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AD/ADVANTAGE

MANTIS DL/I Programming
OS/390, VSE/ESA

P39-5008-00



AD/Advantage[®] MANTIS DL/I Programming OS/390, VSE/ESA

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About this book

Using this document

MANTIS is an application development system that consists of design facilities (e.g., screens and files) and a programming language. This manual provides information on how to use the MANTIS-DL/I Access Facility.

Document organization

The information in this manual is organized as follows:

Chapter 1—Introduction

Provides an overview of DL/I support in MANTIS.

Chapter 2—DL/I View Design facility

Discusses using the DL/I View Design facility, and using the Old Interface Design Facility and Enhanced Interface Design Facility.

Chapter 3—Interface to the DL/I Access Design facility

Discusses an interface to DL/I and provides format descriptions and operational considerations.

Chapter 4—Programming considerations

Provides a summary of common programming considerations to assist you in developing efficient MANTIS DL/I access applications.

Appendix A—DL/I access with Batch MANTIS

Describes considerations when accessing DL/I using Batch MANTIS.

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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.	Screen Design Facility GET NAME LAST INSERT ADDRESS				
Yellow-highlighted, red code section or screen portion	Indicates an emphasized section of code or portion of a screen.	00010 ENTRY COMPOUND 00020 .SHOW"WHAT IS THE CAPITAL AMOUNT?" 00030 .OBTAIN INVESTMENT 00040 EXIT				
Slashed b (<i>b</i>)	Indicates a space (blank). The example indicates that a password can have a trailing blank.	WRITEPASS <i>b</i>				
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 program name.	COMPOSE [<i>program-name</i>]				
	Stacked items enclosed by brackets represent optional alternatives, one of which can be selected. The example indicates that you can optionally enter NEXT, PRIOR, FIRST, or LAST. (NEXT is underlined to indicate that it is the default.)	<table border="1"> <tr><td><u>NEXT</u></td></tr> <tr><td>PRIOR</td></tr> <tr><td>FIRST</td></tr> <tr><td>LAST</td></tr> </table>	<u>NEXT</u>	PRIOR	FIRST	LAST
<u>NEXT</u>						
PRIOR						
FIRST						
LAST						

Convention	Description	Example
Braces { }	<p>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.</p> <p>The example indicates that you must enter <i>FIRST</i>, <i>LAST</i>, or a value for <i>begin</i>.</p>	<pre>{FIRST begin LAST}</pre>
<u>Underlining</u> (In syntax)	<p>Indicates the default value supplied when you omit a parameter.</p> <p>The example indicates that if you do not specify ON, OFF, or a row and column destination, the system defaults to ON.</p>	<pre>SCROLL [ON OFF [row] [, col]]</pre>
	<p>Underlining also indicates an allowable abbreviation or the shortest truncation allowed.</p> <p>The example indicates that you can enter either PRO or PROTECTED.</p>	<pre><u>PROTECTED</u></pre>
Ellipsis points...	<p>Indicate that the preceding item can be repeated.</p> <p>The example indicates that you can enter (A), (A,B), (A,B,C), or some other argument in the same pattern.</p>	<pre>(argument, ...)</pre>

Convention	Description	Example
UPPERCASE	<p>Indicates MANTIS reserved words. You must enter them exactly as they appear.</p> <p>The example indicates that you must enter CONVERSE exactly as it appears.</p>	CONVERSE <i>name</i>
<i>Italics</i>	<p>Indicate variables you replace with a value, a column name, a file name, and so on.</p> <p>The example indicates that you can supply a name for the program.</p>	COMPOSE [<i>program-name</i>]
Punctuation marks	<p>Indicate required syntax that you must code exactly as presented.</p> <p>() parentheses . period , comma : colon ; semicolon ' single quotation mark " " double quotation marks</p>	[LET] _v $\begin{bmatrix} (i) \\ (i, j) \end{bmatrix}$ [ROUNDED(<i>n</i>)] = <i>e1</i> [, <i>e2</i> , <i>e3</i> ...]

MANTIS documentation series

MANTIS is an application development system designed to increase productivity in all areas of application development, from initial design through production and maintenance. MANTIS is part of AD/Advantage, which offers additional tools for application development. Listed below are the manuals offered with MANTIS in the IBM® mainframe environment, organized by task. You may not have all the manuals listed here.

- ◆ *MANTIS Installation, Startup, and Configuration, MVS/ESA, OS/390, P39-5018*
- ◆ *MANTIS Installation, Startup, and Configuration, VSE/ESA, P39-5019*
- ◆ *MANTIS Administration, OS/390, VSE/ESA, P39-5005*
- ◆ *MANTIS Messages and Codes, OS/390, VSE/ESA, P39-5004**
- ◆ *MANTIS Administration Tutorial, OS/390, VSE/ESA, P39-5027*
- ◆ *MANTIS XREF Administration, OS/390, VSE/ESA, P39-0012*

General use

- ◆ *MANTIS Quick Reference, OS/390, VSE/ESA, P39-5003*
- ◆ *MANTIS Facilities, OS/390, VSE/ESA, P39-5001*
- ◆ *MANTIS Language, OS/390, VSE/ESA, P39-5002*
- ◆ *MANTIS Program Design and Editing, OS/390, VSE/ESA, P39-5013*
- ◆ *MANTIS Messages and Codes, OS/390, VSE/ESA, P39-5004**
- ◆ *AD/Advantage Programming, P39-7001*
- ◆ *MANTIS DB2 Programming, OS/390, VSE/ESA, P39-5028*

- ◆ *MANTIS SUPRA SQL Programming, OS/390, VSE/ESA*, P39-3105
- ◆ *MANTIS XREF, OS/390, VSE/ESA, OpenVMS*, P39-0011
- ◆ *MANTIS Entity Transformers*, P39-0013
- ◆ *MANTIS DL/I Programming, OS/390, VSE/ESA*, P39-5008
- ◆ *MANTIS SAP Facility, OS/390, VSE/ESA*, P39-7000
- ◆ *MANTIS WebSphere MQ Programming*, P39-1365
- ◆ *MANTIS Application Development Tutorial, OS/390, VSE/ESA*, P39-5026



Manuals marked with an asterisk (*) are listed twice because you use them for both MASTER User tasks and general use tasks.

Educational material

AD/Advantage and MANTIS educational material is available from your regional Cincom education department.

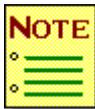
1

Introduction

MANTIS is an application development system that allows you to develop, test, document, and execute an entire application online. You can use the MANTIS-DL/I Access Facility to process DL/I database segments directly from your MANTIS programs. To use the MANTIS-DL/I Access Facility, you must have a basic knowledge of DL/I programming. The facility consists of two components: the DL/I View Design Facility and the DL/I Access Program.

There are two versions of the MANTIS-DL/I Access Facility:

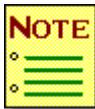
- ◆ **Basic MANTIS-DL/I Access Facility.** Used with the Old Interface Design Facility (pre-MANTIS release 4.2) and requires you to define Segment Layouts. For Old Interface Design Facility documentation, refer to *MANTIS Facilities, OS/390, VSE/ESA*, P39-5001.



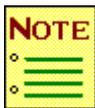
Information that applies only to this environment is marked with the following: **Basic MANTIS-DL/I Access Only**

If you are using the Enhanced Interface Design Facility, you can skip the information that is marked with this sign.

- ◆ **Enhanced Interface Design Facility.** Introduced in MANTIS release 4.2. Enables you to completely eliminate Segment Layouts and use the Enhanced MANTIS-DL/I Access Facility. For Enhanced Interface Design Facility documentation, refer to the information on the “Interface Design Facility” in *MANTIS Facilities, OS/390, VSE/ESA*, P39-5001.



Cincom recommends that you use the Enhanced Interface Design Facility.



Information that applies only to this environment is marked with the following: **Enhanced MANTIS-DL/I Access Only**

The Enhanced MANTIS-DL/I Access Facility does not replace the Basic MANTIS-DL/I Access Facility. You can still use the Old Interface Design Facility with your application programs, but the Enhanced MANTIS-DL/I Access Facility offers better performance. An overview of the Basic MANTIS-DL/I Access Facility and the Enhanced MANTIS-DL/I Access Facility is presented on the following pages.

“[DL/I View Design facility](#)” on page 21 discusses the DL/I View Design Facility, and using the Old Interface Design Facility and Enhanced Interface Design Facility.

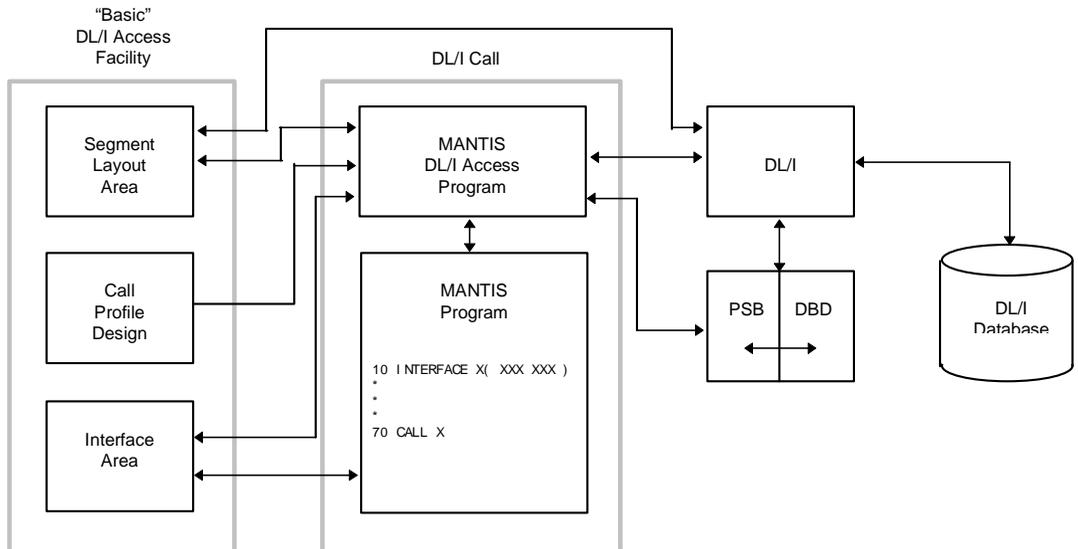
Basic MANTIS-DL/I Access Facility Basic MANTIS-DL/I Access Only

The Basic MANTIS-DL/I Access Facility consists of three components:

- ◆ Segment Layout Design (created with the DL/I View Design Facility)
- ◆ Call Profile Design (created with the DL/I View Design Facility)
- ◆ Interface Design (created with the Old Interface Design Facility)

In addition to the three components of the Basic MANTIS-DL/I Access Facility, MANTIS uses DL/I (the database controlling program), the DL/I Access Program, and the DL/I Call to complete the access of the DL/I database. All six components are explained in the following sections.

The following figure illustrates the Basic MANTIS-DL/I Access Facility.



The components of the Basic MANTIS-DL/I Access Facility and the DL/I Call are as follows:

Segment Layout Area

The Segment Layout Area performs two functions:

- ◆ Describes the internal data type(s) of the data in the DL/I Segment being read or updated. This description enables the DL/I Access Program to convert the data to and from the Interface Area.
- ◆ Acts as the actual DL/I I/O area. After the call, DL/I puts the retrieved segment into the Segment Layout Area.

Call Profile Design

The Call Profile Design specifies the arguments for the DL/I Call. The Call Profile enables you to specify specific criteria for the DL/I Call.

Interface Area

You create the Interface Area Design using the Old Interface Design Facility. MANTIS allocates the Interface Area when it executes the INTERFACE statement in your MANTIS program. On a get call, the DL/I Access Program requests DL/I to retrieve a segment and place it into the Segment Layout Area. The DL/I Access Program then reads the Segment Layout Area, translates segment data types to match the definitions in the Interface Area, and places the translated record into the Interface Area. MANTIS then retrieves the record from the Interface Area and places it in your Data Work Area.



TEXT and BIG are the only allowed data types in a MANTIS Interface Area designed by the Old Interface Design Facility.

DL/I Call

The DL/I Call consists of a MANTIS program that contains an INTERFACE statement (to define the Interface Area where data is passed from the application program to the DL/I Access Program and back) and a CALL statement (to execute the DL/I function and communicate with the DL/I Access Program). “[Interface to the DL/I Access Design facility](#)” on page 83 discusses the INTERFACE and CALL statements used with the DL/I Call.

DL/I Access Program

The DL/I Access Program (supplied by Cincom) requests DL/I to read a segment from (or update a segment to) the DL/I Database. DL/I reads and writes segments to the Segment Layout Area. Next, the DL/I Access Program converts the data according to the element specifications in the Interface Area, and moves the data from the Segment Layout Area to the Interface Area.

DL/I

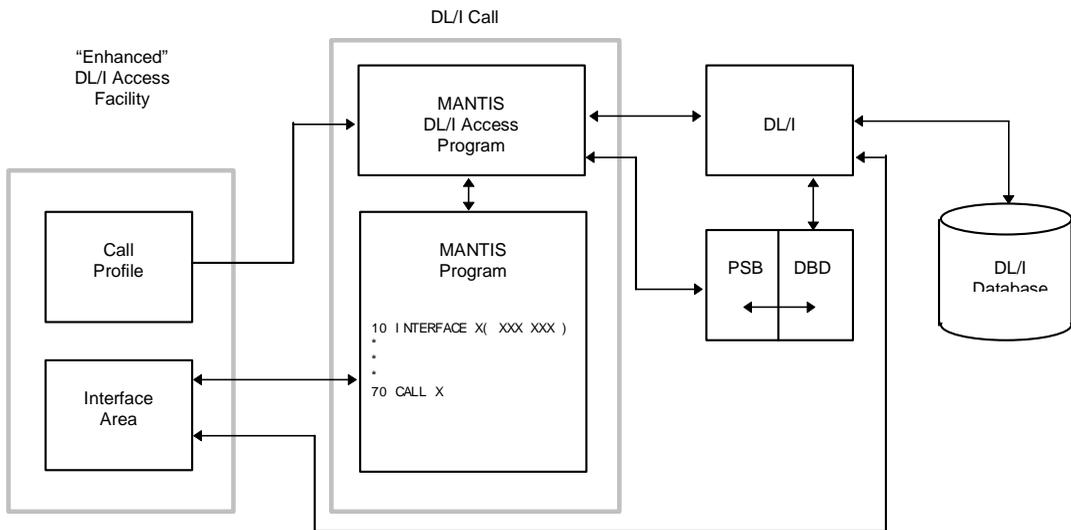
DL/I receives requests from the DL/I Access Program and, using the Database Descriptor (DBD) and the Program Specification Block (PSB), accesses the DL/I Database to retrieve or update the specific database segment. The DBD describes the physical layout of the DL/I Database. The PSB describes the segment that the program is accessing, and contains the address of the DL/I I/O Area (the Segment Layout Area).

Enhanced MANTIS-DL/I Access Facility Enhanced MANTIS-DL/I Access Only

The Enhanced MANTIS-DL/I Access Facility contains two major improvements:

- ◆ It uses the Enhanced Interface Design Facility instead of the Old Interface Design Facility to design an Interface Area that exactly matches the segment being returned from the DL/I Database.
- ◆ It eliminates Segment Layout Designs.

The Interface Area, designed by the Enhanced Interface Design Facility, replaces the Segment Layout Area as the DL/I I/O area. The following figure illustrates the Enhanced MANTIS-DL/I Access Facility.



The Interface Area now corresponds exactly to the segment being returned from the DL/I Database. You can specify all six data types (Packed, Floating Point, Binary, Zoned, Text, and Kanji) within the Interface Area. Therefore, using the Enhanced Interface Design Facility makes Segment Layout Designs and data-type translation by the DL/I Access Program obsolete. This results in an increase in performance.



Cincom recommends that you use the Enhanced MANTIS-DL/I Access Facility. Compared to the BASIC MANTIS-DL/I Access Facility, the Enhanced MANTIS-DL/I Access Facility offers increased performance and improved ease of use.

The DL/I Access Program determines whether the Old Interface Design Facility or the Enhanced Interface Design Facility designed the Interface Area being accessed and handles it accordingly. Existing applications run without modification on the latest MANTIS-DL/I Access Facility release. However, it is beneficial (especially for performance) to use the Enhanced Interface Design Facility when you design new DL/I applications.

In addition to the enhancement that allows the MANTIS-DL/I Access Program to work with the Enhanced Interface Design Facility, the following capabilities are provided:

- ◆ Support for “C” command code (concatenated key feature) for MVS environments. It is invalid (to DL/I) in all other environments.
- ◆ Segment Search Arguments (SSA) definitions with mixed data types using the Enhanced Interface Design Facility. Refer to the next chapter for details.
- ◆ Dynamic override of relational operators.
- ◆ Enhancements for improved performance (Old Interface Design Facility as well as Enhanced Interface Design Facility).
- ◆ Support for External DO (you can call an interface from an external program).
- ◆ Support for 2048 user variables.

Contrasting the two DL/I support modes (Basic and Enhanced)

The following table summarizes some of the differences between the two DL/I support modes:

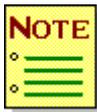
Object	Basic Basic MANTIS-DL/I Access Only	Enhanced Enhanced MANTIS-DL/I Access Only
Segment Layout	Specifies the following items that together represent a DL/I segment: <ul style="list-style-type: none"> ◆ Data elements ◆ Element position ◆ Element type 	Not used.
Interface area	Specifies the data elements in the DL/I segment, irrespective of physical order. Only TEXT and BIG are permitted.	Specifies the following items that together represent a DL/I segment: <ul style="list-style-type: none"> ◆ Data elements ◆ Element position ◆ Element type
Call Profile	Specifies the arguments for the DL/I Call (SSA).	Specifies the arguments for the DL/I Call (SSA). Allows the following: <ul style="list-style-type: none"> ◆ *C command code ◆ Mixed data types ◆ Dynamic override of relational operators
Calls in External DO routines	Not supported.	Supported.

2

DL/I View Design facility

The DL/I View Design Facility consists of three design facilities:

- ◆ **Segment Layout Design.** **Basic MANTIS-DL/I Access Only** With the Old Interface Design Facility, you must define the layout of the physical segment you are accessing, allowing you to write MANTIS programs with the advantage of field independence. The Segment Layout Design Facility provides a menu of options for defining Segment Layout Designs.



Segment Layout Designs designed with this facility can only be saved or replaced in a special user. Check with your Master User for access to this user.

- ◆ **Call Profile Design.** For the DL/I Access Program to perform a qualified call requested by a MANTIS application program, you must enter all necessary information, such as the hierarchical path to be used for accessing a specific segment, in the Call Profile Design Facility.
- ◆ **“Unqualified” Call Profile Design.** Unqualified DL/I Calls can use a special “Unqualified” Call Profile Design Facility (refer to [““Unqualified” Call Profile Design”](#) on page 64, [“Unqualified calls with the Old Interface”](#) on page 95, and [“Unqualified calls with the Enhanced Interface”](#) on page 96 for details on executing unqualified DL/I calls).

Introduction to the DL/I View Design Facility

To complete the MANTIS-DL/I Access Facility, you must create a DL/I Interface Area Design.

To design the DL/I Interface Area, you must use either the Old Interface Design Facility or the Enhanced Interface Design Facility. The Old Interface (**Basic MANTIS-DL/I Access Only**) is application-dependent and defines the fields that are viewed by the application program. As part of the interface, you can also define Segment Search Argument (SSA) fields that DL/I uses while it scans the path to retrieve the required segment.

When you use the Old Interface Design Facility, the Interface Area Design is free format, that is, the fields can be in any order. If you use the Enhanced Interface Design Facility, the Interface Area Design must be in fixed format, representing exactly the DL/I Segment being returned.

When you select the DL/I Access View option from the MANTIS Facility Selection menu, the screen shown below appears.

```
DLI001

                M A N T I S

                DL/I View Design Facility

Design Segment Layouts ..... 1
Design Call Profiles ..... 2
Design "Unqualified" Call Profiles ..... 3
List Directory Of Segment Layouts ..... 4
Print Directory Of Segment Layouts ..... 5
List Directory Of Call Profiles ..... 6
Print Directory Of Call Profiles ..... 7
Terminate This Facility ..... CANCEL

                :   :
```

This menu provides options to design, list, and print Segment Layout Designs, (qualified) Call Profiles, and Unqualified Call Profiles.



Option 1, DESIGN SEGMENT LAYOUTS, is only valid when you are using the Old Interface Design Facility (**Basic MANTIS-DL/I Access Only**). The Enhanced Interface Design Facility does not use Segment Layouts.

You must always return to this menu before choosing another option. When you finish designing your DL/I View, press the CANCEL key to return to the Facility Selection menu.

DL/I Segment Layout Design

Basic MANTIS-DL/I Access Only The DL/I Segment Layout Design Facility provides a menu of options to create, maintain, view, and print Segment Layouts.

When you select the Design Segment Layouts option from the DL/I View Design Facility menu, the panel shown below appears.

```

DLI002                                M A N T I S

                                     DL/I Segment Layout Design Facility

Update segment layout ..... 2
Library functions ..... 3
List directory of segments ..... 4
Print directory of segments ..... 5
Print completed design ..... 6
Terminate this facility ..... CANCEL

                                     :   :

```



To maintain consistency among the functions for PF keys, option 1 is omitted. Furthermore, option 2 does not apply when you use the Enhanced Interface Design Facility.

To choose a new option for Segment Layout Design, you must always return to this menu. Remember to save your Segment Layout Design (via the Library Functions option) before backing out of this facility. The following table lists the options on this menu.

Option	Description	Section
Update Segment Layout	Specifies the data elements that represent a DL/I segment.	"Update Segment Layout" on page 25
Library Functions	Saves new Segment Layout Designs and retrieves, replaces, and deletes existing Segment Layout Designs.	"Library Functions" on page 29
List Directory of Segments	Displays a list of all existing Segment Layout Designs	"Directory of Segment Layouts" on page 32
Print Directory of Segments	Prints a list of all existing Segment Layout Designs	"Directory of Segment Layouts" on page 32
Print Completed Design	Prints the Segment Layout Design currently in your work area.	"Print Completed Design" on page 33

Update Segment Layout

The Update Segment Layout Facility allows you to specify the data elements that represent a DL/I segment (or segments if the layout is to be used in a path call—see “[Programming considerations](#)” on page 95 for details). Every segment type accessed by MANTIS must be defined with this facility.

When you select this option from the DL/I Segment Layout Design Facility menu, the DL/I Segment Layout Definition panel shown below appears.

DL/I003 DL/I Segment Layout Definition							
Page 1				Element Count		Segment Size	
-----MANTIS-----				-----DL/I-----			
Element	Name	Type	Dim	Length	Decimal	Sign	Position
-	-	-	-	-	-	-	-

(Use PF1 - PF12 to page; use CANCEL to exit)



The dashes represent tab positions for this function.

Use this panel to enter the individual data elements (fields) that form the physical segment. A DL/I Segment Layout can contain up to 192 elements. Each panel page displays up to 16 elements.

If you are updating an existing Segment Layout, or returning to this function after performing other functions, the Segment Layout currently in your work area appears on the panel.

Page

Description *Optional.* The page of the Segment Layout currently being displayed. Use the relevant PF key (1–12) to page through your Segment Layout. If no PF keys are available, specify the required page number over the current page number at the top of the panel and press ENTER.

Element Count

Description *Display.* The total number of elements currently in your Segment Layout.

Segment Size

Description *Display.* The current length of the segment (in bytes). This length is the accumulated length of all the elements defined for this segment.

Element

Description *Required.* Enter one of the following action indicators in the first tab position associated with each detail line.

Options A Alter this line with the new information that is keyed over the existing fields. (MANTIS changes only the lines marked with A.)

I Insert this line

D Delete this line.

Considerations

- ◆ When inserting a new element, indicate the relative element number in the second tab position. You can insert one or more elements between two existing elements. For example, if you want to enter a new element between elements 4 and 5, insert the new element as line 4, then press ENTER. MANTIS rennumbers the new element as line 5, the original line 5 as line 6, 6 as 7, etc. You can insert before element 1 by keying in line 0.
- ◆ If you delete an element during an update, MANTIS rennumbers all subsequent element numbers.

Name

- Description** *Required.* Specifies the name of the element.
- Format** 1–16 MANTIS Symbolic character name
- Consideration** Any key or search field used in a Segment Search Argument (SSA) must be the name used in the DL/I DBDGEN.
-

Type

- Description** *Required.* Specifies the format of data storage on the DL/I segment.
- Options**
- | | |
|----------------|-----------------------------|
| <u>P</u> ACKED | Packed decimal |
| <u>Z</u> ONED | Unpacked (zoned) decimal |
| <u>B</u> INARY | Halfword or fullword binary |
| <u>F</u> LOAT | Floating point |
| <u>T</u> EXT | A character string |
| <u>K</u> ANJI | Kanji data |

Considerations

- ◆ Specify the dimension of the element (the number of times it occurs). The values are from 1 to 255. MANTIS allocates the element as a single occurrence if the DIM value is less than 2, or as an array if the value is greater than 1. The dimension of the allocated array is equal to the value supplied here.
 - ◆ If the INTERFACE statement stipulates multiple buffering (using the LEVEL parameter), an additional level of dimension is generated. Do not use multiple buffering in the INTERFACE statement if a TEXT field has a dimension greater than 1 because TEXT fields can only be single dimensional arrays.
-

Length

- Description** *Required.* Specifies the length (in bytes) of the element on the physical segment.
- Consideration** This length cannot exceed 16 bytes for numeric fields.

Decimal

Description *Optional.* Specifies the number of decimal places for PACKED, ZONED, and BINARY fields.

Default 0

Considerations

- ◆ The maximum number of decimal places is 10.
- ◆ The number of decimal places cannot exceed the number of digits in the field.

Sign

Description *Optional.* Indicates if the PACKED, ZONED, or BINARY fields are signed.

Default NO

Options YES

NO

Position

Description *Display.* The byte position of the element in the segment. MANTIS automatically calculates this entry.

When you enter your information or complete your changes, press ENTER to transmit the data. To return to the DL/I Segment Design Facility menu, press the CANCEL key.

Library Functions

The Library Functions option allows you to save new Segment Layout Designs and to retrieve, replace, and delete existing Segment Layout Designs. When the specified option from Library Functions is complete, MANTIS exits to the Segment Layout Design Facility menu and displays a confirmation message at the bottom of the panel.



Segment Layout Designs can only be saved and replaced to a special user (CSI_DLI). Check with your Master User for access to this user.

When you select Library Functions from the DL/I Segment Layout Design Facility menu, the following screen appears:

DLI006

M A N T I S

DL/I Segment Layout Library Facility

```

Segment name ..... :           :
Description ..... :           :

      Save ..... 1
      Replace ..... 2
      Fetch ..... 3
      Delete ..... 4
      Terminate ..... CANCEL

```

: :

Segment Name

Description *Required.* Specifies the name of the Segment Layout.

Format 1–16 character library name

Consideration This field contains a Segment Layout name, but not necessarily the segment name defined in the DL/I DBDGEN. These names can be the same, but it is better to give your Segment Layout Design a different name from the one used in the DL/I DBDGEN.

Description

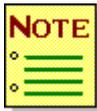
Description *Required.* If you are creating a new Segment Layout Design, you must provide a description of the segment. If you are updating an existing Segment Layout Design, MANTIS displays the existing description.

Format 1–32 characters

Consideration You can change this description by typing a new description and using the REPLACE option.

The following menu actions are available:

- ◆ **SAVE.** Saves a new Segment Layout Design into the special user's library. Use this option only when the Segment Layout design does not already exist in the user's library.
- ◆ **REPLACE.** Replaces a specific Segment Layout Design in the special user's library with the updated version currently in your work area.
- ◆ **FETCH.** Retrieves a Segment Layout Design from the special user's library and places it in your work area.
- ◆ **DELETE.** Deletes a Segment Layout Design from the special user's library. After executing the DELETE option, the Segment Layout Design remains in your work area until another Segment Layout Design is fetched or until you exit from the DL/I Segment Layout Design Facility. To rename the Segment Layout Design just deleted, select the SAVE option and provide a new name.



When you delete a Segment Layout Design, MANTIS deletes all Call Profiles associated with the segment. You can view a list of Call Profiles associated with a Segment Layout from the Directory of Segment Layouts (see “[Directory of Segment Layouts](#)” on page 32). If you are deleting a Segment Layout that you have replaced with a new interface design, you should get a list of Call Profiles associated with that Segment Layout and modify the Call Profile to indicate no associated Segment Layout (see “[Create or update Profile Definition](#)” on page 41).

- ◆ **TERMINATE.** (CANCEL) exits from this facility and returns to the DL/I Segment Layout Design Facility menu.

Directory of Segment Layouts

The List Directory of Segments and Print Directory of Segments options allow you to view and print an alphabetic listing of all existing Segment Layouts.

When you select the List Directory of Segments option from the Segment Layout Design Facility menu, the following screen appears. This screen lists existing Segment Layouts.

DIR005	Directory of DL/I Segments	yyyy/mm/dd
CONTROL		hh:mm:ss
Sel	-----Name-----	-----Description-----

To print the Directory of Segment Layouts, press the CANCEL key to return to the DL/I Segment Layout Design Facility menu and select the Print Directory of Segments option.

To print the Call Profiles using the Segment Layout, enter "P" in the SEL field and press ENTER. You automatically return to the DL/I View Design Facility menu when the copy finishes printing.

Sample Segment Layout design

This example creates a view to monitor orders from suppliers. It requires a Segment Layout with the following elements: Supplier Number (SUPPNO), Supplier Name (SUPPNAME), Order Number (ORDNO), Order Date (ORDDATE), Delivery Date (DELDATE), and Total Dollar Amount (TOTAMT).

First, select the Design Segment Layouts option from the DL/I View Design Facility menu. The following menu appears:

```
DLI002                                M A N T I S

                                     DL/I Segment Layout Design Facility

Update segment layout ..... 2
Library functions ..... 3
List directory of segments ..... 4
Print directory of segments ..... 5
Print completed design ..... 6
Terminate this facility ..... CANCEL

                                     : 2 :
```



To maintain consistency among the functions for PF keys, option 1 is omitted. Furthermore, option 2 does not apply when you use the Enhanced Interface Design Facility.

When you select the Update Segment Layout option from this menu, the following screen appears:

```

DLI003                DL/I Segment Layout Definition
Page 1                Element Count                Segment Size
-----M A N T I S-----  ----- D L / I -----
Element              Name                Type      Dim Length Decimal Sign      Position
-----

```

(Use PF1 - PF12 to page; use CANCEL to exit)

Enter the sample data shown in lowercase letters on the next panel:

```

DLI003                DL/I Segment Layout Definition
Page 1                Element Count                Segment Size
-----M A N T I S-----  ----- D L / I -----
Element              Name                Type      Dim Length Decimal Sign      Position
-----
i  1  suppno          packed          8
i  2  suppname        text            20
i  3  ordno           packed          5
i  4  orddate         packed          4
i  5  deldate         packed          4
i  6  totamt          packed          5          2      yes

```

(Use PF1 - PF12 to page; use CANCEL to exit)

Press ENTER to transmit the data entered on the panel. If you press the CANCEL key before you press ENTER, changes/updates are not saved.

To save your new Segment Layout, you must first return to the DL/I Segment Layout Design Facility menu by pressing the CANCEL key. Select the Library Functions option from this menu. The following screen appears:

```
DLI006                                M A N T I S

                                DL/I Segment Layout Library Facility

Segment name ..... :                :
Description ..... :                :

                                Save ..... 1
                                Replace ..... 2
                                Fetch ..... 3
                                Delete ..... 4
                                Terminate ..... CANCEL

                                :      :
```

On this screen, supply a name and description for the Segment Layout, and select the SAVE option. The Segment Layout name does not need to be the same as the DL/I segment name.

```

DLI006                                M A N T I S

                                DL/I Segment Layout Library Facility

Segment name ..... : orderin      :
Description ..... : records orders received      :

                                Save ..... 1
                                Replace ..... 2
                                Fetch ..... 3
                                Delete ..... 4
                                Terminate ..... CANCEL

                                : 1 :

```

MANTIS exits to the DL/I Segment Layout Design Facility menu and displays a message at the bottom of the panel, indicating that the Segment Layout is saved. If you already saved a Segment Layout under a particular name, you must either select the REPLACE option to replace the saved Segment Layout with the current Segment Layout or provide a new unique name for the current Segment Layout. To return to the DL/I Segment Layout Design Facility menu, press the CANCEL key.

To insert, delete, or alter information, return to the Segment Layout Definition panel and use the appropriate action indicator in the first tab position. To save an altered segment definition, return to the Library Functions option and select the REPLACE option.

To print the current Segment Layout Design, select the Print Completed Design option.

To view a listing of all existing Segment Layouts, select the List Directory of Segments option. If you select the List Directory of Segments option after you create the sample Segment Layout Design, the following screen appears:

DIR005	Directory of DL/I Segments	yyyy/mm/dd
CONTROL		hh:mm:ss
Sel	-----Name-----	-----Description-----
—	ORDERIN	RECORDS ORDERS RECEIVED

Remember that the SEL field allows you to view the Call Profiles that use the Segment Layout. currently, no Call Profiles are associated with this sample. To return to the DL/I Segment Layout Design Facility menu, press ENTER.

DL/I Call Profile Design Facility

The DL/I Call Profile design Facility provides a menu of options to create, maintain, view, and print Call Profiles. To create a new Call Profile, select option 1, option 2, and then option 3.



Both Basic MANTIS DL/I Access and Enhanced MANTIS DL/I Access use Call Profiles.

When you select the Design Call Profiles option from the DL/I View Design Facility menu, the following screen appears:

```

DLI007                                M A N T I S

                                DL/I Call Profile Design Facility

                                Create or update profile definition .. 1
                                Update profile layout ..... 2
                                Library Functions ..... 3
                                List directory of profiles ..... 4
                                Print Directory of profiles ..... 5
                                Print completed design ..... 6
                                Terminate this facility ..... CANCEL

                                :
                                :
```

To choose a new option, you must return to this menu. Remember to save your Call Profile Design (via the Library Functions option) before backing out of this facility. The following table lists the options on this menu.

Option	Description	Refer to
Create or Update Call Profile Definition	Creates a new Call Profile or updates the definition of an existing call Profile.	"Create or update Profile Definition" on page 41
Update Profile Layout	Specifies the DL/I Segment Search Arguments (SSAs) in the hierarchical path of the call.	"Update Profile Layout" on page 43
Library Functions	saves new Call Profile Designs, and retrieves, replaces, and deletes existing Call Profile Designs.	"Library Functions" on page 53
List Directory of Profiles	Displays an alphabetic listing of all existing Call Profiles.	"Directory of Call Profiles" on page 55
Print Directory of Profiles	Prints an alphabetic listing of all existing call Profiles.	"Directory of Call Profiles" on page 55
Print Completed Design	Prints the Call Profile currently in your work area.	"Print Completed Design" on page 57

Create or update Profile Definition

The Create or Update Profile Definition option allows you to create a new Call Profile or update the definition of an existing Call Profile. When you select this option from the DL/I Call Profile Design Facility menu, the following DL/I Profile Design panel screen appears.

```

DLI008                                M A N T I S

                                DL/I Profile Design

Name of profile ..... :           :
Description ..... :           :

Segment layout name ... :           :
PSB name ..... :           :
Relative DB PCB number.. :           :

```

If you are updating an existing Call Profile, or returning to this option after performing other options, the Call Profile currently in your work area appears.

To create a new Call Profile, enter the data described below.

NAME OF PROFILE

Description *Required.* Specifies the name of this Call Profile.

Format 1–16 character symbolic name

DESCRIPTION

Description *Required.* Specifies the description of your design.

Format 1–32 characters

Considerations

- ◆ The description may contain blanks and special characters.
- ◆ The description appears in your Directory of Call Profiles.

SEGMENT LAYOUT NAME

Description *Required* for the Old Interface; *Optional* for the Enhanced Interface. Supplies the name of the Segment Layout Design to be associated with this Call Profile.

Consideration If you include a Segment Layout name, MANTIS confirms that it exists in the special user's library. The Directory of Segment Layouts (see [“Directory of Segment Layouts”](#) on page 32) lists what is in the special user's library.

PSB NAME

Description *Required.* Supplies the name of the PSB (Program Specification Block) to be used for accessing the DL/I Database when using this Call Profile.

RELATIVE DB PCB NUMBER

Description *Required.* Supplies the Relative DB PCB (Program Communication Block) number (relative to 1) in the PSB to be used for accessing the DL/I Database when using this Call Profile.

Considerations

- ◆ In CICS, when TP PCBs precede the DB PCBs in the PSB, they are not included in the relative DB PCB calculation.
- ◆ In IMS/DC, I/O and TP PCBs are included in the relative DB PCB calculation. Applications being transferred between IMS/DC and CICS may need to have different PSBs or the relative DB PCB specification may need to change. The I/O PCB is not available for use through the DL/I Access Interface Program in IMS/DC.

To store your entries, press ENTER. To return to the DL/I Call Profile Design Facility menu, press the CANCEL key.

Update Profile Layout

Use the Update Profile Layout option to specify the DL/I Segment Search Arguments (SSAs) in the hierarchical path of the call. Qualification lists can specify each one of these SSAs further, or the SSAs can be unqualified.

An SSA consisting of only a name (DL/I segment name) is known as an unqualified SSA. The DL/I Call processes the next segment occurrence.

An SSA consisting of a name and a number of qualification statements is a qualified SSA. The DL/I Call processes a particular segment occurrence. Qualified SSAs can have 1–12 qualification statements, each qualification statement consisting of DL/I search field information. Boolean connectors (logical “AND” or logical “OR”) connect multiple qualification statements.

Retrieval calls can use qualified or unqualified SSAs, as required. Insert calls can also use qualified or unqualified SSAs, but if qualified SSAs are used, the lowest level SSA in the hierarchy must be unqualified. Delete and replace calls must use unqualified SSAs.

When you select this option in the DL/I Call Profile Design Facility menu, the DL/I Call Profile Layout panel shown below appears:

```
DLI009                                DL/I Call Profile Layout
-----DL/I Segments-----
      ACT          DLI Segment          Command Codes
      - -          -                    -

(Use PF1 - PF15 to add search field information; use CANCEL to exit)
```

The dashes represent tab positions for this option.

The message ****QUAL**** appears at the right of the Call Profile SSA, after the command codes, if it has associated search field information.

The maximum number of SSAs in a hierarchy is 15. Each line represents one SSA in the hierarchy.

Press the PF key corresponding to the line number of an SSA to view or specify search field information for that SSA. If PF keys are not available on your terminal, type "S" in the ACT field corresponding to the SSA you want to qualify.

If you are updating an existing Call Profile Layout, or returning to this function after performing other functions, the Call Profile Layout currently in your work area appears on the panel.

ACT

Description *Required.* Enter one of the following action indicators in the first tab position associated with each detail line.

Options A Alter this line with the new information that is keyed over the existing fields. (MANTIS changes only those lines marked with A.)

I Insert this line.

D Delete this line.

S Add or update search field information for this SSA.

Considerations

- ◆ In the second tab position, indicate the relative SSA number when inserting a new SSA. If you do not number your SSAs, MANTIS assigns the numbers and stores them in the sequence entered.
- ◆ You can insert one or more SSAs between two existing SSAs. For example, to enter an SSA between SSAs 4 and 5, insert the new SSA as line 4 and press ENTER. MANTIS renumbers the new SSA as line 5, the original line 5 as line 6, 6 as 7, and so on.
- ◆ If you delete an SSA during an update, MANTIS renumbers all subsequent SSA numbers.

DL/I SEGMENT

Description *Required.* Supplies the name for the DL/I segment being referenced by this SSA. The segment name must be defined in the DL/I DBD.

Format 1–8 characters

COMMAND CODES

Description *Optional.* If required, supply the DL/I command codes for the current level of qualification. Specify the command codes in a contiguous string of letters representing the required command codes.

Options C, D, F, L, N, P, Q, U, V

Considerations

- ◆ Refer to your DL/I or IMS manual for an explanation of each command code.
- ◆ Do not specify any command code twice in the same DL/I Call.
- ◆ If you specify an SSA with a command code “C,” it must be the first and only SSA in the DL/I Call. When you run a program that uses an SSA with the “C” command code, use the DLI_KFBLEN and DLI_KFBARE semi-reserved words to pass the length and the concatenated key to the MANTIS-DL/I Access Program. A previous DL/I Call may have filled these fields. The MANTIS-DL/I Access Program uses these fields to internally build an SSA of the concatenated key format.



Remember to press ENTER to save your entries.

If you qualify an SSA by entering the letter "S" in the ACT field, the following screen appears:

```

DLI011                DL/I Call Profile Search Field List

  DL/I segment name:

  SSA Search List:
ACT  Search Field      MANTIS Name      Type  Sign Lgth  Oper  Boolean
                                     Conn.

( Use CANCEL to return to profile layout )

```

The dashes represent tab positions for this option.

The maximum number of qualification statements for an SSA is 12.
Each line represents one search argument for the SSA.

DL/I SEGMENT NAME

Description *Display.* Names the segment to which the Qualification List is related.

ACT

Description *Required.* Specifies the action to occur on the line.

Options A Alter this line with the new information that is keyed over the existing fields. (MANTIS changes only those lines marked with A.)

 I Insert this line.

 D Delete this line.

Considerations

- ◆ This field is the first tab position associated with each detail line.
- ◆ In the second tab position, indicate the relative qualification statement number when inserting a new qualification statement. If you do not number your qualification statements, MANTIS numbers and stores them in the sequence entered.
- ◆ You can insert one or more qualification statements between two existing ones. For example, to enter a new qualification statement between qualification statements 4 and 5, insert the new qualification statement as line 4 and press ENTER. MANTIS rennumbers the new qualification statement as line 5, the original line 5 as line 6, 6 as 7, and so on. You can insert before qualification statement 1 by keying in line 0.
- ◆ If you delete a qualification statement during an update, MANTIS rennumbers all subsequent qualification statements.

SEARCH FIELD

Description *Required.* Specifies the search field name to qualify the SSA.

Format 1–8 characters

Considerations

- ◆ The search field name must be defined to DL/I in the DBD. It is used for the qualification statement.
- ◆ If you use a secondary index, the field name is the name you define in the XDFLD statement in the DBD.

MANTIS NAME

Description *Optional.* Specifies the MANTIS variable name to be associated with the search field.

Format 1–16 characters

Considerations

- ◆ This field handles nonunique DL/I search field names and ranges of values within a search field.
- ◆ If you specify a MANTIS name in the Call Profile Layout, also specify it in the Interface Area Design. MANTIS attempts to extract the search field data from the MANTIS name in the Interface Area if this field appears in the Call Profile Layout. Otherwise, MANTIS extracts the search field data from the name specified in “SEARCH FIELD.”

TYPE

Description *Required.* Specifies the format in which the data is stored on the DL/I segment.

Options PACKED Packed decimal

ZONED Unpacked (zoned) decimal

BINARY Halfword or fullword binary

FLOAT Floating point

TEXT Character string

KANJI Kanji data

Consideration The type must be the same type assigned to the field name in the Segment Layout.

SIGN

Description *Optional.* Specifies whether a nontext field is signed.

Default NO

Options YES

 NO

LGTH (Length)

Description *Required.* Supplies the length of the search field (in bytes).

Considerations

- ◆ For an Old Interface, the length must be consistent among the DBDGEN, the Segment Layout and the Old Interface.
- ◆ For an Enhanced Interface, the length must be the same between the DBD and the Enhanced Interface Area Layout.

OPER (Operator)

Description *Required.* Specifies the relational operator involved in the qualification.

Options EQ or = Equal to
NE or <> Not equal to
LT or < Less than
GT or > Greater than
LE or <= Less than or equal to
GE or >= Greater than or equal to

BOOLEAN CONN.

Description *Optional.* Specifies the Boolean command to connect a search argument with the next argument listed.

Default AND

Options AND
OR

Consideration You must use "A" (for ALTER) to change an existing line.

To store your entries, press ENTER. To return to the DL/I Call Profile Layout panel, press the CANCEL key.

The Enhanced Interface Design Facility also provides a simple method of defining SSAs with compound or concatenated search fields (for mixed data types).

In the Call Profile Design Search field List, enter a MANTIS name. Give it a type of TEXT and a length equal to the total length of the composite key, regardless of the length of the MANTIS name specified in the Enhanced Interface Area Layout.

MANTIS then builds an SSA key value using the MANTIS name as a reference point, but implants the key value itself regardless of the internal format of that value. That is, it treats the value as a binary string of the length specified in the Search Field List.

The following example builds a key using the following Enhanced Interface Area layout fields:

Element	Name	Format	Length
X			
X			
X			
5	ORDERNO	BINARY	4
6	ITEMNO	PACKED	3
7	CLASS	TEXT	1
X			
X			

The key field is a concatenation of the values of ORDERNO, ITEMNO, and CLASS. In the Call Profile Design Search Field List, enter the SSA key as follows:

DLI011		DL/I Call Profile Search Field List				
DL/I segment name:						
SSA Search List:						
ACT	Search Field	MANTIS Name	Type	Sign	Lgth	Oper Boolean Conn.
i 1	srchfld	ORDERNO	TEXT		8	EQ
(USE CANCEL TO RETURN TO PROFILE LAYOUT)						

In this case, "srchfld" is the name of the search field as specified in the DL/I DBD. The length is equal to the composite length of the fields.

Library Functions

The Library Functions option allows you to save new Call Profile Designs, and to retrieve, replace, and delete existing Call Profile Designs. When the specified option from Library Functions is completed, MANTIS exits to the Call Profile Design Facility menu and displays a confirmation message at the bottom of the panel.

When you select this option from the DL/I Call profile Design Facility menu, the following screen appears:

```

DLI012                                M A N T I S

                                DL/I Call Profile Layout Library Facility

Profile name ..... : delivery_qu      :
Description ..... : profile for recording qu ssa      :

                                Save ..... 1
                                Replace ..... 2
                                Fetch ..... 3
                                Delete ..... 4
                                Terminate ..... CANCEL

                                : 1 :

```

The name and description of the current Call Profile are provided automatically. To alter either one of these fields, enter data as described below.

PROFILE NAME

Description	<i>Required.</i> Specifies the name of this Call Profile.
Format	1–16 character symbolic name

DESCRIPTION

Description *Optional.* Specifies the description of the profile.

Format 1–32 character description

Considerations

- ◆ If you are creating a new Call Profile, the description is taken from the DL/I Profile Design currently in your work area.
- ◆ If you are updating an existing Call Profile, MANTIS displays the existing description once the profile has been fetched.
- ◆ You can change the description by typing a new description and using the REPLACE option.

The following menu options are available:

- ◆ **SAVE.** Saves the new Call Profile Design in your current work area in your library. Use this option only when the Call Profile does not already exist in your library.
- ◆ **REPLACE.** Replaces a specific Call Profile in your library with the updated version currently in your work area.
- ◆ **FETCH.** Retrieves a Call Profile from your library and places it in your work area.
- ◆ **DELETE.** Deletes a Call Profile from your library. The current Call Profile remains in your work area until another Call Profile is fetched or until you exit from the DL/I Call Profile Design Facility. To rename the Call Profile just deleted, select the SAVE option and provide a new name.
- ◆ **TERMINATE.** (CANCEL) Exits from this facility and returns to the DL/I Call Profile Design Facility menu.

Directory of Call Profiles

The List Directory of Profiles and Print Directory of Profiles options allow you to view and print an alphabetic listing of all existing Call Profiles.

When you select the List Directory of Call Profiles option from the DL/I Call Profile Design Facility menu, the following screen appears. This panel lists existing Call Profiles and their related Segment Layouts.



Two different Call Profiles, one qualified and one unqualified, can have the same name. If so, the directory shows two separate entries with the same name.

```

DIR006                               Directory of DL/I Call Profiles                               yyyy/mm/dd
username                               hh:mm:ss
-----Name-----   -----Description-----   Related Segment Layout

```

General considerations

- ◆ You can view the listing, but you cannot alter it. If you want to print the Directory of Call Profiles, press the CANCEL key to return to the DL/I Call Profile Design Facility menu and select the Print Directory of Profiles option.
- ◆ You can position the Directory list at a specific point (repoint option) by entering 1–30 alphanumeric characters (representing a Call Profile name or the first part of a Call Profile name) on the bottom line of the screen. When you press ENTER, the directory will begin with the Call Profile name on, or alphabetically after, the entered characters.
- ◆ The Directory of DL/I Call Profiles lists alphabetically all Call Profiles, then appends alphabetically the list of Unqualified Call Profiles.
- ◆ If you enter a repoint value to the Directory of DL/I Call Profiles, the facility repositions the list of Call Profiles and the list of Unqualified Call Profiles. It then appends the list of Unqualified Call Profiles to the list of Call Profiles. Thus the original listing is repositioned in two places.

To display a particular range of Call Profile names, enter a Starting Name and an Ending Name, separated by a colon, in the bottom left corner of the screen (for example, AUX:PROFILE_X).

If you want to search for a set of Call Profiles whose names correspond to a particular pattern of characters, use the wildcard characters as follows:

- * Represents an indefinite number of generic characters. For example, *2* will display a Directory List of all Call Profiles whose names contain a 2.
- ? Represents a single generic character. PROF??? designates a Call Profile (or Call Profiles) whose name begins with PROF and ends with any three characters.

Enter either parameter in the lower left corner of the Directory list.

The following field descriptions apply to the Directory of Call Profiles list panel:

NAME

Description *Display.* Specifies name of each Call Profile in the library.

Format 1–16 character symbolic name

DESCRIPTION

Description *Display.* Shows the description of each Call Profile in the library.

Format 1–32 character description

RELATED SEGMENT LAYOUT

Description *Display.* Supplies the name of the Segment Layout Design associated with this Call Profile.

Format 1–16 character symbolic name

To move through the pages of the Call Profile Directory list, press ENTER.
To exit from the directory, press the CANCEL key.

Print Completed Design

The Print Completed Design option allows you to print the Call Profile currently in your work area. You can return to the DL/I Call Profile Layout Design Facility menu any time during the Call Profile Design phase and select the Print Completed Design option, routing the current Call Profile to your designated printer.

Sample Call Profile design

To create a Call Profile for the ORDERIN Segment Layout (designed in “**Sample Segment Layout design**” on page 34), select the Design Call Profiles option from the DL/I View Design Facility menu. The DL/I Call Profile Design Facility menu appears.

```
DLI007                                M A N T I S

                                DL/I Call Profile Design Facility

                                Create or update profile definition .. 1
                                Update profile layout ..... 2
                                Library Functions ..... 3
                                List directory of profiles ..... 4
                                Print Directory of profiles ..... 5
                                Print completed design ..... 6
                                Terminate this facility ..... CANCEL

                                : :
```

Select the Create or Update Profile Definition option from this menu (Option 1 or PF1). The following screen appears:

```
DLI008                                M A N T I S

                                DL/I Profile Design

Name of profile ..... :           :
Description ..... :           :

Segment layout name ... :           :
PSB name ..... :           :
Relative DB PCB number.. :           :
```

Supply the name of the Call Profile, its description, the name of the associated Segment Layout, the PSB name, and the relative DB PCB number (relative to 1). Press ENTER to set the information into the call profile.

```
DLI008                M A N T I S

                    DL/I Profile Design

Name of profile ..... : delivery_qu      :
Description .....     : profile for recording qu ssa      :
Segment layout name ... : orderin                          :
PSB name .....        : supplpsb                          :
Relative DB PCB number.. : 01                                :
```

Then, to return to the DL/I Call Profile Design Facility menu, press the CANCEL key. To specify the DL/I Segment Search Arguments (SSAs) in the hierarchical path of the call, select the Update Profile Layout option (Option 2 or PF2). The following screen appears:

```
DLI009                                DL/I Call Profile Layout
-----DL/I Segments-----
      ACT          DLI Segment          Command Codes
      --          -                    -

(Use PF1 - PF15 to add search field information; use CANCEL to exit)
```

Enter the appropriate data, as shown below. Then, press ENTER to set the information in the call profile.

```

DLI009                                DL/I Call Profile Layout

-----DL/I Segments-----
      ACT      DLI Segment      Command Codes
      i 1      supplseg
  
```

(Use PF1 - PF15 to add search field information; use CANCEL to exit)

Once you complete the Profile Layout, press the CANCEL key to return to the DL/I Call Profile Design Facility menu. To save a Call Profile Design, select the Library Functions option (Option 3 or PF3). The Directory of DL/I Call Profiles panel, shown below, appears. (The current Call Profile displays automatically in the Profile Name field.) To save the Call Profile, enter Option 1 and press ENTER, or press PF1.

```

DLI012                                M A N T I S

                                DL/I Call Profile Layout Library Facility

Profile name ..... : delivery_qu :
Description ..... : profile for recording qu ssa :

Save ..... 1
Replace ..... 2
Fetch ..... 3
Delete ..... 4
Terminate ..... CANCEL

                                : 1 :
  
```

If you already have a Call Profile saved under a particular name, you must either select the REPLACE option (Option 2 or PF2) to replace the saved Call Profile with the current Call Profile or provide a new name to save the current Call Profile. When the SAVE is complete, MANTIS returns automatically to the Call Profile Design Facility menu. A message appears at the bottom of this panel, indicating that the Call Profile Design was saved.

To view a listing of the existing Call Profiles and their related Segment Layouts, select the List Directory of Profiles option (Option 4 or PF4). A sample directory screen appears below:

DIR006 CONTROL	Directory of DL/I Call Profiles	yyyy/mm/dd hh:mm:ss
-----Name-----	-----Description-----	Related Segment Layout
DELIVERY_QU	PROFILE FOR RECORDING QU SSA	ORDERIN

To return to the DL/I Call Profile Design Facility menu, press the CANCEL key. See “[Directory of Call Profiles](#)” on page 55 for more information about the directory.

“Unqualified” Call Profile Design



Basic MANTIS-DL/I Access Only This section applies to the Old Interface Design Facility only. See “Unqualified calls with the Enhanced Interface” on page 96 for a discussion of unqualified calls using the Enhanced Interface Design Facility. See “Unqualified calls with the Old Interface” on page 95 for a discussion of unqualified calls using the Old Interface Design Facility.

An “Unqualified” Call Profile is a special Call Profile used with Unqualified DL/I Calls. When an Unqualified DL/I Call is executed successfully, the system needs to know what segment type was retrieved and how to decode the data in the segment.



Only one “Unqualified” Call Profile is recommended per database.

The "Unqualified" Call Profile Design Facility provides a menu of options to create, update, maintain, view, and print Unqualified Call Profiles. When you select the Design "Unqualified" Call Profiles option from the DL/I View Design Facility menu, the following panel appears:

```
DLI013  
  
                M A N T I S  
  
DL/I "Unqualified" Call Profile Design Facility  
  
Create/update "unqualified" call..... 2  
Library functions ..... 3  
List directory of profiles ..... 4  
Print directory of profiles ..... 5  
Print completed design ..... 6  
Terminate this facility ..... CANCEL  
  
                :   :
```



The options are numbered starting at 2 to remain consistent with other MANTIS design facilities.

To choose a new option, you must always return to this menu. Remember to save your Call Profile Design (via the Library Functions option) before backing out of this facility. The following table lists the options on this menu:

Option	Description	Refer to
Create/Update "Unqualified" Call	Creates a list of DL/I segments and their corresponding DL/I Segment Layouts.	"Create/Update "Unqualified" Call (Old Interface only)" on page 66
Library Functions	Saves new Unqualified Call Profile Designs and retrieves, replaces, and deletes existing Unqualified Call Profile Designs.	"Library Functions" on page 69
List Directory of Profiles	Displays a list of existing Unqualified Call Profiles.	"Other "Unqualified" Call Profile options" on page 71
Print Directory of Profiles	Prints a list of existing Unqualified Call Profiles.	"Other "Unqualified" Call Profile options" on page 71
Print Completed Design	Prints the Unqualified Call Profile currently in your work area.	"Other "Unqualified" Call Profile options" on page 71

Create/Update "Unqualified" Call (Old Interface only)

The Create/Update "Unqualified" Call Facility allows you to create a list of DL/I segments and their corresponding DL/I Segment Layouts. The MANTIS-DL/I Access Program uses this list to determine which Segment Layout to access when decoding the data from the DL/I segment into the Interface Area.

Because the maximum number of different segment types in a DL/I database is 255, an Unqualified Call Profile can contain a maximum of 255 entries. Each DL/I segment must be defined to DL/I by the DBDGEN execution. Each specified Segment Layout must be defined previously to MANTIS using the Segment Layout Design Facility.

To issue an Unqualified DL/I Call, specify the Call Function and the name of the Unqualified Call Profile for that database. When the call is completed, MANTIS uses the PCB segment name feedback to determine which Segment Layout to reference.

When you select the Create/Update "Unqualified" Call option from the DL/I "Unqualified" Call Profile Design Facility menu, the DL/I "Unqualified" Call Profile Layout screen appears.

```
DLI015          DL/I "Unqualified" Call Profile Layout
                                     Number Of Segments
Page 1  -----Relation Between DL/I Segment And I/O Area Name-----
          DL/I Segment          Associated I/O Area Layout
```

(Use PF1 - PF17 to add more DL/I segments; use CANCEL to exit)

PAGE

Description	<i>Optional.</i> Overtyping the page number to display another page (up to 17), or you can press PF1 to PF17 to display the corresponding page.
Format	Numeric value
Options	1 to 17

DL/I SEGMENT

Description	<i>Required.</i> Enter a valid DL/I Segment Name.
--------------------	---

ASSOCIATED I/O AREA LAYOUT

Description	<i>Required.</i> Enter the I/O Area Layout which is to be associated with the DL/I Segment Name.
--------------------	--

NUMBER OF SEGMENTS

Description	<i>Display.</i> Displays the number of segments defined on the current panel. Press the CANCEL key to exit the DL/I "Unqualified" Call Profile Layout panel.
--------------------	---

Library Functions

The Library Functions option allows you to save new Unqualified Call Profile Designs and to retrieve, replace, and delete existing Unqualified Call Profile Designs. When the specified function is completed, MANTIS exits to the "Unqualified" Call Profile Design Facility menu and displays a confirmation message at the bottom of the panel.

When you select this option from the "Unqualified" Call Profile Design Facility menu, the following screen appears:

```

DLI014                                M A N T I S

DL/I "Unqualified" Call Profile Layout Library Facility

Profile name ..... :                :
Description ..... :                :

      Save ..... 1
      Replace ..... 2
      Fetch ..... 3
      Delete ..... 4
      Terminate ..... CANCEL

      :  :
```

PROFILE NAME

Description *Required.* Specifies the name of this Unqualified Call Profile.

Format 1–16 character symbolic name

DESCRIPTION

Description *Required* for a new Unqualified Call Profile; *Optional* for an existing Unqualified Call Profile. Specifies the description of the profile.

Format 1–32 character description

Considerations

- ◆ You can change the description by typing a new description and using the REPLACE option.
- ◆ MANTIS displays the description when an existing profile is fetched.

The following menu actions are available:

- ◆ **SAVE.** Saves the new Unqualified Call Profile Design in your current work area in your library. Use this option only when the Unqualified Call Profile does not already exist in your library.
- ◆ **REPLACE.** Replaces a specific Unqualified Call Profile in your library with the updated version currently in your work area.
- ◆ **FETCH.** Retrieves an Unqualified Call Profile from your library and places it in your work area.
- ◆ **DELETE.** Deletes an Unqualified Call Profile from your library. The current Unqualified Call Profile remains in your work area until another Call Profile is fetched or until you exit from the DL/I “Unqualified” Call Profile Design Facility. To rename the Unqualified Call Profile just deleted, select the SAVE option and provide a new name.
- ◆ **TERMINATE.** (CANCEL) Exits from this facility and returns to the DL/I “Unqualified” Call Profile Design Facility menu.

Other "Unqualified" Call Profile options

The List Directory of Profiles, Print Directory of Profiles, and Print Completed Design options for "Unqualified" Call Profiles are similar to those used with the DL/I Call Profile Design Facility. For instructions on using these options, see "Directory of Call Profiles" on page 55 and "Print Completed Design" on page 57.

Sample "Unqualified" Call Profile design

To create an Unqualified Call Profile for the ORDERIN Segment Layout (designed in "Sample Segment Layout design" on page 34), select the Design "Unqualified" Call Profiles option from the DL/I View Design Facility menu.

DLI001

M A N T I S

DL/I View Design Facility

Design Segment Layouts	1
Design Call Profiles	2
Design "Unqualified" Call Profiles	3
List Directory Of Segment Layouts	4
Print Directory Of Segment Layouts	5
List Directory Of Call Profiles	6
Print Directory Of Call Profiles	7
Terminate This Facility	CANCEL

: 3 :

The DL/I "Unqualified" Call Profile Design Facility menu appears:

```
DLI013  
  
M A N T I S  
  
DL/I "Unqualified" Call Profile Design Facility  
  
Create/update "unqualified" call..... 2  
Library functions ..... 3  
List directory of profiles ..... 4  
Print directory of profiles ..... 5  
Print completed design ..... 6  
Terminate this facility ..... CANCEL  
  
: :
```



The options are numbered starting at 2 to remain consistent with other MANTIS design facilities.

Select the Create/Update "Unqualified" Call option from this menu. The following screen appears:

```
DLI015          DL/I "Unqualified" Call Profile Layout
                                     Number Of Segments
Page 1  -----Relation Between DL/I Segment And I/O Area Name-----
          DL/I Segment          Associated I/O Area Layout
```

(Use PF1 - PF17 to add more DL/I segments; use CANCEL to exit)

Supply the name of the DL/I segment and the associated Segment Layout. Press ENTER to set the information in the layout.

DLI015	DL/I "Unqualified" Call Profile Layout	Number Of Segments
Page 1	-----Relation Between DL/I Segment And I/O Area Name-----	
	DL/I Segment	Associated I/O Area Layout
	suplseg	orderin

(Use PF1 - PF17 to add more DL/I segments; use CANCEL to exit)

When you complete the "Unqualified" Call Profile Layout, press the CANCEL key (normally PA2) to return to the DL/I "Unqualified" Call Profile Design Facility menu. To save an Unqualified Call Profile Design, select the Library Functions option (Option 3 or PF3). The panel shown below appears. To save the new Unqualified Call Profile Design, supply a name and description for the Unqualified Call Profile and press PF1.

```

DLI014                                M A N T I S

DL/I "Unqualified" Call Profile Layout Library Facility

Profile name ..... : delivery_unq ..... :
Description ..... : profile for recording unq ssa ..... :

Save ..... 1
Replace ..... 2
Fetch ..... 3
Delete ..... 4
Terminate ..... CANCEL

: 1 :
    
```

If you already have an Unqualified Call Profile saved under a particular name, you must either select the REPLACE option to replace the saved Unqualified Call Profile with the current Unqualified Call Profile or provide a new name to save the current Unqualified Call Profile. To return to the DL/I "Unqualified" Call Profile Design Facility, press the CANCEL key.

When the SAVE is complete, MANTIS returns automatically to the "Unqualified" Call Profile Design Facility menu. A message displays at the bottom of that panel indicating that the Unqualified Call Profile Design was saved.

To view a list of the existing Unqualified Call Profiles and their related Segment Layouts, select the List Directory of Profiles option (Option 4 or PF4). A sample directory screen appears below:

DIR006 CONTROL	Directory of DL/I Call Profiles	yyyy/mm/dd hh:mm:ss
-----Name-----	-----Description-----	Related Segment Layout
DELIVERY_QU	PROFILE FOR RECORDING QU SSA	ORDERIN
DELIVERY_UNQ	PROFILE FOR RECORDING UNQ SSA	ORDERIN

To return to the DL/I “Unqualified” Call Profile Design Facility, press ENTER.

DL/I Interface Area Design

To design the DL/I Interface area, use either the (Enhanced) Interface Design Facility (option 7), or if available, the Old Interface Design Facility from the MANTIS Facility Selection menu.



Basic MANTIS-DL/I Access Only If “Old Interface Design Facility” does not appear on your Facility Selection Menu, you can use “Run a Program by Name” to run the program CONTROL:INTERFACE_37. Check with your Master User before creating an Old Interface.

```

FACILMENU02                MANTIS Facility Selection Menu                YYYY:MM:DD
                                                                    HH:MM:SS

Please select one of the menu options below.

 7_ Run a Program by Name ..... 1 Sign On as Another User .... 11
    Display a Prompter ..... 2 Search Facility ..... 12
    Design a Program ..... 3 Query Report Writer ..... 13
    Design a Screen ..... 4 Directory Facility ..... 14
    Design a MANTIS File View .. 5 Transfer Facility ..... 15
    Design a Prompter ..... 6 Cross Reference Facility ... 16
    Design an Interface ..... 7 Entity Transformers ..... 17
    Design a TOTAL File View ... 8 Universal Export Facility .. 18
    Design an External File View 9 Print Facility ..... 19
    DL/I Access View ..... 10

F1=HELP  F3=END  F12=CANCEL
  
```

Enhanced MANTIS-DL/I Access Only This section provides examples of completing the Interface Design panels, primarily using the Enhanced Interface Design Facility. For further details on the Enhanced Interface Design Facility, refer to the information on the “Interface Design Facility” in *MANTIS Facilities, OS/390, VSE/ESA*, P39-5001.

When you select the Design an Interface option from the MANTIS Facility Selection menu, the following screen appears:

```
INT001                                M A N T I S

                                     Interface Design Facility

Create or update interface profile ... 1
Update area layout ..... 2
Library functions ..... 3
Directory of interfaces ..... 4
Print completed design ..... 5
Terminate this facility ..... CANCEL

                                     : 1 :
```

To create the profile of the DL/I Interface, select the Create or Update Interface Profile option. The panel shown below appears. The entries in lowercase letters represent sample entries. Note that the name of the program to be invoked by MANTIS when using the Interface Design must be "MANTDLI."

```
INT002                                M A N T I S

                                     Interface Design Facility

Name and Description ..... : suppl_view           :
: recording interface for dli                 :
Associated area Layout Name ....           :
:                                             :
Password for using ..... : suppl              :
Program to be called ..... : mantdli       :
Status ..... : active                          :
```

When you complete your entries, press ENTER to return to the Interface Design menu. To create the Interface Area Layout, select the Update Area Layout option from the Interface Design menu. Code this area as follows:

- ◆ **First element.** A text field with the length of 4 that contains the function to be performed by the DL/I Access Interface.
- ◆ **Second element.** A text field with the length of 16 that contains the name of the Call Profile to be used for the function.
- ◆ **Third to *n*th element.** The names of the key, search, or data fields used by the DL/I Access Program. If you use the Old Interface Design Facility, all of these fields must be in the Segment Layout used by the current Call Profile (except where MANTIS names are used in SSAs—see “[Update Profile Layout](#)” on page 43) and may be in the DL/I Call Profile Qualification List. The maximum number of elements is 254. If you use the Enhanced Interface Design Facility, the Enhanced Interface Area Layout represents the actual DL/I segment.

The following example retrieves the segment ORDERIN by key and returns the following data elements to the panel:

- ◆ SUPPNO (key field)
- ◆ SUPPNAME
- ◆ TOTAMT

Note that it does not specify that all the data elements associated with the ORDERIN segment be returned to the panel.

If you used the Old Interface Design Facility, you previously defined ORDERIN to the system through the Segment Layout Facility. It has the following structure:

Name	Type	Length
SUPPNO	PACKED	8 (key)
SUPPNAME	TEXT	20
TOTAMT	PACKED	5

If you are using the Enhanced Interface Design Facility, you can specify all six data types (packed, floating point, zoned, binary, text, and Kanji) within the Enhanced Interface Area, so a Segment Layout is not required.

For general information about designing interface layouts, refer to *MANTIS Facilities, OS/390, VSE/ESA*, P39-5001.

The following screen shows the sample entries (in lowercase letters) for the Enhanced Interface Area Definition. Remember that the first two elements must be entered as shown.

```

INT003 Page 1                MANTIS Interface Area Definition                yyyy/mm/dd
Name:  suppl_view            Element count                hh:mm:ss
-----MANTIS-----      ----- Element size -----
      Name      Type      Position Format Length Sign Dec Dim Offset Attribute
i  call_function      text      4
i  call_profile      text      16
i  suppno            packed      8
i  suppname          text      20
i  totamt            packed      5

(Use PF1 - PF16 to page; use CANCEL to exit)

```

When you enter all the data, press ENTER. (If you press the CANCEL key instead of ENTER, your data is lost.) After you press ENTER, press the CANCEL key to return to the Interface Design menu.

To save your Interface Design, select the Library Functions option. The panel shown below appears with the name of the Interface Design currently in your work area.

```
INT004                                M A N T I S

                                     Interface Library Facility

Name of interface ..... : SUPPL_VIEW :

      Save ..... 1
      Replace ..... 2
      Fetch ..... 3
      Delete ..... 4
      Terminate ..... CANCEL

                                     : 1 :
```

To save the Interface Design in your library, select the SAVE option (Option 1 or PF1). When your design is saved, you return automatically to the Interface Design menu.

3

Interface to the DL/I Access Design facility

To access a DL/I segment, code the MANTIS INTERFACE and CALL statements in your MANTIS program. All data passed between the MANTIS program and DL/I (and vice versa) is transmitted via the Interface Area, which is generated by the appropriate INTERFACE statement. The DL/I Access Program is invoked via the CALL statement.

For general information about using the INTERFACE and CALL statements in MANTIS programs, refer to *MANTIS Language, OS/390, VSE/ESA*, P39-5002.

The following code sample lists a MANTIS program that accesses DL/I. The INTERFACE statement in line 20 defines the Interface Area. Lines 40, 80, and 90 use the CALL statement to access Call Profiles with Qualified and Unqualified SSAs.

```
10 SCREEN MAP( "map" )
20 INTERFACE INTER( "SUPPL_VIEW", PASSWORD )
30 CONVERSE MAP
40 CALL INTER( "GU", "DELIVERY_QU", SUPPNO )
50 IF INTER="*****"
60 .WHILE MAP<>"CANCEL" AND INTER="*****"
70 ..CONVERSE MAP
80 ..CALL INTER( "GN", "DELIVERY_QU", SUPPNO )
90 ..CALL INTER( "GN", "DELIVERY_UQ_SSA" )
100 .END
110 .IF INTER<>"*****"
120 ..SHOW"NO MORE SEGMENTS AVAILABLE"
130 .END
140 ELSE
150 .SHOW"SEGMENT NOT FOUND"
160 END
170 CONVERSE MAP
```

The rest of this chapter discusses format descriptions and operational considerations for each statement.

INTERFACE statement

Use the INTERFACE statement to define the Interface Area where data is passed from the MANTIS application program to the DL/I Access Program and back.

```
INTERFACE symbolic-name1, (libname,password1 [,PREFIX] [,n1])  
  [,symbolic-name2 (libname2,password2 [,PREFIX] [,n2])]...
```

symbolic-name

Description *Required.* Specifies the name that refers to the Interface Area in subsequent CALL statements.

Format MANTIS symbolic name

Considerations

- ◆ When the symbolic name is previously defined, MANTIS bypasses this definition.
- ◆ **Enhanced MANTIS-DL/I Access Only** If you are using unqualified calls, you need to use specific symbolic names. See “Unqualified calls with the Enhanced Interface” on page 96.

libname

- Description** *Required.* Specifies the name of the Interface Profile stored during Interface Design.
- Format** 1–33 character text expression that evaluates to a valid interface name (and user name if required)

Considerations

- ◆ If the interface is in another user's library, you can access it by specifying the user name, a colon, and the interface name. See the following example:

```
[library:]interface-name
```
- ◆ If this parameter is used, the colon (:) is required. If the interface resides in your library, you do not have to specify the library name.
- ◆ If you would like this entity to be HPO bound, the library name is required, even if the named library is your own library.
- ◆ Upon execution of your program, this parameter is translated to uppercase.

password

- Description** *Required.* Specifies the valid password for this Interface.
- Format** Text expression that evaluates to 1-16 characters.

PREFIX

- Description** *Optional.* Specifies whether MANTIS places the symbolic name and an underscore in front of all field names associated with the Interface Area. For an explanation of prefixing, refer to the FILE statement in *MANTIS Language, OS/390, VSE/ESA*, P39-5002.
- Format** Must be coded exactly as shown.
- Consideration** PREFIX must be coded exactly as shown.

n

Description	<i>Optional.</i> Specifies how many buffers MANTIS allocates to the Interface Area.
Default	1
Format	Arithmetic expression that evaluates to a value in the range 1–254.

Considerations

- ◆ MANTIS uses only the integer portion of *n*.
- ◆ When you use the *n* parameter to indicate buffering, add the LEVEL=*n* option to the CALL statement.

General considerations

- ◆ The link between DL/I segment data and the MANTIS application program is made by the element names specified in the Interface Area. For the Old Interface Design Facility, these element names must match the corresponding field names in the Segment Layout or the Search Field Name in the Call Profile of the DL/I segment to be processed. You can specify these elements in any sequence in the Interface Area.
- ◆ **Basic MANTIS-DL/I Access Only** For the Old Interface Design Facility, each element name must match one of the following:
 - The corresponding field name in the Segment Layout
 - The Search Field Name in the Call Profile of the DL/I segment to be processed

In the Interface Area, you can specify these elements in any sequence.

- ◆ **Basic MANTIS-DL/I Access Only** For the Old Interface Design Facility, the element names specified in the Interface Area must have a data format acceptable to MANTIS (BIG, TEXT, or KANJI). The Interface Area specifies only those fields to be referred to in the MANTIS program. If you use the Old Interface Design Facility, you need not code an entry for every field described in the Segment Layout.
- ◆ **Enhanced MANTIS-DL/I Access Only** No Segment Layout exists with the Enhanced Interface Design Facility, which means the fields you specify in the Interface Area must match the internal format of the DL/I Database segment currently being processed. For an Enhanced Interface Design Facility, specify TEXT, PACKED, BINARY, FLOAT, ZONED, or KANJI. Text fields cannot exceed 254 characters in length.

- ◆ If path calls or logical databases are used, the fields representing the Interface Area actually represent the DL/I Database Segment appropriate to the DL/I Call. That is, in the case of the path call, DL/I returns a concatenated DL/I Segment to the Interface Area, based on whichever segments are required in the path. For example, a path call intending to retrieve information from the path SEGA-SEGC-SEGE is coded as follows:

Element	Name	Format	Length
1	CALL_FUNCTION	TEXT	4
2	CALL_PROFILE	TEXT	16
3	SEGA_FLD1	TEXT	2
4	SEGA_FLD2	PACKED	4
5	SEGA_FLD3	user-defined	user-defined
6	SEGC_FLD1	user-defined	user-defined
7	SEGC_FLD2	user-defined	user-defined
8	SEGE_FLD1	user-defined	user-defined
9	SEGE_FLD2	user-defined	user-defined
10	SEGE_FLD3	user-defined	user-defined
11	DLI_PCBNUM	TEXT	2
12	DLI_ROPERS	TEXT	30
13	SEGD_KEY	TEXT	5

The elements SEGA_FLD1 through SEGE_FLD3 must represent exactly the data retrieved in the Interface Area resulting from the DL/I Call. Elements 3 through 10 must be in fixed format (in this example) whereas elements 11 through 13 can be specified in any sequence. Similarly, where logical relationships exist, elements 3 through n must represent exactly the DL/I Database Segment resulting from the DL/I Logical Database Call, whereas elements $n+1$, and so on, can be specified in any sequence.

Example

```
20 .INTERFACE INTER("interface","password")
30 .
40 .
50 .CALL INTER("GU","CUST_PROFILE")
```

CALL statement

Use the CALL statement to establish communication with the DL/I Access Program.

CALL *interface*[(*function,name,field1* [,*field2*,...)] [LEVEL=*n*]

interface

- Description** *Required.* Specifies the symbolic name referring to the Interface Area used in the INTERFACE statement.
- Format** 1–16 character symbolic name
- Consideration** The name must be valid and defined in a previously executed INTERFACE statement.

function

Description	<i>Required.</i> Specifies the DL/I Call Function.	
Format	Text expression that evaluates to one of the following options.	
Options	GU	GET UNIQUE
	GN	GET NEXT
	GNP	GET NEXT WITHIN PARENT
	GHU	GET HOLD UNIQUE
	GHN	GET HOLD NEXT
	GHNP	GET HOLD NEXT WITHIN PARENT
	ISRT	INSERT
	DLET	DELETE
	REPL	REPLACE (UPDATE)
	SNON	SIGN ON
	SNOF	SIGN OFF

Considerations

- ◆ For the purpose of compatibility with previous MANTIS releases, SNON and SNOF Call Functions are allowed, but they are internally ineffective in this release. It is unnecessary to code these functions in new MANTIS-DL/I programs.
- ◆ If *function* is not one of the options listed, MANTDLI will return a "FUNC" status in the symbolic name for the interface.

name

- Description** *Required.* Specifies the Call Profile name.
- Format** Text expression that evaluates to a valid Call Profile name
- Consideration** This parameter is not required for unqualified Calls using the Enhanced Interface Design Facility. These calls do not require a Call Profile name (see “[Unqualified calls with the Old Interface](#)” on page 95).
-

field1 [,field2,...]

- Description** *Optional.* Specifies field name(s) or value(s).
- Format** Text, arithmetic, or Kanji expression
- Considerations**
- ◆ If you don't specify *field1*, *field2*,..., the values passed to the interface program are the current values of the fields that are defined in the interface layout.
 - ◆ Field type and dimension must match those of the corresponding INTERFACE layout field.
-

LEVEL=*n*

- Description** *Optional.* Specifies the buffer number to be passed on to the DL/I Access Program.
- Format** Arithmetic expression that evaluates to a value of 1 to *n*, where *n* is the maximum buffer number as defined in the corresponding INTERFACE statement.
- Considerations**
- ◆ You must specify LEVEL=*n* if the INTERFACE statement specifies multiple buffers.
 - ◆ Only the integer portion of *n* is used. Any fractional portion is ignored.
 - ◆ If multiple levels are used and intervening calls to the same PCB are issued, you must repeat GET HOLD calls prior to REPL (replace) or DLET (delete) calls. DL/I requires that segments are held prior to issuing a REPL or DLET call.
-

Examples

```
20 .INTERFACE INTER("interface","password")
30 .
40 .
50 .CALL INTER("GU","CALL_PROFILE_QU")
```

```
20 .INTERFACE INTER("interface","password",10)
30 .
40 .
50 .CALL INTER("ISRT","CALL_P_ISRT")LEVEL=5
```

```
20 .INTERFACE INTER("new_interface","password")
30 . |
40 . | THIS PROGRAM IS AN EXAMPLE OF AN UNQUALIFIED CALL
50 . | IN CONJUNCTION WITH A NEW INTERFACE
60 . |
70 .CALL INTER("GN")
```

General considerations

- ◆ Updating segments through the DL/I Access Program is the same as updating with conventional programming languages:
 - To modify or delete a segment, first hold the segment with a CHU (GET HOLD UNIQUE), GHN (GET HOLD NEXT), or GHNP (GET HOLD NEXT WITHIN PARENT) call, then issue a REPL (REPLACE) or DLET (DELETE) call as required.
 - To insert a new segment, issue the ISRT (INSERT) call.
- ◆ Following a CALL, the interface symbolic name will have one of the following values:



For more details on each of the following DL/I status codes, refer to *MANTIS Messages and Codes, OS/390, VSE/ESA, P39-5004*.

Value	Description
“****”	Call successful. DL/I returned status code ‘ ’ (blanks).
“CPNF”	Named Call Profile not found. One of the following occurred: <ul style="list-style-type: none"> ◆ You misspelled the Call Profile name in the application program. ◆ The DBA did not enter the Call Profile Name. ◆ The Call Profile is not the second field in the Interface Area Layout.
“DBNF”	Database not found. One of the following occurred: <ul style="list-style-type: none"> ◆ The database that the PSB name indirectly referenced in the Call Profile was not defined. ◆ The database that the PSB name indirectly referenced in the Call Profile was misspelled in the CICS FCT. ◆ The relative PCB number was incorrectly specified.
“DBNO”	Database not open. One of the following occurred: <ul style="list-style-type: none"> ◆ The DL/I function was misspelled. ◆ The Call Function is not the first field in the Interface Area Definition.
“DLNA”	DL/I not active.
“DPSB”	Different PSB. The PSB name in the Call Profile is different from the one currently scheduled.

Value	Description
"FSNC"	Function not scheduled.
"FUNC"	Invalid function supplied. One of the following occurred: <ul style="list-style-type: none"> ◆ The DL/I Call Function was misspelled. ◆ The Call Function is not the first field in the Interface Area Definition.
"IVRO"	Invalid relational operator override in DLI_ROPERS.
"IVUC"	Invalid unqualified call. Unqualified call with Old-style Interface.
"LCON"	Language conflict. For VSE/ESA only. Specify one of the following on the PSB: <ul style="list-style-type: none"> ◆ LANG=ASM ◆ LANG=COBOL
"NHLD"	Segment not held. Before attempting an UPDATE function, make sure the DL/I segment is held with one of the following calls: <ul style="list-style-type: none"> ◆ GHU ◆ GHN ◆ GHNP
"NOCO"	Not enough main memory.
"NSCH"	PSB was not scheduled. The Call Profile was not specified.
"PCIN"	PCB number invalid (for the current PSB).
"PSFL"	PSB initialization failed.
"PSNA"	PSB cannot be scheduled. Another task is currently using this PSB.
"PSNF"	PSB associated with the Call Profile was not found.
"PSNT"	PSB not authorized. For VSE/ESA only.
"SGNF"	Segment not found. The segment retrieved was not defined to MANTIS via the "Design Segment Layout" facility.
"TKNA"	Task not authorized. For VSE/ESA only.
"xx "	DLI Status code xx received on the call. Refer to your DL/I documentation for status code values. The unabridged version of the DL/I status code is returned to the application program, where appropriate. Upon detection of a non-DLI error condition, MANTDLI returns its own status to the application program.

- ◆ DL/I database updates are committed in one of the following ways:
 - MANTIS program executes a COMMIT statement—This commits all DL/I, TOTAL, VSAM external file, and MANTIS internal file updates, where appropriate.
 - MANTIS performs an automatic commit—This occurs on one of the following statements: CONVERSE, SHOW (enough to fill the screen buffer), WAIT, OBTAIN, or PROMPT (with COMMIT ON in effect).

When DL/I Database updates are committed by one of the above methods, the current PSB is terminated, thereby losing positioning and parentage within the database. Reposition within the database when you perform the next CALL.

- ◆ To make DL/I Calls in your own interface program, use a PSB that is scheduled/terminated within the execution of your program. You must terminate any scheduled PSB in MANTIS (which can be done by using a COMMIT statement) before calling an interface program that performs its own DL/I Calls.



For update tasks, Cincom does not recommend mixing DL/I Calls in MANTIS with your own Interface programs. This is because, in the event of an error, the COMMIT ends the LUW and affects which updates are backed out.

4

Programming considerations

This chapter is a summary of common programming considerations to assist you in quickly developing efficient MANTIS-DL/I Access applications.

Unqualified calls with the Old Interface

Basic MANTIS-DL/I Access Only When you issue DL/I Unqualified Calls (those with no associated SSA), you must specify a Call Function and a Call Profile name. The Call Profile specified for an Unqualified Call is a special “Unqualified” Call Profile (see [“Unqualified” Call Profile Design](#) on page 64) that internally represents a table linking DL/I Segment Types with MANTIS-DL/I Segment Layouts.

When MANTIS retrieves a DL/I Database Segment as a result of an Unqualified Call, it uses the “Unqualified” Call Profile to determine which Segment Layout matches the retrieved DL/I Database Segment Type. (The DL/I Database Segment Type is returned to MANTIS in the DL/I PCB).

All Unqualified Calls for a particular database always specify the same “Unqualified” Call Profile. Only one “Unqualified” Call Profile exists per database in the system.

Unqualified calls with the Enhanced Interface

Enhanced MANTIS-DL/I Access Only The Enhanced Interface Design Facility treats Unqualified Calls differently than the Old Interface Design Facility. To denote an unqualified Call with the Enhanced Interface Design Facility, specify a null Call Profile name when executing the DL/I Call to the DL/I Access Program. For example, the following statement identifies to the DL/I Access Program a DL/I Call (using the Enhanced Interface Design Facility) that is an Unqualified Call:

```
CALL INTER("GN", " ")
```

Because the Enhanced Interface Design Facility represents the description of the data format of a DL/I Database Segment, an appropriate pool of Enhanced Interface Facilities must be present in the MANTIS program that uses the Unqualified Calls. This allows the DL/I Access Program to match the returned DL/I Database Segment Type (based on the information in the PCB feedback area) with a corresponding description of the DL/I Database Segment itself. Each member of the Enhanced Interface Design Facility pool represents a DL/I Database Segment Type description.



When doing an Unqualified Call using the Enhanced Interface Design Facility, you must have an INTERFACE statement in the program for every DL/I Database Segment Type that the PCB is sensitive to.

Assign each member of the Enhanced Interface Design Facility pool a MANTIS variable name based on the following format:

```
dbdname_segname
```

where:

- ◆ *dbdname* is a 1–8 character name that is the exact name of the database being accessed. This name must be the same as that specified in the DBD for that DL/I Database.
- ◆ *segname* is a 1–8 character name that is the exact name of the DL/I Database Segment Type corresponding to this interface Area. This name must be the same as a Segment Type on the DL/I Database, as defined in the SEGM segment in the DBD for that DL/I Database.

For example:

```
INTERFACE EMPLDDBD_EMPLOYEE("EMPLOYEE_SEG", "password")
```

The first two fields in the interface Area are the Call_Function and Call_Profile name, TEXT fields of length 4 and 16, respectively. Immediately following the Call Profile name, specify the internal data format of each element within the DL/I Database Segment. Include fillers where appropriate, so that the total length of the individual elements following the Call Profile name equals the length of the DL/I Database Segment being accessed. Following the DL/I Database Segment representation, code any other fields to be coded in the new Interface Area Layout (for instance, DLI_PSBNAME, DLI_STATUS or any higher level SSA Search Field Names).

In the following example, elements 3 through 12 represent a segment with a length of 82.

```
INT003 Page 1 MANTIS Interface Area Definition          yyyy/mm/dd
Name:                               Element count      13          hh:mm:ss
-----M A N T I S-----  ----- Element size      104 -----
      Name      Type      Position Format Length Sign Dec  Dim Offset  Attrib
CALL_FUNCTION  TEXT      1      TEXT    4
CALL_PROFILE   TEXT      5      TEXT   16
EMPLOY_NO      TEXT     21      TEXT    3
EMPLOY_NAME    TEXT     24      TEXT   20
EMPLOYEE_AGE   SMALL    44      PACKED  2
EMPLOYEE_SEX   TEXT     46      TEXT    1
EMPL_YRS_SERVICE SMALL    47      ZONED   2
EMPLOYEE_ADDRESS TEXT     49      TEXT   30
EMPLOYEE_CITY  TEXT     79      TEXT   15
EMPLOYEE_STATE TEXT     94      TEXT    2
EMPLOYEE_ZIP   SMALL    96      PACKED  3
EMPL_SALARY_CODE BIG      99      BINARY  4
DLI_STATUS     TEXT    103      TEXT    2
```

(Use PF1 - PF16 to page; use CANCEL to exit)

The Enhanced Interface and application programs

Enhanced MANTIS-DL/I Access Only It was noted in "Introduction" on page 13 that the Enhanced MANTIS-DL/I Access Facility can use Interface Areas in place of Segment Layouts. Your Master User converts existing Segment Layouts to the Enhanced Interface if the Enhanced Interface is suitable for your applications. This conversion is optional. For information about the conversion utility (called CONTROL:DLI_SEG_M_INTER), refer to *MANTIS Administration, OS/390, VSE/ESA*, P39-5005.

The following figure shows a sample Segment Layout:

```

DLI003                DL/I Segment Layout Definition
Page 1                Element Count 6                Segment Size 46
-----MANTIS-----
Element  Name          Type      Dim Length Decimal Sign      Position
  1      SUPPNO         PACKED    8          20          2          YES      1
  2      SUPPNAME       TEXT      20          20          2          YES      9
  3      ORDNO          PACKED    5          5           2          YES     29
  4      ORDDATE        PACKED    4          4           2          YES     34
  5      DELDATE        PACKED    4          4           2          YES     38
  6      TOTAMT         PACKED    5          5           2          YES     42
    
```

(Use PF1 - PF12 to page; use CANCEL to exit)

The accompanying Old Interface Design Facility appears below:

MANTIS INTERFACE AREA DEFINITION				YY/MM/DD
NAME: SUPPL_VIEW				HH:MM:SS
PAGE: 1	ELEMENT COUNT: 5		SIZE: 56	
ELEMENT	NAME	TYPE	DIMENSIONS	-ATTRIBUTES-
1	CALL_FUNCTION	TEXT	4	
2	CALL_PROFILE	TEXT	16	
3	SUPPNO	BIG		
4	SUPPNAME	TEXT	20	
5	TOTAMT	BIG		

(USE PF1 - PF10 TO PAGE; USE CANCEL TO EXIT)

Notice that the Old Interface Design Facility gives you data independence. The Interface Area did not have to match the Segment Layout element for element.

The conversion program creates the following Enhanced Interface from the previous Segment Layout:

```
INT003 Page 1          MANTIS Interface Area Definition          yyyy/mm/dd
Name:                  Element count      8          hh:mm:ss
-----M A N T I S----- Element size      66 -----
Name      Type      Position Format Length Sign Dec  Dim Offset Attrib
CALL_FUNCTION  TEXT      1      TEXT      4
CALL_PROFILE  TEXT      9      TEXT     16
SUPPNO        BIG       21     PACKED    8
SUPPNAME      TEXT     29     TEXT     20
ORDNO         BIG       49     PACKED    5
ORDDATE       BIG       54     PACKED    4
DELDATE       BIG       58     PACKED    4
TOTAMT        BIG       62     PACKED    5          2

(Use PF1 - PF16 to page; use CANCEL to exit)
```



The Enhanced Interface has a limit of 254 elements.

Note the following points about the Enhanced Interface Design Facility:

- ◆ The conversion program adds CALL_FUNCTION and CALL_PROFILE to the interface and converts data types.
- ◆ The Interface Area corresponds exactly to the I/O area used for the DL/I Call.

The second point is important because you no longer have the data independence you had with the Basic version, and you may have to change your application programs accordingly. If you convert to the Enhanced interface, the DL/I INTERFACE statement(s) in a program must contain all the elements from the Segment Layouts in the same sequence.

For example, consider an application program that uses one DL/I Interface, but contains a Call Profile(s) that points to multiple Segment Layouts. Under Basic MANTIS-DL/I Access Facility, the Interface Area does not need to match the Segment Layout because the Segment Layout is actually the DL/I I/O Area. Under the Enhanced MANTIS-DL/I Access Facility, the same application program must contain DL/I INTERFACE statements that exactly reflect the Segment Layouts. (Once again, this is because the Interface Area—designed by the Enhanced Interface Design Facility—is now the DL/I I/O Area.) If your CALL statement uses an Interface Area that does not contain the necessary elements, MANTIS returns “NDE: NUMERIC DATA ERROR DURING GET FOR #####”.

Note two additional operational points:

- ◆ Add the DL/I INTERFACE statements you need.
- ◆ Use the correct Interface name in your CALL statements.

Even though your programs may use more INTERFACE statements, performance improves considerably because MANTIS does not have to retrieve Segment Layouts or convert data types.

Semi-reserved words

Semi-reserved words in the Interface Area provide key feedback information for a MANTIS program from a DL/I Call or allow dynamic override of PSB name and PCB number. They are not true MANTIS reserved words, but are relevant only to the DL/I Access Module.

Semi-reserved words are optional. You can specify them anywhere in the Interface Area (with the exception of the first two elements, which must be the Call Function and Call Profile name, respectively) when using the Old Interface Design Facility. When using the Enhanced Interface Design Facility, you must enter the semi-reserved words after all fields for the segment.

Key feedback area information

When you include these semi-reserved words in the Interface Area, the DL/I Access Program stores the appropriate Key Feedback Area information in the specified fields. This information is then accessible to the MANTIS program through the corresponding semi-reserved word.

The following table lists each semi-reserved word along with the associated type and length of field, and description.

Semi-reserved word	Type	Length	Description
DLI_KFBARE	Text	user-determined	DLI_KFBARE contains the key feedback data retrieved by DL/I in attempting to satisfy the call. It is a list of concatenated keys of the segment occurrences in the hierarchical path retrieved by DL/I. The actual length of the Key Feedback Area is held in DLI_KFBLEN after the call. If the length of DLI_KFBARE is shorter than that returned in DLI_KFBLEN, the key feedback information is truncated accordingly. If DLI_KFBLEN is shorter in length than DLI_KFBARE, the key feedback information is left-justified in DLI_KFBARE. It is best to always define the length of DLI_KFBARE as the longest concatenated key length in the database.
DLI_KFBLEN	BIG (old) BINARY (new)	4	DLI_KFBLEN contains the length of the Key Feedback Area DL/I retrieves. You can use it with DLI_KFBARE.
DLI_RETSEG	TEXT	8	DLI_RETSEG retains the name of the DL/I segment type of the lowest level at which the DL/I Call is successful. When used with unqualified calls, this field can help you determine which processing logic path to take based on the segment type that is returned.
DLI_SEGLEV	TEXT	2	DLI_SEGLEV contains the lowest hierarchical segment level number ("01" is the root level) to which the DL/I Call is successful. This field is useful when executing qualified calls with several levels of SSAs. If the call is only partially successful in satisfying the search criteria, this field shows the lowest level at which DL/I can satisfy the call.

Semi-reserved word	Type	Length	Description
DLI_SENSEG	BIG (old) BINARY (new)	4	DLI_SENSEG contains the number of segment types to which the application is sensitive.
DLI_STATUS	TEXT	2	<p>DLI_STATUS holds the two-byte DL/I status after completion of the DL/I Call. (For compatibility with the Basic DL/I Access Interface, the DL/I status is also moved to the Interface Area Status Field). DLI_STATUS contains nulls if the Call is successful. for example, a test for a successful call can be:</p> <p>IF DLI_STATUS=""</p> <p>Not the following:</p> <p>IF DLI_STATUS=" "</p>

The following examples show how to code these words in the Old Interface Design Facility and how to use them in a program:

```

MANTIS INTERFACE AREA DEFINITION
NAME: SUPPL_VIEW
PAGE: 1
ELEMENT      NAME      TYPE      DIMENSIONS      -ATTRIBUTES-
i 1 call_function  text      4
i 2 call_profile  text     16
i 3 suppno       big
i 4 suppname     text     20
i 5 totamt       big
i 6 dli_seglev   text      2
i 7 dli_status   text      2
i 8 dli_retseg   text      8

```

(USE PF1 - PF10 TO PAGE; USE CANCEL TO EXIT)

The semi-reserved words DLI_STATUS, DLI_RETSEG, and DLI_SEGLEV are coded in the sample program below:

```

10 INTERFACE INTER ("interface","password")
20 CALL INTER ("GU","multi-level-call")
30 IF INTER<>"*****"
40 .SHOW "CALL FAILED, STATUS IS",DLI_STATUS
50 .SHOW "LOWEST LEVEL SEGMENT RETURNED = ",DLI_RETSEG
60 .SHOW "LOWEST LEVEL SATISFIED =",DLI_SEGLEV
70 .WAIT
80 END

```

Lines 50 and 60 of the following program check for a new segment type in an Unqualified Call.

```
10 INTERFACE INTER("interface","password")
20 CALL INTER("gn","unqualified_call")
30 IF INTER="****"OR DLI_STATUS="GA"OR DLI_STATUS="GK"
40 .WHEN DLI_RETSEG="CUSTSEGM"
50 ..DO PROCESS_CUST_SEGMENT
60 .WHEN DLI_RETSEG="SUPPLSEG"
70 ..DO PROCESS_SUPPL_SEGMENT
80 .WHEN DLI_RETSEG="ORDRSEGM"
90 ..DO PROCESS_ORDER_SEGMENT
100 .END
110 END
```

If PREFIX is specified on the INTERFACE statement, the semi-reserved words are also PREFIXed.

```
10 INTERFACE INTER("interface","password",PREFIX)
20 CALL INTER("GNP","call_profile_x")
30 IF INTER<>"****"
40 .SHOW"CALL UNSUCCESSFUL"
50 .SHOW"STATUS IS",INTER_DLI_STATUS
60 .WAIT
70 END
```

Dynamic override of PSB name and/or PCB number

Enhanced MANTIS-DL/I Access Only Prior to the Enhanced MANTIS-DL/I Access Facility, it was sometimes necessary to enter a large number of Call Profiles into the system to handle various accesses within the database(s). In certain cases, these Call Profiles differed only by PSB name or PCB number.

To reduce the number of Call Profiles residing on the MANTIS library, you can now dynamically override the PSB name and/or the PCB number in a Call Profile. Using the override capability on a specific Call Profile applies for the duration of the DL/I Call only.

The semi-reserved words “DLI_PSBNAME” and “DLI_PCBNUM” override the PSB name and PCB number, respectively. Define these fields in the relevant Interface Area and refer to them in any MANTIS-DL/I program using that interface. If overriding the PSB name or PCB number is necessary, fill these fields before the DL/I CALL statement. MANTIS resets the DL/I CALL statement. MANTIS resets DLI_PSBNAME and DLI_PCBNUM immediately following execution of the DL/I Call to protect against inadvertent replication of PSB and PCB overrides on future calls. See the following table for details.

Semi-reserved word	Type	Length	Description
DLI_PCBNUM	TEXT	2	DLI_PCBNUM contains the number of the PCB to be used when executing the next DL/I Call. This field overrides the “RELATIVE DB PCB NUMBER” field in the DL/I profile design for the specified Call Profile.
DLI_PSBNME	TEXT	8	DLI_PSBNME contains the name of the PSB to be used in the execution of the next DL/I Call. This field overrides the “PSB NAME” field in the DL/I Profile Design for the specified Call Profile (see “ Create or update Profile Definition ” on page 41). When using this override, be careful that the resulting call does not conflict with the currently scheduled PSB. If this happens, a status of “DPSB” is returned to the program. (For more information on status codes, refer to MANTIS Messages and Codes, OS/390, VSE/ESA, P39-5004.)

Basic MANTIS-DLI Access Only The following example shows how to code these words in an Old Interface Design Facility as well as how to use them in a program:

```

MANTIS INTERFACE AREA DEFINITION
YY/MM/DD
HH:MM:SS
PAGE: 1
ELEMENT COUNT:
ELEMENT NAME TYPE DIMENSIONS SIZE:
i 1 call_function text 4 -ATTRIBUTES-
i 2 call_profile text 16
i 3 suppno big
i 4 etc.
i 5 etc.
i 6 etc.
i 7 dli_psbname text 8
i 8 dli_pcbnum text 2

(USE PF1 - PF10 TO PAGE; USE CANCEL TO EXIT)

```

```

10 SCREEN MAP("sample_screen")
20 INTERFACE INTER("interface","password")
30 DLI_PSBNAME="SUPPLPSB"
40 CALL INTER("GU","standard_profile")
50 CONVERSE MAP:| current PSB is terminated
60 DLI_PSBNAME="ORDERPSB"
70 DLI_PCBNUM="02"
80 CALL INTER("GU","standard_profile")

```

Dynamic override for relational operators

The Enhanced interface Design Facility allows you to dynamically override relational operators by specifying a new semi-reserved word, "DLI_ROPERS". MANTIS uses the information in this area to dynamically override any relational operator in any SSA for the duration of that call.

Semi-reserved word	Type	Length	Description
DLI_ROPERS	TEXT	User-defined	DLI_ROPERS contains the relational operators and field names to be used when executing the next DL/I Call. For the specified Call Profile, DLI_ROPERS overrides the "Search field information" in the DL/I profile design.

The "DLI_ROPERS" field must be defined as TEXT with a user-defined length in the Interface Area. The format is:

```
segment1,searchfld1,R01[,segment2,searchfld2,R02,...]
```

You must code commas between fields (but not after the last field). To override the relational operator to "GT" for the search field ORDERNO in the segment ORDER and the target Call Profile, code the following:

```
DLI_ROPERS="ORDER,ORDERNO,GT"
```

For example, if the target Call Profile specifies a range and both relational operators need to be overridden, repeat the segment name and search field for the second relational operator override. That is:

```
DLI_ROPERS="ORDER,ORDERNO,GT,ORDER,ORDERNO,LE"
```

You can override any number of relational operators, although the length of the TEXT string DLI_ROPERS cannot exceed 254.

The valid relational operators are listed in the following table:

Relational Operator	Description
"EQ"	Equal
"="	Equal
"NE"	Not equal
"<>"	Not equal (converted to "¬=" for the call)
"¬="	Not equal
"LT"	Less than
"<"	Less than
"GT"	Greater than
">"	Greater than
"LE"	Less than or equal to
"<="	Less than or equal to
"GE"	Greater than or equal to
">="	Greater than or equal to

During processing, MANTIS checks the syntax of DLI_ROPERS. If the syntax is incorrect, the DL/I interface returns "IVRO" in its status field and the DL/I Call is not attempted.

Path calls

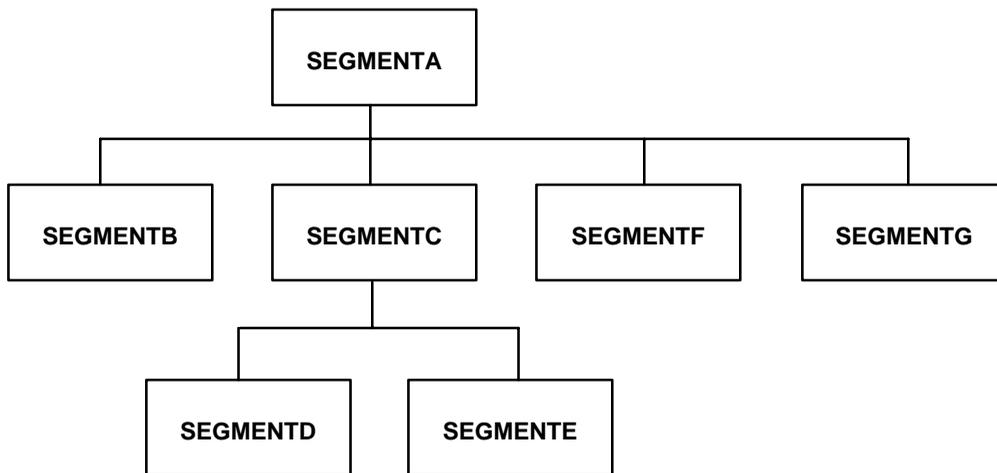
Before you use DL/I path calls, you must complete two steps:

1. Set up a Call Profile Layout that includes the command code “D” at each level of the path that the call accesses. Be sure to code the processing option “P” in your PSB.
2. Set up a Segment Layout Design to reflect the segments retrieved (or inserted) by the call using that Call Profile.

To replace a path of segments retrieved when using a path call, but not replace every segment in the hierarchy of the path retrieved, use a different Call Profile for the replace (“REPL”). In the Call Profile, specify the command code “N” at each level you do not want to replace.

The following example retrieves a path of segments:

SEGMENT A - SEGMENT C - SEGMENT E



Example. The Call Profile and Segment Layout for this example are shown below.

Call Profile:

```
DLI008                                M A N T I S

                                DL/I Profile Design

Name of profile ..... : PROFILE_PATH      :
Description ..... : RETRIEVE PATH OF SEGMENTS      :

Segment layout name ... : SEGACE_PATH      :
PSB name ..... : PSBYXZ      :
Relative DB PCB number.. : 03      :
```

Segment Layout:

```

DLI009                                DL/I Call Profile Layout
-----DL/I Segments-----
SEGMENTA  ACT      DLI Segment      Command Codes      1
           2      D      SEGMENTC      D      (Qual)
           3      SEGMENTE      (Qual)

(Use PF1 - PF15 to add search field information; use CANCEL to exit)

```

If you are using the Old Interface Design Facility, you must enter the Segment Layout `SEGACE_PATH` using the Segment Layout Design facility and include all elements (or fillers) in the three segments, concatenated.

Segment Layout = "SEGACE_PATH"



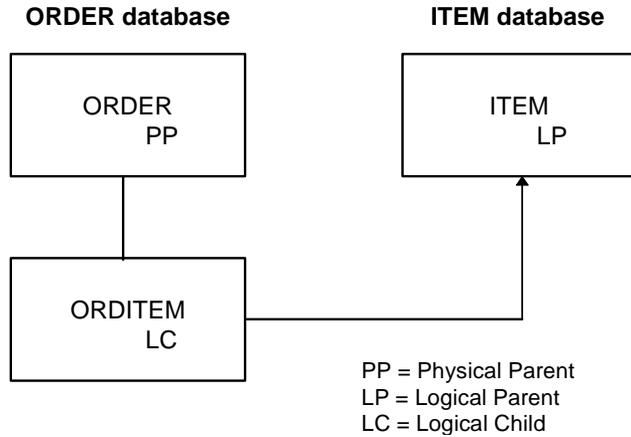
Give each element a unique 16-byte MANTIS name within the complete Segment Layout. You can use fillers. All elements of the segments referenced in a MANTIS program must appear in the corresponding Interface Area.

If you are using the Enhanced Interface Design Facility, you must include all elements (or fillers) in the three segments, concatenated, in the Interface Area.

DL/I logical database access

The following explanation of logical database access is related to a simple, one-directional logical relationship and is intended only as a general guideline. For more detailed information on DL/I logical relationships, consult the relevant IBM manual.

Consider the following DL/I logical relationship:



The unidirectional relationship ORDER-ORDITEM-ITEM defines a path from the ORDER database to the ITEM database. In this example, no path exists from the ITEM database to the ORDER database.

To access the logical relationship described in the current example, you or your DBA need to do the following:

- ◆ Specify a PSB (in the Call Profile Layout) that refers to the appropriate logical database defined by a special execution of DBDGEN.
- ◆ Retrieve the root segment ORDER and position on it. For example:

```
CALL INTER("GU", "ORDER_PROFILE_QU")
```

- ◆ Retrieve the concatenated segment ORDITEM. For example:

```
CALL INTER("GNP", "ORDITEM_UNQUAL")
```

The DL/I I/O area for the concatenated segment ORDITEM appears as follows:

LPCK	ID	LP Data
-------------	-----------	----------------

where:

- ◆ LPCK = Logical Parent Concatenated Key
- ◆ ID = Intersection Data (if defined)
- ◆ LP Data = Logical Parent Data

Intersection data is the data that appears in the segment ORDITEM when no logical relationship exists (if the relationship ORDER-ORDITEM was physical only). With the LPCK added to it, ORDITEM represents data common to both ORDER and ITEM and is referred to as the Logical Child Concatenated Segment.

In using the Call Profile to retrieve the Logical Child Concatenated Segment (in this example "ORDITEM_UNQUAL"), the associated Segment Layout name must be a segment descriptor that exactly describes the data received in the Logical Child Concatenated Segment (having the same format as LPCK/ID/LP data).

Access by secondary index

Secondary indexes allow you to process a segment type in a sequence other than the one defined by the segment's key.

Before attempting to access a DL/I database via a secondary index, you must complete two steps:

1. Define the relevant secondary index structure to DL/I using SEGM, LCHILD, XDFLD statements in DBDs.
2. Define the processing sequence in a PCB using the PROCSEQ option.

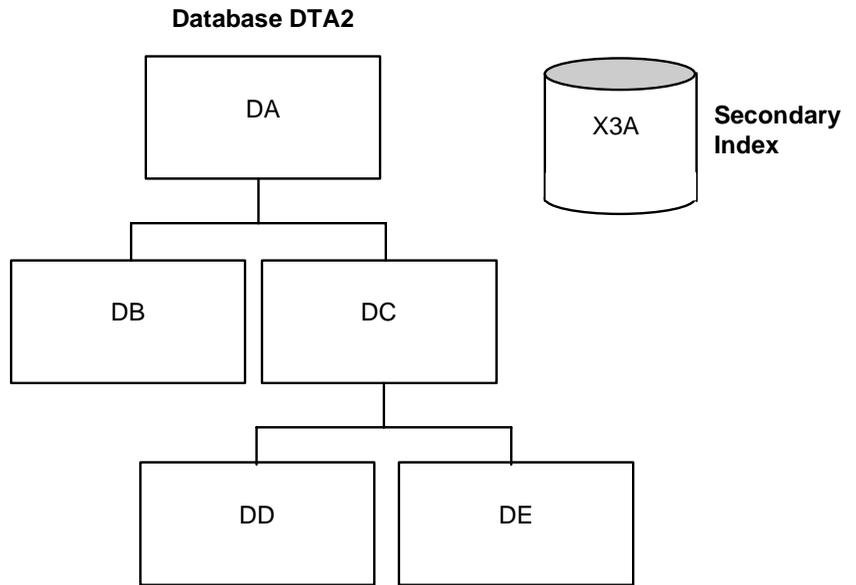
Use the following procedure to access a DL/I database with a secondary index:

1. Define a Segment Layout by using the Segment Layout Design Facility for the "target" segment of the secondary index or use an Enhanced Interface. The "target" segment is the name of the segment in the physical or logical database that is pointed to by the LCHILD statement in the DBD for the associated INDEX database.
2. Set up a Call Profile consisting of a qualified SSA. The "target" segment name is the segment name to be retrieved in the Call Profile (on the DL/I Call Profile Layout screen). Leave empty if you are using an Enhanced Interface.

The search field name (on the DL/I Call Profile Search Field List screen) is the XDFLD (NAME= parameter) in the physical or logical database for the name "target" segment.

3. Issue the standard MANTIS-DL/I CALL.

Assume the following secondary index structure:



The corresponding DBDGEN resembles the following example:

DBD generation for an HDAM database (choose a randomizing module and insert for RMNAME):

```
DBD NAME=DTA2,ACCESS=HDAM,RMNAME=nnnnnnnn
DATASET DD1 = DB,DEVICE=3350
SEGM    NAME = DA, etc.
FIELD
FIELD
SEGM    NAME = DB,PARENT=DA etc.
FIELD
FIELD
FIELD
SEGM    NAME = DC,PARENT=DA etc.
FIELD
FIELD
LCHILD  NAME = (X3A,X3),PTR=INDX
XDFLD   NAME = DCF2X,SRCH=DCF2
SEGM    NAME = DD,PARENT=DC
FIELD
SEGM    NAME = DE,PARENT=DC
FIELD
DBDGEN
FINISH
END
```

DBD generation for INDEX database X3:

```
DBD NAME=X3,ACCESS=INDEX
DATASET DD1=X3B,DEVICE=3350
SEGM    NAME=X3A,BYTES=50
FIELD   NAME=(X3AF1,SEQ),BYTES=50
LCHILD  NAME=(DC,DTA2),INDEX=DCF2X,PTR=SNGL
DBDGEN
FINISH
END
```

The corresponding Call profile appears as follows:



The Segment Layout Name on the DL/I Call Profile Layout screen should be for the segment "DC."

```
DLI009                                DL/I Call Profile Layout

-----DL/I Segments-----
      ACT      DLI Segment      Command Codes      (Qual)
        1          DC

(Use PF1 - PF15 to add search field information; use CANCEL to exit)
```

```
DLI011                                DL/I Call Profile Search Field List

DL/I segment name: DC

SSA Search List:
ACT  Search Field      MANTIS Name      Type  Sign  Lgth  Oper  Boolean
      |              |              |              |      |      |      |      Conn.
i 1   dcf2x           dcf2x           TEXT   5      EQ

( Use CANCEL to return to profile layout )
```


A

DL/I Access with Batch MANTIS

This appendix describes the considerations when accessing DL/I using Batch MANTIS. For general information on using Batch MANTIS, refer to *MANTIS Facilities, OS/390, VSE/ESA*, P39-5001.

DL/I considerations

To access DL/I files using Batch MANTIS, you must use different JCL statements. For batch DL/I (IMS/DB) you must execute the DL/I region controller 'DFSRRRC00' - IMS/DB or 'DLZRRC00' - DOS/DLI, using a parameter list containing the name of the program to be executed (MANTISB) and the name of a PSB to be used by Batch MANTIS. You need to code JCL statements for any DL/I databases referenced by the PSB.

Batch DL/I programs are allowed to reference only one PSB at a time. An input parameter of the PSB name is given in the JCL to be used during the run. Batch DL/I does not allow you to reference any other PSB during that run.

If any attempt is made to access a different PSB than the one specified in the JCL, Batch MANTIS returns a status of 'DPSB' (different PSB) in the status return field of the INTERFACE currently in use. This means that DL/I programs, using MANTIS under CICS, that use different PSBs within the same transaction do not run correctly under Batch MANTIS. Any online MANTIS DL/I transactions destined to run also in batch mode must reference only one PSB.

Sample Batch MANTIS job

On the following pages are MVS JCL and DOS JCL of a sample Batch MANTIS job using DL/I. Notes are provided explaining the additional JCL statements. For a complete description of how to execute a batch program using DL/I, refer to the IBM publication *IMS/VS System Programmer's Reference Manual for MVS*, or *DOS/VS Application Programming Call* for DOS.

The following is the OS JCL example. The circled numbers refer to notes following the example.

```
// JOBCARD
//BTCHMANT EXEC PGM=DFSRR00,PARM='DLI,MANTISB,psbname' ①
//STEPLIB DD DSN=IMSVS.RESLIB,DISP=SHR ②
//          DD DSN=MANTIS.LINKLIB,DISP=SHR)
//IMS      DD DSN=MANTIS.PSBLIB,DISP=SHR ③
//          DD DSN=MANTIS.DBDLIB,DISP=SHR
//DFSVSAMP DD * ④
4096,4
//IEFRDER DD DUMMY ⑤
//PRINTDD DD SYSOUT=*
//SETPRAY DD DSN=MANTIS.cluster,DISP=SHR
//xxxxKSDS DD DSN=DATABASE.KSDS,DISP=SHR ⑥
//xxxxESDS DD DSN=DATABASE.ESDS,DISP=SHR
//CSOT     DD DSN=TRANSFER.CLUSTER,DISP=SHR ⑦
//SYSPRINT DD SYSOUT=*,DCB=BLKSIZE=133 ⑧
//TERMINAL DD SYSOUT=*,DCB=BLKSIZE=133 ⑨
//PRINTER  DD SYSOUT=*,DCB=BLKSIZE=133 ⑨
//KEYBOARD DD * ⑨
.
.
/* ⑩
```

Notes

- ❶ The DL/I (IMS/VS) region controller, DFSRRC00, must be executed for DL/I functions. The first parameter must always be 'DLI'. The second parameter is the program to be executed in the DL/I region, in this case batch MANTIS (MANTISB). The third parameter must always be the name of the PSB referenced by the transaction using Batch MANTIS. Optional parameters may follow to control the batch DL/I environment. For more information, refer to DBBBATCH or DLIBATCH procedures in the *IMS/VS System Programmer's Reference Manual*, SH20-9027.
- ❷ DFSRRC00 normally resides in the IMS/VS resident library. The dataset name may be different at your installation.
- ❸ For DL/I functions, the appropriate PSB and DBD libraries must be referenced. These are concatenated under the name IMS.
- ❹ You must define the VSAM buffer pool(s) using the DDNAME DFSVAMP DD statement.
- ❺ The IEFORDER statement is required if logging is specified. however, if no database update is intended, it may be omitted.
- ❻ The DD names you specify when you define your DL/I databases must coincide with the DDNAME=parameter(s) you have coded within your DBDGEN.
- ❼ Optional.
- ❽ Keyboard statements.
- ❾ Simulated screen, printer, and keyboard, respectively.
- ❿ Enter special functions and data (TOTAL/VSAM/RDM, etc.)

The following is the DOS JCL example:

```
// UPSI 00000010
// DLBL SETPRAY,'MANTIS.CLUSTER',,VSAM
// DLBL CSOT,'TRANSFER.CLUSTER',,VSAM
// ASSGN SYS010,DISK,VOL=volume,SHR
// DLBL PARM,'parameter.input'
// EXTENT SYS010,volume,1,0,xxxx,xxxx
// ASSGN SYS011,DISK,VOL=volume,SHR
// DLBL PRINT,'printer.outputv
// EXTENT SYS011,volume,1,0,xxxx,xxxx
// ASSGN SYS012,SYSLST
// DLBL DBD1,'data.base.1'
// EXEC DLZRR00,SIZE=800K
DLI,MANTISB,psbname

.
. keyboard input
.
/*
```

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