



SELCOPYi Data Editor (SDE)

Release 3.40

8 Merthyr Mawr Road, Bridgend, Wales UK CF31 3NH

Tel: +44 (1656) 65 2222
Fax: +44 (1656) 65 2227

CBL Web Site - <http://www.cbl.com>

This document may be downloaded from <http://www.cbl.com/documentation.php>

Contents

Documentation Notes.....	1
Summary of Changes.....	2
First Edition (October 2012).....	2
Second Edition (March 2015).....	3
Third Edition (September 2017).....	5
Introduction to SDE.....	8
Terminology.....	9
SDE Concepts.....	11
Record Structure Definition.....	11
Structure Definition Object.....	11
Creating an SDO Structure.....	11
Loading an SDO Structure.....	11
SDO Structure Name.....	12
Saving SDO Structures.....	12
Record Type Object.....	12
Record Type Object Data Length.....	12
Structure Definition File.....	13
Record Type Assignment.....	13
Structured Data Fields.....	13
Structure to Dataset Associations.....	14
Edit Associations Table.....	14
Data File Mask Matching.....	15
SDE Window Views.....	15
Multi Record View.....	15
Field Column-Heading Lines.....	15
Prefix Area.....	17
Data Records.....	17
Shadow Lines.....	17
Single Record View.....	17
SDE Data Formats.....	18
Table Format.....	18
Single Format.....	19
Character Format.....	19
Hexadecimal Format.....	20
Hexadecimal Dump Format.....	20
SDE Data Types.....	21
SDE Edit Techniques.....	24
Changing Record Lengths.....	25
SDE Current Window.....	25
Default Record Type.....	26
SDE support for DB2 data.....	26
DB2 Table Browse and Edit.....	26
Starting a DB2 table edit or browse session.....	27
How DB2 subsystem connections are managed.....	27
Limiting the number of rows loaded.....	27
Defining a structure to use with DB2 tables.....	29
How DB2 rows are saved.....	29
Dealing with save errors.....	29
Auditing edit sessions.....	29
Editing or browsing related tables.....	30
Useful commands.....	30
Comparing DB2 table edit with dataset edit.....	30
DB2 Table Display.....	31
Segmented Records.....	32
Structure Definition and Record-Type Assignment.....	32
Specifying USE WHEN Segment Identification Criteria.....	33
Segmented Records SDE Browse/Edit View.....	33
Navigating Segmented Record Display.....	34
Segmented Record Edit.....	34
Data Updates that affect Record Segment Mapping.....	34
Full Edit Functionality.....	34
Record Truncation.....	35
Full Edit Operations.....	35
Expressions.....	36
Expression Terms.....	36
Expression Operators.....	38
Arithmetic Operators.....	38
Relational Operators.....	38
Logical Operators.....	39
Parentheses and Operator Precedence.....	39
Function Calls.....	40
Subscripted Field Name Conflict.....	40
ABBREV().....	40
BASPOS().....	40

Contents

SDE Concepts

CHANGED()	41
CHANGEERROR()	41
CHANGEOK()	41
DATATYPEERROR()	41
DUPLICATEKEY()	42
EMPTY SLOT()	42
EXCLUDED()	42
FIND()	42
HASPOINT()	43
HASPREFIXCMD()	43
IDREQUIRED()	43
INSERTED()	43
KEYCHANGED()	43
LASTPOS()	44
LEFT()	44
LENGTH()	44
LENGTHERROR()	45
LOWER()	45
LRECL()	45
NOEOL()	45
POS()	45
RECORD()	46
RIGHT()	46
SAVEREQUIRED()	47
SEGPOS()	47
SQLERROR()	47
STRIP()	47
SUBSTR()	48
TRANSLATE()	48
TRUNCATED()	49
UPPER()	49
VALUEERROR()	49
WORD()	50
WORDS()	50
XRANGE()	50
REXX Macros	51
Macro Path	51
SDE Profile (SDEPROF) Macro	51

SDE Menus and Popup Windows

Library/Directory Member Selection	52
Prefix Line Commands	52
SDE Browse/Edit Utilities Menu	52
Record-Type Options	53
Field Options	55
Record Information	55
Shadow-line Options	55
Window Options	56
Locate Options	56
DB2 Browse/Edit Utilities Menu	56
Field Selection	56
Record Information	57
Shadow-line Options	57
Field Options	57
Window Options	57
DB2 Edit Settings	58
Panel Input Fields	58
DB2 Row Selection Panel	59
Starting the DB2 Row Selection Panel	59
Panel Description	59
Panel Fields	60
Example	61
DB2 Save SQL Error Panel	62
Format 1. The default SQL error panel	62
Format 2. The Row not found panel for SQLCODE +100	63
Format 3. Missing parent key panel for SQLCODE -530	63
Format 4. Parent key update error panel for SQLCODE -531	64
Format 5. Delete rule violation error panel for SQLCODE -532	64
Panel Fields	65
DB2 Select Table Index	66
SDE CREATE/REPLACE File Panel	67
Panel Input Fields	67
SDE COPY File Panel	68
Panel Input Fields	68
SDE SELECT Columns Panel	69
Panel Input Fields	69

Contents

SDE Menus and Popup Windows

Panel Primary Commands.....	71
SDE FILTER Records Panel.....	72
Panel Input Fields.....	72
Panel Primary Commands.....	74
SDE LOCATE Records Panel.....	75
Panel Input Fields.....	75
Panel Primary Commands.....	77
SDE PRINT File Panel.....	78
Menu Bar Items.....	78
Panel Input Fields.....	78
PRINT Source and Options.....	79
Primary Commands.....	80
Function Keys.....	80
SDE XML Generation Panel.....	81
Menu Bar Items.....	81
XML Source/Destination.....	81
XML Source and Options.....	82
Primary Commands.....	86
Function Keys.....	86
SDE CSV Generation Panel.....	87
Menu Bar Items.....	87
CSV Source/Destination.....	87
CSV Source and Options.....	88
Primary Commands.....	89
Function Keys.....	90
SDE JSON Generation Panel.....	91
Menu Bar Items.....	91
JSON Source/Destination.....	91
JSON Source and Options.....	92
Primary Commands.....	93
Function Keys.....	93

Command Line (Primary) Commands..... 94

Executing SDE Commands from a CBLe Text Edit Window.....	94
Command Reference Syntax Conventions.....	94
How to read the Syntax Diagrams.....	94
ARRC.....	96
ARRX.....	96
AVERAGE.....	97
BOTTOM.....	100
BROWSE.....	100
CANCEL.....	108
CBLI.....	108
CCOLOUR.....	108
CHANGE.....	110
CHAR.....	115
CLIPBOARD.....	115
CMSG.....	116
COPY.....	116
CREATE.....	117
CREATE LIST.....	118
CREATE STRUCTURE.....	119
CSVGEN.....	135
CURSOR.....	135
CUT.....	135
DELETE.....	136
DISPLAY LIST.....	138
DISPLAY RECTYPES.....	138
DISPLAY STRUCTURE.....	139
DOWN.....	142
DROP, DDROP.....	143
DUPLICATE.....	143
EDIT.....	144
EDITDIALOG.....	153
EMSG.....	153
END.....	153
ERROR.....	154
EXCLUDE.....	154
EXTRACT.....	158
FILE.....	159
FILTER.....	159
FIND.....	160
FLIP.....	164
FORMAT.....	165
GETXML.....	166
GO.....	167

Contents

Command Line (Primary) Commands

GRPC.....	168
GRPX.....	168
HELP.....	169
HEX.....	169
HEXDUMP.....	170
HIDE.....	170
IDENTIFY.....	171
IMMEDIATE.....	172
INFORMATION.....	172
INSERT.....	172
JSONGEN.....	173
LAYOUT.....	174
LEFT.....	175
LESS.....	176
LIST.....	177
LIST MODULES.....	178
LIST RPOS.....	178
LIST SDQ.....	178
LIST STORAGE.....	179
LIST UKRS.....	179
LOCATE.....	180
MACRO.....	184
MAP.....	184
MAXIMUM.....	185
MINIMUM.....	188
MORE.....	190
MSG.....	191
NEXT.....	192
NOMSG.....	193
NOND.....	193
ONLY.....	194
OPTIONS.....	197
PASTE.....	198
PERMANENT.....	198
POP.....	199
PREVIOUS.....	199
PRINT.....	200
PUSH.....	201
PUTXML.....	201
QUIT.....	202
QUERY.....	203
RCHANGE.....	203
RCOLOUR.....	203
RECLEN.....	204
REDIT.....	205
REDIT with no parameters.....	205
The RE prefix command.....	205
REDO.....	206
REFRESH.....	206
REPLACE.....	206
REPLACELINE.....	207
RESET.....	208
RFIND.....	209
RIGHT.....	210
RUNSELCOPY.....	211
RUNSLC.....	211
SAVE.....	212
Saving changes to DB2 tables.....	212
SAVEAS.....	212
SAVESTRUCTURE.....	213
SDATA.....	213
SEGTYPE.....	213
SELECT.....	214
SET.....	215
SHIFT.....	215
SHOW.....	216
SORT.....	217
SORTINDEX.....	219
SUM.....	220
SYSCOMMAND, TSO, CMS.....	222
TEDIT.....	222
TEMPORARY.....	223
TOP.....	223
TOTALS.....	224
UNDO.....	225
UNFMT.....	226

Contents

Command Line (Primary) Commands

UP.....	226
USE.....	228
VFMT.....	230
VIEW.....	230
WHERE.....	231
WINDOW.....	233
XMLBROWSE.....	234
XMLEDIT.....	235
XMLGEN.....	235
XMLLENGTH.....	236
XMLVIEW.....	236
XREF.....	237
XREFLIB.....	238
ZOOM.....	239

SET/QUERY/EXTRACT.....240

ABBREVIATION - SET/QUERY/EXTRACT Option.....	241
ALT - SET/QUERY/EXTRACT Option.....	241
ARRAYALL - SET/QUERY Option.....	241
ARRAYASCHARACTER - SET/QUERY Option.....	242
ASCII - SET/QUERY/EXTRACT Option.....	243
AUTOSAVE - SET/QUERY/EXTRACT Option.....	243
AUTOSTRUCTURE - SET/QUERY/EXTRACT Option.....	244
AUXDSNPREFIX - SET/QUERY/EXTRACT Option.....	245
AUXDATACLASS - SET/QUERY/EXTRACT Option.....	246
AUXMGMTCLASS - SET/QUERY/EXTRACT Option.....	246
AUXSTORCLASS - SET/QUERY/EXTRACT Option.....	247
AUXUNIT - SET/QUERY/EXTRACT Option.....	248
BOUNDS - SET/QUERY/EXTRACT Option.....	248
CAPS - SET/QUERY/EXTRACT Option.....	249
CCSID - SET/QUERY/EXTRACT Option.....	250
CLIPBOARD - QUERY/EXTRACT.....	251
COLATTRIBUTES - SET/QUERY/EXTRACT Option.....	251
COLOUR, COLOR - SET/QUERY/EXTRACT Option.....	252
COLWIDTH - SET/QUERY Option.....	254
COLWIDTHAUTO - SET/QUERY Option.....	255
COMMIT - SET/QUERY/EXTRACT Option.....	256
COMPILER - SET/QUERY/EXTRACT Option.....	256
COMPILERDDSIZE - SET/QUERY/EXTRACT Option.....	257
COPYBOOKPROC - SET/QUERY/EXTRACT Option.....	258
DESCRIPTION - SET/QUERY/EXTRACT Option.....	259
DFPSCALE - SET/QUERY/EXTRACT Option.....	260
DRECTYPE - SET/QUERY/EXTRACT Option.....	262
DSN - SET/QUERY/EXTRACT Option.....	262
DSORG - SET/QUERY/EXTRACT Option.....	262
EDITPRIMEKEY - SET/QUERY/EXTRACT Option.....	263
EOLIN - SET/QUERY/EXTRACT Option.....	264
EOLOUT - SET/QUERY/EXTRACT Option.....	265
FIDCHANGED - SET/QUERY/EXTRACT Option.....	265
FIELD - EXTRACT Option.....	266
FILEID - SET/QUERY/EXTRACT Option.....	266
FMODE - SET/QUERY/EXTRACT Option.....	266
FNAME, MBR - SET/QUERY/EXTRACT Option.....	266
FOCUS - EXTRACT Option.....	267
FORMAT - SET/QUERY/EXTRACT Option.....	267
FPATH - SET/QUERY/EXTRACT Option.....	268
FTYPE - SET/QUERY/EXTRACT Option.....	268
FVALUE - EXTRACT Option.....	268
GROUP - SET/QUERY/EXTRACT Option.....	269
GROUPASCHARACTER - SET Option.....	269
IDSCOPE - SET/QUERY/EXTRACT Option.....	270
IDWARNING - SET/QUERY/EXTRACT Option.....	271
KEY - QUERY/EXTRACT Option.....	272
LASTMSG - QUERY/EXTRACT Option.....	272
LENGTH - SET/QUERY/EXTRACT Option.....	273
LEVEL - SET/QUERY/EXTRACT Option.....	273
LOADWARNING - SET/QUERY/EXTRACT Option.....	274
LRECL - SET/QUERY/EXTRACT Option.....	275
MAGROPATH - SET/QUERY/EXTRACT Option.....	275
MAPPING - SET/QUERY/EXTRACT Option.....	275
MAXCOBOLRC - SET/QUERY/EXTRACT Option.....	276
MAXHLASMRC - SET/QUERY/EXTRACT Option.....	276
MAXPL1RC - SET/QUERY/EXTRACT Option.....	277
MAXSTOR - SET/QUERY/EXTRACT Option.....	278
MSGLINE - SET/QUERY/EXTRACT Option.....	279
MSGMODE - SET/QUERY/EXTRACT Option.....	280

Contents

SET/QUERY/EXTRACT

MULTIPOINT - SET/QUERY/EXTRACT Option.....	280
NULLCHAR - SET/QUERY/EXTRACT Option.....	280
NULLIFBLANK - SET/QUERY/EXTRACT Option.....	281
OFFSET/OFST - SET/QUERY/EXTRACT Option.....	282
OPSYS - QUERY/EXTRACT Option.....	282
PAD - SET/QUERY/EXTRACT Option.....	283
PAGEDEPTH - SET/QUERY/EXTRACT Option.....	284
PAGEWIDTH - SET/QUERY/EXTRACT Option.....	284
PFKEY - SET/QUERY/EXTRACT Option.....	285
POINT - SET/QUERY/EXTRACT Option.....	285
PREFIX - SET/QUERY/EXTRACT Option.....	286
QSEPARATOR - QUERY/EXTRACT Option.....	287
RECFM - SET/QUERY/EXTRACT Option.....	287
RECINFO - SET/QUERY/EXTRACT Option.....	288
RECTYPES - QUERY/EXTRACT Option.....	290
REFERENCE - SET/QUERY/EXTRACT Option.....	290
REGION - QUERY/EXTRACT Option.....	291
RESERVED - SET/QUERY/EXTRACT Option.....	291
RESERVEDLEVEL - SET/QUERY/EXTRACT Option.....	292
SAVEOPTIONS - SET/QUERY/EXTRACT Option.....	292
SCALE - SET/QUERY/EXTRACT Option.....	293
SESSION - QUERY/EXTRACT Option.....	294
SHADOW - SET/QUERY/EXTRACT Option.....	295
SIZE - QUERY/EXTRACT Option.....	296
STRUCTURE - SET/QUERY/EXTRACT Option.....	296
TITLE - SET/QUERY/EXTRACT Option.....	298
TYPE - SET/QUERY/EXTRACT Option.....	298
UNDOING - SET/QUERY/EXTRACT Option.....	299
UNNAMED - SET/QUERY/EXTRACT Option.....	300
USEOFFSET - SET/QUERY/EXTRACT Option.....	301
USERNAME - QUERY/EXTRACT Option.....	302
USING - QUERY/EXTRACT Option.....	303
VALUE - EXTRACT Option.....	303
VENDCHAR - SET/QUERY/EXTRACT Option.....	304
VERSION - QUERY/EXTRACT.....	304
VIEW - SET/QUERY/EXTRACT Option.....	305
VSHOWEND - SET/QUERY/EXTRACT Option.....	305
VSTRIP - SET/QUERY/EXTRACT Option.....	306
WINNAME - SET/QUERY/EXTRACT Option.....	307
WINPOS - SET/QUERY/EXTRACT Option.....	307
WINSIZE - SET/QUERY/EXTRACT Option.....	307
WRAP - SET/QUERY/EXTRACT Option.....	307
ZEROS - SET/QUERY/EXTRACT Option.....	308
Prefix Area (Line) Commands.....	309
Function Keys.....	311
Glossary.....	312

Documentation Notes

Third Edition, September 2017

Information in this document details general features and functionality of the Data Editor application which is part of the **SELCOPY Product Suite** component, **SELCOPYi**.

Copyright in the whole and every part of this document and of the SELCOPY Products Suite system and programs, is owned by Compute (Bridgend) Ltd (hereinafter referred to as CBL), whose registered office is located at 8 Merthyr Mawr Road, Bridgend, Wales, UK, CF31 3NH, and who reserve the right to alter, at their convenience, the whole or any part of this document and/or the SELCOPY Product Suite system and programs.

SELCOPY Product Suite for z/OS, z/VM (CMS) and z/VSE operating systems, which includes SELCOPY, SELCOPY/i and CBLVCAT, is available for download and install from <http://www.cbl.com/selcdl.php>.

The following publications for SELCOPY Product Suite and its component products are available in Adobe Acrobat PDF format at CBL web page <http://www.cbl.com/documentation.php>:

- SELCOPY Product Suite Customisation Guide
- SELCOPY User Manual
- SELCOPY C++ (SLC) Language Reference
- CBLVCAT User Manual
- SELCOPYi Reference and User Guide
- SELCOPYi Text Editor
- SELCOPYi Data Editor (SDE)
- SELCOPYi Quick Reference
- SELCOPYi Training Manual

No reproduction of the whole or any part of the SELCOPY Product Suite system and programs, or of this document, is to be made without prior written authority from Compute (Bridgend) Ltd.

At the time of publication, this document is believed to be correct. Where the program product differs from that stated herein, Compute (Bridgend) Ltd reserve the right to revise either the program or its documentation at their discretion. CBL do not warrant that upward compatibility will be maintained for any use made of this program product to perform any operation in a manner not documented within the user manual.

The following generic terms are used throughout this document to indicate all available versions and releases of IBM mainframe operating systems:

z/OS	-	z/OS, OS/390, MVS/ESA, MVS/XA, MVS/SP, OS.
z/VSE	-	z/VSE, VSE/ESA, VSE/SP, DOS.
z/VM CMS	-	z/VM, VM/ESA, VM/XA, VM/SP.
All	-	All z/OS, z/VSE and z/VM CMS operating systems.

Summary of Changes

First Edition (October 2012)

This section is a summary of significant new features provided in SELCOPYi Release 3.20.

Regular Expressions

Regular expressions may be used as arguments to commands that involve a search on character data for complex pattern matching. These commands are FIND, CHANGE, EXCLUDE and ONLY.

For details, see:

- ◇ [Regular Expressions](#) in CBL text editor documentation.
- ◇ [CHANGE](#)
- ◇ [EXCLUDE](#)
- ◇ [FIND](#)
- ◇ [ONLY](#)

XML Generation

In a SDE data edit display of formatted data, support primary command XMLGEN with no input DSN to generate XML source using the names of the selected columns as XML tags.

For details, see:

- ◇ [XMLGEN](#)

Enhancements to SDE Expressions

SDE expressions, used to identify and select records, have been enhanced to support named COBOL level-88 condition-name VALUE clause definitions.

For details, see:

- ◇ ["Expression Terms"](#)

Text Edit <-> Structured Data Edit/Browse

Easily switch display of the loaded data between the text edit and SDE data edit utilities.

For details, see:

- ◇ [GO](#)

COBOL an PL1 Picture String Enhancement

Correctly interpret and display a COBOL copy book formatted field that is defined by a PICTURE string which includes the "P" character to represent an assumed decimal scaling position. Specifically, the "P" character is used to specify the location of an assumed decimal point when the point is not within the number that appears in the data item.

Correctly interpret and display a PL1 copy book formatted field that is defined by a PICTURE string which includes one of the picture string characters "T", "I" or "R" in the junior byte position so representing an overpunch digit and sign (i.e. fixed zoned decimal value).

Escaped Quotes

Character literal strings used in EXCLUDE, CHANGE, FIND, ONLY and any SDE expression now support the escaping of the apostrophe (') and quote (") characters when the same character is used to delimit the string.

For details, see:

- ◇ ["Expression Terms"](#)
- ◇ [CHANGE](#)
- ◇ [EXCLUDE](#)
- ◇ [FIND](#)
- ◇ [ONLY](#)

Second Edition (March 2015)

This section is a summary of significant new features provided in SELCOPYi Release 3.30.

XML Generation Panel

Support XML interactive panel and accompanying SDE primary command XMLGEN, invoked to process formatted data in the focus SDE data edit display.

For details, see:

- ◇ [SDE XML Generation Panel](#)
- ◇ [XMLGEN](#)

CSV Generation Panel

Support CSV interactive panel and SDE primary command CSVGEN to generate comma separated variable output for formatted data in the focus SDE data edit display.

For details, see:

- ◇ [SDE CSV Generation Panel](#)
- ◇ [CSVGEN](#)

Print File Panel

Introduce the PRINT interactive panel to accompany primary command PRINT and so print the current view of records in the focus SDE data edit display.

For details, see:

- ◇ [SDE PRINT File Panel](#)

Select Columns File Panel

Introduce the SELECT columns interactive panel to accompany primary command SELECT. The panel may be used to select, deselect, re-order and re-size the display of columns belonging to the focus record type.

For details, see:

- ◇ [SDE SELECT Columns Panel](#)

Save/Restore Focus View Settings

For use in SDE Rexx Edit macros, PUSH and POP commands introduced to temporarily save and restore the values of particular SET options for the current view.

For details, see:

- ◇ [POP](#)
- ◇ [PUSH](#)

DB2 Editing Overview

Expanded description of DB2 table editing concepts..

For details, see:

- ◇ [DB2 Table Browse and Edit](#)

DB2 Related Table Edit

For edited DB2 tables with enforced referential (parent/foreign key) constraints, related table edit is introduced to protect against constraint violation and to edit related parent or dependent DB2 tables.

For details, see:

- ◇ [REDIT](#)
- ◇ [DB2 Save SQL Error Panel](#)

DB2 Row Selection Panel

DB2 table row selection (SQL WHERE clause) panel introduced for use on SDE edit/browse of a DB2 table.

For details, see:

- ◇ [DB2 Row Selection Panel](#)
- ◇ [BROWSE](#)
- ◇ [EDIT](#)

DB2 Variable Length and Nullable Fields

DB2 table edit options introduced for display and manipulation of text in variable length and nullable fields.

For details, see:

- ◇ [DB2 Edit Settings](#)
- ◇ [NULLCHAR](#)
- ◇ [NULLIFBLANK](#)
- ◇ [VENDCHAR](#)
- ◇ [VSHOWEND](#)
- ◇ [VSTRIP](#)

DB2 Table Information

The DSI (Dataset Information utility) has been extended to display HTML report output for DB2 tables and views. SDE primary command INFORMATION is a synonym.

For details, see:

- ◇ [INFORMATION](#)

Assembler DSECT and DFSORT SYMNames Structures

Support introduced for SDE structures generated from Assembler (HLASM) programming language DSECTs and DFSORT symbolic names (SYMNames) structures.

For details, see:

- ◇ [CREATE STRUCTURE](#)
- ◇ [BROWSE](#)
- ◇ [EDIT](#)

SDEMAIN Batch Rexx Macros

SDEMAIN program (SELCOPY/i batch execution) support included for execution of edit (Rexx) macros.

Third Edition (September 2017)

This section is a summary of significant new features provided in SELCOPYi Release 3.40.

JSON Generation Panel

Support JSON interactive panel and accompanying SDE primary command JSONGEN, to generate JavaScript Object Notation output for formatted data in the focus SDE data edit display.

For details, see:

- ◇ [SDE JSON Generation Panel](#)
- ◇ [JSONGEN](#)

LOCATE Records Panel

Support LOCATE Records panel to generate and/or execute a LOCATE primary command using an SDE expression specification.

For details, see:

- ◇ [SDE LOCATE Records Panel](#)
- ◇ [LOCATE](#)

FILTER Records Panel

Support FILTER Records panel and accompanying SDE primary command FILTER, to generate and/or execute a WHERE, MORE or LESS primary command that uses an SDE expression specification.

For details, see:

- ◇ [SDE FILTER Records Panel](#)
- ◇ [FILTER](#)

Structure (SDO) Creation

Creation of SELCOPYi structures to map formatted data has been enhanced to support the following new features:

COBOL Copybook Parsing

Parse COBOL copybook Data Division data description entries in order to build record-type definitions in an SDO. This method is an alternative to performing a COBOL compile of the copybook source in order to generate SYSADATA output.

COBOL Copybook 2nd Level REDEFINES

Structured Data Edit Settings panel (=0.4) option **Auto Rec-Types** introduced to determine whether or not, when creating a new SDO, SELCOPYi creates a separate record-type definition for each 2nd level entry in a COBOL copybook when the following is true:

1. No more than one 01 level entry exists in the copybook. If no 01 level entry exists, one will be generated by SELCOPYi.
2. All 2nd level entries belonging to the 01 group entry begin mapping data from the same offset within the group. i.e. All 2nd level entries are a union (REDEFINES) of the other 2nd level entries.

COBOL Copybook REPLACING options

CREATE STRUCTURE syntax support for specific COBOL REPLACING commands and override of SELCOPYi system defaults.

Subset Record-Type Definition

CREATE STRUCTURE syntax supports creation of a record-type definition which is a subset of fields belonging to another record-type definition within the same SDO structure.

Start Field Group Selection

CREATE STRUCTURE syntax supports creation of a record-type definition with an implied offset value based on a named field (STARTFIELD) value. The record-type definition will be for the group in which the start field is defined with an allocate offset value equal to the offset within the group at which the start field is located.

PL1 Compiler Options Override

Data Edit PL/1 Compiler Options panel (=0.4.2) field **PL/1 Compiler Additional Options** introduced to override installation default PL1 compiler options when creating SDO record-type definitions from a PL1 copybook source.

VARHEX and HEXVAR Datatypes

CREATE STRUCTURE Direct definition syntax supports data types VARHEX and HEXVAR.

BROWSE and EDIT Options

CREATE STRUCTURE syntax support for browse and edit display features:

- Column/row colour highlighting.
- DB2 column display width.
- Set Data Editor options.
- Execute Data Editor commands.

For details, see:

- ◇ CREATE STRUCTURE
- ◇ COPYBOOKPROC - SET/QUERY/EXTRACT Option
- ◇ Structured Data Edit Settings
- ◇ PL/1 Compiler Options

DB2 XML Column Data Processing

For DB2 XML columns, specify column display width, open separate Text Editor window for edit/view and allow import/export between DB2 tables and z/OS datasets.

For details, see:

- ◇ BROWSE
- ◇ EDIT
- ◇ GETXML
- ◇ PUTXML
- ◇ XMLBROWSE
- ◇ XMLEDIT
- ◇ XMLLENGTH
- ◇ XMLVIEW

DB2 Scrollable Cursors

If activated by a SELCOPYi administrator, support use of DB2 scrollable cursors to restrict the amount of user storage allocated to edit and browse table rows.

For details, see:

- ◇ DB2 Table Browse and Edit
- ◇ BROWSE
- ◇ EDIT

Aggregate Operations for Column Values

Report or extract the average, maximum, minimum and/or sum total of values in specific columns displayed within the Data Editor view.

For details, see:

- ◇ AVERAGE
- ◇ MAXIMUM
- ◇ MINIMUM
- ◇ SUM
- ◇ TOTALS

Common Text and Data Editor Commands/Options

Support for Text Editor commands and options within a Data Editor window view.

For details, see:

- ◇ LIST
- ◇ RUNSELCOPY
- ◇ RUNSLC
- ◇ FIDCHANGED - SET/QUERY/EXTRACT Option

LOCATE/RFIND Repetition Factor

LOCATE and RFIND commands now support a repetition factor to identify the numbered occurrence of the search string. This is particularly useful when redisplaying excluded lines that contain the first (or last) number of occurrences of the search string.

For details, see:

- ◇ LOCATE
- ◇ RFIND

Displayed Variable Length Column Width

Global option COLWIDTHAUTO introduced to determine the displayed width of variable length column data.

For details, see:

◇ [COLWIDTHAUTO - SET/QUERY Option](#)

Introduction to SDE

Data set records may have an associated file structure that maps field information (position, length and data type) for all data within each data set record. These structures often exist as a PL/1 or COBOL copybook.

The SELCOPY/i Structured Data Environment (SDE) allows users to display and process structured data sets using a pre-defined SDE structure so that record data is formatted and arranged in field columns. An SDE structure may be generated from a copybook or using SDE's Create Structure internal syntax, and can contain a number of mappings, one for each different type of data set record.

SDE runs as a sub-component of the CBLe Text Editor so that window views displaying structured file data may be opened as child windows of a CBLe (or SELCOPY Interactive) MDI Frame window.

SELCOPY/i SDE enables users to do the following:

- Display, copy, edit and update structured data.
- Concurrently display records of more than one record type within the same view.
- Work with data in multiple or single record views.
- Select and order the fields displayed for each record type.
- Define new record structures using SELCOPY/i SDE syntax.

```

SELCOPY/i - Edit CBL,CBLI,DATSALES,KSDS,BIG using NBJ,CBLI,SDO(SALES) 2x
File Edit Actions Options Utilities Window SwapList Help wS wR
Command>
Record type: REC-CUST Fixed(204) Offset=0 Data elements=16
  FILEREF RECNO CUST-ID PASS LASTNAME FI
  #2 #3 #4 #5 #6 #7
  FB 1:4 FB 5:4 FB 9:4 AN 13:15 AN 28:15 AN
  <...+...1> <...+...1> <...+...1> <...+...1...> <...+...1...> <...
00000001 0 1 9156 78fj2foa Ramstein Ha
00000002 0 2 7037 chico Richards De
00000003 0 3 6712 benj Hill Mi
00000004 0 4 3253 marine-boy Coustou ja
00000005 0 5 4622 revelator Jones Jo

Record type: REC-CARD Fixed(66) Offset=0 Data elements=13
  FILEREF RECNO CUST-ID SEQ CR-OR-DR COMPANY
  #2 #3 #4 #5 #7 #8
  FB 1:4 FB 5:4 FB 9:4 FB 13:2 AN 15:1 AN 16:7
  <...+...1> <...+...1> <...+...1> <...+...> <...+...> <...+...>
00000006 0 6 1124 0 D VISA
00000007 0 7 9156 0 D DELTA
00000008 0 8 1564 1 C DELT
00000009 0 9 9804 2 C Aqua
00000010 0 10 9928 2 C MAST
00000011 0 11 6239 4 D VISA

Record type: REC-ORDER Variable(100,120) Offset=0 Data elements=22
  FILEREF RECNO CUST-ID ORDER-REF QTY ITEM-CODE
  #2 #3 #4 #5 #6 #7
  FB 1:4 FB 5:4 FB 9:4 FB 13:4 FB 17:2 FB 19:4
  <...+...1> <...+...1> <...+...1> <...+...1> <...+...> <...+...1>
00000012 0 12 9156 557833807 7 18385
00000013 0 13 9156 696534904 1 19692
00000014 0 14 1820 756551020 8 32417
00000015 0 15 4596 989428617 10 25366
00000016 0 16 1812 898652388 4 22235
00000017 0 17 1722 866928690 2 29315
00000018 0 18 8997 270547901 7 14136
00000019 0 19 2967 360725448 3 17978
00000020 0 20 9156 397432931 9 20943
00000021 0 21 8616 934379132 7 25031

Se Line=1 Col=1 Alt=0,0;0 Size>500 Recl=204 Fmt=V Files=1 Views
  
```

Figure 1. Structured Data Environment View.

Terminology

The following terminology is used throughout SELCOPY/i documentation in relation to record data processing in the SELCOPY/i SDE environment.

ADATA File

SYSADATA (Associated Data) file output generated by the Enterprise COBOL compiler when compile time option ADATA is specified, or by the Enterprise PL1 compiler when compile time option MSG, sub-option XINFO is specified.

SELCOPY/i SDE uses an ADATA file to generate an **SDO**.

COBOL Copybook

A data set or PDS/PDSE library member that contains one or more Enterprise COBOL group definitions (not necessarily 01-level) and is usually included by COBOL source programs to provide a file record layout.

Note that SELCOPY/i supports Enterprise COBOL only. Earlier releases of COBOL for z/OS do not support generation of ADATA output.

Expanded Record/Segment

A **formatted** record/segment that contains variable length fields or repeating groups.

In the process of formatting record data, Variable length fields are formatted as fields of length equal to the maximum length of the variable field. Repeating groups of fields are formatted so that a field group exists for the defined maximum number of occurrences of the repeating group.

All other types of record/segment are **unexpanded**.

Focus line or row

The focus line or row is the file line or table row which contains the cursor. If the cursor is not in a file line or table row then the focus line or row is the top line or row in the window.

Many commands make implicit use of the contents of the focus line or row as a command argument.

Formatted Record/Segment

A **typed** record/segment for which the record data has been arranged into discrete fields as defined by the assigned **RTO**. An **unformatted** record/segment is one that is **untyped** or one that is **typed** with data arranged as a single character field of length equal to the record length.

Mapped Record/Segment

An alternative name for a **formatted** record/segment.

An **unmapped** record/segment is an alternative name for an **untyped** record/segment.

PL1 Copybook

A data set or PDS/PDSE library member that contains one or more Enterprise PL1 structure definitions and is usually included by PL1 source programs to provide a file record layout.

Record Structure

The definition of one or more fields that correspond to areas of a file record or DB2 table row or column. A record structure may define the complete or partial layout of fields within a file record or DB2 column.

Record-type

The name assigned to a single **RTO** definition in a SELCOPY/i **SDO** structure. Record-type is analogous with RTO and is often used to refer to an RTO definition.

RTO

A Record Type Object is a single record structure within an SDO. An RTO is referenced by a unique **record-type** name.

RTO Data Length

The sum of all field lengths defined by the RTO. The RTO data length may encompass a range of values if the RTO includes variable length fields or a variable number of repeating groups (e.g. array elements.)

SDO

A Structure Definition Object is a SELCOPY/i SDE generated structure, comprises one or more **RTO** and is used by SELCOPY/i SDE to map record data. If a COBOL/PL1 copybook or ADATA file is specified for record mapping, then SELCOPY/i will automatically generate an SDO from the copybook/ADATA source.

For this reason and unless otherwise stated, an SDO is often referenced simply as a structure. An SDO is referenced by its structure name which, if non-temporary, is the fileid of the structure definition disk file to which it is saved.

Segment or Record Segment

An area of record data treated as an individual record for **Segmented browse/edit**. **Mapped** segment boundaries are determined by the **RTO data length** and any offset defined for that RTO. An unmapped segment comprises all remaining data in the record that follows the last mapped segment.

Segmented Browse/Edit

A type of SDE file edit or browse that treats consecutive, non-overlapping areas (**segments**) of record data as individual records. Segmented browse/edit invoked when an SDO containing one or more RTO of type "SEC" is used to format record data.

Structure

A named object that contains one or more **record structure**. Unless otherwise stated, structure refers explicitly to a SELCOPY/i SDE structured data object (SDO).

Where stated, a structure may also apply to a COBOL or PL1 copybook or a COBOL or PL1 ADATA (Associated Data) compiler output file.

Typed Record/Segment

A record/segment that has an assigned record-type (RTO).

An **untyped** record/segment is one that has **not** been assigned an **RTO** .

SDE Concepts

Although SELCOPY/i SDE runs within the CBL text edit frame window, it is a much more sophisticated method of editing data.

Presentation and edit of record data within SDE must adhere strictly to precedents defined by the associated file structure. In order to do this, SDE introduces certain concepts and terminology that are used in its interpretation of data and are referenced throughout this documentation.

It is recommended that users familiarise themselves with the terms detailed in this section prior to performing any advanced edit operations.

Record Structure Definition

In order to display a file's data records correctly within SELCOPY/i SDE, an appropriate data definition must exist that accurately defines fields within the data records.

For SELCOPY/i SDE, a data definition is called the **structure** and must exist in an internal SDE format generated by the **CREATE STRUCTURE** command. Any existing COBOL, PL1, HLASM or DFSORT source code that is used to map the file's data records may be also be used to generate the SDE structure.

Structure Definition Object

The Structure Definition Object (SDO) is an in-storage copy of an SDE structure which comprises all the objects required to map, display and select data. These include:

- A structure identification including a 64-character title and/or 512-character description.
- One or more **record-type objects** used to format data records or DB2 table rows.
- Record-type selection criteria for data comprising records or record segments mapped by different record formatting.
- DB2 commit, isolation level, locked row, audit and primary key options.
- Record-type colouring based on WHERE expressions.

Creating an SDO Structure

Structures may be created explicitly (via the **CREATE STRUCTURE** primary command or **Create Structure** panels) or implicitly when the Data Editor or an SDE utility (e.g. FSU, COMPFIL) requires use of a structure to format data.

A structure may be generated from one or more copybook library members containing the following:

- COBOL group item(s).
- PL1 declared structure(s).
- HLASM (Assembler) DSECT control section(s).
- DFSORT SYMNAMEs statements.
- SELCOPYi structure definition (SDO).

If an SDO structure is to contain record type mapping entries generated from a PL1 declared structure of HLASM control section, then SELCOPYi calls the Enterprise PL1 compiler or HLASM assembler as appropriate to generate SYSADATA output from the copybook source. This SYSADATA output is then processed to generate the data mapping structures.

When an SDO structure is to contain record type mapping entries generated from a COBOL source, SELCOPYi may either interpret the COBOL Data Division field definition entries directly (internal processing) or execute the Enterprise COBOL compiler to generate the SYSADATA output (compiler processing). The method used by SELCOPYi is controlled by the prevailing value of the **COPYBOOKPROC** option (default INTERNAL) or by the COPYBOOKPROC parameter keyword specified on a **CREATE STRUCTURE** operation. The internal processing method has the following advantages:

1. The Enterprise COBOL Compiler need not be installed.
2. Processing is quicker. Execution of a COBOL compile naturally takes longer and requires a large TSO region size for successful operation (e.g. 128M for Enterprise COBOL 5.2).

Loading an SDO Structure

When a structure is created explicitly (via the **CREATE STRUCTURE** primary command or **Create Structure** panels) or when the Data Editor or an SDE utility (e.g. FSU, COMPFIL) requires use of a structure to format data, an SDO is loaded into local storage as follows:

1. If the structure is an SDO structure name, the SDO is loaded from an existing library member or sequential data set (**structure definition file**).

2. If the structure is for a DB2 result table or is specified as an existing COBOL, PL1, Assembler or DFSORT source copybook member, the SDO is generated automatically.

Once in storage, an SDO remains there until dropped either explicitly, via the DROP command or a panel recompile specification, or implicitly when the SELCOPYi session is ended.

SDO Structure Name

If an SDO is created explicitly using CREATE STRUCTURE with parameter TEMPORARY or is generated automatically by the Data Editor or an SDE utility, the SDO structure is **temporary** and is not automatically saved to a structure definition file. Whether temporary or non-temporary, an SDO is referenced by its structure name which is determined as follows:

1. The structure name (*structname*) parameter specified by execution of the CREATE STRUCTURE command or Create Structure panels.
2. The sequential data set name or library and member name of the structure definition file from which the SDO was loaded.
3. For a temporary SDO generated from COBOL, PL1, Assembler or DFSORT source or from an ADATA file, the assigned structure name is the data set (and member) name of the source copybook, DSECT, SYMNames or ADATA file.
4. For a temporary SDO generated by specific DB2 SQL query syntax, the assigned structure name is of the format `TBAnnnnn.sqlid.SQLVIEWm`, where *nnnnn* and *m* are numeric sequences and *sqlid* is the current SQLID.
5. For a temporary SDO generated for a specific cataloged DB2 table or view name, the assigned structure name is of the format `TBAnnnnn.schema.name`, where *nnnnn* is a numeric sequence, *schema* and *name* are the schema and name values for the DB2 table or view as defined in the SYSIBM.SYSTABLES catalog table.

Saving SDO Structures

Both temporary and non-temporary structures may be saved explicitly, using the **SAVESTRUCTURE** primary command, or implicitly by making a permanent update to the SDO. e.g. Record-type selection criteria (**USE**), column display selection and sequencing (**SELECT**), column width overrides (**SET COLWIDTH**), and record-type colouring (**RCOLOUR**).

If the structure is non-temporary, the SDO is saved to the structure definition file with DSN matching the structure name (or new structure name if saved using SAVESTRUCTURE). If the structure is temporary, the "Specify new Structured Data Object (SDO) name" panel is opened prompting for a structure definition file data set and optional library member name.

Record Type Object

A Record Type Object (RTO) is a single record, record segment or DB2 table row structure mapping definition that exists within an SDO. It contains the following information:

- Field offset, length and data format of all fields within a data record.
- Record offset at which the record-type object will begin mapping the record data. (This may be a positive or negative value).
- Column selection, column sequencing and column width definitions.
- DB2 row selection (WHERE clause) and row sequencing (ORDER BY clause). Note that, for SDE applications that use non-DB2 table SDOs, record selection (filtering) based on WHERE expressions may be achieved using a Filter file.

For structures containing more than one RTO, selection criteria must be defined which identifies the RTO to be used when formatting individual records or record segments belonging to the file to which the structure is applied.

Each RTO is referenced by a name which is unique within the SDO. This name is also referred to as the **record-type** and is allocated to an RTO when the SDO is created. The RTO record-type may be used as a generic description of those data records that are assigned that specific RTO. (See "**Record Type Assignment**".) e.g. Client1 data records are considered to be records that are assigned an RTO with the name "Client1".

RTO record-type selection criteria may be updated after an SDO has been created using the **USE record-type WHEN** primary command.

Record Type Object Data Length

The RTO data length is the sum of all field lengths defined by the RTO.

If all RTO fields are of fixed length, the RTO data length is a fixed value.

If, however, the RTO includes variable length field definitions or a variable number of repeating field groups, the RTO data length will encompass a range of possible values. In this case, the RTO data length is variable and has a minimum and maximum value.

The RTO data length is used in record-type assignment processing.

Structure Definition File

A Structure Definition File (SDF) is a DASD file (sequential data set or PDS/PDSE library member) containing a saved (i.e. non-temporary) copy of a Structure Definition Object.

An SDF data set must be of variable record format (RECFM=V/VB) with a minimum LRECL value of 16378 (16K-8). However, an SDF data set does not need to be pre-allocated before attempting to save an SDO structure.

When creating a non-temporary SDO structure using CREATE STRUCTURE or the SAVESTRUCTURE primary commands, the SDO is immediately saved to the sequential data set or library member identified by the structure name. If the data set or library does not already exist, the **Allocate Non-VSAM** dialog window is opened automatically with RECFM and LRECL input fields auto-filled with the minimum values required. After optionally updating other allocation fields and selecting "OK" to continue, the SDF will be allocated and the SDO saved accordingly.

On starting the Data Editor or an SDE utility that references an SDO structure name then, if the SDO is not already loaded in storage, it gets loaded from the SDF.

Record Type Assignment

Where a structure has been specified for SDE processing of data records (e.g. SDE EDIT, BROWSE, File Compare, etc.) then, on initial load of the data records or following execution of a **USE WHEN/ALWAYS/NEVER** command, record-type assignment processing is performed.

The record-type (RTO) assigned to an individual record is determined using the following order of precedence. Note that, unless specified by a USE ALWAYS ON condition, an RTO for which the **USE NEVER** condition has been set **ON** will be excluded from any RTO assignment test.

1. Use the RTO identified by a USE *record_type* ALWAYS ON condition. If the USE NEVER condition is ON for this RTO, it will be set OFF.
2. Use the first RTO in the structure definition (SDO) for which a USE WHEN expression tests "true".
3. Use the first RTO in the SDO defined as being DEFAULT.
4. Use the first RTO defined in the SDO for which the unexpanded record length matches the **RTO data length**. For an RTO of variable data length, the unexpanded record length is considered a match if it falls within the minimum and maximum RTO data length values.
Note that, having found a match, no other RTOs in the SDO are tested.
5. Use the first RTO in the SDO that is of a **fixed** RTO data length.
6. Use the first RTO in the SDO.
7. Use the default record type "UnMapped" which consists of a single field "UnMapped" of maximum length equal to the data set's LRECL value, and with a data type AN (alpha-numeric.)

Specification of USE record-type criteria allows assignment of that RTO to a record having a length that does not necessarily match the RTO data length. If this is the case, only areas of the record that are formatted by the assigned RTO will be displayed.

Any unformatted record data that follows the formatted data of the same record is not displayed but is preserved if changes are made to the formatted data. The unformatted data may be displayed and changed at any time using a different display format. e.g. FORMAT CHAR or FORMAT HEX.

Where unformatted data exists at the end of a record, the flag "=LGTH>" is displayed in the prefix area.

Structured Data Fields

Records that have been assigned a record type (RTO) are displayed with the record data presented in individual formatted field columns.

The names assigned to each field are those defined by the SDO, COBOL copybook or PL1 include file. Similarly, the assigned field reference number reflects the order in which the field occurs in the record structure hierarchy. Both are displayed in the record type headers (see *SDE Window Views*.)

SDE commands and expressions may reference a field via its field name or its field reference number.

Field Name

If unique, the field may be identified simply by specifying its defined field name.

However, if the field name is non-unique, occurring in one or more sub-structures (COBOL data description groups) that exist in the record type definition, then the field name must be fully or partially qualified by the the structure names of each level of structure in the hierarchy to which the field belongs. The default qualifier separator symbol is '.' (dot/period) but this may be tailored using the SET QSEPARATOR option. e.g. "structA.structN.fieldX".

The number of preceding structure name qualifiers specified before the field name need only be enough to uniquely identify the required field. e.g. "structN.fieldX" is enough to distinguish it from "structM.fieldX".

If desired, the field name may contain qualifiers of every level in the hierarchy including the record type name, which is itself a structure definition. e.g. "OrderRec.structA.structN.fieldX".

Note that, unless parameter CASE(REPECT) was used to create the structure (SDO), the field name and any of its qualifier structure names, may be typed in any character case.

Field Reference

The field reference number is unique in the record type definition.

The required field may be identified by specifying its field reference number prefixed by a "#" (hash) symbol.

Field Subscripts

Fields that constitute elements of an array (COBOL OCCURS clause) may be individually identified using a parenthesised, comma separated list of array vectors as a subscript to the array field name or field reference.

One array vector value must be specified for each dimension defined to the array. Each vector is an integer value identifying the field's position in that dimension of the array. e.g. #13(3) is element 3 of a single dimension field array, RoomArea(6,2) is the x,y coordinate of an element in a two dimensional field array.

Structure to Dataset Associations

In most cases, the structure used to map data in dataset records never changes and so SELCOPYi provides a convenient facility to define and save an association between a data file name mask and a structure file. i.e. a SELCOPYi SDO structure or a COBOL, PL1, Assembler, ADATA source member.

Once an association has been saved, subsequent data edit/browse of any dataset (or HFS file) that matches the data file mask, will automatically use the associated structure to format the file's data records. When this facility is implemented, a structure need never be referenced directly in the Structured Data Edit/Browse panel or via the USING parameter of the EDIT/BROWSE primary commands.

This structure to dataset association facility is implemented via the **Manage Copybook Associations** panel (=0.4.6) or the data editor **AUTOSTRUCTURE** option.

By default, this facility is set on at a level so that any specification of a structure on data edit or browse will automatically be saved as an association definition for the specific data set name. Likewise, any data edit or browse without a structure reference will automatically interrogate the associations table and use the structure associated with a matching DSN mask. Option AUTOSTRUCTURE controls whether or not association definitions are saved, applied or both.

Edit Associations Table

Association definitions are saved in the user's own copy of the SELCOPYi table library member, ZZSDSUSE, which gets automatically generated the first time an association is defined.

This table of association definitions may be viewed and modified by typing the **EDIT (E)** primary command from the **Manage Copybook Associations** panel or executing the Data Editor option **STRUCTURE** with no parameters (i.e. from outside the data editor, execute **SD STRUCT**). This table is presented as a structured data edit view which supports all the usual data editor primary and line-commands such as **FIND, CHANGE, SELECT, WHERE**, etc.

Each table row defines a relationship between a structure (**MappingFile**) and one or more data files (**DataFileMask**). Furthermore, if the structure refers directly to a structure which is COBOL, PL1, Assembler or ADATA source, then this must be indicated in the **Lang** column by COBOL, PL1, HLASM or ADATA respectively. For SDO structures, Lang may be specified as SDO or left as blank.

Standard pattern matching wildcards may be specified in the data file mask as follow.

- * A single asterisk indicates that either a qualifier or one or more characters within a qualifier can occupy that position. An asterisk can precede or follow a set of characters.
- ** A double asterisk indicates that zero or more qualifiers can occupy that position. A double asterisk cannot precede or follow any characters; it must be preceded or followed by either a dot or a blank.
- % A single percent sign indicates that exactly one character can occupy that position. (Up to 8 percent signs can be specified in each qualifier.)

An optional library member name mask may also be specified in "()" (parentheses) following a library DSN mask. This supports wildcards as follow.

- * A single asterisk represents a member name or zero or more characters within a member name mask.
- % A single percent sign represents exactly one character within a member name mask. Up to 8 percent signs can be specified in each member name mask.

```

SELCOPY/i - Edit NBJ2.SELCOPYI.TLIB(ZZSDSUSE) using SYS00128.ZZSDSUSE.FDB0000
File Edit Actions Options Utilities Window SwapList Help wS wR Scroll> Csr
Command>
Type SEL to control column widths etc. Type MAP for single record display mode.
Record type: ZZSDSUSE Variable(6,1094) Offset=0 Data elements=4
DataFileMask Lang MappingFile
<---+---1---+---2---+---3---> <---> <---+---1---+---2---+--->
0001 *...SDO LAC.CBL.SDO(SDO)
0002 *...ZOPS.** LAC.CBLI.SDO(ZOPS1)
0003 *.AM** CBL.CBLI.SDO(AM)
0004 *.CBLATRAC.** LAC.CBLI.SDO(CBLATRAC)
0005 CBL.PL1.TXT.F110 PL1 CBL.PL1.COPYBOOK(IPIC002)
0006 *.SELCTRN.ZZST1DAT.** NBJ.SELCTRN.SDO(ZZST1)
0007 *.SELCTRN.ZZST2DAT.** NBJ.SELCTRN.SDO(ZZST2)
0008 *.SELCTRN.ZZST3DAT.** NBJ.SELCTRN.SDO(ZZST3)
0009 *.SELCTRN.ZZST5DAT.** NBJ.SELCTRN.SDO(ZZST1)
0010 /mnt/l08/bin/c/zos/CBL.**.SYSPUNCH CBL.CBLI.SDO(HFSV)
0011 /mnt/l08/bin/c/zos/CBL.**.SYSREC CBL.CBLI.SDO(HFSV)
0012 CBL.CBLI.ADA(*) LAC.CBLI.SDO(ASMADATA)
0013 CBL.CBLI.MBRLIST.** CBL.CBLI.SDO(MBRLISTR)
0014 CBL.CBLIMST.STDTEST.*.REC CBL.CBLI.SDO(PLAYBACK)
0015 CBL.CBLIMST.STDTEST.*.RECS CBL.CBLI.SDO(PLAYBACS)
0016 NBJ.SELCTRN.ZZST2DAT COBOL NBJ.SELCTRN.SAM1(ZZST2CPC)
Se | Line=1 | Col=1 | Alt=0,0;0 | Size=16 | Recl=1094 | Fmt=V | Files=1 | Views
    
```

Figure 2. SDE: Structure to Dataset Associations Table.

Data File Mask Matching

In identifying an association for a given data file name, a search of the associations table is performed in the following order of precedence, stopping when a match is found.

1. Search data file masks that contain no wild card characters.
2. For library datasets with member name specification, search data file masks that contain a parenthesised member name mask. Both the library DSN mask and member name mask can contain wildcard characters.
3. For library datasets with member name specification, search data file masks that contain no wild card characters in the library DSN and no parenthesised member name mask.
4. Search all remaining data file masks that contain wild card characters.

Note that, within the scope of the above search order, if the data file matches more than one data file name mask then the first matching association definition within the table will be selected.

SDE Window Views

An SDE window is an MDI child window (view) that may be opened from within the CBLe Text Editor or SELCOPY Interactive application parent window.

Data within an SDE window is presented as either a multi record or single record view.

Multi Record View

This is an SDE MDI child window containing multiple records displayed horizontally so that each record occupies a single line of the display.

Field Column-Heading Lines

By default, a group of 5 field column-heading lines are displayed within the window display area immediately above the first data record in view. Unless records associated with a different record type are visible (see **Record Data Display** below), no further groups of column-heading lines are displayed within the current display area view.

```

Record type: AM Fixed(5700) Offset=0 Data elements=95
AmDATE AmKELCur AmKELMax AmKLineN AmKLineL AmKEYC AmKEY AmCOUNTY
#2 #5 #6 #7 #8 #11 #12 #14
AN 1:8 BN 11:1 BN 12:1 BN 13:1 BN 14:1 AN 21:5 AN 26:7 AN 34:4
<---+---> <--> <--> <--> <--> <---> <---+---> <-->
    
```

Figure 3. SDE Multi-Record Display Header Lines.

Header Line 1: Record Type Information

For SDE display of file records, this header identifies:

1. The **record-type** assigned to the records (or record segments) that follow.
2. The record-type format (Fixed or Variable) followed by the **RTO Data Length** in "(")" (parentheses). Note that, for variable record-types, the valid range of RTO data lengths is displayed as a minimum and maximum RTO data length value.
3. The offset into the record at which record type begins to format the data. This may be a positive or negative value. (Offset=*n*)
4. The number of data elements (field references) within the record-type definition. This number includes the record-type STRUCTURE field, and any other STRUCTURE fields in the RTO definition. Therefore, the data elements value may be greater than the number of fields in view.

Note that a repeating group (array) contains a fixed number of data elements which is reflected in the total data element count. Each array element possesses a one or more dimensional vectors, with each vector having been defined maximum number of entries. Array vector entries are not reflected in the data element count.

For SDE DB2 table row display, this header identifies:

1. The record type (**Row name**) assigned to the table rows - default is the table owner ID name.
2. The record type format (Fixed or Variable) followed by the record type length (i.e. the sum of the record type field lengths) in "(")" (parentheses). Note that, for variable record types a maximum,minimum length pair is displayed.
3. The number of columns defined by the DB2 results table.

Header Line 2: Field Name

Where present, the names of fields selected for display, are used as the column header names and are located in the second line of the column header.

This header line may not be switched off.

Header Line 3: Field Reference

The third column header line displays the field number (reference) within the record. By default, when table format is specified, the fields displayed will be the lowest level of a nested group of fields. Therefore, the names of fields that define a group of fields, will not be displayed and so their corresponding field numbers will also be missing from the sequence of displayed fields.

This header line may be switched on/off using the **SET REFERENCE** command.

Header Line 4: Field Type

For DB2 table edit, the fourth column header line displays the field data type as specified in the table column definition.

For data files, the fourth column header line displays the field structure (type) as a 2-character data type code followed by the field's start position (byte number within the record-type definition) and the field length. For fields whose lengths are defined in number of bits, the field start position includes an offset into the byte following a "." (decimal point) and the unit for field length is bits. The start position and length displays are separated by a ":" (colon).

Recognised file editing data type codes are as follow:

AN	CHARACTER, VARCHAR, XVARCHAR, STRUCTURE or UNION
BI	BINTEGER
BN	INTEGER
BT	BIT
FB	FIXEDHEX, FIXEDBIN
FP	FLOAT
PD	DECIMAL
X	HEXADECIMAL
ZD	ZONED

See "**SDE Data Types**" for descriptions of each of the supported data types and their representation in the Field Type header line.

This header line may be switched on and off using the **SET TYPE** command.

Header Line 5: Scale

The fifth column header line displays a scale for each field in the display. The width of the scale is equivalent to the width of the field display area which is wide enough to display all the field data or, for numeric fields, the largest possible numeric value.

Where the display field is wider than 2 bytes, a scale begins with "<" (less than) as position 1 and ends with ">" (greater than) as the last position of the field.

The scale characters displayed and the the ability to switch this header line on and off is controlled by the **SET SCALE** command.

Prefix Area

By default, the record prefix is set on and so the prefix area is displayed containing the record sequence numbers. The record prefix area may be tailored or set on/off using the **SET PREFIX** command.

Data Records

By default, all records of the file, regardless of assigned record type, are selected for display. Records that have been selected for display are identified as **data records**.

Using the **VIEW** command, records of different record types may be displayed or suppressed within a multi record view.

Where multiple record types are visible, each record in the window display area that is of a different record type to the previous record, will be immediately preceded by its column headers. Therefore, when viewing a mixture of records of different record types, the display area may contain multiple groups of column header lines. It is also possible that only part of a group of column header lines is displayed at the bottom of the display area.

Within formatted data records, the display of character (AN, CH or VARCHAR) fields that contain non-printable characters differs from the rest of the displayed fields in both multi record and single record views. Printable characters in these fields are displayed in a different colour with underscore highlighting so that non-printable characters appear as immovable gaps, effectively fixing the length of printable character data before them. Only printable characters in these fields may be overtyped. Non-printable characters may only be updated using the **CHANGE** command or by setting **HEX ON**, so allowing overtype of the hex display of the data.

Scrolling left and right will scroll the fields within all records of the default record type only. Scrolling up and down will scroll through all records of the file.

Shadow Lines

A record or group of consecutive records that are not displayed because they are suppressed, specifically excluded by the user or have no associated RTO (not selected) are, by default, replaced by a **shadow line**.

A shadow line specifies the number of consecutive records excluded from the display, the reason for their exclusion ("suppressed", "excluded" or "not selected") and, if applicable, the associated **record type**. Shadow lines may be set on/off using the **SET SHADOW** command.

Single Record View

An SDE MDI child window containing data from a single record displayed vertically so that each field of the record occupies a single line of the display.

Records that are suppressed, excluded or not selected cannot be viewed within a single record view.

Scrolling left and right will display the previous and next records respectively that have not been suppressed. Scrolling up and down will display the previous and next fields within the record respectively.

A group of 3 field column-heading lines are displayed within the window display area immediately above the first field in view.

Header Line 1: Record Type Information

Identical to **Header line 1** in a **multi-record view**.

Header line 2: Record Information

Contains the record (or record segment) sequence number within the file, any assigned record flags (as displayed by the **RECINFO** option) and the record length.

Header line 3: Field Data Headers

Contains the column headers for the record data that follows. The headers displayed in this line and so the format of the data displayed beneath, may be altered using the **SHOW** command.

Column headers and data displayed for each occur left to right as follows: and may be changed by setting, the

Ref

If **SHOW NUMBER** is in effect, the **Ref** header is visible so that field reference (data element) numbers, assigned by **SELCOPY/i** to each field, are displayed.

Field

If **SHOW LEVEL** is **not** in effect, the **Field** header is displayed to the right of the **Ref** header. For each field entry that follows, only the field name is displayed and, for array field elements, the vector entry subscript is included in parentheses.

Alternatively, if **SHOW LEVEL** is in effect, then, by default, **Field** header occupies the first two column headers, replacing the **Ref** header, and for each field entry that follows, a hierarchical level number is displayed to the left of the field name. Indentation occurs for each successive level number to highlight the record structure. In this way the Field column entries resemble a COBOL copy book definition.

Note that the **Ref** header may be redisplayed, in addition to this hierarchical format of the **Field** data, by setting option **REFERENCE** on.

Type

If SHOW TYPE is in effect, the **Type** header is displayed to the right of the **Field** header. For each field entry that follows, the field's 2-character data type code, its position within the record-type definition and its maximum width is displayed as for **Header Line 4: Field Type** in a **multi-record view** (code pos:length).

Format

If SHOW FORMAT is in effect, the **Format** header is displayed to the right of the **Field** header. For each field entry that follows, the field's maximum width and data type is displayed as width/type.

Picture

If SHOW PICTURE is in effect, the **Picture** header is displayed to the right of the **Field** header. For each field entry that follows, the COBOL or PL/1 field definition PICTURE string. If the field was defined without a PICTURE string, entries are displayed using the **Type** column data format.

Offset | Position | HexOff

If SHOW OFFSET is in effect, one of the following headers is displayed to the right of the **Field** header depending on the current value of the **OFFSET** option.

◊ **Offset**

Displayed when OFFSET RELATIVE is in effect, for each field entry that follows, this column displays the decimal offset of the field within the record-type definition. If the data displayed for a character data field wraps onto the next line, the offset within the record of the first character to be wrapped onto the new line is displayed in this column in a different colour.

◊ **HexOff**

Displayed when OFFSET HEX is in effect, this column is identical to **Offset** except offsets are displayed in hex.

◊ **Position**

Displayed when OFFSET COLUMNS is in effect, this column is similar to **Offset** except that the field position (i.e. field offset+1) within the record-type definition is displayed instead.

Scale Header

To the right of all other column headers, the scale header is simply a counting guide for the field data displayed beneath. The scale line, and so the width of field data displayed, always contains a multiple of 10 character columns which increases or decreases accordingly as the width of the non-maximised edit view window is stretched or compressed.

Character data fields that have a width greater than that of the scale will wrap onto the next line beneath the scale header. In this case, the start and end positions of characters within the data field that occur on the wrapped line are displayed in a different colour in the **Type**, **Format** or **Picture** columns. If the **Offset**, **HexOff** or **Position** columns are visible, then only the offset or position of the first character on that line is displayed.

SDE Data Formats

Data within an SDE window view is displayed in one of the following data formats.

Table Format

Forces a **multi record** window view. If table format is selected on EDIT or BROWSE, then records are assigned an appropriate record type (**RTO**) and formatted so that record data is split into its component fields as defined by the RTO. The data is processed so that all fields are displayed as printable character, numeric data fields having first been converted to decimal.

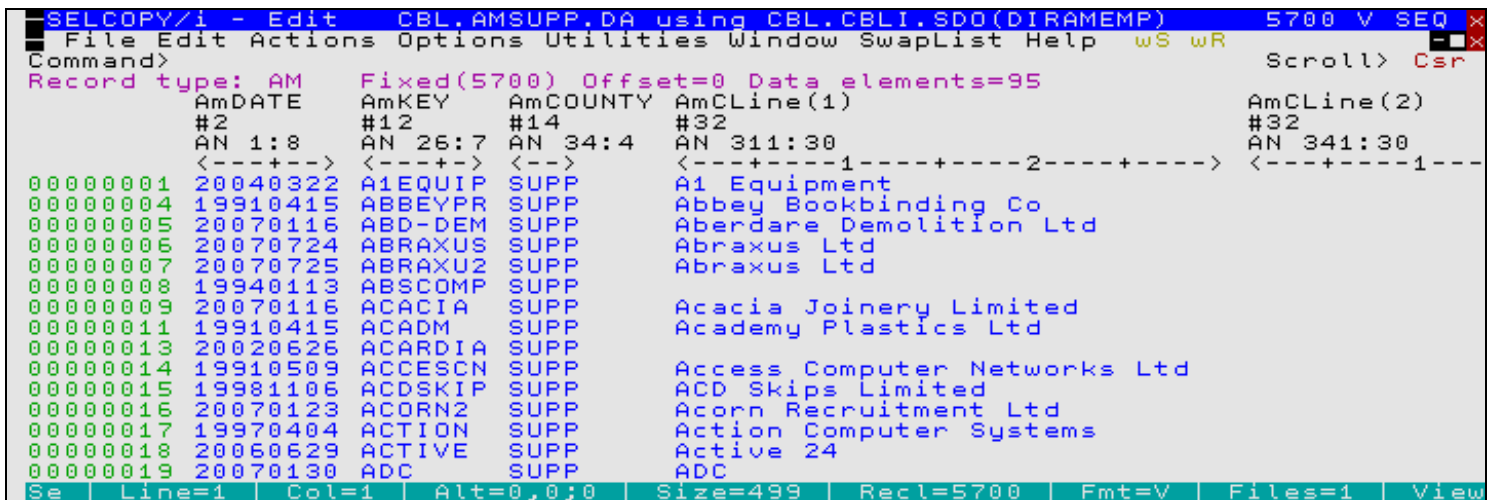


Figure 4. SDE Table Format.

Single Format

Record data is processed as for a table view except that the display becomes a **single record** window view of the **default record**.

```

SELCPY/i - Edit CBL.AMSUPP.DA:2 using CBL.CBLI.SDO(DIRAMEMP) 5700 V SE
File Edit Actions Options Utilities Window SwapList Help WS WR
Command> Scroll> Csr
Record type: AM Fixed(5700) Offset=0 Data elements=95
Record> 00000001 Flags: f Length: 5700
Ref Field Type Data
#2 2 AmDATE AN 1:8 20040322
#12 4 AmKEY AN 26:7 A1EQUIP
#14 3 AmCOUNTY AN 34:4 SUPP
#32 3 AmCLine(1) AN 311:30 A1 Equipment
#32 3 AmCLine(2) AN 341:30
#24 3 AmALine(1) AN 111:30 28 Springwell Lane
#24 3 AmALine(2) AN 141:30 DONCASTER
#24 3 AmALine(3) AN 171:30 South Yorkshire DN4 9AB
#24 3 AmALine(4) AN 201:30
#24 3 AmALine(5) AN 231:30
#35 3 AmGElCur BN 401:1 0
#36 3 AmGElMax BN 402:1 24
#37 3 AmGLineN BN 403:1 1
#38 3 AmGLineL BN 404:1 60
#41 4 AmGALL AN 411:1440
Se Line=1 Col=1 Alt=0,0;0 Size=499 Recl=5700 Fmt=V Files=1 View
    
```

Figure 5. SDE Single Format.

Character Format

Record data in the current multi or single record view is mapped as a single, variable length character field with field name "UnMapped" or, for record segments, "UnMappedSeg". No conversion of numeric or unprintable data is performed and the window view (either multi or single record) remains unchanged.

```

SELCPY/i - Edit CBL.AMSUPP.DA.EBCDIC using CBL.CBLI.SDO(DIRAMEMP) 5700 V SE
File Edit Actions Options Utilities Window SwapList Help WS WR
Command> Scroll> Csr
Record type: AM Fixed(5700) Offset=0 Data elements=95
UnMapped
#1
AN 1:5700
<---+---1---+---2---+---3---+---4---+---5---+---6---+---7
00000001 20040322 SUPP/A1EQUIP SUPP
00000002 20040323 SUPP/A2EQUIP SUPP
00000003 20041224 SUPP/ABBEYPR SUPP
00000004 19910415 SUPP/ABD-DEM SUPP
00000005 20070116 SUPP/ABRAXUS SUPP
00000006 20070724 SUPP/ABRAXU2 SUPP
00000007 20070725 SUPP/ABSCOMP SUPP
00000008 19940113 SUPP/ACACIA SUPP
00000009 20070116 SUPP/ACADM SUPP
00000011 19910415 SUPP/ACARDIA SUPP
00000013 20020626 SUPP/ACCESCN SUPP
00000014 19910509 SUPP/ACDSKIP SUPP
00000015 19981106 SUPP/ACORN2 SUPP
00000016 20070123 SUPP/ACTION SUPP
00000017 19970404
Se Line=1 Col=1 Alt=0,0;0 Size=499 Recl=5700 Fmt=V Files=1 View
    
```

Figure 6. SDE Character Format.

SDE Data Types

Structured records may be mapped by a record type object (RTO) whereby fields may be interpreted as being of any of the the following supported field types:

Bit Flags

A Binary field of length specified in number of bits where each bit is interpreted as a flag switch which is either ON (1) or OFF (0). Fields of this data type have a data type record header of "**BT *ppp:nn***" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bits).

Binary Data Fixed

A **DB2** Binary data field (built-in data type BINARY) of fixed length whose contents are interpreted as printable ASCII or EBCDIC character data. Fields of this data type have a data type record header of "**BINARY(*nn*)**" where *nn* is the length of the field (in bytes).

Binary Data Variable

A **DB2** Binary data field (built-in data type VARBINARY) of variable length contents are interpreted as printable ASCII or EBCDIC character data. Fields of this data type have a data type record header of "**VARBIN(*nn*)**" where *nn* is the maximum length of the field (in bytes).

Character Fixed

A Character field of fixed length specified in number of bytes whose contents are interpreted as printable ASCII or EBCDIC character data. Fields of this data type have a data type record header of "**AN *ppp:nn***" or, for **DB2** table edit/browse, "**CH(*nn*)**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Character Variable (Field of Varying Length with Nominated Length Field)

A Character field of variable length specified in number of bytes by a nominated field within the record data. The nominated field may be of any numerical data type and the character field contents are interpreted as printable ASCII or EBCDIC character data. Fields of this data type have a data type record header of "**AN *ppp:nn***" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Character Variable (Field of Varying Length with Preceding Length Field)

A Character field of variable length specified in number of bytes by an **Integer Binary (Byte)** field located immediately before the character data. The Integer Binary field is of a predefined length which may be defined as being included with or excluded from the character field length. The character field contents are interpreted as printable ASCII or EBCDIC character data. Fields of this data type have a data type record header of "**AN *ppp:nn***" or, for **DB2** table edit/browse, "**VARCHAR(*nn*)**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Character Variable (Field of Static Length with Preceding Length Field)

A Character field of variable length padded with blanks to occupy a field of a fixed, predefined length. The variable length of the character data is determined by a 2-byte **Integer Binary (Byte)** field located immediately before the character data. The 2-byte Integer Binary field length is not included within the stored length. This data type is equivalent to PL/1 fields declared as CHARACTER VARYING. The character field contents are interpreted as printable ASCII or EBCDIC character data. Fields of this data type have a data type record header of "**AN *ppp:nn***" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes). The value *nn* includes the 2-byte length field.

Character Variable (Field of Static Length with Null Termination)

A Character field of variable length occupying a field of a fixed, predefined length. The end of the variable length character data is determined by at least one null (x'00') termination character. Therefore, in order to support a character strings of the maximum field length, the predefined fixed field length is always 1 byte longer than the maximum length requested. This data type is equivalent to PL/1 fields declared as CHARACTER VARYINGZ. The character field contents are interpreted as printable ASCII or EBCDIC character data. Fields of this data type have a data type record header of "**AN *ppp:nn***" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes). This value includes the additional 1-byte.

Date

A Date field displayed in ISO format with separator character "/" (yyyy/mm/dd) or, for **DB2** table edit/browse, in the locally defined DB2 date string format. The internal format of the date string for non-DB2 edit/browse may be that returned by the TIME Assembler macro for packed or binary data, or the internal date format of ICF catalog records or VTOC format 1/3 records. Fields of this data type have a data type record header of "**DT**" or, for DB2 table edit/browse, "**DATE**".

Fixed Point Binary

A Binary field defined as having a precision and scale specified in number of decimal digits, and whose value is displayed as a fixed point decimal number. The length of the binary field is either 2-bytes (Halfword), 4-bytes (Word) or 8-bytes (Doubleword) as implied by the precision which defines the total number of decimal digits. i.e. precision <5 implies halfword, precision >=5 and <10 implies word, precision >=10 implies doubleword. The scale defines the number of digits to the right of the decimal point. Fields of this data type have a data type record header of "**FB ppp:nn**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Fixed Point Packed Decimal

A Packed Decimal field defined as having a precision and scale specified in number of decimal digits, and whose value is displayed as a fixed point decimal number. The length of the packed decimal field is implied by the precision which defines the total number of decimal digits. The scale defines the number of digits to the right of the decimal point. Fields of this data type have a data type record header of "**PD ppp:nn**" or, for **DB2** table edit/browse, "**DEC(*pr*,*sc*)**" where *ppp* is the position of the field within the expanded record (in bytes), *nn* is the length of the field (in bytes), *pr* is the defined precision and *sc* the defined scale.

Fixed Point Zoned Decimal

A Zoned Decimal Character field defined as having a precision and scale specified in number of bytes, and whose value is displayed as a fixed point decimal number. The length of the zoned decimal field is implied by the precision which defines the total number of decimal digits. The scale defines the number of digits to the right of the decimal point. Fields of this data type have a data type record header of "**ZD ppp:nn**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Floating Point Hexadecimal

A Hexadecimal Floating Point field of length 4 bytes (short) or 8 bytes (long) whose value is displayed as a decimal number consisting of a normalised mantissa and exponent. Fields of this data type have a data type record header of "**FP ppp:nn**" or, for **DB2** table edit/browse, "**REAL**" for short fields and "**FLOAT**" for long fields where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Floating Point Binary

A Binary Floating Point (IEEE 754) field of length 4 bytes (short) or 8 bytes (long) whose value is displayed as a decimal number consisting of a normalised mantissa and exponent. Fields of this data type have a data type record header of "**FP ppp:nn**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Floating Point Decimal

A Decimal Floating Point (IEEE 754r) field of length 8 bytes or 16 bytes whose value is displayed as a decimal number consisting of a normalised mantissa and exponent. Fields of this data type have a data type record header of "**FP ppp:nn**" or, for **DB2** table edit/browse, "**DECFLOAT(*pr*)**" where *ppp* is the position of the field within the expanded record (in bytes), *nn* is the length of the field (in bytes) and *pr* is the defined precision (16 or 34).

Hexadecimal

A Hexadecimal field of a fixed length specified in number of bytes whose contents are displayed as a printable hexadecimal character string. Fields of this data type have a data type record header of "**X ppp:nn**" or, for **DB2** table edit/browse, "**BINARY(*nn*)**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Hexadecimal Variable (Field of Varying Length with Preceding Length Field)

A Hexadecimal field of variable length specified in number of bytes by an **Integer Binary (Byte)** field located immediately before the printable hexadecimal data. The Integer Binary field is of a predefined length which may be defined as being included with or excluded from the character field length. Fields of this data type have a data type record header of "**X ppp:nn**" or, for **DB2** table edit/browse, "**VARBIN(*nn*)**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Hexadecimal Variable (Field of Static Length with Preceding Length Field)

A Hexadecimal field of variable length padded with blanks to occupy a field of a fixed, predefined length. The variable length of the printable hexadecimal data is determined by a 2-byte **Integer Binary (Byte)** field located immediately before the data. The 2-byte Integer Binary field length is not included within the stored length. Fields of this data type have a data type record header of "**X ppp:nn**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes). The value *nn* includes the 2-byte length field.

Integer Binary (Bit)

A Binary field of length specified in number of bits, the contents of which are interpreted as being numeric and whose value is displayed as an integer decimal number. Fields of this data type have a data type record header of "**BI ppp:nn**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bits). Compare with **Integer Binary (Byte)** data type which is a binary integer field with length expressed in number of bytes.

Integer Binary (Byte)

A Binary field of length specified in number of bytes (maximum 8-bytes), the contents of which are interpreted as being numeric and whose value is displayed as an integer decimal number. Fields of this data type have a data type record header of "**BN ppp:nn**" or, for **DB2** table edit/browse, "**SMINT**" (halfword), "**INT**" (word) or "**BIGINT**" (doubleword) where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes). Compare with **Binary Integer (Bit)** data type which is a binary integer field with length expressed in number of bits.

PL/1 Picture String (Character)

A PL/1 style PICTURE string representing a character data item (i.e. no numerical interpretation) of length determined by the specified picture string. The picture string may contain any valid PL/1 picture character for character data. Fields of this data type have a data type record header of "**AN ppp:nn**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

PL/1 Picture String (Fixed Point Numerical)

A PL/1 style PICTURE string representing a FIXED numerical character data item of length determined by the specified picture string. The picture string may contain any valid PL/1 picture character for numeric character data except for exponent characters "E" and "K". Fields of this data type have a data type record header of "**AN ppp:nn**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

PL/1 Picture String (Floating Point Numerical)

Not Yet Supported

A PL/1 style PICTURE string representing a FLOAT numerical character data item of length determined by the specified picture string. The picture string may contain any valid PL/1 picture character for numeric character. Fields of this data type have a data type record header of "**AN ppp:nn**" where *ppp* is the position of the field within the expanded record (in bytes) and *nn* is the length of the field (in bytes).

Structure

A Structure consisting of one or more fields each defined as being any of the supported data types. The structure field length is defined as being the sum of all field lengths within the structure. A field within a structure may itself be of the structure data type, so defining a structure nested within a structure.

Time

A Time field displayed with separator character ":" (HH:MM:SS) or, for **DB2** table edit/browse, in the locally defined DB2 time string format. The internal format of the time string for non-DB2 edit/browse may be that returned by the TIME Assembler macro for packed or binary data. Fields of this data type have a data type record header of "**TI**" or, for DB2 table edit/browse, "**TIME**".

Timestamp

A Timestamp (Date and Time) field displayed in ISO format with date separator character "/" (yyyy/mm/dd) and time separator character ":" (HH:MM:SS), or, for **DB2** table edit/browse, in the locally defined DB2 timestamp string format. The internal format of the date and time string for non-DB2 edit/browse may be that returned by the TIME Assembler macro for packed or binary data, the system TOD clock (returned by the STCK operation) or an HFS file directory entry. Fields of this data type have a data type record header of "**TS**" or, for DB2 table edit/browse, "**TIMESTAMP**".

Union

A Union of one or more fields of any of the supported data types. Each field in the union occupies the same start position in the data record. The union field length is defined as being the length of the longest field in the union. Unions allow the same data to be interpreted as more than one data-type.

SDE Edit Techniques

SDE data edit employs sophisticated techniques for in-storage record data management. These techniques allow for more control over the data being edited and also allows the user to edit data sets that would not otherwise fit in storage.

Prior to edit, SELCOPY/i SDE establishes the user supplied edit options, the data set organisation and size, and the amount of storage available. Based on these, SDE will perform the appropriate editing technique as follows:

Full Edit

Supported for sequential data sets, PDS(E) members, DB2 tables and VSAM RRDS and ESDS files defined with option REUSE, all records belonging to the data set are loaded into storage prior to display in an SDE window view. Full edit supports change, insert, delete, copy and move of data records. Furthermore, records may be updated to alter the record length if supported by the data set organisation or structure (SDO).

This edit technique will be used where conditions for Update-in-place and KSDS edit are not satisfied. Before a data set is opened for Full Edit, SDE first establishes whether enough storage is available to load the entire data set. For non-DB2 table edit, if insufficient storage is available or AUXILIARY is specified on the EDIT command, AUXILIARY edit will be used instead. For DB2 table edit, insufficient storage will result in a storage error.

Although Full Edit can result in a delay as the data set is loaded into storage, subsequent edit operations that involve scrolling or data scanning will operate faster. When the data set is saved, the entire data set is re-written back to disk using the in-storage copy of the records.

If Full Edit is in effect, "Edit" is displayed in the SDE window title bar to the left of the DSN.

Read Only Edit

Supported for sequential data sets, PDS(E) members, DB2 tables and VSAM RRDS and ESDS files, all records belonging to the data set are loaded into storage prior to display in an SDE window view.

Read Only edit supports all functionality provided by Full Edit except that changes cannot be saved to disk unless the fileid is first updated (using SET DSN, FILEID, FMODE, FNAME, FPATH or FTYPE) to be a non-existing fileid. Having done this, saving the data will open a dialog window to allocate or IDCAMS DEFINE the data set. This allows the user to effectively edit and create sample data before copying it to a new data set, whilst being secure in the knowledge that the original data set will remain intact.

Read Only edit is invoked by specifying READONLY on the SDE EDIT CLI command. Like Full Edit, AUXILIARY edit will be used if insufficient storage is available or AUXILIARY is specified on the EDIT command.

If Read Only Edit is in effect, "Edit(RO)" is displayed in the SDE window title bar to the left of the DSN. If AUXILIARY edit is used for read only editing, "Edit(AUXRO)" is displayed instead.

Update-in-place Edit

Not supported for DB2 table edit, this edit technique allows in-place record update only. Records cannot be inserted, deleted, moved or copied and record lengths cannot be altered. The exception to this is RRDS update-in-place edit where empty slots may be created by record delete and made enterable by record insert.

Update-in-place edit is invoked or implied by the following:

1. Specification of parameter UPDATE on the Data Editor EDIT command.
2. Parameter FROM and/or FOR (indicating start record and number of records) is specified on the EDIT command.
3. Data set is a VSAM ESDS or RRDS file with IDCAMS DEFINE CLUSTER option NOREUSE.
4. Data set is not VSAM KSDS and load of the data set into storage has been interrupted by the user following receipt of the Load Threshold break-in modal window.

Before a data set is opened for Update-in-place Edit, SDE first establishes whether enough storage is available to load the entire data set. If insufficient storage is available, SDE will only load a single page of records for display in the SDE window view. Subsequently, only records that have been altered and records displayed in the current SDE window view are held in storage.

When the data set is saved, any record that has alterations is updated in place (replaced) by the modified, in-storage copy of the record.

If Update-in-place Edit is in effect, "Edit(UP)" is displayed in the SDE window title bar to the left of the DSN.

KSDS Edit

KSDS Edit is used for Read Only, Full Edit or Update-in-place Edit of VSAM KSDS data sets.

For KSDS Edit, only records that have been altered, inserted or deleted and records displayed in the current SDE window view are held in storage. It is possible to do this, even for Full Edit, as KSDS records may be deleted and inserted out of sequence.

The capabilities and restrictions of Read ONLY Edit, Full Edit and Update-in-place Edit still apply and "Edit(RO)", "Edit" or "Edit(UP)" is displayed in the title bar as appropriate. Note that Read Only Edit or Update-in-place Edit of KSDS data sets is invoked using the READONLY or UPDATE parameter of the SDE EDIT command respectively, otherwise Full Edit is default.

AUXILIARY Edit

Auxiliary edit first makes a copy of the edit data set to a second, auxiliary file on disk.

Only records that have been altered, inserted or deleted and records in the current SDE window view are held in storage. For Auxiliary Edit, a data set can only be saved when it is closed during exit of the SDE window view. This is because the data set is completely re-written using a combination of records obtained from the auxiliary data set and records held in storage. Note that SAVE is not supported using this edit technique.

Auxiliary edit is used to provide full edit capabilities for sequential data sets, PDS(E) members and VSAM RRDS and ESDS files defined with option REUSE, when one of the following is true:

1. The data set is too large to be loaded into available storage.
2. Parameter AUXILIARY is specified on the SDE EDIT CLI command.

If Auxiliary Edit is in effect, "Edit(AUX)" is displayed in the SDE window title bar to the left of the DSN.

The auxiliary data set is allocated as new by SDE and subsequently deleted after the edited file is closed. The data set name has HLQ prefix, unit and/or System Managed Storage (SMS) classes as defined in the [Data Edit Auxiliary Dataset Settings](#) panel (=0.4.4). The default data set name HLQ is %USER%.SELCOPYI.SDEAUX whereas the default unit and SMS classes are the same as the data set being edited. The remainder of the data set name is of the format Dyyyyjjj.Thhmsst representing the current date and time.

If Auxiliary Edit is to be performed on a sequential data set defined with DSNTYPE=LARGE, then the auxiliary data set will also be allocated as DSNTYPE=LARGE.

Changing Record Lengths

The SDE is a structured data editor and so, in order to preserve the structure of record data, the lengths of updated records are unchanged when the data is saved. This occurs whether or not a structure (SDO) or copybook has been applied to the record data and has the effect of preserving any trailing blanks that exist in the records.

However, the length of a variable length record may be altered in the following circumstances:

1. Execution of the **CHANGE** command results in a change to the record length. This may be a change to a numerical field value that represents the current length of a variable length field, or a change to the length of character data in a variable length field.

In particular, use of CHANGE with parameter DATA and different length search and replace strings will result in a field length change.

Note that, for variable length records, record type "UnMapped" is used for unformatted data and comprises a single field (field name "UnMapped") which is of variable length.

2. When the record information Length field is displayed (**RECLENGTH ON** or **SET RECINFO ON LENGTH**), then the length of a record may be altered by simply overtyping the Length value with the new record length.

Altering the record length in this way will force a re-assessment of the record type assigned to the record data. This is done using standard **record type (RTO) assignment** rules.

3. When a structure (SDO) or copybook has been applied to the record data and the assigned record type contains length or array vector fields, then overtyping the values in any of these fields will also update the record length accordingly.

Attempting to alter the record length will fail if the new length is greater than the maximum LRECL defined for the file.

SDE Current Window

The current SDE window is the SDE window view on which focus was last placed. This may be the focus window or, if the focus window is not an SDE window view, the last SDE window view visited.

The concept of a current SDE window view is important when executing SDE commands from a CBL text edit view via the **SDATA** command which directs the SDE command to the current SDE window view.

Using SDATA is particularly useful for issuing stored SDE commands from within a **CMX** file.

Default Record Type

SDE windows are capable of displaying records of more than one **record type** simultaneously within the same display area.

Because many SDE commands and functions operate on records of a single, specific record type, the concept of a default record type exists for use when a record type has not been specifically identified via a command parameter.

The following identifies the order in which the default record type is determined by SELCOPY/i SDE:

1. The record type of the **focus line** if the focus line is a visible record or an EXCLUDED shadow line.
2. The prevailing setting of DRECTYPE.

The value of DRECTYPE is assigned when the SDE window is opened and is established in the following order:

1. The record type that is the first, non-generic argument specified on the VIEW parameter of the **EDIT** or **BROWSE** command.
2. The record type of the **RTO** in the **SDO** defined as being the DEFAULT.
3. The record type of the first visible record of the edited or browsed data.
4. The record type of the first RTO in the SDO.

The DRECTYPE value may be updated by any of the following:

- **SET DRECTYPE** explicitly sets the DRECTYPE value.
- Execution of the VIEW command will update DRECTYPE to be the first, non-generic record type argument.
- Execution of any command that supports a *record_type* argument will update DRECTYPE to be the record type selected for the command. This is true whether the record type has been specified explicitly in the command syntax or implied by the record type of focus line. (e.g. **WHERE**, **LOCATE**, etc.)

The current value DRECTYPE may be interrogated using the QUERY or **EXTRACT DRECTYPE** commands.

SDE support for DB2 data

Included as part of SELCOPY/i DB2 functionality, the SDE data editor has support for viewing and changing DB2 table data.

Since the DB2 support is integrated into the SDE editor, all SDE commands and operations, such as FIND, CHANGE, WHERE and LOCATE, apply in the same way to the display and edit of DB2 table data as for other types of operating system datasets.

- **DB2 Table Browse and Edit**
- **DB2 Table Display**

DB2 Table Browse and Edit

The SELCOPY/i structured data editor (SDE) supports **BROWSE** and **EDIT** of DB2 tables and views.

Full reference information for structured edit is in **SELCOPY/i Structured Data Editor (SDE) Contents** and there is also an SDE section in the comprehensive **SELCOPY/i Quick Reference** document.

The following topics provide introductory information about working with DB2 data in structured edit:

- **Starting a DB2 table edit or browse session.**
- **How DB2 subsystem connections are managed.**
- **Limiting the number of rows loaded.**
 - ◆ **Using non-scrollable cursors.**
 - ◆ **Using scrollable cursors.**
 - ◆ **Scrollable cursor example.**
- **Defining a structure to use with DB2 tables.**
- **How DB2 rows are saved.**
- **Dealing with save errors.**
- **Auditing edit sessions.**
- **Editing or browsing related tables**
- **Useful commands.**
- **Comparing DB2 table edit with dataset edit.**

Starting a DB2 table edit or browse session

The **EDIT** and **BROWSE** primary commands with the DB2 subsystem parameter start a DB2 table edit or browse session. For example the command:

```
browse db2(cbla) sysibm.systables
```

will open a structured browse view and load all the rows of the table **SYSIBM.SYSTABLES** for subsystem **CBLA** into storage. A temporary structure will be generated using the DB2 catalog to define the columns and their data types.

These primary commands have many optional parameters and it is not, in general, practical to type the whole command you need on the command line. Alternative methods are:

- **The DB2 edit panel.** This is option 4 of the DB2 primary option menu. This panel will generate an EDIT command from fields entered on the panel and either execute it or place it in a dataset as a command to be executed by the **ACTION key**.
- **The DB2 browse panel.** This is option 5 of the DB2 primary option menu. This panel will generate a BROWSE command from fields entered on the panel and either execute it or place it in a dataset as a command to be executed by the **ACTION key**.
- **Using the ACTION key** to execute an edit or browse primary command stored in a text (command) file.

The **WHERE** and **ORDER BY** parameters of the edit or browse command are used to generate an **SQL SELECT** statement which is used to initially load the rows of the table.

How DB2 subsystem connections are managed

In order to access DB2 data SELCOPY/i must make a connection to a DB2 subsystem. The architecture of DB2 for z/OS is such that an operating system task can have at most one connection to DB2.

Since SELCOPY/i wants to support multiple concurrent edits of DB2 tables in multiple subsystems, it uses multiple connection subtasks so that each window accessing DB2 data can potentially have its own connection. SELCOPY/i uses these connection subtasks as follows:

- For browse and listing the DB2 catalog there is one task connecting to each active subsystem. This connection can be reused for any number of lists or browses. It is created when the first request to browse or list for a subsystem is processed and destroyed when the last such request terminates.
- For edit there is one dedicated connection task for each active session. This is required so that committing and rolling back changes to the data can be isolated from other edit sessions. This connection is created and destroyed with the edit session.

Limiting the number of rows loaded

SELCOPY/i support for DB2 edit and browse has two distinct methods for managing the loading of rows into virtual storage:

- Using a **non-scrollable** cursor. With this method all eligible rows are loaded into virtual storage at the start of the edit or browse session, so for large tables some method of restricting the eligible rows must be used.
- Using a **scrollable** cursor.

Non-scrollable cursors

With a non-scrollable cursor there are two methods of limiting the number of rows loaded which can be used separately or together:

1. Using the **FROM** and **FOR** parameters. For example:

```
browse db2(cbla) sysibm.systables from 21 for 100
```

will open a structured browse view and load 100 rows of the table **SYSIBM.SYSTABLES** starting at the 21st row.

2. Using the **WHERE** parameter which has a standard SQL **WHERE** clause in parentheses as an argument. For example:

```
browse db2(cbla) sysibm.systables where(createdby='NBJ')
```

will open a structured browse view and load all rows of the table **SYSIBM.SYSTABLES** for which the **CREATEDBY** column is equal to the string **'NBJ'**.

Note that the argument to the **WHERE** parameter can be given as **?** which will invoke the **DB2 row selection dialog** which can be used to generate a **WHERE** clause without having to type the column names. So for example:

```
browse db2(cbla) sysibm.systables where(?)
```

will first run the row selection dialog so that a **WHERE** clause can be generated to limit the rows loaded before starting the browse.

Scrollable cursors

The use of a scrollable cursor is triggered by the **SCROLL** keyword parameter of the **EDIT** or **BROWSE** command.

Note that the use of DB2 scrollable cursors may be disabled by the installer of SELCOPY/i. In order to use them the system INI file must contain the **DB2.SCROLL=YES** variable.

SELCOPY/i uses a scrollable **SENSITIVE STATIC** cursor for EDIT and a scrollable **INSENSITIVE** cursor for BROWSE. With either of these types of cursor the results table has a fixed size determined when the cursor is opened. The results table is materialised (a temporary copy is made) during open and this means that for large tables opening the cursor may take a long time and consume much resource.

Once the cursor has been opened the results table functions rather like a fixed sized VSAM RRDS. It contains a fixed number of rows each of which may be directly referenced by row number. The edit mode is update in place, so rows cannot be inserted or moved. Deletes are allowed, although the deleted row is not removed from the display, becoming instead a form of shadow line.

With this form of table browse and edit only a relatively small number of rows is kept in storage at any time. The fact that rows can be retrieved directly by row number means that direct access to the middle or end of the table is relatively fast because intermediate rows do not have to be read.

The size of the results table is not known until the last row has been read and the table size in the status bar is prefixed by a greater than sign to indicate this. Scrolling to the end of the table (with command **DOWN MAX** for example) will establish the actual table size.

As for **non-scrollable** cursors, a **WHERE** clause can be used to limit the size of the results table, but the **FOR** and **FROM** keywords cannot be used with the **SCROLL** keyword.

For browse the use of an **INSENSITIVE** cursor means that the results table does not change even if other processes are deleting or updating rows in the base table.

For edit the use of a **SENSITIVE STATIC** cursor means that when another process either deletes a row or updates a row so that it no longer satisfies the **WHERE** clause then such a row becomes a **cursor hole** and can no longer be fetched. Cursor holes are represented by a form of shadow line.

Scrollable cursor example

In the following example table **LAC.SELCTRN_TRACK** is being edited with a scrollable sensitive static cursor.

- **Edit(UP)** in the panel title bar indicates that the edit mode is **update in place** so that rows cannot be moved or inserted.
- **Top of >600** at the top right of the panel indicates that 600 rows of the table have been fetched but the end of the table has not yet been reached.
- Row 5 has been deleted (using the **D** prefix command) and the ***** Row has been marked for deletion ***** message indicates the change has not yet been saved.
- Row 10 has been deleted or updated by another process and having been re-fetched was found to be a **cursor hole** as indicated by the ***** Row is a delete or update hole ***** message.

The row was re-fetched because only a subset of table rows are kept in storage and the user has scrolled away from the top of the table and then scrolled back causing the first part of the table to have been removed from storage and then reloaded.

```

SELCOPY/i - DB2(CBLA): Edit(UP) table LAC.SELCTRN_TRACK in tablespace LAC.SELC
File Edit Actions Options Utilities Window SwapList Help  wS wR  Scroll> Csr
Command>
Table: LAC.SELCTRN_TRACK
      ALBUM_ID TRACK_NUM NAME
      #1      #2 #3
      SMINT    SMINT VARCHAR(120)
      <---+>  <---+>  <---+-----1-----2-----3-----4-----5-
00000000 *** Top of Data ***
00000001      10      1 Rolling In the Deep<
00000002      10      2 Rumour Has It<
00000003      10      3 Turning Tables<
00000004      10      4 Don't You Remember<
00000005 *** Row has been marked for deletion ***
00000006      10      6 He Won't Go<
00000007      10      7 Take It All<
00000008      10      8 I'll Be Waiting<
00000009      10      9 One and Only<
00000010 *** Row is a delete or update hole ***
00000011      10     13 Adele 21 - A Track By Track Interview<
00000012      20      1 Hold On<
00000013      20      2 I Found You<
Se | Line=0 | Col=1 | Alt=1,1;1 | Size>600 | Recl=382 | Fmt=V | Files=1 | Views

```

Figure 9. DB2: Scrollable cursor edit.

Defining a structure to use with DB2 tables

SELCOPY/i uses **Structure Definition Objects (SDOs)** to map the data displayed in structured data edit or browse windows. An SDO contains a description of the attributes of the data to be formatted when using structured edit or browse.

There is no need to predefine an SDO for use with DB2 table edit and browse. The DB2 catalog contains the names and attributes of the table columns and SELCOPY/i uses this information to automatically generate a temporary SDO if no predefined SDO is given as an argument of the **USING** parameter of the edit or browse command.

However if when you want to look at a particular table you often require the same **WHERE** clause, limiting the rows retrieved; the same **ORDER BY** clause, defining the order in which you want to view the rows; the same **SELECT** command syntax, defining a subset of columns you want to display in the initial view, and other concurrency, locking and commit options, you may want to use the **CREATE STRUCTURE** command to generate an SDO containing all these options and then just specify that SDO in your edit or browse command.

How DB2 rows are saved

When the **SAVE** command is issued (either explicitly or implicitly when closing the edit session) each row that has been deleted, inserted or updated since the last time that data was saved (or since the start of the edit session) is processed by generating and executing an appropriate dynamic SQL statement to achieve the required change.

If a non-zero SQLCODE is returned as a result of executing the generated statement, the SQL communication Area (SQLCA) describing the error condition is saved with the row.

When generating the SQL statement for delete or update the target row must be identified in some way.

If the table has a unique index or a **ROWID** column then these columns can be used to uniquely identify the target row and a searched update or delete can be used of the form:

```
UPDATE table-name SET ... WHERE search-condition
DELETE FROM table-name WHERE search-condition
```

where the **search-condition** is generated from the unique index or rowid.

If the table does not have a unique index or a **ROWID** column then there is no way of uniquely identifying the row to be deleted or updated. In this case all the columns of the target row are used to generate the **WHERE** clause of a **SELECT** statement. A cursor is defined by this statement, it is opened and the first row fetched is used as the target and a positioned update or delete is used of the form:

```
UPDATE table-name SET ... WHERE CURRENT OF cursor-name
DELETE FROM table-name WHERE CURRENT OF cursor-name
```

If a delete fails, then the row in error, which has already been removed from the displayed list of rows, must be re-inserted so that the problem can be analysed. Any such rows are re-inserted at the top of the current view.

Finally, depending on the setting of the **COMMIT** option, the changes may or may not be committed.

Dealing with save errors

Any non-zero SQLCODEs returned as a result of saving changes are stored with the affected row in a copy of the SQL communication Area (SQLCA).

In table view the SQLCODE is displayed in the prefix area or, if the **SET RECINFO ON SQLCODE** option is in effect, in the SQLCODE column of the record information area.

In single view the SQLCODE is displayed in its own field at the top of the view.

You can use the **E prefix command** on the row in error or the **ERROR primary command** when the **focus row** is the row in error to display detailed information about the SQLCODE in the **DB2 Save SQL Error Panel**.

Auditing edit sessions

You can keep a record of your DB2 table edit sessions by including the **AUDIT** parameter in your **EDIT** command.

With this option an audit log file is allocated and all the edit actions taken in the session are recorded.

From the **Audit Trail Functions** menu you can specify the characteristics of the audit datasets using the **Audit Log Dataset Options** panel, and print an audit log dataset using the **Print Audit Report** panel.

Editing or browsing related tables

SELCOPY/i has specific support for editing tables which have relationships defined by referential integrity (RI) constraints.

An RI constraint establishes a parent-dependent relationship between two tables by means of a foreign key. A foreign key is a set of columns in the dependent table which correspond to a unique key in the parent table.

When an RI constraint exists certain types of change to the tables involved are not permitted. Breaking these rules leads to an **RI error** of one of the following types:

- Missing parent key **SQLCODE -530**. This happens when an insert or update of a row in a dependent table has a foreign key which does not represent an existing row in the parent table. In other words you cannot make orphans by inserting or updating foreign keys in the dependent table.
- Parent key update error **SQLCODE -531**. This happens when an update of a row in a parent table changes a key which is a foreign key in a dependent table and has dependent rows in that table. In other words you cannot make orphans by changing parent keys.
- RI delete rule violation **SQLCODE -532**. When the RI constraint was defined with a delete rule of **RESTRICT** or **NO ACTION** this error will happen when deleting a row in the parent table which has dependent rows in the dependent table. In other words for this type of RI constraint deletes must be done from the bottom up.

The **RE** prefix command and **REDIT** primary command can be used in a number of ways with tables related by RI constraints:

- List all parent and dependent relationships for the current table.
- Edit or browse the parent row or dependent rows of the **focus row** for any RI constraint.
- After an RI error when saving changes, edit the parent row or dependent rows of the row which had the error.

Useful commands

Some commands are specifically for DB2 table edit. The following overview is not exhaustive but highlights some of the features:

Command	Description
E prefix command ERROR	Display a panel explaining the meaning of a non-zero SQLCODE returned by DB2 when saving changes.
INFORMATION	Generate and display an HTML format report of the attributes of the current edit or browse table. This report lists all the columns, indexes, constraints etc of the current table.
RE prefix command REDIT	List, edit or browse tables related to the current table by referential constraints.
SET/QUERY/EXTRACT COMMIT	Specify when saved changes to the table are committed.
SET/QUERY/EXTRACT EPK SET/QUERY/EXTRACT EDITPRIMEKEY	Specify whether the table prime key columns should be enterable or not.
SET/QUERY/EXTRACT NULLCHAR	Specify special characters which indicate whether a column has the null value (for output) or is to be set to the null value (on input).
SET/QUERY/EXTRACT NULLIFBLANK	Specify whether a column which is nullable is to be set to the null value if it is input as blank.
SET/QUERY/EXTRACT VENDCHAR	Specify special characters which indicate the end of variable length character data on input and output.
SET/QUERY/EXTRACT VSTRIP	Specify whether variable length character columns are to be stripped of trailing blanks.

Comparing DB2 table edit with dataset edit

A browse or edit session of a DB2 table looks very like that of an operating system dataset with table rows corresponding to dataset records. The edited data is manipulated in the same way and most of the edit commands such as **FIND** and **CHANGE** etc. work as expected.

However, because of the structural differences between DB2 maintained data and operating system datasets, some commands and options are not relevant and others only apply to DB2 data.

Some of the more obvious differences between editing DB2 tables and operating system datasets are summarised in the following table:

	DB2	VSAM Sequential PDS(E) HFS
I/O	I/O is column based using a dynamic SQL QUERY (SELECT statement) to fetch the data and dynamic SQL DELETE, INSERT and UPDATE statements to change the data.	I/O is record or byte stream based using operating system access methods.
Data map	There is always an implicit structure mapping the data defined by the selected columns and the DB2 catalog. The unmapped FORMAT CHARACTER is not relevant and not supported.	Any data mapping structure has to be explicitly defined (for example using COBOL or PL/1 copybooks) and explicitly applied to the dataset. Datasets may be edited or browsed in FORMAT CHARACTER with no mapping structure applied.
Record type	There is always exactly one record type defined by the selected columns.	A dataset may have many record types.
Group fields	There is only one level of data. There are no group fields.	The structure applied to the dataset may have many levels of group field.
Row order	DB2 tables are conceptually sets with no inherent row order. Order is imposed only at QUERY time with the ORDER BY clause of the SELECT statement.	Datasets have an inherent record order defined by the access method.
Saving changes	The SAVE command deals with each deleted, inserted or updated row by constructing and executing a dynamic SQL statement for the change to that row. Individual SQLCODEs are saved for each row and are visible when the command completes either in the row prefix area or, if the option RECINFO ON SQLCODE is in effect, in the record information SQL code area.	The SAVE command stops at the first error.
Commit and roll back	Changes made to DB2 data with the SAVE command must be committed before they become permanent changes to the database. When this happens is controlled by the COMMIT option. The CANCEL command may be used to roll back any changes to the previous commit point and end the edit session.	Changes made to a dataset with the SAVE command are permanent. Datasets have no built in capability for committing or rolling back changes.

DB2 Table Display

Differences between the SDE window display of structured data set records and that of DB2 tables, are detailed below.

Header Lines

The Record Type header line displays the table name.

The **Field Type** header line displays the the DB2 built-in data type as specified in the results table column definition. i.e. no field position is displayed and any applicable field length or field precision and scale are represented in "()" (parentheses).

See "*SDE Data Types*" for descriptions of each of the supported data types and their representation in the Field Type header line.

Window View Format

DB2 table SDE views support **multi record** and **single record** views as displayed for parameters TABLE and SINGLE of the **FORMAT** command. Display of table data in unformatted character or hex (FORMAT CHAR/HEX) is not supported. However, **HEX ON/OFF** may be used to display, not only the interpreted printable character representation of the formatted field, but also its content in hexadecimal.

Record Information Columns

Record information (**RECINFO**) field ID is not applicable to DB2 table rows and so is always suppressed. However, record information field **SQLCODE** may be displayed to report the last SQL code received following an SQL INSERT, DELETE or UPDATE performed on the table row as a result of a SAVE operation.

In single view for edit only, there is a separate SQLCODE field in which is displayed any non-zero SQL code returned by the last save command.

DB2 Column Attributes

Single record view of a table row includes an additional column within the display which flags attributes defined to the individual table columns. These column attributes are obtained from the DB2 catalog table SYSIBM.SYSCOLUMNS and flags whether a column is part of the primary key, a unique key, foreign key, a duplicate key index, has a check constraint, a default value and/or supports a null value.

Display of the column attributes information may be suppressed using the **COLATTRIBUTES ON/OFF** option.

Variable Length Fields

Data in variable length character fields (VARCHAR) that is not of the maximum length is suffixed with a "<" (less than) character. The "<" itself does not form part of the data but is displayed to indicate that the character to the left is the last character of the field data. This indication is particularly necessary where the variable length field contains trailing blank characters which are to be preserved.

In editing the field data the "<" indicator may be overtyped or shifted right as appropriate. If overtyped or deleted, and the field data is not of the maximum length, then SELCOPY/i will reinsert the "<" indicator following the last **non-blank** character. (i.e. any trailing blanks will not be preserved.)

The "<" indicator may also be manually deleted and re-entered in blank data following the last non-blank character of the field. This technique may be used to insert trailing blanks in the field. Beware that, when using this technique, if the original "<" indicator is not deleted first then it will become part of the field data.

Pop-up Utility Menu

Pressing <F16> in an SDE DB2 table edit view now opens the **DB2 Browse/Edit Utilities Menu** for DB2 specific table editing options instead of the **SDE Browse/Edit Utilities Menu** for structured file editing options.

Segmented Records

Records may be organised in such a way that they are split into a number of record segments, each segment being mapped by a unique structure (COBOL group or PL1 major/minor structure).

Segmented records begin with a single primary (base) segment immediately followed by any number of non-overlapping, secondary segments. A secondary segment may have the same or different segment record-type (RTO) mapping as other secondary segments in the record.

```
Record: 1
+-----+-----+-----+-----+-----+
| Primary_1 | Secondary_1 | Secondary_1 | Secondary_1 | Secondary_1 |
+-----+-----+-----+-----+-----+

Record: 2
+-----+-----+-----+-----+
| Primary_1 | Secondary_1 | Secondary_2 | Secondary_2 |
+-----+-----+-----+-----+

Record: 3
+-----+-----+-----+-----+
| Primary_2 | Secondary_1 | Secondary_4 |
+-----+-----+-----+-----+

Record: 4
+-----+-----+-----+-----+
| Primary_1 | Secondary_1 | Secondary_2 | Secondary_3 |
+-----+-----+-----+-----+
```

The record data must contain ID fields that identify which segment mapping is to be used to format individual segments of the record.

ID fields that identify a primary segment mapping must exist within the primary segment data. ID fields that identify a secondary segment mapping may exist within the secondary segment data, within the data of any previously mapped segment belonging to the same record, or, specifically, within the primary segment data.

Structure Definition and Record-Type Assignment

A SELCOPY/i SDE structure may be created using the **CREATE STRUCTURE** command or **Create Structure (SDO) Menu** panels (=9) to format segmented records so that a record type (RTO) mapping definition exists for each record segment in the file.

Each RTO is defined as being either a primary (PRI) or secondary (SEC) segment map, or the default (primary) segment map (DEF). Except for the default segment RTO, which must **not** be defined with segment identification criteria, all primary and secondary segment RTOs must be defined with (USE WHEN) segment identification criteria.

A primary segment RTO is assigned to primary (base) segment of the record. However, if ID fields do not satisfy the segment identification criteria for any of the primary segment RTOs, the default segment RTO is used. See "*Record Type Assignment*" which defines the precedence for assigning primary segment RTOs.

Unprocessed record data that follows the primary segment is assigned a secondary segment RTO based on associated identification criteria. The assignment of secondary segment RTOs is repeated for all remaining record data until the end of record is reached or the remaining data does not satisfy any segment identification criteria belonging to the secondary segment RTOs. In the latter case, the remaining record data is displayed as unformatted character data with the record type "UnmappedSeg".

Specifying USE WHEN Segment Identification Criteria

USE WHEN segment identification criteria is mandatory for non-default primary and secondary segment RTO definitions.

Segment identification criteria associated with each RTO definition is based on an SDE **expression**. This identifies all ID fields within the record data and also values against which those ID fields will be tested in order to determine whether the RTO segment mapping is suitable to be assigned to an individual record segment.

Within any RTO segment mapping USE WHEN expression, ID fields may be referenced using the following methods:

Unformatted data position and length

Built-in function **SEGPOS()** may be used in the USE WHEN *expression* record type identification criteria to reference a data field in the current segment or the segment immediately preceding the current segment. Similarly, **BASPOS()** may be used to reference a data field in the primary (base) segment only.

e.g. The following identification criterion is based on an ID field of length 3 characters located 10 bytes before the end of the segment immediately preceding the current segment:

```
USE WHEN SegPos(-10,3) = C'X12'
```

If the ID field is a Packed Decimal value then **LEFTDEC()** may be used to obtain the numeric value with or without a scale. e.g. The following ID field is a packed decimal field located at position 12 of the primary segment:

```
USE WHEN LeftDec(BasPos(12)) > 31
```

Formatted data field

A formatted ID field references a field in the current segment or within a previous segment of a specific structure (record type) name. If referencing a field in a previous segment, the record type name which maps that segment must be specified as a high level qualifier to the field name (i.e. *record-type.field_name*). If more than one preceding segment is mapped using *record-type*, then the one closest to the current segment is tested.

Because formatted fields have a specific data type, the USE WHEN expression may involve operators and terms based on the data type of the ID field. e.g. The following identification criterion is based on a floating point ID field XVAL in a preceding segment of record type MAPBASE1:

```
USE WHEN MAPBASE1.XVAL > 27.83
```

Segmented Records SDE Browse/Edit View

As for display of non-segmented records, files containing segmented records may be displayed in **multi-record** (FORMAT TABLE/CHAR/HEX) or **single-record** (FORMAT SINGLE) view.

Primary commands **CHAR**, **MAP** (FMT), **VFMT** and **UNFMT** are supported to display the current segment in multi-record unformatted character view, single-record formatted view, multi-record formatted view and single-record unformatted character view respectively.

Data in record segments is displayed in exactly the same way as non-segmented records. Prefix area, record type headers and record information is also displayed as for non-segmented records with the following exceptions:

1. Segmented record header display differs from that of non-segmented records only in that, instead of "**Record Type:**", header line 1 of each group of matching segment types displays either "**Base:**", for primary segments; "**Base(D):**", for default primary segments; or "**Segment:**", for secondary segments.

In order to easily distinguish between primary and secondary segments, the header line 1 of secondary segments is coloured yellow by default. See SET/QUERY/EXTRACT option **COLOUR** (or COLOR) SEGMENT.

2. For secondary segments only, the record information id column, displayed using the SET/QUERY/EXTRACT option **RECINFO**, displays the offset into the record of the start of the segment.

Primary segments display the TTR/Offset or RBA value of the start of the record as for non-segmented records.

- Prefix area numbers in a multi-record view correspond to either record or segment numbers in the file as determined by the SET PREFIX option. In single-record view, PREFIX PHYSICAL will display the record number and the current segment number within the record, whereas PREFIX LOGICAL displays only the current record segment number within the file.

Using command LOCATE to navigate the file data, is sensitive to the current setting (PHYSICAL or LOGICAL) of the PREFIX option. Therefore, if PREFIX LOGICAL is in effect, "LOCATE 35" will scroll to the 35th (primary or secondary) segment within the file, **not** the 35th record, of the file.

Navigating Segmented Record Display

In both multi-record and single-record views, the display of segments may be navigated using standard SDE CLI (primary) commands **FIND**, **LOCATE**, **UP**, **DOWN**, **LEFT**, **RIGHT**, **TOP**, **BOTTOM**, **NEXT** and **PREV**.

Note that, in single-record view, LEFT and RIGHT will scroll backwards and forwards respectively through every segment in the file regardless of the type of segment (primary or secondary) or record to which a segment belongs.

Commands NEXT and PREV may be used to restrict scrolling to only secondary segments belonging to the current record. This is the NEXT and PREV default, however, parameters are supported to scroll to the next and previous primary or unmapped (UnmappedSeg) segments.

Segmented Record Edit

SELCOPY/i SDE segmented record edit is supported for all file organisations other than VSAM KSDS.

Full Edit, Auxiliary Edit and Update-in-Place Edit **SDE edit techniques** are all supported for segmented record edit.

Data Updates that affect Record Segment Mapping

The RTO mapping assigned to a segment is determined by values in ID fields which may occur in the same segment or within the primary and/or previous secondary segments. Therefore, any change to a segment may affect the RTO mapping identification criteria for that segment or any subsequent segment in the record.

SELCOPY/i SDE is able to detect changes to ID fields which have been identified via a USE WHEN expression that includes only fields referenced explicitly by name or field reference number. Changes to ID field name "Unmapped" (reference number #1) are detected only when record-type formatting is disabled. Where an ID field change is detected, or where the length of the segment data is altered via CHANGE or RECLLEN updates, the ID flag is set on for the changed segment.

The ID flag, represented by "m" in the record information flag display and ==ID> in multi-record view prefix area, is an indication that the record to which this segment belongs may require a remap (re-assignment of segment RTOs) based on new ID field values. This flag may be ignored but may be of importance if the user wants to first verify that integrity between the required segment mapping and its identification criteria is maintained prior to saving the data and ending the edit session.

Remap of a record and reset of the ID flag is achieved using the primary command **IDENTIFY**, or prefix (line) commands **ID<n>** or **IDD**. Note that the remap is **not** performed automatically in order to allow the user the opportunity to make further changes to the data before executing IDENTIFY. Note that, if ID field values do not satisfy any secondary segment mapping identification criteria, the remainder of that record is displayed as unformatted data (UnmappedSeg).

Remap of a record may also be required where an update has occurred for an ID field identified in a USE WHEN expression by its unformatted record position and length, or when segments have been inserted, deleted, duplicated, copied or moved. For this reason, the default action of the IDENTIFY command is to not only remap records containing segments with the ID flag, but also records flagged as having changed segments. (See option **IDSCOPE** to force IDENTIFY to remap **only** those records containing a segment with ID flag set on).

Full Edit Functionality

Update-in-place edit only supports changing data in existing segments without changing the the length of a segment. In contrast, **full function** edit supports changing data, changing the length of a segment and also the addition and removal of record segments.

When segments are displayed in multi-record view, individual segments (or blocks of consecutive segments) may be replicated, deleted, inserted, moved or copied using standard SDE edit primary and line commands.

In single record view, segments may only be deleted, duplicated or inserted using primary commands **DELETE**, **DUPLICATE** and **INSERT** respectively.

Edit actions that affect the location of a primary segment within the file directly affects the location of the record to which it belongs. In contrast, secondary segments may be deleted, moved, copied, duplicated and inserted without affecting the location of a record within the file. For secondary segments, these edit operations may only increase or decrease the length of existing records.

Record Truncation

Beware that full edit operations involving primary segments can potentially split and join together records in the file.

If as a result of adding secondary segments to a record, the length of that record exceeds the maximum defined logical record length of the file (LRECL), then remapping the record or executing a save operation will truncate the excess data. For variable record format files, if data at the end of the truncated record represents an incomplete record segment map, then that data is also truncated.

Following an execution of IDENTIFY in which record truncation occurs, the truncated segments are removed from the display, the truncation error flag (=TRNC>) is set on in the primary segment of each truncated record and the following message is returned:

```
ZZSD447I IDENTIFY process caused 1 physical records to be truncated
```

The **UNDO** command may be executed to undo the remap and recover the truncated segments. The user may then correct the cause of the truncation.

Following execution of SAVE, FILE or END in which record truncation occurs, the truncated segments are **not** removed from the display, the truncation error flag (=TRNC>) is set on in the primary segment of every truncated record and the following message is returned:

```
ZZSD406E The physical record associated with a base segment is too long
(greater than nnn). Truncated to length mmm.
```

Where *nnn* is the maximum allowable record length and *mmm* is the length at which the record was truncated. If truncation occurs on execution of FILE or END, the close of the SDE edit view is temporarily disabled in order to allow the user the opportunity to correct the truncation error.

Although the file has been saved to disk with truncated records, the in-storage copy of the records remains unchanged. Therefore, the user may correct and re-save the file data before closing the edit view.

Full Edit Operations

The effects of full edit operations that add, remove and/or reposition record segments are summarised below:

DELETE

Delete individual segments using command DELETE or prefix (line) command **D<n>** (where *n* is the number of segments to be deleted). Alternatively, delete a block of segments using prefix command **DD** on the first and last segments to be deleted.

On deleting a primary (base) segment, the record to which the primary segment belongs is deleted and its secondary segments are appended to segments belonging to the previous record.

Deleting a secondary segment simply removes that segment from the record, hence reducing the record length. All subsequent segments in the record are shifted left to fill the gap left by the deleted segment.

INSERT

Insert individual segments following the focus segment using command INSERT or prefix (line) command **I<n>** (where *n* is the number of segments of the focus segment type to be inserted).

Inserting a new primary segment inserts a new record in the file. If the inserted primary segment is inserted before a secondary segment (i.e. in the middle of an existing record), then the existing record is split so that all secondary segments following the inserted primary segment now belong to the new record.

Inserting a new secondary segment simply adds the segment to the focus record.

COPY and DUPLICATE

Copy individual segments using prefix (line) command **C<n>** (where *n* is the number of segments to be copied). Alternatively, copy a block of segments using prefix command **CC** on the first and last segments to be copied. Prefix commands **A** or **B** must be used to specify whether segments are to be copied After or Before the selected segment.

Duplicate a segment using command DUPLICATE or prefix (line) command **R<n>** (where *n* is the number times the segment is to be duplicated). Alternatively, duplicate a block of segments using prefix command **RR<n>** on the first and last segments to be duplicated.

The effect of a copy or duplicate operation on existing primary and secondary segments is the same as for insert.

MOVE

Move individual segments using prefix (line) command **M<n>** (where *n* is the number of segments to be moved). Alternatively, move a block of segments using prefix command **MM** on the first and last segments to be moved. Prefix commands **A** or **B** must be used to specify whether segments are to be moved After or Before the selected segment.

The effect of a move operation on existing primary and secondary segments located at the destination of the move is the same as for insert.

The effect of a move operation on primary and secondary segments immediately preceding and following the original location of the moved segments is the same as for delete.

Expressions

A selection of SDE commands support an expression as parameter input. e.g. The Edit and Browse **FILTER** parameter, **LOCATE**, **WHERE** and **USE**.

An expression consists of one or more terms (literal strings, numerical values, field values, function calls or sub-expressions) and zero or more operators. e.g.

```
term1
term1 operator1 term2 operator2 term3
operator1 term1
```

An expression is evaluated from left to right with modifications imposed by the presence of sub-expressions and the defined precedence of operators. Each term within an expression is evaluated as appropriate.

The result of an expression evaluation is either a numerical value or a character string. If numerical, then the result is considered to have a Boolean value whereby a zero (0) result has the value "false" and any non-zero result has the value "true".

Expression Terms

Individual terms within an expression are evaluated as they are encountered parsing from left to right. Following evaluation of a term, the resultant value is assigned a data type which is stored internally by the program.

A user need not know the internal data type of an evaluated term, simply that it is either character or numerical. For details on specific data types used by SDE, see [SDE Data Types](#).

A term may be one of the following:

Literal string

A literal string stored internally as a character data type and is represented as a delimited string, character string or a hexadecimal string. A literal string may be null (length zero). e.g. C".

Delimited string

A string of character text, possibly including blanks and special characters, enclosed in quotation marks (") or apostrophes ('). Alphabetic characters in a delimited string are treated as being both upper and lower case. Therefore, the following are considered equal:

```
'TERM XX' = 'term xx' = 'Term xx' = "tErM Xx"
```

Delimited strings may contain quotation marks or apostrophes that are to be interpreted as string data but are the same as the delimiting characters. To achieve this, each string data character that matches the delimiting characters must be escaped using the escape character. The escape character is the same as the string delimiter. e.g.

```
'He said "It''s my brother''s car."'
```

Character string

A string of character text in quotation marks (") or apostrophes (') and prefixed with "C" or "c". The case of alphabetic characters in a delimited string are respected. e.g. C'TERMXX' is not equal to C'Termxx'.

Escaped quotation mark or apostrophe characters that match the delimiting character are supported as for delimited strings.

Hexadecimal string

A string of even length consisting of valid hexadecimal characters (0-9, A-F, a-f) in quotation marks (") or apostrophes (') and prefixed with "X" or "x". e.g. X'E3859994F1' is equal to EBCDIC C'Term1'.

Numerical value

A numeric value is an unquoted signed integer or rational number. The decimal point in a rational number is represented by a period (.) and non-significant zeroes are also permitted. The sign of a numerical value is represented by one of the prefix operators, unary plus or unary minus. e.g. 12, +19, +0027.00, 67.353, -0.30

A numerical value is assigned a specific numeric data type based on its value. This data type may be converted during the evaluation of the expression in order to satisfy arithmetic and relational operations.

Field value

A field value is either a hash (#) prefixed number or an unquoted character string that matches a formatted field column reference number or field column name belonging to the named (or focus) record type.

A field name may be fully qualified, partially qualified or unqualified. An unqualified field name is simply the field's designated name (e.g. ADDR), a partially qualified field name includes the names of any nested groups in which the field is defined (e.g. MAST.ADDR or INVOICE.ADDR) and a fully qualified field name includes the record type name (e.g. LOCATION-REC.MAST.ADDR).

Note that the default qualifier separator character is "." (dot) but may be altered using the **QSEPARATOR** option. Furthermore, if the **ABBREVIATION** option is set on, then any group or field item designator within the file name may be abbreviated, starting with the first letter of the designator, to a length that identifies it as a unique group name or field item.

The data type of the field value matches that of the field being referenced so that a field which is of numerical data type will evaluate to be a numerical value and a field which is of character data type will evaluate to be a literal string with character case preserved.

A field column reference/name may be immediately followed by a subscript in a left and right parenthesis. This references the value of an individual entry within a field array. If the field array contains multiple dimensions, then a subscript must exist for each dimension of the array in order to identify a single field value. e.g. #12(5), RoomSize(6,2,4).

The nominated field is evaluated to be that field's value within the next data record assigned the identified record type. The data type assigned to the evaluated value is that of the nominated field.

If record data is unformatted, the record data belongs to a single field of field name "UnMapped" or, for unformatted record segments, "UnMappedSeg" and field reference number #1.

To reference record data in its unformatted state (whether or not a record type mapping is assigned), the built-in function **RECORD()** may be used.

Condition-name VALUE clause

A condition-name VALUE clause is an unquoted character string that matches the name of a COBOL level-88 data item defined in the named (or focus) record type.

This type of expression term applies only to SELCOPY/i SDO structures that have been generated from a COBOL copy book that contains condition-name values. (See "*Enterprise COBOL for z/OS V4.2 Language Reference*" description of the "VALUE clause - Format 2".)

The level-88 condition-name VALUE clause associates a condition-name with an associated value or range of values that may be assigned to the conditional variable that precedes it. i.e. It identifies potential values for the data mapped by the conditional variable field name.

Specification of a condition-name VALUE clause within an expression tests the associated field entry for the value or range of values associated with the clause. Therefore, no expression operator should follow the condition-name VALUE clause name. e.g. A COBOL copy book, processed by SELCOPY/i to format data, may contain the following:

```
03 RECORD-TYP
 05 RT                PIC X(001).
   88 RT-ARTIST        VALUE '1'.
   88 RT-ALBUM         VALUE '2'.
   88 RT-TRACK         VALUE '3'.
   88 RT-ANY           VALUE '1' THRU '3'.
   88 RT-NONE          VALUE '4' THRU '9'.
```

Data formatted using this copy book may then use the condition names specified by the 88 levels to test the contents of the preceding, lower level RT field. e.g. To display only records which have RT = '2', the following primary command may be used:

```
WHERE RT-ALBUM
```

Function Call

A function call is a call to one of SELCOPY/i's internal routines which return a single result string or numerical value. The function name is an unquoted character string immediately followed by zero or more, comma separated function arguments bracketed by a left and right parenthesis.

The data type of the value returned from a function call will be that defined by the function. See [Function Calls](#) for all available functions supported by the SELCOPY/i SDE environment and their return values.

Sub-expression

A sub-expression is any expression which is bracketed by a left and right parenthesis.

Keyword Value

Applicable to [DB2 table display](#) only, the keyword **NULL** may be used as the term of an expression to represent the null value. NULL is used to test a table column which has been defined with a null indicator.

Expression Operators

An operator may act on the pair of terms between which it is positioned or, in the case of unary plus, minus and logical NOT which are prefix operators, act on the single term immediately to the right of the operator.

Operators may be divided into the following 3 categories: [Arithmetic](#), [Relational](#) and [Logical](#).

Arithmetic Operators

Multiple numerical values, numerical field values and function calls that yield a numerical value, may be combined using arithmetic operators so resulting in another numerical value when evaluated.

The data type of an evaluated term acted upon by the arithmetic operator, must be numerical otherwise error ZZSD068E is returned.

In order to perform the arithmetic operation, the numerical data type one of the terms involved may be temporarily converted to match the data type of the other term so as to preserve numerical precision and scale. This numerical data type is then assigned to the resultant value.

Supported arithmetic operators are:

Operator	Description
+	Add.
-	Subtract.
Prefix +	Unary plus. Equivalent to: "0+number".
Prefix -	Unary minus. Equivalent to: "0-number".

Relational Operators

The value returned on evaluating a relational operator is either "1" if the result is "true", or "0" if the value is "false".

If the terms acted upon by a relational operator are numerical, then the comparison will be arithmetic and signed. In this case the numerical data type of one or both of the terms may be temporarily converted before performing the evaluation.

If one of the terms has a character data type, then the comparison will be logical so that a simple character-by-character compare occurs. Except for relational operators ">>", "<<", "\>>" and "\<<", the shorter string is padded on the right with blanks.

Supported relational operators are:

Operator	Description
=	Equal.
\= ≠ != <> NOT=	Not equal, less than or greater than.
>	Greater than.
\> ¬> !> <=	Not greater than, less than or equal.
<	Less than.
\< ¬< !< >=	Not less than, greater than or equal.
>>	Beginning. (For logical compare only.)
\>> ¬>> !>>	Not beginning. (For logical compare only.)
<<	Contains. (For logical compare only.)
\<< ¬<< !<<	Does not contain. (For logical compare only.)

Logical Operators

Logical operators are Boolean and so, like relational operators, return a value of "1" for "true" and "0" for "false".

The terms acted upon by a logical operator must evaluate to numerical values otherwise error ZZSD068E is returned. Any non-zero value is treated as being "1", true.

Supported logical operators are:

Operator	Description
& AND	And. Returns 1 if both terms are true.
OR	Inclusive Or. Returns 1 if either term is true.
Prefix ¬ Prefix \ Prefix NOT	Logical Not. Negates the term so that 0 is returned if the term is true, 1 if the term is false.

Parentheses and Operator Precedence

An expression and individual terms within an expression are evaluated from left to right. However, the order in which operators are actioned depends on their precedence and the presence of parentheses.

An operator with a higher precedence will be actioned before operators with a lower precedence. This process is repeated until the entire expression is evaluated. e.g. In the following expression, where operator2 has a higher precedence than operator1:

```
term1 operator1 term2 operator2 term3
```

The sub-expression (term2 operator2 term3) will be evaluated first.

When parentheses are encountered, the entire sub-expression between the parentheses is evaluated immediately when the term is required. In this way parentheses may be used to force the action of an operator with a lower precedence before that with a higher precedence. e.g. Logical Not has a higher precedence than logical And, therefore ¬1&0 evaluates to 0, however ¬(1&0) evaluates to 1.

The order of operator precedence is as follows (highest at the top):

Prefix operators	Prefix ¬ Prefix + Prefix -
Arithmetic operators Add and Subtract	+ -
Relational operators	= \= > < >= <= << \<< >> \>>
Logical operator And	&
Logical operator Or	

Function Calls

Functions are internal routines that return a single result string or value, and may be included as a term within an expression.

A function call is referenced by the name of the function immediately followed by zero or more, comma separated argument expressions enclosed in parentheses. Each argument expression may itself contain function calls.

If the function has zero arguments, then the parentheses may be omitted. e.g. function call LRECL() may be expressed simply as LRECL. However, specification of parentheses will distinguish the function from a non-subscripted record field with the same name. If such a field exists in the focus record type and no parentheses are specified following the function name, then the field name is used for evaluation.

Note that, when parentheses are specified, there can be no intervening blanks between the function name and the opening parenthesis.

Subscripted Field Name Conflict

Subscripted field names are used to reference array elements within a field belonging to the focus record type. e.g. RoomDimensions(5,1,2)

Because function calls are expressed in the same way as subscripted fields, a conflict may arise when attempting to reference a function call which has the same name as a field containing array elements.

If the function name matches the name of a subscripted field, then the function is not called and the field is evaluated instead. To force use of the function name, the function's internal name should be used. This is the name of the function prefixed with "BIF". e.g. The internal name of the FIND() function is BIFFIND().

ABBREV()

```
>>-- ABBREV( --- string1 -- , --- string2 -----+----- ) -----><
                                     |               |
                                     +-- , -- length ---+
```

ABBREV() or BIFABBREV() returns "1" if *string2* is equal to the leading characters of *string1* and *string2* has a length that is greater than or equal to *length*, otherwise "0" is returned.

If not specified, *length* defaults to the length of *string2*.

Note that the data type of both *string1* and *string2* must be character and the data type of *length* must be positive integer otherwise ZZSD386E is returned.

Examples:

```
ABBREV('input','inp')      = 1
ABBREV(c'input','inp')     = 0
ABBREV('input','inp',4)    = 1
ABBREV('input','inp',2)    = 0
ABBREV('input','int')      = 0
```

BASPOS()

```
>>-- BASPOS( --- start -+-----+ ) -----><
                       |               |
                       +- , --- length ----+
```

BASPOS() or BIFBASPOS() returns a character string which is a sub-string of the current record's primary (base) segment starting at position *start* for length *length*. If the current structure is not segmented, then the current record is used as the primary segment.

BASPOS() is primarily used for mapping **segmented records** where a record-type definition (RTO) is assigned to secondary segments based on field values in the primary segment.

If *start* is greater than the length of the primary segment, then a blank character string is returned. If *length* is greater than the length of the primary segment, the returned character string will include data from the start of the segment that follows the primary

segment.

If not specified, *length* defaults to be the length of the primary segment from position *start* to the end of the primary segment.

Note that the data type of the primary segment is character and *start* and *length* must be positive integer values otherwise ZZSD386E is returned.

Examples:

In the following, the primary segment contains a 2 character country code `c'UK'` at position 15.

```
BASPOS (15, 2)           =  'UK'
```

CHANGED()

```
>>-- CHANGED () -----><
```

CHANGED() or BIFCHANGED() has no arguments. It returns "1" if the focus record, segment or DB2 table row has been changed in the current edit session and "0" otherwise.

Because CHANGED() has no arguments, it may be expressed simply as CHANGED.

CHANGEERROR()

```
>>-- CHANGEERROR () -----><
```

CHANGEERROR() or BIFCHANGEERROR() has no arguments. It returns "1" if a **CHANGE** command error (**==ERR>**) has been flagged on the focus record, segment or DB2 table row in the current edit session and "0" otherwise.

Because CHANGEERROR() has no arguments, it may be expressed simply as CHANGEERROR.

CHANGEOK()

```
>>-- CHANGEOK () -----><
```

CHANGEOK() or BIFCHANGEOK() has no arguments. It returns "1" if a **CHANGE** command executed successfully (**==CHG>**) on the focus record, segment or DB2 table row in the current edit session and "0" otherwise.

Because CHANGEOK() has no arguments, it may be expressed simply as CHANGEOK.

DATATYPEERROR()

```
>>-- DATATYPEERROR () -----><
```

DATATYPEERROR() or BIFDATATYPEERROR() has no arguments. It returns "1" if the focus record or segment is assigned a non-default record type and one or more of its fields contains data invalid for the field's data type (e.g. invalid packed decimal data in a DECIMAL field) and "0" otherwise.

Because DATATYPEERROR() has no arguments, it may be expressed simply as DATATYPEERROR.

DUPLICATEKEY()

```
>>-- DUPLICATEKEY ( ) -----><
```

DUPLICATEKEY() or BIFDUPLICATEKEY() has no arguments. It applies to KSDS edit mode only and returns "1" when either of the following is true, otherwise "0" is returned:

1. Following a SAVE operation, the focus record was flagged as having a duplicate key with another record which has been changed or inserted in the current edit session (=DUPE>).
2. Following a SAVE operation, the focus record was flagged as having a duplicate key with another unchanged record within the file (=DUPF>).

Because DUPLICATEKEY() has no arguments, it may be expressed simply as DUPLICATEKEY.

EMPTY SLOT()

```
>>-- EMPTY SLOT ( ) -----><
```

EMPTY SLOT() or BIFEMPTY SLOT() has no arguments. It applies to edit of VSAM RRDS and VRDS only and returns "1" if, on load, the focus record was flagged as being an empty slot and "0" otherwise.

Because EMPTY SLOT() has no arguments, it may be expressed simply as EMPTY SLOT.

EXCLUDED()

```
>>-- EXCLUDED ( ) -----><
```

EXCLUDED() or BIFEXCLUDED() has no arguments. It returns "1" if the focus record, segment or DB2 table row belongs to a group of one or more excluded lines in the current edit session and "0" otherwise.

Because EXCLUDED() has no arguments, it may be expressed simply as EXCLUDED.

FIND()

```
>>-- FIND( -- find_syntax ----- ) -----><
```

FIND() or BIFFIND() supports a single argument *find_syntax* which is a literal or character string comprising a structured data edit **FIND** command parameter string. Note that the parameter string will be upper cased unless specified as a character string (i.e. specified in quotation marks (") or apostrophes (')) and prefixed with "c" or "C".

If successful, FIND() returns the position of the found string within the first data field that contains a match for the search string, otherwise zero is returned. If no structure is applied to the data, this position will be a position in the unexpanded record.

If the search string is a numerical value which is found in a field of numerical data type, then the returned value is "1".

Examples:

```
FIND( c" c'Needle' 21 50 " )
FIND( " 'hit' last prefix (#2:#4) " )
FIND( " 22 (#8,#12)" )
```

HASPOINT()

```
>>-- HASPOINT ( ) -----><
```

HASPOINT() or BIFHASPOINT() has no arguments. It returns "1" if the focus record, segment or DB2 table row has an active SET POINT label name and "0" otherwise.

Because HASPOINT() has no arguments, it may be expressed simply as HASPOINT.

HASPREFIXCMD()

```
>>-- HASPREFIXCMD ( ) -----><
```

HASPREFIXCMD() or BIFHASPREFIXCMD() has no arguments. It returns "1" if the focus record, segment or DB2 table row has a prefix command pending on the line and "0" otherwise.

Because HASPREFIXCMD() has no arguments, it may be expressed simply as HASPREFIXCMD.

IDREQUIRED()

```
>>-- IDREQUIRED ( ) -----><
```

IDREQUIRED() or BIFIDREQUIRED() has no arguments. It returns "1" if an ID field (identified by USE WHEN criteria) belonging to the focus record or segment, has been changed and so flagged as possibly requiring execution of the IDENTIFY command (==ID>) to remap the record. Otherwise "0" is returned.

Because IDREQUIRED() has no arguments, it may be expressed simply as IDREQUIRED.

INSERTED()

```
>>-- INSERTED ( ) -----><
```

INSERTED() or BIFINSERTED() has no arguments. It returns "1" if the focus record, segment or DB2 table row has been inserted in the current edit session and "0" otherwise.

Because INSERTED() has no arguments, it may be expressed simply as INSERTED.

KEYCHANGED()

```
>>-- KEYCHANGED ( ) -----><
```

KEYCHANGED() or BIFKEYCHANGED() has no arguments. It applies to KSDS edit mode only and returns "1" if the focus record is flagged as having had a change to its key during the current edit session and "0" otherwise.

Because KEYCHANGED() has no arguments, it may be expressed simply as KEYCHANGED.

LASTPOS()

```
>>-- LASTPOS( --- string1 -- , --- string2 ---+-----+--- ) -----><
                |                                     |
                +--- , -- start ----+
```

LASTPOS() or BIFLASTPOS() returns the position of the last occurrence of *string1* in *string2* starting the backwards search from position *start* in *string2*. A search is successful only if *string1* exists entirely between position 1 of *string2* and the *start* position. If *string1* is not found, "0" is returned.

If not specified or a value greater than the length of *string2*, *start* defaults to be the last position (i.e. length) of *string2*.

Note that the data type of both *string1* and *string2* must be character and the data type of *start* must be a positive integer otherwise ZZSD386E is returned.

Examples:

In the following, field name SourceText exists in the focus record type and contains character data c'To be or not to be'.

```
LASTPOS('be',SourceText)      = 0
LASTPOS(c'be',SourceText)    = 17
LASTPOS(c'be',SourceText,17) = 4
```

LEFT()

```
>>-- LEFT( --- string -- , --- length ---+-----+--- ) -----><
                |                                     |
                +--- , -- pad ----+
```

LEFT() or BIFLEFT() returns a character string equal to the left-most *length* characters of *string*. If *length* is greater than the length of *string*, the returned character string is padded on the right with the *pad* character.

If not specified, *pad* defaults to be character blank.

Note that the data type of *string1* must be character, *length* must be a positive integer and *pad* must be a character string of length 1 otherwise ZZSD386E is returned.

Examples:

```
LEFT('Hello World',5)        = 'HELLO'
LEFT(c'Hello World',15)     = 'Hello World  '
LEFT(c'Hello World',13,'#') = 'Hello World##'
```

LENGTH()

```
>>-- LENGTH( --- string --- ) -----><
```

LENGTH() or BIFLENGTH() returns the length of *string*.

Note that the data type of *string* must be character otherwise ZZSD386E is returned.

Examples:

In the following, field reference #13 contains character data c'James Joyce'.

```
LENGTH('Hello') = 5
LENGTH(#13)     = 11
```

LENGTHERROR()

```
>>-- LENGTHERROR ( ) -----><
```

LENGTHERROR() or BIFLENGTHERROR() has no arguments. It returns "1" if the focus record or segment is flagged as having been assigned a record-type whereby the length of the record/segment falls outside the limits of possible lengths for the record type (=LGTH>). Otherwise "0" is returned.

Because LENGTHERROR() has no arguments, it may be expressed simply as LENGTHERROR.

LOWER()

```
>>-- LOWER ( --- string --- ) -----><
```

LOWER() or BIFLOWER() returns the *string* with all upper case alpha characters lower cased and all other characters unchanged.

Note that the data type of *string* must be character otherwise ZZSD386E is returned.

Examples:

In the following, field array element Email(2) contains character data c'Mark123@CBL.COM'.

```
LOWER('HELLO')      = 'hello'
LOWER(email(2))     = 'mark123@cbl.com'
```

LRECL()

```
>>-- LRECL ( ) -----><
```

LRECL() or BIFLRECL() has no arguments. It returns the length of the focus record, segment or DB2 table row.

Because LRECL() has no arguments, it may be expressed simply as LRECL.

NOEOL()

```
>>-- NOEOL ( ) -----><
```

NOEOL() or BIFNOEOL() has no arguments and applies to HFS files containing record EOL characters. This function returns "1" if the focus record or segment is flagged as having been split due to no EOL delimiter being found within the file's declared LRECL length (==EOL>). i.e. record length is greater than LRECL. Otherwise the function returns "0".

Because NOEOL() has no arguments, it may be expressed simply as NOEOL.

POS()

```
>>-- POS ( --- string1 -- , --- string2 ---+-----+--- ) -----><
                                     |           |
                                     +--- , -- start ---+
```

POS() or BIFPOS() returns the position of the first occurrence of *string1* in *string2* starting the search from position *start* in *string2*. A search is successful only if *string1* exists entirely between the *start* position and the last position of *string2*. If *string1* is not found,

"0" is returned.

If not specified, *start* defaults to be the first position of *string2*.

Note that the data type of both *string1* and *string2* must be character and the data type of *start* must be a positive integer otherwise ZZSD386E is returned.

Examples:

In the following, field name SourceText exists in the focus record type and contains character data c'To be or not to be'.

```

POS('be',SourceText)      = 0
POS(c'be',SourceText)    = 4
POS(c'be',SourceText,5)  = 17
POS(c' ',SourceText,10)  = 13

```

RECORD()

```

>>-- RECORD( ---+-----+--- ) -----><
          |               |
          +- relative_record# ---+

```

RECORD() or BIFRECORD() returns a character string which is the unformatted contents of the record identified by *relative_record#*, a record number relative to the focus record.

If not specified, *relative_record#* defaults to be 0 (zero) identifying the focus record. A negative *relative_record#* value identifies a record occurring before the focus record, a positive value identifies a record occurring after the focus record. If the specified record does not exist the null string is returned.

Note that *relative_record#* must be zero, positive or negative integer value otherwise ZZSD386E is returned.

If RECORD() is specified with no arguments, it may be expressed simply as RECORD.

Examples:

```

RECORD()      * Contents of the focus record.
RECORD(-1)   * Contents of the record immediately before the focus record.
RECORD(2)    * Contents of the 2nd record following the focus record.

```

RIGHT()

```

>>-- RIGHT( --- string -- , --- length ---+-----+--- ) -----><
                               |               |
                               +- , -- pad ----+

```

RIGHT() or BIFRIGHT() returns a character string equal to the right-most *length* characters of *string*. If *length* is greater than the length of *string*, the returned character string is padded on the left with the *pad* character.

If not specified, *pad* defaults to be character blank.

Note that the data type of *string1* must be character, *length* must be a positive integer and *pad* must be a character string of length 1 otherwise ZZSD386E is returned.

Examples:

In the following, field name XLen exists in the focus record type and contains binary integer value 8.

```

RIGHT('Hello World',5)      = 'WORLD'
RIGHT(c'Hello World',15)    = '      Hello World'
RIGHT(c'Hello World',13,'#') = '##Hello World'
RIGHT(c'Hello World',XLen)  = 'lo World'

```

SAVEREQUIRED()

```
>>-- SAVEREQUIRED() -----><
```

SAVEREQUIRED() or BIFSAVEREQUIRED() has no arguments. It returns "1" if the focus record, segment or DB2 table row has been changed or inserted and has not yet been saved, and "0" otherwise.

Because SAVEREQUIRED() has no arguments, it may be expressed simply as SAVEREQUIRED.

SEGPOS()

```
>>-- SEGPOS( --- start +-----+ ) -----><
                |
                +- , --- length ----+
```

SEGPOS() or BIFSEGPOS() returns a character string which is a sub-string of the current or previous segment within the current record starting at position *start* for length *length*.

SEGPOS() is primarily used for mapping **segmented records** where a record-type definition (RTO) is assigned to segments based on field values in the current or previous segment.

If *start* is a negative value, then it refers to a position that many characters from the end of in the previous segment.

If *start* is greater than the length of the record, then a blank character string is returned. If *length* is greater than the length of the record, the returned character string is padded on the left with the blank character.

If not specified, *length* defaults to be the length of data from position *start* to the end of the segment in which *start* is located.

Note that the data type of the segment is character, *start* must be a positive or negative integer value and *length* must be a positive integer value otherwise ZZSD386E is returned.

Examples:

In the following, the segment previous to the segment currently being mapped contains the 11 character record-type name of the next segment starting 16 characters before the end of that segment (c'REC-CUST-01'). Similarly, the current segment data contains this name at position 31 of the segment.

```
SEGPOS(-16,11)      = 'REC-CUST-01'
SEGPOS(31,8)       = 'REC-CUST'
```

SQLERROR()

```
>>-- SQLERROR() -----><
```

SQLERROR() or BIFSQLERROR() has no arguments and applies to DB2 table rows only. If the formatted DB2 table row experienced an SQL error on SAVE, this function returns the SQL error code, otherwise zero is returned.

Because SQLERROR() has no arguments, it may be expressed simply as SQLERROR.

STRIP()

```
>>-- STRIP( --- string -- , --- option +-----+ ) -----><
                |
                +--- , -- char ----+
```

STRIP() or BIFSTRIP() returns character string *string* with leading and/or trailing *char* characters removed.

The *option* argument may be specified as character string "L", "T" or "B" (upper or lower case) to indicate respectively that Leading, Trailing or Both leading and trailing characters are to be stripped. If not specified, *option* defaults to "B".

The *char* argument nominates the character to be stripped and, if not specified, defaults to be character blank. Each consecutive occurrence of *char* at the start and/or end of *string* will be stripped until a character other than *char* is encountered at which point the strip algorithm stops.

Note that the data type of *string1*, *option* and *char* must be character with *option* and *char* being of length 1, otherwise ZZSD386E is returned.

Examples:

In the following, field reference #2 in the focus record type contains character data c' Time to go. '.

```
STRIP(' Hello World ') = 'HELLO WORLD'
STRIP(c'##CPU Seconds###','L','#') = 'CPU Seconds###'
STRIP(c'##CPU Seconds###','t','#') = '##CPU Seconds'
STRIP(#2,'B') = 'Time to go.'
```

SUBSTR()

```
>>-- SUBSTR( -- string -- , -- start +-----+ ) --<<
      |                                     |
      +- , +-----+ +-----+ +-----+
          | | | | | | | | | | | | | | | |
          +- length -+ +- , -- pad -+
```

SUBSTR() or BIFSUBSTR() returns a character string which is a sub-string of *string* starting at position *start* within *string* for length *length*.

If *start* is greater than the length of *string*, then a blank character string is returned. If *length* is greater than the length of *string*, the returned character string is padded on the left with the *pad* character.

If not specified, *length* defaults to be the length of *string* from position *start* to the end of *string* and *pad* defaults to be character blank.

Note that the data type of *string* must be character, *start* and *length* must be a positive integer and *pad* must be a character string of length 1 otherwise ZZSD386E is returned.

Examples:

In the following, field names XText and XLen exist in the focus record type and contain character data c'The quality of mercy is not strained' and binary integer value 16 respectively.

```
SUBSTR(XText,29) = 'strained'
SUBSTR(XText,5,XLen) = 'quality of mercy'
SUBSTR(XText,29,15,c'x') = 'strainedxxxxxxx'
SUBSTR(XText,29,15,'x') = 'strainedXXXXXXX'
```

TRANSLATE()

```
>>-- TRANSLATE( string +-----+ ) --<<
      |                                     |
      +- , +-----+ +-----+ +-----+
          | | | | | | | | | | | | | | | |
          +- tabo -+ +- , +-----+ +-----+
                          | | | | | | | | | |
                          +- tabi -+ +- , -- pad -+
```

TRANSLATE() or BIFTRANSLATE() returns the character string *string* with characters at offsets in the input translate table *tabi* translated to characters at equivalent offsets in the output translate table *tabo*. Characters in *string* that are not included in *tabi* are not translated.

If both *tabo* and *tabi* are specified then:

- If *tabo* has a shorter length than *tabi*, then *tabo* is padded on the right to the length of *tabi* using the *pad* character.
- If *tabo* has a longer length than *tabi*, then *tabo* is truncated to the length of *tabi*.

If *tabo* is specified but *tabi* is not, *tabi* defaults to be all 255 single byte characters in the range X'00' to X'FF'.

If *tabi* is specified but *tabo* is not, *tabo* defaults to be a string equal to the length of *tabi* containing only *pad* characters.

If neither *tabo* nor *tabi* are specified, then *string* is simply upper cased as for the **UPPER()** function call.

If not specified, *pad* defaults to be character blank.

Note that the data type of *string*, *tabo* and *tabi* must be character, and *pad* must be a character string of length 1 otherwise ZZSD386E is returned.

Usage Note:

It is recommended that, when expressed as a literal string, translate tables *tabi* or *tabo* be prefixed with "C" or "c" to avoid unintentional upper casing of lower case translate table alpha characters.

Examples:

In the following, field reference #6 in the focus record type contains character data c'Ill met by moonlight, proud Titania'.

```
TRANSLATE(#6)                = 'ILL MET BY MOONLIGHT, PROUD TITANIA'
TRANSLATE(#6,c'SsXx',c'TtOo') = 'Ill met by mxnlighs, prxud Sisania'
TRANSLATE(#6,,c'LlAa',c'#')  = 'I## met by moon#ight, proud Tit#ni#'
TRANSLATE(c'321',c'abc',c'123') = 'cba'
```

TRUNCATED()

```
>>-- TRUNCATED() -----><
```

TRUNCATED() or BIFTRUNCATED() has no arguments and applies to edit of **segmented records** only. It returns "1" if the focus segment is a primary (base) segment which has been flagged as belonging to a record that has been truncated by an IDENTIFY or a SAVE, FILE or END operation (=TRNC>). Otherwise "0" is returned.

Because TRUNCATED() has no arguments, it may be expressed simply as TRUNCATED.

UPPER()

```
>>-- UPPER( --- string --- ) -----><
```

UPPER() or BIFUPPER() returns the *string* with all lower case alpha characters upper cased and all other characters unchanged.

Note that the data type of *string* must be character otherwise ZZSD386E is returned.

Examples:

In the following, field reference #2 contains character data c'Mark Williams'.

```
UPPER('hello') = 'HELLO'
UPPER(#2)      = 'MARK WILLIAMS'
```

VALUEERROR()

```
>>-- VALUEERROR() -----><
```

VALUEERROR() or BIFVALUEERROR() has no arguments. It returns "1" if the formatted focus record, segment or DB2 table is flagged as including at least one field value which, while valid for the field's data type, is outside the range of valid values defined for the field (=ERRV>). Otherwise "0" is returned.

The VALUEERROR flag may be set on when any of the following conditions are true:

1. A field used to define the length of a variable length field has a value greater than the maximum length defined for the variable length field.
2. A field used to define the size of a variable array is outside the range of values specified for the array size.
3. An enum field contains a value not listed as a defined enum value.

Because VALUEERROR() has no arguments, it may be expressed simply as VALUEERROR.

WORD()

```
>>-- WORD( --- string -- , -- #word --- ) -----><
```

WORD() or BIFWORD() returns a character string which is equal to word number *#word* in *string*. A word is considered to be a blank delimited token in a character string.

If *#word* is greater than the number of words in *string*, then a null string is returned.

Note that the data type of *string* must be character and *#word* must be a positive integer otherwise ZZSD386E is returned.

Examples:

In the following, field reference #3 in the focus record type contains character data c'But, soft! what light through yonder window breaks?.'

```
WORD(' Hello World ',2) = 'WORLD'
WORD(#3,2) = 'soft!'
WORD(#3,6) = 'yonder'
WORD(#3,9) = ''
```

WORDS()

```
>>-- WORDS( --- string --- ) -----><
```

WORDS() or BIFWORDS() returns the number of words in *string*. A word is considered to be a blank delimited token in a character string.

Note that the data type of *string* must be character otherwise ZZSD386E is returned.

Examples:

In the following, field name Quote_01 exists in the focus record type and contains character data c'So foul and fair a day I have not seen'.

```
WORDS(Quote_01) = 10
WORDS(' ') = 0
```

XRANGE()

```
>>-- XRANGE( --+-- start --+-----+-----><
           |         | |         |
           +-----+ +- -- end --+
```

XRANGE() or BIFXRANGE() returns a string of single byte character representations between and including *start* and *end*.

If not specified, *start* defaults to X'00' and *end* defaults to X'FF'. If *start* is greater *end*, then the returned string will contain characters from *end* to X'FF' and X'00' to *start*.

Note that the data type of *start* and *end* must be character length 1 otherwise ZZSD386E is returned.

Examples:

```

XRANGE (c'A',c'J')      = 'ABCDEFGHJIJ'
XRANGE (X'C1',X'C6')   = X'C1C2C3C4C5C6'
XRANGE (X'FC',X'03')   = X'FCFDFEFF010203'
XRANGE (,X'08')        = X'000102030405060708'
XRANGE (X'FC')         = X'FCFDFEFF'

```

REXX Macros

As in the CBL text edit environment, user macros may be written to perform functions within SDE sessions using the REXX procedure language.

The name associated with the Structured Data Environment is CBLSDATA and should be specified on the REXX instruction ADDRESS if commands are to be directed to the SDE environment. However, if a macro is executed from within an SDE window, CBLSDATA is automatically set as the default environment.

The current environment may be identified using the REXX built-in function ADDRESS().

Macro Path

An SDE REXX macro is executed by executing the **MACRO** command followed by the full fileid of the macro.

Alternatively, if the macro exists in a library within the macro path, simply specify the macro name. Libraries in the macro path are searched in order until a file name that matches the macro name is found.

The macro path used by SDE is the same as that defined for the CBL text edit environment. i.e. The macro path is a list of directories assigned to the **Edit.MacroPath** variable set via the System or User **INI** file, or via the CBL **SET MACROPATH** command.

For MVS systems, the macro path usually consists of three PDS/PDSE libraries as follow:

1. A user specific macro library.
2. A site-wide macro library common to all users.
3. An installation macro library common to all users and containing useful macros written and owned by CBL and distributed to all SELCOPY Product Suite customers.

Users should not update or modify macros in this library as they may be subject to change at the discretion of CBL. A detailed description on the use of each of an individual macro is documented within the macro executable file itself. (See **CBL REXX Macros** for a list of CBL supplied macros.)

SDE Profile (SDEPROF) Macro

When an SDE window view is opened, the macro path libraries are searched for the first occurrence of the SDE profile macro, **SDEPROF**.

The SDEPROF macro may be used to define the user's SDE environment. Any System or User INI file options that correspond to SDE SET command options, may be overridden for an SDE session by including the SET command in the SDEPROF macro.

A default SDEPROF macro is distributed as part of the SELCOPY Product Suite package and exists within the installation macro library.

SDE Menus and Popup Windows

To assist the user with general SDE editing, some helpful menus and dialog panels exist in addition to the startup **CBLe SDE Edit Dialog Window**

Library/Directory Member Selection

The SD Edit/Browse Library/Directory Member Selection list window is opened when a PDS(E) library DSN with no member name or HFS directory path with no HFS file name, is specified on the SDE EDIT or BROWSE command.

Select the required entry (position the cursor and hit <Enter>) for Edit/Browse, as specified on the invoking command, or enter select one of the prefix commands.

The window remains open after a selection has been made in order to allow selection of further entries.

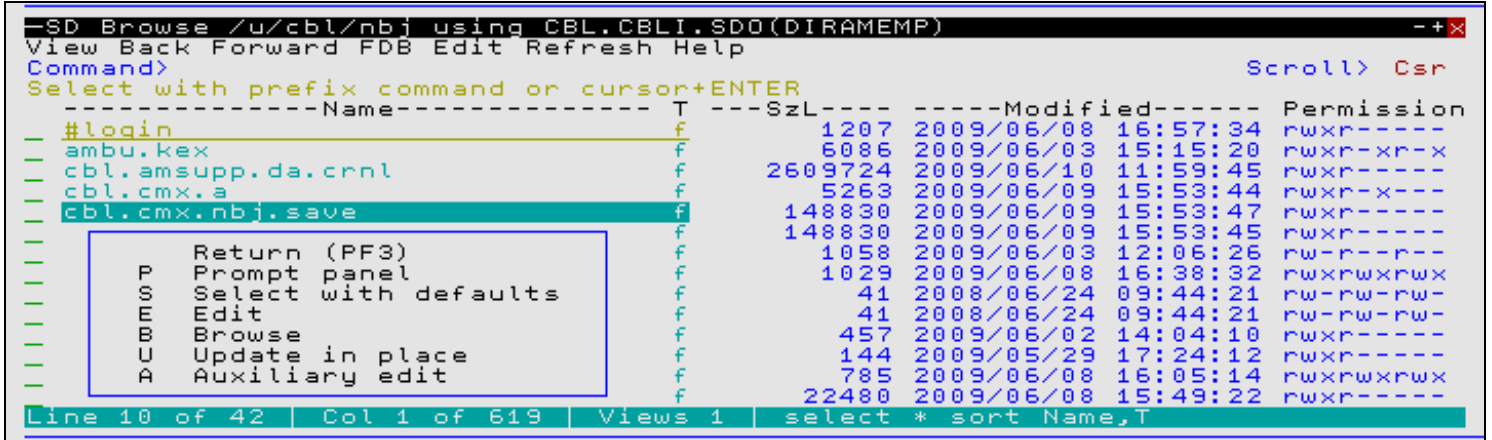


Figure 10. SD Edit/Browse Library/Directory Member Selection List Window.

Prefix Line Commands

The following prefix line commands are available:

Command	Description
(blank)	Prefix line command S. (Hit the <Enter> key with the cursor on the line containing the required entry).
A	Edit the entry using Auxiliary Edit.
B	Browse the entry.
E	Edit the entry using Full Edit.
P	Open the CBLe SDE Edit Dialog Window .
S	Select the entry for Edit or Browse as specified by the invoking command.
U	Edit the entry using Update-in-place Edit.
/	Open a drop down menu containing valid prefix command functions for the list window entry. Position the cursor on the required function and hit <Enter> to action the command. Assigned to F16 by default.
>	Open a new window containing a zoomed vertical display of the entry's fields. Particularly useful for list windows that have a large number of displayed columns. Assigned to PF17 (Shift-F5) by default.

SDE Browse/Edit Utilities Menu

The SDE Browse/Edit Utilities Menu may be opened from any SDE file edit or browse window view by executing the SDEUTIL macro which is assigned to <F16> by default.

```

SDEUTIL - CBL Structured Browse/Edit Utilities menu
Select option by entering number or by PF key.
>>>
Record-Type options
1. VIEW CompUnit records only (PF1)
2. Remove CompUnit records from current VIEW (PF2)
3. Exit utilities menu without action (PF3)
4. Select from list of available record-types (PF4)
5. Modify record-type OFFSET values (PF5)
6. Modify record-type Identification criteria (PF6)
7. Override record-type for focus line (PF7)
Field options
8. Select/Exclude/Order visible field-names (PF8)
Record Information
9. Configure display of record-length, RBA and flags (PF9)
Shadow-line options
10. Configure display of SHADOWed records (PF10)
Window options
11. Open single-record (ZOOM) view in new window (PF11)
KSDS options
12. Locate record by KEY (PF12)

```

Figure 11. SDE Browse/Edit Utilities Window.

This menu provides a user friendly method of executing commonly used SDE commands that alter the display of record data within the SDE window view.

Options are selected by entering the required option number at the prompt or by pressing the appropriate PFKey.

Note that items in the menu are sensitive to the prevailing **default record type**.

Record-Type Options

VIEW *record_type* records only

Executes the following SDE **VIEW** command to make visible only records that are associated with the specified record type (RTO).

```
VIEW record_type
```

Add/Remove *record_type* records to/from current VIEW

If the focus line is a shadow line representing a suppressed record group, then this option is "Add" records to the display, otherwise this option is "Remove" records from the display.

The following SDE VIEW command is executed to add to (+) or remove from (-) the display of visible records all records that are associated with the specified record type (RTO).

```
VIEW (+/-) record_type
```

Select from list of available record-types

Generates a temporary CMX command centre file containing a number of SDE VIEW commands that enables the user to easily add or remove records assigned individual record types from the current display of visible records.

The temporary CMX file is displayed in a CBL text edit window which allows the user to execute the VIEW commands simply by placing the cursor on the required command (line beginning with "<") and pressing <F16>.

The CMX file contains the following VIEW commands:

```
sd view + *
View all records of any record type.
```

```
sd view - *
Suppress all records of all record types. Following execution of this command, execute one or more of the "VIEW + record_type" commands that follow to display only records of the selected record types.
```

```
sd view Record
View only records not assigned a record type. (i.e. NOT SELECTED records.)
```

```
sd view + _record_type
Add all records of record type record_type to the existing view of records. One of these VIEW commands is generated for every record type (RTO) defined in the structure (SDO).
```

Execution of any of these VIEW commands will immediately update the display of the records in the current SDE window view. The text edit window containing the CMX file remains open to allow execution of other VIEW commands, until closed (using <PF3>).

Modify record-type OFFSET values

Opens the SDEUTOF sub-window which prompts the user to enter a positive or negative numeric offset against any (or all) of the record types (RTOs) defined in the current SDO.

Where an offset value is assigned to a record type, record mapping starts at that offset into (or before) the record data. (See the **USEOFFSET** SET/QUERY/EXTRACT option for details.)

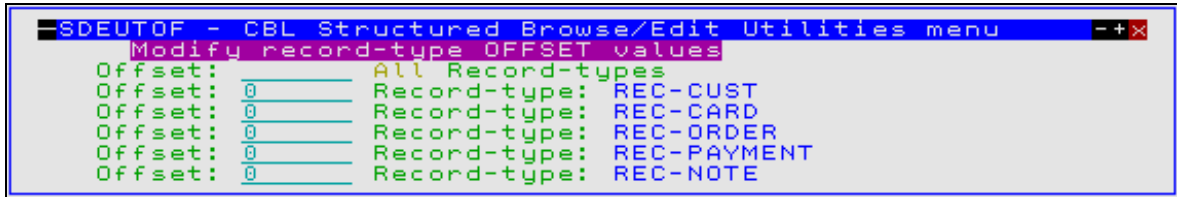


Figure 12. SDE Browse/Edit Modify Offsets Window.

<Enter> updates the affected RTO definitions in storage and actions the offset changes immediately. **Record type assignment** processing is performed for records within the file following a change to any record type's offset value.

<PF3> closes the SDEUTOF window and, if offset changes have occurred, the SDEUTSS sub-window is displayed prompting the user to save the changed structure, overwriting the structure data file on disk, before returning to the utilities menu. If not saved, the user is given another opportunity to save changes to updated structures when the SELCOPY/i session is ended normally.

Modify record-type Identification criteria

Opens the SDEUTUS sub-window which prompts the user to enter record type (RTO) selection criteria against any or all record types defined in the SDO.

The Use Always option may set for one record type only. If specified for multiple record types, the first selected will be used. See command **USE** for descriptions on use of the WHEN *expression*, ALWAYS and NEVER parameters.

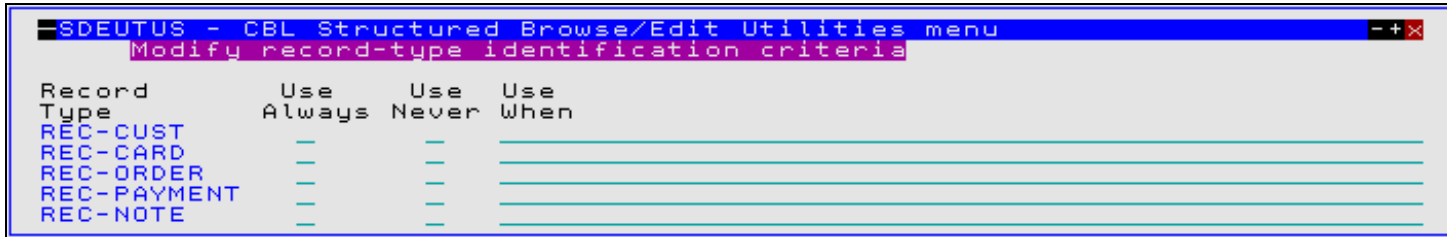


Figure 13. SDE Browse/Edit Record Type Identification Window.

<Enter> updates the affected RTO definitions in storage and immediately actions **record type assignment** processing for the records within the SDE window view.

<PF3> closes the SDEUTUS window and, if offset changes have occurred, the SDEUTSS sub-window is displayed prompting the user to save the changed structure, overwriting the structure data file on disk, before returning to the utilities menu. If not saved, the user is given another opportunity to save changes to updated structures when the SELCOPY/i session is ended normally.

Override record-type for focus line

Opens the SDEUTUF sub-window which prompts the user to select the record type (RTO) to be assigned to the record occupying the **focus line**. The status of ALWAYS and NEVER flags and any WHEN expressions are displayed in this window for information purposes only.

Only one record type may be selected. If multiple record types are selected, then the last record type in the list to be selected is used. See command **USE** for descriptions on use of the FOR FOCUS parameter.

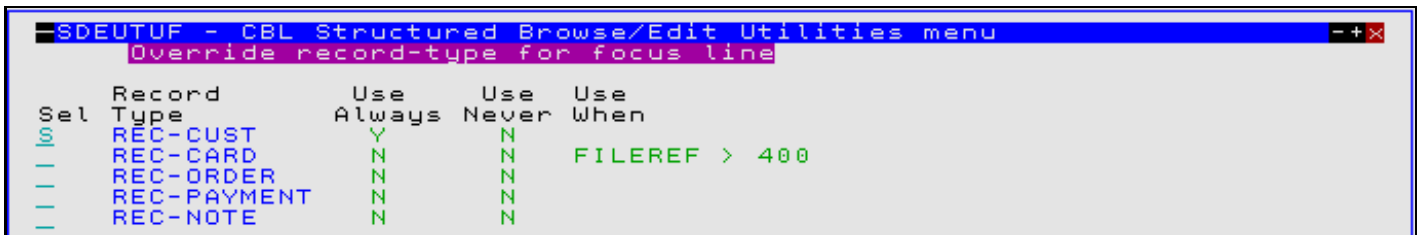


Figure 14. SDE Browse/Edit Focus Line Record Type Identification.

<Enter> applies the record type to the record in the focus line immediately. <PF3> closes the SDEUTUS window and returns to the utilities menu.

Field Options

Select/Exclude/Order visible field-names

Executes SDESEL to generate a temporary CMX command centre file containing an SDE **SELECT** command that, by default, selects all columns for display in ascending order of field reference number.

The temporary CMX file is displayed in a CBL text edit window which allows the user to employ standard text editing techniques to re-order and/or exclude the fields from the **SELECT** command and so select and re-order the display of table row fields.

The **SELECT** operation may be executed by placing the cursor on the first line of the **SELECT** command (beginning with "<"") and pressing <F16>.

Record Information

Configure display of record-length, RBA and flags

Opens the SDEUTRI sub-window which prompts the user to select the record information to be displayed at the start of all rows in the current SDE window view.

The "Display Record Information" option must be selected before any of the selected record information fields will be displayed.

```

SDEUTRI - CBL Structured Browse/Edit Utilities menu
Display record-length, RBA/TTR and flags

Enter "/" to activate each of the options below.
Display Record Information
Include RBA/TTR column          Decimal Hex
Include Record-length column   /
Include Flags column           -
f=Record is on file
i=Record is inserted
c=Record is changed
s=Record requires save
  
```

Figure 15. SDE Browse/Edit Record Info Window.

<Enter> actions the information display in the SDE edit view but keeps the SDEUTRI window open. <PF3> closes the window and returns focus to the Utilities Menu.

See the **RECINFO** SET/QUERY/EXTRACT option for details of the individual record information fields.

Shadow-line Options

Configure display of SHADOWed records

Opens the SDEUTSH sub-window which has option fields indicating whether shadow lines are displayed for record groups that are EXCLUDED, NOTSELECTED or SUPPRESSED.

The "Display all SHADOWed records" option must be selected before any of the selected shadow lines will be displayed.

```

SDEUTIL - CBL Structured Browse/Edit Utilities menu
Display SHADOWed records

Enter "/" to activate each of the options below.
Display all SHADOWed records
Show EXCLUDED records
Show NOTSELECTED records      (No record-type assigned)
Show SUPPRESSED records      (Record-type not in VIEW)
  
```

Figure 16. SDE Browse/Edit SHADOW Lines Window.

<Enter> actions the selection for the current SDE window view but keeps the SDEUTSH window open. <PF3> closes the window and returns focus to the Utilities Menu.

See the **SHADOW** SET/QUERY/EXTRACT option for details of shadow lines.

Window Options

Open single-record (ZOOM) view in new window

Executes SDEZOOMW to open another SDE window view containing a single record view of the record occupying the focus line. If the current SDE window view is already in SINGLE format then data in the new view will be a multi-record view of the prevailing format (TABLE, CHAR or HEX.)

See the SDE command **ZOOM**.

Locate Options

Locate record by KEY/RBA/RECORD Number

Locate record by KEY is displayed for KSDS data sets and opens the SDEUTKY sub-window which has a single input field prompting the user for a complete or partial KSDS key identifying the new current record. The first record with a key which is equal to or greater than this value will become the current record.

Locate record by RBA is displayed for ESDS data sets and opens the SDEUTRB sub-window which has a single input field prompting the user for the relative byte address identifying the new current record. The first record with an RBA which is equal to or greater than this value will become the current record.

Locate record by RECORD Number is displayed for RRDS and VRDS data sets and opens the SDEUTRR sub-window which has a single input field prompting the user for the record number identifying the new current record.

See the SDE command **LOCATE** for details on locating records by Key, RBA and Record number.

DB2 Browse/Edit Utilities Menu

The DB2 Browse/Edit Utilities Menu may be opened from any SDE DB2 table edit or browse view by executing the SDEUTILD macro which is assigned to <F16> by default.

```

SDEUTILD - SELCOPY/i DB2 Browse/Edit Utilities menu
Select option by entering number or by PF key.
>>> 1
      Field Selection
1.  Select/Exclude/Order visible field-names          (PF1)
      Record Information
2.  Configure display of row-length, SQL-Code and flags (PF2)
3.  Exit utilities menu without action                (PF3)
      Shadow-line options
4.  Configure display of SHADOWed records            (PF4)
      Window options
5.  Open single-record (ZOOM) view in new window     (PF5)
  
```

Figure 17. DB2 Browse/Edit Utilities Menu.

This menu provides a user friendly method of executing commonly used SDE commands that alter the display of DB2 table data within the SDE window view.

Options are selected by entering the required option number at the prompt or by pressing the appropriate PFKey.

Field Selection

Select/Exclude/Order visible field-names

Executes SDESEL to generate a temporary CMX command centre file containing an SDE **SELECT** command that, by default, selects all columns for display in ascending order of field reference number.

The temporary CMX file is displayed in a CBL text edit window which allows the user to employ standard text editing techniques to re-order and/or exclude the fields from the SELECT command and so select and re-order the display of table row fields.

The SELECT operation may be executed by placing the cursor on the first line of the SELECT command (beginning with "<") and pressing <F16>.

Record Information

Configure display of row-length, SQL-Code and flags

Opens the SDEUTRI sub-window which prompts the user to select the record information to be displayed at the start of all rows in the current SDE window view.

The "Display Record Information" option must be selected before any of the selected record information fields will be displayed. <Enter> actions the information display in the SDE edit view but keeps the SDEUTRI window open. <PF3> closes the window and returns focus to the Utilities Menu.

See the **RECINFO** SET/QUERY/EXTRACT option for details of the individual record information fields.

Shadow-line Options

Configure display of SHADOWed records

Opens the SDEUTSH sub-window which has a single option field indicating whether shadow lines are displayed for groups of EXCLUDED table rows view.

<Enter> actions the selection for the current SDE window view but keeps the SDEUTSH window open. <PF3> closes the window and returns focus to the Utilities Menu.

See the **SHADOW** SET/QUERY/EXTRACT option for details of shadow lines.

Field Options

Configure display of Var-Length and Nullable fields

Opens the **ZZSGSETV** panel containing several options to control the way Variable Length and Nullable fields are handled by the DB2 Table Editor.

Delete focus field (<fieldname>) value

Deletes the current value from the field at the cursor location.

This option is handy for columns containing very long values (i.e. that span multiple screens in table view, or multiple lines in single-row view) where you would otherwise have to use the <Erase-EOL> key many times to remove the current value.

Selecting this option executes the command:

```
REPLACELINE (<fieldname>) VALUE("")
```

Window Options

Open single-record (ZOOM) view in new window

Executes SDEZOOMW to open another SDE window view containing a single record view of the table row occupying the focus line. If the current SDE window view is already in SINGLE format then data in the new view will be a multi-record TABLE format view.

See the SDE command **ZOOM**.

DB2 Edit Settings

The DB2 Edit Settings panel (ZZSGSETV) is an **interactive panel window**, opened on selection of option 5. from the **DB2 Browse/Edit Utilities** popup.

This panel specifies options relating to Variable-Length and Nullable fields in the SELCOPY/i DB2 editor.

Panel Input Fields

Varying Length Columns:

Remove trailing blanks>

When set ON, any trailing blanks in the column value are stripped and the length of the column data adjusted accordingly.

When set OFF, there is no special treatment of trailing blanks.

This option corresponds to the SET/QUERY/EXTRACT option **VSTRIP**.

Show end of string>

When set ON, the end of the variable length column data is marked with the String Delimiter**Display** character.

When set OFF, the end of the variable length column data is not marked.

This option corresponds to the SET/QUERY/EXTRACT option **VSHOWEND**.

String Delimiters - Input>

The character which if present in the input determines the end of the variable length column data. The default is # (the hash sign).

This option corresponds to the SET/QUERY/EXTRACT option **VENDCHAR (1)**.

String Delimiters - Output>

The character which is used on output to indicate the end of the data in a variable length column. The default is < (the less than sign).

This option corresponds to the SET/QUERY/EXTRACT option **VENDCHAR (2)**.

Columns that allow Null values:

Convert space to null>

When set ON, setting a nullable column input field to blanks in the edit view will cause the column value (of whatever data type) to be set to NULL.

When set OFF, there is no special effect when setting a column to blanks. Note that non-character fields may give an invalid data type message in this case.

This option corresponds to the SET/QUERY/EXTRACT option **NULLIFBLANK**.

Null Column Indicators - Input>

The character which if specified sets the column value to NULL.

For character based fields, this value must be specified as the first and only non-blank value in the input area.

For non-character based fields, this value may be specified anywhere in the input area.

The default is @ (the commercial at sign).

This option corresponds to the SET/QUERY/EXTRACT option **NULLCHAR (1)**.

Null Column Indicators - Output>

The character which is used on output to indicate that a column has a NULL value.

The default is _ (the underscore).

This option corresponds to the SET/QUERY/EXTRACT option **NULLCHAR (2)**.

DB2 Row Selection Panel

The DB2 Row Selection Panel is an **interactive panel window** used to generate a basic SQL WHERE clause for use in a DB2 table edit or browse operation, or in generating a SELCOPY/i SDO **structure**.

Starting the DB2 Row Selection Panel

The panel is started by any of the following:

- Specify "?" (question mark) for parameter *where-clause* in the DB2 options of the SDE **EDIT**, **BROWSE** or **CREATE STRUCTURE** primary commands.
- Specify "?" in the Where> input field of the **Edit Object** or **Browse Object** panels.
- Specify MODEL in the Action> input field of the **DB2 Save SQL Error panel**. This option is available only if the DB2 table row in error has a missing parent key in a referential constraint relationship. (SQL error -530)

Panel Description

This panel contains an **embedded table** of rows each of which represent a DB2 SQL WHERE clause predicate where the form of expression to be tested is a column name. Supported DB2 predicate types are Basic, BETWEEN, IN, LIKE and NULL as indicated by the **Operator** (Op) field. The embedded table is initialised so that an unselected predicate exists for each named column of valid data type belonging to the DB2 table or view to which the generated WHERE clause will apply.

Standard table edit **primary** and **line** commands may be used to INSERT, DELETE, REPLICATE, COPY or MOVE table rows as appropriate, to scroll the table display UP, DOWN, LEFT and RIGHT and also to ZOOM the display of an individual table row.

A predicate is selected for inclusion in the final WHERE search condition by the presence of a valid operator. A blank or null value in the operator column will deselect the predicate. The order in which selected predicate entries occur within the table dictates their location within the generated search condition and so table rows should be moved as required. Similarly, if a column name is to be referenced in more than one predicate, table rows should be replicated or copied as appropriate.

The WHERE search condition is built by concatenating the selected table rows so that search conditions started by a left parenthesis in one table row may be ended by a right parenthesis in a subsequent table row.

The embedded table supports left and right parenthesis columns in order to allow specification of predicate precedence. For selected predicates, The left parenthesis column may contain one or more "(" (left parenthesis) symbol, the right parenthesis column may contain one or more ")" (right parenthesis) symbol and the combination of the specified left and right parentheses must be balanced for selected predicates.

If the width of the Value or parentheses fields in the embedded table view is not sufficient to enter the required input value, then the table row should be zoomed (default <F17>) and, if necessary, the field **expanded** (default <F14>) to accommodate the input value.

Having selected and modified the table row entries, closing the panel (default <F3>) will first validate the field entries and then, if no errors are flagged, generate the WHERE search condition. This is immediately passed to the originating EDIT, BROWSE or CREATE STRUCTURE operation for immediate, continued execution.

```

--SELCOPY/i - DB2(CBLA): Select table rows by column value
File Edit Actions Options Utilities Window SwapList Help  wS wR
Command>
ZZS2DRSD
Scroll> Csr

Row selection criteria for table: CBL.ZZSFUNC
+
DB2 row selector
Con ( Column name Data Op Value 7 Rows
      type
+
001  --- FUNCNAME VC(20) LK 'Set%' R
002  AND --- FUNCREF INTEGER --- R
003  AND --- FUNCMOD#REF SMINT --- R
004  AND ( --- FUNCMOD CH(8) LK 'EDTF%' R
005  OR --- APILIB CH(8) = 'EDTLIB' R
006  AND --- FUNCTITLE VC(30) --- R
007  AND --- FUNCDESC VC(1024) --- R
008  *** End of Data ***
  
```

Figure 18. DB2: Row Selection Panel.

Panel Fields

Field names that follow are as appear in the zoomed view of a table row. Names in parentheses correspond to the equivalent column name in table view.

Row selection criteria for table:

A non-enterable field displaying the qualified DB2 table or view for which WHERE clause row selection criteria is to be defined.

Connector> (Con)

Specifies the logical operator connector (AND or OR) that is to be applied to the result of the predicate specified in the table row when deriving the result of a search condition.

Since these logical operators are dyadic, the result of the predicate specified in the table row in which the operator is entered is applied to the result of the predicate or search condition entered in the selected table row (or rows) that occur immediately before it.

If one of these operators is entered in the first selected table row (predicate), it will be excluded from the generated WHERE search condition. If a blank value is entered for any selected table row other than the first, then error ZZSD633E is returned.

By default, all table rows except the first are primed with connector AND.

Parentheses> ("(")

Specifies up to eight "(" (left parenthesis) symbols which each denote the start of a search condition that exists within the final WHERE clause search condition.

A search condition is enclosed by a "(" left parenthesis and ")" right parenthesis symbol and comprises multiple predicates and/or search conditions each connected by a logical operator (AND or OR). Therefore, for each search condition started by a left parenthesis, there must exist a subsequent ending right parenthesis specified in the **right parentheses** column of a subsequent, selected table row. If not, the left and right parentheses are unbalanced and error ZZSD635E is returned.

In all selected table rows, a left parenthesis entered within a search condition that has not yet been ended by a right parenthesis, indicates the start of a new, nested search condition. Therefore, care should be taken when inserting parentheses or moving/copying/deleting/deselecting table rows so that the logical interpretation of the final WHERE clause search condition is as required.

Column Name: (Column name)

A non-enterable field displaying the name of a column in the DB2 table or view against which the predicate value(s) are tested. Column name is the form of expression specified on the left of the predicate operator when the WHERE clause search condition is built.

Column Type: (Data type)

A non-enterable field indicating the data type of the column and, if appropriate, its length, precision and scale in parentheses.

Operator> (Op)

Specifies the operator used to evaluate the predicate.

Entering a value in this field also selects the table row (logical connector, predicate and parentheses specification) for inclusion in the generated WHERE clause. A blank in this field will exclude (deselect) the table row.

Enter an invalid operator in this field to display the list of valid, selectable operator entries which are as follow:

<blank>	No operator - entry deselected.
= EQ	Equal to.
<> ≠ \= NE	Not equal to.
> GT	Greater than.
< LT	Less than.
≥ \> \>= GE	Not less than / Greater than or equal to.
≤ \< \<= LE	Not greater than / Less than or equal to.
LK	LIKE <i>pattern-expression</i>
¬LK \LK NLK	NOT LIKE <i>pattern-expression</i>
BT	BETWEEN <i>value</i> AND <i>value</i>
¬BT \BT NBT	NOT BETWEEN <i>value</i> AND <i>value</i>
IN	IN <i>value-list</i>
¬IN \IN NIN	NOT IN <i>value-list</i>
NL	NULL
¬NL \NL NNL	NOT NULL

Value> (Value)

Specifies the constant value(s) or alternatively, for columns of numeric data type only, the arithmetic expression value(s) used to test the named column value.

Constant values may be of type integer, floating-point, decimal, decimal floating-point, character string, binary or datetime. The type of constant specified will be validated against the data type of the named column.

Specification of multiple values may be supported or required by the predicate type as determined by the selected predicate operator. Multiple values are specified in this input field using unquoted comma (,) delimiter characters. e.g. 'A','B'

Predicate type value requirements are as follow:

Predicate Type	Operators	Value(s)
Basic	= EQ <> ^= \= NE > GT < LT ^< \< >= GE ^> \> <= LE	A single constant or arithmetic expression value.
BETWEEN	BT ^BT \BT NBT	Exactly two constant or arithmetic expression values. The second value must be greater than the first value so that they define the limits of an ascending range of values.
IN	IN ^IN \IN NIN	One or more constant or arithmetic expression values which together define a list of possible values against which the column value will be tested.
NULL	NL ^NL \NL NNL	No value must be entered. Any entry in the value field will return error ZZSD627E.

Each value entered for predicates that test columns of character data types must begin and end with the SQL string delimiter character. If these characters are missing, then the value will automatically be enclosed by apostrophe characters (') during vetting processing as the WHERE clause is generated.

The case of alpha characters entered for each field value is respected or ignored as indicated by the selected **value option (VO)**. This is true, regardless of whether the value has been entered with enclosing SQL delimiter characters.

Option> (VO)

A single character option code which determines interpretation of character string constants in the **Value** input field.

Respect Case

Following successful value vetting, alpha characters within each specified value will be inserted, unchanged into the generated WHERE clause syntax. This is the default option.

Ignore Case

Following successful value vetting, alpha characters within each specified value will be upper cased before being inserted into the generated WHERE clause syntax.

Any Case

Following successful value vetting, alpha characters within each specified value will be upper cased before being inserted into the generated WHERE clause syntax. Additionally, the scalar function UPPER is applied to the column name with default locale and defined column length. This makes the predicate a test on character strings where upper and lower case alpha character equivalents will test equal.

Parentheses> ("")

Specifies up to eight ")" (right parenthesis) symbols which each denote the end of a search condition that exists within the final WHERE clause search condition. See also **left parentheses "("**.

Example

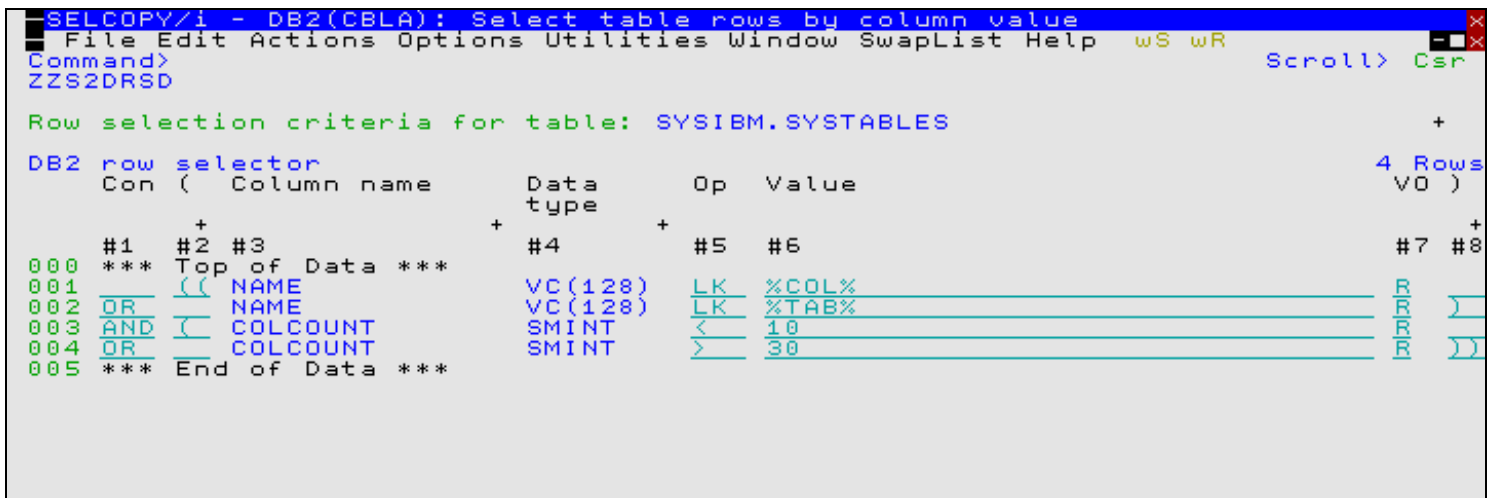


Figure 19. DB2: Row Selection Panel Sample Use.

In this example we want to select all rows in the SYSIBM.SYSTABLES table which have **NAME** containing either **COL** or **TAB** as a substring and have **COLCOUNT** either less than **10** or greater than **30**.

We have replicated the **NAME** and **COLCOUNT** rows using the table prefix command **R** so that we can have multiple predicates for the same column.

We have also deleted all other column rows, apart from the ones we are interested in, using table prefix command **D** (delete single row) **DD** (delete a block of rows) or **D*** (delete the row and all rows following). This is not required but makes things clearer.

The outer enclosing parentheses are not actually required in this case but illustrate that multiple levels of parenthesis are supported. Note that the width of the left and right parenthesis columns is set to 2 by default. Up to 8 levels can be specified. To widen the parenthesis columns:

1. Show the column reference numbers using the command:

```
SET REF ON
```

(this has already been done in the above example)

2. Widen the parenthesis columns using the commands:

```
SET COLWIDTH #2 8
SET COLWIDTH #8 8
```

The SQL WHERE clause generated by this panel is:

```
WHERE ((NAME LIKE '%COL%' OR NAME LIKE '%TAB%')
AND
(COLCOUNT < 10 OR COLCOUNT > 30 ))
```

DB2 Save SQL Error Panel

The DB2 Save SQL Error panel is a modal, **interactive panel window** which displays details of a failure of a **SAVE** command issued while editing a DB2 table.

SQL DELETE, INSERT or UPDATE statements are generated and executed as appropriate for each changed DB2 row and the SQLCODE is saved. On completion of the **SAVE** command, all rows for which the generated SQL statement had a non-zero SQLCODE are flagged as being in error.

In table view the SQLCODE is displayed in the prefix area or, if the **SET RECINFO ON SQLCODE** option is in effect, in the SQLCODE column of the record information area.

In single view the SQLCODE is displayed in its own field at the top of the view.

The DB2 Save SQL Error panel is opened either by entering the **E prefix command** in the prefix area of the row in error, or by using the **ERROR** primary command with the **focus row** being the row in error.

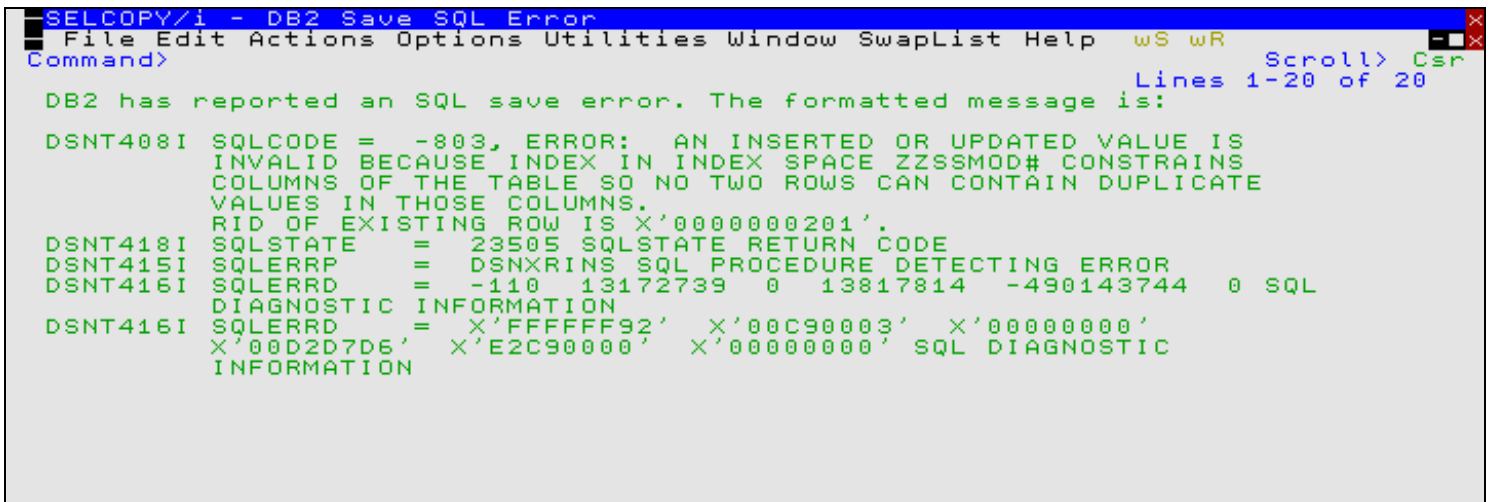
The SQL error panel has a number of formats depending on the value of the SQLCODE.

SQLCODE	Error format
All but those listed below	The default format see Format 1 .
+100	The row not found format see Format 2 .
-530	The missing parent key format see Format 3 .
-531	Foreign key update error format see Format 4 .
-532	Delete rule violation error format see Format 5 .

Format 1. The default SQL error panel.

In most cases the SQL error panel displays the formatted DB2 error message corresponding to the SQLCODE as described in the **DB2 Codes** manual. The displayed SQLCODE is prefixed by "E".

For example, if an attempt was made to insert a row with a duplicate prime key then SQLCODE **-803** is returned and the following SQL error panel is displayed:



```

SELCPY/i - DB2 Save SQL Error
File Edit Actions Options Utilities Window SwapList Help  wS wR  Scroll> Csr
Command>
DB2 has reported an SQL save error. The formatted message is:
Lines 1-20 of 20
DSNT408I  SQLCODE =  -803, ERROR:  AN INSERTED OR UPDATED VALUE IS
        INVALID BECAUSE INDEX IN INDEX SPACE ZZSSMOD# CONSTRAINS
        COLUMNS OF THE TABLE SO NO TWO ROWS CAN CONTAIN DUPLICATE
        VALUES IN THOSE COLUMNS.
        RID OF EXISTING ROW IS X'0000000201'.
DSNT418I  SQLSTATE  =  23505 SQLSTATE RETURN CODE
DSNT415I  SQLERRP   =  DSNXRINS SQL PROCEDURE DETECTING ERROR
DSNT416I  SQLERRD   =  -110 13172739  0 13817814 -490143744  0 SQL
        DIAGNOSTIC INFORMATION
DSNT416I  SQLERRD   =  X'FFFFFF92' X'00C90003' X'00000000'
        X'00D2D7D6' X'E2C90000' X'00000000' SQL DIAGNOSTIC
        INFORMATION

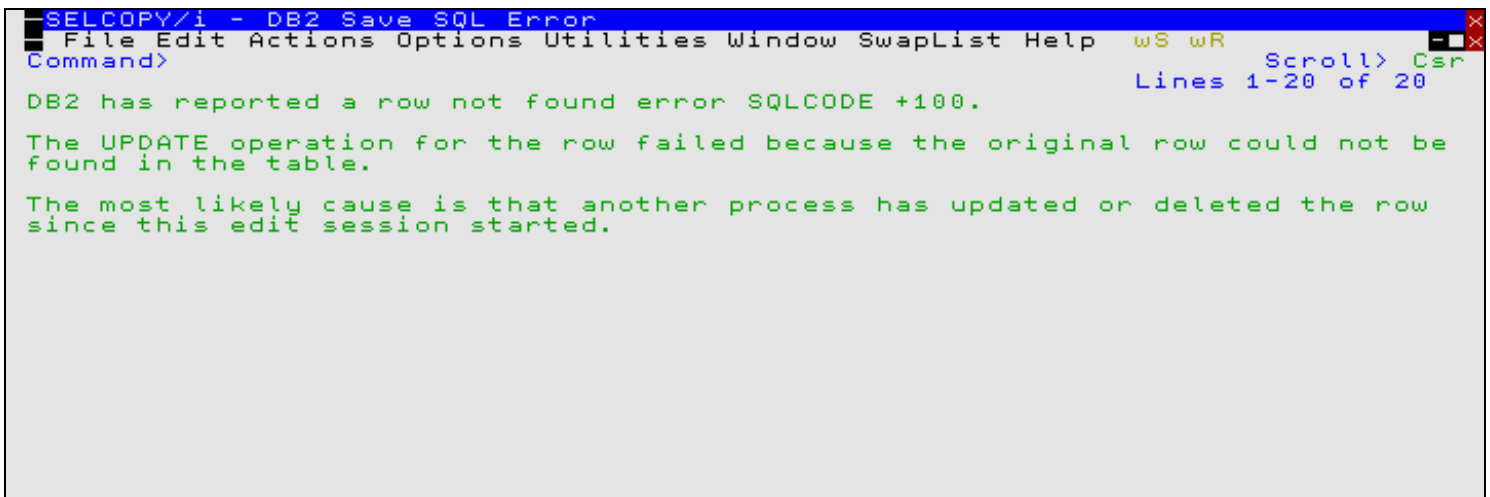
```

Figure 20. DB2: Save SQL Error - General.

Format 2. The Row not found panel for SQLCODE +100.

The SQLCODE +100 is returned when the row requested is not found. The displayed SQLCODE is prefixed by "W".

If an attempt is made to update a row which has been changed or deleted by another process since the edit session started the following SQL error panel is displayed:



```

SELCPY/i - DB2 Save SQL Error
File Edit Actions Options Utilities Window SwapList Help  wS wR  Scroll> Csr
Command>
DB2 has reported a row not found error SQLCODE +100.
Lines 1-20 of 20
The UPDATE operation for the row failed because the original row could not be
found in the table.
The most likely cause is that another process has updated or deleted the row
since this edit session started.

```

Figure 21. DB2: Save SQL Error +100 - Missing Table Row.

Format 3. Missing parent key panel for SQLCODE -530

The SQLCODE -530 is returned when a row is inserted or updated with the values of the columns of a foreign key (the parent key) not representing an existing key in the parent table. The displayed SQLCODE is prefixed by "R" to indicate a referential constraint error. The following SQL error panel is displayed:

As well as describing the foreign key in error, the **MODEL** or **INSERT** action commands can be used to start a dependent edit session to insert the missing parent row.

See [Panel Fields](#) for a description of the panel contents.

```

SELCPY/i - DB2 Save SQL Error
File Edit Actions Options Utilities Window SwapList Help  wS wR
Command> Scroll> Csr

DB2 has reported a missing parent key error SQLCODE -530.
Relationship: ZZSSMOD_REF1 Delete rule: Restrict
Parent      : CBL.ZZSLIBS
Dependent   : CBL.ZZSSMOD

An UPDATE operation on the dependent table attempted to change the columns
of a foreign key to values which do not exist as a key in the parent table.

Action> _____ CANCEL Cancel the edit session
                EXIT Return to the edit session
                MODEL Model the parent row on selected row(s)
                INSERT Insert a default parent row with key values

Foreign Key
Parent column  Dependent column  Column value
+             +             +
000001 APILIB APILIB XNVLIB
000002 *** End of Data ***

```

Figure 22. DB2: Save SQL Error -530 - Missing Parent Key.

Format 4. Parent key update error panel for SQLCODE -531

The SQLCODE -531 is returned when a row is updated in such a way that changes the values of columns which represent the foreign key of an existing dependent (child) table row. The displayed SQLCODE is prefixed by "R" to indicate a referential constraint error. The following SQL error panel is displayed:

As well as describing the foreign key in error, the **REDIT** action command can be used to start a dependent edit session to edit the dependent rows.

See [Panel Fields](#) for a description of the panel contents.

```

SELCPY/i - DB2 Save SQL Error
File Edit Actions Options Utilities Window SwapList Help  wS wR
Command> Scroll> Csr

DB2 has reported a parent key update error SQLCODE -531.
Relationship: ZZSFUNC_REF2 Delete rule: Restrict
Parent      : CBL.ZZSSMOD
Dependent   : CBL.ZZSFUNC

An UPDATE operation on the parent table attempted to change one or more columns
of a parent key which was a foreign key in rows of the dependent table.

Action> _____ CANCEL Cancel the edit session
                EXIT Return to the edit session
                REDIT Edit the related table

Foreign Key
Parent column  Dependent column  Column value
+             +             +
000001 MODNAME FUNCMOD CNVFDATI
000002 *** End of Data ***

```

Figure 23. DB2: Save SQL Error -531 - Parent Key Update.

Format 5. Delete rule violation error panel for SQLCODE -532

The SQLCODE -532 is returned when a row is deleted which has dependent (child) rows for which the referential constraint delete rule is **RESTRICT** or **NO ACTION**. The displayed SQLCODE is prefixed by "R" to indicate a referential constraint error. The following SQL error panel is displayed:

As well as describing the foreign key in error, the **REDIT** action command can be used to start a dependent edit session to edit the dependent rows.

See [Panel Fields](#) for a description of the panel contents.

Note that when a deleted row causes this error the deleted row is re-inserted at the top of the current view. Having corrected the relationship that caused the error, the row must be re-deleted from the edit view in order to action the SQL DELETE of the row on a subsequent save operation.

```

SELCPY/i - DB2 Save SQL Error
File Edit Actions Options Utilities Window SwapList Help  wS wR  Scroll> Csr
Command>

DB2 has reported a DELETE rule violation SQLCODE -532.
Relationship: ZZSFUNC_REF2          Delete rule: Restrict
Parent       : CBL.ZZSSMOD
Dependent    : CBL.ZZSFUNC

A DELETE operation attempted to delete a specified row and all dependent
rows in dependent tables but this relationship's DELETE rule prevented it.

Action> _____ CANCEL  Cancel the edit session
                EXIT    Return to the edit session
                REDIT   Edit the related table

Foreign Key                                           1 Row
Parent      Dependent  Column
column      column     value
+           +           +
000001 MODNAME  FUNCNAME  CNVFFILT
000002 *** End of Data ***

```

Figure 24. DB2: Save SQL Error -532 - Delete Rule Violation.

Panel Fields

Relationship:

A non-enterable field displaying the name of the referential constraint for which the constraint violation occurred.

Delete rule:

A non-enterable field displaying the delete rule assigned to the referential constraint.

The delete rule determines the action performed when a row of the parent DB2 table is deleted. Possible values are: **No Action**, **Cascade**, **Set null** and **Restrict**.

Parent:

A non-enterable field displaying the name of the DB2 parent table in the relationship.

Dependent:

A non-enterable field displaying the name of the DB2 dependent (foreign key) table in the relationship.

Action>

Enter one of the valid actions to be performed for the row in error. A minimum abbreviation of 1 character may be used to specify any of the following valid actions:

CANCEL

Cancel the edit of the DB2 table. The data edit view is closed and all row changes for which an SQL error has been flagged are discarded.

EXIT

Exit the DB2 Save SQL Error panel and return to the DB2 table edit view.

MODEL

Applicable only to SQL error -530 (missing parent key), this action closes the DB2 save SQL Error panel and opens the **DB2 Row Selection Panel** so that rows of the parent table that match a specific search condition may be selected and displayed in an edit related table view.

In addition to the selected parent table rows, the edit view will contain a new row in which the parent key columns contain the missing foreign key value. Values within the selected table rows may be used to model values for other columns in the newly inserted row before it is saved.

Having inserted and saved the new parent table row, the edit related table view may be closed, returning focus to the original DB2 table edit view in which the error was detected.

INSERT

Applicable only to SQL error -530 (missing parent key), this action closes the DB2 save SQL Error panel and opens an edit related table view containing only a newly inserted row in which the parent key columns contain the missing foreign key value. Values in other columns of the row are initialised to their defaults.

Having inserted and saved the new parent table row, the edit related table view may be closed, returning focus to the original DB2 table edit view in which the error was detected.

REDIT

Applicable only to SQL errors -531 (parent key update) and -532 (delete rule), this action closes the DB2 save SQL Error panel and opens an edit related table view containing only those rows of the dependent table for which the foreign key is in error.

Foreign Key Table

A table displaying the value of the dependent DB2 table foreign key for which the relationship would be broken. Rows of the Foreign Key table represent corresponding columns of the parent and foreign keys in the order in which they occur within those keys.

Parent column

Displays the name of the parent key columns in the order in which they occur within the parent key.

Dependent column

Displays the name of the dependent table foreign key columns in the order in which they occur within the foreign key.

Column value

Displays the values in the dependent table foreign key columns for the foreign key violation caused by the SQL INSERT, DELETE or UPDATE operation.

DB2 Select Table Index

The DB2 Select Table Index panel (ZZS2SINX) is a modal, **interactive panel window** which displays a selectable list of indexes that have been defined on the DB2 table.

The panel is displayed when the **SORTINDEX** primary command is executed with no parameters from an existing DB2 browse/edit session.

If more than one key column is defined for an index, then repeated list rows exist for that index with one row for each index key column. Selection of any of these rows will select the equivalent index and sort the rows by that index's key columns.

```

SELCOPY/i - DB2: Select Table Index
View Refresh Back Forward FDB Text Help          wS wR
Command>                                          Scroll> Csr
ZZS2SINX

Select Index for table:
+
---Index--- -Cols- -Seq-- --Column--- Order Unique DataType Schema
-- APIFUNC#IX0      2      1  APILIB      A      P      CBL
-- APIFUNC#IX0      2      2  FUNCREF     A      P      CBL
-- APIFUNC#IX1      2      1  APILIB      A      R      CBL
-- APIFUNC#IX1      2      2  FUNCNAME    A      R      CBL
-- APIFUNC#IX2      2      1  FUNCMOD     A      C      CBL
-- APIFUNC#IX2      2      2  FUNCMOD#REF A      C      CBL
-- APIFUNC#IX3      1      1  FUNCNAME    A      D      CBL

Line 1 of 7 | Col 1 of 68 | Views 1 | select * sort Index,Cols
  
```

Figure 25. DB2 Select Table Index Panel.

SDE CREATE/REPLACE File Panel

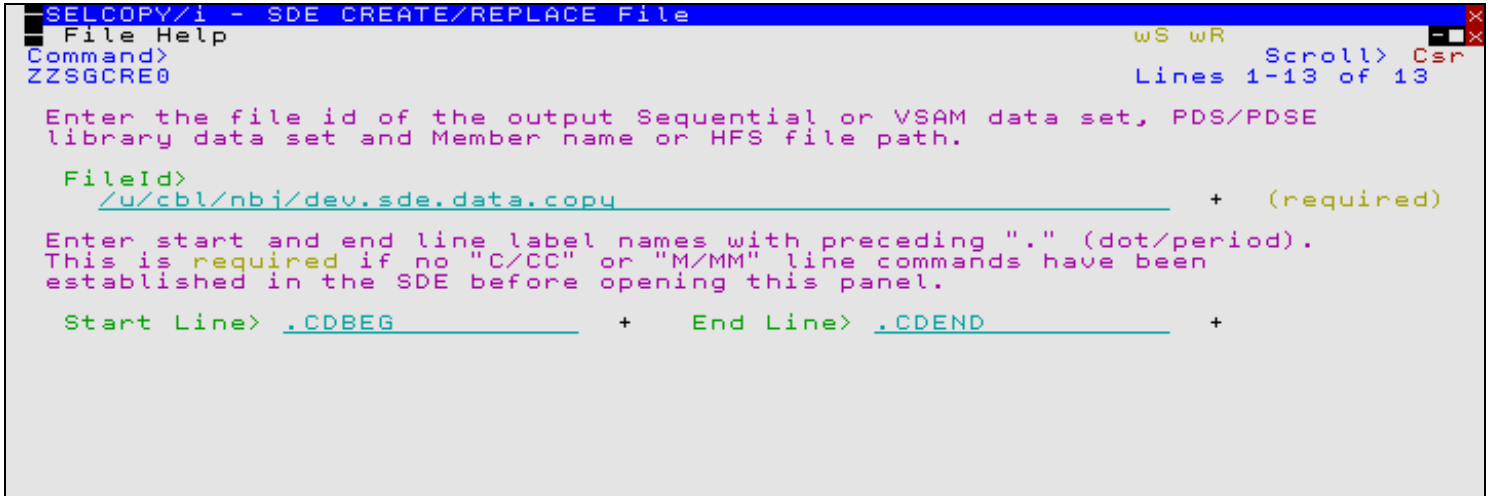


Figure 26. SDE Create/Replace File Panel.

The SDE Create/Replace File panel (ZZSGCRE0) is an **interactive panel window**, opened on executing primary commands **CREATE** or **REPLACE** without any parameters.

This panel is used to create new or replace existing sequential or VSAM data sets, PDS/PDSE library members or HFS files.

Panel Input Fields

FileId>

Specifies the fileid of the target file to be created or replaced.

If the specified fileid is less than 8 characters in length and is a valid member name, the target file will be a member name belonging to the same PDS/PDSE library referenced in the focus SDE view. If the focus SDE view does not display a library member, then the fileid will be treated as an HFS file within the current HFS working directory.

For a REPLACE operation only, if the fileid includes a volume id, then the target file may be a cataloged or uncataloged data set or PDS/PDSE library which exists in that volume's VTOC. e.g. VOLWKA:DEV.UNCATLG.FILE.

Start Line>

A label name, which includes the preceding "." (dot/period), identifying the first line of the group of lines to be copied to the target file.

If not specified, then the group of lines must have been marked using "C" or "M" line (prefix area) commands.

End Line>

A label name, which includes the preceding "." (dot/period), identifying the last line of the group of lines to be copied to the target file. If a start line label name has been specified, a valid entry in this field is mandatory.

SDE COPY File Panel

```

SELCOPY/i - SDE COPY File
File Help
Command>
ZZSGSDEC
wS wR
Scroll> Csr
Lines 1-20 of 22

Enter the file id of an existing Sequential or VSAM data set, PDS/PDSE
library data set and Member name or HFS file path from which lines are
to be copied.

Source FileId:
  DSN/Path> _____ + Member> _____
  Volume> _____ If dataset is uncataloged.

Line Numbers:      Optionally specify subset of lines to be copied.
  First Line> _____ 1
  Last Line> _____ 0 0 (zero) => last line.

Optionally enter a target line label name with preceding "." (dot/period).
If not, target is the first line containing line command "A" (AFTER) or
"B" (BEFORE), otherwise the first line of the display.

  Target Line> _____ + Before/After Target Line> AFTER

Press <Enter> to execute COPY, <PF3> (END) to cancel.

```

Figure 27. SDE Copy File Panel.

The SDE Copy File panel (ZZSGSDEC) is an **interactive panel window**, opened on executing primary command **COPY** without any parameters.

This panel is used to copy lines from an existing sequential or VSAM data set, PDS/PDSE library member or HFS file into data being edited in the focus SDE edit view.

Panel Input Fields

Source FileId:

Fields that identify the source file from which lines are to be copied.

DSN/Path>

An absolute or relative HFS Path name or the fully qualified name of a sequential data set or PDS/PDSE library. Quotes are permitted but unnecessary.

A selectable list of data set names or HFS files will be displayed as appropriate if either wild card character "%" (percent) or "*" (asterisk), both representing zero or more characters, is specified. If a volume id exists in the Volume field, then a list of selectable data sets will be restricted to those contained in that volume's VTOC.

Member>

If DSN/Path field is the DSN of a PDS/PDSE library, specifies the source file member name.

A selectable list of members will be presented if wildcard character "*" or "%" occurs anywhere within the specified member name or the member name is left blank.

Volume>

Specifies a volume serial id mask for an uncataloged source file. (Not applicable to HFS files.)

Line Numbers:

Fields that optionally specify the start and end lines of a group of lines to be copied from the source file.

First Line>

Line number of the first line of a subset group of lines to be copied from the the source file.

End Line>

Line number of the last line of a subset group of lines to be copied from the the source file.

If 0 (zero), the default is the last line of the source file.

Target Line>

A label name, which includes the preceding "." (dot/period), identifying the target line within the focus SDE edit view where lines are to be copied.

If not specified, then the target line is the first line in the SDE view containing line (prefix area) command "A" or "B", otherwise the first line of the SDE view.

Before/After Target Line>

Indicates whether the copied lines are to be copied before or after the line assigned the specified line label.

SDE SELECT Columns Panel

```

SELPCOPY/i - Select Display Fields for a Record Type
File Edit Actions Options Utilities Window SwapList Help  wS wR  Scroll>  Csr
Command>
ZZSGSELD
Structure Name:  USER123.SELCTRN.SDO(ZZST2)
Record Type:    TRACK
Perm/Temp:     PERM
Show unselected fields at the end:  N Y/N
Select record type fields
S H Seq Width Name Type Start Length Picture Data type Precision 35 Rows
-----
- - - - - TRACK AN 1 268 STRUCTURE 0 001
S H 1 PERSISTENT-ID AN 2 16 X(001) CHARACTER 0 002
- - - - - TRACK-NUM ZD 18 3 9(003) ZONED 3 004
- - - - - TRACK-ID ZD 21 4 9(004) ZONED 4 005
S 2 25 NAME AN 25 120 X(120) CHARACTER 0 006
- - - - - TOTAL-TIME FB 145 4 9(007) FIXED 0 007
- - - - - FILE-SIZE FB 149 4 9(009) FIXED 0 008
S 3 BIT-RATE FB 153 2 9(004) FIXED 5 009
- - - - - SAMPLE-RATE PD 155 3 9(005) DECIMAL 5 010
- - - - - YEAR ZD 158 4 9(004) ZONED 4 011
- - - - - NORMALIZATION PD 162 3 99(005) DECIMAL 5 012
S 4 25 DISC-NUMBER ZD 165 3 9(003) ZONED 3 013
- - - - - ALBUM-ARTIST AN 168 41 X(041) CHARACTER 0 014

```

Figure 28. SDE Select Columns Panel.

The SDE Select Columns panel (ZZSGSELD) is an **interactive panel window**, opened on executing either of the following:

1. Primary command **SELECT** with no parameters. In this case the **default record type** is used.
2. Line (prefix) command **SEL** in the prefix area of a record of the required record type.

This panel is used to update column width, column selection and column display order for a particular record type data mapping in the focus SDE view. The changes made in this panel may be temporary or saved as a permanent update to the structure (SDO).

Note that the dialog is a *modal* panel. While it is open no other window can be made the focus. The dialog must be terminated (with the **END** or **CANCEL** command) before any other window can become active.

If opened for a record type which has array (OCCURS DEPENDING) entries, then the individual array element entries, represented as field names suffixed with a parenthesised element number subscript, are excluded by default. These entries may be displayed and excluded using primary commands **+ELEMENT (+E)** and **-ELEMENT (-E)** respectively.

Panel Input Fields

The dialog panel contains header fields naming the structure and record type and a table of all data elements for the record type.

Header fields:

Structure Name:

The name of the structure being used in the current edit or browse session. This field is set automatically and is not enterable.

Record Type:

The name of the record type for which the data element selection is to be made. It is the focus record type when the dialog was invoked. This field is set automatically and is not enterable.

Field Name:

Enter a field/column name mask to filter the embedded table rows by the contents of the **Name** field. All fields with names that do not match the field name mask are excluded from the table display.

If a name mask is specified, the embedded table command **ALL NAME LIKE "name_mask"** is generated and executed when <Enter> is pressed.

The name mask is **not** case sensitive and may include wildcard characters "*" (asterisk), representing zero or more characters, and "%" (percent), representing a single character. If no wildcard characters are used, the specified name mask is treated as having an implied wildcard character "*" at both the start and end of the name mask. e.g. A name mask of *File* is equivalent to **File**. Use of a field name mask with wildcards may be particularly useful in selecting only fields belonging to a particular level. e.g. **3** will select only rows with level 3 field names.

Beware that rows that have been selected using the selection column of the embedded table but then excluded from the table display by the field name filter, are **not** included in the final selection.

Perm/Temp:

The permanent or temporary indicator. This field determines whether the selection is temporary (i.e. just for the current edit or browse session) or permanent (i.e. the selection will be saved in the structure and therefore automatically invoked in the next edit or browse session using this structure).

If PERM is selected but the active SDO is a temporary structure (e.g. one created dynamically for a DB2 table or from a COBOL, PL1 or Assembler copybook or ADATA file), then the Specify new Structured Data Object (SDO) name panel is opened. This panel prompts for the name of a Structure Definition File (**SDF**), a data set or library member to which the SDO will be saved and so made permanent.

Show unselected fields at the end:

If set to **Y**, this field indicates that any fields that are not explicitly selected should be added to the end in their default order.

Table fields:

The dialog panel contains a scrollable table of all the data elements in the record type.

A selection is made by entering the selection, hold and sequence fields in the table rows. A data element is selected only if its selection field contains *S* (entering the hold or sequence fields does not select the field).

Note that excluded rows are not selected even if their selection field is set to *S*.

If a selection has already been made for the record type then the selection, hold and sequence fields will be automatically set on entry to the dialog to reflect the previous selection.

S

The selection column. Enter a non-blank character to select the data element. Any non-blank character entered causes this field to be set to *S* indicating that the data element in that row is selected.

H

The hold column. Enter a non-blank character to hold the selected data element when scrolling horizontally. Any non-blank character entered causes this field to be set to *H* indicating that the data element in that row is held if it is selected.

Seq

The selection sequence column. Enter a sequence number to control the order in which the selected data elements will appear in the display. If no sequence numbers are entered the selection sequence is the same as the order of the selected data elements in the table. If some but not all selected data elements are given sequence numbers then those with sequence number 0 will be selected *after* all those with sequence number >0, in table order.

Note that the order of data elements in the table can be changed using the *M* (move) or *MM* (block move) prefix commands.

Width

This option controls the number of characters that will be displayed for the selected data element. Column width cannot be increased beyond the column's defined maximum width.

The "prefix" area

Each table row has a prefix area (actually displayed on the right) which contains the data element sequence number. This field is enterable and may be used for table prefix commands (for example *X* to exclude rows, *M* to move rows).

All other table fields are not enterable and contain attributes of the record type data elements:

Name	The level and name of the data element.
Type	The abbreviated data type of the data element.
Start	The start position of the data element. If the record type describes a record which has variable length fields (and therefore potentially variable positions) this represents the start position in the expanded form of the record where all fields are expanded to maximum length.
Length	The length of the data element. If the data element is of variable length this is the maximum possible length.
Picture	The PICTURE string used to define the data element.
Data type	The internal data type of the data element.
Precision	The precision (number of digits) of <i>DECIMAL</i> data elements.
Scale	The scale (number of decimal fraction digits) of <i>DECIMAL</i> data elements.

RefNo	The data element reference number (its defined sequence in the record type).
Dimension	The number of array dimensions of an array data element (0 if not an array).
Max length	The maximum length of the data element.
Min length	The minimum length of the data element.
Array Type	Array status of the data element. NotArray, Array or ArrayElement.
Remarks	The content of any remarks string defined for the data element in the structure.

Panel Primary Commands

Commands with a specific effect on the SELECT dialog are:

END	End the dialog and generate and execute any selection made by the dialog. Set on Function Key F3 by default.
CANCEL (CAN)	End the dialog without making a selection.
RESET (RES)	Set all selection, hold, sequence and width fields to their default values. To reset any of the fields individually add the keyword options S , HOLD (H) , SEQ and WIDTH (W) respectively.
ARRAYELEMENT (ARRAYE)	Exclude or Display array (OCCURS DEPENDING) elements. To display elements, add the keyword option SHOW (S) or + . To exclude elements, add the keyword option EXCLUDE (EX) , X or - .
+ELEMENT (+E)	Equivalent to ARRAYELEMENT SHOW.
-ELEMENT (-E)	Equivalent to ARRAYELEMENT EXCLUDE.
EXECUTE (EX)	Generate and execute the selection without leaving the dialog. Set on Function Key F16 by default. This command is especially handy when operating in "windowed" mode where the invoking structured browse/edit window is simultaneously visible. Please note that the SELECT dialog window itself may be moved, shrunk/stretched in the usual way in order to reveal the invoking browse/edit window.
SELALL (SELA)	Set the selection field to 'S' for all data elements. Set on Function Key F5 by default.
DESELALL (DES)	Reset the selection field to ' ' for all data elements. Set on Function Key F6 by default.

General table edit commands are also available. For example:

UNDO	Undo the last change to the table. Set on Function Key F22 by default.
REDO	Redo the last change to the table that was undone. Set on Function Key F23 by default.
UP DOWN LEFT RIGHT TOP BOTTOM	Table scrolling commands.

SDE FILTER Records Panel

```

SELCOPY/i - FILTER dialog - Generate ALL/MORE/LESS Selection Criteria
File Help
Command>
ZZSGFLT2
Display: ALL
Record Type: TRACK
F1=Help F3=Apply s10/s11=UNDO/REDO
AND ( Lev Name Fmt Pic ROp Value ) 18 Rows
/OR
AND --- 2 PERSISTENT-ID AN X(016) = 0001
AND --- 2 TRACK-NUM ZD 9(003) = 1 0002
AND --- 2 TRACK-ID ZD 9(004) = 0003
AND --- 2 NAME AN X(120) = 0004
AND [ 2 ARTIST AN X(070) << 'Prince' 0005
AND --- 2 ARTIST AN X(070) << 'Springsteen' 0006
AND --- 2 ALBUM AN X(070) = 0007
AND --- 2 TOTAL-TIME FB 9(007) = 0008
AND --- 2 FILE-SIZE FB 9(009) = 0009
----- 6 row(s) excluded ----- 0010
AND --- 2 RELEASE-DATE AN X(020) = 0016
AND --- 2 DATE-ADDED AN X(020) = 0017
AND --- 2 DATE-MODIFIED AN X(020) = 0018
*** End of Data *** 0019

```

Figure 29. SDE Filter Records Panel.

The SDE Filter Records panel (ZZSGFLT2) is an **interactive panel window**, opened on executing either of the following:

1. Primary command **FILTER (FILT)** with no parameters. In this case the **default record type** is used.
2. Line (prefix) command **FLT** in the prefix area of a record of the required record type.

This panel is used to filter the display of records by executing a **WHERE (ALL), MORE** or **LESS** command that is generated using a panel in which the users enters selection criteria against a table of fields that comprise the focus record-type.

The functionality is equivalent to use of the **FIND/ EXCLUDE** features, but with the added advantage of filtering records based on possibly multiple, complex (parenthesised) selection criteria.

ALL	Display only matching record(s)
MORE	Additionally display matching record(s)
LESS	Exclude matching record(s)

Panel Input Fields

The dialog panel contains header fields to:

- Define the function (ALL/MORE/LESS)
- Display the name of the record type

These are followed by a table of all data elements for the record type.

The panel contains a table where each row represents a sub-expression of the single **INCLUDE** or **EXCLUDE** sub-clause (**WHERE** expression) generated for the selected record structure. Each generated sub-expression is based on values referenced by one or more field names defined in the record structure.

By default, the table contains one row for every level of nested field defined within the record structure. These entries may be duplicated, copied or re-ordered before generating the sub-expression. Note that table entries that do not have a test value will **not** be included as part of the generated sub-expression.

The sub-expressions are separated by logical operator **AND** or **OR**, where **AND** is higher in the order of operator precedence than **OR**. i.e. **A AND B OR C** is equivalent to **(A AND B) OR C**. To filter on fields **A AND (B OR C)**, then two rows should exist for the same record structure in the **FILTER (formatted) - INCLUDE/EXCLUDE record-types** table so that one tests fields **A AND B** and the other tests fields **A AND C**.

Standard SELCOPYi **table editing** techniques should be used to update, move, copy and exclude table row entries for each filter sub-expression.

Each table row contains input fields for logical operator (**AND/OR**), optional opening parentheses "**(**", relational operator (**ROp**), the value against which the field will be tested and optional closing parentheses "**)**". Null or invalid entries may be entered in the **AND/OR** and **ROp** fields to display and select permitted entries for these fields.

All other fields are output (non-updatable) fields providing useful information about the field to be tested (i.e. the field's level of nesting, its name, data type (format) and, if defined, its picture definition.)

Since logical operators AND and OR are dyadic, the **AND/OR** field of the first table row (the first term of the expression) is always blank and cannot be updated.

<PF5> and <PF6> may be used to alternate between display of only selected rows and all rows in the table respectively. This has no effect on the generated filter, but is useful as a visual aid.

The user can display the "form" view of any individual row using the ZOOM command (assigned to <PF2> by default.) As well as providing additional helpful comment information, the single record view allows the user to use the panel EXPAND feature to enter a Value field entry that is longer than the provided input area.

Pressing <PF3> to exit the zoomed view of the panel, will update the filter sub-expression table row and return to the multi-record view of the table.

Press <PF3> again to execute the ALL/MORE/LESS command.

Alternatively, type the **CMX** command to display the generated command in a temporary Text-Edit window, ready for execution using the **ACTION** feature.

Header fields:

Display: ALL/MORE/LESS

ALL
Display only matching record(s)

MORE
Additionally display matching record(s)

LESS
Exclude matching record(s)

Enter blank for a selectable list.

Record Type:

The name of the record type for which the data element selection is to be made. It is the focus record type when the dialog was evoked. This field is set automatically and is not enterable.

Table fields:

The dialog panel contains a scrollable table of all the data elements in the record type.

Logical Operator> AND|OR

Logical operator that identifies the relationship of this field test sub-expression with the previously specified sub-expression. If this is the first, then this field is ignored. Permissible operators are **AND** or **OR**.

Opening Bracket (s)>

One or more leading "(" that the user may provide in order to specify parenthesised expressions.

Space is provided for only one "(" in the table view of the selection criteria panel. To specify more than one "(", first use the **"ZOOM"** key (**Shift-F4**) to display a form panel corresponding to the focus table row.

The form panel provides larger entry fields for many of the table columns.

Field Details:

Informational output fields that describe the formatted field.

Level:

Level of nesting below the first level (GROUP or STRUCTURE) field.

Name:

Field name.

Data Type:

The field's defined data type. See *"SDE Data Types"* for details of supported data types and their abbreviated names.

Picture:

If the source field is defined with a COBOL picture string, its representation is displayed in this field.

Relational Operator>

Identifies the type of test to be performed on the field data. Enter blank in this field to display a selectable list of supported relational operator symbols and a brief description of each.

Value>

Specifies the **literal string** term against which the field data will be tested.

Values may be specified using standard **Expression Terms**.

To specify values longer than the available entry field length, first use the **"ZOOM"** key (**Shift-F4**) to display a form panel corresponding to the focus table row.

The form panel provides a larger entry field for the Value. If this is still inadequate, you may press the "EXPAND" key (Shift-F2) with your cursor in the form entry field in order to open a Text-Edit style window providing for values of up to 256 bytes.

Closing Bracket (s) >

One or more leading ")" that the user may provide in order to specify parenthesised expressions.

Space is provided for only one ")" in the table view of the selection criteria panel. To specify more than one ")", first use the "ZOOM" key (Shift-F4) to display a form panel corresponding to the focus table row.

The form panel provides larger entry fields for many of the table columns.

Panel Primary Commands

Commands with a specific effect on the FILTER dialog are:

END

End the dialog and generate and execute any record selection made by the dialog.
Set on Function Key **F3** by default.

CANCEL (CAN)

End the dialog without making any record selection.

CMX

End the dialog then display the generated command in a temporary Text-Edit window, ready for execution using the **ACTION** feature.

General table edit commands are also available. For example:

UNDO

Undo the last change to the table.
Set on Function Key **F22** by default.

REDO

Redo the last change to the table that was undone.
Set on Function Key **F23** by default.

UP | DOWN | LEFT | RIGHT | TOP | BOTTOM

Table scrolling commands.

SDE LOCATE Records Panel

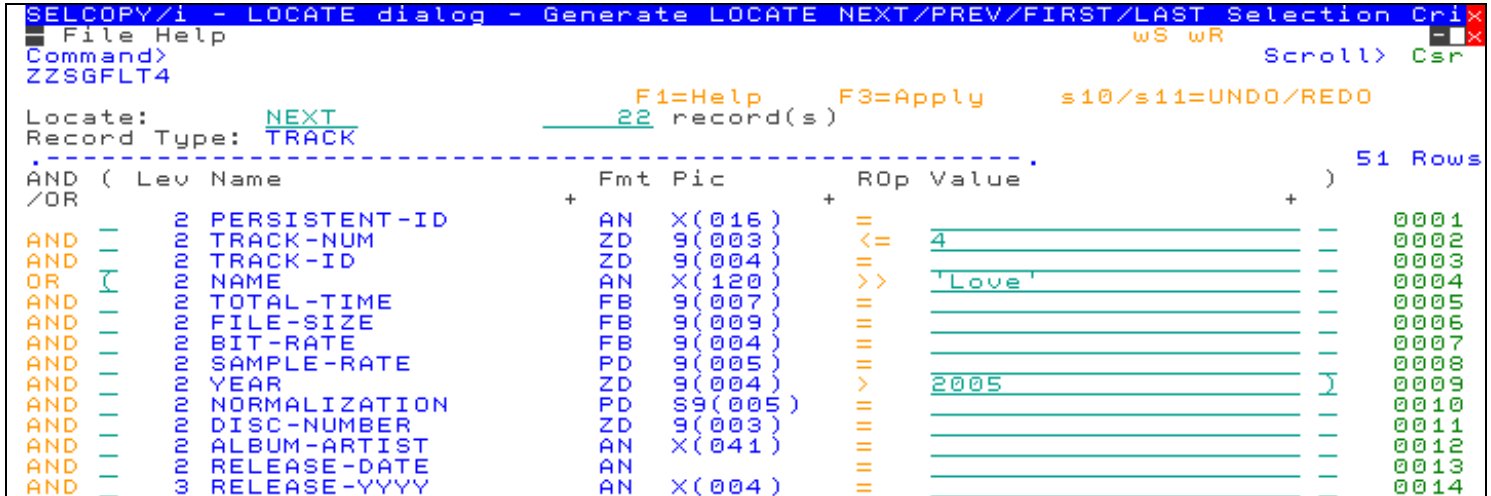


Figure 30. SDE Locate Records Panel.

The SDE Locate Records panel (ZZSGFLT4) is an **interactive panel window**, opened on primary command **LOCATE** with no parameters. In this case the **default record type** is used.

This panel is used to locate records by executing a **LOCATE** command that is generated using a panel in which the user enters selection criteria against a table of fields that comprise the focus record-type.

The functionality is equivalent to use of the **FIND** feature but with the added advantage of locating records based on possibly multiple, complex (parenthesised) selection criteria.

Panel Input Fields

The dialog panel contains header fields to:

- Define the function (LOCATE NEXT/PREV/FIRST/LAST)
- Define the number of records to locate
- Display the name of the record type

These are followed by a table of all data elements for the record type.

The panel contains a table where each row represents a sub-expression of the single **INCLUDE** or **EXCLUDE** sub-clause (WHERE expression) generated for the selected record structure. Each generated sub-expression is based on values referenced by one or more field names defined in the record structure.

By default, the table contains one row for every level of nested field defined within the record structure. These entries may be duplicated, copied or re-ordered before generating the sub-expression. Note that table entries that do not have a test value will **not** be included as part of the generated sub-expression.

The sub-expressions are separated by logical operator **AND** or **OR**, where **AND** is higher in the order of operator precedence than **OR**. i.e. **A AND B OR C** is equivalent to **(A AND B) OR C**. To filter on fields **A AND (B OR C)**, then two rows should exist for the same record structure in the **LOCATE (formatted) - INCLUDE/EXCLUDE record-types** table so that one tests fields **A AND B** and the other tests fields **A AND C**.

Standard SELCOPYi **table editing** techniques should be used to update, move, copy and exclude table row entries for each filter sub-expression.

Each table row contains input fields for logical operator (**AND/OR**), optional opening parentheses "(", relational operator (**ROp**), the value against which the field will be tested and optional closing parentheses ")". Null or invalid entries may be entered in the **AND/OR** and **ROp** fields to display and select permitted entries for these fields.

All other fields are output (non-updatable) fields providing useful information about the field to be tested (i.e. the field's level of nesting, its name, data type (format) and, if defined, its picture definition.)

Since logical operators **AND** and **OR** are dyadic, the **AND/OR** field of the first table row (the first term of the expression) is always blank and cannot be updated.

<PF5> and <PF6> may be used to alternate between display of only selected rows and all rows in the table respectively. This has no effect on the generated filter, but is useful as a visual aid.

The user can display the "form" view of any individual row using the ZOOM command (assigned to <PF2> by default.) As well as providing additional helpful comment information, the single record view allows the user to use the panel EXPAND feature to enter a Value field entry that is longer than the provided input area.

Pressing <PF3> to exit the zoomed view of the panel, will update the filter sub-expression table row and return to the multi-record view of the table.

Press <PF3> again to execute the LOCATE command.

Alternatively, type the **CMX** command to display the generated command in a temporary Text-Edit window, ready for execution using the **ACTION** feature.

Header fields:

Locate: NEXT/PREV/FIRST/LAST

NEXT Locate next 'nn' matching record(s)
PREV Locate previous 'nn' matching record(s)
FIRST Locate first 'nn' matching record(s)
LAST Locate last 'nn' matching record(s)
 Enter blank for a selectable list.

nnnn record(s)

The number of records to locate.

Since "located" records become "unexcluded", you may wish to start this dialog following a "X ALL" command to first exclude all records, then specify the number of records (e.g. 10) to see a selection of hits, without processing the whole file (as would occur using the **FILTER** dialog).

Record Type:

The name of the record type for which the data element selection is to be made. It is the focus record type when the dialog was evoked. This field is set automatically and is not enterable.

Table fields:

The dialog panel contains a scrollable table of all the data elements in the record type.

Logical Operator> AND|OR

Logical operator that identifies the relationship of this field test sub-expression with the previously specified sub-expression. If this is the first, then this field is ignored. Permissible operators are **AND** or **OR**.

Opening Bracket (s)>

One or more leading "(" that the user may provide in order to specify parenthesised expressions.

Space is provided for only one "(" in the table view of the selection criteria panel. To specify more than one "(", first use the **"ZOOM"** key (**Shift-F4**) to display a form panel corresponding to the focus table row.

The form panel provides larger entry fields for many of the table columns.

Field Details:

Informational output fields that describe the formatted field.

Level:

Level of nesting below the first level (GROUP or STRUCTURE) field.

Name:

Field name.

Data Type:

The field's defined data type. See *"SDE Data Types"* for details of supported data types and their abbreviated names.

Picture:

If the source field is defined with a COBOL picture string, its representation is displayed in this field.

Relational Operator>

Identifies the type of test to be performed on the field data. Enter blank in this field to display a selectable list of supported relational operator symbols and a brief description of each.

Value>

Specifies the **literal string** term against which the field data will be tested.

Values may be specified using standard **Expression Terms**.

To specify values longer than the available entry field length, first use the **"ZOOM"** key (**Shift-F4**) to display a form panel corresponding to the focus table row.

The form panel provides a larger entry field for the Value. If this is still inadequate, you may press the "EXPAND" key (**Shift-F2**) with your cursor in the form entry field in order to open a Text-Edit style window providing for values of up to 256

bytes.

Closing Bracket (s) >

One or more leading ")" that the user may provide in order to specify parenthesised expressions.

Space is provided for only one ")" in the table view of the selection criteria panel. To specify more than one ")", first use the **"ZOOM"** key (**Shift-F4**) to display a form panel corresponding to the focus table row.

The form panel provides larger entry fields for many of the table columns.

Panel Primary Commands

Commands with a specific effect on the LOCATE dialog are:

END

End the dialog and generate and execute the LOCATE command.
Set on Function Key **F3** by default.

CANCEL (CAN)

End the dialog without executing a LOCATE command.

CMX

End the dialog then display the generated command in a temporary Text-Edit window, ready for execution using the **ACTION** feature.

General table edit commands are also available. For example:

UNDO

Undo the last change to the table.
Set on Function Key **F22** by default.

REDO

Redo the last change to the table that was undone.
Set on Function Key **F23** by default.

UP | DOWN | LEFT | RIGHT | TOP | BOTTOM

Table scrolling commands.

SDE PRINT File Panel

The **PRINT** panel may be displayed by typing the **PRINT** primary command without parameters from an existing Structured Data Browse/Edit session.

```

SELCPY/i - PRINT: Specify PRINT Source/Destination
File Command Help                               wS wR
Command>                                         Scroll> Csr
ZZSGPRT1                                         Lines 1-20 of 20

Type OPTIONS for print options.

Start Record:
- Start at Top-of-File
Z Start at focus record
- Start at supplied user label> .ZFIRST

End Record:
- End at End-of-File
Z End at focus record
- End at supplied user label > .ENDP
Limit > 100 (0=>No limit) Limit Unit> Pages (Pages/Lines)

PRINT Output Text File: PDS(E) member, Sequential, VSAM dataset or HFS path
Dsn/Path> NBJ.PRINT + Member> D2015001
Volume> If dataset is uncataloged
Append to existing Output
  
```

Figure 31. SDE Print File Panel.

The PRINT process will honour any **SELECT** issued prior to entry in order to restrict the fields generated and will operate only on un-excluded records that are currently in **VIEW**.

The PRINT process is also sensitive to the current state of the following **SET** options.

ASCII	HEX	REFERENCE	TYPE
COLATTRIBUTES	MAPPING	RESERVED	UNNAMED
COLWIDTH	PREFIX	SCALE	VIEW
FORMAT	RECINFO	SHADOW	

The PRINT process will be executed in the foreground.

Menu Bar Items

- File**
The File drop-down menu contains the single item "Exit" which simply closes the panel window. Note that, unlike CANCEL, CLOSE will save field values entered in the panel so that they may be redisplayed the next time the panel is opened.
- Command**
Generate the PRINT command line syntax and display it in a temporary CMX file text edit view. This command may be executed using ACTION point-and-shoot execution <F16> or copied into the user's HOME file and saved for future execution.

The user has the opportunity to edit the command prior to its execution and/or copying it to the home (CMX) command centre for future reference and re-execution.
- Help**
Display help for this panel view.

Panel Input Fields

Start Record:

- Start at Top-of-File:**
XML generation will start from the top of file.
- Start at focus record**
XML generation will start from the focus (cursor) record.
- Start at supplied user label>**
XML generation will start from the record specified by the supplied user label.

End Record:**End at End-of-File:**

XML generation will continue until end of file.

End at focus record

XML generation will continue up to and including the focus (cursor) record.

End at supplied user label>

XML generation will continue up to and including the record specified by the supplied user label.

Limit>

Specifies the number of pages/lines of print output to be generated before the process is to be automatically terminated.

Limit Unit>**Pages**

Limit specifies a number of pages.

Lines

Limit specifies a number of lines.

PRINT Output Text File:

Input fields which together identify a single output sequential, VSAM or PDS/PDSE library data set, HFS file or PDS/PDSE library member.

DSN/Path>

Identifies the fully qualified data set name or an absolute or relative HFS file path.

A selectable list of data sets or HFS files will be presented if the entered value contains wildcards characters "*" (asterisk) or "%" (percent).

If a DSN is specified for a data set that does not already exist, a prompt data set dialog will be opened to allocate the new output file.

Member>

If the **DSN/Path>** field contains the DSN of a PDS/PDSE library, then this field may specify the name of a new or existing member within that library.

A selectable list of members will be presented if the entered value contains wildcards characters "*" (asterisk) or "%" (percent), or is blanked out.

Volume>

Specifies the name of the output data set volume. This is required only if output is to an uncataloged data set.

Append to existing Output

Select this option if the generated records are to be appended to existing records in the output data set.

PRINT Source and Options

Table-Mode (VFMT/CHAR) Print Options:**Order>**

Where printed lines are longer than the output page width, then this field value determines the action taken on the overflowing line data.

Unless T (Truncate) is selected, overflow line data is printed on as many continuation pages as is required to accommodate the longest print line in the current set of print lines. Note that a set of print lines is the number of SDE view lines that may be displayed for the specified page depth.

A - Across Then Down

Indicates that continuation pages for the current set of lines are to be printed before scrolling down to the next set of print lines. i.e. Print all pages scrolling across to the right then scroll down to the first page of the next set of lines and repeat the process.

This option corresponds to parameter ACROSSTHENDOWN of the SELCOPY/i primary command **PRINT**.

Because only as many pages are printed to accommodate the longest line in the current set of print lines, the number of pages printed scrolling across may be different for each set of print lines.

D - Down Then Across

Indicates that the first page of all sets of print lines are to be printed before printing the next (continuation) page of all sets of print lines and repeating this process until all continuation pages have been printed. i.e. Print pages scrolling down, scroll back to the first set of print lines, scroll across to the right once and repeat the process.

This option corresponds to parameter DOWNTHENACROSS of the SELCOPY/i primary command **PRINT** and is suitable only when formatted records of a single record-type are selected for display. (See "Select Record-types to Print" if the SDO used contains multiple record-type definitions.)

If this option is selected and records of different record-types are displayed concurrently, then the print will fail with the following message:

```
ZZSD472E The DOWNTHENACROSS format of the PRINT command requires
that only one record type is visible.
```

Because only one record-type is used, the number of pages printed scrolling across will be the same for each set of print lines.

T - Truncate

Indicates that no continuation pages are to be printed so truncating the print lines. Only the first page of all sets of print lines will be printed.

This option corresponds to parameter TRUNC of the SELCOPY/i primary command **PRINT**.

Page Geometry:

Page Width>

Set the print output page width (number of columns).

A page width value of 0 (zero) will use the default page width of 133 for SYSOUT and HFS file output, and the maximum record length (LRECL) for an output data set or library member.

Note that, for FMT and UNFMT printed output, page width is restricted to a maximum of 255 print columns.

Page Depth>

Set the print output page depth (number of lines).

The page depth value includes the 5 Print header lines so that the number of lines of data printed will be 5 less than the page depth value.

Primary Commands

The following primary commands are supported.

OPTIONS (OPT)	Display PRINT processing options panel.
---------------	---

Function Keys

In addition to the standard interactive panel key assignments for scrolling and navigation, the PRINT panel supports the following:

F6	OPTIONS	Display PRINT processing options panel.
----	---------	---

SDE XML Generation Panel

The **XML Generation** panel may be displayed by typing **XMLGEN** (XML) primary command without parameters from an existing Structured Data Browse/Edit session.

```

SELCOPY/i - XML Generation: Specify XML Source/Destination
File Command Help                               ws wr
Command>                                         Lines 1-20 of 20  Scroll> Csr
ZZSGXML1                                         Type OPTIONS for translation and other options.

Start Record:
- Start at Top-of-File
- Start at focus record
Z Start at supplied user label> .XMLB

End Record:
Z End at End-of-File
Z End at supplied user label > .XMLE
Maximum output records > 0 (0=no limit)

Output XML Text File: PDS(E) member, Sequential, VSAM dataset or HFS path
Dsn/Path> NBJ.XMLGEN + Member> D2015001
Volume> If dataset is uncataloged

_ Append to existing Output HFS Output Options:
EOL Characters> NL NL|CR|LF|CRLF
  
```

Figure 32. SDE XML Generation Panel.

This panel allows the user to produce an exportable copy of selected records from the structured dataset as extended markup language (XML) text consisting of XML tags and tag content. The tag names correspond to the field names of the copybook/structure applied to the input dataset and the tag content to the field values expressed in character format.

The XMLGEN process will honour any **SELECT** issued prior to entry in order to restrict the fields generated and will operate only on un-excluded records that are currently in **VIEW**.

The XMLGEN process will be executed in the foreground.

Menu Bar Items

- File** The File drop-down menu contains the single item "Exit" which simply closes the panel window. Note that, unlike CANCEL, CLOSE will save field values entered in the panel so that they may be redisplayed the next time the panel is opened.
- Command** Generate the XMLGEN command line syntax and display it in a temporary CMX file text edit view. This command may be executed using ACTION point-and-shoot execution <F16> or copied into the user's HOME file and saved for future execution.
- The user has the opportunity to edit the command prior to its execution and/or copying it to the home (CMX) command centre for future reference and re-execution.
- Help** Display help for this panel view.

XML Source/Destination

Start Record:

- Start at Top-of-File:
XML generation will start from the top of file.
- Start at focus record
XML generation will start from the focus (cursor) record.
- Start at supplied user label>
XML generation will start from the record specified by the supplied user label.

End Record:

- End at End-of-File:
XML generation will continue until end of file.

End at supplied user label>

XML generation will continue up to and including the record specified by the supplied user label.

Maximum output records>

Specifies the number of selected records for which XML will be generated, at which the process will be automatically terminated.

Output XML Text File:

Input fields which together identify a single output sequential, VSAM or PDS/PDSE library data set, HFS file or PDS/PDSE library member.

DSN/Path>

Identifies the fully qualified data set name or an absolute or relative HFS file path.

A selectable list of data sets or HFS files will be presented if the entered value contains wildcards characters "*" (asterisk) or "%" (percent).

If a DSN is specified for a data set that does not already exist, a prompt data set dialog will be opened to allocate the new output file.

Member>

If the **DSN/Path>** field contains the DSN of a PDS/PDSE library, then this field may specify the name of a new or existing member within that library.

A selectable list of members will be presented if the entered value contains wildcards characters "*" (asterisk) or "%" (percent), or is blanked out.

Volume>

Specifies the name of the output data set volume. This is required only if output is to an uncataloged data set.

Append to existing Output

Select this option if the generated records are to be appended to existing records in the output data set.

HFS Output Options:

EOL Characters>

Choose from one of the following End-Of-Line character combinations:

NL	X'15'	New Line.
CR	X'0D'	Carriage Return.
LF	X'0A'	Line Feed.
CRLF	X'0D0A'	Carriage Return + Line Feed.

XML Source and Options

Translation Options:

Non-printable chars>

Since XMLGEN output is supposed to be in a portable character format, this option is required to specify how non-printable characters are dealt with.

HEX

If a character field contains a non-printable character output the whole field in hex string format. For example a character field length 4 containing X'FFFFFFF' would have its value represented as

X'FFFFFFF'

If a non-printable character is found in a character field and this option is in effect the field XML tag will have the attribute **NONPRINT_CHAR="HEX"**.

ASIS

No special action is taken. All input bytes are copied to the output XML tag value. If a non-printable character is found in a character field and this option is in effect the field XML tag will have the attribute **NONPRINT_CHAR="ASIS"**.

SKIP

The field value is skipped. If a non-printable character is found in a character field and this option is in effect the field XML tag will have the attribute **NONPRINT_CHAR="SKIP"** and no content.

REPLACE

Each non-printable character in a character field is replaced with the specified value. If a non-printable character is found in a character field and this option is in effect the field XML tag will have the attribute **NONPRINT_CHAR="REPLACE"**. The default replace character is the period (full-stop) ".". The replacement character can be specified as:

with>

character

The actual replacement character. If no character is specified then period (.) is assumed. If the character is a lower case letter it will be changed to upper case.

'*character*' | "*character*"

The actual replacement character in single quotes (apostrophes) or double quotes. If the character is a lower case letter it will be translated to upper case.

c'*character*' | c"*character*"

The actual replacement character in single quotes (apostrophes) or double quotes with a **c** or **C** prefix. No case translation takes place.

x'*hex_value*' | x"*hex_value*"

The replacement character specified as a hexadecimal value.

HEX

This keyword does not represent a replacement character but requests that any substring of non-printable characters found in a character field is replaced with its value in hexadecimal format inside **<HEX>** **</HEX>** tags. For example a character field length 4 containing 'X'C1C2FFC3' would have its value represented as

AB<HEX>X'FF'</HEX>C

In this case the field XML tag will have the attribute **NONPRINT_CHAR="REPLACE_HEX"**.

XML special chars >

XML specifies 5 characters as of special syntactical significance. These characters are used to delimit XML constructs and must not appear as themselves in tag values. XML provides an escape sequence (character reference) which can be used to represent these special characters in tag values.

The XML special characters are:

Character	Name	Escape sequence
<	Less than	<
>	Greater than	>
'	Apostrophe	'
"	Double quote	"
&	Ampersand	&

This option provides a way of dealing with any of the XML special characters found in character data fields.

ESCAPE

If a character field contains an XML special character replace it with its XML escape sequence. For example a character field length 4 containing 'A<>B' would have its value represented as:

A<>B

If an XML special character is found in a character field and this option is in effect the field XML tag will have the attribute **SPECIAL_CHAR="ESCAPE"**.

HEX

If a character field contains an XML special character output the whole field in hex string format. For example a character field length 4 containing 'A<>B' would have its value represented as

X'C14C6EC2'

If an XML special character is found in a character field and this option is in effect the field XML tag will have the attribute **SPECIAL_CHAR="HEX"**.

CDATA

If a character field contains an XML special character output the whole field as is in an XML character data (CDATA) section. CDATA sections in an XML document represent unparsed character data. For example a character field length 4 containing 'A<>B' would have its value represented as

<![CDATA[A<>B]]>

If an XML special character is found in a character field and this option is in effect the field XML tag will have the attribute **SPECIAL_CHAR="CDATA"**.

REPLACE

Each XML special character in a character field is replaced with the specified value. If an XML special character is found in a character field and this option is in effect the field XML tag will have the attribute **SPECIAL_CHAR="REPLACE"**. The default replace character is the underscore "_". The replacement character can be specified as:

with>

character
The actual replacement character. If no character follows REPLACE then underscore () is assumed. If the character is a lower case letter it will be changed to upper case.

'*character*' | "*character*"
The actual replacement character in single quotes (apostrophes) or double quotes. If the character is a lower case letter it will be translated to upper case.

c'*character*' | c"*character*"
The actual replacement character in single quotes (apostrophes) or double quotes with a **c** or **C** prefix. No case translation takes place.

x'*hex_value*' | x"*hex_value*"
The replacement character specified as a hexadecimal value.

HEX

This keyword does not represent a replacement character but requests that any substring of XML special characters found in a character field is replaced with its value in hexadecimal format inside **<HEX>** **</HEX>** tags. For example a character field length 4 containing 'A<>B' would have its value represented as:

```
A<HEX>X&apos;4C6E&apos;</HEX>B
```

In this case the field XML tag will have the attribute **SPECIAL_CHAR="REPLACE_HEX"**.

Invalid data values>

Non-character fields in structured data files may have invalid values which cannot be converted to character format. For example, a field defined as containing packed decimal (COBOL COMP-3) data may not contain a valid packed decimal value. This option provides a way of specifying how such fields are represented in the XML output.

HEX

If a non-character field contains an invalid data value output the whole field in hex string format. For example a packed decimal field length 4 containing X'00000000' would have its value represented as

```
X&apos;00000000&apos;;
```

If an invalid value is found in a non-character field and this option is in effect the field XML tag will have the attribute **INVALID_DATA="HEX"**.

SKIP

The field value is skipped. If an invalid data value is found in a non-character field and this option is in effect the field XML tag will have the attribute **INVALID_DATA="SKIP"** and no content.

REPLACE

The invalid field data value is replaced with the specified value. If an invalid field data value is found in a non-character field and this option is in effect the field XML tag will have the attribute **INVALID_DATA="REPLACE"**. The default replace character is the asterisk "*". The replacement character can be specified as:

with>

character
The actual replacement character. If no character follows REPLACE then asterisk (*) is assumed. If the character is a lower case letter it will be changed to upper case.

'*character*' | "*character*"
The actual replacement character in single quotes (apostrophes) or double quotes. If the character is a lower case letter it will be translated to upper case.

c'*character*' | c"*character*"
The actual replacement character in single quotes (apostrophes) or double quotes with a **c** or **C** prefix. No case translation takes place.

x'*hex_value*' | x"*hex_value*"
The replacement character specified as a hexadecimal value.

CCSID Conversion>

Since the purpose of XMLGEN is to produce a portable export version of the data in a z/OS mainframe structured data file, and the output is character data, the coded character set identifiers (CCSIDs) of the input, output and of the XMLGEN internal constants themselves are of significance.

Even if the input and output is coded in an EBCDIC CCSID, these may differ, and both may differ from the CCSID of the XMLGEN internal constants. Since some of the special characters used in XML have different code points in different EBCDIC CCSIDs (for example square brackets) these must be dealt with consistently to produce correct XML output.

XMLGEN uses the z/OS character conversion support supplied by IBM modules CUNLINFO (for obtaining CCSID information) and CUNLCNV (for character conversion from one CCSID to another).

The internal XMLGEN CCSID (that of the constants used to build the XML syntax) is CCSID 285 (EBCDIC, SBCS UNITED KINGDOM).

XMLGEN assumes a default CCSID as follows:

Interactive

When executed interactively XMLGEN uses as default input CCSID that of the user's 3270 terminal.

Batch

When executed in batch XMLGEN uses as default input CCSID the value of the **INI file** variable **SDE.CCSID**. This variable is set automatically to the user's 3270 terminal CCSID (if not already set) during an interactive session. It can also be set using the structured data **SET CCSID** command.

Available options are as follows:

NONE

The XML output dataset is produced using the default CCSID and the input dataset character fields are assumed to be in the same CCSID. The internal XMLGEN constants are converted from internal CCSID 285 to the default CCSID.

ASCII

Convert the output to ASCII. This is equivalent to specifying **CONVERT TO 819**. CCSID 819 is ISO 8859-1 ASCII.

UNICODE

Convert the output to UNICODE (UTF-16). This is equivalent to specifying **CONVERT TO 1200**. CCSID 1200 is the IBM bigendian UTF-16 CCSID which is automatically transformed to the most recent UTF-16 standard.

CONV

from>

from_ccsid

The input character data fields are converted from this CCSID. If not supplied the default input CCSID is used.

to>

to_ccsid

The CCSID of the output XML text dataset. Internal XMLGEN character literals and input character data fields (and HFS line end characters if used) are converted to this CCSID.

Miscellaneous Options:

View option>

When XMLGEN is run interactively this option allows the user to request to view the output when the process completes.

BROWSE

Browse the output XML dataset.

EDIT

Edit the output XML dataset using the SELCOPY/i text editor.

NOVIEW

Do not view the output XML dataset. This option is forced when run in batch.

Indentation value>

Nested output XML tags corresponding to the hierarchy of group and elementary data fields in the input structure are indented by a default of one space for each data item level. This option allows the specification of a different indentation value.

Output all field redefinitions:

If the structure defined for the input dataset contains redefined fields this option controls whether the field redefinitions are output.

Output all unnamed (FILLER) fields:

If the structure defined for the input dataset contains unnamed or FILLER fields this option controls whether these fields are output.

Output all fields as elementary:

This option controls whether elements of a group field are output as children of their parent group tag. If activated then group field tags are not included and all elements are output at the top level within the record-type.

Split long XML records:

For each elementary input field XMLGEN builds one output record containing the field start tag, the field value (possibly with embedded HEX tags and special character escape sequences), and the field end tag. Depending on the options chosen and the nature of the input data, relatively long output records may result. If an output record is longer than the allocated logical record length of the output dataset this option controls how XMLGEN deals with the long output record.

Activated

Split the output record breaking it up into as many logical records as necessary. Records are split at the logical record length irrespective of the record content.

Not activated

Do not split the output record. Rather than truncate the output record XMLGEN terminates with an error message. This is the default.

Suppress output comment block:

This option controls whether an XML style comment block is generated at the top of the output dataset. This contains information about the host operating system, the id of the creator of the output file and the creation date and time, and details of any character conversion performed on the output character data.

Primary Commands

The following primary commands are supported.

OPTIONS (OPT)	Display XML processing options panel.
---------------	---------------------------------------

Function Keys

In addition to the standard interactive panel key assignments for scrolling and navigation, the XMLGEN panel supports the following:

F6	OPTIONS	Display XML processing options panel.
----	---------	---------------------------------------

SDE CSV Generation Panel

The **CSV Generation** panel may be displayed by typing **CSVGEN (CSV)** primary command without parameters from an existing Structured Data Browse/Edit session.

This panel allows the user to produce an exportable copy of selected records from the structured dataset as comma separated variable (CSV) text.

Where the current structure maps more than one record-type, the user must select a single record-type, with records belonging to all other record-types being bypassed. The initial setting for record-type is primed to that of the focus record when the CSVGEN command is issued.

The CSVGEN process will honour any **SELECT** issued prior to entry in order to restrict the fields generated from the chosen record-type, and will operate only on un-excluded records that are currently in **VIEW**.

The CSVGEN process will be executed in the foreground.

```

SELCPY/i - CSV Generation: Specify CSV Source/Destination
File Command Help                               wS wR
Command>                                         Lines 1-20 of 21
ZZSGCSV1                                         Scroll> Csr
Record Type: TRACK                               Type OPTIONS for translation and other options.
                                                Leave blank for a selection list.
Start Record:
- Start at Top-of-File
Z Start at focus record
Z Start at supplied user label> .A
End Record:
Z End at End-of-File
Z End at supplied user label > .B
Maximum output records > 100 (0=no limit)
Output CSV Text File: PDS(E) member, Sequential, VSAM dataset or HFS path
Dsn/Path> NBJ.CSVGEN + Member> D2014001
Volume> If dataset is uncataloged
Append to existing Output                       HFS Options:
                                                EOL Characters> NL NL|CR|LF|CRLF

```

Figure 33. SDE CSV Generation Panel.

Menu Bar Items

- File**
The File drop-down menu contains the single item "Exit" which simply closes the panel window. Note that, unlike CANCEL, CLOSE will save field values entered in the panel so that they may be redisplayed the next time the panel is opened.
- Command**
Generate the CSVGEN command line syntax and display it in a temporary CMX file text edit view. This command may be executed using ACTION point-and-shoot execution <F16> or copied into the user's HOME file and saved for future execution.
The user has the opportunity to edit the command prior to its execution and/or copying it to the home (CMX) command centre for future reference and re-execution.
- Help**
Display help for this panel view.

CSV Source/Destination

- RecType>**
Identifies the name of a record-type record mapping defined within the structure. CSV will be generated only for records of this record-type.
The **SDE: Select Record-Type** panel will be automatically opened to display a selectable list of record-types if the structure contains multiple record types. Otherwise the single record-type will be inserted automatically.
- Start Record:**
Start at Top-of-File:
CSV generation will start from the top of file.

Start at focus record
 CSV generation will start from the focus (cursor) record.

Start at supplied user label>
 CSV generation will start from the record specified by the supplied user label.

End Record:

End at End-of-File:
 CSV generation will continue until end of file.

End at supplied user label>
 CSV generation will continue up to and including the record specified by the supplied user label.

Maximum output records>

Specifies the number of selected records for which CSV will be generated, at which the process will be automatically terminated.

Output CSV Text File:

Input fields which together identify a single output sequential, VSAM or PDS/PDSE library data set, HFS file or PDS/PDSE library member.

DSN/Path>

Identifies the fully qualified data set name or an absolute or relative HFS file path.

A selectable list of data sets or HFS files will be presented if the entered value contains wildcards characters "*" (asterisk) or "%" (percent).

If a DSN is specified for a data set that does not already exist, a prompt data set dialog will be opened to allocate the new output file.

Member>

If the **DSN/Path>** field contains the DSN of a PDS/PDSE library, then this field may specify the name of a new or existing member within that library.

A selectable list of members will be presented if the entered value contains wildcards characters "*" (asterisk) or "%" (percent), or is blanked out.

Volume>

Specifies the name of the output data set volume. This is required only if output is to an uncataloged data set.

Append to existing Output

Select this option if the generated records are to be appended to existing records in the output data set.

HFS Output Options:

EOL Characters>

Choose from one of the following End-Of-Line character combinations:

NL	X'15'	New Line.
CR	X'0D'	Carriage Return.
LF	X'0A'	Line Feed.
CRLF	X'0D0A'	Carriage Return + Line Feed.

CSV Source and Options

Options:

This screen is displayed by typing the **OPTIONS (OPT)** primary command, which by default is on Function Key **F6**.

Separator character >

By default CSVGEN produces **comma** separated variables, but this option allows the user to specify any other character as the variable separator. The option may be specified as a single quoted or unquoted character literal, or as a hex value using **X'nn'** notation.

Quoted strings>

The **QUOTE** option controls when variable values are to be enclosed in double-quotes.

CHARacter	Quote character fields values only (default).
ALL	Quote all field values.
REQuired	Quote only if required i.e. if value contains a double-quote or the separator character.

CCSID Conversion>

Since the purpose of CSVGEN is to produce a portable export version of the data in a z/OS mainframe structured data file, and the output is character data, the coded character set identifiers (CCSIDs) of the input, output and of the CSVGEN internal constants themselves are of significance.

Even if the input and output is coded in an EBCDIC CCSID, these may differ, and both may differ from the CCSID of the CSVGEN internal constants. Since some of the special characters used in CSV have different code points in different EBCDIC CCSIDs (for example square brackets) these must be dealt with consistently to produce correct CSV output.

CSVGEN uses the z/OS character conversion support supplied by IBM modules CUNLINFO (for obtaining CCSID information) and CUNLCNV (for character conversion from one CCSID to another).

The internal CSVGEN CCSID (that of the constants used to build the CSV syntax) is CCSID 285 (EBCDIC, SBCS UNITED KINGDOM).

CSVGEN assumes a default CCSID as follows:

Interactive

When executed interactively CSVGEN uses as default input CCSID that of the user's 3270 terminal.

Batch

When executed in batch CSVGEN uses as default input CCSID the value of the **INI file** variable **SDE.CCSID**. This variable is set automatically to the user's 3270 terminal CCSID (if not already set) during an interactive session. It can also be set using the structured data **SET CCSID** command.

Available options are as follows:

NONE

The CSV output dataset is produced using the default CCSID and the input dataset character fields are assumed to be in the same CCSID. The internal CSVGEN constants are converted from internal CCSID 285 to the default CCSID.

ASCII

Convert the output to ASCII. This is equivalent to specifying **CONVERT TO 819**. CCSID 819 is ISO 8859-1 ASCII.

UNICODE

Convert the output to UNICODE (UTF-16). This is equivalent to specifying **CONVERT TO 1200**. CCSID 1200 is the IBM bigendian UTF-16 CCSID which is automatically transformed to the most recent UTF-16 standard.

CONV

from>

from_ccsid

The input character data fields are converted from this CCSID. If not supplied the default input CCSID is used.

to>

to_ccsid

The CCSID of the output CSV text dataset. Internal CSVGEN character literals and input character data fields (and HFS line end characters if used) are converted to this CCSID.

View option>

When CSVGEN is run interactively this option allows the user to request to view the output when the process completes.

BROWSE

Browse the output CSV dataset.

EDIT

Edit the output CSV dataset using the SELCOPY/i text editor.

NOVIEW

Do not view the output CSV dataset. This option is forced when run in batch.

Suppress output column headers record:

This option controls whether a CSV record containing the original field names is generated as the first output record.

Strip trailing blanks

This option controls whether trailing blanks are to be stripped from each variable. This option is particularly relevant to fixed length character fields.

Primary Commands

The following primary commands are supported.

OPTIONS (OPT)	Display CSV processing options panel.
---------------	---------------------------------------

Function Keys

In addition to the standard interactive panel key assignments for scrolling and navigation, the CSVGEN panel supports the following:

F6	OPTIONS	Display CSV processing options panel.
----	---------	---------------------------------------

SDE JSON Generation Panel

The **JSON Generation** panel may be displayed by typing the **JSONGEN** (JSON) primary command without parameters from an existing Structured Data Browse/Edit session.

This panel allows the user to produce an exportable copy of a structured dataset as JavaScript Object Notation (JSON) text.

The JSONGEN process will honour any **SELECT** issued prior to entry in order to restrict the fields generated and will operate only on lines in the view that have not been suppressed or excluded.

The JSONGEN process will be executed in the foreground.

Menu Bar Items

- File**
The File drop-down menu contains the single item "Exit" which simply closes the panel window. Note that, unlike CANCEL, CLOSE will save field values entered in the panel so that they may be redisplayed the next time the panel is opened.
- Command**
Generate the JSONGEN command line syntax and display it in a temporary CMX file within a text edit view. This command may be executed immediately, using ACTION point-and-shoot execution on <F16>, or copied into the user's HOME file and saved for future execution.

The user has the opportunity to edit the command prior to its execution and/or copying it to the home (CMX) command centre for future reference and re-execution.
- Help**
Display help for this panel view.

JSON Source/Destination

Start Record:

- Start at Top-of-File:**
JSON generation will start from the top of file.
- Start at focus record**
JSON generation will start from the focus (cursor) record.
- Start at supplied user label>**
JSON generation will start from the record specified by the supplied user label.

End Record:

- End at End-of-File:**
JSON generation will continue until end of file.
- End at supplied user label>**
JSON generation will continue up to and including the record specified by the supplied user label.

Maximum output records>

Specifies the number of selected records for which JSON output will be generated, at which the process will be automatically terminated.

Output JSON Text File:

Input fields which together identify a single output sequential, VSAM or PDS/PDSE library data set, HFS file or PDS/PDSE library member.

DSN/Path>

Identifies the fully qualified data set name or an absolute or relative HFS file path.

A selectable list of data sets or HFS files will be presented if the entered value contains wildcards characters "*" (asterisk) or "%" (percent).

If a DSN is specified for a data set that does not already exist, a prompt data set dialog will be opened to allocate the new output file.

Member>

If the **DSN/Path>** field contains the DSN of a PDS/PDSE library, then this field may specify the name of a new or existing member within that library.

A selectable list of members will be presented if the entered value contains wildcards characters "*" (asterisk) or "%" (percent), or is blanked out.

Volume>

Specifies the name of the output data set volume. This is required only if output is to an uncataloged data set.

Append to existing Output

Select this option if the generated records are to be appended to existing records in the output data set.

HFS Output Options:**EOL Characters>**

Choose from one of the following End-Of-Line character combinations:

NL	X'15'	New Line.
CR	X'0D'	Carriage Return.
LF	X'0A'	Line Feed.
CRLF	X'0D0A'	Carriage Return + Line Feed.

JSON Source and Options

Translation Options:**CCSID Conversion>**

Since the purpose of JSONGEN is to produce a portable (data-interchange format) version of the data in a z/OS mainframe structured data file, and the output is character data, the coded character set identifiers (CCSIDs) of the input, output and of the JSONGEN internal constants themselves are of significance.

Even if the input and output is coded in an EBCDIC CCSID, these may differ, and both may differ from the CCSID of the JSONGEN command's internal constants. Since some of the special characters used in JSON have different code points in different EBCDIC CCSIDs (for example quotation marks) these must be dealt with consistently to produce correct JSON output.

JSONGEN uses the z/OS character conversion support supplied by IBM modules CUNLINFO (for obtaining CCSID information) and CUNLCNV (for character conversion from one CCSID to another).

The internal JSONGEN CCSID (that of the constants used to build the JSON syntax) is CCSID 285 (EBCDIC, SBCS UNITED KINGDOM).

JSONGEN assumes a default CCSID as follows:

Interactive

When executed interactively JSONGEN uses as default input CCSID that of the user's 3270 terminal.

Batch

When executed in batch JSONGEN uses as default input CCSID the value of the **INI file** variable **SDE.CCSID**. This variable is set automatically to the user's 3270 terminal CCSID (if not already set) during an interactive session. It can also be set using the structured data **SET CCSID** command.

Available options are as follows:

NONE

The JSON output dataset is produced using the default CCSID and the input dataset character fields are assumed to be in the same CCSID. The internal JSONGEN constants are converted from internal CCSID 285 to the default CCSID.

ASCII

Convert the output to ASCII. This is equivalent to specifying **CONVERT TO 819**. CCSID 819 is ISO 8859-1 ASCII.

UNICODE

Convert the output to UNICODE (UTF-16). This is equivalent to specifying **CONVERT TO 1200**. CCSID 1200 is the IBM big-endian UTF-16 CCSID which is automatically transformed to the most recent UTF-16 standard.

CONV**from>**

from_ccsid

The input character data fields are converted from this CCSID. If not supplied the default input CCSID is used.

to>

to_ccsid

The CCSID of the output JSON text dataset. Internal JSONGEN character literals and input character data fields (and HFS line end characters if used) are converted to this CCSID.

Miscellaneous Options:**View option>**

When JSONGEN is run interactively this option allows the user to request to view the output when the process completes.

BROWSE

Browse the output JSON dataset.

EDIT

Edit the output JSON dataset using the SELCOPY/i text editor.

NOVIEW

Do not view the output JSON dataset. This option is forced when run in batch.

Indentation value>

Nested output JSON names corresponding to the hierarchy of group and elementary data fields in the input structure are indented by a default of one space for each data item level. This option allows the specification of a different indentation value.

Output all field redefinitions:

If the structure defined for the input dataset contains redefined fields this option controls whether the field redefinitions are output.

Split long JSON records

For each elementary input field JSONGEN builds one output record containing the field name and value. Depending on the nature of the input data, relatively long output records may result. If an output record is longer than the allocated logical record length of the output dataset, this option controls how JSONGEN deals with the long output record.

Activated

Split the output record breaking it up into as many logical records as necessary. Records are split at the logical record length irrespective of the record content.

Not activated

Do not split the output record. Rather than truncate the output record JSONGEN terminates with an error message. This is the default.

Primary Commands

The following primary commands are supported.

OPTIONS (OPT)	Display JSON processing options panel.
---------------	--

Function Keys

In addition to the standard interactive panel key assignments for scrolling and navigation, the JSONGEN panel supports the following:

F6	OPTIONS	Display JSON processing options panel.
----	---------	--

Command Line (Primary) Commands

SDE commands may be issued from:

1. The SDE command line.
2. A CBLe text edit window command line using the **SDATA** command.
3. A CBLe edited text file using the **SDATA** command and **ACTION** facility.
4. A CBLe/SDE REXX edit macro.
5. A programmable **function key**.

Multiple SDE commands may be issued in a single invocation by separating each command with the line end character (set to ";" semi-colon by default.)

Executing SDE Commands from a CBLe Text Edit Window

The CBLe CLI command **SData** may be used to prefix a command stream to be passed to the Structured Data Environment (SDE).

On using this method to execute an SDE command that updates the display of data within an SDE edit view, the **current SDE window** display gets updated and the focus remains on the current focus CBLe edit view.

EDIT and **BROWSE** commands will pass focus to the current SDE window.

```
<sdata create structure CBL.CBLI.STRUCT(COMPSTR) from cobol CBL.COPYBOOK.COBOL(COMPDEF)
<sd edit CBL.SDE.EMP using CBL.CBLI.STRUCT(COMPSTR)
<sd select Key,InvNumb,DeliveryDate from Orders in CBL.CBLI.STRUCT(COMPSTR)
```

Command Reference Syntax Conventions

How to read the Syntax Diagrams

The following rules apply to the syntax diagrams used in this command reference.

1. The diagrams should be read from left to right, from top to bottom, following the path of the line.
 - ◆ The >>- symbol indicates the beginning of a statement.
 - ◆ The ->< symbol indicates the end of a statement.

2. Required items appear on the horizontal line (the main path).

```
>>--- required_item -----><
```

3. Optional items appear below the main path.

```
>>--- required_item ---+-----+-----><
                        |                   |
                        +-- optional_item -----+
```

4. If an optional item appears above the main path, then that item has no effect on the execution of the statement and is used only for readability.

```
                    +-- optional_item -----+
                    |                   |
>>--- required_item ---+-----+-----><
```

5. If you can choose from two or more items, they appear vertically, in a stack.

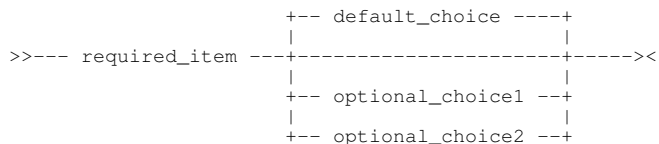
6. If you must choose one of the items, one item of the stack appears on the main path.

```
>>--- required_item ---+--- required_choice1 ---+-----><
                        |                   |
                        +-- required_choice2 ---+
```

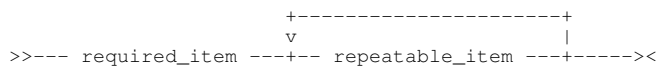
7. If choosing one of the items is optional, the entire stack appears below the main path.

```
>>--- required_item ---+-----+-----><
                        |                   |
                        +-- optional_choice1 ---+
                        |                   |
                        +-- optional_choice2 ---+
```

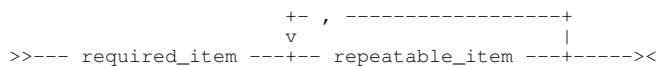
8. If one of the items is the default, it appears above the main path and the remaining choices are shown below.



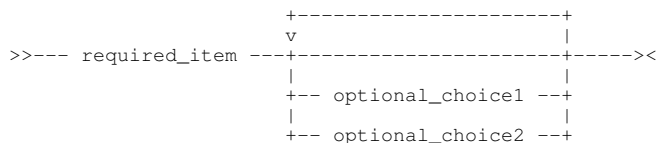
9. An arrow returning to the left, above the main line, indicates an item that can be repeated.



10. If the repeat arrow contains a comma, you must separate repeated items with a comma.



11. A repeat arrow above a stack indicates that you can repeat the items in the stack.



12. Uppercase characters in keywords indicate the minimum abbreviation allowed for that particular command or parameter and must be spelled exactly as shown.

13. Variables appear in all italic, lowercase letters and represent user-supplied names or values.

14. If punctuation marks, parentheses, arithmetic operators, or other such symbols are shown, you must enter them as part of the syntax.

15. Where a parameter, immediately following a command verb, begins with a non-alpha character, no separating blank is required between the command verb and the parameter. e.g. Add8, CHANGE/abc/xyz/

Unless STEM is specified for use in REXX procedures (edit macros), the AVERAGE values are reported in a temporary Text Edit view. e.g.

```

00001                                     2016/08/26 12:41:46
00002      Command: AVERAGE #15, #16, #17  DIGITS 7
00003      Dataset: CBL.AMSUPP.DA
00004      Structure: CBL.CBLI.SDO(DIRAMEMP)
00005      Record Type: EMP
00006
00007      499 rows were read;          42 rows were processed.
00008
00009
00010  AVERAGE of SALARY (#15) =                24091.55
00011
00012  AVERAGE of BONUS (#16) =                 550.00
00013
00014  AVERAGE of COMM (#17) =                2207.095
    
```

For each reported column average, report lines may follow which detail the number of column values that were excluded from the process for the following reasons:

1. The value is null.
2. The value is invalid (not in the data type format).
3. For decimal floating point data type, the value is QNAN, SNAN or Infinity.

When the duration of a AVERAGE execution exceeds 1 second, a progress window is opened displaying the number of records processed so far. This window also provides the user with the opportunity to interrupt the operation using the Attn key.

Parameters:

field_col

An individual field column id within a formatted record display.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. SALARY).

If *field_col* identifies an array, then AVERAGE treats each element of the array as requiring a separate average value. To perform AVERAGE on an individual element of an array, the element occurrence should be specified in parentheses as a subscript to the field reference/name. e.g. #13(3) for the 3rd element of a single dimension array.

field_pos

The start position of a field within the record data. For formatted records, this is a position in the **expanded record**.

field_length

Following *field_pos*, *field_length* defines the length of the field in the record data. The value of *field_length* must be valid for the corresponding *field_type*.

field_type

The data type of the data in the field identified by *field_pos* and *field_length*. *field_type* may be one of the following:

CHARACTER	Character - the default data type. <i>field_len</i> must be less than 32768. Numeric interpretation of character data supports use of the following: <ol style="list-style-type: none"> 1. Currency symbol (x'5B'). 2. A dot/period (".") representing decimal point. 3. Commas (","). 4. Character "E" (or "e") representing start of an exponent. 5. Unary plus ("+") or minus ("-") preceding the value and/or exponent value.
FIXED BINARY	Fixed Point Binary. <i>field_len</i> must be less or equal to 8.
PD DECIMAL PACKED	Packed Decimal. <i>field_len</i> must be less or equal to 16.
ZD ZONED	Zoned Decimal. <i>field_len</i> must be less or equal to 31.
HFP	Hexadecimal Floating Point. <i>field_len</i> must be 4, 8 or 16.
BFP	Binary Floating Point. <i>field_len</i> must be 4, 8 or 16.
DFP	Decimal Floating Point. <i>field_len</i> must be 4, 8 or 16.

WHERE *expression*

Only records of the specified record type *record_type* that satisfy the WHERE expression are included in the AVERAGE operation.

expression is a valid SDE **expression** which supports **function calls**, **record_type field names/references**, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of *expression* must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

When an expression is applied to the record, it must test "true" in order to be selected as a target of the AVERAGE operation.

By default, all data records in the selected range of lines are subject to the WHERE *expression* test. This includes data records that are of the selected record type and have EXCLUDED status at the time the AVERAGE command is executed. If one of these excluded records satisfies the *expression*, it will be included in the AVERAGE calculation.

EXCLUDED
X

Only records assigned the specified record type *record_type* and have EXCLUDED status are included in the AVERAGE operation. By default, only non-EXCLUDED records are selected. AVERAGE does not include records that have the status NOTSELECTED or SUPPRESSED.

NOTEXCLUDED
NX

Only records assigned the specified record type *record_type* and have non-EXCLUDED status are included in the AVERAGE operation. This is the default action. AVERAGE does not include records that have the status NOTSELECTED or SUPPRESSED.

ALL

All records (EXCLUDED and non-EXCLUDED) assigned the specified record type *record_type* are included in the AVERAGE operation. By default, only non-EXCLUDED records are selected. AVERAGE does not include records that have the status NOTSELECTED or SUPPRESSED.

.name1

A label name identifying the first line of a range of lines on which the AVERAGE operation will operate. The preceding "." (dot) is mandatory. Default is .ZFIRST.

.name2

A label name identifying the last line of a range of lines on which the AVERAGE operation will operate. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then *.name2* and *.name1* identify the first and last rows respectively. Default is .ZLAST.

DIGITS *int*

DIGITS *int* represents the number of significant decimal digits (1-31) to be used in the average value. The value is rounded to the lowest significant digit. Default is 21.

[FOR] RECORD [TYPE] *record_type*

Identifies the record type mapping *record_type* used by the AVERAGE operation. Only records assigned this record type are eligible to be included in the AVERAGE calculation.

If a *field_col* is specified, it must reference a column field in this record type definition.

Default is the **default record type**.

STEM *rexx_stemvar*

Applicable only to execution of AVERAGE within a REXX procedure edit macro, STEM indicates that the AVERAGE value for each of the specified columns be assigned to a REXX compound variable.

The mandatory *rexx_stemvar* argument specifies the character string to be used as the stem part of the compound variable name.

The following REXX compound variables are set:

rexx_stemvar.AVG.0

The number of AVERAGE values returned (i.e. number of columns specified).

rexx_stemvar.AVG.i

The ith AVERAGE value corresponding to the ith column specification.

See Also:

MAXIMUM MINIMUM SUM TOTALS

BOTTOM

Syntax:

```
>>-- Botton -----><
```

Description:

Display the last page of data.
Equivalent to the **DOWN MAX** command.

See Also:

DOWN TOP

BROWSE

Syntax:

```
>>-- Browse -----+-----| SDE Opts |----->
      |
      +----- hfs_fileid ---| HFS Opts |---+
      |
      +-- DB2 -+-----+-----| DB2 Opts |---+
      |         |         |
      +- (ssn) -+
      |
      +-- PROFile SDEPROF -----+
      |
      >-----+----->
      |
      +-- PROFile macro_name -----+
      |
      +-- NOPROFile -----+
      |
      >-----+-----><
      |
      |         +-----+
      |         v
      +-- INItcmd - ( +- sd_command +- ) -+
      |
```

HFS Opts:

```
      +-- STD -----+
      |
      +-- EOL -----+
      |
      |         +-----+
      |         |
      |         +-- CR -----+
      |         +-- LF -----+
      |         +-- NL -----+
      |         +-- CRLF -----+
      |         +-- LF CR -----+
      |         +-- CR NL -----+
      |         +-- string ---+
      |
      |         +- LRECL lrecl +-
      |
      |-----+-----|
      |
      +-- RECFM +- F -----+
      |
      |         +- (0,2,0) -----+
      |         |
      +- V +- (off, len, origin) +-+
      |
```


DB2 Table Browse:

DB2 table browse is supported for in-storage edit/browse only. Therefore, if a results table is too large to be loaded into available storage a storage error occurs. The user must then restrict the number of rows to be loaded using further row selection criteria (i.e. FROM, FOR, SELECT, WHERE parameters).

On starting a DB2 table browse, a temporary SDO is created reflecting field characteristics obtained from the SQL Descriptor Area return by the prepared SQL SELECT execution. Furthermore, if the user does not already have an open connection to the required DB2 sub-system that is not for an SDE DB2 table edit view, then a new DB2 connection is made.

Parameters:

fileid

The fileid of the data set containing records to be browsed.
fileid may be the DSN of a sequential or VSAM data set or the DSN and member name of a PDS/PDSE member.

hfs_fileid

A complete HFS (or zFS) file path containing data to be browsed.
hfs_fileid is identified as an HFS path if *fileid* is not a valid DSN for a sequential, VSAM or PDS/PDSE dataset. e.g. DSN begins with ".", contains invalid special characters (e.g. "/") or contains qualifiers of length greater than 8.

HFS Opts

The following HFS options may be specified to determine the handling of data within the HFS file.

EOL=STD|NL|CR|LF|CRLF|LFCR|CRNL|*string*

Sets the EOLIN (input end-of-line) delimiter value used to determine the end of each record for non-RECFM F/V input. EOLIN delimiters are not included in the browsed record data or record length. EOL parameter elements are as follow:

STD	-	Any standard line-end.
NL	X'15'	New Line.
CR	X'0D'	Carriage Return.
LF	X'0A'	Line Feed.
<i>string</i>	-	A 2-byte user specified character or hex string.

STD is default so that the BROWSE operation scans the input data for any of the standard EOL combinations (not *string*), stopping when one is found. This EOL combination is used as EOLIN for the file.

Where EOL processing is specifically requested for BROWSE, if EOL characters are **not** found within the first *lrecl* bytes of data, then the file is displayed as RECFM F with records of length 80.

RECFM F | V (*off, len, origin*)

Specifies that the data is to be treated as containing Fixed or Variable length format records.

RECFM F indicates that all records are of a fixed length as defined by the LRECL argument.

RECFM V allows the user to specify the location of the record length fields within the data as follows:

<i>off</i>	Offset of the record length field from the start of the record.
<i>len</i>	Length of the record length field.
<i>origin</i>	The start of the record data at which the record length is applied.

Default is (0,2,0) which describes standard RECFM V organisation data sets.

LRECL *lrecl*

Specifies the maximum record length of input records.

Records terminated by an EOL sequence will wrap onto the next line of data if the record length exceeds *lrecl*. Where a record has wrapped, the prefix area contains the "=="EOL>" flag.

For RECFM F data, *lrecl* is the fixed length of the records in the edit view. The data within the last record is padded with blanks up to the *lrecl* length if necessary.

If the record length field of a RECFM V record exceeds the *lrecl* value, then an error is returned.

RECFM V and EOL delimited records have default *lrecl* of 32752, whereas RECFM F records have default *lrecl* of 80.

SDE Opts

The following SDE options are applicable to browse of structured data found in HFS files or z/OS data sets only. See **DB2 Opts** for DB2 table browse options.

USING (STRUCTURE) *struct_name*

Identifies the SDO to be applied to the data records. *struct_name* is the SDF fileid assigned to the SDO in a **CREATE STRUCTURE** command.

"=" (equals) may be specified instead of *struct_name* to indicate the name of the structure being used in the current SDE window.

USING HLASM | COBOL | PL1 | ADATA *copybook_name*

Identifies the full fileid of *copybook_name*, an Assembler/COBOL/PL1 source member or Assembler/COBOL/PL1 ADATA output file to be used to format the data records.

Using *copybook_name* syntax has a processing overhead in that a CREATE STRUCTURE operation is performed to generate a temporary SDO. This overhead is greater if HLASM, COBOL or PL1 is specified since an assemble/compile of the source member is performed to first obtain the ADATA file output. Therefore, it is recommended that a non-temporary SDO is generated using CREATE STRUCTURE and that this is be used for all future formatting of the data (on EDIT, BROWSE, FSU, etc.)

USING SYMNAME (DFSORT *symbol dataset*)

Identifies the full DSN and member name of one or more datasets or library members containing DFSORT symbol definitions that are to be used to format the data records.

FORMAT
FMT

Specifies the format in which record data will be displayed in the initial SDE view.

SINGLE SNGL	Single record format.
TABLE	Table format. (Default)
CHARACTER	Multi record view with all records or record segments mapped as single, variable length character fields with field name "UnMapped" or "UnMappedSeg". No data conversion is performed.
HEX	Same as CHARACTER with the addition that the data is also displayed in Hex below the character display. Note that the Hex display occupies an additional 2 lines of data.

The data display format may be later altered using the **FORMAT** and/or **ZOOM** commands.

KEYRANGE (*lowkey, highkey*) | KEYRANGE (*lowkey*)

Records are to be displayed with keys in the given range. This option applies to VSAM KSDS files only.

If *highkey* is omitted it is assumed to have the same value as *lowkey*.

If *lowkey* is shorter than the defined length of the KSDS key, it is assumed to be padded on the right with X'00'.
If *highkey* is shorter than the defined length of the KSDS key, it is assumed to be padded on the right with X'FF'.

The key values can be given in the form:

- Simple strings with no embedded blanks. These are translated to upper case.
- Quoted strings using apostrophes or double quotes. These are translated to upper case.
- Character strings of the form C'...' containing any characters. These are not translated to upper case.
- Hexadecimal strings of the form X'...' containing hex digits 0-9 a-f A-F. These are not translated to upper case.

FROM

Records are to be displayed beginning at a specific location within the data set. The first record at the specified location becomes record 1 within the SDE window view of the data set. Records that occur before this location are not included within the browse session.

If FILTER is specified, then record filtering occurs only on records selected using the FROM and FOR parameters.

Required record location is identified via one of the following:

KEY <i>string</i>	For KSDS data sets only, locate the record with a key string equal to <i>string</i> . If not found, the record with the next key string greater than <i>string</i> is used.
RBA <i>n</i>	For KSDS and ESDS data sets only, locate the record starting at the relative byte address specified by <i>n</i> . The RBA must point at the start of the record otherwise a VSAM point error will occur. RBA address for each record is displayed as part of the record information columns within an SDE window view. Display of these columns is controlled using the SDE SET RECINFO CLI command.
< RECORD > <i>n</i>	For any data set organisation, locate the record number specified by <i>n</i> . Specification of parameter keyword RECORD is optional.

Default is to display records within the SDE window view starting at the first record in the data set.

FOR *n_recs* < RECORDS >

Specifies the number of data set records to be included within the SDE window browse session. Specification of parameter keyword RECORDS is optional.

If FILTER is specified, then record filtering occurs only on records selected using the FROM and FOR parameters.

Default is to include all records.

VIEW *record_type*
VIEW *

Identifies one or more **record types** for which records will be displayed in the initial SDE view. Records that are associated with other record types are not visible within the display but are displayed as shadow lines instead. * (asterisk) indicates all record types including the internal record type "UnMapped" (or "UnMappedSeg") which is used to map data records or record segments that have no associated RTO in the SDO.

Records within the display may be later suppressed or made visible using the **VIEW** command.

Default is VIEW *.

FILTER *filter_fileid* | **Filter Clause**

FILTER specifies additional record filtering criteria to further reduce the display of records for browse. All record filters are applied only to records that have been selected using the FROM and/or FOR parameters, otherwise it applies to all records in the structured data file.

Enough available storage must exist to load all records selected by the filter otherwise a storage error occurs and the browse is terminated.

FILTER parameters are specified via a filter clause which may be supplied as part of the BROWSE command or referenced via *filter_fileid*, a separate sequential data set, PDS/PDSE member or HFS file. *filter_fileid* must contain the keyword FILTER followed by a valid filter clause.

The filter is applied only once during initial load of the data. A record will not be excluded from the display of browsed records if its record type or data is changed in a way that no longer satisfies the filter criteria.

SELECT *select_syntax*

SELECT may be used to customise the sequence and number of record-type columns displayed when the browse view of formatted data is opened. The *select_syntax* argument represents parameters supported by the **SELECT** primary command with the exception of IN *struct_name* which is unnecessary.

Unlike parameter **INITCMD**, which may also be used to execute SELECT commands, the SELECT parameter column selection is performed before the **profile** macro is executed.

Filter Clause

A filter clause must be specified in "(" (parentheses) and may contain comment data enclosed by "/" and "/". If filter clause is specified via *filter_fileid*, then comment data may also occur before and after the filter clause.

The following options are supported by the filter clause.

INCLUDE *record_type*

Include only records that are assigned the specified record type *record_type* by SDE browse. This parameter may be specified repeatedly to include a number of record types or to perform alternative WHERE *expr* filters for the same record type. If INCLUDE is specified, then all record types that are not referenced by an INCLUDE parameter will be excluded by default.

record_type "Record" (with field name "UnMapped") may be used to perform a filter on the unformatted record data whether or not a structure (USING *struct_name*) has been specified. In this way, a filter may test **all** records regardless of their assigned record type.

INCLUDE and EXCLUDE parameters are mutually exclusive.

EXCLUDE *record_type*

Exclude only records that are assigned the specified record type *record_type* by SDE browse. This parameter may be specified repeatedly to exclude a number of record types or to perform alternative WHERE *expr* filters for the same record type. If EXCLUDE is specified, then all record types that are not referenced by an EXCLUDE parameter will be included by default.

record_type "Record" (with field name "UnMapped") may be used to perform a filter on the unformatted record data whether or not a structure (USING *struct_name*) has been specified. In this way, a filter may test **all** records regardless of their assigned record type.

INCLUDE and EXCLUDE parameters are mutually exclusive.

WHERE *expr*

WHERE applies further filter conditions to records assigned to the record type specified by the last INCLUDE *record_type* or EXCLUDE *record_type* parameter processed.

expr is a valid SDE **expression** which supports **function calls**, *record_type* **field names** and references, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of the WHERE expression must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

The WHERE expression is applied to each record assigned the record type *record_type* and, if the result is "true", the record is selected for include or exclude as indicated by the prevailing INCLUDE or EXCLUDE filter. If multiple INCLUDE/EXCLUDE *record_type* WHERE expressions exist for the same record type, then a logical OR is implied for all the expressions relating to that record type.

STOPAFTER *n_hits*

When the number of records selected by the INCLUDE or EXCLUDE filter reaches the value specified by STOPAFTER *n_hits*, then no further filter testing occurs.

If an INCLUDE filter, then all remaining untested records are excluded. If an EXCLUDE filter, then all remaining untested records are included.

DB2 < (*ssn*) >

Indicates that browse is for a DB2 base or results table. *ssn* is optional and identifies the local DB2 sub-system name to which a connection will be made.

Before a connection can be made to the DB2 sub-system, the SELCOPY/i DB2 plan must have been bound to that sub-system.

Default for *ssn* is the users default DB2 sub-system name as set by the DB2 Primary Options menu.

table_name

A DB2 base table name containing rows of data to be browsed.

table_name may be specified with 1, 2 or 3 qualifiers representing *name*, *schema.name* or *location.schema.name* respectively. Default location is the local DB2 server and the default schema is the value assigned to special register CURRENT SCHEMA (initially set to the user's SQLID).

view_name

A DB2 table view which references an SQL query used to generate a results table containing the rows of data to be browsed.

view_name may be specified with 1, 2 or 3 qualifiers representing *name*, *schema.name* or *location.schema.name* respectively. Default location is the local DB2 server and the default schema is the value assigned to special register CURRENT SCHEMA (initially set to the user's SQLID).

DB2 Opts

The following DB2 options are applicable to browse of DB2 table data only. See **SDE Opts** for structured data browse options.

SQL (*select_statement*)

Specifies that the result table generated by the SQL query *select_statement* is to be browsed.

If this option is chosen the table name, view name, SELECT(), WHERE() and ORDER BY() parameters must not be specified.

WHERE (*where_clause*)

Specifies a DB2 SQL WHERE clause to be included in the prepared SQL select statement. See "*DB2 SQL Reference*" for syntax of the *where_clause*.

If *where_clause* is null or "?" (question mark) the **DB2 Row Selection Panel** is opened before the browse is actioned. On closing the panel, the browse is actioned using the generated WHERE clause.

SORT|ORDER BY (*order_by_clause*)

Specifies a DB2 SQL ORDER BY clause to be included in the prepared SQL select statement. See "*DB2 SQL Reference*" for syntax of the *order-by-clause*.

SORTINDEX *index_name* | PRIME

Specifies *index_name*, the name of an existing DB2 Index for the table being browsed. The index identifies the key columns/expressions by which the table rows will be ordered in the display.

PRIME may be specified as an alternative to indicate that the primary index should be used.

If *index_name* is "?" (question mark), the DB2 Select Table Index window is opened before the browse is actioned, allowing selection of one of the indexes defined for the table. On selecting an entry, the window is closed and the browse operation continues using the SORTINDEX *index_name*.

USING (STRUCTURE) *struct_name*

Identifies the SDO to be applied to the DB2 data rows. *struct_name* is the SDF fileid assigned to the SDO in a **CREATE STRUCTURE** command.

If the USING STRUCTURE option is specified then SELECT, WHERE and ORDER BY options are ignored. The SDO may contain DB2 SQL query SELECT, WHERE and ORDER BY sub-clause options which are used to select and display DB2 table rows.

SCROLL

Use a DB2 scrollable INSENSITIVE cursor to fetch DB2 rows. This keyword is incompatible with the FOR and FROM keywords. See **Using Scrollable Cursors** for information on how the use of this keyword affects the browse session.

The use of DB2 scrollable cursors may be disabled by the installer of SELCOPY/i. In order to use them the system INI file must contain the *DB2.SCROLL=YES* variable.

FROM < ROW > *n*

Equivalent to FROM RECORD *n*, FROM ROW *n* specifies that rows are to be displayed beginning at row number *n* in the DB2 results table returned by the SQL query. The first row displayed becomes row 1 within the SDE window browse view. Rows that occur before this row number are not included within the browse session. Default is row 1.

FOR *n_rows* < ROWS >

Equivalent to FOR *n_recs* RECORDS, FOR *n_rows* ROWS specifies the maximum number of rows to be displayed from the DB2 results table returned by the SQL query. Rows that fall outside the range of rows specified by FROM *n* FOR *n_rows* are not included within the browse session. Default is to display all selected rows.

SELECT (*select_syntax*)

DB2 table browse will fetch **all** columns from the selected table or view.

SELECT may be used to select a subset of these columns for initial display in the browse window view. Except for parameters FROM *record_type* and IN *struct_name* which are both unnecessary, the *select_syntax* argument represents parameters supported by the **SELECT** primary command.

Unlike parameter **INITCMD**, which may also be used to execute SELECT commands, the SELECT parameter column selection is performed before the **profile** macro is executed.

XMLLOBWIDTH *n_bytes*

Specifies the number of bytes (*n_bytes*) of text, at the start of an XML or large object (LOB) column, to be displayed for all XML and LOB columns in the edited table view.

PROFILE *macro_name*

Specifies the name of the REXX SDE edit macro to be executed as the **profile** when the data is browsed.

macro_name must exist in a library within the SDE macro path.

The PROFILE option only alters the profile used for the file currently being browsed. It does not define the profile macro to be used for subsequent SDE edit or browse.

The default is to execute a macro with member name SDEPROF if it exists.

NOPROFILE

Suppresses use of a profile macro when browsing the file.

The NOPROFILE option only suppresses use of a profile for the file currently being browsed. It does not suppress use of a profile macro for subsequent SDE edit or browse.

INITCMD (*sd_command ...*)

Specifies a list of one or more structured data commands to be executed when initialising the browse session. These commands are issued after the **profile** macro (if specified) has been executed but before the first view is displayed.

The commands are listed, separated by blanks, within parentheses following the **INITCMD** keyword. If a command contains blanks or special characters (including apostrophes or quotes) it must be delimited with apostrophes or quotes. When such a delimiter is used, instances of the delimiter character within the command string must be represented by a pair of delimiter characters. For example:

```
INITCMD( 'f "O'Reilly" #3')
```

could be used to open the browse session with the dataset scrolled to the first record containing *O'Reilly* in field number 3.

Examples:

```
<sd browse CBL.SDE.MOD.ZJ2202 using CBL.CBLI.SDO(PRODL) view ARCX1,PRODX
```

Browse records from data set "CBL.SDE.MOD.ZJ2202" within the SDE.

Initially display all records of type ARCX1 and PRODX where the record type objects (RTO) are found in the structure definition object (SDO) referenced by CBL.CBLI.SDO(PRODL).

```
<sd browse db2(DB9G) CBL.APIFUNC where(FUNCMOD#REF = 0)
```

Browse filtered rows of DB2 table CBL.APIFUNC in subsystem DB9G.

See Also:

EDIT and **CREATE STRUCTURE**

CANCEL

Syntax:

```
>>--- CAnCel -----><
```

Description:

Close **all** SDE window views for data displayed in the current SDE view.

If unsaved changes exist, the user will be prompted to save the changes, discard the changes or to terminate the CANCEL operation and return focus to the SDE edit view. The default action in this list being to discard the changes.

For DB2 edit, if the changes are discarded then a **ROLLBACK** is done, backing out changes to the previous commit point.

If a non-temporary structure (SDO) is used to map the record data and changes have been made to that structure during the course of the edit session (e.g. USE WHEN), then the user will be prompted to save the changed structure to its structured data file (SDF). See command, **SAVESTRUCTURE**.

See Also:

END FILE QUIT

CBLI

Description:

SDE CLI command, CBLI, performs the same operation as the CBLe CLI command CBLI. See **CBLI** in CBLe Text Edit documentation.

CCOLOUR

Syntax:

```

+- TEMPorary +-
|
>>+-----+ CCOLOUR +- field_col +- | colour_specification | +-->
|
+- PERManent +-
|
|
+- OFF -----+
|
+- OFF -----+

>+-----+><
|
+- FOR +-----+ record_type +-----+
|
+- RECOrd +-
|
+- IN +-----+ struct_name +-
|
+- STRUCTure +-

```

colour_specification

```

+- NONE -----+
>-----+ Blue -----+ | WHEN expression ----->
|
+- Red -----+ +- BLInk -----+
|
+- Pink -----+ +- REVvideo +-
|
+- Green -----+ +- Uscore -----+
|
+- Turquoise +-
|
+- Yellow -----+
|
+- White -----+
|
+- Default -----+

```

Description:

CCOLOUR (column colour) may be used to apply preferred colouring to field columns (data elements) in records with an assigned record type (**RTO**) based on selection criteria.

Column colouring specifications defined by the CCOLOUR command are stored in the structure definition (**SDO**) if the *PERManent* command prefix is used. If not already loaded, the required SDO is loaded from its structured data file (**SDF**) and updated accordingly. If a non-temporary SDO, then this change to the SDO may be saved (written back to the SDF) by the user when the structure is dropped or on execution of the **SAVESTRUCTURE** command.

Any number of CCOLOUR specifications may exist for a field (data element) based on different *WHEN expressions*. When records satisfy the *WHEN expression* of more than one CCOLOUR specification, then the CCOLOUR specification used is the one that was defined last.

Parameters:**TEMPorary**

This column colour specification is for the current session only, and will not be saved in the structure definition file. This is the default if neither PERMANENT or TEMPORARY is given.

PERManent

This column colour specification is to be saved in the structure definition.

field_col

The name of the field column (data element) to which the colour specification will be applied.

BLUE | RED | PINK | GREEN | TURQUOISE | YELLOW | WHITE | DEFAULT

Supported colours. If DEFAULT is specified, the default colour for record display is used.

BLINK | REVERSE | USCORE | NONE

Extended highlighting. The colour may blink, be displayed in reverse video or be underlined. Default is NONE.

WHEN expression

Specifies the criteria that must be satisfied before the defined colouring will occur.

expression is a valid SDE *expression* which supports *function calls*, *record_type field names* and references, *sub-expressions*, *arithmetic*, *relational* and *logical* operators. The result of the *WHEN expression* must be numeric and is treated as a boolean value with zero indicating *FALSE* and non-zero indicating *TRUE*.

The *WHEN expression* is applied to each record assigned the record type *record_type* and, if the result is "true", the specified column colouring is applied to the field column. To apply column colouring for all instances of *field_col* omit the *WHEN expression*.

OFF

Remove all specified column colouring for the *field_col* from the SDO, reverting back to the default settings.

If no *field_col* is specified then column colouring is removed from all fields of the *record_type*.

FOR (RECORD) record_type

The name of the record type (RTO) containing the *field_col*.
Default is the current (i.e. last referenced) record type.

IN (STRUCTure) struct_name

The name of the structure (SDO) in which *record_type* is defined.
Default is to the current (i.e. last referenced) structure. This is the structure used in the current SDE window view or explicitly referenced by an SDE command (e.g. **USE WHEN**)

Examples:

```
cco bonus red uscore when bonus>500.00
```

Define colouring of the *BONUS* field column in the current (default) record type as red underscore if the bonus is greater than *500.00*.

See Also:

RCOLOUR **DROP** **SAVESTRUCTURE** **USE** and the SET/QUERY/EXTRACT Option: **COLOUR**

- If the length of *string1* is less than the length of *string2*, then words to the right of the replaced string will be shifted right. Note, however, that CHANGE will not increase the length of formatted data beyond its defined maximum field length.

If parameter TEXT is specified, multiple, consecutive blanks are absorbed to leave at least one blank between each word. Only if no blanks are eligible to be absorbed will text to the right of the replaced string be shifted right.

If a structure has been applied to the edited records and a CHANGE operation alters the length of a record or updates a field referenced by a **USE record_type WHEN** condition, then the **IDENTIFY** command may be used to re-evaluate the **record type** (RTO) assigned to the changed record.

When the duration of a CHANGE or RCHANGE execution exceeds 1 second, a progress window is opened displaying the number of records processed so far. This window also provides the user with the opportunity to interrupt the operation using the Attn key.

The **FORMAT** of the SDE display affects the execution of CHANGE.

Unformatted Multi or Single Record Display (CHAR or UNFMT):

By default, a character compare for the supplied search string is performed against the entire length of unformatted data records.

The prevailing **BOUNDS** left and right column values define the area of the record within which the search occurs. i.e. the matched data must begin at or after the left bound and not exceed the right bound.

The **BOUNDS** columns may be overridden using *pos1* and *pos2* positional parameters.

field_col and #ALL parameters are not applicable to these display formats and are ignored.

Formatted Multi or Single Record Display (VFMT or FMT):

For formatted records, the search string is compared against **individual fields** that have been selected for display in the formatted data record. (See **SELECT**)

Fields are searched from left to right in the order that they appear in the display. This is true regardless of the order in which field columns are specified on the CHANGE command, or the order in which fields are encountered within the unformatted record.

The prevailing **BOUNDS** left and right column values define which of the fields within the formatted records are eligible to be searched. i.e. Fields are eligible only if they exist within the left and right bounds when applied to the **expanded record** data (which is not necessarily the same as the unformatted record data.)

Where a **BOUNDS** column occurs within a field definition, then the following rules apply:

1. For character data type fields, only the area of the field that falls within the **BOUNDS** columns is eligible for the search.
2. For numeric data type fields, the field is not eligible to be included in the search.

If one or more field columns are specified on the CHANGE command (using *field_col* or *field_col1:field_col2*) that do not reference at least one field defined by the **BOUNDS** columns as being eligible for search, then the following error message is returned:

```
ZZSD280E No fields selected within the current bounds for the CHANGE command.
```

If a field column is specified on the CHANGE command that is not part of the display (e.g. a group field or a field that has been removed from display by a **SELECT** command), then the following error message is returned:

```
ZZSD179E Data element field_col is not selected in the current view
of record type record-type of structure struct_name.
```

For character data type fields, a string compare is performed. For numeric data type fields (binary, packed decimal, floating point, zoned, etc.), then the following will occur:

1. If *pos1*, *pos2* positional parameters are **not** specified, the search string is interpreted as a signed numeric value and an arithmetic compare is performed against the field's formatted numeric value.

The length and data type of the numeric field, and the number of digits in the search value are not significant. e.g.

```
CHANGE 67 23
```

Finds numeric fields with value "67" (e.g. "0067", "67.00", "0.0670E+03") and character fields containing the string "67" (e.g. "167 Baker Street") and replaces with the value "23" using the appropriate data type

If the search string is non-numeric, then numeric data type fields are not searched. Therefore, to bypass searching numeric data type fields, explicitly set the search string to be character or hex using 'string', C'string' or X'string' formats respectively. e.g.

```
CHANGE '67' '23'
CHANGE C'67' C'23'
CHANGE X'F6F7' X'F2F3'
```

Finds only character fields containing the string "67" and replaces with character string "23".

- If *pos1*, *pos2* positional parameters are specified, the search string is interpreted as being a character string and so a string compare is performed against the unformatted representation of the field data for fields falling entirely or partly within the range of record positions.

Although the range of positions may span a number of fields, the search is still performed against individual fields within the range. i.e. a match for the search string will not occur for data that spans a field boundary.

A match for the search string may occur on just part of the unformatted data representation of a numeric field. e.g.

```
CHANGE 476 850 21 100
```

This will find a match in any numeric field where unformatted representation of the data contains the string "476" and replaces it with "850". (e.g. a zoned decimal field with value "14760" would become "18500".)

Any match of the search string on data in a numeric field will highlight the entire formatted display of the field. If the numeric field is also the current, identified occurrence of the search string, the cursor is positioned at the start of the formatted numeric field display.

If replacing a string in a character field would exceed the defined maximum length of the field then no update will take place.

Parameters:

op

A relational operator used in the compare operation which determines the relationship that the data must have with the search string in order for it to be identified as a successful match.

Valid values for *op* are as follow:

Operator	Description
EQ	Data must be equal to <i>string1</i> . (Default)
NE	Data must be not equal to <i>string1</i> .
GT	Data must be greater than <i>string1</i> .
GE	Data must be greater than or equal to <i>string1</i> .
LT	Data must be less than <i>string1</i> .
LE	Data must be less than or equal to <i>string1</i> .

If a character string compare is performed, the EBCDIC values assigned to characters in the search and data strings determine the relationship (equal to, greater than or less than) between the two strings.

string1

The CHANGE search string. The search string may be any of the following:

- ◇ An unquoted numeric value. The search string is treated as a numeric value when a numeric field is searched in a formatted record view. In all other cases a numeric search string is treated as a character string.
- ◇ An unquoted character string containing no commas or blanks. The search for the character string will be case-insensitive so that uppercase and lowercase characters are treated as being the same.
- ◇ A character string enclosed in single (') or double (") quotation marks. The search string may contain embedded commas and blanks and the character string will be case-insensitive. A string enclosed in quotes may still be interpreted as a numeric value.

Two adjacent quotation mark characters that are embedded in a search string which is enclosed by the same quotation mark characters, will be treated as a single occurrence of the character. e.g.

```
CHANGE 'Jim O''Brien' 'James O''Brien'
```

Find the character string "Jim O'Brien" and replaces it with "James O'Brien".

- ◇ A character string enclosed in single (') or double (") quotation marks with the prefix C. This is equivalent to specifying a quoted search string but that the string search will be case-sensitive. (e.g. C'Book')
- ◇ A hexadecimal string enclosed in single (') or double (") quotation marks with the prefix X.
- ◇ A picture string enclosed in single (') or double (") quotation marks with the prefix P.

Picture strings use special characters to represent a generic group of characters as described below. Any character in a picture string that is not one of these special characters is untranslated.

String	Description
P'='	Any character.
P'→'	Any non-blank character.
P'.'	Any non-displayable character.
P'#'	Any numeric character, 0-9.
P'-'	Any non-numeric character.
P'@'	Any uppercase or lowercase alpha character.

P'<'	Any lowercase alpha character.
P'>'	Any uppercase alpha character.
P'\$'	Any non-alphanumeric special character.

◇ A regular expression enclosed in single (') or double (") quotation marks with the prefix R.

Regular expressions use special characters for complex pattern matching. See [Regular Expressions](#) in CBLex text edit documentation for detailed description.

VALID

Intended for use with formatted records, VALID will search fields for valid data. i.e. data that satisfies the field's assigned data type.

INVALID

Intended for use with formatted records, INVALID will search fields for invalid data. i.e. data that does not satisfy the field's assigned data type.

string2

The CHANGE replace string used to replace *string1*. The replace string may be any of the following:

- ◇ An unquoted numeric value. The replace string is treated as a numeric value when it replaces a value in a numeric field in a formatted view. In all other cases a numeric replace string is treated as a character string.
- ◇ An unquoted character string containing no commas or blanks. String2 may be null (").
- ◇ A character string enclosed in single (') or double (") quotation marks that may contain embedded commas and blanks. String2 may be null (C").
- Two adjacent quotation mark characters that are embedded in a replace string which is enclosed by the same quotation mark characters, will be treated as a single occurrence of the character. (See example under *string1*.)
- ◇ A character string enclosed in single (') or double (") quotation marks with the prefix C. This is equivalent to specifying a quoted search string but that the string search will be case-sensitive. (e.g. C'Book')
- ◇ A hexadecimal string enclosed in single (') or double (") quotation marks with the prefix X.
- ◇ A picture string enclosed in single (') or double (") quotation marks with the prefix P.

Where a picture string is used as *string2* of a CHANGE command, then it must be the same length as the *string1* and may only contain the following special characters. Any character in a picture string that is not one of the special characters supported by picture strings, is untranslated.

String	Description
P'='	Same as the corresponding character in the search string.
P'<'	Change the corresponding character in the search string to lowercase.
P'>'	Change the corresponding character in the search string to uppercase.

◇ Where *string1* is a regular expression, *string2* may contain tag references to tagged sub-expressions of the regular expression search pattern defined by *string1*.

See [Regular Expressions](#) in CBLex text edit documentation for details on tagged sub-expression reference.

ALL

Where field conditions are satisfied, change all occurrences of *string1* to *string2*. A message is displayed providing the number of occurrences of *string1* that have been changed to *string2*. If NX is not specified, all excluded records that contain an occurrence of the *string1* are made visible whether or not *string1* is replaced.

FIRST

Search forwards from the top of the file data (i.e. the first position of the first data record) to find the first occurrence of *string1* and attempt to replace it with *string2*.

LAST

Search backwards from the bottom of the file data (i.e. the last position of the last data record) to find the last occurrence of *string1* and attempt to replace it with *string2*.

NEXT

Search forwards from the current cursor location to find the next occurrence of *string1* and attempt to replace it with *string2*. If the cursor is not within the window's data display area, the search begins at the first position of the first visible or excluded record within the display area that is of the default record type.

PREV

Search backwards from the current cursor location to find the previous occurrence of *string1* and attempt to replace it with *string2*. If the cursor is not within the window's data display area, the backwards search begins at the first position of the first visible or excluded record within the display area that is of the default record type.

CHARS

For non-numeric search strings only, CHARS indicates that a successful match occurs if *string1* is found anywhere within the data being searched.

PREFIX

For non-numeric search strings only, PREFIX indicates that a successful match only occurs if *string1* is found at the start of a word within the data being searched. i.e. the matched text must precede an alphanumeric character and either be preceded by a non-alphanumeric character or be at the start of a line or field.

SUFFIX

For non-numeric search strings only, SUFFIX indicates that a successful match only occurs if *string1* is found at the end of a word within the data being searched. i.e. the matched text must be preceded by an alphanumeric character and either precede a non-alphanumeric character or be at the end of a line or field.

WORD

For non-numeric search strings only, WORD indicates that a successful match only occurs if *string1* is found to be a complete word within the data being searched. i.e. the matched text must either be preceded by a non-alphanumeric character or be at the start of a line or field, and either precede a non-alphanumeric character or be at the end of a line or field.

EX
X

Search EXCLUDED data records only. By default, both visible and EXCLUDED records are searched. CHANGE does not search records that are NOTSELECTED or SUPPRESSED.

NX

Search only visible data records (i.e. not EXCLUDED). By default, both visible and EXCLUDED records are searched. CHANGE does not search records that are NOTSELECTED or SUPPRESSED.

pos1

The first position of a range of positions within the data record to be searched.

For formatted records, this is a position in the **expanded record**. Only those fields, or parts of fields, that fall within the position range will be searched. Fields will be searched in the order that they occur within the display area.

pos1 may be a positive or negative integer value (not zero) and must be a value that is less than or equal to the maximum length of the data records or, for formatted record data, the length of the expanded record.

A negative value represents a position in the record relative to the end of the record. Therefore, where position 1 references the 1st character in the record, position -1 references the last character.

For all display formats, *string1* is treated as being non-numeric and the search is actioned on the character representation of the record data.

pos2

The last position of a range of positions within the data record to be searched.

Like *pos1*, *pos2* may be a positive or negative integer value (not zero). If *pos1* references a position within the record data which is higher than that referenced by *pos2*, then the *pos1* and *pos2* values are swapped.

If *pos2* is greater than the maximum length of the data records or, for formatted record data, greater than the length of the expanded record, then *pos2* is set equal to the maximum (or expanded) record length.

Default is *pos1* plus the length of the search string minus 1.

#ALL

Search all eligible field columns in the current formatted display.

field_col

An individual field column to be searched within a formatted display.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. JobID). If a field name is used, enclosing parentheses are **mandatory**. Field names are automatically converted to a field reference and Referencing the same field column more than once will not cause an error.

If the field is an array, then all elements of the array are searched. To search an individual element of an array, the element occurrence should be specified in parentheses as a subscript to the field reference/name. e.g. #13(3) for the 3rd element of a single dimension array. An entry must exist for each dimension of the array. e.g. RoomSize(6,2,4) - a three dimensional array.

Specification of multiple field columns must either be enclosed in parentheses and/or separated by commas. The field columns may be specified in any order, however, the data is always searched from the first column in the display to the last.

Field column search specifications may be a combination of individual field columns and columns ranges. e.g. (JobID #6 Tax_Reference #12 #15:#20).

A search is only performed on field columns that are selected for display. Therefore, any field column specified on the CHANGE command that has not been selected for display, will be ignored.

field_col1:field_col2

The first and last fields of a range of field columns to be searched within a formatted record display display.

field_col1 and *field_col2* must be separated by ":" (colon) and if *field_col1* occurs after *field_col2* in the data record, then the values are swapped. *field_col1* and *field_col2* have the same specifications as *field_col*.

Specification of multiple field column ranges must either be enclosed in parentheses and/or separated by commas. Field column search specifications may be a combination of individual field columns and field columns ranges. e.g. (FirstName:LastName, #2, Salary:Bonus, EmpNo, #10:#15). If field names are used, enclosing parentheses are **mandatory**.

.name1

A label name identifying the first record of a range of data records to be searched. The preceding "." (dot) is mandatory. Default is .ZFIRST.

.name2

A label name identifying the last record of a range of data records to be searched. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then the order is reversed. If CHANGE PREV is executed and *.name1* is specified, the default is .ZFIRST. Otherwise the default is .ZLAST.

DATA

DATA (as opposed to TEXT) indicates that records are to be treated as data so that CHANGE performs no special treatment of any multiple, consecutive blanks that follow the replaced string. DATA is default.

TEXT

TEXT (as opposed to DATA) indicates that records are to be treated as formatted text so that CHANGE operates identically to the ISPF edit style CHANGE command. i.e blanks following the replaced string may be absorbed or added in order to maintain text positions.

Examples:

```
change 22.3 303.25
```

Search all fields in the display belonging to the default record type for the next occurrence of the search string/value 22.3. Numeric fields are tested for numeric value 22.3, character fields are tested for character string "22.3" anywhere within the field. Where the field width and, for numeric fields, the precision and scale definitions are satisfied by the replacement string/value 303.25, text update will take place.

```
change all 'ing' 's' suffix ex (DsName:ProcLib, JobStep)
```

Search selected character fields in the display that belong to excluded records of the default record type, for all occurrences of the word suffix string "ing" and replace the text with "s".

See Also:

EXCLUDE FIND ONLY RCHANGE RFIND SELECT

CHAR

Syntax:

```
>>-- CHAR -----><
```

Description:

Display records or record segments in **multi-record**, unformatted character view by temporarily disabling the record-type (RTO) assigned to each record or record segment.

Compare with **FORMAT CHAR** which displays the records/segments in multi-record, unformatted view but does not disable the assigned record-type.

Note that unformatted records have record type "UnMapped", unformatted segments of a segmented record have record type "UnMappedSeg".

See Also:

FORMAT MAP (FMT) UNFMT VFMT ZOOM

CLIPBOARD

Description:

SDE CLI command, CLIPBOARD, performs the same operation as the CBL CLI command CLIPBOARD. See **CLIPBOARD** in CBL Text Edit documentation.

FOR *n_lines*

Specifies the number of consecutive lines in the group of records belonging to *fileid* to be copied into the focus SDE edit view.

All remaining *fileid* records are copied if the *n_lines* value is greater than the number of remaining *fileid* records.

Default is "*" (asterisk), all remaining *fileid* records.

AFTER | BEFORE

Identifies whether lines are to be copied after or before the target line in the focus SDE view.
Default is AFTER.

.name

A label name identifying the target line of copy.

If not specified, then the first line containing line (prefix area) command "A" or "B" is the target line, otherwise the **focus line**.

Examples:

```
copy SYSA.CBL.MACLIB(FS23T901) 22 * before .MAC
```

Copy records from line 22 to the end of the file from member "SYSA.CBL.MACLIB(FS23T901)" before the line in the focus SDE view identified by line label ".MAC".

See Also:

CLIPBOARD CREATE REPLACE

CREATE

Syntax:

```
>>-- CREate -----+-----+-----+-----+----->>
                |         |         |         |
                +- fileid -+   +- .name1 -- .name2 --+
                    (1)
```

Note:

1. If a group of lines are not specified using line label names, then a group of lines must be specified using one of the following line (prefix area) commands:

- ◆ **C** or **CC** (Copy), if the group of lines in the current file is to be preserved following successful execution of CREATE.
- ◆ **M** or **MM** (Move), if the group of lines in the current file is to be deleted following successful execution of CREATE.

Description:

Create a new sequential or VSAM data set, PDS/PDSE library member or HFS file, containing a group of lines extracted from the current SDE edit or browse view.

If the target file already exists, then the following message is returned:

```
ZZSD229E File fileid already exists.
```

If output is to a new member of an existing PDS/PDSE library or to an HFS file, the target file will be created automatically created. When CREATE defines a new HFS file, the permission bits are set to 740 (rwxr-----).

If output is to a non-existent data set or to a member of a non-existent PDS/PDSE library, the **Allocate Non-VSAM** panel is displayed in order to allocate the new data set.

Beware that the specified *fileid* character string must not be "LIST" (minimum abbreviation LI), "STRUCTURE" (minimum abbreviation "STRUCT") or "VIEW" (minimum abbreviation VI) which conflict with SDE command verbs CREATE LIST, CREATE STRUCTURE and CREATE VIEW.

Specify CREATE with no parameters to open the **SDE CREATE/REPLACE file panel**.

Parameters:*fileid*

Specifies the fileid of the target file to be created.

If *fileid* is a less than 8 characters in length and is a valid member name, the target file will be a member of member name *fileid* belonging to the same PDS/PDSE library referenced in the focus SDE view. If the focus SDE view does not display a library member, the *fileid* will be treated as an HFS file within the current HFS working directory.

.name1

A label name identifying the first line of the group of lines to be copied to the target file.

If not specified, then the group of lines must marked using "C" or "M" line (prefix area) commands.

.name2

A label name identifying the last line of the group of lines to be copied to the target file. If *.name1* has been specified, *.name2* is mandatory.

Examples:

```
create    DEV.USER223.COB.COPY(QX95R001)  .GRBEG .GREND
```

Create new library member "DEV.USER223.COB.COPY(QX95R001)" containing records in the current SDE view which fall between defined line label names .GRBEG and .GREND inclusively.

See Also:

[COPY REPLACE](#)

CREATE LIST

Syntax:

```
>>-- CREate LIst  -- list_name ----- FROM fileid ----->
>-- USING  +-+-----+ struct_name +-+-----+<<
           |-----|                |-----|
           +- STRUCTure -+          +-- TITLE title_text --+
```

Description:

Create an in storage list from records within a **structured data set**, that may then be displayed in a SELCOPY/i **List window** via the **DISPLAY LIST** command.

Only records of one record type may be accurately displayed within a list window. By default, the first record type object (**RTO**) within the **SDO** is used to map **all** the records within the file when generating the list.

A list column entry is generated for every field name defined by the RTO. Therefore, data within named fields that are part of a named group of fields will be repeated in different columns.

The List window displaying the list data will support most of the standard list window features as follow:

- **Field Descriptor Block (FDB)**
- **Edit View**
- **Selecting, Sorting and Filtering**
- **Sorting with the Cursor**

On exiting the List window display, the in-storage list is destroyed and storage is freed.

Parameters:*list_name*

The name to be assigned to the in-storage list data for reference in a DISPLAY LIST command.

FROM *fileid*

Identifies the fileid of the data set containing the structured records.

fileid may be the DSN of a sequential or VSAM data set or the DSN of a PDS/PDSE member.

USING (STRUCTURE) *struct_name*

Identifies the SDO to be applied to the data records. *struct_name* is the SDF fileid assigned to the SDO in a **CREATE STRUCTURE** command.


```

|
+- FLOAThex -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( n_bytes ) -----+-----+-----+-----+-----+-----+-----+
|
+- HEXadecimal -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( n_bytes ) -----+-----+-----+-----+-----+-----+-----+
|
+- HEXVAR -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( n_bytes ) -----+-----+-----+-----+-----+-----+-----+
|
+- INTeGer -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( n_bytes ) -----+-----+-----+-----+-----+-----+-----+
|
+- PCHAR -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( pll_picture_string ) -----+-----+-----+-----+-----+-----+
|
+- PFIxed -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( pll_picture_string ) -----+-----+-----+-----+-----+-----+
|
+- PFLOAT -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( pll_picture_string ) -----+-----+-----+-----+-----+-----+
|
|                   +-----+ , -----+-----+-----+-----+-----+-----+-----+
|                   v
+- STRUCture --- ( ---| Field Definition |---+--- ) -----+-----+-----+-----+-----+
|                   +- Decimal ---+
|
+- TIME -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- Binary ---+
|
|                   +- Decimal ---+
+- TIMEStamp -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- Binary ---+
|                   +- Stck ---+
|                   +- Hfsdir ---+
|
|                   +-----+ , -----+-----+-----+-----+-----+-----+
|                   v
+- UNION ----- ( ---| Field Definition |---+--- ) -----+-----+-----+-----+-----+
|
+- VARCHAR -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( max_bytes+-----+-----+-----+-----+-----+-----+-----+ )+-
|                   |                   |                   |                   |                   |
|                   +- , len_bytes+- , exclusive+-
|
+- VARHEX -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( max_bytes+-----+-----+-----+-----+-----+-----+-----+ )+-
|                   |                   |                   |                   |                   |
|                   +- , len_bytes+- , exclusive+-
|
+- XVARCHAR -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- ( max_bytes, len_field) -----+-----+-----+-----+-----+-----+
|
+- ZONEd -----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
|                   +- (precision+-----+-----+-----+-----+-----+-----+ ) -----+-----+
|                   |                   |                   |                   |                   |
|                   +- , scale ---+

```

Description:

Create a Structure Definition Object (SDO) to be used within SDE, and, if TEMPORARY is not specified, save it to a Structure Definition File (SDF).

An SDO contains the names and attributes of record types and fields in a dataset or the rows and columns in a DB2 table.

The source of structure definition information can be:

- One or more COBOL copybooks containing data element declarations.
- One or more PL/1 copybooks containing data element declarations.
- One or more HLASM (assembler) copybooks or macros containing DSECT declarations.
- An ADATA file containing the SYSADATA output of a COBOL or PL/1 compilation or an HLASM assembly.
- An existing Structure Definition Object (SDO).
- One or more DFSORT style SYMNames datasets.
- A SELCOPY/i structure declaration using the syntax described in *Direct Definition* below.

Parameters:*struct_name*

The name assigned to the structure being created, *struct_name* is the SDF fileid assigned to the SDO which will subsequently be referenced via the *USING* parameter of *EDIT* and *BROWSE* commands.

Unless parameter *TEMPORARY* is specified, *struct_name* must be the DSN of a new or existing data set or PDS(E) member to which the file structure definition is saved.

TITLE *short_title*

Specifies a title to be assigned to the structure.

The structure's title is displayed as part of the **structure (SDO) list** and may be displayed or updated via the **SET/QUERY/EXTRACT TITLE** option.

The *short_title* text string should be no longer than 64 characters and may be enclosed in quotation marks (") or apostrophes (').

DESCRIPTION *long_description*

Specifies a description to be assigned to the structure.

The structure's description and may be displayed or updated via the **SET/QUERY/EXTRACT DESCRIPTION** option.

The *long_description* text string should be no longer than 512 characters and may be enclosed in quotation marks (") or apostrophes (').

REPLACING

Specifies text replacing options to be implemented when processing COBOL copybooks.

When creating structures from COBOL copybooks, SELCOPY*i* generates a dummy COBOL program with a working storage section which consists of COPY statements for each included copybook member and an optional REPLACE statement. This program is then compiled and the resulting SYSADATA dataset used to generate the data structure.

The syntax of the COBOL REPLACE compiler directive statement is:

```

+-----+
v                                     |
>>- REPLACE -+- ==pseudo_text_1== - BY - ==pseudo_text_1== -+-><

```

The pairs of pseudo text strings are obtained from the following sources:

1. The SELCOPY*i* site INI file variable pairs *SITECOBOLREPLACE.nnFR* (the change from string) and *SITECOBOLREPLACE.nnTO* (the change to string) where nn = 01 - 12.
2. The SELCOPY*i* user INI file variable pairs *USERCOBOLREPLACE.nnFR* (the change from string) and *USERCOBOLREPLACE.nnTO* (the change to string) where nn = 01 - 12.

These variables can be viewed and modified in the **COBOL Replacing Options** fields of the **COBOL Compiler Options (=0.4.1)** panel.

3. The CREATE STRUCTURE command RELACING clause.

By default the generated REPLACE statement contains the changes from all of these sources. This action can be modified by the following keywords:

NOTHING

Do not generate a REPLACE statement. The COBOL copybook text is processed as is. This may lead to compile errors due to invalid COBOL data names.

ONLY

Only use the replacing text from the REPLACING clause of the CREATE STRUCTURE command. The site and user INI file variables are not used.

SYSADATA (*sysadata_dataset_name*)

When creating structures from COBOL or PL1 copybooks SELCOPY*i* uses the language compilers to process the copybook source and produce a SYSADATA dataset.

By default the SYSADATA dataset is a dynamically allocated temporary dataset which is deleted when the CREATE STRUCTURE command has been processed.

There may be a requirement to examine or save this SYSADATA file (for example for problem diagnosis). This option allows the specification of a user allocated permanent dataset or PDS(E) member which will be used instead of the temporary dataset.

The SYSADATA dataset or PDS(E) member must have record format variable blocked (RECFM=VB) and logical record length greater than 1000 (LRECL>1000).

COPYBOOKPROC (*COMPILER|INTERNAL*)

Specify whether the language compiler or SELCOPY*i* internal code is to process copybooks for this command.

By default the current setting of the **COPYBOOKPROC** option determines the copybook processor.

OPTION (...)

The *OPTION* keyword can be used to set certain optional structure attributes. These attributes are normally set interactively using a structured edit primary command but can be pre-defined when the structure is created using this keyword.

In each case the required structured edit primary command is placed in parentheses following the *OPTION* keyword. The supported optional commands are:

colwidth_command

The *colwidth_command* option is **SET COLWIDTH** syntax which is used to modify the displayed width of character columns.

ccolour_command

The *ccolour_command* option is **CCOLOUR** syntax which is used to conditionally apply a specific colour and highlight to a particular column.

rcolour_command

The *rcolour_command* option is **RCOLOUR** syntax which is used to conditionally apply a specific colour and highlight to a particular row.

INITCMD (sd_command ...)

The *INITCMD* keyword can be used to define a set of structured edit primary commands which are to be executed whenever an **EDIT** or **BROWSE** session is started using this structure. These commands are executed before any *INITCMD* specifications for edit or browse.

Any number of commands may be listed in parentheses following the *INITCMD* keyword enclosed in apostrophes (') or quotation marks (").

**REPLACE
NOREPLACE**

Either overwrite or give an error if *struct_name* already exists.
Default is **NOREPLACE**.

TEMPORARY

Create the SDO in storage without automatically saving it to an SDF data set. A temporary SDO cannot be saved.

Where **TEMPORARY** is used, *struct_name* is simply a named reference for the SDO and does not need to be a valid DSN. As for standard SDOs, when a temporary SDO is created, it will remain in storage until it is dropped using the **DROP** or **DDROP** command or the CBLed Edit session is ended.

Default is to save the SDO to an SDF allocated to DSN *struct_name*.

**CASE (IGNORE)
CASE (RESPECT)**

Respect or ignore the case setting of any variable names used in the structure definition. Default is **CASE(IGNORE)**.

XRef Definition

XRef Definition syntax is an alternative, more flexible method of generating a SELCOPY/i structure (SDO) than using **CopyBook Definition** or **Direct Definition** syntax.

Features of XRef Definition which are not supported by these other methods are:

1. Define segment record type structures for mapping the individual segments (primary and secondary) of segmented records.
2. Define a record type based on any COBOL group or PL1 major/minor structure within a COBOL/PL1 copybook or ADATA file.
3. In a single CREATE STRUCTURE execution, define multiple record types from a mixture of COBOL and/or PL1 copybooks, ADATA files, existing SELCOPY/i structures (SDOs) and/or in-line record type direct definition syntax.
4. Specification of a default record type.
5. Assignment of USE WHEN selection criteria to each non-default primary and secondary record type definition generated from COBOL/PL1 source. (This is mandatory.)

LIBRARY (copybook_library ...)

Specifies a library search chain for COBOL or PL1 copybook lookup. If a library containing a required source copy book is in the search chain, then *copybook_library* need not be specified following the SOURCE COBOL/PL1 parameter.

One or more blank separated *copybook_library* PDS/PDSE library data set names are specified in "()" (parentheses).

RECORD (RecordType Definition)

A separate RECORD specification is required for each record type to be defined within the structure.

RecordType Definition

RecordType Definition incorporates all parameters supported by each RECORD parameter specification in **XRef Definition**.

NAME *record_type*

Identifies the name of the record type to be defined in the SDO.

Unless SOURCE references SELCOPY/i SDE record definition syntax via the STRUCTURE sub-parameter, *record_type* must match the name of a group (major or minor structure) field in the source (copybook, ADATA, SDO) object.

OFFSET <+|-> *n_bytes*

Specifies a positive or negative offset from the start of the record (or segment) at which the record type will start mapping data.

Use of an offset is documented in detail under SET/QUERY/EXTRACT option **USEOFFSET**.

STARTFIELD *data_element*

Applicable only to SOURCE COBOL, PL1 or HLASM, STARTFIELD may be used instead of NAME and OFFSET, to identify the start field (*data_element*) at which record data will be mapped.

The record type definition name (*record_type*) will be that of a COBOL group, PL1 structure or HLASM DSECT in which the start data element is defined. If a LEVEL number is specified, the record type definition will be the group containing *data_element* which matches the specified level number. Otherwise, it is the group containing *data_element* with the highest level number.

The offset of *data_element* within the selected group defines a negative OFFSET value to be applied when mapping record data.

SOURCE

The SOURCE parameter identifies the input file (data set or PDS/PDSE library member) and the type of input to be used to generate the record type definition.

If COBOL or PL1, then the appropriate compiler will be invoked to compile the source file and, if the compiler return code is within the range of acceptable values (See options **MAXCOBOLRC** and **MAXPL1RC**), use the resulting ADATA file to build the record type definition (RTO). If the source is an existing COBOL or PL1 ADATA output file, then the RTO is generated directly from the ADATA source (no compilation is required.)

SDO source may be used to copy an RTO definition from an existing SDO structure, whereas STRUCTURE indicates that the RTO is to be constructed using in-line record definition syntax.

COBOL|PL1|HLASM *source_fileid*

COBOL, PL1 or HLASM specifies the program language of the statements in the copybook source data set or library member identified by *source_fileid*.

source_fileid contains the COBOL group field definition, major or minor PL1 structure or Assembler DSECT from which the record type definition will be generated. This group/structure/DSECT name must match the *record_type* name as specified by the **NAME** parameter.

If *source_fileid* specifies a PDS/PDSE library member name without a library DSN, then the library search chain specified by **LIBRARY** is used to find the member.

If *source_fileid* specifies a PDS/PDSE library member name with a library DSN, *library(member_name)*, then the library DSN is added to the end of the library search chain. Note that the first occurrence of the member within the library chain will be used. This may be a member with the same member name that exists in a different library to that specified by *source_fileid*.

ADATA *adata_fileid*

Specifies the name (*adata_fileid*) of an ADATA output data set which was created as a result of an Enterprise COBOL or PL1 compilation or an HLASM assembly.

adata_fileid contains the 01 COBOL group field definition, major PL1 structure or Assembler DSECT from which the record type definition will be generated. This group/structure/DSECT name must match the *record_type* name as specified by the **NAME** parameter.

LEVEL *level_number*

Applicable only to SOURCE type COBOL or PL1, LEVEL identifies the data element level number, *level_number*, of the COBOL group field or PL1 structure which constitutes the record definition.

When used with the **NAME** parameter, the *record_type* name at the specified *level_number* will be used. Default is LEVEL 1.

When used with the **STARTFIELD** parameter, *level_number* identifies the level of a group or structure within the hierarchy in which the start *data_element* is defined. This group/structure will be used to build the record definition. If no LEVEL is specified, the default for STARTFIELD will be a value equal to the highest level of the group in which *data_element* is defined.

SDO *sdo_fileid*

Specifies *sdo_fileid*, a sequential data set or library and member name of a previously generated SELCOPYi structure (SDO).

sdo_fileid contains the record type definition from which the new record type definition will be created. This record type definition name must match the *record_type* name as specified by the **NAME** parameter.

STRUCTURE (Record Definition)

Specifies the CREATE STRUCTURE Record Definition syntax that will be used to create a record type definition of name *record_type* as specified by the **NAME** parameter.

SYMNAMES (*sym_fileid* | *sym_namedef*, ...)

Specifies DFSORT SYMNAME symbol definitions that are to be used to define consecutive fields in the new record type definition. The order in which symbol definitions are supplied dictate the order in which the fields will occur in the record type definition.

The symbol name definitions may be supplied in-line (*sym_namedef*) within the SYMNAMES parentheses and via input data sets and/or library members (*sym_fileid*). e.g.

```
SYMNAMES( SYS1.MACLIB(EDGSMFSY)  SYS1.MACLIB(EDGSRCSY) )
SYMNAMES( CBL.DFSORT.SYM(CBLATRAC)  TCB,*,4,BI )
```

FIELDS *data_element*, ...

Specifies the name of one or more field data elements (*data_element*) that exist in the record definition identified by the **FROM** *record_type* parameter. Multiple *data_element* specifications must be comma separated.

The new record type definition will be identical to that specified by FROM *record_type* except that all field data elements that have not been selected by the FIELDS specification, are marked as hidden. Data in records that are mapped to hidden field elements are not included in the formatted record data.

This technique of hiding fields can be useful when only one instance of a redefined field (or group field) mapping is to be displayed in a data editor view. By default, the data editor will redisplay data for each field mapping involved in a redefine (union).

All fields elements in a group (structure) can be selected by specifying the group field name as the *data_element* with a "(" suffix. e.g. XREF_KEY(*) selects all field elements in the group field XREF_KEY.

FROM *record_type*

Specifies the name of a record type definition *record_type* which has been defined by previous RECORD() syntax in the current CREATE STRUCTURE command.

This *record_type* identifies the record type definition from which the FIELDS parameter selects field data elements for the new record type.

PRIMARY

Identifies the record type as being a non-default primary (base) segment.

A primary segment maps data at the start (first segment) of a segmented record or, for non-segmented records, maps all data in a record. Primary segment definitions are never selected to map data beginning at any position other than position 1 of a segmented record.

Specification of **USE WHEN** criteria is mandatory in order to identify the conditions by which this record type is allocated to a record/base segment.

SECONDARY

Applicable to segmented records only, SECONDARY identifies the record type as being a secondary segment.

A secondary segment maps data that immediately follows any primary segment or any other secondary segment defined within the structure. Secondary segment definitions are never selected to map data beginning at position 1 of a segmented record.

Specification of **USE WHEN** criteria is mandatory in order to identify the conditions by which this record type is allocated to a secondary segment.

If no secondary segment record type criteria is satisfied by the record data, then the remainder of that record is displayed using the default secondary segment "UnmappedSeg". This maps the remaining segmented record data as a character data field of length equal to the remaining record data length.

DEFAULT

Identifies the record type as being the default primary (base) segment.

DEFAULT may be assigned to only one record type definition in the SDO. Furthermore, **USE WHEN** criteria must not be specified for default record type definitions.

The default record type is assigned to a record (or primary segment) when it does not satisfy the USE WHEN selection criteria of any of the defined primary record type definitions.

<USE> WHEN|IF *expression*

Specifies the selection criteria that must be satisfied by the record (or record segment) data, in order for it to be assigned the associated record type mapping.

The USE WHEN *expression* is a valid SDE *expression* which supports **function calls**, record type **field names** and references, **sub-expressions**, **arithmetic**, **relational** and **logical** operators.

The result of the USE WHEN expression must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

When the selection criteria involves testing fields in unformatted record data, the SDE expression should simply use function SUBSTR() on the record field RECORD. e.g. To assign a record type based on a character string "A11" at position 11 of the record data, specify the following:

```
USE IF SUBSTR(RECORD,11,3) = 'A11'
```

To test fields in the record data as if already formatted by the record type structure you are attempting to assign, simply reference the required field names in the SDE expression. e.g. To assign a record type based on values in 2 numeric fields, SEQUENCE_ID and CUST_REF, both defined within the record type structure...

```
USE IF ( SEQUENCE_ID > 301 AND CUST_REF = 10233 )
```

Note that fields SEQUENCE_ID and CUST_REF may have been defined as packed decimal, integer, floating point, etc. If the record data is invalid for the assigned data type, the expression will return a "false" condition.

CopyBook Definition

Defines the one or more external copy book(s) or an ADATA compile output file to be used to generate the SDO. Multiple copy books are concatenated to produce a single copy book and then individual record type definitions (RTOs) established as follow:

1. If Auto Rec-Types is set OFF (see the **Structured Data Edit Settings** panel), then each level 1 entry will generate a new record type (RTO) mapping.

Note that, for COBOL copybooks only, if the first data declaration statement is not a level 1 entry, then a level 1 entry is generated at the start of the copy book concatenation. This level 1 entry will have the name "SELCOPY-01" or *level1_name* (see parameter **LEVEL 1** or **RECORD TYPE** below)

2. If Auto Rec-Types is set ON, then for each level 1 entry where all the 2nd level entries are a union (REDEFINES) of each other, a new record type will be created for each 2nd level entry instead of the level 1 entry.

```
FROM COBOL|PL1|ADATA
```

Identifies the input as a copy book with programming language COBOL or PL/1. Alternatively identifies input as a COBOL or PL/1 ADATA file.

COBOL and PL/1 copy books that have been compiled using the following compiler options, generate ADATA output.

ADATA	COBOL compiler option.
XINFO(SYN,SYM)	PL/1 compiler option.

Using an already generated ADATA output reduces the inevitable overhead that occurs if SELCOPY/i itself has to re-compile a copy book in order to create the SDO.

Default is COBOL.

```
(LEVEL) 1 level1_name
RECORD (TYPE)
```

Insert an appropriate COBOL or PL/1 level 01 record (Record Type), with the field name specified by *level1_name*, immediately before the specified copy book data.

This parameter is intended for use where no level 1 record is defined within the copy book.

```
copybook_name
```

The complete fileid (DSN and member name) of a COBOL or PL/1 copy book, or ADATA file.

```
SELECT level1_entry
```

Selects the individual "01" level entry names from within the concatenation of specified copy books for which record type mappings (RTOs) are to be generated. All data declaration entries associated with "01" level entries that are not selected, will be ignored. Multiple names must be separated with commas.

For HLASM an "01" level name is a *DSECT* name.

Default is to generate an RTO for each "01" level entry in the copy book concatenation.

DB2 Definition

DB2 definition syntax provides the method of defining an SDO containing a single record type structure (RTO) based on columns returned by a prepared SQL query statement. CREATE STRUCTURE uses information stored in the returned SQLDA to determine the data type, etc. for each field definition in the RTO. To do this, a BIND of the SELCOPY/i DB2 plan must have been performed for any DB2 sub-system containing tables involved in the CREATE STRUCTURE operation.

Furthermore, SDE DB2 edit and browse options may be specified on CREATE STRUCTURE and so are saved in the RTO. These options are used by default when the (SDO) structure is used to edit the table data.

```
FROM DB2 < (ssn) >
```

Indicates that structure generated is derived from a DB2 results table. *ssn* is optional and identifies the local DB2 sub-system name to which a connection will be made.

Before a connection can be made to the DB2 sub-system, the SELCOPY/i DB2 plan must have been bound to that sub-system.

Default for *ssn* is the users default DB2 sub-system name as set by the DB2 Primary Options menu.

table_name

A DB2 base table name identifying the columns that constitute the structure's only record type (RTO) definition.

table_name may be specified with 1, 2 or 3 qualifiers representing *name*, *schema.name* or *location.schema.name* respectively. Default location is the local DB2 server and the default schema is the value assigned to special register CURRENT SCHEMA (initially set to the user's SQLID).

view_name

A DB2 table view which references an SQL query used to generate a results table containing the columns that constitute the structure's only record type (RTO) definition.

view_name may be specified with 1, 2 or 3 qualifiers representing *name*, *schema.name* or *location.schema.name* respectively. Default location is the local DB2 server and the default schema is the value assigned to special register CURRENT SCHEMA (initially set to the user's SQLID).

DB2 Opts

The following DB2 options are saved in the structure and are used to generate the dynamic SQL query statement, apply further mapping to DB2 column data and also set default values for SDE DB2 table edit. These options are invoked if the structure is applied on edit or browse via the USING STRUCTNAME parameter.

WHERE (*where-clause*)

Specifies a DB2 SQL WHERE clause to be included in the prepared SQL select statement. See "*DB2 SQL Reference*" for syntax of the *where-clause*.

If *where-clause* is null or "?" (question mark) the **DB2 Row Selection Panel** is opened before the create structure is actioned. On closing the panel, the create structure operation is actioned using the generated WHERE clause.

SORT|ORDER BY (*order-by-clause*)

Specifies a DB2 SQL ORDER BY clause to be included in the prepared SQL select statement. See "*DB2 SQL Reference*" for syntax of the *order-by-clause*.

SKIPLOCKED

Saves an SDE DB2 table edit default for option SKIPLOCKED. Ignored unless an isolation level of Cursor Stability (CS) or Read Stability (RS) is in effect, SKIPLOCKED specifies that any selected rows that are already locked by another process should be skipped and not be included in the edit display. See "*DB2 SQL Reference*" for details on the SKIP LOCKED DATA clause. Default is to allow display of locked rows whenever possible.

PROTECTPRIMEKEY | EDITPRIMEKEY

Saves an SDE DB2 table edit default for option PROTECTPRIMEKEY / EDITPRIMEKEY. Specifies whether data occupying columns that comprise the table's primary key is eligible for update (EDITPRIMEKEY) or is read only (PROTECTPRIMEKEY). Default is PROTECTPRIMEKEY.

WITH CS|UR|RR|RS < KEEP EXCLUSIVE|UPDATE|SHR >

Saves an SDE DB2 table edit default for option WITH. Specifies a DB2 SQL isolation-clause to be included in the prepared SQL select statement. See "*DB2 SQL Reference*" for details on the *isolation-clause* and "*DB2 Performance Monitoring and Tuning Guide*" for details on the effects of isolation level on concurrency and protection of DB2 table data.

The KEEP sub-parameter options are applicable to isolation levels RR (Repeatable Read) and RS (Read Stability) only. Default isolation level (as set by the SELCOPY/i DB2 package and plan BIND) is CS.

COMMITONCLEANSAVE | COMMITONSAVE | COMMITONEXIT

Saves an SDE DB2 table edit default for option COMMITONCLEANSAVE / COMMITONSAVE / COMMITONEXIT. Specifies when a COMMIT should be executed for changed data.

COMMITONCLEANSAVE	COMMIT only if SAVE is executed without errors.
COMMITONSAVE	COMMIT on SAVE regardless of errors.
COMMITONEXIT	COMMIT only on exit of the edit session.

Default is COMMITONCLEANSAVE.

COMMITONLOAD

Saves an SDE DB2 table edit default for option COMMITONLOAD. Performs a COMMIT following the initial load of rows to be edited, thus releasing all DB2 table locks performed during load of the data. This includes any explicit table locks applied via the LOCKTABLE parameter. Default is not to perform a COMMIT following load of the table rows.

AUDIT

Saves an SDE DB2 table edit default for option AUDIT. AUDIT will open a new SELCOPY/i DB2 audit data set to record changes to the edited table made during this

edit session. See DB2 Auditing for details.
Default is not to perform edit auditing.

SELECT (*select_syntax*)

DB2 table edit/browse will fetch all columns from the selected table or view. SELECT may be used to select a subset of these columns for initial display in the edit/browse window view. Except for parameters FROM *record_type* and IN *struct_name* which are both unnecessary, the *select_syntax* argument represents parameters supported by the **SELECT** primary command.

Unlike parameter **INITCMD**, which may also be used to execute SELECT commands, the SELECT parameter column selection is performed before the **profile** macro is executed.

Direct Definition

Direct definition syntax provides the method of directly defining an SDO containing one or more record structures (RTOs), each comprising one or more fields, without first having a copy book.

NAMES

Field names specified in the *record_definition* are verified so that they conform with the naming standards of the specified programming or query language. Supported standards are as follow:

ASM ASSEMBLER HLASM	IBM High Level Assembler.
COBOL	IBM COBOL.
DB2	IBM DB2 SQL.
PL1 PLI	IBM Enterprise PL/1.

Record Definition

Definition of a single record structure (RTO) within the structure definition object (SDO).

record_type

The record type name used to identify the new record type object (**RTO**).

STRUCTURE

The data type of an RTO. An RTO may be considered to be a single field of type STRUCTURE which itself comprises a number of individual fields.

EBCDIC
ASCII

Unless overridden by EBCDIC or ASCII specified as a parameter on a field definition, all character fields within the RTO are to be treated as either EBCDIC or ASCII.
Default is EBCDIC.

USE WHEN *expression*

Often an individual record can be assigned a record type by matching on record length. Where several record types are potential matches based on record length, then **USE WHEN** should be used to specify criteria that must be satisfied before the record type can be assigned to a particular record.

expression is a valid SDE **expression** which supports **function calls**, **record_type field names** and references, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of the WHEN expression must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

If a WHEN expression associated with a record type returns a "true" result for a data record, then that record type is assigned to the record.

Field Definition

Definition of a single field within the record RTO.

field_name

The field name identifier.

PICTure *picture_string*

Any COBOL-style picture string. e.g. PIC S9(7)
This is treated **purely as comment data**.

DIENSIONS

Used to define an array of given datatype.

<i>dim</i>	An integer that defines the fixed number of elements.
<i>min</i>	An integer that defines the minimum number of elements.
<i>max</i>	An integer that defines the maximum number of elements.
<i>d_name</i>	The field name that defines the variable number of elements.

e.g.

```
dim(12)
dim( (0,44,ObjNum) )
dim( (0,10,OutPrtNum) , (0,10,OutPunNum) )
```

EBCDIC
ASCII

For character fields only, treat as either EBCDIC or ASCII.
Default is as defined on the Record Definition, otherwise EBCDIC.

SIGNED
UNSIGNED

For numeric fields only, treat as signed or unsigned. Default is SIGNED.

The sub-parameters **LEADing|TRAILing** and **SEParate|INCluded** are applicable to zoned decimal only and correspond directly to the COBOL SIGN clause.

ALIGNED
UNALIGNED

Determines whether the field will be boundary aligned for its data type.
Default is UNALIGNED.

ZEROS

Applicable to numeric fields only, ZEROS indicates that leading zeros are to be displayed. For alpha-numeric fields, this parameter is ignored.

DEfault *default_value*

Specifies the default value for this field should a new record be added. It can be defined either as a numeric or quoted string constant, or as an expression referring to field names within the current record.

REmarks *remark*

A comment string placed in either single or double quotes.

ENUMeration

Create an enumeration definition or specify the name of an existing enumeration for use with the current field.

enam may be specified to allocate a name to the enumeration definition or as a reference to an enumeration already defined within the current field definition clause.

Each *enumerator* should be specified in the form *display=value*, where *display* will be displayed when this field contains *value*. e.g.

```
enum (HLAsm=16, Cobol=17, Pl1=40)
```

display should be enclosed in quotes if it is to contain blanks. *display* may be specified without a corresponding *value*, in which case the previous value plus 1 will be implied.

Data Definition

Data type of a single field within the record RTO.

BINteger

Defines a field to be interpreted as binary whole-number occupying *n_bits* bits, where *n_bits* defaults to 1.

BIT

Defines a field to be interpreted as a series of ON|OFF (1|0) switches occupying *n_bits* bits, where *n_bits* defaults to 1.

CHARacter

Defines a field to be interpreted as a fixed-length character string occupying *n_bytes* bytes, where *n_bytes* defaults to 1.

CHARVarying

Defines a field to be interpreted as a variable-length character string padded with blanks to occupy a fixed *n_bytes*, where *n_bytes* defaults to 1. The actual length of the string is defined by a 2 byte binary integer at the start of the field so that the overall length of the field is $2+n_bytes$.
CHARVARYING is equivalent to a PL/1 field which is declared as being CHARACTER VARYING.

CHARZ

Defines a field to be interpreted as a variable-length character string occupying a fixed *n_bytes* bytes, where *n_bytes* defaults to 1. No length field exists, instead the character string is terminated by a null character ('x'00') which increases the overall length of the field by 1. (i.e. $n_bytes+1$)
CHARZ is equivalent to a PL/1 field which is declared as being CHARACTER VARYINGZ.

DECimal

Defines a field to be interpreted as a packed-decimal number allowing *precision* number of digits in total, of which *scale* number of digits will be displayed following the decimal-point.
Default for *precision* is 7.
Default for *scale* is 0.

DATE

Defines a date field with the source data interpreted in one of the following formats:

DECIMAL	Packed decimal format of length 4 bytes (X'ccyy,dddF'). Decimal values for year of century (yy) and Julian day of year (ddd). 'F' is a 4-bit sign and 'cc' is the century indicator X'00'(1900) or X'01'(2000). e.g. 14th February 2011 is X'0111,045F'.
BINARY	Binary format of length 6 bytes (X'yyyy,00mm,00dd'). Binary values for year including century (yyyy), month of year (mm) and day of month (dd). e.g. 20th October 2011 is X'07DB,000A,0014'.
CATALOG	ICF Catalog Date format of length 4 bytes (X'yydd,dFcc'). Decimal values for year of century (yy) and Julian day of year (ddd). 'F' is a 4-bit sign and 'cc' is the century indicator X'00'(1900) or X'01'(2000). e.g. 16th July 2008 is X'0819,7F01'.
VTOC	VTOC format of length 3 bytes (X'yyddd'). Binary values for years since 1900 (yy) and Julian day of year (ddd). e.g. 19th August 2005 is X'6900E7'.

Default date format is **DECIMAL**.

FIXed

Defines a field to be interpreted as a binary number allowing *precision* number of digits in total, of which *scale* number of digits will be displayed following the decimal-point. Default for *precision* is **7**. Default for *scale* is **0**.

FLOATBIN

Defines a field to be interpreted as a Binary (IEEE 754) Floating-point number occupying *n_bytes* bytes, where *n_bytes* may be 4 or 8 (defaults to **4**).

FLOATDEC

Defines a field to be interpreted as a Decimal Floating-point value of *precision* number of significant digits, where *precision* may be 16 or 34 (defaults to **34**). Precision 16 occupies 8 bytes of data, precision 34 occupies 16 bytes.

FLOATHEX

Defines a field to be interpreted as a Hexadecimal Floating-point number occupying *n_bytes* bytes, where *n_bytes* may be 4 or 8 (defaults to **4**).

HEXadecimal

Defines a field to be interpreted as printable hexadecimal character string occupying *n_bytes* bytes, where *n_bytes* defaults to **1**.

HEXVAR

Defines a field to be interpreted as a variable-length printable hexadecimal string padded with blanks to occupy a fixed *n_bytes*, where *n_bytes* defaults to **1**. The actual length of the string is defined by a 2 byte binary integer at the start of the field so that the overall length of the field is $2+n_bytes$.

INTEger

Defines a field to be interpreted as a binary whole-number occupying *n_bytes* bytes, where *n_bytes* defaults to **4**.

PCHAR

Defines a field to be interpreted as a PL/1 style PICTURE string representing a character data item (i.e. no numerical interpretation). The length of the field is determined by the quoted *pl1_picture_string*. *pl1_picture_string* may contain any valid PL/1 picture character for character data. If invalid characters (e.g. numeric picture characters E, V, Z, etc.) are specified then an error will occur. Default is PCHAR('X').

PFIXED

Defines a field to be interpreted as a PL/1 style PICTURE string representing a FIXED point numerical character data item. The length of the field is determined by the quoted *pl1_picture_string*. *pl1_picture_string* may contain any valid PL/1 picture character for numeric character data except for exponent characters "E" and "K". If invalid characters are specified then an error will occur. Default is PFIXED('S9').

PFLOAT

Defines a field to be interpreted as a PL/1 style PICTURE string representing a FLOAT point numerical character data item. The length of the field is determined by the quoted *pl1_picture_string*. *pl1_picture_string* may contain any valid PL/1 picture character for numeric character data. If invalid characters are specified then an error will occur. Default is PFLOAT('S9ES99').

STRUCTure

Defines a field to be interpreted as a structure containing one or more fields specified using Field Definition syntax. One or more of these fields may themselves be structures and so nesting of structures is supported. Each field definition should be separated by a comma.

TIME

Defines a time field with the source data interpreted in one of the following formats:

DECIMAL	Packed decimal format of length 4 bytes (X'HHMM,SSTH'). Decimal values for hours (HH), minutes (MM), seconds (SS), tenths of second (T) and hundredths of second (H). Note that the data is unsigned.
BINARY	Binary format of length 4 bytes (X'nnnn,nnnn'). A 32-bit unsigned binary value for number of hundredths of seconds (0.01 second) elapsed in a day.

Default time format is **DECIMAL**.

TIMESTAMP

Defines a timestamp field with the source data interpreted in one of the following formats:

DECIMAL	Packed decimal format of length 8 bytes (X'yyyy,dddF,HHMM,SSTH'). See descriptions of DECIMAL format for DATE and TIME parameters.
BINARY	Binary format of length 10 bytes (X'yyyy,00mm,00dd,nnnn,nnnn'). See descriptions of BINARY format for DATE and TIME parameters.
STCK	Store Clock value of length 8 bytes. A 64-bit unsigned binary value in the same format as the system TOD clock.
HFSDIR	HFS directory timestamp of length 4 bytes. A 32-bit unsigned binary value for number of seconds elapsed since 1970/01/01 00:00:00.

Default timestamp format is **DECIMAL**.

UNION

Defines a field to be interpreted as a union of one or more fields specified using Field Definition syntax. Each field definition should be separated by a comma. Unions allow the same data to be interpreted as more than one data-type.

VARCHAR

Defines a field to be interpreted as a variable-length character string. The maximum possible length of the string is defined as **max_bytes** bytes, defaulting to **0**. The actual length of the string is defined by a binary integer field of length **len_bytes** bytes at the start of the field. Default for *len_bytes* is **2**. The value of the *exclusive* parameter indicates whether this length integer includes or excludes the length field itself. Permissible values are EXCLUSIVE (the default) and INCLUSIVE.

VARHEX

Defines a field to be interpreted as a variable-length printable hexadecimal string. The maximum possible length of the string is defined as **max_bytes** bytes, defaulting to **0**. The actual length of the string is defined by a binary integer field of length **len_bytes** bytes at the start of the field. Default for *len_bytes* is **2**. The value of the *exclusive* parameter indicates whether this length integer includes or excludes the length field itself. Permissible values are EXCLUSIVE (the default) and INCLUSIVE.

XVARCHAR

Defines a field to be interpreted as a variable-length character string. The maximum possible length of the string is defined as *max_bytes* bytes, defaulting to **0**. The actual length of the string is defined by field name *len_field*, which must be numeric.

ZONEd

Defines a field to be interpreted as a zoned-decimal character number allowing *precision* number of digits in total, of which *scale* number of digits will be displayed following the decimal-point. Default for *precision* is **1**. Default for *scale* is **0**.

Examples:

```
<sd create structure      CBL.CBLI.STRUCT(EMP) from cobol CBL.COPYBOOK.COBOL(EMP)
<sd edit  CBL.SDE.EMP    using  CBL.CBLI.STRUCT(EMP)
```

Sample commands as they may appear in the user's HOME CMX file. The first command will generate a new SDO structure from a single COBOL copy book, the second will edit a file using the SDO to apply record mapping.

```
<sd create structure  CBL.CBLI.SDO(FILSTRUC)  \
(
  REC-TYPE01 struct  \
  ( REC-TYPE          char(2),                \
    NAME              char(20),              \
    EMPLOYEE-NO       int(2) unsigned,        \
    AGE               int(2) unsigned,        \
    SALARY            dec(7),                 \
    MONTH            int(4) dim(12) unsigned, \
                    char(2)                  \
  ) use when REC-TYPE='01' \
,
  REC-TYPE02 struct  \
  ( REC-TYPE          char(2),                \
    NAME              char(20),              \
    JOB-TITLE         char(14),              \
    ADDR1             char(20),              \
    ADDR2             char(20),              \
    POSTCODE          char(4)                \
  ) use when REC-TYPE='02' \
)
names(COBOL)        replace      case respect
```

Sample command as it may appear in the user's HOME CMX file. This command will generate a new SDO structure consisting of 2 record type definitions.

```

<||sd create structure CBL.CBLI.SDO(FILSTRUC) \
(
  REC-TYPE01 struct
  (
    REC-TYPE      char(2),
    NAME          char(20),
    EMPLOYEE-NO   int(2) unsigned,
    AGE           int(2) unsigned,
    SALARY        dec(7),
    MONTH        int(4) dim(12) unsigned,
                char(2)
  ) use when REC-TYPE='01'
,
  REC-TYPE02 struct
  (
    REC-TYPE      char(2),
    NAME          char(20),
    JOB-TITLE     char(14),
    ADDR1         char(20),
    ADDR2         char(20),
    POSTCODE      char(4)
  ) use when (
    (
      REC-TYPE < '02'
      & REC-TYPE > '05'
    )
    |
    (
      REC-TYPE < '22'
      & REC-TYPE > '25'
    )
  )
)
names(COBOL) replace case respect

```

Sample command as it may appear in the user's HOME CMX file. This command will generate a new SDO structure consisting of 2 record type definitions. Additional USE WHEN criteria is specified to identify the circumstances under which the particular record mapping is to be used.

See Also:

[EDIT](#) [BROWSE](#)

CSVGEN

Syntax:

```
>>--- CSVgen -----><
```

Description:

CSVGEN with no parameters will open the **SDE CSV Generation Panel** to generate comma separated variable output for the contents of the focus SDE data edit or browse display.

If the focus window is not an SDE window view, the general **CSV Generation** dialog panel is displayed.

If parameters are specified, then the general SELCOPY/i **CSVGEN** primary command is executed instead.

See Also:

JSONGEN XMLGEN PRINT

CURSOR

Syntax:

```
>>--- CURSor --+ HOME -----+-----><
           |           |
           +- CMdline -----+
```

Description:

Position the cursor within the current SDE window view. The CURSOR command is most often used in macros.

Note: The CURSOR command does not alter the window view itself. i.e. the current line and column remains unchanged.

Parameters:

HOME
 If the cursor is on the command line, the cursor is positioned at the line and column at which it was positioned when it was last in the display area. If this line is no longer visible within the current SDE window view, the cursor is positioned in column 1 of the current line.

If the cursor is in the file area, the cursor is positioned at column 1 of the command line.

CMDLINE
 The cursor is positioned at column 1 of the command line.

CUT

Environments:

CUT primary command exists in the following application environments.

Text Edit	Text Editor (both XEDIT and ISPF interfaces.)
Data Edit	SDE Data Editor.

Syntax:

```
>>--- CUT ---+-----+-----+-----+-----><
           | Copy  | REPlace | NX      |
           |-----|-----|-----|
           | Move  | APPend  |
           +-----+-----+-----+
```

Description:

CUT may be used instead of primary command **CLIPBOARD** to copy or move a group of lines to the SELCOPY/i **clipboard**. Once in the clipboard, **PASTE** may be used to copy the data from the clipboard to another text edit view.

Before text can be copied to the clipboard, it must first be marked within the text display of an edit view. This may be done using prefix commands C(n), CC, M(n) or MM. An error message is displayed if there is no block marked in the current file. Records are copied to the clipboard in their unformatted state. Therefore, formatted records of different record types may be included in the marked group of lines.

If M(n) or MM is used to select a group of lines to be moved to the clipboard, then CUT COPY is equivalent to CUT MOVE.

Parameters COPY and REPLACE are default and so CUT with no parameters is equivalent to CLIPBOARD COPY.

Parameters:

COPY
Copy the group of lines to the clipboard. If M(n) or MM is used to select a group of lines, then COPY MOVE is performed. Otherwise the group of lines within the display area is preserved following the copy.

CUT COPY is equivalent to CLIPBOARD COPY.

MOVE
Move the group of lines to the clipboard so that it no longer exists within the display area.

CUT MOVE is equivalent to CLIPBOARD CUT.

REPLACE
Replaces any text that already exists in clipboard storage. This is default.

APPEND
Append data to a new line following the existing clipboard text.
CUT COPY APPEND is equivalent to CLIPBOARD APPEND COPY. CUT MOVE APPEND is equivalent to CLIPBOARD APPEND CUT.

NX
Indicates that only visible (i.e. non-excluded and non-suppressed) lines that exist within the selected group of lines are to be included in the copy or move operation.

Examples:

cut
Take a copy of a group of lines in the current text edit view selected using CC pair of line commands.

See Also:

CLIPBOARD COPY CREATE PASTE REPLACE

DELETE

Syntax:

```

+--- 1 -----+          +- .ZCSR ----+ +- .ZLAST ---+
|               |          |             | |             |
>>-- DElEte  ---+-----+-----+-----+-----+----->>
|               |          |             | |             |
+- n_lines  +-  +- EX +-  +- .name1 ---+ +- .name2 ---+
|               |          |             | |             |
+- ALL -----+          +- NX +-
|               |          |             | |             |
+- X ----+
    
```

Description:

Delete visible data records (not excluded) and/or EXCLUDED groups of records.

Deletion of records is not allowed for Update-in-place editing unless the data set is an RRDS or VRDS. For these types of files, deleted records become empty slots.

A group of EXCLUDED records corresponds to a single line for deletion regardless of the number of excluded lines it represents or whether excluded shadow lines are set on or off. (See [SET SHADOW](#).)

DELETE is not sensitive to record type and so may delete records of different record types as part of the same execution.

Records groups that are NOTSELECTED or are SUPPRESSED are not eligible for deletion. Similarly, if EXCLUDED shadow lines are set off, EXCLUDED record groups are also not eligible for deletion unless parameter EX or X is specified.

Also see the "D(n)" and "DD" delete [prefix area](#) commands.

Parameters:

n_lines

Selects a number of lines from the top of the range upon which the DELETE operation will apply.

The *n_lines* value includes visible records and EXCLUDED, SUPPRESSED and NOTSELECTED shadow lines. Each shadow line corresponds to a single line in the *n_lines* line count, regardless of the number or records within the record group which it represents.

In general, if shadow lines set off, then they are **not** included in the *n_lines* line count. The exception to this is when EX or X is specified, in which case EXCLUDED shadow lines are always included within the *n_lines* line count, regardless of whether excluded shadow lines are set on or off.

Only lines that are eligible for deletion and are included within the lines selected by *n_lines*, will be deleted. e.g. SUPPRESSED shadow lines may be included within the selected lines but are not eligible for deletion and are, therefore, not deleted.

The default value of *n_lines* is 1.

ALL

All lines within the specified or implied range are selected for DELETE.

EX
X

Only EXCLUDED record groups are eligible for deletion. Visible data records are not eligible.

Only when EX or X is used will all EXCLUDED record groups that fall within the selected number of records, be deleted regardless of whether excluded shadow lines are set on or off.

Default is that both EXCLUDED record groups and visible data records are eligible for delete, in which case, if excluded shadow lines are set off, EXCLUDED record groups are not eligible for delete.

NX

Only visible data records are eligible for deletion. EXCLUDED record groups are not eligible.
Default is that both EXCLUDED record groups and visible data records are eligible for delete.

.name1

A label name identifying the first record of a range of data records to be deleted. The preceding "." (dot) is mandatory. Default is .ZCSR (the [focus line](#).)

.name2

A label name identifying the last record of a range of data records to be deleted. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then the order is reversed. The default is .ZLAST.

Examples:

del 3

Delete all eligible lines within the first 3 lines of data starting at the focus line. Eligible lines are visible data records and shadow lines representing an EXCLUDED record group.

delete nx

Delete the focus line if the focus line is a visible data record.

del all x .fix .fixe

Delete all EXCLUDED record groups that exist within the range of lines starting at label name .FIX, ending at label name .FIXE. (The setting for excluded shadow lines is irrelevant.)

del 20 ex

Delete all EXCLUDED record groups that exist within the first 20 lines of data starting at the focus line. Each EXCLUDED record group constitutes a single line regardless of whether excluded shadow lines are set on or off. Therefore, even with excluded shadow lines set off, 10 consecutive excluded records are treated as a single line for deletion.

See Also:

[INSERT](#)

DISPLAY LIST

Syntax:

```
>>- DISplay LIst -- list_name --+-----+----->
      |                               |
      +-- select_clause --+
>-----+-----+-----+-----<
      |                               |
      +-- where_clause --+   +--- sort_clause ---+
```

Description:

Open a SELCOPY/i **List window** to display an in-storage list generated via the **CREATE LIST** command.

The List window displaying the list data will support most of the standard list window features as follow:

- **Field Descriptor Block (FDB)**
- **Edit View**
- **Selecting, Sorting and Filtering**
- **Sorting with the Cursor**

On exiting the List window display, the in-storage list is destroyed and storage is freed.

Parameters:

list_name

The name of the in-storage list data to be displayed.

select_clause

Identifies a valid **SELECT Clause** to display only those selected columns.

where_clause

Identifies a valid **WHERE Clause** to filter rows of data.

sort_clause

Identifies a valid **SORT Clause** to sort the specified columns of data.

Examples:

```
>sd display list AMLIST      select KEY,COMPNAME,FIRSTNAME,LASTNAME,DEPT  where lastname=JONES      sort DEPT a
      Open a list window for the in-storage list AMLIST with select, sort and filter clauses applied.
```

See Also:

CREATE LIST

DISPLAY RECTYPES

Syntax:

```
>>-+- DISplay RECTypes --+--+-----+-----<
      |                               | |
      +- LR -----+   +- struct_name -+
```

Description:

Open a SELCOPY/i **List window** to display each **record_type** in the specified structure definition object (**SDO**).

Parameters:

struct_name

The name of the SDO structure.

Default is the name of the SDO structure used in the **current SDE window**.

Examples:

```
display rectypes NBJ2.CBLI.SDO(COBSALES)
Open a record type list window for the structure definition file NBJ2.CBLI.SDO(COBSALES).
```

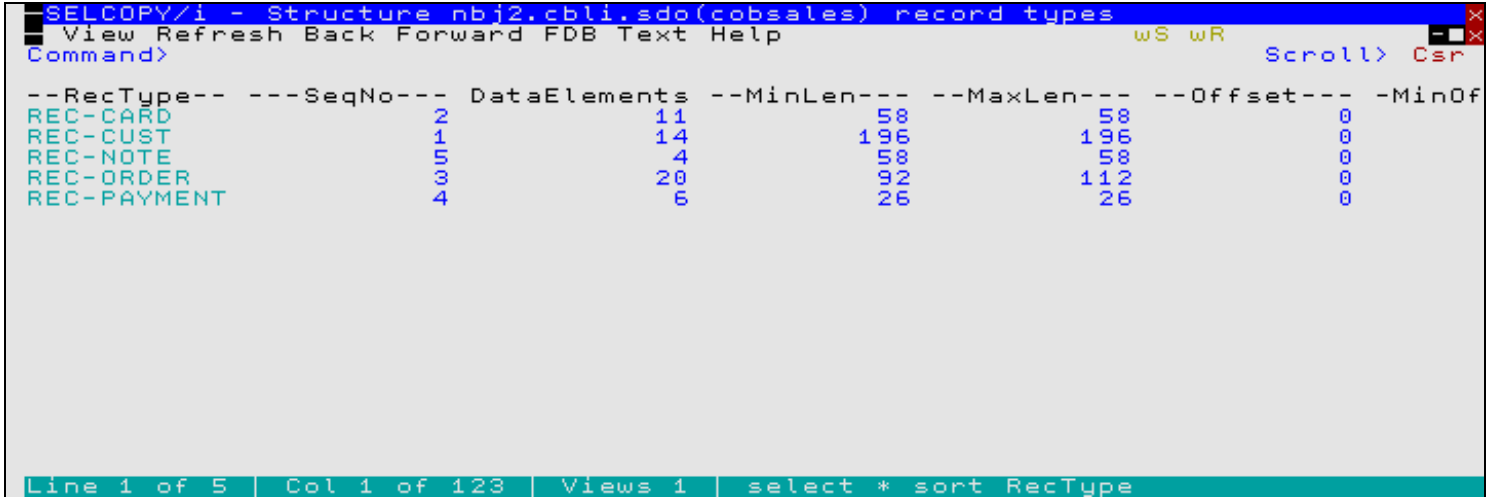


Figure 34. Display Record Type List View.

Columns Displayed:

Name	Type	Description
RecType	ALPair	Record type
SeqNo	Int	Record type sequence number
DataElements	Int	Number of Data Elements
MinLen	Int	Minimum length
MaxLen	Int	Maximum length
Offset	Int	Offset
MinOffset	Int	Minimum Offset
UseWhen	ALPair	Record type identification criteria
Flag1	Hex	RTO flags
Flag2	Hex	RTO flags
UseNever	BitFlag	This record-type mapping is NEVER to be applied.
UseAlways	BitFlag	This record-type mapping is ALWAYS to be applied.

DISPLAY STRUCTURE

Syntax:

```
>>-- DISplay STRUcture +--+-----+----->>
|          |          |          |
|-- LS -----+--+ struct_name --+
```

Description:

Open a SELCOPY/i **List window** to display the field definitions for each **record_type** in the specified structure definition object (SDO).

The List window displaying supports the standard list window features as follow:

- **Field Descriptor Block (FDB)**
- **Edit View**
- **Selecting, Sorting and Filtering**
- **Sorting with the Cursor**

Parameters:

struct_name

The name of the SDO structure.

Default is the name of the SDO structure used in the **current SDE window**.

Examples:

display structure NBJ2.CBLI.SDO(COBSALESC)

Open a list window for the structure definition PDSE member NBJ2.CBLI.SDO(COBSALES).

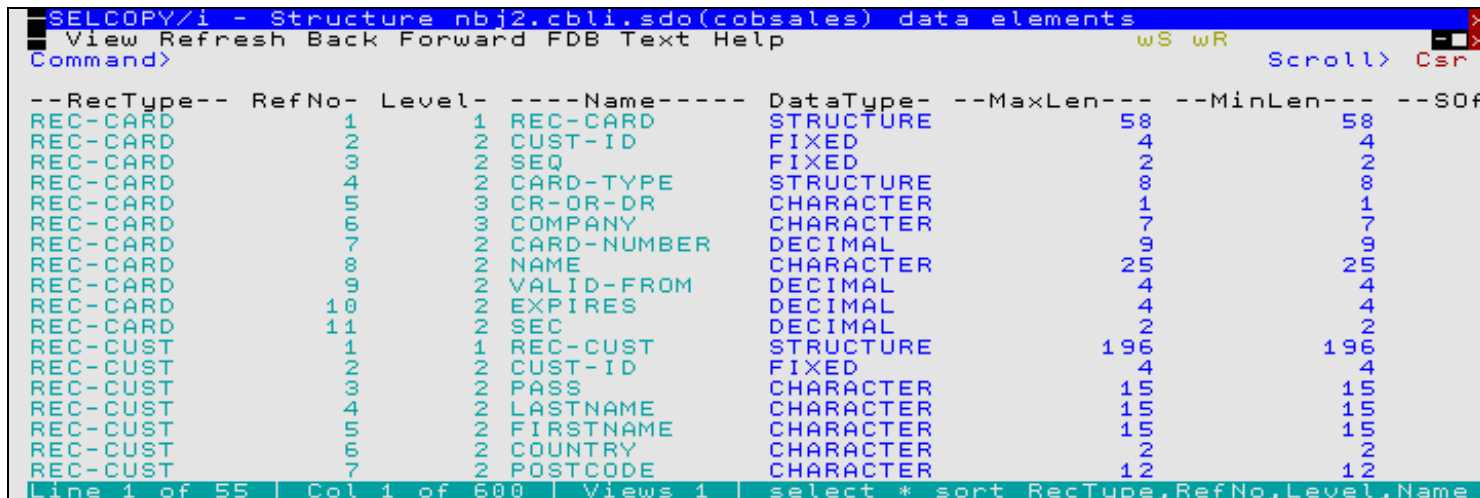


Figure 35. Display Structure List View.

Columns Displayed:

Name	Type	Description
RecType	ALPair	Record type
RefNo	Int	Reference number
Level	Int	Level
Name	ALPair	Name
DataType	ALPair	Data type
MaxLen	Int	Maximum length
MinLen	Int	Minimum length
SOffset	Int	Offset in structure
POffset	Int	Offset in parent
BitOff	Int	Bit offset
FType	Char	Field content type
Precision	Int	Precision
Scale	Int	Scale
Picture	ALPair	Picture
Dims	Int	Total dimensions
Dim	Int	Dimension at current level
MaxArray	Int	Maximum number of array elements
MaxIV	Int	Maximum integer value of reference
MinIV	Int	Minimum integer value of reference
Flags1	Hex	Flags
VarLen	BitFlag	Variable inherent length
VarDim	BitFlag	Occurs in array of variable dimension
VarSOff	BitFlag	Offset in structure is variable
VarPOff	BitFlag	Offset in parent is variable

HasVarOff	BitFlag	Group has elements with variable offsets
VarRef	BitFlag	Referred to in size or dimension
UFlags	Hex	Usage flags
Aligned	BitFlag	Aligned
Signed	BitFlag	Signed
Filler	BitFlag	Unnamed
DFlags	Hex	Display flags
LZeros	BitFlag	Display with leading zeros
ASCII	BitFlag	Display with ASCII to EBCDIC translation
Num	Enum	Numeric Type
CPMax	Int	Maximum number of create parameters
CPAct	Int	Actual number of create parameters
CPType01	Enum	Create parameter type 01
CPIntV01	Int	Create parameter integer value 01
CPChar01	ALPair	Create parameter character value 01
CPType02	Enum	Create parameter type 02
CPIntV02	Int	Create parameter integer value 02
CPChar02	ALPair	Create parameter character value 02
CPType03	Enum	Create parameter type 03
CPIntV03	Int	Create parameter integer value 03
CPChar03	ALPair	Create parameter character value 03
CPType04	Enum	Create parameter type 04
CPIntV04	Int	Create parameter integer value 04
CPChar04	ALPair	Create parameter character value 04
DimMax01	Int	Maximum dimension 01
DimMin01	Int	Minimum dimension 01
DimExp01	ALPair	Dimension expression 01
DimMax02	Int	Maximum dimension 02
DimMin02	Int	Minimum dimension 02
DimExp02	ALPair	Dimension expression 02
DimMax03	Int	Maximum dimension 03
DimMin03	Int	Minimum dimension 03
DimExp03	ALPair	Dimension expression 03
DimMax04	Int	Maximum dimension 04
DimMin04	Int	Minimum dimension 04
DimExp04	ALPair	Dimension expression 04
DimMax05	Int	Maximum dimension 05
DimMin05	Int	Minimum dimension 05
DimExp05	ALPair	Dimension expression 05
Rem	ALPair	Remarks string

DOWN

Syntax:

```
>>- Down -----><
|
|-- Cursor -----|
|
|-- CSR -----|
|
|-- Data -----|
|
|-- Half -----|
|
|-- Max -----|
|
|-- Page -----|
|
|-- n_lines -----|
```

Description:

Scroll the view of the data within the SDE window downwards towards the bottom of the file data.

Where no parameter is specified, the scroll amount will be the value specified in the **Scroll**> field in the top right corner of the window display.

Note that the first data record in any **multi record view** will **always** be preceded by its complete group of column header lines.

For **single record views**, the standard headers are always visible at the top of the display area and are not included as part of the scrollable text. Each non-header line within a single record view is identified as being a **field data line**.

Where the cursor is positioned at an offset within a column header line of a multi record view, the cursor is deemed to be located at the same offset within the data record that immediately follows the group of header lines. Therefore, DOWN CURSOR will operate successfully when the cursor is positioned within a header line.

UP and DOWN scroll commands will cause the window display area to be adjusted by a number of lines determined by the number of multi record view data records and shadow lines, or single record view field data lines. Other lines in the display area, i.e. **Header lines** and blank filler lines that precede a group of header lines or follow the "End of Data" record, are not included in this calculation.

Attempting to scroll down beyond the last entry (data record, shadow line or field data line) will make the "End of Data" record the first line of the scrolled display.

Parameters:

CURSOR
CSR

The data record, shadow line or field data line on which the cursor is positioned becomes the first line of the scrolled display.

If the cursor is positioned on a header line, the data record or field data line immediately following the header line becomes the first line in the display area.

If the cursor is positioned outside the display area or on the first line within the display area, then DOWN PAGE is executed instead.

DATA

Scroll down to display one page (display window depth) less one line of data.

The last data record, shadow line or field data line in the current display area becomes the first line of the scrolled display.

HALF

Scroll down half a page of data.

The data record, shadow line or field data line that is half way down the page of data in the current display area becomes the first record of the scrolled display.

MAX

Scroll down to display the last page of data.

Where more than one page of data exists, the "End of Data" line becomes the last line of the scrolled display. Otherwise, the first line of data becomes the first line of the scrolled display.

Equivalent to the **BOTTOM** command.

PAGE

Scroll down to display the next whole page of data.

The data record, shadow line or field data line following the last line of the current display area becomes the first line of the scrolled display.

n_lines

Scroll down a specified number of lines.

The data record, shadow line or field data line that is *n_lines* below the current line becomes the first line of the scrolled display.

Examples:

down 5

Scroll the display area down 5 lines.

See Also:

LEFT RIGHT UP

DROP, DDROP

Syntax:

```
>>- DROP --- struct_name -----><
```

```
>>- DDROP -- struct_name -----><
```

Description:

Drop from storage a Structure Definition Object (**SDO**) used within **SDE**, An SDO (file-structure) provides the information required to interpret individual logical fields within a file's data records.

If changes have been made to the structure since it was last saved using SAVESTRUCTURE, (USE WHEN criteria may have been added for instance) then the user will be prompted with a dialog asking whether or not the changes are to be saved.

DDROP removes the SDO without prompting the user to save changes.

Parameters:*struct_name*

The name of the structure (SDO) being dropped.

See Also:

CREATE STRUCTURE SAVESTRUCTURE

DUPLICATE

Syntax:

```
>>-- DUPLICATE ---+--- 1 -----+
                    |           |
                    |           |-----><
                    |           |
                    +- n_lines -+
```

Description:

Duplicate the focus line record a specified number of times.

By default, DUPLICATE operates on both visible data records (not excluded) and EXCLUDED record groups. Records groups that are NOTSELECTED or are SUPPRESSED are not affected.

Parameters:*n_lines*

Number of times the focus line is to be duplicated.
The default is 1 line.

Examples:

dup 3
Duplicate the focus line 3 times.

See Also:

INSERT DELETE

EDIT

Syntax:

```
>>-- Edit ----- fileid -----+-----| SDE Opts |----->
      |
      |----- hfs_fileid ---| HFS Opts |---+
      |
      | DB2 ---+-----+----- table_name ---+-----| DB2 Opts |---+
      |         |         |         |         |
      |         +- (ssn) -+ +--- view_name ---+
      |
      |--- PROfile SDEPROF -----+
      |
      |-----+-----+-----+-----+----->
      |
      |--- PROfile macro_name -----+
      |
      |--- NOPROfile -----+
      |
      |-----+-----+-----+-----+-----><
      |
      |         +-----+
      |         |         |
      |         |         v         |
      |--- INItcmd - ( +- sd_command +- ) +-
      |
```

HFS Opts:

```
      |--- STD -----+
      |
      |--- EOL -----+-----+-----+
      |
      |--- CR -----+
      |--- LF -----+
      |--- NL -----+
      |--- CRLF -----+
      |--- LF CR -----+
      |--- CRNL -----+
      |--- string ---+
      |
      |-----+-----+-----+-----+-----|
      |
      |--- RECFM +- F -----+-----+
      |
      |         +- (0,2,0) -----+
      |         |         |
      |--- V +- (off,len,origin) ---+
      |
```

SDE Opts:

```
|-----+-----+-----+-----+----->
|
|--- USING +-+-----+-----+-----+-----+-----+
|
|--- STRUcture +- +----- = -----+
|
|--- HLAsm -----+----- copybook_name -----+
|
|--- COBOL -----+
|
|--- PL1 -----+
|
|--- ADAta -----+
|
|         +-----+
|         |         |
|         |         v         |
|--- SYMNAmes ( +- DFSORT symbol dataset +- ) ---+
|
```



```

> +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | | | | | | | | | | | | | | | | | | | | |
+ SKIPLocked + +- LOCKTABLE +- EXclusive -+ + COMMITONLOAD -+ + AUDit -+
| | | | | | | | | | | | | | | | | | | | | |
+--- SHr -----+
| | | | | | | | | | | | | | | | | | | | | |
+- PROTECTPRIMEKEY -+ +--- FORMat ----- Table -----+
| | | | | | | | | | | | | | | | | | | | | |
> +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | | | | | | | | | | | | | | | | | | | | |
+- EDITPRIMEKEY -----+ +--- FORMat -+ +--- SINGle -----+ +- READonly -+
| | | | | | | | | | | | | | | | | | | | | |
+--- FMT -----+ +--- SNGL -----+
| | | | | | | | | | | | | | | | | | | | | |
> +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | | | | | | | | | | | | | | | | | | | | |
+--- SCROLL -----+
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
+--- FROM --+ +-----+ n -----+ +--- FOR -- n_rows --+ +-----+
| | | | | | | | | | | | | | | | | | | | | |
+- ROW -----+ +--- ROWS -----+
| | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
+--- XMLLOBwidth -- 0 -----+
| | | | | | | | | | | | | | | | | | | | | |
> +-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | | | | | | | | | | | | | | | | | | | | |
+----- SElect (select_syntax) -----+ +--- XMLLOBwidth -- n_bytes ---+

```

SQL Query Opts:

```

|---+-----+ +-----+ +-----+ +-----+ +-----+ +-----+
| | | | | | | | | | | | | | | | | | | | | |
+- WHERE (where-clause) -+ +--- ORDER +-----+ +--- (orderby-clause) -+
| | | | | | | | | | | | | | | | | | | | | |
+--- ? -----+ +--- BY -+ | |
| | | | | | | | | | | | | | | | | | | | | |
+--- SORT -----+
| | | | | | | | | | | | | | | | | | | | | |
+- SORTIndex +--- index_name --+ +-----+
| | | | | | | | | | | | | | | | | | | | | |
+--- Prime -----+

```

Description:

Edit a structured data set or HFS file, or edit a DB2 results table within SDE.

An SDE edit display window is opened and focus is passed to the new window. Depending on the value on the FORMAT parameter, the SDE display is either a multi record window view or a single record window view for the first record selected.

For both Structured Data Edit alpha-numeric (AN) fields and DB2 Table Edit character (CH or VCHAR) fields that contain non-printable text, only the printable characters may be edited. These editable areas of the character data occupy immoveable fixed positions and lengths within the field which are represented by underscores. The non-printable characters may only be edited by setting HEX ON and updating the hex display.

Structured Data Edit:

If the Structure Definition Object (SDO) specified by the USING STRUCTURE parameter is not already in storage, it is loaded from the appropriate Structure Definition File (SDF). Record Type Objects (RTO) within the specified SDO are then used to map the records in the data set.

For every record in the file, each RTO is checked until one is found whose criteria is matched by the record characteristics. This RTO is then used to map the record. If the record does not match any RTO criteria, then the first RTO in the SDO is used by default. The RTO automatically selected to map a record may be changed by the user via the USE WHEN command or the SDE Edit/Browse Utility Window.

By default, all fields within records that have an associated RTO are displayed as printable character, numeric data fields having first been converted to decimal.

If no SDO is specified, then FORMAT CHARACTER is applied to each record. i.e. the data is displayed as a single, variable (RECFM=V) or fixed (RECFM=F) length character field with field name "UnMapped". No data conversion is performed.

If the VIEW parameter is specified with a non-generic argument, the DRECTYPE setting is initialised as the first record_type parameter specified on the VIEW parameter. Otherwise, the DRECTYPE setting is initialised as described in "Default Record Type"

With the exception of alpha-numeric (AN) fields, record data that does not meet the specifications of its field definition is considered to be invalid and is represented by asterisks.

DB2 Table Edit:

DB2 table edit is supported for in-storage edit/browse only. Therefore, if a results table is too large to be loaded into available storage a storage error occurs. The user must then restrict the number of rows to be loaded using further row selection criteria (i.e. FROM, FOR, SELECT, WHERE parameters).

On starting a DB2 table edit, a temporary SDO is created reflecting field characteristics obtained from the SQL Descriptor Area return by the prepared SQL SELECT execution. Furthermore, a new DB2 connection is made and, optionally, a new SELCOPY/i DB2 audit log is allocated for each new SDE edited DB2 base or results table. Opening second and subsequent SDE edit views of the same table data does not open a new DB2 connection or audit log data set.

Parameters:

fileid

The fileid of the data set containing records to be edited.
fileid may be the DSN of a sequential or VSAM data set or the DSN and member name of a PDS/PDSE member.

hfs_fileid

A complete HFS (or zFS) file path containing data to be edited.
hfs_fileid is identified as an HFS path if *fileid* is not a valid DSN for a sequential, VSAM or PDS/PDSE dataset. e.g. DSN begins with ".", contains invalid special characters (e.g. "/") or contains qualifiers of length greater than 8.

HFS Opts

The following HFS options may be specified to determine the handling of data within the HFS file.

EOL=STD|NL|CR|LF|CRLF|LFCR|CRNL|*string*

Sets the EOLIN (input end-of-line) delimiter value used to determine the end of each record for non-RECFM F/V input. EOLIN delimiters are not included in the edited record data or record length. EOL parameter elements are as follow:

STD	-	Any standard line-end.
NL	X'15'	New Line.
CR	X'0D'	Carriage Return.
LF	X'0A'	Line Feed.
<i>string</i>	-	A 2-byte user specified character or hex string.

STD is default so that the EDIT operation scans the input data for any of the standard EOL combinations (not *string*), stopping when one is found. This EOL combination is used as EOLIN for the file.

RECFM F | V (*off, len, origin*)

Specifies that the data is to be treated as containing Fixed or Variable length format records.

RECFM F indicates that all records are of a fixed length as defined by the LRECL argument.

RECFM V allows the user to specify the location of the record length fields within the data as follows:

<i>off</i>	Offset of the record length field from the start of the record.
<i>len</i>	Length of the record length field.
<i>origin</i>	The start of the record data at which the record length is applied.

Default is (0,2,0) which describes standard RECFM V organisation data sets.
 The length field will be displayed as part of the data, so, unless editing the data using a suitable associated structure (SDO), the user must take care not to corrupt the length field and also maintain it for any change in record length.

LRECL *lrecl*

Specifies the maximum record length of input records.

Records terminated by an EOL sequence will wrap onto the next line of data if the record length exceeds *lrecl*. Where a record has wrapped, the prefix area contains the "=="EOL>" flag. Furthermore, read-only edit is forced in order to suppress save of a wrapped record as multiple, individual records.

For RECFM F data, *lrecl* is the fixed length of the records in the edit view. If the file size is not a multiple of the fixed format *lrecl* value then, an error occurs and edit is cancelled. For display purposes only, using BROWSE with any *lrecl* value will display the data with the last record padded with blanks up to the *lrecl* length.

If the record length field of a RECFM V record exceeds the *lrecl* value, then an error is returned.

RECFM V and EOL delimited records have default *lrecl* of 32752, whereas RECFM F records have default *lrecl* of 80.

SDE Opts

The following SDE options are applicable to edit of structured data found in HFS files or z/OS data sets only. See [DB2 Opts](#) for DB2 table edit options.

USING (STRUCTURE) *struct_name*

Identifies the SDO to be applied to the data records. *struct_name* is the SDF fileid assigned to the SDO in a **CREATE STRUCTURE** command.

"=" (equals) may be specified instead of *struct_name* to indicate the name of the structure being used in the **current SDE window**.

USING HLASM | COBOL | PL1 | ADATA *copybook_name*

Identifies the full fileid of *copybook_name*, an Assembler/COBOL/PL1 copy book or Assembler/COBOL/PL1 ADATA output file to be used to format the data records.

Using *copybook_name* syntax has a processing overhead in that a CREATE STRUCTURE operation is performed to generate a temporary SDO. This overhead is greater if HLASM, COBOL or PL1 is specified since an assemble/compile of the copybook is performed to first obtain the ADATA file output. Therefore, it is recommended that a non-temporary SDO is generated using CREATE STRUCTURE and that this is used for future formatting of the data (on EDIT, BROWSE, FSU, etc.)

USING SYMNames (DFSORT *symbol dataset*)

Identifies the full fileid of one or more datasets or library members containing DFSORT symbol definitions that are to be used to format the data records.

FORMAT
FMT

Specifies the format in which record data will be displayed in the initial SDE view.

SINGLE SNGL	Single record format.
TABLE	Table format. (Default)
CHARACTER	Multi record view with all records or record segments mapped as single, variable length character fields with field name "UnMapped" or "UnMappedSeg". No data conversion is performed.
HEX	Same as CHARACTER with the addition that the data is also displayed in Hex below the character display. Note that the Hex display occupies an additional 2 lines of data.

The data display format may be later altered using the **FORMAT** and/or **ZOOM** commands.

READONLY

Perform read-only edit of the data.

Unless the fileid of the edited data set is changed, attempts to save changes made to the data during the SDE edit session will give an error.

REUSE

Where possible, full edit capabilities of record move, copy, insert, change and delete are to be permitted for the data set being edited. Also, where the data set organisation and SDO structure permits, data changes may result in changes to record lengths.

SELCOPY/i SDE first determines whether the entire data set may be comfortably loaded into available storage. If not, parameter REUSE is ignored and AUXILIARY edit becomes default.

Full (REUSE) edit is not possible for VSAM RRDS and ESDS data sets defined with NOREUSE, in which case parameter REUSE is ignored and the ESDS/RRDS data set is edited using Update-in-place edit. For all other data sets, parameter REUSE is the default.

UPDATE

Update-in-place Edit is to be used so that existing records may only be altered and replaced without changing the record length. Records cannot be moved, copied, inserted or deleted.

Use of Update-in-place Edit has significant performance advantages over full (REUSE) edit when editing large, non-KSDS data sets.

UPDATE is default if the edited data set is a VSAM ESDS or RRDS file defined with NOREUSE or the data set is non-KSDS and its load into storage has been interrupted by the user via the Load Threshold break-in modal window.

AUXILIARY

Select **Auxiliary edit** for non-KSDS data sets. AUXILIARY is ignored for edit of a KSDS data set.

Auxiliary edit is identical to full (REUSE) edit except that the data set to be edited is first copied to an auxiliary data set on disk. This allows full editing capabilities for data sets that are too large to be loaded into available storage.

KEYRANGE (*lowkey, highkey*) | KEYRANGE (*lowkey*)

Records are to be displayed with keys in the given range. This option applies to VSAM KSDS files only.

If *highkey* is omitted it is assumed to have the same value as *lowkey*.

If *lowkey* is shorter than the defined length of the KSDS key, it is assumed to be padded on the right with X'00'.

If *highkey* is shorter than the defined length of the KSDS key, it is assumed to be padded on the right with X'FF'.

The key values can be given in the form:

- Simple strings with no embedded blanks. These are translated to upper case.
- Quoted strings using apotrophes or double quotes. These are translated to upper case.
- Character strings of the form C'...' containing any characters. These are not translated to upper case.
- Hexadecimal strings of the form X'...' containing hex digits 0-9 a-f A-F. These are not translated to upper case.

Use of the KEYRANGE parameter will force Update-in-place Edit.

FROM

Records are to be displayed beginning at a specific location within the data set. The first record at the specified location becomes record 1 within the SDE window view of the data set. Records that occur before this location are not included within the edit session.

If FILTER is specified, then record filtering occurs only on records selected using the FROM and FOR parameters.

Required record location is identified via one of the following:

<code>KEY <i>string</i></code>	For KSDS data sets only, locate the record with a key string equal to <i>string</i> . If not found, the record with the next key string greater than <i>string</i> is used.
<code>RBA <i>n</i></code>	For KSDS and ESDS data sets only, locate the record starting at the relative byte address specified by <i>n</i> . The RBA must point at the start of the record otherwise a VSAM point error will occur. RBA address for each record is displayed as part of the record information columns within an SDE window view. Display of these columns is controlled using the SDE SET RECINFO CLI command.
<code>< RECORD > <i>n</i></code>	For any data set organisation, locate the record number specified by <i>n</i> . Specification of parameter keyword RECORD is optional.

Use of the FROM parameter will force Update-in-place Edit.

Default is to display records within the SDE window view starting at the first record in the data set.

FOR `n_recs < RECORDS >`

Specifies the number of data set records to be included within the SDE window edit session. Specification of parameter keyword RECORDS is optional.

If FILTER is specified, then record filtering occurs only on records selected using the FROM and FOR parameters.

Use of the FOR parameter will force Update-in-place Edit.

Default is to include all records.

VIEW `record_type`
VIEW *

Identifies one or more **record types** for which records will be displayed in the initial SDE view. Records that are associated with other record types are not visible within the display but are displayed as shadow lines instead. * (asterisk) indicates all record types including the internal record type "UnMapped" (or "UnMappedSeg") which is used to map data records that have no associated RTO in the SDO.

Records within the display may be later suppressed or made visible using the **VIEW** command.

Default is VIEW *.

FILTER `filter_fileid | Filter Clause`

FILTER specifies additional record filtering criteria to further reduce the display of records for edit. All record filters are applied only to records that have been selected using the FROM and/or FOR parameters, otherwise it applies to all records in the structured data file.

Enough available storage must exist to load all records selected by the filter otherwise a storage error occurs and the edit is terminated.

FILTER parameters are specified via a filter clause which may be supplied as part of the EDIT command or referenced via *filter_fileid*, a separate sequential data set, PDS/PDSE member or HFS file. *filter_fileid* must contain the keyword FILTER followed by a valid filter clause.

The filter is applied only once during initial load of the data. A record will not be excluded from the display of edited records if its record type or data is changed in a way that no longer satisfies the filter criteria.

Use of FILTER will force Update-in-place Edit.

`SELECT select_syntax`

SELECT may be used to customise the sequence and number of record-type columns displayed when the edit view of formatted data is opened. The *select_syntax* argument represents parameters supported by the **SELECT** primary command with the exception of `IN struct_name` which is unnecessary.

Unlike parameter **INITCMD**, which may also be used to execute SELECT commands, the SELECT parameter column selection is performed before the **profile** macro is executed.

Filter Clause

A filter clause must be specified in "(" ()" (parentheses) and may contain comment data enclosed by "/"* and "*" /". If filter clause is specified via *filter_fileid*, then comment data may also occur before and after the filter clause.

The following options are supported by the filter clause.

`INCLUDE record_type`

Include only records that are assigned the specified record type *record_type* by SDE Edit. This parameter may be specified repeatedly to include a number of record types or to perform alternative WHERE *expr* filters for the same record type. If INCLUDE is specified, then all record types that are not referenced by an INCLUDE parameter will be excluded by default.

record_type "Record" (with field name "UnMapped") may be used to perform a filter on the unformatted record data whether or not a structure (USING *struct_name*) has been specified. In this way, a filter may test **all** records regardless of their assigned record type.

INCLUDE and EXCLUDE parameters are mutually exclusive.

`EXCLUDE record_type`

Exclude only records that are assigned the specified record type *record_type* by SDE Edit. This parameter may be specified repeatedly to exclude a number of record types or to perform alternative WHERE *expr* filters for the same record type. If EXCLUDE is specified, then all record types that are not referenced by an EXCLUDE parameter will be included by default.

record_type "Record" (with field name "UnMapped") may be used to perform a filter on the unformatted record data whether or not a structure (USING *struct_name*) has been specified. In this way, a filter may test **all** records regardless of their assigned record type.

INCLUDE and EXCLUDE parameters are mutually exclusive.

`WHERE expr`

WHERE applies further filter conditions to records assigned to the record type specified by the last INCLUDE *record_type* or EXCLUDE *record_type* parameter processed.

expr is a valid SDE **expression** which supports **function calls**, **record_type field names** and references, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of the WHERE expression must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

The WHERE expression is applied to each record assigned the record type *record_type* and, if the result is "true", the record is selected for include or exclude as indicated by the prevailing INCLUDE or EXCLUDE filter. If multiple INCLUDE/EXCLUDE *record_type* WHERE expressions exist for the same record type, then a logical OR is implied for all the expressions relating to that record type.

`STOPAFTER n_hits`

When the number of records selected by the INCLUDE or EXCLUDE filter reaches the value specified by STOPAFTER *n_hits*, then no further filter testing occurs.

If an INCLUDE filter, then all remaining untested records are excluded. If an EXCLUDE filter, then all remaining untested records are included.

`DB2 < (ssn) >`

Indicates that edit is for a DB2 base or results table. *ssn* is optional and identifies the local DB2 sub-system name to which a connection will be made.

Before a connection can be made to the DB2 sub-system, the SELCOPY/i DB2 plan must have been bound to that sub-system.

Default for *ssn* is the users default DB2 sub-system name as set by the DB2 Primary Options menu.

`table_name`

A DB2 base table name containing rows of data to be edited.

table_name may be specified with 1, 2 or 3 qualifiers representing *name*, *schema.name* or *location.schema.name* respectively. Default location is the local DB2 server and the default schema is the value assigned to special register CURRENT SCHEMA (initially set to the user's SQLID).

`view_name`

A DB2 table view which references an SQL query used to generate a results table containing the rows of data to be edited.

view_name may be specified with 1, 2 or 3 qualifiers representing *name*, *schema.name* or *location.schema.name* respectively. Default location is the local DB2 server and the default schema is the value assigned to special register CURRENT SCHEMA (initially set to the user's SQLID).

DB2 Opts

The following DB2 options are applicable to edit of DB2 table data only. See **SDE Opts** for structured data edit options.

WHERE (*where-clause*)

Specifies a DB2 SQL WHERE clause to be included in the prepared SQL select statement. See "*DB2 SQL Reference*" for syntax of the *where-clause*.

If *where-clause* is null or "?" (question mark) the **DB2 Row Selection Panel** is opened before the edit is actioned. On closing the panel, the edit is actioned using the generated WHERE clause.

SORT|ORDER BY (*order-by-clause*)

Specifies a DB2 SQL ORDER BY clause to be included in the prepared SQL select statement. See "*DB2 SQL Reference*" for syntax of the *order-by-clause*.

SORTINDEX *index_name* | PRIME

Specifies *index_name*, the name of an existing DB2 Index for the table being edited. The index identifies the key columns/expressions by which the table rows will be ordered in the display.

PRIME may be specified as an alternative to indicate that the primary index should be used.

If *index_name* is "?" (question mark), the DB2 Select Table Index window is opened before the edit is actioned, allowing selection of one of the indexes defined for the table. On selecting an entry, the window is closed and the edit operation continues using the SORTINDEX *index_name*.

USING (STRUCTURE) *struct_name*

Identifies the SDO to be applied to the DB2 data rows. *struct_name* is the SDF fileid assigned to the SDO in a **CREATE STRUCTURE** command.

If the USING STRUCTURE option is specified then SELECT, WHERE and ORDER BY options are ignored. The SDO may contain DB2 SQL query SELECT, WHERE and ORDER BY sub-clause options which are used to select and display DB2 table rows. Other DB2 table edit options, apart from LOCKTABLE, FORMAT, READONLY, FROM and FOR, may also exist in the SDO and so define default values which may be overridden by specific parameters on the EDIT command. e.g. WITH isolation-clause, SKIPLOCKED, COMMIT.

SKIPLOCKED

Ignored unless an isolation level of Cursor Stability (CS) or Read Stability (RS) is in effect, SKIPLOCKED specifies that any selected rows that are already locked by another process should be skipped and not be included in the edit display. See "*DB2 SQL Reference*" for details on the SKIP LOCKED DATA clause. Default is to allow display of locked rows whenever possible.

PROTECTPRIMEKEY | **EDITPRIMEKEY**

Specifies whether data occupying columns that comprise the table's primary key is eligible for update (EDITPRIMEKEY) or is read only (PROTECTPRIMEKEY). Default is PROTECTPRIMEKEY.

WITH CS|UR|RR|RS < KEEP EXCLUSIVE|UPDATE|SHR >

Specifies a DB2 SQL isolation-clause to be included in the prepared SQL select statement. See "*DB2 SQL Reference*" for details on the *isolation-clause* and "*DB2 Performance Monitoring and Tuning Guide*" for details on the effects of isolation level on concurrency and protection of DB2 table data.

The KEEP sub-parameter options are applicable to isolation levels RR (Repeatable Read) and RS (Read Stability) only.

Default isolation level (as set by the SELCOPY/i DB2 package and plan BIND) is CS.

COMMITONCLEANSAVE | **COMMITONSAVE** | **COMMITONEXIT**

Specifies when a COMMIT should be executed for changed data.

COMMITONCLEANSAVE	COMMIT only if SAVE is executed without errors.
COMMITONSAVE	COMMIT on SAVE regardless of errors.
COMMITONEXIT	COMMIT only on exit of the edit session.

Default is COMMITONCLEANSAVE.

LOCKTABLE EXCLUSIVE|SHR

For DB2 base tables only, executes a DB2 SQL command LOCK TABLE before loading data from the table. Use this option with **caution** as other users and applications may be prevented from accessing the table. If LOCKTABLE is specified the lock is held until the next COMMIT is actioned.

LOCKTABLE EXCLUSIVE prevents another process from performing any operations on the table whilst it is being edited, unless the process is running with an isolation level of Uncommitted Read (UR) in which case read-only (dirty read) operations may be performed.

LOCKTABLE SHR prevents anything other than read-only operations to be performed on the table whilst it is being edited.

See "*DB2 SQL Reference*" for details on the effects of LOCK TABLE options. Default is not to perform any explicit table locking prior to load. (Recommended)

COMMITONLOAD

Perform a COMMIT following the initial load of rows to be edited, thus releasing all DB2 table locks performed during load of the data. This includes any explicit table locks applied via the LOCKTABLE parameter. Default is not to perform a COMMIT following load of the table rows.

AUDIT

Open a new SELCOPY/i DB2 audit data set to record changes to the edited table made during this edit session. See [Audit Trail Functions](#) for details. Default is not to perform edit auditing.

FORMAT

Specifies the format (TABLE or SINGLE) in which record data will be displayed in the initial SDE view. See [FORMAT](#) for structured data edit for details. Default is FORMAT TABLE.

READONLY

Perform read-only edit of the data. Attempts to save changes made to the data during the SDE edit session will give an error.

SCROLL

Use a DB2 scrollable SENSITIVE STATIC cursor to fetch DB2 rows. This keyword is incompatible with the FOR and FROM keywords. See [Using Scrollable Cursors](#) for information on how the use of this keyword affects the edit session.

The use of DB2 scrollable cursors may be disabled by the installer of SELCOPY/i. In order to use them the system INI file must contain the *DB2.SCROLL=YES* variable.

FROM < ROW > n

Equivalent to FROM RECORD *n*, FROM ROW *n* specifies that rows are to be displayed beginning at row number *n* in the DB2 results table returned by the SQL query. The first row displayed becomes row 1 within the SDE window edit view. Rows that occur before this row number are not included within the edit session. Default is row 1.

FOR n_rows < ROWS >

Equivalent to FOR *n_recs* RECORDS, FOR *n_rows* ROWS specifies the maximum number of rows to be displayed from the DB2 results table returned by the SQL query. Rows that fall outside the range of rows specified by FROM *n* FOR *n_rows* are not included within the edit session. Default is to display all selected rows.

SELECT (select_syntax)

DB2 table edit will fetch **all** columns from the selected table or view.

SELECT may be used to select a subset of these columns for initial display in the edit window view. Except for parameters FROM *record_type* and IN *struct_name* which are both unnecessary, the *select_syntax* argument represents parameters supported by the [SELECT](#) primary command.

Unlike parameter **INITCMD**, which may also be used to execute SELECT commands, the SELECT parameter column selection is performed before the **profile** macro is executed.

XMLLOBWIDTH n_bytes

Specifies the number of bytes (*n_bytes*) of text, at the start of an XML or large object (LOB) column, to be displayed for all XML and LOB columns in the edited table view.

Note that XML and LOB text cannot be updated directly in the table edit view. To update data of this type, primary command **XMLEDIT** must be used.

PROFILE macro_name

Specifies *macro_name*, the name of the REXX SDE edit macro to be executed as the **profile** when the data is edited. The *macro_name* must exist in a library within the SDE macro path.

The PROFILE option only alters the profile used for the file currently being edited. It does not define the profile macro to be used for subsequent SDE edit.

The default is to execute a macro with member name SDEPROF if it exists.

NOPROFILE

Suppresses use of a profile macro when editing the file.

The NOPROFILE option only suppresses use of a profile for the file currently being edited. It does not suppress use of a profile macro for subsequent SDE edit.

INITCMD (sd_command ...)

Specifies a list of one or more structured data commands to be executed when initialising the edit session. These commands are issued after the **profile** macro (if specified) has been executed but before the first view is displayed.

The commands are listed, separated by blanks, within parentheses following the **INITCMD** keyword. If a command contains blanks or special characters (including apostrophes or quotes) it must be delimited with apostrophes or quotes. When such a delimiter is used, instances of the delimiter character within the command string must be represented by a pair of delimiter characters. For example:

```
INITCMD( 'f "O''Reilly" #3')
```

could be used to open the edit session with the dataset scrolled to the first record containing *O'Reilly* in field number 3.

Examples:

```
<sd edit CBL.SDE.MOD.ZJ2202 using CBL.CBLI.SDO(PRODL) view ARCX1,PRDMST,PRODX
  Edit data set "CBL.SDE.MOD.ZJ2202" using Structure Definition Object (SDO) "CBL.CBLI.SDO(PRODL)" to map
  records.
  Initially, all records of type ARCX1, PRDMST and PRODX are displayed.

<sd edit CBL.SAMP01.KSDS using CBL.CBLI.SDO(SAMP01) from key XMHW003 for 50
  Edit VSAM KSDS data set "CBL.SAMP01.KSDS" using SDO "CBL.CBLI.SDO(SAMP01)" to map 50 records starting at the
  record with key "XMHW003" (or the next record in key sequence if this key is not found.)

<sd edit db2(CBLA) ZZS.ZZSSYSMOD where(SYSMOD LIKE 'RS%') editprimekey
  Edit filtered rows of DB2 table ZZS.ZZSSYSMOD in subsystem CBLA allowing update of the table's primary key columns.
```

See Also:

[BROWSE](#) [CREATE STRUCTURE](#) [EDITDIALOG](#)

EDITDIALOG

Syntax:

```
>>-- EDITDialog -----<<
```

Description:

Open the [Structured Edit dialog window](#) to edit or browse a data set using an SDE structure (SDO).

This dialog window may also be opened by selecting **Structured Edit** from the File menu in the CBLe frame window menu bar.

EMSG

Description:

SDE CLI command, EMSG, performs the same operation as the CBLe CLI command EMSG. See [EMSG](#) in CBLe Text Edit documentation.

END

Syntax:

```
>>+--- END +-----<<
    |         |
    +--- QUIT ---+
```

Description:

Close an SDE window view opened for EDIT or BROWSE of data. Set on **PF3** by default.

If additional SDE views exist for the data, then these will remain open.

For EDIT only, if only one SDE view exists for the data and that data includes unsaved changes, then one of the following will occur depending on the status of the AUTOSAVE option:

AUTOSAVE	Action Taken
ON (PROMPT or NOPROMPT)	Changes to the data are saved without prompting the user before doing so.
OFF NOPROMPT	Changes to the data are discarded. (Same as QQUIT)
OFF PROMPT	User is prompted to save the changes, discard the changes or to terminate the END command and return to the SDE edit view.

Furthermore, if a non-temporary structure (SDO) is used to map the record data and changes have been made to that structure during the course of the edit session (e.g. USE WHEN), then the user will be prompted to save the changed structure to its structured data file (SDF) regardless of AUTOSAVE status. See command, [SAVESTRUCTURE](#).

See Also:

SET AUTOSAVE CANCEL DROP, DDROP QUIT

ERROR

Syntax:

```
>>---ERRor -----+-----><
      +- SQLError --+
```

Description:

Display the SQL error panel describing the non-zero SQLCODE returned from the last attempt to save the **focus row**.

This command is only applicable to DB2 table edit. It has the same effect as the **E prefix command** entered in the prefix area of the **focus row**.

See [the DB2 Save SQL Error Panel](#) for a description of how SQL errors are displayed.

EXCLUDE

Syntax:

```
>>+- EXclude -+-----+ string -+-----+-----+-----+----->
      |      |      |      |      |      |      |      |      |
      +- X -----+ | +- op -+ |      |      |      |      |
      |      |      |      |      |      |      |      |      |
      +- VALID -----+ | +- FIRST -+ | +- SUFFix -+ |
      |      |      |      |      |      |      |      |      |
      +- INVALID -----+ | +- LAST -+ | +- WORD -+ |
      |      |      |      |      |      |      |      |      |
      +- PREV -+ |      |      |      |      |      |      |
      |      |      |      |      |      |      |      |      |
      +- #ALL -----+ | +- .ZFIRST ---- .ZLAST -+ |
      >-----+-----+-----+-----+-----><
      +- pos1 -----+ |      |      |      |      |      |
      |      |      |      |      |      |      |      |      |
      +- pos2 -+ |      |      |      |      |      |      |
      |      |      |      |      |      |      |      |      |
      +-----+-----+-----+-----+
      |      |      |      |      |      |      |      |      |
      +- , -+ |      |      |      |      |      |      |
      |      |      |      |      |      |      |      |      |
      +- ( -+--- field_col -----+ ) -+
      |      |      |      |      |      |      |      |      |
      +- field_col1:field_col2 -----+
```

Description:

Exclude data records in the current SDE edit or browse view that satisfy a search for the specified character string or numeric value.

Only DB2 table rows, records or record segments assigned the default record type are included in the search. Record groups that are already excluded will remain excluded, therefore, execution of successive EXCLUDE commands has a cumulative effect. Records groups that are of a different record type or are NOTSELECTED or SUPPRESSED, are excluded from the search.

Note that DB2 table rows may be considered to be formatted records that are all assigned the default record type.

EXCLUDE employs the same string search and field highlighting methods as the **FIND** command. All occurrences of the search string or numeric value that are not excluded by the EXCLUDE command, are highlighted in the text. A record group which has been excluded via the EXCLUDE command, will contain the highlighted field matching the search string if it is subsequently redisplayed. (e.g. using **RESET EXCLUDED**) Enter the **RESET FIND** command to turn off the highlighting.

Use of EXCLUDE with no parameters repeats the last EXCLUDE command executed including all its specified parameters.

The **FORMAT** of the SDE display affects the execution of EXCLUDE.

Unformatted Multi or Single Record Display (CHAR or UNFMT):

By default, a character compare for the supplied search string is performed against the entire length of unformatted data records.

The prevailing **BOUNDS** left and right column values define the area of the record within which the search occurs. i.e. the matched data must begin at or after the left bound and not exceed the right bound.

The **BOUNDS** columns may be overridden using *pos1* and *pos2* positional parameters.

field_col and **#ALL** parameters are not applicable to these display formats and are ignored.

Formatted Multi or Single Record Display (VFMT or FMT):

For formatted records, the search string is compared against **individual fields** that have been selected for display in the formatted data record. (See **SELECT**)

Fields are searched from left to right in the order that they appear in the display. This is true regardless of the order in which field columns are specified on the **EXCLUDE** command, or the order in which fields are encountered within the unformatted record.

The prevailing **BOUNDS** left and right column values define which of the fields within the formatted records are eligible to be searched. i.e. Fields are eligible only if they exist within the left and right bounds when applied to the **expanded record** data (which is not necessarily the same as the unformatted record data.)

Where a **BOUNDS** column occurs within a field definition, then the following rules apply:

1. For character data type fields, only the area of the field that falls within the **BOUNDS** columns is eligible for the search.
2. For numeric data type fields, the field is not eligible to be included in the search.

If one or more field columns are specified on the **EXCLUDE** command (using *field_col* or *field_col1:field_col2*) that do not reference at least one field defined by the **BOUNDS** columns as being eligible for search, then the following error message is returned:

```
ZZSD280E No fields selected within the current bounds for the EXCLUDE command.
```

If a field column is specified on the **EXCLUDE** command that is not part of the display (e.g. a group field or a field that has been removed from display by a **SELECT** command), then the following error message is returned:

```
ZZSD179E Data element field_col is not selected in the current view
of record type record-type of structure struct_name.
```

For character data type fields, a string compare is performed. For numeric data type fields (binary, packed decimal, floating point, zoned, etc.), then the following will occur:

1. If *pos1*, *pos2* positional parameters are **not** specified, the search string is interpreted as a signed numeric value and an arithmetic compare is performed against the field's formatted numeric value.

The length and data type of the numeric field, and the number of digits in the search value are not significant. e.g.

```
EXCLUDE 67
```

Excludes records containing a numeric field with value "67" (e.g. "0067", "67.00", "0.0670E+03") or a character field containing the string "67" (e.g. "167 Baker Street").

If the search string is non-numeric, then numeric data type fields are not searched. Therefore, to bypass searching numeric data type fields, explicitly set the search string to be character or hex using 'string', C'string' or X'string' formats respectively. e.g.

```
EXCLUDE '67'
EXCLUDE C'67'
EXCLUDE X'F6F7'
```

Excludes records only if a character field contains the string "67".

2. If *pos1*, *pos2* positional parameters are specified, the search string is interpreted as being a character string and so a string compare is performed against the unformatted representation of the field data for fields falling entirely or partly within the range of record positions.

Although the range of positions may span a number of fields, the search is still performed against individual fields within the range. i.e. a match for the search string will not occur for data that spans a field boundary.

A match for the search string may occur on just part of the unformatted data representation of a numeric field. e.g.

```
EXCLUDE 476 21 100
```

This will find a match in any numeric field where unformatted representation of the data contains the string "476" and exclude the record. (e.g. a zoned decimal field with value "14760" or "-4762")

Parameters:

op

A relational operator used in the compare operation which determines the relationship that the data must have with the EXCLUDE search string in order for it to be identified as a successful match.

Valid values for *op* are as follow:

Operator	Description
EQ	Data must be equal to <i>string</i> . (Default)
NE	Data must be not equal to <i>string</i> .
GT	Data must be greater than <i>string</i> .
GE	Data must be greater than or equal to <i>string</i> .
LT	Data must be less than <i>string</i> .
LE	Data must be less than or equal to <i>string</i> .

If a character string compare is performed, the EBCDIC values assigned to characters in the search and data strings determine the relationship (equal to, greater than or less than) between the two strings.

string

The EXCLUDE search string. The search string may be any of the following:

- ◇ An unquoted numeric value. The search string is treated as a numeric value when a numeric field is searched in a formatted record view. In all other cases a numeric search string is treated as a character string.
- ◇ An unquoted character string containing no commas or blanks. The search for the character string will be case-insensitive so that uppercase and lowercase characters are treated as being the same.
- ◇ A character string enclosed in single (') or double (") quotation marks. The search string may contain embedded commas and blanks and the character string will be case-insensitive.

Two adjacent quotation mark characters that are embedded in a search string which is enclosed by the same quotation mark characters, will be treated as a single occurrence of the character. e.g.

```
EXCLUDE 'Jim O''Brien'
```

Find the character string "Jim O'Brien".

- ◇ A character string enclosed in single (') or double (") quotation marks with the prefix C. This is equivalent to specifying a quoted search string but that the string search will be case-sensitive. (e.g. C'Book')
- ◇ A hexadecimal string enclosed in single (') or double (") quotation marks with the prefix X.
- ◇ A picture string enclosed in single (') or double (") quotation marks with the prefix P.

Picture strings use special characters to represent a generic group of characters as described below. Any character in a picture string that is not one of these special characters is untranslated.

String	Description
P'='	Any character.
P'-'	Any non-blank character.
P'.'	Any non-displayable character.
P'#'	Any numeric character, 0-9.
P'.'	Any non-numeric character.
P'@'	Any uppercase or lowercase alpha character.
P'<'	Any lowercase alpha character.
P'>'	Any uppercase alpha character.
P'\$'	Any non-alphanumeric special character.

- ◇ A regular expression enclosed in single (') or double (") quotation marks with the prefix R.

Regular expressions use special characters for complex pattern matching. See [Regular Expressions](#) in CBL text edit documentation for detailed description.

If a no search string is specified, the default search string used is that specified on the most recent FIND, CHANGE, or EXCLUDE command executed against the current file. **EXCLUDE ALL** with no search string is a special case and will exclude all data records of the default record type.

VALID

Intended for use with formatted records, VALID will search fields for valid data. i.e. data that satisfies the field's assigned data type.

INVALID

Intended for use with formatted records, INVALID will search fields for invalid data. i.e. data that does not satisfy the field's assigned data type.

ALL

Search forwards from the top of the file data (i.e. the first position of the first data record) and excluded all records containing an occurrence of the string. EXCLUDE ALL with no other parameters excludes all records of the default record

type.

FIRST

Search forwards from the top of the file data (i.e. the first position of the first data record) to exclude the first record of the default record type to contain an occurrence of the search string.

LAST

Search backwards from the bottom of the file data (i.e. the last position of the last data record) to exclude the last record of the default record type to contain an occurrence of the search string.

NEXT

Search forwards from the current cursor location to exclude the next record of the default record type to contain an occurrence of the search string. If the cursor is not within the window's data display area, the search begins at the first position of the first visible or excluded record within the display area that is of the default record type.

PREV

Search backwards from the current cursor location to exclude the previous record of the default record type to contain an occurrence of the search string. If the cursor is not within the window's data display area, the backwards search begins at the first position of the first visible or excluded record within the display area that is of the default record type.

CHARS

For non-numeric search strings only, CHARS indicates that a successful match occurs if the search string is found anywhere within the data being searched.

PREFIX

For non-numeric search strings only, PREFIX indicates that a successful match only occurs if the search string is found at the start of a word within the data being searched. i.e. the matched text must precede an alphanumeric character and either be preceded by a non-alphanumeric character or be at the start of a line or field.

SUFFIX

For non-numeric search strings only, SUFFIX indicates that a successful match only occurs if the search string is found at the end of a word within the data being searched. i.e. the matched text must be preceded by an alphanumeric character and either precede a non-alphanumeric character or be at the end of a line or field.

WORD

For non-numeric search strings only, WORD indicates that a successful match only occurs if the search string is found to be a complete word within the data being searched. i.e. the matched text must either be preceded by a non-alphanumeric character or be at the start of a line or field, and either precede a non-alphanumeric character or be at the end of a line or field.

pos1

The first position of a range of positions within the data record to be searched.

For formatted records, this is a position in the **expanded record**. Only those fields, or parts of fields, that fall within the position range will be searched. Fields will be searched in the order that they occur within the display area.

pos1 may be a positive or negative integer value (not zero) and must be a value that is less than or equal to the maximum length of the data records or, for formatted record data, the length of the expanded record.

A negative value represents a position in the record relative to the end of the record. Therefore, where position 1 references the 1st character in the record, position -1 references the last character.

For all display formats, the string is treated as being non-numeric and the search is actioned on the character representation of the record data.

pos2

The last position of a range of positions within the data record to be searched.

Like *pos1*, *pos2* may be a positive or negative integer value (not zero). If *pos1* references a position within the record data which is higher than that referenced by *pos2*, then the *pos1* and *pos2* values are swapped.

If *pos2* is greater than the maximum length of the data records or, for formatted record data, greater than the length of the expanded record, then *pos2* is set equal to the maximum (or expanded) record length.

Default is *pos1* plus the length of the search string minus 1.

#ALL

Search all eligible field columns in the current formatted display.

field_col

An individual field column to be searched within a formatted display.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. JobID). If a field name is used, enclosing parentheses are **mandatory**. Field names are automatically converted to a field reference and Referencing the same field column more than once will not cause an error.

If the field is an array, then all elements of the array are searched. To search an individual element of an array, the element occurrence should be specified in parentheses as a subscript to the field reference/name. e.g. #13(3) for the 3rd element of a single dimension array. An entry must exist for each dimension of the array. e.g. RoomSize(6,2,4) - a three dimensional array.

Specification of multiple field columns must either be enclosed in parentheses and/or separated by commas. The field columns may be specified in any order, however, the data is always searched from the first column in the display to the last.

Field column search specifications may be a combination of individual field columns and columns ranges. e.g. (JobID #6 Tax_Reference #12 #15:#20).

A search is only performed on field columns that are selected for display. Therefore, any field column specified on the EXCLUDE command that has not been selected for display, will be ignored.

field_col1:field_col2

The first and last fields of a range of field columns to be searched within a formatted record display display.

field_col1 and *field_col2* must be separated by ":" (colon) and if *field_col1* occurs after *field_col2* in the data record, then the values are swapped. *field_col1* and *field_col2* have the same specifications as *field_col*.

Specification of multiple field column ranges must either be enclosed in parentheses and/or separated by commas. Field column search specifications may be a combination of individual field columns and field columns ranges. e.g. (FirstName:LastName, #2, Salary:Bonus, EmpNo, #10:#15). If field names are used, enclosing parentheses are **mandatory**.

.name1

A label name identifying the first record of a range of data records to be searched. The preceding "." (dot) is mandatory. Default is .ZFIRST.

.name2

A label name identifying the last record of a range of data records to be searched. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then the order is reversed. If EXCLUDE PREV is executed and *.name1* is specified, the default is .ZFIRST. Otherwise the default is .ZLAST.

Examples:

`exclude last 100`

Exclude the last record in the display (of the default record type) that contains a numeric field with value 100 or a character field containing the string "100".

`ex c'Spec' prefix (#10:#20, TitleTrack)`

Exclude the first record in the display (of the default record type) that contains the exact string "Spec" as a word prefix within any of the selected character fields.

`x all`

Exclude all records of the default record type.

See Also:

[CHANGE](#) [FIND](#) [ONLY](#) [RFIND](#) [SELECT](#)

EXTRACT

Description:

See [SET/QUERY/EXTRACT Options](#).

FILE

Syntax:

```
>>-- FILE -----><
```

Description:

Close **all** SDE window views for data displayed in the current SDE view. Any unsaved changes are saved.

If a non-temporary structure (SDO) is used to map the record data and changes have been made to that structure during the course of the edit session (e.g. USE WHEN), then the user will be prompted to save the changed structure to its structured data file (SDF). See command, **SAVESTRUCTURE**.

See Also:

CANCEL END QUIT

FILTER

Syntax:

```
>>-- FILTer -----><
```

Description:

Starts the **FILTER dialog** which may be used to filter the display of records by executing a **WHERE (ALL), MORE or LESS** command that is generated using a panel in which the user enters selection criteria against a table of fields that comprise the focus record-type.

Parameters:

FILTER has no parameters.

See Also:

LOCATE dialog

is not necessarily the same as the unformatted record data.)

Where a BOUNDS column occurs within a field definition, then the following rules apply:

1. For character data type fields, only the area of the field that falls within the BOUNDS columns is eligible for the search.
2. For numeric data type fields, the field is not eligible to be included in the search.

If one or more field columns are specified on the FIND command (using *field_col* or *field_col1:field_col2*) that do not reference at least one field defined by the BOUNDS columns as being eligible for search, then the following error message is returned:

```
ZZSD280E No fields selected within the current bounds for the FIND command.
```

If a field column is specified on the FIND command that is not part of the display (e.g. a group field or a field that has been removed from display by a SELECT command), then the following error message is returned:

```
ZZSD179E Data element field_col is not selected in the current view of record type record-type of structure struct_name.
```

For character data type fields, a string compare is performed. For numeric data type fields (binary, packed decimal, floating point, zoned, etc.), then the following will occur:

1. If *pos1*, *pos2* positional parameters are **not** specified, the search string is interpreted as a signed numeric value and an arithmetic compare is performed against the field's formatted numeric value.

The length and data type of the numeric field, and the number of digits in the search value are not significant. e.g.

```
FIND 67
```

Finds numeric fields with value "67" (e.g. "0067", "67.00", "0.0670E+03") and character fields containing the string "67" (e.g. "167 Baker Street").

If the search string is non-numeric, then numeric data type fields are not searched. Therefore, to bypass searching numeric data type fields, explicitly set the search string to be character or hex using 'string', C'string' or X'string' formats respectively. e.g.

```
FIND '67'
FIND C'67'
FIND X'F6F7'
```

Finds only character fields containing the string "67".

2. If *pos1*, *pos2* positional parameters are specified, the search string is interpreted as being a character string and so a string compare is performed against the unformatted representation of the field data for fields falling entirely or partly within the range of record positions.

Although the range of positions may span a number of fields, the search is still performed against individual fields within the range. i.e. a match for the search string will not occur for data that spans a field boundary.

A match for the search string may occur on just part of the unformatted data representation of a numeric field. e.g.

```
FIND 476 21 100
```

This will find a match in any numeric field where unformatted representation of the data contains the string "476". (e.g. a zoned decimal field with value "14760" or "-4762")

Any match of the search string on data in a numeric field will highlight the entire formatted display of the field. If the numeric field is also the current, identified occurrence of the search string, the cursor is positioned at the start of the formatted numeric field display.

Parameters:

op

A relational operator used in the compare operation which determines the relationship that the data must have with the search string in order for it to be identified as a successful match.

Valid values for *op* are as follow:

Operator	Description
EQ	Data must be equal to <i>string</i> . (Default)
NE	Data must be not equal to <i>string</i> .
GT	Data must be greater than <i>string</i> .
GE	Data must be greater than or equal to <i>string</i> .
LT	Data must be less than <i>string</i> .
LE	Data must be less than or equal to <i>string</i> .

If a character string compare is performed, the EBCDIC values assigned to characters in the search and data strings determine the relationship (equal to, greater than or less than) between the two strings.

string

The FIND search string. The search string may be any of the following:

- ◊ An unquoted numeric value. The search string is treated as a numeric value when a numeric field is searched in a formatted record view. In all other cases a numeric search string is treated as a character string.
- ◊ An unquoted character string containing no commas or blanks. The search for the character string will be case-insensitive so that uppercase and lowercase characters are treated as being the same.
- ◊ A character string enclosed in single (') or double (") quotation marks. The search string may contain embedded commas and blanks and the character string will be case-insensitive.

Two adjacent quotation mark characters that are embedded in a search string which is enclosed by the same quotation mark characters, will be treated as a single occurrence of the character. e.g.

```
FIND 'Jim O''Brien'
```

Find the character string "Jim O'Brien".

- ◊ A character string enclosed in single (') or double (") quotation marks with the prefix C. This is equivalent to specifying a quoted search string but that the string search will be case-sensitive. (e.g. C'Book')
- ◊ A hexadecimal string enclosed in single (') or double (") quotation marks with the prefix X.
- ◊ A picture string enclosed in single (') or double (") quotation marks with the prefix P.

Picture strings use special characters to represent a generic group of characters as described below. Any character in a picture string that is not one of these special characters is untranslated.

String	Description
P'='	Any character.
P'-'	Any non-blank character.
P'.'	Any non-displayable character.
P'#'	Any numeric character, 0-9.
P'.'	Any non-numeric character.
P'@'	Any uppercase or lowercase alpha character.
P'<'	Any lowercase alpha character.
P'>'	Any uppercase alpha character.
P'\$'	Any non-alphanumeric special character.

- ◊ A regular expression string enclosed in single (') or double (") quotation marks with the prefix R. For example:

```
R'C[0-9]^2'
```

is a regular expression which would match the upper case character **C** followed by 2 digits. This expression would find **C00 C91 C22** etc. but not **c99 C 99** etc.

Regular expressions enable powerful string pattern matching at the cost of rather complex syntax and potentially extended command processing time. For syntax and usage see [Regular Expressions](#) in CBL text edit documentation.

If a no search string is specified, the default search string used is that specified on the most recent FIND, CHANGE, or EXCLUDE command executed against the current file. **FIND ALL** with no search string is a special case and is equivalent to executing RESET FIND EXCLUDED.

VALID

Intended for use with formatted records, VALID will search fields for valid data. i.e. data that satisfies the field's assigned data type.

INVALID

Intended for use with formatted records, INVALID will search fields for invalid data. i.e. data that does not satisfy the field's assigned data type.

ALL

If none of the records to be scanned are EXCLUDED or NX is specified, then FIND ALL is the same as FIND FIRST except that a message is displayed providing the number of occurrences of the string/value found in the data. Unlike FIND FIRST, **all** excluded records that contain an occurrence of the string/value are made visible if NX is not specified. FIND ALL with no other parameters is equivalent to RESET FIND EXCLUDED.

FIRST

Search forwards from the top of the file data (i.e. the first position of the first data record) to find the first occurrence of the string.

LAST

Search backwards from the bottom of the file data (i.e. the last position of the last data record) to find the last occurrence of the string.

NEXT

Search forwards from the current cursor location to find the next occurrence of the string. If the cursor is not within the window's data display area, the search begins at the first position of the first visible or excluded record within the display area that is of the default record type.

PREV
Search backwards from the current cursor location to find the previous occurrence of the string. If the cursor is not within the window's data display area, the backwards search begins at the first position of the first visible or excluded record within the display area that is of the default record type.

CHARS
For non-numeric search strings only, CHARS indicates that a successful match occurs if the search string is found anywhere within the data being searched.

PREFIX
For non-numeric search strings only, PREFIX indicates that a successful match only occurs if the search string is found at the start of a word within the data being searched. i.e. the matched text must precede an alphanumeric character and either be preceded by a non-alphanumeric character or be at the start of a line or field.

SUFFIX
For non-numeric search strings only, SUFFIX indicates that a successful match only occurs if the search string is found at the end of a word within the data being searched. i.e. the matched text must be preceded by an alphanumeric character and either precede a non-alphanumeric character or be at the end of a line or field.

WORD
For non-numeric search strings only, WORD indicates that a successful match only occurs if the search string is found to be a complete word within the data being searched. i.e. the matched text must either be preceded by a non-alphanumeric character or be at the start of a line or field, and either precede a non-alphanumeric character or be at the end of a line or field.

**EX
X**
Search EXCLUDED data records only.
FIND does not search records that are NOTSELECTED or SUPPRESSED.

NX
Search only visible data records (i.e. not EXCLUDED).
FIND does not search records that are NOTSELECTED or SUPPRESSED.

pos1
The first position of a range of positions within the data record to be searched.
For formatted records, this is a position in the **expanded record**. Only those fields, or parts of fields, that fall within the position range will be searched. Fields will be searched in the order that they occur within the display area.
pos1 may be a positive or negative integer value (not zero) and must be a value that is less than or equal to the maximum length of the data records or, for formatted record data, the length of the expanded record.
A negative value represents a position in the record relative to the end of the record. Therefore, where position 1 references the 1st character in the record, position -1 references the last character.

For all display formats, the string is treated as being non-numeric and the search is actioned on the character representation of the record data.

pos2
The last position of a range of positions within the data record to be searched.
Like *pos1*, *pos2* may be a positive or negative integer value (not zero). If *pos1* references a position within the record data which is higher than that referenced by *pos2*, then the *pos1* and *pos2* values are swapped.
If *pos2* is greater than the maximum length of the data records or, for formatted record data, greater than the length of the expanded record, then *pos2* is set equal to the maximum (or expanded) record length.
Default is *pos1* plus the length of the search string minus 1.

#ALL
Search all eligible field columns in the current formatted display.

field_col
An individual field column to be searched within a formatted display.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. JobID). If a field name is used, enclosing parentheses are **mandatory**. Field names are automatically converted to a field reference and Referencing the same field column more than once will not cause an error.

If the field is an array, then all elements of the array are searched. To search an individual element of an array, the element occurrence should be specified in parentheses as a subscript to the field reference/name. e.g. #13(3) for the 3rd element of a single dimension array. An entry must exist for each dimension of the array. e.g. RoomSize(6,2,4) - a three dimensional array.

Specification of multiple field columns must either be enclosed in parentheses and/or separated by commas. The field columns may be specified in any order, however, the data is always searched from the first column in the display to the last.

Field column search specifications may be a combination of individual field columns and columns ranges. e.g. (JobID #6 Tax_Reference #12 #15:#20).

A search is only performed on field columns that are selected for display. Therefore, any field column specified on the FIND command that has not been selected for display, will be ignored.

field_col1:field_col2

The first and last fields of a range of field columns to be searched within a formatted record display display.

field_col1 and *field_col2* must be separated by ":" (colon) and if *field_col1* occurs after *field_col2* in the data record, then the values are swapped. *field_col1* and *field_col2* have the same specifications as *field_col*.

Specification of multiple field column ranges must either be enclosed in parentheses and/or separated by commas. Field column search specifications may be a combination of individual field columns and field columns ranges. e.g. (FirstName:LastName, #2, Salary:Bonus, EmpNo, #10:#15). If field names are used, enclosing parentheses are **mandatory**.

.name1

A label name identifying the first record of a range of data records to be searched. The preceding "." (dot) is mandatory. Default is .ZFIRST.

.name2

A label name identifying the last record of a range of data records to be searched. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then the order is reversed. If FIND PREV is executed and *.name1* is specified, the default is .ZFIRST. Otherwise the default is .ZLAST.

Examples:

`find 22.3`

Search all fields in the display belonging to the default record type for the next occurrence of the search string/value 22.3. Numeric fields are tested for numeric value 22.3, character fields are tested for character string "22.3" anywhere within the field.

`find all 'ask' suffix ex (DsName:ProcLib, JobStep)`

Search selected character fields in the display belonging to excluded records of the default record type for all occurrences of the word suffix string "ask".

See Also:

[CHANGE](#) [EXCLUDE](#) [LOCATE](#) [ONLY](#) [RFIND](#) [SELECT](#)

FLIP

Syntax:

```
>>-- FLIP -----<<
```

Description:

Flip records that are of the **default record type** so that visible data records become EXCLUDED and EXCLUDED records are made visible.

See Also:

[LESS](#) [MORE](#) [MORE](#)

FORMAT

Syntax:

```
>>-- FORmat --+-- Character -----><
      |
      +-- Hex -----+
      |
      +-- HEXDump -----+
      |
      +-- Single -----+
      |
      +-- Sngl -----+
      |
      +-- Tabl -----+
```

Description:

Sets the **display format** for the current SDE BROWSE or EDIT window.

See also SDE command **ZOOM** to display unformatted data (FORMAT CHARACTER or FORMAT HEX) in single record display.

Parameters:

Character
Multi record view with all records or record segments mapped as a single, character field with field name "UnMapped" or "UnMappedSeg". No data conversion is performed.

Hex
Same as CHARACTER with the addition that the data is also displayed in Hex below the character display. Note that the Hex display occupies an additional 2 lines of data.

HEXDump
Display the focus record or record segment in **single record**, unformatted hex dump view. See command **HEXDUMP** for more information.

Single
Sngl
Single record format with data types formatted according to the record structure. Each field occupies a separate line. Vertical scrolling transfers focus between fields. Horizontal scrolling transfers focus between records.

By default, **PF2** is assigned to distributed CBLed edit macro SDEZOOMW which opens a new view of the record data and executes FORMAT SINGLE to display the record occupying the **focus line** in single format.

Table
Multi-record table format (Default) with data types formatted according to the record structure. Each field occupies a separate column. Vertical scrolling transfers focus between records. Horizontal scrolling transfers focus between fields.

GETXML

Syntax:

```

>>-- GETXML --- INTO --+-----+ fileid ----->
      |           |
      +- FILE -+

>----- FROM --+-----+ table_name -----+ column_name ----->
      |           |           |           |
      +- Table  -+           +- Column -+

>-----+-----+ DOCid +-----+ document_id +----->
      |           |           |           |
      +- WHERE  -+           +- = -+
      |           |           |           |
      +- WHERE ( where_clause ) -----+

>-----+-----+-----+-----><
      |           |           |           |
      +- DB2  -+-----+ ssn  -+           +- AUDit -+
      |           |           |           |
      +- SSN  -+           +- (ssn) -+

```

Description:

Applicable to DB2 base tables only, GETXML copies an XML document from an XML column within a specific DB2 table row to a data set, library member or HFS/ZFS file.

If a connection to the required DB2 sub-system does not already exist, then GETXML will first start a new connection before fetching the XML column data from selected table row and disconnect again afterwards.

Having retrieved the XML document to the specified *fileid*, the XML text is formatted and displayed in a text edit view. Formatting of the XML document starts a new line after each tag element not followed by text data and after each end tag. Nested tag elements are also indented to illustrate the tag hierarchy. A SAVE must be executed if the formatting is to be preserved.

A WHERE filter must be specified which uniquely identifies the table row from which the XML column data will be copied. If the filter identifies more than one table row, then the operation fails with error ZZSD711E.

Parameters:

INTO FILE *fileid*

Specifies the name of the target XML document data set, library member or HFS/ZFS file into which the DB2 XML column data will be copied.

If *fileid* references an uncataloged sequential data set, DB2 will catalog the new data set as RECFM=VB, LRECL=27994 an BLKSIZE=27998. However, GETXML will fail if *fileid* references a member of an uncataloged PDS/PDSE library.

If *fileid* references an existing sequential data set or a member of an existing PDS/PDSE library, then it must have been cataloged as RECFM=VB with an LRECL value which is 4 less than the BLKSIZE.

FROM TABLE *table_name*

Specifies the name of the source DB2 table from which the XML column text will be fetched.

table_name may be specified with 1, 2 or 3 qualifiers representing *name*, *schema.name* or *location.schema.name* respectively. Default location is the local DB2 server for the specified sub-system (*ssn*) and the default schema is the value assigned to special register CURRENT SCHEMA (initially set to the user's SQLID).

COLUMN *column_name*

Identifies the name of the source DB2 column of data type XML.

If *column_name* specifies a column which is not type XML, then error ZZSD691E is returned.

WHERE DOCID = *document_id*

For any DB2 base table in which one or more XML columns have been created, there exists an implicit DOCID column (DB2_GENERATED_DOCID_FOR_XML) which stores a unique, integer document identifier for the XML column entries in a row.

A unique document id (*document_id*) may be specified to identify the table row from which data will be copied. Using this syntax, specification of the WHERE keyword and/or equal to (=) operator are optional.

WHERE (*where_clause*)

Specifies a DB2 SQL WHERE clause which identifies a single row in the DB2 table from which the XML column data will be copied. See "DB2 SQL Reference" for syntax of the *where-clause*.

DB2 | SSN *ssn* | (*ssn*)

Specifies the name of the local DB2 sub-system (*ssn*) to which a connection will be made in order to fetch data from the base table. Before SELCOPYi can successfully connect to a DB2 sub-system, a BIND of the SELCOPYi DB2 plan must have been performed for that sub-system.

Default is the users default DB2 sub-system name as last entered in the DB2 Primary Options menu.

AUDIT

Sets DB2 auditing on for the GETXML operation.

A new SELCOPYi DB2 audit data set is allocated to record the results of the SQL FETCH statement executed. See [Audit Trail Functions](#) for details.

Default is not to perform edit auditing.

Examples:

```
getxml into SYSA.XSPORT.D2016034.XML \
          from CBL.SPORTS_SAMPLE column STATS_D2016034_XML \
          where DOCID = 2 db2 CBLA
```

Copy an XML document from DB2 table CBL.SPORTS_SAMPLE to the cataloged data set SYSA.XSPORT.D2016034.XML. The required XML document exists in the DB2 table XML column STATS_D2016034_XML, in the row identified by document id 2. Connection will be made to DB2 sub-system CBLA.

```
getxml into SYSA.XBOOK.XML(SMITHW01) \
          from CBL.ZZSBOOKS column BOOK_REF_XML \
          where (AUTHOR LIKE 'Smith, Wilbur%') \
          ssn(LTBX)
```

Copy an XML document from a DB2 table XML column entry in the row uniquely referenced by an SQL WHERE clause, to a new PDS member of an already cataloged library.

See Also:

[PUTXML](#)

GO

Syntax:

```
>>-- GO -----+-- Browse ---+-----><
          |           |
          +-- Edit ----+
          |           |
          +-- SE -----+
          |           |
          +-- SU -----+
          |           |
          +-- View ----+
          |           |
```

Description:

GO closes the current view and redisplay the file data in either a text edit or data edit view using the specified edit/browse type.

When an SDE data edit view is opened to display the text, no attempt is made to format the record data unless AUTOSTRUCTURE APPLY is in effect. If the current view contains unsaved alterations to the text, the GO operation will stop and an error message displayed.

Parameters:

- BROWSE Browse the text in a SDE data edit window view.
- EDIT Display the text in a CBL text edit window view for edit.
- SE Display the text in a SDE data edit window view with full edit capabilities.
- SU Display the text in a SDE data edit window view with update-in-place edit capabilities.
- VIEW Display the text in a CBL text edit window view for read-only edit (view).

GRPC

Syntax:

```
>>-- GRPC -----+-----+----->
               |             |
               +-- field_col --+
               |             |
>+-----+-----+-----+-----+-----+-----+-----+-----+-----><
|             |             |             |             |             |             |
+- FOR -----+-----+ record_type -----+-----+-----+-----+-----+-----+-----><
|             |             |             |             |             |             |
+- REcOrd --+-----+-----+ IN -----+-----+-----+ struct_name -----+-----+-----+-----><
|             |             |             |             |             |             |
+- STRUCTure --+-----+-----+-----+-----+-----+-----+-----+-----+-----><
```

Description:

GRPC is equivalent to **SET GROUPASCHARACTER ON** and so displays the specified group (structure) field, defined within a specified record type mapping, as a fixed length character field.

Parameters:

field_col

The individual column identifying the group field to which the option will apply. This may be the group field itself or a field contained within. The field column may be identified by its reference number (e.g. #6) or its name (e.g. JobID).

Default is the **focus column**.

FOR [RECORD] *record_type*

Identifies the record-type mapping in which the specified *field_col* is defined.

Default is the **default record type**.

IN [STRUCTURE] *struct_name*

Identifies the name of the SDO structure in which the specified *record_type* is defined. Required only if a distinction is to be made between multiple data sets displayed in SDE views, each using different SDO structure definitions but where the specified *record_type* is defined in more than one of the structures.

Default is the SDO structure used to map records in the **current SDE view**.

See Also:

GRPX **ARRC** **ARRX**

GRPX

Syntax:

```
>>-- GRPX -----+-----+----->
               |             |
               +-- field_col --+
               |             |
>+-----+-----+-----+-----+-----+-----+-----+-----+-----><
|             |             |             |             |             |             |
+- FOR -----+-----+ record_type -----+-----+-----+-----+-----+-----+-----><
|             |             |             |             |             |             |
+- REcOrd --+-----+-----+ IN -----+-----+-----+ struct_name -----+-----+-----+-----><
|             |             |             |             |             |             |
+- STRUCTure --+-----+-----+-----+-----+-----+-----+-----+-----+-----><
```

Description:

GRPX is equivalent to **SET GROUPASCHARACTER OFF** and so redisplay the specified group (structure) field, which has been displayed as a fixed length character field (GRPC), as a formatted group of its component fields.

Parameters:

field_col

The individual column identifying the group field to which the option will apply. This may be the group field itself or a field contained within. The field column may be identified by its reference number (e.g. #6) or its name (e.g. JobID).

Default is the **focus column**.

FOR [RECORD] *record_type*

Identifies the record-type mapping in which the specified *field_col* is defined.

Default is the **default record type**.

IN [STRUCTURE] *struct_name*

Identifies the name of the SDO structure in which the specified *record_type* is defined. Required only if a distinction is to be made between multiple data sets displayed in SDE views, each using different SDO structure definitions but where the specified *record_type* is defined in more than one of the structures.

Default is the SDO structure used to map records in the **current SDE view**.

See Also:

GRPC ARRC ARRX

HELP

Description:

SDE CLI command, HELP, performs the same operation as the CBL e CLI command HELP. See **HELP** in CBL e Text Edit documentation.

HEX

Syntax:

```
>>-- HEX --+-- ON -----+-----><
          |         |
          +-- OFF ----+
```

Description:

Sets the hexadecimal display format on or off. Issued without the **ON** or **OFF** parameter the display format is toggled.

If the current display format has been set using **FORMAT CHAR**, or **FORMAT HEX**, then **HEX ON** is the equivalent of issuing **FORMAT HEX**.

If the current display format has been set using **FORMAT SINGLE**, or **FORMAT TABLE**, then for each line displayed **HEX ON** will add two further lines to show the hexadecimal representation of the raw (unformatted) data below each formatted field. e.g.

```
 SRCRecOff  SRCRecLen  SRCMbr
      #44      #45 #47
  BN 121:4   BN 125:4  AN 137:8
<-----+-----> <-----+-----> <-----+----->
      152          80 APEZLINK
      0009          0005 CDCEDCDD
      0008          0000 17593952

      144          80 SDFECMD1
      0009          0005 ECCCCDCF
      0000          0000 24563441
```

Parameters:

ON
OFF

HEX display format is set ON or OFF.

HEXDUMP

Syntax:

```
>>-- HEXDump -----><
      |               |
      +-- New ----+
```

Description:

Display the focus record or record segment in **single record**, unformatted hex dump view. HEXDUMP may also be executed for an individual record/record segment using prefix command HEX or HEXD.

The hex dump view is a **storage display window** which displays a number of fullwords of data in both long hexadecimal and character representation. The hex dump display supports the storage window options popup menu, opened by positioning the cursor in the character or hex representation of the data and pressing <F16> or executing primary command SPM (**SHOWPOPMENU**).

```
Record type: REC-CARD   Fixed(66) Offset=0 Data elements=13
Record> 00000008   Flags: f           Length:      66
      1 00000000 00000008 0000061C 0001C3C4           . . . .CD
      17 C5D3E340 40400675 48756764 74656CD4 ELT .İçíÁÁÈÁ%M
      33 D940C340 E2D3C1C9 D5404040 40404040 R C SLAIN
      49 40404040 40404040 0200409C 0200501C           . æ. &.
      65 719C                                     Éæ
```

Unlike other storage display windows, altering the number of fullwords displayed per line and/or including display of the data's address in storage will not attempt to resize the window display.

For EDIT, both the hexadecimal and character representations of the data may be updated whereby changes to one representation of the data are automatically reflected in the other.

Beware, however, that overtyping the character representation of the data will update **all** fullwords in the updated line so they reflect the character data. In the character representation, a null character (x'00') is represented by blank (EBCDIC x'40') and other non-printable characters are represented by dots (EBCDIC x'4B'). Therefore, updating the character representation will result in these characters replacing the original hexadecimal values.

If parameter NEW is specified, the hex dump display is opened in a new window view allowing the user to preserve the current data display format in the original window view.

Parameters:

NEW
Open the hex dump display in a new SDE EDIT/BROWSE window view.

See Also:

CHAR MAP (FMT) UNMAP (UNFMT) VFMT ZOOM

HIDE

Syntax:

```
>>-- HIDE -----><
```

Description:

Hide all shadow lines. HIDE is equivalent to **SET SHADOW OFF ALL**.

RESET HIDE will redisplay all shadow lines.

IDENTIFY

Syntax:

```

+- 1 -----+
|           |
>>-- Identify -----+-----<<
|           |
+- n_lines -----+      +- EX --+
|           |           |       |
+- ALL -----+      +- X  --+
|           |           |       |
+- * -----+      +- NX --+
|           |
+- .name1 -----+
|           |
+----- .name2 -----+

```

Description:

IDENTIFY is used to remap records (re-assign record-type RTO) in the current SDE edit view. For **segmented record** edit, if any segment within a record is selected for remap by the IDENTIFY command, then all segments within the record will be remapped.

By default, IDENTIFY will not attempt to select and remap records that have **not** been altered since the file was loaded for edit.

See **"Record Type Assignment"** for description of the processing performed on each record/record segment selected by IDENTIFY for remap.

ID fields are identified by a record type (RTO) definition containing USE WHEN criteria. Values in these fields determine whether that RTO is suitable to be assigned to an individual record or record segment.

SELCOPY/i SDE is sensitive to changes made to ID fields that have been identified explicitly by field name or field reference number in the USE WHEN expression. It is also sensitive to changes to data in when record-type formatting is disabled (i.e. field name "Unmapped" or field reference number #1).

Where one of these ID field changes is detected, or where the length of the record/segment data is altered (via CHANGE or RECLLEN updates), the ID flag (**==ID>**) is set on for the changed record/segment. This is intended to notify the user that the record/segment data may no longer satisfy the USE WHEN criteria for its assigned record type.

In order to allow the user the opportunity to complete any changes being made, SELCOPY/i does not automatically remap records with the ID flag set on.

The records selected for remap by IDENTIFY depend on the current value of the **IDSCOPE** option. By default, IDSCOPE is set to CHANGED indicating that all records flagged as having been changed may be selected for remap. Alternatively, IDSCOPE FLAGGED indicates that only records with the ID flag set on may be selected for remap.

The remap of records, performed on execution of IDENTIFY, may be individually undone and subsequently redone using the UNDO (<PF22>) and REDO (<PF23>) commands.

Parameters:

Note that in single-record view the SDE window view displays the focus line (record or record segment) of the equivalent multi-record view.

n_lines
Specifies the number of lines (records or segments), including the **focus line**, to be scanned searching for records/segments to be selected for remap.
The default is 1 line.

ALL | *
Specifies that all lines in the file are to be scanned, searching for records/segments to be selected for remap.

.name1
A label name identifying the first line of a range of lines to be scanned, searching for records/segments to be selected for remap. The preceding "." (dot) is mandatory.

.name2
A label name identifying the last line of a range of lines to be scanned, searching for records/segments to be selected for remap. The preceding "." (dot) is mandatory.
If *.name2* occurs before *.name1* in the display, then the order is reversed.
If *.name1* is specified without *.name2*, then *.ZLAST* is the default.

EX | X
Search for records/segments occupying EXCLUDED lines only.

NX
Search for records/segments occupying visible (non-EXCLUDED) lines only.
Default is to search for records/segments in both EXCLUDED and non-EXCLUDED lines.

See Also:SET/QUERY/EXTRACT Option: **IDSCOPE**

IMMEDIATE

Description:

SDE CLI command, IMMEDIATE, performs the same operation as the CBL e CLI command IMMEDIATE. See **IMMEDIATE** in CBL e Text Edit documentation.

INFORMATION

Syntax:

```
>>-- INfOrmatIOn -----+-----+-----><
      |
      +-----+-----+-----+-----+
      |                                     |
      +--- DB2 ---+-----+-----+-----+
      |           |           |           |
      +- (ssn)  +-          +-          +-
      |           |           |           |
```

Description:

INFORMATION has the same operation as the SELCOPY/i primary command **DSINFORMATION**.

INSERT

Syntax:

```
>>-- Insert -----+-----+-----+----->
      |           |           |           |
      +- record_type +-          +-          +-
      |           |           |           |
      |           |           |           |
      +- (--- field_col ---) +-
      |           |           |           |

>-----+-----+-----+-----><
      |           |           |           |
      +-          +-          +-          +-
      |           |           |           |
      |           |           |           |
      +- Values(--- field_value ---) +-
      |           |           |           |
```

Description:

Insert one or more new records following the focus line, optionally providing explicit values to be inserted into specified fields.

Insert of new records is not allowed for Update-in-place editing unless the data set is an RRDS or VRDS. For these types of files, records that are empty slots may be activated using the INSERT command where, starting from the focus line, *n_lines* represents the number of lines to be searched for empty slots. All empty slots found within this range of lines will be activated.

Fields within the inserted records do not require explicitly assigned values. This occurs either when no list of field values is specified or when the default record type contains more fields than there are values in the specified list of field values.

If fields are not explicitly assigned values (either because no list of field values is specified or because the default record type contains more fields than there are values in the specified list of field values) then they are assigned default values as follow:

- 0 (zero) for numeric fields.
- Nulls for bit and hex fields.
- Blanks for all other field types.

If a **USE WHEN** expression has been defined for the chosen record type, then an attempt is made to populate any fields specified in that expression with values which satisfy the expression.

INSERT with no parameters inserts one record of the current **default record type** with default values in all fields.

If no structure (SDO) or copybook has been applied to data records of variable length (i.e. unformatted variable length records), then the user is prompted to specify a record length for the inserted record. This is because the SDE editor preserves record length when the records are saved. See [Changing Record Lengths](#).

Following execution of INSERT, the **DRECTYPE** setting is updated to be the record type specified by the *record_type* parameter.

Also see the "I(n)" insert [prefix area](#) command.

Parameters:

record_type

The record type of the record(s) to be inserted. If *record_type* is not specified, then the **default record type** is used.

(*field_col*, ...)

An individual field column within a list of field columns for which a corresponding *field_value* is to be inserted.

The field column may be identified by its reference number (e.g. #1) or its name (e.g. SeqNUM). Specification of multiple field columns must be separated by commas and enclosed in parentheses.

If the field is a **struct** or a **union**, then an error message is returned. If the field is an array, then an individual array element must be specified in parentheses as a subscript to the field. e.g. #13(3) for the 3rd element of a single dimension array. A subscript entry must exist for each dimension of the array. e.g. RoomSize(6,2,4) - an element within a three dimensional array.

If a list of field columns is not specified then as many of the set of selected fields in the current view as there are values in the list of field values, are used as the default. In this case, the order of the field columns is equal to the order in which fields are displayed in the current view.

VALUES (*field_value*, ...)

An individual field value within a list of field values to be inserted in a corresponding *field_col* entry in the field column list.

If one or more *field_col* entries are specified (i.e. a field list is specified), then there must be the same number of *field_value* values to correspond with each *field_col* entry.

If a character string field value contains special characters, blanks or commas, then it must be delimited by quotation mark (") or apostrophe (') characters. If the value contains characters which match the delimiting characters, then each occurrence of this character must be escaped by prefixing it with the escape character. The escape character is the same as the delimiting character. e.g. VALUES("He said "It"s John"s bike.")

n_lines

Number of identical records to be inserted or, for RRDS/VRDS Update-in-place edit, the number of lines to be searched for Empty Slots.
Default is 1.

Examples:

```
insert (SeqNum, FirstName, LastName, JobTitle, Salary) Val(283, Jacob, Smith, 'Systems Engineer', 35,950.00)
```

Insert a record of the default record type populating the specified list of fields with the explicit values in the corresponding list of field values. All other fields are populated with default values.

```
insert 2 Val(18.3, "Michael O'Leary", -12.333)
```

Insert 2 records of the default record type populating the first 3 selected fields in the display with the explicit values specified in the list of field values. All other fields are populated with default values.

JSONGEN

Syntax:

```
>>--- JSOnGen -----><
```

Description:

JSONGEN with no parameters will open the **SDE JSON Generation Panel** to generate JSON output for the contents of the focus SDE data edit or browse display.

If the focus window is not an SDE window view, the general **JSON Generation** dialog panel is displayed.

If parameters are specified, then the general SELCOPYi **JSONGEN** primary command is executed instead.

See Also:

[CSVGEN](#) [XMLGEN](#) [PRINT](#)

LAYOUT

Syntax:

```
>>-- LAYout ----->
|
|----- sfile_fileid -----|
| +- SDO ----+              |
| +- COBo1 ----+ copybook_library(member_name) +-|
| +- PL1 ----+              |
|
|----- adata_fileid -----|

+- NOEXPand -+          +- NUMwidth 5 -----+
|              |          |                    |
>-----+-----+-----+-----><
+- EXpand ---+          +- NUMwidth fwidth ---+
```

Description:

Display the record structure **layout list window** detailing all record-types in the specified structure file (SDE structure (SDO), COBOL/PL1 copy book or COBOL/PL1 ADATA file).

If executed from an SDE browse/edit view without specifying the name of a structure file, the layout window is displayed for all record-types in the structure used to may records in the current display.

If executed from any other window with no parameters the **Display Record Layout** panel (=9.3) is opened.

Parameters:

- SDO *sfile_fileid*
Identifies an existing SELCOPY/i SDE structure (SDO) file, *sfile_fileid*
- COBOL|PL1 *copybook_library(member_name)*
Identifies a COBOL or PL1 copy book PDS/PDSE library and member name, *copybook_library(member_name)*.
- ADATA *adata_fileid*
Identifies a COBOL or PL1 ADATA output file, *adata_fileid*.
- NUMWIDTH *fwidth*
Specifies the displayed width of numeric columns: **RefNo**, **Start**, **End** and **Length** in the layout list output.

The default (and minimum) width of these fields is 5 characters.
- EXPAND | NOEXPAND
Specifies whether or not array (OCCURS) fields are to be expanded to display every repeating instance of a field within that array.
Default is NOEXPAND.

LEFT

Syntax:

```
>>- Left -----><
|
|-----+-- Cursor -----+
|         +-- CSR -----+
|
|-----+-- Data -----+
|         |
+-- ALL -----+   +-- Half -----+
|                 |
|                 +-- Max -----+
|                 |
|                 +-- Page -----+
|                 |
|                 +-- n_cols -----+
|
```

Description:

In **multi record view** and unless parameter **ALL** is specified, scroll to the left the display of field and header lines belonging to records that are of the **default record type**. The display of all other visible records, header lines and shadow lines remains unchanged.

In **single record view**, LEFT will display the fields belonging to a visible data record that has a lower line number than the record (or record segment) that is in the current view. For display of segmented records, LEFT and RIGHT scroll through each segment in the file, regardless of the record to which it belongs. **NEXT** and **PREV** may be used to scroll between secondary segments of the current record only. LEFT CURSOR/DATA/HALF/PAGE are not applicable in single record view.

LEFT is assigned to **PF10** by default. Any characters specified on the command line when the PFKey is hit will be concatenated to the command and treated as a parameter string.

Where no parameter is specified, the scroll amount will be the value specified in the "**Scroll>**" field.

Multi Record View Scrolling:

Columns may have the HOLD flag set on by the **SELECT** command. These columns are static in the display and, like the prefix area and Lrecl column, are unaffected by LEFT and RIGHT scrolling. Columns that have the HOLD flag set off are referred to as **floating** columns.

The following interpretation of cursor location applies so that LEFT CURSOR can operate successfully on the appropriate data:

- Cursor is located at an offset within a column header line.
The cursor position is interpreted as being at the same offset within the data record that immediately follows the group of header lines.
- Cursor is located within a column of type character (AN) but beyond the width of the character data.
The cursor position is interpreted as being the last position of the displayed character data.
- Cursor is located immediately to the left of a column of any type.
The cursor position is interpreted as being the the first position of the data displayed within that column.

Where the last column to be displayed is not of type character (AN), the magnitude by which the display is scrolled to the left is always reduced to display all field data belonging to the last column. In addition, the display area must contain all column header text belonging to the first column and, where the first column is not of type character (AN), it must also contain all field data belonging to the first column. Therefore, to accomodate this, the magnitude by which the display is scrolled to the left may be further reduced.

Because of these adjustments, it is possible that execution of a LEFT command may result in no change to the displayed data, in which case LEFT PAGE is executed instead.

No adjustment is made for scrolling left into an offset within a character data column. i.e. where the last column of the display is of type character, the last position of the column display need not be the last character of the character data. If the last column to be displayed is of type character and the display width is too small to accomodate all the column's data and header text, the column will be truncated. However, due to the other adjustments made for scrolling left, it may be impossible for some characters within the character data to occupy the last position of the column display. In order to overcome this, the user would have to alter the display area dimensions.

Attempting to scroll left beyond the start of the record will make the first data column the first column of the display.

Parameters:

CURSOR
CSR

The **focus column** becomes the last column of the scrolled display.

In addition to this, if the focus column is type character (AN) and the cursor is positioned on a character that is at an offset

into the focus column data, then an attempt is made to make that character occupy the last position of the scrolled display.

If any of the following conditions are true, then LEFT PAGE is executed instead:

- ◇ Cursor is positioned anywhere other than within a floating column in a visible data record.
- ◇ Focus column is **not** type AN and is already the last column of the display.
- ◇ Focus column is type AN, is already the last column of the display and cursor position is at the last position of the displayed column data.

ALL

Valid only in multi-record view, ALL indicates that scrolling is to apply to **all** records in the display and not only those records that are assigned the default record type.

DATA

Scroll left so that the first floating column in the current display area becomes the last column of the scrolled display. If this column is type character (AN) and the first position of the display falls on a character that is at an offset into the column, then an attempt is made to make that character occupy the last position of the scrolled display.

HALF

Scroll a number of columns so that the column situated half way along the width of the current display of floating columns, becomes the last column of the scrolled display. If this column is type character (AN) and the half display position falls on a character that is at an offset into the column, then an attempt is made to make that character occupy the last position of the scrolled display.

MAX

Scroll left to display the first floating column of data in a multi record view.

In single record view, the first visible data record is displayed.

PAGE

Scroll left so that the floating column of data to the left of the first floating column in the current display, becomes the last column of the scrolled display.

If this column is type character (AN) and the first position of the display minus one falls on a character that is at an offset into the column, then an attempt is made to make that character occupy the last position of the scrolled display.

n_cols

In a multi record view, scroll left a specified number of floating columns.

The floating column of data that is *n_cols* to the left of the first floating column becomes the new first floating column of the scrolled display.

In single record view, the visible data record that is *n_cols* records before the record currently in view, gets displayed.

Examples:

```
left page
```

Scroll records of the default record type in a multi record view display area, left by a full display area width minus the width of any columns flagged with HOLD.

See Also:

DOWN RIGHT UP

LESS

Syntax:

```
>>--- LESS ---+-- where_clause ---+-----><
      |           |
      +-- line_flag -----+
```

Description:

Exclude any visible records that are of the **default record type** and also satisfy the specified *where_clause* criteria. Records that are already EXCLUDED are unaffected by the LESS command. The current line is also unaffected unless the SHADOW option for EXCLUDED lines is set off and the current line is one which is excluded by the LESS command. In this case the line following the current line becomes the new current line.

If LESS is executed with no parameters, then all visible records that are of the default record type are EXCLUDED.

The record type used on a LESS command becomes the new value of the **DRECTYPE** option.

Parameters:

where_clause
where_clause syntax is described fully in documentation for the **WHERE** command.

line_flag
line_flag may be specified to locate a record or record segment that has been flagged with the requested line flag.

Each valid *line_flag* keyword detailed below corresponds to a built-in function.

A description of each *line_flag* keyword may be found in its equivalent function description.

<i>line flag</i> Keyword	Built-in Function
ERRor	CHANGEERROR()
CHAnge Chg	CHANGEOK()
ALTered UPDated	CHANGED()
DATAerror	DATATYPEERROR()
DUPkey	DUPLICATEKEY()
EMPTY	EMPTYSLLOT()
EXcluded X	EXCLUDED()
LABel	HASPOINT()
COMmand CMd	HASPREFIXCMD()
IDentify IDrequired	IDREQUIRED()
NEW	INSERTED()
KEYChanged KEYChg	KEYCHANGED()
LENgtherror	LENGTHERROR()
EOL NOEOL	NOEOL()
SAVE	SAVEREQUIRED()
SQLError	SQLERROR()
TRNC TRUNCated	TRUNCATED()
VALERRor	VALUEERROR()

Examples:

```
less #14 >= 255
Exclude any records that are of the default record type where numeric field reference number 14 is greater than or equal to 255.

less OrderDate <= PaymentReceivedDate
Exclude any records that are of the default record type where the contents of field "OrderDate" is less than or equal to the contents of field "PaymentReceivedDate".
```

See Also:

[FLIP MORE WHERE](#)

LIST

Description:

The Data Editor command, LIST, performs the same operation as the Text Editor command LIST provided the first parameter is not one of the keywords MODULES, RPOS, SDO, STORAGE or UKRS. See [LIST](#) in CBLe Text Editor documentation.

LIST MODULES

Syntax:

```

                +-- SDELIB ---+
                |               |
>>+---+ LIst MODules  ---+-----+-----><
    |   |             |             |
    +-- LM -----+   +-- libname ---+

```

Description:

Use the LIST MODULES command to display a list window containing details of modules in the specified SELCOPY/i function library.

LIST MODULES may be executed to determine the level of any currently installed SELCOPY/i function module. CBL may request that this command is executed for diagnostic purposes in problem determination.

Parameters:

libname

The name of a SELCOPY/i library. Valid entries include VCILIB, WINLIB, EDTLIB, SDELIB, TABLIB, etc.

Default is SDELIB.

LIST RPOS

Syntax:

```

>>----- LIst RPOs -----><

```

Description:

Use the LIST RPOS command to display a list window containing details of RPOs (Record Position Objects) for the current SDE edit/browse view.

CBL may request that this command is executed for diagnostic purposes in problem determination.

LIST SDO

Syntax:

```

                +-- user.**.SDO ---+
                |               |
>>----- LIst SDO  ---+-----+-----><
    |   |             |             |
    +-- library_mask ---+

```

Description:

Use the LIST SDO command to display the Structure Definition Members list window containing details of each SDE structure (SDO) library member selected by the nominated PDS/PDSE library and member masks.

Parameters:

library_mask

Specifies a PDS/PDSE library DSN mask and optionally one or more member name masks. If no member mask is specified, all members in selected libraries will be listed.

A library DSN mask may contain the following wild card characters:

- * A single asterisk represents a DSN qualifier or zero or more characters within a DSN qualifier.
e.g. DEV.*.SDO, DEV.C*.*.SDO

- ** Double asterisk represents zero or more qualifiers within a DSN. Double asterisk must be preceded or followed by either a "." (dot/period) or a blank. It cannot precede or follow an alphanumeric character.
e.g. DEV.**.SDO, DEV.SDO.**
- % A single percent sign represents exactly one character other than "." (dot/period) within a DSN qualifier.
e.g. DEV.C%.SDO

One or more member masks may be specified between a single pair of "(" (parentheses). Multiple PDS/PDSE member masks must be separated by a "," (comma) and/or one or more intervening blanks.

A member mask may contain the following wild card characters:

- * A single asterisk represents an entire member name or zero or more characters within a member name.
- % A single percent sign represents exactly one character within a member name mask.

Default is library mask is "*user***.SDO" where *user* is the user's RACF logon id.

Examples:

```
LIST SDO DEV.%BL* **.SDO(CC*, *MAN, XM*J*)
List SDO members that match this library and member masks.
```

LIST STORAGE

Syntax:

```
>>----- LIst STOrage -----><
```

Description:

Use the LIST STORAGE command to open a list window containing details of bit mapped storage used for the current SDE edit/browse view.

CBL may request that this command is executed for diagnostic purposes in problem determination.

LIST UKRS

Syntax:

```
>>----- LIst UKRs -----><
```

Description:

For SDE edit of a VSAM KSDS data set, use the LIST UKRS command to open a list window containing details of updated KSDS keys for the current SDE edit view.

CBL may request that this command is executed for diagnostic purposes in problem determination.

The LOCATE command verb may be omitted altogether if the first token in the command can be identified as being a valid locate parameter and ambiguity exists with defined SELCOPY/i command verbs.

If *expression* is specified for record location and no field name nor field reference is included within *expression*, then the LOCATE is performed only for records that are of the **default record type**. Records that are not of the default record type are bypassed.

When the duration of a LOCATE execution exceeds 1 second, a progress window is opened displaying the number of records processed so far. This window also provides the user with the opportunity to interrupt the operation using the Attn key.

Parameters:

Record Locate Options

.name

Label name assigned to a line within the data display.
The preceding "." (dot) is mandatory.

:

A ":" (colon) identifies the locate target to be an absolute record or record segment number, KSDS data set key value or VSAM RBA (relative byte address).

Required target record is identified via one of the following:

(RECORD) *record_num*

For any data set organisation, locate the record number specified by *record_num*.

For edit techniques where record numbers have not yet established (e.g. KSDS edit following a LOCATE by KEY, or DOWN MAX), then locating by record number will establish the record numbers and update the prefix area display accordingly.

For segmented record edit only, LOCATE is sensitive to the current setting (PHYSICAL or LOGICAL) of the PREFIX option. If PHYSICAL is in effect, *record_num* corresponds to a record number whereas, if LOGICAL is in effect, *record_num* corresponds to a record segment number within the file.

Specification of parameter keyword RECORD and leading ":" (colon) is optional if *record_num* is an unquoted numeric value. e.g. 5, 212

(KEY) *key_string*

For KSDS data sets only, locate the record with a key string equal to *key_string*. If not found, the record with the next key string greater than *key_string* is located.

key_string may be specified as:

1. An unquoted character string. The string must contain no commas or blanks and will be upper cased.
2. A character string enclosed in apostrophes (') or quotation (") marks. The string will be upper cased and any two adjacent characters embedded in the string that are the same as the enclosing symbols, are treated as a single occurrence of the character.
3. A character string enclosed in apostrophes (') or quotation (") marks with the prefix (or suffix) C. This has characteristics equivalent to key strings specified in the previous item except that no upper casing will occur.
4. A hexadecimal string enclosed in apostrophes (') or quotation (") marks with the prefix (or suffix) X.

Specification of parameter keyword KEY is optional if *key_string* is **not** an unquoted numeric value. e.g. :ABC, :12UF00, :'123456', :X'003D67A6', :C'abc_00'

RBA *byte_offset*

For KSDS and ESDS data sets only, locate the record starting at or following the relative byte address specified by *byte_offset*.

By default, VSAM returns a point error if the specified RBA does not point at the start of a record. SDE detects this condition so that, if the RBA does not point at the start of a record, then the record with the next higher RBA becomes the current line of the display. For KSDS data sets, a best effort attempt will be made to locate the record with the next higher RBA though this may not be accurate.

RBA address for each record is displayed as part of the record information columns within an SDE window view. Display of these columns is controlled using the SDE **SET RECINFO** CLI command.

byte_offset may be specified as a decimal or hexadecimal numeric value. e.g. :RBA X'01D5' is equivalent to :RBA 469

Specification of parameter keyword RBA is mandatory.

Parameter keywords RECORD, KEY and RBA may be specified before or after their associated locate line target values. e.g. :KEY C'APE110X5' is equivalent to :C'APE110X5' KEY

If the target line contains a record that is flagged as being EXCLUDED, SUPPRESSED or NOTSELECTED, then the following message is returned:

ZZSD177E Requested line *record_num|key_string|byte_offset* is not visible.

relative_line

An integer number representing the number of lines through which the display is to be scrolled. The lines scrolled include data records and shadow line groups.

relative_line may be preceded by "+" (plus) or "-" (minus) which specifies the direction, down or up respectively, in which the display will be scrolled. If omitted, "+" is assumed. (e.g. +18, -2, 3)

Specifying *relative_line* is equivalent to executing the **DOWN *n_lines*** or **UP *n_lines*** commands.

expression

expression is a valid SDE **expression** which supports **function calls**, **record_type field names** and references, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of *expression* must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

When an expression is applied to the record, it must test "true" in order to be selected as a target of the LOCATE command.

For LOCATE, *expression* may not be specified as a single **field value** term with no operators. An expression of this sort will be treated as a formatted column locate specification. Furthermore, if *expression* involves a **function call** to a built-in function name that matches a subscripted field name in the default record, then the function call will be interpreted as a field value. To force the function call, the internal function name should be used instead (i.e. BIF_*function_name*).

By default, data records of the selected record type that have been EXCLUDED are included in the locate scan and are made visible if they satisfy *expression*.

line_flag

line_flag may be specified to locate a record or record segment that has been flagged with the requested line flag.

Each valid *line_flag* keyword detailed below corresponds to a built-in function. Because field column name location will take precedence, if the *line_flag* keyword conflicts with a *field_name* in the default record type, then the equivalent built-in function name should be used instead.

A description of each *line_flag* keyword may be found in its equivalent function description.

<i>line_flag</i> Keyword	Built-in Function
ERRor	CHANGEERROR()
CHAnge Chg	CHANGEOK()
ALTered UPDated	CHANGED()
DATaerror	DATATYPEERROR()
DUPkey	DUPLICATEKEY()
EMPTY	EMPTYSLOT()
EXcluded X	EXCLUDED()
LABel	HASPOINT()
COMmand CMd	HASPREFIXCMD()
IDentify IDrequired	IDREQUIRED()
NEW	INSERTED()
KEYChanged KEYChg	KEYCHANGED()
LENgtherror	LENGTHERROR()
EOL NOEOL	NOEOL()
SAVE	SAVEREQUIRED()
SQLError	SQLERROR()
TRNC TRUNCated	TRUNCATED()
VALERor	VALUEERROR()

ALL

Locate all records that match the specified *expression* expression and position the display at the first matching record. All records for which *expression* test "true" are made visible if NX is not specified.

FIRST

Search forwards from the first record in the file with the selected record type to locate the first record that satisfies the specified *expression*.

LAST

Search backwards from the last record in the file with the selected record type to locate the last record that satisfies the specified *expression*.

NEXT

Search forwards from the **focus line** to locate the next record that satisfies the specified *expression*.

- PREV** Search backwards from the **focus line** to locate the previous record that satisfies the specified *expression*.
- EX**
X Locate EXCLUDED data records only.
LOCATE does not search records that are NOTSELECTED or SUPPRESSED.
- NX** Locate only visible data records (i.e. not EXCLUDED).
LOCATE does not search records that are NOTSELECTED or SUPPRESSED.

Formatted Column Locate Options

Formatted column locate is applicable to formatted records only and will scroll the display to a nominated field within the default record only.

If the field is an array of repeating elements, then a field subscript must be supplied in parentheses "(")" identifying the individual array field element to be located. Array field co-ordinates must be specified for each dimension in the array where each co-ordinate separated is separated from the next by a comma (,). e.g. #12(1,2) identifies an element of a 2-dimensional array.

field_name
The name of a field in the default record. *field_name* may be fully qualified, partially qualified or unqualified (see **Field Value** expression terms), and may include a subscript array element reference. e.g. Member(3)

Regardless of whether the **ABBREVIATION** option has been set on, the group name or field item designators that constitute *field_name* may be abbreviated, starting with the first letter of the designator. If *field_name* identifies more than one field, then only the first occurrence of a field that matches *field_name* will be located.

field_ref
A field reference number in the default record. *field_ref* may include a subscript array element reference. e.g. #22(3)

FIRST Search forwards from the first field in the default record to locate the first field that matches the specified field name or reference.

LAST Search backwards from the last field in the default record to locate the last field that matches the specified field name or reference.

NEXT Search forwards from the field that is currently displayed first in the visible display, to locate the next field that matches the specified field name or reference.

PREV Search backwards from the field that is currently displayed first in the visible display, to locate the previous field that matches the specified field name or reference.

Examples:

`locate 3`
Scroll the display area so that the line that is 3 lines below the focus line becomes the new current line.

`-18`
Scroll the display area so that the line that is 18 lines above the focus line becomes the new current line.

`:18`
Scroll the display area so that the visible record at line number 18 becomes the new current line.

`locate (LastName = 'Jones' & Salary > '21950') | (Dept \>> 'Tech') prev`
Scroll the display area so that the first record before the focus line that is of the default record type and also satisfies the specified expression, becomes the new current line.

`locate #15`
Scroll to field number 15 in the default record.

See Also:

DOWN FIND UP WHERE

MACRO

Syntax:

```
>>--- MACRO ---- macro_name ---+-----+-----><
      |                               |
      +- parm_string -+
```

Description:

Force SDE to execute the REXX macro specified by *macro_name* as opposed to an SDE command of the same name.

By default, SDE first checks a user supplied token for a recognised SDE command. If the token is not recognised as a command, an attempt is made to find a macro with the same name. Therefore, when invoking a macro, the command verb MACRO may not be necessary.

Any text specified following the macroname is passed to the macro as a parameter string. The specified macro is read into memory from disk, executed and removed from memory on completion.

If the macro cannot be located, an error message is issued and the MACRO command fails.

Parameters:

macro_name

Name of the macro to be executed.

If *macro_name* is a full fileid containing file name, path, etc., then the macro is loaded from the specified location. If only a file name is specified, each directory in the macro path is searched for a matching macro name.

parm_string

Text to be passed to the macro as a parameter string.

Examples:

```
macro cbl.dist.cbli.site.cble(xarc) XXFLD 22 33
Execute the macro XARC in library CBL.DIST.CBLI.SITE.CBLE with parameters "XXFLD 22 33".
```

```
macro select
Execute the user macro SELECT from a library in the macro path, not the SDE command SELECT.
```

MAP

Syntax:

```
>>---+--- MAP ---+-----+-----><
      |                               |
      +--- FMT ---+
```

Description:

Display records or record segments in **single record**, formatted view.

If the record-type (RTO) assigned to each record or record segment has been disabled (record data is unformatted), then MAP will re-enable the assigned record-types to reformat the record data.

Compare with **FORMAT SINGLE** which does not attempt to re-enable the assigned record-types.

See Also:

FORMAT CHAR UNFMT VFMT ZOOM

column values that were excluded from the process for the following reasons:

1. The value is null.
2. The value is invalid (not in the data type format).
3. For decimal floating point data type, the value is QNAN, SNAN or Infinity.

When the duration of a MAXIMUM execution exceeds 1 second, a progress window is opened displaying the number of records processed so far. This window also provides the user with the opportunity to interrupt the operation using the Attn key.

Parameters:

field_col

An individual field column id within a formatted record display.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. SALARY).

If *field_col* identifies an array, then MAXIMUM treats each element of the array as a separate maximum value. To perform MAXIMUM on an individual element of an array, the element occurrence should be specified in parentheses as a subscript to the field reference/name. e.g. #13(3) for the 3rd element of a single dimension array.

field_pos

The start position of a field within the record data. For formatted records, this is a position in the **expanded record**.

field_length

Following *field_pos*, *field_length* defines the length of the field in the record data. The value of *field_length* must be valid for the corresponding *field_type*.

field_type

The data type of the data in the field identified by *field_pos* and *field_length*. *field_type* may be one of the following:

CHARACTER	Character - the default data type. <i>field_len</i> must be less than 32768. Numeric interpretation of character data supports use of the following: <ol style="list-style-type: none"> 1. Currency symbol (x'5B'). 2. A dot/period (".") representing decimal point. 3. Commas (","). 4. Character "E" (or "e") representing start of an exponent. 5. Unary plus ("+") or minus ("-") preceding the value and/or exponent value.
FIXED BINARY	Fixed Point Binary. <i>field_len</i> must be less or equal to 8.
PD DECIMAL PACKED	Packed Decimal. <i>field_len</i> must be less or equal to 16.
ZD ZONED	Zoned Decimal. <i>field_len</i> must be less or equal to 31.
HFP	Hexadecimal Floating Point. <i>field_len</i> must be 4, 8 or 16.
BFP	Binary Floating Point. <i>field_len</i> must be 4, 8 or 16.
DFP	Decimal Floating Point. <i>field_len</i> must be 4, 8 or 16.

WHERE *expression*

Only records of the specified record type *record_type* that satisfy the WHERE expression are included in the MAXIMUM operation.

expression is a valid SDE **expression** which supports **function calls**, **record_type field names/references**, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of *expression* must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

When an expression is applied to the record, it must test "true" in order to be selected as a target of the MAXIMUM operation.

By default, all data records in the selected range of lines are subject to the WHERE *expression* test. This includes data records that are of the selected record type and have EXCLUDED status at the time the MAXIMUM command is executed. If one of these excluded records satisfies the *expression*, it will be included in the MAXIMUM calculation.

EXCLUDED

X

Only records assigned the specified record type *record_type* and have EXCLUDED status are included in the MAXIMUM operation. By default, only non-EXCLUDED records are selected. MAXIMUM does not include records that have the status NOTSELECTED or SUPPRESSED.

NOTEXCLUDED

NX

Only records assigned the specified record type *record_type* and have non-EXCLUDED status are included in the MAXIMUM operation. This is the default action. MAXIMUM does not include records that have the status NOTSELECTED or SUPPRESSED.

ALL All records (EXCLUDED and non-EXCLUDED) assigned the specified record type *record_type* are included in the MAXIMUM operation. By default, only non-EXCLUDED records are selected. MAXIMUM does not include records that have the status NOTSELECTED or SUPPRESSED.

.name1 A label name identifying the first line of a range of lines on which the MAXIMUM operation will operate. The preceding "." (dot) is mandatory. Default is .ZFIRST.

.name2 A label name identifying the last line of a range of lines on which the MAXIMUM operation will operate. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then *.name2* and *.name1* identify the first and last rows respectively. Default is .ZLAST.

[FOR] RECORD [TYPE] *record_type* Identifies the record type mapping *record_type* used by the MAXIMUM operation. Only records assigned this record type are eligible to be included in the MAXIMUM calculation.

If a *field_col* is specified, it must reference a column field in this record type definition.

Default is the **default record type**.

STEM *rexx_stemvar* Applicable only to execution of MAXIMUM within a REXX procedure edit macro, STEM indicates that the MAXIMUM value for each of the specified columns be assigned to a REXX compound variable.

The mandatory *rexx_stemvar* argument specifies the character string to be used as the stem part of the compound variable name.

The following REXX compound variables are set:

rexx_stemvar.MAX.0
The number of MAXIMUM values returned (i.e. number of columns specified).

rexx_stemvar.MAX.i
The ith MAXIMUM value corresponding to the ith column specification.

See Also:

AVERAGE MINIMUM SUM TOTALS

MINIMUM

Syntax:

```

+-----+-----+-----+-----+
|v                                     |
>>-- MINimum --+ field_col -----+-----+
|              |                   |
|              |                   +- Character ---+
|              |                   |
|              |                   +- Fixed -----+
|              |                   +- Binary -----+
|              |                   |
|              |                   +- PD -----+
|              |                   +- DECimal -----+
|              |                   +- PACKed -----+
|              |                   |
|              |                   +- ZD -----+
|              |                   +- Zoned -----+
|              |                   |
|              |                   +- HFP -----+
|              |                   +- BFP -----+
|              |                   |
|              |                   +- DFP -----+
|              |                   |
|              |                   +-----+
|              |                   |
|              |                   +- .ZFIRST -- .ZLAST -+
|              |                   |
|              |                   +- .name1 -+-----+
|              |                   |
|              |                   +- .name2 -+
|              |                   |
|              |                   +-----+
|              |                   |
|              |                   +- EXcluded -----+
|              |                   +- X -----+
|              |                   |
|              |                   +- ALL -----+
|              |                   |
|              |                   +-----+
|              |                   |
|              |                   +-----+-----+
|              |                   |
|              |                   +- RECORD --+-----+
|              |                   |
|              |                   +- FOR --+
|              |                   |
|              |                   +- TYPE --+
|              |                   |
|              |                   +- STEM stemvar --+
|              |                   |
|              |                   +-----+-----+
|              |                   |
|              |                   +-----+-----+

```

Description:

For browse or edit of formatted or unformatted data in the focus Data Editor view, MINIMUM will display or extract the minimum value belonging to columns in unformatted records or, if formatting is applied, records of a specific record type.

Multiple columns may be specified as a mixture of formatted record column ids (names and/or reference numbers) and field positions and length. The minimum value will be obtained for each column specification.

Records may be included or excluded from the MINIMUM operation via a WHERE filter expression or using the current excluded status of lines within the display.

Unless STEM is specified for use in REXX procedures (edit macros), the MINIMUM values are reported in a temporary Text Edit view. e.g.

```

00001                                     2016/08/26 14:19:55
00002      Command: MINIMUM #15, #16, #17
00003      Dataset: CBL.AMSUPP.DA
00004      Structure: CBL.CBLI.SDO(DIRAMEMP)
00005      Record Type: EMP
00006
00007      499 rows were read;      42 rows were processed.
00008
00009
00010 MINIMUM of SALARY (#15) =      15340.00
00011      First row 362; last row 362; rows 1.
00012
00013 MINIMUM of BONUS (#16) =      300.00
00014      First row 50; last row 362; rows 4.
00015
00016 MINIMUM of COMM (#17) =      1227.00
00017      First row 362; last row 362; rows 1.

```

Following each reported minimum value, is a report line which details the first, last and total number of lines on which the minimum value was found. Additionally, for each reported column minimum, report lines may follow which detail the number of column values

that were excluded from the process for the following reasons:

1. The value is null.
2. The value is invalid (not in the data type format).
3. For decimal floating point data type, the value is QNAN, SNAN or Infinity.

When the duration of a MINIMUM execution exceeds 1 second, a progress window is opened displaying the number of records processed so far. This window also provides the user with the opportunity to interrupt the operation using the Attn key.

Parameters:

field_col

An individual field column id within a formatted record display.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. SALARY).

If *field_col* identifies an array, then MINIMUM treats each element of the array as a separate minimum value. To perform MINIMUM on an individual element of an array, the element occurrence should be specified in parentheses as a subscript to the field reference/name. e.g. #13(3) for the 3rd element of a single dimension array.

field_pos

The start position of a field within the record data. For formatted records, this is a position in the **expanded record**.

field_length

Following *field_pos*, *field_length* defines the length of the field in the record data. The value of *field_length* must be valid for the corresponding *field_type*.

field_type

The data type of the data in the field identified by *field_pos* and *field_length*. *field_type* may be one of the following:

CHARACTER	Character - the default data type. <i>field_len</i> must be less than 32768. Numeric interpretation of character data supports use of the following: <ol style="list-style-type: none"> 1. Currency symbol (x'5B'). 2. A dot/period (".") representing decimal point. 3. Commas (","). 4. Character "E" (or "e") representing start of an exponent. 5. Unary plus ("+") or minus ("-") preceding the value and/or exponent value.
FIXED BINARY	Fixed Point Binary. <i>field_len</i> must be less or equal to 8.
PD DECIMAL PACKED	Packed Decimal. <i>field_len</i> must be less or equal to 16.
ZD ZONED	Zoned Decimal. <i>field_len</i> must be less or equal to 31.
HFP	Hexadecimal Floating Point. <i>field_len</i> must be 4, 8 or 16.
BFP	Binary Floating Point. <i>field_len</i> must be 4, 8 or 16.
DFP	Decimal Floating Point. <i>field_len</i> must be 4, 8 or 16.

WHERE *expression*

Only records of the specified record type *record_type* that satisfy the WHERE expression are included in the MINIMUM operation.

expression is a valid SDE **expression** which supports **function calls**, **record_type field names/references**, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of *expression* must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

When an expression is applied to the record, it must test "true" in order to be selected as a target of the MINIMUM operation.

By default, all data records in the selected range of lines are subject to the WHERE *expression* test. This includes data records that are of the selected record type and have EXCLUDED status at the time the MINIMUM command is executed. If one of these excluded records satisfies the *expression*, it will be included in the MINIMUM calculation.

EXCLUDED

X

Only records assigned the specified record type *record_type* and have EXCLUDED status are included in the MINIMUM operation. By default, only non-EXCLUDED records are selected. MINIMUM does not include records that have the status NOTSELECTED or SUPPRESSED.

NOTEXCLUDED

NX

Only records assigned the specified record type *record_type* and have non-EXCLUDED status are included in the MINIMUM operation. This is the default action. MINIMUM does not include records that have the status NOTSELECTED or SUPPRESSED.

ALL All records (EXCLUDED and non-EXCLUDED) assigned the specified record type *record_type* are included in the MINIMUM operation. By default, only non-EXCLUDED records are selected. MINIMUM does not include records that have the status NOTSELECTED or SUPPRESSED.

.name1 A label name identifying the first line of a range of lines on which the MINIMUM operation will operate. The preceding "." (dot) is mandatory. Default is .ZFIRST.

.name2 A label name identifying the last line of a range of lines on which the MINIMUM operation will operate. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then *.name2* and *.name1* identify the first and last rows respectively. Default is .ZLAST.

[FOR] RECORD [TYPE] *record_type* Identifies the record type mapping *record_type* used by the MINIMUM operation. Only records assigned this record type are eligible to be included in the MINIMUM calculation.

If a *field_col* is specified, it must reference a column field in this record type definition.

Default is the **default record type**.

STEM *rexx_stemvar* Applicable only to execution of MINIMUM within a REXX procedure edit macro, STEM indicates that the MINIMUM value for each of the specified columns be assigned to a REXX compound variable.

The mandatory *rexx_stemvar* argument specifies the character string to be used as the stem part of the compound variable name.

The following REXX compound variables are set:

rexx_stemvar.MIN.0
The number of MINIMUM values returned (i.e. number of columns specified).

rexx_stemvar.MIN.i
The ith MINIMUM value corresponding to the ith column specification.

See Also:

AVERAGE MAXIMUM SUM TOTALS

MORE

Syntax:

```
>>--- MORE ---+--- where_clause ---+-----><
      |           |
      +--- line_flag -----+
```

Description:

Make visible any EXCLUDED records that are of the **default record type** and also satisfy the specified *where_clause* criteria. The current line of the display and any records that are already visible are unaffected by the MORE command.

If MORE is executed with no parameters, then all EXCLUDED records that are of the default record type are made visible.

The record type used on a MORE command becomes the new value of the **DRECTYPE** option.

Parameters:

where_clause
where_clause syntax is described fully in documentation for the **WHERE** command.

line_flag
line_flag may be specified to locate a record or record segment that has been flagged with the requested line flag.

Each valid *line_flag* keyword detailed below corresponds to a built-in function.

A description of each *line_flag* keyword may be found in its equivalent function description.

<i>line flag</i> Keyword	Built-in Function
ERRor	CHANGEERROR()
CHAnge Chg	CHANGEOK()
ALTered UPDated	CHANGED()
DATAerror	DATATYPEERROR()
DUPkey	DUPLICATEKEY()
EMPTY	EMPTYSLOT()
EXcluded X	EXCLUDED()
LABel	HASPOINT()
COMmand CMd	HASPREFIXCMD()
IDentify IDrequired	IDREQUIRED()
NEW	INSERTED()
KEYChanged KEYChg	KEYCHANGED()
LENgtherror	LENGTHERROR()
EOL NOEOL	NOEOL()
SAVE	SAVEREQUIRED()
SQLError	SQLERROR()
TRNC TRUNCated	TRUNCATED()
VALERRor	VALUEERROR()

Examples:

```
more #5 >> X'41'
Make visible any EXCLUDED records that are of the default record type where field reference number 5 begins with X'41'
(ASCII character 'A').

more LastName = C'Evans'
Make visible any EXCLUDED records that are of the default record type where the contents of field "LastName" is equal
"Evans".
```

See Also:

FLIP LESS WHERE

MSG

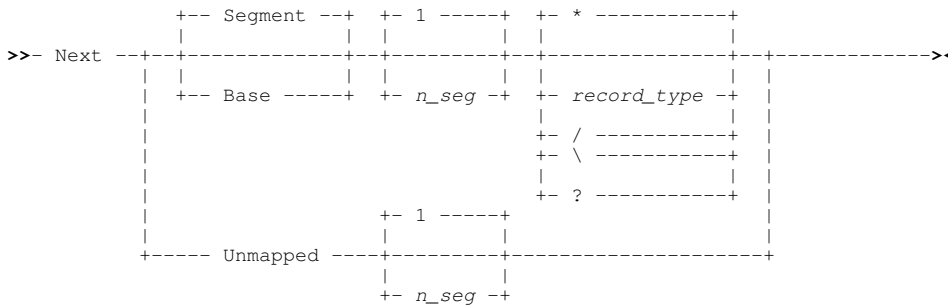
Description:

SDE CLI command, MSG, performs the same operation as the CBL CLI command MSG. See **MSG** in CBL Text Edit documentation.

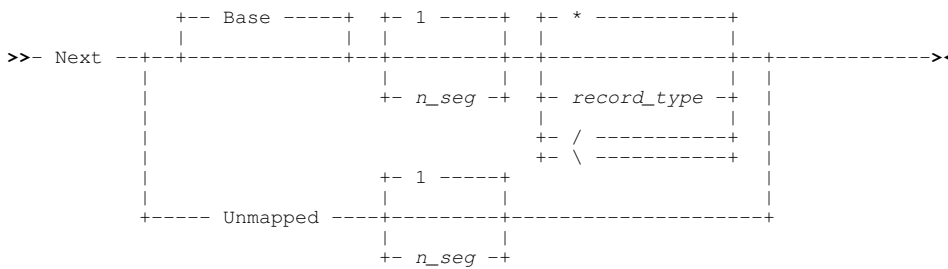
NEXT

Syntax:

Segmented Record Edit:



Non-Segmented Record Edit:



Description:

When used in an SDE BROWSE/EDIT view of segmented records, NEXT scrolls to a segment that follows the current segment, making it the new current segment. For non-segmented record BROWSE/EDIT, every record is considered to be a primary (base) segment with no secondary segments. Therefore, using NEXT SEGMENT to scroll to secondary segments is invalid and will always return ZZSD441E error message.

In **multi-record view**, the view of the data within the SDE window is scrolled down to the next selected segment. In **single record view**, NEXT will display the next selected segment.

NEXT scrolls only to segments of a specific type (primary, secondary or unmapped) and, optionally, segments assigned a specifically named record type (RTO). In contrast, **DOWN** (in multi-record view) and **RIGHT** (in single-record view) scroll to records or record segments that follow, regardless of segment type and assigned RTO.

NEXT SEGMENT (the default for segmented record display) restricts scrolling to only those secondary segments belonging to the current segmented record. If the specified secondary segment cannot be found within the current record (e.g. NEXT 6 for a record containing only 5 secondary segments), then the last segment to match the NEXT parameter criteria becomes the current segment and the following message is returned:

```
ZZSD441E Base record exhausted. Final match (#nn of mm) displayed.
```

Where *nn* is the last occurrence of the segment assigned record type *record_type* to be found following the current segment, and *mm* is the requested number of matching segments to be scrolled (*n_seg*).

If using the default parameter values to simply scroll to the next secondary segment, this message will contain (#0 of 1) where an attempt has been made to scroll to the first secondary segment following the last segment in the record.

Parameters:

SEGMENT | BASE | UNMAPPED

Specifies the type of segment to be selected as the current segment.

SEGMENT indicates a secondary segment, BASE indicates a primary (base) segment and UNMAPPED indicates an unformatted (primary or secondary) segment. Note that unformatted primary segments (i.e. records) have record type "Unmapped" and unformatted secondary segments have record type "UnmappedSeg".

Default is SEGMENT for segmented record browse/edit and BASE otherwise.

n_seg

Specifies the occurrence of a segment following the current segment that matches the optionally specified *record_type*. Default is 1.

* | *record_type* | / | \ | ?

Specifies the record type (RTO) of the segment that is to become the new current segment. Only segments assigned this record type will be included in the count of segments to be scrolled.

"*" (asterisk) indicates that segments may be of any record type. *record_type* nominates a specific record type. "/" or "\" indicates that segments are to be of the record type assigned to the current segment. "?" indicates that segments are to be of the record type **not** assigned to the current segment.

Default is *.

Examples:

NEXT For segmented record browse/edit, scroll to the secondary segment within the same record that immediately follows the current segment. For non-segmented browse/edit, scroll to the next record.

N B Scroll to the next primary segment (record).

N B 2 / Scroll forwards to the 2nd occurrence of a primary segment (record) which is assigned the same record type as the current segment.

N U Scroll forwards to the next unformatted primary or secondary segment.

See Also:

[PREVIOUS](#) [LEFT](#) [RIGHT](#)

NOMSG

Description:

SDE CLI command, NOMSG, performs the same operation as the CBL e CLI command NOMSG. See [NOMSG](#) in CBL e Text Edit documentation.

NOND

Syntax:

```
>>-- NOND -----><
```

Description:

Supplied as a text edit macro, NOND uses the [SET COLOUR NONDISPLAY](#) option to toggle the display of underscores on printable text in lines of data which include unprintable characters.

ONLY

Syntax:

```

>>--- Only -----+-----+-----+-----+-----+-----+----->
      +- EQ +-      +- CHARs ---+
      |         |         |         |         |         |         |
      +- op +-      +- PREFIX +-      +- EX +-
      |         |         |         |         |         |         |
      +- VALID -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- INVALID -----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- #ALL -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      >-----+-----+-----+-----+-----+-----+-----><
      |         |         |         |         |         |         |
      +- pos1 -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- pos2 -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- .name1 -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- .name2 -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- , -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- v -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- ( -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- field_col -----+-----+-----+-----+-----+-----+
      |         |         |         |         |         |         |
      +- field_col1:field_col2 -----+-----+-----+-----+-----+
  
```

Description:

Based on the FIND ALL command, ONLY displays all DB2 table rows, records or record segments assigned the **default record type**, that satisfy the specified search *string* criteria. All records or segments of the default record type that do **not** satisfy the search *string* criteria are excluded.

Note that the display of records or segments that are not assigned the default record type is unaffected. DB2 table rows may be considered to be formatted records that are all assigned the default record type.

All occurrences of the search string or numeric value are highlighted in the text. (Enter the **RESET FIND** command to turn off the highlighting.)

When the execution time of an ONLY command exceeds 1 second, a progress window is opened displaying the number of records processed so far. This window also provides the user with the opportunity to interrupt the operation using the Attn key.

The **FORMAT** of the SDE display affects the execution of ONLY.

Unformatted Multi or Single Record Display (CHAR or UNFMT):

By default, a character compare for the supplied search string is performed against the entire length of unformatted data records.

The prevailing **BOUNDS** left and right column values define the area of the record within which the search occurs. i.e. the matched data must begin at or after the left bound and not exceed the right bound.

The BOUNDS columns may be overridden using *pos1* and *pos2* positional parameters.

field_col and #ALL parameters are not applicable to these display formats and are ignored.

Formatted Multi or Single Record Display (VFMT or FMT):

For formatted records, the search string is compared against **individual fields** that have been selected for display in the formatted data record. (See **SELECT**)

Fields are searched from left to right in the order that they appear in the display. This is true regardless of the order in which field columns are specified on the ONLY command, or the order in which fields are encountered within the unformatted record.

The prevailing **BOUNDS** left and right column values define which of the fields within the formatted records are eligible to be searched. i.e. Fields are eligible only if they exist within the left and right bounds when applied to the **expanded record** data (which is not necessarily the same as the unformatted record data.)

Where a BOUNDS column occurs within a field definition, then the following rules apply:

1. For character data type fields, only the area of the field that falls within the BOUNDS columns is eligible for the search.
2. For numeric data type fields, the field is not eligible to be included in the search.

If one or more field columns are specified on the ONLY command (using *field_col* or *field_col1:field_col2*) that do not reference at least one field defined by the BOUNDS columns as being eligible for search, then the following error message is returned:

ZZSD280E No fields selected within the current bounds for the ONLY command.

If a field column is specified on the ONLY command that is not part of the display (e.g. a group field or a field that has been removed from display by a SELECT command), then the following error message is returned:

ZZSD179E Data element *field_col* is not selected in the current view of record type *record-type* of structure *struct_name*.

For character data type fields, a string compare is performed. For numeric data type fields (binary, packed decimal, floating point, zoned, etc.), then the following will occur:

1. If *pos1*, *pos2* positional parameters are **not** specified, the search string is interpreted as a signed numeric value and an arithmetic compare is performed against the field's formatted numeric value.

The length and data type of the numeric field, and the number of digits in the search value are not significant. e.g.

```
ONLY 67
```

Finds numeric fields with value "67" (e.g. "0067", "67.00", "0.0670E+03") and character fields containing the string "67" (e.g. "167 Baker Street").

If the search string is non-numeric, then numeric data type fields are not searched. Therefore, to bypass searching numeric data type fields, explicitly set the search string to be character or hex using 'string', C'string' or X'string' formats respectively. e.g.

```
ONLY '67'
ONLY C'67'
ONLY X'F6F7'
```

Finds only character fields containing the string "67".

2. If *pos1*, *pos2* positional parameters are specified, the search string is interpreted as being a character string and so a string compare is performed against the unformatted representation of the field data for fields falling entirely or partly within the range of record positions.

Although the range of positions may span a number of fields, the search is still performed against individual fields within the range. i.e. a match for the search string will not occur for data that spans a field boundary.

A match for the search string may occur on just part of the unformatted data representation of a numeric field. e.g.

```
ONLY 476 21 100
```

This will find a match in any numeric field where unformatted representation of the data contains the string "476". (e.g. a zoned decimal field with value "14760" or "-4762")

Any match of the search string on data in a numeric field will highlight the entire formatted display of the field. If the numeric field is also the current, identified occurrence of the search string, the cursor is positioned at the start of the formatted numeric field display.

Parameters:

op

A relational operator used in the compare operation which determines the relationship that the data must have with the ONLY search string in order for it to be identified as a successful match.

Valid values for *op* are as follow:

Operator	Description
EQ	Data must be equal to <i>string</i> . (Default)
NE	Data must be not equal to <i>string</i> .
GT	Data must be greater than <i>string</i> .
GE	Data must be greater than or equal to <i>string</i> .
LT	Data must be less than <i>string</i> .
LE	Data must be less than or equal to <i>string</i> .

If a character string compare is performed, the EBCDIC values assigned to characters in the search and data strings determine the relationship (equal to, greater than or less than) between the two strings.

string

The ONLY search string. The search string may be any of the following:

- ◇ An unquoted numeric value. The search string is treated as a numeric value when a numeric field is searched in a formatted record view. In all other cases a numeric search string is treated as a character string.
- ◇ An unquoted character string containing no commas or blanks. The search for the character string will be case-insensitive so that uppercase and lowercase characters are treated as being the same.

- ◇ A character string enclosed in single (') or double (") quotation marks. The search string may contain embedded commas and blanks and the character string will be case-insensitive.

Two adjacent quotation mark characters that are embedded in a search string which is enclosed by the same quotation mark characters, will be treated as a single occurrence of the character. e.g.

```
ONLY 'Jim O''Brien'
```

Find the character string "Jim O'Brien".

- ◇ A character string enclosed in single (') or double (") quotation marks with the prefix C. This is equivalent to specifying a quoted search string but that the string search will be case-sensitive. (e.g. C'Book')
- ◇ A hexadecimal string enclosed in single (') or double (") quotation marks with the prefix X.
- ◇ A picture string enclosed in single (') or double (") quotation marks with the prefix P.

Picture strings use special characters to represent a generic group of characters as described below. Any character in a picture string that is not one of these special characters is untranslated.

String	Description
P'='	Any character.
P'-'	Any non-blank character.
P'.'	Any non-displayable character.
P'#'	Any numeric character. 0-9.
P'.'	Any non-numeric character.
P'@'	Any uppercase or lowercase alpha character.
P'<'	Any lowercase alpha character.
P'>'	Any uppercase alpha character.
P'\$'	Any non-alphanumeric special character.

- ◇ A regular expression enclosed in single (') or double (") quotation marks with the prefix R.

Regular expressions use special characters for complex pattern matching. See [Regular Expressions](#) in CBL text edit documentation for detailed description.

VALID Intended for use with formatted records, VALID will search fields for valid data. i.e. data that satisfies the field's assigned data type.

INVALID Intended for use with formatted records, INVALID will search fields for invalid data. i.e. data that does not satisfy the field's assigned data type.

CHARS For non-numeric search strings only, CHARS indicates that a successful match occurs if the search string is found anywhere within the data being searched.

PREFIX For non-numeric search strings only, PREFIX indicates that a successful match only occurs if the search string is found at the start of a word within the data being searched. i.e. the matched text must precede an alphanumeric character and either be preceded by a non-alphanumeric character or be at the start of a line or field.

SUFFIX For non-numeric search strings only, SUFFIX indicates that a successful match only occurs if the search string is found at the end of a word within the data being searched. i.e. the matched text must be preceded by an alphanumeric character and either precede a non-alphanumeric character or be at the end of a line or field.

WORD For non-numeric search strings only, WORD indicates that a successful match only occurs if the search string is found to be a complete word within the data being searched. i.e. the matched text must either be preceded by a non-alphanumeric character or be at the start of a line or field, and either precede a non-alphanumeric character or be at the end of a line or field.

EX X Search EXCLUDED data records only. ONLY does not search records that are NOTSELECTED or SUPPRESSED.

NX Search only visible data records (i.e. not EXCLUDED). ONLY does not search records that are NOTSELECTED or SUPPRESSED.

pos1 The first position of a range of positions within the data record to be searched.

For formatted records, this is a position in the **expanded record**. Only those fields, or parts of fields, that fall within the position range will be searched. Fields will be searched in the order that they occur within the display area.

pos1 may be a positive or negative integer value (not zero) and must be a value that is less than or equal to the maximum length of the data records or, for formatted record data, the length of the expanded record.

A negative value represents a position in the record relative to the end of the record. Therefore, where position 1 references the 1st character in the record, position -1 references the last character.

For all display formats, the string is treated as being non-numeric and the search is actioned on the character representation of the record data.

pos2
The last position of a range of positions within the data record to be searched.

Like *pos1*, *pos2* may be a positive or negative integer value (not zero). If *pos1* references a position within the record data which is higher than that referenced by *pos2*, then the *pos1* and *pos2* values are swapped.

If *pos2* is greater than the maximum length of the data records or, for formatted record data, greater than the length of the expanded record, then *pos2* is set equal to the maximum (or expanded) record length.

Default is *pos1* plus the length of the search string minus 1.

#ALL
Search all eligible field columns in the current formatted display.

field_col
An individual field column to be searched within a formatted display.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. JobID). If a field name is used, enclosing parentheses are **mandatory**. Field names are automatically converted to a field reference and Referencing the same field column more than once will not cause an error.

If the field is an array, then all elements of the array are searched. To search an individual element of an array, the element occurrence should be specified in parentheses as a subscript to the field reference/name. e.g. #13(3) for the 3rd element of a single dimension array. An entry must exist for each dimension of the array. e.g. RoomSize(6,2,4) - a three dimensional array.

Specification of multiple field columns must either be enclosed in parentheses and/or separated by commas. The field columns may be specified in any order, however, the data is always searched from the first column in the display to the last.

Field column search specifications may be a combination of individual field columns and columns ranges. e.g. (JobID #6 Tax_Reference #12 #15:#20).

A search is only performed on field columns that are selected for display. Therefore, any field column specified on the ONLY command that has not been selected for display, will be ignored.

field_col1:field_col2
The first and last fields of a range of field columns to be searched within a formatted record display display.

field_col1 and *field_col2* must be separated by ":" (colon) and if *field_col1* occurs after *field_col2* in the data record, then the values are swapped. *field_col1* and *field_col2* have the same specifications as *field_col*.

Specification of multiple field column ranges must either be enclosed in parentheses and/or separated by commas. Field column search specifications may be a combination of individual field columns and field columns ranges. e.g. (FirstName:LastName, #2, Salary:Bonus, EmpNo, #10:#15). If field names are used, enclosing parentheses are **mandatory**.

.name1
A label name identifying the first record of a range of data records to be searched. The preceding "." (dot) is mandatory. Default is .ZFIRST.

.name2
A label name identifying the last record of a range of data records to be searched. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then the order is reversed.

See Also:

EXCLUDE FIND SELECT

OPTIONS

Description:

OPTIONS displays the current setting of all SDE options in a message window.

OPTIONS is equivalent to executing QUERY *option* for every SET/QUERY/EXTRACT option supported by SDE.

PASTE

Syntax:

```

+-- Keep ----+
|             |
>>-- PASTE ---+-----><
|             |
+-- Delete --+

```

Description:

PASTE may be used instead of primary command **CLIPBOARD PASTE** to paste and optionally clear lines of data from the SELCOPY/i **clipboard** to the current data edit view.

Text from the clipboard is copied to a target line determined by the first occurrence in the text edit view of the line (prefix area) command "A" (after) or "B" (before). Otherwise, the text is copied following the **focus line**.

If records in the current data edit view are formatted, then the newly pasted records are **assigned** a suitable record type before being displayed.

Parameters:

KEEP
Text in the clipboard is preserved following the PASTE operation. This is default.

DELETE
Text in the clipboard is deleted following the PASTE operation.

PASTE DELETE is equivalent to executing CLIPBOARD PASTE followed by CLIPBOARD CLEAR.

See Also:

CLIPBOARD COPY CREATE CUT REPLACE

PERMANENT

Syntax:

```
>>-- PERManent -- command -----><
```

Description:

PERMANENT is a modal command that may be used as a prefix to SDE primary commands **SELECT** and **SET COLWIDTH**. PERMANENT will execute the SELECT or SET COLWIDTH command and save its settings in the SELCOPY/i SDO structure used to display the formatted data.

Parameters:

command
SDE primary command SELECT or SET COLWIDTH.

Example:

```
permanent set colwidth #3 15
```

Set the column width for field reference number 3 to be 15 characters and save this setting the the prevailing SDO structure file.

See Also:

SELECT SET COLWIDTH TEMPORARY

POP

Syntax:

```
>>-- POP -----><
```

Description:

POP is used in **SDE REXX macros** to reset user configurable SDE SET options that have been saved by a previously executed **PUSH** operation. The reset includes all options that may be set at the Global, File and View levels.

See Also:

PUSH

PREVIOUS

Syntax:

Segmented Record Edit:

```

      +-- Segment --+ +- 1 -----+ +- * -----+
      |              | |           | |           |
>>- Previous --+---+-----+-----+-----+-----><
      |              | |           | | record_type | |
      |              | |           | | /           | |
      |              | |           | | \           | |
      |              | |           | |           | |
      +----- Unmapped -----+-----+-----+
      |              | |           | |
      |              | |           | | n_seg  +-+

```

Non-Segmented Record Edit:

```

      +-- Base -----+ +- 1 -----+ +- * -----+
      |              | |           | |           |
>>- Previous --+---+-----+-----+-----+-----><
      |              | |           | | record_type | |
      |              | |           | | /           | |
      |              | |           | | \           | |
      |              | |           | |           | |
      +----- Unmapped -----+-----+-----+
      |              | |           | |
      |              | |           | | n_seg  +-+

```

Description:

When used in an SDE BROWSE/EDIT view of segmented records, PREVIOUS (or PREV) scrolls to a segment that occurs before the current segment, making it the new current segment. For non-segmented record BROWSE/EDIT, every record is considered to be a primary (base) segment with no secondary segments. Therefore, using PREV SEGMENT to scroll to secondary segments is invalid and will always return ZZSD441E error message.

In **multi record view**, the view of the data within the SDE window is scrolled upwards to a previous segment. In **single record view**, PREV will display a previous segment.

PREV scrolls only to segments of a specific type (primary, secondary or unmapped) and, optionally, segments assigned a specifically named record type (RTO). In contrast, **UP** (in multi-record view) and **LEFT** (in single-record view) scroll to preceding records or record segments, regardless of segment type and assigned RTO.

PREV SEGMENT (the default for segmented record display) restricts scrolling to only those secondary segments belonging to the current segmented record. If the specified secondary segment cannot be found within the current record (e.g. PREV 6 for a record containing only 5 secondary segments), then the last segment to match the PREV parameter criteria becomes the current segment and the following message is returned:

```
ZZSD441E Base record exhausted. Final match (#nn of mm) displayed.
```

Where *nn* is the last occurrence of the segment assigned record type *record_type* to be found previous to the current segment, and *mm* is the requested number of matching segments to be scrolled (*n_seg*).
 If using the default parameter values to simply scroll to the previous secondary segment, this message will contain (#0 of 1) where an attempt has been made to scroll to the first secondary segment prior to the first secondary segment in the record.

Parameters:

SEGMENT | BASE | UNMAPPED

Specifies the type of segment to be selected as the current segment.

SEGMENT indicates a secondary segment, BASE indicates a primary (base) segment and UNMAPPED indicates an unformatted (primary or secondary) segment. Note that unformatted primary segments (i.e. records) have record type "Unmapped" and unformatted secondary segments have record type "UnmappedSeg".

Default is SEGMENT for segmented record browse/edit and BASE otherwise.

n_seg

Specifies the occurrence of a segment preceding the current segment that matches the optionally specified *record_type*. Default is 1.

* | *record_type* | / | \

Specifies the record type (RTO) of the segment that is to become the new current segment. Only segments assigned this record type will be included in the count of segments to be scrolled.

"*" (asterisk) indicates that segments may be of any record type, *record_type* nominates a specific record type, and "/" or "\" indicates that segments are to be of the record type assigned to the current segment.

Default is *.

Examples:

PREV For segmented record browse/edit, scroll to the segment within the same record that immediately precedes the current secondary segment. For non-segmented browse/edit, scroll to the previous record.

P B Scroll to the first primary segment (record) that precedes the current segment.

P B 2 / Scroll backwards to the 2nd occurrence of a primary segment (record) which is assigned the same record type as the current (primary) segment.

P U Scroll backwards to the 1st unformatted primary or secondary segment that precedes the current segment.

See Also:

[NEXT](#) [LEFT](#) [RIGHT](#)

PRINT

Syntax:

```
>>--- PRINT -----><
```

Description:

PRINT with no parameters will open the [SDE PRINT File Panel](#) to print the contents of the focus SDE data edit or browse display.

If the focus window is not an SDE window view, the general [Print File](#) dialog panel is displayed.

If parameters are specified, then the general SELCOPY/i [PRINT](#) primary command is executed instead.

See Also:

[CSVGEN](#) [XMLGEN](#)

PUSH

Syntax:

```
>>-- PUSH -----><
```

Description:

PUSH is used in **SDE REXX macros** to save the current values of user configurable SDE SET options. All options that may be set at the Global, File and View levels are saved.

Saved option values may be subsequently restored using the **POP** operation.

See Also:

POP

PUTXML

Syntax:

```
>>-- PUTXML --- FROM --+-----+ fileid ----->
      |               |
      +- FILE -+

>----- INTO --+-----+ table_name -----+-----+ column_name ----->
      |               |               |               |
      +- TABLE -+             +- COLUMN -+

>-----+-----+ DOCid +-+-----+ document_id +-+----->
      |               |               |               |
      +- WHERE -+             +- = -+             +-
      |               |               |               |
      +- WHERE ( where_clause ) -----+

>-----+-----+-----+-----><
      |               |               |               |
      +- DB2 --+-----+ ssn ---+             +- AUDit -+
      |               |               |               |
      +- SSN -+             +- (ssn) -+             |
```

Description:

Applicable to DB2 base tables only, PUTXML copies an XML document from a data set, library member or HFS/ZFS file to an XML column within a specific DB2 table row.

Each execution of PUTXML will execute an immediate SQL UPDATE statement, to update the selected table row, and then COMMIT the change. If a connection to the required DB2 sub-system does not already exist, then PUTXML will start a new connection before attempting the UPDATE, and disconnect again following the COMMIT.

A data edit view of the DB2 table is not necessary. If a data edit view of the table has been opened using a non-zero value for BROWSE/EDIT option XMLLOBWIDTH, then the display of the XML column data is not updated as a result of an execution of PUTXML. However, execution of **XMLBROWSE**, **XMLEDIT** or **XMLVIEW** on the updated XML column entry will display the updated XML document text.

A WHERE filter must be specified which uniquely identifies the table row to which the XML document will be copied. If the filter identifies more than one table row, then the operation fails with error ZZSD711E.

Parameters:

FROM FILE *fileid*

Specifies the name of the source XML document data set, library member or HFS/ZFS file from which the DB2 XML column entry will be updated.

INTO TABLE *table_name*

Specifies the name of the target DB2 table to which the XML column belongs.

table_name may be specified with 1, 2 or 3 qualifiers representing *name*, *schema.name* or *location.schema.name* respectively. Default location is the local DB2 server for the specified sub-system (*ssn*) and the default schema is the

value assigned to special register CURRENT SCHEMA (initially set to the user's SQLID).

COLUMN *column_name*
Identifies the name of the target DB2 column of data type XML.

If *column_name* specifies a column which is not type XML, then error ZZSD691E is returned.

WHERE *DOCID = document_id*
For any DB2 base table in which one or more XML columns have been created, there exists an implicit DOCID column (DB2_GENERATED_DOCID_FOR_XML) which stores a unique, integer document identifier for the XML column entries in a row.

A unique document id (*document_id*) may be specified to identify the table row to be updated. Using this syntax, specification of the WHERE keyword and/or equal to (=) operator are optional.

WHERE (*where_clause*)
Specifies a DB2 SQL WHERE clause which identifies a single row in the DB2 table into which the XML document will be copied. See "*DB2 SQL Reference*" for syntax of the *where-clause*.

DB2 | SSN *ssn | (ssn)*
Specifies the name of the local DB2 sub-system (*ssn*) to which a connection will be made in order to update the base table.

Before SELCOPYi can successfully connect to a DB2 sub-system, a BIND of the SELCOPYi DB2 plan must have been performed for that sub-system.

Default is the users default DB2 sub-system name as last entered in the DB2 Primary Options menu.

AUDIT
Sets DB2 auditing on for the PUTXML operation.

A new SELCOPYi DB2 audit data set is allocated to record the results of the SQL UPDATE and COMMIT statements executed. See [Audit Trail Functions](#) for details.

Default is not to perform edit auditing.

Examples:

```
putxml from CBL.SOURCE.XML(XSTAT001)      \
         into CBL.ZZSSTATS      column ST_XML \
         where DOCID = 12      \
         ssn(CBLA)
```

Copy XML document from library member CBL.SOURCE.XML(XSTAT001) to the XML column, ST_XML, in row identified by document id 12 of DB2 table CBL.ZZSSTATS. Connection will be made to DB2 sub-system CBLA.

```
putxml from /tmp/input_books_xml      \
         into CBL.ZZSBOOKS      column BOOK_REF_XML \
         where (AUTHOR LIKE 'Rowling, J.K.%') \
         ssn(LTBX)
```

Copy XML document from an HFS file into a DB2 table XML column entry for the row uniquely referenced by an SQL WHERE clause.

See Also:

[GETXML](#)

QQUIT

Syntax:

```
>>--- QQuit -----><
```

Description:

Close the current SDE window view only.

If additional SDE views exist for the data, then these will remain open.

If only one SDE edit view exists for the data, then any unsaved changes to the data will be discarded. However, if a non-temporary structure (SDO) is used to map the record data and changes have been made to that structure during the course of the edit session (e.g. USE WHEN), then the user will be prompted to save the changed structure to its structured data file (SDF). See command, [SAVESTSTRUCTURE](#).

See Also:

END CANCEL

QUERY

Description:

See SET/QUERY/EXTRACT Options.

RCHANGE

Syntax:

>>-- RCHange -----><

Description:

Repeat the find and replace performed by the last **CHANGE** command. The RCHANGE search will be executed on records that are of the same **record type** as that used by the last CHANGE command.

Where the last CHANGE issued was CHANGE LAST or CHANGE PREV, RCHANGE will perform a CHANGE PREV operation, otherwise RCHANGE performs a CHANGE NEXT operation. i.e. Search forwards (NEXT) or backwards (PREV) from the current cursor location to find the next or previous occurrence of the string/value respectively.

If the cursor is not within the window's data display area, the forwards or backwards search begins at the first position of the first visible or excluded record within the display area that is of the record type used by the last CHANGE.

RCHANGE is assigned to function key **PF6** by default.

See Also:

CHANGE EXCLUDE FIND RFIND

RCOLOUR

Syntax:

```

>>-- RCOlour ---- record_type -----+-----+-----+-----+----->
|                                     |                                     |
|      IN  +-----+-----+-----+ struct_name  +-----+-----+
|          +-----+-----+-----+ STRUcture  +-----+-----+
|
|      NONE  +-----+
|
>--+--+ Blue +-----+ +-----+ WHEN expression -----+-----><
|  |  | Red  +-----+ +-----+
|  |  | Pink +-----+ +-----+
|  |  | Green+-----+ +-----+
|  |  | Turquoise --+
|  |  | Yellow  +-----+
|  |  | White  +-----+
|  |  | Default +-----+
|  |  | OFF  +-----+-----+-----+-----+

```

Description:

RCOLOUR may be used to apply preferred colouring to records assigned specific record types (**RTO**) based on selection criteria.

Record colouring definitions specified by the RCOLOUR command are stored in the record type definition within the relevant structure (**SDO**). If not already loaded, the required SDO is loaded from its structured data file (**SDF**) and updated accordingly. If a non-temporary SDO, then this change to the SDO may be saved (written back to the SDF) by the user when the structure is dropped or on execution of the **SAVESTRUCTURE** command.

Any number of RCOLOUR specifications may exist for an individual record type based on different *WHEN expression* criteria. If records assigned this record type satisfy the *WHEN expression* criteria of more than one RCOLOUR definition, then the RCOLOUR definition used is the one that was defined first.

Parameters:

record_type

The name of the record type (RTO) for which the colour definition will be applied.

IN (STRUCTURE) *struct_name*

The name of the structure (SDO) in which *record_type* is defined.

Default is to the current (i.e. last referenced) structure. This is the structure used in the current SDE window view or explicitly referenced by an SDE command (e.g. **USE WHEN**)

BLUE | RED | PINK | GREEN | TURQUOISE | YELLOW | WHITE | DEFAULT

Supported colours. If DEFAULT is specified, the default colour for record display is used.

BLINK | REVERSE | USCORE | NONE

Extended highlighting. The colour may blink, be displayed in reverse video or be underlined. Default is NONE.

WHEN *expression*

Specifies the criteria that must be satisfied before the defined colouring will occur.

expression is a valid SDE **expression** which supports **function calls**, **record_type field names** and references, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of the WHEN expression must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

The WHEN expression is applied to each record assigned the record type *record_type* and, if the result is "true", the specified record colouring is applied. To apply record colouring for all records of record type *record_type*, simply specify "WHEN 1".

OFF

Remove all specified record type (RTO) colouring from the SDO definition, reverting back to the default record colouring settings.

Examples:

```
<sd rcol SRC in CBL.SDO(ADATA) red uscore when (substr(#21,2) >> 'USING')
```

Define colouring of record data assigned to record type "SRC" in structure "CBL.SDO(ADATA)" when data starting in position 2 of field number 21 begins with "USING".

See Also:

DROP SAVESTRUCTURE USE and the SET/QUERY/EXTRACT Option: **COLOUR**

RECLLEN**Syntax:**

```
>>-- RECLength  ---+-----+-----><
                |         |
                |  ON  ---+
                |         |
                |  OFF ---+
                |         |
```

Description:

RECLLENGTH controls the display of the Record Information Length column.

If the records are variable length and **Full Edit**, **KSDS Edit** or **Auxiliary Edit** is in effect, then the length of each record displayed in this column may be altered simply by overtyping the existing value.

If the length of a record is increased, then pad characters are appended to the record. The pad character used is that defined by the current value for **PAD**. Reducing a record's length will truncate record data.

If a structure has been applied to the edited records, then the **record type** (RTO) associated with the updated record is re-evaluated and the contents of the SDE edit view updated accordingly.

Parameters:

ON
OFF

Set display of the record Length column on or off.
RECLENGTH ON and RECLENGTH OFF is equivalent to **SET RECINFO ON LENGTH** and **SET RECINFO OFF LENGTH** respectively.

Default is to toggle between RECLENGTH ON and RECLENGTH OFF.

See Also:

SET/QUERY/EXTRACT Options: **LENGTH RECINFO PAD**

REDIT

Syntax:

```
>>-- REdit -----+-----+-----><
      |
      +--- Parent -----+-----+-----+
      |
      +--- Dependent ---+ +- referential_constraint --+
      +--- Child -----+
```

Description:

The REDIT primary command applies only to browse and edit of DB2 tables and is used to list, edit or browse tables that are related to the DB2 table in the focus SDE view.

Relationships between tables are defined by referential constraints. A referential constraint specifies a set of columns as a foreign key in the dependent (or child) table which is a unique or primary key in the parent table.

REDIT opens an **Edit/Browse Related Table** view which is thereafter linked to the focus SDE DB2 edit/browse view from which it has originated. Closing the originating DB2 edit/browse view will close all Edit/Browse Related Table views that are linked to it.

The specified (or implied) referential constraint determines which of the related tables are to be edited or browsed by the REDIT operation. Furthermore, the **focus row** of the originating DB2 edit/browse view identifies the foreign or parent key value for which related rows are displayed. i.e. Only rows related to this parent/foreign key will be loaded into the related table view.

Note that the related table may be a parent table or a child table of the focus DB2 table.

REDIT with no parameters

When the REDIT command is issued with no parameters the behaviour depends on the context.

If the focus row has had an **SQL relational error** as a result of the last **SAVE** command then the relationship involved in the error will be used automatically to supply the REDIT parameters and the related table session will be created.

Otherwise the **List Related Tables** panel is displayed listing all the parent and dependent relationships for the current table. From this list a relationship can be chosen (with the RE prefix command) to supply the parameters to REDIT.

The RE prefix command

An **RE prefix command** can be used to issue the REDIT command with no parameters using the row on which it is issued as the focus.

Parameters:

PARENT

Indicates that the required related table to view or edit is a parent of the current table.

DEPENDENT

Indicates that the required related table to view or edit is a dependent of the current table.

CHILD

This is a synonym for **DEPENDENT**.

referential_constraint

The name of the referential constraint. This is the value of the RELNAME column in SYSIBM.SYSRELS identifying the relationship between parent and dependent child tables. If not supplied then the first PARENT or CHILD constraint will be used as appropriate.

REDO

Syntax:

```
>>-- REDO -----><
```

Description:

REDO re-applies one level of change made to the current file that was previous undone by the last execution of the UNDO command. Where UNDO has not previously been executed, REDO has no affect.

Each change level corresponds to an update of a data field within a record.

REDO is assigned to PF23 by default and may be executed repeatedly to re-apply multiple levels of changes.

Following one or more executions of UNDO, REDO will recover the changes even after the following have occurred:

- The cursor position changes.
- The file is saved.
- Changes are made to other files in the file edit ring.

However, REDO is not able to recover changes following an UNDO if further changes are made to record data. (e.g. fields updated, records deleted or inserted.)

The third number following "Alt=n,n;m" on the status line indicates the number of change levels. If this number is followed by an "*" (asterisk), then it is possible to REDO previous UNDO commands.

See Also:

UNDO and the SET/QUERY/EXTRACT Option: **UNDOING**

REFRESH

Description:

SDE CLI command, REFRESH, performs the same operation as the CBL CLI command REFRESH. See **REFRESH** in CBL Text Edit documentation.

REPLACE

Syntax:

```
>>-- REPlace -----><
      +- fileid -+      +- .name1 -- .name2 -+
                          (1)
```

Note:

1. If a group of lines are not specified using line label names, then a group of lines must be specified using one of the following line (prefix area) commands:

- ◆ **C** or **CC** (Copy), if the group of lines in the current file is to be preserved following successful execution of REPLACE.
- ◆ **M** or **MM** (Move), if the group of lines in the current file is to be deleted following successful execution of REPLACE.

Description:

Replace the contents of a sequential or VSAM data set, PDS/PDSE library member or HFS file, with a group of lines extracted from the current SDE edit or browse view. The target sequential or library data set may be uncataloged.

If the target file does not already exist, then one of the following will occur:

1. If output is to a member of an existing PDS/PDSE library or to an HFS file, the target file will be created automatically created.
2. If output is to a non-existent data set or to a member of a non-existent PDS/PDSE library, the **Allocate Non-VSAM** panel is displayed in order to allocate the new data set.

Specify REPLACE with no parameters to open the **SDE CREATE/REPLACE file panel**.

Parameters:

fileid

Specifies the fileid of the target file whose records are to be replaced.

If *fileid* is a less than 8 characters in length and is a valid member name, the target file will be a member of member name *fileid* belonging to the same PDS/PDSE library referenced in the focus SDE view. If the focus SDE view does not display a library member, the *fileid* will be treated as an HFS file within the current HFS working directory.

If *fileid* includes a volume id, then the target file may be a cataloged or uncataloged data set or PDS/PDSE library which exists in that volume's VTOC. e.g. VOLWKA:DEV.UNCATLG.FILE.

.name1

A label name identifying the first line of the group of lines to be copied to the target file. If not specified, then the group of lines must marked using "C" or "M" line (prefix area) commands.

.name2

A label name identifying the last line of the group of lines to be copied to the target file. If *.name1* has been specified, *.name2* is mandatory.

Examples:

```
replace DEV.USER223.TESTDATA.D2012324 .CDBEG .CDEND
```

Replace the contents of data set "DEV.USER223.TESTDATA.D2012324" with records in the current SDE view which fall between defined line label names .CDBEG and .CDEND inclusively.

See Also:

COPY CREATE

REPLACELINE

Syntax:

```
>>> REPLACELINE  +-+-----+
                  |               |
                  |   +- , -----+ |
                  |   v               | |
                  +-+ (--- field_col ---) +-+ <<<<<<
                  |               |
                  |   +- , -----+ |
                  |   v               | |
                  +-+ (--- field_col ---) +-+
```

Description:

Replace data in fields within the record occupying the focus line.

The record occupying the focus line must not be a shadow line and must contain any specified fields references.

REPLACELINE is primarily used within SDE Edit REXX macros.

Parameters:

(*field_col*,...)
A list of field columns into which corresponding *field_value* values are to be inserted.

The field column may be identified by its reference number (e.g. #1) or its name (e.g. SeqNUM). Specification of multiple field columns must be separated by commas and enclosed in parentheses.

If the *field_col* reference is a **struct** or a **union**, then an error message is returned. If the *field_col* reference is an array, then an individual array element must be specified in parentheses as a subscript to the field. e.g. #13(3) for the 3rd element of a single dimension array. A subscript entry must exist for each dimension of the array. e.g. RoomSize(6,2,4) - an element within a three dimensional array.

If a list of field columns is not specified then as many of the set of selected fields in the current view as there are values in the list of field values, are used as the default. In this case, the order of the field columns is equal to the order in which fields are displayed in the current view.

VALUES (*field_value*,...)
A list of field values to be inserted into corresponding *field_col* entries in the field column list.

If one or more *field_col* entries are specified (i.e. a field list is specified), then there must be the same number of *field_value* values to correspond with each *field_col* entry.

If a character string field value contains special characters, blanks or commas, then it must be delimited by quotation mark (") or apostrophe (') characters. If the value contains characters which match the delimiting characters, then each occurrence of this character must be escaped by prefixing it with the escape character. The escape character is the same as the delimiting character. e.g. VALUES("He said \"It's John's bike.\"")

Examples:

```
replace1 (NAME,#5,BONUS) values ("Tom Jones", 62, 200.00)
```

Replace existing values in the specified fields with those supplied. Numerical data will be converted to the appropriate data type for the field.

See Also:

INSERT

RESET

Syntax:

```

                +- CHange +- +- COMmand +- +- Duplicates +-
                |         |         |         |         |
>>-- RESet  -+-----+-----+-----+-----+-----+-----+-----+----->
                |         |         |         |         |
                +- All +-
                |
                +- X -----+
                |         |         |         |         |
                +- ERror +- +- EXcluded +- +- Find +-
                |         |         |         |         |
>-----+-----+-----+-----+-----+-----+-----+-----<<
                |         |         |         |         |
                +- HIDE +- +- Label +-

```

Description:

Reset individual flags set on for records or record segments in the current SDE BROWSE or EDIT view.

Parameters:

ALL
Equivalent to: RESET COMMAND DUPLICATES EXCLUDED FIND LABEL CHANGE ERROR

CHANGE
Remove "=="CHG>" flags from the prefix area.

COMMAND
Remove any pending prefix area commands.

DUPLICATES

Reset the "=DUPE>" and "=DUPF>" line flags introduced with support for KSDS data set editing. These flags are set when an attempt is made to save changes to the data and cause the save operation to fail. "=DUPE>" indicates that a duplicate key exists between 2 or more, new or changed records within the edit session. "=DUPF>" indicates that a duplicate key exists between a new or changed record in the edit session and an existing file record.

ERROR

Remove "=="ERR>" and "=ERRV>" line flags from the prefix area. "=ERRV>" line flag indicates that the expanded record has a variable length or variable array size value error.

EXCLUDED

X
Re-include (make visible) any data records that have been previously excluded from view.

FIND

Remove all highlighting of search strings and numerical fields that have been found by the FIND command.

HIDE

Redisplay all shadow lines that have been removed from the display by the **HIDE** command. RESET HIDE is equivalent to **SET SHADOW ON ALL**.

LABEL

Remove all line label names set via the SET POINT command or entered in the prefix area directly.

RFIND

Syntax:

```

      +---- 1 ----+
      |             |
>>-- RFInd  --+-----+----->>
      |             |
      +- n_rpts -+

```

Description:

Repeat the operation performed by the last **FIND** or **EXCLUDE** command a number of times. Additionally, if RFIND is executed following a **CHANGE** operation, then FIND is performed using the search string specified on the CHANGE command.

The RFIND search will be executed on records that are of the same **record type** as that used by the last FIND, EXCLUDE or CHANGE command. An optional repetition factor may be specified to repeat the operation a number of times. e.g. Following "EXCLUDE ALL" and "FIND ABC", "RFIND 20" will locate and unexclude a further 20 occurrences of the string "ABC".

Where the last FIND issued was FIND LAST or FIND PREV, RFIND will perform a FIND PREV operation, otherwise RFIND performs a FIND NEXT operation. i.e. Search forwards (NEXT) or backwards (PREV) from the current cursor location to find the next or previous occurrence of the string/value respectively.

If the cursor is not within the window's data display area, the forwards or backwards search begins at the first position of the first visible or excluded record within the display area that is of the record type used by the last FIND.

RFIND is assigned to function key **PF5** by default.

Parameters:

n_rpts

The number of times that the previous operation is to be repeated, defaulting to 1.

See Also:

RCHANGE CHANGE EXCLUDE FIND

RIGHT

Syntax:

```
>>- Right -----><
|
|-----+-- Cursor -----+
|         +-- CSR -----+
|
|-----+-- Data -----+
|         |
|         +-- Half -----+
|         |
|         +-- Max -----+
|         |
|         +-- Page -----+
|         |
|         +-- n_cols -----+
|
```

Description:

In **multi record view** and unless parameter **ALL** is specified, scroll towards the right the display of field and header lines belonging to records that are of the **default record type**. The display of all other visible records, header lines and shadow lines remains unchanged.

In **single record view**, RIGHT will display the fields belonging to a visible data record that has a higher line number than the record (or record segment) that is in the current view. For display of segmented records, LEFT and RIGHT scroll through each segment in the file, regardless of the record to which it belongs. **NEXT** and **PREV** may be used to scroll between secondary segments of the current record only. RIGHT CURSOR/DATA/HALF/PAGE are not applicable in single record view.

RIGHT is assigned to **PF11** by default. Any characters specified on the command line when the PFKey is hit will be concatenated to the command and treated as a parameter string.

Where no parameter is specified, the scroll amount will be the value specified in the "**Scroll>**" field.

Multi Record View Scrolling:

Columns may have the HOLD flag set on by the **SELECT** command. These columns are static in the display and, like the prefix area and Lrecl column, are unaffected by LEFT and RIGHT scrolling. Columns that have the HOLD flag set off are referred to as **floating** columns.

The following interpretation of cursor location applies so that RIGHT CURSOR can operate successfully on the appropriate data:

- Cursor is located at an offset within a column header line.
The cursor position is interpreted as being at the same offset within the data record that immediately follows the group of header lines.
- Cursor is located within a column of type character (AN) but beyond the width of the character data.
The cursor position is interpreted as being the last position of the displayed character data.
- Cursor is located immediately to the left of a column of any type.
The cursor position is interpreted as being the the first position of the data displayed within that column.

Where the first column to be displayed is not of type character (AN), the magnitude by which the display is scrolled to the right is always reduced to display all field data belonging to the first column. Similarly, if the last column to be displayed is not of type character and the display width is too small to accomodate all the column's data and header text, the column will not be displayed.

No adjustment is made when scrolling right into an offset within a character data column. i.e. where the first column of the display is of type character, the first position of the column display need not be the first character of the character data. If the last column to be displayed is of type character and the display width is too small to accomodate all the column's data and header text, the column will be truncated.

Attempting to scroll right beyond the last data column will make the last data column the first column of the display. Furthermore, if the last data column is of type character (AN), then scrolling beyond this column will make the last character of the data the first character of the display.

Parameters:

CURSOR
CSR

The **focus column** becomes the first column of the scrolled display.

In addition to this, if the focus column is type character (AN) and the cursor is positioned at an offset into the focus column, then the character data at the cursor offset will occupy the first position within the first column of the scrolled display.

If any of the following conditions are true, then RIGHT PAGE is executed instead:

- ◇ Cursor is positioned anywhere other than within a floating column in a visible data record.

- ◇ Focus column is **not** type AN and is already the first floating column of the display.
- ◇ Focus column is type AN, is already the first floating column of the display and cursor position is at the first position of the displayed column data.

ALL Valid only in multi-record view, ALL indicates that scrolling is to apply to **all** records in the display and not only those records that are assigned the default record type.

DATA Scroll right so that the last floating column of the current display area becomes the first floating column of the scrolled display.
If this column is type character (AN) and the last position of the display falls on a character that is at an offset into the column data, then the character data at that offset will occupy the first position within the first column of the scrolled display.

HALF Scroll a number of columns so that the column situated half way along the width of the current display of floating columns, becomes the first floating column of the scrolled display.
If this column is type character (AN) and the half display position falls on a character that is at an offset into the column data, then the character data at that offset will occupy the first position within the first floating column of the scrolled display.

MAX Scroll right to display the last column of data in a multi record view. Where the display area is able to contain all data columns in the data record, the first floating column becomes the first floating column of the scrolled display. Otherwise, the last column of data becomes the last column of the scrolled display.

In single record view, the last visible data record is displayed.

PAGE Scroll right so that the column of data to the right of the last floating column of the current display area, becomes the first floating column of the scrolled display.
If this column is type character (AN) and the last position of the display plus one falls on a character that is at an offset into the column data, then the character data at that offset will occupy the first position within the first floating column of the scrolled display.

n_cols In a multi record view, scroll right a specified number of floating columns.
The floating column of data that is *n_cols* to the right of the first floating column becomes the new first floating column of the scrolled display.

In single record view, the visible data record that is *n_cols* records after the record currently in view, gets displayed.

Examples:

`right half` Scroll records of the default record type in a multi record view display area, right by half a display area width minus the width of any columns flagged with HOLD.

See Also:

DOWN LEFT UP

RUNSELCOPY

Description:

The Data Editor command, RUNSELCOPY, performs the same operation as the Text Editor command RUNSELCOPY. See **RUNSELCOPY** in CBL_e Text Editor documentation.

RUNSLC

Description:

The Data Editor command, RUNSLC, performs the same operation as the Text Editor command RUNSLC. See **RUNSLC** in CBL_e Text Editor documentation.

SAVE

Syntax:

```
>>-- Save -----><
```

Description:

Save changes to the current data.

Saving changes to DB2 tables

There are important differences in the way the SAVE command works when editing DB2 tables compared with editing z/OS VSAM datasets, non VSAM datasets, PDS(E) members and HFS files.

See [DB2 table edit](#) for a discussion of these differences and a more detailed description of how SAVE works for DB2 data.

See Also:

[FILE SAVEAS](#)

SAVEAS

Syntax:

```
>>-- SAVEAS -----><
```

Description:

Applicable to structured data edit only (not DB2 table edit), SAVEAS prompts the user for a new fileid to be assigned to the data in the focus SDE edit view, and then saves the data to this file.

The fileid entered by the user may be an MVS DSN, PDS/PDSE library and member or HFS file path of a new file. If the file already exists, error ZZSD229E is returned. A PDS/PDSE library and member may only be specified if the currently assigned fileid is a PDS/PDSE library member.

If necessary SAVEAS will invoke the appropriate [Allocate NonVSAM](#) or [Define VSAM](#) data set dialog window to create the new data set with the same data set organisation as the currently assigned fileid.

SAVEAS is not valid for SDE edit techniques [KSDS Edit](#) and [Update-in-place Edit](#) where not all records are loaded into storage.

See Also:

[SAVE](#)

SAVESTRUCTURE

Syntax:

```
>>-- SAVEStructure -----+-----+-----+-----><
      |                   |                   |
      +-- struct_name --+   +-- newstruct_name --+
```

Description:

Save an in storage Structure Definition Object (SDO) to a Structure Definition File (SDF) on disk.

If changes have been made to the structure (e.g. USE WHEN or RCOLOUR criteria have been applied) and not saved, then the user will be automatically prompted to save the SDO following execution of the DROP command or when the structure is automatically dropped on exit from the parent CBLLe frame window.

Parameters:

struct_name

The name of the in-storage structure to be saved.

Default is the name of the current (i.e. last referenced) structure. This is the structure used in the current SDE window view or explicitly referenced by an SDE command.

If *struct_name* is the name of a temporary structure (created dynamically for edit/browse of a DB2 table or when a COBOL, PL1 or Assembler copybook or ADATA file is used) and *newstruct_name* is **not** specified, then a panel is opened that prompts for the name of the SDF.

newstruct_name

The name of the SDF to which the structure will be saved.

Default is *struct_name*.

SDATA

Description:

SDE CLI command, SDATA, performs the same operation as the CBLLe CLI command SDATA. See **SDATA** in CBLLe Text Edit documentation.

SDATA command is supported so that it may be tolerated in edit macros when the focus CBLLe child window is an SDE edit/browse view.

SEGTYPE

Syntax:

```
>>-- SEGtype -----+-----+-----+-----><
      |               |               |
      +-- Primary -----+
      +-- Base -----+
```

Description:

Applicable to full or auxiliary edit of **segmented records** only, SEGTYPE is used to change the type (primary or secondary) of the focus segment. Note that Update-in-place edit does not support SEGTYPE.

SEGTYPE PRIMARY or SEGTYPE BASE changes a secondary segment to be a primary (base) segment so splitting the record into two. The record generated by the new primary segment is remapped so that all its segments are assigned an appropriate record type definition.

SEGTYPE SECONDARY changes a primary segment to be a secondary segment so joining the record with the record before. The record is remapped so that all its segments are assigned an appropriate record type definition.

Note that no action is taken if SEGTYPE does not change the segment type of the focus segment.

SEGTYPE may be undone and subsequently redone using the **UNDO** (<PF22>) and **REDO** (<PF23>) commands.

* (asterisk)

Shorthand to define all fields other than those explicitly defined already (i.e. the rest) in their default order. Must be supplied as the last parameter.

FROM *record_type*

Defines the record type to which the selection applies. If *record_type* is not specified, then the **default record type** is used.

IN *struct_name*

Defines the name of the structure definition object (**SDO**) to which the selection applies. The SDE window containing data mapped by this SDO will be the target window for this SELECT command. Default is the **SDE current window**.

Examples:

```
select from Employees EmpNumber,Dept,LastName,FirstName
select EmpNumber,Dept,LastName,FirstName H,*
```

SET

Description:

See **SET/QUERY/EXTRACT Options**.

SHIFT

Syntax:

```
>>-- SHift --- Left --- n_bytes ----->
      |           |
      +- Right-+
      |           |
      +- BOUNds +- left_col +- right_col ---
      |           |
      +- BNDs ---+
      |           |
      +--- 1 ----+
      |           |
      +- n_lines -+
      |           |
      +- ALL ----+
      |           |
      +- EX +-
      |           |
      +- NX +-
      |           |
      +- X ---+
      |           |
      +- .ZCSR ---+
      |           |
      +- .ZLAST -+
      |           |
      +- .name1 -+
      |           |
      +- .name2 -+
      |           |
      +-----><
```

Description:

Supported for unformatted record view only, SHIFT moves record data within the left and right bounds columns, left or right without altering relative spacing. (See SDE **BOUNDS** option.)

Record data which is shifted left beyond the left bounds column or right beyond the right bounds column gets truncated.

Shift left and shift right may also be executed selected lines using the "("("(" and ")"")")" line (prefix area) commands respectively.

Variable Length Records:

Shifting variable length record data left or right has different effects on each record depending on location of BOUNDS columns relative to the individual record's record length.

1. If the left bounds column number (and therefore the right bounds column number) is greater than the record length, then shifting data left or right will have no effect on the record.
2. If the left bounds column number is less than or equal to the record length, then shifting data left will have the following affect on that record:
 - ◆ If the right bounds column number is less than or equal to the record length, data is truncated at the left bounds column, the record length is preserved and a pad character is inserted at the right bounds column for each character truncated at the left. (See SDE **PAD** option.)
 - ◆ If the right bounds column number is greater than the record length, data is truncated at the left bounds column and the record length is reduced by the number of truncated characters.

3. Shifting data right will have the following affect on a record:

- ◆ If the right bounds column number is less than or equal to the record length, data is truncated at the right bounds column, the record length is preserved and a pad character is inserted at the left bounds column for each character truncated at the right.
- ◆ If the right bounds column number is greater than the record length, a pad character is inserted at the left bounds column for each shifted column. and the record length is increased to a maximum defined by the right bounds column. Record data shifted beyond this column will be truncated.

Parameters:

LEFT | RIGHT

Specifies the direction in which record data is to be shifted.

n_bytes

Specifies the number of columns by which the record data will be shifted.

BOUNDS | BND *left_col right_col*BOUNDS may be specified to temporarily override the prevailing bounds column settings. See SDE **BOUNDS** option for details on setting left and right bounds columns.*n_lines* | ALLSpecifies *n_lines*, the number of lines, or ALL, indicating all subsequent lines, starting at the **focus line**, for which the shift operation will apply.

Unless EX or X is specified, groups of excluded lines are treated as 1 line in the *n_lines* count of lines affected by SHIFT. This is true whether or not display of shadow lines, which represent groups of excluded lines, is on or off. (See SDE **SHADOW** option or primary command **HIDE**).

Default is 1 line, i.e. the focus line.

EX
X

The shift operation will apply only to lines flagged as being EXCLUDED.
If neither EX nor NX is specified, shift will apply to both excluded and non-excluded lines.

NX

The shift operation will apply only to lines that are **not** flagged as being EXCLUDED.
If neither EX nor NX is specified, shift will apply to both excluded and non-excluded lines.

.name1

A label name identifying the first line of a range of lines eligible for inclusion in the SHIFT operation. The preceding "." (dot/period) is mandatory.
Default is .ZCSR, the **focus line**.

.name2

A label name identifying the last line of a range of lines eligible for inclusion in the SHIFT operation. The preceding "." (dot/period) is mandatory.
If *.name2* occurs before *.name1* in the display, then the order is reversed.
Default is .ZLAST.

See Also:**BOUNDS CHANGE PAD**

SHOW

Syntax:

```
>>-- Show ----- +---+ Level -----+<<
|                   |                   |
+---+ Number ---+
|                   |
+---+ Format ---+
|                   |
+---+ Offset ---+
|                   |
+---+ Picture ---+
|                   |
+---+ Type -----+
```

Description:

The *SHOW* command controls display of various types of information for SDE EDIT and BROWSE window views in either mapped table view (VFMT) or mapped single record view (MAP). The format and content is controlled by the SHOW option specified.

See also the *SET* options *TYPE* and *OFFSET*, various combinations of which are controlled using the SHOW command.

Parameters:

- LEVEL Equivalent to **LEVEL ON** , **REFERENCE OFF** .
- NUMBER Equivalent to **LEVEL OFF** , **REFERENCE ON** .
- FORMAT Equivalent to **TYPE FORMAT** .
- OFFSET Equivalent to **TYPE OFFSET** .
- PICTURE Equivalent to **TYPE PICTURE** .
- TYPE Equivalent to **TYPE DEFAULT** .

See Also:

SET LEVEL OFFSET REFERENCE TYPE

SORT

Syntax:

```

      +- .ZFIRST +- +- .ZLAST -+ +-----+ , -----+
      |         | |         | |         | |         | |
>>-- SORT ---+-----+-----+-----+ | Sort Field Spec | -----+<<
      |         | |         | |         | |         | |
      | +- .name1 ---+ +- .name2 -+
      |--- KEY -----+-----+
      (1)
  
```

Sort Field Spec:

```

|--- field_col -----+-----+-----+ | +- Ascending ---+
|         | |         | |         | |         | |
|         | |         | |         | |         | |
+- field_pos -- field_length -----+-----+ | +- Descending -+
|         | |         | |         | |         | |
|         | |         | |         | |         | |
|         | |         | |         | |         | |
|         | |         | |         | |         | |
+- Fixed -----+
|
+- PD -----+
+- DECimal ----+
+- PACKed -----+
|
+- ZD -----+
+- Zoned -----+
|
+- HFP -----+
|
+- BFP -----+
|
+- DFP -----+
  
```

Notes:

1. Only for a KSDS data set that has never been loaded.

Description:

Sort in-storage data records or DB2 table rows within the current edit view.

Sort is supported only if **all** edited records or table rows are loaded in available storage, otherwise error ZZSD643E is returned.

Sort fields are identified by a record position, length and data type. Alternatively, if the edited data is mapped by a single **record type** (includes DB2 table rows), a sort field may be identified by a column field reference. If the edited data is mapped by more than one record type, sort fields must be specified using position, length and data type.

Multiple sort fields may be specified. The order in which sort fields are specified define the hierarchy in which the record or DB2 table row data will be sorted.

When sorting variable length records, it is possible for a specified sort field to reference positions that fall outside the length of a record, but not outside the defined maximum record length. In this case, the sort field is padded with nulls (x'00').

If *field_pos* syntax is used to identify a sort field that exists entirely within the fixed portion of **formatted** records, then the sort field references positions in the unexpanded records. If the sort field overlaps variable areas of the formatted records (i.e. in areas mapped by or following fields of variable length data types) then, the following will occur:

- For edited data mapped by a single record type, the sort field will reference positions in **expanded record** data.
- For edited data mapped by multiple record types, the sort field can only reference positions in the unexpanded record and so the edited record data must be displayed in **character format**. If not, error ZZSD666E will be returned.

SORT KEY is a special form of the command applicable only when records are added to an initially empty VSAM KSDS data set. When records are saved to a KSDS data set, records get inserted in correct order of key sequence and so do not need to be in index key order within the edit view. However, if the KSDS data set is initially empty, saving newly added records will load them to the data set in the order they occur within the edit view. Therefore, to ensure a successful load, the records should first be sorted in ascending order of key using SORT KEY. Use of parameter KEY in a non-empty KSDS data set will be treated as named field (*field_name*.)

Parameters:

.name1
A label name identifying the first record of a range of data records to be sorted. The preceding "." (dot) is mandatory. Default is .ZFIRST.

.name2
A label name identifying the last record of a range of data records to be sorted. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then *.name2* and *.name1* identify the first and last records respectively. Default is .ZLAST.

field_pos
The first position of a sort field within the record data.

field_length
The length of the sort field. The value of *field_length* must be valid for the corresponding *field_type*.

field_type
The data type of the data within the sort field. This may be one of the following:

CHARACTER	Character - the default data type. <i>field_len</i> must be less than 32768.
FIXED	Fixed Point Binary. <i>field_len</i> must be less or equal to 8.
PD DECIMAL PACKED	Packed Decimal. <i>field_len</i> must be less or equal to 16.
ZD ZONED	Zoned Decimal. <i>field_len</i> must be less or equal to 31.
HFP	Hexadecimal Floating Point. <i>field_len</i> must be 4, 8 or 16.
BFP	Binary Floating Point. <i>field_len</i> must be 4, 8 or 16.
DFP	Decimal Floating Point. <i>field_len</i> must be 4, 8 or 16.

field_col
An individual field column within a formatted display.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. JobID).

If the field is an array, then all elements of the array constitute the sort field. To sort on an individual element of an array, the element occurrence should be specified in parentheses as a subscript to the field reference/name. e.g. #13(3) for the 3rd element of a single dimension array. An entry must exist for each dimension of the array. e.g. RoomSize(6,2,4) - a three dimensional array.

ASCENDING | DESCENDING
Sort data in the sort field in ascending or descending order
Default is ASCENDING.

KEY
Supported for VSAM KSDS data sets only, sorts records into ascending key sequence.

All records in the display (visible, EXCLUDED, NOT SELECTED and SUPPRESSED) are included in a SORT KEY operation.

SORTINDEX

Syntax:

```

      +- .ZFIRST -+ +- .ZLAST -+
      |           | |           |
>>-- SORTINDEX -----+-----+-----><
      |           | |           |
      +- .name1  -+ +- .name2  -+ +- index_name -+
                                   |
                                   +- Prime  -----+
    
```

Description:

SORTINDEX is supported for DB2 table edit only and may be used to sort in-storage table rows by key columns/expressions identified by a DB2 Index previously defined for the table.

If neither PRIME nor *index_name* are specified, the **DB2 Select Table Index** window is displayed, allowing selection of one of the indexes defined for the table.

Parameters:

.name1
 A label name identifying the first table row of a range of rows to be sorted. The preceding "." (dot) is mandatory. Default is .ZFIRST.

.name2
 A label name identifying the last table row of a range of rows to be sorted. The preceding "." (dot) is mandatory. If *.name2* occurs before *.name1* in the display, then *.name2* and *.name1* identify the first and last rows respectively. Default is .ZLAST.

index_name
 The name of a DB2 Index that has been created for the edited DB2 table.

PRIME
 Sort the edited DB2 table rows using the primary index.

2. The value is invalid (not in the data type format).
3. For decimal floating point data type, the value is QNAN, SNAN or Infinity.

When the duration of a SUM execution exceeds 1 second, a progress window is opened displaying the number of records processed so far. This window also provides the user with the opportunity to interrupt the operation using the Attn key.

Parameters:

field_col

An individual field column id within a formatted record display.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. SALARY).

If *field_col* identifies an array, then SUM treats each element of the array as a separate sum value. To perform SUM on an individual element of an array, the element occurrence should be specified in parentheses as a subscript to the field reference/name. e.g. #13(3) for the 3rd element of a single dimension array.

field_pos

The start position of a field within the record data. For formatted records, this is a position in the **expanded record**.

field_length

Following *field_pos*, *field_length* defines the length of the field in the record data. The value of *field_length* must be valid for the corresponding *field_type*.

field_type

The data type of the data in the field identified by *field_pos* and *field_length*. *field_type* may be one of the following:

CHARACTER	Character - the default data type. <i>field_len</i> must be less than 32768. Numeric interpretation of character data supports use of the following: <ol style="list-style-type: none"> 1. Currency symbol (x'5B'). 2. A dot/period (".") representing decimal point. 3. Commas (","). 4. Character "E" (or "e") representing start of an exponent. 5. Unary plus ("+") or minus ("-") preceding the value and/or exponent value.
FIXED BINARY	Fixed Point Binary. <i>field_len</i> must be less or equal to 8.
PD DECIMAL PACKED	Packed Decimal. <i>field_len</i> must be less or equal to 16.
ZD ZONED	Zoned Decimal. <i>field_len</i> must be less or equal to 31.
HFP	Hexadecimal Floating Point. <i>field_len</i> must be 4, 8 or 16.
BFP	Binary Floating Point. <i>field_len</i> must be 4, 8 or 16.
DFP	Decimal Floating Point. <i>field_len</i> must be 4, 8 or 16.

WHERE *expression*

Only records of the specified record type *record_type* that satisfy the WHERE expression are included in the SUM operation.

expression is a valid SDE **expression** which supports **function calls**, **record_type field names/references**, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of *expression* must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

When an expression is applied to the record, it must test "true" in order to be selected as a target of the SUM operation.

By default, all data records in the selected range of lines are subject to the WHERE *expression* test. This includes data records that are of the selected record type and have EXCLUDED status at the time the SUM command is executed. If one of these excluded records satisfies the *expression*, it will be included in the SUM calculation.

EXCLUDED

X

Only records assigned the specified record type *record_type* and have EXCLUDED status are included in the SUM operation. By default, only non-EXCLUDED records are selected. SUM does not include records that have the status NOTSELECTED or SUPPRESSED.

NOTEXCLUDED

NX

Only records assigned the specified record type *record_type* and have non-EXCLUDED status are included in the SUM operation. This is the default action. SUM does not include records that have the status NOTSELECTED or SUPPRESSED.

ALL

All records (EXCLUDED and non-EXCLUDED) assigned the specified record type *record_type* are included in the SUM operation. By default, only non-EXCLUDED records are selected.

SUM does not include records that have the status NOTSELECTED or SUPPRESSED.

.name1

A label name identifying the first line of a range of lines on which the SUM operation will operate. The preceding "." (dot) is mandatory.
Default is .ZFIRST.

.name2

A label name identifying the last line of a range of lines on which the SUM operation will operate. The preceding "." (dot) is mandatory.
If *.name2* occurs before *.name1* in the display, then *.name2* and *.name1* identify the first and last rows respectively.
Default is .ZLAST.

[FOR] RECORD [TYPE] *record_type*

Identifies the record type mapping *record_type* used by the SUM operation. Only records assigned this record type are eligible to be included in the SUM calculation.

If a *field_col* is specified, it must reference a column field in this record type definition.

Default is the **default record type**.

STEM *rexx_stemvar*

Applicable only to execution of SUM within a REXX procedure edit macro, STEM indicates that the SUM value for each of the specified columns be assigned to a REXX compound variable.

The mandatory *rexx_stemvar* argument specifies the character string to be used as the stem part of the compound variable name.

The following REXX compound variables are set:

rexx_stemvar.SUM.0

The number of SUM values returned (i.e. number of columns specified).

rexx_stemvar.SUM.i

The ith SUM value corresponding to the ith column specification.

See Also:

AVERAGE MAXIMUM MINIMUM TOTALS

SYSCOMMAND, TSO, CMS

Description:

SDE CLI command, SYSCOMMAND, performs the same operation as the CBL e CLI command SYSCOMMAND. See **SYSCOMMAND** in CBL e Text Edit documentation.

TEDIT

Syntax:

```
>>-- TEdit -- cble_command -----><
```

Description:

Direct a command to the CBL e text edit Environment.

The TEDIT command allows CBL e commands to be issued from an SDE window command line or SDE edit macro. Compare this with the SELCOPY/i CLI command **SDATA** which allows SDE commands to be executed from any type of window so long as a CBL e frame window exists.

Parameters:

cble_command

Any CBL e CLI command.

The command is passed to the current CBL e window (the CBL e window view on which focus was last placed.)

Examples:

```
tedit edit DEV.OEM.CBL.JCL(CBLINS01)
      Open a data set for CBL text edit.
```

```
tedit insert <sdata use IMP_REC when #12 >= 100
      Insert a line of text into the current CBL edit window. The line of text is a CBL edit command that may be executed via
      the F16 key (ACTION).
```

TEMPORARY

Syntax:

```
>>-- TEMPorary -- command -----><
```

Description:

TEMPORARY is a modal command that may be used as a prefix to SDE primary commands **SELECT** and **SET COLWIDTH**. TEMPORARY will execute the SELECT or SET COLWIDTH command and suppress any save of the selected columns or new column width value in the SELCOPY/i SDO structure used to display the formatted data.

TEMPORARY is default for both SELECT and SET COLWIDTH.

Parameters:

command
SDE primary command SELECT or SET COLWIDTH.

See Also:

SELECT SET COLWIDTH PERMANENT

TOP

Syntax:

```
>>-- Top -----><
```

Description:

Display the first page of data.
Equivalent to the **UP MAX** command.

See Also:

BOTTOM UP


```

00001                               2016/08/26 14:33:28
00002      Command: TOTALS #15, #16, #17  DIGITS 7
00003      Dataset: CBL.AMSUPP.DA
00004      Structure: CBL.CBLI.SDO(DIRAMEMP)
00005      Record Type: EMP
00006
00007      499 rows were read;          42 rows were processed.
00008
00009
00010      ***
00011
00012      SUM of SALARY (#15) =                1152525.00
00013
00014      AVERAGE of SALARY (#15) =           27441.07
00015
00016      MAXIMUM of SALARY (#15) =           52750.00
00017      First row 56; last row 56; rows 1.
00018
00019      MINIMUM of SALARY (#15) =           15340.00
00020      First row 362; last row 362; rows 1.
00021
00022
00023
00024      ***
00025
00026      SUM of BONUS (#16) =                 23100.00
00027
00028      AVERAGE of BONUS (#16) =              550.00
00029
00030      MAXIMUM of BONUS (#16) =             1000.00
00031      First row 56; last row 63; rows 2.
00032
00033      MINIMUM of BONUS (#16) =              300.00
00034      First row 50; last row 362; rows 4.
00035
00036
00037
00038      ***
00039
00040      SUM of COMM (#17) =                   92698.00
00041
00042      AVERAGE of COMM (#17) =              2207.095
00043
00044      MAXIMUM of COMM (#17) =               4220.00
00045      First row 56; last row 63; rows 2.
00046
00047      MINIMUM of COMM (#17) =              1227.00
00048      First row 362; last row 362; rows 1.
    
```

See individual commands for AVERAGE, MAXIMUM, MINIMUM and SUM for the parameter descriptions and additional report lines that follow each reported aggregate value.

When the duration of a TOTALS execution exceeds 1 second, a progress window is opened displaying the number of records processed so far. This window also provides the user with the opportunity to interrupt the operation using the Attn key.

UNDO

Syntax:

```
>>-- UNDO -----<<
```

Description:

Undo one level of changes made to the current file.

Each change level corresponds to an update of a data field within a record.

UNDO is assigned to PF22 by default and may be executed repeatedly to undo multiple levels of changes.

The third number following "Alt=n,n;m" on the status line indicates the number of change levels. If this number is not zero, then changes may be undone using UNDO.

See Also:

REDO and the SET/QUERY/EXTRACT Option: **UNDOING**

UNFMT

Syntax:

```
>>--+- UNFMT -+-----><
      |         |
      +-- UNMAP ---+
```

Description:

Display records or record segments in **single record**, unformatted character view by temporarily disabling the record-type (RTO) assigned to each record or record segment.

Compare with **ZOOM** of an SDE view set as **FORMAT CHAR** which displays the records/segments in a single-record, unformatted view but does not disable the assigned record-type.

Note that unformatted records have record type "UnMapped", unformatted segments of a segmented record have record type "UnMappedSeg".

See Also:

FORMAT CHAR MAP (FMT) VFMT ZOOM

UP

Syntax:

```
>>- UP -----><
      |         |
      +-- Cursor -----+
      |         |
      +-- CSR -----+
      |         |
      +-- Data -----+
      |         |
      +-- Half -----+
      |         |
      +-- Max -----+
      |         |
      +-- Page -----+
      |         |
      +-- n_lines -----+
```

Description:

Scroll the view of the data within the SDE window upwards towards the top of the file data.

Where no parameter is specified, the scroll amount will be the value specified in the **Scroll>** field in the top right corner of the window display.

Note that the first data record in any **multi record view** will **always** be preceded by its complete group of column header lines.

For **single record views**, the standard headers are always visible at the top of the display area and are not included as part of the scrollable text. Each non-header line within a single record view is identified as being a **field data line**.

UP and DOWN scroll commands will cause the window display area to be adjusted by a number of lines determined by the number of multi record view data records and shadow lines, or single record view field data lines. Other lines in the display area, i.e. **Header lines** and blank filler lines that precede a group of header lines or follow the "End of Data" record, are not included in this calculation.

Attempting to scroll up beyond the first entry (data record, shadow line or field data line) will make the first entry the first line of the display.

Multi Record View Scrolling:

Where the cursor is positioned at an offset within a column header line, the cursor is deemed to be located at the same offset within the data record that immediately follows the group of header lines. Therefore, UP CURSOR will operate successfully when the cursor is positioned within a header line.

The first data record in the display must be preceded by all of its header lines. To accommodate this, the magnitude by which the display is scrolled upwards may be reduced with the result that it may be impossible for the target line of the UP command to

occupy the last line of the current display. The display will be scrolled upwards so that the target line is still in view though not the last line in the display. In order to overcome this, the user would have to alter the display area dimensions.

For the same reason, it is possible that execution of an UP command may result in no change to the displayed data, in which case UP PAGE is executed instead.

Parameters:

CURSOR
CSR

The data record, shadow line or field data line on which the cursor is positioned becomes the last line of the scrolled display.
If the cursor is positioned on a header line, the data record or field data line immediately following the header line becomes the last line in the display area.
If the cursor is positioned outside the display area or on the last line within the display area, then UP PAGE is executed instead.

DATA
Scroll up to display one page (display window depth) less one line of data.
The first data record, shadow line or field data line in the current display area becomes the last line of the scrolled display.

HALF
Scroll up half a page of data.
The data record, shadow line or field data line that is half way down the page of data in the current display area becomes the last line of the scrolled display.

MAX
Scroll up to display the first page of data.
The "Top of Data" line becomes the first line of the scrolled display.
Equivalent to the **TOP** command.

PAGE
Scroll up to display the next whole page of data.
The data record, shadow line or field data line before the first line of the current display area becomes the last line of the scrolled display.

n_lines
Scroll up a specified number of lines.
The data record, shadow line or field data line that is *n_lines* lines above the current line becomes the first line of the scrolled display.

Examples:

up page
Scroll the display area up one page.

See Also:

DOWN LEFT RIGHT

If either USE ALWAYS ON or USE NEVER ON are executed, then a USE WHEN *expression* defined in the RTO is preserved so that, following execution of USE ALWAYS OFF or USE NEVER OFF, records will be re-assigned their original RTOs based on the RTO defined WHEN expressions.

Parameters:

record_type

Identifies the **record type** to which assignment criteria will be applied.

TEMPORARY

Indicates that assignment of record types based on this USE command is to be temporary. Unless further non-temporary USE commands are executed, the user will not be prompted to save these changes to the in-storage structure (SDO).

IN (STRUCTURE) *struct_name*

Identifies the SDO that contains the specified record type. Defaults to the SDO of the **current SDE window**.

ALWAYS ON|OFF

ALWAYS ON forces the specified record type to be assigned to all records that use the specified structure so overriding any other record type assignment criteria. If the specified record type has been defined with USE NEVER ON, then USE NEVER OFF is set for that record type. Note that USE ALWAYS ON will not remove any USE WHEN *expression* defined to the record type.

ALWAYS OFF removes the ALWAYS ON definition for the specified record type and so all records that use the specified structure are assigned a record type based on other criteria.

ALWAYS ON is default if USE is executed without parameter ALWAYS, WHEN, NEVER or FOR FOCUS RECORD. Similarly, ALWAYS ON is default if ALWAYS is specified without ON or OFF.

WHEN *expression*

Specifies the criteria that must be satisfied before the record type can be assigned to a particular record.

expression is a valid SDE **expression** which supports **function calls**, **record type field names** and references, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of the WHEN expression must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

If a WHEN expression returns a "true" result for a data record, then the record type to which it is defined is assigned to that record.

If WHEN is specified with no *expression*, then any existing WHEN *expression* will be removed from the record type definition.

NEVER ON|OFF

NEVER ON indicates that the specified record type should never be assigned to a record and so this record type is removed from record type assignment processing. If the specified record type has been assigned to all records with USE ALWAYS ON, then USE ALWAYS OFF is set. Note that USE NEVER ON will not remove any USE WHEN *expression* defined to the record type.

NEVER OFF removes the NEVER ON definition for the specified record type and so reinstates the record type as being eligible for record type assignment processing.

NEVER ON is default if NEVER is specified without ON or OFF.

(FOR) FOCUS (RECORD) < ON|OFF >

FOR FOCUS RECORD assigns the specified record type to the record occupying the focus line only. If the specified record type has been defined with USE NEVER ON, then this flag is temporarily ignored for the focus line record only. Note that USE FOR FOCUS RECORD will not remove any USE WHEN *expression* or USE NEVER ON flag defined to the record type.

FOR FOCUS RECORD OFF removes the record type assignment for the record occupying the focus line and subsequently performs standard record type assignment processing for that record only.

Examples:

```
use Type1Rec when col1 = 'A' and (col2 << 'CDE' or col3 > 42)
```

Define USE WHEN record type assignment criteria for record type Type1Rec in the SDO used by data records in the current SDE window. This *expression* would match records for which the value in field COL1 is equal to 'A' and either of the following are true:

- ◊ Value in field COL2 contains the literal string 'CDE'. (i.e. 'CDE' in any character case).
- ◊ Value in field COL3 is numeric and greater than 42.

```
use Type1Rec always
```

Assign record type Type1Rec to all records.

```
use Type1Rec never
```

Never allow record type Type1Rec to be assigned to a record. If executed following the previous USE ALWAYS example, then ALWAYS OFF is set and record type assignment processing is performed without Type1Rec.

See Also:

DROP RCOLOUR SAVESTRUCTURE

VFMT

Syntax:

```
>>-- VFMT -----><
```

Description:

Display records or record segments in **multi-record**, formatted view.

If the record-type (RTO) assigned to each record or record segment has been disabled (record data is unformatted), then VFMT will re-enable the assigned record-types to reformat the record data.

Compare with **FORMAT TABLE** which does not attempt to re-enable the assigned record-types.

See Also:

FORMAT CHAR MAP (FMT) UNFMT ZOOM

VIEW

Syntax:

```
>>-- View -----><
|-----*-----|
|      +-+ , --+  |
|      |          |  |
|      +-----+  |
|      |          |  |
|      v          |  |
|-----+-----+ record_type -----+
|      |          |  |
|      +-+ (plus) --+ |
|      |          |  |
|      +- - (minus) -+ |
```

Description:

Select the **record types** associated with data records to be made visible within an SDE BROWSE or EDIT window. The VIEW command performs the same operation as the "V" prefix area command.

Records that not included in the display of records due to a VIEW CLI command or "V" prefix command, are flagged as being SUPPRESSED. Suppressed records can be identified if shadow lines are set on for SUPPRESSED records.

Where a non-generic record type is specified, the **DRECTYPE** setting is updated to be the first *record_type* parameter specified on the VIEW command.

If no parameters are specified, then the **default record type** is used.

Where more than one record type is selected in a **multi record view**, the appropriate column headings are displayed at each change of record type.

In a single-record view, horizontal scrolling occurs between visible records only.

VIEW is assigned to **F16** by default.

Parameters:

+ (plus)
Add records of the specified record type to the display of existing visible record types.

- (minus)
Remove records of the specified record type from the display of existing visible record types.

record_type

The record type of any RTO defined within the current structure definition object (SDO) or the internal record type, "Record" (or "UnMapped").
If no "+" (plus) or "-" (minus) qualifier is specified, then all other record types will be suppressed unless they are also named as parameters on the same VIEW command.
If no *record_type* is specified, the **default record type** is used.

* (asterisk)

Generic record type indicating that records of all record types within the SDO are to be made visible including the internal record type "Record" ("UnMapped") which is used to map data records that have no associated RTO within the SDO. If supplied, this must be the only parameter.

Examples:

```
view CompUnit,Source,Instruction
```

View records of the specified record types only. All other records will be suppressed.

```
view *
```

View records of all record types.

```
v +REC_CARD, -REC_CUST
```

Add records of record type REC_CARD to the current display of records and suppress records of record type REC_CUST.

WHERE

Syntax:

```

>>--+ WHere  +--+  +- ANY  +-  +-- 1  +-----+
      |      |      |      |      |      |
+-- ALL  +--+  +- NX  +--+  +-- expression  +--+
      |      |      |      |
+-- EX  +--+  +-- line_flag  +--+
+-- X  +--+

```

Description:

Display only those records (data set records, record segments or DB2 table rows) that are of the **default record type** and satisfy the specified *expression* or *line_flag* criteria.

Records not assigned the default record type are not tested and so are unaffected by the WHERE operation. i.e. The current (excluded or non-excluded) status of records that are not of the default record type remain unchanged.

By default, the WHERE operation tests each record assigned the default record type, starting at the first record selected for EDIT/BROWSE. Records that satisfy the specified criteria are included for display whereas records that do not satisfy the specified criteria are excluded.

If NX is specified, the test criteria is performed only against non-excluded records of the default record type. Any previously excluded records remain excluded. If EX or X is specified, the test criteria is performed only against excluded records of the default record type. However, any non-excluded records of the same record type are automatically excluded. Note that, if non-excluded records are to remain unaffected when using expression search criteria against excluded records, then the **MORE** command must be used instead.

The first record that satisfies the specified WHERE criteria becomes the current line, otherwise, if no records satisfy the criteria, the Top of Data line becomes the current line.

If WHERE is executed with no parameters, then all excluded records of the default record type become non-excluded and so are included in the display.

In **single record view**, the display area will be scrolled to the first data record that satisfies the specified criteria.

Note that, WHERE uses an expression to filter records that have already been loaded or are eligible to be loaded by the Data Editor browse or edit session. However, the FILTER parameter of the **EDIT** and **BROWSE** primary commands use expressions to select records that are to be eligible for load.

Parameters:

ANY

Search all EXCLUDED and non-excluded data records of the default record type. Records that satisfy the *expression* or *line_flag* search criteria are included and those that do not are excluded.

EX
X

Exclude all non-excluded records of the default record type and search only EXCLUDED records of the default record type.

NX

Search only non-excluded records of the default record type.

expression

expression is a valid SDE **expression** which supports **function calls**, **record_type field names** and references, **sub-expressions**, **arithmetic**, **relational** and **logical** operators. The result of *expression* must be numeric and is treated as being Boolean in nature with a zero value indicating a "false" condition and any non-zero value indicating a "true" condition.

If the result of *expression* is "true" then the record being tested is selected for display.

Default *expression* is "1" indicating that all non-suppressed records are selected for display.

line_flag

line_flag may be specified to locate a record or record segment that has been flagged with the requested line flag.

Each valid *line_flag* keyword detailed below corresponds to a built-in function.

A description of each *line_flag* keyword may be found in its equivalent function description.

<i>line_flag</i> Keyword	Built-in Function
ERRor	CHANGEERROR()
CHAnge Chg	CHANGEOK()
ALTered UPDateD	CHANGED()
DATAerror	DATATYPEERROR()
DUPkey	DUPLICATEKEY()
EMPTY	EMPTYSLOT()
EXcluded X	EXCLUDED()
LABel	HASPOINT()
COMmand CMd	HASPREFIXCMD()
IDentify IDrequired	IDREQUIRED()
NEW	INSERTED()
KEYChanged KEYChg	KEYCHANGED()
LENgtherror	LENGTHERROR()
EOL NOEOL	NOEOL()
SAVE	SAVEREQUIRED()
SQLError	SQLERROR()
TRNC TRUNCated	TRUNCATED()
VALERRor	VALUEERROR()

Examples:

```
where LastName = C'Jones'
For records that are of the default record type, display only those records for which the field "LastName" is equal to "Jones" in mixed case.

all LastName = C'Jones' & Salary > 26000
As above but filter the data records further so that the numeric field "Salary" is greater than 26,000.

where #12(2,7) \<< 'E77'
Display records that are of the default record type and where the two dimensional character array element belonging to field reference number 12 does not contain the string "E77".

where PostCode >> "SW1" & ( DispatchDate = OrderDate | ( Quantity > 30 & Cost < 2155.53 ) )
Display records that are of the default record type where character field "PostCode" begins with string "SW1" AND one of the following conditions are true:

1. The contents of fields "DispatchDate" and "OrderDate" are equal.
2. The numeric field "Quantity" is greater than 30 AND the numeric field "Cost" is less than 2155.53.
```

See Also:

[FLIP](#) [LESS](#) [LOCATE](#) [MORE](#)

WINDOW

Syntax:

```

+-----+ + (plus) -----+
|
>>-- Window -----+-----><
|
+-----+ - (minus) -----+
|
+-----+ CAScade -----+
|
|                               +--- HOr -----+
+-----+ TILe -----+-----+
|                               +--- Vert -----+
|
+-----+ NEWwindow -----+
|
|                               +--- Character -----+
|                               +--- Hex -----+
|                               +--- HEXDump -----+
|                               +--- Single -----+
|                               +--- Sngl -----+
|                               +--- Tabl -----+
|
|                               +--- DOcument ---+
+-----+ REStore -----+-----+
|
+--- MINimize ---+ +--- FRAmE -----+
+--- MINimize ---+
|
+--- MAXimize ---+
+--- MAXimize ---+
    
```

Description:

Perform window focusing, positioning and sizing operations on the current SDE (document) window view or CBLed MDI parent (frame) window.

Parameters:

- + (plus)
Place focus on the next MDI child window.
- (minus)
Place focus on the previous MDI child window.
- CASCADE
Cascade all MDI child windows within the CBLed MDI parent window.
- TILE
Tile all MDI child windows within the CBLed MDI parent window horizontally (HOR), the default, or vertically (VERT).
- NEWWINDOW
Open an new SDE window view for the data in the current SDE window view.

NEWWINDOW may optionally be followed by a parameter to define the **display format** for the new window. If not specified then the new window inherits the format of original.
 - Character
Multi record view with all records or record segments mapped as a single, character field with field name "UnMapped" or "UnMappedSeg". No data conversion is performed.
 - Hex
Same as CHARACTER with the addition that the data is also displayed in Hex below the character display. Note that the Hex display occupies an additional 2 lines of data.
 - HEXDump
Display the focus record or record segment in **single record**, unformatted hex dump view. See command **HEXDUMP** for more information.

XMLEDIT

Syntax:

```
>>-- XMLedit --+-----+-----+-----><
|         |         |         |
+-- row_number ---+ +-- #column_ref ---+
|         |         |         |
+-- #column_ref ---+-----+-----+
|         |         |         |
+-- row_number ---+-----+-----><
```

Description:

Applicable to DB2 table edit only. XMLEDIT opens a new **text editor** view in order to edit and update XML document text located within a specific row and XML column of the current DB2 data editor view.

The text is formatted and displayed in the edit view so that a new line is started after each tag element not followed by text data and after each end tag. Nested tag elements are also indented to illustrate the tag hierarchy.

The text editor view containing the XML data is assigned a temporary data set name. When edit updates to the XML document are saved, SELCOPYi does not attempt to write the data to DASD using the assigned DSN as it would for standard text edit. Instead, the count of alterations made since the last save is reset to zero and, when the text edit view is subsequently closed, the corresponding DB2 row in the data edit view is flagged as changed. When save is executed in the DB2 table edit view, a DB2 SQL UPDATE statement is executed which parses the updated XML document and verifies that it is well-formed before being saved to the DB2 table.

XMLEDIT is sensitive to the cursor position. By default, if a *row_number* value is omitted and a **multi-record** data edit view is current, then the row on which the cursor is positioned will be used. Alternatively, for a **single record** data edit view, the focus table row will be used. If *#column_ref* is omitted, the DB2 table column on which the cursor is positioned will be used.

Error ZZSD691E is returned if the column referenced is not of XML data type.

Parameters:

#column_ref
Identifies a single DB2 column, specified as a column number with a hash (#) character prefix, which is of XML data type (e.g. #4).

Default is the column on which the cursor is positioned.

row_number
Identifies the row number within the current DB2 table browse/edit view containing the XML document to be edited.

Default in a multi-record view is the row on which the cursor is positioned. Otherwise, it is the currently displayed row in a single record view.

See Also:

GETXML PUTXML XMLBROWSE XMLLENGTH XMLVIEW

XMLGEN

Syntax:

```
>>--- XMLgen -----><
```

Description:

XMLGEN with no parameters will open the **SDE XML Generation Panel** to generate XML for the contents of the focus SDE data edit or browse display.

If the focus window is not an SDE window view, the general **XML Generation** dialog panel is displayed.

If parameters are specified, then the general SELCOPY/i **XMLGEN** primary command is executed instead.

See Also:

CSVGEN JSONGEN PRINT

XMLLENGTH

Syntax:

```
>>-- XMLLength --+-----+-----+-----><
|               |               |
+-- row_number ---+ +-- #column_ref --+
|               |               |
+-- #column_ref ---+-----+-----+
|               |               |
+-- row_number ---+-----+-----><
```

Description:

Applicable to DB2 table edit and browse only. XMLLENGTH displays the length of text belonging to an XML document located within a specific row and XML column of the current DB2 data editor view.

The message format is:

```
ZZSD697I XML document length of column "col_name" in row row_number
      (DocId=document_id) is length.
```

Where:

- *col_name* is the name of the DB2 XML column.
- *row_number* is the row number within the data edit display.
- *document_id* is the integer value found in the implicit DOCID column which uniquely identifies the row containing the XML document.
- *length* is the length of the XML document text.

XMLLENGTH is sensitive to the cursor position. By default, if a *row_number* value is omitted and a **multi-record** data edit view is current, then the row on which the cursor is positioned will be used. Alternatively, for a **single record** data edit view, the focus table row will be used. If *#column_ref* is omitted, the DB2 table column on which the cursor is positioned will be used.

Error ZZSD691E is returned if the column referenced is not of XML data type.

Parameters:

#column_ref

Identifies a single DB2 column, specified as a column number with a hash (#) character prefix, which is of XML data type (e.g. #4).

Default is the column on which the cursor is positioned.

row_number

Identifies the row number within the current DB2 table browse/edit view containing the XML document whose length is to be displayed.

Default in a multi-record view is the row on which the cursor is positioned. Otherwise, it is the currently displayed row in a single record view.

See Also:

GETXML PUTXML XMLBROWSE XMLEDIT XMLVIEW

XMLVIEW

Syntax:

```
>>-- XMLView --+-----+-----+-----><
|               |               |
+-- row_number ---+ +-- #column_ref --+
|               |               |
+-- #column_ref ---+-----+-----+
|               |               |
+-- row_number ---+-----+-----><
```

Description:

Applicable to DB2 table edit and browse only. XMLVIEW opens a new **text editor** view in order to perform a read-only edit of the XML document text located within a specific row and XML column of the current DB2 data editor view.

The text is formatted and displayed in the edit view so that a new line is started after each tag element not followed by text data and after each end tag. Nested tag elements are also indented to illustrate the tag hierarchy.

The text editor view containing the XML data is assigned a temporary data set name and, although alterations to the text are possible, its contents cannot be used to update the XML column data in the DB2 table browse/edit view. However, alterations may be saved to a data set, library member or HFS/ZFS file using the text edit primary command **SAVE** or **SSAVE** with parameter *fileid*.

XMLVIEW is sensitive to the cursor position. By default, if a *row_number* value is omitted and a **multi-record** data edit view is current, then the row on which the cursor is positioned will be used. Alternatively, for a **single record** data edit view, the focus table row will be used. If *#column_ref* is omitted, the DB2 table column on which the cursor is positioned will be used.

Error ZZSD691E is returned if the column referenced is not of XML data type.

Parameters:

#column_ref
Identifies a single DB2 column, specified as a column number with a hash (#) character prefix, which is of XML data type (e.g. #4).

Default is the column on which the cursor is positioned.

row_number
Identifies the row number within the current DB2 table browse/edit view containing the XML document to be viewed.

Default in a multi-record view is the row on which the cursor is positioned. Otherwise, it is the currently displayed row in a single record view.

See Also:

[GETXML](#) [PUTXML](#) [XMLBROWSE](#) [XMLEDIT](#) [XMLLENGTH](#)

XREF

Syntax:

```
>>-- XREF -----+----->>
      |
      +- xref_file +-----+
          |
          |         +- Foreground +-
          +- sdo_file +-----+
              |         |         |
              +- Batch -----+ +- max_rc -+
```

Description:

Supplied as an edit macro, the XREF utility may be used to generate a SELCOPY/i structure (SDO) from an XREF file (sequential data set or PDS/PDSE member).

If executed with no *sdo_file* parameter, the **Create Structure from XREF File (=9.2)** panel will be displayed. In this case, if *xref_file* has been specified or XREF has been executed against an entry in a file list, the XREF file fields of the panel will be populated with the *xref_file* name.

If *sdo_file* has been specified, then the utility will generate a **CREATE STRUCTURE** primary command with parameters that match that of the input XREF syntax.

Parameters:

xref_file
Identifies a single XREF file (sequential data set or PDS/PDSE library member).

sdo_file
Name of the output SELCOPY/i structure definition file (sequential data set or PDS/PDSE library member.)

FOREGROUND | BATCH
FOREGROUND (default) will execute the generated CREATE STRUCTURE command in the foreground. BATCH will display a temporary data set in a text edit window which contains JCL to execute the SDEAMAIN (SELCOPY/i data edit batch program). The job will include a single job step that executes the SELCOPY/i CREATE STRUCTURE command.

max_rc
The maximum acceptable return code that may be set by the COBOL or PL1 compiler for which structure generation will continue without error.

ZOOM

Syntax:

```
>>-- ZOOM -----><
      |         |
      +-- In  ----+
      |         |
      +-- Out  ----+
```

Description:

Switches the display format between **single record view** and multi record view. When switching to single record view the ZOOM command operates on the **default record**.

If no parameter is specified, then the display format toggles between the single and multi record view.

Parameters:

IN Switch to single record view mode. With **FORMAT TABLE** in effect this is equivalent to issuing the command **FORMAT SINGLE**.

OUT Switch to multi record view mode. With **FORMAT SINGLE** in effect this is equivalent to issuing the command **FORMAT TABLE**.

SET/QUERY/EXTRACT

Syntax:

```
>>+-----+----- option_name ----- value -----><
  |         |
  +- SET -----+

>>--- Query ----- option_name -----><

                +-----+
                v         |
>>--- EXTRACT ---+--- /option_name ---+--- / -----><
```

Description:

Structured Data Environment options may set, and their current values queried or extracted into stem-variables for use in REXX macros using the SET, QUERY and EXTRACT commands respectively. Additional operations supported by EXTRACT, allow the user to extract information about individual records and also extract record text.

SDE options may be initialised via the following methods:

1. The (SData) section of the INI file which is processed at SELCOPY/i startup.
2. The SDEPROF macro which is executed at the start of every SDE session.
3. The SDE CLI command SET, executed from the command line or an SDE macro.
4. The "Edit Options" entry of the "Options" drop down menu on the parent MDI window menu bar.

SET options take effect at the following different levels:

Global	The option affects all SDE edited files.
File	The option may be set differently for each SDE edited file.
View	The option may be set differently for each SDE window view of the same file.

Parameters:

option_name

The SDE environment option(s). For EXTRACT, multiple options maybe requested at once by separating each with a blank or "/" (forward slash).

value

For SET, the new value to be assigned for *option_name*.

Supported Options:

ARRAYALL	DSN	MAPPING	SAVEOPTIONS
ARRAYASCHARACTER	DSORG	MAXCOBOLRC	SCALE
ASCII	EDITPRIMEKEY	MAXHLASMR	SESSION
AUTOSAVE	EOLIN	MAXPL1RC	SHADOW
AUTOSTRUCTURE	EOLOUT	MAXSTOR	SIZE
AUXDSNPREFIX	FIELD	MSGLINE	STRUCTURE
AUXDATACLASS	FILEID	MSGMODE	TITLE
AUXMGMTCLASS	FMODE	MULTIPOINT	TYPE
AUXSTORCLASS	FNAME, MBR	NULLCHAR	UNDOING
AUXUNIT	FOCUS	NULLIFBLANK	UNNAMED
BOUNDS	FORMAT	OFFSET	USEOFFSET
CAPS	FPATH	PAD	USERNAME
CCSID	FTYPE	PAGEDEPTH	USING
CLIPBOARD	FVALUE	PAGEWIDTH	VALUE
COLATTRIBUTES	GROUP	PFKEY	VENDCHAR
COLOUR, COLOR	GROUPASCHARACTER	POINT	VERSION
COLWIDTH	IDSCOPE	PREFIX	VIEW
COLWIDTHAUTO	IDWARNING	QSEPARATOR	VSHOWEND
COMMIT	KEY	RECFM	VSTRIP
COMPILER	LASTMSG	RECINFO	WINNAME
COMPILERDDSIZE	LENGTH	RECTYPES	WINPOS
COPYBOOKPROC	LEVEL	REFERENCE	WINSIZE
DESCRIPTION	LOADWARNING	REGION	WRAP
DFPSCALE	LRECL	RESERVED	ZEROS
DRECTYPE	MACROPATH	RESERVEDLEVEL	

ABBREVIATION - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- ABBREVIation  +--- ON  +-----><
|   |         |         |         |         |
+-- SET -----+         +--- OFF  ---+

>>--- Query  ----- ABBREVIation  -----><

>>--- EXTRACT  --- /ABBREVIation/  -----><
```

Description:

This option controls whether the group name and field item designators that constitute a field name may be abbreviated, starting with the first letter of the designator, in SDE commands that reference record fields by name. (e.g. FIND, CHANGE, WHERE)

For example, in formatted records that contain the field name 'SPROCKET-SIZE' in a group field 'MARCX', the field may be referenced as M.SPR if this name is unique to that field.

Note that abbreviated field names may **always** be specified for a LOCATE command, regardless of the setting of the ABBREVIATION option.

SET ABBREVIATION takes effect at the Global level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON|OFF

Controls whether use of abbreviated field names is set ON or OFF.

QUERY Response:

The current setting of the ABBREVIATION option.

EXTRACT Rexx variables:

abbreviation.0	1
abbreviation.1	The current setting of the ABBREVIATION option. ON or OFF .

ALT - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option ALT, controls the same options in an SDE window view as those supported by a CBL edit view. See **SET ALT** in CBL Text Edit documentation.

ARRAYALL - SET/QUERY Option

Syntax:

```
>>+-----+--- ARRAYALL  +--- ON  +-----><
|   |         |         |         |         |
+-- SET -----+         +--- OFF  ---+

>>--- Query  ----- ARRAYALL  -----><

>>--- EXTRACT  --- /ARRAYALL/  -----><
```

Description:

By default, SELCOPY/i data edit of formatted data containing variable length array (OCCURS DEPENDING) elements will display the maximum possible number of array elements that may exist within the array.

IN [STRUCTURE] *struct_name*

Identifies the name of the SDO structure in which the specified *record_type* is defined. Required only if a distinction is to be made between multiple data sets displayed in SDE views, each using different SDO structure definitions but where the specified *record_type* is defined in more than one of the structures.

Default is the SDO structure used to map records in the **current SDE view**.

ASCII - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+-- ASCii -----+-- ON ----+-----><
  |         |               |         |
  +- SET -----+         +--- OFF ---+
>>--- Query ----- ASCii -----><
>>--- EXtract --- /ASCii/ -----><
```

Description:

This option causes data in all character (AN) fields to be interpreted in ASCII format.

SET ASCII takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON|OFF

Controls whether ASCII interpretation is in effect (ON) or not (OFF).

Note that setting ASCII OFF does not interpret as EBCDIC data fields defined as being ASCII in the record-type definition. i.e. these types of character field are always interpreted as being ASCII.

QUERY Response:

The current setting of the ASCII option (ON or OFF).

EXTRACT REXX variables:

ascii.0	1
ascii.1	The current setting of ASCII. ON or OFF .

AUTOSAVE - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+-- AUTOSave -----+-- ON ----+-----+-----><
  |         |               |         |         |
  +- SET -----+         +--- OFF ---+         +--- PROMPT -----+
                                     |         |
                                     +--- NOPROMPT ---+
>>--- Query ----- AUTOSave -----><
>>--- EXtract --- /AUTOSave/ -----><
```

Description:

This option controls the action taken if unsaved changes exist in edited data and the **END** (or **QUIT**) command is executed. Actions are as follow:

AUTOSAVE	Action Taken
ON (PROMPT or NOPROMPT)	Changes to the data are saved without prompting the user before doing so.
OFF PROMPT	END command is terminated with the following message: ZZSD465I Data Changed - Use SAVE/CANCEL (AUTOSAVE OFF PROMPT is set).
OFF NOPROMPT	User is prompted to save the changes, discard the changes or to terminate the END command and return to the SDE edit view.

The initial value of AUTOSAVE is set by default to AUTOSAVE OFF NOPROMPT.

SET AUTOSAVE takes effect at the Global level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON|OFF

Controls whether changes to data will be automatically saved (ON) or not (OFF).

PROMPT|NOPROMPT

For AUTOSAVE OFF only, controls whether a prompt message or a popup window is opened containing choices to save the changes, discard them or cancel END and return to the edited data.

QUERY Response:

The current setting of the AUTOSAVE option.

EXTRACT REXX variables:

autosave.0	2
autosave.1	The current setting of automatic SAVE, ON or OFF .
autosave.2	The current setting of the prompt window, PROMPT or NOPROMPT .

AUTOSTRUCTURE - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+----- AUTOSTRUCTure ----+-- ON ----+----->>
|         |         |                   |         |
+- SET -+         |         |         |         |
|         |         |         |         |
|         |         |         |         |
|         |         |         |         |
+-- OFF ----+         |         |         |         |

>>--- Query ----- AUTOSTRUCTure ----->>

>>--- EXtract -- / AUTOSTRUCTure / ----->>
```

Description:

AUTOSTRUCTURE controls the level at which the **Structure to Dataset Associations** facility is implemented, and is normally controlled via the **"Associations"** panel in Settings for Data Edit (=0.4.6).

SET AUTOSTRUCTURE takes effect at the Global level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON | SAVE | APPLY | OFF

Specifies whether or not the structure to dataset associations are automatically defined and/or applied.

SAVE will automatically save associations performed during a data edit or browse operation, **APPLY** will automatically apply saved structure associations to data files edited or browsed without reference to a structure, and **ON** will do both. **OFF** turns off all structure to dataset association processing.

QUERY Response:

The current setting of the AUTOSTRUCTURE option (ON, SAVE, APPLY or OFF).

EXTRACT Rexx variables:

autostructure.0	1
autostructure.1	The current setting of AUTOSTRUCTURE, ON , SAVE , APPLY or OFF .

See Also:

SET/QUERY/EXTRACT Option: **STRUCTURE**

AUXDSNPREFIX - SET/QUERY/EXTRACT Option**Syntax:**

```
>>+-----+--- AUXdsnprefix --- dsn_prefix -----><
  |         |
  +- SET -----+

>>--- Query ----- AUXdsnprefix -----><

>>--- EXtract --- /AUXdsnprefix/ -----><
```

Description:

This option controls the default data set name HLQ prefix used to allocate the auxiliary data set when the Auxiliary Edit technique is required. This option may also be set via the [Auxiliary Dataset Settings](#) panel.

The initial value of AUXDSNPREFIX is set by the INI variable *SDE.AuxDSNPrefix* or, where this INI option has not been set, defaults to **%USER%.SELCOPYI.SDEAUX**.

When SET AUXDSNPREFIX is executed, the *SDE.AuxDSNPrefix* option is set or updated in the User INI file when the SELCOPY/i session is closed. i.e. the auxiliary data set name will be set across SELCOPY/i sessions.

SET AUXDSNPREFIX takes effect at the Global level.

SET Value:

dsn_prefix

Valid data set name high level qualifiers, conforming to your system's standards, to be used as the DSN prefix for the generated auxiliary data set.

Qualifiers of the format **.Dyyyyddd.Thhmmssx**, representing the current local date and time, are appended to *dsn_prefix* to complete the auxiliary data set name. If *dsn_prefix* exceeds 26 characters, then the DSN is truncated.

QUERY Response:

The auxiliary DSN prefix that is the current setting of the AUXDSNPREFIX option.

EXTRACT Rexx variables:

auxdsnprefix.0	1
auxdsnprefix.1	The auxiliary DSN prefix that is the current setting of the AUXDSNPREFIX option.

AUXDATACLASS - SET/QUERY/EXTRACT Option

Syntax:

```
>>-+-----+-- AUXDataclass --- sms_dataclass -----><
  |         |
  +- SET -----+

>>--- Query ----- AUXDataclass -----><

>>--- EXtract --- /AUXDataclass/ -----><
```

Description:

This option controls the Storage Management System (SMS) data class name to be used for allocation of a temporary, auxiliary data set when the Auxiliary Edit technique is required. This option may also be set via the **ZZSGSETX** settings panel.

The initial value of AUXDATACLASS is set by the INI variable *SDE.AuxDataClass*. If this INI option has not been set, no SMS data class will be used in the allocation of the auxiliary data set.

When SET AUXDATACLASS is executed, the *SDE.AuxDataClass* option is set or updated in the User INI file when the SELCOPY/i session is closed. i.e. the auxiliary data set data class will be set across SELCOPY/i sessions.

SET AUXDATACLASS takes effect at the Global level.

SET Value:

sms_dataclass
The name of a data class defined in the SMS installation.

QUERY Response:

The auxiliary data set data class that is the current setting of the AUXDATACLASS option.

EXTRACT Rexx variables:

auxdataclass.0	1
auxdataclass.1	The auxiliary data set SMS data class that is the current setting of the AUXDATACLASS option.

AUXMGMTCLASS - SET/QUERY/EXTRACT Option

Syntax:

```
>>-+-----+-- AUXMgmtclass --- sms_mgmtclass -----><
  |         |
  +- SET -----+

>>--- Query ----- AUXMgmtclass -----><

>>--- EXtract --- /AUXMgmtclass/ -----><
```

Description:

This option controls the Storage Management System (SMS) management class name to be used for allocation of a temporary, auxiliary data set when the Auxiliary Edit technique is required. This option may also be set via the **ZZSGSETX** settings panel.

The initial value of AUXMGMTCLASS is set by the INI variable *SDE.AuxMgmtClass*. If this INI option has not been set, no SMS management class will be used in the allocation of the auxiliary data set.

When SET AUXMGMTCLASS is executed, the *SDE.AuxMgmtClass* option is set or updated in the User INI file when the SELCOPY/i session is closed. i.e. the auxiliary data set management class will be set across SELCOPY/i sessions.

SET AUXMGMTCLASS takes effect at the Global level.

SET Value:*sms_mgmtclass*

The name of a management class defined in the SMS installation.

QUERY Response:

The auxiliary data set management class that is the current setting of the AUXMGMTCLASS option.

EXTRACT Rexx variables:

auxmgmtclass.0	1
auxmgmtclass.1	The auxiliary data set SMS management class that is the current setting of the AUXMGMTCLASS option.

AUXSTORCLASS - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- AUXstorclass --- sms_mgmtclass -----><
  |         |
  +- SET -----+

>>--- Query ----- AUXstorclass -----><

>>--- EXtract --- /AUXstorclass/ -----><
```

Description:

This option controls the Storage Management System (SMS) storage class name to be used for allocation of a temporary, auxiliary data set when the Auxiliary Edit technique is required. This option may also be set via the **ZZSGSETX** settings panel.

The initial value of AUXSTORCLASS is set by the INI variable *SDE.AuxStorClass*. If this INI option has not been set, no SMS storage class will be used in the allocation of the auxiliary data set.

When SET AUXSTORCLASS is executed, the *SDE.AuxStorClass* option is set or updated in the User INI file when the SELCOPY/i session is closed. i.e. the auxiliary data set storage class will be set across SELCOPY/i sessions.

SET AUXSTORCLASS takes effect at the Global level.

SET Value:*sms_storclass*

The name of a storage class defined in the SMS installation.

QUERY Response:

The auxiliary data set storage class that is the current setting of the AUXSTORCLASS option.

EXTRACT Rexx variables:

auxstorclass.0	1
auxstorclass.1	The auxiliary data set SMS storage class that is the current setting of the AUXSTORCLASS option.

AUXUNIT - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- AUXUnit ----- unit_name -----><
  |         |         |
  +- SET -----+

>>--- Query ----- AUXUnit -----><

>>--- EXtract --- /AUXUnit/ -----><
```

Description:

This option controls the DASD UNIT generic device type or group name used to allocate a non-SMS managed auxiliary data set when the Auxiliary Edit technique is required. This option may also be set via the **ZZSGSETX** settings panel.

The initial value of AUXUNIT is set by the INI variable *SDE.AuxUnit* or, where this INI option has not been set, defaults to **SYSALLDA**.

When SET AUXUNIT is executed, the *SDE.AuxUnit* option is set or updated in the User INI file when the SELCOPY/i session is closed. i.e. the auxiliary data set unit will be set across SELCOPY/i sessions.

SET AUXUNIT takes effect at the Global level.

SET Value:

unit_name
Any valid DASD device number, device type or group name.
Default is SYSALLDA.

QUERY Response:

The auxiliary data set UNIT that is the current setting of the AUXUNIT option.

EXTRACT REXX variables:

auxunit.0	1
auxunit.1	The auxiliary data set UNIT that is the current setting of the AUXUNIT option.

BOUNDS - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+---+--- BOUNds ---+-----+><
  |         |         |         |         |
  +- SET -----+ +- BNDs -----+ +- left_col -- right_col ---+

>>--- Query -----+--- BOUNds ---+-----><
  |         |         |
  +- BNDs -----+

>>--- EXtract ---+ /BOUNds/ ---+-----><
  |         |         |
  +- /BNDs/ -----+
```

Description:

Applicable to formatted and unformatted, multi and single record views but invalid for DB2 table edit, BOUNDS defines the leftmost and rightmost columns between which the **CHANGE**, **EXCLUDE**, **FIND**, **ONLY** and **SHIFT** commands will operate.

By default, the left bound is set to 1 and the right bound is set to the maximum defined record length plus 1 (LRECL+1) for the file being edited. Note that an error occurs if an attempt is made to set either bound to a value greater than the maximum record length.

Execute SET BOUNDS with no parameters to reset the left and right bounds columns to these defaults.

For variable length records, BOUNDS allows the record length of an individual variable length record to either be preserved or increased (up to the defined maximum) following execution of the SHIFT primary command or the ")"))" or "((((" line (prefix area) commands. When the right bound is set at a column number which is less than or equal to a record's current record length, that record's length is preserved following a shift operation. When the right bound is set at a column number greater than a record's current record length, shifting data left or right will alter the length of that record.

SET BOUNDS takes effect at the View level.

SET Value:

left_col

An integer value identifying the left bound column. Record data to the left of this column will not be included within the scope of shift and string search operations.

Alternatively, "*" (asterisk) may be specified to represent the current left bound value.

right_col

An integer value identifying the right bound column. Record data to the right of this column will no be included within the scope of shift and string search operations.

Alternatively, "*" (asterisk) may be specified to represent the current right bound value.

If *left_col* is specified, *right_col* is mandatory.

QUERY Response:

The current left and right bound values for the BOUNDS option.

EXTRACT Rexx variables:

bounds.0 bnds.0	2
bounds.1 bnds.1	The current left bound column number.
bounds.2 bnds.2	The current right bound column number.

CAPS - SET/QUERY/EXTRACT Option

Syntax:

```
>> +-----+ CAPs -----+ ON -----><
    | SET -----+      | OFF  ---+
>>--- Query ----- CAPs -----><
>>--- EXtract --- /CAPs/ -----><
```

Description:

This option controls whether upper casing of alpha characters will occur for all data within fields that are changed.

If record or record segment data is unformatted (record type "UnMapped" or "UnMappedSeg" respectively), then all alpha characters in the unformatted data will be upper cased.

SET CAPS takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON | OFF

Controls whether automatic upper casing is set ON or OFF.

QUERY Response:

The current setting of the CAPS option.

EXTRACT Rexx variables:

caps.0	1
caps.1	The current setting of CAPS option, ON or OFF .

CCSID - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- CCSID ----- nnn -----><
    |         |
    +- SET -----+

>>--- Query ----- CCSID -----><

>>--- EXtract --- /CCSID/ -----><
```

Description:

This option controls the default Coded Character Set Identifier (CCSID) used in the **XMLGEN** command when executed in batch. For interactive execution the user's 3270 terminal CCSID is used as the default (and cannot be changed by this SET option).

SET CCSID takes effect at the global level.

SET Value:

nnn A valid Coded Character Set Identifier. This must be the integer identifier of an EBCDIC single byte character set CCSID supported by the IBM z/OS UNICODE character conversion feature.

QUERY Response:

```
ZZSD079I CCSID tccsid CHARACTER SET cs CODE PAGE cp BATCH CCSID bccsid
```

Where:

- tccsid* is the CCSID associated with the 3270 terminal (0 in batch).
- cs* is the character set identifier of the terminal CCSID (0 in batch).
- cp* is the code page of the terminal CCSID (0 in batch).
- bccsid* is the default batch input CCSID. This will have be set to the user's terminal CCSID during interactive execution of any of the SELCOPY/i structured data commands (if not already set) and can be changed with the SET CCSID command.

EXTRACT Rexx variables:

ccsid.0	4
ccsid.1	The terminal CCSID (0 in batch)
ccsid.2	The terminal character set (0 in batch)
ccsid.3	The terminal code page (0 in batch)
ccsid.4	The default batch input CCSID

CLIPBOARD - QUERY/EXTRACT

Syntax:

```
>>--- Query ----- CLIPboard -----><
>>--- EXTRACT --- /CLIPboard/ -----><
```

Description:

QUERY and EXTRACT CLIPBOARD reports the current content of the SELCOPY/i **clipboard**.

QUERY Response:

Displays the number of elements in the clipboard and, if there are elements, the type of elements, either whole lines (type *LINE*) or contiguous sets of columns (type *COLUMN*).

For example:

```
ZZSD079I CLIPBOARD ELEMENTS 5 TYPE COLUMN
```

EXTRACT Rexx variables:

clipboard.0	2
clipboard.1	The number of elements in the clipboard.
clipboard.2	The type of elements in the clipboard. <i>LINE</i> or <i>COLUMN</i> . (Null if clipboard.1=0).

See Also:

CLIPBOARD

COLATTRIBUTES - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ COLAttributes +--- ON +-----><
|         |               |--- OFF ---|
+- SET ----+               +--- OFF ---+

>>--- Query ----- COLAttributes -----><

>>--- EXTRACT --- /COLAttributes/ -----><
```

Description:

Applicable to DB2 table edit and browse only, this option controls the display of the DB2 results table column attributes when a row is presented in **single format** view. (See commands **FORMAT** and **ZOOM**)

Column attributes are displayed under header **PkUIFCND** and reflects information obtained from the DB2 catalog table **SYSIBM.SYSCOLUMNS** as follow.

Attribute	Description
Pk	A 2 byte field displaying the numeric position of the column within the Primary Key, otherwise blank.
U	Displays "u" which indicates that this column is part of a unique key, otherwise blank.
I	Displays "d" which indicates that this column is part of a non-unique (duplicate) key index, otherwise blank.
F	Displays "f" which indicates that this column is part of a referential constraint foreign key, otherwise blank.
C	Displays "c" which indicates that this column is involved in a check constraint, otherwise blank.
N	Displays "n" which indicates that this column supports a null value, otherwise blank.
D	Displays one of the following single character DEFAULT value indicators. See description of the DEFAULT column of table SYSIBM.SYSCOLUMNS in the "IBM DB2 SQL Reference" manual.

SET COLATTRIBUTES takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON|OFF

Controls whether display of DB2 column attributes is set ON or OFF.

QUERY Response:

The current setting of the COLATTRIBUTES option.

EXTRACT Rexx variables:

colattributes.0	1
colattributes.1	The current setting of column attributes display, ON or OFF .

COLOUR, COLOR - SET/QUERY/EXTRACT Option

Syntax:

```

                                         +- NONE -----+
>>+-----+--+ COLOr  +-+ Block  -----+ Blue  -----+-----+><
   |      |  |      |  |      |  |      |  |      |  |      |
+- SET -+  +- COLOur -+  +- CMDline -----+ +- Red  -----+ +- BLInk -----+
   |      |  |      |  |      |  |      |  |      |  |      |
   +- Filearea ----+ +- Pink  -----+ +- REVerse ----+
   +- HEADing  ----+ +- Green  -----+ +- Uscore  ----+
   +- HELDData ----+ +- Turquoise -+
   +- HELDTitle -+ +- Yellow  ----+
   +- HIGHLIGHT -+ +- White  -----+
   +- KEY  -----+ +- Default  ----+
   +- MODified  ----+
   +- Msgline  ----+
   +- NONDisplay -+
   +- Pending  ----+
   +- PRefix  -----+
   +- PRImary  ----+
   +- PROMpt  -----+
   +- RECFlags  ----+
   +- RECIId  -----+
   +- RECLength -+
   +- RECOrdtype -+
   +- Scale  -----+
   +- SEGment  ----+
   +- SHadow  -----+
   +- THighlight -+
   +- TOfeof  -----+

>>--- Query  -----+ COLOr  +-+-----+><
           |      |  |      |  |
           +- COLOur -+

>>--- EXTract  --- / +- COLOr  +-+ / -----+><
           |      |  |      |  |
           +- COLOur -+
    
```

Description:

This option controls the colour display of areas within the SDE window view.

SET COLOUR takes effect at the File level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

BLOCK	Text within a marked block field. Default colour is BLUE REVERSE.
CMDLINE	Text entered on the command line. Default colour is GREEN.
FILEAREA	Untagged, unmarked text within display area. Default colour is BLUE
HEADING	Field Name, Field Reference and Field Data Type header lines. Default colour is WHITE.
HELDDATA	Field data within the display area belonging to field columns that have been HELD using the SELECT command. Default colour is TURQUOISE.
HELDTITLE	Field header (and scale) lines within the display area belonging to field columns that have been HELD using the SELECT command. Default colour is YELLOW.
HIGHLIGHT	Highlighted (tagged) lines. Default colour is YELLOW.
KEY	Data field(s) occupying the KEY field of a KSDS data set. Default colour is BLUE USCORE.
MODIFIED	Supported for DB2 table edit, fields containing changed data. Default colour is YELLOW.
MSGLINE	Message lines (with MSGLINE ON). Default colour is RED.
NONDISPLAY	Fields of type Character or AlphaNumeric (AN) which contain non-printable characters. Default colour is DEFAULT USCORE.
PENDING	Pending commands in the prefix area. Default colour is RED.
PREFIX	Prefix area (with PREFIX ON). Default colour is GREEN.
PRIMARY	Untagged, unmarked primary record segment text within display area. Default colour is TURQUOISE.
PROMPT	The colour of the command line prompt. Default colour is BLUE.
RECFLAGS	Record Flags (with RECINFO ON FLAGS/ALL) Default colour is yellow.
RECID	Record TTR/OFFSET or RBA field (with RECINFO ON ID/ALL) Default colour is yellow.
RECLENGTH	Record Length (with RECINFO ON LENGTH/ALL) Default colour is yellow.
RECORDTYPE	Record type line. Default colour is PINK.
SCALE	Scale line (with SCALE ON). Default colour is WHITE.
SEGMENT	Record Segment name header line. Default colour is YELLOW.
SHADOW	Shadow lines (for excluded lines when SHADOW ON). Default colour is WHITE.
THIGHLIGHT	Highlighted targets. Default colour is GREEN REVERSE.
TOFEOF	Top of File and End of File lines. Default colour is YELLOW.

Default is the **default record type**.

IN [STRUCTURE] *struct_name*

Identifies the name of the SDO structure in which the specified *record_type* is defined. Required only if a distinction is to be made between multiple data sets displayed in SDE views, each using different SDO structure definitions but where the specified *record_type* is defined in more than one of the structures.

Default is the SDO structure used to map records in the **current SDE view**.

QUERY Response:

The column field name referenced by *field_col* in the default record type followed by the current and maximum values of the column's width.

COLWIDTHAUTO - SET/QUERY Option

Syntax:

```
>>+-----+ COLWIDTHAuto +-----+ ON +-----+><
|         |             |         |   |         |
+- SET -+-             +-- OFF --+ +-- Browse ----+
|         |             |         |   |         |
|         |             |         |   | Edit   ----+
|         |             |         |   |         |
+-- All   ----+         +-- All   ----+

>>--- Query ----- COLWIDTHAuto -----><

>>--- EXTRACT --- /COLWIDTHAuto/ -----><
```

Description:

This option controls whether for SDE DB2 tables only, the displayed width of variable length columns is reduced to be equal to the maximum length of the data occupying a field in the column. i.e. for a DB2 variable length columns COLWIDTH is automatically set to length of the longest value encountered on initial load of the DB2 result table.

This action may be set ON for either BROWSE only (the default), EDIT only or ALL (EDIT and BROWSE).

If COLWIDTHAUTO is set on for EDIT and the user needs to enter a new value that is longer than any existing value, then the (SET) COLWIDTH command may be entered to set a new column width value for any individual column. e.g.

COLW #3 15

Alternatively, enter the SELECT (SEL) command without parameters to display the column selection dialog, from which current column widths settings may be updated. To reset all columns width settings to their default value, enter the RESET WIDTH (RES W) command from the SELECT dialog.

SET COLWIDTHAUTO takes effect at the Global level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON|OFF
Controls whether COLWIDTH will be automatically reduced (ON) or not (OFF).

BROWSE|EDIT|ALL
For COLWIDTHAUTO ON only, controls whether this action takes place for BROWSE only, EDIT only or ALL (EDIT and BROWSE).

QUERY Response:

The current setting of the COLWIDTHAUTO option.

EXTRACT Rexx variables:

colwidthauto.0	2
colwidthauto.1	The current setting of COLWIDTHAUTO. ON or OFF .
colwidthauto.2	The level at which COLWIDTHAUTO ON takes effect. BROWSE , EDIT or ALL .

COMMIT - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ COMMIT +--- ONEXit +-----><
    |         |         |         |
    +- SET ----+         +--- ONSave +-----+
                                |         |
                                +--- ONCLEansave --+

>>--- Query ----- COMMIT -----><

>>--- EXtract --- /COMMIT/ -----><
```

Description:

COMMIT only applies to **DB2 table edit**.

The COMMIT option determines when the changes made in a DB2 table edit session are committed to the database (with the SQL COMMIT statement).

SET COMMIT takes effect at the file level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

- ONEXIT Any saved changes to the table are committed only when exiting the edit session.
- ONSAVE Changes are committed after each **SAVE command** even if SQL errors are reported for some edited rows.
- ONCLEANSAVE Changes are committed after each **SAVE command** only if no SQL errors are reported for any edited row.

QUERY Response:

The current setting of the COMMIT option, for example:

```
ZZSD079I COMMIT ONCLEANSAVE
```

EXTRACT Rexx variables:

commit.0	1
commit.1	The current setting of the COMMIT option, ONEXIT , ONSAVE or ONCLEANSAVE .

COMPILER - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ COMPiler +-----+
    |         |         |         |
    +- SET ----+         +--- COBOL +--- compiler_module +-----><
                                |         |
                                +--- PL1 ----+

>>--- Query ----- COMPiler -----><

>>--- EXtract --- /COMPiler/ -----><
```

Description:

This option controls the name of the COBOL and PL1 module to be called by SDE when compilation of copy books is required (for CREATE STRUCTURE.)

The initial COMPILER values are set by the INI variables **SDE.COBOLCompiler** and **SDE.PL1Compiler** or, where these INI options have not been set, defaults to IGYCRCTL for COBOL and IBMZPL1 for PL1. Note that the SDE.COBOLCompiler and SDE.PL1Compiler options may be set to a fully qualified load library DSN and member name.

When SET COMPILER is executed, the SDE.COBOLCompiler and/or SDE.PL1Compiler option is set or updated in the User INI

file when the SELCOPY/i session is closed. This means that the compiler module names will be set across SELCOPY/i sessions.

SET COMPILER values take effect at the Global level.

SET Value:

COBOL
PL1

Specifies that the following token is the COBOL or PL1 compiler module name.

compiler_module

The 8 byte member name of the compiler module.

SDE will invoke the compiler module via standard system library search chain. This replaces any fully qualified load library name that may have been included as part of the SDE.COBOlCompiler or SDE.PL1Compiler INI option specifications.

QUERY Response:

The string "COBOL", the COBOL compiler name followed by the string "PL1" and the PL1 compiler name which are the current settings of the COMPILER option.

EXTRACT REXX variables:

compiler.0	2
compiler.1	The current setting for the COBOL compiler name.
compiler.2	The current setting for the PL1 compiler name.

COMPILERDDSIZE - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ COMPILERDdsize +- SYSAdata +-+ Blk -----+ pri - sec -><
|         |         |         |         |         |         |
+- SET ----+         +- SYSIn ----+ +- Blocks ----+
|         |         |         |         |         |         |
+- SYSMdeck +- +- Cylinders +-
|         |         |         |         |         |         |
+- SYSprint +- +- Trk -----+
|         |         |         |         |         |         |
+- SYSut ----+ +- Tracks ----+

>>--- Query ----- COMPILERDdsize -----><

>>--- EXtract -- /COMPILERDdsize/ -----><
```

Description:

This option controls the amount of disk space dynamically allocated to work datasets when the COBOL compiler, the PL/1 compiler, or the high level assembler is invoked by SELCOPY/i to create data structure definition objects (SDOs) from COBOL or PL/1 data definitions or assembler DSECTs.

The default values of these options are:

DD Name	Allocation Unit	Primary Allocation	Secondary Allocation
SYSADATA	CYL	1	5
SYSIN	TRK	1	5
SYSMDECK	TRK	1	5
SYSPRINT	CYL	1	5
SYSUT	CYL	1	5

These defaults should be adequate for most cases but may need adjusting if very large structures containing many record types are to be generated.

These settings can also be viewed and modified using the [Compiler work file allocation settings](#) panel.

SET COMPILERDDSIZE values take effect at the Global level.

Set value:

- SYSAdata**
Specify the size of the SYSADATA associated data file generated by the compilers and the assembler to describe attributes of the generated code.
- SYSIn**
Specify the size of the SYSIN source data set which SELCOPY/i generates as input to the compilers and assembler.
- SYSMdeck**
Specify the size of the SYSMDECK dataset used by the COBOL compiler.
- SYSPrint**
Specify the size of the SYSPRINT listing dataset produced by the compilers and assembler.
- SYSUT**
Specify the size of the SYSUTnn work datasets used by the compilers and assembler.
- Blk
Blocks**
Allocate space in blocks.
- Cylinders**
Allocate space in cylinders.
- Trk
Tracks**
Allocate space in tracks.
- pri**
Primary allocation quantity.
- sec**
Secondary allocation quantity.

Query Response:

The current settings of all the compiler work dataset size allocations. For example:

```
ZZSD079I COMPILERDDSIZE SYSADATA(CYL,5,5) SYSIN(TRK,1,5)
          SYSMDECK(TRK,1,5) SYSPRINT(CYL,1,5) SYSUT(CYL,1,5)
```

EXTRACT Rexx variables:

The variable extracted for the COMPILERDDSIZE option for each work dataset consists of four blank separated tokens:

1. The work dataset DD name, SYSADATA|SYSIN|SYSMDECK|SYSPRINT|SYSUT.
2. The space allocation unit, BLK|CYL|TRK.
3. The primary allocation quantity.
4. The secondary allocation quantity.

compilerddsize.0	5
compilerddsize.1	The current setting of the SYSADATA dataset allocation size. For example SYSADATA CYL 1 5
compilerddsize.2	The current setting of the SYSIN dataset allocation size. For example SYSIN TRK 1 5
compilerddsize.3	The current setting of the SYSMDECK dataset allocation size. For example SYSMDECK TRK 1 5
compilerddsize.4	The current setting of the SYSPRINT dataset allocation size. For example SYSPRINT CYL 1 5
compilerddsize.5	The current setting of the SYSUTnn datasets allocation size. For example SYSUT CYL 1 5

COPYBOOKPROC - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ COPYBOOKProc +---+ COBOL +---+---+ INTERNAL +-----+<<
|         |               |         |         |         |         |
+- SET +-----+         +- PL1 +-----+ +- COMPILER +---+

>>--- Query ----- COPYBOOKProc -----<<

>>--- EXTRACT -- /COPYBOOKProc/ -----<<
```

Description:

This option controls how COBOL and PL1 copybooks are to be processed by the **CREATE STRUCTURE** command if the COPYBOOKPROC (COMPILER|INTERNAL) keyword is not specified in the command.

By default, where available, SELCOPYi will use internal code to process copybooks.

SET COPYBOOKPROC values take effect at the Global level.

Set value:

- COBOL Specify the processor of COBOL copybooks.
- PL1 Specify the processor of PL1 copybooks.
- COMPILER The language compiler is to be used to process copybooks.
- INTERNAL SELCOPYi internal code is to be used to process copybooks.

Query Response:

The current settings of the COBOL and PL1 copybook processor. For example:

```
ZZSD079I COPYBOOKPROC COBOL INTERNAL PL1 COMPILER
```

EXTRACT Rexx variables:

The variables extracted for the COPYBOOKPROC option are:

copybookproc.0	2
copybookproc.1	The current setting of the COBOL copybook processor. For example COBOL INTERNAL
copybookproc.2	The current setting of the PL1 copybook processor. For example PL1 COMPILER

DESCRIPTION - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- DEScription ---- long_description -----><
    |         |
    +- SET -----+

>>--- Query ----- DEScription -----><

>>--- EXtract --- /DEScription/ -----><
```

Description:

This option displays and assigns the long description that may be defined as part of an SDE structure (SDO) file. See **CREATE STRUCTURE**.

SET DESCRIPTION values take effect at the File level.

SET Value:

long_description
 Specifies a structure description text string which may be no longer than 512 characters. Enclosing quotation marks (") or apostrophes (') may be specified and are stripped when saved in the structure.

QUERY Response:

The string "DESCRIPTION", followed by the complete structure definition text.

EXTRACT Rexx variables:

description.0	1
description.1	The complete structure definition text.

Default is the SDO structure used to map records in the **current SDE view**.

Set Value:

ON Scaling is to be set on for the field or column. A number will be displayed in standard decimal format if possible.

OFF Scaling is to be set off for the field or column. All numbers are displayed in standard exponent format.

If neither ON nor OFF keywords are given then ON is implied.

scale The number of decimal places (fraction digits) to be allowed for in the scaled format. If this value is greater than zero, numbers with at most this number of decimal places will be aligned so that their decimal point is placed *scale+1* character positions in from the right of the display area.

If no scale value is given then the current value is unchanged.

QUERY Response:

The query response is the message:

```
ZZSD079I DFPSCALE on_or_off scale field_name
        FOR RECORD record_type
        IN STRUCTURE structure_name
```

Extract REXX variables:

dfpscale.0	5
dfpscale.1	ON or OFF.
dfpscale.2	The scale value.
dfpscale.3	The field or column name.
dfpscale.4	The record type name.
dfpscale.5	The structure name.

Examples:

In the following examples a long format (8 byte) decimal floating-point table column named *D1* reference #1 is shown with different settings of DFPSCALE.

Command	Display
SET DFPSCALE OFF #1	<pre> D1 #1 DECFLOAT(16) <---+-----1-----+-----2---> -2.2200000000000000E+001 0 +1.3450000000000000E+000 +6.3300000000000000E+000 +1.0366600000000000E+002</pre>
SET DFPSCALE ON 0 #1	<pre> D1 #1 DECFLOAT(16) <---+-----1-----+-----2---> -22.2 0 1.345 6.33 103.666</pre>
SET DFPSCALE ON 3 #1	<pre> D1 #1 DECFLOAT(16) <---+-----1-----+-----2---> -22.2 0 1.345 6.33 103.666</pre>

DRECTYPE - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ DRECType --- record_type -----><
  |         |
  +- SET -----+
```

```
>>--- Query ----- DRECType -----><
```

```
>>--- EXTRACT --- /DRECType/ -----><
```

Description:

This option controls the **record type** to be used as the **default record type** if SELCOPY/i SDE is unable to determine the default record type from the **focus line**.

The initial value of DRECTYPE is set when the SDE window is opened via an **EDIT** or **BROWSE** command. In addition to the SET DRECTYPE command, DRECTYPE may be dynamically set following a **VIEW**, **WHERE**, **MORE** or **LESS** command or any command that requires a record type.

See section *Default Record Type* for further information.

SET DRECTYPE takes effect at the View level.

SET Value:

record_type

The record type of any RTO defined within the current structure definition object (SDO).

QUERY Response:

The current default record type followed by the record type that is the current setting of the DRECTYPE option.

EXTRACT Rexx variables:

directype.0	2
directype.1	The current default record type.
directype.2	The record type that is the current setting of the DRECTYPE option.

DSN - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option DSN, has the same effect in an SDE window view as that supported by a CBLe edit view. See **SET DSN** in CBLe Text Edit documentation.

DSORG - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option DSORG, has the same effect in an SDE window view as that supported by a CBLe edit view. See **SET DSORG** in CBLe Text Edit documentation.

EDITPRIMEKEY - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+---+ EDITPRimekey -+---+ ON -+-----+<<
    |   SET  -+   +- EPK -----+   +- OFF  -+
    |   |   |   |   |   |   |   |   |   |
>>--- Query ---+ EDITPRimekey -+-----+<<
          |   |   |   |   |   |   |
          +- EPK -----+
>>--- EXtract  -+ /EDITPRimekey/ +-----+<<
          |   |   |   |   |   |   |
          + /EPK/ -----+
```

Description:

EDITPRIMEKEY only applies to **DB2 edit** of tables with primary keys. EPK is an alternative name for this set variable.

When EDITPRIMEKEY is ON, the columns of the primary key are enterable.

When EDITPRIMEKEY is OFF, the columns of the primary key are protected.

SET EDITPRIMEKEY takes effect at the file level. The value is not saved across sessions and may be specified on the edit command with the presence or absence of the EDITPRIMEKEY parameter.

SET Value:

ON | OFF

Specifies whether columns of the table primary key are enterable (ON) or not (OFF).

QUERY Response:

The current setting of the EDITPRIMEKEY (EPK) option, **ON** or **OFF**.

EXTRACT Rexx variables:

If EDITPRIMEKEY was used as the name of the extracted variable:

editprimekey.0	1
editprimekey.1	The current setting of the EDITPRIMEKEY option, ON or OFF .

If EPK was used as the name of the extracted variable:

epk.0	1
epk.1	The current setting of the EDITPRIMEKEY option, ON or OFF .

EOLIN - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ EOLIn -----><
|         |         |         |
+- SET ----+         +-- CR -----+
|         |         |         |
+-- LF -----+         +-- NL -----+
|         |         |         |
+-- CRLF -----+         +-- LFCR -----+
|         |         |         |
+-- CRNL -----+         +-- string ---+

>>--- Query ----- EOLIn -----><

>>--- EXtract --- /EOLIn/ -----><
```

Description:

EOLIN alters the current input EOL (end-of-line) delimiter string used to interpret variable length records obtained from an HFS file for SDE **EDIT** and **BROWSE** CLI commands.

An EOLIN value is set for all SDE and CBL edit views including those containing non-HFS files.

When an edit view is opened and before the edit data is read, the default EOLIN is automatically set to be one of the following values, in the order of precedence:

1. The EOL parameter argument specified on the EDIT or BROWSE command.
2. For SDE EDIT/BROWSE only, the EOLIN value set in the SDE profile macro (using SET EOLIN).
3. The EOL format value defined in the directory entry.
4. EOLIN=NL (new line).

SET EOLIN takes effect at the File level.

SET Values:

CR|LF|NL|CRLF|LFCR|CRNL|*string*

Identifies the end-of-line delimiter. Delimiter elements are as follow:

NL	X'15'	New Line.
CR	X'0D'	Carriage Return.
LF	X'0A'	Line Feed.
<i>string</i>	-	A 2-byte user specified character or hex string.

QUERY Response:

The current setting of the EOLIN value.

EXTRACT Rexx variables:

eolin.0	1
eolin.1	The current setting of the EOLIN value.

EOLOUT - SET/QUERY/EXTRACT Option

Syntax:

```

>>+-----+ EOLOut -----><
|         |             |
+- SET ----+         +- CR -----+
|         |             |
+-- LF -----+
|         |             |
+-- NL -----+
|         |             |
+-- CRLF -----+
|         |             |
+-- LFCR -----+
|         |             |
+-- CRNL -----+
|         |             |
+-- string ---+

```

```

>>--- Query ----- EOLOut -----><

```

```

>>--- EXtract --- /EOLOut/ -----><

```

Description:

EOLOUT determines the output HFS file EOL (end-of-line) delimiter string to be used when saving edited data to an HFS fileid which is not fixed format. i.e RECFM F is **not** the current setting for the edited data.

By default, the EOLOUT value is equal to the EOLIN value established when the CBL edit view is initially opened for edit or browse. When using SDE Update-in-place Edit, EOLOUT cannot be changed and must equal the EOLIN value when the data was read.

An EOLOUT value is also set for non-HFS files allowing the user to subsequently save the data in the edit view to a new HFS file simply by using the SAVE *fileid* command where fileid is an HFS path name.

SET EOLOUT takes effect at the File level.

SET Values:

CR|LF|NL|CRLF|LFCR|CRNL|*string*

Identifies the end-of-line delimiter. Delimiter elements are as follow:

NL	X'15'	New Line.
CR	X'0D'	Carriage Return.
LF	X'0A'	Line Feed.
string	-	A 2-byte user specified character or hex string.

QUERY Response:

The current setting of the EOLOUT value.

EXTRACT Rexx variables:

eolout.0	1
eolout.1	The current setting of the EOLOUT value.

FIDCHANGED - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option FIDCHANGED, controls the same option in an SDE window view as supported by the same option in a CBL edit view. See **SET FIDCHANGED** in CBL Text Edit documentation.

FIELD - EXTRACT Option

Syntax:

```
>>--- EXTRACT --- /FIELD/ -----><
```

Description:

For use in macros, EXTRACT FIELD obtains the characteristics (field reference number, field data type, field name and currently displayed field width) of each field column header belonging to the **default record type**.

Field data type may be one of the following:

BINTEGER BIT CHARACTER DECIMAL	FIXED FLOATBIN FLOATHX HEXADECIMAL	INTEGER STRUCTURE UNION VARCHAR	XVARCHAR ZONED
---	---	--	-------------------

Values are obtained for each displayed field column in the order in which they appear in the display. Therefore, the **SELECT** command will influence the EXTRACT FIELD values.

EXTRACT Rexx variables:

field.0	Number of currently selected fields belonging to the default record type.
field.i	The blank delimited field reference number (#nn), field data type, field name (including any array element subscripts in parentheses) and the current field width of the <i>i</i> th field in the default record type.

See Also:

QUERY/EXTRACT Options: **COLWIDTH FOCUS FVALUE VALUE**

FILEID - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option FILEID, has the same effect in an SDE window view as that supported by a CBL edit view. See **SET FILEID** in CBL edit documentation.

FMODE - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option FMODE, has the same effect in an SDE window view as that supported by a CBL edit view. See **SET FMODE** in CBL edit documentation.

FNAME, MBR - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option FNAME or MBR, has the same effect in an SDE window view as that supported by a CBL edit view. See **SET FNAME** in CBL edit documentation.

FOCUS - EXTRACT Option

Syntax:

```
>>--- EXTRACT --- /FOCUS/ -----><
```

Description:

For use in macros, EXTRACT FOCUS obtains information about the **focus field**.

EXTRACT Rexx variables:

focus.0	7
focus.1	Line number of the first record in the focus line record group.
focus.2	Line number of the last record in the focus line record group.
focus.3	Shadow state of the focus line. (VISIBLE, EXCLUDED, SUPPRESSED or NOTSELECTED)
focus.4	Description of the focus line record group. (DATA, TOF, EOF, SHADOW or BOUNDS)
focus.5	Record type of the focus line record group.
focus.6	Focus field name.
focus.7	Position of cursor within the focus field.

See Also:

EXTRACT Options: **FIELD FVALUE VALUE**

FORMAT - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- FOrmat -----+--- Character -----+><
|         |         |         |         |         |
+- SET ----+         +--- Hex -----+
|         |         |         |         |         |
+--- Single -----+
+--- Sngl -----+
|         |         |         |         |         |
+--- Table -----+

>>--- Query ----- FOrmat -----><

>>--- EXTRACT --- /FOrmat/ -----><
```

Description:

This option controls the **display format** for the current SDE BROWSE or EDIT window. SET FORMAT is equivalent to the **FORMAT** command.

SET FORMAT takes effect at the View level.

SET Value:

Character

Multi record view with all records (or record segments) mapped as a single, character field with field name "UnMapped" (or "UnMappedSeg"). No data conversion is performed.

Hex

Same as CHARACTER with the addition that the data is also displayed in Hex below the character display. Note that the Hex display occupies an additional 2 lines of data.

Single

Sngl

Single record format with data types formatted according to the record structure. Each field occupies a separate line. Vertical scrolling transfers focus between fields. Horizontal scrolling transfers focus between records.

By default, **PF2** is assigned to distributed CBL edit macro SDEZOOMW which opens a new view of the record data and executes FORMAT SINGLE to display the record occupying the **focus line** in single format.

Table

Multi-record table format (Default) with data types formatted according to the record structure. Each field occupies a separate column. Vertical scrolling transfers focus between records. Horizontal scrolling transfers focus between fields.

QUERY Response:

The string "FORMAT" followed by the current setting of the FORMAT option (CHAR, HEX, SINGLE or TABLE).

EXTRACT REXX variables:

format.0	1
format.1	The current setting of the FORMAT option.

FPATH - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option FPATH, has the same effect in an SDE window view as that supported by a CBLed edit view. See [SET FPATH](#) in CBLed Text Edit documentation.

FTYPE - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option FTYPE, has the same effect in an SDE window view as that supported by a CBLed edit view. See [SET FTYPE](#) in CBLed Text Edit documentation.

FVALUE - EXTRACT Option

Syntax:

```

      +- fieldname +-
      |             |
>>--- EXTRACT --- /FVALUE +-----+ / -----><

```

Description:

For use in macros, EXTRACT FVALUE generates a REXX variable with an assigned value, one for each field column selected for display and belonging to the default record type. Unnamed field columns are ignored.

Alternatively, if a specific field name (*fieldname*) is specified then a REXX variable with assigned value is generated for this field only. Note that *fieldname* must also have been selected for display and must belong to the default record type.

The generated REXX variable names are the record field column names, and their assigned values are the character representation of the individual field's contents within the record occupying the focus line. No variables are generated if the focus line is an EXCLUDED, SUPPRESSED or NOT SELECTED shadow line.

Field names that are elements of an array, and so have array suffices, generate REXX compound variables where the field name is the variable name stem and each dimension of the array is represented within the variable name tail. e.g. Field name "AddrLine(6)" generates variable "AddrLine.6".

Any occurrence of the "-" (minus) character in a field column name (as supported by COBOL) is translated to "_" (underscore) in the generated variable name thus avoiding REXX "Bad Arithmetic Conversion" errors. e.g. Field name "XX-HRMN" generates variable "XX_HRMN".

Beware of using variables names within your REXX macro procedure that match field column names in your structured record data. REXX variable values generated by EXTRACT FVALUE will replace any existing value already assigned to a variable name that matches a record field column name.

Because only variables for displayed field columns of the default record type are generated, the **SELECT** command will influence the effect of EXTRACT FVALUE.

EXTRACT Rexx variables:

EXTRACT FVALUE assigns variables as described above. No compound variable with a stem of "fvalue" is assigned.

See Also:

EXTRACT Options: **FIELD FOCUS VALUE**

GROUP - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ Group -----+ ON -----+<
| SET -----+          +-- OFF --+
+-----+

>>--- Query ----- Group -----<

>>--- EXtract --- /Group/ -----<
```

Description:

This option is applicable to **single-record view** only and is used to control whether or not each occurrence of a group item is displayed. Group items correspond to structure, union and root array field names.

SET GROUP takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON|OFF Controls whether GROUP field names are displayed (ON) or not (OFF).

QUERY Response:

The current setting of the GROUP option (ON or OFF).

EXTRACT Rexx variables:

group.0	1
group.1	The current setting of GROUP. ON or OFF .

GROUPASCHARACTER - SET Option

Syntax:

```
>>+-----+ GROUPAscharacter -----+ ON -----+<
| SET -----+          +-- OFF --+ | field_col |
+-----+

>+-----+-----+-----+-----+-----+-----+-----+-----+-----+<
| FOR +-----+ record_type -----+ |
| RECOrd | | IN +-----+ struct_name |
| +-----+ | | STRUcture |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+<
```

Description:

Applicable only to formatted data, this option determines whether a specified group (structure) field, defined within a specified record type mapping, is to be displayed as a fixed length character field or as a formatted group of its component fields.

When a group field which comprises variable length field elements is displayed as a single character field, the group is first expanded to its maximum length. As a safety mechanism and so avoiding destruction of the group field structure, the character display of this variable length, expanded group field is non-enterable and cannot be altered by a CHANGE operation.

If the specified field name *field_col* is not a group field, then the GROUPASCHARACTER option is applied to the next higher level group field within which the field is defined.

Note that the record-type is itself a group field, so specifying a field name whose next higher level group is the record-type group field will display as character all data in the record/segment mapped by its assigned record-type. This is not the same as displaying the record data in unmapped (**CHAR** or **UNFMT**) format.

SET GROUPASCHARACTER takes effect at the View level.

SET Value:

ON | OFF

Display the group field as character (ON) or display its formatted component fields (OFF).
Default is ON.

field_col

The individual column identifying the group field to which the option will apply. This may be the group field itself or a field contained within.

The field column may be identified by its reference number (e.g. #6) or its name (e.g. JobID).

If *field_col* does not exist in the specified *record_type*, the following error message is returned:

```
ZZSD148E Data element field_col is not defined in
        record type record_type of structure struct_name.
```

Default is the **focus column**.

FOR [RECORD] *record_type*

Identifies the record-type mapping in which the specified *field_col* is defined.

Default is the **default record type**.

IN [STRUCTURE] *struct_name*

Identifies the name of the SDO structure in which the specified *record_type* is defined. Required only if a distinction is to be made between multiple data sets displayed in SDE views, each using different SDO structure definitions but where the specified *record_type* is defined in more than one of the structures.

Default is the SDO structure used to map records in the **current SDE view**.

IDSCOPE - SET/QUERY/EXTRACT Option

Syntax:

```

                                +-- ALL -----+
                                +-- CHANGED ----+
                                |                 |
>>+-----+ IDScope -----+-----><
    |     |                 |                 |
    +- SET -----+         +-- FLAGGED ----+

```

```

>>--- Query ----- IDScope -----><

```

```

>>--- EXtract --- /IDScope/ -----><

```

Description:

This option controls which record flag must be set on in order for that record to be selected for remap by the **IDENTIFY** command.

Note that, for segmented record edit, a record may be selected for remap if the required flag is set on for any of its primary or secondary segments.

SET IDSCOPE takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ALL | CHANGED

Records may be selected for remap if either the ID flag or CHANGED flag is set on.
Default is ALL which is a synonym for CHANGED.

FLAGGED

Records may be selected for remap only if the ID flag is set on.

QUERY Response:

The current setting of the IDSCOPE option (CHANGED or FLAGGED).

EXTRACT Rexx variables:

idscope.0	1
idscope.1	The current setting of IDSCOPE, CHANGED or FLAGGED .

IDWARNING - SET/QUERY/EXTRACT Option

Syntax:

```
>> +-----+ IDWarning  +---+ ON  +-----><
    |         |         |         |         |
    +- SET  +-----+         +---+ OFF  +---+
>>--- Query  ----- IDWarning -----><
>>--- EXtract  --- /IDWarning/ -----><
```

Description:

This option controls whether the prefix area ID warning symbol **==ID>** is displayed when data in an ID field, identified by USE WHEN criteria, is changed in any way.

The ID warning symbol indicates that the IDENTIFY command should be executed to possibly remap data in the record using a different record type definition.

SET IDWARNING takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON|OFF

Controls whether the ID warning symbol is to be displayed.

QUERY Response:

The current setting of the IDWARNING option.

EXTRACT Rexx variables:

idwarning.0	1
idwarning.1	The current setting of IDWARNING option, ON or OFF .

KEY - QUERY/EXTRACT Option

Syntax:

```
>>--- Query ----- KEY -----><
```

```
>>--- EXTRACT --- /KEY/ -----><
```

Description:

QUERY and EXTRACT KEY reports the data occupying the key field of the KSDS record occupying **focus line** of the displayed data.

QUERY Response:

The string "KEY" followed by the key field data in printable character and hexadecimal string representation.

EXTRACT Rexx variables:

key.0	1
key.1	The data in the key field of the record occupying the focus line.

LASTMSG - QUERY/EXTRACT Option

Syntax:

```
>>--- Query ----- LASTmsg -----><
```

```
>>--- EXTRACT --- /LASTmsg/ -----><
```

Description:

Obtain the last message or error message generated for the current SDE window view.

Unlike QUERY/EXTRACT LASTMSG for CBL window views, the recalled message string is automatically returned as is. i.e. No message number and "LASTMSG" prefix string.

QUERY Response:

Displays the last message or error message generated for the current window view. The message may not have been displayed if NOMSG was used or MSGMODE was OFF.

EXTRACT Rexx variables:

lastmsg.0	1
lastmsg.1	The last message issued.

See Also:

EXTRACT Option: **MSGMODE**

LENGTH - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+-- LENgth ----- n_bytes -----><
  |         |         |
  +- SET -----+

>>--- Query ----- LENgth -----><

>>--- EXTract --- /LENgth/ -----><
```

Description:

This option controls the record length of the record occupying the **focus line**.

If the length of a record is increased, then pad characters are appended to the record. The pad character used is that defined by the current value for **PAD**. Reducing a record's length will truncate record data.

The length of a record may also be updated by overtyping the new value in the Length field displayed in the Record Information area. (See SET/QUERY/EXTRACT **RECINFO** and **RECLEN** commands.)

If a structure has been applied to the edited records, then the **record type** (RTO) associated with the updated record is re-evaluated and the contents of the SDE edit view updated accordingly.

Record length changes are only applicable to variable length records where **Full Edit**, **KSDS Edit** or **Auxiliary Edit** is in effect.

Beware that changing record lengths incorrectly may result in length errors, indicated by =LGTH> or =ERRV> in the prefix area, and so the record data is no longer correctly mapped by the defined record structure.

SET LENGTH takes effect at the File level.

SET Value:

n_bytes A positive integer value representing the new length assigned to the record.

QUERY Response:

The length of the record occupying the focus line.

EXTRACT Rexx variables:

length.0	1
length.1	Length of the record occupying the focus line.

LEVEL - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+-- LEVel -----+-- ON ---+-----><
  |         |         |         |         |
  +- SET -----+         +- OFF ---+

>>--- Query ----- LEVel -----><

>>--- EXTract --- /LEVel/ -----><
```

Description:

For SDE EDIT and BROWSE window views in mapped single record view (MAP), this option controls display of the field's hierarchical level number as a prefix to the field name.

With **LEVEL ON** in effect the Field name value is indented for each successively higher level number.

The LEVEL option operates at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON Level number display is set ON.

OFF Level number display is set OFF.

QUERY Response:

The current setting of the LEVEL option, **ON** or **OFF**.

EXTRACT Rexx variables:

level.0	1
level.1	The current setting of the LEVEL option, ON or OFF .

LOADWARNING - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- LOADWarning --- n_recs -----><
   |         |
   +- SET -----+

>>--- Query ----- LOADWarning -----><

>>--- EXtract --- /LOADWarning/ -----><
```

Description:

This option specifies the threshold of number of data set records to be loaded into storage before the Load Warning pop-up message window is displayed prompting the user to either continue or stop loading records for SDE display and edit. The message also provides the user with the option to respect or bypass the load warning when the load threshold is once again encountered on continuing to load records from the data set.

If the user chooses to interrupt load of the data set's records once the load threshold has been reached, then records that have already been loaded are displayed in the SDE window view. If the records were loaded for edit, then Update-in-place edit will be used overriding any EDIT REPLACE request for full edit capabilities.

The purpose of the Load Warning is to allow users to break out of possible time and resource consuming loads of large data sets.

Note the difference between SDE LOADWARNING and CBL text edit LOADWARNING which specifies number of bytes loaded instead of number of records. SDE SET LOADWARNING has no affect on the CBL text edit LOADWARNING threshold.

Load Warning applies only to edit techniques where an attempt is made to load all requested records into storage. e.g. no load warning threshold checks are made for KSDS and AUXILIARY edit techniques.

The initial LOADWARNING value is set by the INI variable **SDE.LoadWarning** or, where this INI option has not been set, defaults to 5000 records.

When SET LOADWARNING is executed, the SDE.LoadWarning option is set or updated in the User INI file when the SELCOPY/i session is closed. This means that the load warning threshold will be set across SELCOPY/i sessions.

SET LOADWARNING value take effect at the Global level for all SDE EDIT and BROWSE commands and its setting is saved if **SAVEOPTIONS** ON is in effect.

SET Value:

n_recs The number of records to be loaded after which the Load Warning message occurs.

QUERY Response:

The number of records to be loaded which is the current settings of the LOADWARNING option.

EXTRACT Rexx variables:

loadwarning.0	1
loadwarning.1	The current loadwarning threshold value in number of records.

LRECL - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option LRECL, has the same effect in an SDE window view as that supported by a CBL edit view. See **SET LRECL** in CBL Text Edit documentation.

MACROPATH - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option MACROPATH, has the same effect in an SDE window view as that supported by a CBL edit view. See **SET MACROPATH** in CBL Text Edit documentation.

MAPPING - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- MAPPING ---+--- ON ---+-----><
    |         |           |         |
+- SET -----+         +--- OFF ---+
>>--- Query ----- MAPPING -----><
>>--- EXtract --- /MAPPING/ -----><
```

Description:

This option controls whether formatted data is displayed in its mapped or unmapped format.

With MAPPING OFF, the record type assigned to formatted records or record segments persists but is not used to format the display of the record data. The record data is displayed in its unformatted (unmapped) format, instead.

With MAPPING ON, the record type assigned to formatted records or record segments is re-applied to the display of the record data.

SET MAPPING does not affect unformatted record data. i.e. SDE EDIT/BROWSE of a data set no USING structure (SDO) specified.

SET MAPPING takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON | OFF
Formatted record data mapping is set ON or OFF.

QUERY Response:

The current setting of the MAPPING option, **ON** or **OFF**.

EXTRACT Rexx variables:

mapping.0	1
mapping.1	The current setting of the MAPPING option, ON or OFF .

MAXCOBOLRC - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- MAXCObolrc ----- value -----><
|         |
+- SET -----+

>>--- Query ----- MAXCObolrc -----><

>>--- EXtract --- /MAXCObolrc/ -----><
```

Description:

This option controls the maximum acceptable COBOL compiler return code for which an SDE structure will be successfully generated.

The MAXCOBOLRC value is only applicable to execution of the SDE CLI command, **CREATE STRUCTURE**, with parameter **FROM COBOL copybook**.

Where a COBOL return code greater than the MAXCOBOLRC value occurs, the CREATE STRUCTURE operation fails with an error message.

The initial value of MAXCOBOLRC is set by the INI variable **SDE.MaxCOBOLRC** or, where this INI option has not been set, defaults to 4.

When SET MAXCOBOLRC is executed, the SDE.MaxCOBOLRC option is set or updated in the User INI file when the SELCOPY/i session is closed. This means that the maximum storage value will be set across SELCOPY/i sessions.

SET MAXCOBOLRC takes effect at the Global level.

SET Value:

value
Maximum acceptable Return Code from the COBOL compiler.

QUERY Response:

"MAXCOBOLRC" followed by a single numeric indicating the current MAXCOBOLRC value.

EXTRACT Rexx variables:

maxcobolrc.0	1
maxcobolrc.1	The value that is the current setting of the MAXCOBOLRC option.

MAXHLASMRC - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- MAXHLasmrc ----- value -----><
|         |
+- SET -----+

>>--- Query ----- MAXHLasmrc -----><

>>--- EXtract --- /MAXHLasmrc/ -----><
```

Description:

This option controls the maximum acceptable HLASM assembler return code for which an SDE structure will be successfully generated.

The MAXHLASMRC value is only applicable to execution of the SDE CLI command, **CREATE STRUCTURE**, with parameter **FROM HLASM copybook**.

Where a HLASM return code greater than the MAXHLASMRC value occurs, the CREATE STRUCTURE operation fails with an error message.

The initial value of MAXHLASMRC is set by the INI variable **SDE.MaxHLASMRC** or, where this INI option has not been set, defaults to 4.

When SET MAXHLASMRC is executed, the SDE.MaxHLASMRC option is set or updated in the User INI file when the SELCOPY/i session is closed. This means that the maximum storage value will be set across SELCOPY/i sessions.

SET MAXHLASMRC takes effect at the Global level.

SET Value:

value
Maximum acceptable Return Code from the HLASM assembler.

QUERY Response:

"MAXHLASMRC" followed by a single numeric indicating the current MAXHLASMRC value.

EXTRACT REXX variables:

maxhlasmrc.0	1
maxhlasmrc.1	The value that is the current setting of the MAXHLASMRC option.

MAXPL1RC - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- MAXPL1rc ----- value ----->>
  |         |
  +- SET -----+

>>--- Query ----- MAXPL1rc ----->>

>>--- EXtract --- /MAXPL1rc/ ----->>
```

Description:

This option controls the maximum acceptable PL/1 compiler return code for which an SDE structure will be successfully generated.

The MAXPL1RC value is only applicable to execution of the SDE CLI command, **CREATE STRUCTURE**, with parameter **FROM PL1 copybook**.

Where a PL/1 return code greater than the MAXPL1RC value occurs, the CREATE STRUCTURE operation fails with an error message.

The initial value of MAXPL1RC is set by the INI variable **SDE.MaxPL1RC** or, where this INI option has not been set, defaults to 4. When SET MAXPL1RC is executed, the SDE.MaxPL1RC option is set or updated in the User INI file when the SELCOPY/i session is closed. This means that the maximum storage value will be set across SELCOPY/i sessions.

SET MAXPL1RC takes effect at the Global level.

SET Value:

value
Maximum acceptable Return Code from the PL/1 compiler.

QUERY Response:

"MAXPL1RC" followed by a single numeric indicating the current MAXPL1RC value.

EXTRACT REXX variables:

maxpl1rc.0	1
maxpl1rc.1	The value that is the current setting of the MAXPL1RC option.

MAXSTOR - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- MAXSTOR --- n_bytes ---+-----+-----><
    |         |         |         |         |         |
    +- SET ----+         +- K -+
                                +- M -+

>>--- Query ----- MAXSTOR -----><

>>--- EXTRACT --- /MAXSTOR/ -----><
```

Description:

This option limits the amount of storage available to handle edit of any single data set within the SDE environment.

An SDE edited data set is limited by the lesser of the prevailing MAXSTOR value and the amount of free private area storage above the 16MB line available within the region at the time of open. The edited data set is unaffected by any subsequent change to the MAXSTOR setting.

This limit will be used to determine the **SDE edit technique** and data record management used to edit the data set. e.g. SDE EDIT of a sequential data set may be of a size which is too large to fit comfortably within the defined area of storage resulting in use of Auxiliary Edit.

If the MAXSTOR value is set to 0 (zero), it is considered to be unset and no artificial limit is imposed.

The initial value of MAXSTOR is set by the INI variable **SDE.MaxStor** or, where this INI option has not been set, defaults to 0 (zero).

When SET MAXSTOR is executed, the SDE.MaxStor option is set or updated in the User INI file when the SELCOPY/i session is closed. This means that the maximum storage value will be set across SELCOPY/i sessions.

SET MAXSTOR takes effect at the Global level.

SET Value:

```
n_bytes
n_bytesK
n_bytesM
```

Amount of storage available for SDE edit of a single data set.

Setting this value to 0 (zero) unsets the MAXSTOR limitation.

This value may be specified as a number of bytes (*n_bytes*), number of kilobytes (*n_bytesK*) or a number of megabytes (*n_bytesM*).

QUERY Response:

Four numeric values indicating the current MAXSTOR value and, for the current SDE edited file, the MAXSTOR value at the time the file was opened, the amount of storage allocated for the file edit so far and, of that allocation, the amount of unused storage.

EXTRACT Rexx variables:

maxstor.0	4
maxstor.1	The value that is the current setting of the MAXSTOR option.
maxstor.2	The MAXSTOR value at the time the current file was opened for SDE edit.
maxstor.3	The amount of storage allocated so far for SDE edit of the current file.
maxstor.4	Of the storage allocated so far for SDE edit of the current file, the amount of storage that is unused.

MSGLINE - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- MSGLine -- ON -- line_num ---+-----+---><
|         |         |         |         |         |         |
+- SET ----+         +- lines --+-----+---
|         |         |         |         |         |         |
+--- OVERLAY ---+

>>--- Query ----- MSGLine -----><

>>--- EXtract --- /MSGLine/ -----><
```

Description:

This option controls the location and number of lines used to display messages in the SDE display window and also display properties of the first message line. The line number is specified as being relative to the top, middle or bottom of the data display area.

SET MSGLINE takes effect at the View level and its setting is saved if **SAVEOPTIONS** ON is in effect.

SET Value:

line_num

Line number of first message line relative to the top, middle or bottom of the document window.

Line numbers relative to the top of the document window are specified as positive integers. e.g. 2, 8

Line numbers relative to the middle of the document window are specified as offsets from M. e.g. M+1, M-3

Line numbers relative to the bottom of the document window are specified as negative integers. e.g. -6, -10

By default *line_num* is set to 1.

lines

The number of lines that message text may occupy within the display area.

If the message text exceeds the number of message lines then an SDE Message List window is opened to display the message text instead.

If *lines* is not specified, the number of message lines last defined in the current CBL view, is unchanged.

By default *lines* is set to 5.

OVERLAY

Specifies that the first message line should overlay a line normally used to display a line of data. If omitted, the first message line will be reserved for message display only. Second and subsequent message lines always overlay data lines.

Initially OVERLAY is set on.

QUERY Response:

The current setting of the MSGLINE option, **ON** or **OFF** followed by location of the first message line, the number of message lines and whether OVERLAY is in effect.

EXTRACT Rexx variables:

msgline.0	4
msgline.1	The current setting of the MSGLINE option, ON or OFF .
msgline.2	The current position of the first message line.
msgline.3	The number of message lines.
msgline.4	"OVERLAY", if overlay is in effect.

MSGMODE - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option MSGMODE, has the same effect in an SDE window view as that supported by a CBL edit view. See [SET MSGMODE](#) in CBL Text Edit documentation.

MULTIPOINT - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- MULTIPoint  ---+-- ON  ---+-----+><
    |         |           |         |         |
    +- SET  ----+         +- OFF  ---+
>>--- Query  ----- MULTIPoint -----><
>>--- EXtract  --- /MULTIPoint/ -----><
```

Description:

This option controls whether or not more than one label name may be assigned to a line in the file display via the [SET POINT](#) command or by overtyping a name in the line's prefix area.

SET MULTIPOINT takes effect at the File level and its setting is saved if [SAVEOPTIONS ON](#) is in effect.

SET Value:

ON
Allow multiple label names on a single line.

OFF
Do not allow multiple label names on a single line. (Default)

QUERY Response:

The current setting of the MULTIPOINT option, **ON** or **OFF**.

EXTRACT Rexx variables:

multipoint.0	1
multipoint.1	The current setting of the MULTIPOINT option, ON or OFF .

NULLCHAR - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- @  -----+  +--- _  -----+
    |         |           |         |         |
    +- SET  ----+         +- input_indicator  -+---+ output_indicator  -+----><
>>--- Query  ----- NULLChar -----><
>>--- EXtract  --- /NULLChar/ -----><
```

Description:

NULLCHAR only applies to [DB2 edit or browse](#) of table columns which can have NULL values.

Use NULLCHAR to specify two special characters which indicate when a column value is NULL.

SET NULLCHAR takes effect at the file level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

input_indicator

The character which if specified sets the column value to NULL.

For character based fields, this value must be specified as the first and only non-blank value in the input area.

For non-character based fields, this value may specified anywhere in the input area.

The default is @ (the commercial at sign).

output_indicator

The character which is used on output to indicate that a column has a NULL value. The default is _ (the underscore).

QUERY Response:

The current NULLCHAR input and output indicator characters. For example:

```
ZZSD079I NULLCHAR @ _
```

EXTRACT Rexx variables:

nullchar.0	2
nullchar.1	The current NULLCHAR input indicator character.
nullchar.2	The current NULLCHAR output indicator character.

NULLIFBLANK - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ NULLIfblank +--- ON +-----><
  |         |           |         |
  +- SET ----+         +--- OFF ---+
>>--- Query ----- NULLIfblank -----><
>>--- EXtract --- /NULLIfblank/ -----><
```

Description:

NULLIFBLANK only applies to **DB2 edit** of table columns which can have NULL values.

When NULLIFBLANK is ON, setting a nullable column input field to blanks in the edit view will cause the column value (of whatever data type) to be set to NULL.

When NULLIFBLANK is OFF, there is no special effect when setting a column to blanks. Note that non-character fields may give an invalid data type message in this case.

SET NULLIFBLANK takes effect at the file level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON | OFF

Specifies whether nullable columns are give the NULL value if entered as blanks (ON) or set to blanks (OFF).

QUERY Response:

The current setting of the NULLIFBLANK options, **ON** or **OFF**.

EXTRACT Rexx variables:

nullifblank.0	1
nullifblank.1	The current setting of the NULLIFBLANK option, ON or OFF .

OFFSET/OFST - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+---+ OFFSet +-----+ Columns+-----+<<
  |         |   |   |         |         |         |
  +- SET ----+ +- OFST ----+ +-- Position--+
                                     |
                                     +-- Hex | X ---+
                                     |
                                     +-- Relative -+
                                     |
                                     +-- Offset  ---+

>>--- Query ----- OFFSet -----<<

>>--- EXTract ----- /OFFSet/ -----<<
```

Description:

This option controls format of the field offset for SDE EDIT and BROWSE window views in mapped single record view (MAP) when **SHOW OFFSET** is in effect.

SET OFFSET takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect. i.e. if multiple SDE views are open for the same file, then this option may be individually controlled for each view.

SET Value:

Columns | Position
Displays the location of the start of each field as a decimal position.

Hex | X
Displays the location of the start of each field as a hexadecimal offset.

Relative | Offset
Displays the location of the start of each field as a decimal offset.

QUERY Response:

The current setting of the OFFSET option, **POSITION/HEX/OFFSET**.

EXTRACT Rexx variables:

offset.0	1
offset.1	The current setting of the OFFSET option. POSITION/HEX/OFFSET .

OPSYS - QUERY/EXTRACT Option

Syntax:

```
>>--- Query ----- OPSYS -----<<

>>--- EXTract --- /OPSYS/ -----<<
```

Description:

QUERY/EXTRACT OPSYS provides information about the current operating environment.

OPSYS is not an option for the SET command.

QUERY Response:

Displays operating system name and release. e.g.

```
z/OS 1.11.0
```

EXTRACT Rexx variables:

opsys.0	3
opsys.1	Operating System name.
opsys.2	Operating System release.
opsys.3	ISPF TSO VTAM BATCH CMS

PAD - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- PAD ---+----- BLaNk -----+<<
  | SET -----|      |----- NuLL -----|
  |             |      |----- char -----|
  +-----+-----+-----+-----+<<

>>--- Query ----- PAD -----+<<

>>--- EXtract --- /PAD/ -----+<<
```

Description:

This option defines the PAD character to be used when a new record is inserted or when the length of a variable length record is increased (via a CHANGE command or by updating the Record information Length field.)

The initial value for PAD is BLANK.

SET PAD takes effect at the File level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

- BLANK The blank character (x'40').
- NULL The null character (x'00').
- char A single byte value represented in character, hexadecimal or binary format.
 Character format may be unquoted or enclosed in quotation marks (") or apostrophes (').
 Hex format is a value 0-255, enclosed in apostrophes and prefixed by 'x' or 'X' (e.g. x'FE').
 Binary format is a value 00000000-11111111, enclosed in apostrophes and prefixed by 'b' or 'B' (e.g. b'111111110').

QUERY Response:

The current PAD character value displayed in character (or NULL) and hexadecimal.

EXTRACT Rexx variables:

pad.0	1
pad.1	The current PAD character setting.

PAGEDEPTH - SET/QUERY/EXTRACT Option

Syntax:

```
>>-+-----+-- PAGEDepth ----- n_lines -----><
  |         |
  +- SET -----+

>>--- Query ----- PAGEDepth -----><

>>--- EXtract --- /PAGEDepth/ -----><
```

Description:

Applicable to **PRINT** output only, PAGEDEPTH specifies the number of lines printed per page.

For batch processing, a PAGEDEPTH value may be specified any number of times within the same SYSIN input to change the page depth of pages printed by subsequent PRINT commands.

SET Value:

n_cols The number of lines to be printed per page including the page header line (minimum 10, default 60).

QUERY Response:

The current PAGEDEPTH value.

EXTRACT REXX variables:

pagedepth.0	1
pagedepth.1	The current PAGEDEPTH value setting.

PAGEWIDTH - SET/QUERY/EXTRACT Option

Syntax:

```
>>-+-----+-- PAGEWidth ----- n_cols -----><
  |         |
  +- SET -----+

>>--- Query ----- PAGEWidth -----><

>>--- EXtract --- /PAGEWidth/ -----><
```

Description:

Applicable to **PRINT** output only, PAGEWIDTH specifies the number of character columns printed per page.

For batch processing, a PAGEWIDTH value may be specified any number of times within the same SYSIN input to change the page width of pages printed by subsequent PRINT commands.

SET Value:

n_cols The number of character columns to be printed per page (minimum 50, default 133).

QUERY Response:

The current PAGEWIDTH value.

EXTRACT REXX variables:

pagewidth.0	1
pagewidth.1	The current PAGEWIDTH value setting.

PFKEY - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option PFKEY, has the same effect in an SDE window view as that supported by a CBL edit view. See [SET PFKEY](#) in CBL Text Edit documentation.

POINT - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+----- Point ----- .name -----+-----+-----><
   |         |         |         |         |         |         |
+- SET -----+         +- OFF -----+
>>--- Query -----+----- Point -----+-----+-----><
           |         |         |         |         |
+--- Point* ----+
>>--- EXtract --+--- /Point/ ----+-----+-----><
           |         |         |         |         |
+--- /Point*/ --+

```

Description:

Assign or unassign a label name to the **focus line** (data record or shadow line) for subsequent use as a line target. The assigned label name is displayed in the line's prefix area.

If **MULTIPOINT** is set on, then a line may be assigned more than one label name.

The same label name may not be assigned to more than one line in the current file. Where a label name is already assigned to a line in the current file, it is unassigned from that line and reassigned to the focus line.

A label name remains assigned to a line even if the line record number changes due to record inserts.

SET POINT takes effect at the File level.

SET Value:

.name
Label name of a new label to be assigned to the focus line or an existing label to be unassigned. The preceding "." (dot) is mandatory.

OFF
Unassign the specified label name from any of the lines in the file display.

QUERY Response:

Point
Displays the focus line number and all label names currently allocated to the focus line. If no names are allocated to the focus line (line number n), the following message is returned:

```
ZZSD010I POINT No points assigned to line n
```

Point*
Displays the line number and associated label names of all named lines in the current file.

QSEPARATOR - QUERY/EXTRACT Option

Syntax:

```
>>+-----+--- QSEPARATOR --- char -----<<
    |         |
    +- SET -----+

>>--- Query ----- QSEPARATOR -----<<

>>--- EXTRACT --- /QSEPARATOR/ -----<<
```

Description:

This option controls the separator character to be used in qualified field names. By default, this is "." (dot).

The same field name may be defined in more than one nested group with in the record structure. Therefore, to reference the correct field, it should be specified using a qualified field name. e.g. *group_name.field_name*

A field's fully qualified field name includes the record type name in which it is defined in addition to the name of every group level in which it is nested. e.g. *record_type.field_name*, *record_type.group_name.field_name*. Using the record type name qualifier is required for segmented record editing where USE WHEN criteria is based on a named formatted field in a previously formatted segment.

SET QSEPARATOR takes effect at the Global level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

char

Specifies a field qualifier separator character.

Valid characters are: "." (dot), ":" (colon), "\" (backslash), "@" (commercial at), "^" (carat) or "%" (percent).

QUERY Response:

Displays "QSEPARATOR" followed by the qualifier separator character.

EXTRACT Rexx variables:

qseparator.0	1
qseparator.1	The qualifier separator character.

RECFM - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option RECFM, has the same effect in an SDE window view as that supported by a CBL edit view. See **SET RECFM** in CBL Text Edit documentation.

ID
NOID

Applicable to non-DB2 table edit only, ID or NOID respectively includes or suppresses display of the record identification column.

For DB2 table edit, the ID column is not applicable and so is suppressed.

For non-VSAM data sets, the record identification is by Relative Volume, Track number, Physical Record (Block) number and offset within the physical record. The columns are displayed as decimal or hexadecimal values with headers "Vol" (if a multi-volume data set), "Track", "Blk" and "Off". If the data set is single volume, the "Vol" header is unnecessary and so omitted. The width of each of these fields are: 3 (Vol), 8 (Track), 3 (Blk) and 5 (Off).

```

SELCOPY/i - Edit NBJ.SELCTRN.ZZST1DAT using NBJ.SELCTRN.SAM1(ZZST1CPC) 40
File Edit Actions Options Utilities Window SwapList Help wS wR
Command>
Record type: TRACK Fixed(407) Offset=0 Data elements=18
Flags Track Blk Off TRACK-NUM TRACK-ID NAME
#3 #4 #5
ZD 17:3 ZD 20:4 AN 24:120
<-> <-> <---+---1---+---2---+---
00000001 f 0 1 0 1 2083 Rolling In the Deep
00000002 f 0 1 407 2 2085 Rumour Has It
==CHG> f cs 0 1 814 3 2087 Turning Heads
00000004 f 0 1 1221 4 2089 Don't You Remember
00000005 f 0 1 1628 5 2091 Set Fire to the Rain
00000006 f i s 0 0 0 6 2093 He Won't Go
00000007 f 0 1 2035 7 2095 Take It All
00000008 f 0 1 2442 8 2097 I'll Be Waiting
00000009 f 0 1 2849 9 6110 Track 0
00000010 f ics 0 0 0 10 2099 One and Only
00000011 f 0 1 3256 11 2101 Lovesong
00000012 f 0 1 3663 11 2103 Someone Like You
00000013 f 0 1 4070 11
F5=RFIND F6=RCHANGE s1=InsLine s2=DelLine s3=DupLine s4=Options
s5=ZoomW s10=UNDO s11=REDO
Se | Line=1 | Col=1 | Alt=5,5;5 | Size=1072 | Recl=407 | Fmt=F | Files=1 | View
    
```

Figure 36. Record Info (Decimal) for single volume non-VSAM Data Set.

For VSAM data sets, the record identification is by Relative Byte Address (RBA). The column is displayed as a decimal or hexadecimal value with header "RBA".

```

CBL - Edit CBL.CBLI.MBRLIST.KSDS using LAC.CBLI.SDO(MBRLISTC) 12000
File Edit Actions Options Utilities Window SwapList Help wS wR
Command>
Record type: MBRLIST V(31,10031)
Flags LRecl RBA MEMBER VER RECNO RECLEN LANGUA
#2 #3 #4 #5 #6
AN 1:8 ZD 9:3 FB 12:4 FB 16:4 AN 20:
<---+---> <-> <---+---> <---+--->
000001 f 39 00000000000000000000 APEATRAC 150 1 39 .
000002 f ics 31 00000000000000000000 XVACTRAC 111 1 65 .
000003 f 41 00000000000000000027 APEATRAC 150 2 41 .
000004 f 186 00000000000000000050 APEATRAC 150 3 186 .
000005 i 186 00000000000000000000 APEATRAC 150 3 186 .
000006 f 254 00000000000000000010A APEATRAC 150 4 254 .
000007 f 318 000000000000000000208 APEATRAC 150 5 318 .
000008 f 91 000000000000000000346 APEATRAC 150 6 91 .
000009 f 91 0000000000000000003A1 APEATRAC 150 7 91 .
000010 f 91 0000000000000000003FC APEATRAC 150 8 91 .
000011 f 91 000000000000000000457 APEATRAC 150 9 91 .
000012 f 86 0000000000000000004B2 APEATRAC 150 10 86 .
000013 f 86 000000000000000000508 APEATRAC 150 11 86 .
    
```

Figure 37. Record Info (Hexadecimal) for VSAM Data Set.

DECIMAL
HEXADECIMAL

Applicable to non-DB2 Table edit only, displays ID information as a decimal or hexadecimal value.

For non-VSAM data sets, the decimal display of Vol, TTR and Offset for the record occupies 4 columns in the following order:

1. Relative Volume number. (Displayed for multi-volume data sets only.)
2. Track number.
3. Physical record (block) number on the track.
4. Offset from the start of the physical record.

The hexadecimal display of Vol, TTR and Offset for the record is represented as 3 character fields of length 2, 6 and 8 bytes respectively, which represent a 1-byte relative volume number, 3-byte TTR and 4-byte offset hexadecimal value.

For VSAM data sets, the decimal display of Relative Byte Address (RBA) for the record is a single column containing a decimal value. The hexadecimal display of RBA is 16 bytes of character data representing a single 8-byte hexadecimal value.

SQLCODE
NOSQLCODE

Applicable to DB2 table edit only, SQLCODE or NOSQLCODE respectively includes or suppresses display of the SQL code column.

The SQL code column displays the last SQL code received from a an INSERT, DELETE or UPDATE statement performed on a row as a result of a SAVE operation.

For non-DB2 table edit, the SQLCODE column is not applicable and so is suppressed.

QUERY Response:

The current settings for RECINFO in order of display status ("ON" or "OFF"), column selections ("FLAGS" or "NOFLAGS" followed by "ID" or "NOID" followed by "LENGTH" or "NOLENGTH"), ID display format ("HEX" or "DEC") and SQL code display ("SQLCODE" or "NOSQLCODE").

EXTRACT Rexx variables:

recinfo.0	5
recinfo.1	The current setting of the record information column display, ON or OFF .
recinfo.2	The current value for selection of the record flags column, FLAGS or NOFLAGS .
recinfo.3	The current value for selection of the record identification column, ID or NOID .
recinfo.4	The current value for selection of the record length column, LENGTH or NOLENGTH .
recinfo.5	The current value for display of ID information, HEX or DEC .
recinfo.6	The current value for selection of the SQL code column, SQLCODE or NOSQLCODE .

RECTYPES - QUERY/EXTRACT Option

Syntax:

```
>>--- Query ----- RECTypes -----<<
>>--- EXtract --- /RECTypes/ -----<<
```

Description:

Obtain all record type object (**RTO**) names in the current **SDO**.

QUERY Response:

Displays all the RTO names on a single message line.

EXTRACT Rexx variables:

rectypes.0	Number of RTOs in the current SDO.
rectypes.i	The record type name of the <i>i</i> th RTO in the SDO.

REFERENCE - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ REFerence --+-- ON ---+-----<<
  |         |           |         |
+- SET -----+         +-- OFF --+
>>--- Query ----- REFerence -----<<
>>--- EXtract --- /REFerence/ -----<<
```

Description:

This option controls the display of the reference-numbers (**#nn**) occupying a row in the field column-headings for SD edit/browse. The REFERENCE option operates at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON | OFF

Reference number display is set ON or OFF.

QUERY Response:

The current setting of the REFERENCE option, **ON** or **OFF**.

EXTRACT Rexx variables:

reference.0	1
reference.1	The current setting of the REFERENCE option, ON or OFF .

REGION - QUERY/EXTRACT Option

Syntax:

```
>>--- Query ----- REGion ----->>
>>--- EXtract --- /REGion/ ----->>
```

Description:

QUERY/EXTRACT REGION provides information about the private area region for the current MVS TCB.

REGION is not an option for the SET command.

QUERY Response:

Two pairs of values indicating the available private area storage region limit and high value both below and above the 16M line. e.g.

```
REGION Below 16M Limit=9412608 High Value=9412608; Above 16M Limit=33554432 High Value=33554432
```

These values are as found in the Virtual Storage Manager Local Data Area Control Block.

EXTRACT Rexx variables:

region.0	4
region.1	The below 16M line private area region limit.
region.2	The below 16M line private area region size (high value).
region.3	The above 16M line private area region limit.
region.4	The above 16M line private area region size (high value).

RESERVED - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option RESERVED, has the same effect in an SDE window view as that supported by a CBLed edit view. See **SET RESERVED** in CBLed Text Edit documentation.

See also **RESERVEDLEVEL** which controls the level (File or View) at which the RESERVED option takes effect.

RESERVEDLEVEL - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+----- RESERVEDLevel ----->>
  |         |         |         |         |
+- SET -----+         +- File ---+
  |         |         |         |         |
  +- View ---+         |         |         |
                                     <<

>>--- Query ----- RESERVEDLevel-----><

>>--- EXTRACT --- /RESERVEDLevel/ -----><
```

Description:

This option controls the level (File or View) at which the **RESERVED** option takes effect. This option is primarily used in edit macros.

Option RESERVEDLEVEL takes effect at the File level.

SET Value:

FILE | VIEW
Reserved lines in SDE edit views, configured using the RESERVED option, apply to all edit views of the same data (FILE) or only the current view (VIEW.)

QUERY Response:

The current setting of the RESERVEDLEVEL option, **FILE** or **VIEW**.

EXTRACT Rexx variables:

reservedlevel.0	1
reservedlevel.1	The current setting of the RESERVEDLEVEL option. FILE or VIEW .

SAVEOPTIONS - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+----- SAVEOPTions ----->>
  |         |         |         |         |
+- SET -----+         +- ON ---+
  |         |         |         |         |
  +- OFF ---+         |         |         |
                                     <<

>>--- Query ----- SAVEOPTions -----><

>>--- EXTRACT --- /SAVEOPTions/ -----><
```

Description:

This option controls whether or not the following SDE options are saved for use in subsequent SDE views opened in the current and subsequent SELCOPY/i sessions:

ABBREVIATION ASCII AUTOSAVE AUXDSNPREFIX CAPS COLATTRIBUTES COLOUR, COLOR GROUP IDSCOPE	IDWARNING LEVEL LOADWARNING MAPPING MSGLINE MULTIPOINT OFFSET PAD PREFIX	QSEPARATOR RECINFO REFERENCE SCALE TYPE UNDOING UNNAMED WRAP ZEROS
---	--	--

Option SAVEOPTIONS takes effect at the Global level.

SET Value:

ON | OFF

Save of selected SDE options is set on or off. As distributed, the default is ON.

QUERY Response:

The current setting of the SAVEOPTIONS option, **ON** or **OFF**.

EXTRACT Rexx variables:

saveoptions.0	1
saveoptions.1	The current setting of the SAVEOPTIONS option, ON or OFF .

SCALE - SET/QUERY/EXTRACT Option

Syntax:

```

                +--- - (minus) ---+ +--- + (plus) ---+
                |                   |                   |
>>+-----+-----+ SCAlE ---+--- ON ---+-----+-----+-----+>>
    |         |         |         |         |         |         |
  +- SET -----+         +- OFF ---+ +----- c1 -----+ +----- c2 -----+

>>--- Query ----- SCAlE ----->>

>>--- EXtract --- /SCAlE/ ----->>
    
```

Description:

This option controls the display of the scale (<----,----1), occupying a row in the field column-headings for SD edit/browse. The SCALE option operates at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

- ON Scale display is set ON.
- OFF Scale display is set OFF.
- c1 The format character used for intervals of 1 byte. Default is the minus-sign (-). e.g. "SET SCALE ON . +" results in '< . . . + . . . 1.'
- c2 The format character used for intervals of 5 bytes. Default is the plus-sign (+). e.g. "SET SCALE ON - ," results in '<----, ----1-'

QUERY Response:

The current setting of the SCALE option, **ON** or **OFF**, followed by **c1** and **c2**.

EXTRACT Rexx variables:

scale.0	3
scale.1	The current setting of the SCALE option, ON or OFF .
scale.2	The current setting of the SCALE option, c1 .
scale.3	The current setting of the SCALE option, c2 .

SESSION - QUERY/EXTRACT Option

Syntax:

```
>>--- Query ----- SESSion -----><
>>--- EXtract --- /SESSion/ -----><
```

Description:

Obtain general information about the current Structured Data (SDE) Edit/Browse window view.

QUERY Response:

Displays SESSION followed by SDE session information.

EXTRACT Rexx variables:

session.0	2
session.1	The SDE window view type. Browse BROWSE. Also indicated by "Browse" in the title bar. Reuse EDIT REUSE. Also indicated by "Edit" in the title bar. Update EDIT UPDATE. Also indicated by "Edit(UP)" in the title bar. Auxiliary EDIT AUX. Also indicated by "Edit(AUX)" in the title bar.
session.2	The SDE record management technique. InMemory For EDIT REUSE only (i.e. full edit capability.), In-memory loads all records into storage and rewrites the file's records when saved. InPlace For EDIT UPDATE and BROWSE only, In-place keeps only displayed and modified records in storage. Record move, insert, delete and length change are not allowed. InPlaceInMemory For EDIT UPDATE only, InPlaceInMemory is the same as In-place except that as much of the file as possible is kept in storage. Auxiliary For EDIT AUX only, Auxiliary copies all records of the file to an auxiliary file in order to support full edit capability for files too large to be loaded entirely into storage (InMemory). KSDS For EDIT of VSAM KSDS data sets, KSDS uses the random access and update features of the VSAM KSDS organisation to provide full edit capabilities without having the whole file in storage.

SHADOW - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ SHADow +--- ON +----->
  |         |         |         |
  +- SET ----+         +--- OFF ---+
                                     +-----+
                                     |         |
                                     +-----+ ALL +-----+
>-----+-----+-----+-----+-----+-----+-----+----->>
                                     |         |
                                     +- EXcluded -+ +- NOTselected -+ +- SUPressed -+
>>--- Query ----- SHADow ----->>
>>--- EXTract --- /SHADow/ ----->>
```

Description:

This option controls the display of shadow lines used to indicate the presence of records not displayed due to one of three reasons.

EXCLUDED identifies a **record group** that has been excluded by the user using selective line editing techniques e.g. using the **WHERE** or **EXCLUDE** commands.

NOTSELECTED identifies a record group that has not been assigned a **record type**. Reasons for this are:

1. The length of the data record does not fit that required to match any of the **RTO** definitions.
2. Fields within the data record do not satisfy the criteria associated with any of the available RTO definitions. (RTO criteria are defined as part of the RTO via a **USE WHEN** clause.)
3. Fields within the data record contain invalid data when an RTO definition is applied.

SUPPRESSED identifies a record group of a record type that has not been selected for view. (See the **VIEW** command.)

The **SHADOW** option operates at the **view** level.

SET Value:

- ON
Shadow display is set ON for the types that follow.
- OFF
Shadow display is set OFF for the types that follow.
- ALL
The setting affects all types of shadow lines.
SET SHADOW OFF ALL is equivalent to **HIDE**.
SET SHADOW ON ALL is equivalent to **RESET HIDE**.
- EXcluded
The setting affects shadow lines for EXCLUDED records.
- NOTselected
The setting affects shadow lines for NOTSELECTED records.
- SUPressed
The setting affects shadow lines for SUPPRESSED records.

QUERY Response:

The current setting of the SHADOW options, **SHADOW EXCLUDED**, **SHADOW NOTSELECTED** and **SHADOW SUPPRESSED**, each followed by **ON** or **OFF**.

EXTRACT Rexx variables:

shadow.0	6
shadow.1	The literal EXCLUDED
shadow.2	The ON or OFF setting for EXCLUDED shadow lines.
shadow.3	The literal NOTSELECTED
shadow.4	The ON or OFF setting for NOTSELECTED shadow lines.
shadow.5	The literal SUPPRESSED
shadow.6	The ON or OFF setting for SUPPRESSED shadow lines.

SIZE - QUERY/EXTRACT Option

Syntax:

```
>>--- Query ----- SIZE -----><
>>--- EXtract --- /SIZE/ -----><
```

Description:

Obtain the number of segments and records in the current file or DB2 table. For DB2 table rows and non-segmented records, the number of segments and records are the same.

Size also returns ">" (greater than) to indicate that the number of records reported does not reflect the whole file size, or "=" (equals) to indicate that the number of records reported does reflect the whole file size.

">" may be displayed for BROWSE or UPDATE-in-place EDIT, where sequential processing of the file has been suspended until more records are required for display. "=" is displayed sequential processing has occurred until end-of-file was reached.

QUERY Response:

Displays "SIZE" followed first by the number of segments then the number of records in the file or DB2 table, then either ">" or "=".

EXTRACT Rexx variables:

size.0	3
size.1	The number of record segments in the file.
size.2	The number of records/rows in the file or DB2 table.
size.3	Indicator of whether or not the size value reflects the file size. (">" or "=")

STRUCTURE - SET/QUERY/EXTRACT Option

Syntax:

```
+--- Edit -----+
|                                     +- FOR -+
|                                     |
>>+-----+ STRUCture +-----+ struct_name +-----+ fileid +><
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
+- SET -+   +- ASM -----+ copybook ---+
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
+- ASSEMBler +
+- HLASM -----+
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
+- COBo1 -----+
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
+- PL1 -----+
+- PLI -----+
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
+--- UNMapped -----+
+--- OFF -----+
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
+--- Reload -----+

>>--- Query ----- STRUCTure -----><
>>--- EXtract -- / STRUCTure / -----><
```

Description:

SET STRUCTURE is used to do one of the following:

- Add or remove an association definition to/from the **structure to dataset associations** table.
- Edit the structure to dataset associations table.
- Reload the in-storage copy of the associations table from the table library member.

Note that only one structure may be associated with a particular data file mask. If an association definition is added for a data file mask that already exists, then the existing association definition will be replaced.

SET Value:

EDIT
 Open a data edit view of the structure to data set associations table. This is equivalent to entering primary command EDIT from the **Manage Copybook Associations** panel (=0.4.6).

struct_name
 The SELCOPYi SDO structure (dataset) name that will be associated with the specified data file mask (*fileid*).

ASM | ASSEMBLER | HLASM | COBOL | PL1 | PLI *copybook*
 Identifies the structure data file (*copybook*) as being a non-SDO structure of the specified source language type. This structure will be associated with the specified data file mask (*fileid*).

ASM, ASSEMBLER and HLASM indicates High Level Assembler source, COBOL indicates a COBOL copybook source, PL1 and PLI indicate a PL1 source. The source language specification governs the compiler/assembler module that will be used by SELCOPYi to generate a temporary SDO structure.

UNMAPPED | OFF
 UNMAPPED or OFF are synonymous and remove the association definition from the associations table for the specified data file mask (*fileid*).

fileid
 Identifies the data file mask for which an association definition will be added or removed from the associations table.
 The data file mask may be the DSN of a specific dataset or library member. Alternatively, standard pattern matching wildcards may be specified in the data file mask as follow.

- * A single asterisk indicates that either a qualifier or one or more characters within a qualifier can occupy that position. An asterisk can precede or follow a set of characters.
- ** A double asterisk indicates that zero or more qualifiers can occupy that position. A double asterisk cannot precede or follow any characters; it must be preceded or followed by either a dot or a blank.
- % A single percent sign indicates that exactly one character can occupy that position. (Up to 8 percent signs can be specified in each qualifier.)

An optional library member name mask may also be specified in "()" (parentheses) following a library DSN mask. This supports wildcards as follow.

- * A single asterisk represents an entire member name or zero or more characters within a member name mask.
- % A single percent sign represents exactly one character within a member name mask. Up to 8 percent signs can be specified in each member name mask.

RELOAD
 Reloads the in-storage copy of the associations table from the the ZZSDSUSE SELCOPYi table library member.

This option is only required if the ZZSDSUSE member is updated by any method other than STRUCTURE EDIT, and the updated associations table is to be activated without restarting SELCOPYi.

QUERY Response:

For each association definition in the table, QUERY returns a message line containing "STRUCTURE" followed by either the source language and *copybook* name or the SDO *structure* name, then "FOR" followed by the data file mask *fileid*.

EXTRACT Rexx variables:

structure.0	The number of association definitions.
structure.n	The SDO <i>structure</i> name or source language and <i>copybook</i> name followed by "FOR" and the data file mask <i>fileid</i> .

TITLE - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ Title ----- short_title -----><
  |         |         |
  +- SET ----+

>>--- Query ----- Title -----><

>>--- EXtract --- /Title/ -----><
```

Description:

This option displays and assigns the title that may be defined as part of an SDE structure (SDO) file. See **CREATE STRUCTURE**. SET TITLE values take effect at the File level.

SET Value:

short_title
 Specifies a structure title text string which may be no longer than 64 characters. Enclosing quotation marks (") or apostrophes (') may be specified and are stripped when saved in the structure.

QUERY Response:

The string "TITLE", followed by the complete structure title text.

EXTRACT Rexx variables:

title.0	1
title.1	The complete structure title text.

TYPE - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ Type ---+ ON -----><
  |         |         |         |
  +- SET ----+         +- OFF ----+
                        |         |
                        +- Default ---+
                        |         |
                        +- FORMat ---+
                        |         |
                        +- FMT -----+
                        |         |
                        +- OFFSet ---+
                        |         |
                        +- PICTure ---+

>>--- Query ----- Type -----><

>>--- EXtract --- /Type/ -----><
```

Description:

This option controls display of the field data type, location and length display for SDE EDIT and BROWSE window views in either mapped table view (VFMT) or mapped single record view (MAP). The format and content is controlled by the TYPE option specified.

See also the **SHOW** command which may be used as a shortcut combining control of the *TYPE* and *OFFSET* set options.

SET TYPE takes effect at the View level and its setting is saved if **SAVEOPTIONS** ON is in effect. If multiple SDE edit views are open for the same file then this option may be individually controlled for each view.

SET Value:

OFF Removes TYPE from display for the current view.

ON | Default

For non-DB2 display is of the format **data-type position:length** where *position* and *length* identify the field's position and length within the unformatted record.
e.g. 'AN 111:30' indicates an Alpha-Numeric character field of length 30 bytes starting at position (decimal) 111 of the unformatted record..

For DB2 display is of the format **data-type, data-type(length)** or **data-type(precision,scale)** representing the field's DB2 built-in data type and, where applicable, its length or its precision and scale.

See "**SDE Data Types**" for descriptions of each of the supported data types and their representation in default TYPE display.

FORMat | FMT

For non-DB2 only, display is of the format **length/format** where *length* identifies the field's length within the unformatted record, and *format* identifies the field's data-type in a descriptive form.
e.g. '30/CHAR' indicates an Alpha-Numeric character field of length 30 bytes.

OFFSet

For non-DB2 only, display is of the format **nnnnn** representing the field's location within the unformatted record. The format of the displayed location may be decimal (absolute position or offset) of hexadecimal (offset) as controlled by the set option **OFFSET**.

PICTure

For non-DB2 only, displays the field's picture string.
e.g. 'X(30)' indicates an Alpha-Numeric character field of length 30 bytes.

QUERY Response:

The current setting of the TYPE option, **ON/OFF/FORMAT/OFFSET/PICTURE**.

EXTRACT REXX variables:

type.0	1
type.1	The current setting of the TYPE option, ON/OFF/FORMAT/OFFSET/PICTURE .

UNDOING - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ UNDOING  +- ON  +-+-----+<<
                        |  |  |
                        +- OFF -+ +- n_levels +-+
                                   |  |
                                   +- n_kbytes -+

>>--- Query  ----- UNDOING -----<<

>>--- EXtract  --- /UNDOING/ -----<<
```

Description:

UNDOING defines whether the UNDO (and REDO) facility is enabled for SDE, the number of change levels that SDE will attempt to maintain and the maximum amount of storage SDE can allocate in order to store this information.

The third number following "Alt=" on the status line displays the current number of stored change levels.

The change level count is incremented by any command for which the UNDO operation is supported. i.e. any command that changes the data in the display area or the flag bits of a line. Flag bits include a line's excluded and suppressed indicators.

Multiple changes made to a file as a result of a macro execution are considered to be one change level only.

SDE is informed of any changes to the 3270 terminal when an Attention ID (AID) is generated (e.g. on hitting the Enter key or any of the PF Keys). It is only then that changes to the file are committed to the copy of the file data in SDE storage and the change level is updated. Therefore, where changes have been made to text on multiple lines, SDE has no indication as to the order in which the lines were changed and so assigns a change level to each updated line in ascending order of line number.

The UNDOING option operates at the File level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON
OFF
Set UNDOING ON or OFF.
Default is ON.

n_levels
Number of change levels maintained by SDE for the file. If this value is exceeded, SDE drops the oldest undoable change level.
Default is 100.

n_kbytes
Maximum amount of storage (KB) that may be obtained by SDE for storing undo information for the file.
Default is 64K.

QUERY Response:

The current setting of the UNDOING option, **ON** or **OFF** followed by number of change levels and maximum storage allocation in KBytes.

EXTRACT Rexx variables:

undoing.0	3
undoing.1	The ON or OFF setting for UNDO.
undoing.2	The number of change levels.
undoing.3	The maximum storage allocation in KBytes.

UNNAMED - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ UNNamed  -+-- ON  -+-----><
   |         |         |         |
+- SET -----+         +-- OFF  -+
>>--- Query  ----- UNNamed  -----><
>>--- EXtract --- /UNNamed/ -----><
```

Description:

This option controls whether unnamed fields appear in the display. Note that COBOL **FILLER** fields are treated as unnamed.

With UNNAMED=ON in effect unnamed fields will appear as a normal column of data in table type display, except that the field-name column heading will appear blank (or FILLER).

The UNNAMED option operates at the View level, affects all record types and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON
OFF
Set display of UNNAMED fields ON or OFF.

QUERY Response:

The current setting of the UNNAMED option, **ON** or **OFF**.

EXTRACT Rexx variables:

unnamed.0	1
unnamed.1	The current setting of the UNNAMED option, ON or OFF .

SET, QUERY & EXTRACT Values:*record_type*

Set, Query or Extract the offset value for the specified record type (RTO).
 Defaults to the **Default Record Type**.

ALL

*

Set, Query or Extract the offset value for all record types (RTO) defined within the structure (SDO) *struct_name*.

+ (plus)

- (minus)

Set a positive "+" (plus) or negative "-" (minus) offset value.
 Defaults to a positive offset.

n_bytes

Set an integer number of bytes at which record mapping is to be offset.

IN *struct_name*

Set, Query or Extract the name of the structure (SDO) to which the specified RTO belongs.
 Defaults to the SDO being used in the **current SDE window**.

QUERY Response:

Displays the current USEOFFSET value for the specified record type on a single message line. If parameter ALL or * is specified, the USEOFFSET value for each record type within the SDO is displayed on a separate message line.

EXTRACT Rexx variables:

useoffset.0	Number of record types (RTO) if parameters ALL or * is specified; otherwise 1.
useoffset.i	The record type followed by its current USEOFFSET value.

USERNAME - QUERY/EXTRACT Option

Syntax:

```
>>--- Query ----- USERNAME -----><
```

```
>>--- EXTRACT --- /USERNAME/ -----><
```

Description:

Obtain the current user's RACF login id and the executing job name.

QUERY Response:

Displays "USERNAME RACF user" followed by the user's RACF login id, then "JOB name" followed by the currently executing job name.

EXTRACT Rexx variables:

username.0	2
username.1	The name of the user's RACF login id.
username.2	The name of the currently executing job.

USING - QUERY/EXTRACT Option

Syntax:

```
>>--- Query ----- USING -----><
```

```
>>--- EXtract --- /USING/ -----><
```

Description:

QUERY/EXTRACT USING reports the structure name (SDO) and record type of the default record within the current SDE window view.

The USING option operates at the view level.

QUERY Response:

Message ZZSD079I stating the structure name and record type. e.g.

```
ZZSD079I USING Structure CBL.CBLI.SDO(DIRAMEMP) Record type EMP
```

EXTRACT Rexx variables:

using.0	5
using.1	The structure name used in the current SDE window view.
using.2	The default record type.
using.3	PERM or TEMP. TEMP indicates the SDO was created internally by SELCOPYi e.g. for a DB2 table or because a COBOL copybook was directly referenced.
using.4	The structure source. DIRECT, COBOL, ADATA COBOL, PL1, ADATA PL1, ASM, ADATA ASM, DB2, SEGMENT, RECORD.
using.5	EXPLICIT or AUTO. AUTO indicates that the mapping was automatically applied due to a dataset/structure association (See AUTOSTRUCTURE).

VALUE - EXTRACT Option

Syntax:

```
>>--- EXtract --- /VALUE/ -----><
```

Description:

For use in macros, EXTRACT VALUE obtains the values of each field belonging to the default record type.

Values are obtained for each displayed field column in the order in which they appear in the display. Therefore, the SELECT command will influence the values returned by EXTRACT VALUE.

EXTRACT Rexx variables:

value.0	Number of currently selected fields belonging to the default record type.
value.i	The character representation of the <i>i</i> th field value in the display.

See Also:

EXTRACT Options: [FIELD](#) [FOCUS](#) [FVALUE](#)

VENDCHAR - SET/QUERY/EXTRACT Option

Syntax:

```

      +--- # -----+ +--- < -----+
      |               |               |
>>+-----+ VENDChar +- input_indicator -+--+ output_indicator+--><
      |               |               |
      +- SET -----+

>>--- Query ----- VENDChar -----><

>>--- EXtract --- /VENDChar/ -----><

```

Description:

VENDCHAR only applies to **DB2 edit or browse** of table columns which are of variable length.

Use VENDCHAR to specify two special characters which indicate the end of a variable length column.

SET VENDCHAR takes effect at the file level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

input_indicator

The character which if present in the input determines the end of the variable length column data. The default is # (the hash sign).

output_indicator

The character which is used on output to indicate the end of the data in a variable length column. The default is < (the less than sign).

QUERY Response:

The current VENDCHAR input and output indicator characters. For example:

```
ZZSD079I VENDCHAR # <
```

EXTRACT Rexx variables:

vendchar.0	2
vendchar.1	The current VENDCHAR input indicator character.
vendchar.2	The current VENDCHAR output indicator character.

VERSION - QUERY/EXTRACT

```

>>--- Query ----- VERSION -----><

>>--- EXtract --- /VERSION/ -----><

```

Description:

QUERY and EXTRACT VERSION report version information for the Data Editor application within the executing SELCOPYi product.

QUERY Response:

Displays the version of the text editor. The message format is the data editor load module (SDELIB) followed by its build level, version number (e.g. 3.20) and build timestamp.

EXTRACT Rexx variables:

version.0	5
version.1	SDELIB
version.2	Build level number.
version.3	Version number. (x.xx)
version.4	Date of build. (yyyy-mm-dd)
version.5	Time of build. (hh:mm)

VIEW - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ View --- view_parms -----<<
  |         |
  +- SET -----+

>>--- Query ----- View -----<<

>>--- EXtract --- /View/ -----<<
```

Description:

This option controls which records or record segments are in view (not suppressed) based on their assigned record types. The SET VIEW option is equivalent to the **VIEW** command.

SET VIEW values take effect at the View level.

SET Value:

view_parms Specifies parameters as supported by the **VIEW** command.

QUERY Response:

The string "VIEW", followed by the record type names of each non-suppressed record in the file.

EXTRACT Rexx variables:

view.0	Number of non-suppressed record type names.
view.i	The name of the <i>i</i> th non-suppressed record type entry.

VSHOWEND - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ VSHOWend +--- ON -----<<
  |         |         |         |
  +- SET -----+         +- OFF ---+

>>--- Query ----- VSHOWend -----<<

>>--- EXtract --- /VSHOWend/ -----<<
```

Description:

VSHOWEND only applies to **DB2 edit and browse** of variable length columns.

When VSHOWEND is ON, the end of the variable length column data is marked with the **VENDCHAR** output indicator character. When VSHOWEND is OFF, the end of the variable length column data is not marked.

SET VSHOWEND takes effect at the file level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON | OFF

Specifies whether the end of the variable length column data is marked with the **VENDCHAR** output indicator character (ON) or not (OFF).

QUERY Response:

The current setting of the VSHOWEND options, **ON** or **OFF**.

EXTRACT Rexx variables:

vshowend.0	1
vshowend.1	The current setting of the VSHOWEND option, ON or OFF .

VSTRIP - SET/QUERY/EXTRACT Option

Syntax:

```
>>-+-----+ VSTRip  +-+ ON  +----->>
  |         |         |         |
  +- SET  +-----+   +- OFF  +-+
>>--- Query  ----- VSTRip  ----->>
>>--- EXtract --- /VSTRip/  ----->>
```

Description:

VSTRIP only applies to **DB2 edit** of variable length columns.

When VSTRIP is ON, any trailing blanks in the column value are stripped and the length of the column data adjusted accordingly.

When VSTRIP is OFF, there is no special treatment of trailing blanks.

SET VSTRIP takes effect at the file level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON | OFF

Specifies whether trailing blanks are to be stripped from the values of variable length columns (ON) or not (OFF).

QUERY Response:

The current setting of the VSTRIP options, **ON** or **OFF**.

EXTRACT Rexx variables:

vstrip.0	1
vstrip.1	The current setting of the VSTRIP option, ON or OFF .

WINNAME - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option WINNAME, have the same effect in an SDE window view as that supported by a CBLed edit view. See **SET WINNAME** in CBLed Text Edit documentation.

WINPOS - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option WINPOS, have the same effect in an SDE window view as that supported by a CBLed edit view. See **SET WINPOS** in CBLed Text Edit documentation.

WINSIZE - SET/QUERY/EXTRACT Option

SDE SET, QUERY and EXTRACT for option WINSIZE, have the same effect in an SDE window view as that supported by a CBLed edit view. See **SET WINSIZE** in CBLed Text Edit documentation.

WRAP - SET/QUERY/EXTRACT Option

Syntax:

```
>>+-----+ WRap  +---+ ON  +-----+<<
   |         |         |         |
   +- SET  +-----+         +---+ OFF  +---+
>>--- Query  ----- WRap  -----<<
>>--- EXtract --- /WRap/ -----<<
```

Description:

WRAP defines whether a **LOCATE where_clause** search wraps around the end of the range of displayable records to continue searching until either the condition is found or the original focus line is encountered. i.e. when WRAP is set ON, searching forwards through the data continues from the Top of Data after End of Data has been reached. Likewise, searching backwards through the data continues from the End of Data when Top of Data has been reached.

Where WRAP is OFF and the End of Data or Top of Data is reached, then the following message is returned:

```
ZZSD176W Top/End of file or record range reached.
```

SET WRAP takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON | OFF
Specifies whether LOCATE searches are allowed to wrap (ON) or not (OFF).

QUERY Response:

The current setting of the WRAP options, **ON** or **OFF**.

EXTRACT Rexx variables:

wrap.0	1
wrap.1	The current setting of the WRAP options, ON or OFF .

ZEROS - SET/QUERY/EXTRACT Option

Syntax:

```
>>-+-----+-- Zeros -----+-- ON ---+-----+-----><
  |         |         |         |         |
  +- SET -----+         +--- OFF ---+
>>--- Query ----- Zeros -----+-----+-----><
>>--- EXtract --- /Zeros/ -----+-----+-----><
```

Description:

This option causes values in all numeric fields to be prefixed by zeros up to the width of the field display.
 SET ZEROS takes effect at the View level and its setting is saved if **SAVEOPTIONS ON** is in effect.

SET Value:

ON|OFF Controls whether ZEROS prefixing is in effect (ON) or not (OFF).

QUERY Response:

The current setting of the ZEROS option (ON or OFF).

EXTRACT Rexx variables:

zeros.0	1
zeros.1	The current setting of ZEROS. ON or OFF .

Prefix Area (Line) Commands

The following commands can be entered in the prefix area of an SDE browse or edit window:

.name	Set a line pointer (line name).
([n])([n]	For unformatted record display only, SHIFT a line or block of lines <i>n</i> columns to the left. Characters shifted past the current BOUNDS setting are truncated.
)[n])([n]	For unformatted record display only, SHIFT a line or block of lines <i>n</i> columns to the right. Characters shifted past the current BOUNDS setting are truncated.
A	Make this line the target for a move or copy (move or copy lines After this line).
B	Make this line the target for a move or copy (move or copy lines Before this line).
C[n] CC	<p>Mark a line or a block of lines for copying. Lines may be copied or cut to the clipboard (using the CLIPBOARD COPY/CUT command) or copied to another position within the same edited data using prefix commands, A or B.</p> <p>Only visible (not excluded) data records and shadow lines representing EXCLUDED record groups are eligible to be copied. i.e. records flagged as NOTSELECTED, SUPPRESSED or, if SHADOW OFF EXCLUDED is in effect, records flagged as EXCLUDED, are not eligible to be copied.</p> <p>Note that, although not eligible for copy, shadow lines representing NOTSELECTED or SUPPRESSED records groups are still included within a C[n] count of lines to be copied. If a shadow line is not displayed (SHADOW OFF), it is not included within a C[n] line count.</p>
D[n] DD	<p>Delete a line or a block of lines.</p> <p>Alternatively, for RRDS/VRDS Update-in-place editing, selects lines to become Empty Slots.</p> <p>Only visible (not excluded) data records and shadow lines representing EXCLUDED record groups are eligible for delete. i.e. records flagged as NOTSELECTED, SUPPRESSED or, if SHADOW OFF EXCLUDED is in effect, records flagged as EXCLUDED, are not eligible to be deleted.</p> <p>Note that, although not eligible for delete, shadow lines representing NOTSELECTED or SUPPRESSED records groups are still included within a D[n] count of lines to be deleted. If a shadow line is not displayed (SHADOW OFF), it is not included within a D[n] line count.</p>
E	<p>Applicable to edit of DB2 tables, E is used to display an SQL error panel describing the SQLCODE returned from the last attempt to save the row.</p> <p>Refer to the ERROR primary command, which has the same effect as this prefix command, for a description of the SQL error panel.</p>
F[n]	Show the first <i>n</i> records of an excluded record group.
FMT	Display the record or record segment in single record , formatted view. Prefix commands FMT and MAP are synonyms.
HEX or HEXD	Display the record or record segment in HEXDUMP format.
I[n]	<p>Insert a new line or a block of <i>n</i> new lines of the default record type.</p> <p>If display format is TABLE, then numeric/bit fields are initialised to zero and character fields to blank, otherwise the whole record is initialised to blank.</p> <p>For RRDS/VRDS Update-in-place editing, I[n] selects a line or block of lines to be searched for empty slots. All empty slots found within this range of lines will be activated.</p> <p>Shadow lines representing NOTSELECTED or SUPPRESSED records groups are still included within an I[n] count of lines to searched. If a shadow line is not displayed (SHADOW OFF), it is not included within an I[n] line count.</p>
ID[n] IDD	<p>Remap (IDENTIFY) a line or a block of lines.</p> <p>IDENTIFY will action SELCOPY/i SDE record type assignment processing to re-assign a new record type to the records/segments in the selected lines.</p>
L[n]	Show the last <i>n</i> records of an excluded record group.
M[n] MM	Mark a line or a block of lines for move. Lines may be moved to the clipboard (effectively performing a CLIPBOARD CUT operation) or moved to another position within the same edited data using prefix commands, A or B.

Only visible (not excluded) data records and shadow lines representing EXCLUDED record groups are eligible to be moved. i.e. records flagged as NOTSELECTED, SUPPRESSED or, if **SHADOW OFF EXCLUDED** is in effect, records flagged as EXCLUDED, are **not** eligible to be moved.

Note that, although not eligible for move, shadow lines representing NOTSELECTED or SUPPRESSED records groups are still included within a M[n] count of lines to be moved. If a shadow line is not displayed (SHADOW OFF), it is not included within a M[n] line count.

MAP

Display the record or record segment in **single record**, formatted view.
Prefix commands FMT and MAP are synonyms.

**R[n] RR[n]
"[n]" ""[n]**

Replicate (duplicate) a line or a block of lines n times.

Only visible (not excluded) data records and shadow lines representing EXCLUDED record groups are eligible for replication. i.e. records flagged as NOTSELECTED, SUPPRESSED or, if **SHADOW OFF EXCLUDED** is in effect, records flagged as EXCLUDED, are **not** eligible to be replicated.

RE

Applicable to edit and browse of DB2 tables, RE is used to list, edit or browse tables related to the current table.

This command is equivalent to issuing the **REDIT** primary command with no parameters, with the row on which the prefix command is entered being the **focus row** for the command.

SEL

Open the **SDE SELECT Columns Panel** to apply column selection, column sequencing and/or column width definitions to the record-type definition mapping the **focus line**.

STP

Applicable to edit of **Segmented Records** only.
Force a secondary segment to be a primary (base) segment so splitting the record into two. No action is taken if the segment is already a primary segment type.
An IDENTIFY operation is automatically performed on the focus record to remap all segments with appropriate record types.

STS

Applicable to edit of **Segmented Records** only.
Force a primary segment to be a secondary segment so joining the record with the record before. No action is taken if the segment is already a secondary segment type.
An IDENTIFY operation is automatically performed on the focus record to remap all segments with appropriate record types.

V

Display only records that are of the same record type as this line.
V may be specified on a visible data record or on EXCLUDED, SUPPRESSED or NOTSELECTED shadow lines.
The DRECTYPE value is updated to be this record type and this line becomes the first line of the display.

V+

Add to the display records that are of the same record type as this line.
V+ may be specified on a visible data record or on EXCLUDED, SUPPRESSED or NOTSELECTED shadow lines. Note, however, that specification on a visible data record or EXCLUDED record group shadow line will not add new record types to the display.
The DRECTYPE value is updated to be this record type and this line becomes the first line of the display.

V-

Remove from the display records that are of the same record type as this line.
V- may be specified on a visible data record or on EXCLUDED, SUPPRESSED or NOTSELECTED shadow lines. Note, however, that specification on a SUPPRESSED or NOTSELECTED record group shadow line will not remove record types from the display.
The DRECTYPE value is updated to be this record type and this line becomes the first line of the display.

X[n] XX

Mark a line or a block of lines for exclusion from the display.

Only visible (not excluded) data records are eligible to be excluded. i.e. records flagged as NOTSELECTED, SUPPRESSED or EXCLUDED are **not** eligible to be excluded.

Note that, although not eligible for exclusion, shadow lines representing NOTSELECTED, SUPPRESSED or EXCLUDED records groups are still included within an X[n] count of lines to be excluded. If a shadow line is not displayed (SHADOW OFF), it is not included within an X[n] line count.

Z

Switch to a zoomed (**single record view**) display of the record occupying this line.

Function Keys

3270 Program Function Keys (PFKeys) may be assigned to SDE commands.

The default keylist for SDE browse/edit views is **DATAEDIT**.

The SDE program default function keys are:

F1	HELP	The standard HELP key.
F2	SPLIT	The ISPF SPLIT command.
F3	END	Quit the file (you will be prompted to save any changes).
F4	WINDOW	Navigate open SELCOPY/i windows.
F5	RFIND	Locate search string defined by last FIND or CHANGE command.
F6	RCHANGE	Repeat the change requested by the last CHANGE command.
F7	UP	Scroll the window display upwards by an amount determined by the scroll field or specified on the command line.
F8	DOWN	Scroll the window display downwards by an amount determined by the scroll field or specified on the command line.
F9	SWAP	The ISPF SWAP command.
F10	LEFT	Scroll the window display to the left by an amount determined by the scroll field or specified on the command line.
F11	RIGHT	Scroll the window display to the right by an amount determined by the scroll field or specified on the command line.
F12	CRETRIEV	Retrieve the last command to the command line.
F13	INSERT	Insert a new record following the focus line. (Same as "I" line-command)
F14	DELETE	Delete the focus line. (Same as "D" line-command)
F15	DUPLICATE	Duplicate the focus line (Same as "R" line-command)
F16	MACRO SDEUTIL	Open the SDE Edit/Browse Options Menu.
F17	MACRO SDEZOOMW	Open a new view window of the same file window ZOOMed-mode (MAP/FMT).
F21	SWAP LIST	The ISPF SWAP LIST comamnd.
F22	UNDO	Press repeatedly to UNDO your changes one at a time.
F23	REDO	Press repeatedly to REDO your changes one at a time.

Note that the contents of the command line is concatenated to the definition of the function key and the result executed as a single command.

Glossary

The following is a glossary of terms used in this document.

CLI (Command Line Interface)

A Command Line Interface is a text based method by which users can execute functions supported by the application.

CBLe

A powerful text editor that runs as an MDI application under SELCOPY/i. CBLe supports its own CLI and has been developed based on specifications found in Mansfield Software's KEDIT for Windows.

Current Column

The first field column visible within the current display area, belonging to records of the **default record type**. The current column references the same field within all data records that are of the default record type.

Current Line

The first **record group** (data record or shadow line) displayed within the current display area view.

Current Record Group

The **record group** occupying the **current line**.

Current SDE Window

The **SDE Edit View** which received focus last.

The current SDE window prevails even if the current focus window is not an SDE view. The concept of a current SDE window is important when executing CBLe/SDE editor REXX macros or when executing SDE commands from a CBLe edit view via the **SDATA** command.

Default Record

The focus line if it contains a visible data record, otherwise the first visible data record following the focus line that is of the **default record type**.

Default Record Type

The default record type is defined as being the **record type** of the **focus line** if the focus line is a visible or EXCLUDED record group shadow line, otherwise it is the record type defined by **DRECTYPE** setting.

See section *Default Record Type*.

EXCLUDED

The status of a **record group** in a display of formatted or unformatted records which has been excluded by the execution of an exclude operation. (e.g. **EXCLUDE** or **WHERE**.) By default, record groups that are EXCLUDED are represented by an "Excluded" shadow line.

Focus Column

The field column on which the cursor is positioned within the focus line.

If the focus line is **not** a visible or EXCLUDED record group, or if the cursor is positioned outside the display area (e.g. the command line) or within the prefix area, the focus column is defined as being the **current column**. The focus column references the same field within all data records that are of the same record type as the focus line.

Focus Field

The individual field within the **focus line** referenced by the **focus column**.

Focus Line

The line within the display area on which the cursor is positioned.

If the cursor is positioned on a **header line**, the focus line is the first line that immediately follows the header line. If the cursor is positioned outside the display area (e.g. the command line), then the focus line is defined as being the **current line**.

Focus Record Group

The **record group** occupying the **focus line**.

Header Line

A line within the SDE window display area that contains column header information for the **record group** that follows. A header line constitutes one line within a group of header lines which scroll with the record data display.

INI file

File containing configuration options for SELCOPY/i. The System INI file is processed on startup of SELCOPY/i and contains options that apply to all users. The User INI file contains options specific to each user that may, where appropriate, override options set in the System INI file.

List Window

A SELCOPY/i window containing rows of associated information. List windows support point-and-shoot column sorting; select, sort and filter CLI commands; and prefix area commands.

MDI

Multiple Document Interface is a Microsoft specification for PC applications that enable the user to work with multiple documents at the same time. Each document is displayed in a separate child window within the client area of the application's main (frame) window. Typical MDI applications on PCs include word-processing and spread sheet applications.

MDI Client Area window

The MDI client area window is the display area within an MDI application's frame window. The MDI client area serves as the background for MDI child windows.

MDI Child/Document Window

An MDI child or document window is opened in an application's client area window each time a document is opened. Each child window has a sizing border, title bar, window menu, minimise, maximise, restore and close buttons. A child window is clipped so that it is confined to the client window and cannot appear outside it.

When a child window is maximized, its client area completely fills the MDI client area window. In addition, the system automatically hides the child window's title bar, and adds the child window's window menu icon and Restore button to the MDI application's menu bar.

MDI Frame Window

An MDI frame window may be considered the main window of an MDI application. It is the parent window of the MDI client area window in which MDI child windows are opened. It has a sizing border, title bar, window menu, minimise, maximise restore and close buttons.

NOTSELECTED

The status of a **record group** in a display of formatted records which has no assigned **record type**. By default, record groups that are NOTSELECTED are represented by a "Not Selected" shadow line. Since the introduction of the default record type, "Unmapped", it is not possible for record groups to be NOTSELECTED. (See "**Record Type Assignment**")

Record Group

A record group is one or more data records that is represented by a single line in the SDE window display.

A visible data record may be considered to be a record group of one record whereas a shadow line may be a record group of one or more consecutive records of the same record type.

Record Type

Term referring to the name assigned to a record type object (RTO) on execution of the **CREATE STRUCTURE** command.

This name is the highest level field name identifier for a record mapping in a COBOL or PL1 copybook or in a SELCOPY/i SDE data definition clause.

RTO (Record Type Object)

A single record type definition within an **SDO**.

RTO definitions are generated via the **CREATE STRUCTURE** command which uses record structures defined with SELCOPY/i's own SDE structure definition syntax or defined from within an existing COBOL or PL1 copybook.

An RTO (and hence the SDO) may subsequently be altered (e.g. via the **USE** command) and saved to an **SDF**.

SD (Structured Data)

Structured Data refers to data within file records that have a pre-defined structure. See **structured records**.

SD is also the minimum abbreviation for **SDATA**, the CBL CLI command used to prefix any of SELCOPY/i's **SDE** CLI commands when executed from within a CBL edit view.

SDF (Structure Definition File)

A disk file (sequential data set or PDS/PDSE member) containing a saved Structure Definition Object (**SDO**).

If not already in storage, an SDF gets loaded (creating an SDO) during execution of an **EDIT** or **BROWSE** command in order to apply a structure to records processed by SELCOPY/i's SDE.

If an SDO is altered during an SDE edit session and is not flagged as being temporary, then the user will be prompted to save the SDO to an SDF. An SDO may also be saved to an SDF automatically during a **CREATE STRUCTURE** command.

SDE (Structured Data Environment)

Structured Data Environment that runs under SELCOPY/i and includes MDI display windows, processing options and CLI commands. SDE enables users to browse, edit, update, copy and compare data in records that are mapped by a SELCOPY/i defined structure or COBOL, PL1 copybook.

SDE Edit View

An SDE MDI document window that contains a display of structured data. If the same file is displayed in multiple windows, then the user has multiple SDE edit (or CBL text edit) views of the file.

SDO (Structure Definition Object)

An in-storage structure definition consisting of one or more record type objects (**RTO**) that map records in a structured file.

An SDO is created by a **CREATE STRUCTURE** command or an **EDIT** or **BROWSE** command if the **SDF** is not already loaded in storage.

SELCOPY/i

The Interactive environment developed by CBL and supplied as part of SELCOPY and CBLVCAT licensable software products.

Structured Data Set

A data set containing **structured records**.

Structured Records

Records that consist of one or more data fields, each with a defined field start position, length and data type.

SUPPRESSED

The status of a **record group** in a display of formatted records which has been suppressed by the execution of a **VIEW** operation either on the initial **BROWSE** or **EDIT** command, or specifically by the **VIEW** primary or "V" line command. By default, record groups that are SUPPRESSED are represented by a "Suppressed" shadow line.