Cincom

SUPRA SERVER PDM

VMS Tutorial

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SUPRA® Server PDM VMS Tutorial

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Release information for this manual

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We welcome your comments

We encourage critiques concerning the technical content and organization of this manual. Please take the survey provided with the online documentation at your convenience.

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About this book

Using this document

The *SUPRA Server PDM VMS Tutorial* provides the user with step-by-step instructions on how to design a Database Description using the SUPRA DBA functions for:

- Defining a database description, domains, validation tables, task and system logs.
- Validating and compiling the completed database description.
- Creating views using the DBA EDIT/EDT interface.

The information is directed toward novice users who want to learn how to create a database and understand the operation of SUPRA Server.

The *SUPRA Server PDM VMS Tutorial* complements and supports the *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260, the *SUPRA Server PDM RDM Administration Guide (VMS)*, P25-8220, and the *SUPRA Server PDM System Administration Guide (VMS)*, P25-0130. These manuals contain details of several database concepts that the user encounters in this tutorial, and they should be available for reference when the user performs the tutorial.

Document organization

The information in this manual is organized as follows:

Chapter 1—Introduction
Introduces the tutorial and provides prerequisites and an overview of the tasks to be completed in the tutorial.

Chapter 2—Creating a database description
Describes defining database details and walks you through creating a sample database.

Chapter 3—Validating and compiling a database
Walks through validation and compiling of the sample database created in chapter 2.

Chapter 4—Formatting database files
Discusses how to format the files created in the first 3 chapters.

Chapter 5—Defining domains and validation tables
Discusses definition of a validation table, defining domains, and connecting domains and data items.

Chapter 6—Defining logical data items
Explains how to define logical names for the physical data items you access from your views.

Chapter 7—Defining base views
Discusses defining and testing views through DBA and DBAID.

Glossary of terms

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Conventions

The following table describes the conventions used in this document series:

Convention	Description	Example

`Constant width type`	Represents screen images and segments of code.	`PUT 'customer.dat'`
		`GET 'miller\customer.dat'`
		`PUT '\DEV\RMT0'`

Slashed b (b)	Indicates a space (blank). The example indicates that four spaces appear between the keywords.	`BEGNbbbbSERIAL`
Brackets [ ]	Indicate optional selection of parameters. (Do not attempt to enter brackets or to stack parameters.) Brackets indicate one of the following situations:	
	A single item enclosed by brackets indicates that the item is optional and can be omitted. The example indicates that you can optionally enter a WHERE clause.	`[WHERE search-condition]`
	Stacked items enclosed by brackets represent optional alternatives, one of which can be selected. The example indicates that you can optionally enter either WAIT or NOWAIT. (WAIT is underlined to signify that it is the default.)	[**WAIT**] [**NOWAIT**]
Braces { }	Indicate selection of parameters. (Do not attempt to enter braces or to stack parameters.) Braces surrounding stacked items represent alternatives, one of which you must select. The example indicates that you must enter ON or OFF when using the MONITOR statement.	**MONITOR** {**ON** **OFF**}

Convention	Description	Example
Underlining (In syntax)	Indicates the default value supplied when you omit a parameter. The example indicates that if you do not choose a parameter, the system defaults to WAIT.	[**(WAIT)** **(NOWAIT)**]
	Underlining also indicates an allowable abbreviation or the shortest truncation allowed. The example indicates that you can enter either STAT or STATISTICS.	STATISTICS
Ellipsis points...	Indicate that the preceding item can be repeated. The example indicates that you can enter multiple host variables and associated indicator variables.	INTO :*host-variable* [:*ind-variable*],...
UPPERCASE lowercase	In most operating environments, keywords are not case-sensitive, and they are represented in uppercase. You can enter them in either uppercase or lowercase.	COPY MY_DATA.SEQ HOLD_DATA.SEQ
Italics	Indicate variables you replace with a value, a column name, a file name, and so on. The example indicates that you must substitute the name of a table.	FROM *table-name*
Punctuation marks	Indicate required syntax that you must code exactly as presented. ( ) parentheses . period , comma : colon ' ' single quotation marks	(*user-id*, *password*, *db-name*) INFILE 'Cust.Memo' CONTROL LEN4
SMALL CAPS	Represent a required keystroke. Multiple keystrokes are hyphenated.	ALT-TAB

SUPRA Server documentation series

SUPRA Server is the advanced relational database management system for high-volume, update-oriented production processing. A number of tools are available with SUPRA Server including DBA Functions, DBAID, precompilers, SPECTRA, and MANTIS. The following list shows the manuals and tools used to fulfill the data management and retrieval requirements for various tasks. Some of these tools are optional. Therefore, you may not have all the manuals listed. For a brief synopsis of each manual, refer to the *SUPRA Server PDM Digest for VMS Systems*, P25-9062.

Overview

- *SUPRA Server PDM Digest for VMS Systems*, P25-9062

Getting started

- *SUPRA Server PDM VMS Installation Guide*, P25-0147
- *SUPRA Server PDM VMS Tutorial*, T25-2263

General use

- *SUPRA Server PDM Glossary*, P26-0675
- *SUPRA Server PDM Messages and Codes Reference Manual (PDM/RDM Support for UNIX & VMS)*, P25-0022

Database administration tasks

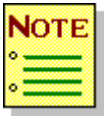
- *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260
- *SUPRA Server PDM System Administration Guide (VMS)*, P25-0130
- *SUPRA Server PDM Utilities Reference Manual (UNIX & VMS)*, P25-6220
- *SUPRA Server PDM Directory Views (VMS)*, P25-1120
- *SUPRA Server PDM Windows Client Support User's Guide*, P26-7500*
- *SPECTRA Administrator's Guide*, P26-9220**

Application programming tasks

- *SUPRA Server PDM Programming Guide (UNIX & VMS)*, P25-0240
- *SUPRA Server PDM System Administration Guide (VMS)*, P25-0130
- *SUPRA Server PDM RDM Administration Guide (VMS)*, P25-8220
- *SUPRA Server PDM Windows Client Support User's Guide*, P26-7500*
- *MANTIS Planning Guide*, P25-1315**

Report tasks

- *SPECTRA User's Guide*, P26-9561**



Manuals marked with an asterisk (*) are listed twice because you use them for different tasks.

Educational material is available from your regional Cincom education department.

1

Introduction

The *SUPRA Server PDM VMS Tutorial* complements and supports the *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260, the *SUPRA Server PDM RDM Administration Guide (UNIX & VMS),* P25-8220, and the *SUPRA Server PDM System Administration Guide (VMS)*, P25-0130. The tutorial is a prerequisite for users who are not experienced in creating database descriptions, data sets, data items, indices, secondary keys, validation tables, domains, task logs, system logs, or views. The tutorial also helps users who want to refresh their memory. You can use the tutorial as reference text for implementing the concepts discussed in the manuals listed above.

The tutorial guides you through the steps for creating a database and for inserting data. It uses a sample database to illustrate how to perform the following tasks:

- Define a database including data sets, indices and secondary keys, and task and system logs (see “Creating a database description” on page 19)
- Validate and compile a database (see “Validating and compiling a database” on page 107)
- Format the physical data set, recovery log, and index files (see “Formatting database files” on page 115)
- Define domains and validation tables (see “Defining domains and validation tables” on page 129)
- Define the logical names for use in views (see “Defining logical data items” on page 147)
- Define views through SUPRA DBA (see “Defining base views” on page 185)
- Define and test views through DBAID (see “Defining base views” on page 185)

By following the instructions, you will end up with a small database with connected indices and domains, a set of base views, and some example data to experiment with.

A glossary of terms that you may encounter as you build your sample database has been provided with this tutorial.

Prerequisites

This tutorial describes how to use SUPRA DBA and DBAID. It assumes that your DBA has set up any necessary system-level parameters and logical names. However, in addition to these you need a number of database-specific logical names. Therefore, before you start this tutorial, perform these logical name definitions:

- Identify the VMS directory where you will create all the physical files used by the database:

  ```
  $ DEFINE/GROUP EDUC_DBA dev:[directory]
  ```

- Identify the preferred machine list for the database:

  ```
  $ DEFINE/GROUP PERSON_CSI_PDM_MACS mac1,mac2,...
  ```

  where *mac1,mac2*,... is the list of machines your database can run on.

- Assign a 6-character logical name to the compiled database description file:

  ```
  $ DEFINE/GROUP PERSON EDUC_DBA:PERSON.MOD
  ```

- Specify which database you will use:

  ```
  $ DEFINE CSI_SCHEMA PERSON
  ```

- Enable automatic system log dumping:

  ```
  $ DEFINE/GROUP DUMPSLF_PERSON EDUC_DBA:PERSON_DUMP.INP
  ```

- When you enable system log dumping, define an input file (DUMPSLF_PERSON) that contains the following three lines:

  ```
  EDUC_DBA
  PERSON_DUMP
  EDUC_DBA
  ```

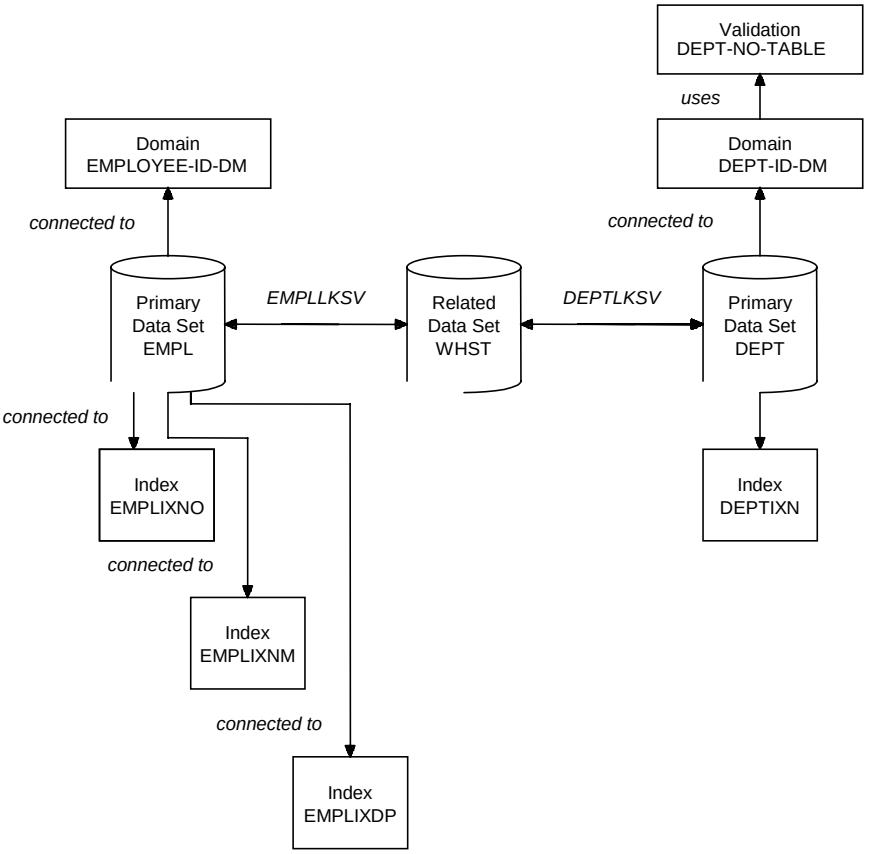
For more information about the contents of the system log dumping input file, refer to the *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260. Refer to the *SUPRA Server PDM System Administration Guide (VMS)*, P25-0130, for a detailed description of SUPRA Server logical names and system parameters.

Make sure you have at least 3600 blocks of free disk space available on your system to hold the database files you will create in Chapter 3 and Chapter 4.

The instructions throughout this tutorial lead you to generate a groupwide database.

Overview of the PERSON database

The PERSON database consists of three data sets, four indices, two domains and one validation table. You define these entities using SUPRA DBA. The following figure illustrates the entities in the PERSON database:



In addition to these database entities, you will define both task and system logging to ensure optimum data protection.

You will create all the data files for the PERSON database in the VMS directory pointed to by the logical name EDUC_DBA. After you have finished the tutorial, this directory will contain the following files:

Filename	Description
DEPT.PER	DEPT data set data file. Contains department records. See "Formatting database files" on page 115.
DEPTIXNO.PER	Department number index. Contains index records for secondary key DEPTSKNO. See "Formatting database files" on page 115.
EMPL.PER	EMPL data set data file. Contains employee records. See "Formatting database files" on page 115.
EMPLIXNO.PER	Employee ID index. Contains index records for secondary key EMPLSKNO. See "Formatting database files" on page 115.
EMPLIXNM.PER	Employee name index. Contains index records for secondary key EMPLSKNM. See "Formatting database files" on page 115.
EMPLIXDP.PER	Employee department index. Contains index records for secondary key EMPLSKDP. See "Formatting database files" on page 115.
PERSON.MOD	Compiled database description file. Equates to the logical name PERSON. "Validating and compiling a database" on page 107.
SLOG1.PER	First system log component. See "Formatting database files" on page 115.
SLOG2.PER	Second system log component. See "Formatting database files" on page 115.
TLOG.PER	Task log data file. See "Formatting database files" on page 115.
WHST.PER	WHST data set data file. Contains work history records. See "Formatting database files" on page 115.

Displaying online help text

Both SUPRA Server components that we use in this tutorial, SUPRA DBA and SUPRA DBAID, offer online help text. You can display online help at any time while using these products.

In SUPRA DBA, you access context-sensitive online help by pressing PF2. If the screen contains a menu, the help text describes each option on the menu. If the screen prompts you for input, for instance, entering database details, you can position your cursor in any data entry field and press PF2 to obtain information about what you should enter. SUPRA DBA also provides help for messages. Most error messages end with PF1/2 which means press PF1 to clear the message or press PF2 to display help about the message. At any time during this tutorial, press PF2 to obtain more information about the task you are performing. Press CTRL-Z to exit the help system, or press RETURN at the "Topic?" prompt.

In DBAID, you can get help with a specific DBAID topic by typing HELP topic-name. If you are unfamiliar with the range of DBAID commands available, type HELP to display a list of HELP topics and select one by typing its name in response to the "Topic?" prompt. Press CTRL-Z to exit the help system, or press RETURN at the "Topic?" prompt.

Now turn to Chapter 2 to start SUPRA DBA and create the PERSON database.

2

Creating a database description

SUPRA Server processes the DBA functions through a series of formatted screens. These screens prompt you to select options from menus and enter data; your responses must pass certain validation checks before SUPRA DBA accepts them. If you enter an invalid response, SUPRA DBA displays a message and pauses for you to make corrections. If you are unsure how to enter the required input, you can display a series of on-line help screens by pressing PF2. Online help text is available at any time during SUPRA DBA processing.

In this chapter you will create the three data sets that make up the PERSON database: EMPL, DEPT and WHST. EMPL and DEPT are primary data sets, WHST is the related data set that connects to EMPL and DEPT. EMPL is connected to three indices and DEPT is connected to one index. The data items in these data sets are:

Primary data set EMPL	Related data set WHST	Primary data set DEPT
EMPLCTRL=6(index EMPLIXNO)	WHSTEMPL=6	DEPTCTRL=4(index DEPTIXNO)
EMPLNAME=20(index EMPLIXNM)	EMPLLKSV=8=WHSTEMPL	DEPTNAME=20
EMPLADDR=37(subdefined)	WHSTDEPT=4	DEPTMNGR=6
EMPLSTRT=15	DEPTLKSV=8=WHSTDEPT	DEPTSTAF=3
EMPLCITY=15	WHSTDURA=2	DEPTLKSV=8
EMPLSTAT=2	WHSTTITL=15	
EMPLZIPC=5		
EMPLDEPT=4(index EMPLIXDP)		
EMPLLKSV=8		

Note that physical data items are shown in capital letters, subdefined data items are indented, and index names are enclosed in parentheses.

You can start SUPRA Server components in three ways:

- Use SUPRA Server Facilities “$ RUN SUPRA” at the DCL command level
- Use VMS symbols, which are defined when you enter the command procedure:

```
$ SUPRA_COMS:SUPRA_SYMBOL.COM
```

- Use the logical name CSIDBA to run the component directly:

```
$ RUN CSIDBA
```

For more information on these options, refer to the *SUPRA Server PDM System Administration Guide (VMS)*, P25-0130. In this chapter we will start the DBA facility by using the VMS symbols that are defined in the command procedure SUPRA_COMS:SUPRA_ SYMBOL.

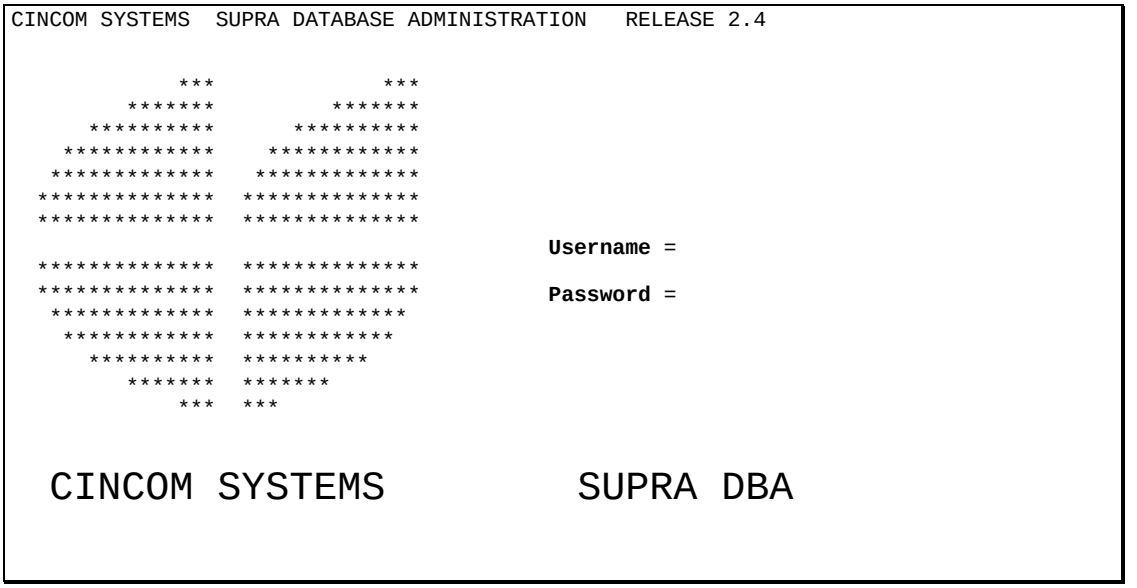
Start the DBA facility by entering:

```
$ @SUPRA_COMS:SUPRA_SYMBOL
$ DBA
```

at DCL command level.

At the SUPRA Server Sign-on screen, enter your username and password, and press RETURN.

Your username and password should have been set by your DBA with a user access authority of DA (DBA/UTILITIES) or above. If not, refer to the *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260, for details about setting up username/password combinations.



Defining database details

SUPRA DBA displays the DBA Function Selection menu. The DBA Function Selection menu provides access to the database maintenance and utility functions. To create a database description, enter 1 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - FUNCTION SELECTION FOR THE DBA

                    Select required function :
                1 : Database descriptions
                2 : Data sets
                3 : Logical views
                4 : Logical data items
                5 : Domains
                6 : Validation tables
                7 : Programs
                8 : Users
                9 : Unlock functions
               10 : Administration functions

                    Enter choice no.: 1
```

If you press RETURN or PF1 before selecting a function, the message, "Do you want to exit from the DBA System? (Y,N):" appears. If this message appears, enter N, press RETURN, and enter the number of your choice.

You are able to exit any session with the tutorial by pressing PF1 or CTRL-Z until you reach the DBA Function Selection menu shown above. At this screen press PF1 one time and the prompt "Do you want to exit from the DBA System? (Y,N):" appears. At this point enter Y and press RETURN to exit, or enter N and press RETURN to continue.

SUPRA DBA returns the Database Description Function menu.. You use the Database Description Function menu to create and maintain database definitions. To create a database, enter 3 and press RETURN. When the message “Create database description name:” appears, enter PERSON and press RETURN.

```
CINCOM SYSTEMS    SUPRA DBA - DATABASE DESCRIPTION FUNCTION

                  Function for database descriptions:
               1 : Examine
               2 : Modify
               3 : Create
               4 : Delete
               5 : Copy
               6 : List
               7 : Print
               8 : Validate
               9 : Compile and print
              10 : List logical views for the database
              11 : Data set functions

                   Enter choice no.: 3


  Create database description name
  : PERSON
```

SUPRA DBA returns the Database Description Maintenance screen. Use this screen to define the database details. SUPRA DBA displays default values and positions your cursor in the DATABASE-PASSWORD field for you to define a password. Enter the password DEMO and press RETURN to position your cursor at the next field. Press RETURN to bypass the MAX-HELD-RECORDS field. Change the MAX-TASKS field to 2 by overtyping and press RETURN. Press PF1 to display the updates and the prompt “Enter field number to modify a field (or PF1 to exit):”.

```
CINCOM SYSTEMS  SUPRA DBA - DATABASE DESCRIPTION MAINTENANCE


   1 : DATABASE-DESCRIPTION-NAME      : PERSON
   2 : DATABASE-PASSWORD              : DEMO
   3 : MAX-HELD-RECORDS               : 16
   4 : MAX-TASKS                      : 2
   5 : MAX-UPDATE-TASKS               : 10
   6 : SHADOW-OPTION                  : N
   7 : SINGLE-TASK                    : N
   8 : DATABASE-DESCRIPTION-STATUS    : BEING MODIFIED
   9 : DATE-COMPILED                  :
  10 : TIME-COMPILED                  :
  11 : ACCESS-METHOD                  : QIO
  12 : GLOBAL-SECTION-TYPE            : GROUP
  13 : CALLING-MECHANISM              : REFERENCE
  14 : CLUSTER/NETWORK-SUPPORT        : LOCAL
```

SUPRA DBA displays your updates to the Database Description Maintenance screen, and displays the prompt: “Enter field number to modify a field (or <PF1> to exit):”.

Notice that you have set the maximum number of tasks that can use the database at one time (MAX-TASKS) to 2, whereas the number of tasks that can sign-on to the database in update mode (MAX-UPDATE-TASKS) remains at 10. This is an invalid combination since the maximum number of update tasks should never exceed the maximum number of tasks.

You must return to the MAX-UPDATE-TASKS field to alter it. Enter 5 and press RETURN to position your cursor at the MAX-UPDATE-TASKS field and overtype the value 10 with the value 2. Press RETURN to update the field. Press PF1 to exit the Database Maintenance screen.

```
CINCOM SYSTEMS  SUPRA DBA - DATABASE DESCRIPTION MAINTENANCE


   1 : DATABASE-DESCRIPTION-NAME      : PERSON
   2 : DATABASE-PASSWORD              : DEMO
   3 : MAX-HELD-RECORDS               : 16
   4 : MAX-TASKS                      : 2
   5 : MAX-UPDATE-TASKS               : 2
   6 : SHADOW-OPTION                  : N
   7 : SINGLE-TASK                    : N
   8 : DATABASE-DESCRIPTION-STATUS    : BEING MODIFIED
   9 : DATE-COMPILED                  :
  10 : TIME-COMPILED                  :
  11 : ACCESS-METHOD                  : QIO
  12 : GLOBAL-SECTION-TYPE            : GROUP
  13 : CALLING-MECHANISM              : REFERENCE
  14 : CLUSTER/NETWORK-SUPPORT        : LOCAL


    Enter field number to modify a field (or <PF1> to exit): 5
```

After you exit the maintenance screen, SUPRA DBA returns the comment screen. You use the comment screen to enter comments about the database description and any database entity associated with that description. You will not enter comments during this part of the tutorial for the database description. To skip over the comment screen, press RETURN or PF1.

```
CINCOM SYSTEMS              COMMENTS for PERSON


No COMMENTS written yet









action : A,C,D,F,L,M,N,O,P,R or W - Hit <PF2> for explanation
:
```

Creating the primary data set EMPL

When you exit the comment screen, SUPRA DBA returns the Data Set Function menu.

SUPRA DBA connects any data sets you create to the database. For a primary or related data set, SUPRA DBA then prompts for the buffer used by the data set.

You will first create a primary data set. Enter 3 and press RETURN at the Function for Data Sets menu. DBA displays the prompt: "Create primary data set:". Enter EMPL and press RETURN to create a data set called EMPL and display its Physical File Attributes.

```
CINCOM SYSTEMS          SUPRA DBA - DATA SET FUNCTION

                    Function for data sets:
                 1 : Examine data set
                 2 : Modify data set
                 3 : Create primary data set
                 4 : Create related data set
                 5 : Create RMS data set
                 6 : Delete data set
                 7 : List all data sets
                 8 : Connect an existing data set
                 9 : Disconnect an existing data set
                10 : List databases using data set

                    Enter choice no.: 3

     Create primary data set:  EMPL
```

Defining physical file attributes for EMPL

The Physical File Attributes screen specifies the physical disk files and corresponding shadow files to hold all or part of a data set. As with the Database Description Maintenance screen, SUPRA DBA positions your cursor at the first field you can modify.

Press RETURN three times to accept the first three default values, and position your cursor at the FILE-SPEC-1 field. You do not need to update the TOTAL-LOGICAL-RECORDS field because SUPRA DBA calculates this value during database validation. For this sample database, you can accept the defaults supplied by DBA for LOGICAL-RECORDS-PER-BLOCK and ACCESS-MODE, although you may wish to change them when you define your own databases.

Enter EDUC_DBA:EMPL.PER and press RETURN to update the field. Press PF1 to display the "Enter field number to modify a field (or <PF1> to exit):" and press PF1 again to exit this screen.

```
CINCOM SYSTEMS    FILE FOR DATA SET EMPL AND DATABASE PERSON

  1 : TOTAL-LOGICAL-RECORDS        :0
  2 : LOGICAL-RECORDS-PER-BLOCK    :10
  3 : ACCESS-MODE                  :UPDATE
  4 : FILE-SPEC-1                  :EDUC_DBA:EMPL.PER
  5 : SHADOW-FILE-SPEC-1           :
  6 : ALLOCATION-1                 :
  7 : FILE-SPEC-2                  :
  8 : SHADOW-FILE-SPEC-2           :
  9 : ALLOCATION-2                 :
 10 : FILE-SPEC-3                  :
 11 : SHADOW-FILE-SPEC-3           :
 12 : ALLOCATION-3                 :
 13 : FILE-SPEC-4                  :
 14 : SHADOW-FILE-SPEC-4           :
 15 : ALLOCATION-4                 :

Enter field number to modify a field (or <PF1> to exit): PF1
```

The Comment screen is next. This screen is the same format throughout the database description process. You will not enter any comments for the primary data set EMPL. Press either RETURN or PF1 to exit this screen.

Creating a primary buffer for EMPL

SUPRA DBA returns the Buffer screen. The buffer is the area where SUPRA Server stores data while it is being manipulated. The screen displays the prompt: “BUFFER for this data set:”. Enter PBUF and press RETURN. SUPRA DBA then displays the following prompt: “This buffer does not exist. Do you want to create it (Y,N):”. Enter Y and press RETURN to create the buffer and display the buffer details screen.

```
CINCOM SYSTEMS              BUFFER FOR DATA SET EMPL

     BUFFER for this data set:  PBUF

     This buffer does not exist
     Do you want to create it(Y,N): Y
```

SUPRA DBA returns the Buffer Details screen. When you add a buffer, the screen displays the default values. The only value you can change is the number of copies; SUPRA DBA calculates the BUFFER-SIZE during validation.

You do not need to change anything on this screen. Press RETURN to display the "Enter field number to modify a field (or <PF1> to exit):" prompt and press PF1 to exit this screen.

```
CINCOM SYSTEMS              BUFFER : PERSON PBUF


  1 : BUFFER-NAME                   : PBUF
  2 : NUMBER-OF-COPIES-OF-BUFFER    : 5
  3 : PRIMARY-OR-RELATED-BUFFER     : PRIMARY
  4 : BUFFER-SIZE                   : 0


Enter field number to modify a field (or <PF1> to exit): PF1
```

The Comment screen follows the details screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen and move to the Primary Record Function Menu.

Defining the record Layout for EMPL

SUPRA DBA returns the Primary Record Function menu. You create and process primary data items in a hierarchy, defining data items up to six levels. The first level is the outer level. The minimum record length for a primary data set, that is, the combined length of all its data items, is 21 bytes.

Enter 2 and press RETURN.

```
CINCOM SYSTEMS       SUPRA DBA - PRIMARY RECORD FUNCTION

                     Function for data set EMPL
                  1 : Examine primary data items
                  2 : Modify primary data items
                  3 : List primary data items

                     Enter choice no.:  2
```

SUPRA DBA returns the Data Item screen. This screen provides you with information about EMPLROOT and EMPLCTRL, and displays the prompt: “Length of EMPLCTRL:”. Enter 6 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

      2 data items at the outer level :

  1  EMPLROOT=8
  2  EMPLCTRL=0
      ** End of list **









Length of EMPLCTRL:  6
```

SUPRA DBA repaints the screen and adds a 6 in line 2 for the length of EMPLCTRL. At the bottom of the screen, DBA displays the prompt: “Select data item number or function (List,Modify,Add,Delete,Copy):”. Enter A and press RETURN. At the next prompt, “Add data item following data item,” enter 2 and press RETURN. DBA now displays the prompt: “Four-character data item name :”. Enter NAME and press RETURN. The last prompt asks you for the “Data item length (or hit <PF4> to add sub-data-items):”. Enter 20 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

       2 data items at the outer level :

  1  EMPLROOT=8
  2  EMPLCTRL=6
       ** End of list **









  Select data item number or function (List,Modify,Add,Delete,Copy) : A
  Add data item following data item number: 2
  Four-character data item name: NAME
  Data item length (or hit <PF4> to add sub-data-items) : 20
```

SUPRA DBA repaints the prompts at the bottom of the screen. Enter ADDR as the “Four-character data item name:” and press RETURN. For the “Data item length (or hit <PF4> to add sub-data-items):” prompt, press PF4 to add subdata items.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

       3 data items at the outer level :

  1  EMPLROOT=8
  2  EMPLCTRL=6
       ** End of list **









  Select data item number or function (List,Modify,Add,Delete,Copy) : A
  Add data item following data item EMPLNAME
  Four-character data item name: ADDR
  Data item length (or hit <PF4> to add sub-data-items) : PF4
```

You will subdefine ADDR into four subdata items; STRT, CITY, STAT and ZIPC. SUPRA DBA returns the screen for you to enter the first subdata item. Enter STRT as the “Four-character data item name:” and press RETURN. Enter 15 for the “Data item length” and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

   Current data item : EMPLADDR         Level : 0      Filler : N

   Add data items at level 1









  Four-character data item name: STRT
  Data item length (or hit <PF4> to add sub-data-items) : 15
```

SUPRA DBA repaints the prompts, displays the name of the subdata item you have just defined, and prompts you for the same information. Enter CITY as the “Four-character data item name:” and press RETURN. Enter 15 for the “Data item length” and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

   Current data item : EMPLADDR         Level : 0      Filler : N

   Add data items at level 1









  Add data item following data item EMPLSTRT
  Four-character data item name: CITY
  Data item length (or hit <PF4> to add sub-data-items) : 15
```

SUPRA DBA repaints the prompts, displays the name of the subdata item you have just defined, and prompts you for the same information. Enter STAT as the “Four-character data item name:” and press RETURN. Enter 2 for the “Data item length” and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

   Current data item : EMPLADDR         Level : 0      Filler : N

   Add data items at level 1









  Add data item following data item EMPLCITY
  Four-character data item name: STAT
  Data item length (or hit <PF4> to add sub-data-items) : 2
```

SUPRA DBA repaints the prompts, displays the name of the subdata item you just defined, and prompts you for the same information. Enter ZIPC as the “Four-character data item name:” and press RETURN. Enter 5 as the “Data item length” and press RETURN. Press RETURN to exit this screen and display the Data Item screen. Note that pressing PF1 at this point redisplays the Primary Record Function menu.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

   Current data item : EMPLADDR         Level : 0      Filler : N

   Add data items at level 1









  Add data item following data item EMPLSTAT
  Four-character data item name: ZIPC
  Data item length (or hit <PF4> to add sub-data-items) : 5
```

SUPRA DBA repaints the screen, displays the new data item EMPLADDR, and notes the number of subdefined data items. At the bottom of the screen, DBA displays the prompt: “Add data item following data item number:”. Enter 4 and press RETURN. DBA now displays the prompt: “Four-character data item name:”. Enter DEPT and press RETURN. The last prompt asks you for the “Data item length (or hit <PF4> to add sub-data-items):”. Enter 4 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

       4 data items at the outer level :

  1  EMPLROOT=8
  2  EMPLCTRL=6
  3  EMPLNAME=20
  4  EMPLADDR     (4 sub-data-items)
       ** End of list **









  Select data item number or function (List,Modify,Add,Delete,Copy) : A
  Add data item following data item number: 4
  Four-character data item name: DEPT
  Data item length (or hit <PF4> to add sub-data-items) : 4
```

SUPRA DBA repaints the prompts. Enter LKSV at the “Four-character data item name:” prompt and press RETURN. LKSV is the linkpath for the data set. You do not need to enter a length for this data item; SUPRA DBA automatically sets the length of all linkpaths to 8. Press RETURN to redisplay this screen showing all the data items you have defined.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

      4 data items at the outer level :

  1  EMPLROOT=8
  2  EMPLCTRL=6
  3  EMPLNAME=20
  4  EMPLADDR     (4 sub-data-items)
      ** End of list **









  Add data item following data item EMPLDEPT
  Four-character data item name: LKSV
```

SUPRA Server repaints the data item screen with the new data items added. Press PF1 to return to the Primary Record Function menu.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN EMPL PRIMARY-DATA

      6 data items at the outer level :

  1  EMPLROOT=8
  2  EMPLCTRL=6
  3  EMPLNAME=20
  4  EMPLADDR     (4 sub-data-items)
  5  EMPLDEPT=4
  6  EMPLLKSV=8
      ** End of list **









  Select data item number or function (List,Modify,Add,Delete,Copy) : PF1
```

SUPRA DBA returns the Primary Record Function menu. Press PF1 to exit this screen.

```
CINCOM SYSTEMS        SUPRA DBA - PRIMARY RECORD FUNCTION


                    Function for data set EMPL
                1 : Examine primary data items
                2 : Modify primary data items
                3 : List primary data items

                    Enter choice no.:  PF1
```

Creating indices for EMPL

SUPRA DBA prompts you to enter a two-character index name. Enter the index name NO and press RETURN to display the Index File Specification screen.

```
CINCOM SYSTEMS     SUPRA DBA  -  DATA SET INDEX CREATION




                Index name : NO
```

For more information on indices, refer to the *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260.

SUPRA DBA displays the Index File Specification screen, and positions your cursor at the first field that you can modify. In this tutorial, you can accept the defaults offered by SUPRA DBA for the first three fields.

Press RETURN three times to accept the first three default values and to move your cursor to the INDEX-FILE-SPEC field. Enter EDUC_DBA:EMPLIXNO.PER. Press RETURN to update the field. Press RETURN a second time to bypass the INDEX-SHADOW-FILE-SPEC field and display the "Enter field number to modify a field (or PF1 to exit):" prompt. Press PF1 to exit this screen.

```
CINCOM SYSTEMS   INDEX-FILE-SP: EMPLIXNO   PERSON FILE-SPEC

    1 : INDEX-CORRUPT-ACTION          :OPERATOR
    2 : INDEX-NULL-SORTING            :HIGH
    3 : INDEX-READ-VERIFY             :YES
    4 : INDEX-FILE-SPEC               :EDUC_DBA:EMPLIXNO.PER
    5 : INDEX-SHADOW-FILE-SPEC        :

    Enter field number to modify a field (or <PF1> to exit) : PF1
```

The Comment screen follows the file specification screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen and display the "Secondary Key name:" prompt.

SUPRA DBA prompts you to enter a two-character secondary key name. Enter the key name NO and press RETURN to display the Secondary Key Attributes screen.

```
CINCOM SYSTEMS      SUPRA DBA  -  SECONDARY KEY PROCESSING




                Secondary Key name : NO
```

SUPRA DBA displays the Secondary Key Attributes screen for you to define the physical attributes of the secondary key. In this tutorial, you can accept the defaults set up by SUPRA DBA. Press PF1 to display the "Enter field number to modify a field (or <PF1> to exit):" prompt. Press PF1 to exit this screen.

```
CINCOM SYSTEMS            SECONDARY-KEY : EMPLSKNO

           1 : SECONDARY-KEY-NAME            :EMPLSKNO
           2 : SEC-KEY-UNIQUE                :NO
           3 : SEC-KEY-DIRECTION             :FORWARD
           4 : SEC-KEY-POINTER-ORDERING      :NO
           5 : SEC-KEY-POINTER-TYPE          :DIRECT
           6 : SEC-KEY-DATA-TYPE-SORTING     :NO
           7 : SEC-KEY-DUPLICATES            :5

         Enter field number to modify a field (or <PF1> to exit) : PF1
```

The Comment screen follows the Secondary Key attributes screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen and display the Data Items for Secondary Key screen.

SUPRA DBA displays the Data Items for Secondary Key screen. Because this is a new secondary key, no connected data items exist. Enter CTRL at the “Enter 4-character data item name:” prompt and press RETURN to update the screen.

```
CINCOM SYSTEMS    SUPRA DBA  - DATA ITEMS FOR SECONDARY KEY

DATA ITEMS CONNECTED TO SECONDARY KEY NO

          *** No data items connected ***









             Enter 4-character data item name: CTRL
```

SUPRA DBA repaints the screen to indicate that you have included the data item EMPLCTRL in the secondary key NO and prompts you to include another data item. Press RETURN to finish including data items. SUPRA DBA displays the message “024 Secondary key created successfully.” Press PF1 to exit this screen.

```
CINCOM SYSTEMS    SUPRA  DBA - DATA ITEMS FOR SECONDARY KEY

       Data items connected to Secondary Key (NO)

          1.  EMPLCTRL
                  *** End of list ***









            Add data item after data item EMPLCTRL
            Enter 4-character data item name:



024 Secondary key created successfully                          <PF1/2>
```

You have now defined a secondary key on the employee number data item. This means you can define views to return employee records in employee number order. You can also perform generic reads on this data item, omitting parts of the secondary key from the right. For example, if you have the following employee numbers: 1200064, 1200100, 1200104, 1200214, and 1200316, you could retrieve only those employees with a number beginning with the digits 12001.

SUPRA DBA prompts you to enter a two-character secondary key name. Do not enter a secondary key name; instead, press PF1 to display the message “024 index created successfully.” Press PF1 to exit this screen.

```
CINCOM SYSTEMS      SUPRA DBA  -  SECONDARY KEY PROCESSING









             Secondary Key name : PF1

024 INDEX CREATED SUCCESSFULLY                                    <PF1/2>
```

SUPRA DBA prompts you to enter another two-character index name. Enter the index name NM and press RETURN to display the Index File Specification screen.

```
CINCOM SYSTEMS    SUPRA DBA - DATA SET INDEX CREATION









     Index name : NM
```

SUPRA DBA displays the Index File Specification screen and positions your cursor at the first field that you can modify. In this tutorial, you can accept the defaults offered by SUPRA DBA for the first three fields.

Press RETURN three times to accept the first three default values and to move your cursor to the INDEX-FILE-SPEC field. Enter EDUC_DBA:EMPLIXNM.PER. Press RETURN to update the field. Press RETURN a second time to bypass the INDEX SHADOW-FILE-SPEC field and to display the "Enter field number to modify a field (or <PF1> to exit):" prompt. Press PF1 to exit this screen.

```
CINCOM SYSTEMS   INDEX-FILE-SP: EMPLIXNM   PERSON FILE-SPEC

   1 : INDEX-CORRUPT-ACTION          :OPERATOR
   2 : INDEX-NULL-SORTING            :HIGH
   3 : INDEX-READ-VERIFY             :YES
   4 : INDEX-FILE-SPEC               :EDUC_DBA:EMPLIXNM.PER
   5 : INDEX-SHADOW-FILE-SPEC        :

   Enter field number to modify a field (or <PF1> to exit) : PF1
```

The Comment screen follows the Index File Specification screen. You don't need to enter any comments here. Press either RETURN or PF1 to exit this screen and display the "Secondary Key name:" prompt.

SUPRA DBA prompts you to enter a two-character secondary key name. Enter the key name NM and press RETURN to display the Secondary Key Attributes screen.

```
CINCOM SYSTEMS      SUPRA DBA  -  SECONDARY KEY PROCESSING




                    Secondary Key name : NM
```

SUPRA DBA displays the Secondary Key Attributes screen for you to define the physical attributes of the secondary key. In this tutorial, you can accept the defaults set up by SUPRA DBA. Press PF1 to display the "Enter field number to modify a field (or <PF1> to exit):" prompt. Press PF1 to exit this screen.

```
CINCOM SYSTEMS              SECONDARY-KEY : EMPLSKNM

           1 : SECONDARY-KEY-NAME            :EMPLSKNM
           2 : SEC-KEY-UNIQUE                :NO
           3 : SEC-KEY-DIRECTION             :FORWARD
           4 : SEC-KEY-POINTER-ORDERING      :NO
           5 : SEC-KEY-POINTER-TYPE          :DIRECT
           6 : SEC-KEY-DATA-TYPE-SORTING     :NO
           7 : SEC-KEY-DUPLICATES            :5

         Enter field number to modify a field (or <PF1> to exit) : PF1
```

The comment screen follows the attributes screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen and display the Data Items for Secondary Key screen. SUPRA DBA displays the Data Items for Secondary Key screen. Because this is a new secondary key, no connected data items exist. Enter NAME at the "Enter 4-character data item name:" prompt and press RETURN to update the screen.

```
CINCOM SYSTEMS   SUPRA DBA  - DATA ITEMS FOR SECONDARY KEY

DATA ITEMS CONNECTED TO SECONDARY KEY NM

          *** No data items connected ***


            Enter 4-character data item name: NAME
```

SUPRA DBA repaints the screen to indicate that you have included the data item EMPLNAME in the secondary key NM and prompts you to include another data item. Press RETURN to finish including data items. SUPRA DBA displays the message “024 Secondary key created successfully.” Press PF1 to exit this screen.

```
CINCOM SYSTEMS        DATA ITEMS FOR SECONDARY KEY

       Data items connected to Secondary Key (NM)

          1.  EMPLNAME
                  *** End of list ***









            Add data item after data item EMPLNAME
            Enter 4-character data item name:


024 Secondary key created successfully                          <PF1/2>
```

You have now defined a secondary key on the employee name data item. This means that you can define views to return employee records in employee name order. You can also perform generic reads on this data item, omitting parts of the secondary key from the right. For example, you could retrieve only those employees with a surname that began with the letters TH.

SUPRA DBA prompts you to enter a two-character secondary key name. Do not enter a secondary key name; instead, press PF1 to display the message “024 index created successfully.” Press PF1 to exit this screen.

```
CINCOM SYSTEMS      SUPRA DBA  -  SECONDARY KEY PROCESSING




             Secondary Key name : PF1


024 INDEX CREATED SUCCESSFULLY                                    <PF1/2>
```

SUPRA DBA prompts you to enter another two-character index name. Enter the index name DP and press RETURN to display the Index File Specification Screen.

```
CINCOM SYSTEMS    SUPRA DBA - DATA SET INDEX CREATION




                  Index name : DP
```

SUPRA DBA displays the Index File Specification screen and positions your cursor at the first field that you can modify. In this tutorial, you can accept the defaults offered by SUPRA DBA for the first three fields.

Press RETURN three times to accept the first three default values and to move your cursor to the INDEX-FILE-SPEC field. Enter EDUC_DBA:EMPLIXDP.PER. Press RETURN to update the field. Press RETURN a second time to bypass the INDEX-SHADOW-FILE-SPEC field and display the "Enter field number to modify a field (or <PF1> to exit):" prompt. Press PF1 to exit this screen.

```
CINCOM SYSTEMS   INDEX-FILE-SP: EMPLIXDP  PERSON FILE-SPEC

   1 : INDEX-CORRUPT-ACTION          :OPERATOR
   2 : INDEX-NULL-SORTING            :HIGH
   3 : INDEX-READ-VERIFY             :YES
   4 : INDEX-FILE-SPEC               :EDUC_DBA:EMPLIXDP.PER
   5 : INDEX-SHADOW-FILE-SPEC        :

   Enter field number to modify a field (or <PF1> to exit) : PF1
```

The Comment screen follows the Index File Specification screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen and display the "Secondary Key name:" prompt.

SUPRA DBA now prompts you to enter a two-character secondary key name. Enter the key name DP and press RETURN to display the Secondary Key Attributes screen.

```
CINCOM SYSTEMS     SUPRA DBA  -  SECONDARY KEY PROCESSING




             Secondary Key name : DP
```

SUPRA DBA displays the Secondary Key Attributes screen for you to define the physical attributes of the secondary key. In this tutorial, you can accept the defaults set up by SUPRA DBA. Press PF1 to display the "Enter field number to modify a field (or <PF1> to exit):" prompt. Press PF1 to exit this screen.

```
CINCOM SYSTEMS              SECONDARY-KEY : EMPLSKDP

           1 : SECONDARY-KEY-NAME            :EMPLSKDP
           2 : SEC-KEY-UNIQUE                :NO
           3 : SEC-KEY-DIRECTION             :FORWARD
           4 : SEC-KEY-POINTER-ORDERING      :NO
           5 : SEC-KEY-POINTER-TYPE          :DIRECT
           6 : SEC-KEY-DATA-TYPE-SORTING     :NO
           7 : SEC-KEY-DUPLICATES            :5

         Enter field number to modify a field (or <PF1> to exit) : PF1
```

The Comment screen follows the Secondary Key attributes screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen and display the Data Items for Secondary Key screen.

SUPRA DBA displays the Data Items for Secondary Key screen. Because this is a new secondary key, no connected data items exist. Enter DEPT at the “Enter 4-character data item name:” prompt and press RETURN to update the screen.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS FOR SECONDARY KEY

DATA ITEMS CONNECTED TO SECONDARY KEY DP

          *** No data items connected ***









            Enter 4-character data item name: DEPT
```

SUPRA DBA repaints the screen to indicate you have included the data item EMPLDEPT in the secondary key DP and prompts you to include another data item. Press RETURN to finish including data items. SUPRA DBA displays the message “024 Secondary key created successfully.” Press PF1 to exit this screen.

```
CINCOM SYSTEMS        DATA ITEMS FOR SECONDARY KEY

       Data items connected to Secondary Key (DP)

          1.  EMPLDEPT
                  *** End of list ***









            Add data item after data item EMPLDEPT
            Enter 4-character data item name:



024 Secondary key created successfully                          <PF1/2>
```

You have now defined a secondary key on the employee department data item. This means you can define views to return employee records in employee department order. You can also perform generic reads on this data item, omitting parts of the secondary key from the right.

SUPRA DBA prompts you to enter a two-character secondary key name. Do not enter a secondary key name; instead, press PF1 to display the message “024 index created successfully.” Press PF1 to exit this screen.

```
CINCOM SYSTEMS     SUPRA DBA  -  SECONDARY KEY PROCESSING




             Secondary Key name : PF1

024 INDEX CREATED SUCCESSFULLY                                    <PF1/2>
```

SUPRA DBA prompts you to enter another two-character index name. Press PF1 to exit to the Data Set Function menu.

```
CINCOM SYSTEMS      SUPRA DBA - DATA SET INDEX CREATION




             INDEX NAME: PF1
```

Creating the primary data set DEPT

SUPRA DBA returns the Data Set Function menu. This is the same screen you used when you created the EMPL data set. You use the same screens for each data set you create. Enter 3 and press RETURN to create a primary data set. The prompt “Create primary data set:” appears. Enter DEPT and press RETURN.

```
CINCOM SYSTEMS          SUPRA DBA - DATA SET FUNCTION

                    Function for data sets:
                1 : Examine data set
                2 : Modify data set
                3 : Create primary data set
                4 : Create related data set
                5 : Create RMS data set
                6 : Delete data set
                7 : List all data sets
                8 : Connect an existing data set
                9 : Disconnect an existing data set
               10 : List databases using data set

                    Enter choice no.:  3

         Create primary data set:  DEPT
```

Specifying physical file attributes for DEPT

SUPRA DBA returns the Physical File Attributes screen, and positions your cursor at the first field that you can modify.

Press RETURN three times to accept the first three defaults and to position your cursor at the FILE-SPEC-1 field. You do not need to update the TOTAL-LOGICAL-RECORDS field because SUPRA DBA calculates this value during database validation. For this sample database, you can accept the defaults supplied by DBA for LOGICAL- RECORDS -PER-BLOCK and ACCESS-MODE, although you may wish to change them when defining your own databases. For information on these fields, refer to the *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260.

Enter EDUC_DBA:DEPT.PER and press RETURN to update the field. Press PF1 to display the "Enter field number to modify a field (or <PF1> to exit):" and press PF1 again to exit this screen.

```
CINCOM SYSTEMS    FILE FOR DATA SET DEPT AND DATABASE PERSON

   1  : TOTAL-LOGICAL-RECORDS      :0
   2  : LOGICAL-RECORDS-PER-BLOCK  :10
   3  : ACCESS-MODE                :UPDATE
   4  : FILE-SPEC-1                :EDUC_DBA:DEPT.PER
   5  : SHADOW-FILE-SPEC-1         :
   6  : ALLOCATION-1               :
   7  : FILE-SPEC-2                :
   8  : SHADOW-FILE-SPEC-2         :
   9  : ALLOCATION-2               :
  10  : FILE-SPEC-3                :
  11  : SHADOW-FILE-SPEC-3         :
  12  : ALLOCATION-3               :
  13  : FILE-SPEC-4                :
  14  : SHADOW-FILE-SPEC-4         :
  15  : ALLOCATION-4               :

Enter field number to modify a field (or <PF1> to exit): PF1
```

SUPRA DBA returns the Comment screen. You do not need any comments for this data set. Press either RETURN or PF1 to exit this screen.

Connecting DEPT to an existing primary buffer

The Buffer screen. now displays the “BUFFER for this data set:” prompt. Enter PBUF and press RETURN. Because you have already created the buffer PBUF, DBA displays the Primary Record Function menu without prompting for any buffer details. Enter 2 and press RETURN to display the Data Item screen for the data set DEPT.

```
CINCOM SYSTEMS          SUPRA DBA - PRIMARY RECORD FUNCTION

                     Function for data set EMPL
                  1 : Examine primary data items
                  2 : Modify primary data items
                  3 : List primary data items

                     Enter choice no.:  2
```

Defining the record layout for DEPT

SUPRA DBA returns the Data Item screen. You need to complete the same sequence of steps that you did when you created the data items for EMPL. The Data Item screen shows you there are two data items at the outer level, DEPTROOT with a length of 8 and DEPTCTRL without a length. The prompt “Length of DEPTCTRL:” appears at the bottom of the screen. Enter 4 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN DEPT PRIMARY-DATA

      2 data items at the outer level :

  1  DEPTROOT=8
  2  DEPTCTRL=0
      ** End of list **









Length of DEPTCTRL: 4
```

SUPRA DBA repaints the screen and adds a 4 in line 2 for the length of DEPTCTRL. At the bottom of the screen, DBA displays the prompt: “Select data item number or function (List,Modify,Add,Delete,Copy):”. Enter A and press RETURN. At the next prompt, “Add data item following data item number:”, enter 2 and press RETURN. DBA now displays the prompt: “Four-character data item name:”. Enter NAME and then press RETURN. The last prompt asks you for the “Data item length (or hit PF4 to add sub-data-items):”. Enter 20 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN DEPT PRIMARY-DATA

     2 data items at the outer level :

  1  DEPTROOT=8
  2  DEPTCTRL=4
       ** End of list **









  Select data item number or function (List,Modify,Add,Delete,Copy) : A
  Add data item following data item number: 2
  Four-character data item name: NAME
  Data item length (or hit <PF4> to add sub-data-items) : 20
```

SUPRA DBA repaints the prompts at the bottom of the screen. Enter MNGR as the “Four-character data item name:” and press RETURN. Enter 6 as the “Data item length” and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN DEPT PRIMARY-DATA

      2 data items at the outer level :

  1  DEPTROOT=8
  2  DEPTCTRL=4
      ** End of list **









  Select data item number or function (List,Modify,Add,Delete,Copy) : A
  Add data item following data item DEPTNAME
  Four-character data item name: MNGR
  Data item length (or hit <PF4> to add sub-data-items) : 6
```

SUPRA DBA repaints the prompts at the bottom of the screen. Enter STAF as the “Four-character data item name:” and press RETURN. Enter 3 as the “Data item length” and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN DEPT PRIMARY-DATA

     2 data items at the outer level :

  1  DEPTROOT=8
  2  DEPTCTRL=4
      ** End of list **









  Select data item number or function (List,Modify,Add,Delete,Copy) : A
  Add data item following data item DEPTMNGR
  Four-character data item name: STAF
  Data item length (or hit <PF4> to add sub-data-items) : 3
```

SUPRA Server repaints the prompts. Enter LKSV as the “Four-character data item name:” and press RETURN. LKSV is the linkpath for the data set. You do not need to enter a length for this data item; SUPRA DBA automatically sets the length of all linkpaths to 8. Press RETURN to redisplay this screen showing all the data items you have defined.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN DEPT PRIMARY-DATA

     2 data items at the outer level :

  1  DEPTROOT=8
  2  DEPTCTRL=4
      ** End of list **









  Select data item number or function (List,Modify,Add,Delete,Copy) : A
  Add data item following data item DEPTSTAF
  Four-character data item name: LKSV
```

SUPRA Server repaints the Data Item screen with the new data items added. Press PF1 to return to the Primary Record Function menu.

```
CINCOM SYSTEMS   SUPRA DBA - DATA ITEMS IN DEPT PRIMARY-DATA

      6 data items at the outer level :

  1  DEPTROOT=8
  2  DEPTCTRL=4
  3  DEPTNAME=20
  4  DEPTMNGR=6
  5  DEPTSTAF=3
  6  DEPTLKSV=8
      ** End of list **









  Select data item number or function (List,Modify,Add,Delete,Copy) : PF1
```

SUPRA DBA returns the Primary Record Function menu. Press PF1 to exit this screen.

```
CINCOM SYSTEMS          SUPRA DBA - PRIMARY RECORD FUNCTION

                    Function for data set DEPT
                1 : Examine primary data items
                2 : Modify primary data items
                3 : List primary data items

                    Enter choice no.: PF1
```

Creating an index for DEPT

SUPRA DBA prompts you to enter a two-character index name. Enter the index name NO and press RETURN to display the Index File Specification screen.

```
CINCOM SYSTEMS      SUPRA DBA  -  DATA SET INDEX CREATION




                Index name : NO
```

SUPRA DBA displays the Index File Specification screen and positions your cursor at the first field that you can modify. In this tutorial, you can accept the defaults offered by SUPRA DBA for the first three fields.

Press RETURN three times to accept the first three default values and to move your cursor to the INDEX-FILE-SPEC field. Enter EDUC_DBA:DEPTIXNO.PER. Press RETURN to update the field. Press RETURN a second time to bypass the INDEX-SHADOW-FILE-SPEC field and display the "Enter field number to modify a field (or <PF1> to exit):" prompt. Press PF1 to exit this screen.

```
CINCOM SYSTEMS   INDEX-FILE-SP: DEPTIXNO   PERSON FILE-SPEC

    1 : INDEX-CORRUPT-ACTION          :OPERATOR
    2 : INDEX-NULL-SORTING            :HIGH
    3 : INDEX-READ-VERIFY             :YES
    4 : INDEX-FILE-SPEC               :EDUC_DBA:DEPTIXNO.PER
    5 : INDEX-SHADOW-FILE-SPEC        :

    Enter field number to modify a field (or <PF1> to exit) : PF1
```

The Comment screen follows the Index File Specification screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen and display the "Secondary Key name:" prompt.

SUPRA DBA now prompts you to enter a two-character secondary key name. Enter the key name NO and press RETURN to display the Secondary Key Attributes screen.

```
CINCOM SYSTEMS      SUPRA DBA  -  SECONDARY KEY PROCESSING




     Secondary Key name : NO
```

SUPRA DBA displays the Secondary Key Attributes screen. Here you define the physical attributes of the secondary key. In this tutorial, you can accept the defaults set up by SUPRA DBA. Press PF1 to display the "Enter field number to modify a field (or <PF1> to exit):" prompt. Press PF1 to exit this screen.

```
CINCOM SYSTEMS              SECONDARY-KEY : DEPTSKNO

           1 : SECONDARY-KEY-NAME            :DEPTSKNO
           2 : SEC-KEY-UNIQUE                :NO
           3 : SEC-KEY-DIRECTION             :FORWARD
           4 : SEC-KEY-POINTER-ORDERING      :NO
           5 : SEC-KEY-POINTER-TYPE          :DIRECT
           6 : SEC-KEY-DATA-TYPE-SORTING     :NO
           7 : SEC-KEY-DUPLICATES            :5

           Enter field number to modify a field (or <PF1> to exit) : PF1
```

The Comment screen follows the Secondary Key attributes screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen and display the Data Items for Secondary Key screen.

SUPRA DBA displays the Data Items for Secondary Key screen. Because this is a new secondary key, no connected data items exist. Enter CTRL at the “Enter 4-character data item name:” prompt and press RETURN to update the screen.

```
CINCOM SYSTEMS   SUPRA DBA  - DATA ITEMS FOR SECONDARY KEY

DATA ITEMS CONNECTED TO SECONDARY KEY NO

         *** No data items connected ***









           Enter 4-character data item name: CTRL
```

SUPRA DBA repaints the screen. It indicates that you have included the data item DEPTCTRL in the secondary key NO and prompts you to include another data item. Press RETURN to finish including data items. SUPRA DBA displays the message “024 Secondary key created successfully.” Press PF1 to exit this screen.

```
CINCOM SYSTEMS        DATA ITEMS FOR SECONDARY KEY

       Data items connected to Secondary Key (NO)

         1.  DEPTCTRL
                *** End of list ***









           Add data item after data item DEPTCTRL
           Enter 4-character data item name:


024 Secondary key created successfully                          <PF1/2>
```

You have now defined a secondary key on the department number data item. This means you can define views to return department records in department number order. You can also perform generic reads on this data item, omitting parts of the secondary key from the right.

SUPRA DBA prompts you to enter a two-character secondary key name. Do not enter a secondary key name; instead, press PF1 to display the message “024 index created successfully.” Press PF1 to exit this screen.

```
CINCOM SYSTEMS     SUPRA DBA  -  SECONDARY KEY PROCESSING









             Secondary Key name : PF1


024 INDEX CREATED SUCCESSFULLY                                  <PF1/2>
```

SUPRA DBA prompts you to enter another two-character index name. Press PF1 to exit to the Data Set Function menu.

```
CINCOM SYSTEMS      SUPRA DBA - DATA SET INDEX CREATION




     INDEX NAME: PF1
```

Creating the related data set WHST

SUPRA DBA returns the Data Set Function menu. Enter 4 and press RETURN to create a related data set. At the "Create related data set:" prompt, enter WHST and press RETURN.

```
CINCOM SYSTEMS      SUPRA DBA - DATA SET FUNCTION

                    Function for data sets:
                1 : Examine data set
                2 : Modify data set
                3 : Create primary data set
                4 : Create related data set
                5 : Create RMS data set
                6 : Delete data set
                7 : List all data sets
                8 : Connect an existing data set
                9 : Disconnect an existing data set
               10 : List databases using data set

                    Enter choice no.: 4

         Create related data set:  WHST
```

Defining physical file attributes for WHST

SUPRA DBA returns the Physical File Attributes screen, and positions your cursor at the first field that you can modify.

Press RETURN five times to accept the default values and to position your cursor at the FILE-SPEC-1 field. You do not need to update the TOTAL-LOGICAL-RECORDS field because SUPRA DBA calculates this value during database validation. For this sample database, you can accept the defaults supplied by DBA for LOGICAL-RECORDS-PER-BLOCK, ACCESS-MODE, CONTROL-INTERVAL and LOAD-LIMIT, although you may wish to change them when defining your own databases. For more information on these fields, refer to the *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260.

Enter EDUC_DBA:WHST.PER and press RETURN to update the field. Press PF1 to display the "Enter field number to modify a field (or <PF1> to exit):" and press PF1 again to exit this screen.

```
CINCOM SYSTEMS   FILE FOR DATA SET EMPL AND DATABASE PERSON

  1  : TOTAL-LOGICAL-RECORDS      :0
  2  : LOGICAL-RECORDS-PER-BLOCK  :10
  3  : ACCESS-MODE                :UPDATE
  4  : CONTROL-INTERVAL           :100
  5  : LOAD-LIMIT                 :80
  6  : FILE-SPEC-1                :EDUC_DBA:WHST.PER
  7  : SHADOW-FILE-SPEC-1         :
  8  : ALLOCATION-1               :
  9  : FILE-SPEC-2                :
 10  : SHADOW-FILE-SPEC-2         :
 11  : ALLOCATION-2               :
 12  : FILE-SPEC-3                :
 13  : SHADOW-FILE-SPEC-3         :
 14  : ALLOCATION-3               :
 15  : FILE-SPEC-4                :
 16  : SHADOW-FILE-SPEC-4         :
 17  : ALLOCATION-4               :

 Enter field number to modify a field (or <PF1> to exit): PF1
```

The Comment screen is next. You will not enter any comments for the related data set WHST. Press PF1 to exit this screen.

Creating a related buffer for WHST

SUPRA DBA returns the Buffer screen.. The screen displays the prompt: “BUFFER for this data set:”. Enter RBUF and press RETURN. SUPRA DBA then displays the prompt: “This buffer does not exist. Do you want to create it (Y,N):”. Enter Y and press RETURN to create the buffer and display the buffer details screen.

```
CINCOM SYSTEMS              BUFFER FOR DATA SET WHST

       BUFFER for this data set:  RBUF

       This buffer does not exist
       Do you want to create it(Y,N): Y
```

SUPRA DBA returns the Buffer Details screen. When you add a buffer, the screen displays the default values. The only value you can change is the number of copies; SUPRA DBA calculates the BUFFER-SIZE during validation.

You do not need to change anything on this screen. Press RETURN to display the "Enter field number to modify a field (or <PF1> to exit):" prompt and press PF1 to exit this screen.

```
CINCOM SYSTEMS              BUFFER : PERSON WHST

  1 : BUFFER-NAME                   : RBUF
  2 : NUMBER-OF-COPIES-OF-BUFFER    : 5
  3 : PRIMARY-OR-RELATED-BUFFER     : RELATED
  4 : BUFFER-SIZE                   : 0









Enter field number to modify a field (or <PF1> to exit): PF1
```

The Comment screen follows the Buffer details screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen and display the Related Record Function Menu.

Defining the record layout for WHST

At the Related Record Function menu, enter 2 and press RETURN to modify related data items.

```
CINCOM SYSTEMS       SUPRA DBA - RELATED RECORD FUNCTION

                     Function for data set WHST
                 1 : Examine related data items
                 2 : Modify related data items
                 3 : List related data items
                 4 : Examine coded data items
                 5 : Modify coded data items
                 6 : List coded data items
                 7 : Add a new record code
                 8 : Delete a record code
                 9 : Examine record code comments
                10 : Modify record code comments

                     Enter choice no.: 2
```

At the data item screen, SUPRA Server displays the message “No data items defined for this record,” and the prompt “Select function (List,Modify,Add,Delete,Copy):”. Enter A and press RETURN to add data items.

At the “Four-character data item name:” prompt, enter EMPL and press RETURN. EMPL is the data item that will map onto the primary control key in the data set EMPL via the linkpath.LKSV At the “Data item length” prompt, enter 6 and press RETURN.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


   No data items defined for this record









   Select function (List,Modify,Add,Delete,Copy): A

   Four-character data item name : EMPL
   Data item length (or hit <PF4> to add sub-data-items) : 6
```

SUPRA DBA repaints the prompts at the bottom of the screen. Enter LKSV as the “Four-character data item name:” and press RETURN. After the “Name of primary data set to which linkpath refers:” prompt, enter EMPL and press RETURN. You are creating the linkpath LKSV between the primary data set EMPL and the related data set WHST.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


   No data items defined for this record









   Select data item number or function (List,Modify,Add,Delete,Copy): A
   Add data item following data item WHSTEMPL
   Four-character data item name : LKSV
   Name of primary data set to which this linkpath refers : EMPL
```

SUPRA DBA repaints the prompts at the bottom of the screen. At the prompt “Name of the related key (<PF4>=EMPL):”, you can enter the four-character name of the data item in WHST which maps onto the control key of the primary data set EMPL. By default, SUPRA DBA offers you the name of the data item you have just created (EMPL). Press PF4 to accept the default.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


   No data items defined for this record









   Select data item number or function (List,Modify,Add,Delete,Copy): A
   Add data item following WHSTEMPL
   Four-character data item name : LKSV
   Name of the related key (<PF4>=EMPL): PF4
```

This creates the linkpath between the control key in the primary data set EMPL and the equivalent data item WHSTEMPL in the data set WHST. SUPRA DBA does not repaint the entire screen as you enter each data item; it only repaints the prompts at the bottom. Press RETURN to display the data items and linkpaths you have just defined.

SUPRA DBA redisplays the screen. It displays the data items you have just defined and prompts you to “Select data item number or function (List, Modify, Add, Delete, Copy):”. Enter A and press RETURN. Enter 2 in response to the “Add data item following data item number:” prompt and press RETURN.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


     2 data items at the outer level :

  1  WHSTEMPL=6
  2  EMPLLKSV=8=WHSTEMPL
     ** End of list **









   Select data item number or function (List,Modify,Add,Delete,Copy) : A
   Add data item following data item number: 2
```

SUPRA DBA repaints the prompts at the bottom of the screen. Enter DEPT as the “Four-character data item name:” and press RETURN. Enter 4 as the “Data item length” and press RETURN.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


    2 data items at the outer level :

  1  WHSTEMPL=6
  2  EMPLLKSV=8=WHSTEMPL
     ** End of list **









    Select data item number or function (List,Modify,Add,Delete,Copy) : A
    Add data item following data item EMPLLKSV
    Four-character data item name : DEPT
    Data item length (or hit <PF4> to add subdata items) : 4
```

SUPRA DBA repaints the prompts at the bottom of the screen. Enter LKSV at the “Four-character data item name:” and press RETURN. At the prompt “Name of primary data set to which linkpath refers:”, enter DEPT and press RETURN. You are creating the linkpath between the primary data set DEPT and the related data set WHST.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


     2 data items at the outer level :

  1  WHSTEMPL=6
  2  EMPLLKSV=8=WHSTEMPL
     ** End of list **









   Select data item number or function (List,Modify,Add,Delete,Copy): A
   Add data item following data item WHSTDEPT
   Four-character data item name : LKSV
   Name of primary data set to which this linkpath refers : DEPT
```

SUPRA DBA repaints the prompts at the bottom of the screen. The prompt “Name of the related key (<PF4>=DEPT):” asks you to enter the four-character name of the data item in WHST which maps onto the control key of the primary data set DEPT. By default, SUPRA DBA offers you the name of the data item you have just created (DEPT). Press PF4 to accept the default.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


    2 data items at the outer level :

  1  WHSTEMPL=6
  2  EMPLLKSV=8=WHSTEMPL
     ** End of list **









   Select data item number or function (List,Modify,Add,Delete,Copy): A
   Add data item following data item WHSTDEPT
   Four-character data item name : LKSV
   Name of the related key (<PF4>=DEPT): PF4
```

This creates the linkpath between the control key in the primary data set DEPT and the equivalent data item WHSTDEPT in the data set WHST. Because SUPRA DBA does not repaint the entire screen as you enter each data item, press RETURN to display the data items and linkpaths you have just defined.

SUPRA DBA redisplays the screen and shows all the data items and linkpaths you have defined in the related data set WHST. Enter A and press RETURN to add a further data item, then type 4 in response to the "Add data item following data item number:" prompt and press RETURN.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


     4 data items at the outer level :

  1  WHSTEMPL=6
  2  EMPLLKSV=8=WHSTEMPL
  3  WHSTDEPT=4
  4  DEPTLKSV=8=WHSTDEPT
     ** End of list **









   Select data item number or function (List,Modify,Add,Delete,Copy) : A
   Add data item following data item number : 4
```

SUPRA DBA repaints the prompts at the bottom of the screen. Enter DURA at the “Four-character data item name:” and press RETURN. Enter 2 at the “Data item length (or press <PF4> to add sub-data-items):” prompt and press RETURN.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


     4 data items at the outer level :

  1  WHSTEMPL=6
  2  EMPLLKSV=8=WHSTEMPL
  3  WHSTDEPT=4
  4  DEPTLKSV=8=WHSTDEPT
  ** End of list **









   Select data item number or function (List,Modify,Add,Delete,Copy): A
   Add data item following data item DEPTLKSV
   Four-character data item name : DURA
     Data item length (or hit <PF4> to add subdata items) : 2
```

SUPRA DBA repaints the prompts at the bottom of the screen. Enter TITL as the “Four-character data item name:” and press RETURN. Enter 15 at the “Data item length (or press <PF4> to add subdata items):” prompt and press RETURN. Press RETURN again to redisplay the screen to show all the data items and linkpaths.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


     4 data items at the outer level :

  1  WHSTEMPL=6
  2  EMPLLKSV=8=WHSTEMPL
  3  WHSTDEPT=4
  4  DEPTLKSV=8=WHSTDEPT
     ** End of list **









   Select data item number or function (List,Modify,Add,Delete,Copy): A
   Add data item following data item WHSTDURA
   Four-character data item name : TITL
   Data item length (or hit <PF4> to add subdata items) : 15
```

SUPRA DBA redisplays the screen. Press PF1 to exit this screen and return to the Related Record Function menu.

```
CINCOM SYSTEMS  SUPRA DBA - DATA ITEMS IN WHST RELATED-DATA


     6 data items at the outer level :

  1  WHSTEMPL=6
  2  EMPLLKSV=8=WHSTEMPL
  3  WHSTDEPT=4
  4  DEPTLKSV=8=WHSTDEPT
  5  WHSTDURA=2
  6  WHSTTITL=15
     ** End of list **









   Select data item number or function (List,Modify,Add,Delete,Copy): PF1
```

SUPRA DBA displays the Related Record Function menu. Press PF1 to exit this screen.

```
CINCOM SYSTEMS     SUPRA DBA - RELATED RECORD FUNCTION


                   Function for data set WHST
               1 : Examine related data items
               2 : Modify related data items
               3 : List related data items
               4 : Examine coded data items
               5 : Modify coded data items
               6 : List coded data items
               7 : Add a new record code
               8 : Delete a record code
               9 : Examine record code comments
              10 : Modify record code comments

                   Enter choice no.: PF1
```

Bypassing index creation for WHST

SUPRA DBA prompts you to enter a two-character index name. Press PF1 to exit without creating an index for this data set.

```
CINCOM SYSTEMS     SUPRA DBA  -  DATA SET INDEX CREATION




             Index name : PF1
```

SUPRA DBA returns the Data Set Function menu. Press PF1 to exit to the Buffer Function menu.

```
CINCOM SYSTEMS        SUPRA DBA - DATA SET FUNCTION


                      Function for data sets:
                 1 : Examine data set
                 2 : Modify data set
                 3 : Create primary data set
                 4 : Create related data set
                 5 : Create RMS data set
                 6 : Delete data set
                 7 : List all data sets
                 8 : Connect an existing data set
                 9 : Disconnect an existing data set
                10 : List databases using data set
                11 : Process database descriptions

                      Enter choice no.: PF1
```

SUPRA DBA displays the Buffer Function menu. You do not need to change the buffers you have defined, so press PF1 to exit this screen.

```
CINCOM SYSTEMS           SUPRA DBA - BUFFER FUNCTION


                           Function for buffers :
                       1 : Examine buffer
                       2 : Modify buffer
                       3 : Add primary buffer
                       4 : Add related buffer
                       5 : Delete buffer
                       6 : List data sets using buffer

                            Enter choice no.: PF1
```

Defining a task log

SUPRA DBA tells you there is no task log and displays the prompt:. “Do you want to create one (Y,N):”. Enter Y and press RETURN

```
CINCOM SYSTEMS        SUPRA DBA - ACTION FOR TASKLOG




     There is no TASK-LOG Do you want to create one (Y/N): Y
```

SUPRA DBA returns the Task Log Details screen with the cursor positioned at the first field that you can change. Press RETURN twice to accept the first two default values and to position the cursor at the TASK-LOG-FILE-SPEC field. Enter EDUC_DBA:TLOG.PER and press RETURN. Press PF1 to display the “Enter field number to modify a field (or <PF1> to exit):” prompt. Press PF1 again to exit this screen.

```
CINCOM SYSTEMS            TASK LOG : PERSON TASK-LOG

 1 : TASK-LOG-BLOCK-SIZE           : 1
 2 : TASK-LOG-NO-OF-BLOCKS         : 200
 3 : TASK-LOG-FILE-SPEC            : EDUC_DBA:TLOG.PER
 4 : TASK-LOG-SHADOW-FILE-SPEC     :

  Enter field number to modify a field (or <PF1> to exit): PF1
```

The Comment screen follows the Task Log details screen. You do not need to enter any comments here. Press either RETURN or PF1 to exit this screen.

Defining a system log

SUPRA DBA tells you there is no system log and displays the prompt: “Do you want to create one (Y,N):”. Enter Y and press RETURN.

```
CINCOM SYSTEMS        SUPRA DBA - SYSTEM-LOG FOR PERSON




   There is no SYSTEM-LOG Do you want to create one (Y/N): Y
```

SUPRA DBA returns the System Log Details screen with the cursor positioned at the first field you can change. Press RETURN twice to accept the first two default values and to position the cursor at the FILE-1-FILE-SPEC field. Enter EDUC_DBA:SLOG1.PER and press RETURN.

SUPRA DBA moves the cursor to the next field, FILE-2-FILE-SPEC. Enter EDUC_DBA:SLOG2.PER and press RETURN. Because system logging uses two log files, you must define two physical file specifications. Refer to the *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260, for a full description of both task and system logging.

Press PF1 to display the "Enter field number to modify a field (or <PF1> to exit):" prompt. Press PF1 again to exit this screen.

```
CINCOM SYSTEMS        SYSTEM LOG : PERSON SYSTEM-LOG


 1 : SYSTEM-LOG-BLOCK-SIZE         : 1
 2 : SYSTEM-LOG-NO-OF-BLOCKS       : 500
 3 : FILE-1-FILE-SPEC              : EDUC_DBA:SLOG1.PER
 4 : FILE-2-FILE-SPEC              : EDUC_DBA:SLOG2.PER
 5 : FILE-1-SHADOW-FILE-SPEC       :
 6 : FILE-2-SHADOW-FILE-SPEC       :

 Enter field number to modify a field (or <PF1> to exit): PF1
```

The Comment screen follows the System Log details screen. You do not need to enter any comments here. Press PF1 to display the message:

```
011 Database description created successfully        <PF1/2>
```

Press PF1 again to display the Database Description Function menu. You have now created a database.

Before you can use this database, you must validate and compile it to create a database description file and then format the physical files to hold the data. "Validating and compiling a database" on page 107 describes the validate and compile functions; "Formatting database files" on page 115 describes the format functions.

3

Validating and compiling a database

Before you can use a new database, you must validate and compile it. This chapter takes you through the steps that are necessary to successfully validate and compile your database.

The process of building your sample database continues in this chapter where it left off in Chapter 2. You pressed PF1 at the end of Chapter 2 to get to the Database Description Function menu., and from here we continue.

Validating a database

You can validate your database either in online or in batch mode. Batch mode will free the terminal for other use. To start the validate function, enter 8 and press RETURN. SUPRA DBA displays the "Validate database description name:" prompt. Enter PERSON and press RETURN. At the prompt: "Do you want to submit it to batch? (Y,N):", enter N and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - DATABASE DESCRIPTION FUNCTION


                 Function for database descriptions:
             1 : Examine
             2 : Modify
             3 : Create
             4 : Delete
             5 : Copy
             6 : List
             7 : Print
             8 : Validate
             9 : Compile and print
            10 : List logical views for the database
            11 : Data set functions

                 Enter choice no.: 8

    Validate database description name (<PF4> will select PERSON)
    : PF4



    Do you want to submit it to batch? (Y/N) : N
```

As SUPRA DBA validates your database online, it displays the Database Description Validation screen, dynamically updating the figures in the “Number processed” and “Errors found” columns as it processes the database entities. You will see messages appear on the screen. If SUPRA DBA encounters an error in your database, it tells you what the error is, prefixing the message with the flag:

```
>>>>>>ERROR
```

Each error is noted in the “Errors found” column. You cannot compile a database that has errors during validation. You must make a note of the entity identified in each error message (data sets, indices, file specifications, etc.) and press PF1 to allow validation to continue. Once validation is finished, go back into DBA to correct the errors and then revalidate the database.

If SUPRA DBA changes a value (a default or a value you have specified), it tells you what it has done and prefixes the message with the flag:

```
>>>>>>WARNING
```

Warnings do not prevent successful validation. Press PF1 to clear each warning message and continue validation.

If you have followed the instructions in Chapters 1 and 2 exactly, validation should complete without errors. SUPRA DBA will, however, have to update many of the values. The database validation screen with the first warning message displayed is shown below. Press PF1 to continue validation. Press PF1 for each subsequent warning message.

```
CINCOM SYSTEMS        DATABASE DESCRIPTION VALIDATION


                        Number processed         Errors found

 Database description     1                         0
 Data sets                3                         0
 File spec sets           0                         0
 Records                  3                         0
 Data items               22                        0
 Linkpaths                2                         0
 Indices                  4                         0
 Index file spec sets     4                         0
 Secondary keys           4                         0
 Buffers                  0                         0
 Task log                 0                         0
 System log               0                         0

 >>>>>> WARNING

 Records per block has been rounded to 11 for EMPL


 Hit <PF1> to continue or <PF2> for help
```

When SUPRA DBA has finished validating the database, it displays the message “PERSON validated successfully. Do you want to compile it (Y,N):”. Enter Y and press RETURN.

```
CINCOM SYSTEMS        DATABASE DESCRIPTION VALIDATION


                          Number processed         Errors found

 Database description      1                        0
 Data sets                 3                        0
 File spec sets            3                        0
 Records                   3                        0
 Data items                22                       0
 Linkpaths                 2                        0
 Indices                   4                        0
 Index file spec sets      4                        0
 Secondary keys            4                        0
 Buffers                   2                        0
 Task log                  1                        0
 System log                1                        0


      PERSON validated successfully.  Do you want to compile it (Y,N) : Y
```

Compiling a database

SUPRA DBA displays the prompt “Compile database description name:” with the database PERSON shown as the default.

Because this sample database is very small, enter N in response to the prompt “Do you want to submit it to batch? (Y/N):” and press RETURN. With larger databases it is worthwhile submitting both the validate and the compile to batch to free up your terminal for other uses.

Enter Y at the prompt “Do you want to print database description (Y/N):” to produce a listing of the database you have created. The listing that you create does not go to a printer; it goes to a file named PERSON.LIS in your current process default directory. You can use this listing when you define logical data items and views (see “Defining logical data items” on page 147 and “Defining base views” on page 185).

Press PF4 in response to the prompt “Logical database description name (<PF4> will select PERSON).”

The next prompt is “File specification for compiled database (<PF4> will select HSC000$DUA4:[USER3.SUPRA]PERSON.MOD;).” On your screen, HSC000$DUA4: [USER3.SUPRA] will be replaced with the directory and file specified by the logical name PERSON (see “Introduction” on page 13). Press PF4.

SUPRA DBA pauses while it compiles your database, displaying the message “011 Database description compiled successfully <PF1/2>“. Press PF1 to exit to the Database Description Function menu.

This sequence of prompts is shown below.

```
CINCOM SYSTEMS         SUPRA DBA - DATABASE COMPILATION


    Compile database description name : PERSON

    Do you want to submit it to batch? (Y/N) : N

    Do you want to print database description (Y/N): Y

    Logical database description name (<PF4> will select PERSON)
    : PF4

    File specification for compiled database (<PF4> will select
    HSC000$DUA4:[USER3.SUPRA]PERSON.MOD;) : PF4




    011 Database description compiled successfully                <PF1/2>
```

SUPRA DBA redisplays the Database Description Function menu. Press PF1 to return to the Function Selection for the DBA menu.

```
CINCOM SYSTEMS   SUPRA DBA - DATABASE DESCRIPTION FUNCTION


                 Function for database descriptions:
              1 : Examine
              2 : Modify
              3 : Create
              4 : Delete
              5 : Copy
              6 : List
              7 : Print
              8 : Validate
              9 : Compile and print
             10 : List logical views for the database
             11 : Data set functions

                 Enter choice no.: PF1
```

SUPRA DBA displays the DBA Function Selection DBA menu.

```
CINCOM SYSTEMS   SUPRA DBA - FUNCTION SELECTION FOR THE DBA


                    Select required function :
                 1 : Database descriptions
                 2 : Data sets
                 3 : Logical views
                 4 : Logical data items
                 5 : Domains
                 6 : Validation tables
                 7 : Programs
                 8 : Users
                 9 : Unlock functions
                10 : Administration functions

                    Enter choice no.:
```

You have now created a compiled database description file called PERSON.MOD in the location pointed to by the logical name PERSON, which has been defined as EDUC_DBA:PERSON.MOD (see “Introduction” on page 13). You have also produced a listing file called PERSON.LIS in your default directory. The PERSON.MOD file contains a description of your database. The PDM uses this description to locate the data. The PERSON.LIS file contains a listing of your database. You can print this listing and use it for reference when you create logical names and views.

The next step is to format the physical files that will hold your data. Chapter 4 describes the format function.

4

Formatting database files

After you compile your database, use the Format functions to allocate disk space for data sets, index files, task log and system logs. You cannot use this database until you have created and formatted its files.

SUPRA DBA provides two format functions:

- Database format to create PHYSICAL data set, task, and system log files.
- Index format to create and, where necessary, populate index files.

You access both format functions from the Administration Functions menu. You finished Chapter 3 at the Function Selection for the DBA menu. To get to the Administration Functions menu, enter 10 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - FUNCTION SELECTION FOR THE DBA


                    Select required function :
                 1 : Database descriptions
                 2 : Data sets
                 3 : Logical views
                 4 : Logical data items
                 5 : Domains
                 6 : Validation tables
                 7 : Programs
                 8 : Users
                 9 : Unlock functions
                10 : Administration functions


                    Enter choice no.: 10
```

Formatting database files

SUPRA DBA returns the Administrative Functions menu. Enter 1 and press RETURN to access the Format function

```
CINCOM SYSTEMS     SUPRA DBA - ADMINISTRATION FUNCTIONS


                       Select required function :
                   1 : Format
                   2 : Utilities
                   3 : Expand related data set
                   4 : Reset data set load limit
                   5 : Recovery
                   6 : Index facilities


                       Enter choice no.: 1
```

SUPRA DBA returns the Format Function menu Enter 1 and press RETURN to format your database.

```
CINCOM SYSTEMS          SUPRA DBA - FORMAT FUNCTION


                        Select required function :
                    1 : Format SUPRA database
                    2 : Format RMS data set


                        Enter choice no.: 1
```

SUPRA DBA returns the Format screen with a copyright notice. When you see the prompt: “Name of database to be formatted:”, enter PERSON and press RETURN. The copyright notice is replaced by the “Database password:” prompt. Enter DEMO and press RETURN. For security reasons, when you enter the password DEMO, the characters do not appear on the screen. SUPRA DBA now prompts “Data sets =“. Enter ALL. and press RETURN to format all data set and log files.

SUPRA DBA displays an information message as it creates and formats each file and then pauses with the cursor at the “Data sets =“ prompt for you to specify another data set. Press PF1 to display the message “FORMAT finished. Hit <PF1> to exit, or <return> to FORMAT another database.” Press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - FORMAT           VERSION 2.4


    Name of database to be formatted: PERSON

    Database password: DEMO

    Data sets = ALL.









FORMAT finished.  Hit <PF1> to exit, or <return> to FORMAT another database
```

SUPRA DBA returns the Format Function menu. Press PF1 to return to the Administration Function menu.

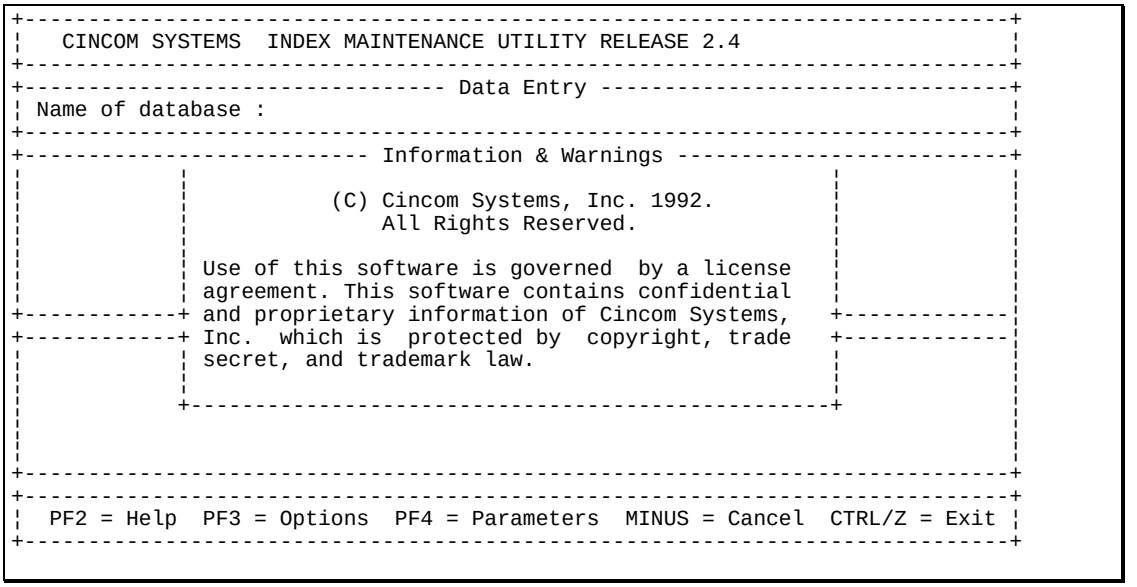
```
CINCOM SYSTEMS       SUPRA DBA - FORMAT FUNCTION


                        Select required function :
                    1 : Format SUPRA database
                    2 : Format RMS data set


                        Enter choice no.: PF1
```

Formatting an index through DBA

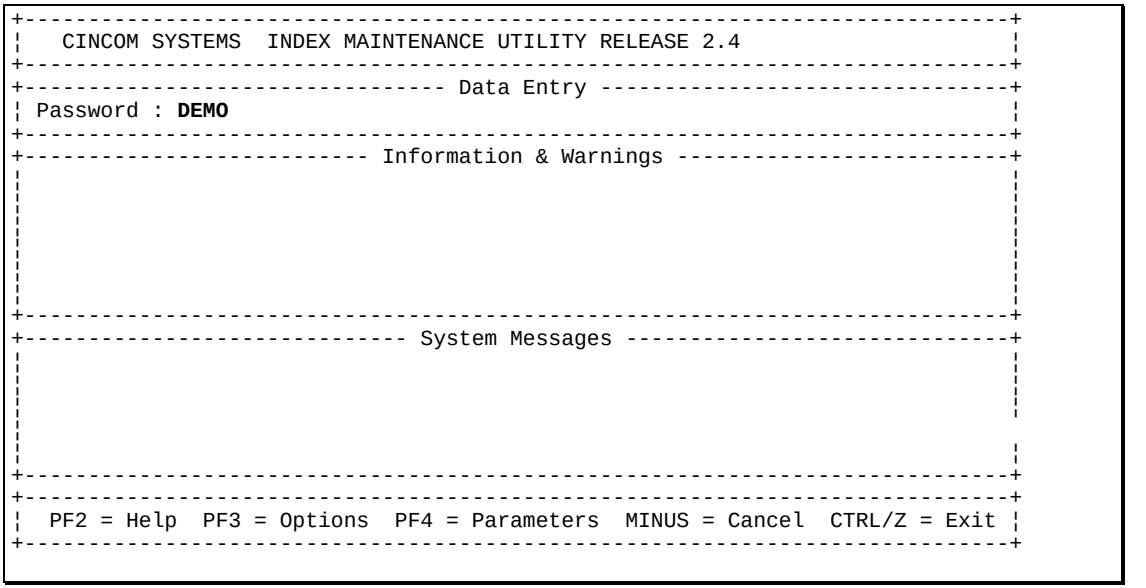
SUPRA DBA returns the Administrative Functions menu. Enter 6 and press RETURN to access the Index facilities from which you will format your index files.

```
CINCOM SYSTEMS   SUPRA DBA - ADMINISTRATION FUNCTIONS


                    Select required function :
                1 : Format
                2 : Utilities
                3 : Expand related data set
                4 : Reset data set load limit
                5 : Recovery
                6 : Index facilities


                    Enter choice no.: 6
```

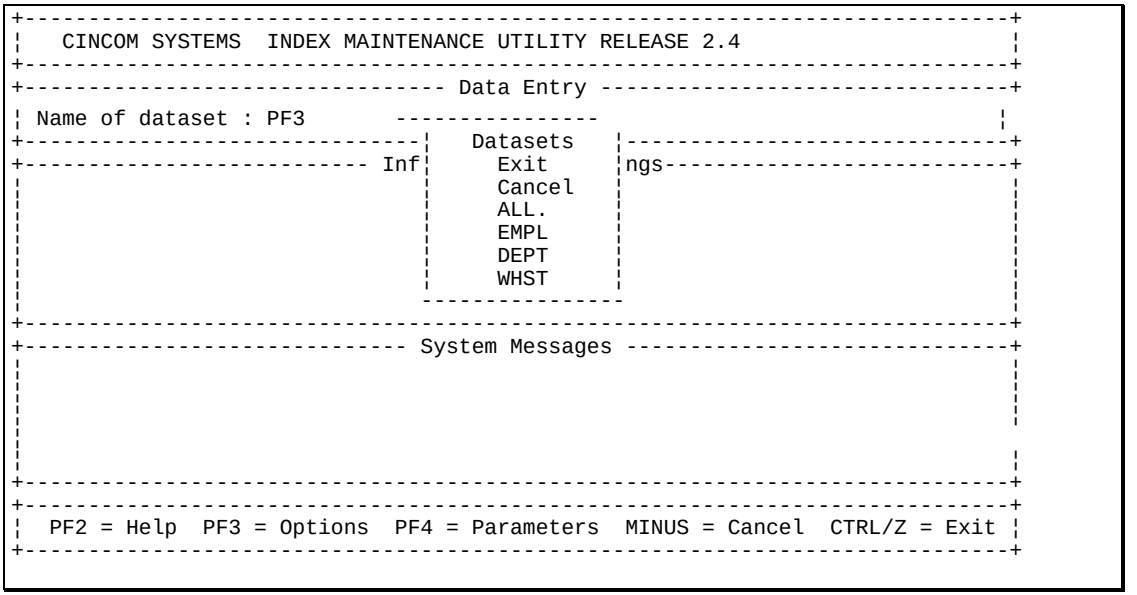
SUPRA DBA displays the initial Index Maintenance screen with a copyright notice, and prompts you to enter the name of the database containing the indices you wish to format. Enter PERSON and press RETURN.



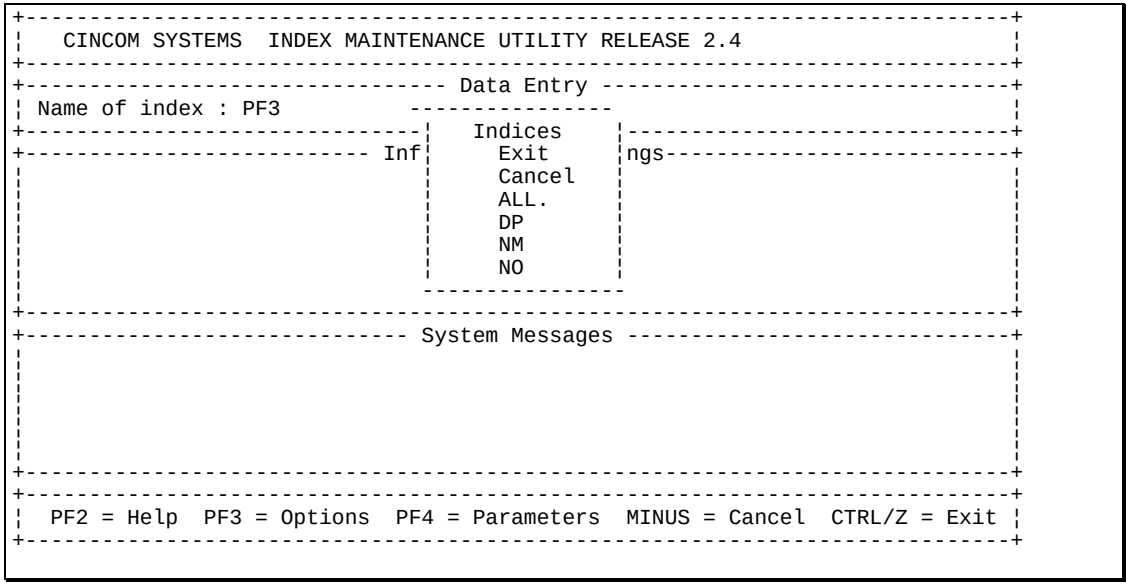
SUPRA DBA repaints the screen, clears the copyright notice, and prompts you for the database password. Enter DEMO and press RETURN.



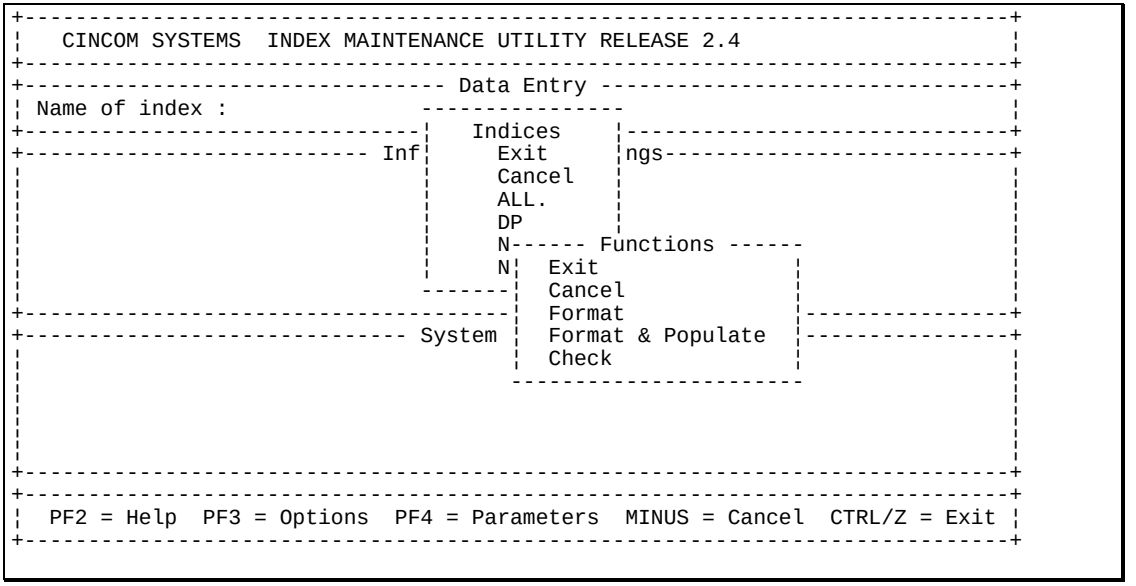
SUPRA DBA repaints the screen, and prompts you to enter the name of a data set containing the index or indices you wish to process. You may not remember which data set has a connected index; press PF3 to list the available data sets. SUPRA DBA lists your options in a pop-up box, and positions the cursor over “Exit.” Use TAB or the arrow keys to move the cursor to EMPL and press RETURN to select it.



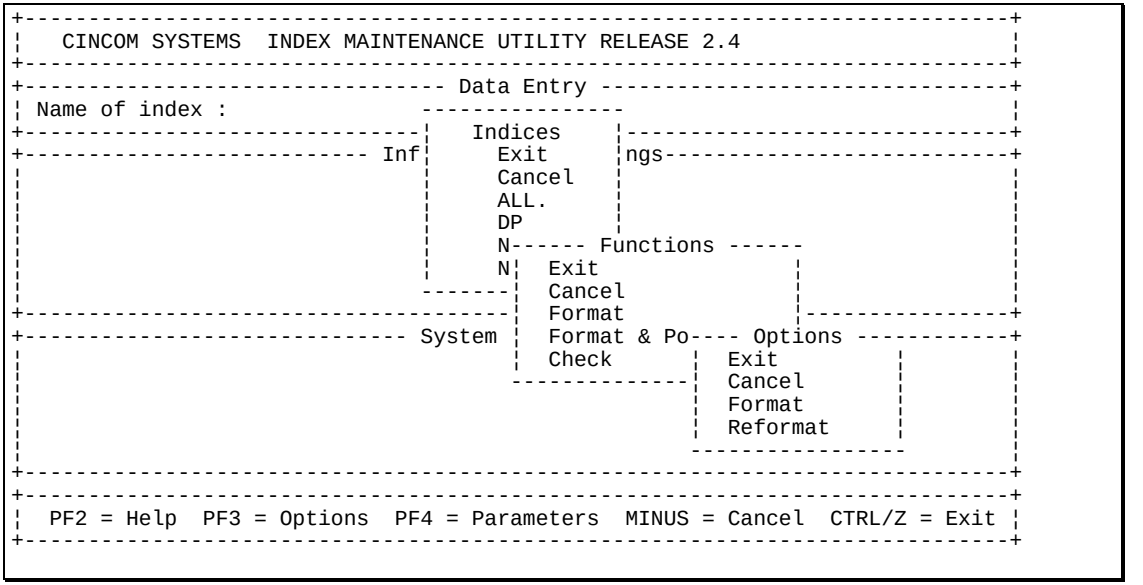
SUPRA DBA repaints the screen and displays the “Name of index:” prompt. Again, press PF3 to display the available choices in a pop-up box. You could enter the two-character index name directly; however, it is easy to forget, especially if you have defined many two-character indices and secondary keys. SUPRA DBA positions the cursor over “Exit.” Use TAB or the arrow keys to move your cursor to ALL., and press RETURN.



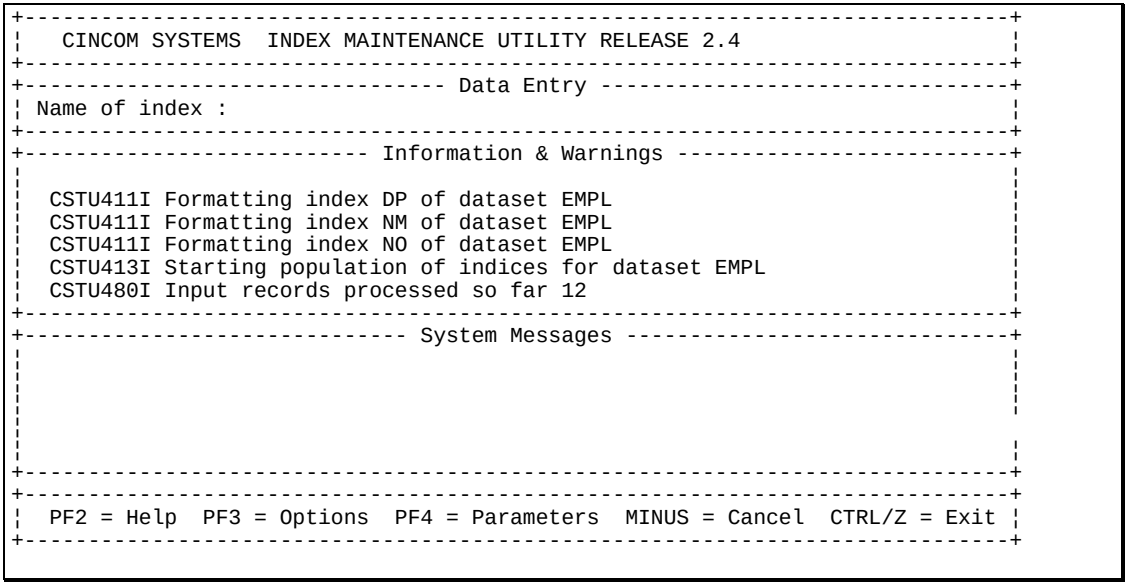
SUPRA DBA repaints the screen and displays the available functions. Use TAB or the arrow keys to move the cursor from the “Exit” option to the “Format & Populate” option and press RETURN.



SUPRA DBA repaints the screen and displays the format options Exit, Cancel, Format and Reformat. Because this is a new index, you will not need to reformat an existing index file. Therefore, use TAB or the arrow keys to position the cursor over the “Format” option and press RETURN.



SUPRA DBA displays the message “CSTU411I Formatting index name of dataset EMPL” as it creates and formats the index file, and positions your cursor at the “Name of index” prompt.



Press PF1 to redisplay the “Name of data set” prompt. Enter DEPT to format the index file for the DEPTIXNO index. SUPRA DBA redisplays the “Name of index” prompt.

Press PF3 to display the available choices and repeat the steps on the previous three pages to format and populate an index file for the DEPT data set.

When DBA redisplays the screen shown above, press CTRL-Z simultaneously to exit to the Administration Function menu. SUPRA DBA displays the Administration Functions menu. Press PF1 to exit to the Database Description Function menu.

```
CINCOM SYSTEMS   SUPRA DBA - ADMINISTRATION FUNCTIONS


                    Select required function :
                1 : Format
                2 : Utilities
                3 : Expand related data set
                4 : Reset data set load limit
                5 : Recovery
                6 : Index facilities


                    Enter choice no.: PF1
```

5

Defining domains and validation tables

Domains are associated with data items in the internal schema of SUPRA DBA. A domain defines the format of data in detail, allowing you to perform comprehensive validation checks on user-entered data.

You can define the format of data within the domain itself, by specifying a range of values or a user-written validation exit, or by associating the domain with a validation table. A validation table contains a pool of acceptable values for a domain.

In this chapter, you will create two domains and one validation table. The first domain, EMPLOYEE-ID-DM, defines the format of employee IDs. An employee ID must be six characters long, in the range 120000 to 129999. The second domain, DEPT-ID-DM, defines the format of department IDs. A department ID can be one of nine values held in the validation table DEPT-NO-TABLE.

You must connect the domain EMPLOYEE-ID-DM to all the physical data items that contain employee IDs, for example:

- **EMPLCTRL**. The physical control key, employee ID, to the primary data set EMPL.
- **WHSTEMPL**. The physical data item in the related data set WHST that maps onto the control key of the primary data set EMPL. Used to link the two data sets.
- **DEPTMNGR**. The department manager in the primary data set DEPT. Must contain a subset of employee IDs.

You must connect the domain DEPT-ID-DM to all the physical data items that contain department IDs, for example:

- **DEPTCTRL**. The physical control key, department ID, to the primary data set DEPT.
- **WHSTDEPT**. The physical data item in the related data set WHST that maps onto the control key of the primary data set DEPT. Used to link the two data sets.
- **EMPLDEPT**. The department number in the primary data set EMPL. Indexed to provide quick access.

You can make the connection between domain and data item either from the Domain Function menu, or when you define logical data items (see “Defining logical data items” on page 147). In this chapter you will connect all the data items to the appropriate domains except DEPTMNGR. You will connect DEPTMNGR to the domain EMPLOYEE-ID-DM when you define the logical name of DEPTMNGR.

You will begin where you left off in Chapter 4. You should have the DBA Function Selection menu displayed on your terminal screen.

Defining a validation table

At the DBA Function Selection menu, enter 6 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - FUNCTION SELECTION FOR THE DBA


                    Select required function :
                 1 : Database descriptions
                 2 : Data sets
                 3 : Logical views
                 4 : Logical data items
                 5 : Domains
                 6 : Validation tables
                 7 : Programs
                 8 : Users
                 9 : Unlock functions
                10 : Administration functions


                    Enter choice no.: 6
```

SUPRA DBA returns the Validation Table Function menu. Enter 3 and press RETURN. At the “Create validation table name:” prompt, enter DEPT-NO-TABLE and press RETURN.

```
CINCOM SYSTEMS      SUPRA DBA - VALIDATION TABLE FUNCTION


                       Functions for validation tables :
                    1 : Examine
                    2 : Modify
                    3 : Create
                    4 : Delete
                    5 : List domains using validation table


               Enter choice no : 3



     Create validation table name: DEPT-NO-TABLE
```

SUPRA DBA returns the Validation Table screen. Enter A to add values and press RETURN.

```
CINCOM SYSTEMS      VALIDATION TABLE for DEPT-NO-TABLE


No VALIDATION TABLE written yet.









action : A,C,D,F,L,M,N,O,P,R or W - Hit <PF2> for explanation
:A
```

SUPRA DBA repaints the bottom of the screen and prompts you to enter valid values. Press RETURN after each value you key in. SUPRA DBA does not repaint the screen to show the values you have entered until you press RETURN without entering a value.

Enter 1000 and press RETURN. Enter 2000 and press RETURN. Continue entering the values 3000 through 9000, pressing RETURN after each. Press RETURN without entering a value to repaint the entire screen.

```
CINCOM SYSTEMS      VALIDATION TABLE for DEPT-NO-TABLE


No VALIDATION TABLE written yet.









Add lines at start
:1000
...:....!....:....!....:....!....:....!....:....!....:....!....:....!.
```

SUPRA DBA repaints the screen to show the values you entered. Press PF1 to exit.

```
CINCOM SYSTEMS      VALIDATION TABLE for DEPT-NO-TABLE

1  1000
2  2000
3  3000
4  4000
5  5000
6  6000
7  7000
8  8000
9  9000









action : A,C,D,F,L,M,N,O,P,R or W - Hit <PF2> for explanation
:PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter any comments here. Press RETURN or PF1 to exit this screen.

SUPRA DBA displays the Validation Table Function menu. Press PF1 to exit.

```
CINCOM SYSTEMS     SUPRA DBA - VALIDATION TABLE FUNCTION


                       Functions for validation tables :
                   1 : Examine
                   2 : Modify
                   3 : Create
                   4 : Delete
                   5 : List domains using validation table


                       Enter choice no : PF1
```

Defining domains

At the DBA Function Selection menu, enter 5 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - FUNCTION SELECTION FOR THE DBA


                    Select required function :
                 1 : Database descriptions
                 2 : Data sets
                 3 : Logical views
                 4 : Logical data items
                 5 : Domains
                 6 : Validation tables
                 7 : Programs
                 8 : Users
                 9 : Unlock functions
                10 : Administration functions


                    Enter choice no.: 5
```

SUPRA DBA returns the Domain Function menu. Enter 3 and press RETURN to create a domain. SUPRA DBA displays the prompt: "Enter domain name:". Enter EMPLOYEE-ID-DM and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - DOMAIN FUNCTION MENU


                      Functions for domains :
                   1 : Examine
                   2 : Modify
                   3 : Create
                   4 : Delete
                   5 : List data items connected
                   6 : Connect domain to data item
                   7 : Disconnect domain from data item


                      Enter choice no : 3



 Enter domain name: EMPLOYEE-ID-DM
```

SUPRA DBA returns the Domain Details screen, and positions the cursor at first field that you can modify, DOMAIN-FUNCTION. Press RETURN three times to accept the default values and to move the cursor to line 5, DOMAIN-LENGTH. Enter 6 and press RETURN. You connect this domain to the two physical data items representing the employee id number, EMPLCTRL and WHSTEMPL, which are both 6 characters long. The length of the domain and of the data items connected to it must match.

Press RETURN repeatedly until you reach line 10, DOMAIN-DEFAULT-VALUE, and enter 120001. Press RETURN to accept the default value and to position the cursor on the next line, DOMAIN-RETRIEVAL-VALIDATION. Enter Y and press RETURN. SUPRA DBA updates the value to YES and positions the cursor at the next field, DOMAIN-VALIDATION-TYPE. Enter R and press RETURN. SUPRA DBA updates the value to RANGE and moves the cursor to the next line. Enter 120000 at the DOMAIN-MINIMUM-VALUE field and press RETURN. Enter 129999 at the DOMAIN-MAXIMUM-VALUE field and press RETURN.

You have updated all of the necessary fields. Press PF1 to display the prompt “Enter field number to modify a field (or <PF1> to exit):” and press PF1 again to exit this screen.

```
CINCOM SYSTEMS             DOMAIN : EMPLOYEE-ID-DM

 1 : DOMAIN-NAME                   :EMPLOYEE-ID-DM
 2 : DOMAIN-FUNCTION               :STRING
 3 : DOMAIN-UNIT                   :N/A
 4 : DOMAIN-FORMAT                 :CHARACTER
 5 : DOMAIN-LENGTH                 :6
 6 : DOMAIN-DECIMALS               :0
 7 : DOMAIN-SIGNED                 :SIGNED
 8 : DOMAIN-NULLS-ALLOWED          :NO
 9 : DOMAIN-NULL-VALUE             :
10 : DOMAIN-DEFAULT-VALUE          :120001
11 : DOMAIN-RETRIEVAL-VALIDATION   :YES
12 : DOMAIN-VALIDATION-TYPE        :RANGE
13 : DOMAIN-MINIMUM-VALUE          :120000
14 : DOMAIN-MAXIMUM-VALUE          :129999
15 : DOMAIN-VALIDATION-EXIT-NAME   :
16 : DOMAIN-STATUS                 :O.K.

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter any comments here. Press RETURN or PF1 to exit this screen.

SUPRA DBA repaints the screen with the “Enter domain name:” prompt. Enter DEPT-ID-DM and press RETURN.

```
CINCOM SYSTEMS          SUPRA DBA - CREATE DOMAIN




    Enter domain name: DEPT-ID-DM
```

SUPRA DBA returns the Domain Details screen and positions the cursor at first field that you can modify, DOMAIN-FUNCTION. Press RETURN three times to accept the default values and to move the cursor to line 5, DOMAIN-LENGTH. Enter 4 and press RETURN. You connect this domain to the two physical data items representing the department ID, DEPTCTRL, WHSTDEPT and EMPLDEPT, all of which are 4 characters long. The length of the domain and of the data items connected to it must match.

Press RETURN repeatedly until you reach line 10, DOMAIN-DEFAULT-VALUE, and enter 0000. Press RETURN to accept the default value and to position the cursor on the next line, DOMAIN-RETRIEVAL-VALIDATION. Enter Y and press RETURN. SUPRA DBA updates the value to YES and positions the cursor at the next field, DOMAIN-VALIDATION- TYPE. Enter T and press RETURN. SUPRA DBA updates the value to TABLE and moves the cursor to the next line.

You have updated all of the necessary fields. Press PF1 to display the prompt “Enter field number to modify a field (or <PF1> to exit):” and press PF1 again to exit this screen.

```
CINCOM SYSTEMS              DOMAIN : DEPT-ID-DM

 1 : DOMAIN-NAME                   :DEPT-ID-DM
 2 : DOMAIN-FUNCTION               :STRING
 3 : DOMAIN-UNIT                   :N/A
 4 : DOMAIN-FORMAT                 :CHARACTER
 5 : DOMAIN-LENGTH                 :4
 6 : DOMAIN-DECIMALS               :0
 7 : DOMAIN-SIGNED                 :SIGNED
 8 : DOMAIN-NULLS-ALLOWED          :NO
 9 : DOMAIN-NULL-VALUE             :
10 : DOMAIN-DEFAULT-VALUE          :0000
11 : DOMAIN-RETRIEVAL-VALIDATION   :YES
12 : DOMAIN-VALIDATION-TYPE        :TABLE
13 : DOMAIN-MINIMUM-VALUE          :
14 : DOMAIN-MAXIMUM-VALUE          :
15 : DOMAIN-VALIDATION-EXIT-NAME   :
16 : DOMAIN-STATUS                 :O.K.

  Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA prompts you to enter the name of the validation table. Enter DEPT-NO-TABLE and press RETURN.

```
CINCOM SYSTEMS      SUPRA DBA - DOMAIN USES VALIDATION TABLE




    Enter validation table name : DEPT-NO-TABLE
```

SUPRA DBA returns the Comment screen. You do not need to enter any comments here. Press RETURN or PF1 to exit this screen.

SUPRA DBA returns the prompt, “Enter domain name:”. Press PF1 to exit to the Domain Function menu. Press PF1 again to display the DBA Function Selection Menu.

```
CINCOM SYSTEMS    SUPRA DBA - DOMAIN FUNCTION MENU


                      Functions for domains :
                  1 : Examine
                  2 : Modify
                  3 : Create
                  4 : Delete
                  5 : List data items connected
                  6 : Connect domain to data item
                  7 : Disconnect domain from data item


                      Enter choice no : PF1
```

SUPRA DBA displays the DBA Function Selection menu. Enter 5 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - FUNCTION SELECTION FOR THE DBA


                     Select required function :
                 1 : Database descriptions
                 2 : Data sets
                 3 : Logical views
                 4 : Logical data items
                 5 : Domains
                 6 : Validation tables
                 7 : Programs
                 8 : Users
                 9 : Unlock functions
                10 : Administration functions


                     Enter choice no.: 5
```

Connecting domains and data items

SUPRA DBA returns the Domain Function menu. Now that you have created two domains, EMPLOYEE-ID-DM and DEPT-ID-DM, you need to connect them to data items.

Enter 6 and press RETURN. When the “Enter domain name (<PF4> will select DEPT- STAFF-DM):” prompt appears, enter EMPLOYEE-ID-DM and press RETURN. When the “Data set name:” prompt appears, enter EMPL and press RETURN. When the prompt “Four-character data item name:” appears, enter CTRL and press RETURN. SUPRA DBA displays “027 Connected domain to data item EMPLCTRL successfully <PF1/2>“ when it has made the connection. Press PF1 twice to redisplay the “Enter domain name:” prompt.

```
CINCOM SYSTEMS    SUPRA DBA - DOMAIN FUNCTION MENU

                     Functions for domains :
                  1 : Examine
                  2 : Modify
                  3 : Create
                  4 : Delete
                  5 : List data items connected
                  6 : Connect domain to data item
                  7 : Disconnect domain from data item

                     Enter choice no : 6

     Enter domain name
     (<PF4> will select DEPT-ID-DM)
     : EMPLOYEE-ID-DM

     Enter physical data item information

     Data set name : EMPL

     Four-character data item name : CTRL


    027 Connected domain to data item EMPLCTRL successfully        <PF1/2>
```

SUPRA DBA repaints the “Enter domain name” prompt. Press PF4 to accept the default EMPLOYEE-ID-DM. When the “Data Set name:” prompt appears, enter WHST and press RETURN. When the “Four-character data set name:” prompt appears, enter EMPL and press RETURN. SUPRA DBA displays “027 Connected domain to data item WHSTEMPL successfully <PF1/2>“ when it has made the connection. Press PF1 twice to redisplay the “Enter domain name:” prompt.

```
CINCOM SYSTEMS    SUPRA DBA - DOMAIN FUNCTION MENU

                     Functions for domains :
                 1 : Examine
                 2 : Modify
                 3 : Create
                 4 : Delete
                 5 : List data items connected
                 6 : Connect domain to data item
                 7 : Disconnect domain from data item

                     Enter choice no :

     Enter domain name
     (<PF4> will select EMPLOYEE-ID-DM)
     : PF4

     Enter physical data item information

     Data set name : WHST

     Four-character data item name : EMPL


    027 Connected domain to data item WHSTEMPL successfully        <PF1/2>
```

SUPRA DBA repaints the “Enter domain name” prompt. Enter DEPT-ID-DM and press RETURN. When the “Data Set name:” prompt appears, enter DEPT and press RETURN. When the “Four-character data set name:” prompt appears, enter CTRL and press RETURN. SUPRA DBA displays “027 Connected domain to data item DEPTCTRL successfully <PF1/2>“ when it has made the connection. Press PF1 twice to redisplay the “Enter domain name:” prompt.

```
CINCOM SYSTEMS    SUPRA DBA - DOMAIN FUNCTION MENU

                     Functions for domains :
                 1 : Examine
                 2 : Modify
                 3 : Create
                 4 : Delete
                 5 : List data items connected
                 6 : Connect domain to data item
                 7 : Disconnect domain from data item

                     Enter choice no :

     Enter domain name
     (<PF4> will select EMPLOYEE-ID-DM)
     : DEPT-ID-DM

     Enter physical data item information

     Data set name : DEPT

     Four-character data item name : CTRL


    027 Connected domain to data item DEPTCTRL successfully        <PF1/2>
```

SUPRA DBA repaints the “Enter domain name” prompt. Press PF4 to accept the default DEPT-ID-DM. When the “Data Set name:” prompt appears, enter WHST and press RETURN. When the “Four-character data set name:” prompt appears, enter DEPT and press RETURN. SUPRA DBA displays “027 Connected domain to data item WHSTDEPT successfully <PF1/2>“ when it has made the connection. Press PF1 twice to redisplay the “Enter domain name:” prompt.

```
CINCOM SYSTEMS    SUPRA DBA - DOMAIN FUNCTION MENU

                     Functions for domains :
                 1 : Examine
                 2 : Modify
                 3 : Create
                 4 : Delete
                 5 : List data items connected
                 6 : Connect domain to data item
                 7 : Disconnect domain from data item

                     Enter choice no :

     Enter domain name
     (<PF4> will select DEPT-ID-DM)
     : PF4

     Enter physical data item information

     Data set name : WHST

     Four-character data item name : DEPT


    027 Connected domain to data item WHSTEMPL successfully        <PF1/2>
```

SUPRA DBA repaints the “Enter domain name” prompt. Press PF4 to accept the default DEPT-ID-DM. When the “Data Set name:” prompt appears, enter EMPL and press RETURN. When the “Four-character data set name:” prompt appears, enter DEPT and press RETURN. SUPRA DBA displays “027 Connected domain to data item EMPLDEPT successfully <PF1/2>“ when it has made the connection. Press PF1 twice to redisplay the “Enter domain name:” prompt.

```
CINCOM SYSTEMS    SUPRA DBA - DOMAIN FUNCTION MENU

                     Functions for domains :
                1 : Examine
                2 : Modify
                3 : Create
                4 : Delete
                5 : List data items connected
                6 : Connect domain to data item
                7 : Disconnect domain from data item

                     Enter choice no :

     Enter domain name
     (<PF4> will select EMPLOYEE-ID-DM)
     : PF4

     Enter physical data item information

     Data set name : EMPL
     Four-character data item name : DEPT


    027 Connected domain to data item EMPLDEPT successfully        <PF1/2>
```

Press PF1 or CTRL-Z repeatedly until you reach the DBA Function Selection menu.

You have created two domains and one associated validation table, and connected them to the physical data items. You are now ready to create the logical data item names for the physical data items as described in the next chapter.

6

Defining logical data items

Overview

This chapter explains how to define logical names for the physical data items you access from your views. Views cannot access a physical data item by name directly; they must always use the logical name or column name that maps onto the physical name.

You will follow the same sequence of prompts and responses throughout this chapter, creating a different logical name at each set of prompts. You process the data items one data set at a time, starting with the EMPL data set, then the DEPT data set and finally the WHST data set.

Defining logical data items

The physical data items you defined in "Creating a database description" on page 19, and the logical data item names you are going to create for them in this chapter are shown below.

Physical data item	Logical data item
EMPLCTRL	EMPL-NO
EMPLNAME	EMPL-NAME
EMPLADDR	EMPL-ADDR
EMPLSTRT	EMPL-STREET
EMPLCITY	EMPL-CITY
EMPLSTAT	EMPL-STATE
EMPLZIPC	EMPL-ZIPCODE
EMPLDEPT	EMPL-DEPT
DEPTCTRL	DEPT-NO
DEPTNAME	DEPT-NAME
DEPTMNGR	DEPT-MGR
DEPTSTAF	DEPT-STAFF
WHSTEMPL	WHST-EMPL
WHSTDEPT	WHST-DEPT
WHSTDURA	WHST-DURA
WHSTTITL	WHST-TITLE

At the DBA Function Selection menu, enter 4 and press RETURN.

```
CINCOM SYSTEMS   SUPRA DBA - FUNCTION SELECTION FOR THE DBA


                    Select required function :
                 1 : Database descriptions
                 2 : Data sets
                 3 : Logical views
                 4 : Logical data items
                 5 : Domains
                 6 : Validation tables
                 7 : Programs
                 8 : Users
                 9 : Unlock functions
                10 : Administration functions


                    Enter choice no.: 4
```

SUPRA DBA returns the Logical View Data Item Function menu. Enter 3 and press RETURN.

```
CINCOM SYSTEMS  SUPRA DBA - LOGICAL VIEW DATA ITEM FUNCTION


                    Functions for logical data items
                1 : Examine
                2 : Modify
                3 : Create
                4 : Delete
                5 : List logical data items for data set


                    Enter choice no.: 3
```

SUPRA DBA returns the Create Logical Data Item screen. When the prompt “Data set name:” appears, enter EMPL and press RETURN. When the “Four-character data item name:” prompt appears, enter CTRL and press RETURN. When the “Create logical data item name:” prompt appears, enter EMPL-NO and press RETURN. SUPRA DBA displays the message “080 Note that EMPLCTRL is used by domain EMPLOYEE-ID-DM <PF1/2>“ to remind you that EMPLCTRL is connected to a domain. Press PF1 to exit.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




       Enter physical data item information

       Data set name : EMPL

       Four-character data item name : CTRL

       Create logical data item name : EMPL-NO




080 Note that EMPLCTRL is used by domain EMPLOYEE-ID-DM            <PF1/2>
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS              DATA ITEM : EMPLCTRL

                    LOGICAL DATA ITEM : EMPL-NO

    1 : DATA-ITEM-NAME             :EMPLCTRL
    2 : DATA-ITEM-LENGTH           :6
    3 : DATA-ITEM-USE              :KEY
    4 : DATA-ITEM-TYPE             :CHARACTER
    5 : DATA-ITEM-SIGN             :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES   :0
    7 : DATA-ITEM-SUB-DATA-ITEMS   :0
    8 : DATA-ITEM-LEVEL            :0

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. Enter 3 and press RETURN. SUPRA DBA displays the domain name. Press PF1 to repaint the menu. Press PF1 again to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                    For EMPL-NO
                1 : Connect domain
                2 : Disconnect domain
                3 : Display domain connected

                    Enter choice no : 3



         Data item EMPLCTRL
         is connected to EMPLOYEE-ID-DM                          PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments so press RETURN or the PF1 key to exit this screen.

SUPRA DBA returns the Create Logical Data Item screen with the data set EMPL set up as the default. Enter NAME and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter EMPL-NAME and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : EMPL

          Four-character data item name : NAME

          Create logical data item name : EMPL-NAME
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : EMPLNAME

                   LOGICAL DATA ITEM : EMPL-NAME

    1 : DATA-ITEM-NAME            :EMPLNAME
    2 : DATA-ITEM-LENGTH          :20
    3 : DATA-ITEM-USE             :DATA
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :0

Enter field number to modify a field (or <PF1> to exit) :PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For EMPL-NAME
                 1 : Connect domain
                 2 : Disconnect domain
                 3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

SUPRA DBA returns the Create Logical Data Item screen with the data set EMPL as the default. Enter ADDR and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter EMPL-ADDR and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : EMPL

          Four-character data item name : ADDR

          Create logical data item name : EMPL-ADDR
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : EMPLADDR

                    LOGICAL DATA ITEM : EMPL-ADDR

    1 : DATA-ITEM-NAME            :EMPLADDR
    2 : DATA-ITEM-LENGTH          :37
    3 : DATA-ITEM-USE             :DATA
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :4
    8 : DATA-ITEM-LEVEL           :0

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For EMPL-ADDR
                 1 : Connect domain
                 2 : Disconnect domain
                 3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

SUPRA DBA returns the Create Logical Data Item screen with the data set EMPL as the default. Enter STRT and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter EMPL-STREET and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : EMPL

          Four-character data item name : STRT

          Create logical data item name : EMPL-STREET
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : EMPLSTRT

                   LOGICAL DATA ITEM : EMPL-STREET

    1 : DATA-ITEM-NAME            :EMPLSTRT
    2 : DATA-ITEM-LENGTH          :15
    3 : DATA-ITEM-USE             :DATA
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :1

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For EMPL-STREET
                 1 : Connect domain
                 2 : Disconnect domain
                 3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

SUPRA DBA returns the Create Logical Data Item screen, with the data set EMPL as the default. Enter CITY and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter EMPL-CITY and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : EMPL

          Four-character data item name : CITY

          Create logical data item name : EMPL-CITY
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : EMPLCITY

                    LOGICAL DATA ITEM : EMPL-CITY

    1 : DATA-ITEM-NAME            :EMPLCITY
    2 : DATA-ITEM-LENGTH          :15
    3 : DATA-ITEM-USE             :DATA
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :1

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For EMPL-CITY
                 1 : Connect domain
                 2 : Disconnect domain
                 3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

SUPRA DBA returns the Create Logical Data Item screen with the data set EMPL as the default. Enter STAT and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter EMPL-STATE and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : EMPL

          Four-character data item name : STAT

          Create logical data item name : EMPL-STATE
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : EMPLSTAT

                    LOGICAL DATA ITEM : EMPL-STATE

    1 : DATA-ITEM-NAME            :EMPLSTAT
    2 : DATA-ITEM-LENGTH          :2
    3 : DATA-ITEM-USE             :DATA
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :1

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For EMPL-STATE
                  1 : Connect domain
                  2 : Disconnect domain
                  3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

SUPRA DBA returns the Create Logical Data Item screen with the data set EMPL as the default. Enter ZIPC and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter EMPL-ZIPCODE and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




           Data set name : EMPL

           Four-character data item name : ZIPC

           Create logical data item name : EMPL-ZIPCODE
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : EMPLZIPC

                    LOGICAL DATA ITEM : EMPL-ZIPCODE

    1 : DATA-ITEM-NAME            :EMPLZIPC
    2 : DATA-ITEM-LENGTH          :5
    3 : DATA-ITEM-USE             :DATA
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :1

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For EMPL-ZIPCODE
                  1 : Connect domain
                  2 : Disconnect domain
                  3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

SUPRA DBA returns the Create Logical Data Item screen with the data set EMPL as the default. Enter DEPT and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter EMPL-DEPT and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : EMPL

          Four-character data item name : DEPT

          Create logical data item name : EMPL-DEPT




080 Note that EMPLDEPT is used by domain DEPT-ID-DM                <PF1/2>
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS            DATA ITEM : EMPLDEPT

                  LOGICAL DATA ITEM : EMPL-DEPT

    1 : DATA-ITEM-NAME           :EMPLDEPT
    2 : DATA-ITEM-LENGTH         :4
    3 : DATA-ITEM-USE            :DATA
    4 : DATA-ITEM-TYPE           :CHARACTER
    5 : DATA-ITEM-SIGN           :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES :0
    7 : DATA-ITEM-SUB-DATA-ITEMS :0
    8 : DATA-ITEM-LEVEL          :0

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. Press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For EMPL-DEPT
                 1 : Connect domain
                 2 : Disconnect domain
                 3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments, so press RETURN or the PF1 key to exit this screen.

SUPRA DBA returns the Create Logical Data Item screen with the data set EMPL as the default. Since you have defined all the logical data items you need for the EMPL data set, press RETURN to repaint the "Data set name:" prompt, enter DEPT and press RETURN.

Enter CTRL at the "Four-character data item name:" prompt and press RETURN. When the "Create logical data item name:" prompt appears, enter DEPT-NO and then press RETURN. SUPRA DBA displays the message "080 Note that DEPTCTRL is used by domain DEPT-ID-DM <PF1/2>" to remind you that DEPTCTRL is connected to a domain. Press PF1 to exit.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




       Enter physical data item information

       Data set name
       <PF4> will select EMPL : DEPT

       Four-character data item name : CTRL

       Create logical data item name : DEPT-NO




080 Note that DEPTCTRL is used by domain DEPT-ID-DM                <PF1/2>
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS              DATA ITEM : DEPTCTRL

                    LOGICAL DATA ITEM : DEPT-NO

    1 : DATA-ITEM-NAME            :DEPTCTRL
    2 : DATA-ITEM-LENGTH          :4
    3 : DATA-ITEM-USE             :KEY
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :0

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. Enter 3 and press RETURN. SUPRA DBA displays the domain name. Press PF1 to repaint the menu. Press PF1 again to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                    For DEPT-CTRL
                1 : Connect domain
                2 : Disconnect domain
                3 : Display domain connected

                    Enter choice no : 3



          Data item DEPTCTRL
          is connected to DEPT-ID-DM                              PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments, so press RETURN or PF1 to exit this screen.

SUPRA DBA returns the Create Logical Data Item screen with the data set DEPT as the default. Enter NAME and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter DEPT-NAME and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : DEPT

          Four-character data item name : NAME

          Create logical data item name : DEPT-NAME
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS              DATA ITEM : DEPTNAME

                    LOGICAL DATA ITEM : DEPT-NAME

    1 : DATA-ITEM-NAME             :DEPTNAME
    2 : DATA-ITEM-LENGTH           :20
    3 : DATA-ITEM-USE              :DATA
    4 : DATA-ITEM-TYPE             :CHARACTER
    5 : DATA-ITEM-SIGN             :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES   :0
    7 : DATA-ITEM-SUB-DATA-ITEMS   :0
    8 : DATA-ITEM-LEVEL            :0

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For DEPT-NAME
                 1 : Connect domain
                 2 : Disconnect domain
                 3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

SUPRA DBA returns the Create Logical Data Item screen with the data set DEPT as the default. Enter MNGR and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter DEPT-MGR and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : DEPT

          Four-character data item name : MNGR

          Create logical data item name : DEPT-MGR
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS              DATA ITEM : DEPTMNGR

                    LOGICAL DATA ITEM : DEPT-MGR

    1 : DATA-ITEM-NAME             :DEPTMNGR
    2 : DATA-ITEM-LENGTH           :6
    3 : DATA-ITEM-USE              :DATA
    4 : DATA-ITEM-TYPE             :CHARACTER
    5 : DATA-ITEM-SIGN             :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES   :0
    7 : DATA-ITEM-SUB-DATA-ITEMS   :0
    8 : DATA-ITEM-LEVEL :0

Enter field number to modify a field (or <PF1> to exit) :PF1
```

SUPRA DBA returns the Domain for Data Item menu. Department managers are all employees of the company. This means the values held in the 6-character DEPTMNGR data item are a subset of the values held in the 6-character EMPLCTRL data item. It makes sense, therefore, to connect DEPTMNGR to the same domain as EMPLCTRL, for example, EMPLOYEE-ID-DM.

Enter 1 at the “Enter choice no:” prompt and press RETURN.

SUPRA DBA prompts you to specify the name of the domain to which you want to connect DEPTMNGR, offering the name of the last domain you modified, DEPT-ID-DM, as the default. Enter EMPLOYEE-ID-DM and press RETURN.

The confirmation message “027 Connected domain successfully <PF1/2>“ appears. Press PF1 to repaint the Domain for Data Item Menu and press PF1 again to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                    For DEPT-MGR
                1 : Connect domain
                2 : Disconnect domain
                3 : Display domain connected

                    Enter choice no : 1









       Enter domain name
       (<PF1> will select DEPT-ID-DM)
       : EMPLOYEE-ID-DM



027 Connected domain successfully                                  <PF1/2>
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

SUPRA DBA returns the Create Logical Data Item screen with the data set DEPT as the default. Enter STAF and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter DEPT-STAFF and press RETURN.

```
CINCOM SYSTEMS      SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : DEPT

          Four-character data item name : STAF

          Create logical data item name : DEPT-STAFF
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : DEPTSTAF

                   LOGICAL DATA ITEM : DEPT-STAFF

    1 : DATA-ITEM-NAME            :DEPTSTAF
    2 : DATA-ITEM-LENGTH          :3
    3 : DATA-ITEM-USE             :DATA
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :0

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                    For DEPT-STAFF
                1 : Connect domain
                2 : Disconnect domain
                3 : Display domain connected

                    Enter choice no : PF1
```

SUPRA DBA returns the Create Logical Data Item screen with the data set DEPT as the default. Since you have defined all the logical data items you need for the DEPT data set, press RETURN to repaint the "Data set name:" prompt, enter WHST and press RETURN.

Enter EMPL at the "Four-character data item name:" prompt and press RETURN. When the "Create logical data item name:" prompt appears, enter WHST-EMPL and press RETURN. SUPRA DBA displays the message "080 note that WHSTEMPL is used by domain EMPLOYEE-ID-DM <PF1/2>" to remind you that WHSTEMPL is connected to a domain. Press PF1 to exit.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




       Enter physical data item information

       Data set name
       <PF4> will select DEPT : WHST

       Four-character data item name : EMPL

       Create logical data item name : WHST-EMPL




080 Note that WHSTEMPL is used by domain EMPLOYEE-ID-DM            <PF1/2>
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : WHSTEMPL

                   LOGICAL DATA ITEM : WHST-EMPL

    1 : DATA-ITEM-NAME            :WHSTEMPL
    2 : DATA-ITEM-LENGTH          :6
    3 : DATA-ITEM-USE             :KEY
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :0

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                    For WHST-EMPL
                1 : Connect domain
                2 : Disconnect domain
                3 : Display domain connected

                    Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments, so press RETURN or the PF1 key to exit this screen.

SUPRA DBA returns the Create Logical Data Item screen with the data set WHST as the default. Enter DEPT and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter WHST-DEPT and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : WHST

          Four-character data item name : DEPT

          Create logical data item name : WHST-DEPT
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : WHSTDEPT

                    LOGICAL DATA ITEM : WHST-DEPT

    1 : DATA-ITEM-NAME            :WHSTDEPT
    2 : DATA-ITEM-LENGTH          :4
    3 : DATA-ITEM-USE             :KEY
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :0

Enter field number to modify a field (or <PF1> to exit) :PF1
```

SUPRA DBA returns the Domain for Data Item Menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For WHST-DEPT
                 1 : Connect domain
                 2 : Disconnect domain
                 3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

SUPRA DBA returns the Create Logical Data Item screen with the data set WHST as the default. Enter DURA and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter WHST-DURA and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : WHST

          Four-character data item name : DURA

          Create logical data item name : WHST-DURA
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : WHSTDURA

                    LOGICAL DATA ITEM : WHST-DURA

    1 : DATA-ITEM-NAME            :WHSTDURA
    2 : DATA-ITEM-LENGTH          :2
    3 : DATA-ITEM-USE             :DATA
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :0

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                     For WHST-DURA
                 1 : Connect domain
                 2 : Disconnect domain
                 3 : Display domain connected

                     Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments, so press RETURN or the PF1 key to exit this screen.

SUPRA DBA returns the Create Logical Data Item screen with the data set WHST as the default. Enter TITL and press RETURN at the "Four-character data item name:" prompt. When the "Create logical data item name:" prompt appears, enter WHST-TITLE and press RETURN.

```
CINCOM SYSTEMS     SUPRA DBA - CREATE LOGICAL DATA ITEM




          Data set name : WHST

          Four-character data item name : TITL

          Create logical data item name : WHST-TITLE
```

SUPRA DBA returns the Data Item Detail screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS             DATA ITEM : WHSTTITL

                    LOGICAL DATA ITEM : WHST-TITLE

    1 : DATA-ITEM-NAME            :WHSTTITL
    2 : DATA-ITEM-LENGTH          :15
    3 : DATA-ITEM-USE             :DATA
    4 : DATA-ITEM-TYPE            :CHARACTER
    5 : DATA-ITEM-SIGN            :SIGNED
    6 : DATA-ITEM-DECIMAL-PLACES  :0
    7 : DATA-ITEM-SUB-DATA-ITEMS  :0
    8 : DATA-ITEM-LEVEL           :0

Enter field number to modify a field (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Domain for Data Item menu. There is no domain connected, so press PF1 to exit.

```
CINCOM SYSTEMS   SUPRA DBA - DOMAIN FOR DATA ITEM


                    For WHST-TITLE
                1 : Connect domain
                2 : Disconnect domain
                3 : Display domain connected

                    Enter choice no : PF1
```

SUPRA DBA returns the Comment screen. You do not need to enter comments at this screen, so press RETURN or PF1 to exit.

Press PF1, RETURN, or CTRL-Z until you see the DBA Function Selection menu. This concludes the Logical Data Items chapter. You are now ready to create views.

7

Defining base views

Now that you have completed Chapters 2 through 6, you have a valid, compiled database with formatted data set and index files. All the data files are empty. The next step is to define logical views of your database which you use to insert and manipulate data.

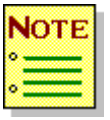
SUPRA DBA offers two methods of defining, opening and saving views:

- From SUPRA DBA, you can start an EDT interface to view definition. The EDT interface allows you to create and save views; however, it does not allow you to enter data. Refer to the *SUPRA Server PDM Database Administration Guide (UNIX & VMS)*, P25-2260, for a description of the EDT interface to view maintenance.

- At DCL command level, you can invoke DBAID. DBAID is a test facility through which you cannot only define and save views, but also insert, update, retrieve, and delete data using Relational Data Manipulation Language (RDML) statements. Refer to the *SUPRA Server PDM RDM Administration Guide (VMS)*, P25-8220, for a description of all the DBAID commands and the syntax for defining views.

This chapter explains how to define views both through DBA and through DBAID, and illustrates some of the RDML statements by providing example data to insert and retrieve through DBAID. You create the following views:

- **DEPARTMENT**. To insert department details. It enforces referential integrity (you cannot delete a department if any employee or work history exists for it).
- **EMPLOYEE**. To insert employee details. It provides insert and update referential integrity (it will not allow you to insert an employee in a department that does not exist).
- **EMPLOYEE-BY-NAME**. To report information. You cannot use EMPLOYEE-BY-NAME TO insert or update data in the database. You can use it to retrieve employees in surname order using the secondary key EMPLSKNM that you defined in "Creating a database description" on page 19. You can also use it to perform generic reads where you omit parts of the surname from the right, for instance, to report on all employees whose surname begins with the letters AN.
- **EMPLOYEE-BY-DEPARTMENT**. To report information. It lists employees by department. You cannot use it to modify the database.
- **WORK-HISTORY**. To insert work history details for employees. You can only insert a work history for those employees who already exist.



This tutorial describes base views, that is, views that access data sets directly. You can experiment with derived views that access only other views after you have finished the tutorial.

Defining views through DBA

You finished Chapter 6 at the DBA Function Selection menu. Enter 3 and press RETURN to invoke the EDT interface for defining views.

```
CINCOM SYSTEMS  SUPRA DBA - FUNCTION SELECTION FOR THE DBA


                    Select required function :
                 1 : Database descriptions
                 2 : Data sets
                 3 : Logical views
                 4 : Logical data items
                 5 : Domains
                 6 : Validation tables
                 7 : Programs
                 8 : Users
                 9 : Unlock functions
                10 : Administration functions

                    Enter choice no.: 3
```

SUPRA DBA returns the Logical View Function menu. You will define two views through the DBA EDT interface: EMPLOYEE and DEPARTMENT. Enter 3 and press RETURN to create a view. When the "Create Logical View Name:" prompt appears, enter EMPLOYEE and press RETURN. When the "Name of database to which logical view refers:" prompt appears, enter PERSON and press RETURN.

SUPRA DBA displays the message "114 FSI: * VSI: = MSG: SUCCESSFUL COMPLETION - LEVEL 05 <PF1/2>" to indicate that you have successfully signed-on to RDM. Press PF1 to continue.

```
CINCOM SYSTEMS    SUPRA DBA - LOGICAL VIEW FUNCTION


                     Functions for logical views
                  1 : Examine
                  2 : Modify
                  3 : Create
                  4 : Delete
                  5 : Connect to database description
                  6 : Disconnect from database description
                  7 : List database descriptions using view
                  8 : List all logical views
                  9 : User authorization

                     Enter choice no.: 3



       Create logical view name:  EMPLOYEE



       Name of database to which logical view refers:  PERSON

114 FSI: *  VSI: =  MSG: SUCCESSFUL COMPLETION - LEVEL 05          <PF1/2>
```

SUPRA DBA returns the EDT View Maintenance screen with the end of buffer indicator [EOB] after the view text. The DBA EDT interface is like DCL EDIT/EDT, with minor changes to the function key usage. Enter the information shown in the screen by typing in the characters and pressing RETURN at the end of each line. You can move up and down the screen using the arrow keys. Lines that start with an asterisk are comment lines.

When you are satisfied with the text of the view, press PF1 then keypad 7. This displays the "Command:" prompt at the bottom of the screen. Enter EXIT and press RETURN to transmit your response.

SUPRA DBA displays the message: "114 FSI: * VSI: = MSG: 3256 BYTES USED IN OPENING VIEW. <PF1/2>" to indicate that the view open was successful. Press PF1 to instruct DBA to attempt to save the valid, opened view.

```
KEY EMPL-NO
EMPL-NAME
EMPL-STREET
EMPL-CITY
EMPL-STATE
EMPL-ZIPCODE
EMPL-DEPT = EMPL-DEPT = DEPT-NO
ACCESS EMPL VIA EMPLSKNO USING EMPL-NO ALLOW ALL
*
*  First access EMPL using secondary key EMPLSKNO to force record ordering
*
ACCESS DEPT WHERE DEPT-NO = EMPL-DEPT
*
*  Next access DEPT for referential integrity
*
ACCESS WHST WHERE WHST-EMPL = EMPL-NO
*
*  Finally restrict deletes to WHST
*
[EOB]



Command: EXIT
114 FSI: *  VSI: =  MSG:        3256 BYTES USED IN OPENING VIEW.   <PF1/2>
```

SUPRA DBA displays the message: “114 SAVED VIEW EMPLOYEE <PF1/2>“ to indicate that the view save was successful. Press PF1 to exit.

```
KEY EMPL-NO
EMPL-NAME
EMPL-STREET
EMPL-CITY
EMPL-STATE
EMPL-ZIPCODE
EMPL-DEPT = EMPL-DEPT = DEPT-NO
ACCESS EMPL VIA EMPLSKNO USING EMPL-NO ALLOW ALL
*
*  First access EMPL using secondary key EMPLSKNO to force record ordering
*
ACCESS DEPT WHERE DEPT-NO = EMPL-DEPT
*
*  Next access DEPT for referential integrity
*
ACCESS WHST WHERE WHST-EMPL = EMPL-NO
*
*  Finally restrict deletes to WHST
*
[EOB]



Command: EXIT
114 SAVED VIEW EMPLOYEE                    <PF1/2>
```

SUPRA DBA displays the Logical View Details screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS            LOGICAL VIEW : EMPLOYEE

 1 : LOGICAL-VIEW-NAME            : EMPLOYEE
 2 : LV-STATUS                    : O.K.
 3 : LOGICAL-VIEW-BOUND           : N
 4 : LV-DATE                      : 8-Jun-96
 5 : LV-BOUND-SIZE                : 0
 6 : LV-TIME                      : 15:57:06

Enter field number (or <PF1> to exit) : PF1
```

SUPRA DBA returns the Logical View Function screen. Enter 3 and press RETURN to create another view. When the “Create Logical View Name:” prompt appears, enter DEPARTMENT and press RETURN. When the “Name of database to which logical view refers:” prompt appears, enter PERSON and press RETURN.

SUPRA DBA displays the message “114 FSI: * VSI: = MSG: SUCCESSFUL COMPLETION - LEVEL 05 <PF1/2>“ to indicate that you have successfully signed-on to RDM. Press PF1 to continue.

```
CINCOM SYSTEMS    SUPRA DBA - LOGICAL VIEW FUNCTION









        Create logical view name:  DEPARTMENT


        Name of database to which logical view refers:  PERSON

114 FSI: *  VSI: =  MSG: SUCCESSFUL COMPLETION - LEVEL 05          <PF1/2>
```

SUPRA DBA returns the EDT View Maintenance screen with the end of buffer indicator [EOB] after the view text. Enter the text of the view by typing in the characters and pressing RETURN at the end of each line. You can move up and down the screen using the arrow keys. Lines that start with an asterisk are comment lines.

When you have entered the text correctly, press PF1, then keypad 7. This displays the “Command:” prompt at the bottom of the screen. Enter EXIT and press RETURN to transmit your response.

SUPRA DBA displays the message: “114 FSI: * VSI: = MSG: 2544 BYTES USED IN OPENING VIEW. <PF1/2>“ to indicate that the view open was successful. Press PF1 to instruct DBA to attempt to save the valid, opened view.

```
KEY DEPT-NO
DEPT-NAME
REQ DEPT-MGR
DEPT-STAFF
ACCESS DEPT VIA DEPTSKNO USING DEPT-NO ALLOW ALL
*
*  First access DEPT, ensuring referential integrity
*

ACCESS EMPL VIA EMPLSKNO USING DEPT-MGR
*
*  Next access EMPL using secondary key to return employee records in order
*
ACCESS WHST WHERE WHST-DEPT = DEPT-NO
*
*  Finally restrict deletions to WHST
*
[EOB]




Command: EXIT
114 FSI: *  VSI: =  MSG:        2544 BYTES USED IN OPENING VIEW.   <PF1/2>
```

SUPRA DBA displays the message: “114 SAVED VIEW DEPARTMENT <PF1/2>“ to indicate that the view save was successful. Press PF1 to exit.

```
KEY DEPT-NO
DEPT-NAME
REQ DEPT-MGR
DEPT-STAFF
ACCESS DEPT VIA DEPTSKNO USING DEPT-NO ALLOW ALL
*
*  First access DEPT, ensuring referential integrity
*
ACCESS EMPL VIA EMPLSKNO USING DEPT-MGR
*
*  Next access EMPL using secondary key to return employee records in order
*
ACCESS WHST WHERE WHST-DEPT = DEPT-NO
*
*  Finally restrict deletions to WHST
*
[EOB]




Command: EXIT
114 SAVED VIEW DEPARTMENT                    <PF1/2>
```

SUPRA DBA displays the Logical View Details screen. You do not need to change anything on this screen, so press PF1 to exit.

```
CINCOM SYSTEMS            LOGICAL VIEW : DEPARTMENT

 1 : LOGICAL-VIEW-NAME            : DEPARTMENT
 2 : LV-STATUS                    : O.K.
 3 : LOGICAL-VIEW-BOUND           : N
 4 : LV-DATE                      : 8-Jun-96
 5 : LV-BOUND-SIZE                : 0
 6 : LV-TIME                      : 16:05:56

Enter field number (or <PF1> to exit) : PF1
```

Now, you need to exit DBA and create the rest of the views through DBAID. Press CTRL-Z**,** PF1, or RETURN twice to fast-exit to DCL command level.

Defining and testing views through DBAID

In this section you invoke DBAID and list the two views you defined through DBA. You then open these views and use them to insert data into the PERSON database.

Having inserted some employee and department data, you need to define and use three more views:

- EMPLOYEE-BY-NAME to report on employees in surname order.
- EMPLOYEE-BY-DEPARTMENT to report on employees in a particular department.
- WORK-HISTORY to insert and report on employee history within the company.

This section is presented as a DBAID session with each view described in a separate subsection. When the DBAID session is interrupted by the introductory text for a subsection, the title DBAID SESSION continued... shows you where the DBAID session starts again.

You should type in any text shown in bold type. Brief explanations of what you enter are enclosed in parentheses to the right of the page and do not appear on your screen. Text shown in ordinary type is what DBAID displays in response to your commands.

You do not need to exit DBAID before the end of this chapter. However, if you do exit DBAID, you can return to this introduction to invoke DBAID and start again where you left off.

DBAID session

To invoke DBAID, type:

```
$DBAID
             SUPRA RELEASE 2.4
          WELCOME TO DBAID  -  LEVEL 05
PLEASE SIGN ON.
>DBA-USERNAME                (enter your DBA username)
>Password: DBA-PASSWORD      (enter your DBA password)
FSI: *  VSI: =  MSG: SUCCESSFUL COMPLETION  -  LEVEL 05
>VIEWS-FOR-USER              (list views defined so far)

!    LOGICAL VIEW NAME       !    DATE    !   TIME    !
!----------------------------!------------!  ---------!
! EMPLOYEE                   !  06/08/96  ! 15:57:06  !
! DEPARTMENT                 !  06/08/96  ! 16:05:56  !
-------------------------------------------------------
```

Inserting department details and retrieving rows

The VIEWS-FOR-USER DBAID command lists the views available to you. The EMPLOYEE and DEPARTMENT views that you defined through DBA are saved and ready for use. First, enter LIST DEPARTMENT to display the text of the DEPARTMENT view. Next, enter OPEN*, then enter INSERT* to insert a department record. (Using the * in this context selects the last view-name you entered.) You will enter details for the following four departments:

```
!DEPT-NO!     DEPT-NAME              !DEPT-MGR!DEPT-STAFF!
!-------!----------------------------!--------!----------!
! 1000  !SALES                       ! 120001 !   4      !
! 2000  !PERSONNEL                   ! 120003 !   3      !
! 3000  !DEVELOPMENT                 ! 120004 !   5      !
! 4000  !MARKETING                   ! 120010 !   6      !
-------------------------------------------------------------
```

The sample DBAID session shows you how to enter details of the SALES department. Repeat the steps from “INSERT*” to “Y” to enter the other three departments. Enter GO* to list the details you have entered.

DBAID session (cont.)

```
>LIST DEPARTMENT                                (list the view text)
                          DEPARTMENT
0005 KEY DEPT-NO
0010  DEPT-NAME
0015 REQ DEPT-MGR
0020  DEPT-STAFF
0025 ACCESS DEPT VIA DEPTSKNO USING DEPT-NO ALLOW ALL
0030 *
0035 *  First access DEPT, ensuring referential integrity
0040 *
0045 ACCESS EMPL VIA EMPLSKNO USING DEPT-MGR
0050 *
0055 *  Next access EMPL using secondary key to return
0060 *  employee records in order within department,
0065 *  enduring referential integrity
0070 ACCESS WHST WHERE WHST-DEPT = DEPT-NO
0075 *
0080 *  Finally restrict deletions to WHST
0085 *
>OPEN*                                  (open view to insert data)
FSI: *  VSI: =  MSG:        2544 BYTES USED IN OPENING VIEW.
>INSERT*                                (RDML INSERT command)
DEPT-NO
>1000                                   (enter department number)
DEPT-NAME
>SALES                                  (enter department name)
DEPT-MGR
>1200001                                (enter employee-id)
DEPT-STAFF
>4                                      (enter number of employees)
DEPT-NO                          ( ) 1000
DEPT-NAME                        ( ) SALES
DEPT-MGR                         ( ) 120001
DEPT-STAFF                       ( ) 4
INSERT (Y/N)?
>Y                                      (confirm insert)
```

```
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
.                                    (repeat INSERT* command
.                                     and insert remaining three
                                      departments)
>GO*                                 (list data you have inserted)
!DEPT-NO!     DEPT-NAME      !DEPT-MGR!DEPT-STAFF!
!-------!--------------------!--------!----------!
! 1000  !SALES               ! 120001 !   4      !
! 2000  !PERSONNEL           ! 120003 !   3      !
! 3000  !DEVELOPMENT         ! 120004 !   5      !
! 4000  !MARKETING           ! 120010 !   6      !
-------------------------------------------------------------
***END***
```

You have now entered details for four departments.

Inserting employee details and retrieving rows

Now enter LIST EMPLOYEE to list the text of the EMPLOYEE view. Enter OPEN*, then enter INSERT* to insert employee records. Enter details for the following employee records:

```
!EMPL-NO! EMPL-NAME !  EMPL-STREET  !  EMPL-CITY  !STATE!  ZIP  ! DEPT !
-------------------------------------------------------------------------
!120001 !ASIMOV,I   !6575 The Corner!Norcross     ! GA  ! 30092 ! 1000 !
!120002 !ANTHONY,P  !35 Hill Park   !Braintree    ! MA  ! 02184 ! 1000 !
!120003 !HUXLEY,A   !500 Broad Bvd  !Itasca       ! IL  ! 60143 ! 1000 !
!120004 !CLARKE,A.C.!22 Tower Ave   !Weymouth     ! MA  ! 02190 ! 1000 !
!120005 !ANDERSON,P !50 Ridge St    !N. Tonowanda ! NY  ! 14120 ! 3000 !
!120006 !HOFMANN,L  !15 Emily Ave   !Itasca       ! IL  ! 60143 ! 2000 !
-------------------------------------------------------------------------
```

The sample DBAID session shows you how to enter details of the employee ASIMOV,I. Repeat the steps from “INSERT*” to “Y” to enter the other five employees. Enter GO* to list the details you have entered.

DBAID session (cont.)

```
>LIST EMPLOYEE                                    (list the view text)

                              EMPLOYEE
0005 KEY EMPL-NO
0010  EMPL-NAME
0015  EMPL-STREET
0020  EMPL-CITY
0025  EMPL-STATE
0030  EMPL-ZIPCODE
0035  EMPL-DEPT = EMPL-DEPT = DEPT-NO
0040  ACCESS EMPL VIA EMPLSKNO USING EMPL-NO ALLOW ALL
0045 *
0050 *  First access EMPL using secondary key EMPLSKNO to
0055 *  force record ordering
0060 *
0065 ACCESS DEPT WHERE DEPT-NO = EMPL-DEPT
0070 *
0075 *  Next access DEPT for referential integrity
0080 *
0085 ACCESS WHST WHERE WHST-EMPL = EMPL-NO
0090 *
0095 *  Finally restrict deletes to WHST
0100 *
>OPEN*                                  (open view to insert data)

FSI: *  VSI: =  MSG:        3256 BYTES USED IN OPENING VIEW.

>INSERT*                                (RDML INSERT command)
```

```
EMPL-NO
>120001                          (enter employee number)
EMPL-NAME
>ASIMOV,I                        (enter employee name)
EMPL-STREET
>6575 The Vine                   (enter employee street no)
EMPL-CITY
>Norcross                        (enter employee city)
EMPL-STATE
>GA                              (enter employee state)
EMPL-ZIPCODE
>30092                           (enter employee zip code)
EMPL-DEPT
>1000                            (enter dept - must exist)

EMPL-NO                        ( ) 120001
EMPL-NAME                      ( ) ASIMOV,I
EMPL-STREET                    ( ) 6575 The Vine
EMPL-CITY                      ( ) Norcross
EMPL-STATE                     ( ) GA
EMPL-ZIPCODE                   ( ) 30092
EMPL-DEPT                      ( ) 1000
INSERT (Y/N)?
>Y                               (confirm insert)

FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
.                                (repeat INSERT* command
.                                 and insert remaining
.                                 employee details)
```

```
>GET*

EMPL-NO                        (+) 120001
EMPL-NAME                      (+) ASIMOV,I
EMPL-STREET                    (+) 6575 The Vine
EMPL-CITY                      (+) Norcross
EMPL-STATE                     (+) GA
EMPL-ZIPCODE                   (+) 300926523
EMPL-DEPT                      (+) 1000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION

>GET*

EMPL-NO                        (+) 120002
EMPL-NAME                      (+) ANTHONY,P
EMPL-STREET                    (+) 35 Hill Park
EMPL-CITY                      (+) Braintree
EMPL-STATE                     (+) MA
EMPL-ZIPCODE                   (+) 021847389
EMPL-DEPT                      (+) 1000

>GET*

EMPL-NO                        (+) 120003
EMPL-NAME                      (+) HUXLEY,A
EMPL-STREET                    (+) 500 Broad Bvd
EMPL-CITY                      (+) Itasca
EMPL-STATE                     (+) IL
EMPL-ZIPCODE                   (+) 601435667
EMPL-DEPT                      (+) 1000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
```

```
>GET*

EMPL-NO                         (+) 120004
EMPL-NAME                       (+) CLARKE,A.C.
EMPL-STREET                     (+) 22 Tower Ave
EMPL-CITY                       (+) Weymouth
EMPL-STATE                      (+) MA
EMPL-ZIPCODE                    (+) 021905632
EMPL-DEPT                       (+) 1000

>GET*

EMPL-NO                         (+) 120005
EMPL-NAME                       (+) ANDERSON,P
EMPL-STREET                     (+) 50 Ridge St
EMPL-CITY                       (+) N. Tonowanda
EMPL-STATE                      (+) NY
EMPL-ZIPCODE                    (+) 141205923
EMPL-DEPT                       (+) 3000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION

>GET*

EMPL-NO                         (+) 120006
EMPL-NAME                       (+) ANTHONY,P
EMPL-STREET                     (+) 15 Emily Ave
EMPL-CITY                       (+) Itasca
EMPL-STATE                      (+) IL
EMPL-ZIPCODE                    (+) 601432348
EMPL-DEPT                       (+) 2000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION

>GET*

FSI: N  VSI: =  MSG: OCCURRENCE NOT FOUND.
```

You have now entered details for six employees.

Defining EMPLOYEE-BY-NAME and using generic reads

You create views through DBAID using the following DBAID commands:

- **DEFINE *view-name***. To define the view to DBAID
- **OPEN *view-name***. To ready the view for use by DBAID
- **SAVE *view-name***. To save the view on the SUPRA Directory

Now you need to define, open, and save the view EMPLOYEE-BY-NAME. Once you have saved EMPLOYEE-BY-NAME, you can use it to illustrate generic reads, retrieving employee records by supplying a partial employee name as the key. This illustrates the following DBAID command:

```
GET view-name USING key-name
```

You will supply only the first two characters of the key-name, replacing the remainder with the equal-only wildcard character (the equal sign, =) and then with the equal-or-next wildcard character (the asterisk, *) to show how RDM processes wildcard retrievals.

DBAID session (cont.)

```
>DEFINE EMPLOYEE-BY-NAME                (define the view)

                              EMPLOYEE-BY-NAME
>5 NONUNIQUE KEY EMPL-NAME              (key in view text exactly)
>10  EMPL-NO                             as shown)
>15  EMPL-CITY
>20  EMPL-DEPT
>25 ACCESS EMPL VIA EMPLSKNM USING EMPL-NAME
>OPEN*                                  (open view to insert data)

FSI: *  VSI: =  MSG:        1632 BYTES USED IN OPENING VIEW.

>SAVE*                                  (save the view)

SAVED   5 LINES AS EMPLOYEE-BY-NAME     16:40:04 08-JUN-1996

>GET* USING AN=                         (retrieve the first match)

EMPL-NAME                     (+) ANDERSON,P
EMPL-NO                       (+) 120005
EMPL-CITY                     (+) N.  Tonowanda
EMPL-DEPT                     (+) 3000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION

>GET* USING AN=                         (retrieve the next match)

EMPL-NAME                     (+) ANTHONY,P
EMPL-NO                       (+) 120002
EMPL-CITY                     (+) Braintree
EMPL-DEPT                     (+) 1000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
```

```
>GET* USING AN=                    (retrieve the next match)

EMPL-NAME                      (+) HOFMANN,L
EMPL-NO                        (+) 120006
EMPL-CITY                      (+) Itasca
EMPL-DEPT                      (+) 2000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION

>GET* USING AN=                    (retrieve the next match;
                                    however, since no exact match
                                    exists, RDM returns
                                    OCCURRENCE NOT
                                    FOUND)
FSI: N  VSI: =  MSG: OCCURRENCE NOT FOUND.

>GET* USING AN*                    (retrieve the first match)

EMPL-NAME                      (+) ANDERSON,P
EMPL-NO                        (+) 120005
EMPL-CITY                      (+) N.  Tonowanda
EMPL-DEPT                      (+) 3000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION

>GET* USING AN*                    (retrieve the next match or, if
                                    no match exists, next record)

EMPL-NAME                      (+) ANTHONY,P
EMPL-NO                        (+) 120002
EMPL-CITY                      (+) Braintree
EMPL-DEPT                      (+) 1000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
```

```
>GET* USING AN*
```

(retrieve the next match or, if no match exists, next record)

```
EMPL-NAME                    (+) HOFMANN,L
EMPL-NO                      (+) 120006
EMPL-CITY                    (+) Itasca
EMPL-DEPT                    (+) 2000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
```

```
>GET* USING AN*
```

(retrieve the next match or, if no match exists, next record)

```
EMPL-NAME                    (+) ASIMOV,I
EMPL-NO                      (+) 120001
EMPL-CITY                    (+) Norcross
EMPL-DEPT                    (+) 1000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
```

```
>GET* USING AN*
```

(attempts to retrieve next match. No match exists; therefore, RDM retrieves next record)

```
EMPL-NAME                    (+) CLARKE,A.C.
EMPL-NO                      (+) 120004
EMPL-CITY                    (+) Weymouth
EMPL-DEPT                    (+) 1000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
```

```
>GET* USING AN*
```

(retrieve next record)

```
EMPL-NAME                    (+) HUXLEY,A
EMPL-NO                      (+) 120003
EMPL-CITY                    (+) Itasca
EMPL-DEPT                    (+) 1000
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
```

```
>GET* USING AN*
```

(reaches end of file marker and returns OCCURRENCE NOT FOUND)

```
FSI: N  VSI: =  MSG: OCCURRENCE NOT FOUND.
```

Defining EMPLOYEE-BY-DEPARTMENT and retrieving rows

You need to create the view EMPLOYEE-BY-DEPARTMENT using the DBAID commands DEFINE EMPLOYEE-BY-DEPARTMENT, OPEN* and SAVE*. (Using the * in this context selects the last view-name you entered.) You then use the GO* command to list all the employees ordered by department number.

DBAID session (cont.)

```
>DEFINE EMPLOYEE-BY-DEPARTMENT      (define the view)

                        EMPLOYEE-BY-DEPARTMENT
>5 KEY DEPARTMENT = DEPT-NO         (key in view text exactly)
>10  DEPARTMENT-DESCRIPTION = DEPT-NAME      as shown)
>15  EMPLOYEE = EMPL-NO
>20  EMPLOYEE-NAME = EMPL-NAME
>25 ACCESS DEPT VIA DEPTSKNO USING DEPARTMENT
>30 ACCESS EMPL WHERE EMPL-DEPT = DEPARTMENT
>OPEN*                              (open view to insert data)

FSI: *  VSI: =  MSG:        2080 BYTES USED IN OPENING VIEW.
>SAVE*                              (save view on Directory)

SAVED 6 LINES AS EMPLOYEE-BY-DEPARTMENT 16:50:32 08-JUN-1996

>GO*                                (report on employee by dept)

!DEPARTMENT!DEPARTMENT-DESCRIPTION!EMPLOYEE!   EMPLOYEE-NAME    !
!----------!-----------------!--------!--------------------!
!   1000   ! SALES           ! 120002 !ANTHONY,P           !
!   1000   ! SALES           ! 120001 !ASIMOV,I            !
!   1000   ! SALES           ! 120004 !CLARKE,A.C.         !
!   1000   ! SALES           ! 120003 !HUXLEY,A            !
!   2000   ! PERSONNEL       ! 120006 !ANTHONY,P           !
!   3000   ! DEVELOPMENT     ! 120005 !ANDERSON,P          !
!   4000   ! MARKETING       !        !                    !
-------------------------------------------------------------
***END***
```

Defining WORK-HISTORY and inserting rows

You need to create the view WORK-HISTORY using the DBAID commands DEFINE EMPLOYEE-BY-DEPARTMENT, OPEN* and SAVE*. (Using the * in this context selects the last view-name you typed in.)

You then enter work history details for the following employees by typing INSERT* to insert each record:

```
!EMPLOYEE-ID!LENGTH-OF-SERVICE!   JOB-TITLE   !DEPARTMENT!
!-----------!-----------------!--------------!----------!
!  120002   !       3         !PROGRAMMER     !   2000   !
!  120002   !       2         !ASST MGR       !   3000   !
!  120001   !       1         !TEA BOY        !   1000   !
!  120001   !       2         !TYPIST         !   1000   !
!  120001   !       10        !MESSENGER      !   1000   !
-------------------------------------------------------------
```

The sample DBAID session shows you how to enter the first work history for employee number 120002. Repeat the steps from “INSERT*” to “Y” to enter the other work histories. Once you have entered the work history details, enter GO* to display them on your screen.

DBAID session (cont.)

```
>DEFINE WORK-HISTORY                    (define the view)

                          WORK-HISTORY
>5 KEY EMPLOYEE-ID = EMPL-NO           (key in details exactly
>10  LENGTH-OF-SERVICE = WHST-DURA      as shown)
>15  JOB-TITLE = WHST-TITLE
>20 REQ DEPARTMENT = DEPT-NO = WHST-DEPT
>25 ACCESS EMPL USING EMPLOYEE-ID
>30 ACCESS WHST WHERE WHST-EMPL = EMPLOYEE-ID ALLOW ALL
>35 ACCESS DEPT WHERE DEPT-NO =  DEPARTMENT
>OPEN*                                 (open view to insert data)

FSI: *  VSI: =  MSG:        2584 BYTES USED IN OPENING VIEW.

>SAVE*                                 (save view on Directory)

SAVED   7 LINES AS WORK-HISTORY         17:14:12 15-JAN-1996

>INSERT*                               (RDML INSERT command)

EMPLOYEE-ID
>120002                                (enter employee number)
LENGTH-OF-SERVICE
>2                                     (enter years in job)
JOB-TITLE
>ASST MGR                              (enter job function)
DEPARTMENT
>3000                                  (enter department number)

EMPLOYEE-ID                    ( ) 120002
LENGTH-OF-SERVICE              ( ) 2
JOB-TITLE                      ( ) ASST MGR
DEPARTMENT                     ( ) 3000
INSERT (Y/N)?
>Y                                     (confirm insert)
```

```
FSI: *  VSI: +  MSG: SUCCESSFUL COMPLETION
.                                  (repeat INSERT* command and
.                                   insert remaining four work
.                                   history records)

>GO*                               (list data you have inserted)

!EMPLOYEE-ID!LENGTH-OF-SERVICE!   JOB-TITLE   !DEPARTMENT!
!-----------!-----------------!---------------!----------!
!  120002   !       3         !PROGRAMMER     !   2000   !
!  120002   !       2         !ASST MGR       !   3000   !
!  120001   !       1         !TEA BOY        !   1000   !
!  120001   !       2         !TYPIST         !   1000   !
!  120001   !       10        !MESSENGER      !   1000   !
-------------------------------------------------------------
***END***
```

You have now defined the WORK-HISTORY view and entered work history details for two employees.

VIEWS-FOR-USER command and exiting DBAID

Enter VIEWS-FOR-USER to display details of the views saved on the SUPRA Directory for the database PERSON. The three views, EMPLOYEE-BY-NAME, EMPLOYEE-BY- DEPARTMENT and WORK-HISTORY are now displayed in addition to the two views you defined through DBA, EMPLOYEE and DEPARTMENT. Enter BYE to exit to DCL command level.

```
>VIEWS-FOR-USER                    (list views for database PERSON)

!       LOGICAL VIEW NAME        !   DATE   !   TIME   !
!--------------------------------!----------!----------!
! WORK-HISTORY                   ! 06/08/96 ! 17:14:12 !
! EMPLOYEE-BY-DEPARTMENT         ! 06/08/96 ! 16:50:32 !
! EMPLOYEE-BY-NAME               ! 06/08/96 ! 16:40:04 !
! EMPLOYEE                       ! 06/08/96 ! 15:57:06 !
! DEPARTMENT                     ! 06/08/96 ! 16:05:56 !
-------------------------------------------------------------

>BYE                                   (type BYE to exit DBAID)
  DBAID SESSION COMPLETE
$
```

You have now created a database, defined views and inserted data. You can use this database to become more familiar with DBAID. You can define other base views and derived views. Refer to the *SUPRA Server PDM RDM Administration Guide (VMS)*, P25-8220, for detailed instructions on DBAID commands and view usage. You can then try out some of the other SUPRA Server components.

Glossary of terms

activate index

A PDM operator command that enables the PDM to update index records each time the corresponding data file is updated. Use the check index function if the index has been deactivated for any length of time. See **deactivate index**, **check index**.

base view

(VMS UNIX) For PDM support, a Directory view definition you create whose access statements refer to physical files rather than to base view names. Views which contain all of the integrity constraint information and map to the base relations. Base views access SUPRA Server data sets directly, not other views.

See also **view**.

buffer

A temporary storage area in memory used for data input or output.

check index

An indexing function you access through DBA which uses the index maintenance utility CSTUIDX.EXE. Check index verifies that the index records match the records in the corresponding data file. Check will automatically correct any inconsistencies and is particularly useful for indices that have been deactivated for any length of time. See **activate index**, **deactivate index**.

column

A vertical arrangement of like values in a table.

See also **domain**.

command level

Level from which the user can enter input to the command interpreter. Also referred to as system level.

compiled database description

A file containing the physical definition of the database, file names, buffer names, etc. It resides in global memory and is required for all database processing. SUPRA Server creates each compiled database description file with a default suffix of .MOD (VMS). This file is sometimes referred to in error messages as the DBMOD. See **database description**.

Data Control Language (DCL)

A language used to control access to a table by granting users authority to access information.

data item

In design analysis, the smallest unit of data that has meaning to your organization. In NORMAL Design, data items create attributes. See **physical data item** and **logical data item**.

Data Manipulation Language (DML)

A set of application statements that access a data manager. SUPRA Server for RDM/PDM supports physical view data manipulation language (PDML) for PDM and SPECTRA files, and relational data manipulation language (RDML) for PDM files.

data set

Description of the physical data storage in the SUPRA Directory including physical record(s) layout and VMS file specification.

A physical file under an IBM or VAX/VMS operating system.

data view

User view of data for a business function. Used as a starting point for database conceptual model design and logical (application) view definition.

database

A collection of data stored on a computer storage medium so that it can be used for more than one purpose.

database description (DBD)

A collection of physical record layouts, file specifications, linkpaths, data items and record codes, buffer information, task and system logging and other environmental information stored on the SUPRA Directory. The database description describes the physical data, and the relationships between the data, to be maintained by SUPRA Server PDM and RDM. See **compiled database description**.

DBA

See **SUPRA DBA**.

DBA utilities

A SUPRA Server component that allows the DBA to organize, display, and maintain data on Directory files, PDM files, and user files. Facilities allow you to change the structure of data sets without losing existing user-entered data and to produce statistics.

DBAID utility

An RDM utility that processes standard application RDML commands and provides additional RDML commands for the DBA. RDML is processed as encountered without being assembled as an application program. This provides a tool for the DBA to modify stored views, build and test new logical views, save and/or bind views, and place views into production. Application programmers can use authorized commands to test logical view functioning against planned program strategies.

DBMOD

See **compiled database description**.

DCL

See **Data Control Language**.

deactivate index

A PDM operator command you use to terminate index updating. See **activate index**, **check index**.

default

A value that SUPRA Server automatically provides unless the user specifies an alternative.

default value

A value inserted into a physical data item when a view does not contain the mapping column. The column that maps to the physical data item may have been omitted from the user view, or it may be missing from the derived or base views.

domain

The set of all possible values of an attribute. It provides validation options for inserts and updates to the attribute. Assigning two or more attributes to the same domain implies that the values for those attributes are logically comparable.

dynamic indexing

A method for accessing data through the PDM with other than a control key or linkpath. It speeds data retrieval by using secondary keys stored on an index file, and it provides a method of obtaining data in a specified sequence. You can use RDM views or the PDML serial command to make use of the secondary keys.

execution statistics

Database statistics that reflect the performance of the PDM and database activity and are used for blocking, numbering active tasks, totaling held records counts, utilizing resources, tuning buffers, etc. The PDM writes the statistics to the Statistics File during execution when requested by the environment description.

execution statistics utility

A utility that analyzes the PDM Statistics File contents to generate calculated statistics and print them along with the file contents.

file

A set of data treated as a unit; generally used to refer to data stored on magnetic tapes or disks describing the physical characteristics of database files.

file specification

A character string that uniquely identifies a file. For VMS, a file specification describes the physical location of the file; it includes the file name and file type identifiers that describe the file and its contents in the following format:

```
node::device:[directory]filename.extension;version.
```

format function

A DBA or stand-alone function that creates and formats a database file. It sets all records within the file to binary zeros and writes a file control record in the file (Task and System log files are not set to binary zeros).

index file

A Directory file containing secondary key names, values, and pointers to the PDM primary or related files. Index files enhance RDM view access performance.

index format function

An indexing function you access from either DBA or the command level that uses the index maintenance utility CSTUIDX.EXE. CSTUIDX.EXE creates, formats and activates your index files but does not populate them. See **populate index**.

input file

(VMS) In Global View Creation, the file containing the user definition, group definitions and view definitions. This file must be assigned the logical name BATCH_GLOBAL_INPUT to enable the batch global view creation facility.

(VMS) (UNIX 1.0) During PDM initiation, the file containing the PDM initiation parameters. This file is identified by the /INPUT=qualifier in the PDM initiation command file.

key

A column or set of columns that uniquely identify a row.

linkpath

A physical field path the PDM follows from a primary record to access one or more records in a related file record chain. The primary record linkpath field points to the first and last related records in the chain. The related record linkpath field points to the previous and next record in the chain.

linkpath parameter

A PDM parameter that contains the name of the linkpath as defined on the Directory. It is used for related data set processing.

load function

A PDM DBA utility function that formats database files and writes data records from a sequential file to a database primary or related file.

load limit

In the PDM, the load limit specifies the percentage of a control interval within which new chains of related records may be started.

log file

See **System Log File** and **Task Log File**.

logical data item

An entity maintained in the Directory's logical data item category that contains information to which RDM associates a logical data item name to a physical field on the database files. It also describes how the physical data appears to the user.

logical data view

A set of one or more logical records defined by the DBA.

logical name

A name maintained in the logical name tables which is translated into an equivalence string.

A name you define to be used in place of a character string, usually a file name. When you use the logical name, VMS substitutes the character string (equivalence string) it represents. Logical names are stored in the logical name tables.

logical name tables

Tables which VMS and UNIX maintain. There are four standard logical name tables for VMS and three for UNIX:

- Process table
- Job table (VMS only)
- Group table
- System table

MANTIS

A fourth generation online and batch programming tool for system designers and application programmers. MANTIS can be used with PDM SUPRA Server or SQL SUPRA Server.

PDM

See **Physical Data Manager**.

PDML

See **Physical Data Manipulation Language**.

physical data item

An entity containing information about the physical and logical characteristics of a database element. A physical data item is maintained in the Directory.

Physical Data Manager (PDM)

The SUPRA Server component that stores, retrieves and maintains user database files. It includes logging and recovery facilities.

Physical Data Manipulation Language (PDML)

The data manipulation language you use in an application to request action by the PDM without using an RDM view. Programmers can issue open, close, read and write commands that access and manipulate database file and records.

populate index

An indexing function accessed from the index maintenance utility CSTUIDX.EXE, from the PDM operator interface CSIOPCOM and from the VMS REPLY command. Populate index reads records from a data file and writes corresponding index records to the index file. Populate always formats a new index file before writing records to it. See **activate index**.

populate secondary key subcommand

The Directory Maintenance utility subcommand that constructs an index, making secondary keys available for use. The populate utility performs the same operation as the populate function available through the SUPRA DBA utilities.

populate subcommand

A Directory File category utility subcommand that causes the PDM to serially read a primary or related data file and build the required index records for specified secondary keys on their specified index files.

primary data set

A data set that contains records of the same type and format and that can be accessed directly by a control key, independent of other information in the database. Primary data sets can exist independently or they can be linked to related data sets. However, primary data sets cannot be related to other primary data sets directly.

primary file

A PDM file that contains unique keyed records. Records are accessed directly through a control key or secondary key. Primary files can exist independently or can contain linkpaths to one or more related files. A primary file cannot be linked to another primary file.

primary key

For PDM support, an attribute or set of attributes that uniquely identifies each row in a relation. Primary keys are automatically maintained on the Directory through a relationship to the attribute entities involved. During conceptual schema generation, the designated primary key generates the control key of a primary file and the referback key of a related file.

(VMS) The primary key identifies the field which is used as the main index for an RMS file.

primary record

A record in a PDM primary file. A primary record contains a root field, control key field, data fields, and optional linkpath fields to related files. Primary records are stored and retrieved directly using the unique control key.

primary record linkpath

The anchor for chains of records in the related file. The primary linkpath is the one by which all related records in a particular data set should be inserted.

The PDM primary record field whose name connects the record to a related file, and whose contents connect the record to a chain of the related file's records. The linkpath field contains two relative record numbers (RRNs). The first RRN points to the first related record in the chain; the second RRN points to the last record in the chain. The primary file can have other linkpath fields to the same related file (a different chain) and to more than one related file.

related data set

A data set containing related records that must be linked with a primary data set. Related data sets cannot be accessed directly; instead, they are accessed by linkpaths connected to primary records. A related data set cannot exist independently nor can it be related directly to another related data set.

related file

A PDM file that contains records that are not uniquely keyed and that might not be uniform in content or format. Related file records can be accessed through a linkpath or a secondary key or serially. A related file must be linked with a primary file; it can neither exist independently nor be linked with another related file. Related files contain either all coded records or all non-coded records.

related record linkpath

The PDM related record field whose name connects the record to a primary file, and whose contents connect selected records in the related file to each other creating a chain. Each record having the same primary key value for the same primary file is a member of the chain. The linkpath field contains two relative record numbers (RRNs). The first RRN points to the previous record in the chain; the second points to the next record in the chain. The related file can have other linkpath fields to the same or more than one primary file.

relational primary key

The primary key of a relation. Each row in a relation has a unique primary key.

secondary access keys

The data item in a related data set to which the control key of a primary data set is linked. When data set access is from primary to related, the secondary key in the related data set cannot be modified.

secondary key

Each index contains one or more secondary keys which are a physical field or its subdefinition or combination of physical fields or their subdefinitions (from a single PDM primary or related file) to be used for dynamic indexing through PDML or RDM view definitions.

SUPRA Server

An advanced relational database management system supporting a Structured Query Language (SQL) and a Relational Data Manipulation Language (RDML). SUPRA Server provides tools for information retrieval, report generation, application programming, and database management and control.

SUPRA DBA

An online program that provides maintenance or update functions on the Directory, such as adding and changing entities.

System Log File (SLF)

File to which completed PDM control functions and images of updated records are written in case of failure. These functions and images can then be reapplied to a backup copy of the database to recover or restore the Directory and PDM files.

system logging

The PDM method of tracking database activity by logging any or all of the following to a log file on disk or tape: terminal I/O, after images, before images, DML functions, file status changes, etc.

table

A grouping of data arranged in unique rows and in columns that contain similar values. It must contain a primary key.

Task Log File (TLF)

The PDM BDAM or ESDS sequential file on which the PDM writes the before images of database records and relevant information on a task and transaction basis. The file is used dynamically and on a warm start. This permits database recovery and the resetting of tasks to the beginning of each task's current transaction.

task logging

In the PDM, a method of logging all updates and relevant information on a task and transaction basis to the Task Log File. Using task logging, the PDM can recover and reset tasks (individually or in combination) to the beginning of each task's current transaction through Task Level Recovery (TLR). Task logging records the activity of each task within each transaction.

view

A set of columns and rows selected from one or more tables. A base view is one created from one or more underlying base tables and represents how an organization operates. It corresponds to the conceptual schema. A user view is one created from one or more underlying base views. It corresponds to the external schema.

view definition

A view definition consists of a column definition and an access definition that together specify the operation of a view.

Index

E

F

H

I

L

M

O

P

R

S

T

U

V

W