AS/400

Application Development ToolSet for AS/400 Report Layout Utility

Version 4

SC09-2635-00

AS/400

Application Development ToolSet for AS/400 Report Layout Utility

Version 4

SC09-2635-00

Note!

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

First Edition (February 1998)

This edition applies to Version 4 Release 2 Modification Level 0, of IBM Application Development ToolSet for AS/400, (Program 5769-PW1), and to all subsequent releases and modifications until otherwise indicated in new editions. Make sure you are using the correct edition for the level of the product.

Order publications through your IBM representative or the IBM branch office serving your locality. Publications are not stocked at the address given below.

A form for readers’ comments is provided at the back of this publication. If the form has been removed, address your comments to:

IBM Canada Ltd. Laboratory
Information Development
2G/345/1150/TOR
1150 Eglinton Avenue East
North York, Ontario, Canada. M3C 1H7

You can also send your comments by facsimile (attention: RCF Coordinator), or you can send your comments electronically to IBM. See “Communicating Your Comments to IBM” for a description of the methods. This page immediately precedes the Readers’ Comment Form at the back of this publication.

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

Contents

Notices

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM licensed program in this publication is not intended to state or imply that only IBM's licensed program may be used. Any functionally equivalent product, program or service that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, is the user's responsibility.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Licensing, IBM Corporation, 208 Harbor Drive, Stamford, Connecticut, USA 06904-2501.

This publication contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

Trademarks and Service Marks

The following terms, denoted by an asterisk (*), used in this publication, are trademarks or service marks of International Business Machines Corporation in the United States or other countries:

Application Development
Application System/400
AS/400
IBM
IBMLink
Operating System/400
OS/400
PROFS
400

About This Book

This book contains exercises and reference information to help you learn how to use the report layout utility (RLU) to design simple and complex reports. The report layout utility is referred to as *RLU* throughout this book. You can use RLU to design and print reports.

This book contains information on:

- Starting RLU
- Creating and editing source members
- Using record formats and fields for your report designs
- Defining characteristics of printer files
- Saving report designs as Data Description Specifications (DDS) source members
- Printing prototypes of the reports
- Designing a simple report
- Designing a complex report

This book does not describe all the functions of RLU.

Throughout this book, (A) after a function key indicates that the key is part of the alternative set of keys, and (B) after a function key indicates that the key is part of the base set of keys on the Design Report display.

You may need to refer to other IBM* manuals for more specific information about a topic. The *Publications Reference*, SC41-5003, provides information on all publications in the Application System/400* (AS/400*) library.

For a list of related publications, see the “Bibliography” on page 129.

Who Should Use This Book

This book is intended for application programmers and system programmers who work in an AS/400 environment. To use this book effectively, you must know how to use your workstation, understand and use messages, and have a general knowledge of the AS/400 system. If you are unfamiliar with your workstation, refer to the specific manual for it.

Chapter 1. Report Layout Utility Overview

Using the report layout utility (RLU), a part of the Application Development* ToolSet for AS/400 licensed program, you can create and edit source members on the Application System/400* (AS/400) system. RLU source members in source physical files contain the printer file Data Description Specifications (DDS) for a report design that you lay out by using RLU. The report design looks like an actual listing you generate with a high-level-language (HLL) program. Using RLU, you specify the information required for DDS, and RLU creates or changes the source member.

The DDS uses keywords to define your report design. Keywords associated with a field are called field-level keywords, keywords associated with a record are called record-level keywords, and keywords associated with an entire printer file are called file-level keywords.

You can perform the following tasks with RLU:

- Design a report by defining it on the display, saving it as DDS source, and creating a printer file.
- Create a prototype of a report by printing the report design at any time to make sure that the reports looks the way you want.

Summary of Features

You can use the following features to edit your report design:

Sequence Line Commands
You can use sequence line commands on the Design Report display to copy, move, repeat, insert, exclude, and delete lines, to define a field or a record type, and to display a columns ruler.

Command Line Commands
You can use session-specific display commands on the Design Report display to position the display, change editing options, find character strings, hide lines, save changes to a report, and exit from RLU.

Services Displays
Services displays are used to change your edit environment when you work with your report design. The following services displays are available:

- Change Session Defaults

  Use this display to see the current information about your edit session and to change it.

- Find/Change Options

  Use this display to search for a particular character string in part or all of your report design, or to change a particular string in some or all lines.

- Browse/Copy Options

  Use this display while you are editing your report design to look at another source member, to copy another member into the one you are working with, or to copy specific records from another source member into the report design you are editing.

Split Session Editing and Browsing

You can split the Design Report display into two parts so that you can edit one report design and display another source member at the same time. You can use this feature with the Browse/Copy display to copy records from an existing source member shown on the display into the report design you are currently editing.

Full Screen Mode

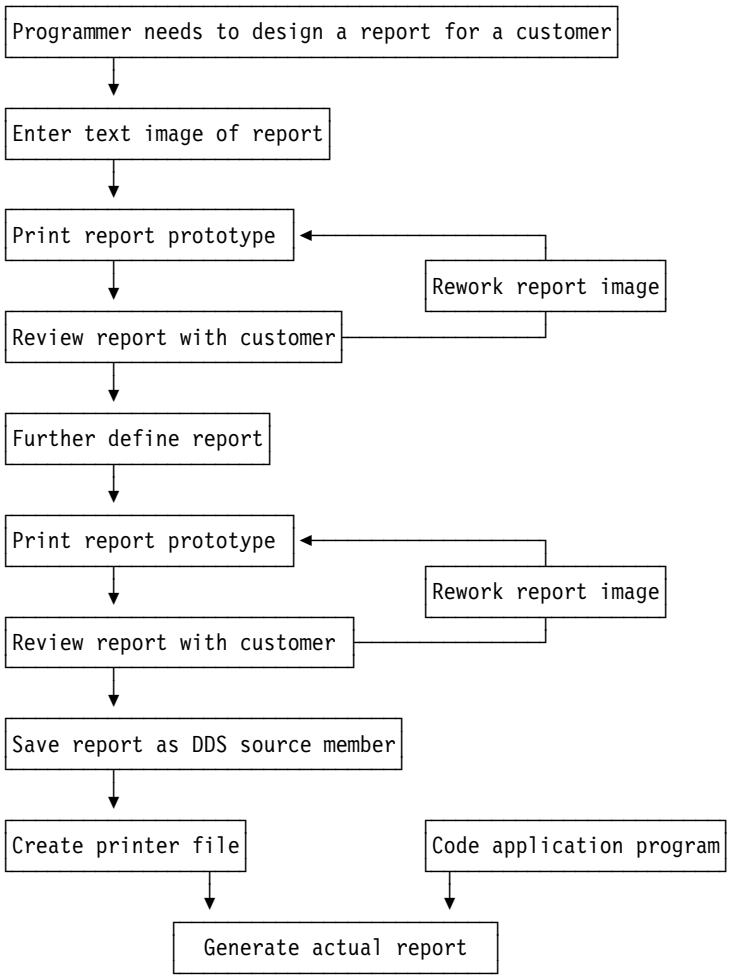
You can set your Edit or Browse display to full screen mode to remove function keys from the bottom portion of the display and to display additional lines for the report design.

Semantic Checking

You can run semantic checking on the DDS source you define with RLU to help you create and change error-free source members.

Typical Task Flow for Designing a Report

The typical task flow for designing a report using RLU is:



The following steps provide an overview of how to use RLU when you are designing a report:

1. Start an RLU session with the Start RLU (STRRLU) command, specifying a new source member to create or an existing one to edit or print.
2. Create a new report design or edit an existing report design on the Design Report display. While editing the report, use line commands to copy, move, and delete lines. You can also set tabs or display a columns ruler to make data entry easier. If you want to copy another report design, use the Browse/Copy option.
3. Use RLU line commands and function keys to define record formats and fields within record formats. When you are defining a record format, you can specify a record format name and record-level keywords. When you are defining a field, you can specify a field name, type, length, and position, and you can specify field-level keywords.
4. To condition fields and keywords, define indicators that you can set on or off at any time during the edit session.
5. Create sample data for fields to give your report design a more realistic appearance on the Design Report display and when you print it.
6. Print a prototype of your report at any time during an RLU edit session by specifying that you want to print a prototype of your report as defined so far.
7. Change record formats as required by using line commands to perform operations, such as, copying, moving, and inserting. You can merge record formats together, and specify page breaks between them. Edit field lengths and positions by using the field lines, or change field information by using function keys. You can also work with existing fields by selecting them from a list.
8. Describe your printer file, if necessary, by using an RLU function key to specify file-level keywords.
9. Complete your edit session by using the Exit RLU display. You can save the changed member as DDS source, ignore the changes you made and leave the existing source member unchanged, or resume your edit session. You can create a printer file for your report design, and print a report prototype.

Limitations of RLU

RLU does not support the following:

- Wrapping of fields when you create a printer file

  The entire field is dropped if the field is outside the report width boundaries.

- Some keyword assignments in the report image on the display

  When you specify some keywords, such as, the HIGHLIGHT keyword and the UNDERLINE keyword, the keyword is added to the DDS, but you do not see the effect of the keyword on the Design Report display.

- Specification or changing of the DDS keywords required for Advanced Function Printing Data Stream (AFPDS) support

  Sample data is not supported in AFPDS records. If you are working in an RLU session with both non-AFPDS records and AFPDS records, you cannnot generate sample data for the non-AFPDS records. If you try to generate sample data, unexpected layout results occur when you create a prototype of the report.

  For more information on how RLU processes the DDS keywords required for AFPDS support, see “RLU-Tolerated Advanced Function Printing Data Stream Keywords” on page 105.

- More than one record format on the same line

  You cannot print the end of one record format and the beginning of the next record format on the same line. In this situation, the Skip Before (SKIPB) spacing keyword is automatically specified.

- Using the source entry utility (SEU) to edit DDS source created or changed with RLU

  If you use SEU to edit DDS source that is created or changed with RLU, you may create a source member that is incompatible with RLU. For information about SEU, refer to *ADTS for AS/400: Source Entry Utility*, SC09-2605.

Chapter 2. Starting RLU

You can start RLU as follows:

- From the AS/400 Main Menu
- From the programming development manager (PDM)
- By typing the Start Report Layout Utility (STRRLU) command with parameters

Starting RLU from the AS/400 Main Menu

To start RLU from the AS/400 Main Menu, type `STRRLU` on the command line, and press F4 (Prompt)(A). The Start Report Layout Utility (STRRLU) display appears.

Starting RLU from the Programming Development Manager

To start RLU from PDM, perform one of the following tasks:

- Type `STRRLU` and the appropriate parameters on the command line of the AS/400 Programming Development Manager (PDM) menu, and press Enter.
- Type `STRRLU`, and press F4 (Prompt)(A) on the command line of the AS/400 Programming Development Manager (PDM) menu.
- Select option 19 (Change using RLU) from the Work with Members display.

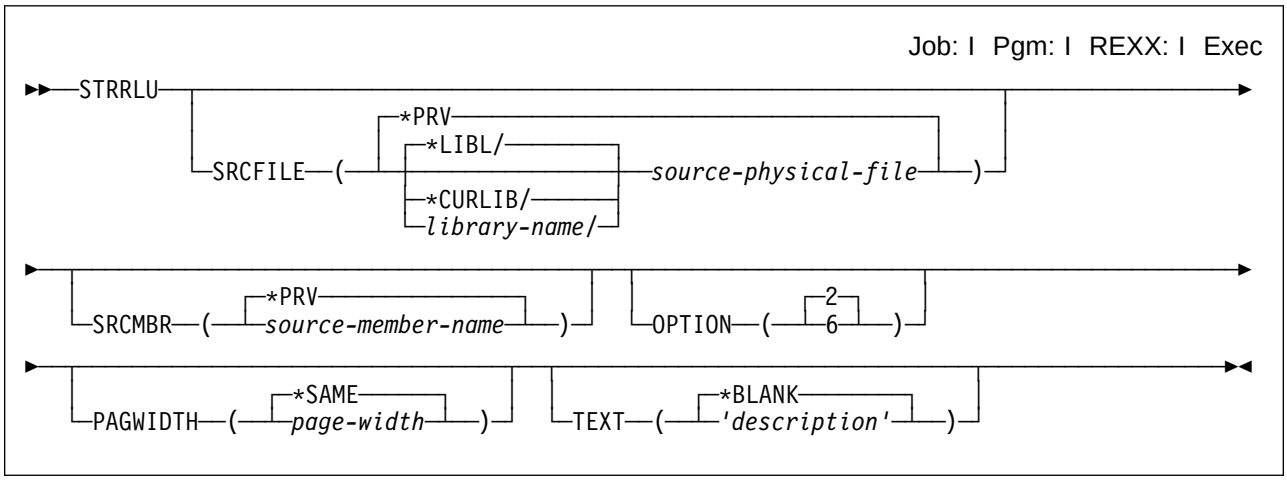
For information about PDM, refer to *ADTS/400: Programming Development Manager*, SC09-1771.

Start Report Layout Utility (STRRLU) Command

You can either edit an RLU source member or print a report prototype using the STRRLU command.

The STRRLU command can create an RLU source member but it cannot create the source file used to contain the source member. Use the Create Library (CRTLIB) command to create a library for the source file, and use the Create Source Physical File (CRTSRCPF) command to create a source file. For information about creating source files and libraries, see the *CL Reference*, SC41-5722.

STRRLU Command Syntax



Note: Online help information is available to help you interpret the syntax diagram.

SRCFILE: Specifies the qualified name of the source physical file that contains the member to be changed or created from a previous session, or the source physical file in which to store a new member.

***PRV:** The previous source physical file name is used.

The possible library values are:

***LIBL:**
The library list is used to locate the source physical file.

***CURLIB:**
The current library for the job is used to locate the source physical file. If no library is specified as the current library for the job, the QGPL library is used.

library-name
The library name where the physical file is located.

source-physical-file: Specify the qualified name of the source physical file.

SRCMBR: Specifies the name of the source member to be changed or created. The default value for this parameter will change when the user specifies the SRCFILE parameter.

***PRV:** The name of the previous source member is used.

source-member-name: Specify the name of the source member to be changed or created from a previous session, or the name to use if a new member is created.

OPTION: Specifies the option to use when working with a report.

2: This option changes a report.

6: This option prints the report.

PAGWIDTH: Specifies the page width for the report to be printed. The first time this command is used, the page width is set to 132 if another value is not specified. The default is *SAME.

***SAME:** Specifies the same report width used when you created or last changed the report.

page-width: Specify the width of the report. Valid values range from 1 through 378.

TEXT: Specifies text that describes the member. This text is stored in the text field for the member. For an expanded description of this parameter, see the *CL Reference*.

***BLANK:** This is the default for a new member. This value directs the RLU to specify blanks in the text field of the member. For an existing member, this value does not change the text field of the member.

'description': Specify no more than 50 characters of text, enclosed in apostrophes.

Example: This example starts RLU by searching your library list (*LIBL) for the source member TBILLS in source file QDDSSRC. The Design Report display is shown with an image of the report for you to change (OPTION(2)). The report image is 80 characters wide (PAGWIDTH(80)).

```
STRRLU SRCFILE(*LIBL/QDDSSRC)
   SRCMBR(TBILLS) PAGWIDTH(80) OPTION(2)
   TEXT('Interest rates for all T-bill holdings')
```

Chapter 3. Designing a Report

With RLU, you can design the textual image of a report without exiting from the Design Report display. You can then save the report design and print it at the same time.

When you are designing a report, you can use sequence line commands, command line commands, and Control Language commands. This chapter contains rules to follow when you are typing any of these commands.

You can perform the following tasks on the Design Report display:

- Change the edit session environment
- Position the display
- Exclude lines on the display
- Show excluded lines on the display
- Shift lines without truncating data
- Shift lines and truncate data
- Create horizontal windows
- Show format lines
- Prompt for a record
- Define and insert skeleton lines
- Show and set tabs

When you are editing a report, you can copy lines, move lines, repeat lines, insert lines, and delete lines in a report. You can also:

- Search for a specific string
- Specify the Browse/Copy Option
- Edit a member while browsing another member or spooled file
- Switch to full screen mode editing
- Print a report prototype

Rules for Entering Sequence Line Commands

When you are entering line commands to perform various operations on the Design Report display, be aware of the following rules:

- Type the line command anywhere in the sequence number area, if the sequence number area contains a sequence number.
- Type the line command starting in the first position of the sequence number area followed by a blank, if the sequence number area does not contain a sequence number.
- Type suffixes (such as numbers) immediately after the command and without a blank separating the suffix and the command.
- You can perform more than one operation at a time if the line commands (Delete, Move, and a positional command, for example) do not conflict.

- The following commands cannot overlap, meaning that they cannot affect the same line on the display:
  - Copy
  - Move
  - Repeat
  - Insert
  - Shift
  - Exclude
  - Show
  - Delete
- If you enter only some of the necessary line commands for an operation, the operation is pending and RLU indicates this at the top of the display in the area normally occupied by the library and file name of your current source member.

Rules for Entering Command Line Commands

When you are entering commands in the command line to perform various operations on the Design Report display, be aware of the following rules:

- Type the command anywhere in the command line at the top of the display.
- When you enter commands during a split session on the Design Report display, a command is either session-dependent, meaning that the command performs its function on one session only, or session-independent, meaning that the command performs its function on both sessions, regardless of the location of the cursor.

  The following commands are session dependent:
  - FIND
  - CHANGE
  - SET MATCH
  - SET SHIFT
  - SET TABS
  - TOP
  - BOTTOM
  - FILE
  - SAVE
  - HIDE

Rules for Entering Control Language Commands

While you are working on the Design Report display in RLU, you can enter CL commands. Press F21 (System command)(A) to display the System Command window in which you enter CL commands.

Depending on the cursor location, the System Command window may appear in the top portion or in the bottom portion of the Design Report display. You cannot enter data on the display while the System Command window is showing.

For help in selecting a system command, press F4 (Prompt)(A) without typing anything in the window. For help in entering a system command, type the command in the window and press F4 (Prompt)(A). To see more information about a system command, type the command and press Help or F1 (Help).

Changing Your Edit Session Environment

Before you begin to edit your report design or while you are in your edit session, you can change the defaults that determine, for example, how you see the Design Report display, what kind of input is allowed, and whether or not semantic checking is active.

To change or to look at these defaults, press F13 (Change session defaults) (A) on the Design Report display. The Change Session Defaults display appears.

The default is shown for each field on the Change Session Defaults display. Specify a new value for each field or press Enter to use the default values. Some default values are dependent on the value you entered and used during your last RLU edit session.

By typing the appropriate values on this display, you can do the following:

- Use the *Amount to roll* prompt to specify the number of lines to move when you press the roll keys.
- Use the *Uppercase input only* prompt to allow mixed case input during your edit session.
- Use the *Show all field lines* prompt to automatically display all the field lines for all lines that contain at least one field and all the field lines displayed with a line command.
- Use the *Full screen mode* prompt to use RLU in full screen mode.
- Use the *Insert marked data* prompt to specify whether or not you want RLU to insert marked blocks of data for a copy or move operation, rather than overlay existing data in the target area.
- Use the *Replace marked data* prompt to specify whether or not you want RLU to shift existing data to the left to replace the marked data during a move operation, rather than replace the marked data with blanks.
- Use the *Semantic checking* prompts to:
  - Specify whether or not you want RLU to check each line as you add or change it.
  - Specify the particular range of lines that you want RLU to check for a one-time semantic check.
- Use the *Printer device type* prompt to specify the type of printer you are using. Semantic checking is sensitive to the printer device type. For example, some keywords are only valid for certain printers. The printer device type you specify determines the default parameter value for DEVTYPE on the Create Printer File (CRTPRTF) display. For more information about how semantic checking works in RLU, see Appendix C, “Semantic Checking in the Report Layout Utility” on page 115.

- Use the *Record format spacing* prompt to select the default record spacing keyword assigned when you define a new record format. You can select one of the following:

  SPACEB This is the default record format spacing keyword generated by RLU. If you accept the SPACEB default, the SPACEB(001) keyword is automatically added when a new record is defined if there are no filler lines preceding the record.

  SPACEA If you specify SPACEA as the default record spacing keyword, the SPACEA(001) keyword is automatically added when the record is defined if the record does not span multiple lines (that is, there are no continuation lines for the new record).

  No spacing If there are no associated filler lines or continuation lines, no spacing keyword is added to the new record.

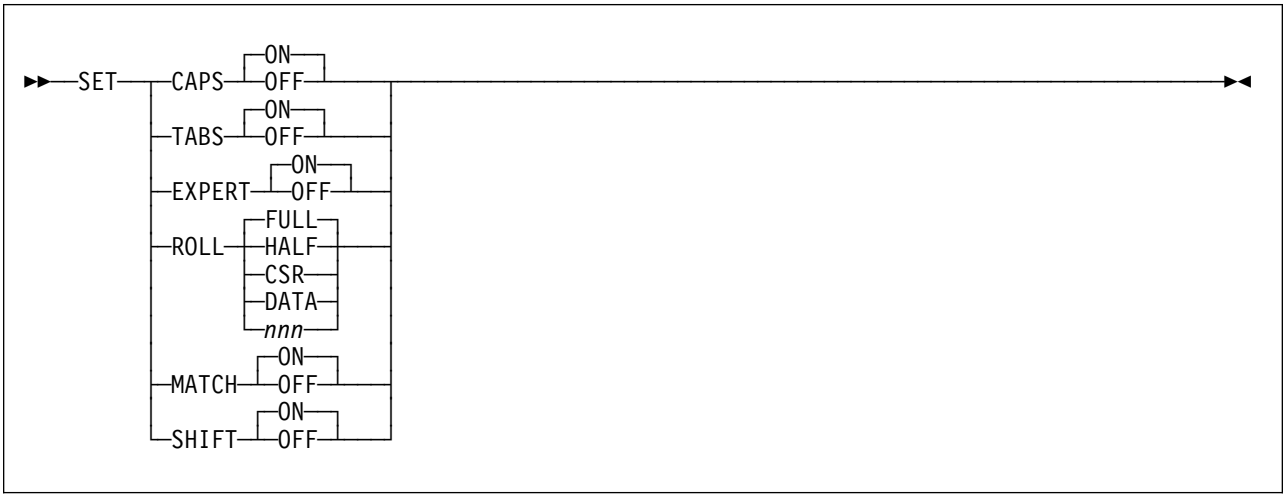
  Note: The default record format spacing value you specify will be overridden if it conflicts with RLU spacing rules. For more information on RLU spacing rules and on selecting record format spacing, refer to “Specifying Record Format Spacing” on page 54.

For more information about the possible values for each prompt, place your cursor on the appropriate line of this display, and press Help or F1 (Help). Online help information that explains how to use the prompt is displayed.

SET Command

Tailors find and change operations and session defaults. The short form for the SET command is S.

Command Syntax



CAPS
Specifies whether the source text, find string, and change string that you enter are in uppercase only or in mixed case. The initial value depends on the source member type and your user profile. In a Browse display, the initial value is OFF.

The possible values are:

ON
Specifies uppercase.

OFF
Specifies mixed case.

TABS
Specifies whether the tabs you set with the Tabs line command are active. The initial value depends on your user profile.

The possible values are:

ON
Specifies that tabs are active.

OFF
Specifies that tabs are not active.

EXPERT
Specifies the mode of your edit or browse session. The initial value depends on your user profile.

The possible values are:

ON
Specifies normal mode.

OFF
Specifies full screen mode.

ROLL
Specifies the number of lines or columns that move on the display at one time when you press the Page Up key, Page Down key, F19 (Left), or F20 (Right). The initial value depends on your user profile.

The possible values are:

FULL or **F**
Specifies that the display moves one full display.

HALF or **H**
Specifies that the display moves one half of a display.

CSR or **C**
Specifies that the display moves by the position of the cursor.

DATA or **D**
Specifies that the display moves one full display minus one line or column.

nnn
Specifies that the display moves by 1 to 999 number of lines or columns.

MATCH
Specifies whether the case of the letters must match in a search string. The initial value is OFF.

The possible values are:

ON
Specifies that uppercase and lowercase letters must match.

OFF
Specifies that uppercase and lowercase letter do not have to match.

SHIFT
Specifies whether data is shifted when a string is replaced. The initial value depends on the source member type.

The possible values are:

ON
Specifies that data is shifted.

OFF
Specifies that data is not shifted.

Note: The parameters that you enter for the SET command (except for TABS) also appear in the corresponding prompts of the Change Session Defaults display.

Positioning the Design Report Display

To position your report image on the display, type one of the following sequence line commands in the sequence number area of the appropriate line:

n	(Where *n* is a line number) to move the display so that line *n* is at the top
+n	(Where *n* is a number) to move forward by *n* lines
-n	(Where *n* is a number) to move backward by *n* lines

To position the display to the top line of the display, type `TOP` or T.

To position the display to the last line of the display, type `BOTTOM` or B.

You can also use the roll keys to position the display.

Excluding Lines on the Design Report Display

To exclude lines, type one of the following sequence line commands in the sequence number area of the appropriate lines:

`X`	To exclude this line from the display
`X`*n*	(Where *n* is a number) to exclude *n* lines (beginning with this one) from the display
`XX`	To exclude all the lines between (and including) this one and the next occurrence of `XX` from the display

Showing Excluded Lines on the Design Report Display

To show lines from a group of lines you previously excluded, type one of the following sequence line commands in the sequence number area of the appropriate lines:

`SF`	To show the first line in this group of excluded lines
`SF`*n*	(Where *n* is a number) to show the first *n* lines in this group of excluded lines
`SL`	To show the last line in this group of excluded lines
`SL`*n*	(Where *n* is a number) to show the last *n* lines in this group of excluded lines

Notes:

For Exclude and Show line commands:

1. You can use the Exclude line command with the Find/Change Options display to search only certain lines.
2. You can press F5 (Refresh) to show all excluded records.
3. Semantic checking is not affected by the Exclude line command.

HIDE Command

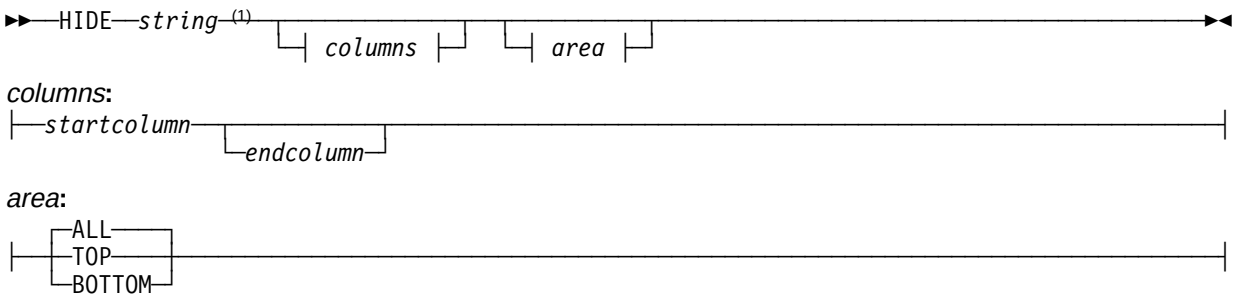
Specifies that lines containing a particular character string be hidden. The short form of HIDE is H. You can enter the command on any RLU command line.

The HIDE command is session dependent on split displays. For example, if you enter the HIDE command on the RLU command line of the top session, only the member in the top session is affected. In addition, the HIDE command in the bottom session of a split display hides up to 100 blocks of records only. A HIDE request beyond this limit is ignored.

When you enter a valid HIDE command, RLU searches for the lines that contain the specified string. You can specify that the search be from the position of the cursor to the end of the member, from the position of the cursor to the beginning of the member, or of all records in the member. You can also specify that the search is for the area between particular columns. The records that match the conditions that you specify are hidden but remain in the member.

In an Edit session, a special record is displayed with a message that states the number of records that are hidden from the display. In a Browse session, the special record is not displayed; however, a message is displayed once to show the number of hidden records.

Command Syntax



Note:
1 You can specify the parameters after this point in any order.

string
The character string that you want to hide. If the string includes leading, embedded, or trailing blanks, apostrophes, or quotation marks, enclose the string in apostrophes or quotation marks.

columns
The column range in which you want to search. Type a number for the starting column and another number for the ending column, separated by a blank. If you type only one number, it is assumed to be the starting column.

If you do not specify the *columns* parameter, all columns are searched.

area
The area of the member in which records are hidden. The possible values are:

ALL or **A**
Hides all the records that contain the string.

TOP or **T**
Hides all the records that contain the string from the line where the cursor is positioned to the top of the member.

BOTTOM or **B**
Hides all the records that contain the string from the line where the cursor is positioned to the bottom of the member.

Examples: The following examples show the AREA parameter of the HIDE command:

```
HIDE '*' 7 7 A
```

This command hides all records in the member that contain `'*'` in column 7. You can use this HIDE command to hide all comments in a COBOL source member.

```
HIDE '*%%' T
```

This command hides all records from the cursor position to the top of the member that contain `'*%%'`. Because the columns are not specified, the string can occur in any position in the line. You can use this HIDE command to hide comments in a PRTF member that was created in RLU. You can redisplay the hidden lines by using the Show line command.

Shifting Lines without Truncating Data

To shift data in a line or in a block of lines without truncating data, type one of the following sequence line commands in the sequence number area of the appropriate lines:

`L`	To shift data in this line one position to the left
`L`*n*	(Where *n* is a number) to shift data in this line *n* positions to the left
`LL`	To shift the data in all the lines between (and including) this one and the next occurrence of `LL` one position to the left
`LL`*n*	(Where *n* is a number) to shift the data in all the lines between (and including) this one and the next occurrence of `LL` *n* positions to the left
`R`	To shift data in this line one position to the right
`R`*n*	(Where *n* is a number) to shift data in this line *n* positions to the right
`RR`	To shift the data in all the lines between (and including) this one and the next occurrence of `RR` one position to the right
`RR`*n*	(Where *n* is a number) to shift the data in all the lines between (and including) this one and the next occurrence of `RR` *n* positions to the right

When you are shifting a block of data, you can specify *n* in either of the commands when you are using pairs of `LL`, `LL`*n*, `RR`, or `RR`*n* Shift commands.

Shifting Lines and Truncating Data

To shift data right or left and allow data to be truncated if necessary, type one of the following sequence line commands to perform this operation:

`LT` To shift the data in this line one position to the left, losing data off the beginning of the record if necessary

`LT`*n* (Where *n* is a number) to shift the data in this line *n* positions to the left, losing data off the beginning of the record if necessary

`LLT` To shift the data in all the lines between (and including) this one and the next occurrence of `LL` one position to the left, losing data off the beginning of the record if necessary

`LLT`*n* (Where *n* is a number) to shift the data in all the lines between (and including) this one and the next occurrence of `LL` *n* positions to the left, losing data from the beginning of the record if necessary

`RT` To shift data in this line one position to the right, losing data off the end of the record if necessary

`RT`*n* (Where *n* is a number) to shift data in this line *n* positions to the right, losing data off the end of the record if necessary

`RRT` To shift the data in all the lines between (and including) this one and the next occurrence of `RR` one position to the right, losing data off the end of the record if necessary

`RRT`*n* (Where *n* is a number) to shift the data in all the lines between (and including) this one and the next occurrence of `RR` *n* positions to the right, losing data off the end of the record if necessary

When you shift data in a line that contains fields, all the field positions are shifted accordingly.

Creating Horizontal Windows

When you are editing a report design, you can work with parts of lines not currently shown on the display (because their length is greater than the width of the display) by creating a window.

To define your window and specify the columns of the report design that you want to work with, type one of the following sequence line commands in the sequence number area:

`W` To work with the data starting at column 1 of the report design lines

`W`*n* (Where *n* is a number) to work with the data starting at column *n* of the report design lines

Showing Format Lines

The third line on the Design Report display is always a format line that marks the columns across the display (unless the display is in full screen mode). While you are editing a report design, you can use a line command to show a format line anywhere else on the display.

To show a format line, type one of the following sequence line commands in the sequence number area of the line above which you want the format line:

`COLS` To display a format line above this line

`F` To display a format line above this line

Note: In RLU, the `COLS` command and the `F` command produce the same results.

To show a format line and insert a blank line immediately below the format line, type the following sequence line command in the sequence number area of the line below which you want the format line:

`IF` To display a format line and insert a blank line below this line

A format line is indicated by FMT ** beside the line in the sequence number area of the Design Report display:

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
00001 . ABC Company - Employee Directory
00002 .
00003 .
FMT **   ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
00004 . Dept Employee Name                                      Phone    Status
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnnn      x
        --------------------------- End of Report -----------------------------
```

Prompting for a Record

While editing a report design, you can use a sequence line command to request a prompt for any data record. RLU uses free-format prompts only. The free-format prompt displays an entire line as one field. If a record is wider than the display area, the contents of the record are displayed on successive lines.

To show a prompt, type the following command in the sequence number area of the line for which you want the prompt:

`P` To display a prompt for this record

A prompt is displayed at the bottom of the Design Report display:

```
Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
RLU==> _____________________________________________________________     REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
00001 . ABC Company - Employee Directory
00002 .
00003 .
00004 . Dept Employee Name                                          Phone    Status
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
        --------------------------- End of Report -----------------------------


Line Number . . . . 00004_.
Data area
....+... 1 ...+... 2 ...+... 3....+... 1 ...+... 2 ...+...   ...+... 7 ...+...
Dept_Employee_Name_____________________________________Phone____Status
```

To prompt for a new record, type the following sequence line command in the sequence number area of the line below which you want the new record:

`IP` To insert a new record below this line using a prompt

RLU inserts a blank line and then places a prompt at the bottom of the display.

Each time you press Enter, RLU places the next existing record in the prompt (for `P`) or inserts another blank line in the prompt (for `IP`). This continues until you do one of the following:

- Press F5 (Refresh)
- Press F12 (Cancel)
- Press Enter without typing any data in the prompt line
- Reach the end or the beginning of the report design
- Reposition the Design Report display so that the line in the prompt is not on the display

Defining and Inserting Skeleton Lines

You can use a sequence line command to define a line of data that you type repeatedly as a skeleton line. You can use this line as a template and insert it whenever you need it.

To create and insert skeleton lines, type one of the following commands in the sequence number area of the appropriate lines:

`S` To define the contents of this line as the skeleton line

`IS` To insert the skeleton line immediately below this line

`IS`*n* (Where *n* is a number) to insert the skeleton line *n* times immediately below this line

After you select a skeleton line, RLU keeps it as the skeleton line until you select another one. You must type data or a blank on an inserted skeleton line and press Enter to make it part of the report design.

If you type `S` in the sequence number area of a line and then move the cursor to a column position in the same line before you press Enter, RLU remembers the cursor position for any subsequent skeleton line insert operations.

Showing and Setting Tabs

If you have not set any tabs, you see a blank tabs line and you can set your tabs by typing characters in the appropriate positions. You can use any characters you want, because RLU converts each character to a dash (-) when it creates the tabs line for you.

Type the following sequence line command in the sequence number area of the line above which you want the tabs line:

`TABS` To set and show the tabs on the display

The dashes (-) indicate your current tab settings.

To set new tabs, type a character for each tab setting you want on the tabs line. When you press Enter, each character you typed is replaced with a dash (-) and shows you your new tabs line. Tabs are not created for two consecutive columns.

To move from one tabs setting (-) to the next on the tabs line, press Enter. To clear the settings, replace each dash with a blank. To set new tabs, replace the dashes with characters in new positions. To turn tabs off, use the SET TABS OFF command.

To remove the tabs line from your display, press F5 (Refresh) or use the Delete line command.

Copying Lines in a Report

To copy lines in your report design to another location in the same report design, type one of the following sequence line commands in the sequence number area of the appropriate lines:

`C` To copy this line to another location

`C`*n* (Where *n* is a number) to copy *n* lines (beginning with this line) to another location

`CC` To copy all the lines between (and including) this one and the next occurrence of `CC` to another location

`CR` To copy this line to another location and retain the `CR` command in the sequence area of the display for repeated copy operations

`CCR` To copy the lines between (and including) this line and the next occurrence of `CCR` to another location and retain the `CCR` command in the sequence area of the display for repeated copy operations

To specify the new location for copied lines, type one of the following sequence line commands:

`A` To add the copied lines after this line

`A`*n* (Where *n* is a number) to add the copied lines after this line *n* times

`B` To add the copied lines before this line

`B`*n* (Where *n* is a number) to add the copied lines before this line *n* times

`O` To overlay this line with the copied line

`O`*n* (Where *n* is a number) to overlay *n* lines (including this line) with the copied lines

`OO` To overlay the group of lines between (and including) this line and the next occurrence of `OO` with the copied lines

If you are overlaying the copied lines and specify more lines to overlay than you are copying, RLU reuses the lines to copy the required number of lines.

Moving Lines in a Report

To move lines in your report design to another location in the same report design, type one of the following sequence line commands in the sequence number area of the appropriate lines:

`M` To move this line to another location

`M`*n* (Where *n* is a number) to move *n* lines (beginning with this line) to another location

`MM` To copy all the lines between (and including) this one and the next occurrence of `MM` to another location

To specify the new location for moved lines, type one of the following sequence line commands:

`A` To add the moved lines after this line

`A`*n* (Where *n* is a number) to add the moved lines after this line *n* times

`B` To add the moved lines before this line

`B`*n* (Where *n* is a number) to add the moved lines before this line *n* times

`O` To overlay this line with the moved line

`O`*n* (where *n* is a number) to overlay *n* lines (including this line) with the moved lines

`OO` To overlay the group of lines between (and including) this line and the next occurrence of `OO` with the moved lines

If you are overlaying the moved lines and specify more lines to overlay than you are moving, RLU reuses the lines to move the required number of lines.

Repeating Lines in a Report

To repeat a line or a block of lines immediately below the original line or block of lines you want to repeat, type one of the following sequence line commands in the sequence number area of the appropriate lines:

`RP` To repeat this line immediately below this line

`RP`*n* (Where *n* is a number) to repeat this line *n* times immediately below this line

`RPP` To repeat all the lines between (and including) this one and the next occurrence of `RPP` immediately below the next occurrence of `RPP`

`RPP`*n* (Where *n* is a number) to repeat all the lines between (and including) this one and the next occurrence of `RPP` *n* times immediately below the next occurrence of `RPP`

Because the repeat operation always puts the repeated lines immediately below the original lines being repeated, you do not need to specify a location for the repeated lines.

Inserting Lines in a Report

To insert blank lines on the Design Report display, type one of the following sequence line commands in the sequence number area of the appropriate lines:

`I` To insert one blank line immediately below this line

`I`*n* (Where *n* is a number) to insert *n* blank lines immediately below this line

A new blank line is inserted each time you type data on the inserted blank line until you press F5 (Refresh), press Enter without changing the inserted line, or move the cursor off the line.

If the value of *n* in an `I`*n* line command is greater than the number of records below the record on where you enter the line command, only the number of blank lines that can fit on the display is supplied.

Deleting Lines in a Report

To delete lines on the Design Report display, including format lines, tabs lines, field lines, and start-of-page lines (except for the first one), type one of the following sequence line commands in the sequence number area of the appropriate lines:

`D` To delete this line

`D`*n* (Where *n* is a number) to delete *n* lines (beginning with this line)

`DD` To delete all the lines between (and including) this one and the next occurrence of `DD`

You can process more than one Delete line command, or pair of commands, at the same time.

Searching for a Specific String

Use the Find/Change Options display to do the following:

- Search for a specific string in the specified line or column numbers
- Change a specific string in the specified line or column numbers

When you press F14 (Find/Change options)(A) on the Design Report display, the Find/Change Options display appears.

The first time you use the Find/Change Options display in your edit session, it contains the default values for each field. When you use the display again, some of the defaults reflect the values you changed the last time. To save the current values, press Enter, F16 (Find), or F17 (Change).

You specify the following on the Find/Change Options display:

- The character string you want to find
- The character string to replace the one you are finding
- The range (in column numbers) of the data you want to search for the character string
- The occurrences of the character string that you want to change: the next occurrence, all occurrences, or the previous occurrence
- The lines you want to search for the character string: all lines, excluded lines only, or only lines that have not been excluded.
- The kind of match you want to find: matches with the same case, or matches ignoring the case
- Whether or not you want to shift characters as appropriate when the character string you are finding is replaced by the new string and the new string is shorter or longer than the original string

For detailed information about each prompt on this display, place your cursor on the appropriate line of the display, and press Help or F1 (Help). Online help information that explains how to use the prompt is displayed.

FIND Command

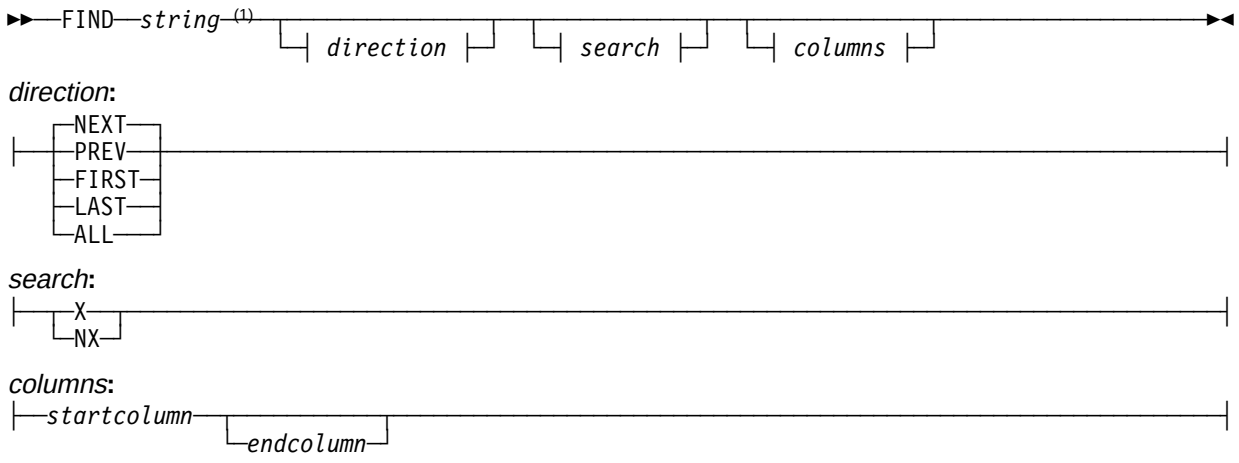
Finds occurrences of a string. The short form for the FIND command is F.

The FIND command is session-dependent on split displays. For example, if you enter the FIND command on the top session, only the member in the top member is searched for the string.

After typing a FIND command on the command line, you can press F16 (Repeat find)(A) to begin a search or to find subsequent occurrences of a string.

If you use F16 (Repeat find)(A) to begin a search, you only have to type the string that you want to find on the command line. For example, to find the string ABCD, type `ABCD` on the command line and press F16. If you want to find the string CHANGE, C, FIND, or F, delimit the string with single quotation marks. For example, to find the string CHANGE, type `'CHANGE'` and press F16.

Command Syntax



Note:
1 You can specify the parameters after this point in any order.

string
The character string you want to find. Enclose the string in quotation marks if it contains leading, imbedded, or trailing blanks, special values, apostrophes, or quotation marks. Type an asterisk to use a string you used in the previous FIND operation. Type `*ERR` to find syntax errors.

direction
The direction you want to search. The possible values are:

NEXT or **N**
Finds the next occurrence of the string, starting at the position of the cursor. The find wraps to the beginning of the member when the end of the member is reached.

PREV or **P**
Finds the previous occurrence of the string, starting at the position of the cursor. The find wraps to the end of the member when the beginning of the member is reached.

After typing a FIND command with the PREV option, you must move the cursor back to the position in the data area from which you want the search to begin. To do so, press F10 (Cursor) after you type the command and then press Enter.

FIRST or **F**
Finds the first occurrence of the string.

LAST or **L**
Finds the last occurrence of the string.

ALL or **A**
Finds all occurrences of the string.

search
The lines you want to search. The possible values are:

X Searches only excluded lines.

NX
Searches only nonexcluded lines.

If you do not specify the *search* parameter, all records are searched.

columns

The column range in which you want to search.

Type a number for the starting column and another number for the ending column, separated by a blank. If you type only one number, it is assumed to be the starting column.

If you do not specify the *columns* parameter, all columns are searched.

Note: The parameters that you enter for the FIND command also appear in the corresponding prompts of the Find/Change Options display.

Examples: The following example finds the previous occurrence of the string that was previously searched for in all records and in all columns of the member.

```
F * P
```

The following example finds syntax errors in all records of the member.

```
FIND *ERR A
```

The following example finds the previous occurrence of the string `_abc` in all excluded records starting in column 15.

```
F "_abc' P X 15
```

The following example finds all occurrences of the string `'abc'` in all nonexcluded records in all columns of the member.

```
FIND "'abc'" A NX
```

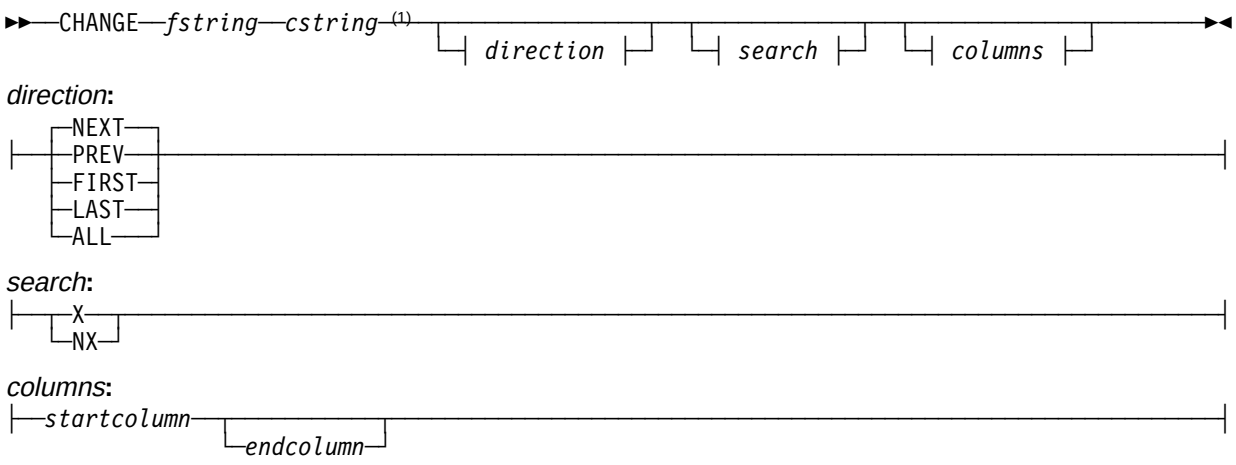
CHANGE Command

Finds occurrences of a string and changes them to another string. The short form for the CHANGE command is C.

After you type a CHANGE command, you can press F16 (Repeat find)(A) to find the first occurrence of the string without changing it. You can then press F17 (Repeat change)(A) to change the string.

You can also press F17 (Repeat change)(A) to both find and change a string after you type a CHANGE command.

Command Syntax



fstring
The character string you want to find. Enclose the string in quotation marks if it contains leading, imbedded, or trailing blanks, special values, apostrophes, or quotation marks. Type an asterisk to use a string you used in the previous CHANGE operation. Type `*ERR` to find syntax errors.

cstring
The character string that replaces the find string. Enclose the string in quotation marks if it contains leading, imbedded, or trailing blanks, special values, apostrophes, or quotation marks. Type an asterisk to use a string you used in the previous CHANGE operation.

direction
The direction you want to search. The possible values are:

NEXT or **N**
Finds the next occurrence of the string, starting at the position of the cursor. The find wraps to the beginning of the member when the end of the member is reached.

PREV or **P**
Finds the previous occurrence of the string, starting at the position of the cursor. The find wraps to the end of the member when the beginning of the member is reached.

After typing a CHANGE command with the PREV option, you must move the cursor back to the position in the data area from which you want the search to begin. To do so, press F10 (Cursor) after you type the command and then press Enter.

FIRST or **F**
Finds the first occurrence of the string.

LAST or **L**
Finds the last occurrence of the string.

ALL or **A**
Finds all occurrences of the string.

search
The lines you want to search. The possible values are:

X Searches only excluded lines.

NX
Searches only nonexcluded lines.

If you do not specify the *search* parameter, all records are searched.

columns
The column range in which you want to search.

Type a number for the starting column and another number for the ending column, separated by a blank. If you type only one number, it is assumed to be the starting column.

If you do not specify the *columns* parameter, all columns are searched.

Note: The parameters that you enter for the CHANGE command also appear in the corresponding prompts of the Find/Change Options display.

Examples: The following example finds the next occurrence of the string `_abc`, searching all columns in all records, and changes it to `a_bc`.

```
CHANGE '_abc' 'a_bc'
```

The following example finds all occurrences of the asterisk character in all nonexcluded records starting in column 1 and ending in column 2, and changes them to the ampersand character.

```
C '*' '&' A NX 1 2
```

The following example finds the first occurrence of the string `ab'_c` in all excluded records starting in column 20, and changes it to `'abc'`.

```
C "ab'_c" ''abc'' F X 20
```

Specifying the Browse/Copy Option

Use the Browse/Copy Options display to do the following:

- Look at another source member or a spooled file while editing your report design
- Look at a report prototype you printed as a spooled file while editing your report design
- Look at an output queue to select a spooled file to browse while editing your report design
- Copy an existing report image into the source member you are currently editing

When you press F15 (Browse/Copy options)(A) on the Design Report display, the Browse/Copy Options display appears.

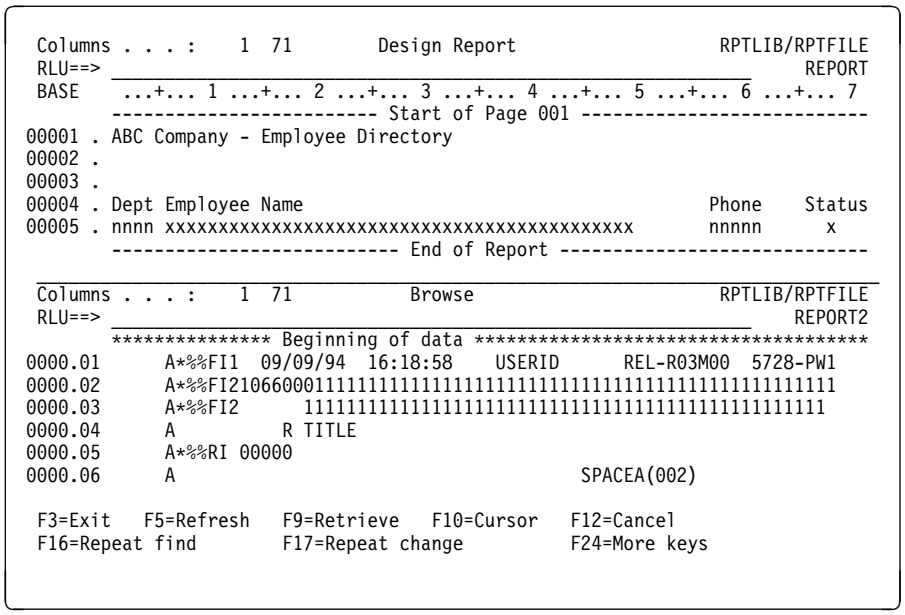
You specify the following on the Browse/Copy Options display:

- Type of object you want to browse: source member, spooled file, or output queue
- Whether or not you want to copy all the records from the source member you are browsing
- Name, file, and library of the source member to browse
- Name, job name, user profile name, job number, and number of the spooled file to browse
- Name and library of the output queue to browse

For detailed information about each prompt on this display, place your cursor on the appropriate line of the display while you are using RLU and press Help or F1 (Help). Online help information that explains how to use the prompt is displayed.

Editing a Member while Browsing Another Member or Spooled File

When you are editing a member and specify another source member or a spooled file on the Browse/Copy Options display, the Design Report display is split into two windows:



You can perform the same operations in the split edit session as you can on the Design Report display, except for requesting a prompt.

You can do all operations in the browse session that you can do on the browse display. You can also do the following on the split edit display:

- To move the split line, position the cursor and press F6 (Move split line)(A).
- To return to a single-display edit session, press F12 (Cancel).

The following function keys on a split edit display are session-dependent, meaning that they only perform an operation in the session containing the cursor:

- F5 (Refresh)
- F9 (Retrieve)
- F10 (Cursor)(A)
- F13 (Change session defaults)(A)
- F14 (Find/Change options)(A)
- F16 (Repeat find)(A)
- F17 (Repeat change)(A)
- F19 (Left)
- F20 (Right)

Switching to Full Screen Mode Editing

After you are familiar with the Design Report display, you might prefer to see more records on the display. Full screen mode on the Design Report display allows you to remove the format line from the top and the function key list from the bottom, displaying four additional records with which to work. The function keys are still valid for the display in full screen mode, even though you cannot see them.

To switch to full screen mode during your edit session, press F13 (Change session defaults)(A) on the Design Report display. For information about using the Change Session Defaults display, see “Changing Your Edit Session Environment” on page 11.

To cancel full screen mode and return to the normal screen mode of RLU, press F13 (Change session defaults)(A) again.

Printing a Report Prototype

While you are designing a report on the Design Report display, and even before you define any record formats or fields, you can print a sample that shows you how the report will look when you actually generate it. You can also print a report sample for an existing RLU source member when you start your session by using option 6 on the STRRLU command.

For more information about printing report prototypes, see Chapter 9, “Exiting from an RLU Session” on page 87.

Chapter 4. Designing a Simple Report - Example

In this example, you create a new source member SREPORT in the existing source physical file QDDSSRC in library QGPL. The source member you create is a PRTF (printer) type source member and contains the printer file DDS for the report layout you define by using RLU.

You use the following steps to create source member SREPORT:

1. Start RLU
2. Define a record format
3. Define a constant field
4. Center the report title
5. Add database fields to a report
6. Create a field line
7. Create sample data for a report
8. Save the report design and create a printer file
9. Print the report

You create a report that consists of a report title, five fields with column headings that reference a database file, and five lines of sample data:

```
                    ABC COMPANY - Customer Report

                                    Last        Last
Customer                            Date       Amount      Accts Rec
 Number    Customer Name            Paid        Paid        Balance
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
 XXXXX  XXXXXXXXXXXXXXXXXXX    99/99/99    99999999    999,999.99-
```

Starting RLU

To start an RLU session, do the following:

1. Type `STRRLU` on the command line on the AS/400 Main Menu.
2. Press F4 (Prompt)(A) to see the parameters for the STRRLU command. The Start Report Layout Utility (STRRLU) display appears.
3. Type `QDDSSRC` in the *Source file* prompt, `QGPL` in the *Library* prompt, `SREPORT` in the *Source member* prompt, `71` in the *Page width* prompt, and press Enter. The Load RLU Work Space display indicates that the contents of the source member are being loaded into the work space. If loading occurs quickly you may not see the display. The Design Report display appears on which you define the report design.

Defining a Record Format

To define a record format:

1. Type a report title on the first blank line of the Design Report display, as shown in the following display, and press Enter. The line containing text shows a sequence number in the sequence number area.

```
 Columns . . . :    1  71        Design Report                     QGPL/QDDSSRC
 RLU==> _____________________________________________________________    SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
''''''' ABC COMPANY - Customer Report
'''''''
'''''''
'''''''
'''''''
```

2. To define this line as a single-line record format, type DR beside the report title in the sequence number area of the Design Report display, as shown in the following display, and press Enter:

```
 Columns . . . :    1  71        Design Report                     QGPL/QDDSSRC
 RLU==> _____________________________________________________________    SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
DR      ABC COMPANY - Customer Report
        --------------------------- End of Report -----------------------------
```

The name of the record format appears in the sequence number area of the line. The naming convention RLU uses for record format names is RCD*nnn*, where *nnn* is a 3-digit number beginning with 001 for the first record format you create in your edit session. The 3-digit number is increased by one for each subsequent record format created.

```
 Columns . . . :    1  71        Design Report                     QGPL/QDDSSRC
 RLU==> _____________________________________________________________    SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
 RCD001 ABC COMPANY - Customer Report
        --------------------------- End of Report -----------------------------
```

Defining a Constant Field

To define the report title as a constant field using the Define Constant (DC) command, type DC beside the report title in the sequence number area, and press Enter. A message indicating that an unnamed (constant) field is created in the record format and a field line appears immediately above the field you just created.

Centering the Report Title

To center the report title by using the Center Field (CF) line command, type CF beside the report title in the sequence number area on the Design Report display, as shown in the following display, and press Enter. The field is centered relative to the report page width you specified when you started RLU, and this new position appears in the field definition.

```
 Columns . . . :    1  71        Design Report                     QGPL/QDDSSRC
 RLU==> _____________________________________________________        SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <.........................>
 CF     ABC COMPANY - Customer Report
        --------------------------- End of Report -----------------------------
```

Adding Database Fields to a Report

Now that your report design has a title field, the next step is to add some fields by referencing a database file. To add the next five fields to your report, use the source physical file CUSDATA in library QPDA. This file contains fields for a customer report and is shipped with Application Development ToolSet for AS/400.

To add the fields ARBAL, CUST, LSTAMT, LSTDAT, and NAME to your report:

1. Press F10 (Database fields)(B). The Work with Database Fields display appears.
2. Select option 1 (Add field) in the *Option* prompt, and type QPDA in the *Library* prompt, CUSDATA in the *File* prompt, CUSMST in the *Record* prompt, and press Enter. The Select Database Fields display appears showing the fields available for selection into your report.
3. To select the fields ARBAL, CUST, LSTAMT, LSTDAT, and NAME for your report, type option 1 (Select) in the *Opt* column next to each field, and press Enter. The field NAME is on the next page of the display. The selected fields are identified by the > symbol to the left of the field name.

4. Press Enter again. The Work with Database Fields display is shown with a list of the selected fields.
5. Press Enter again to return to the Design Report display. The selected database fields appear at the bottom of the display.
6. To show the selected database fields on your report design, create a second record using the Insert (I) line command. Type `I2` in the sequence number area beside the report title, and press Enter. Two new blank lines are added. The first blank line remains as a filler line.
7. To define the second record, type `DR` in the first position of the second blank line, and press Enter. The second record is defined.

Creating a Field Line

To create a field line using the View Field (VF) line command:

1. Type `VF` in the sequence number area of the second record, and press Enter. The FLD1 field line appears, which is used to add the selected database fields to your report design. The fields are placed on the FLD1 field line in the order that you want them to appear on the report.
2. Move the cursor to column 1 on the FLD1 field line of the second record and type `2C`, which places the CUST field on this line starting in column 1. The C adds the defined column heading in the report design. Move the cursor to column 9 and type `5C`, at column 33 type `4C`, at column 45 type `3C`, at column 57 type `1C`, and press Enter. The selected database fields are added to the report design and a new record format for the column headings is created.

   The following figure shows the Design Report display with database references:

```
 Columns . . . :    1  71        Design Report                     QGPL/QDDSSRC
 RLU==> _____________________________________________________________ SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                         <.........................>
 RCD001                      ABC COMPANY - Customer Report
00002 .
FLD1    2C      5C                      4C          3C          1C
 RCD002
        --------------------------- End of Report -----------------------------
```

The following figure shows the Design Report Display with the database fields added:

```
 Columns . . . :    1  71        Design Report                     QGPL/QDDSSRC
 RLU==> _____________________________________________________        SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                         <.........................>
 RCD001                      ABC COMPANY - Customer Report
00002 .
FLD1                                       <..>       <..>
 RCD003                                    Last       Last
FLD1    <......>                           <..>      <....>     <.......>
00004 + Customer                           Date      Amount     Accts Rec
FLD1     <....>        <..>                <..>       <..>       <.....>
00005 +  Number        Name                Paid       Paid       Balance
FLD1     <...>   <.................>   <......>   <......>   <.........>
 RCD002  XXXXX   XXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
        --------------------------- End of Report -----------------------------




 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Creating Sample Data for a Report

To create 5 lines of sample data for the fields in record format RCD002 using the Sample Data (SD) line command, type SD5 in the sequence number area of the second record, as shown in the following display, and press Enter:

```
 Columns . . . :    1  71        Design Report                     QGPL/QDDSSRC
 RLU==> _____________________________________________________        SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                         <.........................>
 RCD001                      ABC COMPANY - Customer Report
00002 .
FLD1                                       <..>       <..>
 RCD003                                    Last       Last
FLD1    <......>                           <..>      <....>     <.......>
00004 + Customer                           Date      Amount     Accts Rec
FLD1     <....>        <..>                <..>       <..>       <.....>
00005 +  Number        Name                Paid       Paid       Balance
FLD1     <...>   <.................>   <......>   <......>   <.........>
SD5      XXXXX   XXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
        --------------------------- End of Report -----------------------------
```

Five lines of sample data are displayed immediately as shown in the following display:

```
 Columns . . . :    1  71        Design Report                      QGPL/QDDSSRC
 RLU==> _____________________________________________________________    SREPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                          <.........................>
 RCD001                       ABC COMPANY - Customer Report
00002 .
FLD1                                          <..>       <..>
 RCD003                                       Last       Last
FLD1    <......>                              <..>      <....>     <.......>
00004 + Customer                              Date      Amount     Accts Rec
FLD1     <....>        <..>                   <..>       <..>       <.....>
00005 +  Number        Name                   Paid       Paid       Balance
FLD1     <...>   <.................>   <......>   <......>   <.........>
 RCD002  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00007 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00008 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00009 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00010 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-
00011 S  XXXXX   XXXXXXXXXXXXXXXXXXX   99/99/99   99999999   999,999.99-

 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

Saving the Report Design and Creating a Printer File

For this example, you are finished designing your report and ready to do the following:

- Leave the Design Report display
- Save the source member
- Print a prototype of the report
- Create a printer file
- Exit from RLU

To save the simple report and create a printer file:

1. Press F3 (Exit). The Exit RLU display appears.
2. To save and exit from RLU, type 1 in the *Option* prompt.
3. Type Y (Yes) in the *Create printer file* prompt.
4. Type Y (Yes) in the *Prototype report* prompt. The default values for the source member, source file, and the library, are those that you specified on the Start Report Layout Utility (STRRLU) display when you started the example exercise.

5. Press Enter. The following messages appear at the bottom of the display:

   ```
   Member is being saved.
   Printer file being created.
   Prototype report printer file being created.
   Prototype report printing.
   ```

   You exit from RLU and return to the AS/400 Main Menu, where the following message is displayed:

   ```
   Member SREPORT added to file QGPL/QDDSSRC created with 80 records.
   ```

Note: You can also create a prototype of the report by specifying the value 6 for the OPTION parameter of the STRRLU command. For more information, see “Start Report Layout Utility (STRRLU) Command” on page 5.

Printing the Report

To print the report you created, type `WRKSPLF` on the command line on the AS/400 Main Menu. The Work with All Spooled Files display appears. From this display, you send your files to the printer.

If you want to make any changes to your report design, do the steps of the example again. When you are finished, you can print another prototype of the report to make sure it appears as you want it.

Chapter 5. Designing a Complex Report - Example

This example assumes that you want to create a new source member REPORT in the existing source physical file QDDSSRC in library QGPL. The source member you create is a PRTF (printer) type source member, and contains the printer file DDS for the report layout you define by using RLU.

This example shows how to:

1. Create a database field using SEU
2. Compile DDS source statements using PDM
3. Create a physical file for the database file
4. Start RLU
5. Define a record format
6. Define a constant field
7. Center the report title
8. Add headings to the report
9. Define the heading line as a record format
10. Define fields in the heading line
11. Define each field in the heading line as a separate field
12. Reference database fields
13. Print the report prototype
14. Resume the previous report design
15. Change edit session defaults
16. Rename a record format
17. Space record formats
18. Underline the report title
19. Change the position of the report title
20. View a list of fields in a record format
21. Highlight a field in bold type
22. Create sample data
23. Move fields
24. Condition fields
25. Save the report and create a printer file

The finished report consists of an underlined report title, 3 fields with column headings, and five lines of sample data. An example of the finished report is:

```
ABC COMPANY - Employee Directory
________________________________
DeptEmployee name                                     Phone
nnnnxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        xnnnn
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX        XXXXX
```

Creating a Database Field Using the Source Entry Utility

You must create database file DBPF in library QGPL. The DBPF file must contain DDS for a field reference file that includes the following:

- A 4-character field named DEPT with a column heading `Dept`
- A 5-character field named PHONE with a column heading `Phone`

To create the required database file using SEU:

1. Type `STRSEU` on the command line of the AS/400 Main Menu, and press F4 (Prompt)(A) to see the parameters for the STRSEU command.
2. Type `QDDSSRC` in the *Source file* prompt, `QGPL` in the *Library* prompt, `DBPF` in the *Source member* prompt, `PF` in the *Source type* prompt, and press Enter. The Edit display appears.
3. Type the DDS source statements shown in the following display, and press F3 (Exit):

```
FMT PF .....A..........T.Name++++++RLen++TDpB......Functions+++++++++++++++
            A           R INFOR
            A             NAME           20          COLHDG('Name')
            A             DEPT            4          COLHDG('Dept')
            A             PHONE           5          COLHDG('Phone')
```

   Note: When referencing database fields from the complex report, you use the DEPT field and the PHONE field in this database file. The NAME field in the report is created using another method.

   The Exit RLU display appears.

4. Type Y (Yes) in the *Change/create member* prompt, and press Enter. The AS/400 Main Menu appears.

Compiling DDS Source Statements Using the Programming Development Manager

To compile the DDS source statements you created using SEU:

1. Type `STRPDM` on the AS/400 Main Menu command line, and press Enter. The AS/400 Programming Development Manager (PDM) menu appears.
2. Select option 3 (Work with members), and press Enter to see the Specify Members to Work With display.
3. Type `QDDSSRC` in the *File* prompt, `QGPL` in the *Library* prompt, `DBPF` in the *Source member* prompt, and press Enter. The Work with Members Using PDM display appears.
4. Select option 14 (Compile) to compile the DDS in member DBPF, and press Enter. The Programming Development Manager (PDM) menu appears.
5. Press F3 (Exit) to return to the AS/400 Main Menu.

Creating a Physical File for the Database File

To create a physical file for file DBPF using the Create Physical File command:

1. Type `CRTPF` on the command line of the AS/400 Main menu.
2. Press F4 (Prompt)(A) and the Create Physical File (CRTPF) display appears.
3. Type `DBPF` in the *File* prompt, `QGPL` in the *Library* prompt, `QDDSSRC` in the *Source file* prompt, `DBPF` in the *Source member* prompt, and press Enter. A message at the bottom of the display indicates that file DBPF is created in library QGPL.

Starting the Report Layout Utility

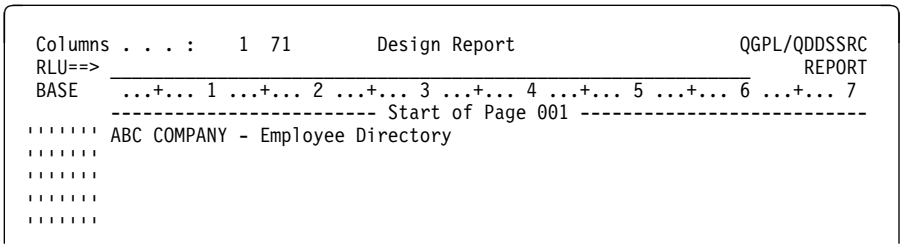
To start an RLU session:

1. Type `STRRLU` on the command line of the AS/400 Main Menu.
2. Press F4 (Prompt)(A) to see the parameters for the STRRLU command. The Start Report Layout Utility (STRRLU) display appears.
3. Type `QDDSSRC` in the *Source file* prompt, `QGPL` in the *Library* prompt, `REPORT` in the *Source member* prompt, `71` in the *Page width* prompt, and press Enter. The Load RLU Work Space display indicates that the contents of the source member are being loaded into the work space. If loading occurs quickly, you may not see the display. You then see the Design Report display on which you define the report design.

Defining a Record Format

To define a record format for your report design using the Define Record (DR) line command:

1. Type the text of a report title on the first blank line of the Design Report display, as shown in the following display, and press Enter. The line containing text shows a sequence number in the sequence number area.



2. To define this line as a single-line record format, type DR beside the report title in the sequence number area, as shown in the following display, and press Enter:

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________     REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
DR     ABC COMPANY - Employee Directory
       --------------------------- End of Report -----------------------------
```

The name of the record format is displayed in the sequence number area of the line.

The naming convention for record format names is RCD*nnn*, where *nnn* is a 3-digit number beginning with 001 for the first record format you create in your edit session. The 3-digit number is increased by one for each subsequent record format created.

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________     REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
RCD001 ABC COMPANY - Employee Directory
       --------------------------- End of Report -----------------------------
```

Defining a Constant Field

To define the report title as a constant field using the Define Constant (DC) command, type DC beside the report title in the sequence number area on the Design Report display, as shown in the following display, and press Enter:

```
Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
RLU==> _____________________________________________________________     REPORT
BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
       ------------------------ Start of Page 001 --------------------------
DC 001 ABC COMPANY - Employee Directory
       --------------------------- End of Report -----------------------------
```

A message at the bottom of the display indicates that an unnamed (constant) field is created in the record format. A field line also appears immediately above the field you just created.

Centering the Report Title

To center the report title using the Center Field (CF) command, type `CF` in the sequence number area beside the report title, as shown in the following display, and press Enter:

```
 Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------- Start of Page 001 --------------------------
FLD1    <.............................>
 CF     ABC COMPANY - Employee Directory
        -------------------------- End of Report -----------------------------
```

RLU centers the field relative to the report page width you specified when you started RLU, and this new position is reflected in the field definition.

Adding Headings to the Report

To add headings to the report:

1. Use the Insert line command to add four new blank lines to the display. Type `I4` in the sequence number area of the existing report line, and press Enter. Four new blank lines appear in the report.
2. Leave the first blank line as a filler line and then type the text for four headings and four fields on the next two blank lines:

```
 Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------- Start of Page 001 --------------------------
FLD1                     <.............................>
 RCD001                  ABC COMPANY - Employee Directory
'''''''
''''''' Employee name                                    Dept    Phone    Status
''''''' xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnn    xnnnn      x
'''''''
        -------------------------- End of Report -----------------------------
```

Defining the Heading Line as a Record Format

To define the line containing the headings as a record format using the Define Record (DR) line command, type DR beside the heading line, as shown in the following display, and press Enter:

```
 Columns . . . :    1  71        Design Report                    QGPL/QDDSSRC
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1                       <.............................>
 RCD001                    ABC COMPANY - Employee Directory
'''''''
DR''''' Employee name                                        Dept    Phone    Status
''''''' xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnn    xnnnn      x
'''''''
        --------------------------- End of Report -----------------------------
```

Defining Fields in the Heading Line as Constant Fields

To define the fields Employee name, Dept, and Phone:

1. Position the cursor on the first character of the field Employee name, and press F11 (Define field)(B). The Define Field Information display appears.

   A field name is created for you. To change this field name, position your cursor on the field and type a new name.

2. To define the field as a constant field, press F11 (Convert to constant field), and press Enter to return to the Design Report display.
3. Position the cursor on the first character of the field Dept, and press F11 (Define field)(B).
4. To define the field as a constant field, press F11 (Convert to constant field).
5. Press Enter to return the Design Report display.
6. Position the cursor on the first character of the field Phone, and press F11 (Define field)(B).
7. To define the field as a constant field, press F11 (Convert to constant field).
8. Press Enter to return the Design Report display.
9. Position the cursor on the first character of the field Status, and press F11 (Define field)(B).
10. To define the field as a constant field, press F11 (Convert to constant field).
11. To define an indicator for the field so that you can condition it on the Design Report display or when you prototype a report, type 01 in the *Option indicators* prompt. The field is not conditioned until you turn the indicator on or off using the Condition Design Report display.
12. Press Enter to return to the Design Report display.

Defining Each Field in the Heading as a Separate Field

To define each field in the heading as a separate field:

1. To define the text you typed on the display under the headings as another record format, type `DR` in the sequence number area of this line.
2. Type `DF` in the sequence number area of the text typed below the heading line, and press Enter. Each text string separated by two or more blanks is defined as a new field and you see a message at the bottom of the display indicating that four fields are created in the record format.

Referencing Database Fields

Accept the default values for the first field in the line (a field length of 44, for example, and a data type of character, because you typed 44 characters to represent the field on the display). To specify the database field to reference for the field Dept and the field Phone:

1. Position the cursor on the first position of the field and press F23 (Field keywords)(B). The Work with Field Keywords display appears.
2. Type a 2 in the *Opt* column beside the Reference Field (REFFLD) keyword, and press Enter. The Specify Referenced Field display appears.

   If you already used one of the database reference displays in this RLU session, the *Record format*, *File*, and *Library* prompts may contain default values.
3. Type `DEPT` in the *Field* prompt, `INFOR` in the *Record format* prompt, `DBPF` in the *File* prompt, `QGPL` in the *Library* prompt, and press Enter. A message at the bottom of the display indicates that errors exist because a field definition is not yet specified to indicate that the field is a referenced field.
4. Press Enter again to continue. The Work with Field Keywords display reappears. A symbol next to the REFFLD keyword indicates that REFFLD is now specified for the field.
5. Press F10 (Specify information) to add the database reference to the field definition. The Specify Field Information display appears. To see the bottom part of this display, use the roll keys.
6. Use the values (length and data type) from the referenced database field for the field you are currently defining. You can overwrite the referenced values later in this edit session by defining a different length or data type for the field. Type Y (Yes) in the *Reference a field* prompt, and press Enter. The Work with Field Keywords display reappears.
7. Press Enter again. The Design Report display reappears. Because you referenced a database field using the REFFLD keyword only, the database reference for the Design Report display is not resolved and you do not see the column heading associated with the database field on the display.
8. To reference the field PHONE, position the cursor on the first position of the field, and press F23 (Field Keywords).
9. Type a 2 in the *Opt* column beside the Reference Field (REFFLD) keyword, and press Enter. The Specify Referenced Field display appears.

   If you already used one of the database reference displays in this RLU session, the *Record format*, *File*, and *Library* prompts may contain default values.

10. Type PHONE in the *Field* prompt, INFOR in the *Record format* prompt, DBPF in the *File* prompt, QGPL in the *Library* prompt, and press Enter. A message at the bottom of the display indicates that errors exist because a field definition is not yet specified to indicate that the field is a referenced field.
11. Press Enter again to continue. The Work with Field Keywords display reappears. A symbol next to REFFLD in the keyword list indicates that REFFLD is now specified for the field.
12. Press F10 (Specify information) to add the database reference to the field definition. The Specify Field Information display appears. To see the bottom part of this display, use the roll keys.
13. Use the values (length and data type) from the referenced database field for the field you are currently defining. You can overwrite the referenced values later in this edit session by defining a different length or data type for the field. Type Y (Yes) in the *Reference a field* prompt, and press Enter. The Work with Field Keywords display reappears.
14. Press Enter again. The Design Report display reappears. Note that because you referenced a database field using the REFFLD keyword only, RLU does not resolve the database reference for the Design Report display and you do not see the column heading associated with the database field on the display.
15. Move the cursor to the field Status. Specify an indicator for this field to condition the field on and off. Press F23 (Field keywords)(B) and then press F10 (Specify information). Type 01 in the *Option indicators* prompt, and press Enter.
16. Press F3 (Exit) to return to the Design Report display.

Printing the Report Prototype

To exit from the Design Report display temporarily to save what you have defined so far in the source member and print a prototype of the report to make sure that it appears as you want it to, perform the following steps:

1. Press F3 (Exit) and the Exit RLU display appears.
2. Type a 1 in the *Option* prompt and Y (Yes) in the *Prototype report* prompt, and press Enter. The following messages appear at the bottom of the display:

   ```
   Member is being saved.
   Prototype report printer file being created.
   Prototype report printing.
   ```

   You exit from RLU and return to the AS/400 Main Menu, where another message describes the source member you saved and the number of records in the source member that you added or changed.

Note: You can also create a prototype of the report by specifying the value 6 for the OPTION parameter of the STRRLU command. For more information, see “Start Report Layout Utility (STRRLU) Command” on page 5.

Resuming the Previous Report Design

To resume the previous report design and restart RLU, type STRRLU on the command line from the AS/400 Main Menu, and press Enter. The source member that you worked with in your last session is recalled and used as the default value for the STRRLU command. The report design you created in the last RLU session on the Design Report display appears.

Changing Edit Session Defaults

To change some of your edit session defaults:

1. Press F22 (Alternative keys)(B), and then press F13 (Change session defaults)(A). The Change Session Defaults display appears.
2. Type Y (Yes) in the *Insert marked data* prompt, and Y (Yes) in the *Replace marked data* prompt, and press Enter. Unless you change these defaults again, the data to the right of the data you move shifts to the left to replace the moved data and data in the target area shifts to the right to accommodate the moved data. Leave all the other defaults unchanged. The Design Report display reappears.

Renaming a Record Format

To rename a record format:

1. Press F22 (Base keys)(A) to see the base set of function keys at the bottom of the display.
2. Position the cursor on record format RCD001 and press F18 (Record keywords)(B). The Work with Record Keywords display appears.
3. Press F10 (Rename record). The Rename Record Format display appears.
4. Type TITLE in the *Name* prompt, and press Enter. The record format on the Design Report display and in the source member are renamed. The Work with Record Keywords display reappears.
5. Press Enter again to return to the Design Report display.
6. Rename record formats RCD002 and RCD003. Specify HEADING as the new name for RCD002 and DETAILS as the new name for RCD003.

Spacing Record Formats

On the Design Report display, you left a filler line below the TITLE record format. If you leave a filler line between 2 records, RLU generates the Space Before keyword with a value of 2 lines [SPACEB(002)] for the second record format.

To delete the filler line and define two blank lines separating the TITLE record format from the HEADING record format:

1. Type D in the sequence number area of the filler line, and press Enter to delete the filler line.
2. Use a keyword for the HEADING record format to insert two blank lines immediately before it. Position the cursor on the HEADING record format, and press F18 (Record keywords)(B). The Space Before (SPACEB) keyword is already

specified for RCD002, which has a value of 1 line. To specify additional spacing lines, type a 2 in the *Opt* column beside SPACEB on the Work with Record Keywords display, and press Enter. The Specify Space Before display appears.

3. Type a 3 in the *Number of lines to space before printing* prompt, and press Enter. The SPACEB keyword is specified for the record format with a new value and the Work with Record Keywords display reappears.
4. Press Enter again to return to the Design Report display. The two blank lines you specified with SPACEB appear on the display as filler lines before record format RCD002.

Underlining the Report Title

To underline the report title:

1. Position the cursor on the report title and press F23 (Field keywords)(B). The Work with Field Keywords display appears.
2. Type a 2 in the *Opt* column beside the UNDERLINE keyword, and press Enter. The Specify Underline display appears.
3. Press Enter and return to the Work with Field Keywords display. RLU specifies underlining for the field. When you return to the Design Report display, the field does not appear underlined. The field definition is changed, however, and to see how the field appears when printed, you can print a prototype of the report.
4. Press Enter again on the Work with Field Keywords display to return to the Design Report display.

Changing the Position of the Report Title

To change the position of the report title so that it begins at the start of the line, delete blanks between the first position of the field line and the left field delimiter by using the Delete key, and press Enter. The field on the report line moves to the start of the line on the display and in the field definition. If you use the Delete or Insert key to move the field text rather than the field representation on the field line, the text physically moves on the display but the field definition does not change. You must use the field line to change the field position with the Delete and Insert key.

Viewing a List of Fields in a Record Format

To view a list of all the fields in record format HEADING, position your cursor on record format HEADING, and press F4 (Fields)(B). The Work with Fields display appears.

Highlighting a Field in Bold Type

To highlight a field in bold type:

1. Type a 5 in the *Opt* column beside the Status field, and press Enter. The Work with Field Keywords display appears.
2. Type a 2 beside the HIGHLIGHT keyword, and press Enter. The Specify Highlight display appears.
3. The only parameters to specify are option indicators, so press Enter to specify HIGHLIGHT for the field and return to the Work with Field Keywords display.
4. Press Enter again to return to the Work with Fields list display.
5. Press Enter once more to return to the Design Report display.

Creating Sample Data

To give your report design a more realistic appearance on the display and when you prototype the report, create five lines of sample data for the fields in the record format DETAILS.

Type `SD5` beside the record format DETAILS, as shown in the following display, and press Enter. Five lines of sample data are generated immediately below the report line.

```
 Columns . . . :    1  71        Design Report                     QGPL/QDDSSRC
 RLU==> _____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <.............................>
  TITLE ABC COMPANY - Employee Directory
00002 .
00003 .
FLD1    <...........>                                  <..>    <...>    <....>
HEADING Employee name                                  Dept    Phone    Status
FLD1    <.......................................>    <..>    <...>      *
SD5     xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx    nnnn    xnnnn      x
        --------------------------- End of Report -----------------------------
```

Moving Fields

To move the Dept field and its associated sample data in record format DETAILS to a new position as the first field in the record format:

1. To mark the top-left corner of the data area, place the cursor on the first position of the constant Dept in record format HEADING, and press F13 (Mark/Unmark data)(B). The constant Dept appears in reverse image.
2. To mark the bottom-right corner of the data area, place the cursor anywhere in the field below Dept in record format DETAILS, and press F13 (Mark/Unmark data)(B). The entire field and Dept are in reverse image.

3. To move the data area, place the cursor in the first position of the record format HEADING, and press F15 (Move marked data)(B).

   The field and the constant are moved to the new position you specified. The data already in the target area shifted to the right. All the field definitions are automatically changed in the source to reflect the new positions.

Conditioning Fields

In "Defining a Record Format" on page 41, you specified an indicator for two fields: the constant Status in record format HEADING, and the last field in record format DETAILS. For more information on indicators, see "Conditioning Fields and Keywords" on page 76 of this book and the appropriate section of the *DDS Reference*.

To condition the Design Report display so that the indicator specified for these two fields is off and the field does not show on the display:

1. Press F6 (Condition display)(B). The Condition Design Report Display appears.
2. Press F11 (Default indicators)(B) to on so that the *Indicators on* prompt changes to *Indicators off*.
3. Type Y (Yes) in the *Condition display* prompt, and press Enter. The Design Report display reappears and the fields you conditioned do not appear on the display.

Saving the Report and Creating a Printer File

For this example, you are now finished designing your report. To exit from RLU, save the changes you made in the current edit session, and create a printer file from the changed source member:

1. Press F3 (Exit) to access the Exit RLU display.
2. Type a 1 in the *Option* prompt, Y (Yes) in the *Create printer file* prompt, and press Enter. A message at the bottom of the display indicates that the member is being saved. A second message indicates that the printer file is being created.

   You are not creating a prototype of your report at this point, but note that if you did, the conditioning that you specified for the Design Report display would also apply to the report prototype when printed.

Example Source

The member REPORT in QGPL/QDDSSRC now contains the source for the example report design. The source statements that are produced for member REPORT are as follows:

```
A*%%*******************************************************************
A*%%TS  RD  19940909  151439  USERID      REL-V3R1M0  5769-PW1
A*%%FI+1066100111111111111111111111111111111111111111111111111111111
A*%%FI       11111111111111111111111111111111111111111111111111
A*%%*******************************************************************
A          R TITLE
A*%%*******************************************************************
A*%%RI 00000
A*%%*******************************************************************
A                                     1
A                                      'ABC COMPANY - Employee Directory'
A                                      UNDERLINE
A*%%*******************************************************************
A*%%SS
A*%%*******************************************************************
A          R HEADING
A*%%*******************************************************************
A*%%RI 00000
A*%%FS 002
A*%%*******************************************************************
A                                      SPACEB(003)
A                                     1
A                                      'Dept'
A                                     5
A                                      'Employee name'
A                                    +39
A                                      'Phone'
A  01                                 +4
A                                      'Status'
A                                      HIGHLIGHT
A*%%*******************************************************************
A*%%SS
A*%%*******************************************************************
A          R DETAILS
A*%%*******************************************************************
A*%%RI 00005
A*%%*******************************************************************
A                                      SPACEB(001)
A            FLD006    R        O     1
A                                      REFFLD(INFOR/DEPT QGPL/DBPF)
A            FLD005        44A  O     5
A            FLD007    R        O    +8
A                                      REFFLD(INFOR/PHONE QGPL/DBPF)
A  01        FLD008         1A  O    +6
A*%%*******************************************************************
A*%%SS
A*%%SN FLD006     nnnn
A*%%SN FLD005     xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
A*%%SN FLD007     xnnnn
A*%%SN FLD008     x
A*%%SS
A*%%SS
A*%%SS
A*%%SS
A*%%SS
A*%%CP+999CRTPRTF
A*%%CP+    FILE(QGPL/REPORT)
A*%%CP+    DEVTYPE(*SCS)
A*%%CP     PAGESIZE(66  071)
A*%%*******************************************************************
```

The source consists of both DDS statements and RLU comments. For more information about the source that RLU generates and RLU comments, see Appendix B, “Source Generated by the Report Layout Utility” on page 107.

Chapter 6. Working with Record Formats

When you are working with record formats, you can perform the following tasks:

- Define a record format
- Specify record format spacing
- Rename a record format
- Copy a record format
- Move a record format
- Repeat a record format
- Specify page breaks
- Merge record formats by changing line types
- Specify record-level keywords

Defining Record Formats

To define a report line as a record format or to define a group of lines as a record format, type one of the following line commands in the sequence number area of the appropriate lines:

`DR` To define this report line as a record format

`DR`*n* (Where *n* is a number) to define this report line and the next *n* lines as a single record format

`DRR` To define every line between and including this line and the next occurrence of `DRR` as a single record format

RLU does the following:

- Automatically generates a name for the record format.

  The naming convention RLU uses for record format names is RCD*nnn*, where *nnn* is a 3-digit number beginning with 001 (for the first record format you create in your edit session) and incremented as you create each subsequent new record format. If you are editing an existing source member, RLU identifies the highest number already used in a record format name and increments from that number.

- Adds a spacing keyword to the new record format based on the *Record format spacing* default in the user profile.

- Displays the generated name in the sequence number area of the first line of the record format.

- Displays + in the sequence number area of the remaining lines of the record format.

Defining a Group of Lines as a Record Format - Example

To define the title of the report and the report headings as a record format, type DRR beside the report title and beside the report headings, as shown in the following display, and press Enter. A name is assigned to the record format and indicates the type of each line within the record format.

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
DRR01 . ABC Company - Employee Directory
00002 .
00003 .
DRR04 . Dept Employee Name                                          Phone    Status
00005 . nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx       nnnnn      x
        --------------------------- End of Report -----------------------------
```

Specifying Record Format Spacing

To specify record format spacing, type one of the following values in the *Record format spacing* prompt on the Change Session Defaults display:

SPACEB

This default record format spacing keyword is generated by RLU. If you accept the SPACEB default, the SPACEB(001) keyword is automatically added when a new record is defined if there are no filler lines preceding the record. Preceding filler (.) lines are represented by a SPACEB(1+*n*) spacing keyword at the record level, where *n* is the number of preceding filler lines. Therefore the default keyword SPACEB(001) is overridden if the number of preceding filler lines is greater than or equal to 1.

If the new record spans more than one line, RLU also generates a SPACEA keyword.

SPACEA

If you specify SPACEA as the default record spacing keyword, the SPACEA(001) keyword is automatically added when the record is defined if the record does not span multiple lines (that is, there are no continuation lines for the new record). Record continuation lines are represented by a SPACEA(*m*) spacing keyword at the record level, where *m* is the number of record continuation lines. Therefore the new default keyword value SPACEA(001) is overridden if the number of record continuation lines is greater than 1.

If there are preceding filler lines, RLU also assigns a SPACEB(1+*n*) keyword, where *n* is the number of filler lines preceding the new record.

No spacing

If you specify No spacing as the default record spacing value, RLU generates a new record without assigning a spacing keyword. The No spacing default value is overridden if there are preceding filler lines or if the record spans multiple lines. If there are preceding filler lines, RLU assigns a SPACEB keyword; if the record spans more than one line, RLU assigns a SPACEA keyword.

Rules for Record Format Spacing

The record spacing default value that you specify is, however, overridden if it conflicts with the following RLU spacing rules:

- If a record spans more than one line, a SPACEA(*m*) keyword is assigned to the record format, where *m* is the number of continuation lines.
- If a record format is preceded by a filler line, a SPACEB(1+*n*) keyword is assigned to the record format, where *n* is the number of filler lines preceding the new record.

For more information on spacing keywords, refer to the *DDS Reference*.

Renaming a Record Format

To rename a record format you define on the Design Report display, position the cursor on any report or sample line within the record format and press F18 (Record keywords)(B). The Work with Record Keywords display appears.

To rename the record format with which you are working:

1. Press F10 (Rename record) on the Work with Record Keywords display. The Rename Record Format display appears.
2. Type the new name in the *Record format* prompt. Your new name must conform to the following naming conventions:
   - The new name is 1 to 10 characters in length
   - First character must be alphabetic
   - Other characters must be alphanumeric, @, #, or $
   - No embedded blanks are used

   You can define a maximum of 1024 unique record formats within a file.

Copying a Record Format

To copy a record format to another location on the Design Report display, type either one of the following line commands:

- Type `CC` beside the first line of the record format in the sequence number area, and `CC` beside the last line of the record format in the sequence number area.
- Type `C`*n* beside the first line of the record format in the sequence number area, where *n* is the number of lines in the record format.

To specify a new location for the copied record format, type one of the following commands:

`A`	To insert the copied lines after this line
`A`*n*	(Where *n* is a number) to insert the copied lines after this line *n* times
`B`	To insert the copied lines before this line
`B`*n*	(Where *n* is a number) to insert the copied lines before this line *n* times
`O`	To overlay this line with the copied line
`O`*n*	(Where *n* is a number) to overlay *n* lines (including this line) with the copied lines
`OO`	To overlay the group of lines between (and including) this line and the next occurrence of `OO` with the copied lines

If you are overlaying the copied lines and specify more lines to overlay than you are copying, the lines are reused to copy the required number of lines.

Moving a Record Format

To move a record format to another location on the Design Report display, type either one of the following line commands:

- Type `MM` beside the first line of the record format in the sequence number area, and `MM` beside the last line of the record format in the sequence number area.
- Type `M`*n* beside the first line of the record format in the sequence number area, where *n* in the number of lines in the record format.

To specify the new location for moved lines, type one of the following commands:

`A`	To insert the moved lines after this line
`A`*n*	(Where *n* is a number) to insert the moved lines after this line *n* times
`B`	To insert the moved lines before this line
`B`*n*	(Where *n* is a number) to insert the moved lines before this line *n* times
`O`	To overlay this line with the moved line
`O`*n*	(where *n* is a number) to overlay *n* lines (including this line) with the moved lines
`OO`	To overlay the group of lines between (and including) this line and the next occurrence of `OO` with the moved lines

Repeating a Record Format

To repeat a record format immediately below the last line of the record format, type either one of the following commands:

- Type `RPP` beside the first line of the record format in the sequence number area, and `RPP` beside the last line of the record format.
- Type `RP`*n* beside the first line of the record format, where *n* is the number of lines in the record format.

Specifying Page Breaks

To specify a page break on any report line, but not on a sample line or a continuation line within a record format, type `NP` in the sequence number area of the appropriate line.

RLU does the following:

- Adds a line that marks the page break
- Renumbers the lines on the new page

You can use the NP line command to specify up to 999 page breaks in your report design on the Design Report display. These page breaks appear when you print a prototype of your report design; however, a page break you specify with the New Page (NP) command is not shown in the DDS source statements. Page breaks are indicated in RLU comments in the source member.

New Page (NP) line commands affect the printed report prototype only, so you must use page skipping keywords to include page breaks in your final DDS source and printer file.

Deleting Page Breaks

To delete a page break on the Design Report display, type `D` on the page break line.

Merging Record Formats by Changing Line Types

Before you specify information about the lines in your report design, every line is a filler line. As you define record formats and create sample data, each line within a record format is set as a report line or a sample line. Lines between record formats remain filler lines.

To change line types to merge record formats together, split a record format into two or more separate record formats, and remove parts of record formats.

You can specify any of the following as a new line type:

- R for the first report line in a record format
- C for a continuation report line in a record format
- S for a sample line
- F for a filler line

Type one of the following commands in the sequence number area of the appropriate lines:

`CL`*x* (Where *x* is a line type) to change the type of this line to *x*

`CL`*xn* (Where *x* is a line type and *n* is a number) to change the type of *n* lines to *x*

`CLL`*x* (Where *x* is a line type) to change the type of all the lines between (and including) this one and the next occurrence of `CLL` to *x*

Specifying Record-Level Keywords

To specify record-level DDS keywords in your report design and further define record formats:

1. Position your cursor on the record format with which you want to work on the Design Report display, and press F18 (Record keywords)(B). The Work with Record Keywords display appears.

   Note: On DBCS-capable systems, DBCS-only keywords are also shown on the Work with Record Keywords display.

2. To specify a keyword, type 2 next to the keyword you want, and press Enter.

   If you select a keyword that has further parameters and option indicators to specify, a data entry display for the keyword appears.

   Regardless of the type of keyword you select, a > symbol in front of the keyword in the list indicates that you specified the keyword.

   For detailed information about each keyword and its parameters and options, refer to one of the following:

   - Appendix A, “DDS Printer File Keywords” on page 97.
   - The RLU online help information. Press Help or F1 (Help) when showing the data entry display for the keyword.
   - The *DDS Reference*.

Removing Record-Level Keywords

To remove a keyword that you previously specified from a record format definition, type 4 next to the keyword you want to remove and press Enter. RLU removes the keyword from the record format definition.

To remove all the keywords that you previously specified for the record format, press F16 (Remove all keywords). All keywords are removed from the record format definition.

Using the Fastpath to Add or Remove Record-Level Keywords

To use the fastpath to add or remove keywords and parameters:

1. Press F9 (Input keyword parameters) on the Work with Record Keywords display. The Input Record Keywords display appears. This display also appears if you used it the last time you worked with file-level, record-level, or field-level keywords.

   The Input Record Keywords display shows the keywords already specified for the record format, along with any parameters specified for them, as they would appear in the DDS source statements.

You can perform the following tasks on this display:

- Add a record-level keyword, along with parameters and indicators, on the first row of the list
- Change the parameters on any row in the list
- Change the indicators on any row in the list
- To rename the record format, press F10 (Rename record)

2. Press Enter to return to the Design Report display, press F12 (Cancel) to return without processing, or press F9 (Work with keywords) to return to the Work with Record Keywords display.

Chapter 7. Working with Fields

To define and edit the fields in your report design and supply the necessary information about them so that RLU can generate DDS source, you use function keys, line commands, and field lines on the Design Report display.

You can define fields using function keys. You can specify a field name, field length, field position, field data type, and field decimal positions.

You can perform the following tasks when working with fields:

- Remove field-level keywords that are automatically specified
- Convert a named field to a constant field
- Define a named field
- Define a constant field
- Create sample data
- Change field information
- Mark data
- Work with a list of fields
- Edit fields using field lines
- Center fields
- Space fields evenly
- Delete fields
- Specify field-level keywords
- Condition fields and keywords
- Reference database files

You can also reference database fields from a list of fields. You can use a database file list, a record format list, and a database field list.

Defining Fields Using Function Keys

Every time you define a new record format in your report design, you must also define at least one field within the record format.

You can define fields one at a time on the Design Report display by using a function key. When you define a field this way, the operation is valid on a report line, a sample line, or a filler line. The line must already contain text that represents the field.

To define a field, do the following:

1. Position the cursor at the point in a line where you want to define a new field.

   If the cursor is on a character, RLU defines the field as all data beginning at the cursor position and ending at the first occurrence of two or more blanks, the first position before the next defined field in the line, or the end of the line, whichever comes first.

   If the cursor is on a blank but there is numeric text to the right of the cursor position, RLU defines the field as all data beginning at the cursor position and ending at the last character of the numeric text.

   If the cursor is on a blank but there is nonnumeric text to the right of the cursor position, RLU defines the field as a single character.

2. Press F11 (Define field)(B).

   RLU does the following:

   - Defines the new field
   - Shows the Define Field Information display.

     The necessary information for the field specifications is determined from what you entered on the Design Report display so you do not necessarily need to change any values on the Define Field Information display. The Define Field Information display shows you the field information that RLU automatically defines.

Specifying a Field Name

A new field is considered a named field not a constant field, and a name of FLD*nnn* is generated automatically for the field where *nnn* is a number. Starting with 001, the lowest number available is used so that the field name is unique within the record format. The highest number already used for an existing field is incremented by one for each new field.

Note: The maximum number of fields you can define in a single record format is 32 767.

The generated field name appears in the *Field* prompt on the Define Field Information display.

To specify a different name for the field, type a new name in the *Field* prompt that conforms to the following naming conventions:

- The new name is 1 to 10 characters in length
- First character must be alphabetic
- Other characters must be alphanumeric
- No embedded blanks are used

If you want the field to contain a constant value, the field must be unnamed. For a description of how to convert a new field to a constant field, see “Converting a Named Field to a Constant Field” on page 65.

Specifying Field Length

The length of a new field is defined based on the actual value you enter for the field on the Design Report display.

This field length appears in the *Length of data* prompt on the Define Field Information display. The length is in number of bytes if the field data is alphanumeric and in number of digits if the field data is numeric. If the field is DBCS-graphic, the length of the field is the number of double-byte characters.

The edited field length appears in the *Edited length* prompt at the top of the Define Field Information display. The edited field length is the actual length of the data plus any characters added because of a keyword such as Edit Code (EDTCDE) that RLU automatically specified for the field or Convert Data (CVTDTA) that you specified for the field yourself.

To specify a different length for the field, type one of the following values in the *Length of data* prompt:

- 1 to 378 for an alphanumeric field
- 1 to 31 for a numeric field
- 1 to 189 for a DBCS-graphic field
- 4 to 378 for a DBCS-open field
- *+nn* or *-nn*, where *nn* is a number, for a referenced database field length

The field length changes when you press Enter, and the Design Report display appears unless you specify a new length that places the field beyond the report width. In this situation, a message is displayed asking you to confirm deletion of the field.

Specifying Field Position

The position of a new field is defined from the row and column location of the field data on the Design Report display.

Field positioning in RLU is relative. For the first field on a line, the column containing the first character of the field data appears in the *Starting position* prompt on the Define Field Information display. For each subsequent field on the same line, the number of positions relative to the previous field (+15, for example) appears in the *Starting position* prompt. The *Starting line* prompt on the display is initially blank because RLU defines the horizontal position of the field relative to other fields using keywords. You can define a specific starting line for the field in the *Starting line* prompt, but then you cannot use positioning keywords.

To specify a different position for the field, type new values in the *Starting line* prompt and the *Starting position* prompt.

The new starting line you specify can be a number from 1 to 255 or a blank. Blank indicates that the horizontal position of the field is determined by the number of lines to skip or space between fields using keywords. See “Specifying Field-Level Keywords” on page 75, and Appendix A, “DDS Printer File Keywords” on page 97 for descriptions of the Skip After (SKIPA), Skip Before (SKIPB), Space After (SPACEA), and Space Before (SPACEB) keywords.

The new starting position you specify must be a number from 1 to 255 or an increment (*+nn*, where *nn* is a number) which specifies the space between the previous field in the line and the field you are defining.

You see the field in the new position when you press Enter and return to the Design Report display unless you specify a new position that places the field beyond the report width. In this situation, RLU displays a message asking you to confirm deletion of the field.

Specifying Field Data Type

The data type of a new field is based on the character string you use to represent the field on the Design Report display. If you use a mixture of alphabetic and numeric characters in the string, the data type is defined based on the first character in the string. The data type appears in the *Data type* prompt on the Define Field Information display.

To specify a different data type for the field, type one of the following values in the *Data type* prompt:

- 1 for character data
- 2 for zoned decimal data
- 3 for floating point data
- 4 for DBCS-open data
- 5 for DBCS-graphic data

  Note: 4 and 5 appear only on DBCS-capable systems.

- 6 for date data
- 7 for time data
- 8 for timestamp data
- Blank if you are referencing a database field definition.

The data type is changed in the field definition when you press Enter and return to the Design Report display.

Specifying Field Decimal Positions

The number of decimal positions for a numeric field is defined from the number of digits after the decimal point in the data you use to represent the field on the Design Report display. The number of decimal positions in your field data appears in the *Decimal positions* prompt on the Define Field Information display. The *Decimal positions* prompt is blank if the field data you entered is alphanumeric.

To specify a different number of decimal positions for the field, type one of the following in the *Decimal positions* prompt:

- A number from 0 to 31 that is less than or equal to the field length for numeric field data
- An increment of *+nn* or *-nn*, where *nn* is a number, for a referenced database field
- Blank for an alphanumeric field

You see the number of decimal positions increased or decreased when you press Enter and return to the Design Report display.

Removing Field-Level Keywords That Are Automatically Specified

The Edit Code (EDTCDE) keyword and the Edit Word (EDTWRD) keyword are automatically specified for new fields if the data you use to represent fields on the Design Report display corresponds to an edit code or edit word format. For example, if you enter *dd/mm/yy* as the data for a new field, the edit code that represents the date format (*nn/nn/nn*) is automatically specified when you define the field.

To remove the EDTCDE keyword or the EDTWRD keyword, or to specify other keywords for the field, press F10 (Work with keywords) on the Define Field Information display.

The Skip Before (SKIPB) keyword is generated automatically to prevent a record format from printing on the same line as a previous record format. If you want records to print over each other, you must specify a value of 0 for SPACEB,

remove the keyword on either the Work with Record Keywords display or the Input Record Keywords display, or specify No spacing as the record format default value on the Change Session Defaults display.

The number of keywords specified for a field appears in the *Number of keywords* prompt at the top of the Define Field Information display. See "Specifying Field-Level Keywords" on page 75 for information about working with field-level keywords.

See Appendix A, "DDS Printer File Keywords" on page 97 for more information about the EDTCDE, EDTWRD, SKIPB, and SPACEB keywords.

Converting a Named Field to a Constant Field

To convert the named field you are defining on the Define Field Information display to a constant field, and then define information about the constant field, press F11 (Convert to constant field). The field is converted and a different Define Field Information display appears.

The Specify Default (DFT) keyword is automatically specified for the constant field, using the text that you entered on the Design Report display as the constant value. In the generated source, RLU uses the implicit form of the keyword. For example, the source will contain `'Dept'` instead of DFT('Dept').

You can use this display to do the following:

- Change the position of the field in the same way you change the field position on the Define Field Information display for a named field.
- Convert the constant field to a named field by pressing F11 (Convert to named field). You see the Define Field Information display for a named field.

Defining a Named Field

To use the Define Fields (DF) line command to define a named field, type one of the following sequence line commands in the sequence number area of the appropriate lines:

`DF`	To define any text followed by two blanks as a field on this line
`DF`*n*	(Where *n* is a number) to define any text followed by two blanks as a field on *n* lines, beginning with this line
`DFF`	To define any text followed by two blanks as a field on all lines between (and including) this line and the next occurrence of `DFF`

If you try to define a named field on a sample line, on a filler line, or on a report line that does not contain text separated by at least two blanks, an error message is displayed and RLU does not define the field.

Defining a Constant Field

To use the Define Constants (DC) line command to define a constant field, type one of the following sequence line commands in the sequence number area of the appropriate lines:

DC	To define text followed by two blanks as a constant field on this line
DC*n*	(Where *n* is a number) to define text followed by two blanks as a constant field on *n* lines, beginning with this line
DCC	To define text followed by two blanks as a constant field on all lines between (and including) this line and the next occurrence of DCC

RLU does the following:

- Defines all text separated by at least two blanks as either a named field (for the DF command), or a constant field (for the DC command)
- Defines the length of the text as the field length
- Defines the characters that make up either the named or constant field as the field value

If you try to define a constant field on a sample line, on a filler line, or on a report line that does not contain text separated by at least two blanks, you receive an error message and RLU does not define the field.

Defining Constant Fields Using Keyword Constants - Example

All new fields are assumed to be named fields, rather than constant fields. In most situations, a new field must be converted to a constant field before a constant keyword can be applied to that field. You can specify some constant fields by typing a keyword constant on a field line to define the constant. By using this method, you do not have to use menus, function keys, or line commands to define the constant field. You can use this method with the *DATE, *TIME, *PAGNBR, and *DATESYS keywords only.

To specify the *DATE, *TIME, *PAGNBR, and *DATESYS keywords:

1. Type DR beside a filler line to a record format in the sequence number area, as shown in the following display, and press Enter:

```
 Columns . . . :    1  71        Design Report                 RPTLIB/RPTFILE
 RLU==> _____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
DR 01  .
00002  .
```

2. If the session defaults are set so that the field line is not displayed, use the View Field (VF) command to create a field line for the record, as shown in the following display, and press Enter:

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
VF D001
00002  .
```

3. Move the cursor to the position on the field line on which you want the constant to appear.
4. Type `* DATE, *TIME, *PAGNBR, and *DATESYS` on the field line, as shown in the following display, and press Enter:

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    *DATE               *TIME                   *PAGNBR       *DATESYS
 RCD001
```

A constant field is created, beginning in the location where you typed the keyword, and that keyword is defined for the field. The Design Report display appears as shown in the following example:

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________     REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------ Start of Page 001 --------------------------
FLD1    <......>            <......>                <..>          <......>
 RCD001 09/09/94            17:14:36                9999          09/09/94
```

You can specify the following constant keywords on the field line:

***DATE**

Use *DATE to define a constant that displays the date when the member was either created or updated. This keyword is the equivalent of specifying either DATE(*JOB *Y) or DATE. The keyword EDTCDE Y is automatically specified for the constant so that the date separator is displayed.

***TIME**

Use *TIME to define a constant that displays the current system time with the job time separator.

***PAGNBR**

Use *PAGNBR to define a constant that displays the page number.

***DATESYS**

Use *DATESYS to define a constant that displays the current system date. This keyword is the equivalent of specifying DATE(*SYS) or DATE(*SYS *Y) in the DDS source. The keyword EDTCDE Y is automatically specified for the constant so that the date separator is displayed.

Creating Sample Data

Sample lines contain sample data that correspond to all the fields you define in a record format. Sample lines appear on the Design Report display below a record format to give your report design a more realistic appearance. If you have not defined any fields in the record format for which you are creating sample data, the sample lines will be blank.

To create a sample line for a record format or to create multiple sample lines, type one of the following sequence line commands in the sequence number area of the appropriate lines:

`SD` To create a single sample line under this report line

`SD`*n* (Where *n* is a number) to create *n* sample lines under this report line

The number of sample lines you specify are created. If a filler line is below the record format for which you create sample data, a filler line is inserted between each line of sample data. You cannot delete these filler lines.

In each sample line, the data spans the length of each field in the report line and consists of the following:

- 9 for each character position in a numeric field
- X for each character position in an alphanumeric field
- A single-byte G for each character position in a DBCS-graphic field when the file is created with IGCDTA(*NO) specified
- A double-byte G for each character position in a DBCS-graphic field when the file is created with IGCDTA(*YES) specified
- Any constant values associated with the report line

RLU also displays S or + (for a continuation line) in the sequence number area of each sample line.

When you are defining and editing sample data, remember the following:

- You can also use a line command to change a filler line to a sample line.
- If you specified any edit codes or edit words for fields in the report line, they are reflected in associated sample data.
- When you edit fields on a report line, RLU automatically edits any associated sample lines to reflect the changes.
- When you condition fields with indicators, associated sample data is also conditioned. Sample data only appears on the display or in a printed report prototype if the field also appears.
- To process line commands on sample lines, the sample lines must be below the associated report line. If a line command changes this situation, the sample lines are deleted.
- If you move or copy sample lines without the associated report lines, the sample lines are deleted. You cannot move or copy sample data alone.
- To change the line type of a sample line with continuation lines, you must use a block command that includes the whole group of lines.

Changing Field Information

To change the current information for a field on the Design Report display:

1. Position the cursor on the field, and press F23 (Field keywords)(B). The Work with Field Keywords display appears.
2. To change field information, press F10 (Specify information). The Specify Field Information display appears. The only difference between the Specify Field Information display for an existing field and the Define Field Information display for a new field is that F10 (Work with keywords) is not available on the Specify Field Information display.

   You can change the following field information on the Specify Field Information display:

   - Name
   - Position
   - Length
   - Data type
   - Decimal positions

Marking Data

The area of data on the display that you mark for copying or moving can be any of the following:

- Single character
- Single field
- Area containing multiple fields and text

To specify a single character for copying or moving, position your cursor on the character, and press F13 (Mark/Unmark data)(B). The marked character is highlighted in reverse image.

To specify a single field for copying or moving, position your cursor anywhere in the field, and press F13 (Mark/Unmark data)(B). The marked field is shown in reverse image.

To specify an area of data for copying or moving, place your cursor at a position that represents one corner of the block you want to define, and press F13 (Mark/Unmark data)(B). Then move your cursor to another position that represents the other corner of the block and press F13 (Mark/Unmark data)(B) again. The data in the block is highlighted in reverse image. When you copy or move the block, only fields that are fully contained within the block are copied or moved, and that you can only define one marked area at a time.

To specify how you want RLU to handle marked data copy and move operations, specify a value for the following prompts on the Change Session Defaults display:

- For the *Insert marked data* prompt, specify how you want RLU to handle existing data in the target area
- For the *Replace marked data* prompt, specify how you want RLU to handle the source area after a move operation

Cancelling a Marking Operation

To cancel a marking operation before you copy or move it:

1. Position your cursor within the marked area, and press F13 (Mark/Unmark data)(B).
2. Press F5 (Refresh) to refresh the display. The F5 (Refresh) key clears your current display of changes you made since you last initiated processing by pressing Enter or a function key.

Copying or Moving Marked Data

To copy or move data that you marked, position the cursor at the top left corner of the area to which you want to copy or move your marked block, and press F14 (Copy marked data)(B) or F15 (Move marked data)(B).

For a copy or move marked data operation, RLU does the following:

- Copies or moves all fields and individual characters completely contained within the marked area to the new area you specified.
- Displays an error message for each field (which already has a field definition) that you copy or move.
- If you copy or move a field on to a report line, RLU also:
  - Creates a new field definition for each field (for a copy operation only), adjusting positional attributes and keywords as necessary.
  - Copies or moves any sample data associated with a field, adding new sample lines if you are copying or moving less lines than already exist under the target report line or leaving sample lines uncopied or unmoved if there are more lines than already exist under the target report line.
- If you copy or move a field on to a sample line or filler line, RLU moves the text only for each field that is copied or moved. The field definitions are not copied or moved. RLU displays a message indicating that at least one field definition is not copied or moved.

Copying or Moving Marked Data without Changing Field Definitions

If you want to copy or move marked data without changing field definitions in the target area, specify N (No) for the *Insert marked data* prompt on the Change Session Defaults display. The copied or moved fields overlay the existing fields and the contents of the source area replaces the contents of the target area.

Shifting Marked Data

If you want to shift marked data in the target area, specify Y (Yes) for the *Insert marked data* prompt on the Change Session Defaults display. RLU shifts the data in the target area, along with all data to the right of the target area, to the right by the width of the target area. If this operation would place any data outside the boundary of the report width or if the target area is specified in the middle of an existing field, RLU does not perform the operation and you see an error message.

Working with a List of Fields

To specify field information and keywords for fields in your report definition, you can display a list of fields and select the field you want to change from the list. To work with a list of fields, press F4 (Fields)(B) when your cursor is positioned anywhere on a record format on the Design Report display.

There are three versions of the Work with Fields list display. Each version shows you different information about the fields in the record format. The initial Work with Fields display shows you the values currently specified for each field in the list.

To view a list of fields that shows you the interpreted values for each current field definition in the list, press F11 (Display interpreted values) on your initial Work with Fields display. The second Work with Fields display appears.

To view the list of fields that shows you the text description of each field, press F11 (Display text) on the interpreted value version of the Work with Fields display. The third Work with Fields display appears.

You can do the following tasks on these displays:

- Rename fields.

  Type a new name in the *Field* prompt for the named field you want to rename. When you press Enter, the field name is changed. You cannot rename a constant field.

- Change field information.

  Type 2 next to the field you want to change. The Specify Field Information display appears for you to change the field definition.

- Delete fields.

  Type 4 next to the field that you want to delete. All selected fields are deleted when you press Enter and the list is refreshed and redisplayed. If all fields are deleted from the record, the Design Report display is returned.

- Specify keywords for the field.

  Type 5 next to the field for which you want to define keywords. The Work with Field Keywords display appears for you to specify field-level keywords.

Editing Fields Using Field Lines

You can edit the field line on the Design Report display to perform the following tasks:

- Shorten fields
- Lengthen fields
- Change field positions
- Define special constant fields
- Add database field references

Unless you change the default value on the Change Session Defaults display, a field line is automatically displayed immediately above a report line, as soon as you define at least one field on it. If field lines are not automatically appearing and you want to use them in your report image, do one of the following:

- Use the View Field (VF) line command. Type `VF` in the sequence number area of the line containing the fields you want to edit and press Enter.
- Specify Y (Yes) in the *Show all field lines* prompt on the Change Session Defaults display.

A field line is indicated by FLD1 in the sequence number area and is made up of the following characters:

`*` (asterisk) to indicate a single character field
`<` (less than) to indicate the start of a field
`>` (greater than) to indicate the end of a field
`.` (period) to fill the character positions of the field

To shorten the length of a field, delete as many periods as appropriate from the field line by using the Delete key.

To lengthen a field, add as many periods or blanks as appropriate to the field line by using the Insert key.

To move fields to the right, insert the appropriate number of blanks in the field line before the representation of the field that you want to move. This field, and all fields to the right, shift to the right by the number of blanks you insert.

To move fields to the left, delete the appropriate number of blanks from the field line before the representation of the field that you want to move. This field, and all fields to the right, shift to the left by the number of blanks you delete.

To move a field to the right or the left without affecting any other fields to the right, insert or delete the appropriate number of blanks in the field line before the field representation and delete or insert the same number of blanks after the field representation.

When you press Enter, RLU changes the field definition to reflect the new length or position. You see the change in the field line but you may not see the change in the field image unless the field is completely filled with characters on the display and you shorten the field.

To refresh the field line to its original state before you last pressed Enter, press F5 (Refresh). To delete specific empty field lines, use the Delete line command. To specify that field lines are not displayed, press F13 (Change session defaults)(A) and use the Change Session Defaults display.

You cannot delete or create a field when you edit the field line. If you change the syntax of the field line, RLU will not make any changes to your field definitions and you see an error message.

Editing a Field Line - Example

Assume that you define the fields on a report line, as shown in the following figure, and that a field line is displayed above the report line:

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.....................>                <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxx               nnnn   nnnnn      x
```

Assume you want to do the following:

- Lengthen the Employee Name field
- Move the Status field to the right

To edit the field line, do the following:

1. Insert periods to lengthen the Employee Name field as shown in the following figure, and press Enter:

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.........................>                <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxx              nnnn   nnnnn      x
```

   The length of the Employee Name field increases by the number of periods you added, as shown in the following figure:

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.........................>                <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxx              nnnn   nnnnn      x
```

2. The other fields in the line also moved to the right by the number of periods added. To move these fields back to their original positions, delete blanks in the field line, as shown in the following figure, and press Enter:

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.........................>            <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxx              nnnn   nnnnn      x
```

   The fields move back to their original positions, as shown in the following figure:

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.........................>            <..>   <...>      *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxx          nnnn   nnnnn      x
```

3. Insert blanks to move the Status field to the right, as shown in the following figure, and press Enter:

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.............................>        <..>   <...>           *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        nnnn   nnnnn      x
```

The Status field moves to the right by the number of blanks you inserted, as shown in the following figure:

```
00003 +
 RCD003 Employee Name                          Dept   Phone    Status
FLD1    <.............................>        <..>   <...>           *
 RCD004 xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx        nnnn   nnnnn           x
```

Centering Fields

Using the report width you specify when you start RLU and the length of the field, you can use a sequence line command to center a field on a report line. If the report line contains more than one field, the length between the starting position of the first field on the line and the last position of the last field on the line is used for centering.

Type one of the following sequence line commands in the sequence number area of the appropriate lines:

`CF` To center the field or fields on this line

`CF`*n* (Where *n* is a number) to center the field or fields on *n* lines, beginning with this line

`CFF` To center the field or fields on all lines between (and including) this line and the next occurrence of `CFF`

RLU also shifts any sample data associated with the fields you are centering.

Spacing Fields Evenly

You can use a sequence line command to evenly space the fields on a report line. RLU pads extra spaces to the right.

To evenly space the fields on this line, type `SP` in the sequence number area of the appropriate lines.

Any sample data associated with the fields you are evenly spacing is also shifted.

Deleting Fields

To delete a field on a report line or a sample line, position your cursor anywhere in the field you want to delete or on the sample data associated with the field and press F16 (Delete field)(B).

RLU deletes the following:

- The field text on the display
- Any sample data associated with the field
- All information included in the definition of the field

If the field-level keyword REFFLD is specified for the deleted field, the referenced database field is added to the field list at the bottom of the display. You can add this field to the report again.

Specifying Field-Level Keywords

To further define the fields in your report design, you specify field-level DDS keywords. Depending on the display you used last time you worked with file-level, record-level, or field-level keywords, either the Work with Field Keywords display or the Input Field Keywords display appears when you do any of following:

- Place your cursor on an existing field on the Design Report display that you want to change and press F23 (Field keywords)(B).
- Press F10 (Work with keywords) when the Define Field Information display is shown.
- Type 5 on the Work with Fields list display next to the existing field you want to work with and press Enter.

If the Input Field Keywords display appears, press F9 (Work with keywords) to access the Work with Field Keywords display.

You can do the following on this display:

- Select a keyword to specify
- Select a keyword to remove from the field definition
- Remove all the keywords specified for the field

On DBCS-capable systems, DBCS-only keywords are also shown on the Work with Field Keywords display.

To specify a keyword, type 2 next to the keyword you want and press Enter.

If you select a keyword that has further parameters and option indicators to specify, you see a data entry display for that keyword. If you select a keyword that has no further information to specify, you see a message and RLU specifies the keyword for the field.

Also, regardless of the type of keyword you select, you see > in front of the keyword in the list to indicate that you specified that keyword.

For detailed information about each keyword and its parameters and options, refer to one of the following:

- Appendix A, “DDS Printer File Keywords” on page 97.
- RLU online help information. Press Help or F1 (Help) when you are on the data entry display for the keyword.
- The *DDS Reference*.

Removing Field-Level Keywords

To remove a keyword that you previously specified from a field definition, type 4 on the Work with Field Keywords display next to the keyword you want to remove, and press Enter. RLU removes the keyword from the field definition.

To remove all the keywords that you previously specified for the field, press F16 (Remove all keywords). All keywords are removed from the field definition.

Using the Fastpath to Add or Remove Field-Level Keywords

To add or remove field-level keywords or parameters by using the fastpath, press F9 (Input keyword parameters) on the Work with Field Keywords display. The Input Field Keywords display appears.

The Input Field Keywords display shows the keywords already specified for the field, along with any parameters currently specified for them, as they would appear in the DDS source statements.

You can do the following on this display:

- Add a field-level keyword, along with parameters and indicators, on the first row of the list
- Change the parameters on any row in the list
- Change the indicators on any row in the list

Press Enter to return to the Design Report display, press F12 (Cancel) to return without processing, or press F9 (Work with keywords) to return to the Work with Field Keywords display.

Conditioning Fields and Keywords

To create realistic report prototypes, you can define indicators for fields and keywords, and then set the indicators on or off to condition your Design Report display. You can also print a report prototype with indicators set on or off. RLU saves the indicator settings you specify and they apply in your next RLU session until you change them.

For more information on indicators, refer to the *DDS Reference*.

Defining Indicators

You can specify indicators for any field you define and for some keywords you specify for a field, a record format, or a printer file.

You specify indicators for a field when you define the field using the Define Field Information display or when you change the field using the Specify Field Information display. The Define Field Information display appears.

You can specify up to three option indicators for a new or existing field in the *Option indicators* prompt. You can specify up to 81 indicators by specifying Y (Yes) for the *More indicators* prompt. You see another display that allows you to specify more indicators for the field. After you specify indicators for the field, the number of indicators currently specified appears in the *Number of indicators prompt* at the top of the display.

Some keywords allow option indicators while others do not. Refer to the information about each keyword in Appendix A, "DDS Printer File Keywords" on page 97. To specify an indicator for a keyword, you use prompts on the data entry display for the keyword.

Setting Indicators

To set indicators on or off, press F6 (Condition display)(B) on the Design Report display. The Condition Design Report display appears. You set indicators on by specifying them for the *Indicators on* prompt and typing `Y` for the *Condition display* prompt.

The specified indicators are on, while all others are off, throughout your edit session or until you set them off. The indicator settings you specify here also apply when you print your report prototype.

To use this display for setting the specified indicators off rather than on, press F11 (Default indicators to on). The *Indicators on* prompt becomes *Indicators off*, and F11 (Default indicators to on) becomes F11 (Default indicators to off).

For more information about the other prompts, place your cursor on the appropriate line of this display, and press the Help key or F1 (Help). Online help information that explains how to use the prompt is displayed.

Referencing Database Fields

There are two ways to reference field definitions from a database file in your report:

- Using a prompt on the Define Field Information display or the Specify Field Information display and a field keyword. For more information, see "Using the Define or Specify Field Information Display and a Keyword."

  This method is used in the second example exercise in the RLU example chapter. To practice this method of referencing database fields, see Chapter 5, "Designing a Complex Report - Example" on page 39.

- Using a field line on the Design Report display and a list of database fields.

  This method is used in the first example exercise in the RLU example chapter. To practice this method of referencing database fields, see Chapter 4, "Designing a Simple Report - Example" on page 31.

Using the Define or Specify Field Information Display and a Keyword

This section describes one method of referencing database fields. The order in which you perform the steps when using the Define (or Specify) Field Information display and a keyword depends on whether you are defining the field to:

- Change information about a field already defined on the Design Report display
- Create a new field on the Design Report display

When you reference a database field definition using a keyword, you do not see the associated column heading defined in the database field definition. To add column headings, you create them and define them as constant fields on the Design Report display.

To reference a database field and include the column heading defined in the database definition, use the method of building a list of database fields and editing the field line.

Changing a Field by Referencing a Database

The following steps explain how to change a field on the Design Report display by referencing a database field:

1. To refer to a database file for the field definition for an existing field on the Design Report display, move the cursor to the first position in the field and press F23 (Field keywords)(B). The Work with Field Keywords display appears.
2. Type 2 (Select) next to REFFLD in the keyword list, and press Enter. The Specify Reference Field display appears.
3. Specify the database field, record format, file, and library to reference, and press Enter. A message is displayed indicating that errors exist because you have not yet specified in the field definition that this is a referenced field.
4. Press Enter again to continue. The Work with Fields Keywords display is returned.
   The > symbol next to the REFFLD keyword indicates that REFFLD is now specified for the field.
5. To add the database reference to the field definition, press F10 (Specify information). The Specify Field Information display appears. Use the roll keys to see the bottom of the display.
6. To specify that you want to reference an existing database field definition for the field you are defining, type Y for the *Reference a field* prompt. You can also specify that you want to use the values from the database field definition. Press Enter to return to the Work with Field Keywords display.
7. Press Enter again and the Design Report display appears with your defined field.

Creating a New Field

1. To create a new field on the Design Report display by referencing a database field, place your cursor where you want the field to begin. Press F11 (Define field)(B) to see the Define Field Information display.
2. From the Define Field Information display, press F10 (Work with keywords) to see the Work with Field Keywords display.
3. Type 2 (Select) next to REFFLD in the keyword list, and press Enter. The Specify Referenced Field display appears.
4. Specify the database field, record format, file, and library you want to reference and press Enter.

   A message is displayed indicating that errors exist because you have not yet specified in the field definition that this is a referenced field.

   Note: For more information about the Specify Reference Field display, see "Using the Specify Referenced Field Display."
5. Press Enter again. The Work with Fields Keywords display is returned. The > symbol next to the REFFLD keyword indicates that REFFLD is now specified for the field.
6. Press Enter again. The Specify Field Information display appears. Use the roll keys to see the bottom of the display.
7. To specify that you want to reference an existing database field definition for the field you are defining, type Y for the *Reference a field* prompt. You can also specify that you want to use the values from the database field definition.
8. Press Enter again and the Design Report display appears with your defined field.

Using the Specify Referenced Field Display

RLU sets values for the prompts on the Specify Referenced Field display as follows:

1. If you are working with a field for which the REFFLD keyword is already defined, the values for the *Field*, *Record format*, *File*, and *Library* prompts are the values specified for REFFLD.
2. If you specified the file-level keyword REF, the values for the *Record format*, *File*, and *Library* prompts are the values specified for REF.
3. If neither item 1 nor item 2 applies, the default values for the *Record format*, *File*, and *Library* prompts are those that you specified on either the Specify Referenced Field display, the Add Database Fields display, or the Input Field Keywords display, if you used any of these displays in the current RLU session.
4. If none of items 1, 2, or 3 apply, *CURLIB is displayed for the *Library* prompt, and the other prompts are blank.

You define the following on the Specify Referenced Field display:

- Field that you are referencing
- Record format containing the field you are referencing
- File containing the record format and field you are referencing
- Library containing the file

For more detailed information about how to use each prompt on this display, place the cursor on the prompt, and press Help or F1 (Help). You see information that describes the prompt and how to use it.

For more information about specifying keywords for fields, see “Specifying Field-Level Keywords” on page 75.

Building a List of Database Fields

You can reference database fields by building a list of fields to reference and then including them from the list in your report design by editing a field line on the Design Report display.

To build a list of the database fields that you want to reference in your report, press F10 (Database fields)(B) when editing your report design on the Design Report display. The Work with Database Fields display appears.

Use this display to add a field to the list. After you have added fields to the list, then you can also do the following:

- Remove a field from the list
- Remove all the fields in the list
- Display the description of a field
- Display the list at the bottom of the Design Report display as you edit your report design

Adding Fields to the List

The way you add a field to the list on the Work with Database Fields display depends on what information you specify, whether or not you want to use prompting to specify your information, and whether or not you want to select fields and record formats from lists.

Type 1 in the *Option* column in the following situations:

- If you specify the name of the field and the library, the file, and the record format for the field, and press Enter, RLU adds the field to the list.
- If you specify a library, a file, and a record format but not a field name, and press Enter, the Select Database Fields display appears for you to select a field from a list of all the fields in the record format.
- If you specify a library and a file but not a record format or a field name, and press Enter, the Select Record Format display appears for you to select a record format from a list of all the record formats in the file.
- If you specify a library only and press Enter, the Select Database File display appears for you to select a database file from a list of all the files in the library. For more information, see “Using a Database File List” on page 82.
- If you press F4 (Prompt)(A) or press Enter with only option 1 (Add field) specified, the Add Database Fields display appears to prompt you for any information that you have not already supplied about the field.

Values for the prompts are set on the Add Database Fields display as follows:

1. If you specified the file-level keyword REF, the values for the *Record format*, *File*, and *Library* prompts are the values specified for REF.
2. If item 1 does not apply, the default values for the *Record format*, *File*, and *Library* prompts are those that you specified on the Specify Referenced Field display, the Add Database Fields display, or on the Input Field keywords display, if you used any of these displays in the current RLU session.
3. If neither item 1 nor item 2 applies, *CURLIB is displayed for the *Library* prompt, and the other prompts are blank.

Specify the following on the Add Database Fields display:

1. The name of the file containing the field definition you want to reference. To see a list of all the files in a library, type the library name in the *Library* prompt and press F4 (Prompt)(A) for a list. See “Using a Database File List” on page 82 for a description of how to use the Select Database File display.
2. The name of the library containing the database file you want to use. You can also use *CURLIB or *LIBL.
3. The name of the record format containing the field you want to reference. To see a list of all the record formats in a file, type the library name in the Library prompt, the file name in the File prompt, and press F4 (Prompt)(A) for a list. See “Using a Record Format List” on page 82 for a description of how to use the Select Record Format display.
4. The name of the field you want to reference. To see a list of all the fields in a record format, specify the library, file, and record format, and press F4 (Prompt)(A) for a list. See “Using a Database Field List” on page 83 for a description of how to use the Select Database Fields display.

After you specify a field on the Add Database Fields display, the field is added to the list and you return to the Work with Database Fields display.

After you add a field to the list, the Work with Database Fields display appears.

For a description of how to display the list of fields as you are editing your report on the Design Report display, see “Displaying a Database Field List on the Design Report Display” on page 83.

Selecting a Database File from a List of Files

To select a database file from a list of all the files in a library, specify the name of the library and press F4 (Prompt)(A) for a list when your cursor is on the *File* prompt.

Using a Database File List

The Select Database File display appears when you do one of the following:

- Specify a library only on the Work with Database Fields display, and press Enter.
- Specify a library only on the Add Database Fields display, and press F4 (Prompt)(A) for a list.
- Specify a library only on the Specify Reference Field data entry display for the REFFLD keyword, and press F4 (Prompt)(A) for a list.

The Select Database File display appears. The list on this display includes all the database files that exist in the library you specified.

You can move the list on the display to a specific position, and you can also see a subset of the list by specifying the criteria for the subset you want. For an explanation of how to do either of these operations, position your cursor on the *Position to* or *Subset* prompt and press Help or F1 (Help). You see information about how to use these prompts.

To select the file that contains the field definitions you want to reference, type 1 in the *Option* column next to the file name in the list and press Enter.

Selecting a Record Format from a List of Record Formats

To select a record format from a list of all the record formats in a database file, specify the name of the library and the file and press F4 (Prompt)(A) for a list when your cursor is on the *Record format* prompt.

Using a Record Format List

The Select Record Format display appears when you do one of the following:

- Specify a library and a database file, but not a record format or a field, on the Work with Database Fields display, and press Enter.
- Specify a library and a database file, but not a record format or a field, on the Add Database Fields display, and press F4 (Prompt)(A) for a list.
- Specify a library and a database file, but not a record format or a field, on the Specify Referenced Field data entry display for the REFFLD keyword, and press F4 (Prompt)(A) for a list.

The list on this display includes all the record formats from the database file you specified.

You can move the list on the display to a specific position, and you can also see a subset of the list by specifying the criteria for the subset you want. For an explanation of how to do either of these operations, position your cursor on the *Position to* or *Subset* prompt and press Help or F1 (Help). You see information about how to use these prompts.

To select the record format that contains the fields you want to reference, type 1 in the *Option* column next to the record

Selecting a Field from a List of Fields

To select a field from a list of all the fields in a record format, specify the name of the library, the database file, and the record format, and press F4 (Prompt)(A) for a list when your cursor is on the *Field* prompt.

Using a Database Field List

The Select Database Fields display appears when you do one of the following:

- Specify a valid library, database file, and record format, but not a field, on the Work with Database Fields display, and press Enter.
- Specify a valid library, database file, and record format, but not a field, on the Add Database Fields display, and press F4 (Prompt)(A) for a list.

A similar display called the Select Database Field display appears when you specify a valid library, database file, and record format, but not a field, on the Specify Referenced Field data entry display for the REFFLD keyword. The only differences from the Select Database Fields display are that you can only specify one field and the option to display the field description is not available.

The list on this display includes all the fields in the record format you specified. The fields are displayed in alphabetical sort order unless you choose to display them unsorted. Press F11 (Display unsorted) to display the fields in the order they were defined in the record. The last sort order selected remains the value in subsequent displays until you change it.

You can move the list on the display to a specific position, and you can also see a subset of the list by specifying the criteria for the subset you want. For an explanation of how to do either of these operations, position your cursor on the *Position to* prompt or the *Subset* prompt and press Help or F1 (Help). You see information about how to use these prompts.

You can do the following on this display:

- Select fields that you want to reference.

  To select a field, type 1 next to the field name in the list, and press Enter. RLU marks a selected field with > (a greater than symbol). Note that you can select as many fields as you want in the list.

- Display a description of a field in the list.

  To see the detailed description of any field in the list, type 8 next to the field name, and press Enter. The Display Database Field Description display appears. For explanations of the information on this display, position your cursor on the prompt for which you want more information, and press Help or F1 (Help).

Displaying a Database Field List on the Design Report Display

When you return to the Design Report display after editing your list of database fields, a database field list is displayed above the function keys.

The fields from your list are numbered from 1 to 9. The maximum number of fields you can see on the Design Report display is nine. A plus sign (+) at the end of the line indicates that there are more fields to display. To see more fields, position your cursor on the line and use the Page Up and Page Down keys.

Adding Database References to the Field Line

You use a list of database fields on your Design Report display as a reference to include them in your report design. After you build the list, you add the references to specific fields on the Design Report display by editing the field line.

To add a database reference for a field in a report line, you type the reference number of the field in the appropriate field line and at the position in the field line where you want the field to start. Use one of the following character strings:

n or &*n* (Where *n* is the reference number of a database field) to add field *n* to the report design at the position of either *n* or & with no column headings

*n*C or &*n*C (Where *n* is the reference number of a database field) to add field *n* to the report design at the position of either *n* or & and to add the defined column heading of field n as constant fields above field n

*n*L or &*n*L (Where *n* is the reference number of a database field) to add field *n* to the report design at the position of either *n* or & and to add the defined column heading of field *n* as a constant field to the left of field *n*, separated by one blank

*n*R or &*n*R (Where *n* is the reference number of a database field) to add field *n* to the report design at the position of either *n* or & and to add the defined column heading of field *n* as a constant field to the right of field *n*, separated by one blank

You can add more than one database reference to the field line at a time and you can use a particular database reference field more than once, but you can only use the database fields that you selected in the list and that currently appear at the bottom of the display.

When you press Enter, RLU does the following:

- Adds the database references you specified in the field line to the associated report line using the actual name of the database field.
- Creates up to three new report lines for referenced column headings, defined as one new record format, if you specified nC as a database reference.
- Deletes leading and trailing blanks from column headings and combines the resulting character strings, separated by single blanks, if you specify nR or nL as a database reference.
- Removes the field from the database field list at the bottom of the display. Because this creates blank space in the line, you see the next undisplayed field from your database field list added to the line.

When you are adding database field references to the field line, also be aware of the following:

- You cannot add database field references by editing hidden field lines.
- When you position the editing character string, ensure that there is enough space to add the database field or move adjacent fields to create sufficient space.
- If you reference a database field on the field line and then delete the new field from the report image, the referenced field is added to the field list. You can add the referenced field to the report again.

Chapter 8. Working with File Information

File-level keywords let you use printer attributes that will be applied to all the record formats in the source member. You can perform the following tasks when working with files:

- Specify file-level keywords
- Remove file-level keywords
- Use the fastpath to add or remove file-level keywords

Specifying File-Level Keywords

The Work with File Keywords display appears when you press F17 (File keywords)(B) on the Design Report display. This display shows you a list of all the keywords you can specify at the file level.

To specify a keyword, type 2 next to the keyword you want and press Enter.

If you select a keyword that has further parameters and option indicators to specify, you see a data entry display for that keyword. If you select a keyword that has no further information to specify, you see a message and RLU specifies the keyword for the file.

Also, regardless of the type of keyword you select, you see > in front of the keyword in the list to indicate that you specified that keyword.

For detailed information about each keyword and its parameters and options, refer to one of the following:

- Appendix A, “DDS Printer File Keywords” on page 97.
- RLU online help information. Press Help or F1 (Help) when you are on the data entry display for the keyword.
- The *DDS Reference*.

Removing File-Level Keywords

To remove a keyword that you previously specified for the file, type 4 on the Work with File Keywords display next to the keyword you want to remove, and press Enter. RLU removes the keyword from the file specification.

To remove all the keywords that you previously specified for the file, press F16 (Remove all keywords). RLU removes all keywords from the file description.

Using the Fastpath to Add or Remove File-Level Keywords

To use the fastpath to add or remove file-level keywords or parameters:

1. Press F9 (Input keyword parameters) on the Work with File Keywords display. The Input File Keywords display appears. This display also appears if you used it the last time you worked with file-level, record-level, or field-level keywords.

   The Input File Keywords display shows the keywords already specified for the file and any parameters currently specified for them, as they would appear in the DDS source statements.

2. You can do the following on this display:

   - Add a file-level keyword, along with parameters and indicators, on the first row of the list
   - Change the parameters on any row in the list
   - Change the indicators on any row in the list

3. Press Enter to return to the Design Report display, press F12 (Cancel) to return without processing, or press F9 (Work with keywords) to return to the Work with File Keywords display.

Chapter 9. Exiting from an RLU Session

You can exit from an RLU session by using the Exit RLU display. You can exit from an RLU session without saving the changes or creating the source member, or you can return to your previous edit session.

You can perform the following operations on the Exit RLU display:

- Save source members
- Create printer files
- Create a prototype of a report

You can also use the CANCEL command, the SAVE command, and the FILE command to exit from an RLU session.

Exiting from an RLU Session by Using the Exit RLU Display

To exit from the RLU session from the Exit RLU display, press F3 (Exit) on the Design Report display. The Exit RLU display appears.

Exiting from an RLU Session without Saving Changes

To exit the RLU session without saving changes you made, type 2 for the *Option* prompt, and press Enter. The system returns you to where you started your RLU session, and your changes are not saved.

Note: You can also use the CANCEL command to exit without saving changes during your RLU edit session. You cannot use the CANCEL command on the Exit RLU display.

See “Using Commands to Exit from the Report Layout Utility” on page 91 for more information about the CANCEL command.

Returning to the Previous Edit Session

To return to the previous edit session, type 3 for the *Option* prompt and press Enter.

Saving Source Members

When you save the changes you made during your edit session, both of the following are saved in an RLU source member:

- DDS source statements that RLU generates for all the defined entries you made during the edit session.
- Comments within the DDS source statements that RLU generates for all the undefined entries, such as undefined filler lines, you made during the edit session. RLU comments also contain information such as date and time.

Note: If you are changing a source member that was created in a previous session, the member can also contain user comments that were entered after the member was created using RLU. RLU attempts to save as many of these comments unaltered as possible through each edit session.

For a detailed description of the DDS source and comments RLU generates, see Appendix B, “Source Generated by the Report Layout Utility” on page 107.

To save a new or changed RLU source member, do the following on the Exit RLU display:

- Use the *Option* prompt to specify that you want to save the source member and leave RLU.
- Use the *Member* prompt to specify the name of the source member. Any changes you made during the edit session are saved into the source member with this name.
- Use the *File* prompt to specify the name of the source physical file that contains the source member you are editing.
- Use the *Library* prompt to specify the name of the library that contains the file you are editing.
- Use the *Text* prompt to specify text that describes the source member.

For more information about how to use each of these prompts, position the cursor on the appropriate prompt on the Exit RLU display, and press F1 (Help). Information describing how to use the prompt is displayed.

You can use the SAVE command on the Design Report display to save your changes and then continue editing. For more information on the SAVE command, see “SAVE Command” on page 91.

Creating Printer Files

To create a printer device file for the report you designed, do the following on the Exit RLU display:

- Use the *Create printer file* prompt to run the Create Printer File (CRTPRTF) command and create a printer file. The source member RLU uses is the source member you specified when you started your current edit session or the source member you specify on the Exit RLU display, if different.
- Use the *Change defaults* prompt to change any of the default values RLU uses for the CRTPRTF command parameters. RLU defaults to the page width specified on the STRRLU command.
- Use the *Submit to batch* prompt to submit the CRTPRTF operation to batch.
- Use the *Job description* prompt to specify the job description for the batch job. You can specify *RLU to have RLU supply the job description for the batch job.
- Use the *Library* prompt to specify the library for the job description.

For more information about how to use each of these prompts, position the cursor on the appropriate prompt on the Exit RLU display, and press F1 (Help). Information describing how to use the prompt is displayed.

Notes:

1. To create a printer file without saving the source member, you must have *USE authority to the Create Source Physical File (CRTSRCPF), Add Physical File Member (ADDPFM), and Create Printer File (CRTPRTF) commands.
2. To submit the printer file to batch, you must have *USE and *ADD authority, or *CHANGE authority, to library QRECOVERY.

Creating a Prototype of a Report

When you create a prototype of the report, you generate a printed version of the report that appears as close to the appearance of the final report as possible.

The printed prototype includes the following:

- A page header that indicates whether or not the report design is completed
- A trailer line
- A character (>) in the last position of each report line that contains undefined entries

The format of the report prototype page header is:

```
                        RLU REPORT PROTOTYPE
5769PW1 V3R1M0 940909                        sysname sysdate/time


Source file.............................:   XXXXXXXXXX
  Library  .............................:     XXXXXXXXXX
Source member...........................:   XXXXXXXXXX
Spooled output queue....................:   XXXXXXXXXX
  Library...............................:     XXXXXXXXXX
Print device............................:   XXXXXXXXXX
Number of copies........................:   XXXX
Forms type..............................:   XXXXXXXXXX
Lines per inch..........................:   X
Characters per inch.....................:   XXXX
User profile............................:   XXXXXXXXXX
Indicators conditioned on...............:   xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
                                             xx xx xx xx xx xx xx xx xx
 ** Warning message for incomplete report **
```

To create a prototype of the report you are designing, do the following on the Exit RLU display:

1. Enter Y on the *Prototype report* prompt.
2. Press Enter.

To print a prototype of the report, RLU creates the following:

- Temporary source file in QTEMP
- Special DDS source member in the source file using both defined and undefined entries you made in the work space during your edit session
- Separate printer file in QTEMP that is deleted after the report prototype is printed

You can also use the following options on the Exit RLU display when creating a prototype of your report:

1. Use the *Change defaults* prompt to change any of the default values RLU uses for creating a prototype of the report. RLU defaults to the page width specified on the STRRLU command, with a minimum of 132.
2. Use the *Submit to batch* prompt to submit the report prototype operation to batch.
3. Use the *Job description* prompt to specify the job description for the batch job. You can specify *RLU to have RLU supply the job description for the batch job.
4. Use the *Library* prompt to specify the library for the job description.

For more information about how to use each of these prompts, position the cursor on the appropriate prompt on the Exit RLU display, and press F1 (Help). Information describing how to use the prompt is displayed.

You can also create a prototype of the report with an existing source member by specifying the value 6 for the OPTION parameter of the STRRLU command. For information about the STRRLU command parameters, see “Start Report Layout Utility (STRRLU) Command” on page 5.

To print a prototype of the report, an additional printer file is created that is deleted after the report prototype is printed. This printer file is different from the printer file you create by specifying Y (Yes) for the *Create printer file* prompt in the following ways:

- All undefined fields are printed in the report prototype, so additional DDS statements are added to the report prototype source member
- New Page (NP) line commands affect the printed report prototype only, so you must use page skipping keywords to include page breaks in your final DDS source and printer file
- A separate indicator buffer is required for the report prototype so RLU always specifies the INDARA keyword in the printer file for report prototyping

Notes:

1. To create a prototype of a report, you must have *USE authority to the Create Source Physical File (CRTSRCPF), Add Physical File Member (ADDPFM), and Create Printer File (CRTPRTF) commands.
2. To submit the printer file to batch, you must have *USE and *ADD authority, or *CHANGE authority, to library QRECOVERY.

Using Commands to Exit from the Report Layout Utility

You can perform some of the same functions as on the Exit RLU display during your edit session by using the CANCEL, SAVE, and FILE commands.

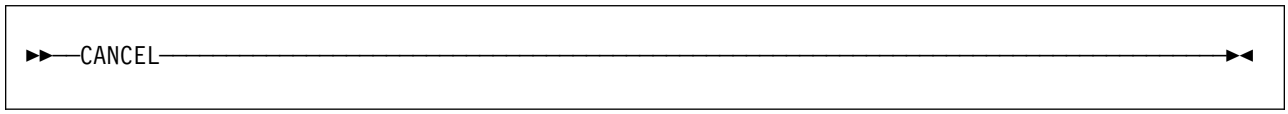
CANCEL Command

Cancels your edit or browse session and exits from it. The short form for the CANCEL command is CAN.

If you enter the CANCEL command in the top session of a split display, both sessions are canceled. If you enter it in the bottom session of a split display, only the bottom session is canceled.

If you change a member and then enter CANCEL, you are prompted to press Enter to confirm that you want to lose the changes. If you do not want to lose the changes, press F12 (Cancel) to continue editing.

Command Syntax

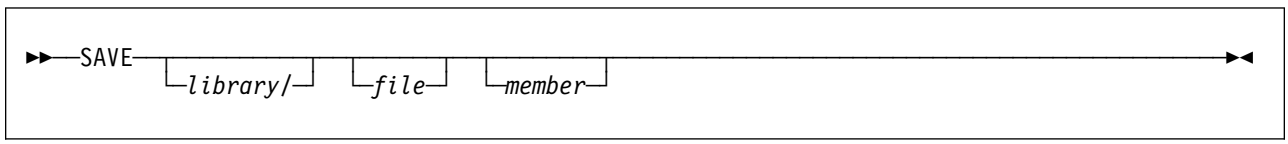


The CANCEL command has no parameters.

SAVE Command

Saves changes to a member without exiting. You can use the SAVE command only on the Edit display and in the top command line on a split Edit/Browse display.

Command Syntax



library
The library in which you want to save the file that contains the member. Follow the library name with a / character. If you specify a library, you must also specify a file. The default is the current library containing the member.

file The file in which you want to save the member. If a library is specified, the file name must immediately follow the / character. The default is the current file containing the member.

member
The member in which you want to save the changed member. If a file is specified, the member name must immediately follow the file name, separated by a blank.

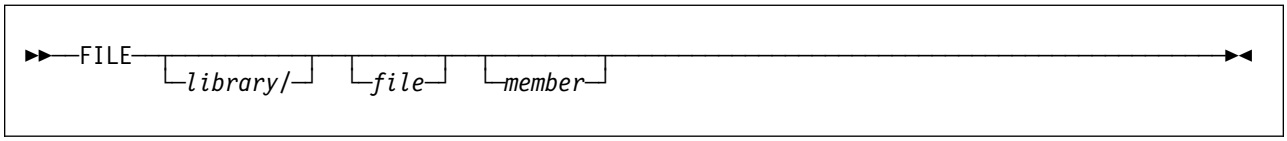
Notes:

1. The parameters that you enter for the SAVE command also appear in the corresponding prompts of the Exit display.
2. The System/38 terminology (FILE.LIBRARY) is not supported.

FILE Command

Saves changes to a member and exits from an edit session. You can use the FILE command only on the Edit display and in the top command line on a split Edit/Browse display. If you use the command on a split Edit/Browse display, you exit from both sessions.

Command Syntax



library
The library in which you want to save the file that contains the member. Follow the library name with a / character. If you specify a library, you must also specify a file. The default is the current library containing the member.

file The file in which you want to save the member. If a library is specified, the file name must immediately follow the / character. The default is the current file containing the member.

member
The member in which you want to save the changed member. If a file is specified, the member name must immediately follow the file name, separated by a blank.

Notes:

1. The parameters that you enter for the FILE command also appear in the corresponding prompts of the Exit display.
2. The System/38 terminology (FILE.LIBRARY) is not supported.

Chapter 10. Defining Fields Using the SDA Format

In RLU you can define fields in your report design and supply the necessary information about them by using function keys, line commands, and definition formats on the field line.

This appendix contains the following:

- Field definition formats
- Examples of using field definition formats
- Input/output results using field definition formats

Field Definition Formats

You enter field definition formats on the FLD1 field lines of the Design Report display. Field definition formats are used to define numeric fields, character fields, and constant fields.

To define a numeric field:

1. Type a plus sign (+) one position before where the field is to be located on the work display.
2. To define the field type, type 6 after the plus sign (+).

To define a character field:

1. Type a plus sign (+) one position before where the field is to be located on the work display.
2. To define the field type, type the letter 0 after the plus sign (+).

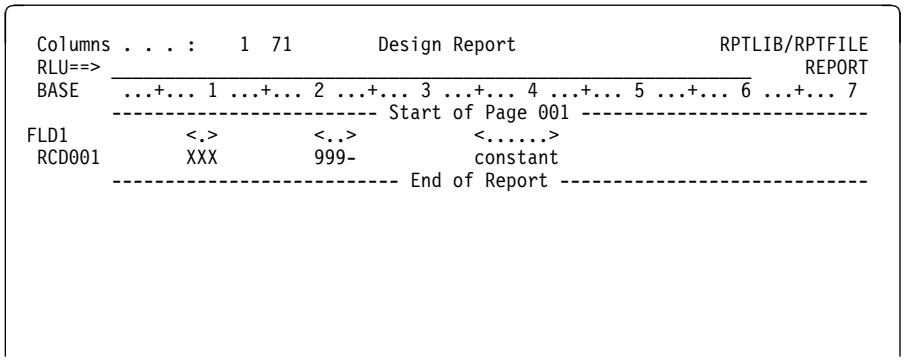
To define a constant field:

1. Type a single quotation mark (') one position before where the field is to be located on the work display.
2. Type a single quotation mark (') one position after the end of the field. The single quotation marks (') define the field type.

The following figure shows a 3-byte character field, a 3-byte numeric field, and a constant field on the FLD1 field line:

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------- Start of Page 001 --------------------------
FLD1          +000        +666           'constant'
 RCD001
        -------------------------- End of Report -----------------------------
```

When you press Enter, the field definition formats are converted to the RLU Define Field (DF) command field definitions, and are displayed on the FLD1 line and the sample line as shown in the following figure:



Notes:

1. A field cannot begin in column 1 because the column 1 position is used for the plus sign (+) or the single quotation mark (').
2. You cannot enter a plus sign (+) in column 80 to define a field beginning in column 1 of the next line because the next line is not a FLD1 field line.
3. Each field definition needs 1 or 2 blank positions in addition to the length of the field you are defining. This allows room for the plus sign (+) or the single quotation marks (').
4. New field definitions cannot overwrite existing field definitions.
5. A zoned field is defined with a default of edit code L.
6. The length of a constant field is limited by the display size. If a length parameter is not specified, then the length of a numeric or character field is limited by the display size.
7. If you define a field that exceeds the display size, the field is not created and RLU deletes the field definition.

Using Field Definition Formats - Examples

The symbols used in the following examples of field definition formatting are:

e	Single precision
d	Double precision
n	Digit
j	Length
k	Decimal position
x	Alphanumeric

Examples of numeric field definitions are:

+6*nn*	Defines a field
+6*nn.nn*	Defines a field with 3 significant digits and 2 decimal positions
+6(*j*)	Defines a field *j* bytes long
+6(*j,k*)	Defines a field *j* bytes long with *k* decimal positions
+6(*j,k*)*e*	Defines a single-precision, floating-point field with *j* significant digits and *k* decimal positions
+6(*j,k*)*d*	Defines a double-precision, floating-point field with *j* significant digits and *k* decimal positions
+6*nn.nne*	Defines a single-precision, floating-point field with 3 significant digits and 2 decimal positions
+6*nn.nnd*	Defines a double-precision, floating-point field with 3 significant digits and 2 decimal positions

Examples of character field definitions are:

+O*xxx*	Defines a field
+O(*j*)	Defines a field *j* bytes long

Examples of constant field definitions are:

'*abcde...*'	Defines a field
'*abc*''*def*'	Defines two constant fields

Input/Output Results Using Field Definition Formats

The following examples show the results of field definition using formats on the field line.

Field Definition	**RLU Result**
+6.	Not allowed
+6(9)+6(9)+6(9)	Overlapping fields defined
+6*nnn*	9999-
+3*nn*	Not allowed
+9*nn*	Not allowed
+6(5,2)	999.99-
+666.66*e*	0.00E+000
+6(5,2)*e*	0.00E+000
+6(5,2)*d*	0.00E+000
+O*xx*	XXX
'ABC'	ABC
'ABC''DEF'	ABC DEF
'ABC' 'DEF'	ABC DEF

Appendix A. DDS Printer File Keywords

This appendix contains an alphabetical list of DDS keywords that you can use in RLU, and a description of their use. For information on the printer file DDS keywords that you cannot specify in RLU, see “RLU-Tolerated Advanced Function Printing Data Stream Keywords” on page 105.

For more detailed information about each keyword, refer to the *DDS Reference*.

Data Entry Displays for Keywords

Data entry displays are used in RLU to specify keywords and their associated parameters. You see the data entry display for a keyword by selecting that keyword on the appropriate keyword selection list. There are three levels of keywords:

- File-level keywords
- Record-level keywords
- Field-level keywords

For information about how to select keywords, see “Specifying Record-Level Keywords” on page 58, “Specifying Field-Level Keywords” on page 75, and “Specifying File-Level Keywords” on page 85.

Note: If you previously specified a keyword for the file, record format, or field you are currently working with, the data entry display for the keyword contains the values you specified last.

If a keyword parameter requires a string enclosed by apostrophes, RLU automatically adds them, so you do not need to type them.

For keywords that allow option indicators, you can specify up to three option indicators on the keyword data entry displays. If you require more than three indicators, you can specify up to 81 indicators on the Specify Indicators display. Depending on the keyword data entry display you are in, you can access the Specify Indicators display when you do one of the following:

- Type Y for the *More indicators* prompt
- Select option 8 (Specify more indicators)

There is a Specify Indicators display for file-level keywords, record-level keywords, and field-level keywords.

After specifying your option indicators, press Enter to return to the keyword data entry display.

Keywords You Can Specify in the Report Layout Utility

The following keywords can be specified in RLU:

Alternative Name (ALIAS)

Use this field-level keyword to specify an alternative name for a field. When the program that generates your report is compiled, the alternative name is brought into the program instead of the DDS field name. The high-level-

language (HLL) compiler determines whether the alternative name is used. Refer to the appropriate HLL reference manual for information about ALIAS support for that language. Option indicators are not valid for this keyword.

Bar Code (BARCODE)
Use this field-level keyword to print a field as a user-specified bar code. BARCODE is valid for IPDS printers. Option indicators are not valid for this keyword.

Blank Fold (BLKFOLD)
Use this field-level keyword for named fields that overflow onto subsequent print lines so that folding occurs at a blank rather than at the end of the line. If the blank fold keyword is not specified, the line folds at the end of the physical print line. This keyword has no parameters, so you do not see a data entry display.

Coded Font (CDEFNT)
Use this record-level or field-level keyword to specify the coded font to be used for a named or a constant field or fields. Use the record-level display to have all fields in the record use the coded font. Use the field-level display to have a specific field use the coded font. Option indicators are valid for this keyword.

Character Identifier (CHRID)
Use this field-level keyword to specify that a graphic character set and code page other than the device default can be used for this field. This can be important when extended alphabetics (characters such as u with an umlaut or c with a cedilla) are to be printed. This keyword has no parameters, so you do not see a data entry display.

Character Size (CHRSIZ)
Use this record-level or field-level keyword to expand the width and height of a record or field. Option indicators are not valid for this keyword.

Color (COLOR)
Use this field-level keyword to specify the color for a field, if it is supported by the printer device. The COLOR keyword is used only by the 4224 printer. If you do not specify COLOR, or if the keyword is not valid for a printer device, black (the default value) is used. Option indicators are valid for this keyword.

Characters Per Inch (CPI)
This record-level or field-level keyword specifies the horizontal printing density for the record format or field you are defining. Option indicators are valid for this keyword. Use this keyword to:

- Darken logos and other printed graphics that you create using the DFNCHR keyword
- Place more data in less space on printed forms
- Fit the appearance of a form to your needs

Convert Data (CVTDTA)
This field-level keyword converts character data to hexadecimal data when the field is passed to the printer. This keyword has no parameters, so you do not see a data entry display. Use this keyword to define:

- Logos or emblems for a letterhead on your forms
- Alternative character sets or symbols (such as a copyright symbol)

- Appearance of a physical form (by adding vertical and horizontal lines that act as boundaries on the form or between positions on an invoice)
- IPDS bar code commands

Date (DATE)

Use this field-level keyword to display a date as a constant field that is 6 bytes long. The DATE keyword has two parameters: *JOB and *SYS. Use the *JOB parameter to display the job date. Use the *SYS parameter to display the system date. The job date is the date on which the current job or session was started. When this date is set, it does not change. The system date is the current date, and it changes each day.

The Date keyword format is: `DATE([*JOB|*SYS] [*Y|*YY])`

To use two digits to represent the year in the date format designated by the job attribute DATFMT, specify `*Y`. This is the default. To use four digits to represent the year in the date format designated by the job attribute DATFMT, specify `*YY`.

You can specify the location of the field, the DATE keyword, its parameters and optionally, the CHRSIZ, COLOR, EDTCDE, EDTWRD, FONT, HIGHLIGHT, UNDERLINE, or TEXT keyword.

The sample data used to display the date on the Design Report display is the same for DATE(*JOB) and DATE(*SYS).

Notes:

1. In DDS, DATE and DATE(*JOB) perform the same function. RLU generates DATE in the source for both DATE and DATE(*JOB). If source created outside of RLU contains DATE(*JOB), RLU saves DATE only when you save the source.
2. If you specify DATE(*SYS) and modify the member with a previous release of RLU, the previous release changes the record that contains the DATE(*SYS) keyword into a comment. If other valid keywords are associated with the DATE(*SYS), the results cannot be predicted.

Date Format (DATFMT)

Use this field-level keyword to specify the format of the date field. This keyword is only valid for date fields (data type L).

The Date Format keyword format is: `DATFMT(date-format)`

The DATFMT keyword overrides the job attribute for a date field. It does not change the system default. The following table describes the valid date formats and their default separator values.

Format Name	Date Format Parameter	Date Format and Separator	Field Length	Example
Job Default	*JOB			
Month/Day/Year	*MDY	mm/dd/yy	8	06/21/90
Day/Month/Year	*DMY	dd/mm/yy	8	21/06/90
Year/Month/Day	*YMD	yy/mm/dd	8	90/06/21
Julian	*JUL	yy/ddd	6	90/172
International Standards Organization	*ISO	yyyy-mm-dd	10	1990-06-21
IBM USA Standard	*USA	mm/dd/yyyy	10	06/21/1990
IBM European Standard	*EUR	dd.mm.yyyy		
Japanese Industrial Standard Christian Era	*JIS	yyyy-mm-dd	10	1990-06-21

Date Separator (DATSEP)

Use this field-level keyword to specify the separator character for a date field. This keyword is valid only for date fields (date type L).

The Date Separator keyword format is: `DATSEP(*JOB | 'date-separator')`

The date separator parameter specifies the separator character that appears between the year, month, and day. Valid values are a slash (/), dash (–), period (.), comma (,) or blank ( ). The parameter must be enclosed in apostrophes.

If you do not specify the DATSEP keyword, the default is the job attribute.

Define Character (DFNCHR)

With the DFNCHR keyword, you can define characters of your own design at the file or record level for the 5224 printer and 5225 printer. With this keyword, you can specify DFNCHR more than once at the file or record level, or as many as 50 characters each time you specify DFNCHR. Option indicators are valid for this keyword.

Define Line (DFNLIN)

This keyword is valid for DBCS only. Use this record-level keyword to draw a horizontal or vertical line. A horizontal line is drawn at the bottom of the character spaces from left to right. A vertical line is drawn on the left edge of the character spaces from top to bottom. Option indicators are allowed for this keyword.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath.

See Appendix D, “Double-Byte Character Set” on page 125 for more information about using DBCS in RLU.

Specify Default (DFT)

Use this field-level keyword to specify a constant value for constant (unnamed) fields. RLU does not generate the explicit DFT keyword. Constants are stored in the source with the text of the constant delineated by single quotation marks. Option indicators are not valid for this keyword.

Delete Edit (DLTEDT)

Use this field-level keyword to specify that the Operating System/400* (OS/400*) system not use any edit code or edit word keywords specified for the referenced field. If a field description is referred to from a database file, DLTEDT prevents certain information from being referenced. This keyword has no parameters, so you do not see a data entry display.

Drawer (DRAWER)

Use this record-level keyword to specify the drawer from which noncontinuous forms will be selected. Option indicators are valid for this keyword.

Edit Code (EDTCDE)

Use this field-level keyword to edit output-capable numeric fields. Option indicators are not valid for this keyword.

Edit Word (EDTWRD)

If you cannot accomplish the desired editing by using the EDTCDE keyword, specify an edit word instead. An edit word specifies the form in which the field values are to print and clarifies the data by inserting characters, such as, decimal points, commas, floating-currency and fixed-currency symbols, and credit balance indicators. Also use it to suppress leading zeros and to provide asterisk fill protection. Option indicators are not valid for this keyword.

Floating-Point to Fixed Decimal (FLTFIXDEC)

Use this field-level keyword to print a number in a floating-point field in fixed decimal notation. This keyword has no parameters, so you do not see a data entry display.

Floating-Point Precision (FLTPCN)

Use this field-level keyword to specify the precision of a floating-point field. Option indicators are not valid for this keyword.

Font Character Set (FNTCHRSET)

Use this record-level or field-level keyword to specify the font character set and code page to be used for a named or constant field or fields. Use the record-level display to have all fields in the record use the font character set. Use the field-level display to have a specific field use the font character set. Option indicators are valid for this keyword.

Font (FONT)

Use this record-level or field-level keyword to specify the font ID for printing a named or constant field or fields within a record. Option indicators are valid for this keyword.

Certain fonts require a font identifier. To specify a font identifier, type Y (Yes) for the *Change defaults* prompt on the Exit RLU display when you are creating a printer file or prototyping a report. Specify a value in the *Font Identifier* prompt.

Highlight (HIGHLIGHT)

Use this record-level and field-level keyword to indicate that a field should be printed in bold letters. Option indicators are valid for this keyword.

Alternative Data Type (IGCALTTYP)

This keyword is valid for DBCS only. Use this field-level keyword to change alphanumeric character fields to the DBCS fields of data type O. Option indicators are not allowed for this keyword.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath. This keyword has no parameters, so you do not see a data entry display.

See Appendix D, “Double-Byte Character Set” on page 125 for more information about using DBCS in RLU.

Alphanumeric-to-DBCS Conversion (IGCANKCNV)

This keyword is valid for DBCS only. This field-level keyword converts alphanumeric characters to equivalent DBCS characters (Japanese only). Each DBCS character prints twice as wide as a printed alphanumeric character.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath. This keyword has no parameters, so you do not see a data entry display.

Option indicators are not allowed for this keyword.

See Appendix D, “Double-Byte Character Set” on page 125 for more information about using DBCS in RLU.

DBCS Coded Font (IGCCDEFNT)

Use this record-level or field-level keyword to specify the DBCS coded font to be used for a named or a constant field or fields. Use the record-level display to have all fields in the record use the DBCS coded font. Use the field-level display to have a specific field use the DBCS coded font. For more information on using DBCS in RLU, see Appendix D, “Double-Byte Character Set” on page 125. Option indicators are valid for this keyword.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath.

DBCS Character Rotation (IGCCRRTT)

This keyword is valid for DBCS only. This field-level or record-level keyword rotates each DBCS character 90 degrees counter-clockwise before printing. Rotation allows the system to print the characters vertically, in reading sequence. Use this keyword only for printer files to be printed with the 5553 printers.

Option indicators are not allowed for this keyword.

Note: On a non-DBCS system, you can only enter this keyword by using the fastpath. This keyword has no parameters, so you do not see a data entry display.

See Appendix D, “Double-Byte Character Set” on page 125 for more information about using DBCS in RLU.

Indicator Area (INDARA)

Use this file-level keyword to remove option indicators from the buffer (also called the record area) and place them in a 99-byte separate indicator area. This keyword has no parameters. When you specify INDARA, you see a message telling you that there is no further information to specify.

Indicator Text (INDTXT)

Use this file-level, record-level, or field-level keyword to associate descriptive text (indicating intent or use) with a specific indicator. You can specify INDTXT once for each indicator. Option indicators are not valid for this keyword.

Lines Per Inch (LPI)

Use this record-level keyword to change lines per inch within a file. If you do not specify LPI for a record, the LPI value is set from the LPI value on the CRTPRTF command. Option indicators are not valid for this keyword.

Message Constant (MSGCON)

Use this field-level keyword to indicate that the text for a constant field is contained in a message description. If the message description does not exist at DDS compile time, the file is not created. If you change the message description, you must create the file again. Option indicators are not valid for this keyword.

Page Number (PAGNBR)

Use this field-level keyword to specify the location of a constant, 4-digit, zoned decimal field to contain the page number. Specify only the PAGNBR keyword, the location of the field (the location of the field can be either position only, or line number and position), and, optionally, the CHRSIZ, COLOR, FONT, HIGHLIGHT, UNDERLINE, or TEXT keyword. Option indicators are valid for this keyword.

Page Rotation (PAGRTT)

Use this record-level keyword to specify the degree of rotation of the text for loading the page into the printer. The PAGRTT keyword is valid only for the 3812 and 3816 printers. If you do not specify a PAGRTT keyword for a record, the page rotation is set from the value specified on the Create Printer File (CRTPRTF) command. Option indicators are valid for this keyword.

Print Quality (PRTQLTY)

Use this record-level and field-level keyword to vary the print quality within the file. Option indicators are allowed for this keyword.

Reference (REF)

Use this file-level keyword to specify the name of a file from which field descriptions are to be retrieved. Option indicators are not valid for this keyword.

Referenced Field (REFFLD)

Use this field-level keyword when referring to a field under one of these three conditions:

- Name of the referenced field is different from the name in the DDS
- Name of the referenced field is the same as the name in the DDS, but the record format, file, or library of the referenced field is different from that specified with the REF keyword
- Referenced field occurs in the same DDS source file as the referencing field

Option indicators are not valid for this keyword.

Skip After (SKIPA)

Use this file-level, record-level, or field-level keyword to specify that the printer device is to skip to a specific line number after it prints one or more lines. Option indicators are valid for this keyword.

Skip Before (SKIPB)
Use this file-level, record-level, or field-level keyword to specify that the printer device is to skip to a specific line number before it prints the next line or lines. Option indicators are valid for this keyword.

Space After (SPACEA)
Use this record-level or field-level keyword to specify that the printer device is to space some number of lines after it prints one or more lines. Option indicators are valid for this keyword.

Space Before (SPACEB)
Use this record-level or field-level keyword to specify that the printer device is to space some number of lines before it prints the next line or lines. Option indicators are valid for this keyword.

Text (TEXT)
Use this record-level or field-level keyword to supply a text description (or comment) for the record format or field. Option indicators are not valid for this keyword.

Time (TIME)
This field-level keyword prints the current system time as a constant field 6 bytes long. You can specify the location of the field, the TIME keyword, and, optionally, the EDTCDE, EDTWRD, COLOR, HIGHLIGHT, CHRSIZ, FONT, UNDERLINE, or TEXT keyword. This keyword has no parameters, so you do not see a data entry display.

Time Format (TIMFMT)
Use this field-level keyword to specify the format of a time field. This keyword is valid for time fields (data type T).

The Time Format keyword format is: `TIMEFMT (time-format)`

If you do not specify the TIMFMT keyword, the default is the * ISO time format. The following table describes the valid time formats and their default separators.

Format Name	Time Format Parameter	Time Format and Separator	Field Length	Example
Hours:Minutes:Seconds	*HMS	hh:mm:ss	8	14:00:00
International Standards Organization	*ISO	hh.mm.ss	8	14.00.00
IBM USA Standard	*USA	hh:mm AM or hh:mm PM	8	2:00 pm
IBM European Standard	*EUR	hh.mm.ss	8	14.00.00
Japanese Industrial Standard Christian Era	*JIS	hh:mm:ss	8	14:00:00

Time Separator (TIMSEP)
Use this field-level keyword to specify the separator character used for a time field. This keyword is valid only for time fields (data type T).

The Time Separator keyword format is: `TIMSEP(*JOB | 'time-separator')`

The time-separator parameter specifies the separator character that appears between the hour, minute, and second values. Valid values are a colon (:), period (.), and blank ( ). The parameter must be enclosed in apostrophes.

Transparency (TRNSPY)

This field-level keyword prevents code points you have redefined (using the DFNCHR keyword) from being interpreted as SCS printer control commands when your program sends an output operation that prints the field you are defining. This keyword has no parameters, so you do not see a data entry display.

Underline (UNDERLINE)

Use this field-level keyword to specify that the OS/400 system is to underline the field when it is printed. Specify UNDERLINE only if the printer supports underlining. Option indicators are valid for this keyword.

RLU-Tolerated Advanced Function Printing Data Stream Keywords

The DDS keywords required for Advanced Function Printing Data Stream (AFPDS) support are tolerated by RLU, but not supported by it. When you load a source member that contains a record that contains a tolerated keyword, RLU saves all source lines in that record. The record is displayed without any of the fields that are defined for it. In the following figure, RCD004 is the AFPDS record and all other records are displayed with all their defined fields:

```
 Columns . . . :    1  71        Design Report                  RPTLIB/RPTFILE
 RLU==> _____________________________________________________________ REPORT
 BASE    ...+... 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7
        ------------------------- Start of Page 001 --------------------------
 FLD1   <.............................>
  RCD001 ABC Company - Employee Directory
 00002 +
 00003 +
 FLD1   <..> <...........>                                    <...>    <....>
  RCD002 Dept Employee Name                                   Phone    Status
 FLD1   <..> <.........................................>      <...>      *
  RCD003 nnnn xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx      nnnnn      x
        ------------------------- Start of Page 002 --------------------------
  RCD004 ----------------------- AFPDS Record Format ------------------------
        --------------------------- End of Report ----------------------------









 F3=Exit   F11=Define field   F16=Delete field
 F22=Alternative keys         F24=More keys
```

When you save the source member, RLU regenerates the tolerated keywords.

Because these keywords are tolerated, but not supported, you can neither specify nor change these keywords during an RLU session. You can, however, use the RLU Copy, Move, Delete, block Copy, block Move, and block Delete line commands on records that contain these keywords. When you print a report prototype, the records that contain these keywords are generated.

The tolerated keywords in RLU are:

DDS Keyword	Name	Record Level	Field Level	Description
BOX	Box	X		Prints a rectangle.
ENDPAGE	Page Eject	X		Ejects the current page when the record is printed.
GDF	Graphic Data File	X		Prints a graphic data file.
LINE	Line	X		Prints a vertical or horizontal line.
OVERLAY	Overlay	X		Prints an overlay.
PAGSEG	Page Segment	X		Prints a page segment.
POSITION	Position		X	Defines the location of the field. The location is defined by a unit of measure instead of by line and column.
TXTRTT	Text Rotation		X	Rotates a field 0, 90, 180, or 270 degrees depending on the way the page is loaded into the printer.

Appendix B. Source Generated by the Report Layout Utility

An RLU source member contains three types of data:

- DDS source statements
- RLU comments
- User comments

This appendix describes this source data.

You can use the source entry utility (SEU) to browse a source member that you created or changed with RLU. During the browse session, you can also use the SEU HIDE command to hide RLU comments in the member. For more information about using SEU, refer to *ADTS for AS/400: Source Entry Utility*.

Comments

When you save a new or changed RLU member, RLU stores information that is specific to RLU in comments, called RLU comments. Any information also contained in the DDS source code is not repeated in the RLU comments. DDS code and RLU comments together allow RLU to recreate your report design on the Design Report display.

The following tables describe the location, the purpose, and the contents of each RLU comment type in an RLU source member.

The following RLU comments are always generated:

- Time/Release Information
- File-Level Information

Description of Comments

The follow figure shows describes RLU comments:

Comment Type	Associated DDS	Location in DDS
Time/Release Information	None	First RLU comment in file-level DDS.
File-Level Information	None	Following the Time/Release Information comment line.
Record-Level Information	Record format	Immediately following a record format specification and before any field specification.
Filler Line Information - Undefined Filler Line	None	Before or after a record format specification, but not within a single record format or set of sample texts.
Filler Line Information - Report Spacing Filler Line	Record format	Within a record format specification or set of sample texts.
Start of a Set of Sample Texts	All the fields within a record format	First line of a set of sample texts and (if in the first set of sample texts) after all fields in the record format but before the next record format.

Comment Type	Associated DDS	Location in DDS
Report Sample Data	Field	Immediately following a Start of a Set of Sample Texts comment line.
Report Continuation Line	None	Immediately following a Start of a Set of Sample Texts comment line, within a set of sample texts.
New Page Break	None	Between record formats, sets of sample texts, or Undefined Filler Line comments.
CRTPRTF Command String for Printer File	None	End of source.
CRTPRTF Command String for Sample Report	None	End of source.

Contents of Comments

The following figure shows the contents of RLU comments:

Position	Information	Description
	All RLU Comment Types	
1-5	Sequence Number	This position contains blanks. They are not used and are ignored by RLU.
6	Form Type	An A in this position designates this as a DDS form. Any character is valid for input, but A is automatically generated for output.
7	Comment	An asterisk (*) in this position identifies this line as a comment. This must appear in the RLU source.
8-9	RLU Type Identification	%% in these positions identifies this line as an RLU comment.
	Time/Release Information	
10-11	RLU Time/Release Information Identification	TS in these positions identifies this line as a file-level time/release information line.
12-13	Positions Not Used	These positions contain blanks.
14-15	RLU Component Identification	These positions contain the RLU component identification.
16-17	Positions Not Used	These positions contain blanks.
18-25	Date of Last Update	These positions contain the last update year-month-day stamp (yyyymmdd).
26-27	Positions Not Used	These positions contain blanks.
28-33	Time of Last Update	These positions contain the last update hour-minute-second stamp (hhmmss).
34-35	Positions Not Used	These positions contain blanks.
36-45	User ID	These positions contain the last update user ID.
46-47	Positions Not Used	These positions contain blanks.
48-57	Release Number and Modification Number	These positions contain the release number and modification number of the current RLU session.

Position	Information	Description
58-59	Positions Not Used	These positions contain blanks.
60-69	Product Number	These positions contain the product number of the current RLU version.
70-80	Positions Not Used	These positions contain blanks.
	File-Level Information	
10-11	RLU File Information Line Identification	FI in these positions identifies this line as a File-Level Information line.
12	Continuation Line Identification	A plus sign (+) in this position identifies the next line as a continuation File-Level Information line. A blank in this position identifies the line as the second File-Level Information line.
13	Printer Device Type	The value in this position identifies the type of printer device being used. Valid values are 1 for *SCS (the default), 2 for *IPDS, and 3 for *AFPDS. This position must be blank if the line is a second File-Level Information line to accommodate all the indicators.
14-16	Page Length	These positions contain the page length for the report in number of print lines. The valid range is 001 to 255 (066 is the default), and the value must be right-justified. These positions must be blank if the line is a second File-Level Information line to accommodate all the indicators.
17	Activate Indicators	This position contains 1 for Active or 0 for Non-active and indicates whether or not conditioned fields and keywords are activated. The default value is 0 and all indicators are assumed to be 1. If the value in this position is 1, all the indicators to become ON must be 1. Indicators of 0 become OFF. This position is blank if the line is a second File-Level Information Line, to accommodate the status of more indicators than can fit on a single line.
18	ON/OFF Toggle	This position contains 1 for ON or 0 for OFF to indicate the current setting of the ON/OFF toggle. The default value is 1 for ON. The ON/OFF toggle value has effect only when the Activate Indicators value is 1 for Active. This position is blank if the line is a second File-Level Information line.
19-68	Set of Indicators	These positions contain the indicator values (50 on the first File-Level Information line and 49 more on a second). The valid values are 1 and 0; any invalid value is considered 0. If the line is a second File-Level Information line, position 68 must be blank.
69-80	Positions Not Used	These positions contain blanks.
	Record-Level Information	
10-11	RLU Record Information Line Identification	RI in these positions identifies this line as a record format information line.

Position	Information	Description
12	Position Not Used	This position contains a blank.
13-17	Number of Sample Lines	These positions specify the number of sample lines generated.
18	Record Type	This position contains an H or a blank to indicate whether or not this is a database header record.
19-80	Positions Not Used	These positions contain blanks.
	Filler Line Information - Undefined Filler Line	
10-11	RLU Filler Line Identification	FL in these positions identifies this line as a filler line, and not associated with any record format.
12	Continuation of Undefined Filler Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.
13-15	Number of Occurrences	These positions specify the number of repeated blank filler lines (including the first one). The valid range is from 1 to 999.
16	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of a DBCS string.
17-78	Undefined Filler Line Data	This position contains the filler line data (exactly what shows on the Design Report display).
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80 if the filler line text contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the filler line text contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.
	Filler Line Information - Report Spacing Filler Line	
10-11	RLU Filler Line Identification	FS in these positions identifies this line as a report spacing filler line, associated with a record format.
12	Continuation of Report Spacing Filler Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.
13-15	Number of Occurrences	These positions specify the number of repeated blank filler lines (including the first one). The valid range is from 1 to 999.
16	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of a DBCS string.

Position	Information	Description
17-78	Report Spacing Filler Line Data	These positions contain the filler line data (exactly what shows on the Design Report display).
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80 if the filler line text contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the filler line text contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.
Start of a Set of Sample Texts		
10-11	Start Sample Text Identification	SS in these positions identifies this line as the beginning of a set of sample texts.
12	Continuation of Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.
13-15	Positions Not Used	These positions contain blanks.
16	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of a DBCS string.
17-78	Filler Text Data	These positions contain the filler text data (exactly what shows on the Design Report display).
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80 if the filler text contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the filler text contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.
Report Sample Data		
10-11	RLU Report Sample Data Line Identification	SN in these positions identifies this line as a report sample data line.
12	Continuation of Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.

Position	Information	Description
13-22	Field Name	These positions contain the field name with which the report sample data is associated.
23	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of DBCS sample data text.
24-78	Sample Data	These positions specify the sample data. The data can be alphanumeric or numeric. Blanks preceding the data are interpreted as leading blanks (for alphanumeric data) or suppressed zeros (for numeric data). If the line is not long enough to hold all the sample data text, a plus sign (+) in position 12 indicates that the line is followed by a continuation line. The remaining data is on the continuation line.
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80 if the sample data contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the sample data contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.

Record Continuation Line		
10-11	RLU Continuation Line Identification	CL in these positions identifies this line as a continuation line within a set of field or sample text lines.
12	Continuation of Line	This position contains a plus sign (+) to identify the next line as a continuation line or a blank to indicate that there is no continuation.
13-15	Number of Occurrences	These positions specify the number of repeated blank filler lines (including the first one). The valid range is from 1 to 999.
16	Shift-Out Character (Reserved for DBCS)	This position contains a shift-out control character (hex '0E') for the continuation of a DBCS string.
17-78	Continuation Line Data	These positions contain the filler text data (exactly what shows on the Design Report display).

Position	Information	Description
79-80	Shift-In Character (Reserved for DBCS)	These positions contain one of the following: • A shift-in control character (hex '0F') in position 79 and a blank in position 80 if the filler text contains DBCS strings and the second byte of the last DBCS character ends in position 78. • A shift-in control character in position 80 if the filler text contains DBCS strings and the second byte of the last DBCS character ends in position 79. • Blanks in both positions if single-byte character set (SBCS) text ends in position 78.
	New Page Break	
10-11	RLU New Page Identification	NP in these positions identifies this line as a New Page Break.
12-80	Positions Not Used	These positions contain blanks.
	CRTPRTF Command String for Printer File	
10-11	Command String Identification	CP in these positions identifies this line as a CRTPRTF command string for the printer file.
12	Continuation of Parameter List	This position contains a plus sign (+) to identify the next line as a continuation line or a blank if there is no continuation.
13-15	Length of Command	These positions contain the length of the command, right-justified and padded with leading zeros. From Version 2, Release 2 and later, the value is always set to the maximum (999) for the downward compatibility of RLU.
16-80	Command String	These positions contain the command string to create the printer file, including all the specified parameters.
	CRTPRTF Command String for Sample Report	
10-11	Command String Identification	CS in these positions identifies this line as a CRTPRTF command string for the report prototype.
12	Continuation of Parameter List	This position contains a plus sign (+) to identify the next line as a continuation line or a blank if there is no continuation.
13-15	Length of Command	These positions contain the length of the command, right-justified and padded with leading zeros. From Version 2, Release 2 and later, the value is always set to the maximum (999) for downward compatibility of RLU.
16-80	Command String	These positions contain the command string to create the printer file, including all the specified parameters.

User Comments

An RLU source member can also contain text that you enter for documentation purposes and identify with an asterisk (*) in position 7. These user comments can only be added to an existing source member outside an RLU session.

When an RLU source member containing user comments is loaded into the work space at the start of an RLU session, RLU associates each user comment with the next RLU entity (file, record format, field, or keyword) that it encounters.

The consequences of this linking are:

- When you delete an entity, RLU also deletes all the associated user comments
- When you move an entity, RLU also moves all the associated user comments appropriately
- When you copy an entity, RLU does not copy the associated user comments

When Editing Non-RLU Printer Files

When you are using RLU to work with existing printer file DDS source members that you did not create by using RLU, be aware of the following:

- When RLU loads the existing source member:
  - All field text is defaulted, according to data type
  - Non-DDS features such as indicator settings, page width, and printer type, unless they are explicitly specified, are defaulted
  - Record formats are shown in the order in which RLU encounters them in the source
  - The Specify Default (DFT) keyword is dropped from the source
  - Any invalid keywords are stored as comments
- When you save the existing source member:
  - The appropriate RLU comments are added to the source
  - All occurrences of DATE(*JOB) are stored as DATE (that is, the *JOB parameter is dropped)

Appendix C. Semantic Checking in the Report Layout Utility

RLU can check the DDS source you define with RLU to help you create and change error-free source members.

Semantic checking occurs during an RLU edit session when you are editing a report design on the Design Report display as RLU validates new and changed information that you enter on the display. RLU also validates information that you enter or change on other data entry displays when you return to the Design Report display. If RLU finds an error, a message is displayed and the line containing the error is highlighted. You can then change the information in the appropriate manner. Be aware that if you ignore errors intentionally, RLU will not create the printer file.

When you load an existing source member into the RLU work space, syntax checking occurs. RLU does not perform semantic checking at this time. Syntax checking validates that data has not been corrupted since it was last edited with RLU. You could have created errors, such as a misspelled keyword, if you edited the source directly using SEU. If RLU finds any unrecoverable errors, a message is displayed telling you what action RLU took.

Requesting Semantic Checking

To specify that you want RLU to check your source member while you edit on the Design Report display, press F13 (Change session defaults)(A). The Change Session Defaults display appears.

On this display, use the following prompts for semantic checking throughout your edit session:

- *When added/modified*

  Specifying Y (Yes) for this prompt indicates that you want RLU to check every new and changed line in your report design as you enter or change it.

- *Printer device type*

  Specifying the type of printer you are using for this prompt produces a more accurate semantic check because some keywords are only valid for certain printers.

Use the following prompts for a one-time semantic check of specific pages and lines:

- *From page number*

  Because the lines in your report design make up one or more pages, the number you enter for this prompt tells RLU on which page to start the check.

- *Line number*

  The number you enter for this prompt specifies the line on the From page where you want RLU to start the check.

- *To page number*

  The number you enter for this prompt tells RLU on which page to end the check.

- *Line number*

  The number you enter for this prompt specifies the line on the To page where you want RLU to end the check.

What Semantic Checking Provides

For report lines and filler lines on the Design Report display, RLU checks the following:

- Record format definition
- Field definition
- Constant data definition

For record format, field, and constant data definition on the other data entry displays, RLU checks the following:

- Definable values
- Relations, keywords, and values

For file-level, record-level, field-level, and constant data keywords on the keyword list displays, RLU checks the following:

- Relations between keywords within the record format and the file

For required keyword parameters, RLU checks the following:

- Keyword parameter values
- Relations between parameter values

Valid DDS Keywords for Printer Device Types

The valid DDS keywords for a printer device file are indicated by a Y under the printer device file name:

Note: You cannot use RLU to work with the DDS keywords that are in AFPDS records. For more information about AFPDS records, see "RLU-Tolerated Advanced Function Printing Data Stream Keywords" on page 105.

Keyword	SCS	IPDS	DBCS	AFPDS
ALIAS	Y	Y	Y	Y
BARCODE		Y		Y
BLKFOLD	Y			
CDEFNT				Y
CHRID	Y	Y	Y	Y
CHRSIZ	Y	Y	Y	Y
COLOR		Y		Y
CPI	Y			
CVTDTA	Y	Y		Y
DATE	Y	Y		Y
DATFMT	Y	Y		Y
DATSEP	Y	Y		Y

Keyword	SCS	IPDS	DBCS	AFPDS
DFNCHR	Y		Y	
DFNLIN	Y		Y	
DFT	Y	Y	Y	Y
DLTEDT	Y	Y		Y
DRAWER	Y	Y	Y	Y
EDTCDE	Y	Y		Y
EDTWRD	Y	Y		Y
FLTFIXDEC	Y	Y		Y
FLTPCN	Y	Y		Y
FNTCHRSET				Y
FONT		Y		Y
HIGHLIGHT	Y	Y		Y
IGCALTTYP	Y	Y	Y	
IGCANKCNV	Y		Y	
IGCCDEFNT	Y		Y	Y
IGCCHRRTT	Y		Y	
INDARA	Y	Y	Y	Y
INDTXT	Y	Y	Y	Y
LPI		Y	Y	Y
MSGCON	Y	Y		Y
PAGNBR	Y	Y		Y
PAGRTT		Y	Y	Y
PRTQLTY		Y	Y	Y
REF	Y	Y	Y	Y
REFFLD	Y	Y	Y	Y
SKIPA	Y	Y	Y	Y
SKIPB	Y	Y	Y	Y
SPACEA	Y	Y	Y	Y
SPACEB	Y	Y	Y	Y
TEXT	Y	Y	Y	Y
TIME	Y	Y		Y
TIMFMT	Y	Y		Y
TIMSEP	Y	Y		Y
TRNSPY	Y	Y		
UNDERLINE	Y	Y	Y	Y

Rules for Specifying Keywords

The rules for specifying keywords are:

Keyword	Rules
ALIAS	• Must be different than any other ALIAS and field name in the record format • Not valid for a constant field
BARCODE	• ID must check as shown in “Rules for Specifying Bar Codes” on page 123 • Data type must check as shown in “Rules for Specifying Bar Codes” on page 123 • Field length must check as shown in “Rules for Specifying Bar Codes” on page 123 • Height can be any value between 1 and 9, or it can be left blank • Printer should not be SCS • ID must be CODE3OF9 if you specify asterisk fill • Not valid for a field with DBCS data type • Not valid for a numeric field unless the number of decimal positions is zero • Not valid with constant field DATE, PAGNBR, or TIME • Not valid for a field with CHRID, CVTDTA, DATE, EDTCDE, EDTWRD, FONT, HIGHLIGHT, PABNBR, TIME, or UNDERLINE also specified • Not valid for a field with CHRSIZ, CPI, DFNCHR, DFNLIN, IGCANKCNV, or IGCCHRRTT specified for the record format • Not valid for database reference field with EDTCDE or EDTWRD specified for the database field
BLKFOLD	• Printer must be SCS • Not valid for a constant field • Not valid for a floating-point field
CDEFNT	• Not valid for a field with either FONT or FNTCHRSET also specified for a field • Not valid for a record with either FONT or FNTCHRSET also specified for a record format
CHRID	• Not valid for a constant, numeric, or floating-point field • Not valid for a field with BARCODE also specified • Not valid for a field with DFNCHR specified for the record format • Not valid for a field with DFNCHR specified for the file • Not valid for a field with TRNSPY also specified with SCS printer • Ignored for a field with graphic FONT also specified or for field with nonnumeric FONT also specified and graphic FONT specified for the record format

Keyword	Rules
CHRSIZ	• Decimal CHRSIZ not valid for a field or record format with numeric FONT also specified for the same record format or field • BARCODE not valid for a field with CHRSIZ also specified for the record format
COLOR	• Printer should not be SCS • Must have option indicators for each COLOR when specified more than once for the same field • Same COLOR not valid more than once for the same field • Not valid with CPI, DFNCHR, DFNLIN, IGCANKCNV, or IGCCHRRTT specified for the same record format
CPI	• Printer must be an SCS printer • Not valid with BARCODE, COLOR, LPI, or PRTQLTY specified for the same record format • Not valid with DRAWER specified for the same record format • IGCANKCNV or IGCCHRRTT not valid for a record format with CPI specified at the field level
CVTDTA	• Field should be a character named field • Field length must be an even number • Specify with TRNSPY for SCS printer file • Not valid for a constant field • Not valid for a field with BARCODE also specified
DATE	• Valid for a constant field only • Specify with CPI, EDTCDE, EDTWRD, COLOR, HIGHLIGHT, CHRSIZ, SKIP, SPACE, FONT, INDTXT, PRTQLTY, TRNSPY, TEXT, and UNDERLINE only • Not valid with DFT, MSGCON, PAGNBR, or TIME
DATFMT	• If *JOB is specified, the default is the job attribute • If DATFMT is not specified, the default is *ISO • DATSEP keyword not valid with DATFMT of *ISO, * USA, *EUR, *JIS, which have a fixed separator
DATSEP	• If *JOB is specified, the default is the job attribute • If DATSEP is not specified, the default is the job attribute • Not valid with DATFMT of *ISO, * USA, *EUR, *JIS, which have a fixed separator
DFNCHR	• Printer should be SCS printer • Not valid for a field with CHRID and PRTQLTY also specified • Not valid with DRAWER specified for the same record format • Not valid with PRTQLTY specified for the same record format • Do not specify with IPDS keywords, such as, COLOR, LPI, and BARCODE

Keyword	Rules
DFNLIN	• Starting line must be equal to or less than page length • Sum of length must be equal to or less than page length • Starting position must be equal to or less than page width • Sum of length must be equal to or less than page width • Printer should be SCS • Not valid for a record format with IPDS keywords, such as, COLOR, BARCODE, and LPI also specified
DFT	• Field must be a constant field • Specify with TRNSPY for DFT with hex values • Not valid with DATE, MSGCON, PAGNBR, or TIME • Not valid with IGCANKCNV or IGCALTTYP
DLTEDT	• Field must be a named field • Valid with REF or REFFLD and when the field is referencing another previously referenced field
DRAWER	• Not valid with CPI specified for the same record format • Not valid with DFNCHR specified at the record level
EDTCDE	• Edit description must exist • Field must have zoned decimal data type • Field length must be 3 through 7 for edit code Y • Currency fill symbol must be blank, asterisk, or the system currency symbol • Asterisk fill and currency symbol fill valid for edit codes 1 through 4, A through D, and J through Q only • Not valid with BARCODE • Not valid for a field with EDTWRD also specified
EDTWRD	• Field must have zoned decimal data type • Sum of blanks and stop-zero-suppression characters (zeros) must equal field length • Edit mask cannot be too large • Not valid with BARCODE • Not valid for a field with EDTCDE also specified
FLTFIXDEC	• Field length must be equal to or greater than 6 • Not valid for a constant field • Valid for floating-point fields only
FLTPCN	• Field must be a floating-point field • Specify FLTPCN(*DOUBLE) if field length is greater than 9 • Not valid for a constant field • FLTPCN(*SINGLE) not valid if field length is greater than 9
FNTCHRSET	• Not valid for a field with either FONT or CDEFNT also specified for field • Not valid for a record with either FONT or CDEFNT also specified for a record format

Keyword	Rules
FONT	• Not valid for a field with either CDEFNT or FNTCHRSET also specified for a field • Not valid for a record with either CDEFNT or FNTCHRSET also specified for a record format • Specify FONT(*VECTOR) with CHRSIZ for a record format or field • Not valid for a field with BARCODE also specified • Ignored if printer is SCS printer • Numeric FONT not valid for a field or record format with decimal CHRSIZ also specified for the same record format or field • CHRID ignored if specified for a field with graphic FONT also specified or for a field with nonnumeric FONT also specified and graphic FONT specified for the record format • Do not specify numeric or graphic font with HIGHLIGHT that does not support HIGHLIGHT • Overlapping fields not diagnosed if FONT specified at file level
HIGHLIGHT	• Not valid for a field with BARCODE also specified • Do not specify with a numeric or graphic FONT that does not support HIGHLIGHT
IGCALTTYP	• Field must be a character field • Field must be a named field • Field length must be greater than 3 • BLKFOLD, CPI, and IGCANKCNV not valid with IGCALTTYP
IGCANKCNV	• Field must be a named field • Printer should not be an IPDS printer • Not valid with BLKFOLD, BARCODE, COLOR, CPI, IGCALTTYP, and LPI
IGCCDEFNT	• Field must have DBCS data type
IGCCHRRTT	• Field must have DBCS data type • Printer should not be an IPDS printer • Not valid for a constant field • Not valid with BARCODE, COLOR, and LPI
LPI	• Printer should not be SCS • Not valid with COLOR, CPI, DFNCHR, DFNLIN, IGCANKCNV, or IGCCHRRTT
MSGCON	• Field must be a constant field • Not valid with DATE, DFT, PAGNBR, or TIME • Not valid for a field with IGCANKCNV, IGCALTTYP, or IGCCHRRTT
PAGNBR	• Field must be a constant field • Not valid with DATE, DFT, MSGCON, or TIME • Only CPI, EDTCDE, EDTWRD, COLOR, HIGHLIGHT, CHRSIZ, SKIP, SPACE, FONT, INDTXT, PRTQLTY, TRNSPY, TEXT, and UNDERLINE are valid with DATE
PAGRTT	• Printer should not be SCS

Keyword	Rules
PRTQLTY	• Specify with CHRSIZ for a record format • Specify with CHRSIZ at the record level or CHRSIZ and BARCODE at the field level when specifying for a field • Printer must be an IPDS printer • Not valid with CPI, DFNCHR, or DFNLIN specified for the same record format
REFFLD	• Field must be a named field
SKIPA	• Specify option indicators when specifying for a file • Not valid for a field with a line number specified for the first field in the record format • Not valid at the file level in a file that contains DDS keywords for AFPDS support
SKIPB	• Specify option indicators when specifying for a file • Not valid for a field with a line number specified for the first field in the record format • Not valid at the file level in a file that contains DDS keywords for AFPDS support
SPACEA	• Not valid for a field with a line number specified for the first field in the record format
SPACEB	• Not valid for a field with a line number specified for the first field in the record format
TIME	• Field must be a constant field • Only CPI, EDTCDE, EDTWRD, COLOR, HIGHLIGHT, CHRSIZ, SKIP, SPACE, FONT, INDTXT, PRTQLTY, TRNSPY, TEXT, and UNDERLINE are valid with TIME • Not valid with DATE, DFT, MSGCON, or PAGNBR
TIMFMT	• If TIMFMT is not specified, the default is *ISO • *ISO, *USA, *EUR, *JIS not valid with TIMSEP keyword. These formats have a fixed separator.
TIMSEP	• If *JOB is specified, the default is the job attribute • If TIMSEP is not specified, the default is the job attribute • *ISO, *USA, *EUR, or *JIS time formats on the TIMFMT keyword not valid with TIMSEP keyword. These formats have a fixed separator.
TRNSPY	• Field must have character data type or be a constant field • Not valid for a field with CHRID also specified for an SCS printer • Printer should not be AFPDS printer
UNDERLINE	• Not valid for a field with BARCODE also specified

Rules for Specifying Bar Codes

The rules for specifying data type and field length for bar code IDs are:

Bar Code ID	Data Type	Field Length
MSI	S	1-31
UPCA	S	11
UPCE	S	10
UPC2	S	2
UPC5	S	5
EAN8	S	7
EAN13	S	12
EAN2	S	2
EAN5	S	5
CODE3OF9	A	1-50
INTERL20F5	S	1-31
INDUST20F5	S	1-31
MATRIX20F5	S	1-31
CODEABAR	A	1-50
CODE128	A	1-50
POSTNET	S	1-31
JPBC	A	1-50

Appendix D. Double-Byte Character Set

You can use double-byte character set (DBCS) data in RLU.

This appendix describes the following:

- Requirements for using DBCS data
- Using DBCS data on the Design Report display
- DBCS-only keywords
- DBCS graphics

For more detailed information about working with DBCS data, refer to *Data Management*, SC41-5710.

DBCS Requirements

To enter DBCS data when editing an RLU source member:

- You must be using a DBCS-capable workstation.
- The source file in which the source member is saved must be one that specifically allows DBCS data.

  When you create a source physical file using the Create Source Physical File (CRTSRCPF) command, you must specify the IGCDTA(*YES) parameter to specify that the file will contain members with DBCS data.

Note: If you open a member in an IGCDTA(*YES) source file on a non-DBCS-capable workstation, the DBCS data will be illegible. Any attempt to alter the DBCS data can lead to data corruption.

For more information about AS/400 system commands, see the *CL Reference*. For more information about creating DBCS-capable source files, refer to *Data Management*.

Using DBCS Data on the Design Report Display

With a DBCS-capable workstation:

- You can enter DBCS data surrounded by the appropriate shift-out and shift-in characters on the Design Report display
- Both O and G appear as possible values on the Define Field Information and the Specify Field Information displays
- If you enter DBCS data and press F11 (Define field)(B), the value for the *Data type* prompt defaults to 4 (Open) on the Define Field Information display
- You can define constant fields containing DBCS data

With any workstation, you can do the following on the Design Report display:

- Define fields with data type O (Open) and G (Graphic).
- Reference database fields that are DBCS.

  Database fields that are of type J (Only), O, or E (Either) are treated as data type O, and fields that are of type G are treated as G.

- Specify DBCS-only keywords.

If you are using a non-DBCS-capable workstation on a DBCS-capable system or a source physical file with IGCDTA(*NO) specified, you cannot enter DBCS data but you can still define fields with data type O or G, specify DBCS-only keywords, and reference database fields with data type J, O, E, or G.

If a referenced database field includes column headings that contain DBCS data, RLU replaces the column heading with the field name and you see a message indicating that the column heading is replaced.

DBCS-Only Keywords

RLU provides the following DBCS support with DDS printer file keywords:

- DFT accepts DBCS character strings
- Other text-related keywords such as INDTXT and TEXT accept DBCS character strings
- DFNLIN, IGCCDEFNT, and IGCCHRRTT are added to the list of valid keywords for record formats
- IGCALTTYP, IGCANKCNV, IGCCDEFNT, and IGCCHRRTT are added to the list of valid keywords for fields

On an SBCS system, you can specify DBCS-only keywords by using the fastpath only. The DBCS-only keywords are not displayed on the Work with Field, Record, and File Keywords displays.

DBCS Graphics

If you are using DBCS-graphic data, be aware of the following:

- To define a DBCS-graphic constant, add a G before the quotation mark (') that delimits the string on the Specify Default display.
- On the Design Report display, the default sample data is a single-byte G in files created with IGCDTA(*NO), and a double-byte $_{G}$ in files created with IGCDTA(*YES).

  When creating prototype reports, double-byte sample data is used for DBCS-graphic fields in both types of files. Sample data for DBCS-graphic fields in a prototype report contain unrecognizable characters when viewed or printed on devices that are not DBCS-capable.

- On the Design Report display, the shift-in and shift-out characters are displayed for DBCS-graphic fields and constants. So that field alignment is maintained, the last DBCS character is not displayed. Any DBCS-graphic constants defined using the DFT keyword will have the complete constant sent to be printed. With named fields, the last double-byte character always prints as two single-byte blanks on the report.
- If the DBCS-graphic field contains only one DBCS character, only the shift-in and shift-out characters are displayed. If the shift-in and shift-out characters are deactivated, the position of the field is indicated by the field line.

Bibliography

The following publications are listed with their full titles and base order numbers. When these publications are referred to in the text, a shortened version of the title is used.

The related IBM Application Development ToolSet for AS/400 publications are:

- *ADTS/400: Advanced Printer Function*, SC09-1766
- *ADTS/400: Character Generator Utility*, SC09-1769
- *ADTS/400: Data File Utility*, SC09-1773
- *ADTS/400: File Compare and Merge Utility*, SC09-1772
- *ADTS/400: Interactive Source Debugger*, SC09-1897
- *ADTS/400: Programming Development Manager*, SC09-1771
- *ADTS for AS/400: Screen Design Aid*, SC09-2604
- *ADTS/400: Screen Design Aid for the System/36 Environment*, SC09-1893
- *ADTS for AS/400: Source Entry Utility*, SC09-2605
- *Introducing Application Development ToolSet/400 and the AS/400 Server Programs*, SC09-1939

The orderable features of 5769-PW1 are:

- *ADTS/400: Application Development Manager Introduction and Planning Guide*, GC09-1807
- *ADTS/400: Application Development Manager User's Guide*, SC09-2133
- *ADTS/400: Application Dictionary Services Self-Study*, SC09-1904
- *ADTS/400: Application Dictionary Services User's Guide*, SC09-2087

The related IBM AS/400 publications are:

- *CL Programming*, SC41-5721
- *CL Reference*, SC41-5722
- *Data Management*, SC41-5710
- *DB2 for AS/400 Database Programming*, SC41-5701
- *DDS Reference*, SC41-5712
- *IDDU Use*, SC41-5704
- *Publications Reference*, SC41-5003

Index

D

E

F

G

H

I

K

L

M

N

O

P

R

S

T

U

V

W

Communicating Your Comments to IBM

AS/400
Application Development ToolSet
for AS/400
Report Layout Utility
Version 4

Publication No. SC09-2635-00

If there is something you like—or dislike—about this book, please let us know. You can use one of the methods listed below to send your comments to IBM. If you want a reply, include your name, address, and telephone number. If you are communicating electronically, include the book title, publication number, page number, or topic you are commenting on.

The comments you send should only pertain to the information in this book and its presentation. To request additional publications or to ask questions or make comments about the functions of IBM products or systems, you should talk to your IBM representative or to your IBM authorized remarketer.

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

If you are mailing a readers' comment form (RCF) from a country other than the United States, you can give it to the local IBM branch office or IBM representative for postage-paid mailing.

- If you prefer to send comments by mail, use the RCF at the back of this book.
- If you prefer to send comments by FAX, use this number:
  - United States and Canada: 416-448-6161
  - Other countries: (+1)-416-448-6161
- If you prefer to send comments electronically, use the network ID listed below. Be sure to include your entire network address if you wish a reply.
  - Internet: torrcf@ca.ibm.com
  - IBMLink: toribm(torrcf)
  - IBM/PROFS: torolab4(torrcf)
  - IBMMAIL: ibmmail(caibmwt9)

Readers' Comments — We'd Like to Hear from You

AS/400
Application Development ToolSet
for AS/400
Report Layout Utility
Version 4

Publication No. SC09-2635-00

Overall, how satisfied are you with the information in this book?

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Overall satisfaction	□	□	□	□	□

How satisfied are you that the information in this book is:

	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
Accurate	□	□	□	□	□
Complete	□	□	□	□	□
Easy to find	□	□	□	□	□
Easy to understand	□	□	□	□	□
Well organized	□	□	□	□	□
Applicable to your tasks	□	□	□	□	□

Please tell us how we can improve this book:

Thank you for your responses. May we contact you? □ Yes □ No

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you.

Name _____ Address _____

Company or Organization _____

Phone No. _____

Readers' Comments — We'd Like to Hear from You
SC09-2635-00

Cut or Fold
Along Line

Fold and Tape **Please do not staple** Fold and Tape

PLACE
POSTAGE
STAMP
HERE

IBM Canada Ltd. Laboratory
Information Development
2G/345/1150/TOR
1150 EGLINTON AVENUE EAST
NORTH YORK ONTARIO CANADA M3C 1H7

Fold and Tape **Please do not staple** Fold and Tape

Cut or Fold
Along Line

Program Number: 5769-PW1

Printed in the United States of America
on recycled paper containing 10%
recovered post-consumer fiber.

SC09-2635-00