CA IDMS - 19.0
Using IDMS Schema Mapper

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Using IDMS Schema Mapper

This section provides the information needed to run CA IDMS Schema Mapper. In addition, the many features that CA IDMS Schema Mapper offers are documented to assist you.

With CA IDMS Schema Mapper, you can automatically create data structure diagrams (graphic representations) of CA IDMS schemas and subschemas from data in the CA IDMS dictionary. You can let CA IDMS Schema Mapper MAPPER determine everything in the data structure diagram, from record block and set description formats to diagram layout, or you can define some or all of the diagram's format and layout using parameter statements. CA IDMS Schema Mapper gives you automatic diagram creation and flexibility.

- Schema Mapper General Information (see page 7)
- Schema Mapper Parameters (see page 19)
- Schema Mapper System Output (see page 59)
- Output Examples (see page 71)
- Schema Mapper Operations (see page 75)

Schema Mapper General Information

Powerful Layout and Format Capabilities

Creating data structure diagrams with CA IDMS Schema Mapper is a parameter-driven process that lets you use these powerful capabilities:

- **Automatic diagram layout and default format**--A well-planned automatic diagram layout and default format allow you to create data structure diagrams with a minimal amount of time and effort. To generate the automatic default diagram, you supply a single parameter statement.

- **User-defined format**--You can tailor the format of record blocks, sets, and indexes by using several parameter options. You can specify which fields are included, the order of the fields, and the line lengths.

- **User-defined diagram layout**--You can tailor the layout of your diagram with optional parameters. You can select areas to be represented by the diagram, specify the placement of a few or all of the record blocks in the diagram, and you can specify the amount of space between record blocks.

- **Your printer as a graphics tool**--You do not need a special printer to create data structure diagrams with CA IDMS Schema Mapper. The characters used to print the default diagram are supported by most printers. And if your printer does not have some of the default characters, CA IDMS Schema Mapper has a parameter statement that allows you to specify any of the characters used to draw the diagram. CA IDMS Schema Mapper provides for any character set that your printer might use.
- **Cross-Reference Report**—This report provides you with a useful tool for quickly finding the locations of all records, sets, and indexes in a large data structure diagram, and it also provides information on the definitions of records and sets.

- **Audit Report**—This report helps you monitor program execution and identify problems.

For more information, see the following topics:
- Create Data Structure Diagrams Automatically (see page 8)
- CA IDMS Schema Mapper's Inputs (see page 8)
- Schema Mapper Four Outputs (see page 10)

## Create Data Structure Diagrams Automatically

Data structure diagrams are invaluable to CA IDMS users who need clearly defined graphic representations of schema and subschema definitions. In fact, accurate pictures of a database’s structure are such powerful tools that programmers and DBAs refer to them every day.

Creating and maintaining data structure diagrams requires a lot of time. Every change to a database’s structure, however small, means tedious and detailed redrawing of many or all of the records and set connections. CA IDMS Schema Mapper is an easy-to-use software tool that eliminates the tedious drawing and redrawing usually associated with creating and maintaining data structure diagrams.

CA IDMS Schema Mapper automates the once time-consuming process of drawing data structure diagrams.

## CA IDMS Schema Mapper's Inputs

### Contents

- Parameter Statements (see page 8)
- CA IDMS Dictionary (see page 9)

CA IDMS Schema Mapper uses parameter statements and the CA IDMS dictionary as input. The CA IDMS/DB Analyzer Statistic File can also be used (see Exhibit 1.1).

### Parameter Statements

CA IDMS Schema Mapper has several parameter statements for creating and tailoring data structure diagrams. The PROCESS statement is required for CA IDMS Schema Mapper execution, the other statements are optional. You can combine the statements in a variety of ways to produce diagrams that meet your needs. The chart in Exhibit 1.2 summarizes each of the parameter statements.
CA IDMS Dictionary

CA IDMS Schema Mapper reads the definition of the schema or subschema you want to represent from the CA IDMS dictionary.

Exhibit 1.1: CA IDMS Schema Mapper Process

<table>
<thead>
<tr>
<th>Statement Required?</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCESS Yes</td>
<td>Identifies the schema or subschema to be represented by a data structure diagram.</td>
</tr>
<tr>
<td>OPTIONS No</td>
<td>With OPTIONS, you can specify page dimensions, the amount of border space surrounding record blocks, whether or not unused space is compressed from the diagram, and how indexes are drawn in the diagram.</td>
</tr>
<tr>
<td>CHARDEF No</td>
<td>Specifies options for fine-tuning the diagram. You can define which characters are used to draw record blocks, set connections, set turns, and arrows.</td>
</tr>
<tr>
<td>DRECLINE No</td>
<td>Specifies the textual format of record block descriptions in the data structure diagram.</td>
</tr>
<tr>
<td>XRECLINE No</td>
<td>Specifies the textual format of record blocks in the Cross-Reference Report.</td>
</tr>
</tbody>
</table>
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### Statement Required? Description

<table>
<thead>
<tr>
<th>Statement</th>
<th>Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSETLINE</td>
<td>No</td>
<td>Specifies the textual format of both sets and indexes in the data structure diagram.</td>
</tr>
<tr>
<td>XSETLINE</td>
<td>No</td>
<td>Specifies the textual format of both sets and indexes in the Cross-Reference Report.</td>
</tr>
<tr>
<td>INCLUDE</td>
<td>No</td>
<td>Identifies a specific area from the schema or subschema to be represented by a data structure diagram.</td>
</tr>
<tr>
<td>LOCATE</td>
<td>No</td>
<td>Positions record blocks in the diagram.</td>
</tr>
</tbody>
</table>

## Schema Mapper Four Outputs

CA IDMS Schema Mapper uses the input from parameter statements, the CA IDMS dictionary, and the CA IDMS/DB Analyzer Statistics File to give you four outputs: the data structure diagram, the Transfer File, the Cross-Reference Report, and the Audit Report.

- Automatic Layout and Format by Default (see page 10)
- Tailoring the Layout and Format (see page 11)
- Layout Parameters--Optional INCLUDE AREA Statement (see page 11)
- Optional LOCATE Statement (see page 11)
- Format Parameters--Optional Statements (see page 11)
- Wallpapering--Technique Used to Assemble a Data Structure Diagram (see page 12)
- How Large Will Your Diagrams Be? (see page 12)
- Transfer File (see page 14)
- Using the Transfer File (see page 14)
- Ways to Use the Transfer File (see page 15)
- Cross-Reference Report (see page 18)
- Tailoring the Cross-Reference Report with Optional Parameters (see page 19)
- Audit Report (see page 19)

### Automatic Layout and Format by Default

The data structure diagram that is generated with automatic layout and default formats is quite likely to meet all of your requirements, and it is very easy to generate.

To generate a diagram automatically and by default, you specify the name of the schema or subschema to be represented using the PROCESS statement, the rest is up to CA IDMS Schema Mapper. The normal information found in the CA IDMS dictionary and CA IDMS Schema Mapper's sophisticated record layout algorithms are used to draw the diagram.

CA IDMS Schema Mapper automatically places record blocks and indexes in the data structure diagram and draws set connections. Default format specifications identify the text to be included in record blocks, sets, and indexes, with the format for record blocks applying to the records as they...
appear in the data structure diagram. Default specifications are used to identify sets and indexes by number in the data structure diagram, so the specifications for their formats apply to their appearance in the Cross-Reference Report. By using optional parameter statements, you can include the set text in the data structure diagram and record text in the Cross-Reference Report.

**Tailoring the Layout and Format**

You may find that the automatic layout and default formats meet all of your needs. Yet, if you want to make changes, you can easily tailor the diagram by using optional parameter statements. Whether you need to make changes because your printer does not support certain characters specified by default, or because you do not like the overall appearance of the diagram—whatever the reason—CA IDMS Schema Mapper gives you many options for tailoring the diagram.

Tailoring is likely to be an iterative process. You will probably be tailoring to refine or update a previously created diagram, and you will invoke CA IDMS Schema Mapper several times to produce a finished data structure diagram. Whenever you make any kind of modification to the data structure diagram, you can plan it using the latest diagram printout as a "working copy".

With careful use of CA IDMS Schema Mapper’s parameter statements, you can quickly and easily create, modify, and maintain data structure diagrams that accurately reflect the current structure of your database’s schemas and subschemas.

**Layout Parameters--Optional INCLUDE AREA Statement**

The INCLUDE AREA statement lets you tailor the diagram to represent only those areas that you specify from the schema or subschema. This is helpful when you need a diagram for a particular application or when your original diagram is too large.

**Optional LOCATE Statement**

You can control almost any aspect of a diagram’s layout with the LOCATE statement. It allows you to place record blocks in locations relative to other record blocks in the diagram. See Schema Mapper Parameters (see page 19) for more information.

**Format Parameters--Optional Statements**

CA IDMS Schema Mapper has four parameter statements for tailoring the format of the diagram.

- **OPTIONS**--Used to specify the page dimensions (in number of lines down and number of characters across) of the diagram, the amount of border space surrounding record blocks, and whether or not unused space is compressed from the diagram.

- **CHARDEF**--Used to specify the graphic components of the diagram that are primarily printer-dependent. These components include characters used for drawing arrows, set connections, and record blocks.
DRECLINE--Used to select the information to be included in record blocks and to specify the sequence of the information within the record blocks, as they appear in the data structure diagram.

DSETLINE--Used to select and format the information to be included in the descriptions of both sets and indexes appearing in the data structure diagram.

Wallpapering--Technique Used to Assemble a Data Structure Diagram

Data structure diagrams are often large, so the printed output spans multiple pages. CA IDMS Schema Mapper automatically divides the overall diagram into pieces that are the size of your printer's paper, with each piece being the size of a page. You assemble the pages in columns down the length of the diagram and rows across the width of the diagram (see Exhibit 1.3).

The diagram is printed sequentially, one column of pages after another, beginning with the column that runs down the left side of the diagram (column A). CA IDMS Schema Mapper automatically generates column headers at the top of each column to help you find the beginning of the printout for each column.

A unique two-character (alphabetic) page identifier is also automatically printed in the upper right corner of each page: the first character identifies the page's column in the overall diagram, and the second character identifies its row in the overall diagram. The first page of the diagram (the top left corner) is in the first column and the first row and is identified by the characters AA.

To assemble the data structure diagram, sectionly burst the printout at the column boundaries (at the top of the column headers), align each column to form the horizontal rows, and tape the columns together. You can easily assemble the entire diagram in a few minutes. This process is called wallpapering because the diagrams are usually hung on a wall for viewing.

How Large Will Your Diagrams Be?

The size of the data structure diagram primarily depends on the size of the schema or subschema that is used for the diagram. Other factors that can affect the size of a diagram are:

- The configuration of the schema or subschema
- The size of each record block, as determined by the number, length, and organization of fields
- The border space around record blocks.

The size of CA IDMS Schema Mapper’s IDMSNWKA diagram may give you an idea of a diagram’s size. IDMSNWKA (the subschema for the CA IDMS database) is eight pages by eight pages (nine feet by seven feet, using 11" by 14" perforated paper). It has 151 records and 227 sets.

Also, a schema containing 45 records, 51 sets, and eight indexes constituted a CA IDMS Schema Mapper diagram that was four pages by three pages (four feet by three feet, depending on paper size). This diagram was produced using the default formats and allowing CA IDMS Schema Mapper to automatically layout the records.
The maximum size that an assembled CA IDMS Schema Mapper data structure diagram can be is 26 pages wide by 26 pages long. You probably won’t have any diagrams even close to this size.

If your diagrams of schemas seem too large, you can run CA IDMS Schema Mapper for areas or subschemas rather than schemas. Another option, which has good results in reducing the size of diagrams, is to photo-reduce the diagrams.
Transfer File

Every time you invoke CA IDMS Schema Mapper, it produces a Transfer File that reflects the layout and format of the corresponding data structure diagram. The Transfer File contains parameter statements copied from the previous input.

The Transfer File always contains a PROCESS statement that specifies the schema or subschema to be represented by a diagram. It also contains LOCATE statements for all of the record blocks in the data structure diagram. CA IDMS Schema Mapper writes LOCATEs to the Transfer File for all of the record blocks that you do not sectionally LOCATE. The Transfer File can also contain OPTIONS, CHARDEF, DRECLINE, XRECLINE, DSETLINE, XSETLINE, and INCLUDE statements, if they were specified in the previous input.

The PROCESS, OPTIONS, CHARDEF, DRECLINE, XRECLINE, DSETLINE, XSETLINE, and INCLUDE statements are exactly the same as the corresponding statements in the preceding input. They are transferred (or copied) to the Transfer File without being modified by CA IDMS Schema Mapper.

Using the Transfer File

Creating data structure diagrams with CA IDMS Schema Mapper can be either a one-step or a two-step procedure:

**Step 1**—Execute CA IDMS Schema Mapper, specifying the schema or subschema to be represented using the PROCESS statement. You can also use any of the optional statements.

As shown in Exhibit 1.4, Step 1 provides you with CA IDMS Schema Mapper’s four outputs: the data structure diagram, the Transfer File, the Cross-Reference Report, and the Audit Report. The Transfer File is created as a time-saving device for Step 2.

**Step 2**—Execute CA IDMS Schema Mapper again, making modifications to the input, if needed, by using the optional parameters. You can use the Transfer File as input whenever you execute the second step.

The second step can be iterative: you can repeat it as many times as necessary, depending on whether the preceding data structure diagram meets your needs. Exhibit 1.4 illustrates this process.
Ways to Use the Transfer File

You can use the Transfer File in several ways, as illustrated in Exhibits 1.5a thru 1.5f. You can use the Transfer File to:

- Generate a data structure diagram identical to the preceding one
- Include record blocks, which have been added to the schema or the subschema, in the diagram
- Include only specific areas from a schema or subschema in the diagram
- Modify the layout of the diagram by sectionally positioning a few or all of the record blocks in the diagram
Modify the format of the diagram by using any of the independent options that are available.

Modify the layout and the format of the diagram.

Exhibit 1.5a shows the first step for using the Transfer File; Exhibits 1.5b thru 1.5f show the second step for each different way you can use the Transfer File. The first step is always the same, and the second step can be iterative. The exhibits illustrate how easy it is to create and modify data structure diagrams when you use the Transfer File. All you do is specify the parameter statements (marked with arrows in Exhibit 1.5c thru 1.5f). CA IDMS Schema Mapper does the rest.

Note: Exhibits 1.5a thru 1.5f show how to use the data structure diagram and Transfer File produced with each execution of CA IDMS Schema Mapper. The Cross-Reference Report and Audit Report are also produced with each execution.

Ways to Use the Transfer File

Exhibit 1.5a: Step 1 for Using the Transfer File

Ways to Use the Transfer File (2)
Exhibit 1.5b: Using the Transfer File to Produce the Identical Diagram

Ways to Use the Transfer File (3)

Exhibit 1.5c: Using the Transfer File to Add Record Blocks to the Diagram

Ways to Use the Transfer File (4)

Exhibit 1.5d: Using the Transfer File to Modify the Layout of a Diagram
Cross-Reference Report

The third output is the Cross-Reference Report. It contains the descriptions of records, sets, and indexes and is useful for quickly finding individual record blocks, sets, and indexes in a CA IDMS Schema Mapper data structure diagram.

The Cross-Reference Report includes:

- The name and location of each record. The location identifies where the record block can be found on the diagram.
- The name, unique number, description (set and index fields), and location in the data structure diagram of each set and index.
The names and locations in the diagram of the OWNER and MEMBER records of each set.

Tailoring the Cross-Reference Report with Optional Parameters

The Cross-Reference Report can be tailored to add record descriptions and change the format of both the record and set descriptions. There are two optional parameters for tailoring your reports:

**XRECLINE**--Used to select the information to be included in record block descriptions and to specify the sequence of the information within the descriptions, as they appear in the Cross-Reference Report.

**XSETLINE**--Used to select and format the information to be included in the descriptions of both sets and indexes appearing in the Cross-Reference Report.

Audit Report

The fourth output, the Audit Report, contains:

- A summary of all processing performed
- All informative, warning, and error messages generated during program execution
- Suggested remedial actions when appropriate.

Informative messages report processing starts and stops and also provide a list of the parameters used. Warning messages report conflicting parameter data and indicate that CA IDMS Schema Mapper performed corrective actions to continue processing. Error messages report the conditions causing termination of diagram processing.

See the section "Messages" for the complete list and explanation of the messages generated by CA IDMS Schema Mapper.

When CA IDMS Schema Mapper encounters an error condition (generally syntactical), it immediately terminates diagram processing. It continues, however, scanning the parameter statements to detect any additional syntax errors. Because the Audit Report is your only output when CA IDMS Schema Mapper encounters an error, the Audit Report is an essential tool for identifying errors that impede diagram creation.

Schema Mapper Parameters

This section describes how to use CA IDMS Schema Mapper’s parameter statements. Except for the PROCESS statement, the parameter statements are optional. The optional parameters allow you to tailor the format and layout of the data structure diagram to meet your needs.

- Using CA IDMS Schema Mapper’s Parameters (see page 20)
- Notations Conventions and Syntax Rules (see page 22)
Using CA IDMS Schema Mapper's Parameters

The PROCESS statement is the only mandatory parameter statement. The other statements (OPTIONS, CHARDEF, DRECLINE, XRECLINE, DSETLINE, XSETLINE, INCLUDE AREA, and LOCATE) are optional. The optional statements are used when you want to modify the layout or the format of the data structure diagram produced by using a single PROCESS statement.

- PROCESS Statement (see page 21)
- OPTIONS Statement (see page 21)
- CHARDEF Statement (see page 21)
- DRECLINE Statement (see page 21)
- XRECLINE Statement (see page 21)
- DSETLINE Statement (see page 21)
- XSETLINE Statement (see page 21)
- INCLUDE AREA Statement (see page 22)
- LOCATE Statement (see page 22)

Creating data structure diagrams with CA IDMS Schema Mapper can be either a one-step or a two-step procedure. It is quite likely that you will be satisfied with the diagram created automatically, and you will follow only the first step.

**Step 1**--Use one PROCESS statement (mandatory) to create a diagram with automatic layout and default format.

**Step 2**--Assess the diagram and then make desired changes by using one or more of the optional parameter statements.

When you execute CA IDMS Schema Mapper, one of its outputs is a Transfer File that contains parameter statements. You can use this file as input to recreate a diagram. You can also modify the parameter statements in the Transfer File to tailor or revise a diagram. Exhibit 2.3 lists all of CA IDMS Schema Mapper’s parameters.
PROCESS Statement

PROCESS is the only parameter statement needed to execute CA IDMS Schema Mapper. Enter PROCESS, specify the schema or subschema to be represented by the diagram, and CA IDMS Schema Mapper automatically creates a data structure diagram.

OPTIONS Statement

With the OPTIONS statement, you can include Index Set records in the diagram and change the way indexes are drawn. OPTIONS also controls the dimensions of a page (in number of lines down and characters across) in the data structure diagram, the amount of border space surrounding record blocks, and whether or not unused space is compressed from the diagram.

CHARDEF Statement

With the CHARDEF statement, you can define which characters are to be used to draw record blocks, set connections, set turns, and arrows in the data structure diagram.

DRECLINE Statement

With the DRECLINE statement, you can specify which record fields to include in the data structure diagram record block. A predefined list of record-related fields is included in this section of the user section.

XRECLINE Statement

With the XRECLINE statement, you can control which record fields to include in the Cross-Reference Report. A predefined list of record-related fields is included in this section of the user section.

DSETLINE Statement

With the DSETLINE statement, you control the global format of the text that describes the set in the data structure diagram. A predefined list of set-related fields is included in this section of the user section.

XSETLINE Statement

With XSETLINE, you can determine the global format of the text that describes the set in the Cross-Reference Report. A predefined list of set-related fields is included in this section of the user section.
INCLUDE AREA Statement

With the INCLUDE AREA statement, you can select specific areas from the schema or subschema to be represented by the diagram. When you use the INCLUDE AREA statement to specify an area, only the area or areas you select will be represented by the diagram.

LOCATE Statement

With the LOCATE statement, you can position an individual record block relative to another record block in the diagram. When you sectionly LOCATE record blocks, CA IDMS Schema Mapper will automatically position in the diagram any record blocks that you do not sectionly LOCATE.

Notations Conventions and Syntax Rules

Be sure to review Exhibit 2.1 for notation conventions and Exhibit 2.2 for parameter syntax rules. Also, review the "Glossary" for the meanings of terms used in this section.

<table>
<thead>
<tr>
<th>Example</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROCESS</td>
<td>Keywords appear in UPPERCASE. The minimum required portion of each keyword is UNDERSCORED. If a portion of or an entire keyword is not underscored, you can omit that portion or that keyword.</td>
</tr>
<tr>
<td>SUBSCHEM A=name</td>
<td>Variables appear in lowercase italics. You must substitute an appropriate value for each variable.</td>
</tr>
<tr>
<td>\PROCESS = \ &lt; SCHEMA &gt; \ \ SUBSCHEM A / \ ,field name ...</td>
<td>Brackets indicate optional clauses. Braces enclose two or more options. You must select one of them. An ellipsis indicates that a variable number of field names can be specified, separated by commas.</td>
</tr>
</tbody>
</table>

Exhibit 2.1: Notation Conventions

<table>
<thead>
<tr>
<th>Item</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order of Parameter Statement</td>
<td>CA IDMS Schema Mapper executes parameter statements in the order they are supplied. Only the PROCESS statement is mandatory. Enter the parameter statements in this sequence: PROCESS--This mandatory statement must be the first statement entered. OPTIONS--If you want to use OPTIONS parameters enter this statement second. CHARDEF statements follow the OPTIONS statement to control the graphic components</td>
</tr>
</tbody>
</table>
of the data structure diagram.
If DRECLINE and XRECLINE statements are both used, DRECLINE statements must precede
XRECLINE statements.
If DSETLINE and XSETLINE statements are both used, DSETLINE statements must precede
XSETLINE statements.
INCLUDE statements follow OPTIONS, CHARDEF, DRECLINE, XRECLINE, DSETLINE, and
XSETLINE statements and precede all LOCATE statements.
LOCATE statements are entered last.

Continuing a parameter statement onto the next record, key in a trailing comma. Do not
split a keyword phrase between two records. LOCATE statements must be self-contained
in individual records.

Entering blanks in a parameter statement without affecting processing. Do not, however, embed blanks
within a keyword or value field.

Entering On an 80-character input record, you must enter all parameter syntax between positions
Parameter 1 and 72, inclusive.

Comment Enter a dollar sign ($) or an asterisk (*) before a comment, in column 1, to indicate that
you want the command copied to the resulting Transfer File. Enter three dollar signs or
three asterisks in columns 1-3 to indicate a comment that you do not want copied to the
Transfer File (to be discarded by CA IDMS Schema Mapper).

Exhibit 2.2: Parameter Syntax Rules

/ SCHEMA \\ [,SCHEMA=name] [,DICTNAME=name] [,COMPNAME=name] [,DCOMNAME=name] \
PROCESS Statement 6

Contents

- PROCESS Syntax (see page 24)

A single PROCESS statement is mandatory for each execution of CA IDMS Schema Mapper. This statement directs CA IDMS Schema Mapper to process a data structure diagram for either a schema or subschema or produce a list of the schemas and subschemas within a dictionary.

To create a data structure diagram with automatic layout and the default format, enter a single PROCESS statement. PROCESS must be the first statement entered.

PROCESS Syntax

```
/SHEMA \ [,SHEMA=name] [,DICTNAME=name] [,COMPNAME=name] [,DCOMNAME=name] PROCESS=
< SUBSCHEMA > [,VERSION=number] [,COMPNAME=name] [,DCOMNAME=name] \ LIST
/ [,SUBSCHEMA=name] [,DICTNODE=name] [,COMPNAME=name] [,DCOMNAME=name]
```

where:

```
/SHEMA \PROCESS= < SUBSCHEMA > \ LIST /
```

Indicates that you want to execute CA IDMS Schema Mapper. Select SCHEMA to create a data structure diagram for a specific schema. Select SUBSCHEMA to create a data structure diagram for a specific subschema. Select LIST to obtain a listing of all schemas and subschemas in a specified dictionary.

```
[,SHEMA=name]
```

Specifies the name of the schema to be diagrammed (when PROCESS=SCHEMA) or, when PROCESS=SUBSCHEMA, the schema under which the subschema exists. This parameter is always required to create a data structure diagram.

Default: There is no default. You must supply a valid schema name.
[,\textit{VERSION}=number]

Specifies the version number of the schema. A version number is required when you do not want to use the highest-numbered version.

Default: When \texttt{PROCESS=SCHEMA}, the default is the highest version number available for the schema you select. When \texttt{PROCESS=SUBSCHEMA}, the default is the highest-numbered schema version for the subschema you select.

In the following example, the dictionary contains:

\textbf{Schema SMSCHM version 3}: No subschemas

\textbf{Schema SMSCHM version 2}: Subschema SMSUBS

\textbf{Schema SMSCHM version 1}: Subschema SMSUBS

When \texttt{PROCESS=SCHEMA,SCHEMA=SMSCHM}, CA IDMS Schema Mapper uses version 3.

When \texttt{PROCESS=SUBSCHEMA,SCHEMA=SMSCHM, SUBSCHEMA=SMSUBS}, CA IDMS Schema Mapper uses version 2.

[,\textit{SUBSCHEMA}=name]

Specifies the name of the subschema to be diagrammed. Supplying a subschema name is necessary only when \texttt{PROCESS=SUBSCHEMA} or the schema contains indexes.

Default: There is no default. You must supply a valid subschema name when the schema contains indexes or \texttt{PROCESS=SUBSCHEMA}.

[,\textit{DICTNAME}=name]

Specifies the name of the dictionary that contains the schema or subschema information. Supplying a dictionary name is necessary only if multiple dictionaries exist in your environment.

Default: CA IDMS Schema Mapper uses a standard BIND RUN-UNIT. Therefore, CA IDMS binds to the default dictionary defined by your installation.

[,\textit{DICTNODE}=name]

Specifies the name of the dictionary node that you want CA IDMS Schema Mapper to access. Specifying \textit{DICTNODE} is necessary only when multiple nodes exist in your environment.

Default: CA IDMS binds to the default node defined for your installation.

[,\textit{COMPNAME}=name]

Specifies the name of the compression db procedure that you want CA IDMS Schema Mapper to access. You can use wildcards at the start of the name. For example, \textit{****COMP}.

Default: CA IDMS will choose IDMSCOMP if no \textit{COMPNAME} is specified.

[,\textit{DCOMNAME}=name]

Specifies the name of the decompression db procedure that you want CA IDMS Schema Mapper to access. You can use wildcards at the start of the name. For example, \textit{****COMP}.
The OPTIONS Statement

The OPTIONS statement allows you to make changes to the layout of the diagram. You can globally specify how indexes are drawn and how much border space is to separate record blocks. You can also change the length and the width of the printed page to match your printer’s requirements.

- OPTIONS Syntax (see page 26)
- Specifying the Positions of Index (see page 26)
- Changing Page Dimensions for Paper Size and Printer Flexibility (see page 27)
- Defining Border Space Between Record Blocks (see page 27)
- Compressing Unused Space in the Data Structure Diagram (see page 28)
- Set Linkage with Areas not Represented in Diagram (see page 28)

OPTIONS Syntax

```
OPTIONS [,IXCORNER= < 2 > ] \ 4 / [,DPAGELEN=number] [,DPAGEWID=number]
[,]DPEJECT= < ON >] [,BORDER=number] \ OFF / [,COMPRESS= < ON >] [,LINKAGE= < XREF
> ] \ OFF / \ SUPPRESS /
```

where:

OPTIONS

indicates that OPTIONS parameters will be entered. You can enter OPTIONS parameters in any order because each parameter is independent. You can use any or all of the OPTIONS parameters.

⚠️ Note: Remember to key in a comma between the word OPTIONS and the first parameter. If you omit the comma, CA IDMS Schema Mapper generates an error message.

Specifying the Positions of Index

```
[,IXCORNER= < 2 > ] \ 4 /
```

(index corner) allows you to control how indexes are drawn in the diagram. An index is represented by a diagonal line that projects from a corner of a record block. Where and how you decide to have indexes drawn is an aesthetic decision.

Default: The default is 2 (opposite diagonal sequence).
Changing Page Dimensions for Paper Size and Printer Flexibility

`[ DPAGELN=number ]`

(diagram page length) allows you to specify the length of each page in the data structure diagram, in number of lines. DPAGELN affects only the printing of the diagram; it has no effect on the page length of the Cross-Reference Report or the Audit Report.

This parameter makes CA IDMS Schema Mapper adaptable to various paper sizes and printers by allowing you to change how many lines are printed per page. If you supply a new page length value, it must be an integer between 33 and 132, inclusive.

Default: The default page length is 66 lines.

`[ DPAGEWID=number ]`

(diagram page width) allows you to specify the width of each page in the data structure diagram, in number of characters. DPAGEWID affects the printing of only the diagram; it has no effect on the page width of the Cross-Reference Report or the Audit Report.

This parameter makes CA IDMS Schema Mapper adaptable to a broad range of paper sizes and printers by allowing you to change the number of characters printed across a page. If you supply a new page width value, it must be an integer between 33 and 132, inclusive.

Default: The default page width is 132 characters.

`[ DPEJECT= < ON > ] \ OFF /`

(diagram page eject) allows CA IDMS Schema Mapper to issue a page eject after each page in the diagram file when DPEJECT=ON. When DPEJECT=OFF no page eject is issued. DPEJECT affects only the printing of the diagram; it has no effect on the Cross-Reference Report or the Audit Report. ON makes CA IDMS Schema Mapper adaptable to use with some laser printers.

Default: The default value is OFF.

⚠️ **Note:** DPAGELN, DPAGEWID, and DPEJECT parameter keywords cannot be abbreviated.

Defining Border Space Between Record Blocks

`[ BORDER=number ]`

globally specifies the number of character spaces around the perimeter of each record block. The minimum border is two character spaces. You cannot specify a border of 0 or 1. A border of 2 means there are at least four character spaces between any two record blocks. A two-character border ensures that CA IDMS Schema Mapper has enough room to draw arrows and at least a one-character set connection line.
The maximum border allowed between record blocks is 50 character spaces. A border of 50 means there are at least 100 character spaces between any two record blocks.

Default: The default is 2. This means at least four character spaces always separate a given record block from another record block in the diagram.

Compressing Unused Space in the Data Structure Diagram

\[,\text{COMPRESS}=<\text{ON}>\]/ \ OFF \\

specifies whether or not you want CA IDMS Schema Mapper to remove unused space (created by LOCATE statements) between record blocks in the diagram.

This parameter is valuable when you are using LOCATE statements and executing CA IDMS Schema Mapper iteratively to modify the layout of a diagram. With this parameter, you can wait until a diagram nears completion to compress it.

When COMPRESS=ON, CA IDMS Schema Mapper compresses the diagram, eliminating unused space, after all record blocks have been positioned in the diagram.

Default: The default value is ON.

Set Linkage with Areas not Represented in Diagram

\[,\text{LINKAGE}=<\text{XREF}>\]/ \ SUPPRESS \\

specifies whether or not you want a listing in the Cross-Reference Report (XREF) of sets whose owners and members exist outside of an area specified by the INCLUDE AREA statement. When the INCLUDE AREA statement is used, the area represented in the diagram will contain only those sets that have both owners and members in the area. To prevent the listing from appearing on the Cross-Reference Report, you must use the SUPPRESS option with this parameter.

Default: XREF is the default.

CHARDEF Statement 1

Contents
- CHARDEF Syntax (see page 29)
- Specifying Print Characters Used to Draw Record Blocks (see page 29)
- Specifying Print Characters Used to Draw Set Connections (see page 30)
- Specifying Print Characters Used to Draw Arrows (see page 31)
- Specifying Print Characters Used to Draw Index Lines (see page 31)

CHARDEF is an optional statement with many parameters for tailoring the data structure diagram. If your printer’s character set does not include characters that are specified by default, use the CHARDEF statement to substitute print characters that are available to draw the diagram.
For example, in the default format, all arrows pointing to the left are drawn with a less-than sign ( < ). If this character is not available, you can use the LARROW (left arrow) parameter to specify a character to take its place. You can also change the print characters to achieve a different graphic effect.

**CHARDEF Syntax**

```
CHARDEF [ ,RVERCHAR=character] [ ,RHORCHAR=character] [ ,RLCHAR=character] [ ,RRCHAR=character] [ ,RURCHAR=character] [ ,RURROW=character] [ ,RLRCHAR=character] [ ,BKYCHAR=character] [ ,LARROW=character] [ ,ARRROW=character] [ ,URROW=character] [ ,DIRROW=character] [ ,IBACKCHAR=character] [ ,ISLCHAR=character]
```

where:

- **CHARDEF** indicates that CHARDEF parameters will be entered. You can enter CHARDEF parameters in any order because each parameter is independent. You can use any or all of the CHARDEF parameters.

**Note:** Remember to key in a comma between the word CHARDEF and the first parameter. If you omit the comma, CA IDMS Schema Mapper generates an error message.

Do not use a blank space for a character value in the CHARDEF statement. CA IDMS Schema Mapper ignores the blank and uses the default.

**Specifying Print Characters Used to Draw Record Blocks**

```
[ ,RVERCHAR=character]
```

(record vertical character) indicates the character used to draw the vertical lines that make up the left and right sides of the record block.

Default: The default is an asterisk (*).

```
[ ,RHORCHAR=character]
```

(record horizontal character) indicates the character used to draw the horizontal lines that make up the top and bottom of the record block.

Default: The default is an asterisk (*).

```
[ ,RLCHAR=character]
```

(record upper left character) indicates the character used to draw the upper left corner of the record block.

Default: The default is RHORCHAR. The RHORCHAR default is an asterisk (*).
(record lower left character) indicates the character used to draw the lower left corner of the record block.

Default: The default is RHORCHAR. The RHORCHAR default is an asterisk (*).

[,RHORCHAR=character]

(record upper right character) indicates the character used to draw the upper right corner of the record block.

Default: The default is RHORCHAR. The RHORCHAR default is an asterisk (*).

[,RLRCHAR=character]

(record lower right character) indicates the character used to draw the lower right corner of the record block.

Default: The default is RHORCHAR. The RHORCHAR default is an asterisk (*).

[,RURCHAR=character]

Specifying Print Characters Used to Draw Set Connections

[,SVERCHAR=character]

(set vertical character) indicates the character used to draw the vertical lines that show set connections.

Default: The default is an uppercase letter I.

[,SHORCHAR=character]

(set horizontal character) indicates the character used to draw the horizontal lines that show set connections.

Default: The default is a hyphen (-).

[,SULCHAR=character]

(set upper left character) indicates the character used to draw an upper left turn in a set connection.

Default: The default is SHORCHAR. The SHORCHAR default is a hyphen (-).

[,SLLCHAR=character]

(set lower left character) indicates the character used to draw a lower left turn in a set connection.

Default: The default is SHORCHAR. The SHORCHAR default is a hyphen (-).

[,SURCHAR=character]

(set upper right character) indicates the character used to draw an upper right turn in a set connection.

Default: The default is SHORCHAR. The SHORCHAR default is a hyphen (-).

[,SLRCHAR=character]
(set lower right character) indicates the character used to draw a lower right turn in a set connection.

Default: The default is SHORCHAR. The SHORCHAR default is a hyphen (-).

\[ , \text{BRKCHAR}=\text{character} \]

(bracket character) indicates the character used to enclose or bracket a set number in a set connection. A bracketed set number is easier to read, especially when the set number contains the number 1 and is part of a vertical set connection line.

Default: The default is the number symbol (#).

**Specifying Print Characters Used to Draw Arrows**

\[ , \text{LARROW}=\text{character} \]

(left arrow) indicates the character used to print the left arrows that show set relationships. If the default character is not available, the most likely graphic substitute is an uppercase letter C. You can, however, use any other character as a substitute.

Default: The default is a less-than sign ( < ).

\[ , \text{RARROW}=\text{character} \]

(right arrow) indicates the character used to print the right arrows that show set relationships. If the default character is not available, the most likely graphic substitute is an uppercase letter D. You can, however, use any other character as a substitute.

Default: The default is a greater-than sign ( > ).

\[ , \text{UARROW}=\text{character} \]

(up arrow) indicates the character used to print a set connection arrow pointing up toward another record block.

Default: The default is an uppercase letter A.

\[ , \text{DARROW}=\text{character} \]

(down arrow) indicates the character used to print a set connection arrow pointing down toward another record block.

Default: The default is an uppercase letter V.

**Specifying Print Characters Used to Draw Index Lines**

\[ , \text{ISLCHAR}=\text{character} \]

(index slash character) indicates the character used to draw indexes that project diagonally from the upper right corners and lower left corners of record blocks.

Default: The default is a slash (/).

\[ , \text{IBACKCHAR}=\text{character} \]
DRECLINE (diagram record line) allows you to globally specify the format (text) of the record block in the data structure diagram. The format of a record block is defined as one or more lines containing one or more record definition field names.

The format of the record block in the data structure diagram is controlled by default unless you use the DRECLINE statement. Exhibit 2.4 shows an example of a record block in the four line default format.

Exhibit 2.5 at the end of this section, lists all possible field names that you can enter in a DRECLINE statement, including the CA IDMS/DB Analyzer statistics field names and their descriptions.

⚠️ **Note:** DRECLINE is a global parameter statement. Once specified, it modifies every record block in the data structure diagram. For compatibility with earlier versions of CA IDMS Schema Mapper, any RECLINE statements in the input file are treated as DRECLINE statements, and CA IDMS Schema Mapper issues a warning message.
DRECLINE Statement

Exhibit 2.4: Default Record Block with Field Names in a Four Line Format

DRECLINE Syntax

[DRECLINE field name,field name...]

where:

field name,field name... -- indicates the field name (or sequence of field names) to be included in the record block in the diagram. When two or more field names are used per line, they must be separated by commas. See Exhibit 2.5 for a list of field names.

Rules:

- DRECLINE statements must follow PROCESS, OPTIONS and CHARDEF statements and must precede XRECLINE, DSETLINE, XSETLINE, INCLUDE AREA, and LOCATE statements.
- The maximum number of characters allowed for each line of a record block is 120.
- Enter DRECLINE field names in the order in which you want them to appear in the record block. Separate field names by a comma.
- You cannot use a field name more than once (except for BLANK, LABEL, or LOC-CTRL with unique subscripts).
- One DRECLINE statement cancels all record definition (text) defaults. When you use DRECLINE, you must specify the entire record block format in the data structure diagram from scratch.

Default: Exhibit 2.4 describes the default, if no DRECLINE statement is specified.
How to Use the DRECLINE Statement

A record block is made up of one or more lines of text that contain one or more fields. When you want to globally redefine the format of the record block in the data structure diagram, write one DRECLINE statement for each line of data in the record block. List the field names in the order in which you want the fields to appear in the record blocks.

Graphic Considerations

The size and the shape of the record block affects the overall appearance of the diagram. When you use DRECLINE to redesign the record block, be aware that the size and the shape of the record block affects the overall appearance of the diagram. For example, if you enter all field names in one DRECLINE statement, the resulting record block is long and thin and probably unacceptable. Keep in mind that the width of the default record block is 32 characters.

CA IDMS Schema Mapper adjusts record block size to accommodate the longest line. You can place any number of field names on a line. CA IDMS Schema Mapper adjusts the width of the record block to accommodate the longest line. However, a maximum of 120 characters can be entered per line.

CA IDMS Schema Mapper centers field values within the number of character spaces for that field. In addition to centering field values within the number of character spaces for that field, CA IDMS Schema Mapper centers fields across a line, based on the total character length for the longest line in the record block.

Creating Blank Fields and Blank Lines In Record Blocks

You can insert blank fields and blank lines in the record block to make room for handwritten notes or for graphic appeal.

To Create A Blank Field Inside A Record Block:

Enter BLANK nn as a field name, where nn specifies the blank field length in character spaces. The value nn must be an integer between 1 and 32, inclusive. A group of DRECLINE statements may contain a maximum of 20 BLANK fields.

To Create A Blank Line Inside A Record Block:

Use DRECLINE by itself (without a field name). The length of the blank line will match the length of the longest line in the record block.

Placement of Multiple CALC Keys

You can use an optional subscript with the LOC-CTRL field to specify placement of multiple CALC key names within the record block in the data structure diagram. The syntax is:

LOC-CTRL(ss)
where \( ss \) may be an integer from 1 to 256 or the capital letter N.

When you use an integer from 1 to 256, you are explicitly placing the CALC keys you want to see at the positions you specify. For example, LOC-CTRL(1) will position the first CALC key found in the dictionary for each record type. LOC-CTRL(2) will position the second CALC key, etc. If you use LOC-CTRL without a subscript, it is equivalent to LOC-CTRL(1).

When you use only the letter N, CA IDMS Schema Mapper will place all CALC keys in the record block in the diagram beginning at the position indicated by LOC-CTRL(N). The first CALC key will appear at that position followed by the remaining CALC keys one per line.

You can choose to explicitly place one or more CALC keys and have CA IDMS Schema Mapper implicitly place the remaining ones. Any CALC keys that have not been positioned by an explicit subscript will appear one per line, starting with the position indicated by LOC-CTRL(N). See "Sample DRECLINE Statements and Resulting Record Blocks," below.

When you do not use LOC-CTRL(N) and there are more CALC keys than you have explicitly positioned, the additional CALC keys will not appear in the record block. An informative message will appear in the Audit Report to let you know this has happened. For example, if one of your record types has five CALC keys, but you only use LOC-CTRL(1), LOC-CTRL(2), and LOC-CTRL(3) in your DRECLINE statements, then the fourth and fifth CALC keys will not appear in the record block in the data structure diagram.

Also, LOC-CTRL(N) affects only CALC keys that follow the highest explicit position. If any lower subscripts are omitted from the DRECLINE statements, the corresponding CALC keys will not appear in the diagram. For example, if a record has seven CALC keys and the DRECLINE statements use LOC-CTRL(1), LOC-CTRL(4), and LOC-CTRL(N), then LOC-CTRL(N) positions CALC keys 5, 6, and 7 only. CALC keys 2 and 3 will not appear in the diagram. Any CALC key that does not appear in the diagram, for any reason, will be listed in the Audit Report with an informative message.

CA IDMS Schema Mapper makes all record blocks the same size (remember, DRECLINE is a global parameter). Therefore, if only one of your record types contains multiple CALC keys and you want all the keys for that record type to appear in the record block, then every record block in the diagram will contain space for multiple CALC keys. This is true even if a particular record type does not have a location mode of CALC.

By default, CA IDMS Schema Mapper uses LOC-CTRL(N). Therefore, all default record blocks contain space for all CALC keys.

Sample DRECLINE Statements and Resulting Record Blocks

**To Create A Three-Line Record Block:**

To create a three-line record block that has the record name on line 1, the area and location mode on line 2, and the record size and description on line 3, use these statements:

```
DRECLINE REC-NAME
DRECLINE AREA, LOC-MODE
DRECLINE LENGTH, REC-DESC
```

A resulting record block looks like this:
To Create A Six-Line Record Block:

To create a six-line record block that has the record name on line 1, a blank second line, the area, location mode, and record size on line 3, the description on line 4, the duplicates option on line 5, and the location control on line 6, use these statements:

DRECLINE REC-NAME
DRECLINE
DRECLINE AREA,LOC-MODE,LENGTH
DRECLINE REC-DESC
DRECLINE DUPS-OPT
DRECLINE LOC-CTRL

Here is a resulting record block:

*************************************************
* SPORTS                                            *
*                                                 *
* STUDENT-REGION CALC 32 *
* NON-COMPETITIVE AND COMPETITIVE SPORTS *
* DN                                              *
* SPORT-NAME                                        *
*************************************************

To Create Blank Fields or Blank Lines for Handwritten Notes or Graphic Appeal:

A record block with a blank second line and a blank, 10-character field in line 3 is specified like this:

DRECLINE REC-NAME
DRECLINE
DRECLINE AREA,BLANK 10,LOC-MODE
DRECLINE LENGTH,REC-DESC

Note: You must put a space between the word BLANK and the blank field length. Leaving out the space results in an error message.

Here is a record block with the above format:

*************************************************
* SPORTS                                            *
*                                                 *
* STUDENT-REGION CALC 32 *
* DN                                              *
* SPORT-NAME                                        *
*************************************************

To Combine Explicit and Implicit Placement of CALC Keys:

A record block with the first CALC key on the second line and additional CALC keys on the last lines is specified like this:
Here is a resulting record block:

```
*************************************
* STUDENT                        CALC *
* STUD-ID                        *
* STUDENT-REGION                 *
* STUD-LEVEL                     *
* STUD-PA                        *
* STUD-MA                        *
*************************************
```

Use of LOC-CTRL(N) always reserves a position in the record block, even when there are not enough CALC keys to actually need it.

**Field Names for the DRECLINE and XRECLINE Statements**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Size (chars)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>REC-NAME (record name)</td>
<td>16</td>
<td>The name of the record type.</td>
</tr>
<tr>
<td>LOC-MODE</td>
<td>6</td>
<td>How records of this type are physically located in their areas: CALC, VIA, or DIRECT</td>
</tr>
<tr>
<td>AREA</td>
<td>16</td>
<td>The name of the area in which the record type is located.</td>
</tr>
<tr>
<td>LENG TH (record size)</td>
<td>6</td>
<td>The actual data length of the record (if fixed length) or the maximum data length of the record (if variable length), in bytes. If the value obtained from the dictionary is less than 1, CA IDMS Schema Mapper uses a value of 1 in the record block. This happens, for example, when a schema record is defined without any elements and is consistent with the value reported by IDMSRPTS or RECDES.</td>
</tr>
<tr>
<td>LENG TH-MODE</td>
<td>2</td>
<td>The four record modes: F (fixed), V (variable), FC (fixed compressed), or VC (variable compressed).</td>
</tr>
<tr>
<td>DUPS-OPT (Duplicates Option)</td>
<td>2</td>
<td>For CALC records, the disposition of records with duplicate control keys: DN (duplicates not allowed), DF (duplicates first), or DL (duplicates last). This field is blank for non-CALC records.</td>
</tr>
<tr>
<td>REC-DESC (Record Description)</td>
<td>40</td>
<td>The record description field from the dictionary. Provides an alternate (and more descriptive) record name.</td>
</tr>
<tr>
<td>Field Name</td>
<td>Size</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>LOC-CTRL</td>
<td>32</td>
<td>CALC key name or VIA set name. This is always DIRECT-DBK for DIRECT records.</td>
</tr>
<tr>
<td>REC-ID</td>
<td>4</td>
<td>Unique identification number of record type.</td>
</tr>
<tr>
<td>BLANK</td>
<td>nn</td>
<td>Name used to specify a blank field.</td>
</tr>
<tr>
<td>UN-NUM-OCC</td>
<td>14</td>
<td>The total number of record occurrences for this record type.</td>
</tr>
<tr>
<td>UN-OCC-LEN-CAVG</td>
<td>17</td>
<td>The average compress occurrence length for this record type.</td>
</tr>
<tr>
<td>UN-OCC-LEN-CMAX</td>
<td>14</td>
<td>The maximum compress occurrence length for this record type.</td>
</tr>
<tr>
<td>UN-OCC-LEN-CMIN</td>
<td>14</td>
<td>The minimum compress occurrence length for this record type.</td>
</tr>
<tr>
<td>UN-OCC-LEN-DAVG</td>
<td>17</td>
<td>The average decompress occurrence length for this record type.</td>
</tr>
<tr>
<td>UN-OCC-LEN-DMAX</td>
<td>14</td>
<td>The maximum decompress occurrence length for this record type.</td>
</tr>
<tr>
<td>UN-OCC-LEN-DMIN</td>
<td>14</td>
<td>The minimum decompress occurrence length for this record type.</td>
</tr>
<tr>
<td>LABEL</td>
<td>nn 'any string'</td>
<td>Used to put labels in a record description.</td>
</tr>
</tbody>
</table>
XRECLINE Statements

XRECLINE (cross-reference record line) allows you to include and format record block information on the Cross-Reference Report. The record description on the report contains the same information as a record block in the data structure diagram. If you do not use the XRECLINE statement, CA IDMS Schema Mapper provides only the record name and location in the Cross-Reference Report. The reports in Exhibit 2.6 show a record description before and after the addition of XRECLINE statements.

- XRECLINE Syntax (see page 39)
- How to Use the XRECLINE Statement (see page 41)
- Creating Blank Fields and Blank Lines In Record Descriptions (see page 41)
- Graphic Considerations (see page 41)
- Placement of Multiple CALC Keys (see page 42)
- Sample XRECLINE Statements and Resulting Record Descriptions (see page 42)

The XRECLINE statement defines the format of the record description line by line, listing the field names, blank fields, labels, and blank lines to be included in the record description. See Exhibit 3. Exhibit 2.5 of all possible field names that you can enter in an XRECLINE statement.

⚠️ **Note:** XRECLINE is a global parameter statement. Once specified, it modifies every record description in the Cross-Reference Report.

### XRECLINE Syntax

```
[XRECLINE field name,field name...]
```

where:

`field name,field name...` -- indicates the field name (or sequence of field names) to be included in the record description in the Cross-Reference Report.

Rules:
- XRECLINE statements must follow PROCESS, OPTIONS, CHARDEF, and DRECLINE statements and must precede DSETLINE, XSETLINE, INCLUDE AREA, and LOCATE statements.

- The maximum number of characters allowed for each line of a record description is 120.

- Enter XRECLINE field names in the order in which you want them to appear in the Cross-Reference Report. Separate field names by a comma.

- You cannot use a field name more than once (except for BLANK, LABEL, and LOC-CTRL with unique subscripts).

Default: The default XRECLINE value is XRECLINE REC-NAM.
DEPT
DEPT-REGION CALC 52
DN
DEPT-NAME DREPORT
DREPORT 39, 12 / AA
STUDENT-REGION VIA 68
STUDENT-REPORTS

Exhibit 2.6: Sample Cross-Reference Reports Before and After Using XRECLINE Statement

How to Use the XRECLINE Statement

A record description is made up of one or more lines of text that contain one or more fields. When you want to globally redefine the format of the record description in the Cross-Reference Report, write one XRECLINE statement for each line of data in the record description.

From Exhibit 2.5, select the field names you want to include in the record description. Enter these field names in the XRECLINE statement in the order in which you want them to appear on the Cross-Reference Report.

Creating Blank Fields and Blank Lines In Record Descriptions

You can insert blank fields and blank lines in the record description for readability and to make room for handwritten notes.

To Create A Blank Field:

Enter BLANK nn as a field name, where nn specifies the length of the blank field in character spaces. The value nn must be an integer between 1 and 32, inclusive. A group of XRECLINE statements may contain a maximum of 20 BLANK fields.

To Create A Blank Line:

Use XRECLINE by itself (without a field name). The length of the blank line matches the length of the longest line in the record description.

Graphic Considerations

CA IDMS Schema Mapper adjusts the record description size to accommodate the longest line. It is possible to place all available record descriptions on one line; CA IDMS Schema Mapper adjusts the size of the record field to accommodate the line. A maximum of 120 characters can be entered per line.

All record text in the Cross-Reference Report is left justified, based on record description sizes. The record text for each field is left justified within the maximum number of characters defined for that field.
Placement of Multiple CALC Keys

You can use an optional subscript with the LOC-CTRL field to specify placement of multiple CALC key names within the record description in the Cross-Reference Report. The syntax is:

\[ \text{LOC-CTRL} \ (ss) \]

where \( ss \) may be an integer from 1 to 256 or the capital letter \( N \).

When you use an integer from 1 to 256, you are explicitly placing the CALC keys you want to see at the positions you specify. For example, LOC-CTRL(1) positions the first CALC key found in the dictionary for each record type. LOC-CTRL(2) positions the second CALC key, etc. If you use LOC-CTRL without a subscript, it is equivalent to LOC-CTRL(1).

When you use only the letter \( N \), CA IDMS Schema Mapper places all CALC keys in the record description in the Cross-Reference Report beginning at the position indicated by LOC-CTRL(\( N \)). The first CALC key appears at that position followed by the remaining CALC keys one per line.

You can choose to explicitly place one or more CALC keys and have CA IDMS Schema Mapper implicitly place the remaining ones. Any CALC keys that have not been positioned by an explicit subscript appear one per line, starting with the position indicated by LOC-CTRL(\( N \)).

When you do not use LOC-CTRL(\( N \)) and there are more CALC keys than you have explicitly positioned, the additional CALC keys do not appear in the record description. An informative message appears in the Audit Report to let you know this has happened. For example, if one of your record types has five CALC keys, but you only use LOC-CTRL(1), LOC-CTRL(2), and LOC-CTRL(3) in your XRECLINE statements, then the fourth and fifth CALC keys do not appear in the record description in the Cross-Reference Report.

Also, LOC-CTRL(\( N \)) affects only CALC keys that follow the highest explicit position. If any lower subscripts are omitted from the XRECLINE statements, the corresponding CALC keys do not appear in the Cross-Reference Report. For example, if a record has seven CALC keys and the XRECLINE statements use LOC-CTRL(1), LOC-CTRL(4), and LOC-CTRL(\( N \)), then LOC-CTRL(\( N \)) positions CALC keys 5, 6, and 7 only. CALC keys 2 and 3 do not appear in the Cross-Reference Report. Any CALC key that does not appear in the Cross-Reference Report, for any reason, are listed in the Audit Report with an informative message.

CA IDMS Schema Mapper makes all record descriptions the same size (remember, XRECLINE is a global parameter). Therefore, if only one of your record types contains multiple CALC keys and you want all the keys for that record type to appear in the record description, then every record description in the Cross-Reference Report contains space for multiple CALC keys. This is true even if a particular record type does not have a location mode of CALC.

Sample XRECLINE Statements and Resulting Record Descriptions

To Create A Three-Line Record Description:

To create a three-line record description that has the record name on line 1, the area and location mode on line 2, and the record size and description on line 3, use these statements:
XRECLINE REC-NAME
XRECLINE AREA,LOC-MODE
XRECLINE LENGTH,REC-DESC

A resulting record description looks like this:

ACTIVITY
ACTIVITY
CLASS-REGION CALC
32

To Create A Six-Line Record Description:

To create a six-line record description that has the record name on line 1, a blank second line, the area, location mode, and record size on line 3, the description on line 4, the duplicates option on line 5, and the location control on line 6, use these statements:

XRECLINE REC-NAME
XRECLINE
XRECLINE AREA,LOC-MODE,LENGTH
XRECLINE REC-DESC
XRECLINE DUPS-OPT
XRECLINE LOC-CTRL

Here is a resulting record description:

ACTIVITY
ACTIVITY
CLASS-REGION CALC
32

To Create Blank Fields or Blank Lines for a record description:

A record description with a blank second line and a blank, 10-character field in line 3 is specified like this:

XRECLINE REC-NAME
XRECLINE
XRECLINE AREA,BLANK 10,LOC-MODE
XRECLINE LENGTH,REC-DESC

⚠️ Note: You must put a space between the word BLANK and the blank field length. Leaving out the space results in an error message.

Record description with the above format:

ACTIVITY
ACTIVITY
CLASS-REGION CALC
32

To Combine Explicit and Implicit Placement of CALC Keys:
A record description with the first CALC key on the second line and additional CALC keys on the last lines is specified like this:

XRECLINE REC-NAME,LOC-MODE
XRECLINE LOC-CTRL(1)
XRECLINE AREA
XRECLINE LOC-CTRL(N)

Resulting record description:

ACTIVITY         94,    27 / AA
ACTIVITY         CALC
ACT-CODE
CLASS-REGION

Use of LOC-CTRL(N) always reserves a position in the record description, even when there are not enough CALC keys to actually need it.

The DSETLINE Statement

DSETLINE (diagram set line) allows you to include set descriptions in the data structure diagram and specify the format of these descriptions. The DSETLINE statement defines the format of the set description line by line, listing the field names, blank fields, labels, and blank lines to be included.

- DSETLINE Syntax (see page 44)
- How to Use the DSETLINE Statement (see page 45)
- Creating Blank Fields and Blank Lines in Set Descriptions (see page 45)
- Graphic Considerations (see page 46)
- Placement of Multiple Sort or Index Keys (see page 46)
- Sample DSETLINE Statements and Resulting Set Descriptions (see page 47)

A set description consists of the set name, membership options, pointer options, and set order. You can quickly find record blocks and set fields in the data structure diagram by looking at the cross-reference of their locations in the Cross-Reference Report.

Exhibit 2.8 lists all possible field names that you can enter in the DSETLINE statement, including the CA IDMS/DB Analyzer statistics field names and their descriptions.

⚠️ **Note:** DSETLINE is a global parameter statement. Once specified, it adds a description of every set in the diagram.

If the DSETLINE statement is not included, CA IDMS Schema Mapper processes the data structure diagram without set information.

**DSETLINE Syntax**

```
[DSETLINE field name,field name...]
```
where:

$field name, field name...$ -- indicates the field name (or series of field names) to be included in the set description in the data structure diagram.

Rules:

- DSETLINE statements must follow PROCESS, OPTIONS, CHARDEF, DRECLINE, and XRECLINE statements and precede XSETLINE, INCLUDE AREA, and LOCATE statements.

- The maximum number of characters allowed for each line of a set description is 120.

- Enter DSETLINE field names in the order in which you want them to appear in the diagram. When two or more field names are used per line, they must be separated by a comma.

- You cannot use a field name more than once (except for BLANK, LABEL or SET-ORDER with unique subscripts).

For compatibility with earlier versions, any SETLINE statements in the input file are treated as XSETLINE statements and CA IDMS Schema Mapper issues a warning message.

Default: There is no default DSETLINE value.

How to Use the DSETLINE Statement

A set description is made up of one or more lines of text that contain one or more fields. You must supply one DSETLINE statement for each line of text you want included in the set description in the data structure diagram.

Select the field names you want included in the set description from the list of possible field names in Exhibit 2.8. Enter the field names in the order in which you want the fields to appear in the set description.

Creating Blank Fields and Blank Lines in Set Descriptions

You can insert blank fields or blank lines in the set description to make room for handwritten notes or for graphic appeal.

To Create A Blank Field Within A Set Description:

Enter BLANK $nn$ as a field name, where $nn$ specifies the blank field length in character spaces. The value $nn$ must be an integer between 1 and 32, inclusive. A group of DSETLINE statements may contain a maximum of 20 BLANK fields.

To Create A Blank Line Within A Set Description:

Use DSETLINE by itself (without a field name).
Graphic Considerations

The size and the shape of the set field description affects the overall appearance of the data structure diagram. When you use DSETLINE to redesign the set field description, be aware that the size and the shape of the set description affects the overall appearance of the data structure diagram. For example, if you enter all set field names in one DSETLINE statement, the resulting set field description is long and thin and probably unacceptable.

CA IDMS Schema Mapper adjusts set field description size to accommodate the longest line. You can place any number of set field names on a line. CA IDMS Schema Mapper adjusts the width of the set field description to accommodate the longest line. However, a maximum of 120 characters can be entered per line.

CA IDMS Schema Mapper centers field values within the number of character spaces for that field. In addition to centering field values within the number of character spaces for that field, CA IDMS Schema Mapper centers set fields across a line, based on the total character length for the longest line in the set field description.

Placement of Multiple Sort or Index Keys

You can use an optional subscript with the SET-ORDER field to specify placement of multiple sort or index key names within the set description.

The syntax is:

SET-ORDER(ss)

where ss may be an integer from 1 to 256 or the capital letter N.

When you use an integer from 1 to 256, you are explicitly placing the sort or index keys you want to see at the positions you specify. For example, SET-ORDER(1) positions the first sort or index key found in the dictionary for each set or index. SET-ORDER(2) positions the second sort or index key, etc. If you use SET-ORDER without a subscript, it is equivalent to SET-ORDER(1).

When you use only the letter N, CA IDMS Schema Mapper places all sort or index keys in the set description beginning at the position indicated by SET-ORDER(N). The first sort or index key appears at that position followed by the remaining sort or index keys one per line.

You can choose to explicitly place one or more sort or index keys and have CA IDMS Schema Mapper implicitly place the remaining ones. Any sort or index keys that have not been positioned by an explicit subscript appear one per line, starting with the position indicated by SET-ORDER(N). See "Sample DSETLINE Statements and Resulting Set Descriptions," below.

When you do not use SET-ORDER(N) and there are more sort or index keys than you have explicitly positioned, the additional sort or index keys do not appear in the set description. An informative message appears in the Audit Report to let you know this has happened. For example, if one of your sets or indexes has five sort or index keys, but you only use SET-ORDER(1), SET-ORDER(2), and SET-ORDER(3) in your DSETLINE statements, then the fourth and fifth sort or index keys do not appear in the set description.
Also, SET-ORDER(N) affects only sort or index keys that follow the highest explicit position. If any lower subscripts are omitted from the DSETLINE statements, the corresponding sort or index keys do not appear in the data structure diagram. For example, if a set has five sort keys and the DSETLINE statements use SET-ORDER(1), SET-ORDER(3), and SET-ORDER(N), then SET-ORDER(N) positions sort keys 4 and 5 only. Sort key 2 does not appear in the data structure diagram. Any sort or index key that does not appear in the data structure diagram, for any reason, is listed in the Audit Report with an informative message.

CA IDMS Schema Mapper makes all set descriptions the same size (remember, DSETLINE is a global parameter). Therefore, when only one of your sets or indexes contains multiple sort or index keys and you want all the keys for that set or index to appear in the set description, then every set description in the data structure diagram contains space for multiple sort or index keys. This is true even if a particular set does not have a set order of sorted.

Sample DSETLINE Statements and Resulting Set Descriptions

To Create a Three-Line Set Description:

To create a three-line set description containing the set name in line 1, the set order in line 2, and the pointers in line 3, use these parameter statements:

DSETLINE SET-NAME
DSETLINE SET-ORDER
DSETLINE POINTERS

A resulting set description looks like this:

```
#1#* SPORTS * ACTIVITY-TYPES * LAST * NPO *
* 8112 F 32 CALC DN *
* SPORT-NAME *
* STUDENT-REGION *
**********************************
```

To Create Blank Fields or Blank Lines in a Set Description:

You can create blank fields or blank lines in the set description to make room in the data structure diagram for handwritten information. A set description with a blank five-character field in the first line and a blank second line is specified like this:

DSETLINE SET-NAME,BLANK 5,SET-ORDER
DSETLINE

The resulting set description:

```
#1# * SPORTS * ACTIVITY-TYPES *
* 8112 F 32 CALC DN *
* SPORT-NAME *
* STUDENT-REGION *
**********************************
```

To Combine Explicit and Implicit Placement of Sort Keys:
A set description with the first sort key on the second line and additional sort keys on the last lines is specified like this:

DSETLINE SET-NAME  
DSETLINE SET-ORDER(1)  
DSETLINE POINTERS,MEM-OPT,SET-MODE  
DSETLINE SET-ORDER(N)  

The resulting set description:

```
/  
#  
#  
/  
/  
*****************************  
LAST  
*********************************  
*  DEPT-TEACHER  
*  LAST  
*  #5#-------------  
*  1000  F  52  CALC  DN  *--#5#-------------  
*  1001  F  76  CALC  DN  *--#5#-------------  
*  TCHR-ID  
*  X-TCHR-LNAME  
*  DEPT-REGION  
*  X-TCHR-LNAME  
*  DEPT-REGION  
*  ASC  TCHR-LNAME-A  DL  
*****************************  
N   MA   MODE  =  INDEX
```

Use of SET-ORDER(N) always reserves a position in the set description, even when there are not enough sort or index keys to actually need it.

**XSETLINE**

XSETLINE (cross-reference set line) allows you to globally specify the format of the set description data in the Cross-Reference Report. The XSETLINE statement works in much the same way as XRECLINE.

- XSETLINE Syntax (see page 49)
- How to Use the XSETLINE Statement (see page 51)
- Creating Blank Fields and Blank Lines in Set Descriptions (see page 51)
- Graphic Considerations (see page 52)
- Placement of Multiple Sort or Index Keys (see page 52)
- Sample XSETLINE Statements and Resulting Set Descriptions (see page 53)

Set descriptions contain identification and descriptive information on the set, including set name, membership options, pointer options, and set order. You can quickly find record blocks and sets in the data structure diagram by looking at the cross-reference of their locations in the Cross-Reference Report.

Exhibit 2.7 shows sample Cross-Reference Reports before and after using the XSETLINE statement. You can also exclude set fields from the Cross-Reference Report. If XSETLINE is not specified, the report provides only set names, modes, pointers, and membership options. Exhibit lists all possible field names that you can enter in the XSETLINE statement.
Note: XSETLINE is a global parameter statement. You cannot modify the format of an individual set description in the Cross-Reference Report. Using one XSETLINE statement cancels all set-related defaults. Specify all of the field names you want included in the Cross-Reference Report.

XSETLINE Syntax

[XSETLINE field name,field name...]

where:

field name,field name... -- indicates the field name (or series of field names) to be included in the set description. See Table 2.2 for a complete list of possible field names.

Rules:

- XSETLINE statements must follow PROCESS, OPTIONS, CHARDEF, DRECLINE, XRECLINE and DSETLINE statements and must precede INCLUDE AREA and LOCATE statements.
- The maximum number of characters allowed for each line of a set description is 120.
- Enter XSETLINE field names in the order in which you want them to appear in the Cross-Reference Report. When two or more field names are used per line, they must be separated by a comma.
- You cannot use a field name more than once (except for BLANK or SET-ORDER with unique subscripts).

For compatibility with earlier versions, any SETLINE statements appearing in the input file are treated as XSETLINE statements, and CA IDMS Schema Mapper issues a warning message.

Default: The default XSETLINE values are:

XSETLINE SET-NAME
XSETLINE POINTERS,MEM-OPT
XSETLINE SET-ORDER

Set/INDEX CROSS-REFERENCE LISTING

<table>
<thead>
<tr>
<th>SET NUMBER</th>
<th>SET OR INDEX NAME</th>
<th>OWNER</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ PAGE</td>
<td>MEMBER</td>
<td>/ PAGE</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>ACTIVITY-TYPES</td>
<td>ACTIVITY</td>
<td>94, 27</td>
</tr>
<tr>
<td>/ AA</td>
<td>ARTS</td>
<td>150, 27</td>
<td>BA</td>
</tr>
</tbody>
</table>

ACTIVITY-TYPES
NP 0A
LAST

USIC 150, 48 / BA
### ACTIVITY-TYPES

**NP OA**

**LAST**

PORTS 150, 74 / BB

---

### ACTIVITY-TYPES

**NPO OM**

**LAST**

CLASS-SCHEDULE 2

/ AB

CLASS 94, 74

---

### CLASS-SCHEDULE

**NPO MA**

ASC ROSTER-NO DL

---

CA IDMS Schema Mapper: mm/dd/yy hh:mm:

Subschema DBRR1016, Schema DSRR1016, Version 1, DICTNAME=TKIT, DBNAME=

### SET/INDEX CROSS-REFERENCE LISTING

<table>
<thead>
<tr>
<th>SET NUMBER</th>
<th>SET OR INDEX NAME</th>
<th>OWNER</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ACTIVITY-TYPES</td>
<td>ARTS</td>
<td>94, 27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>150, 27 / BA</td>
<td></td>
</tr>
</tbody>
</table>

---

### ACTIVITY-TYPES

**NP OA**

**LAST**

USIC 150, 48 / BA

---

### ACTIVITY-TYPES

**NP OA**

**LAST**

PORTS 150, 74 / BB

---

### ACTIVITY-TYPES

**NPO OM**

**LAST**

CLASS-SCHEDULE 2

/ AB

CLASS 94, 74

---

### CLASS-SCHEDULE

**NPO MA**

ASC ROSTER-NO DL
How to Use the XSETLINE Statement

A set description is made up of one or more lines of text that contain one or more fields. You must supply one XSETLINE statement for each line of text you want included in the set description.

To redesign the format of the set description in the Cross-Reference Report, select the field names you want included in the set description format from Exhibit 2.8. Enter the field names in the order in which you want the fields to appear in the set description.

Creating Blank Fields and Blank Lines in Set Descriptions

You can insert blank fields or blank lines in the set description to make room for handwritten notes or for readability.

To Create A Blank Field Within A Set Description:

Enter BLANK nn as a field name, where nn specifies the blank field length in character spaces. The value nn must be an integer between 1 and 32, inclusive. A group of XSETLINE statements may contain a maximum of 20 BLANK fields.

To Create A Blank Line Within A Set Description:

Use XSETLINE by itself (without a field name).
Graphic Considerations

CA IDMS Schema Mapper adjusts the set description size to accommodate the longest line. It is possible to place all available set description field names on one line; CA IDMS Schema Mapper adjusts the size of the set description to accommodate the line. A maximum of 120 characters can be entered per line.

All set text in the Cross-Reference Report is left justified, based on field sizes. The set text for each field is left justified within the maximum number of characters defined for that field.

Placement of Multiple Sort or Index Keys

You can use an optional subscript with the SET-ORDER field to specify placement of multiple sort or index key names within the set description.

The syntax is:

```
SET-ORDER (ss)
```

where ss may be an integer from 1 to 256 or the capital letter N.

When you use an integer from 1 to 256, you are explicitly placing the sort or index keys you want to see at the positions you specify. For example, SET-ORDER(1) positions the first sort or index key found in the dictionary for each set or index. SET-ORDER(2) positions the second sort or index key, etc. If you use SET-ORDER without a subscript, it is equivalent to SET-ORDER(1).

When you use only the letter N, CA IDMS Schema Mapper places all sort or index keys in the set description beginning at the position indicated by SET-ORDER(N). The first sort or index key appears at that position followed by the remaining sort or index keys one per line.

You can choose to explicitly place one or more sort or index keys and have CA IDMS Schema Mapper implicitly place the remaining ones. Any sort or index keys that have not been positioned by an explicit subscript appear one per line, starting with the position indicated by SET-ORDER(N). See "Sample XSETLINE Statements and Resulting Set Descriptions," next.

When you do not use SET-ORDER(N) and there are more sort or index keys than you have explicitly positioned, the additional sort or index keys do not appear in the set description. An I011 message appears in the Audit Report to let you know this has happened. For example, if one of your sets or indexes has five sort or index keys, but you only use SET-ORDER(1), SET-ORDER(2), and SET-ORDER(3) in your XSETLINE statements, then the fourth and fifth sort or index keys do not appear in the set description.

Also, SET-ORDER(N) affects only sort or index keys that follow the highest explicit position. If any lower subscripts are omitted from the XSETLINE statements, the corresponding sort or index keys do not appear in the Cross-Reference Report. For example, if a set has five sort keys and the XSETLINE statements use SET-ORDER(1), SET-ORDER(3), and SET-ORDER(N), then SET-ORDER(N) positions sort keys 4 and 5 only. Sort key 2 does not appear in the Cross-Reference Report. Any sort or index key that does not appear in the Cross-Reference Report, for any reason, is listed in the Audit Report with an I011 message.
CA IDMS Schema Mapper makes all set descriptions the same size (remember, XSETLINE is a global parameter). Therefore, when only one of your sets or indexes contains multiple sort or index keys and you want all the keys for that set or index to appear in the set description, then every set description in the Cross-Reference Report contains space for multiple sort or index keys. This is true even if a particular set does not have a set order of sorted.

By default, CA IDMS Schema Mapper uses SET-ORDER(N). Therefore, all default set descriptions contain space for all sort or index keys.

Sample XSETLINE Statements and Resulting Set Descriptions

To Create a Three-Line Set Description:

To create a three-line set description containing the set name in line 1, the set order in line 2, and the pointers in line 3, use these parameter statements:

XSETLINE SET-NAME
XSETLINE SET-ORDER
XSETLINE POINTERS

A resulting set description looks like this:

5 DEPT-TEACHER DEPT 39, 48 / AA TEACHER DEPT-TEACHER LAST NPO

To Create Blank Fields or Blank Lines in a Set Description:

You can create blank fields or blank lines in the set description to make room in the Cross-Reference Report for handwritten information. A set description with a blank five-character field in the first line and a blank second line is specified like this:

XSETLINE SET-NAME,BLANK 5,SET-ORDER
XSETLINE

Here are two resulting set descriptions:

5 DEPT-TEACHER DEPT 39, 48 / AA TEACHER DEPT-TEACHER LAST NPO
6 IX-DEPT-NAME SYSTEM (SR7) DEPT 39, 48 / AA IX-DEPT-NAME ASC DEPT-NAME DF

To Combine Explicit and Implicit Placement of Sort Keys:

A set description with the first sort key on the second line and additional sort keys on the last lines is specified like this:

XSETLINE SET-NAME
XSETLINE SET-ORDER(1)
XSETLINE POINTERS,MEM-OPT,SET-MODE
XSETLINE SET-ORDER(N)

Resulting set descriptions:

5 DEPT-TEACHER DEPT 39, 48 / AA TEACHER DEPT-TEACHER 94, 48 / AA

Use of SET-ORDER(N) always reserves a position in the set description, even when there are not enough sort or index keys to actually need it.

### Field Names for the DSETLINE and XSETLINE Statements

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Size (# of chars)</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET-NAME</td>
<td>16</td>
<td>The name of the set.</td>
</tr>
<tr>
<td>SET-ORDER</td>
<td>6</td>
<td>The order in which new records are positioned in the set: FIRST, LAST, NEXT, PRIOR, or sorted.</td>
</tr>
<tr>
<td>SET-MODE</td>
<td>13</td>
<td>The mode of the set. For regular sets the mode field is left blank. For indexed sets and integrated indexes, the mode field contains MODE = INDEX.</td>
</tr>
<tr>
<td>POINTERS</td>
<td>3</td>
<td>The set linkage options: N (next pointers), NP (next and prior pointers), NO (next and owner pointers), or NPO (next, prior, and owner pointers).</td>
</tr>
<tr>
<td>MEM-OPT</td>
<td>2 (Membership Options)</td>
<td>The disconnect and connect options: MA (mandatory automatic), MM (mandatory section), OA (optional automatic), or OM (optional section).</td>
</tr>
<tr>
<td>BLANK nn</td>
<td>nn</td>
<td>Name used to specify a blank field.</td>
</tr>
<tr>
<td>UN-MEM-OCC-CNT</td>
<td>14</td>
<td>The count of member record occurrences of a record type within the set. The meaning differs slightly for multi-member sets.</td>
</tr>
<tr>
<td>UN-MEM-OCC-PCT</td>
<td>3</td>
<td>The percent of member record occurrences of a record type within the set. This is always 100% for single-member sets.</td>
</tr>
<tr>
<td>UN-SET-OCC</td>
<td>14</td>
<td>The count of total set occurrences for the set.</td>
</tr>
<tr>
<td>UN-SOWM-CNT</td>
<td>14</td>
<td>The count of set occurrences with members for the set.</td>
</tr>
<tr>
<td>UN-SOWM-PCT</td>
<td>3</td>
<td>The percent of set occurrences with members for the set.</td>
</tr>
<tr>
<td>UN-LOSO-AVG</td>
<td>17</td>
<td>The average length of set occurrences for the set.</td>
</tr>
<tr>
<td>UN-LOSO-MAX</td>
<td>14</td>
<td>The maximum length of set occurrences for the set.</td>
</tr>
<tr>
<td>UN-LOSO-MIN</td>
<td>14</td>
<td>The minimum length of set occurrences for the set.</td>
</tr>
<tr>
<td></td>
<td>17</td>
<td>The average cluster page spread for the set.</td>
</tr>
<tr>
<td>Field Name</td>
<td>Size</td>
<td>Descriptions</td>
</tr>
<tr>
<td>---------------------</td>
<td>------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>UN-PG-SPRD-AVG</td>
<td>14</td>
<td>The maximum cluster page spread for the set.</td>
</tr>
<tr>
<td>UN-PG-SPRD-MAX</td>
<td>14</td>
<td>The count of members on overflow for the set.</td>
</tr>
<tr>
<td>UN-MEM-OVRF-CNT</td>
<td>14</td>
<td>The percent of members on overflow for the set.</td>
</tr>
<tr>
<td>UN-MEM-OVRF-PCT</td>
<td>3</td>
<td>The average number of members on overflow for the set.</td>
</tr>
<tr>
<td>UN-MEM-OVRF-AVG</td>
<td>17</td>
<td>The maximum number of members on overflow for the set.</td>
</tr>
<tr>
<td>UN-MEM-OVRF-MAX</td>
<td>14</td>
<td>The minimum number of members on overflow for the set.</td>
</tr>
<tr>
<td>UN-PG-CHGS-AVG</td>
<td>17</td>
<td>The average page changes for the set.</td>
</tr>
<tr>
<td>UN-PG-CHGS-MAX</td>
<td>14</td>
<td>The maximum page changes for the set.</td>
</tr>
<tr>
<td>UN-PG-CHGS-MIN</td>
<td>14</td>
<td>The minimum page changes for the set.</td>
</tr>
<tr>
<td>UN-NUM-LVL</td>
<td>14</td>
<td>The number of levels for the index.</td>
</tr>
<tr>
<td>UN-BLS-UTE-CNT</td>
<td>14</td>
<td>The count of bottom level statistics used table entries for the index.</td>
</tr>
<tr>
<td>UN-BLS-UTE-AVG</td>
<td>17</td>
<td>The average bottom level statistics used table entries for the index.</td>
</tr>
<tr>
<td>UN-BLS-UTE-MAX</td>
<td>14</td>
<td>The maximum bottom level statistics used table entries for the index.</td>
</tr>
<tr>
<td>UN-BLS-UTE-MIN</td>
<td>14</td>
<td>The minimum bottom level used table entries for the index.</td>
</tr>
<tr>
<td>LABEL 'any string'</td>
<td>nn</td>
<td>Used to put labels in a record description.</td>
</tr>
<tr>
<td>-or- LABEL &quot;any string&quot;</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Exhibit 2.8: Field Names for the DSETLINE and XSETLINE Statements*
INCLUDE AREA is an optional parameter statement that allows you to represent a specific area in a diagram instead of the entire schema or subschema. The diagram obtained when the INCLUDE AREA statement is used represents all records contained in the specified area. The diagram also includes all indexes to those records and all sets that have both owners and members in the area. If a set has an owner or member outside the specified area, the set is not be included in the diagram. Instead, the set is listed in the Cross-Reference Report.

INCLUDE AREA Syntax

\[\texttt{INCLUDE AREA area name}\]

where:

area name indicates the area from the schema or subschema to be represented by the diagram.

Rules:

- You must enter a separate INCLUDE AREA statement for each area. There is no limit to the number of INCLUDE AREA statements; you can enter one for every area in the schema or subschema.

- INCLUDE AREA statements must follow PROCESS, OPTIONS, CHARDEF, DRECLINE, XRECLINE, DSETLINE, and XSETLINE statements and precede LOCATE statements.

Default: If you do not use the INCLUDE AREA statement, you receive a diagram that represents every area within the schema or subschema.

When to Use the INCLUDE AREA Statement

The INCLUDE AREA statement can be used for these purposes:

- To control and reduce the size of the diagram when a schema or subschema is very large

- To create diagrams that are application-specific.

INCLUDE AREA also provides users who have generalized subschemas with the ability to diagram an area that is directly associated with a particular application.

LOCATE Statement 1

Contents

- LOCATE Syntax (see page 57)
- When to Use the LOCATE Statement (see page 57)
- Using the LOCATE Statement Most Efficiently (see page 58)
LOCATE, the final optional tailoring statement, allows you to control all or part of the layout of the diagram by specifying the position of record blocks. When you LOCATE a record block, you place it in a location by specifying how it should physically relate to another record block in the data structure diagram: you define its position in relative terms. You can position an individual record block in any direction, in units of record blocks, relative to another record block in the diagram.

**LOCATE Syntax**

```
LOCATE name1 < LEFT > number < UP > number |FROM name2 |
   \   \ RIGHT / \ DOWN /               ||
name1
```

identifies, by REC-NAME, the record block you want to position in the diagram with a LOCATE statement. You cannot position the same record block twice during the same run of CA IDMS Schema Mapper.

```
< LEFT > number \ RIGHT / number
```

specifies how many record blocks to the left or right of record name2, the record block identified by name1 is to be positioned. You can use this parameter alone or with an UP or DOWN parameter. The number must be an integer between 1 and 10,000, inclusive.

```
< UP > number \ DOWN / number
```

specifies how many record blocks up or down from record name2, the record block identified by name1 is to be positioned. You can enter this parameter alone or with a LEFT or RIGHT parameter. The number must be an integer between 1 and 10,000, inclusive.

```
FROM name2
name2
```

specifies which record block is to be used as a reference for positioning the record block identified by name1. name2 must be the REC-NAME of a record block that was used as name1 in a previous LOCATE statement.

**When to Use the LOCATE Statement**

Here are a few reasons why you might want to position record blocks sectionly using the LOCATE statement:

- To produce a data structure diagram with a layout that resembles a familiar hand-drawn diagram
- To position key record blocks in a group
- To position a new record added to your schema or subschema, overriding CA IDMS Schema Mapper’s automatic positioning feature.
Using the LOCATE Statement Most Efficiently

The LOCATE statement resembles a command, and it makes the layout of the diagram adjustable. How you use the LOCATE statement depends on what you want your diagram to look like and how much experience you have using CA IDMS Schema Mapper. Here are a few sectionlines for using the LOCATE statement:

- First-time users--consider omitting the LOCATE statement. The first time you use CA IDMS Schema Mapper, it is a good idea not to use the LOCATE statement and allow CA IDMS Schema Mapper to position all of the record blocks automatically. This way, you can get a feel for how CA IDMS Schema Mapper positions the record blocks in your specific diagram. You can then effectively evaluate whether or not you need to use LOCATE statements.

- Experienced users--write LOCATE statements from scratch or edit LOCATE statements in the Transfer File. For the experienced user who is not satisfied with the automatic layout produced by CA IDMS Schema Mapper, writing LOCATE statements from scratch when first running CA IDMS Schema Mapper for a schema/subschema can be a time-saver. In this way, you can control the layout of a new diagram or duplicate the layout of an existing hand-drawn diagram right from the start.

If you are mainly concerned with the locations of a few key record blocks or a few groups of record blocks, you can write LOCATE statements for them from scratch and allow CA IDMS Schema Mapper to LOCATE the remaining record blocks in the diagram. If you want CA IDMS Schema Mapper to place record blocks between those that you LOCATE sectionly, you can leave plenty of space around them so CA IDMS Schema Mapper has room to work.

For users who have an existing diagram in hand and simply want to add one or two new record blocks, it may be easiest to add LOCATE statements to the Transfer File. If you just want to move around a few record blocks, it will probably be easiest to edit LOCATE statements in the Transfer File.

When the layout changes desired are extensive, positioning record blocks can be an iterating process, at least until you have worked with CA IDMS Schema Mapper enough to be able to know how it handles your particular schema/subschema. The ideal approach depends on your needs. You can either write or edit LOCATE statements in the Transfer File or write LOCATE statements from scratch.

Graphic Considerations

When positioning only a few record blocks sectionly, results can be unpredictable.

When using LOCATE statements, it is easiest to control the layout of the data structure diagram if you use CA IDMS Schema Mapper in a fully section mode, writing LOCATE statements for all of the record blocks in the diagram.

When you use LOCATE to position only a few key record blocks, the interaction between your LOCATE statements and CA IDMS Schema Mapper’s automatic placement of the remaining record blocks can create an unexpected layout. CA IDMS Schema Mapper maintains the relative positions of record blocks you LOCATE, but it also inserts record blocks into empty space created by your LOCATE statements (depending on the size of the space created). CA IDMS Schema Mapper does this regardless of whether the OPTIONS COMPRESS parameter is on or off (see following discussion on use of COMPRESS parameter).
If you use LOCATE statements and do not sectionly LOCATE every record block in the diagram, you probably need to execute CA IDMS Schema Mapper several times to get the desired layout.

**Using the OPTIONS COMPRESS parameter while working on the layout of a diagram.**

If you will be executing CA IDMS Schema Mapper several times to obtain the desired layout of a diagram, you may want to turn off the OPTIONS COMPRESS parameter until the diagram nears completion.

When the COMPRESS parameter is off, CA IDMS Schema Mapper does not compress unused space from the diagram. CA IDMS Schema Mapper continues to insert record blocks into any empty space that it can.

When CA IDMS Schema Mapper creates the Transfer File and the COMPRESS parameter is on, CA IDMS Schema Mapper may rewrite some of the LOCATE statements you entered, changing the displacement values (the number of record blocks UP/DOWN/LEFT/RIGHT). CA IDMS Schema Mapper always maintains the relative positions of record blocks you LOCATE, but, with COMPRESS on, it may change the distances between some of the record blocks.

With the COMPRESS parameter off, CA IDMS Schema Mapper does not rewrite any of the LOCATE statements you entered as input. In other words, your LOCATE statements always appear unchanged in the Transfer File when you execute CA IDMS Schema Mapper with the COMPRESS parameter off. This can be an aid when you are working on the layout of the record blocks in a diagram.

Once you have the layout of the diagram near completion, you can turn on the COMPRESS parameter. CA IDMS Schema Mapper may rewrite any number of your LOCATE statements when it creates the Transfer File. CA IDMS Schema Mapper compresses any unused space after all record blocks have been LOCATED in the diagram.

The size of an indexed record is larger than a record without indexes

An indexed record takes up more space on the diagram than a record without indexes. Because an index is represented by a diagonal line that projects from a corner of a record block, the record block is farther away from another record block allowing room for the indexes to be displayed.

**Schema Mapper System Output**

This section gives an overview and describes the components of the output created by CA IDMS Schema Mapper. CA IDMS Schema Mapper produces four outputs:

- Schema Mapper Data Structure Diagram (see page 60)
- Transfer File Output (see page 65)
- Cross-reference Report Details (see page 67)
- Audit Report 6 (see page 70)
Schema Mapper Data Structure Diagram

The data structure diagram provides you with a graphic representation of your database's schema and/or subschemas. How your CA IDMS Schema Mapper data structure diagram actually looks depends on your schema or subschema and on the parameters you use to produce the diagram. The data structure diagram contains many more variables than the other outputs, giving you extensive control over the layout and the format. Exhibit 3.1 shows a simple data structure diagram created with automatic layout of the record blocks and sets and gives a brief description of the basic components.

- Basic Components of the Data Structure Diagram (see page 60)
- Wallpapering Technique Used to Assemble a Data Structure Diagram (see page 62)
- How Large Will Your Diagrams Be? (see page 65)

Basic Components of the Data Structure Diagram

The main component of the CA IDMS Schema Mapper data structure diagram is the record block. Each rectangular-shaped graphic represents a CA IDMS record and contains CA IDMS record fields. The upper left corner of the diagram is the origin (0,0). The coordinate position of each record block, relative to this origin, appears in the Cross-Reference Report.

1. REC-NAME (record name) field identifies the name of the record type.
2. The LOC-MODE (location mode) field identifies how records are physically located in their areas: CALC, VIA, or DIRECT.
3. The LENGTH-MODE field identifies the record modes: F (fixed), V (variable), FC (fixed compressed), or VC (variable compressed). The value for this field is not stored in the dictionary in any literal sense. CA IDMS Schema Mapper determines the value as follows:
   - A DEPENDS ON data element in the record indicates a variable length mode. Otherwise, the record is assumed to have a fixed length mode.
   - The appearance of IDMSCOMP or IDMSDCOM in the list of procedures, which are to be invoked when the record is accessed, indicates a compressed length mode. Otherwise, the record is assumed to have an uncompressed length mode.
4. The LENGTH (record size) field identifies the actual data length of the record (if fixed length), or the maximum data length of the record (if variable length), in bytes. If the value obtained from the dictionary is less than 1, CA IDMS Schema Mapper uses a value of 1 in the record block. This happens, for example, when a schema record is defined without any elements and is consistent with the value reported by IDMSRPTS for data length.
5. The AREA field identifies the name of the area in which the record type is located.
6. The DUPS-OPT (duplicates option) field identifies the disposition of records with duplicate control keys: DN (duplicates not allowed), DF (duplicates first), or DL (duplicates last). This field is blank for non-CALC records.
7. The LOC-CTRL (location control) field identifies the CALC key name or VIA set name. This is always DIRECT-DBK for DIRECT records.

8. The REC-ID (record identification) field gives the unique identification number of the record type.

9. Groups of record blocks are connected by set connection lines, which show set relationships. Sets are identified by numbers in the CA IDMS Schema Mapper data structure diagram and are cross-referenced in the Cross-Reference Report. A unique number from 1 to n is assigned to each set, and the unique number appears with each set connection in the diagram as described below:

   - When the set connection is a straight line, the number appears near the owner
   - When the set connection has a set turn in it, the number appears near the owner and near the member
   - For multi-member sets, the number appears near the owner and near each member of the set.

   Record blocks that represent members of sets have arrows pointing toward them. Record blocks that represent owners of sets have arrows pointing away from them.

10. The diagonal line that appears in the following diagram for indexes contains the letters II when the line represents an integrated index.
Data structure diagrams are typically large, so the printed output spans multiple pages. CA IDMS Schema Mapper automatically divides the overall diagram into pieces that are the size of your printer's paper, with each piece being the size of a page. You assemble the pages in columns down the length of the diagram and rows across the width of the diagram. (See Exhibit 3.2)

The diagram is printed sequentially, one column of pages after another, beginning with the column that runs down the left side of the diagram (column A). CA IDMS Schema Mapper automatically generates column headers at the top of each column to help you find the beginning of the printout for each column. Your printer will put a blank page after the last page of each column. This blank page helps eliminate wallpapering problems if your diagram does not begin printing right at the top of a page.
A unique two-character (alphabetic) page identifier is also automatically printed, in the upper right corner of each page. The first character identifies the page’s column in the overall diagram, and the second character identifies its row in the overall diagram. The first page of the diagram (the top left corner) is in the first column, and the first row and is identified by the characters AA.

To assemble the data structure diagram:

- Manually burst the printout at the column boundaries (at the top of the column headers).
- Fold each column so the column header is on top.
- Using a paper cutter or a pair of scissors, trim off the left edge of the entire diagram printout, using the asterisks (*) as a section. Be careful not to cut into the asterisks, or you may cut off part of the diagram.
- Align each column to form the horizontal rows, and tape the columns together.
Exhibit 3.2: Wallpapering the CA IDMS Schema Mapper Data Structure Diagram
How Large Will Your Diagrams Be?

The size of the data structure diagram primarily depends on the size of the schema or subschema being diagrammed. Other factors that can affect the size of a diagram are:

- The configuration of the schema or subschema
- The size of each record block and set description, as determined by the number, length, and organization of fields
- The border space around record blocks.

The size of CA IDMS Schema Mapper’s IDMSNWKA diagram may give you an idea of a diagram’s size. IDMSNWKA (the subschema for the CA IDMS database) is eight pages by eight pages (nine feet by seven feet, using 11" by 14" perforated paper). It has 151 records and 227 sets.

If your diagrams of schemas seem too large, you can run CA IDMS Schema Mapper for areas or subschemas rather than schemas. Another option, which has good results in reducing the size of diagrams, is to photo reduce the diagrams.

The maximum size that an assembled CA IDMS Schema Mapper data structure diagram can be is 26 pages wide by 26 pages long. You probably won’t have any diagrams even close to this size.

Assuming a DPAGEWID value of 132 and a DPAGELEN value of 66, the maximum dimensions allow 3,354 characters across (26 pages by 129 characters) and 1,716 characters down (26 pages by 66 characters) from the initial reference point.

The right three character positions of each line are reserved for page identifiers, such as AA, other information, such as the date and schema/subschema name, and a blank character space to separate this information from the diagram.

Transfer File Output

The Transfer File is an output file that contains parameter statements. This file can make it easier and less time-consuming for you to recreate or modify a previously created CA IDMS Schema Mapper data structure diagram. By using the parameter statements in the Transfer File as input, you can recreate a diagram without re-keying the parameter statements. You can also edit the statements in the Transfer File to tailor a diagram.

The Transfer File contains a copy of the parameter statements used as input. The Transfer File always contains a PROCESS statement, and if they were specified, OPTIONS, CHARDEF, DRECLINE, XRECLINE, DSETLINE, XSETLINE, INCLUDE, and LOCATE statements. PROCESS, OPTIONS, CHARDEF, DRECLINE, XRECLINE, DSETLINE, XSETLINE, and INCLUDE statements are transferred (or copied) to the Transfer File without being modified by CA IDMS Schema Mapper. If the input does not contain LOCATE statements, CA IDMS Schema Mapper writes a LOCATE statement for every record block in the diagram.
Transfer File Statements

Following is a description of the Transfer File statements shown in Exhibit 3.3.

**Statements always contained in the Transfer File**

1. A PROCESS statement, identical to the one in the parameters used as input, identifying the schema or subschema to be represented by the diagram.

2. LOCATE statements, copied or written by CA IDMS Schema Mapper, identifying the positions of all record blocks in the diagram. These statements are contained in the Transfer File, if specified in the parameters used as input.

3. An OPTIONS statement that specifies layout options, including page size and the compression of unused space, and whether or not Index Set records are included in the diagram.

4. A CHARDEF statement that primarily controls printer-dependent options.

5. A DRECLINE statement that specifies what information is included in the record blocks in the data structure diagram.

6. An XRECLINE statement that specifies what information is included in the record block description in the Cross-Reference Report.

7. A DSETLINE statement that specifies what information is included in the set and index descriptions in the data structure diagram.

8. An XSETLINE statement that specifies what information is included in the set and index descriptions in the Cross-Reference Report.

9. An INCLUDE statement that specifies the area to be represented by the diagram.

```
1  PROCESS=SUBSCHEMA,SCHEMA=DSSR1016,VERSION=1,
   SUBSCHEMA=DBRR1016, DICTNAME=TKIT
3  OPTIONS,COMPRESS=ON
4  CHARDEF,RHORCHAR=*  
5  DRECLINE BLANK 3,REC-NAME 
   DRECLINE REC-ID,LENGTH-MODE,LENGTH,BLANK 12,LOC-MODE,DUPS-OPT 
   DRECLINE BLANK 3,LOC-CTRL 
   DRECLINE BLANK 3,AREA     
   DRECLINE REC-DESC         
6  XRECLINE REC-NAME 
   XRECLINE AREA,LOC-MODE    
   XRECLINE LENGTH,REC-DESC  
7  DSETLINE SET-NAME,BLANK 5,SET-ORDER 
   DSETLINE                 
8  XSETLINE SET-NAME        
   XSETLINE POINTERS,BLANK 4,MEM-OPT 
   XSETLINE                 
   XSETLINE SET-ORDER       
9  INCLUDE AREA STUDENT-REGION 
   INCLUDE AREA CLASS-REGION 
   INCLUDE AREA DEPT-REGION  
   INCLUDE AREA LOC-REGION   
   $$$ NO LOCATE STATEMENTS WERE PROVIDED BY THE USER $$$
   $$$ LOCATE STATEMENTS GENERATED BY CA IDMS Schema Mapper $$$

2  LOCATE STUDENT 
   LOCATE ACTIVITY DOWN 1 FROM STUDENT 
   LOCATE ARTS RIGHT 1 FROM ACTIVITY
```
Cross-reference Report Details

The Cross-reference Report is a listing for quickly finding individual record blocks, sets, and indexes in a CA IDMS Schema Mapper data structure diagram. The Cross-Reference Report includes descriptions of records, sets, and indexes. You can control record block and set and index descriptions by using the optional XRECLINE and XSETLINE statements, respectively. The use of XRECLINE and XSETLINE can affect this output significantly.

The Cross-reference Report references sets and indexes by their unique number assigned by CA IDMS Schema Mapper. The numbers appear in the CA IDMS Schema Mapper data structure diagram within the set connection lines, close to the owners, members, and/or indexes.

The Cross-reference Report references the locations of record blocks in the data structure diagram by both page identifier and coordinate position. The page identifier is a two-character (alphabetic) identifier that shows on which page (the column and row) the upper left corner of a record block can be found in the data structure diagram. A record block that is referenced in the Cross-reference Report by the page identifier AB is in the first (or A) column that runs down the length of the diagram and the second (or B) row that runs across the width of the diagram.

The coordinate position is used to find the exact location of a record block in the CA IDMS Schema Mapper data structure diagram. A coordinate position is a combination of two numbers that refer to the position of the upper left corner of each record block in the diagram. The positions are numbered in units of character spaces, with the upper left corner of the diagram being the origin (0,0). The first number tells how many character spaces the record is from the left side of the diagram. The second number tells how many character spaces the record block is from the top of the diagram.

Cross-reference Report Field Descriptions

Field descriptions for the Cross-Reference Report (Exhibit 3.4) are described below:

- **RECORD NAME** field contains the REC-NAME of each record block in the CA IDMS Schema Mapper data structure diagram.
- **LOCATION** field contains the location of each record block in the diagram, given by coordinate position.
- **PAGE** field contains the location of each record block in the diagram, given by page identifier.
SET NUMBER field contains the unique number assigned to each set and index in the diagram.

SET OR INDEX NAME field contains the SET-NAME of each set and index in the diagram.

OWNER field contains the OWNER record names for each set. Integrated indexes are labeled SYSTEM (SR7).

LOCATION field contains the locations of the OWNER records, given by coordinate position.

PAGE field contains the location of OWNER records, given by page identifier.

MEMBER field contains the record names for each set and the following: the set name, set linkage options (N for next pointers, NP for next and prior pointers, NO for next and owner pointer, or NPO for next, prior, and owner pointers), disconnect and connect options (MA for mandatory automatic, MM for mandatory section, OA for optional automatic, or OM for optional section), and the order in which new records are positioned in the set (FIRST, LAST NEXT, PRIOR, or sorted).

LOCATION field contains the locations of the MEMBER records, given by coordinate position.

PAGE field contains the locations of the MEMBER records, given by page identifier.

<table>
<thead>
<tr>
<th>RECORD NAME</th>
<th>LOCATION</th>
<th>/ PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITY</td>
<td>94, 27</td>
<td>/ AA</td>
</tr>
<tr>
<td>ARTS</td>
<td>150, 27</td>
<td>/ BA</td>
</tr>
<tr>
<td>CLASS</td>
<td>94, 74</td>
<td>/ AB</td>
</tr>
<tr>
<td>CONTR-ROL</td>
<td>1, 12</td>
<td>/ AA</td>
</tr>
<tr>
<td>DEPT</td>
<td>39, 48</td>
<td>/ AA</td>
</tr>
<tr>
<td>DREPORT</td>
<td>39, 12</td>
<td>/ AA</td>
</tr>
<tr>
<td>GREPORT</td>
<td>39, 27</td>
<td>/ AA</td>
</tr>
<tr>
<td>MUSIC</td>
<td>150, 48</td>
<td>/ BA</td>
</tr>
<tr>
<td>PERIOD</td>
<td>94, 95</td>
<td>/ AB</td>
</tr>
<tr>
<td>PREREQ</td>
<td>39, 95</td>
<td>/ AB</td>
</tr>
<tr>
<td>ROOM</td>
<td>150, 95</td>
<td>/ BB</td>
</tr>
<tr>
<td>SCHEDULE</td>
<td>150, 12</td>
<td>/ BA</td>
</tr>
<tr>
<td>SPORTS</td>
<td>150, 74</td>
<td>/ BB</td>
</tr>
<tr>
<td>STUDENT</td>
<td>94, 12</td>
<td>/ AA</td>
</tr>
<tr>
<td>SUBJECT</td>
<td>39, 74</td>
<td>/ AB</td>
</tr>
<tr>
<td>TEACHER</td>
<td>94, 48</td>
<td>/ AA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SET NUMBER</th>
<th>SET OR INDEX NAME</th>
<th>OWNER</th>
<th>LOCATION</th>
<th>/ PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ACTIVITY-TYPES</td>
<td>ACTIVITY</td>
<td>94, 27</td>
<td>/ AA</td>
</tr>
<tr>
<td>/ AA</td>
<td>ARTS</td>
<td>150, 27</td>
<td>/ BA</td>
<td></td>
</tr>
</tbody>
</table>
USIC   150, 48 / BA

ACTIVITY-TYPES
NP  OA
LAST

PORTS   150, 74 / BB

ACTIVITY-TYPES
NPO  OM
LAST

    2 CLASS-SCHEDULE  CLASS  94, 74
/ AB  SCHEDULE  150, 12 / BA

CLASS-SCHEDULE
NPO  MA
ASC ROSTER-NO DL

    3 DEPT-ACADEMIC  DEPT  39, 48,
/ AA  SUBJECT  39, 74 / AB

DEPT-ACADEMIC
N0 MM
NEXT

    4 DEPT-GENERAL  DEPT  39, 48
/ AA  SUBJECT  39, 74 / AB

DEPT-GENERAL
N0 MM
NEXT

    5 DEPT-TEACHER  DEPT  39, 48
/ AA  TEACHER  94, 48 / AA

DEPT-TEACHER
NPO  OM
LAST

    6 IX-DEPT-NAME  SYSTEM (SR7)  DEPT
39, 48 / AA

IX-DEPT-NAME
N MA MODE = INDEX
ASC DEPT-NAME DF

Exhibit 3.4: Sample Cross-reference Report
Audit Report 6

The Audit Report contains a summary of all processing performed and a listing of all informative, warning, and error messages generated during program execution. See Messages (https://docops.ca.com/display/IDMSM/ADS+Alive+Messages) for a listing of all possible messages and suggested actions to be taken.

The Audit Report (Exhibit 3.5) contains:

1. Processing start date and time.

2. Informative messages that report processing starts and stops (and actions taken), and also provide a list of the parameters used.

3. Warning messages that report any conflicting parameter data encountered, and CA IDMS Schema Mapper's corrective actions.

4. Processing stop date and time.

CA IDMS Schema Mapper nn.nn mm/dd/yy CA PAGE 2

AUDIT REPORT

1. I001 Schema Mapper STARTED mm/dd/yy hh:mm:ss.

2. I002 PARAMETER INPUT PROCESS=SUBSCHEMA,
   SCHEMA=DSRR1016,VERSION=1,
   SUBSCHEMA=DBRR1
   I002 PARAMETER INPUT OPTIONS,
   COMPRESS=ON
   I010 Schema Mapper IS RUNNING UNDER IDMS VERSION nn.nn
   I007 THIS SCHEMA WAS COMPILED USING IDMS nn.nn <????>.
   I009 USING SCHEMA VERSION 1.
   I008 THIS SCHEMA WAS COMPILED ON mm/dd/yy.

3. W004 MINIMUM FRAGMENT SPECIFIED FOR NON-COMPRESSED FIXED RECORD MUSIC.
   W004 MINIMUM FRAGMENT SPECIFIED FOR NON-COMPRESSED FIXED RECORD ARTS.
   W004 MINIMUM FRAGMENT SPECIFIED FOR NON-COMPRESSED FIXED RECORD SPORTS.

4. I002 PARAMETER INPUT CHARDEF,
   RHORCHAR==,RVERCHAR=
   I002 PARAMETER INPUT DRECLINE REC-
   DESC
   I002 PARAMETER INPUT DRECLINE LOC-
   CTRL
   I002 PARAMETER INPUT XSETLINE SET-
   NAME
   I002 PARAMETER INPUT XSETLINE POINTE
   RS,MEM-OPT
   I002 PARAMETER INPUT INCLUDE AREA ST
   UDENT-REGION
   I002 PARAMETER INPUT INCLUDE AREA CL
   ASS-REGION
   I002 PARAMETER INPUT LOCATE STUDENT
   I002 PARAMETER INPUT LOCATE CLASS DO
   WN 2 FROM STUDENT
   I006 GENERATED STATEMENT LOCATE ACTIVITY
   DOWN 1 FROM STUDENT
   I006 GENERATED STATEMENT LOCATE ARTS
   RIGH
   T 1 FROM ACTIVITY
   I006 GENERATED STATEMENT LOCATE MUSIC
   RIGH
Output Examples

This section gives examples of output created with CA IDMS Schema Mapper. It gives examples of how optional parameters affect the diagrams and reports. Each example includes the parameter statements entered, an explanation of the task performed, and an illustration of the resulting output. Exhibit 4.1 lists the examples in this section.

<table>
<thead>
<tr>
<th>Example Parameter Statements</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 PROCESS only</td>
<td>To produce a data structure diagram and Cross-Reference Report by default.</td>
</tr>
<tr>
<td>2 CHARDEF and INCLUDE</td>
<td>To change the print characters used to draw the diagram and to represent only specified areas from the schema or subschema.</td>
</tr>
<tr>
<td>3 DRECLINE and XSETLINE</td>
<td>To modify the record blocks in the diagram and set descriptions in the Cross-Reference Report.</td>
</tr>
<tr>
<td>4 LOCATE</td>
<td>To section only position record blocks in the diagram.</td>
</tr>
<tr>
<td>5 PROCESS only</td>
<td>To produce output with multiple CALC and sort keys.</td>
</tr>
</tbody>
</table>

Exhibit 4.1: List of Examples

For more information, see the following topics:

- Example 5 (see page 72)
Example 5

Here, the user had a schema containing multiple CALC and sort keys. The purpose of this example is just to show what CA IDMS Schema Mapper does with multiple CALC and sort keys; it does not demonstrate an additional use of parameter statements.

**Parameters Entered**--The user entered a single PROCESS statement to request that CA IDMS Schema Mapper produce the data structure Diagram and Cross-Reference Report automatically and according to default values. See Exhibit 4.13.

**Output Produced**--Exhibits 4.14 and 4.15 show the data structure Diagram and the Cross-Reference Report. Note that every record block has enough space to accommodate the record type with the most CALC keys. Also note that every set description has enough space to accommodate the set with the most sort keys.

```
PROCESS=SUBSCHEMA, SCHEMA=DS16MULT, SUBSCHEMA=DB16MULTI, VERSION=1,
       DICTNAME=TKIT
```

*Exhibit 4.13: Example 5--Parameters Entered*
Example 5

Exhibit 4.14: Default CA IDMS Schema Mapper Data Structure Diagram with Multiple CALC Keys

CA IDMS Schema Mapper: mm/dd/yy hh:mm:
ss SUBSCHEMA DBRR1016, SCHEMA DSRR1016, VERSION 1, DICTNAME=TKIT, DBNAME=

<table>
<thead>
<tr>
<th>RECORD NAME</th>
<th>LOCATION</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITY</td>
<td>94, 27</td>
<td>AA</td>
</tr>
<tr>
<td>ARTS</td>
<td>150, 27</td>
<td>BA</td>
</tr>
<tr>
<td>CLASS</td>
<td>94, 74</td>
<td>AB</td>
</tr>
<tr>
<td>CON-TROL</td>
<td>1, 12</td>
<td>AA</td>
</tr>
<tr>
<td>DEPT</td>
<td>39, 48</td>
<td>AA</td>
</tr>
<tr>
<td>DREPORT</td>
<td>39, 12</td>
<td>AA</td>
</tr>
<tr>
<td>GREPORT</td>
<td>39, 27</td>
<td>AA</td>
</tr>
<tr>
<td>MUSIC</td>
<td>150, 48</td>
<td>BA</td>
</tr>
<tr>
<td>PERIOD</td>
<td>94, 95</td>
<td>AB</td>
</tr>
<tr>
<td>PREREQ</td>
<td>39, 95</td>
<td>AB</td>
</tr>
</tbody>
</table>
CA IDMS Schema Mapper: MM/DD/YY HH:MM:

SUBSCHEMA DBRR1016, SCHEMA DSRR1016, VERSION 1, DICTNAME=TKIT, DBNAME=

SET/INDEX CROSS-REFERENCE LISTING

<table>
<thead>
<tr>
<th>SET NUMBER</th>
<th>SET OR INDEX NAME</th>
<th>OWNER</th>
<th>LOCATION / PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ACTIVITY-TYPES</td>
<td>ACTIVITY</td>
<td>94, 27</td>
</tr>
<tr>
<td></td>
<td>/ AA ARTS</td>
<td></td>
<td>150, 27</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BA</td>
</tr>
<tr>
<td>2</td>
<td>CLASS-SCHEDULE</td>
<td>CLASS</td>
<td>94, 74</td>
</tr>
<tr>
<td></td>
<td>/ AB SCHEDULE</td>
<td></td>
<td>150, 12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>BA</td>
</tr>
<tr>
<td>3</td>
<td>DEPT-ACADEMIC</td>
<td>DEPT</td>
<td>39, 48,</td>
</tr>
<tr>
<td></td>
<td>/ AA SUBJECT</td>
<td></td>
<td>39, 74</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AB</td>
</tr>
<tr>
<td>4</td>
<td>DEPT-GENERAL</td>
<td>DEPT</td>
<td>39, 48</td>
</tr>
<tr>
<td></td>
<td>/ AA SUBJECT</td>
<td></td>
<td>39, 74</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>AB</td>
</tr>
<tr>
<td>5</td>
<td>DEPT-TEACHER</td>
<td>DEPT</td>
<td>39, 48</td>
</tr>
<tr>
<td></td>
<td>/ AA TEACHER</td>
<td></td>
<td>94, 48</td>
</tr>
</tbody>
</table>

ACTIVITY-TYPES
NP 0A
LAST

USIC 150, 48 / BA

ACTIVITY-TYPES
NP 0A
LAST

S

PORTS 150, 74 / BB

ACTIVITY-TYPES
NP 0M
LAST

M

NEXT

NEXT

NEXT
Schema Mapper Operations

This section covers CA IDMS Schema Mapper operations, including system requirements and storage requirements.

CA IDMS Schema Mapper runs under z/OS, Z/VSE, and z/VM operating systems:
- **z/OS Environments** (see page 75)
- **Z/VSE Environments** (see page 78)
- **z/VM Environments** (see page 80)

**Storage Requirements**

CA IDMS Schema Mapper needs 250K for program storage. If you are mapping a small schema /subschema (with less than 40 records), you need an additional 700K; a medium-sized schema /subschema (40 to 100 records) requires an additional 1700K.

**z/OS Environments**

**Contents**
- **z/OS JCL** (see page 76)
- **Key to z/OS JCL** (see page 76)
z/OS JCL

The JCL for z/OS execution is contained in Target or Distribution source library member USSEXEC and is shown below.

```
//SCHMAPR EXEC PGM=USSCMPR,TIME=10,REGION=#K //STEPLIB DD DSN=idms.custom.loadlib
// DD DSN=idms.cagjload,DISP=SHR
//-- JES2 CONTROL TO SUPPRESS PAGE EJECT ON DIAGRAM FILE
//-- OUTPUT DIAG LINECT=0
//-- JES3 CONTROL TO SUPPRESS PAGE EJECT ON DIAGRAM FILE
//-- FORMAT PR,DDNAME=DIAGRAM,OVFL=OFF
//SYSCTL DD DSN=idms.sysctl,DISP=SHR
//dictdb DD DSN=idms.dictionary,DISP=SHR
//SYSJRNL DD DUMMY
//-- DIAGNOSTIC AID FILES
//-- SYSPRINT DD SYSOUT=a
//-- SYSTEM DD SYSOUT=a
//-- OUTPUT DD SYSOUT=a
//-- OUTPUT FILES
//-- TRANSFER FILE
//SYSPCH DD DSN=schemapr.parm.transfer.file, DCB=(RECFM=FB,
LRECL=80,BLKSIZ=3280),
//-- SPACE=(TRK,1,1),UNIT=disk,DISP=(NEW,CATLG)
//-- AUDIT REPORT FILE
//SYSLST DD SYSOUT=a
//-- RECORD AND SET/INDEX CROSS REFERENCE FILE
//XREF DD SYSOUT=a
//-- DIAGRAM (MAP) FILE
//DIAGRAM DD SYSOUT=ds
//-- TEMPORARY WORK FILE
//SCRATCH DD SPACE=(TRK,1,1),UNIT=disk,
//-- DCB=(RECFM=F,LRECL=80)
//-- PARAMETER INPUT FILE
//STATFILE DD DSN=schemapr.stats.input.file,DISP=SHR
//SYSIPT DD DSN=schemapr.parm.input.file,DISP=SHR
//-- SYSIDMS DD *
SYSIDMS PARAMETERS...
/*
```

Key to z/OS JCL

- **#K** -- The amount of memory needed to execute CA IDMS Schema Mapper, in kilobytes. CA IDMS Schema Mapper needs about 250K for program storage. If you are mapping a small schema /subschema (with less than 40 records), you need an additional 700K; a medium-sized schema /subschema (40 to 100 records) requires an additional 1700K.

- **idms.custom.loadlib** -- The data set name of the library containing customized CA IDMS modules.

- **idms.cagjload** -- The data set name of the load library containing the vanilla CA IDMS executable software.

- **/*OUTPUT (JES2) and /**FORMAT (JES3)** -- These statements are needed only in z/OS environments for proper handling of page ejects in the DIAGRAM output. With these statements, the DIAGRAM will be in a separate SYSOUT data set from the rest of the output.
idms.sysctl -- The data set name of the CA IDMS system control file. This is used to request central version (CV) operation.

dictdb -- The DDNAME of the CA IDMS dictionary being accessed. DICTDB is the default. Your site may have changed the DDNAME in the dictionary DMCL. This statement is needed if running local mode.

idms.dictionary -- The data set name of the dictionary that contains the schema or subschema information.

SYSJRNL -- This statement is needed if running local mode.

a -- The appropriate SYSOUT class for your installation.

schemapr.parm and transfer.file -- The data set name of the Transfer File (output file) to which parameter statements are to be written.

ds -- For z/OS JES2 environments, replace with (a,,DIAG). Otherwise, use a. See a above for both.

disk -- The unit address of the disk drive you want to use for the CA IDMS Schema Mapper execution file or a generic assignment to indicate a disk drive allocation.

schemapr.stats and input.file -- The data set name of the statistics file that was created by CA IDMS/DB Analyzer

schemapr.parm and input.file -- The data set name of the file containing the parameter statements to be used as input. This can be either a Transfer File created by CA IDMS Schema Mapper during a previous run or a user-created file.

You must place a JOB card at the beginning of this JCL.

CA IDMS Schema Mapper writes the SCRATCH file and later reads it.

Instead of defining an input file (that contains parameter statements) with the SYSIPT statement in the preceding JCL, you can use this SYSIPT statement:

```bash
//SYSIPT DD *
```

followed by the parameter statements to be used as input.

The statistics file is needed only if you request one of the statistics fields in your output. If you do not request one of the statistics fields in your output, STATFILE can be DUMMY or undefined.

CA IDMS Schema Mapper treats a column of the diagram as a single logical page with no forced page ejects. In a z/OS environment, a page eject is usually created automatically for any SYSOUT file when the data does not include a page eject. This prevents CA IDMS Schema Mapper from writing more than 60 lines on a page. You need to include statements to suppress automatic page ejects.

The various releases of JES use different statements to suppress the automatic page eject. The sample JCL includes both JES2 and JES3 a statement for suppressing page ejects. Before using these statements, you need to check that their formats are appropriate for your environment.

You must use the following SYSIDMS statement:
followed by SYSIDMS parameters. This file is always required for the CA IDMS physical environment parameter input to be read. For instance, DMCL=xxxxxxxx must be specified, where xxxxxxxx is the name of the specific DMCL.

Z/VSE Environments

Contents
- Z/VSE File Assignments (see page 78)
- Z/VSE JCL (see page 78)
- Key to Z/VSE JCL (see page 79)

Z/VSE File Assignments

Even if you use a storage management tool such as CA-DYNAM, CA IDMS Schema Mapper requires an ASSGN statement for every file except SORTWKnn. This ASSGN is required because CA IDMS Schema Mapper has its own device-independent support which dynamically builds a DTF based on the device type indicated by the ASSGN. Unless the ASSIGN specifies VSAM or BDAM, the file may be defined with either DLBL or TLBL.

Z/VSE JCL

The JCL for Z/VSE execution is contained in TOOLJCL library member USSEXEC.S (Z/VSE)), and is shown below:

```jcl
// UPSI nnnnnnnnn FOR CENTRAL VERSION EXECUTION
// OPTION PARTDUMP DUMP REQUESTED FOR ERROR ABORTS
// ASSGN SYSIPT,SYSRDR PARAMETER FILE(INPUT)
// ASSGN SYSCH,00D FOR TRANSFER FILE(OUTPUT)
// ASSGN SYSLST,00E AUDIT REPORT FILE(OUTPUT)
// ASSGN SYS010,00E DIAGRAM FILE(OUTPUT)
// DLBL SCRATCH,'schemapr.work.file',0,SD
// EXTENT SYS012,volser,,0,starttrack,#tracks
// ASSGN SYS012,DISK,VOL=volser SCRATCH/WORK FILE(OUTPUT/INPUT)
// DLBL STATFIL,'dbnlyzr.stats.file',0,SD
// ASSGN SYS013,DISK,VOL=volser OPTIONAL STATISTICS FILE
// EXTENT SYS013,volser,,0,starttrack,#tracks // ASSGN SYS014,00E XREF REPORT FILE(OUTPUT)
* ******************************************************************
* If running in LOCAL mode, include dataset containing the DDLML area *
* of the dictionary containing the description of the desired subschema *
* ******************************************************************
// DLBL DICTDB,'your.dict.ddlml'
// EXTENT SYSnnn,volser,,0,starttrack,#tracks
// ASSGN SYSnnn,DISK,VOL=volser SHR
* ***************************************************************
* LOAD LIBRARIES-----------------
// DLBL DBMS,'your.loadlib' CA/IDMS-TOOLS INSTALLED IN *
// EXTENT .volser
// DLBL IDMS,'idms.loadlib' CA/IDMS INSTALLED
// EXTENT .volser * ***************************************************************
***
/* For Z/VSE use the following statement
// LIBDEF CL,SEARCH=(IDMS,DBMS)
```
* ***************************************************************
// SYSIDMS,'#SYSIPT',0,SD
// EXEC USSCMPR,SIZE=(USSCMPR,512K) EXECUTE Schema Mapper
/*
* ***************************************************************

Key to Z/VSE JCL

- nnnnnnnn -- The UPSI byte settings appropriate to the IDMSOPTI module, which you have linked with CA IDMS Schema Mapper, and to the method you are using to access CA IDMS--Local Mode or central version (CV).

- 00D -- The unit address of your punch device.

- 00E -- The unit address of your printer device.

- schemapr.work. and file -- The name of the scratch/work file that is used for Parameter File input and Transfer File output.

- volser -- The volume serial number or generic assignment of the disk volume on which the file, specified in the previous statement, resides.

- starttrack -- Available disk extent on the work disk volume (1 to 6 digits).

- #tracks -- Sufficient space for the input Parameter File (1 to 6 digits). Ten tracks is usually sufficient space.

- your.dict.ddldml -- The data set containing the DDDLML area of the dictionary containing the description of the desired subschema.

- your.loadlib -- The data set name of the core image library into which you downloaded CA IDMS Schema Mapper.

- idms.loadlib -- The data set name of the core image library in which your DMCL and subschema reside.
• **DBMS.sublib and IDMS.sublib** -- The sublibrary name of the Z/VSE library specified in the previous file name.

• **your.sysctl.file** -- The file name of your SYSCTL file.

• **SYSnnn** -- The programmer logical unit for the file specified in the previous DLBL statement.

• **dmcl-name** -- Specify the name of the DMCL that should be used when accessing the dictionary.

**Note:** When running in local mode, the job control for the dictionary can be defined in standard labels or partition standard labels instead of in stream.

The size parameter in this JCL specifies the PPA space needed for CA IDMS Schema Mapper and CA IDMS program storage. The remainder of the partition will be used for GETVIS storage.

The amount of GETVIS storage required depends on the size of the schema/subschema you are mapping. If you are mapping a small schema or subschema (with less than 40 records), you need about 700K; a medium-sized schema or subschema (40 to 100 records) requires about 1700K.

The files in this JCL can be ASSGNed to any device type on the system that has or that can receive the data for CA IDMS Schema Mapper to operate. (There is full device independence.) If you use disk, DLBL and EXTENT JCL must be provided either in the above JCL or in standard labels. If you use labeled tape, TLBL JCL must be included in the above JCL. Here are the DLBL/TLBL names for the corresponding file ASSGN control statements:

```
DIAGRAM SYS010 SCRATCH SYS012 STATFILE SYS013 XREF SYS014
```

These are the names for tape; disk names will be truncated to the first seven characters as necessary. Also, CA IDMS Schema Mapper writes the SCRATCH file; then reads it.

If you do not want a dump when a CA IDMS Schema Mapper job terminates abnormally, you can include a // OPTION NODUMP control statement in the JCL. If you do not use // OPTION NODUMP or if you choose to include // OPTION DUMP or // OPTION PARTDUMP, a dump will be produced for an abend in addition to any diagnostic messages from CA IDMS Schema Mapper and the Pascal run-time modules.

### z/VM Environments

**Contents**
- z/VM EXEC (see page 81)
- Key to z/VM EXEC (see page 82)
A sample z/VM EXEC for executing CA IDMS Schema Mapper appears below. Variables (italics) are explained in the key following the EXEC.

Note: Separate load modules should be generated for CV and local mode execution. See the CA IDMS installation section for your operating system for details.

/* */
TRACE OFF; SIGNAL ON ERROR
/* */
CA_LOADLIB_FN = 'yourlib'
IDMS_LOADLIB_FN = 'idmslib'
/* */
/* Link and access the Minidisks containing the required librarie(s) */
/* */
'CP SPOOL PRINTER NOCONT CLOSE'
'CP SPOOL PRINTER TO * NOHOLD CONT FORM OFF DIST OFF'
'GLOBAL LOADLIB ' CA_LOADLIB_FN IDMS_LOADLIB_FN
/* */
/* Product specific files. */
/* */
'FILEDEF SYSTERM PRINTER'
'FILEDEF SYSPRINT PRINTER'
'FILEDEF SYSUDUMP PRINTER'
'FILEDEF SYSLST PRINTER'
'FILEDEF XREF PRINTER'
'FILEDEF DIAGRAM PRINTER'
'FILEDEF SCRATCH PRINTER'
'FILEDEF SYSPCH DISK USSEXEC SYSPCH A'
'FILEDEF SYSIPT DISK USSEXEC SYSIPT A'
/* SYSCTL file - remove for local mode operation */
'FILEDEF SYSCTL DISK sysctl ft fm'
/* */
/* If you are running in Local Mode remove the comments from the */
/* next 4 Dictionary and Journal FILEDEF statements. */
/* */
'FILEDEF DICTDB DISK dictfn dictft dictfm ( dcb extent
'FILEDEF DMSGDB DISK dmsgfn dmsgft dmsgfm ( dcb extent
'FILEDEF DLODBB DISK dlodfn dlodf dloofm ( dcb extent
'FILEDEF SYSJRNL DUMMY'
/* */
/* CA IDMS/DB ANALYZER Statistic File. */
/* */
/* Include the following file definition if CA IDMS/DB ANALYZER */
/* have been specified for CA IDMS/Schema Mapper. */
/* */
'FILEDEF STATFILE DISK statfn statft statfm'
/* */
/* You must create a file 'SYSIDMS INPUT A' containing the SYSIDMS */
/* parameters you use to specify your runtime environment. */
/* */
'FILEDEF SYSIDMS DISK SYSIDMS INPUT A'
/* */
SIGNAL OFF ERROR
'SAY 'STARTING CA IDMS/Schema Mapper'
'EXECOS OSRUN USSCMPR'
USSCMPR RC = RC
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USSEXEC LISTING'
'CP SPOOL PRINTER OFF'
SAY 'USSEXEC FINISHED WITH A RETURN CODE OF' USSCMPR_RC
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT USSCMPR_RC
/*
/++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
/*
ERROR:
/++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
ERROR_RC = RC
TRACE OFF; SIGNAL OFF ERROR
/*
SAY 'NON-ZERO RETURN CODE ENCOUNTERED IN EXEC AT LINE' SIGL
/*
'CP SPOOL PRINTER NOCONT'
'CP CLOSE PRINTER NAME USSCMPR LISTING'
'CP SPOOL PRINTER OFF'
'GLOBAL LOADLIB'
'FILEDEF * CLEAR'
EXIT ERROR_RC
/*
*/

Key to z/VM EXEC

- **yourlib** -- The file name of the load library into which you downloaded CA IDMS Schema Mapper.
- **idmslib** -- The file name of the load library containing your CA IDMS load modules.
- **dictfn dictft dictfm** -- The file name, file type, and file mode of the CA IDMS Data Dictionary Directory area.
- **sysctl fm ft** -- The file name, file type, and file mode of the CA IDMS SYSCTL file.
- **dmsgfn dmsgft dmsgfm** The file name, file type, and file mode of the CA IDMS Data Dictionary Message area.
- **dlodfn dlodft dlodfm** -- The file name, file type, and file mode of the CA IDMS Data Dictionary Load area.
- **dcb extent** -- The data control block (dcb) and extent information required for the dictionary files.
- **ststfn ststft ststfm** -- The file name, file type, and file mode of the statistics file created by CA IDMS/DB Analyzer.
- **USSEXEC SYSPCH A** -- The file name, file type, and file mode of the transfer file (output file) to which parameter statements are written.
- **USSEXEC SYSIPT A** -- The file name, file type, and file mode of the file containing the input parameter statements.

The FILEDEFS for DICTDB, DMSGDB, DLODDB, and SYSJRNL can be removed when running under CV.