Installing for Additional DB2 Subsystems” on page 173.
KTSIJCNV	Converts pre-version V230 !DB/SMU profiles and reports.	See “Converting Pre-version 230 !DB/SMU Profiles and Reports” on page 278.

Location of jobs

!DB/Tools Install puts all jobs in the *instlib* data set except the extract jobs. You can find the extract jobs in the *cntl* data set.

Appendix H. JCL and Messages for Lazarus Copies

Introduction

!DB/WORKBENCH uses the Lazarus utility to save and restore copies of DB2 extract data. This appendix contains sample JCL for the Lazarus utility and copies of the messages it returns.

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Sample JCL for Lazarus Copies

Overview

The !DB/Tools Install automatically generates JCL to

- produce a listing of the Lazarus copies of extract data
- convert pre-Version 300 CUM 9808-0 copies of extract data to the format required for !DB/WORKBENCH Version 300 and later

See “Customizing !DB/WORKBENCH” on page 263 for information on listing Lazarus copies and converting copies saved prior to the pre-Version 300 CUM 9808-0 release. See the *!DB/WORKBENCH Advanced User's Guide* 2W54-4712 for information on resurrecting Lazarus copies of DB2 catalog data.

Sample JCL to produce a listing of Lazarus copies

The following page shows a sample of JCL that the !DB/Tools Install generates to produce a listing of Lazarus copies. This JCL is stored in the KTWMJLST member.

```

//USER11 JOB (), 'DB/TOOLS',
//          CLASS=A,MSGCLASS=X,NOTIFY=USER1
//*
//* CANDLE CORPORATION -- DB/TOOLS INSTALL
//*=====
//*
//* 02/25/98      CANDLE CORPORATION -- !DBTOOLS INSTALL
//* 14:15:18
//* USER12          LIST/CONVERT DB/WORKBENCH PRE CUM 9808-0 LAZARUS DATA
//*
//*          SKELETON NAME: KTWISCV
//*          GENERATED MEMBER NAME: KTWIJCNV
//*          INSTALLATION LIBRARY: USER12.CUM98010.INSTLIB
//*
//*          CONVERSION PDS NAMES
//*
//*          SOURCE&COLON.USER12.CUM98010.D41Y.WKB.SYSTEM
//*          TARGET&COLON.USER12.CUM98010.D41Y.WKB.SYSTEM
//*=====
//*
//*
//*=====
//*          *
//* BACKUP THE CURRENT DB/WORKBENCH SYSTEM PDS          *
//*          *
//*=====
//*
//BACKUP EXEC PGM=IEBCOPY,REGION=1024K
//SYSPRINT DD SYSOUT=*
//IN          DD DSN=USER12.CUM98010.D41Y.WKB.SYSTEM,
//            DISP=SHR
//OUT         DD DSN=USER12.CUM98010.D41Y.WKB.SYSTEM.BKUP,
//            UNIT=SYSDA,DISP=(MOD,CATLG),
//            DCB=(RECFM=FB,LRECL=80,BLKSIZE=8880),
//            SPACE=(CYL,(100,5,256))
//SYSIN      DD *
//            COPY INDD=IN,OUTDD=OUT
//WKBCNV EXEC PGM=KTXDYNEX,PARM='EXTRACTID=D41Y'
//STEPLIB DD DSN=USER12.CUM98010.LOAD,
//          DISP=SHR
//KTCLOAD DD DSN=USER12.CUM98010.LOAD,
//          DISP=SHR
//KTCPROFI DD DISP=SHR,DSNAME=USER12.CUM98010.PROFILE
//SFXLGPDS DD DISP=SHR,DSNAME=USER12.CUM98010.D41Y.WKB.LOG
//SFFXUPDS DD DISP=SHR,DSNAME=USER12.CUM98010.D41Y.WKB.USER
//KTXPDSI DD DISP=SHR,DSNAME=USER12.CUM98010.D41Y.WKB.SYSTEM.BKUP
//KTXPDSO DD DISP=SHR,DSNAME=USER12.CUM98010.D41Y.WKB.SYSTEM
//SYSUDUMP DD SYSOUT=*
//SNAP DD SYSOUT=*
//SNAPALL DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
//          LIST ALL

```

Sample JCL to convert copies of extract copies

The following is a sample of JCL that the !DB/Tools Install generates to convert Lazarus copies that were saved prior to the pre-Version CUM 9808-0 release. This JCL is stored in the KTWMJCNV member.

```
//USER11 JOB (),'DB/TOOLS',
//          CLASS=A,MSGCLASS=X,NOTIFY=USER1
//*
//* CANDLE CORPORATION -- DB/TOOLS INSTALL
//*-----
//*
//* 02/17/98      CANDLE CORPORATION -- !DBTOOLS INSTALL
//* 12:33:22
//* USER12      LIST/CONVERT DB/WORKBENCH PRE CUM 9808-0 LAZARUS DATA
//*
//*          SKELETON NAME: KTWISCNV
//*  GENERATED MEMBER NAME: KTWIJCNV
//*  INSTALLATION LIBRARY: USER12.CUM98010.INSTLIB
//*
//*  CONVERSION PDS NAMES
//*
//*  SOURCE&COLON.USER2.C98010.D41Y.WKB.SYSTEM
//*  TARGET&COLON.USER12.CUM98010.D41Y.WKB.SYSTEM
//*
//*-----
//*
//WKBCNV EXEC PGM=KTXDYNEX,PARM='EXTRACTID=D41Y'
//STEPLIB DD DSN=USER12.CUM98010.LOAD,
//          DISP=SHR
//KTCLOAD DD DSN=USER12.CUM98010.LOAD,
//          DISP=SHR
//KTCPROFI DD DISP=SHR,DSNAME=USER12.CUM98010.PROFILE
//SFXLGPDSDD DISP=SHR,DSNAME=USER12.CUM98010.D41Y.WKB.LOG
//SFFXUPDSDD DISP=SHR,DSNAME=USER12.CUM98010.D41Y.WKB.USER
//KTXPDSI DD DISP=SHR,DSNAME=USER2.C98010.D41Y.WKB.SYSTEM
//KTXPDSO DD DISP=SHR,DSNAME=USER12.CUM98010.D41Y.WKB.SYSTEM
//SYSUDUMP DD SYSOUT=*
//SNAP DD SYSOUT=*
//SNAPALL DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
          CONVERT FROM=1990.001,T0=1997.260
```

Command components for JCL

The !DB/Tools Install uses the following command verbs and operands in the batch jobs that run the Lazarus utility.

Command Component	Description
LIST	<p>A command verb that produces a list of the Lazarus copies. The list contains the following information:</p> <ul style="list-style-type: none">● Name of the copy● Creation year● Julian date● Creation time (hour and minute)● Version of the extract <p>The default lists all Lazarus copies.</p>
CONVERT	<p>A command verb that converts a Lazarus copy from the pre-Version 300 format to the currently supported format.</p>
<i>yyyy.ddd</i>	<p>An operand that specifies the year and Julian date.</p>

Messages from the Lazarus Facility

The Lazarus facility returns the messages that are discussed on the following pages.

Format for messages

Each message has an identifying number in the format of

xxxnnnnl

where

xxx is the identifier, KTX, that designates the Lazarus conversion component.

nnnn is the message number.

l indicates the severity of the message. The severity codes are

I	for an informational message
W	for a warning message
E	for an error message

SYSLOG messages from Lazarus

Lazarus issues the following messages to SYSLOG.

KTX0000E **SYSPRINT DD STATEMENT MISSING.**
Explanation: Unable to locate the SYSPRINT DD statement.
System Action: Processing terminates and the return code is set to 08.
User Response: Correct the JCL and rerun the job. Check the job log for the job for additional error messages.

SYSPRINT messages from Lazarus

Lazarus issues the following messages to SYSPRINT.

KTX0001E SYSIN DD STATEMENT MISSING - CHECK JCL FOR MISSPELLING OR INCORRECT OVERRIDE.

Explanation: Unable to locate the SYSIN DD statement.

System Action: Processing terminates and the return code is set to 08.

User Response: Correct the JCL and rerun the job. Check the job log for the job for additional error messages.

KTX0002E KTCLOAD DD STATEMENT IS MISSING. PLEASE CHECK YOUR JCL FOR INCORRECT SPELLING OR INCORRECT OVERRIDE.

Explanation: Unable to locate the KTCLOAD DD statement. The DD statement is either missing or spelled incorrectly.

System Action: Processing terminates and the return code is set to 08.

User Response: Correct the JCL and rerun the job. Check the job log for the job for additional error messages.

KTX0003E KTCLOAD DD OPEN FAILURE. CHECK FOR INCORRECT LOAD LIBRARY DATASET SPECIFICATION.

Explanation: Open failed for the dataset specified by the KTCLOAD DD statement.

System Action: Processing terminates and the return code is set to 08.

User Response: Check for the correct dataset. The dataset is either misspelled, missing, or not partitioned. Correct the problem and rerun the job. Also check the job log for the job for additional error messages.

KTX0004E KTXPDSI DD STATEMENT IS MISSING. PLEASE CHECK YOUR JCL FOR INCORRECT SPELLING OR INCORRECT OVERRIDE.

Explanation: Unable to locate the KTXPDSI DD statement. The DD statement is either missing or spelled incorrectly.

System Action: Processing terminates and the return code is set to 08.

User Response: Correct the JCL and rerun the job. Check the job log for the job for additional error messages.

KTX0005E KTXPDSO DD STATEMENT IS MISSING. PLEASE CHECK YOUR JCL FOR INCORRECT SPELLING OR INCORRECT OVERRIDE.

Explanation: Unable to locate the KTXPDSO DD statement. The DD statement is either missing or spelled incorrectly.

System Action: Processing terminates and the return code is set to 08.

User Response: Correct the JCL and rerun the job. Check the job log for the job for additional error messages.

KTX0006E INCORRECT DATASET NAME SPECIFIED FOR KTXPDSI AND KTXPDSO. THE OUTPUT DATASET CANNOT BE THE SAME AS THE INPUT DATASET.

Explanation: The KTXPDSI and KTXPDSO DD statements refer to the same dataset. The input and output must be in two different datasets. If the same dataset is used, unpredictable results and corrupted data may occur.

System Action: Processing terminates and the return code is set to 08.

User Response: Change the dataset referred to by the KTXPDSO DD to a different PDS and rerun the job.

KTX0007E SYSIN DD OPEN FAILURE. CHECK FOR INCORRECT DD STATEMENT SPECIFICATION.

Explanation: An error occurred in processing the open request for the file referred to by the SYSIN DD statement. If the DD statement refers to a dataset, the dataset may be missing, corrupted, or have incorrect attributes.

System Action: Processing terminates and the return code is set to 08.

User Response: Check the file referred to by the SYSIN statement and correct the problem.

- If the statement refers to a dataset, ensure the name is correct.
- If the file referred to is a member of a PDS, check the member specification.
- Check the dataset attributes. They must have a record format of F or FB and a block size that is a multiple of 80.

Check the job log for the job for additional error messages.

- KTX0008E UNKNOWN STATEMENT TYPE. STATEMENT IGNORED.**
Explanation: A statement with an unknown operation field was encountered. The operation field must contain either LIST, CONVERT, or CNVT.
System Action: The statement is ignored, and the next statement is processed. Processing continues, and no return code is set.
User Response: None required. This is an informational message only.
- KTX0009E ERROR IN CONTROL STATEMENT. STATEMENT IGNORED.**
Explanation: No space left in the control statement after the LIST or CONVERT command for the date specification. The command and operands must be contained on one statement.
System Action: The statement is discarded, and processing continues with the next control statement. No return code is set.
User Response: None required. This is an informational message only.
- KTX0010E NO DATE FIELDS FOUND. STATEMENT IGNORED.**
Explanation: The FROM and TO operands were specified, but no dates were found in the specified range.
System Action: Processing continues with the next control statement.
User Response: Check the date specification for the correct date range.
- KTX0011E STATEMENT IGNORED. ERROR FOUND IN *yy.ddd*.**
Explanation: A specification error was encountered in the indicated to- or from-date fields. Dates must be specified in the format *yy.ddd* or *yyyy.ddd*. The *yy* and *yyyy* values indicate the year; the *ddd* value is the Julian date.
System Action: The statement is ignored, and processing continues with the next statement. No return code is set.
User Response: Correct the indicated field or fields, and rerun the job for the specified date or dates.
- KTX0012E PROFILE DD STATEMENT KTCPROFI WAS NOT FOUND IN JCL.**
Explanation: Unable to locate the KTCPROFI DD statement. Either the DD statement is missing or spelled incorrectly.
System Action: Processing terminates and the return code is set to 08.
User Response: Correct JCL and rerun the job. Check the job log for the job for additional error messages.

KTX0013E DB2 EXTRACT ID=nnnnnnnnn, X'hhhhhhhhh', SPECIFIED IN THE JCLPARMS IS INVALID.

Explanation: The specified ID is either not a valid !DB/WORKBENCH extract ID or is not valid for this System PDS.

System Action: The return code is set to 08.

User Response: Not yet implemented.

KTX0014E DB2 EXTRACT ID WAS NOT SPECIFIED IN THE JCLPARMS.

Explanation: No parameter field was specified on the EXEC statement.

System Action: Processing terminates and the return code is set to 08.

User Response: Specify a valid extract ID for the level of system PDS.

KTX0015E PROFILE READ ERROR. R15=rr, X'hhh', RC=cc, X'hhh' RS=rs, X'hhh', DB2 EXTRACT ID=nnnnnnnnn

Explanation: An error was encountered in reading the profile dataset specified by KTCPROFI. The facility displays the contents of register 15, which are

rr return code
cc reason code
rs specified extract id *nnnnnnnnn*

System Action: Processing terminates and the return code is set to 08.

User Response: Check the profile dataset for possible corruption.

- If it is corrupted or damaged, either rebuild or restore it from a backup copy.
- If the dataset is not corrupted or damaged,
 1. Save the job log, JCL, and allocation listings.
 2. Save the SYSPRINT listing.
 3. Contact Candle Customer Support.

KTX0016E EXTRACTID KEYWORD NOT FOUND IN PARM FIELD.

Explanation: The EXTRACTID keyword was either not specified or misspelled.

System Action: Processing terminates and the return code is set to 08.

User Response: Check the parameter field for correct specification and spelling.

- KTX0017E** **EXTRACTID KEYWORD FOUND, BUT EXTRACT ID IS MISSING OR INCORRECTLY SPECIFIED.**
Explanation: The EXTRACTID keyword was specified in the parameter field, but the value specified for the extract ID is either a null field, an invalid name, or an incorrect length.
System Action: Processing terminates and the return code is set to 08.
User Response: Correct the name and rerun the job.
- KTX0018E** *nnnnnnnn* **LOAD ERROR, RC=*rc***
Explanation: An error occurred loading the program module *nnnnnnnn*. The program library may be incorrectly specified or corrupted.
System Action: Processing terminates and the return code is set to the value of *rc*.
User Response: Check for the correct program library specification. If the library is correctly specified, check for missing or corrupted load modules.
- KTX0019E** **OUTPUT PDS ERROR OCCURRED DURING THE REFERENTIAL INTEGRITY CONVERSION.**
Explanation: An error occurred writing the converted referential integrity data.
System Action: The conversion is terminated.
User Response: Check for additional I/O-specific messages to determine the cause of the failure. Possible causes of failure are insufficient directory blocks, space allocation, or I/O errors.
- KTX0020E** **OUTPUT PDS ERROR OCCURRED DURING THE AUTHORIZATION AND NAME TABLE PROCESSING**
Explanation: An error occurred writing the converted authorizations, tables, packages, plans, columns, and views data.
System Action: The conversion is terminated.
User Response: Check for additional I/O-specific messages to determine the cause of the failure. Possible causes of failure or insufficient directory blocks, space allocation, or I/O errors.
- KTX0021E** **ERROR PROCESSING LAZARUS DATA. DATA CONVERSION CANNOT BE PROCESSED.**
Explanation: An error occurred in processing the Lazarus copy. The internal data structures required to process the data could not be created.
System Action: The conversion is terminated.
User Response: Check for additional messages for possible cause of failure. Verify that !DB/WORKBENCH is able to process the Lazarus copy. If !DB/WORKBENCH is unable to process the data, it cannot be converted. If

!DB/WORKBENCH is able to correctly process the data and no additional messages are present, contact Candle Customer Support.

KTX0022E ERROR OCCURED BUILDING INTERNAL DATA CROSS REFERENCE STRUCTURES.
Explanation: An error occurred creating the data structures necessary to correctly reference the Lazarus data.
System Action: The conversion is terminated.
User Response: Check for messages and verify that !DB/WORKBENCH can correctly process the Lazarus data. If !DB/WORKBENCH is able to correctly process the Lazarus copy, contact Candle Customer Support.

KTX0023E ERROR OCCURED PROCESSING LAZARUS COPY INTERNAL DATA STRUCTURES FOR - xxxxxxxxxx
Explanation: The conversion process encountered and uncorrectable error in the named object type.
System Action: An error in the Lazarus data created a condition that the conversion process was unable to correct. The error may be caused by an error or corruption in the Lazarus data. The conversion process first verifies the data can be successfully converted. To ensure data integrity, the conversion will not be attempted if an error is encountered.
User Response: None. This is an informational message only.

KTX0024W AUTHORIZATION DATA CONTAINS INVALID FIELDS. DATA CONVERTED TO POINT OF INVALID ENTRY. DATA TYPE IS xxxxxx
Explanation: The conversion process determined the named object type contains invalid or corrupted fields that would cause incorrect results.
System Action: The data is converted to the point of the invalid entry. The corrupted data is not currently accessed by !DB/WORKBENCH. Therefore, no change occurs in the Authorizations displays.
User Response: None. This is an informational message only.

KTX0025E UNCORRECTABLE ERRORS ENCOUNTERED PROCESSING THE AUTHORIZATION DATA. THE ERROR STATUS IS *xyyy*

Explanation: An uncorrectable error was encountered processing the authorizations data. The specific data type is specified in the error status bytes *xx* and *yy*.

The values for the *xx* bytes are

Bit	Hex Value	Object Type
0	X'80'	VIEWS
1	X'80'	TABLES
2	X'20'	USER
3	X'10'	TABLE SPACES
4	X'08'	STORAGE GROUPS
5	X'04'	BUFFER POOL
6	X'02'	PLANS ERROR
7	X'01'	DATABASE ERROR

The values for the *zz* bytes are

Bit	Hex Value	Object Type
0–2	X'10'	RESERVED
3	X'08'	Multisegment error in table data
4	X'08'	Multisegment error in all other data
5	X'04'	COLUMNS
6	X'02'	PACKAGES
7	X'01'	COLLECTIONS

User Response: Ensure that !DB/WORKBENCH is able to process the selected Lazarus data. If !DB/WORKBENCH successfully processes the Lazarus data, save the conversion printout and contact Candle Customer Support.

- KTX0090I** **CONVERSION TERMINATED. CHECK FOR ADDITIONAL MESSAGES TO DETERMINE THE CAUSE.**
Explanation: Severe errors were encountered that would cause a data integrity exposure or the conversion process to fail.
System Action: The conversion is terminated.
User Response: See additional messages for a detailed explanation. Correct the problems. Then, either rerun the conversion or exclude the Lazarus data causing the problem.
- KTX0100I** **STARTING CONVERSION FOR LAZARUS MEMBER CREATED ON *yyyy.ddd* AT *hh:mm*.**
Explanation: The conversion process is beginning for the Lazarus copy that was created on the specified year *yyyy* and day *ddd* at the indicated hour *hh* and minute *mm*.
System Action: No return code is set.
User Response: None. This is an informational message only.
- KTX0110I** **COMPLETED CONVERSION FOR LAZARUS MEMBER CREATED ON *yyyy.ddd* AT *hh:mm*.**
Explanation: The conversion process was completed for the Lazarus copy created on the specified year *yyyy* and day *ddd* at the indicated hour *hh* and minute *mm*.
System Action: The return code is set to zero if the conversion was completed without errors. For all other conditions, the completion code is set according to the accompanying error message.
User Response: None. This is an informational message only.

Appendix I. Candle Customer Support

Introduction

Candle Corporation offers a comprehensive maintenance and support plan to ensure you realize the greatest value possible from your Candle software investments. We have more than 200 technicians worldwide, committed to providing you with prompt resolutions to your support requests.

Customer Support hours of operation are from 5:30 A.M. to 5:00 P.M., Pacific Time. In the event of an after-hours or weekend emergency, Candle's computerized call management system ensures that a technician will return your call within one hour. For customers located outside of North America, after-hours and weekend support is provided by Candle Customer Support locations in the United States.

Electronic Support

Candle provides information and support services using

- Candle's home page at www.candle.com. You can use the Candle Web site to
 - open problem records
 - access maintenance information
 - order products or maintenance
 - access IBM compatibility information
 - download fix packs for distributed products
 - read news and alerts
 - scan a list of scheduled Candle education classes
- Candle Electronic Customer Support (CECS), an electronic customer support facility. You can access this facility through the IBM Global Network. You can use CECS to
 - open problem records
 - search our database for solutions to known problems
 - look for answers to commonly asked questions
 - read news and alerts
 - scan a list of scheduled Candle education classes

Both CECS and the Candle Web site are available 24 hours a day, 7 days per week.

Telephone Support

Our support network consists of product specialists who work with you to solve your problem.

Candle uses an online problem management system to log and track all support requests. Your request is immediately routed to the appropriate technical resource.

When you call to report a problem, please have the following information:

- your Candle personal ID (PID) number
- the release level of the Candle product
- the release level of IBM or other vendor software
- identifying information and dates of recently applied maintenance to your Candle product or IBM product
- a detailed description of the problem (including the error message) and the events preceding the problem
- a description of any unusual events that occurred before the problem

Customer Support Phone Numbers

	Telephone	Fax
North America	(800) 328-1811	
	(310) 535-3636	(310) 727-4204
Europe		
Belgium/Luxembourg	+32 (0) 3 270 95 60	+32 (0) 3 270 95 41
France	+33 (0) 1 53 61 60 60	+33 (0) 1 53 61 06 16
Germany/Switzerland/ Austria	+49 (0) 89 54 554 333	+49 (0) 89 54 554 170
Italy - Freephone	800 780992	
Netherlands	+31 (0) 30 600 35 50	+31 (0) 30 600 35 10
Scandinavia	+46 (0)8 444 5940	+46 (0)8 623 1855
U.K.	+44 (0)161 437 5224	+44 (0)161 437 5225
(Southern Europe, Middle East and South Africa Agents call U.K.)		
Asia Pacific - English Hub		+61 2 9954 1818
Australia	+61 2 8912 9898	
Hong Kong	800 908 457	
India	+61 2 8912 9898	
Indonesia	0018 03061 2061	
Malaysia	1800 803 459	
New Zealand	0800 449 596	
Philippines	1800 1612 0096	
Singapore	800 616 2075	
Thailand	0018 00612 1045	
Asia Pacific - Japanese Hub	+81 3 3595 7150	+81 3 3595 7110
Asia Pacific - Korean Hub	+82 2 552 8744	+82 2 552 8746
Asia Pacific - Mandarin Hub	+88 62 2739 3223	+88 62 2378 5993
Asia Pacific e-mail address: ap_support@candle.com		

When your local support office is unavailable, you can contact Candle's North America support center. If USADirect® service is available in your country, use the 800 telephone number. If USADirect service is not available, ask your international operator for assistance in calling Candle's local (310) number.

Incident Documentation

You may be asked to send incident documentation to the Candle Customer Support Center. On the outside of all packages you send, please write the incident number given to you by the Customer Support representative.

Send tapes containing the incident information to the following address, unless directed otherwise by your Customer Support representative:

Candle Customer Support
Candle Support Center, *Incident number*
201 North Douglas Street
El Segundo, CA 90245

Send all other relevant documentation, such as diskettes or paper documentation, to the address provided by your Customer Support representative.

Ensuring Your Satisfaction with Customer Support

Candle Customer Support is committed to achieving high customer satisfaction ratings in all areas. These include

- connecting you to a support representative promptly
- providing you with the appropriate fixes
- answering support questions
- filling your shipping orders
- supplying documentation

If you have a concern that has not been resolved to your satisfaction, you can open a complaint ticket. All tickets are logged and tracked to ensure responsiveness and closure. Using the ticket information, a manager will contact you promptly to resolve your problem.

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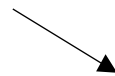
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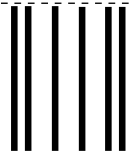
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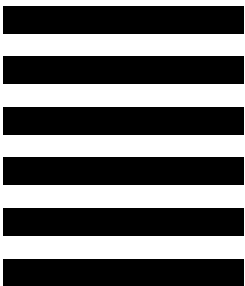
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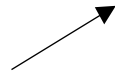
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